USER'S MANUAL

LCD CONTROLLER TYPE 2

TFKN

Original Instructions
M-KN-LCD2-06-E
(2009.11)

Foreword

This manual is a guide book for using TAJIMA automatic embroidery machine TFKN (hereafter described as machine) correctly. Please read this manual thoroughly, understand the contents, and then use the machine.

The contents of this manual are largely divided into the following sections.

[IMPORTANT WARNING ITEMS FOR SAFE OPERATION]
[NAME OF EACH PART AND FUNCTION]
[OPERATION BASICS]
[NEEDLE BAR SETTING]
[DATA CONVERSION]
[DESIGN DATA EDIT]
[MANUAL OPERATION]
[PARAMETER SETTING]
[OUTLINE OF FUNCTIONS]
[ELECTRO-COMPONENT PARTS]
[TROUBLESHOOTING AND MAINTENANCE]
[APPENDIX]

Regarding optional devices, please refer to the user's manual of the device you have selected. This manual may contain discrepancies in detailed information when compared with the product due to continued research and improvements. If any question about the product or the contents of this manual arises, please consult your TAJIMA distributor. Please keep this manual near the machine for immediate reference. When this manual is not used, keep it carefully.

Tokai Industrial Sewing Machine Co., Ltd.

Important safety instructions

To use this machine safely, it is necessary to handle it correctly.
Please read the IMPORTANT SAFETY INSTRUCTIONS in this manual carefully and do not attempt operation or maintenance of the machine before you thoroughly understand the items written under IMPORTANT SAFETY INSTRUCTIONS.
Items that require your special attention on operation and maintenance of the machine are specified below with the warning symbol and signal word. These items must be strictly observed to ensure safety during operation and maintenance. Signal word definition is given below.

⚠ DANGER

Indicates that there is a lot of danger or death or serious injuries [*1] if the instruction is not observed.

⚠ WARNING

Indicates that there is a likelihood of death or serious injuries [*1] if the instruction is not observed.

⚠ CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury [*2] or property damage.

*1:A condition caused by electric shock, injury, fracture of a bone, etc., that leads to aftereffects, or an injury that necessitates hospitalization or visits to a hospital over a long period.
*2: An injury that does not necessitate hospitalization or visit to a hospital over a long period.

 : Prohibited items

 : Items that may cause electric shock if not observed

 : Items that must be followed carefully to ensure safe operation

⚠ : Items that must be observed to perform works comfortably

📖 : Items that explain the contents of sentences in detail and items that complement the contents.

CHAPTER 1 IMPORTANT WARNING ITEMS FOR SAFE OPERATION

CHAPTER 2 NAME OF EACH PART AND FUNCTION

CHAPTER 3 BASIC OPERATION

CHAPTER 4 NEEDLE BAR SETTING

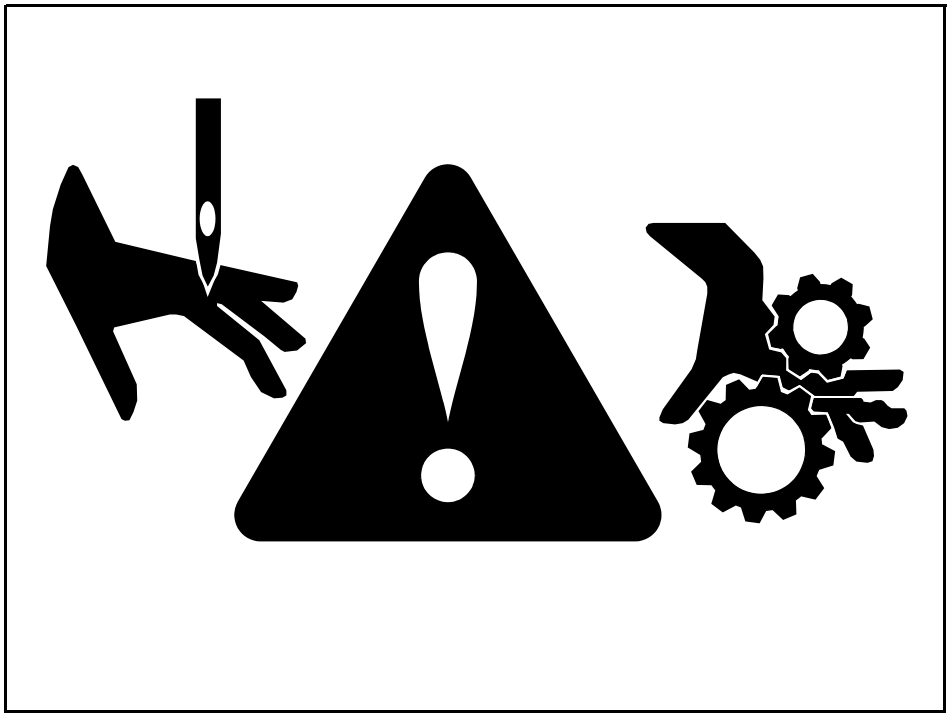
CHAPTER 5 DATA CONVERSION

CHAPTER 6 DESIGN DATA EDIT

CHAPTER 7 MANUAL OPERATION

CHAPTER 8 PARAMETER SETTING

CHAPTER 1 IMPORTANT WARNING ITEMS FOR SAFE OPERATION



1. Items to notice when handling the machine

CAUTION

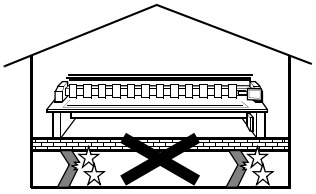
Do not transport, store, and operate the machine in the area of which altitude exceeds 1,000m.

2. Installation environment

CAUTION

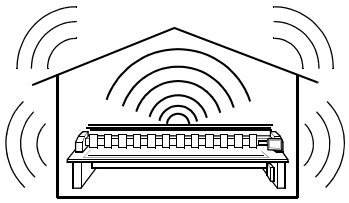
Install the machine on a sturdy floor.

The floor structure must be strong enough to bear the machine weight (indicated on the spec. plate). If the floor is supported by steel frames, place the machine stand on the steel beams as long as possible.



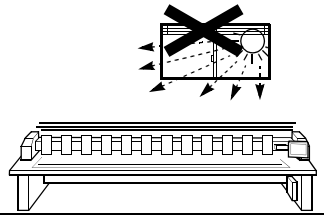
Prevent the operation noise in the environment.

This machine is designed to reduce noise during operation. To improve the sound insulation performance in a factory still more, use the interior finish materials which show high sound insulating performance for the walls, ceiling, and floor of the factory.



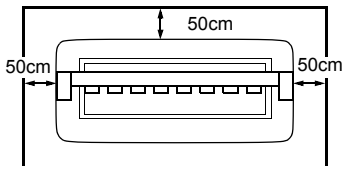
Avoid direct sunlight.

If the machine is exposed to direct sunlight over an extended period of time, the machine body may be discolored or deformed. Put curtains or shades to the site to prevent the machine from direct sunlight.



Provide enough space for maintenance.

In consideration of workability when inspecting and maintaining the machine, provide 50 cm clearance and more between the right, left, and back sides of the machine and the wall.



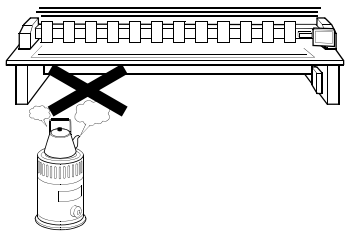
Avoid dust and moisture.

Dust and moisture lead to dirt and rust on the machine. Install air conditioning equipment, and periodically clean the working area.

Use caution not to expose the machine to direct wind from the air conditioner so that the embroidery threads do not become disheveled.

Humidity: 30 to 95%RH (relative humidity) without condensation

Ambient temperature: 5 to 40°C (during operation), -10 to 60°C (during storage)



3. Cautions on machine operation

CAUTION

For long life machine operation, operate the machine with about 70% of the maximum speed as "operation for total fitting" for about one month after installation.
By performing operation for total fitting, life of the machine will become longer, which will be useful to avoid unexpected troubles.

WARNING

To prevent accidents resulting in injury or death and physical damage, the following items must be observed strictly when operating the machine.

[Before Starting the Machine]

This machine is designed for industrial use. Use this machine for semi- or finished textile products and similar materials. Using the machine for other purposes must be avoided.

Use the machine in the environment where only authorized persons are permitted to enter, so that unauthorized persons will not manipulate the machine.

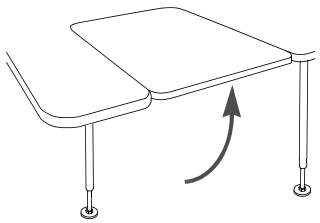
Only the persons who are sufficiently trained for the operation must operate the machine.

Do not have children access to vicinity of the machine.

The rear of the machine is not a working area. If you have to move to the rear of the machine, make sure to turn off the main switch.

Do not stand on the machine. Using the bar switch as a grip to support yourself is strictly prohibited.

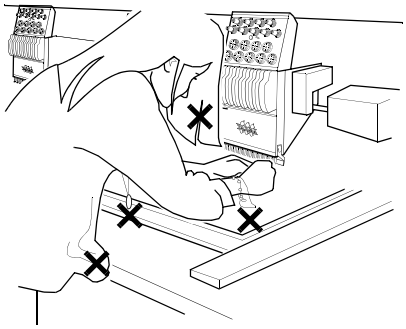
After threading and/or adjusting the machine, fix the sub table firmly in the state of being lifted (Some models only).



Read this manual and thoroughly understand the contents of operation before starting the machine.

Wear proper clothes and tidy up yourself so that you can smoothly perform the operation.

A single operator should operate the machine in principle.
If more than one operator are working together, make sure that no one is working near the moving parts of the machine before starting the machine.



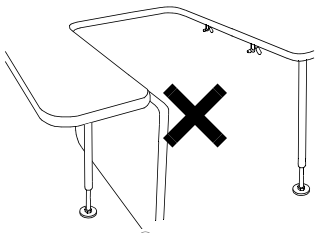
Do not damage, modify or heat the power or other cables. Do not exert undue force to them, either. Otherwise the cables will be damaged causing fire and electric shock.

Insert the power cable plug fully. If a metallic part touches a blade in the plug, it may cause fire and/or electric shock.

WARNING

[During the Machine Operation]

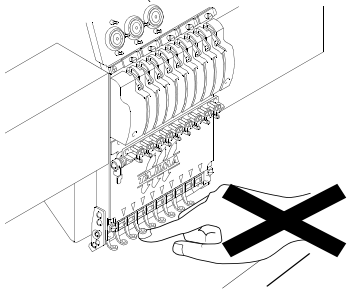
During operation, fix the sub table firmly in the state of being lifted (Some models only). Unexpected movement of the embroidery frame could injure you.



Do not use a device such as a cellular phone that generates microwave near the control circuits of the power supply box, the operation panel box, etc. Microwave may cause malfunctioning of the machine.

Do not have your hands, etc. access to the needle during operation. You could be injured by sticking of the needle.

Do not remove the covers for the shaft and the pulleys when the machine is running. Do not run the machine without the covers.



Do not put your hands or face near the moving parts of the machine.
Especially, vicinities of needle, rotary hook, take-up lever, pulley, and speed reduction box are dangerous.

Keep away electrical units from water and chemicals. Entry or splashing of them into control units leads to short circuits, causing fire, electric shock and other troubles. If water or other chemicals enter the unit, shut off the power at the primary power source of the machine and contact your local distributor.

[During Machine Adjustments]

Stop the machine before carrying out work near the needles such as threading the needle and checking the finish of embroidery.

Shut off the power supply by turning off the power switch before manually rotating the main shaft of the machine.

Turn off the primary power source before opening the electrical boxes. Be sure to turn off the power switch of the machine before turning off the primary power source. If not, it may cause electric shock.

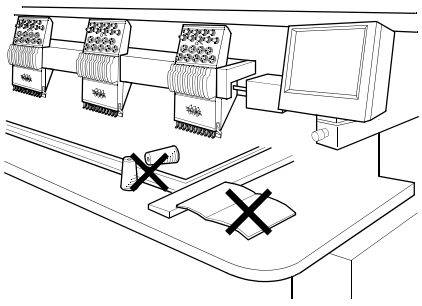
CAUTION

When operating the machine, always observe the following items to prevent machine or property damage.

Do not use bent needles or needles that are not suitable for the material.

After the completion of work, shut off the power supply switch of the machine and also the primary power supply switch of power distributor panel.

Do not put things on the table.



4. Warning labels

Important directive items

The machine has warning labels that bear instructions for safe operation. Machine operators must follow the instructions shown on the warning labels.

⚠ CAUTION

Do not detach the warning labels nor make them illegible by painting, etc.

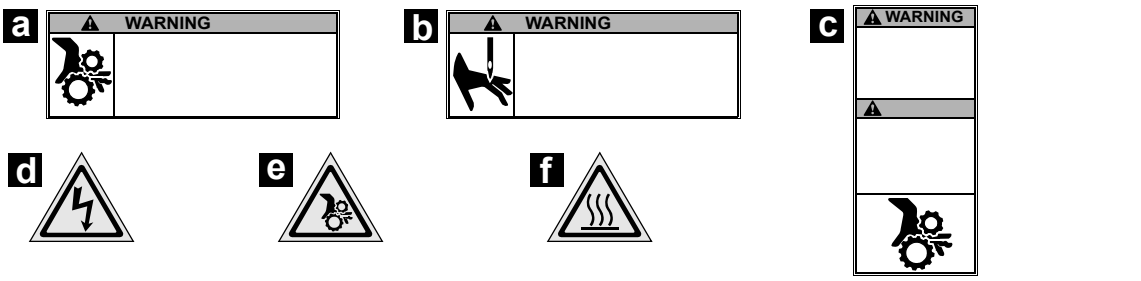
If a warning label is missed or damaged, please consult your local distributor.

⚠ DANGER

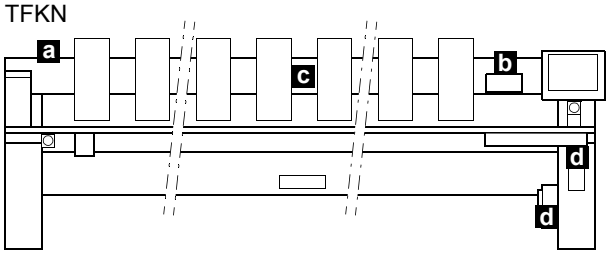
The covers of the places at which warning labels d are stuck should not be opened by other persons than service personnel appointed by TAJIMA.
It could cause a burn, electric shock, or death.

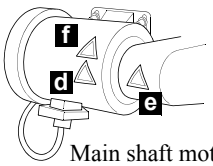
To open the cover, turn OFF the power switch and wait for 4 minutes.
You could receive an electric shock by remaining current.

Sticking position of the warning labels

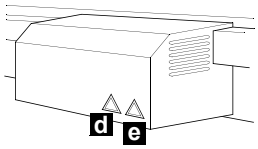


TFKN



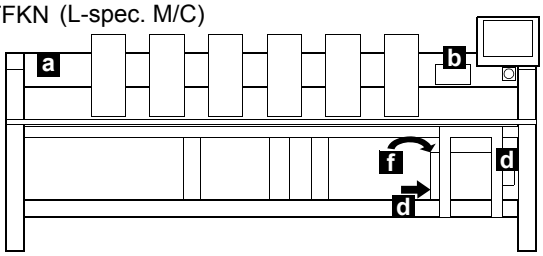


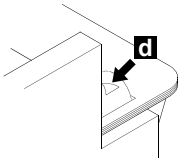
Main shaft motor



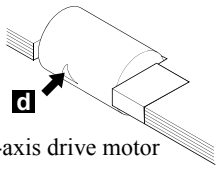
Main shaft motor cover

TFKN (L-spec. M/C)





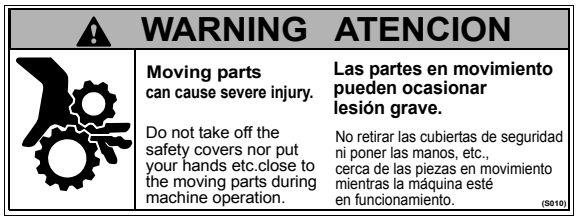
X-axis drive motor



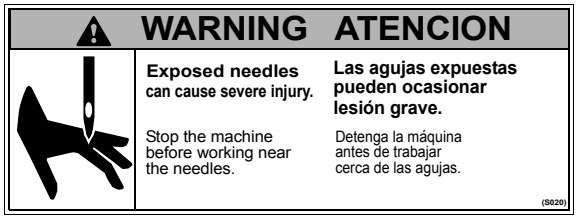
Y-axis drive motor

Type of warning labels

a Pay attention so that you are not to be caught or put into the machine.



b Pay attention to vicinity of needle.



c Pay attention so that you are not to be caught or put into the machine.

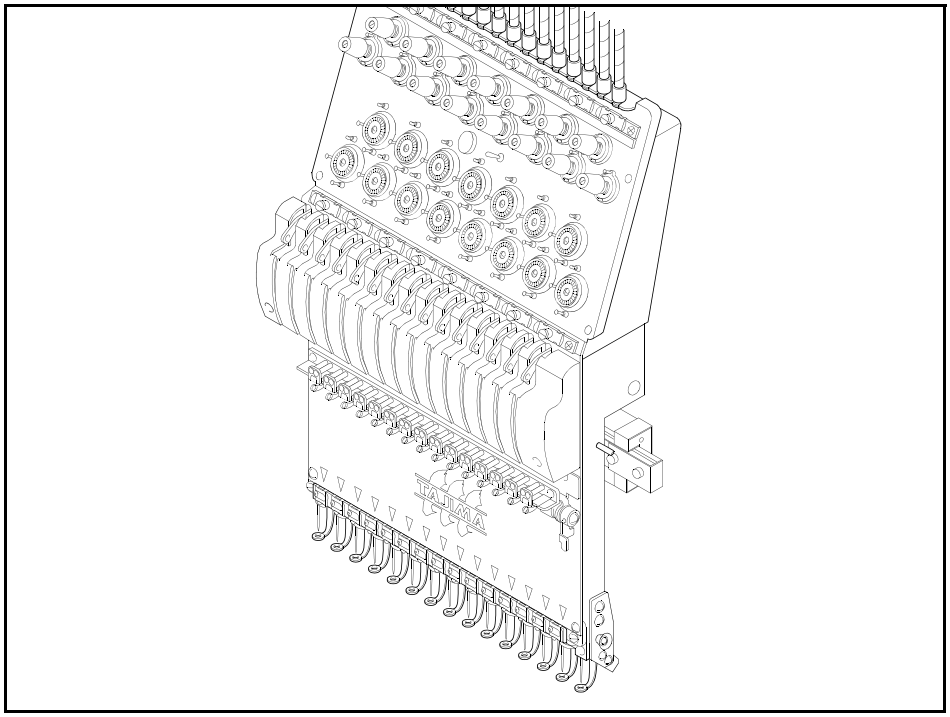
📖 The term “safety cover” used in the safety label(s) refer to all covers installed near movable units of the machine.

d Pay attention to electric shock

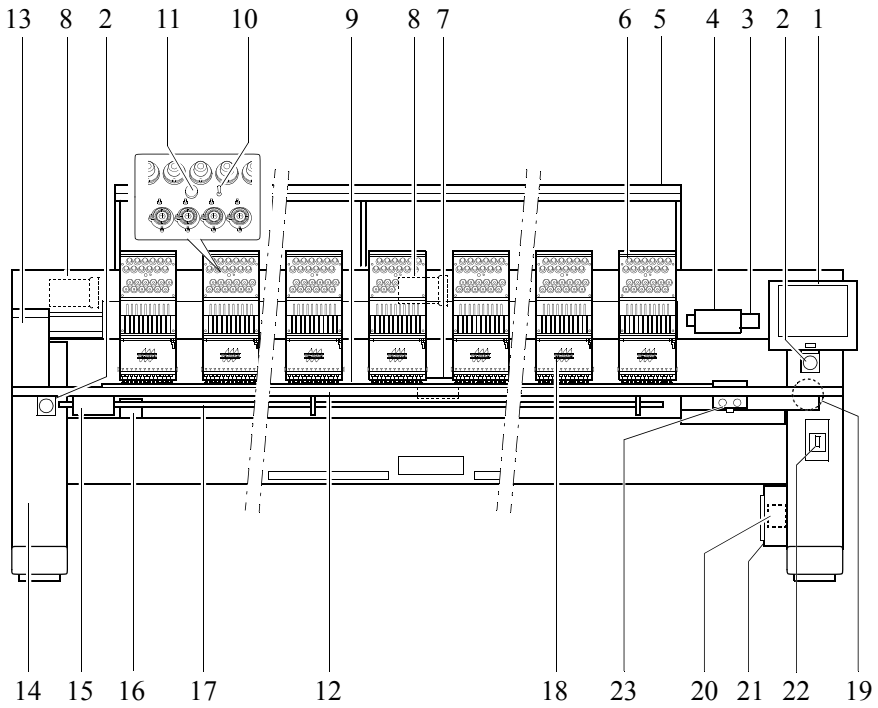
e Pay attention so that you are not to be caught or put into the machine.

f Pay attention to high temperature

CHAPTER 2 NAME OF EACH PART AND FUNCTION



1. Name of each part

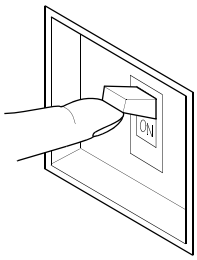


1. Operation panel box
2. Emergency stop switch
3. Color change motor
4. Color change box
5. Thread guide system
6. Individual tension base
7. Y-axis motor
8. Main shaft motor (*1)
9. Embroidery frame
10. Tension base switch
11. Thread breakage indicator lamp
12. Machine table
13. Rotary hook shaft transmission box
14. Stand
15. Bar switch box
16. Thread trimming cam box
17. Bar switch
18. Needle bar case
19. X-axis motor
20. Inverter
21. Controller box
22. Power switch
23. Switch box (*2)

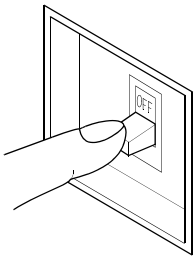
*1: Attaching position of the main shaft motor differs depending on specification.

*2: It is equipped to the machine that has the start/stop/table offset switches, and its Y embroidery space is 750mm and more and with table cuts.

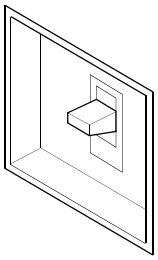
2. Power switch



Power switch “ON”



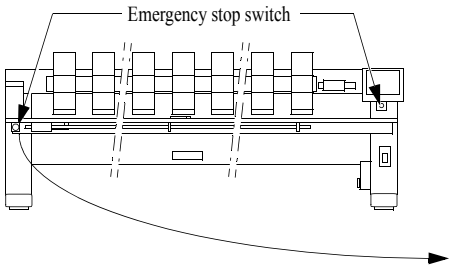
Power switch “OFF”



When the power is shut off

- When turning ON the power again, turn “OFF” the switch once and turn it “ON” after about 20 seconds.
- The switch is positioned at the center when the power is shut off such as power failure and emergency stop.
  Turn “OFF” the switch, and then turn it “ON”.

3. Emergency stop switch



Enlarged photo

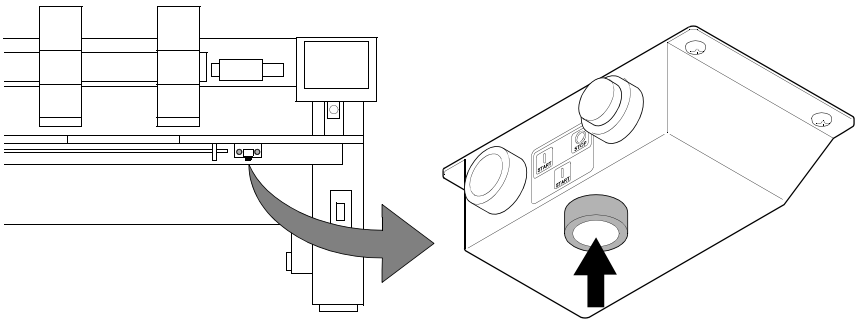
- Pressing the emergency stop switch will cause the machine to stop at the fixed position to turn OFF the power.
- To perform cancellation, follow the next procedure.

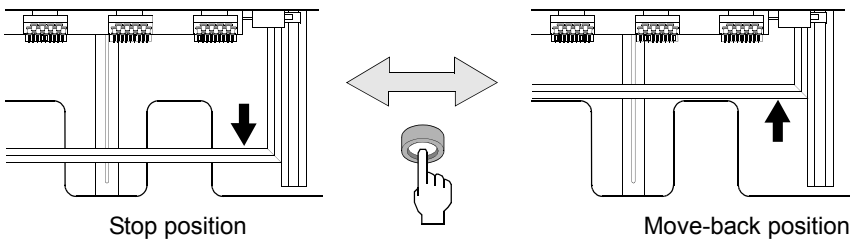
1 Rotate the switch knob to the direction indicated by arrow to release the lock.

2 Turn “OFF” the power switch, and then turn it “ON”.

3 Since “Power resume” will be started, press "Yes".

4. Table offset switch



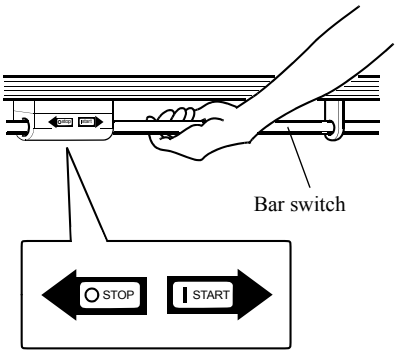


Stop position

Move-back position

- Table offset switch is a switch that makes the embroidery frame of the machine move back temporarily so that you can approach in the vicinity of needle.
- When pressing the table offset switch, the embroidery frame will move to the move-back position and stop. When pressing the switch once more, the frame will return to the original position.
  When pressing the switch for two seconds or more, the frame will move after thread trimming.
- When starting the machine by the bar switch/start switch from the move-back position, the frame will return to the original position and then machine will start.
  When starting the machine by the bar switch/start switch from the move-back position, the frame will return to the original position and then machine will start frame back/forward.
- Set table move-back position by the parameter “40. Table offset position”.
  => p.118

5. Bar switch



FB/FF is the abbreviation of frame back/ forward. => p.105

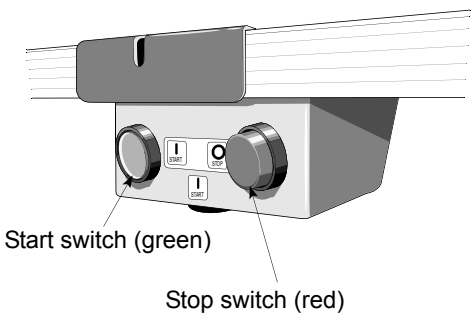
When starting the machine after performing frame back stepping over color change code, the machine will operate with inching rotation temporarily from short of the position where frame back was performed.

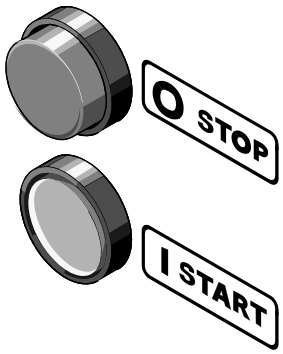
During stop

During operation
Left: stop
Right: invalid

Move it to the left ⇦	⇨ Move it to the right
Move it to the left and release. • FB/FF for 1 stitch	Move it to the right and release. • Operation starts
Hold it to the left. FB/FF by 1 stitch unit • If it is released within 10 stitches, the motion stops at that point. • If it is released with 11 stitches and more, the motion still continues and stops when moving it to the left again.	Hold it to the right • Operation starts with inching ↓ • Usual operation is performed when releasing it.

6. Start/stop switch





During operation
Stop switch: stop
Start switch: invalid

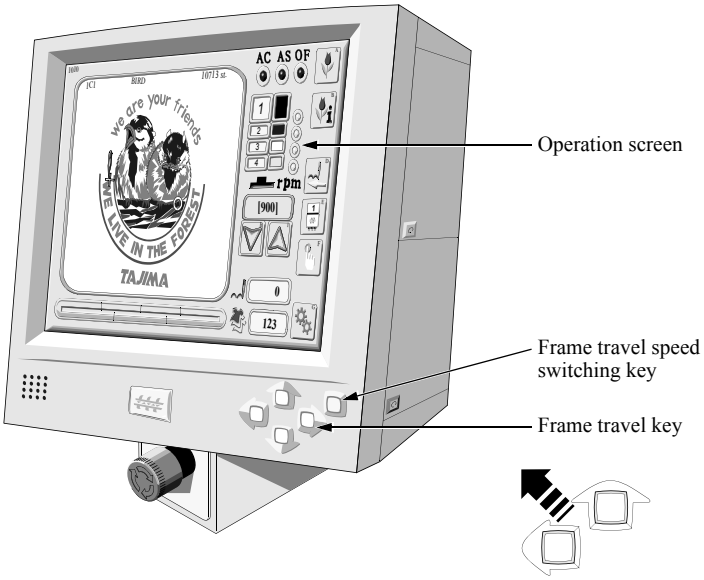
During stop

Stop switch (red)	Start switch (green)
Press the switch and release it. • FB/FF for 1 stitch	Press the switch and release it. • Operation starts
Keep pressing the switch. FB/FF by 1 stitch unit • If it is released within 10 stitches, the motion stops at that point. • If it is released with 11 stitches and more, the motion still continues and stops when pressing it again.	Keep pressing the switch. • Operation starts with inching ↓ • Usual operation is performed when releasing it

7. Operation panel box

[Front face of the panel]

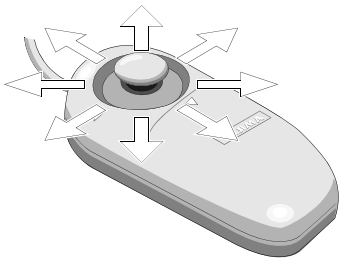
Operation screen (Touch panel)



- For the protection of the screen, use the touch panel screen with protection film stuck.
- ⚠ Do not touch the screen with sharp-pointed goods such as pen and pencil.

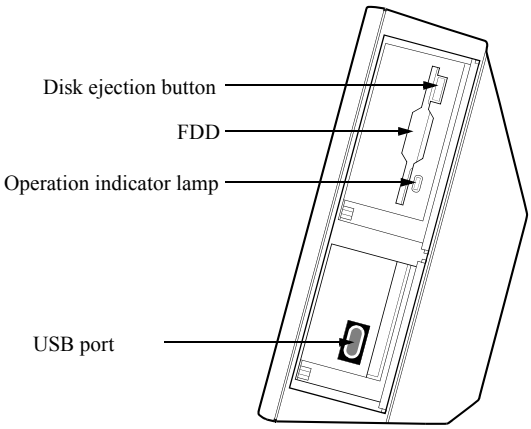
- It is possible to move the frame in an oblique direction by pressing the two frame travel keys at the same time.
- Frame travel speed switching key switches manual frame travel speed to low speed/ middle speed.
  The key will light at middle speed, and it will be turned off at low speed.
- Pressing the frame travel key while pressing the frame travel speed-switching key will cause the frame to move in high speed.

Jog remote-controller



- It is possible to use jog remote-controller for manual operation screen or setting screen by frame travel.
- It moves the embroidery frame to any direction. It is possible to change frame travel speed by slanting angle of the stick.
- When not using the jog remote-controller, put it in the jog remote-controller pocket not to move the frame by careless operation.

[Right side of the panel]



8. USB memory

To perform the following operations, set the USB memory.

Input of design data (USB) (P.23)

USB(Writing) (P.70)

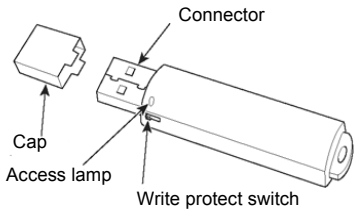
USB(Deleting) (P.94)

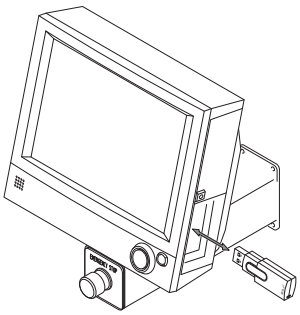
⚠ CAUTION

- **When inserting a USB memory, do not mistake the direction of the connector. Wrong direction could cause damage to USB memory and/or inside card.**
- **Do not insert the memory in the state of dirt or dust attached to the inside of the connector.**
- **During blinking of the access lamp, do not pull out the USB memory and/or do not turn OFF the power of the machine. Stored data could disappear and/or be damaged.**
- **Do not insert or take out the USB memory during operation of the machine (when the main shaft motor and/or frame move, or in the middle of color change).**
- **Insert a USB memory slowly and carefully. If a USB memory is inserted impetuously,it could be damaged.**
- **Insert a USB memory upright against the port (insert slot). Oblique insertion could damage to inside card due to interference of connector with the card.**
- **Start operation after inserting the USB memory for five or more seconds.**

An example of USB memory

* Shape and/or spec. differ depending on type.



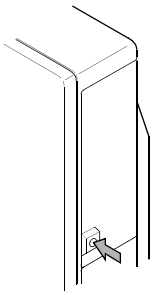


9. Floppy disk and FDD

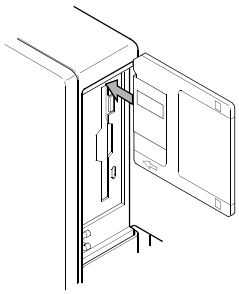
⚠ CAUTION

When handling a floppy disk or FDD, observe the items described below.

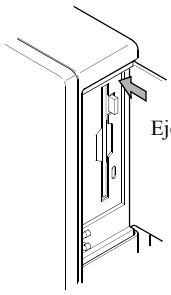
- **Do not put the floppy disk near magnets or a TV.**
- **Do not expose it to high temperature, excessive heat, humidity, or direct sunlight.**
- **Do not place heavy objects on the floppy disk.**
- **Since the life of floppy disk is not permanent, make a floppy disk for storage.**
- **Do not use damaged or deformed floppy disk, otherwise the floppy disk drive could be damaged.**
- **Clean the head of the FDD (the part where data is read or written) about once a month using a cleaning disk sold in the market. If the head is dirty, it could cause bad influence on reading/writing of floppy disk.**
- **Do not open the shutter.**
- **To prevent data of floppy disk from erasing mistakenly, open the write-protect window to protect the floppy disk from writing unless data is to be written to the floppy disk.**
- **Insert a floppy disk carefully.**
  If a floppy disk is inserted impetuously, it may become difficult to eject the floppy disk, or the machine may be damaged.
- **Do not take out the floppy disk forcedly. The floppy disk or FDD could be broken.**
- **Do not eject a floppy disk during data writing/reading. Data in the floppy disk may be damaged.**



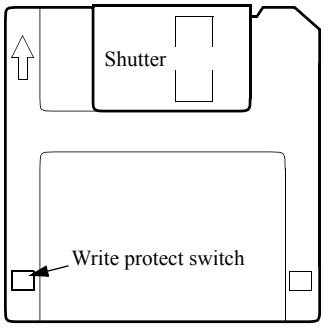
Push the part indicated by the arrow to open the cover.



Insert it as the illustration so that the arrow mark faces the front.



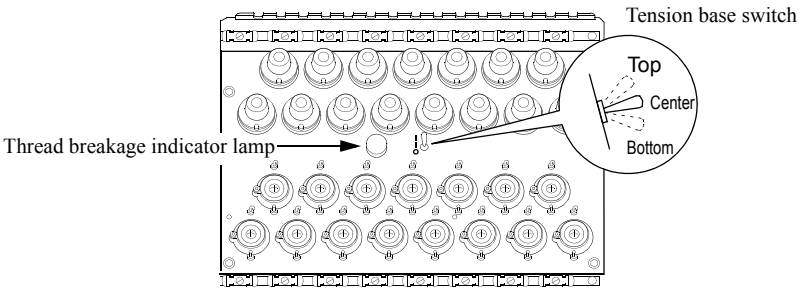
Press the button to eject the disk.



📖 FDD is an abbreviation of floppy disk drive.

📖 Formatting => p.92

10. Tension base



Thread breakage indicator lamp

Lights in green	It is possible to perform embroidery
Blinks in green	Suspension of needle bar during frame back
Lights in red	Upper thread breakage is detected.
Blinks in red	Under thread breakage is detected.
Unlit	Needle bar is suspended

Tension base switch

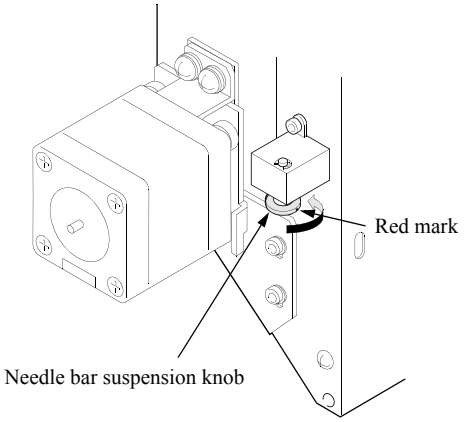
Top	The head at which the switch is positioned to “top” will cause the machine to start embroidery from the position where frame back was performed. In case of machine equipped with sequin device, sequin device moves up or down by setting the tension base switch to “top” when a sequin needle bar is selected.
Medium	In the state where it is possible to perform embroidery.
Bottom	In the state where needle bar is suspended

When “12. Auto F.B. after T.Detection” is set to “Yes”, the machine will perform automatic frame back to the position where the set value is added to thread breakage detected position. => p.113

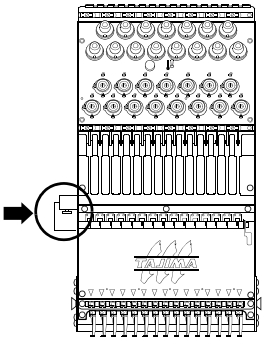
11. Needle bar suspension knob

WARNING

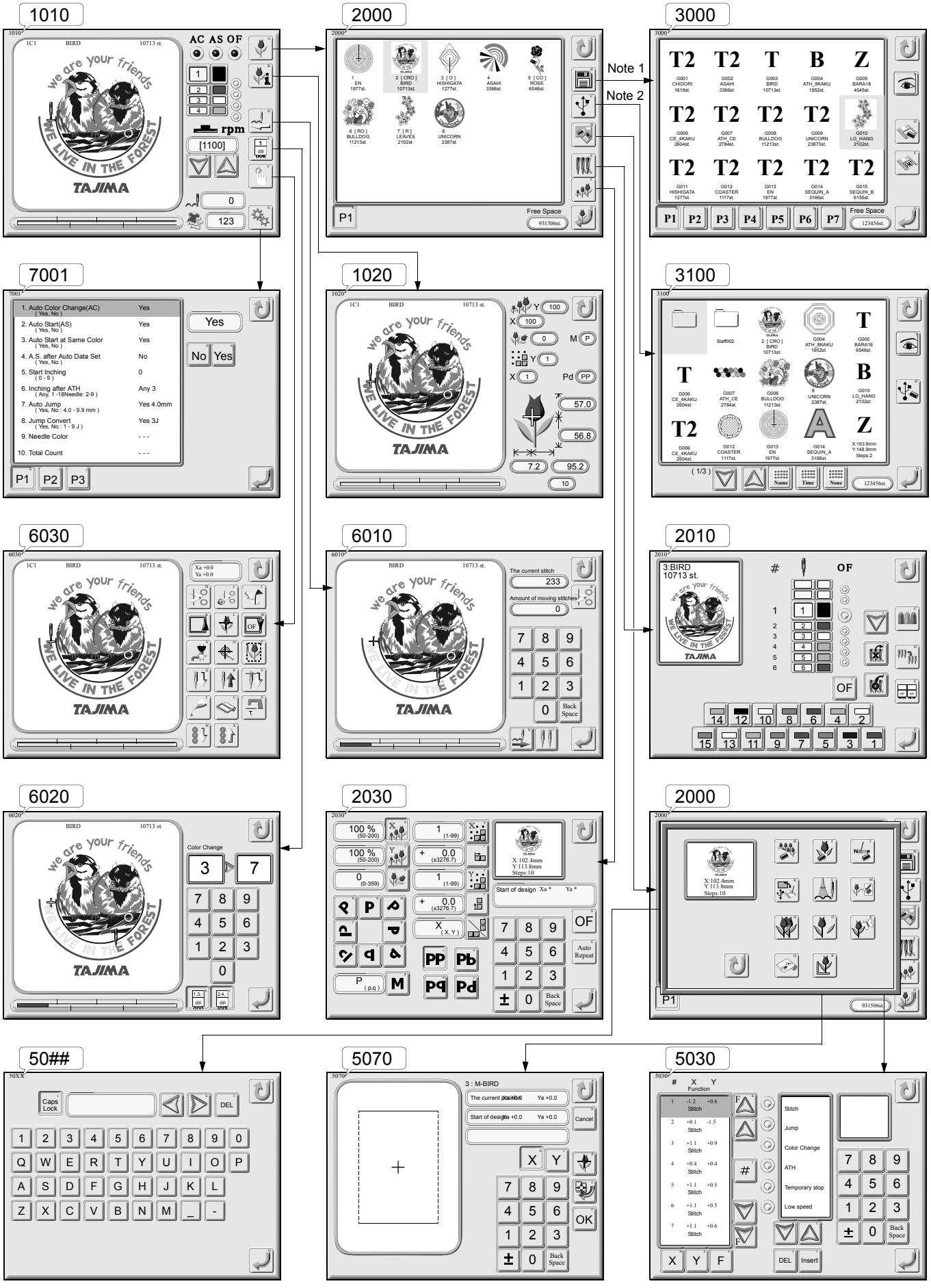
Do not perform changing thread, etc. at the suspended head during operation.
Even if the needle bar is suspended by the needle bar suspension lever, you may be injured by the moving take-up lever or ATH.



When turning the needle bar suspension lever to the direction of arrow by 90 degrees, the needle bar will be suspended.
Turning the red mark of the needle bar suspension knob to the front will make it possible to operate the needle bar.



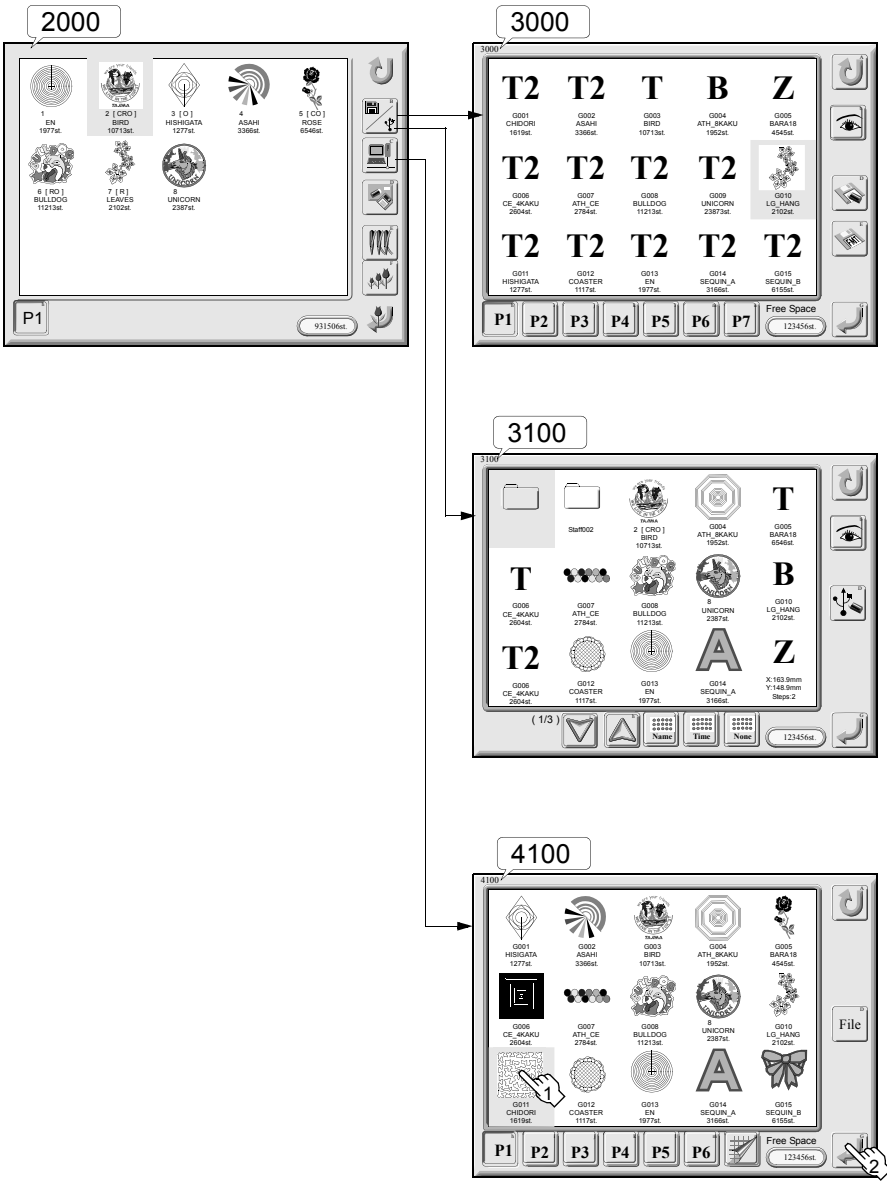
12. Setting screen



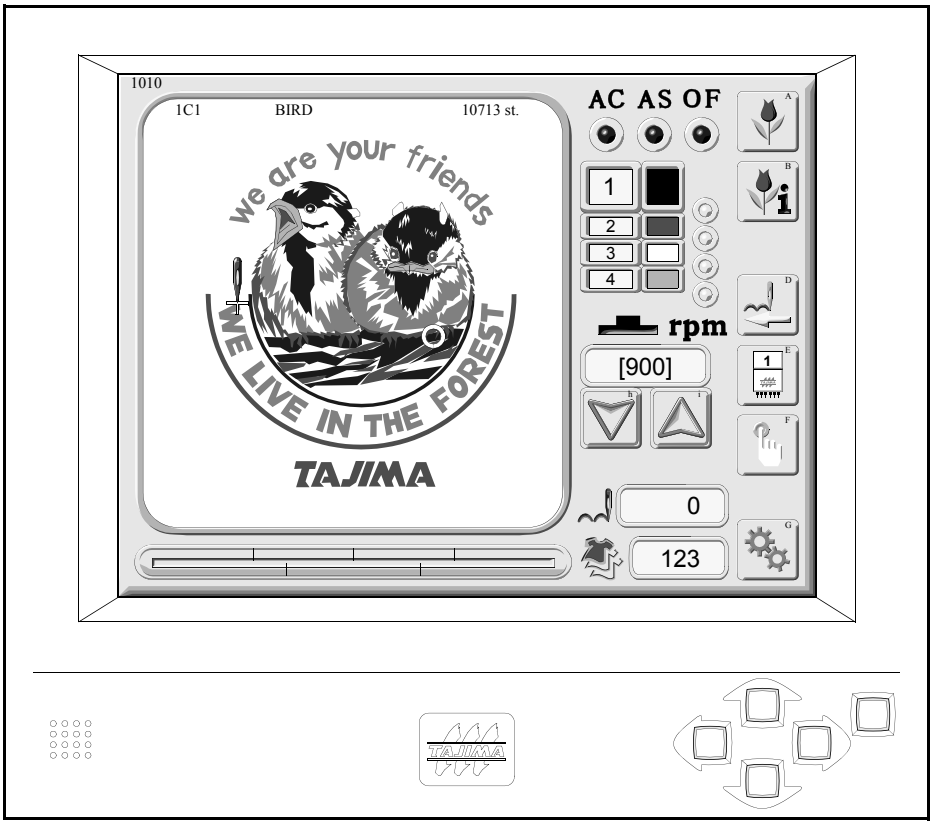
Note 1
When setting for network is set to “Yes”, the icon will switch as shown below.

At this time, a pop-up window that you select a medium (floppy disk/USB memory) will appear.

Note 2
When setting for network is set to “Yes”, the icon will switch as shown below.



CHAPTER 3 BASIC OPERATION

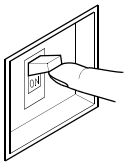


1. Operation flow

Primary power supply ON

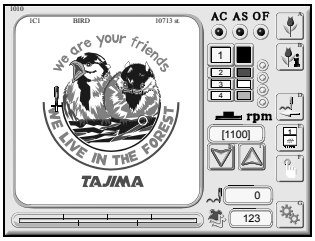
When inputting data from personal computer

Check LAN connection

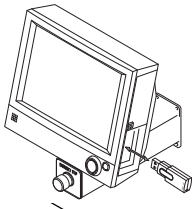


Power switch ON

Screen 1010



▲Screen 1010

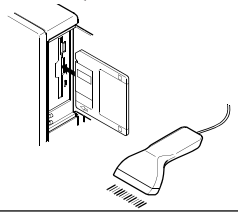


When inputting data from USB memory

Set USB memory.

When inputting data from a floppy disk

Set the floppy disk.



When inputting data from a bar code reader

Screen 2000

Data input from USB memory (p.23)

Data input from floppy disk (p.25)

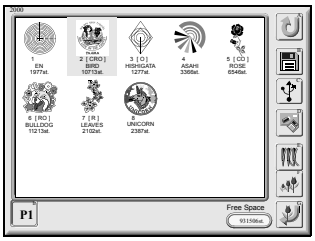
Data input from LAN connection (p.26)

Select the memory design.

Needle bar setting (p.33)

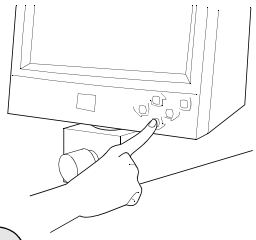
Data conversion (p.51)

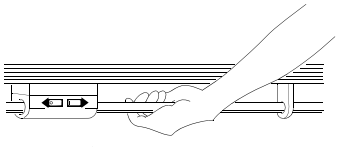
Data set (p.27)



▲Screen 2000

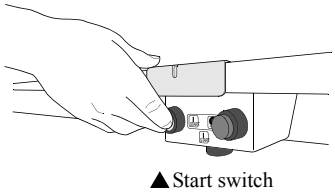
Frame travel (automatic/manual)





▲Bar switch

Bar switch ON/Start switch ON

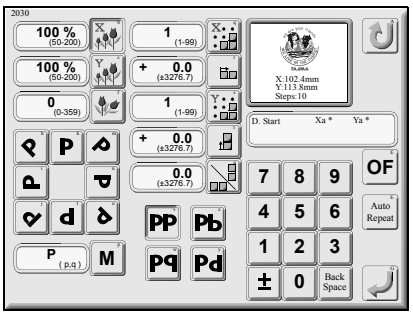


▲Start switch

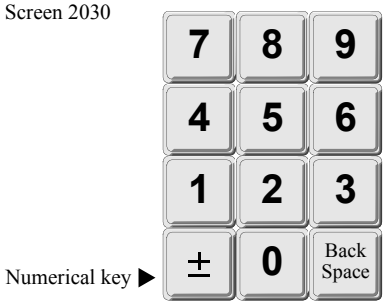
Embroidery starts.

2. Value input

1. Input by numerical key



◀ Screen 2030

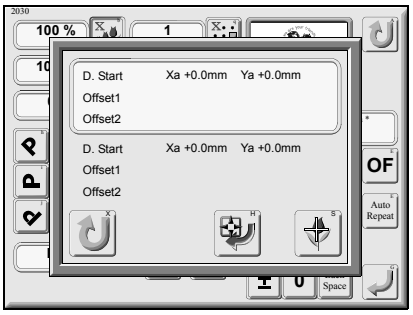


Numerical key ▶

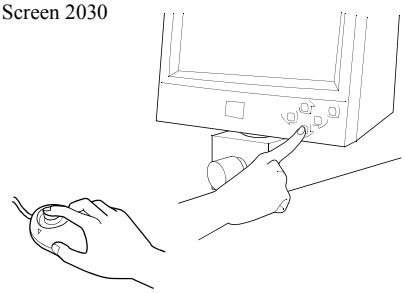
🕮 Select the input column and input value by numerical key.
When performing correction, press “Back Space” to delete the value and input a value again.

Press this icon to register all input values.

2. Value input by frame travel

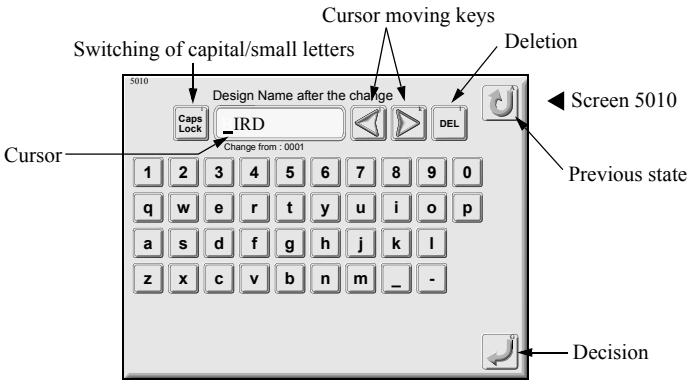


◀ Screen 2030



🕮 When moving the embroidery frame to an arbitrary position by frame travel key or jog remote-controller, that coordinate position will be displayed as value.

3. Input of characters

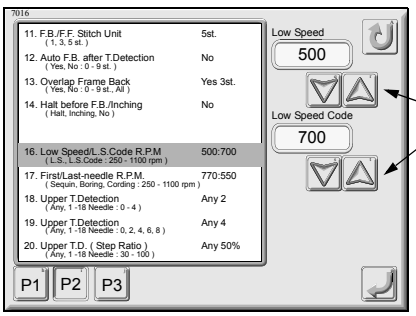


🕮 Treat it the same as key board.

Press this icon to register the input characters.

🕮 It is not possible to input space.

4. Scroll key

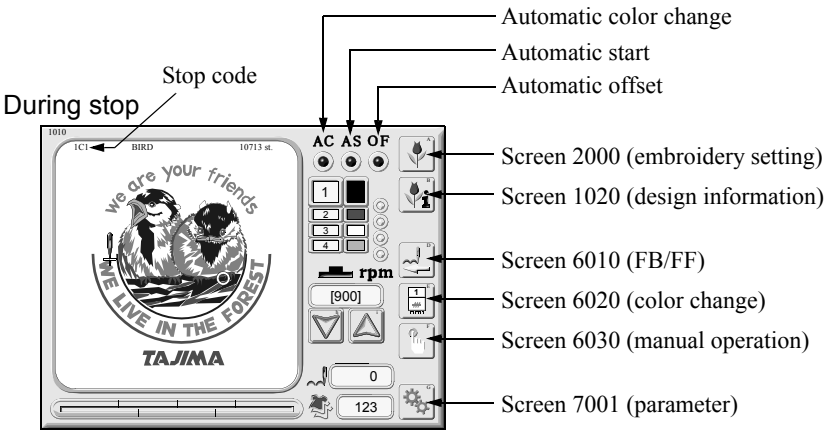


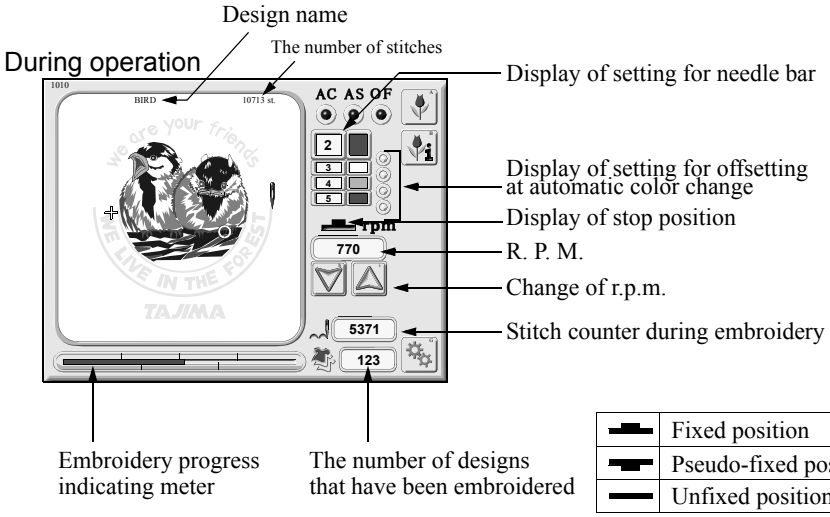
◀ Screen 7016

Scroll key

🕮 Every pressing will change value.
Keeping on pressing will cause value to be changed quickly.

5. Screen 1010





▬	Fixed position
▬	Pseudo-fixed position
▬	Unfixed position

🕮 When AC, AS, OF are set, they are displayed in red.

🕮 Stop code includes stop by error and usual stop.
Stop code => p.146

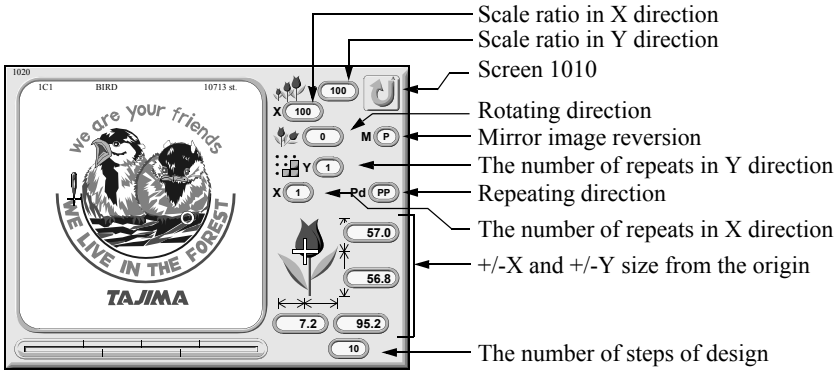
🕮 Icons that cannot be operated during operation will not be displayed.

🕮 Needle bar numbers and colors set at needle bar setting will be displayed. When automatic color change is not set, only the needle bar and color that are currently used will be displayed.

🕮 The position where offsetting at automatic color change is set will be displayed in red.

🕮 R. P. M.
It displays the maximum r.p.m. during stop, and it is not possible to change the rotating speed.
During operation, the number of revolutions (rpm) is displayed. Pressing the icon of change of rpm will change rpm, and keeping it pressed will change values rapidly.

6. Screen 1020



🕮 Information of converted data will be displayed.
Data conversion => p.51

7. Inspection before starting work

WARNING

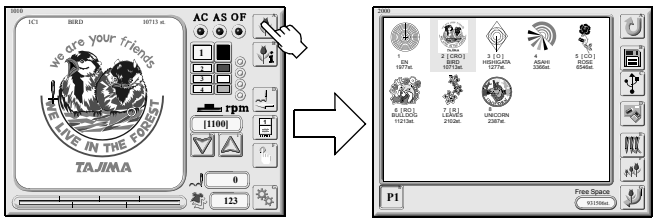
When performing inspection before starting work, be sure to turn off the power.
You may be caught by the machine or sticking needle may cause severe injury.

Inspecting item	Condition	Action to take
Cover	Cover(s) depart from the machine.	Attach to the machine
Thread	Thread comes off	Set thread
	Thread is broken	
Needle	Needle(s) are bent.	Change the needle(s).
	Needle(s) are broken.	
Rail on rotary hook	Appropriate quantity of oil is not supplied to the rail section.	Lubricate

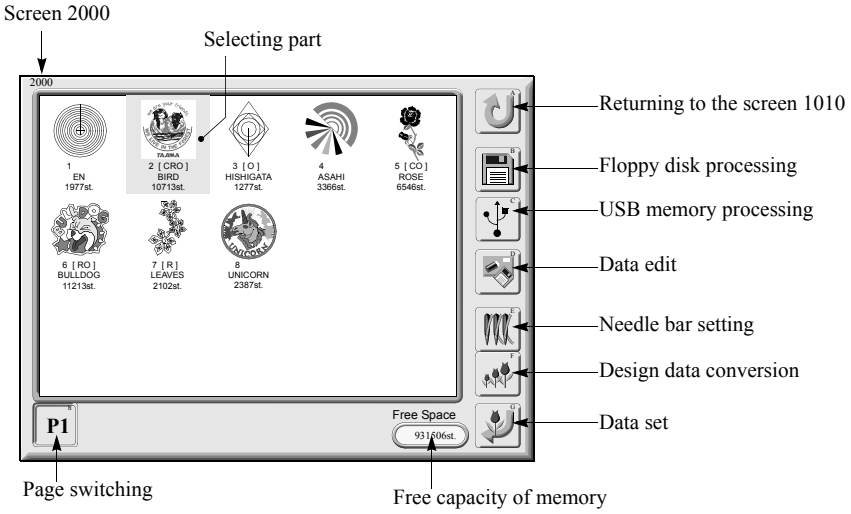
When the automatic lubrication system (option) has oil leakage, contact the distributor.

8. Screen 2000

<How to call the screen>



Design data management screen

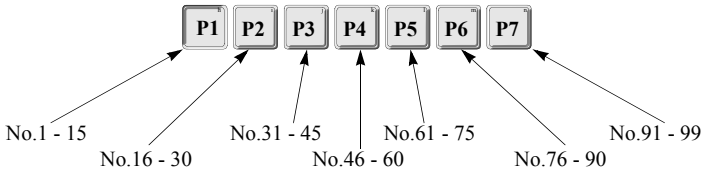


When there is no design data in the memory, icons of "data edit, needle bar setting, design data conversion, data set, page switching" will not be displayed.

Free capacity of the memory displays the number of remaining stitches of design data that can be registered in the memory.
When memory remaining capacity becomes 0 stitch or up to 99 designs are registered in the memory, the icons of "floppy disk processing, LAN connection" will not be displayed.

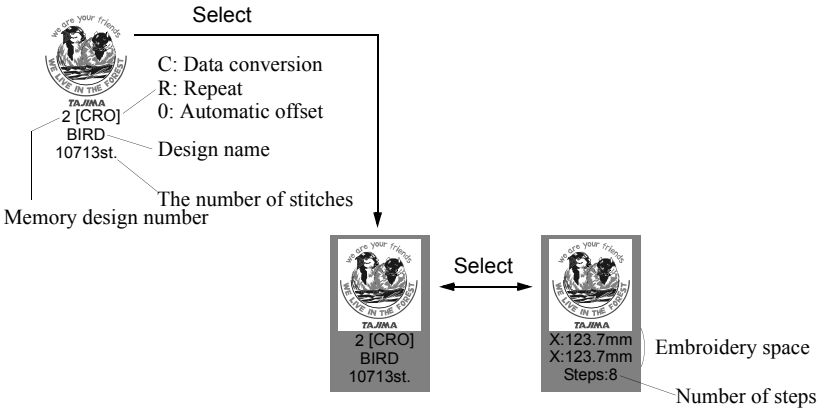
When a network is not set, the icon of LAN connection will not be displayed. Even if a network is set, "X" will appear at the icon until the machine finds the file of the connected target.

Page switching



Up to 15 memory designs can be displayed and the 16th or upper designs will be displayed to the next pages.
16th and after designs are stored at "P2".
Page switching icons will be added by the number of designs stored in memory.
It is possible to register up to 99 designs in the memory.

Design data information

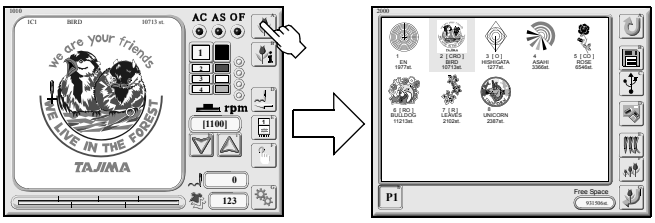


The background of the selected design will become green.
When pressing the selected design once more, the information display of the design data will be changed.
Contents of information: memory designNo., design name, the number of stitches/embroidery size, the number of steps

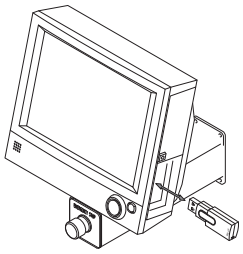
When data conversion (C), repeat (R) and automatic offset (O) are set in design data, C, R and O will be displayed in red next to memory design No.

9. Data input from USB memory

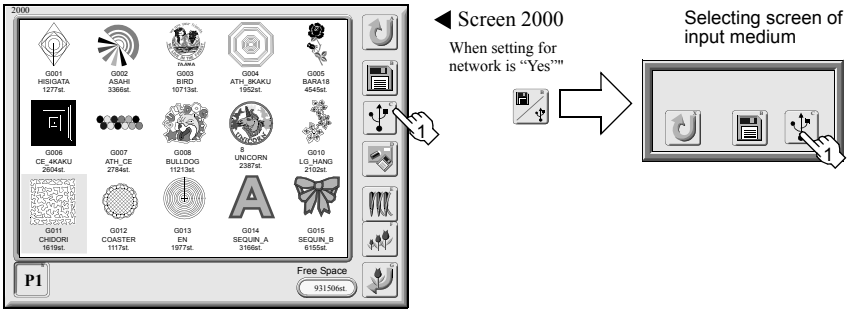
<How to call screen>



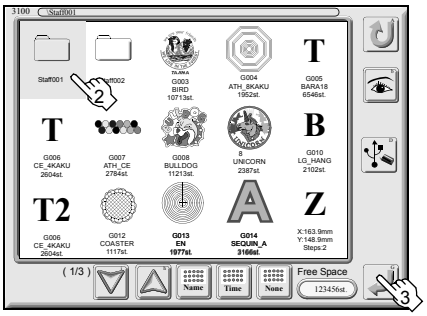
1. Set USB memory.



2. Selection of input medium



3. Selection of design (folder)



When memory remaining capacity becomes 0 stitch or up to 99 designs are registered in the memory, the icons of "floppy disk processing, USB memory processing, LAN connection" will not be displayed.

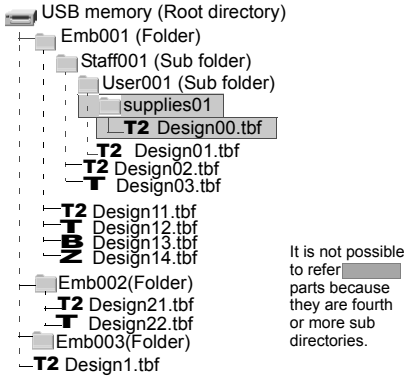
When setting for network is set to "Yes", icon will switch to , and it will become necessary to select a medium to input (floppy disk/USB memory).

Pressing the icon will display the thumbnail of the selected design data.

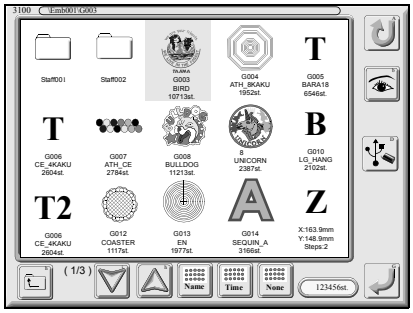
The digits left to the icon (1/3 in the left illustration) mean the page that displays folders in a folder and designs and the number of total pages.

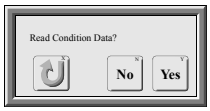
One folder can display up to 255 items including lower layer folder and designs.

Up to 3 sub directories can be referred.



4. Confirmation of moving of directory and reading of condition data



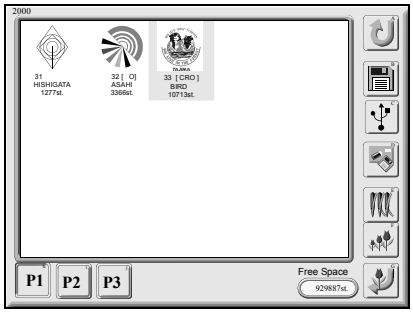


Pressing the icon will display lower directory designs and/or folders when a folder is selected.

Pressing the icon will display upper directory designs and/or folders when a folder is selected.

When using condition data, select “Yes”.=> p.130.

5. Completion of input

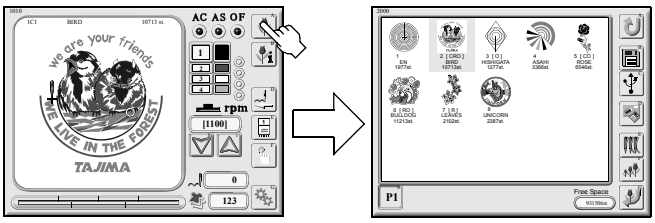


◀ Screen 2000

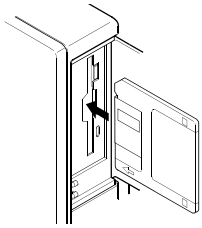
After input, the data will be stored with a name of the smallest value of vacant memory numbers in screen 2000.

10. Data input from floppy disk

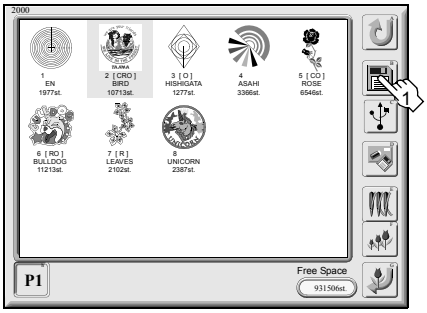
<How to call the screen>



1. Insert the floppy disk.



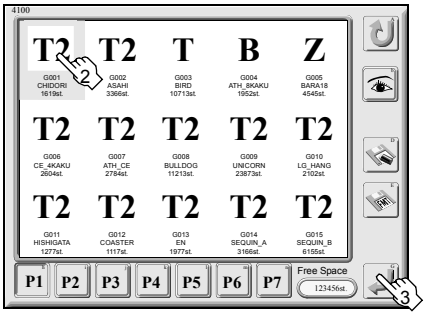
2. Reading of data



◀ Screen 2000

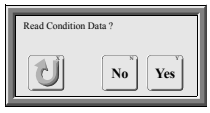
📖 When memory remaining capacity becomes 0 stitch or up to 99 designs are registered in the memory, the icons of "floppy disk processing, USB memory processing, LAN connection" will not be displayed.

3. Selection and input of design



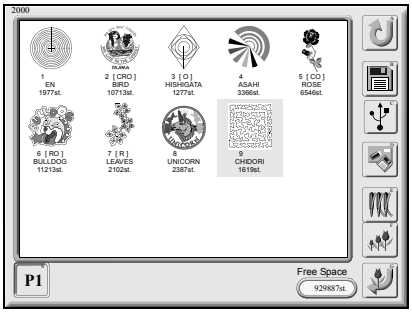
◀ Screen 3000

Pressing the icon will display the thumbnail of the selecting design data.



📖 When using condition data, select "Yes". => p.130

4. Completion of input

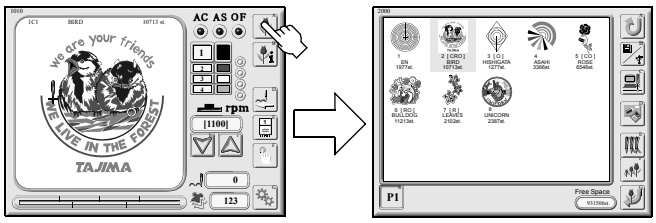


◀ Screen 2000

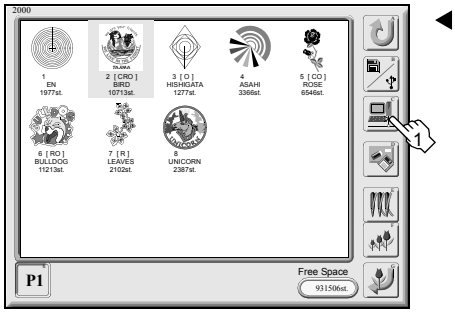
📖 After input, the data will be stored with a name of the smallest value of vacant memory numbers in screen 2000.

11. Data input from LAN connection

<How to call the screen>

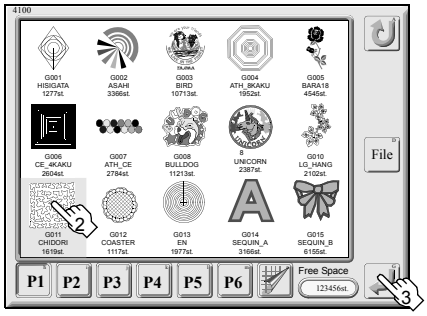


1. Start LAN connection.



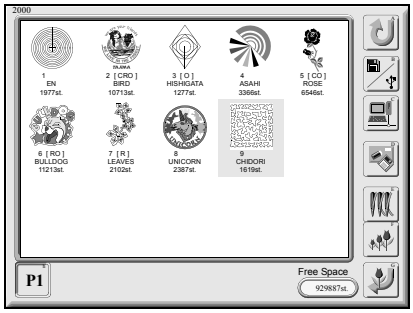
◀ Screen 2000

2. Selection and input of design



◀ Screen 4100

3. Completion of input



◀ Screen 2000

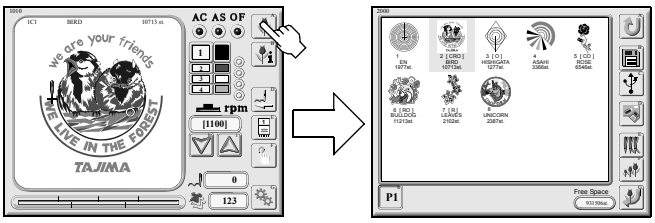
📖 When memory remaining capacity becomes 0 stitch or up to 99 designs are registered in the memory, the icons of “floppy disk processing, LAN connection” will not be displayed.

📖 When “61. Network” is set to “No”, the LAN connection icon will not be displayed. => p.123

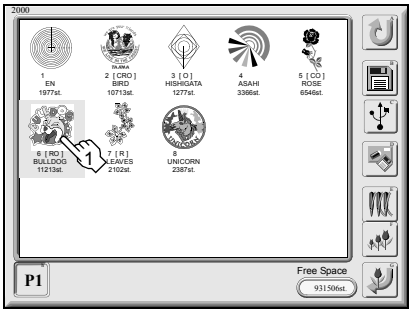
📖 After input, the data will be stored with a name of the smallest value of vacant memory numbers in screen 2000.

12. Data set

<How to call the screen>



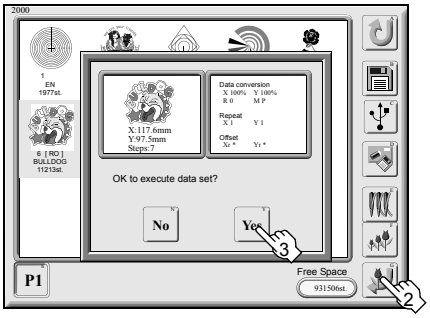
1. Selection of design



◀ Screen 2000

When setting embroidery conditions, press needle bar setting and data conversion to make setting.
Needle bar setting => p.33
Data conversion => p.51

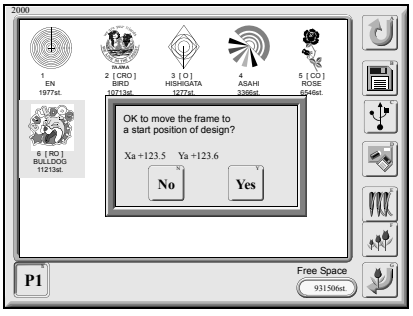
2. Data set



◀ Screen 2000

CAUTION

When performing design start position or offset return, do not put your hands etc. on the machine table. The frame will move, and you could be injured.

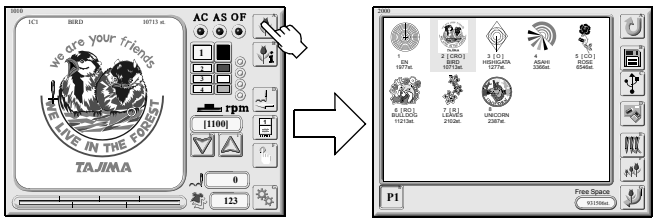


◀ Screen 2000

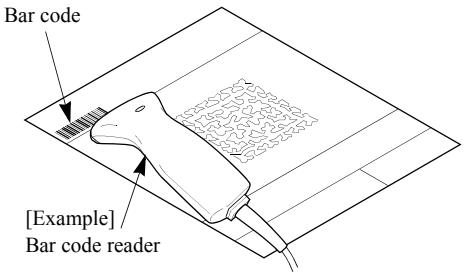
When the set design includes a start position of design or an offset position and its position is different from the current frame position , the pop-up window confirming frame travel will be displayed.

13. Data input from bar code

<How to call the screen>



1. Reading of bar code

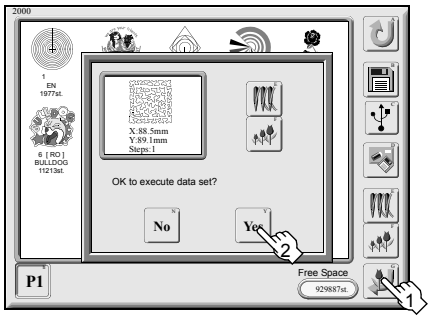


📖 A bar code reader is required separately.

📖 Data input from bar code will become effective when network is set.

📖 Move the bar code reader so that infra-red ray falls on the whole of bar code.

2. Data set

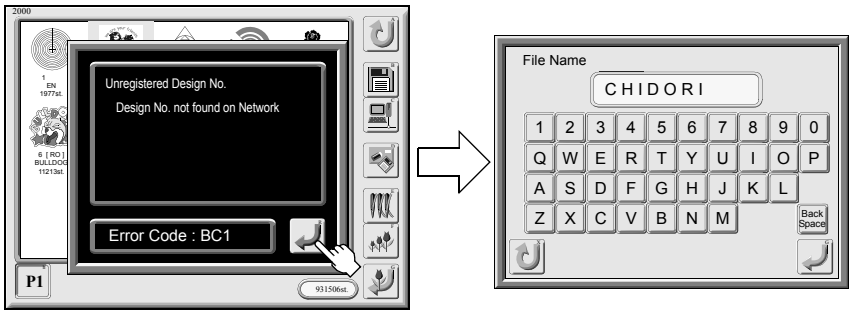


◀ Screen 2000

📖 When setting embroidery conditions, press needle bar setting and data conversion to make setting.
Needle bar setting => p.33
Data conversion => p.51

📖 Pressing “NO” only performs data input.

When an error occurred

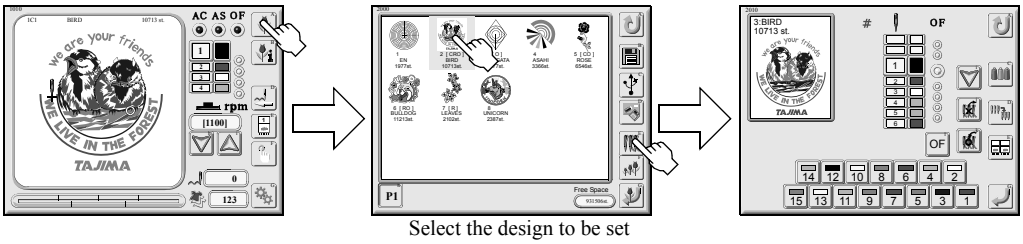


📖 When the data read by the bar code reader does not exist, error “BC1” will be displayed. Resetting the error will switch the screen from network to input, and it will be possible to input a design data by specifying the file name.

📖 It is possible to input data from other bar code using the bar code reader after resetting the error.

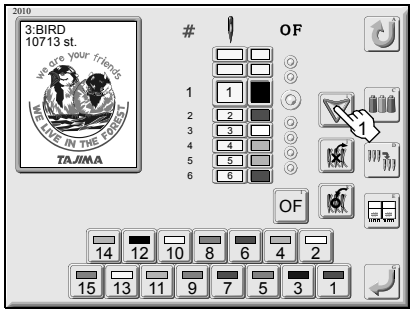
14. Needle bar setting

<How to call the screen>



Select the design to be set

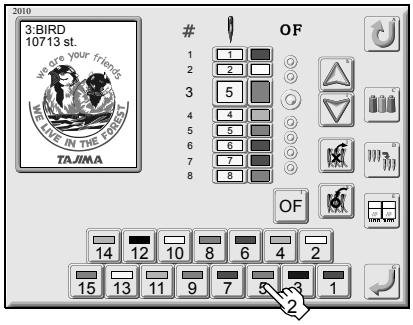
1. Select the needle bar step



◀ Screen 2010

📖 When selecting needle bar step, design display of the selecting step will blink.

2. Select the target needle bar number to be changed

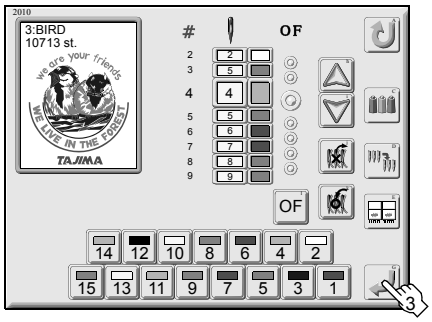


◀ Screen 2010

📖 It is also possible to change other needle bars in the same way.

📖 Selecting the target needle bar number will set the next needle bar step to wait for data input.

3. Register

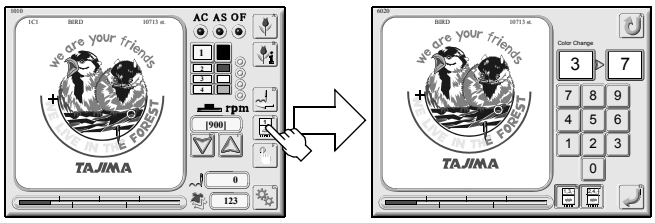


◀ Screen 2010

📖 After the registration, the screen will switch to screen 2000.

15. Manual color change

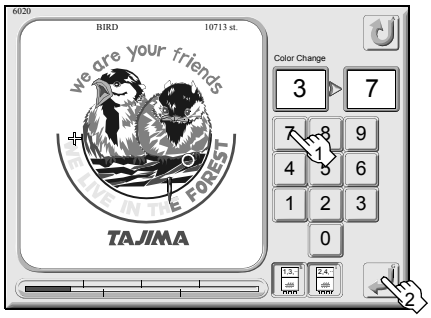
<How to call screen>



CAUTION

When performing this operation, do not put your hands etc. under the needle or on the machine table. Needle, head and/or frame will move, and you could be injured.

No head group

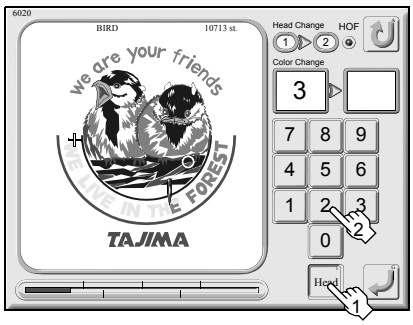


◀ Screen 6020

Use numerical key to input needle bar number of target to change and perform execution. When performing execution, needle bar case will slide to change needle bar.

Head group is set

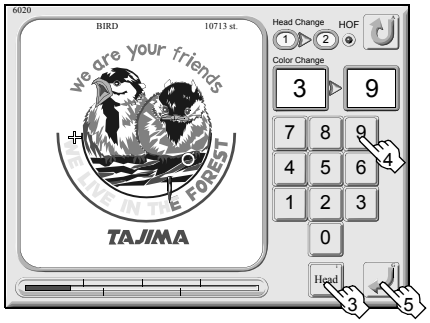
1. Input of head number



◀ Screen 6030

Press the “Head” icon and input head number to change with numerical key.

2. Input and execution of needle bar number



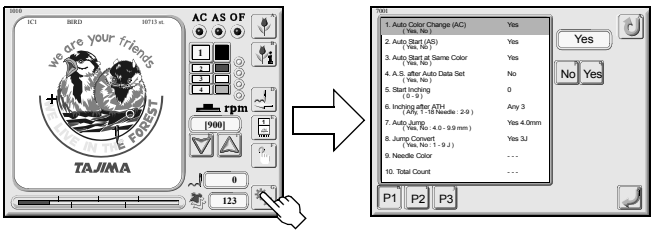
◀ Screen 6030

Press the “Head” icon to cancel head input.

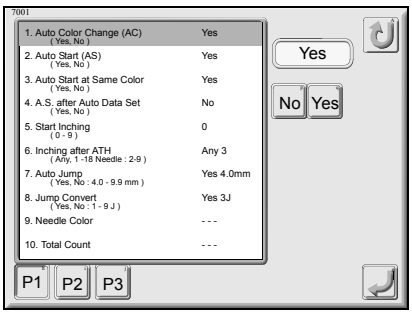
Use numerical key to input needle bar number of target to change and perform execution. When performing execution, needle bar case will slide to change needle bar.

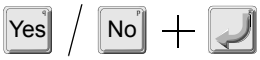
16. Automatic color change, automatic start

<How to call screen>



Automatic color change

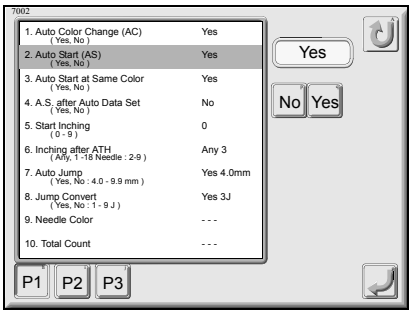


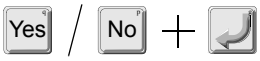


When needle bar step switches, automatic color change will be performed.

When "Yes" is set, "AC" lamp of the screen 1010 will become red.

Automatic start





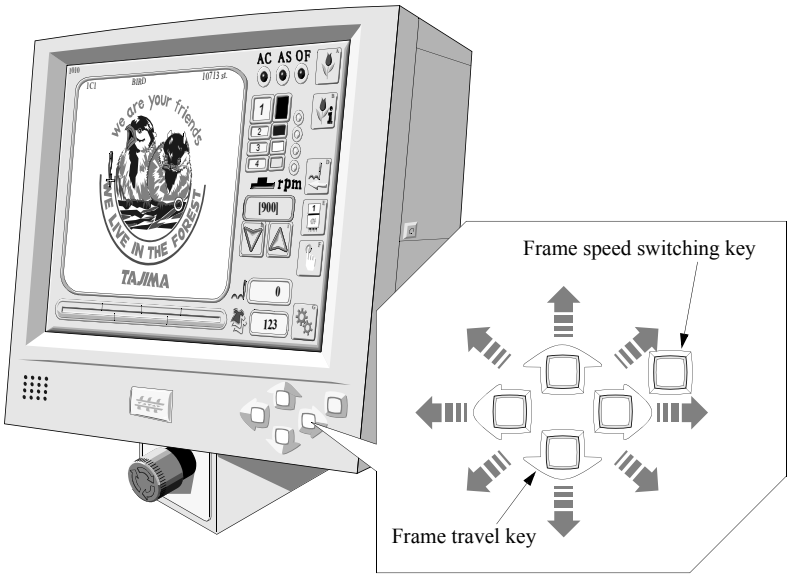
The machine will start automatically after switching of needle bar step.

It is possible to make setting when "Yes" is set to "1. Auto Color Change".

When "Yes" is set, "AS" lamp of the screen 1010 will become red.

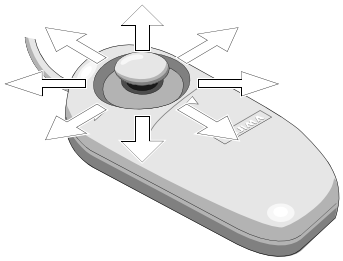
17. Frame travel

1. Operation by using frame travel key(s)



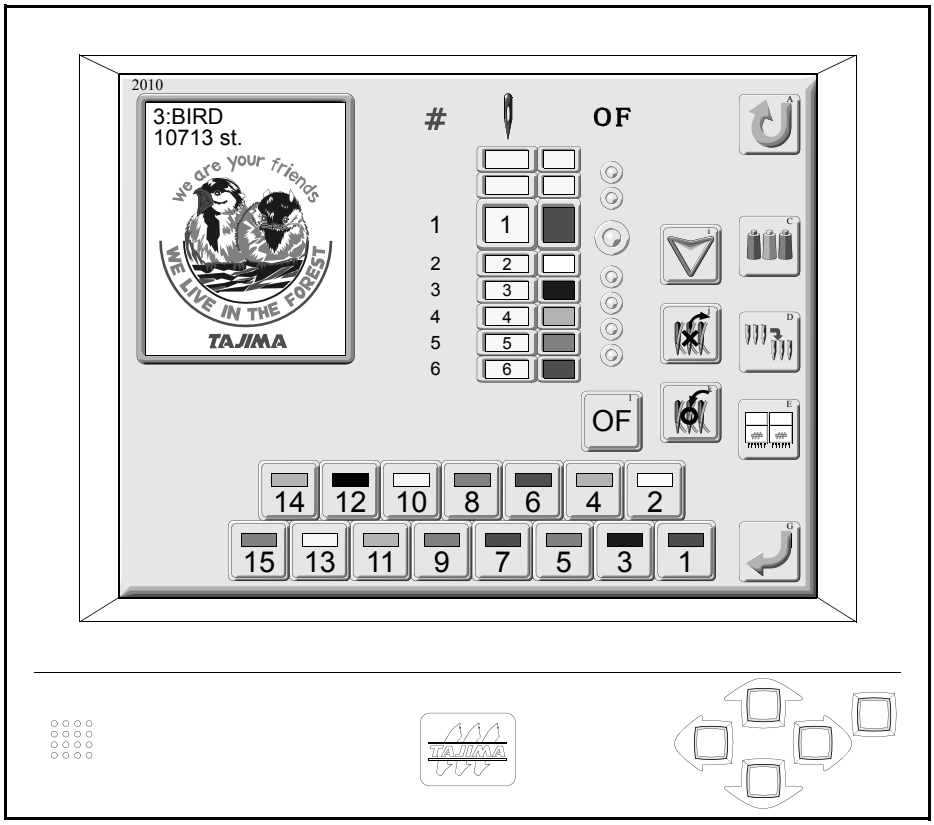
- It is possible to move the frame aslant by pressing neighboring two frame travel keys.
- Frame travel speed switching key switches manual frame travel speed to low speed/ middle speed.
  The key will light at middle speed, and it will be turned off at low speed.
- Pressing the frame travel key while pressing the frame travel speed-switching key will cause the frame to move in high speed.

2. Operation by using a jog remote-controller



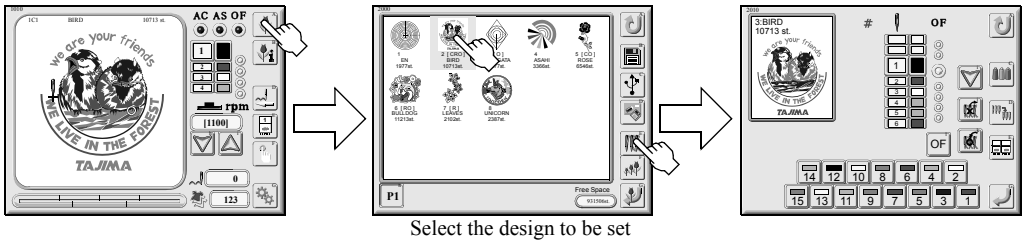
- It is possible to use jog remote-controller for manual operation screen or setting screen by frame travel.
- It moves the embroidery frame to any direction. It is possible to change frame travel speed by slanting angle of the stick.
- When not using the jog remote-controller, put it in the jog remote-controller pocket not to move the frame by careless operation.

CHAPTER 4 NEEDLE BAR SETTING

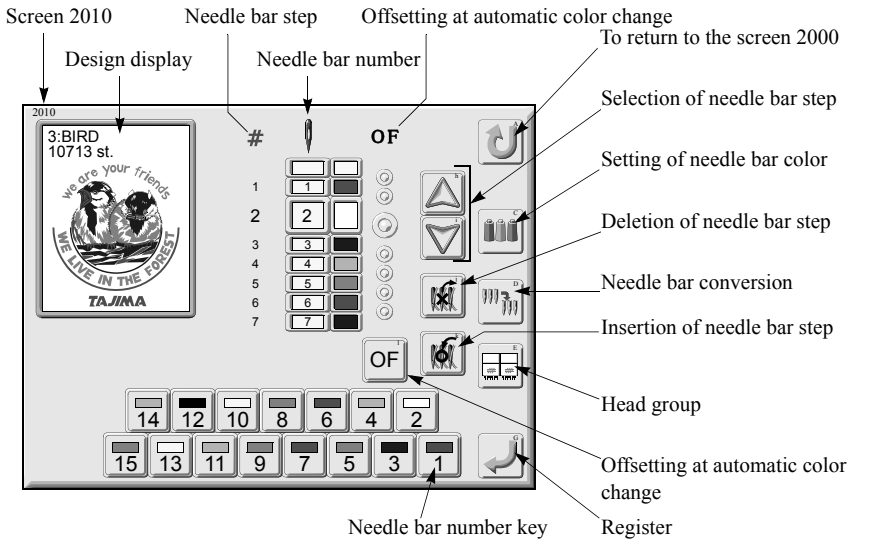


1. Screen 2010

<How to call the screen>



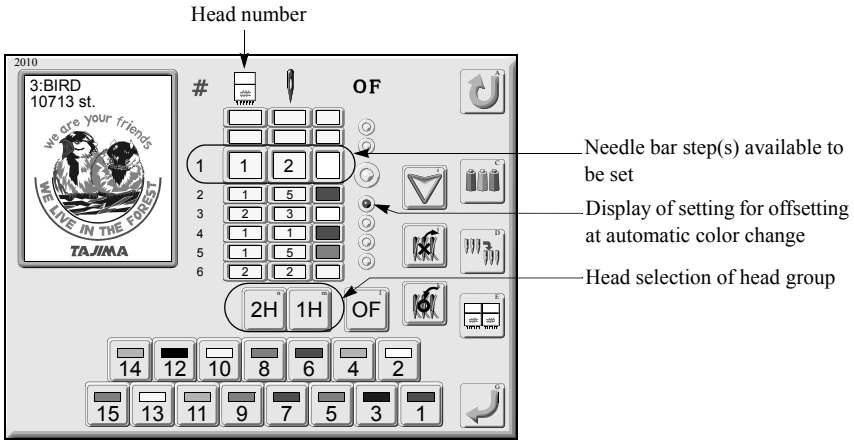
Needle bar setting screen

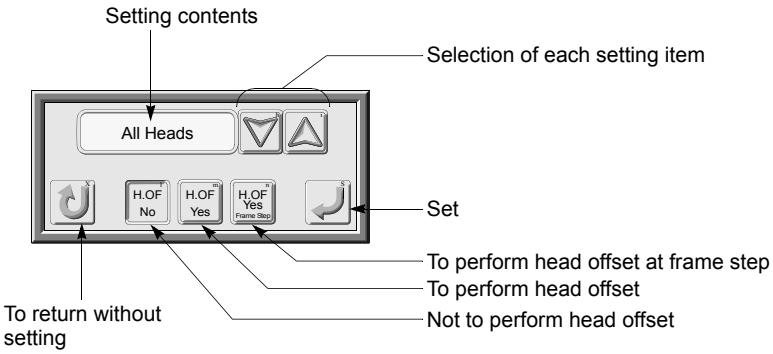


Changing the needle bar will also cause color of design display to be changed.

When selecting needle bar step, design display of the selecting step will blink.

Registering the setting for needle bars will cause the screen to return to the screen 2000.



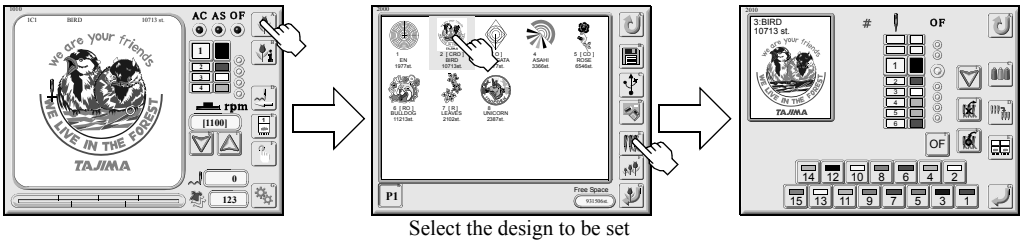


Head offset is a function that makes the frame move to the next head position when head to perform embroidery is changed during embroidery.
Head offset => p.137

Head offset of frame step performs frame travel at color change and frame travel of head offset at all once.

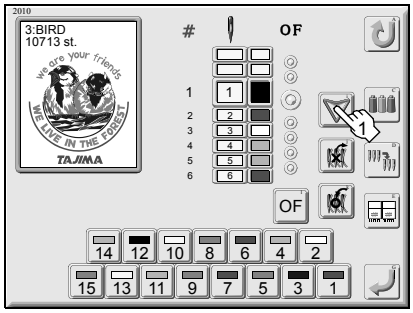
2. Change of needle bar

<How to call the screen>



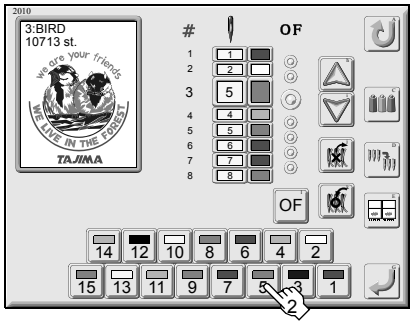
Select the design to be set

1. Select the needle bar step



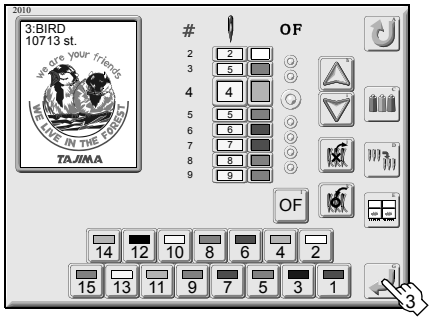
◀ Screen 2010

2. Select the target needle bar number to be changed



◀ Screen 2010

3. Register



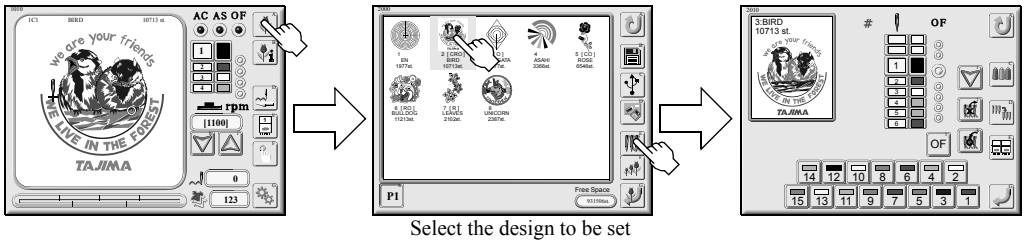
◀ Screen 2010

🕮 It is also possible to change other needle bars in the same way.

🕮 Selecting the target needle bar number will set the next needle bar step to wait for data input.

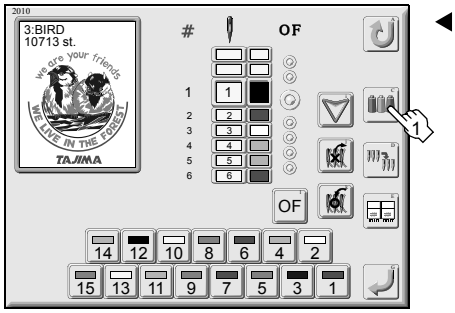
3. Needle bar color

<How to call the screen>



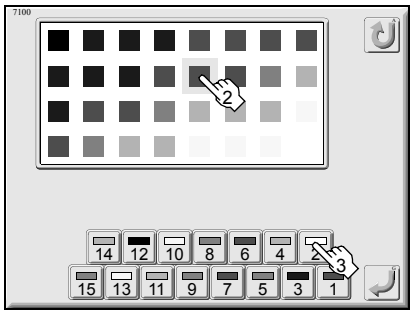
Select the design to be set

1. Select the setting of needle bar color



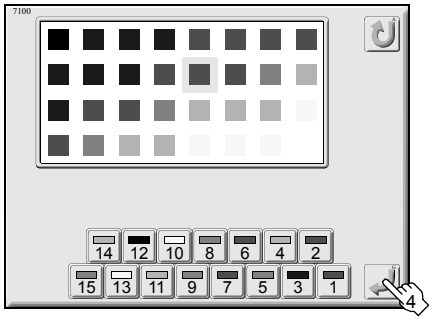
◀ Screen 2010

2. Select needle bar color and needle bar number key



◀ Screen 7100

3. Register

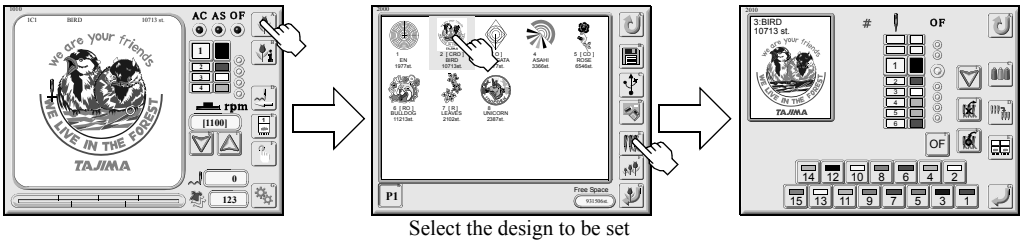


◀ Screen 7100

It is also possible to change other needle bars in the same way.
In addition, it is possible to perform setting in reversed order of needle bar color and needle bar number keys.

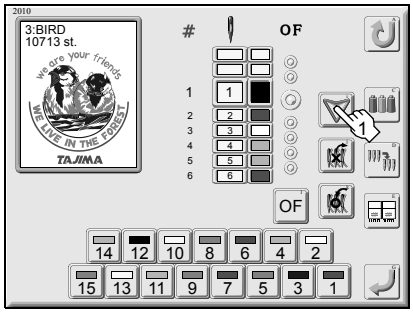
4. Deletion of needle bar step

<How to call the screen>



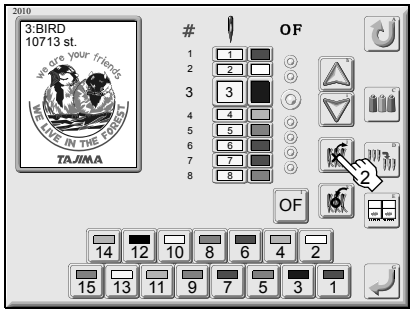
Select the design to be set

1. Select the needle bar step



◀ Screen 2010

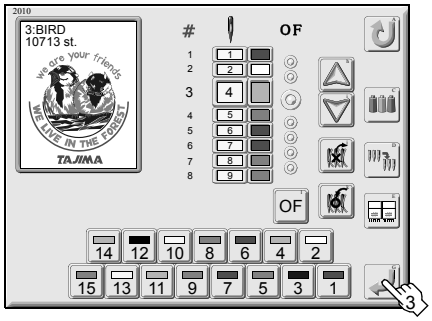
2. Delete the needle bar step



◀ Screen 2010

When it is deleted, the following needle bar steps will be moved up.

3. Register

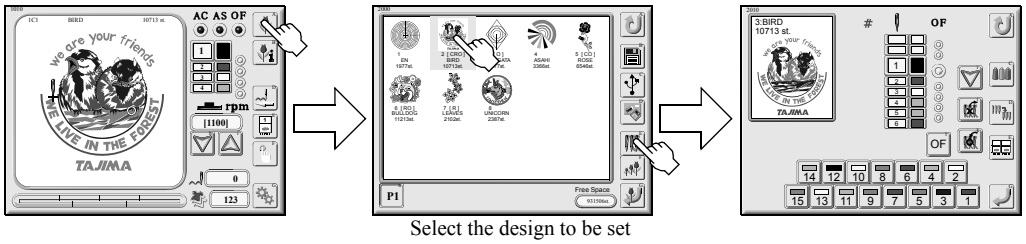


◀ Screen 2010

When the number of needle bar steps is less than the number of steps of design data, the needle step will return to the first step.

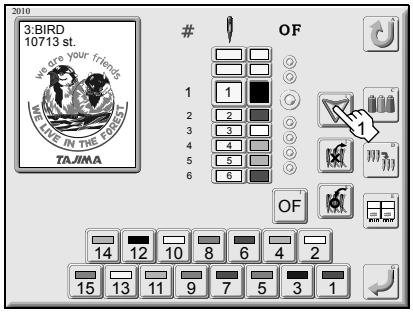
5. Insertion of needle bar step

<How to call the screen>



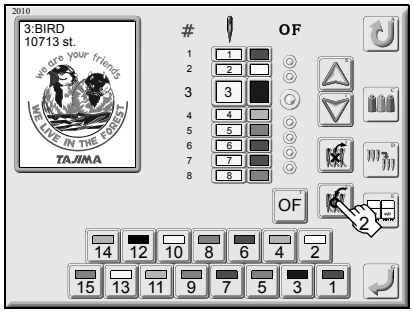
Select the design to be set

1. Select the needle bar step



◀ Screen 2010

2. Insert the needle bar step

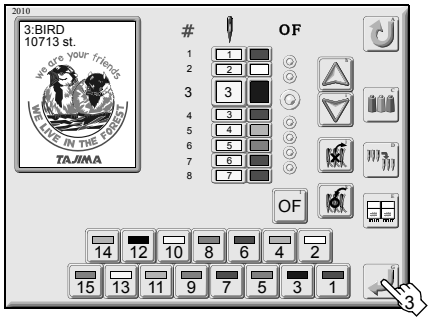


◀ Screen 2010

📖 When performing insertion, the needle bar step being selected will be copied to be inserted and the following needle bar steps will move down.

📖 Perform change of needle bar according to need. => p.35

3. Register

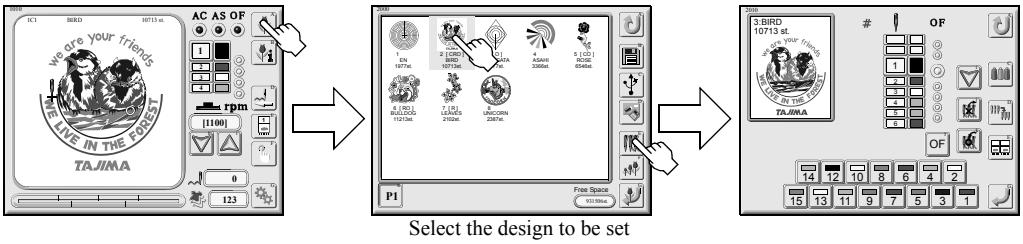


◀ Screen 2010

📖 Even when more number of needle bar steps than the number of steps of design data are inserted, excessive steps will not be embroidered.

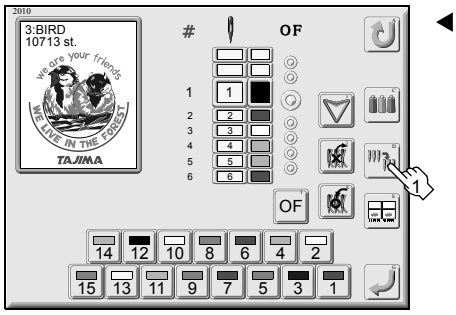
6. Needle bar conversion

<How to call the screen>



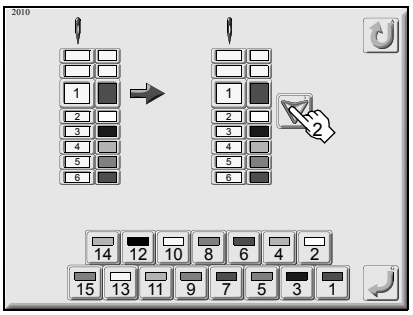
Select the design to be set

1. Select the needle bar conversion



◀ Screen 2010

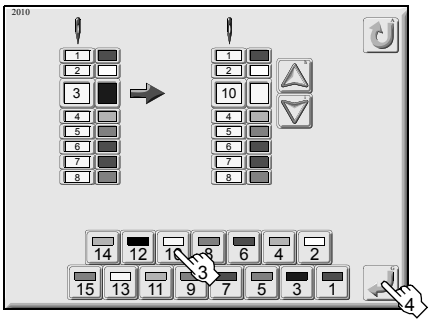
2. Select needle bar number which you want to convert



◀ Screen 2020

When pressing the select key to be converted, the needle bar and the target needle bar will move together.

3. Select the target needle bar number to perform decision

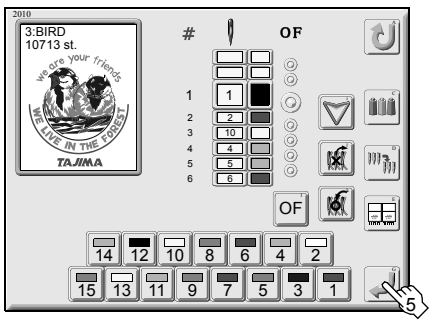


◀ Screen 2020

When selecting the target needle bar number, selected part will switch to the next needle bar.

After the decision, the screen will return to screen 2010 and color of design display will change.

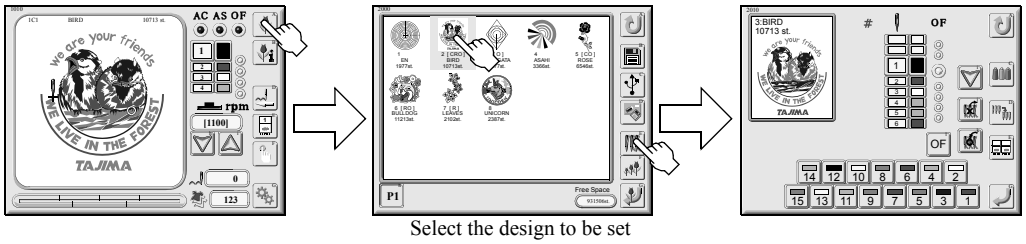
4. Register



◀ Screen 2010

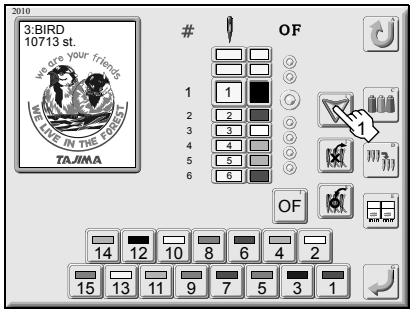
7. Offsetting at automatic color change

<How to call the screen>



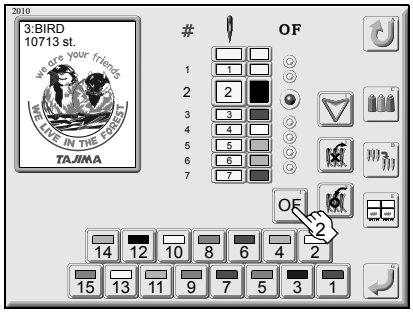
Select the design to be set

1. Select the needle bar step



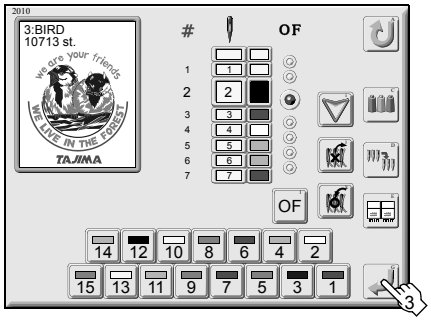
◀ Screen 2010

2. Select the offsetting at automatic color change



◀ Screen 2010

3. Register



◀ Screen 2010

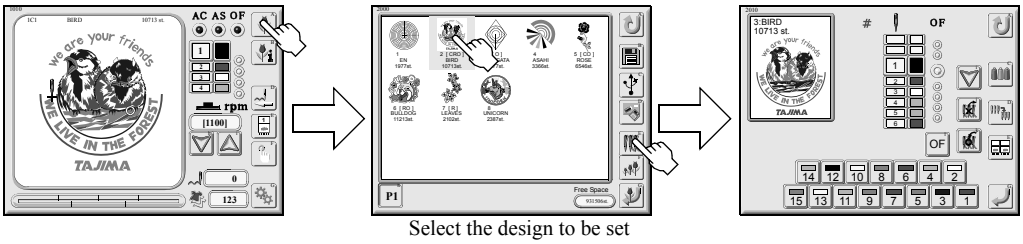
📖 Offsetting at automatic color change is the setting that makes the frame move to the set position of automatic offset at color change. When automatic offset is not registered, it will move to the design start position at color change.

📖 It is also possible to set other needle bars in the same way.

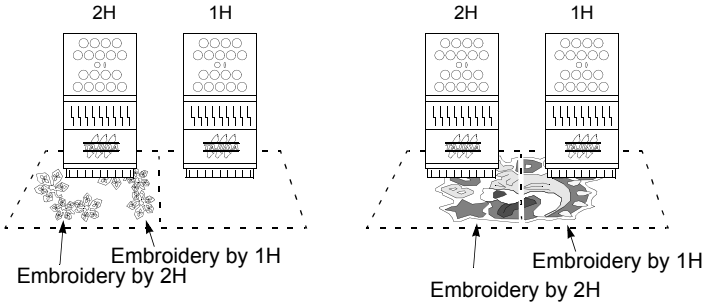
📖 Timing of frame travel by offsetting at automatic color change will be performed after completion of the set needle bar steps.

8. Head group

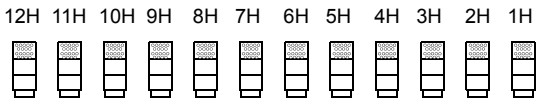
<How to call the screen>



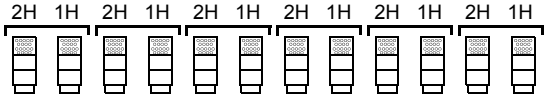
Select the design to be set



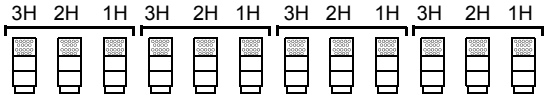
* In case of 9-needle machine (frame spec.:W), it is possible to perform embroidery with 18 colors.



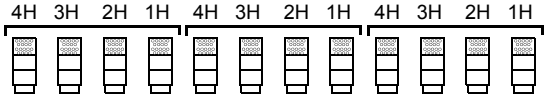
All heads
Without head group



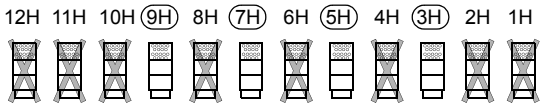
2H/WJ2H
2 head group



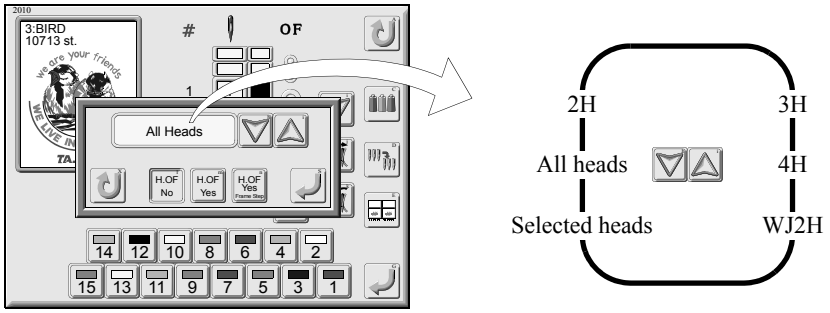
3H
3 head group



4H
4 head group



Selected heads
Only selected heads work.



- Head group is grouping 2 to 4 heads to perform embroidery. It is possible to embroider big design or use many colors by using plural heads as one head.
- When one head in a group performs embroidery, it is not possible to use other heads.
- When group head does not accommodate frame spec., it is not possible to set “Yes” to “H. OF” (Head offset).
- When you use all heads, head offset will be set to “No” and it will not be possible to select others.
- WJ2H is displayed only when frame spec. is 2W, 3W, WJ or 2WE.
- When you select WJ2H, head offset will be set to “Yes” and it will be impossible to select others.
- When you select selected heads, head offset will be set to “No” and it will be impossible to select others.
- WJ2H => p.138

H.OF No — The machine does not perform head offset.

H.OF Yes — The machine performs head offset.

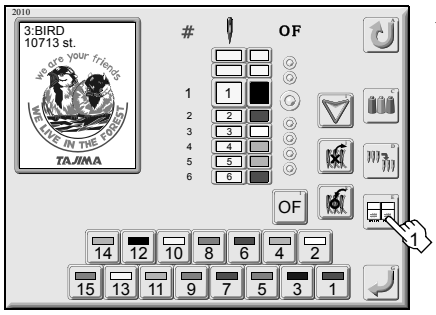
H.OF Yes Frame Step — The machine performs head offset.

- H.OF (Head offset)
  This function makes the frame move automatically to the next head position when sewing head changes.
- H.OF Frame Step => p.137
  This function makes the frame move automatically to the next head position and perform jumping at frame stepping when sewing head changes. If “H. OF Frame Step” is set to design(s) in setting for head offset, it is not possible to perform tracing.
- When you sew sequins, sequin devices at heads that do not perform sewing also move down. For this reason, pay attention so that moving down of the sequin device does not cause damage to the sequin device. When frame spec. is S, sequin devices at all heads always move down. When frame spec. is W or any of W series (except S), sequin devices at either even-numbered heads or odd-numbered heads, or at all heads move down.

CAUTION

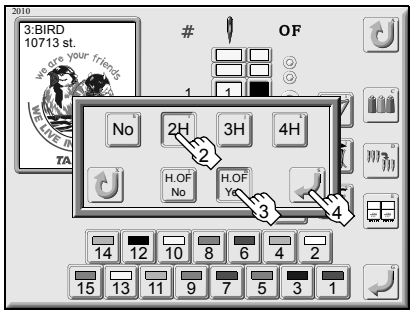
Head group does not function until setting for automatic color change is set to "Yes".
In case of "No", when you set data of design, which you set selected head(s) in head group of needle bar selection and start the machine, needles of all heads will move down.

1. Select the head group



◀ Screen 2010

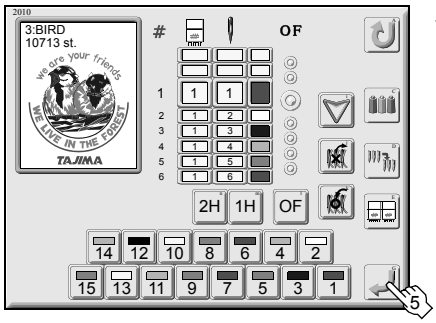
2. Setting of head group



◀ Screen 2010

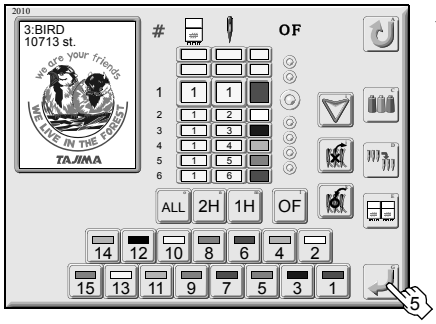
When setting of WJ2H is possible

3. Register head group



◀ Screen 2010

Registration of head group with WJ2H



◀ Screen 2010

📖 H. OF (Head offset)
This function makes the frame move to the next head position when head is changed.

📖 It is possible to set WJ2H in 2W, 3W, WJ and 2WE frame spec. models.
=> p.137

📖 Application of head offset differs depending on frame specification and head group.

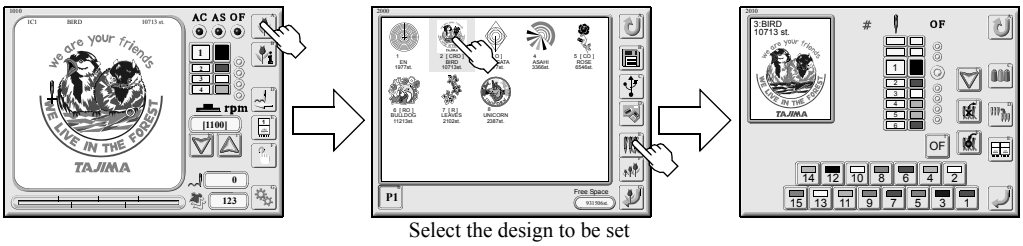
	2H	3H	4H	WJ2H
W	○	×	×	—
2W	○	○	×	○
3W	○	○	○	○
WE	○	×	×	—
WJ	○	○	×	○
2WE	○	○	×	○

○ Selectable × Not selectable — No display

📖 Selecting "ALL" in selection of head will cause the machine to perform embroidery with all heads.

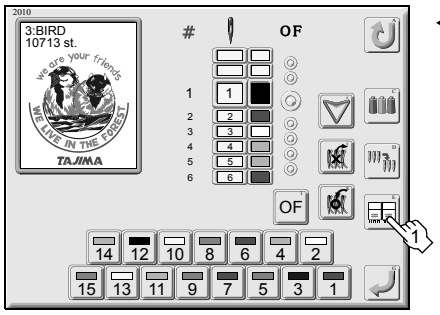
9. Pattern making of the selected head

<How to call screen>



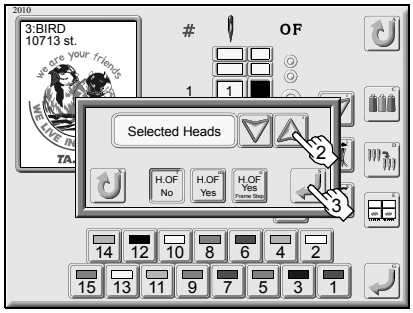
Select the design to be set

1. Select head group.



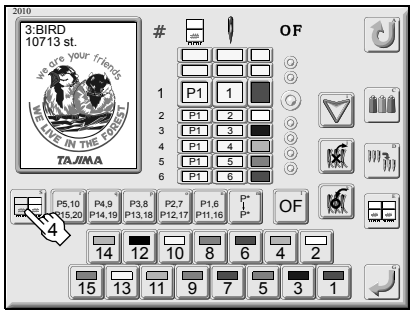
◀ Screen 2010

2. Select and decide selected heads.



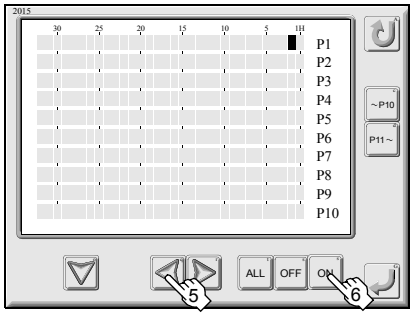
◀ Screen 2010

3. Setting for the selected heads



◀ Screen 2010

4. Select and set head to work.



◀ Screen 2010

Selection of head

ON Working head

OFF Suspended head

Selected head => p.139

"Select heads" can select only heads that work to perform embroidery.

It is possible to register up to 20 patterns assuming a combination of selected heads as 1 pattern.

In case of sequin embroidery, feed amount of sequin chip varies depending on head pattern set by needle bar step of needle bar selection.
In needle bar steps that set "P1" and "P5 to P20", sequins are fed by feed amount of "ALL, 1H" in parameter Sequin (R)/(L) (feed interval) setting. Regarding "P2", "P3" and "P4", sequins are fed by feed amount set in "2H", "3H" and "4H" respectively.

When you select "Selected heads", head offset (H. OF) will be set to "No" and it will be impossible to select others.

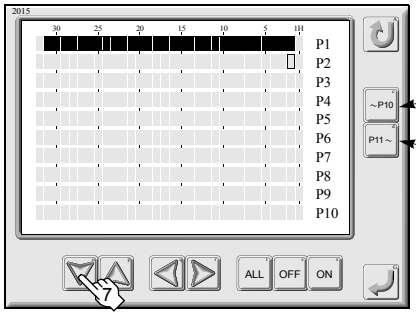
When you set head setting to "Selected heads", all needle bar steps will be displayed in "P1".

When you select heads and press the "ON" button, they will become heads to work and black mark will be attached. "OFF" can cancel working.

It is possible to select all heads by pressing "ALL+ON". Pressing "ALL+OFF" will cause all heads to be canceled.

You can also select heads to work on the touch panel.

5. Select pattern.



◀ Screen 2010

Displays patterns P1 to P10

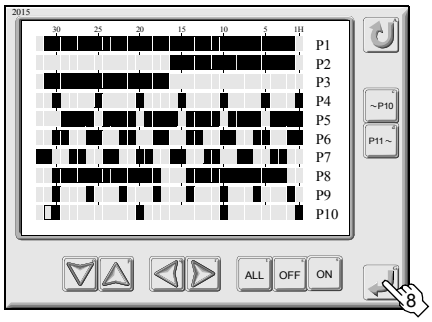
Displays patterns P11 to P20

Selection of pattern

📖 You can make another patter by selecting the next pattern continuously. You can make up "P1 to P20" patterns.

📖 Only in pattern P1, all heads are set to "ON" as the default setting.

6. Registration of pattern

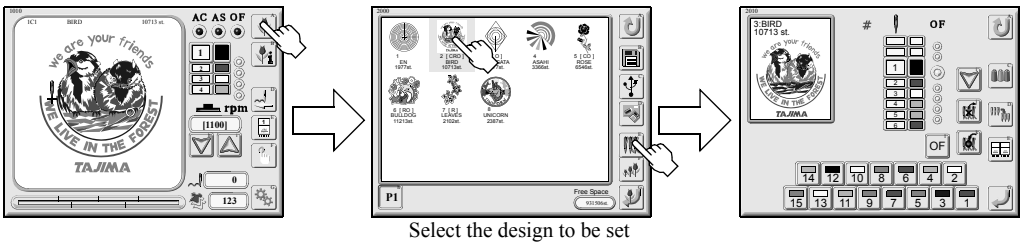


◀ Screen 2010

📖 Register pattern(s).
After the registration, the screen will return to the screen 2010.

10. Setting for the selected heads

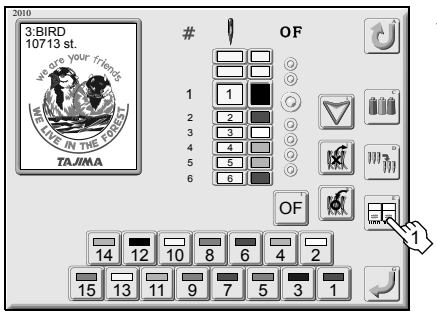
<How to call screen>



Select the design to be set

Selected heads => p.139

1. Select head group.



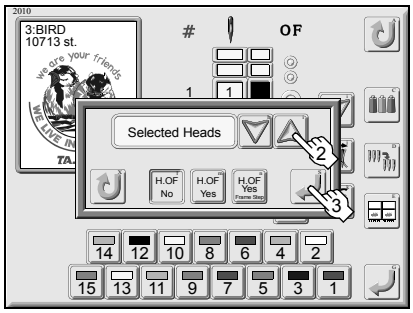
◀ Screen 2010

Apply the combination of pattern of the selected heads to needle bar steps.

When you use selected heads, set parameter "1. Auto Color Change (AC)" to "Yes". Selecting "No" will perform embroidery with all heads.

Selected heads cannot apply to needle bar conversion.

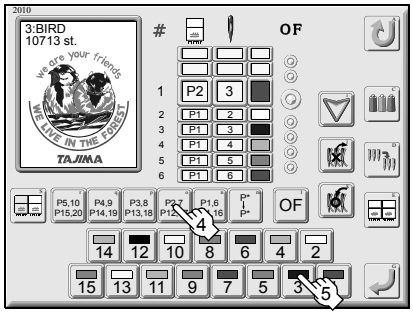
2. Select and decide the selected heads.



◀ Screen 2010

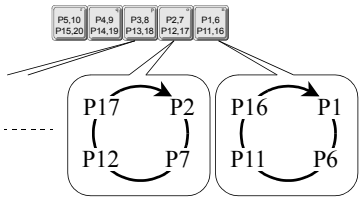
When you select selected heads, head offset (H. OF) will be set to "No" and it will be impossible to select others.

3. Setting for pattern and needle bar



◀ Screen 2010

The same pattern as the previous one

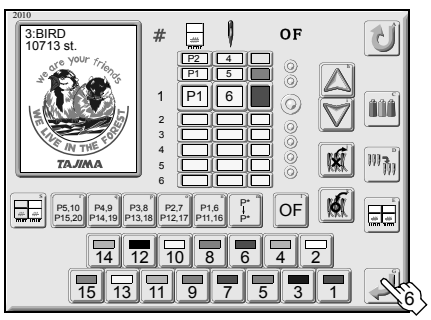


Set needle bars by applying the registered patterns of the selected heads to needle bar steps.

Every pressing the pattern selecting button will switch to the displayed pattern.

Apply needle bar colors that have been set in the first head.

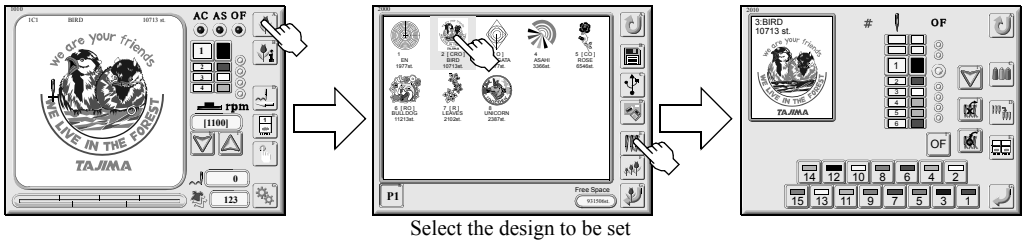
4. Register.



◀ Screen 2010

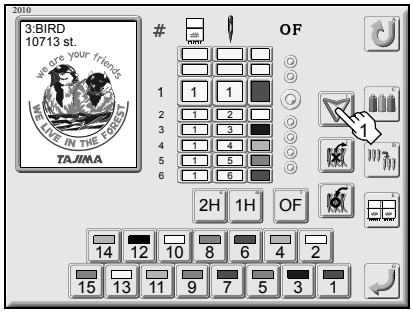
11. Needle bar change (head group)

<How to call the screen>



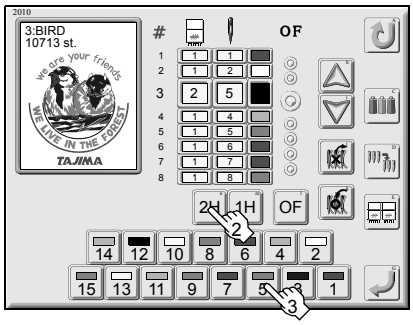
Select the design to be set

1. Select the needle bar step.



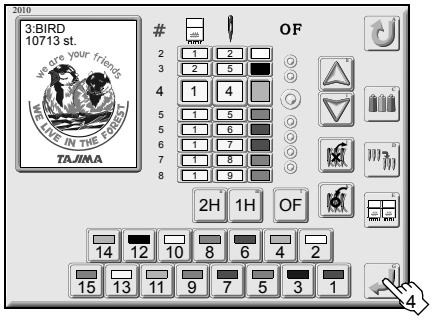
◀ Screen 2010

2. Select the target head and needle bar number to be changed.



◀ Screen 2010

3. Register



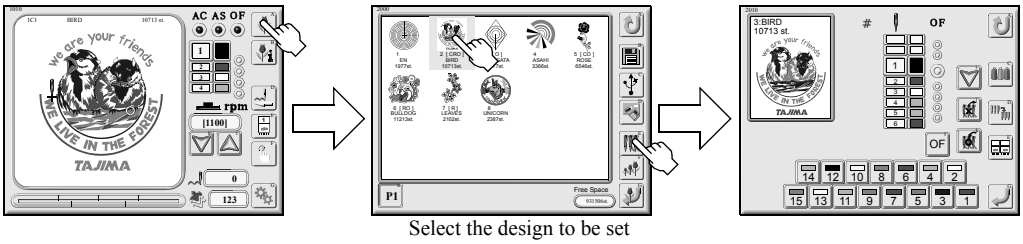
◀ Screen 2010

📖 It is also possible to change other needle bars in the same way.

📖 Selecting the target needle bar number will select the next needle bar step.

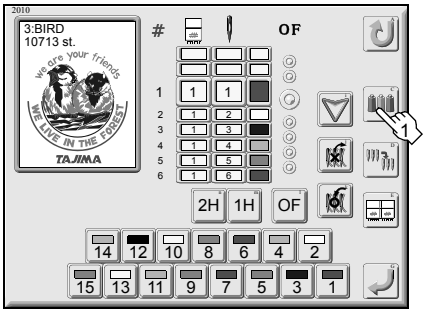
12. Needle bar color (head group)

<How to call the screen>



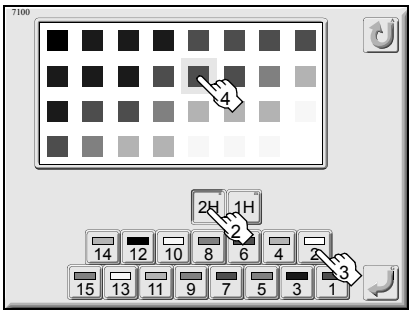
Select the design to be set

1. Select the setting of needle bar color.



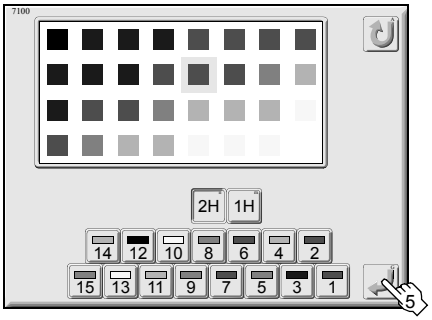
◀ Screen 2010

2. Select head, needle bar color, and needle bar number key.



◀ Screen 7100

3. Register

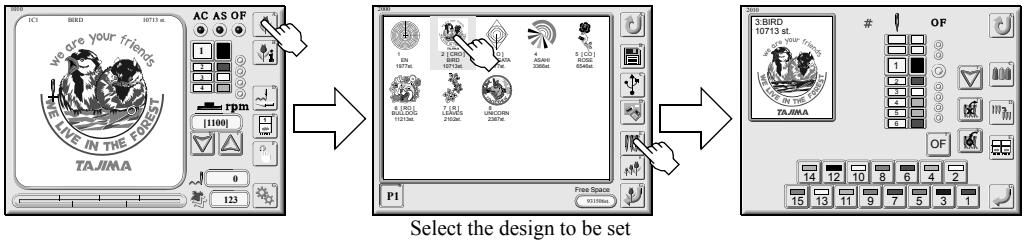


◀ Screen 7100

It is also possible to change other needle bars in the same way.
In addition, it is possible to perform setting in reversed order of needle bar color and needle bar number keys.

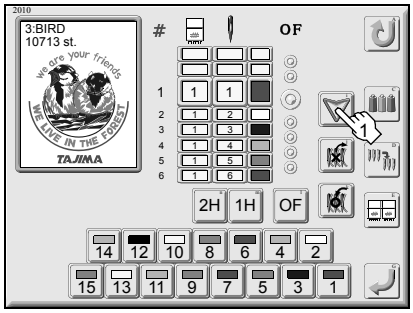
13. Deletion of needle bar step (head group)

<How to call the screen>



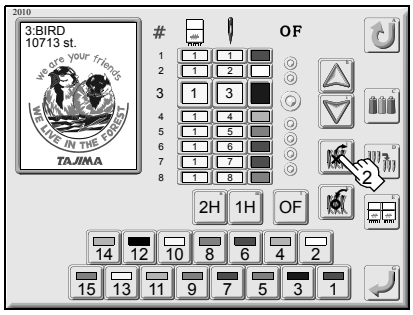
Select the design to be set

1. Select the needle bar step.



◀ Screen 2010

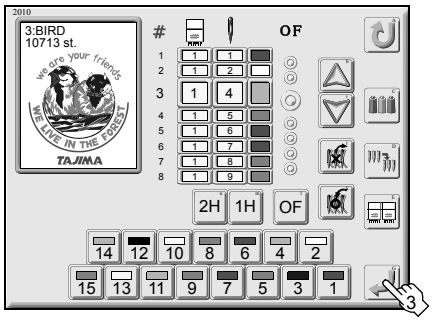
2. Delete the needle bar step.



◀ Screen 2010

📖 When it is deleted, the following needle bar steps will be moved up.

3. Register

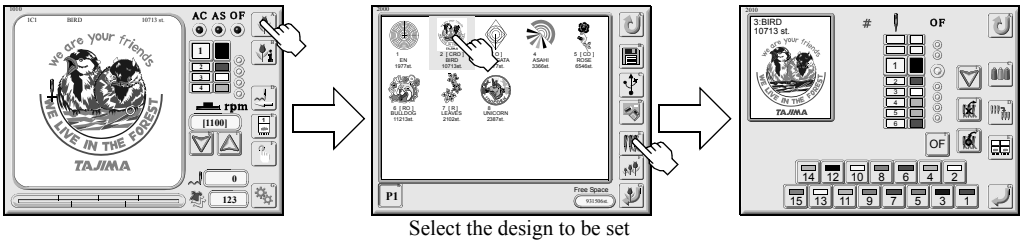


◀ Screen 2010

📖 When the number of needle bar steps is less than the number of steps of design data, the needle step will return to the first step.

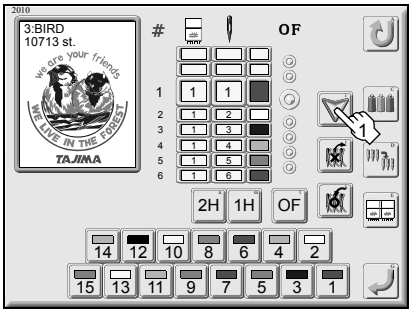
14. Insertion of needle bar step (head group)

<How to call the screen>



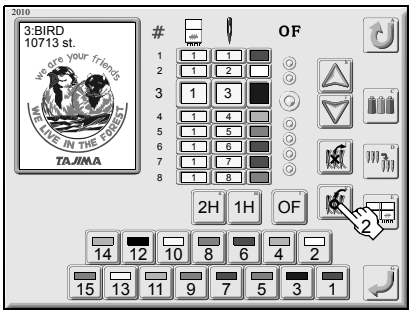
Select the design to be set

1. Select the needle bar step.



◀ Screen 2010

2. Insert the needle bar step.

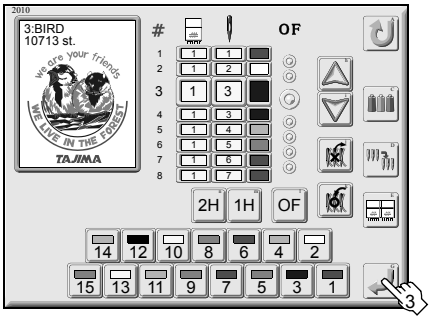


◀ Screen 2010

📖 When performing insertion, the needle bar step being selected will be copied to be inserted and the following needle bar steps will move down.

📖 Perform change of needle bar according to need. => p.46

3. Register

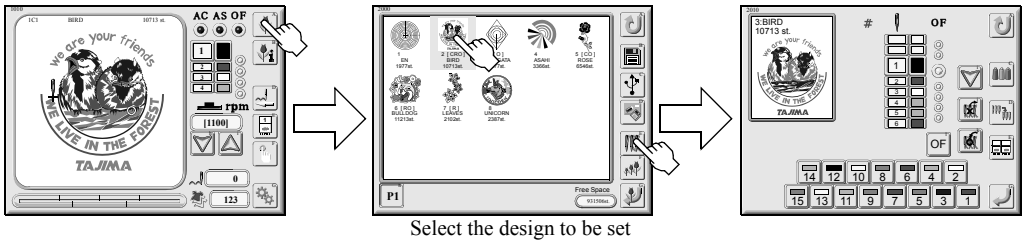


◀ Screen 2010

📖 Even when more number of needle bar steps than the number of steps of design data are inserted, excessive steps will not be embroidered.

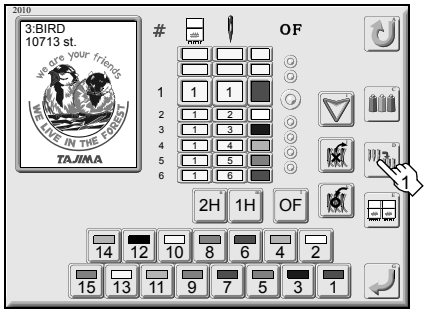
15. Needle bar conversion (head group)

<How to call the screen>



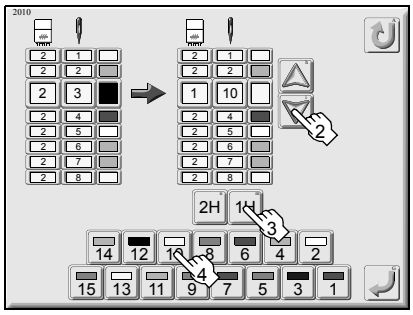
Select the design to be set

1. Select the needle bar conversion.



◀ Screen 2010

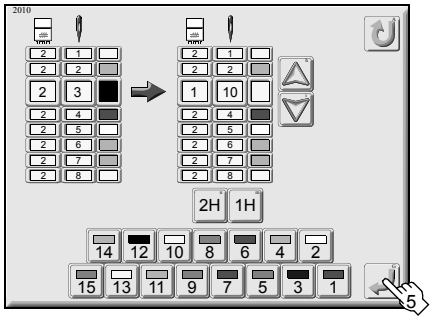
2. Select the target needle bar number to be changed.



◀ Screen 2020

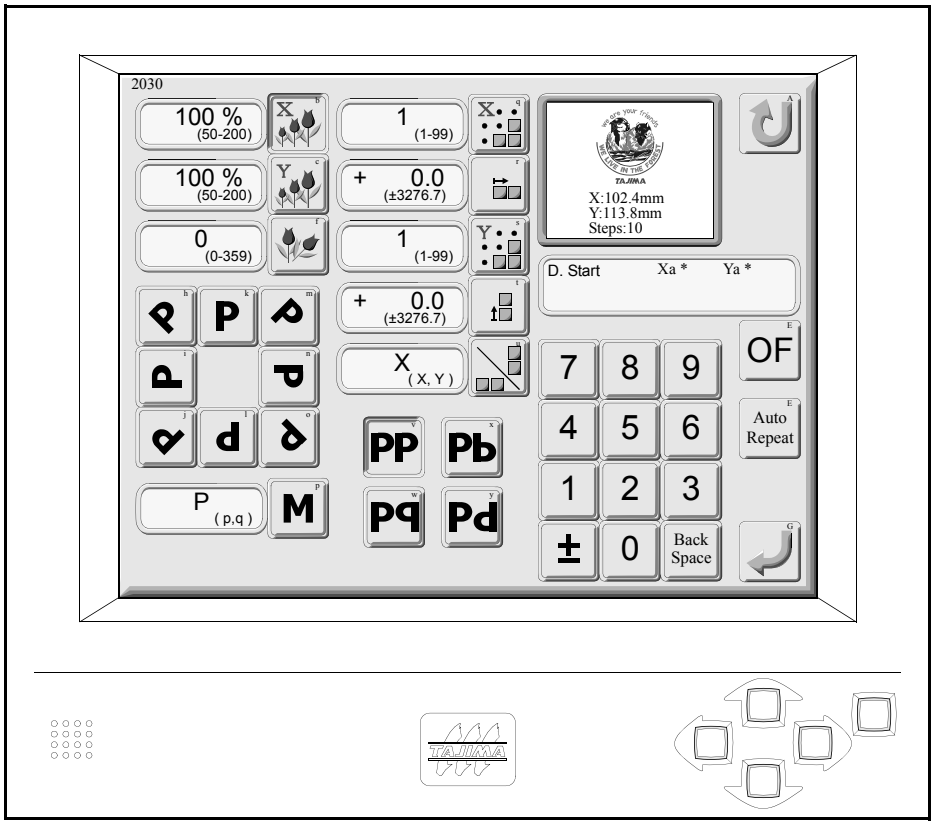
📖 It is also possible to change other needle bars in the same way.

3. Register



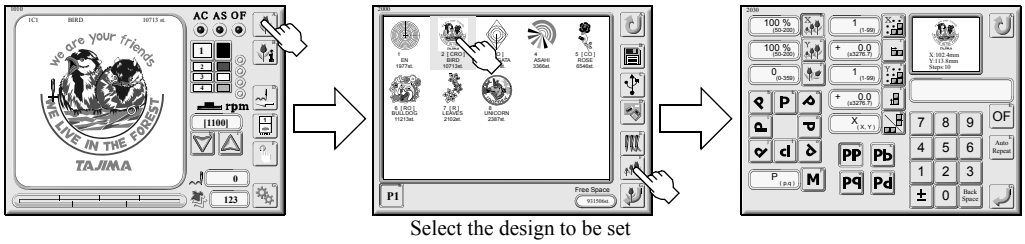
◀ Screen 2020

CHAPTER 5 DATA CONVERSION



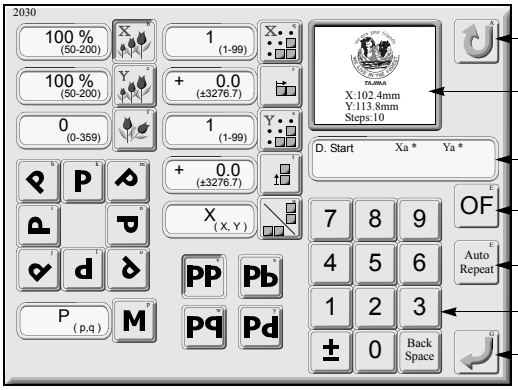
1. Screen 2030

<How to call the screen>



Select the design to be set

Data conversion screen



To return to the screen 2000

Design data information

Offset position display

Setting for offset position

Automatic arrangement in repeat

Numerical key

Register

Scale ratio in X direction

Scale ratio in Y direction

Rotation

45° rotation

Mirror image reversion

The number of repeats in X direction

Design interval amount in X direction

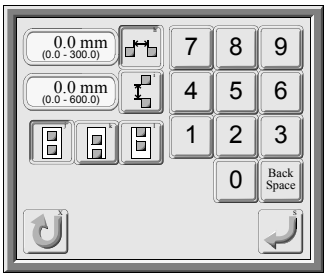
The number of repeats in Y direction

Design interval amount in Y direction

Priority direction in repeat

Repeat arrangement

Automatic repeat



X design interval amount

Y design interval amount

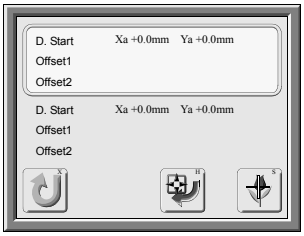
Arranging at the center

Arranging from front

Arranging from rear

Set automatic repeat

Setting for offset position



Move the frame to the design start

Register the design start position

OF1 Register offset position 1.

OF2 Register offset position 2.

Return to the previous operation by one

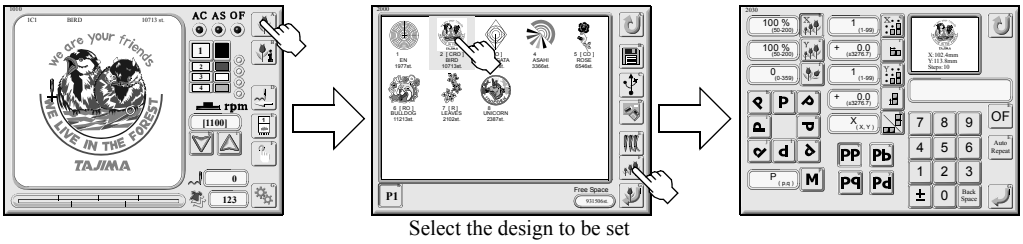
Pressing the information area of design data will switch to design number, design name, and the number of stitches.
The design data of which data is set will be displayed in red characters.

Changing the design data of which data is set will cause the data set to be canceled.

When an offset position is registered, a start position and an offset position of a design will be displayed.

2. Design scale up/down

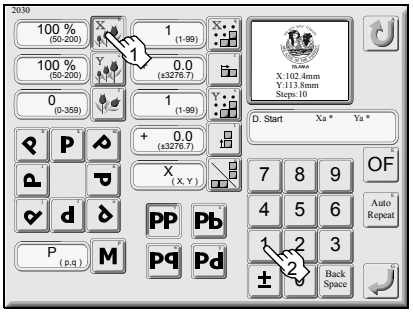
<How to call the screen>



Select the design to be set

Design scale up/down => p.130

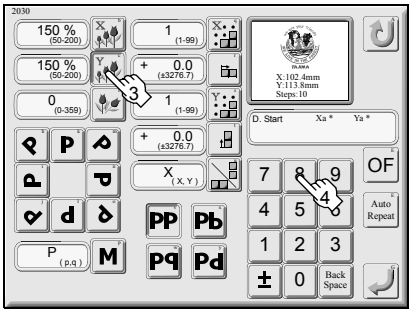
1. Change of scale ratio in X direction



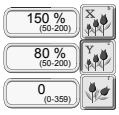
◀ Screen 2030

When design scale in X direction is input, design scale in Y direction will become the same value.

2. Change of scale ratio in Y direction

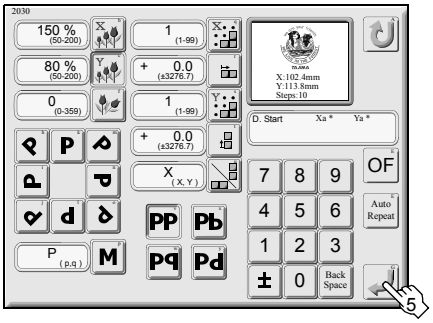


◀ Screen 2030



When design scale in Y direction is input, only the design scale in Y direction will be changed.

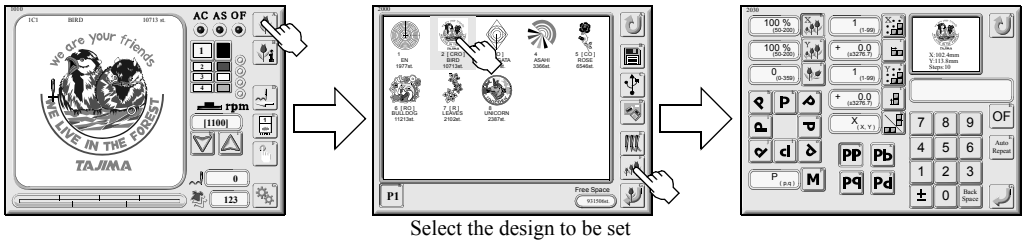
3. Register



◀ Screen 2030

3. Rotation/mirror image reversion

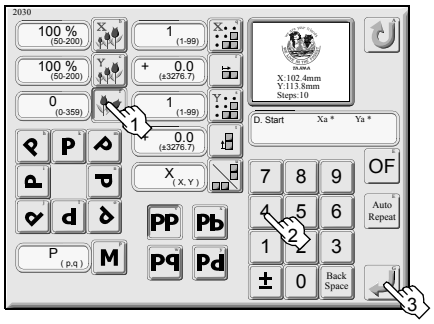
<How to call the screen>



Select the design to be set

Rotation,Mirror image reversion => p.130

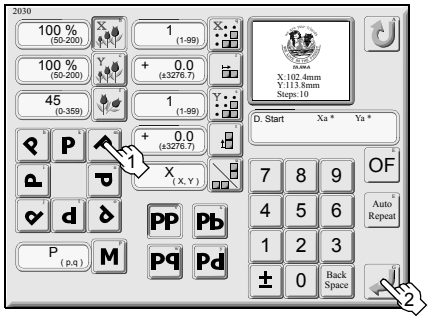
Rotation by input of value



◀ Screen 2030

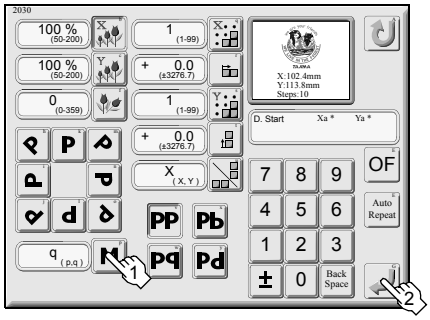
It is possible to input value by 1° unit.

Rotation by 45° unit



◀ Screen 2030

Mirror image (reversion)

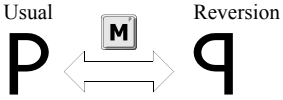


◀ Screen 2030

Select the design to set in the screen 2000.

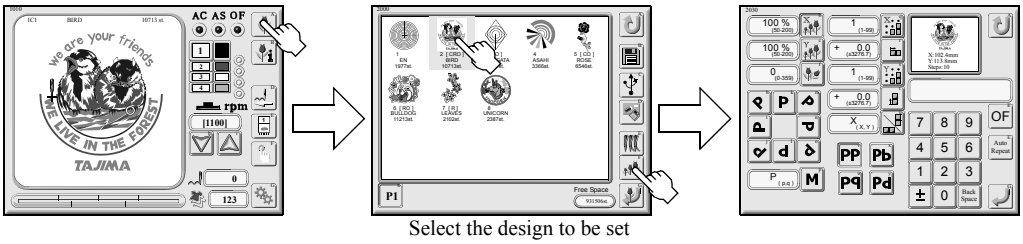
It will be switched every time the icon is pressed.

Usual → Reversion



4. Repeat

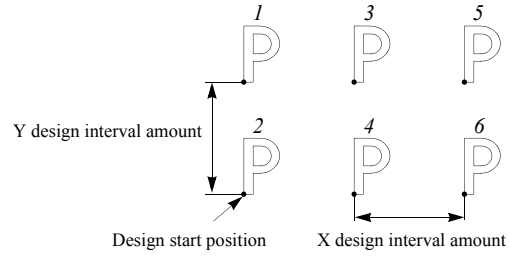
<How to call the screen>



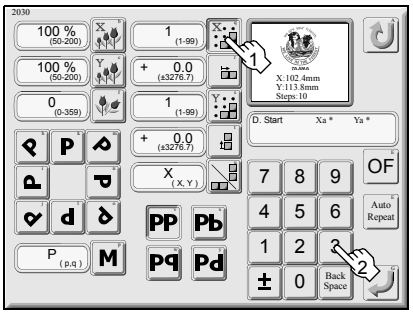
Select the design to be set

Repeat => p.131

Repeat

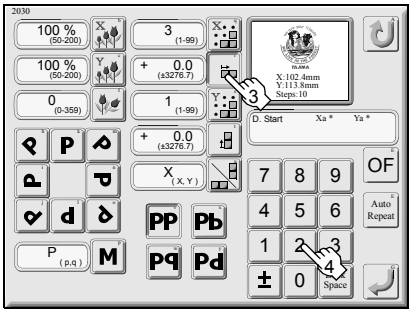


1. The number of designs to be arranged to X direction



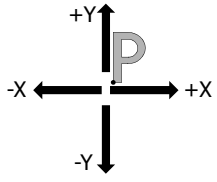
◀ Screen 2030

2. Design interval amount in X direction

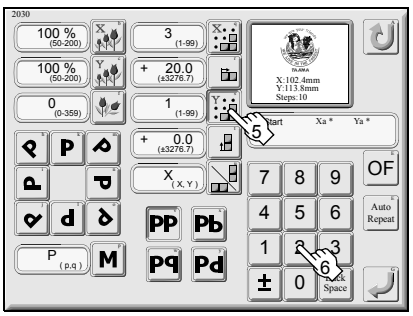


◀ Screen 2030

Arranging direction will be decided by the symbol of amount of design interval.
Unit of design interval amount: mm

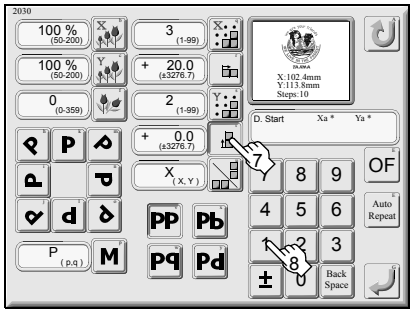


3. The number of designs to be arranged to Y direction



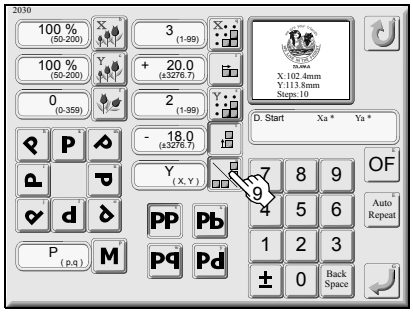
◀ Screen 2030

4. Design interval amount in Y direction



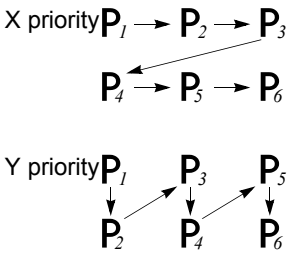
◀ Screen 2030

5. Priority direction

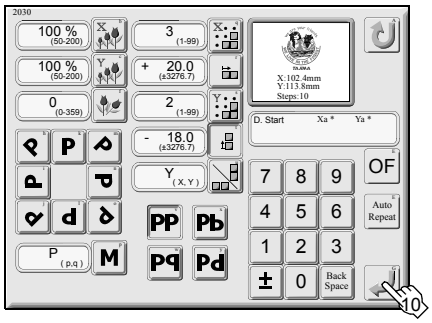


◀ Screen 2030

📖 Every pressing the icon will switch direction of priority (X/Y).



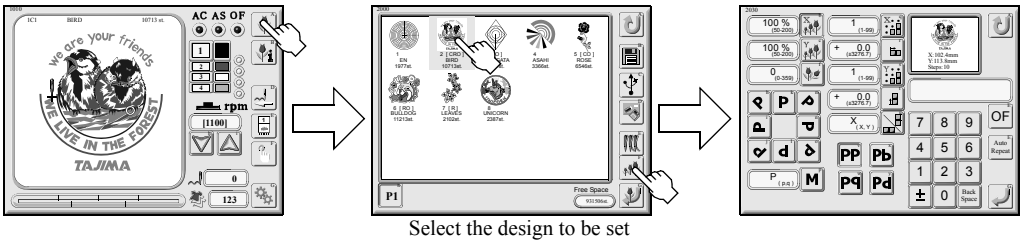
6. Register



◀ Screen 2030

5. Repeat (Converted arrangement)

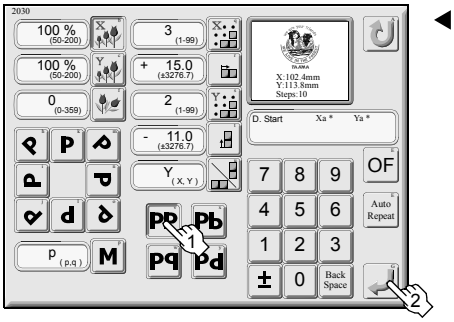
<How to call the screen>



Select the design to be set

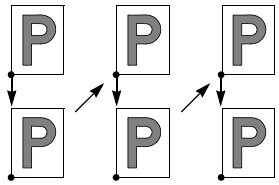
Converted arrangement => p.131
Set “repeat”.

PP No conversion

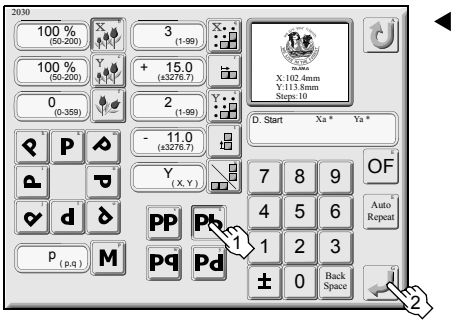


◀ Screen 2030

3 times to X, 2 times to Y, Y priority

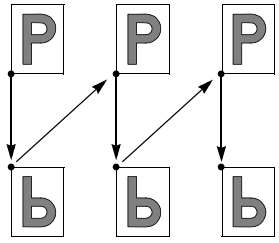


Pb X-axis mirror

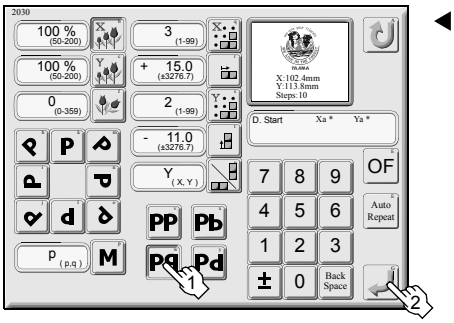


◀ Screen 2030

3 times to X, 2 times to Y, Y priority

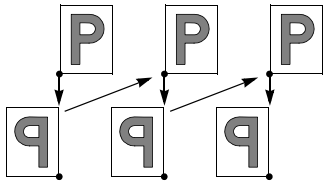


Pq Y-axis mirror

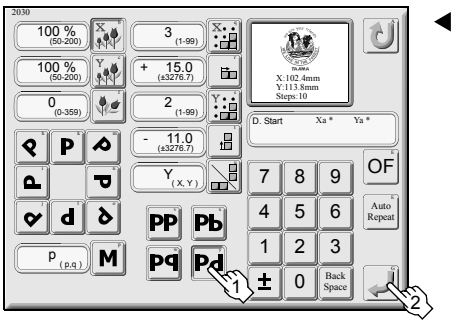


◀ Screen 2030

3 times to X, 2 times to Y, Y priority

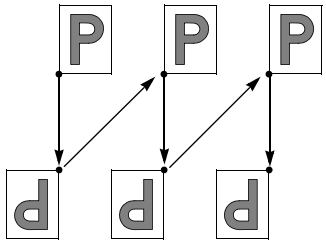


Pd 180° rotation



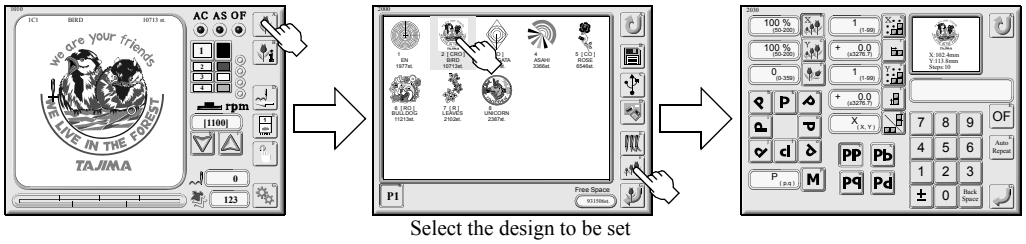
◀ Screen 2030

3 times to X, 2 times to Y, Y priority



6. Repeat (Automatic arrangement)

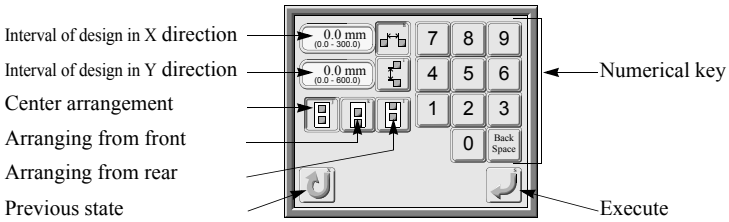
<How to call the screen>



Select the design to be set

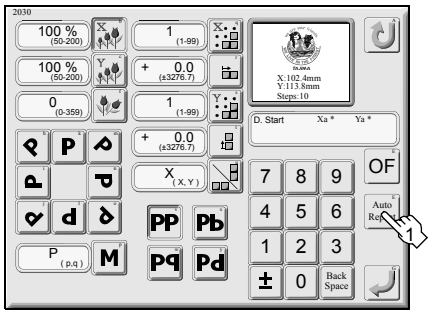
Repeat => p.131

Pop-up window for automatic arrangement in repeat



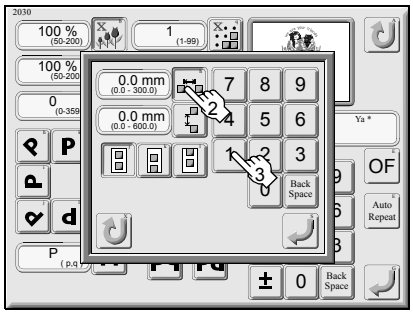
Automatic arrangement in repeat
When setting X and Y design intervals and selecting and executing arranging method, design will be arranged as much as possible in the embroidery space.

1. Select the automatic arrangement in repeat.



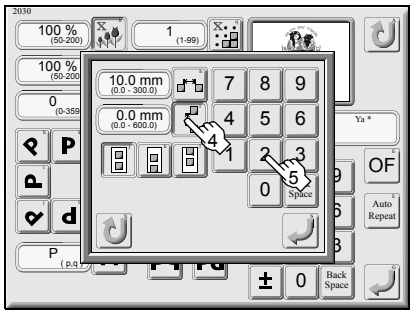
◀ Screen 2030

2. Input an interval in X direction.



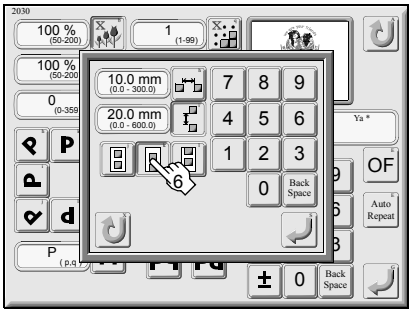
◀ Screen 2030

3. Input an interval in Y direction.



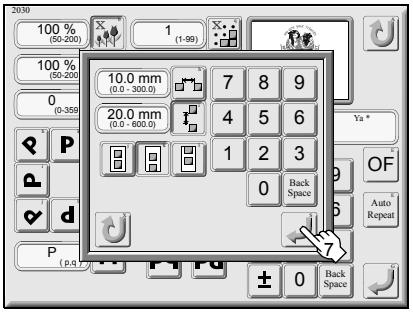
◀ Screen 2030

4. Select arrangement mode.



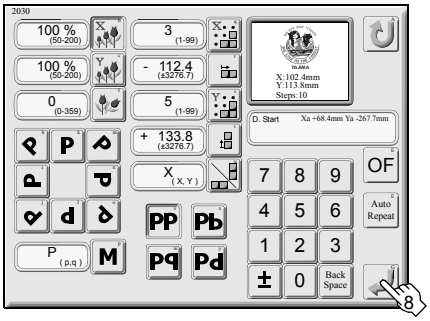
◀ Screen 2030

5. Decide the setting value.



◀ Screen 2030

6. Register

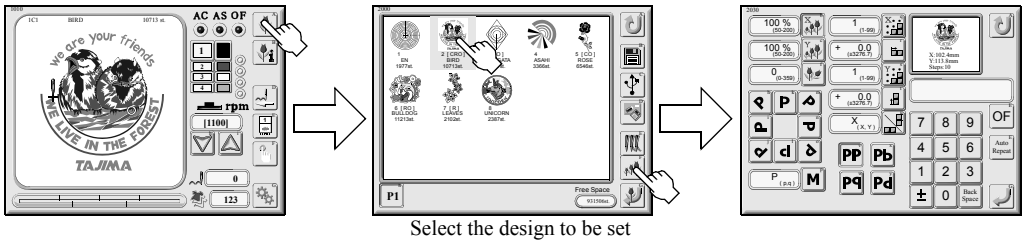


◀ Screen 2030

📖 The number of repeats in XY, design interval, and design start position will be input automatically.

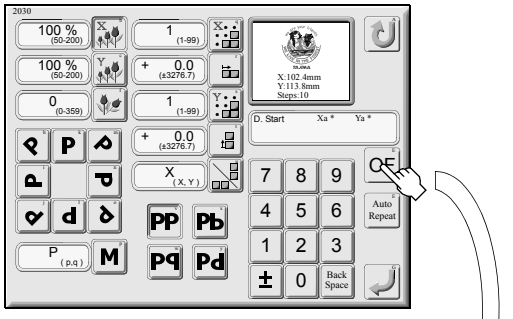
7. Offset screen

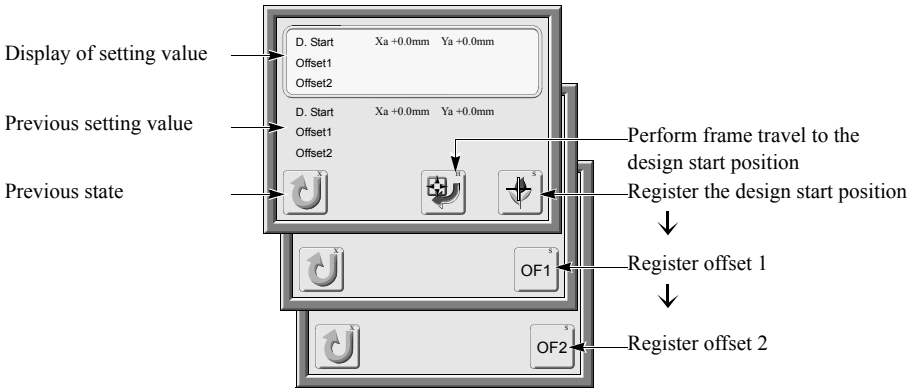
<How to call the screen>

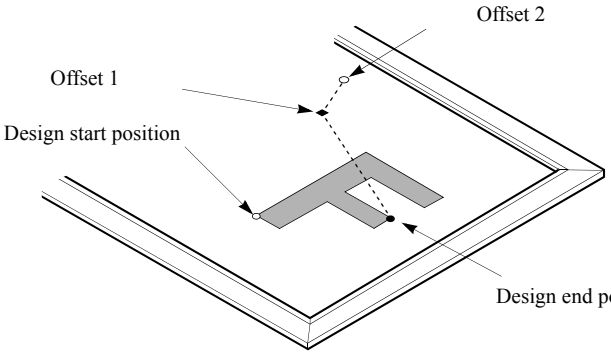


Select the design to be set

Setting screen of offset position

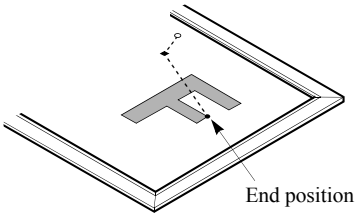




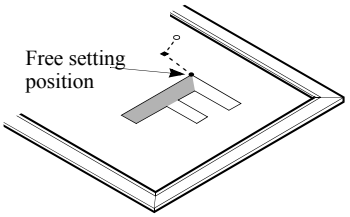


Offset position
When the frame moves by automatic offset, automatic free setting offset or offsetting at automatic color change, this position makes the frame move to offset 1 or offset 2 through offset 1.

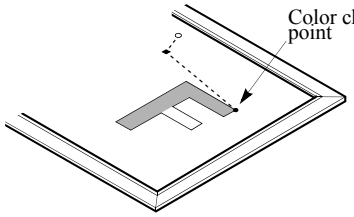
Automatic offset => p.132
This function makes the frame move to the offset position at the end of embroidery.



Automatic free setting offset => p.133
This function makes the frame move to the offset position from a free setting position in the middle of embroidery.

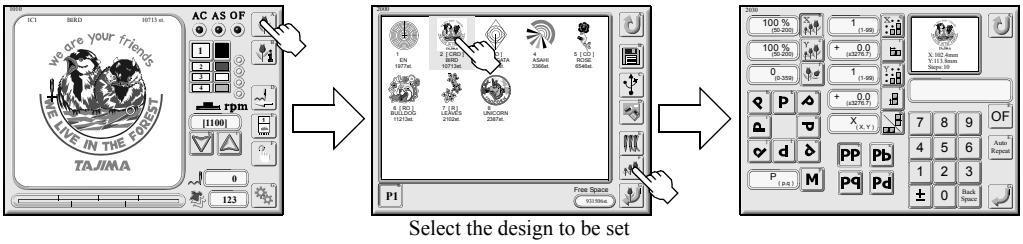


Offsetting at automatic color change => p.40 p.134
This function makes the frame move to the offset position at a color change point in the middle of embroidery.



8. Setting for offset position

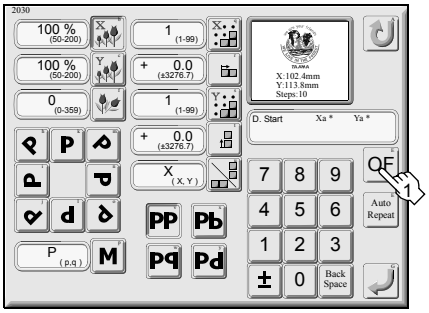
<How to call the screen>



Select the design to be set

Automatic offset => p.132

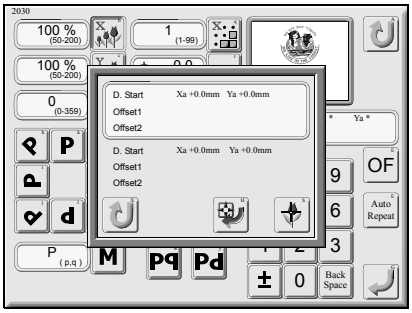
1. Select offset position setting.

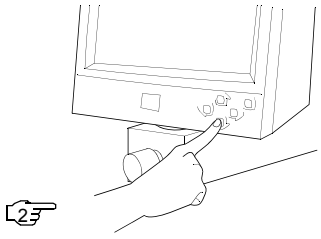


◀ Screen 2030

If offset position has already been registered, it is possible to set a new position.

2. Input the design start position.



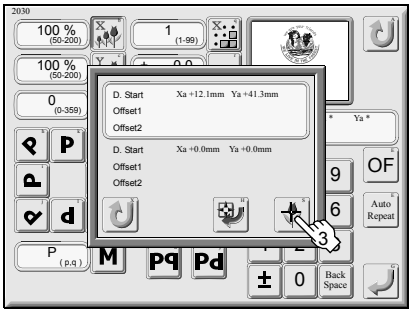


▲ Manual frame travel

The position where the frame was moved manually is input as the coordinate value.

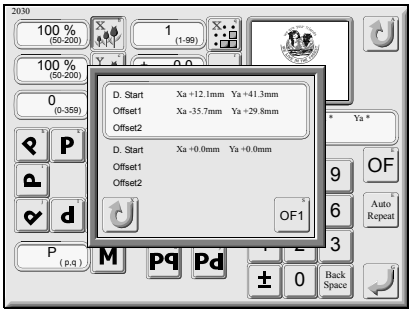
When using the design start position that has already been registered
Press the icon to move the frame to the start position of the registered design.

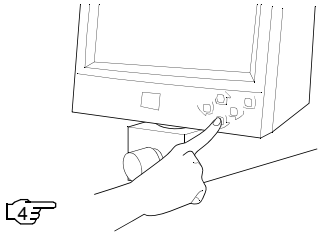
3. Register the design start position.



◀ Screen 2030

4. Input offset 1

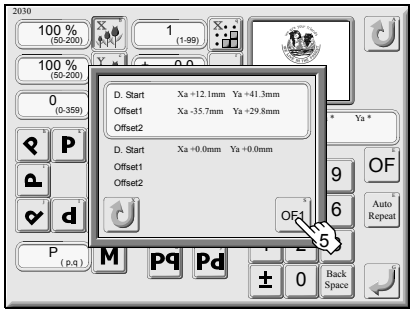




▲ Manual frame travel

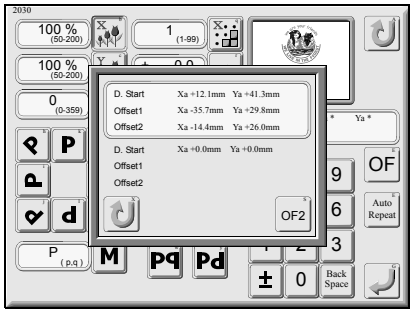
The position where the frame was moved manually is input as offset 1. The coordinate value at this moment will be the relative value against the start position of the design.

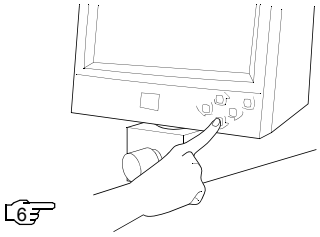
5. Register offset 1



◀ Screen 2030

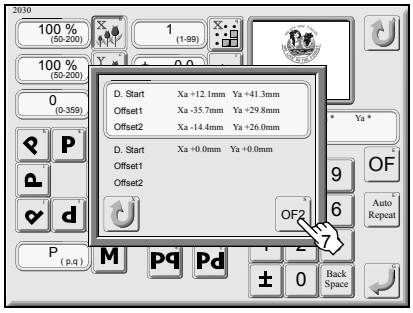
6. Input offset 2



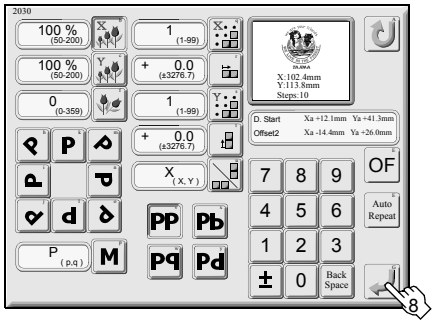


▲Manual frame travel

7. Register offset 2



8. Register the offset position.



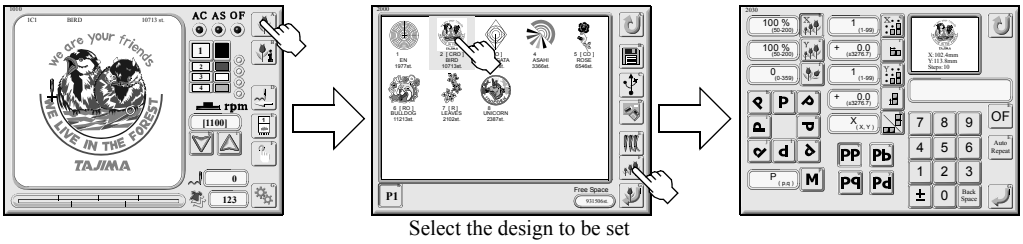
📖 To finish setting with offset 1 only, do not move the frame and press “OF2” as it is.

📖 To perform automatic thread trimming during frame travel in offset, set the parameter “21. ATH” to “Yes”.
ATH => p.115

📖 To cancel offset position, set only start position of design and press “OF1” without performing frame travel.

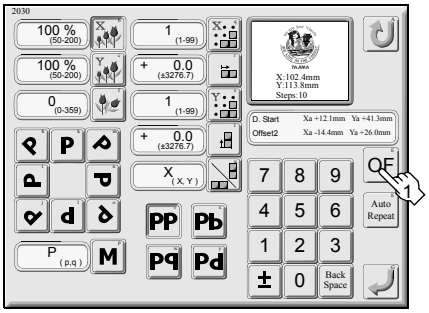
9. Cancellation of offset position

<How to call the screen>



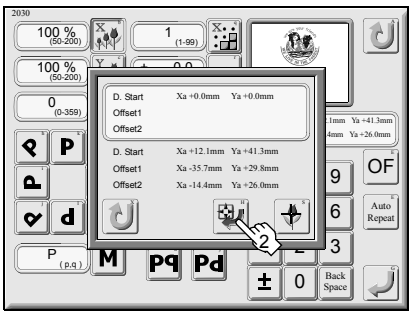
Select the design to be set

1. Select offset position setting.



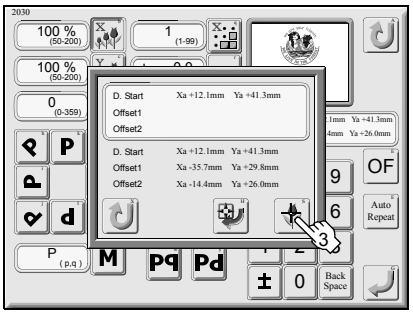
◀ Screen 2030

2. Move the frame to start position of design.



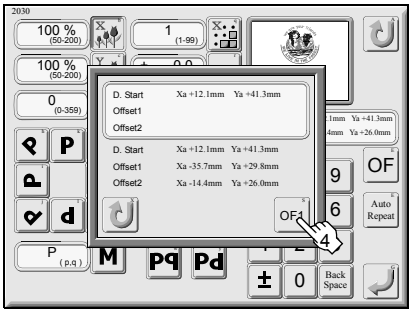
📖 When moving the frame manually, start position of design will be changed.

3. Register the design start position.



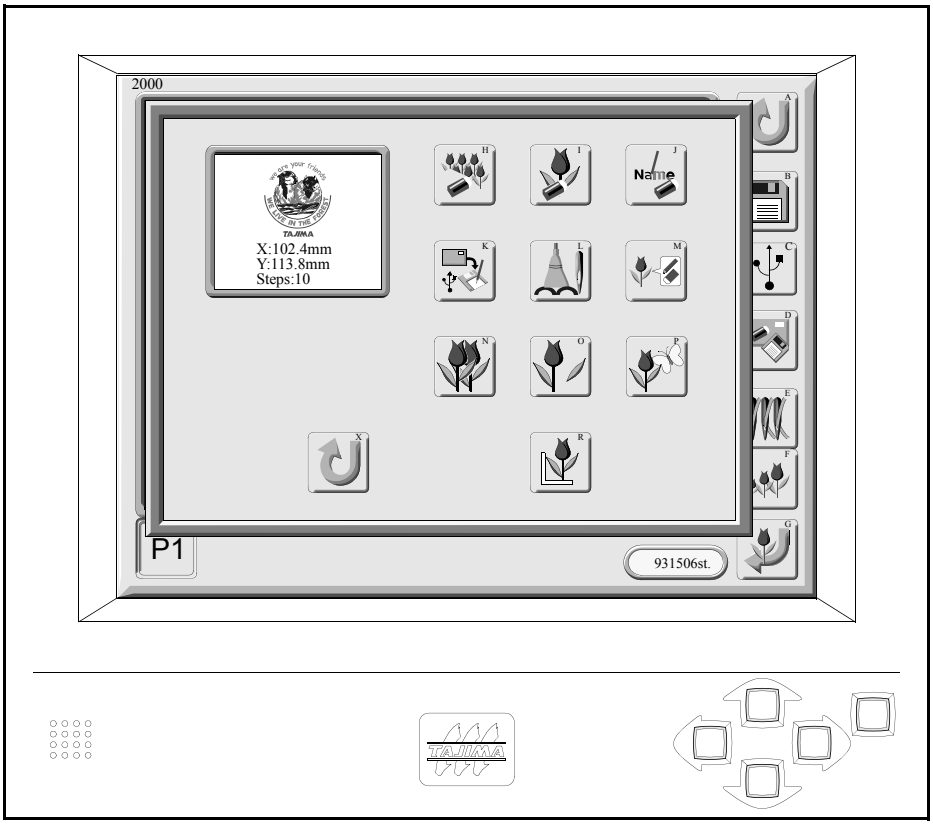
◀ Screen 2030

4. Register offset 1 as it is.



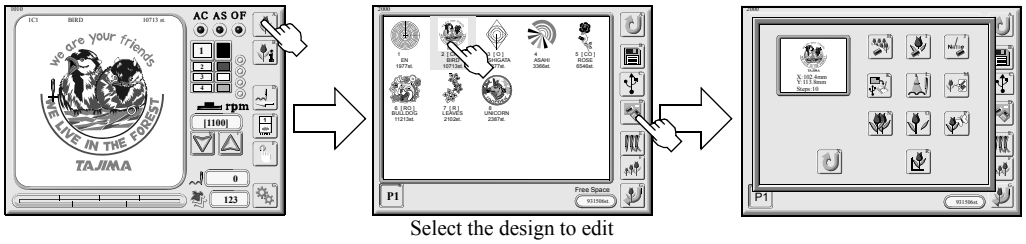
📖 Registering “OF1” without frame travel as it is will cancel the offset position.

CHAPTER 6 DESIGN DATA EDIT



1. Design data edit screen

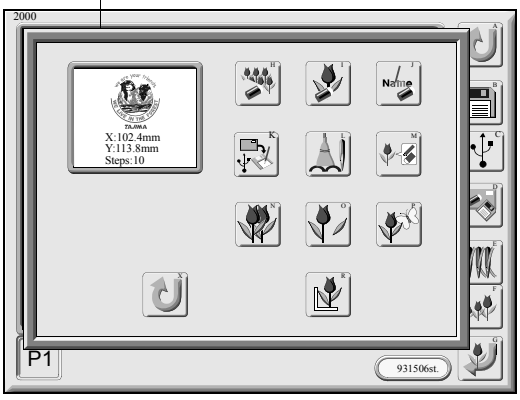
<How to call the screen>



Select the design to edit

Design data edit screen

Design display



	Deletion of all designs		Design deleting
	Overwriting of design name		USB memory/floppy disk writing
	Cleanup		Stitch editing
	Design copying		Design dividing
	Design combining		Marking

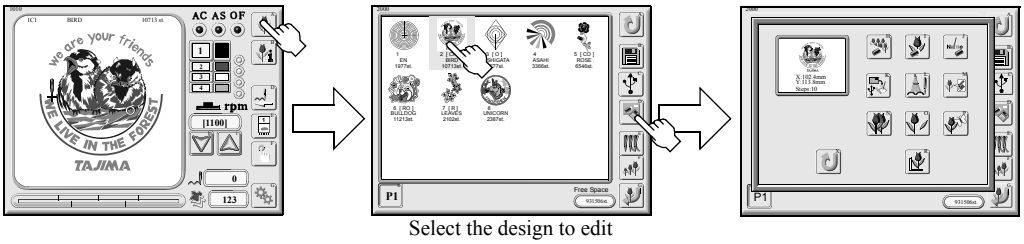
When editing the design of which data is set, data set will be canceled.

When memory free space becomes 0st. or up to 99 designs are registered in the memory, icons of "copy of design, dividing of design, combining of design, AFC design combine, marking" will not be displayed.

When the edited design exceeds 1,000,000 stitches, it is not possible to register it to the memory.

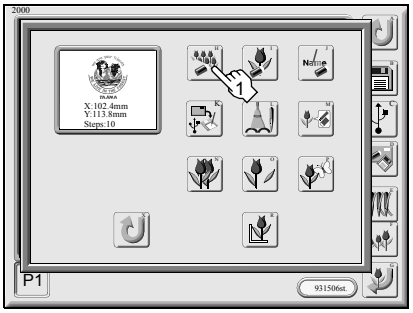
2. Delete all designs.

<How to call the screen>



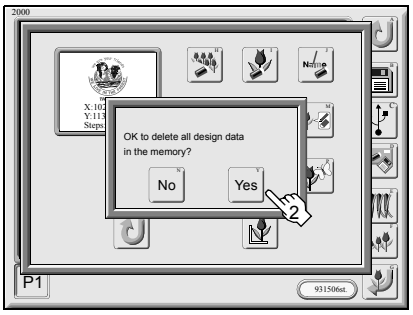
Select the design to edit

1. Select deletion of all designs.



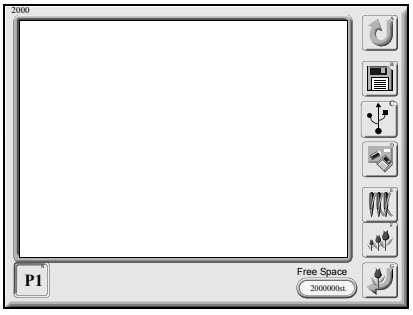
◀ Screen 2000

2. Confirming the deletion



◀ Screen 2000

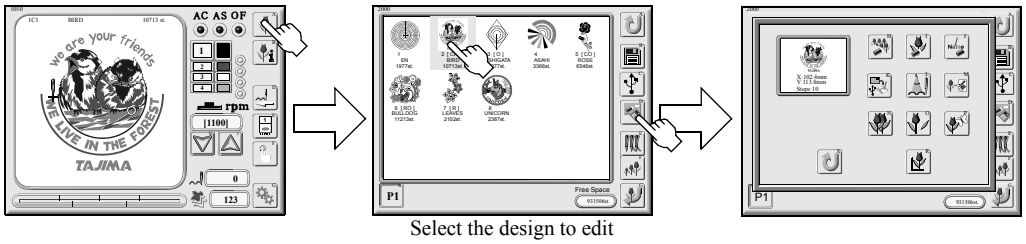
3. Completion of the deletion of all designs



◀ Screen 2000

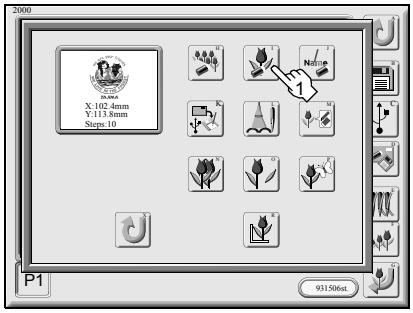
3. Deletion of design

<How to call the screen>



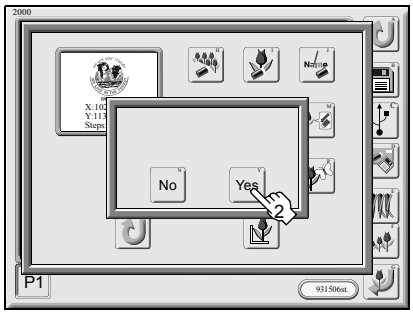
Select the design to edit

1. Select the design deleting.



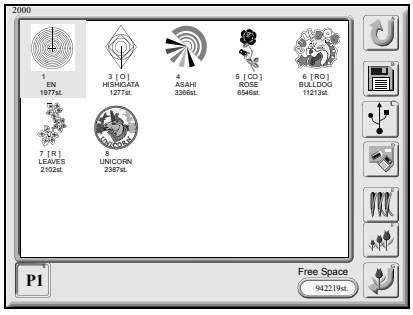
◀ Screen 2000

2. Confirming the deletion



◀ Screen 2000

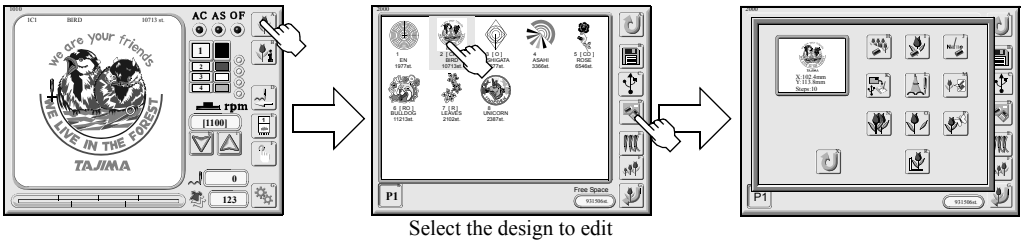
3. Completion of deletion



◀ Screen 2000

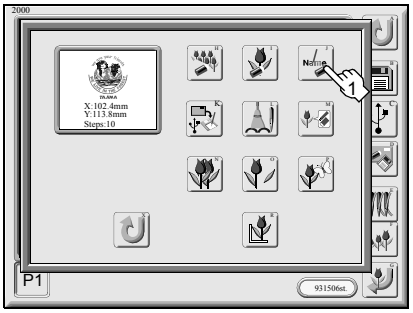
4. Overwriting of design name

<How to call the screen>



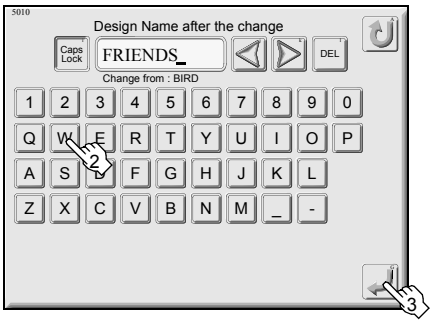
Select the design to edit

1. Select the overwriting of design name.



◀ Screen 2000

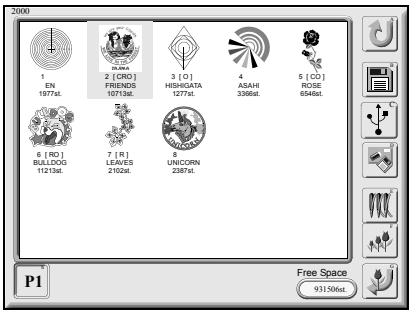
2. Overwriting of design name



◀ Screen 5010

Input of characters => p.19

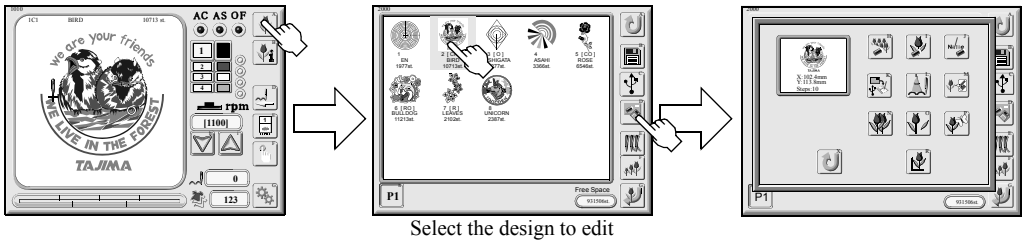
3. Completion of overwriting of design name



◀ Screen 2000

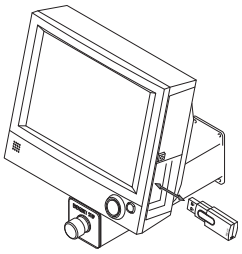
5. USB memory writing (saving)

<How to call screen>

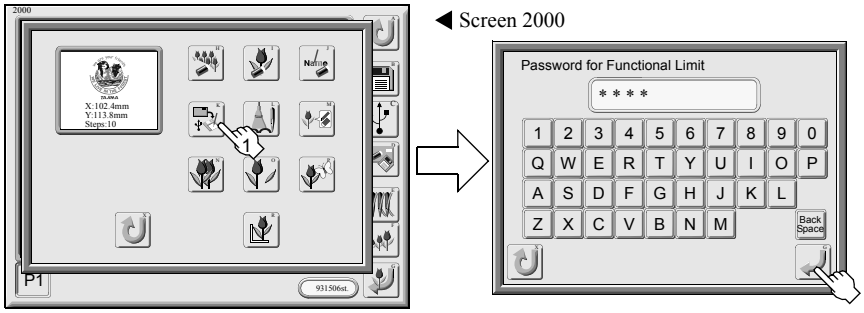


Select the design to edit

1. Set USB memory.



2. Select USB memory writing.



◀ Screen 2000

📖 Since the pop-up window that urges you to select a medium to write will appear, select .

📖 When a password is set, that password will become necessary in case of output of design data.

📖 USB memory can write up to 8 characters as a file name.

📖 Design data will be written to the root directory.

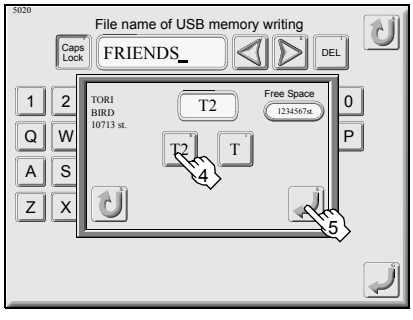
📖 One folder can write up to 255 designs. The max. number of the designs may be decreased due to various factors.

3. Input a file name

◀ Screen 5020

📖 Input of character(=> p.19)

4. Selection of storing mode and writing



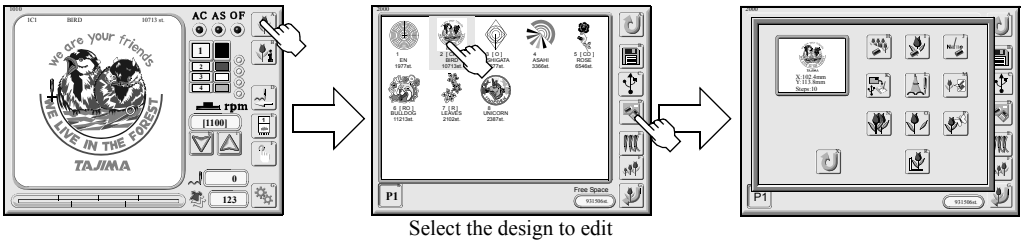
◀ Screen 5020

📖 Storing mode

T2	Tajima binary Formatting	Stitch data Thumbnail Needle bar setting Design start position
T	TAJIMA Formatting	Stitch data Thumbnail

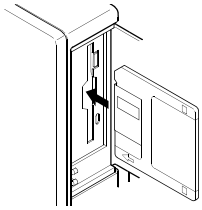
6. Floppy disk writing

<How to call the screen>

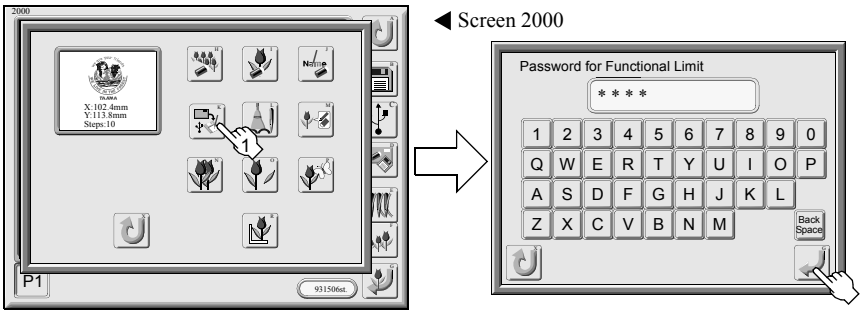


Select the design to edit

1. Insert the floppy disk.



2. Select floppy disk writing.



◀ Screen 2000

📖 Since the pop-up window that urges you to select a medium to write will appear, select .

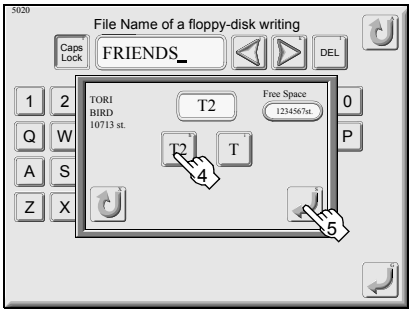
📖 When a password is set, that password will become necessary in case of output of design data.

3. Input a file name

◀ Screen 5020

📖 Input of characters => p.19

4. Selection of storing mode and writing



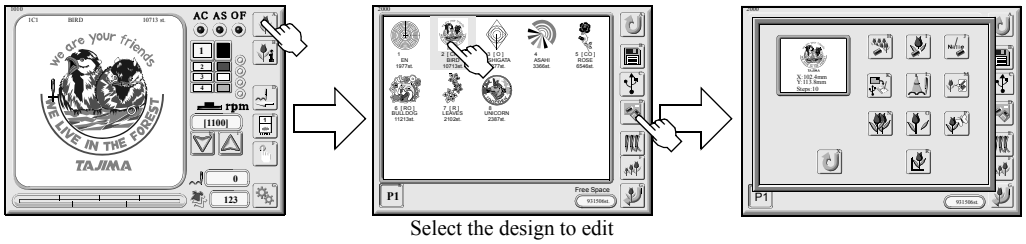
◀ Screen 5020

📖 Storing mode

T2	Tajima binary Formatting	Stitch data Thumbnail Needle bar setting Design start position
T	TAJIMA Formatting	Stitch data Thumbnail

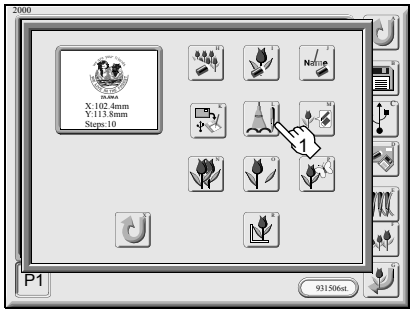
7. Cleanup

<How to call the screen>



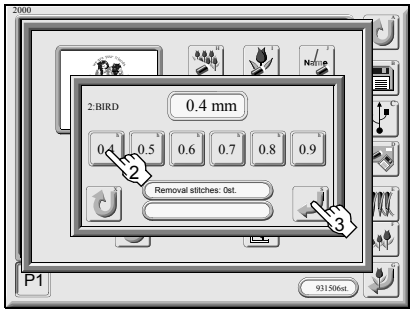
Select the design to edit

1. Select the cleanup.



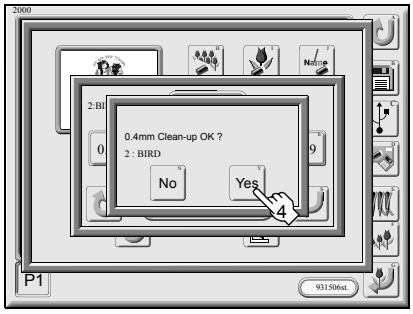
◀ Screen 2000

2. Setting of cleanup

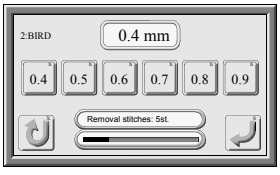


◀ Screen 2000

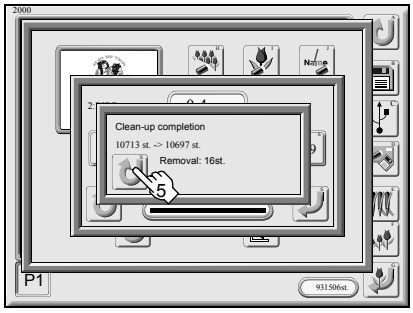
3. Confirmation of cleanup



◀ Screen 2000



4. Result of the cleanup



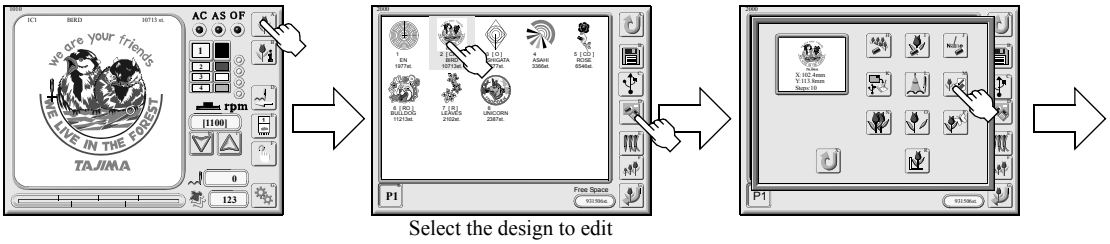
◀ Screen 2000

Cleanup is a function that makes the preceding and the succeeding stitches absorb a fine stitch to be removed to prevent thread coming off or thread breakage.

Since this function searches smaller stitch than the set value and makes preceding and succeeding stitches absorb it, design will become somehow different.

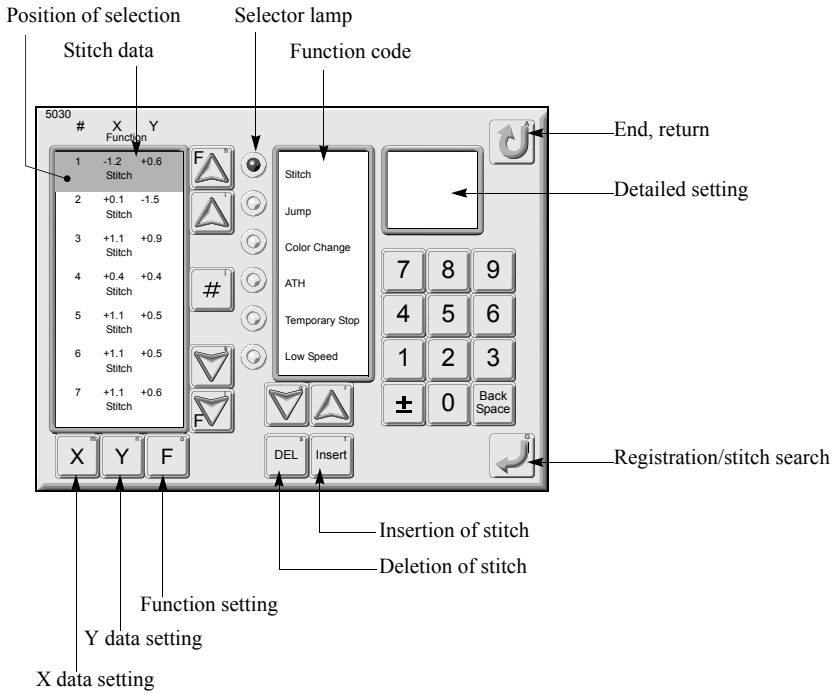
8. Stitch editing screen

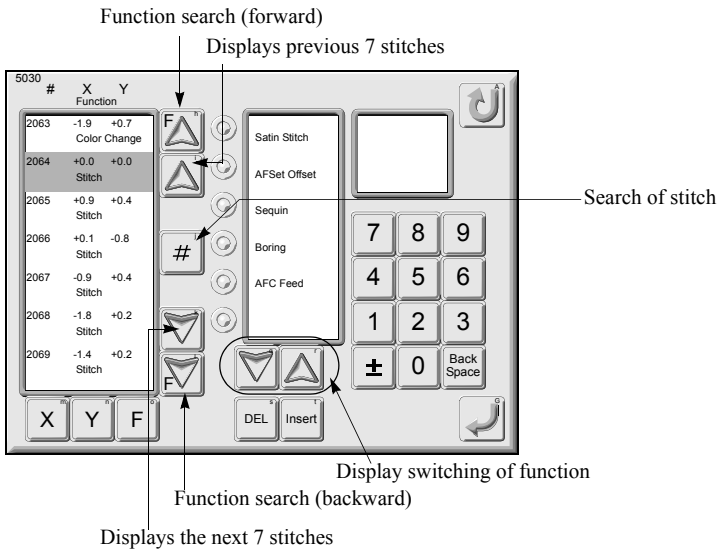
<How to call the screen>



Select the design to edit

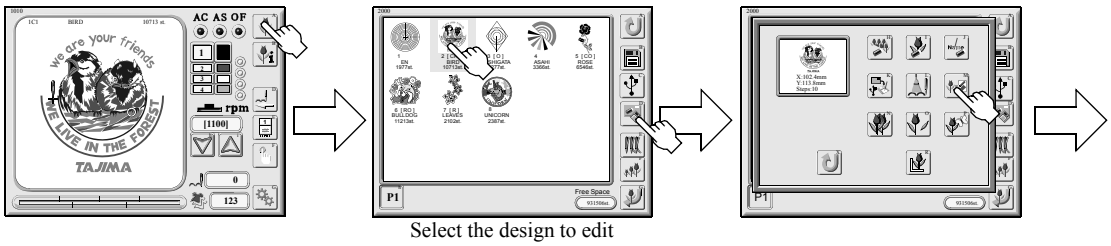
Stitch editing screen





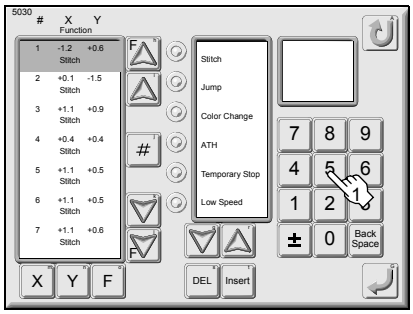
9. Search of stitch

<How to call screen>



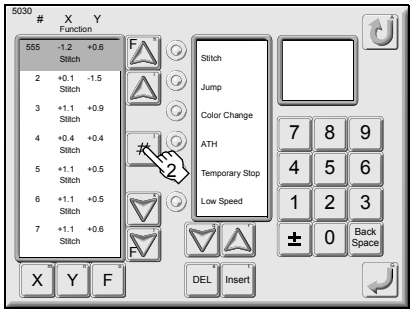
Select the design to edit

1. Input the stitch number.



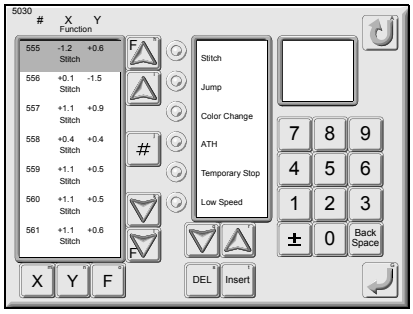
◀ Screen 5030

2. Search



◀ Screen 5030

3. Result of search

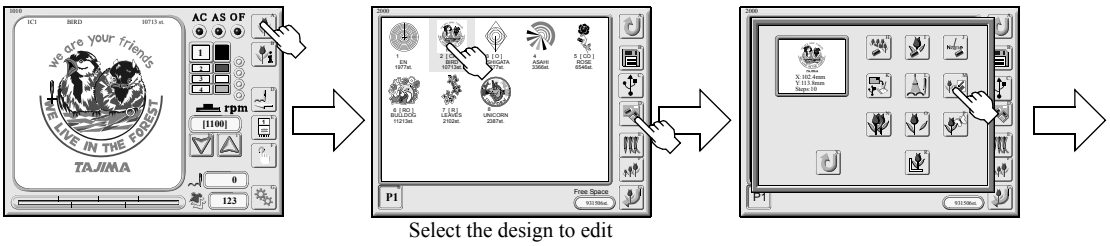


◀ Screen 5030

It is possible to perform searching by pressing either icon.

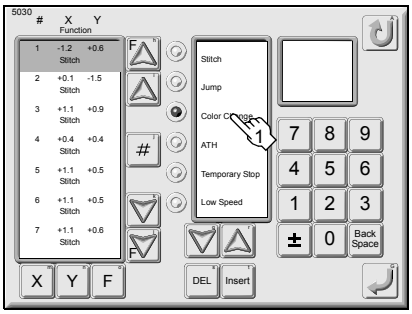
10. Function search

<How to call screen>



Select the design to edit

1. Select the function code.

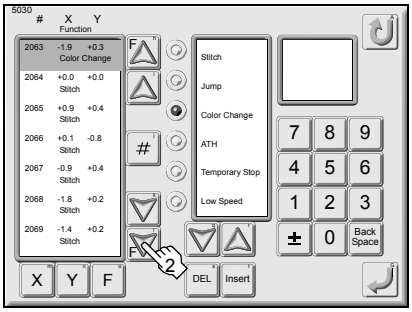


◀ Screen 5030

📖 When selecting the function code, selection lamp will become red. Selecting it once more will perform cancellation.

📖 It is also possible to perform searching by selecting plural function codes.

2. Search



◀ Screen 5030

📖 Pressing function search once more will search the next function code.

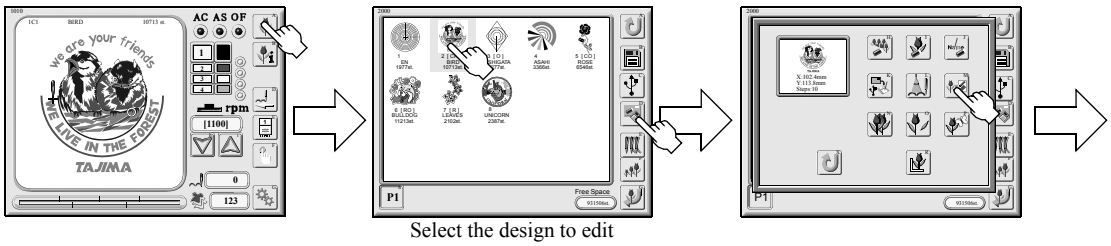
Function code

Function code	Detailed setting		Contents
Stitch	—		Stitch embroidery
Jump	—		Needle does not lower.
Color Change	—		Automatic thread trimming and stop for change of needle bar
ATH	Upper thread		Trim upper, up/under thread automatically
	Up/Under thread		
Temporary stop	Stitch		Temporary stop of stitch/jump
	Jump		
Low speed	Start S	Start J	Low speed operation in the section of start (S/J) → end (S/J)
	End S	End J	
Satin stitch	Start		Perform satin embroidery in the section of start → end
	End		
Automatic free setting offset	—		The machine stops embroidery, and moves the frame to the set position
Sequin	Start	Output	Specify the section with start → end Feed chip(s) by output
	End		
Boring	Start		Perform boring in the section of start → end
	End		
AFC frame feed	—		Feed AFC frame automatically

📖 S: During stitch embroidery
J: During jump

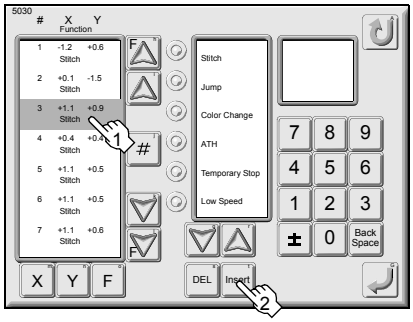
11. Insertion/deletion of stitch

<How to call screen>



Select the design to edit

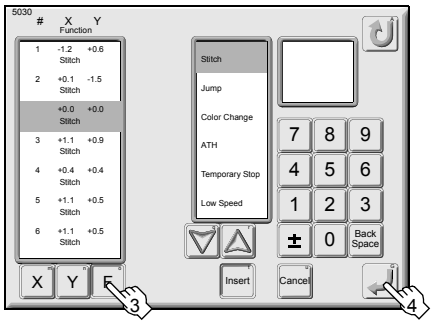
Insertion of stitch



◀ Screen 5030

📖 Insert new stitch at the position of the selected stitch

Register



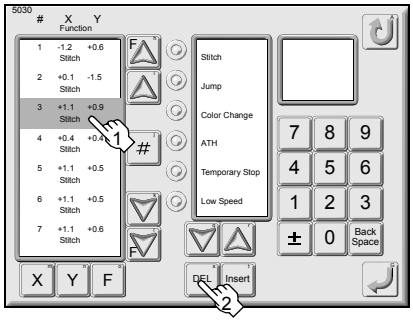
◀ Screen 5030

📖 When registering “X, Y” data as they are 0.0, press the “F” icon and then perform registration.

📖 When modifying stitch data (X data, Y data, function code), refer to modification of stitch data.
Modification of stitch data (=> p.77)

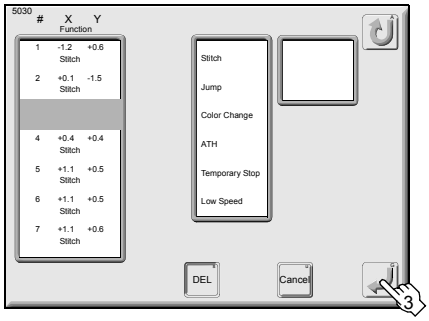
Cancel It stops the operation to return to the original state.

Deletion of stitch



◀ Screen 5030

Register

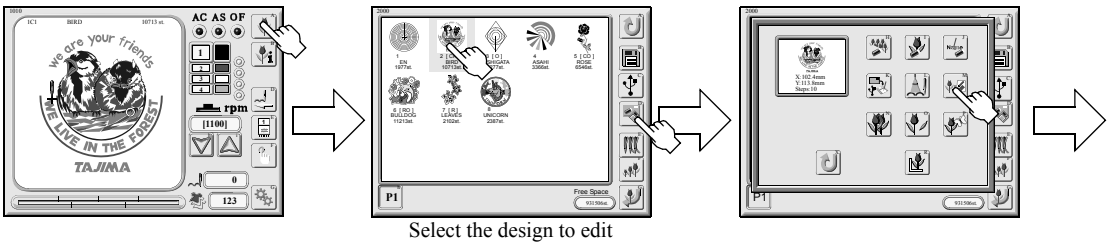


◀ Screen 5030

Cancel It stops the operation to return to the original state.

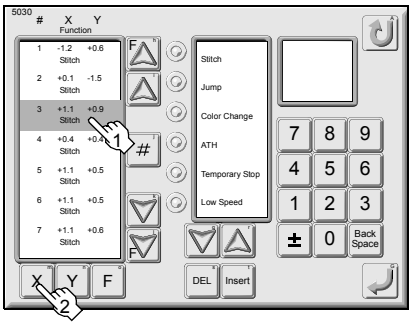
12. Modification of stitch data

<How to call screen>



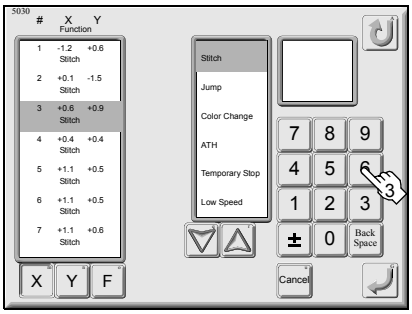
Select the design to edit

1. Select stitch and mode to modify.



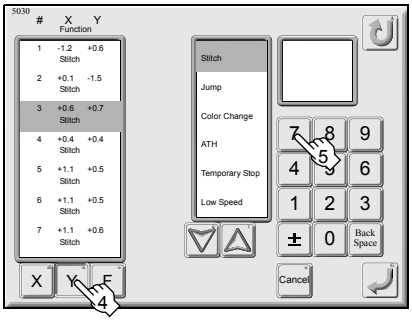
◀ Screen 5030

2. Modify the X data.



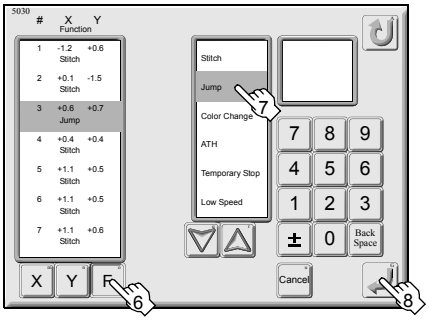
◀ Screen 5030

3. Modify the Y data.



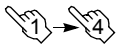
◀ Screen 5030

4. Modify and register the function code

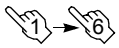


◀ Screen 5030

When starting from modification of Y data, start from operation 4 after selecting stitch.



When starting from modification of function code, start from operation 6 after selecting stitch.



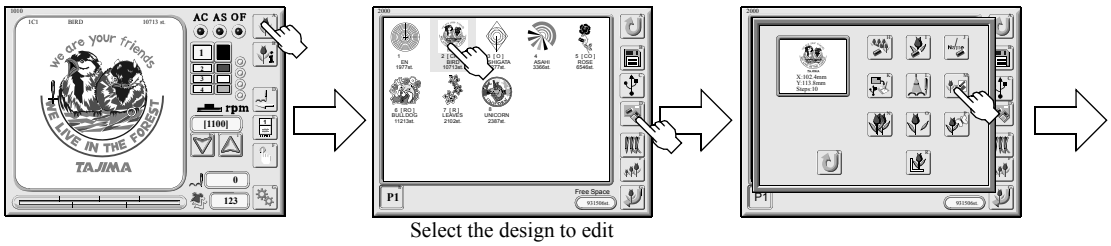
XY setting range: -12.7 to +12.7 (mm)

When registering modification of X data only, press the "F" icon and then perform registration.

When registering modification of Y data only, press the "F" icon after inputting Y data to perform registration.

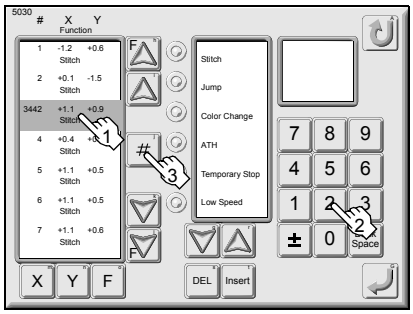
13. Automatic free setting offset

<How to call screen>



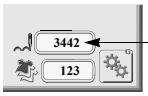
Select the design to edit

1. Search the stitch.



◀ Screen 5030

Search the stitch where automatic free setting offset is set by display of the number of stitches during embroidery.

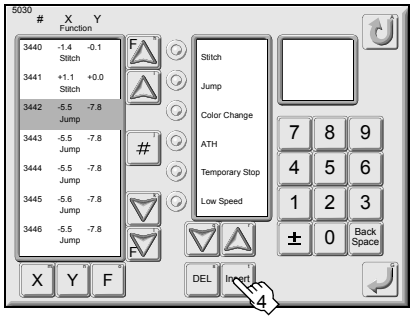


Display of the number of stitches

/ ↵

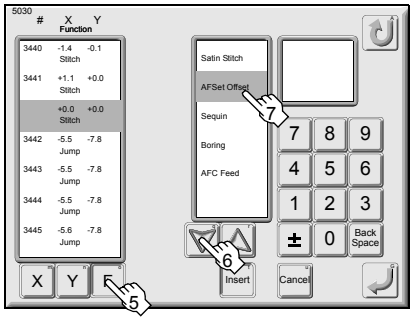
It is possible to perform searching by pressing either icon.

2. Insertion of stitch



◀ Screen 5030

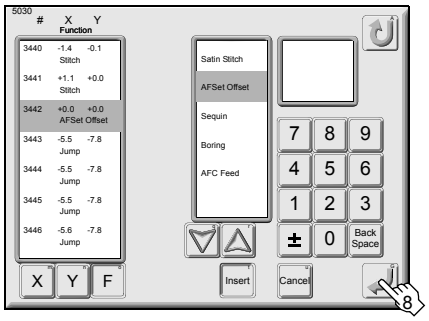
3. Modifying the function code.



◀ Screen 5030

Set automatic free setting offset without stitch (X, Y=+0.0)

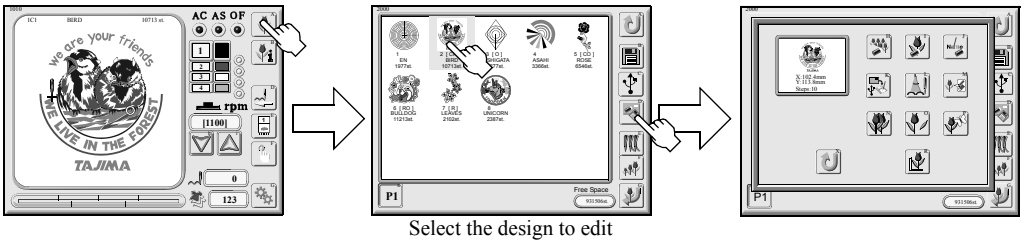
4. Register



◀ Screen 5030

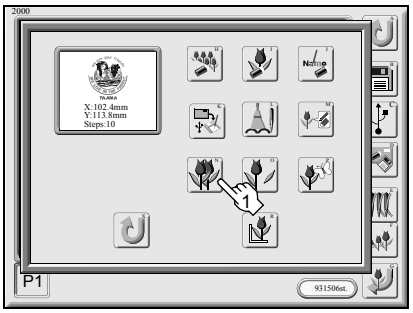
14. Design copying

<How to call the screen>



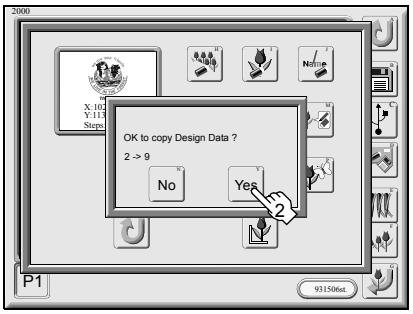
Select the design to edit

1. Select the design copying.



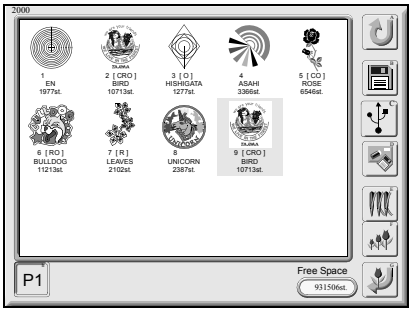
◀ Screen 2000

2. Confirmation of copy



◀ Screen 2000

3. Copy design

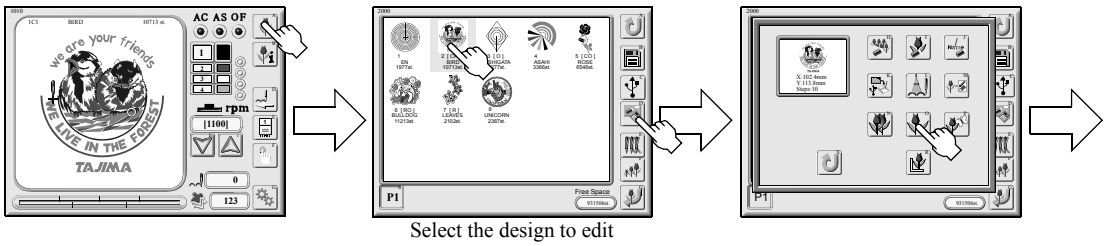


◀ Screen 2000

📖 "2 → 9" shows copying design of memory No.2 to No.9.

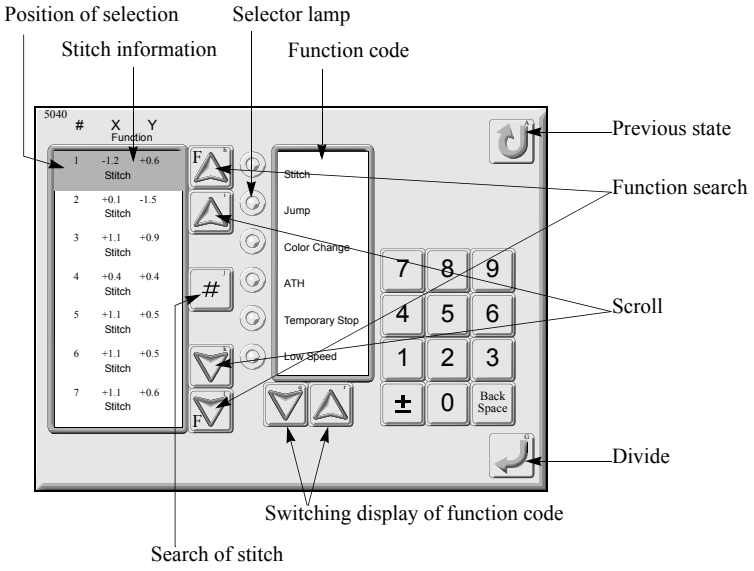
15. Design dividing screen

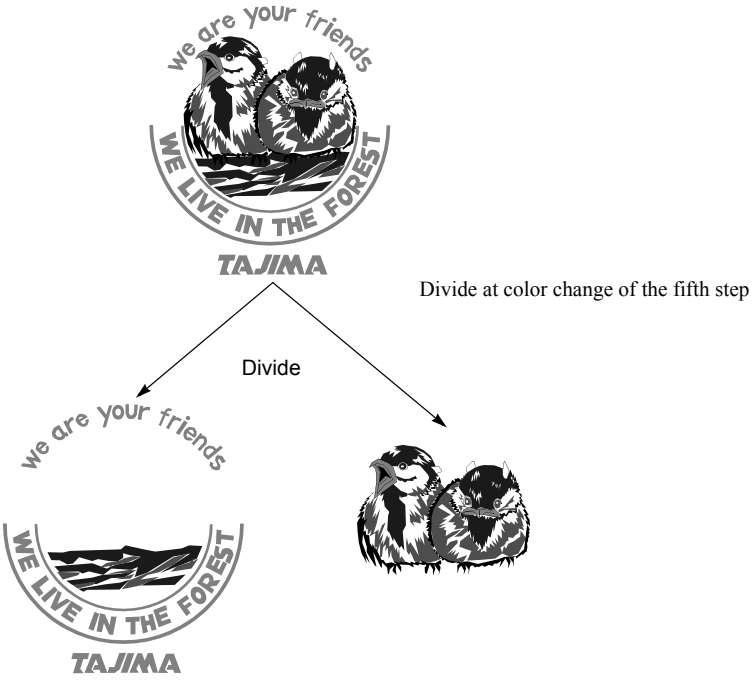
<How to call screen>



Select the design to edit

Design dividing screen

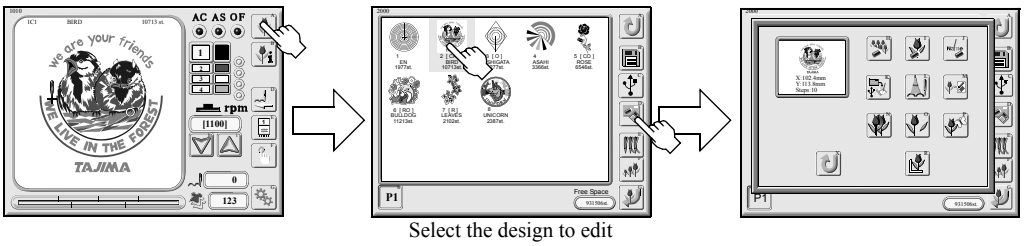




It is possible to search stitch of design at which you desire to divide by function code or the number of stitches.

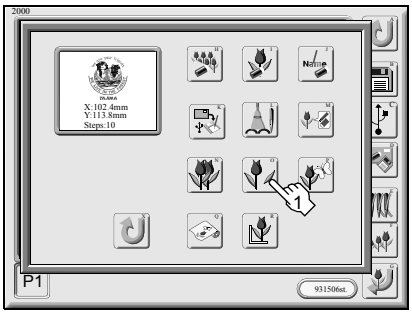
16. Design dividing

<How to call screen>



Select the design to edit

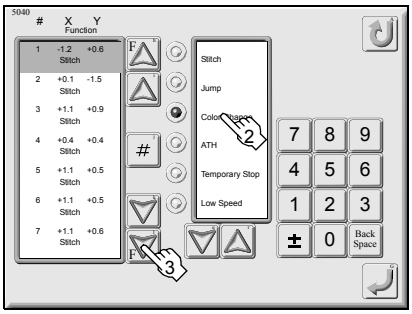
1. Select the design dividing



◀ Screen 2000

📖 Divide the design selected on the screen 2000. If data before division is necessary, copy the design and then perform division.
Design copying (=> p.79)

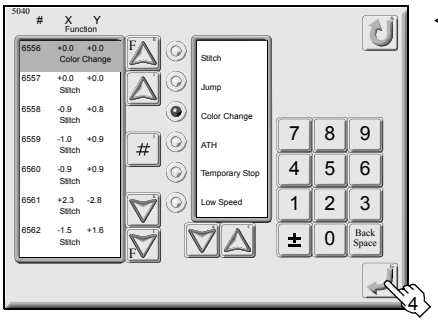
2. Search color change



◀ Screen 5040

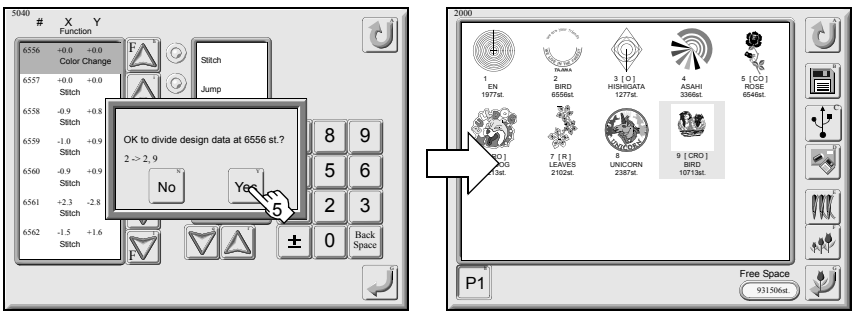
📖 Pressing function search once after selecting color change will cause the machine to search color change of the first step. Pressing function search five times will cause the machine to search color change of the fifth step.

3. Divide



◀ Screen 5040

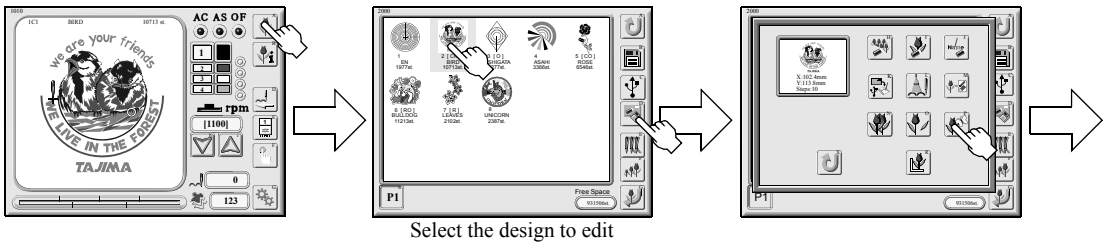
4. Confirm



📖 “2 -> 2, 9” at the end of the sentence of the pop-up windows shows storing the selected designs to memory Nos.2 and 9.

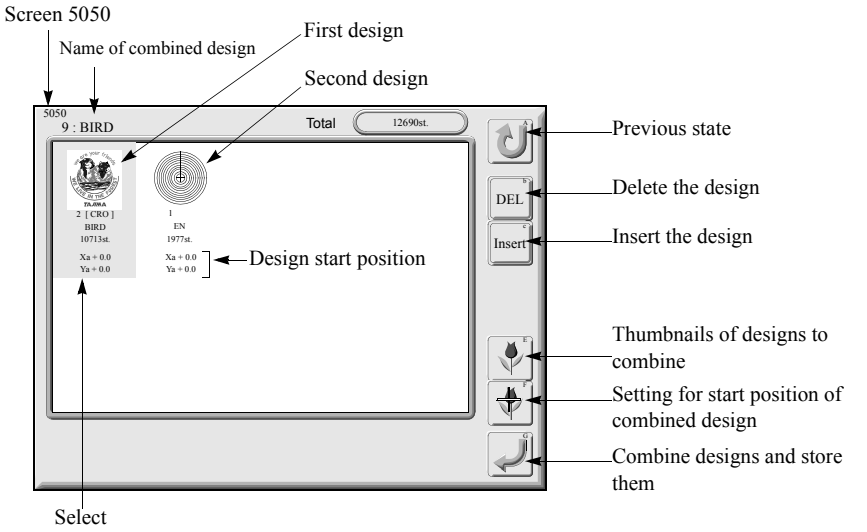
17. Screen for design combining

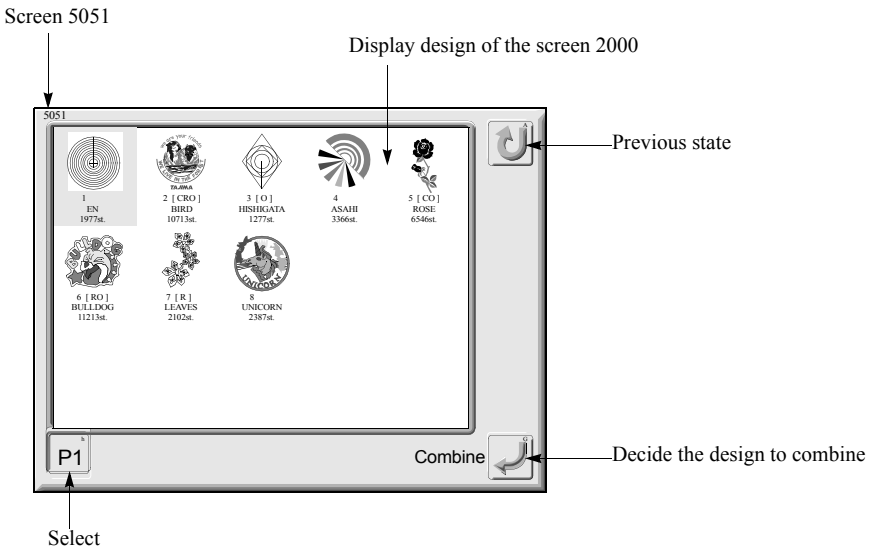
<How to call screen>



Select the design to edit

Screen for design combining



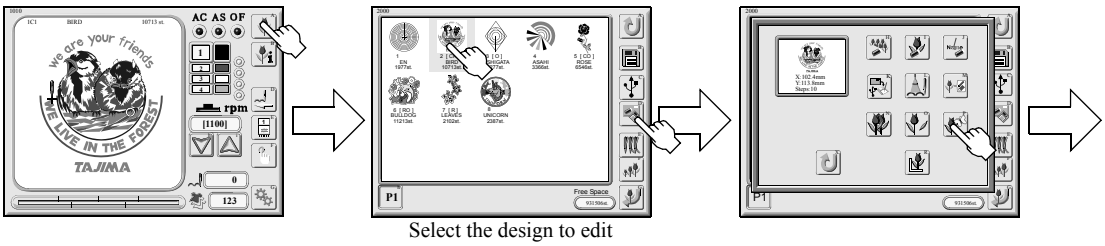


Combine plural designs to register as one design.

When the combined design exceeds 1,000,000 stitches, it is not possible to register it to the memory.

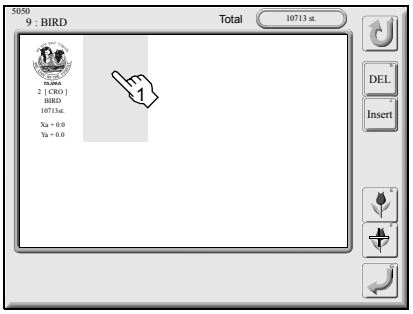
18. Design combining

<How to call screen>



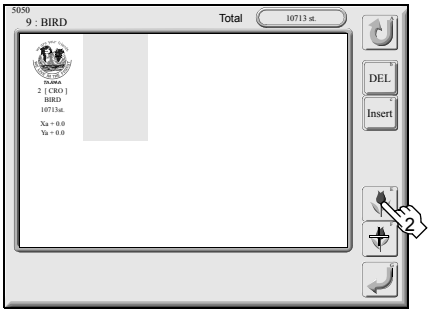
Select the design to edit

1. Select the position to be combined next.



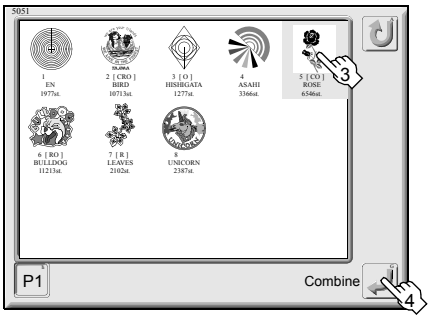
◀ Screen 5050

2. Display thumbnails of designs to combine.



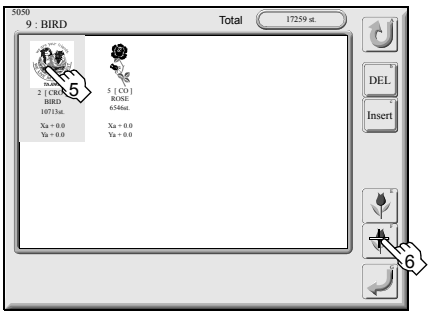
◀ Screen 5050

3. Select design to combine and decide it.



◀ Screen 5051

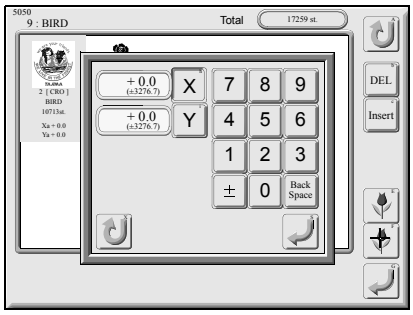
4. Select the design and set the design start position.



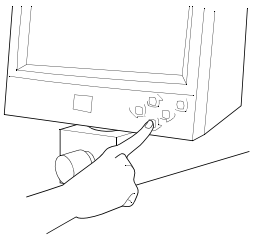
◀ Screen 5050

When combining designs, they will be arranged with start position of each design. In addition, regarding design without setting for start position, start position of design will become (0.0, 0.0).

5. Input the design start position.



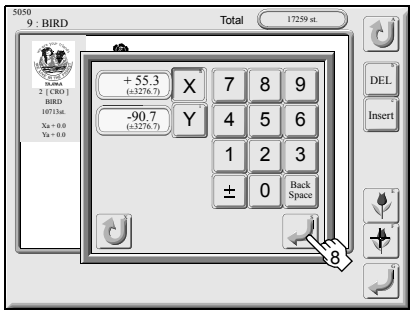
◀ Screen 5050



▲Manual frame travel

📖 Decide start position of design by using frame travel key.
When inputting value using numerical key of pop-up window, select X/Y and then input value.

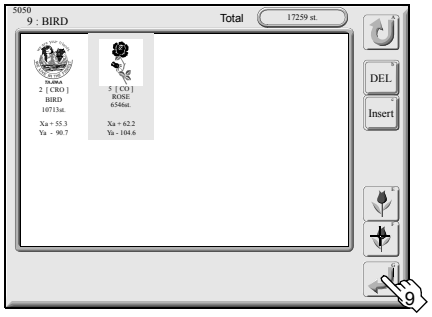
6. Decide the design start position.



◀ Screen 5050

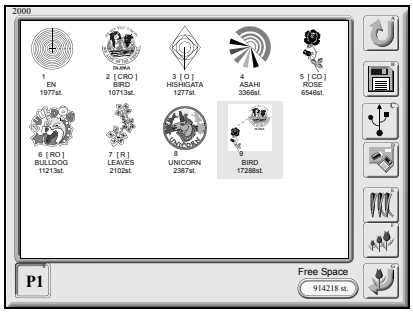
📖 Decide start positions of other designs by repeating operations 5 to 8.

7. Combine designs.



◀ Screen 5050

8. Completing the design combining



◀ Screen 2000

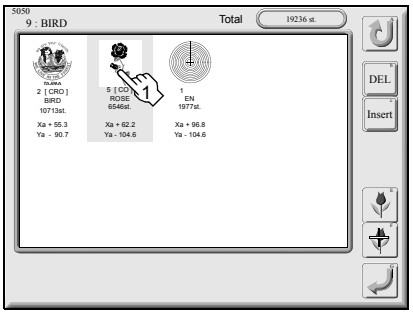
📖 The combined design will be registered to the screen 2000. Since the combined design is registered with design name of the first design, change the design name according to need.
Overwriting of design name (=> p.69)

📖 When the combined design exceeds 1,000,000 stitches, it is not possible to register it to the memory.

19. Deletion and insertion of design combining

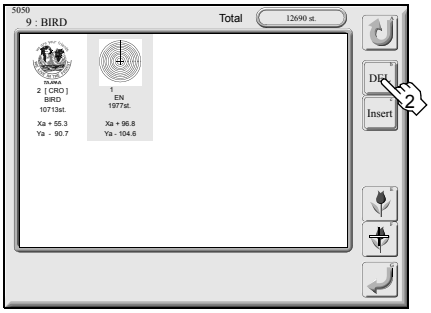
📖 This operation deletes/inserts design to combine in the middle of operation of design combine.

1. Selecting the design to delete



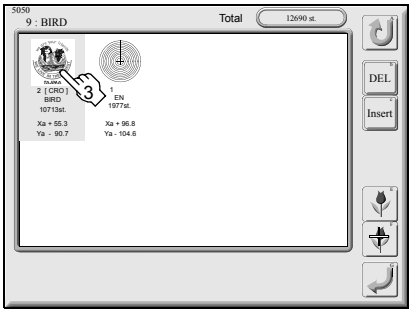
◀ Screen 5050

2. Delete



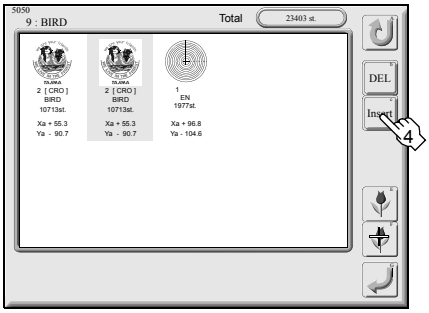
◀ Screen 5050

3. Select the position to be inserted



◀ Screen 5050

4. Insertion



◀ Screen 5050

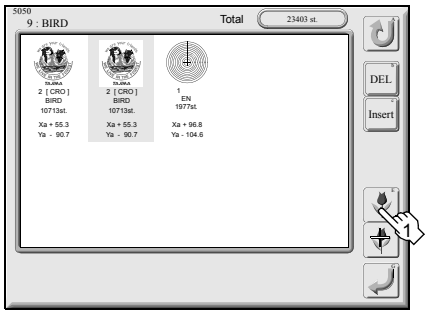
📖 Inserting the design will cause the machine to copy the selected design.

📖 To modify the inserted design, refer to “Modification of design to combine”.
(=> p.86)

20. Modification of design to combine

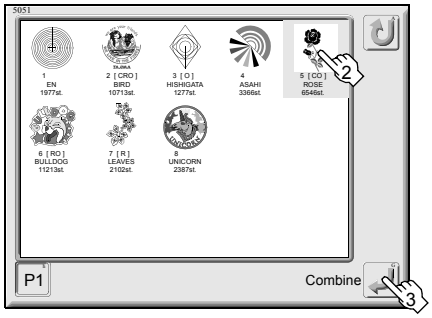
This operation changes design to combine or the inserted design in the middle of operation of design combine.

1. Select design to change and display design thumbnails.



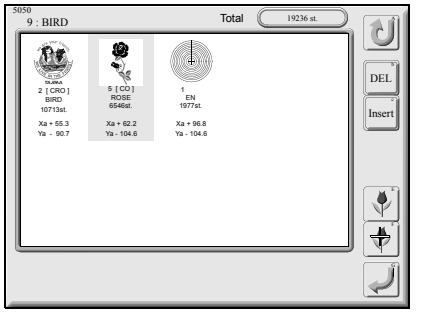
◀ Screen 5050

2. Select the design and decide it.



◀ Screen 5051

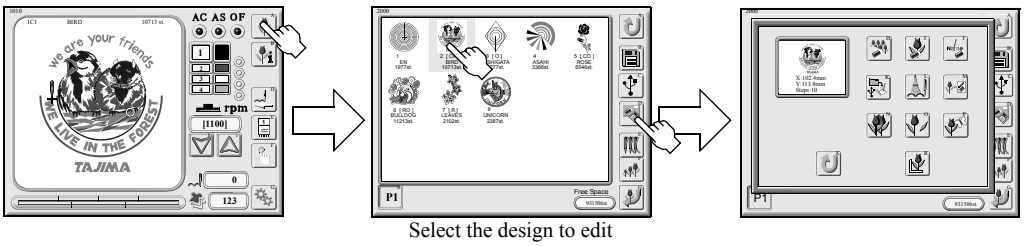
3. Result of change



◀ Screen 5050

21. Marking

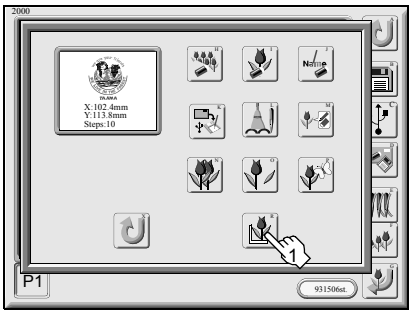
<How to call screen>



Select the design to edit

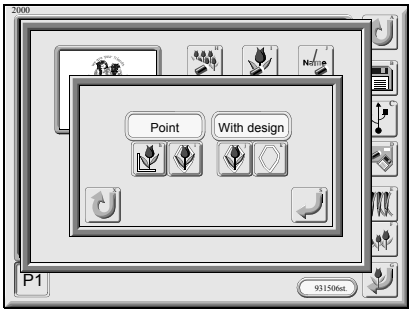
Marking (=> p.136)

1. Select marking.



◀ Screen 2000

2. Confirmation of addition of design data



◀ Screen 2000

Marking point

With design data

No design data

Contour

With design data

No design data

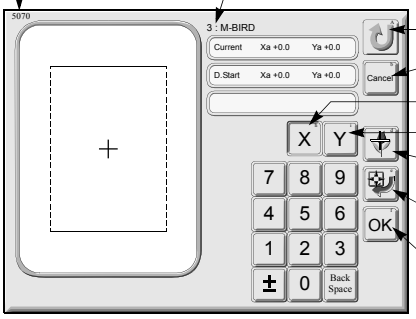
Select marking points/contour at first, and then select existence/absence of design data in that data.

When making a contour, only perform setting for stitch length regardless of existence of design data. (=> p.89)

3. Marking screen

Screen 5070

Marking design name



Previous state

Return to 1 point previous to the point

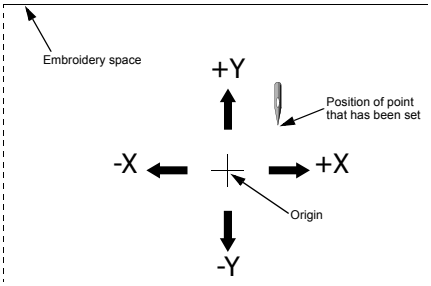
X coordinate

Y coordinate

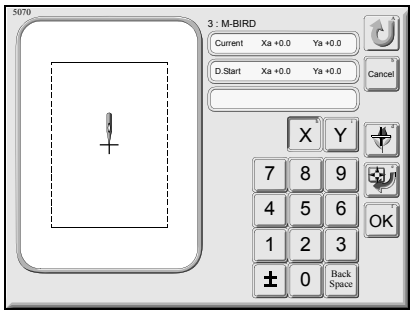
Display the start position of design that has been registered

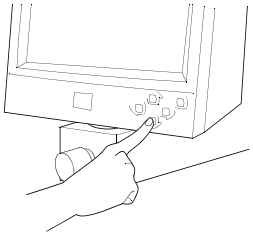
Move the frame to the position where input by numerical key was performed

Registration of position



4. Input the design start position.



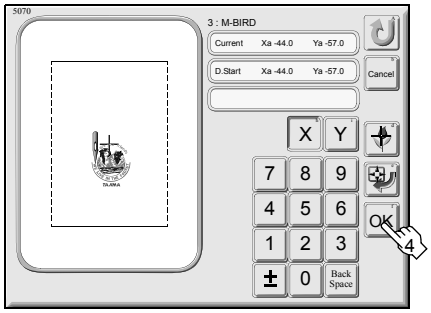


▲Manual frame travel

Press it to display the start position of design that has already been registered. To register the displayed position, press “OK”.

It is also possible to input coordinates by numerical key.
Press “X” to input X coordinate, press “Y” to input Y coordinate, and press “OK” to perform registration.

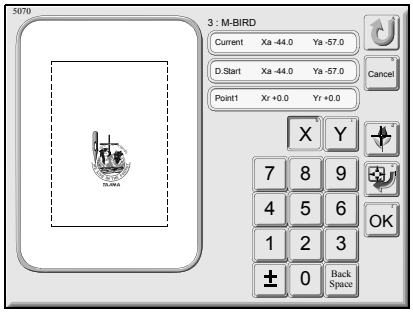
5. Register the design start position.

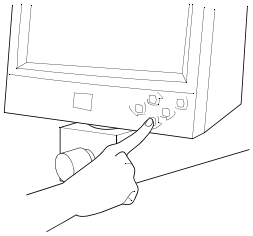


◀ Screen 5070

Design data will be displayed fitting to start position of design.
When no design data is given, no design will be displayed.

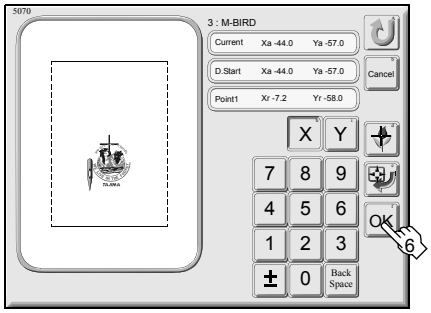
6. Input the point 1.





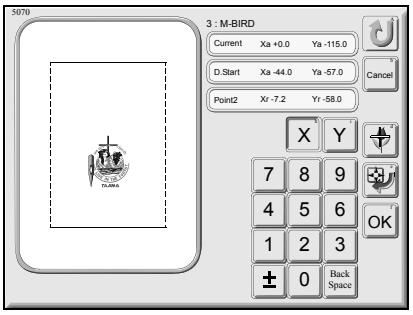
▲Manual frame travel

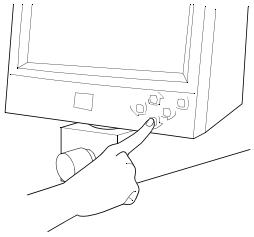
7. Register the point 1.



◀ Screen 5070

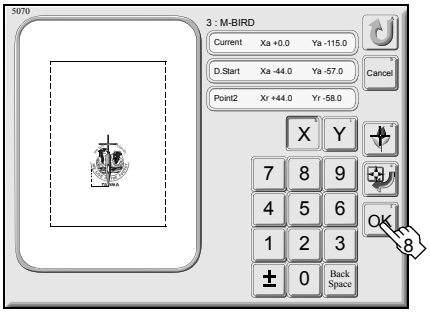
8. Input the point 2.





▲Manual frame travel

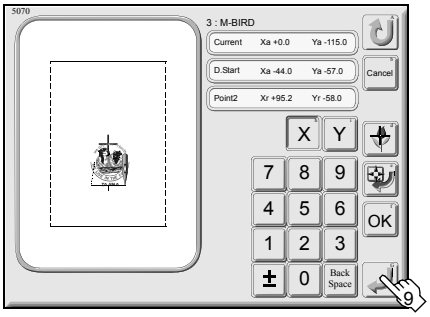
9. Register the point 2.



◀ Screen 5070

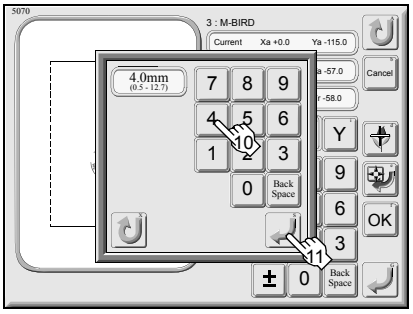
🕮 It will become possible to store marking data when registering 2 or more points. Up to 10 points can be registered.

10. Storing of marking data



◀ Screen 5070

11. Setting for stitch length



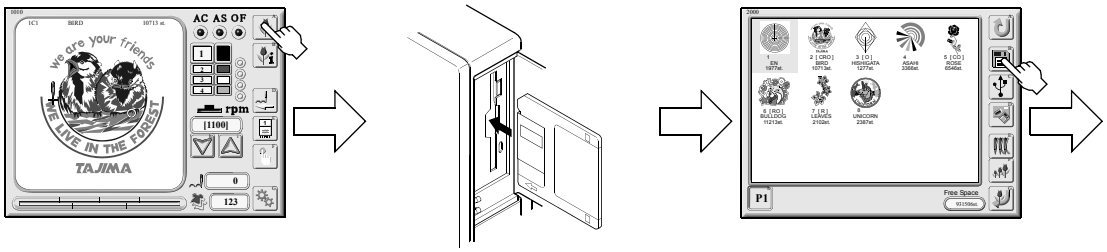
◀ Screen 5070

🕮 Set a marking data, or stitch length of contour data.
Setting range: 0.5 - 12.7 mm

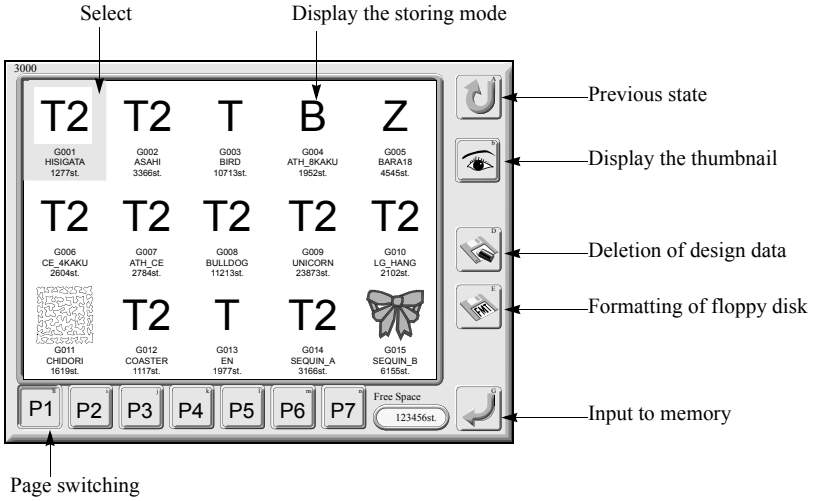
🕮 When setting the stitch length, it will be registered as “M-design name” in the screen 2000.
When registering marking data only, only “M-” will be registered as a design name.

22. Screen 3000

<How to call screen>



Floppy disk edit screen



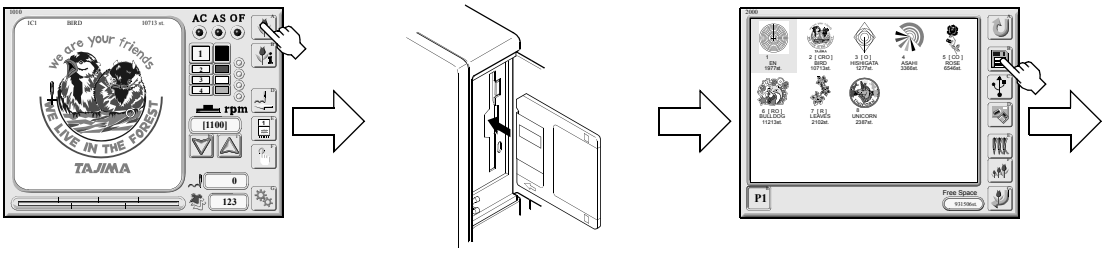
Storing mode

T	TAJIMA
T2	TAJIMA binary
B	BARUDAN
Z	ZSK

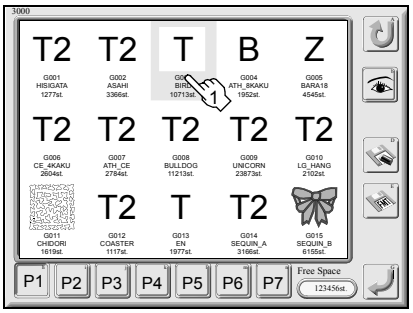
If a floppy disk is not formatted, format it and then use it.

23. Design data deletion of floppy disk

<How to call screen>

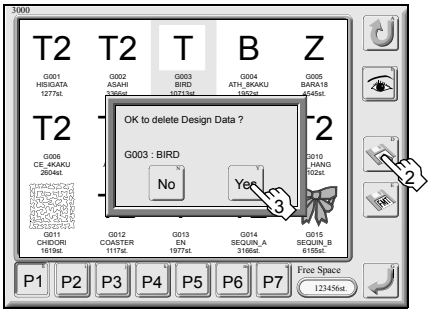


1. Select the design data



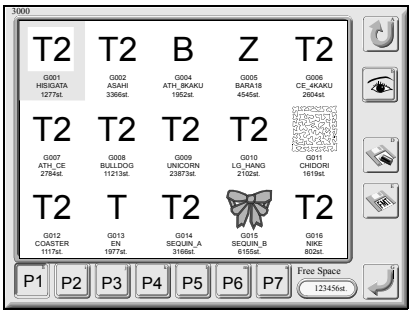
◀ Screen 3000

2. Delete the design data



◀ Screen 3000

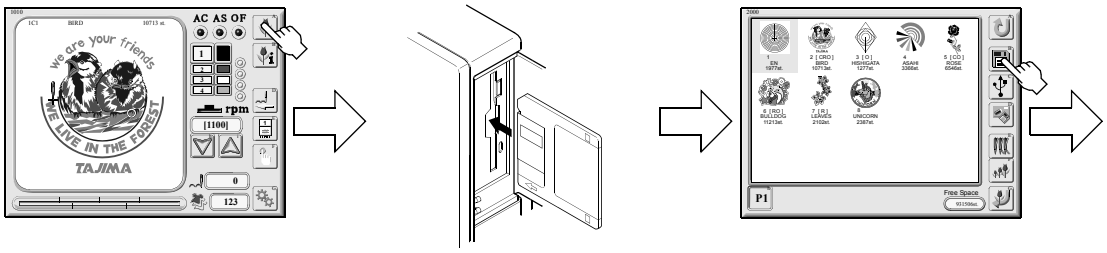
3. Result



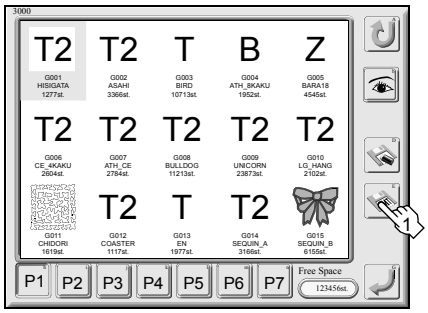
◀ Screen 3000

24. Formatting of floppy disk

<How to call screen>

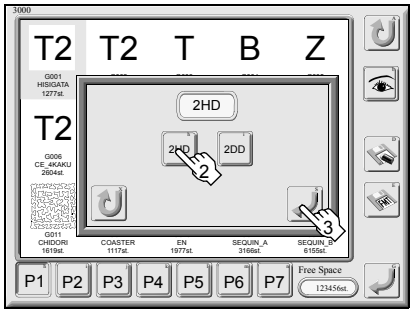


1. Select formatting



◀ Screen 3000

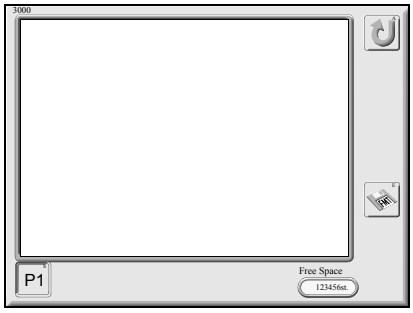
2. Select formatting mode and start



◀ Screen 3000

When formatting is finished, the pop-up window will disappear.

3. Completion

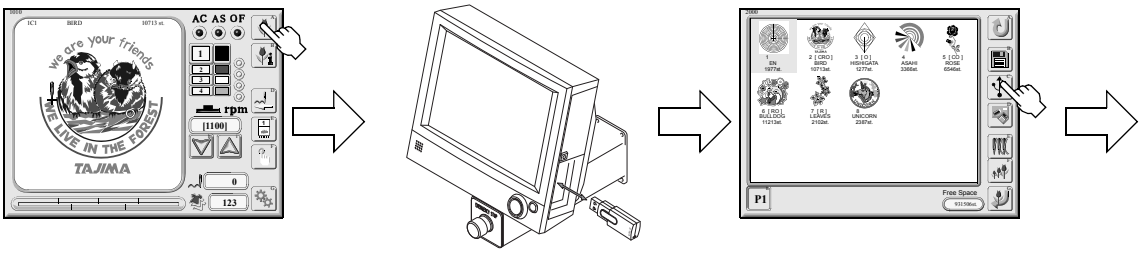


◀ Screen 3000

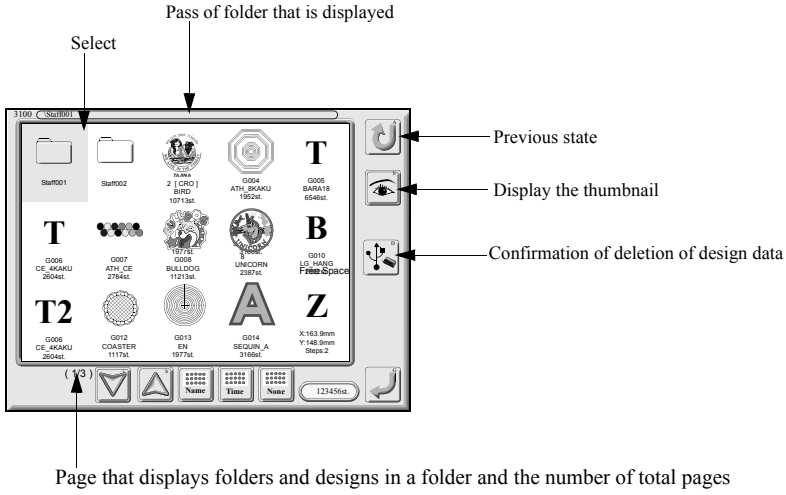
The screen returns to the screen 2000.

25. Screen 3100

<How to call screen>



Selection of design (folder) on USB memory design screen



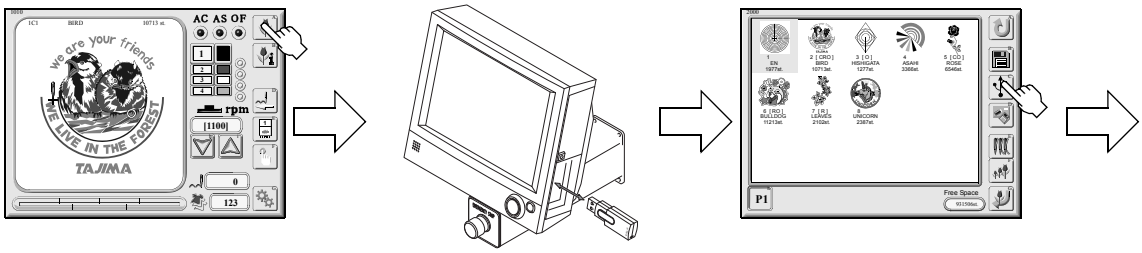
Pressing the icon will display the thumbnail of the selected design data.

One folder can display up to 255 items including lower layer folder and designs.

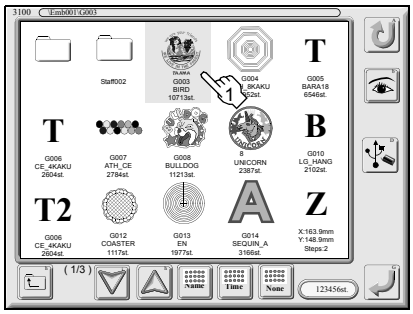
Up to 3 sub directories can be referred.

26. Deletion of design data in USB memory

<How to call screen>

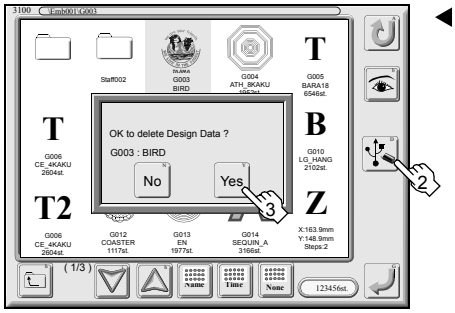


1. Select the design data.



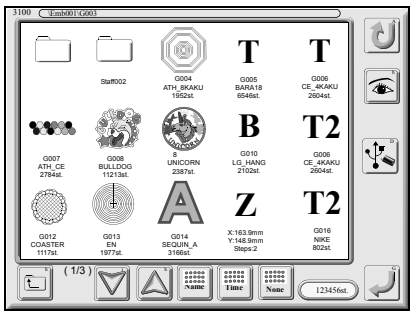
◀ Screen 3100

2. Delete the design data.



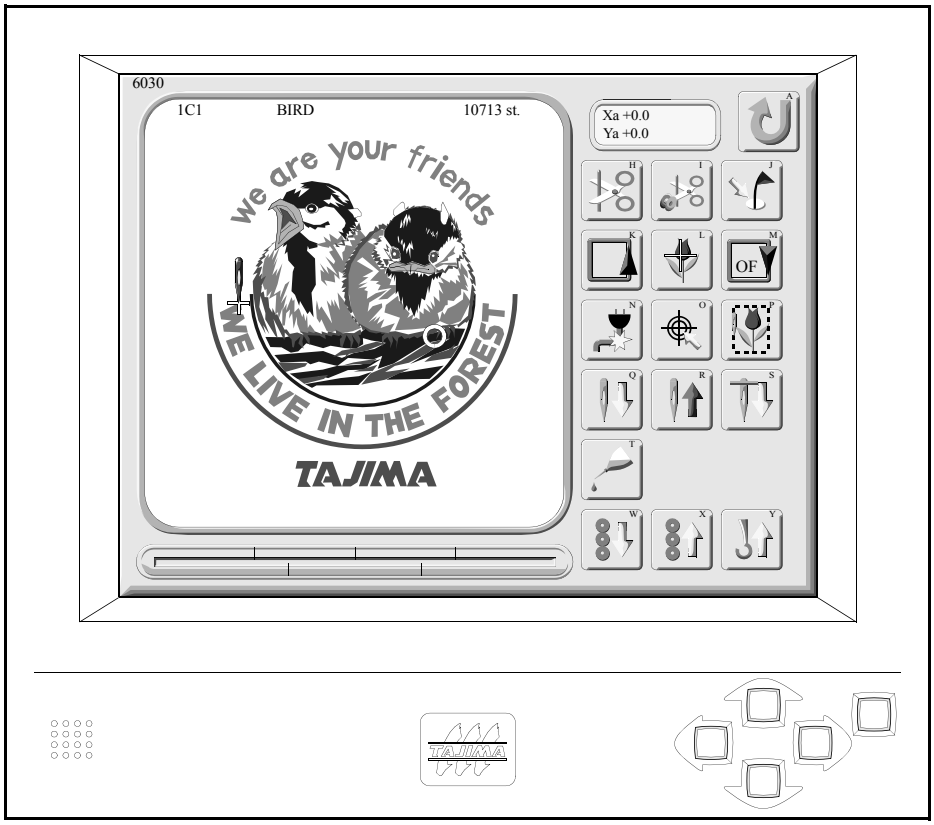
◀ Screen 3100

3. Result



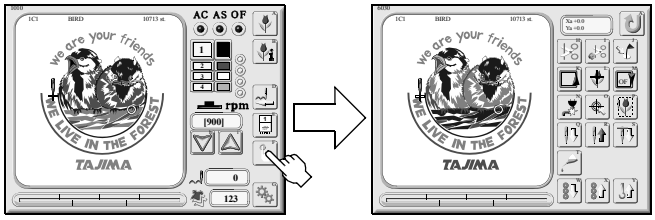
◀ Screen 3100

CHAPTER 7 MANUAL OPERATION

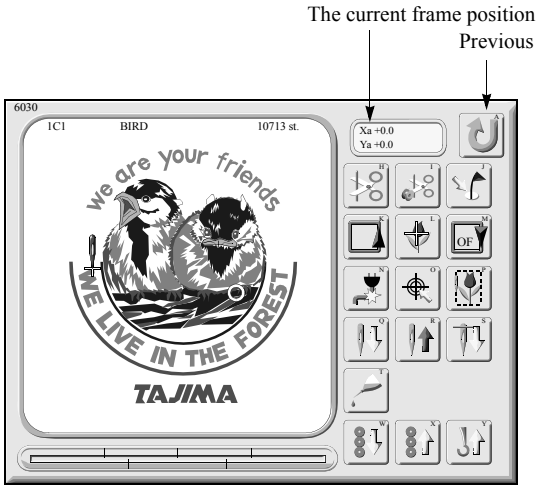


1. Manual operation screen

<How to call the screen>



Manual operation screen



	ATH (Upper/lower thread trimming)		Under thread trimming
	Optional position		Manual Offset
	Start position of design		Offset return
	Power resume		Absolute origin search
	Trace		Needle bar lowering
	Needle bar raising		Stop at lower dead point
	Automatic lubrication system		Sequin device lowering
	Sequin device raising		Upper thread hook return

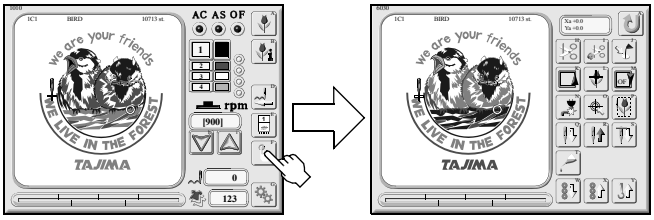
Pressing the display of frame position will switch absolute coordinate/relative coordinate.
Absolute coordinate: (Xa, Ya)
Relative coordinate: (Xr, Yr)

The icon of trace will not be displayed if the machine is moved after data set.

Icons of sequin device raising/lowering will not be displayed if needle bar equipped with sequin device is not selected.

2. Thread trimming

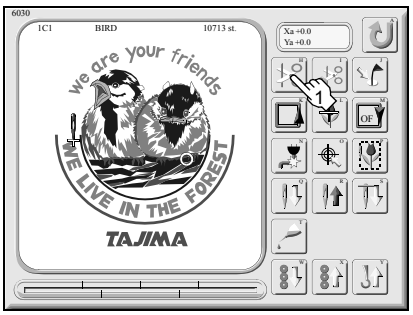
<How to call the screen>



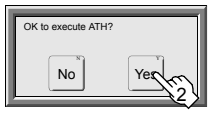
CAUTION

When performing this operation, do not put your hands under the needle or on the machine table. If your hands are under the needle or on the machine table, you may be injured by the needle or the moving frame.

ATH (Upper/lower thread trimming)

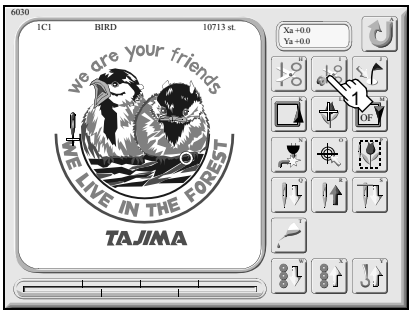


◀ Screen 6030

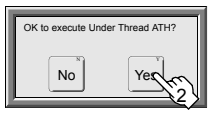


Trim upper and under threads.

Under thread trimming



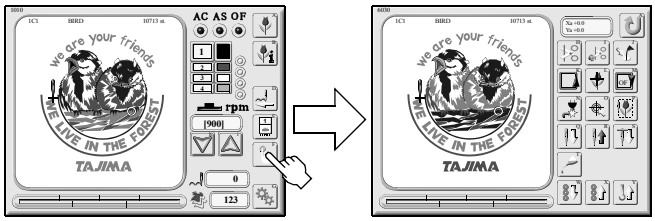
◀ Screen 6030



The machine will trim under thread only.

3. Optional position/manual offset

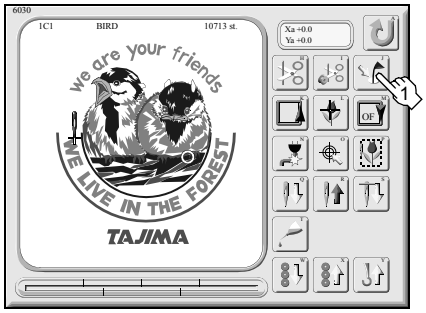
<How to call screen>



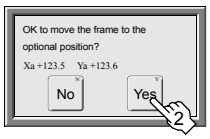
CAUTION

When performing this operation, do not put your hands, etc. on the machine table. Moving embroidery frame will cause you injured.

Optional position

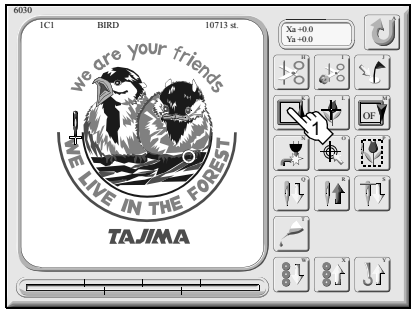


◀ Screen 6030

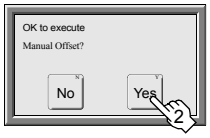


📖 Move the frame to the optional position registered in parameter “32. Optional Position”.
32. Optional Position => p.117

Manual offset



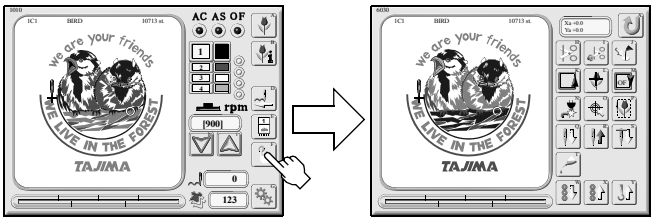
◀ Screen 6030



📖 Manual Offset
This function returns the frame that was moved after interrupting embroidery to the original position.

4. Start position of design/offset return

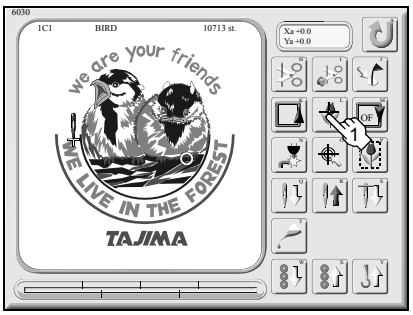
<How to call screen>



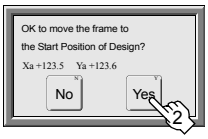
CAUTION

When performing this operation, do not put your hands, etc. on the machine table. Moving embroidery frame will cause you injured.

Start position of design



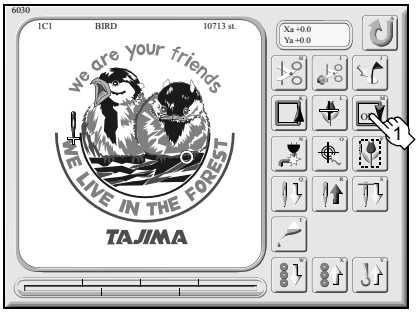
◀ Screen 6030



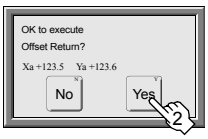
📖 Start position of design
Move the frame to the start position of design registered in offset position, marking, combination of designs etc.

📖 When the design start position is not registered, the position of the frame from which embroidery started will be registered as the design start position.

Offset return



◀ Screen 6030

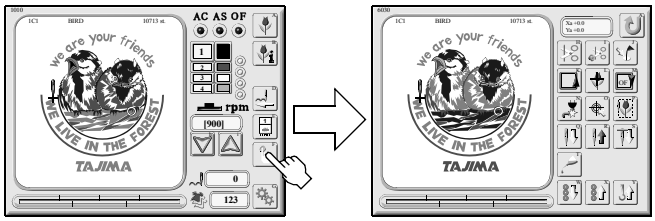


📖 When an offset position is not registered, the icon will not be displayed.

📖 Offset return
This function makes the frame move to the offset position that is set.

5. Power resume/absolute origin search

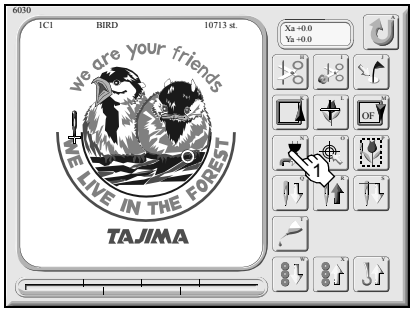
<How to call screen>



CAUTION

When performing this operation, do not put your hands, etc. on the machine table. Moving embroidery frame will cause you injured.

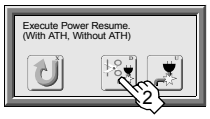
Power resume



◀ Screen 6030

To perform power resume after thread trimming

To perform power resume without thread trimming

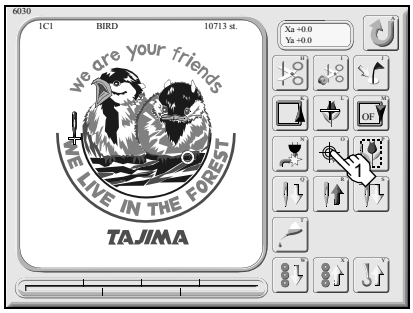


Power resume
This function makes the frame move to the position where the power was shut off for correction to prevent design displacement when the power was shut off in the middle of embroidery.

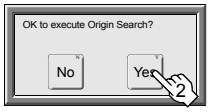
When the power is shut off, the frame may move advance by some stitches. Perform frame back if necessary to restart the embroidery.

When performing power resume after actual power shut off, the icon will not appear.

Absolute origin search



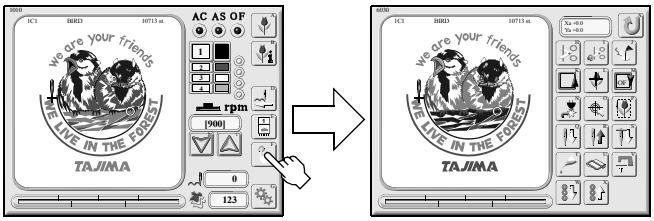
◀ Screen 6030



Absolute origin search
This function makes the machine memorize the origin of the embroidery frame. Perform this operation at change of specification of frame or when the frame was moved with the power turned off.

6. Trace/needle bar lowering

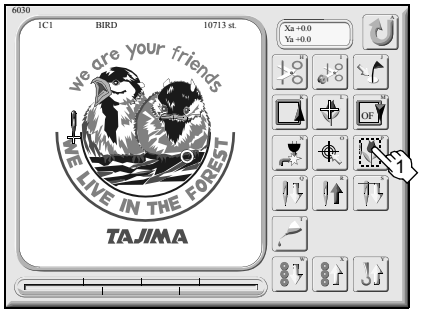
<How to call screen>



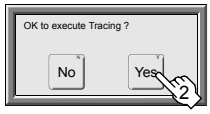
CAUTION

When performing this operation, do not put your hands under the needle or on the machine table. If your hands are under the needle or on the machine table, you may be injured by the needle or the moving frame.

Trace



◀ Screen 6030

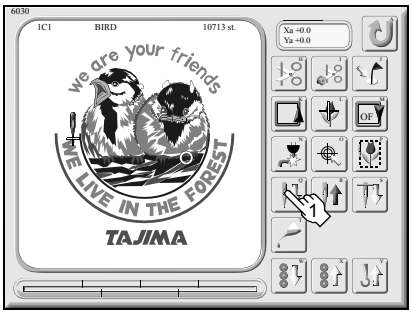


📖 The frame will move along with the outer circumference of the design.
Trace=> p.135

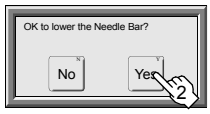
📖 It is possible to stop tracing by the bar switch/stop switch. To restart the operation, follow the operation screen.

📖 The icon of trace will be displayed only as long as after data set to start of embroidery.

Needle bar lowering



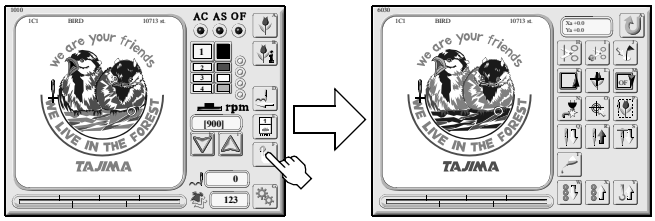
◀ Screen 6030



📖 Needle bar lowering
Lower needle bar to the height where it does not touch fabric.

7. Needle bar raising/stop at lower dead point

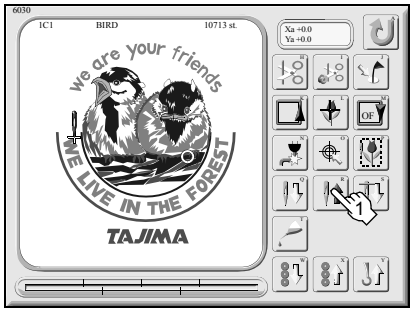
<How to call screen>



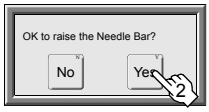
CAUTION

When performing this operation, do not put your hands, etc. on the machine table. Moving embroidery frame will cause you injured.

Needle bar raising

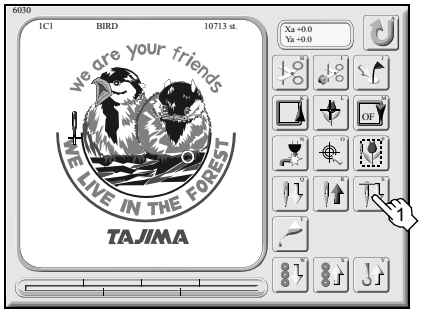


◀ Screen 6030

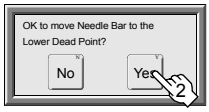


Needle bar raising
Return the lowered needle bar to the original position.

Stop at lower dead point



◀ Screen 6030

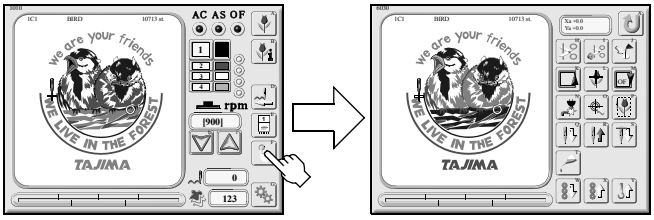


Stop at lower dead point
Make the machine stop with needle bar moved at the lowest position.

Return the lowered needle bar to the original position.

8. Up/down of sequin device

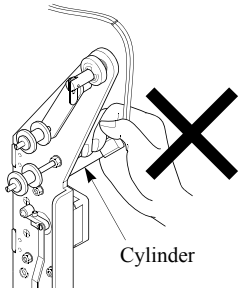
<How to call the screen>



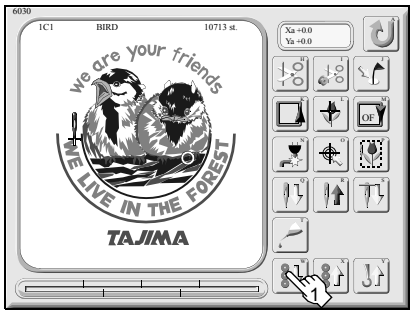
CAUTION

When performing this operation, do not make your hands or face access to the needle bar case or machine table. Sequin device will move and you could be injured.

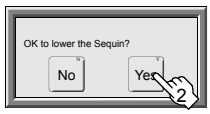
Do not move the sequin device up and down with holding the cylinder. The rod will bend to cause the device to be broken down.



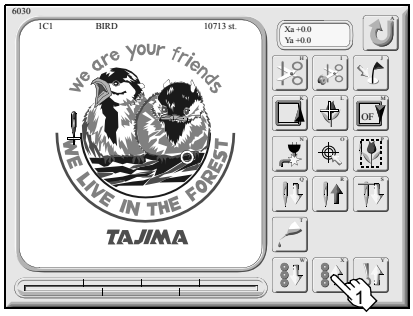
Lowering of sequin device



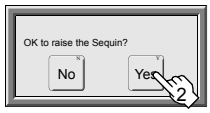
◀ Screen 6030



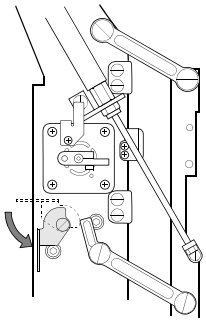
Raising of sequin device



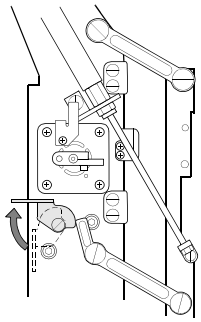
◀ Screen 6030



- If the needle bar equipped with the sequin device is not selected, the icon will not be displayed.
- When using sequin device, set up/down stopper lever to lower position.

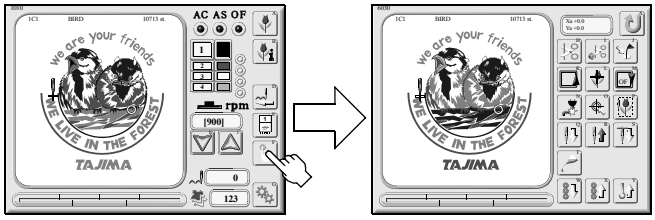


- The sequin device will move up automatically at automatic thread trimming, color change or completion of embroidery
- When turning off the power with sequin device moved up, lower the up/down stopper lever.



9. Automatic lubrication/upper thread hook return

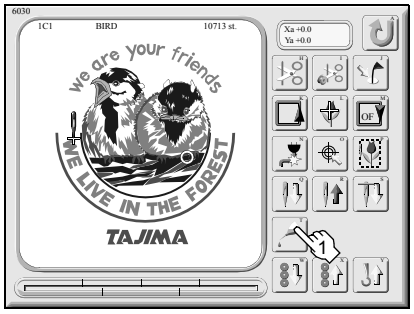
<How to call the screen>



CAUTION

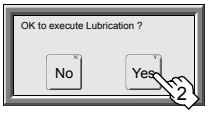
When performing this operation, do not put your hands under the needle or on the machine table. Moving hook could injure you.

Automatic lubrication system



◀ Screen 6030

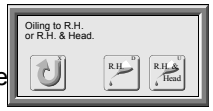
Without valve



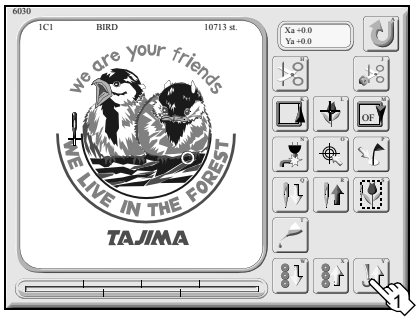
Lubrication to rotary hook side

Lubrication to both rotary hook and head sides

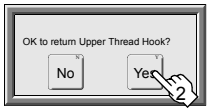
With valve



Upper thread hook return



◀ Screen 6030



🕮 It is not possible to use it if automatic lubrication system (option) is not equipped.

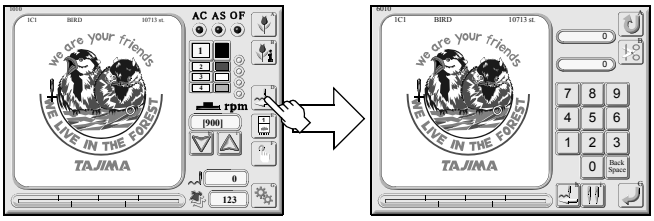
🕮 Display differs depending on setting for automatic lubrication system of parameter. Automatic lubrication system=> p.121

🕮 Make the machine lubricate spots where lubrication is necessary.

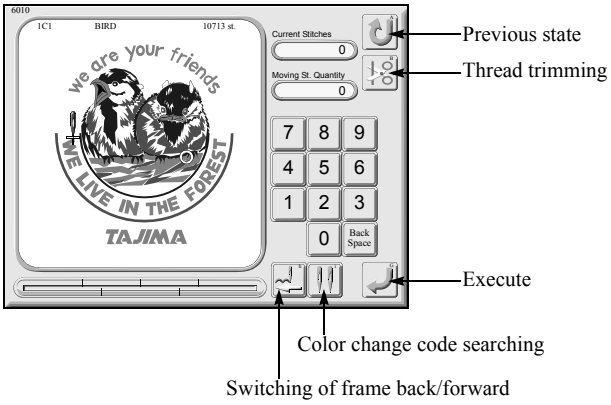
🕮 Perform this operation when upper thread hook did not return to the original position due to power shut off such as power failure during working of ATH.

10. Frame back/forward

<How to call the screen>



Screen 6010



Frame back makes only the frame move to the direction to which stitches return. Frame forward makes only the frame move to the direction to which stitches advance.

+/- of amount of moving stitches changes to frame back "-", or frame forward "+".

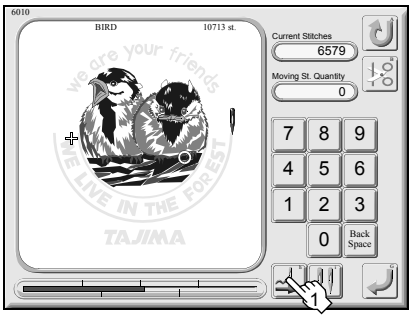
Every pressing it will switch frame back/ forward.

Even if frame forward is set, when starting embroidery, the machine will be set to frame back.

CAUTION

When performing this operation, do not put your hands under the needle or on the machine table. If your hands are under the needle or on the machine table, you may be injured by the needle or the moving frame.

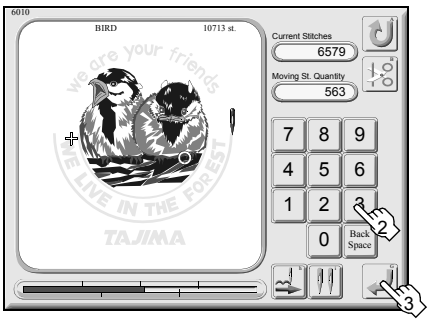
1. Select frame back/forward.



◀ Screen 6010

It is not possible to search color change code(s) in design data that includes repeat setting.

2. Input and execution of amount of moving stitches



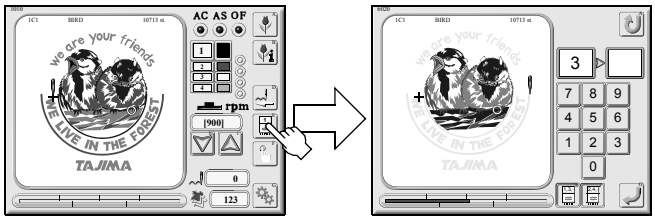
◀ Screen 6010

It is possible to perform frame back/forward by amount of moving stitches of color change code searching.
Every pressing the icon of color change code searching will search the next position of color change.

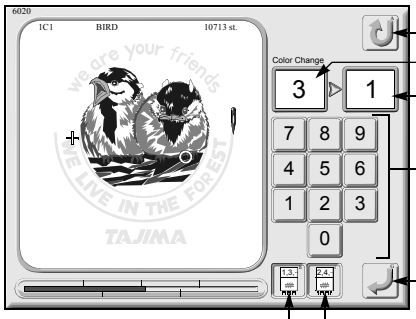
Frame back/forward by specified amount of stitches will be performed when executed.

11. Screen 6020

<How to call the screen>



No head group



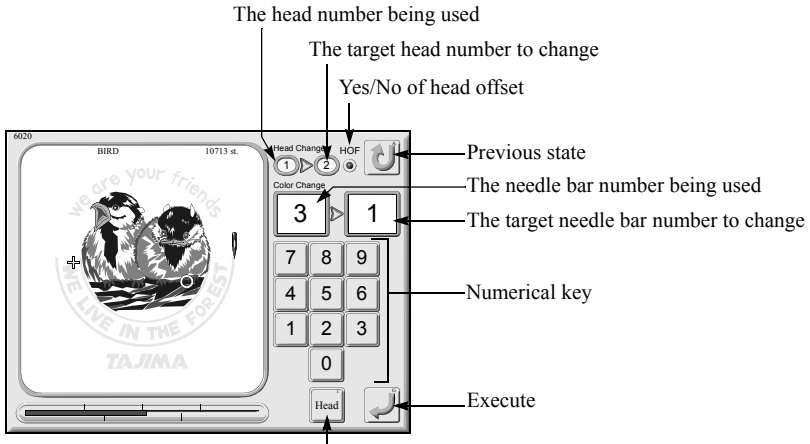
📖 When performing manual color change, set parameter “1. Automatic color change” to “No”. Even if performing manual color change with setting of “Yes”, needle bar will return to the currently selected setting when starting the machine.
Auto Color Change (AC) => p.111

📖 The screen of manual color change differs depending on whether head group is set or not.
Head group => p.41

📖 Every pressing odd-numbered/even-numbered head will switch operation/ suspension.


Running To suspend

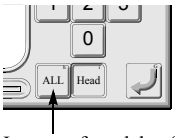
Head group is set



📖 Head offset => p.41

📖 Use numerical key to input needle bar number of target to change. When pressing “Head”, input of needle bar number will switch to input of head number.


Needle bar number Head No.

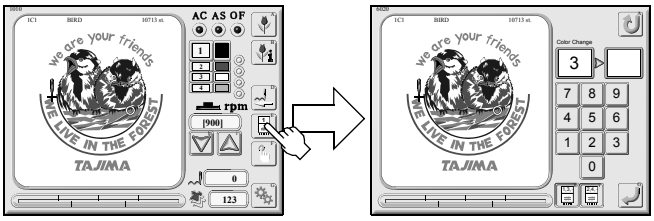


In case of models of WJ frame spec., this icon will be displayed when pressing the head key.

📖 WJ frame spec. models support “WJ2H” frame setting, and the key “ALL” to embroider all the heads will be displayed.

12. Manual color change

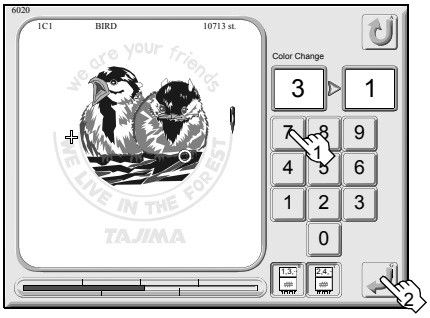
<How to call the screen>



CAUTION

When performing this operation, do not put your hands under the needle or on the machine table. If your hands are under the needle or on the machine table, you may be injured by the needle or the moving frame.

No head group

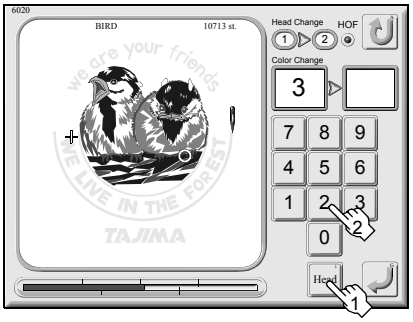


◀ Screen 6020

Use numerical key to input needle bar number of target to change and perform execution. When performing execution, needle bar case will slide to change needle bar.

Head group is set

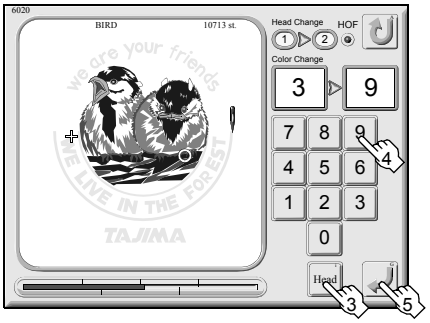
1. Input of head number



◀ Screen 6020

Press the “Head” icon and input head number to change with numerical key.

2. Input and execution of needle bar number

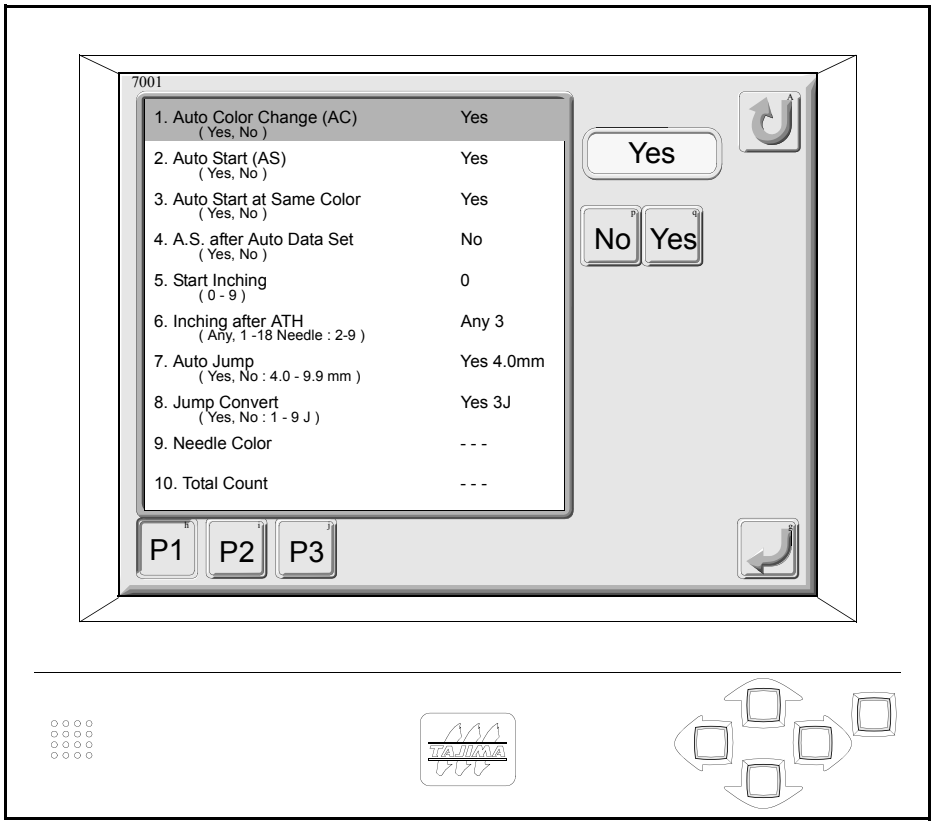


◀ Screen 6020

Press the “Head” icon to cancel head input.

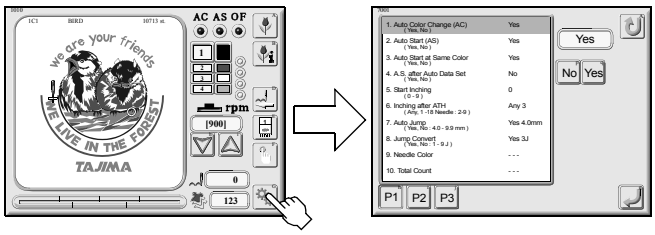
Use numerical key to input needle bar number of target to change and perform execution. When performing execution, needle bar case will slide to change needle bar.

CHAPTER 8 PARAMETER SETTING

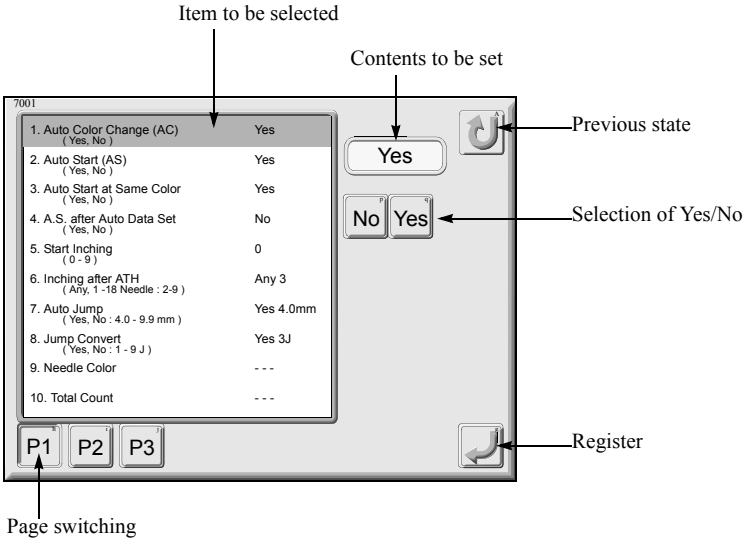


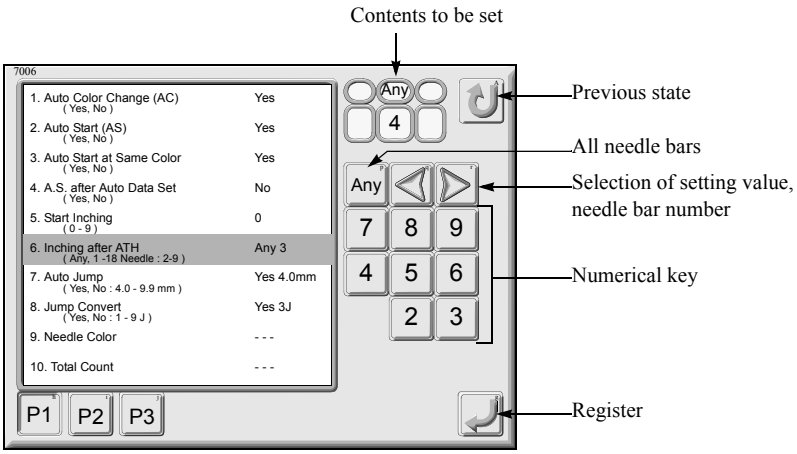
Explanation on the screen

<How to call screen>



Parameter setting screen

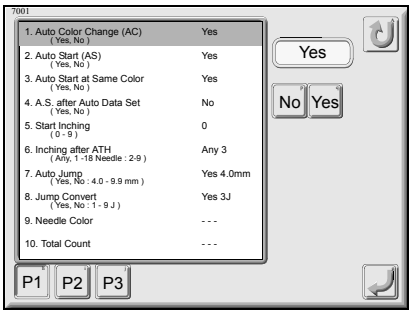




Setting items of parameter may not be displayed depending on machine specification. Setting items of parameter may be different from this manual due to research and development.

Page switching
Pressing “P3” twice will cause “P1” to “P7” to be displayed.
Pressing “P7” twice will cause “P8” to be displayed.

1. Auto Color Change (AC)

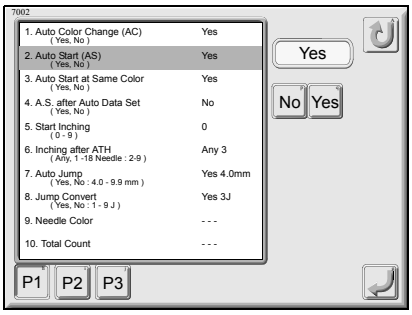


Yes / No + 

When needle bar step switches, automatic color change will be performed.

- When “Yes” is set, “AC” lamp of the screen 1010 will become red.

2. Auto Start (AS)

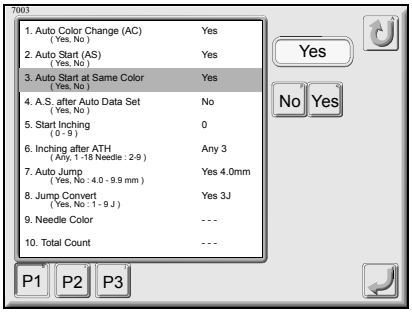


Yes / No + 

When needle bar step changes, automatic start will be performed.

- It is possible to make setting when “Yes” is set to “1. Auto Color Change”.
- When “Yes” is set, “AS” lamp of the screen 1010 will become red.

3. Auto Start at Same Color

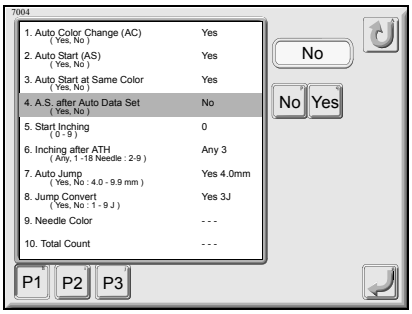


Yes / No + 

Even if the same needle bar is selected before and after color change, automatic start will be performed.

- It is possible to make setting when “Yes” is set to “2. Auto Start”.

4. A. S. after Auto Data Set

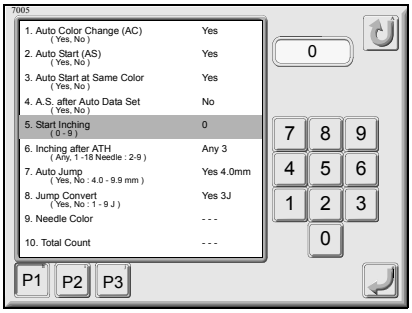


Yes / No + 

It makes the machine start automatically after end of embroidery to embroider the same design repeatedly.

- It is possible to make setting when “Yes” is set to “2. Auto Start”.

5. Start Inching

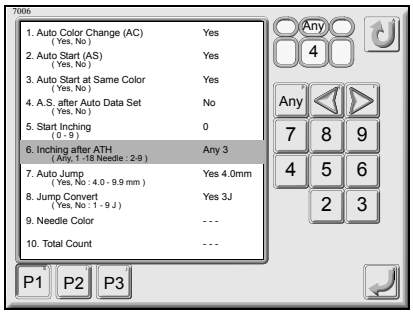


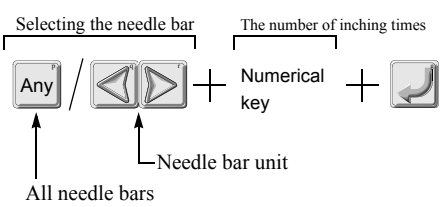
Numerical key + 

Start Inching.

- “0” does not make inching at start

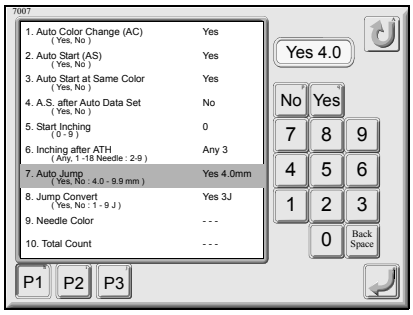
6. Inching after ATH





The number of inching times at machine start after thread trimming

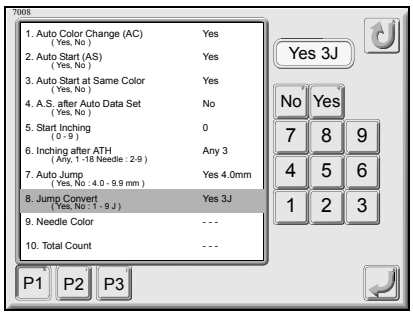
7. Auto Jump



When a stitch is longer than the set auto jump length, it will make automatic jump.

When registration is performed with "No", numerical key will disappear.

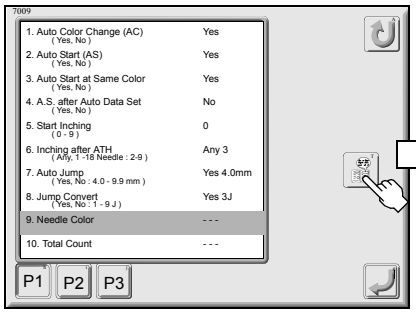
8. Jump Convert

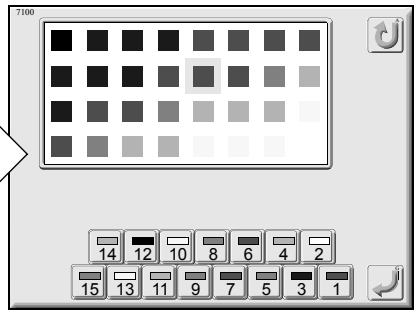


When jump codes continue the number of set times and more consecutively, it converts the consecutive jump codes to frame stepping.

When registration is performed with "No", numerical key will disappear.

9. Needle Color

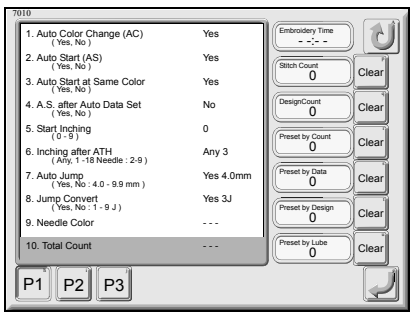




It adjusts display color on the operation panel to color of thread to be used actually.

Needle bar color => p.36

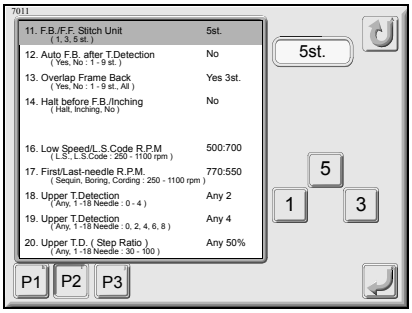
10. Total Count



Return the value to 0

It displays time spent for one design to embroider, the number of stitches to have been embroidered, and the remaining amount up to the point of preset halt.

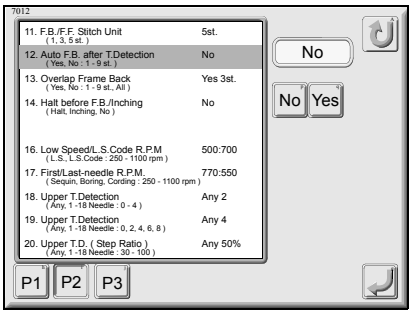
11. F.B./F.F. Stitch Unit



1 / 3 / 5 ＋

Feed unit at frame back/forward.

12. Auto F.B. after T.Detection

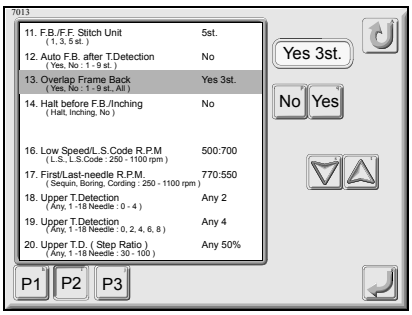


Yes Numerical key ／ No ＋

This setting makes the machine perform frame back automatically by adding the setting value to a thread breakage detecting point.

📖 The machine will perform frame back by the set unit of “11.F.B./F.F. Stitch Unit”.

13. Overlap Frame Back



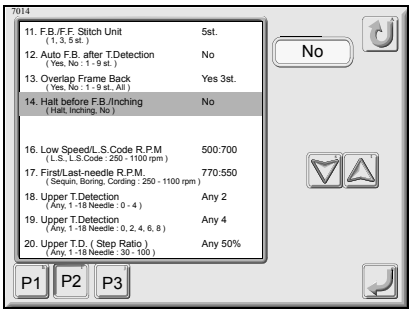
Yes ＋ ▽△ ／ No ＋

Make the machine perform all-head sewing at short of the number of set stitches from the point where thread breakage detected at start of the machine after frame back.

📖 It is effective when “12.Auto F.B. after T.Detection” is set to “No”.

📖 When registration is performed with “No”, numerical key will disappear.

14. Halt before F.B./Inching



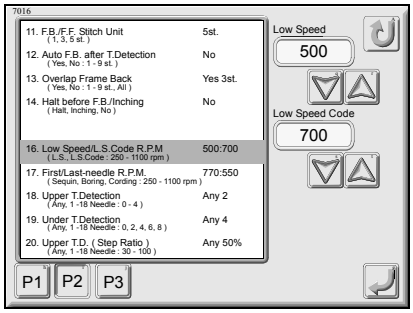
▽△ ＋

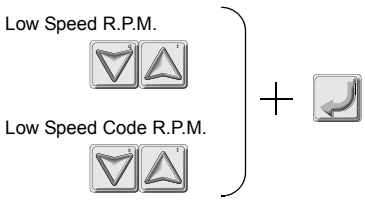
Set to make the machine perform stop/inching/ none at starting point of all-head sewing when starting the machine after frame back.

15. ---

It is not available for use currently.

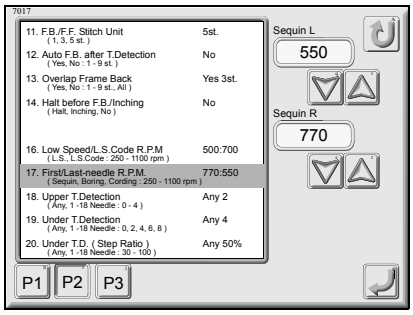
16. Low Speed/LS. Code R.P.M.

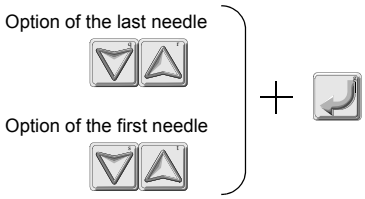




The number of revolutions (rpm) of the most decelerated and in a section of low speed code.

17. First/Last-needle R.P.M.

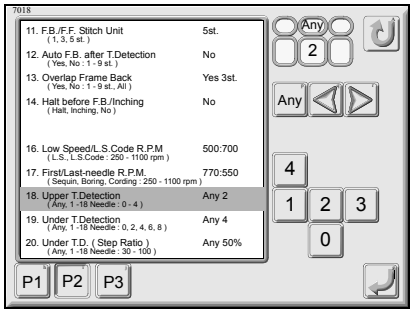


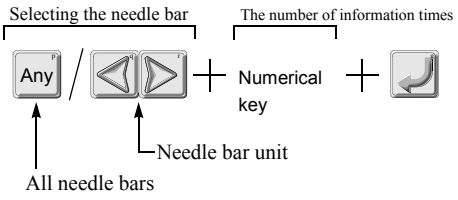


The number of revolutions (rpm) when performing embroidery using the first needle and/or the last needle equipped with option.

First needle: sequin R/boring
The last needle: sequin L/cord

18. Upper T.Detection

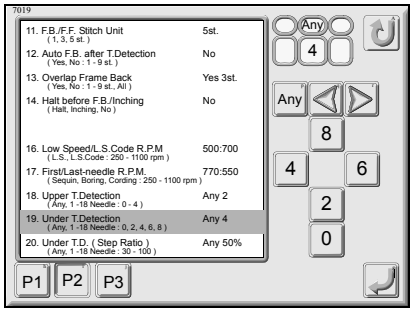


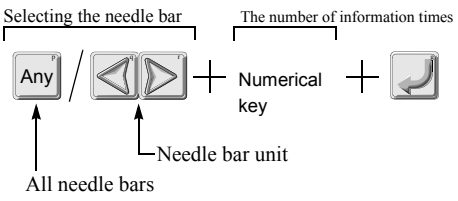


When information of upper thread breakage continues more than the number of setting times, it will be treated as a state of upper thread breakage.

When the setting value becomes smaller, the sensitivity will become higher.

19. Under T.Detection (unit)

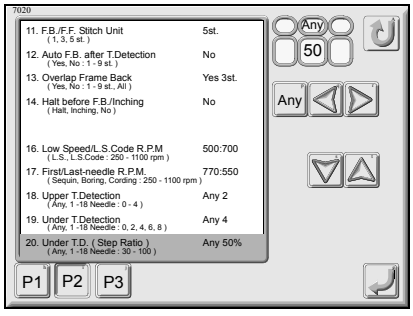


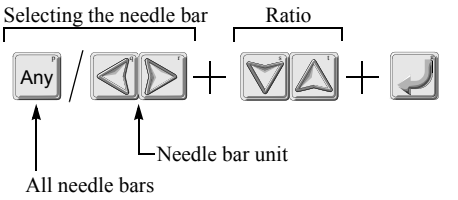


When information of under thread breakage continues more than the setting times, it is treated as a state of under thread breakage.

When the setting value becomes smaller, the sensitivity will become higher.

20. Under T.D (Step Ratio)

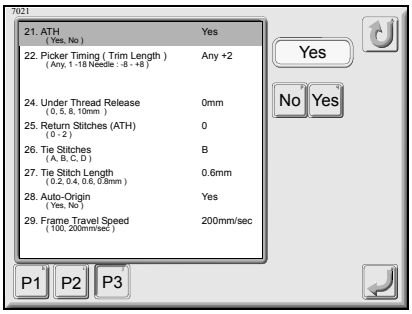


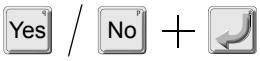


Adjust the sensitivity by ratio of under thread breakage.

When the setting value becomes bigger, the sensitivity will become higher.

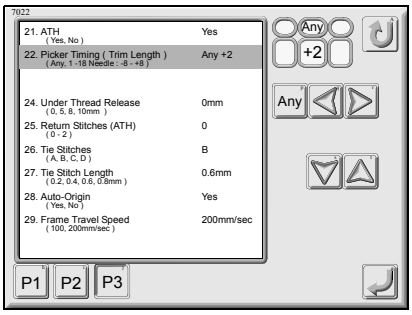
21. ATH

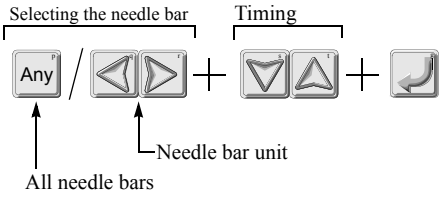




The machine performs automatic thread trimming at color change, frame stepping, end of embroidery, etc.

22. Picker Timing (Tail Length)





It adjusts the remaining thread length at thread trimming.

🕮 It is possible to make setting when “Yes” is set to “21. ATH”.

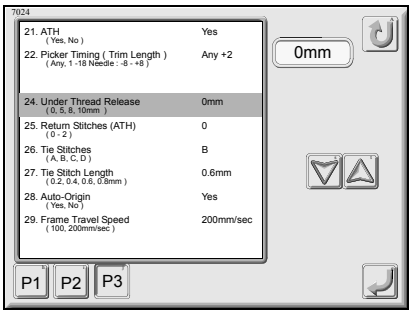
-8 0 +8

Short Long

23. ---

It is not available for use currently.

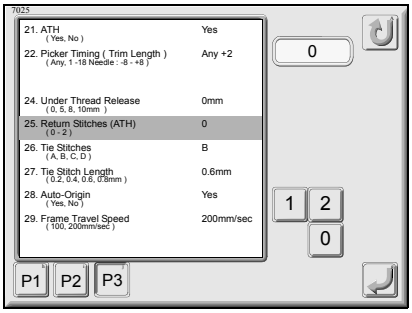
24. Under Thread Release



It moves the frame for loosening of under thread.

🕮 It is possible to make setting when “Yes” is set to “21. ATH”.

25. Return Stitches

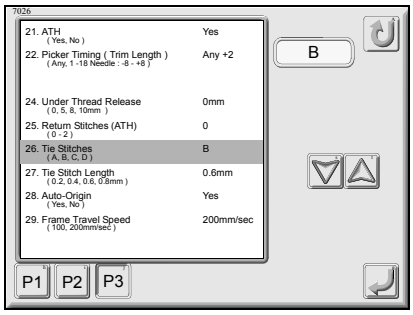


0 / 1 / 2

Set the number of return stitches at start of sewing after thread trimming.

🕮 0: Not to perform
1: 1 reciprocating
2: 2 reciprocatings

26. Tie Stitches



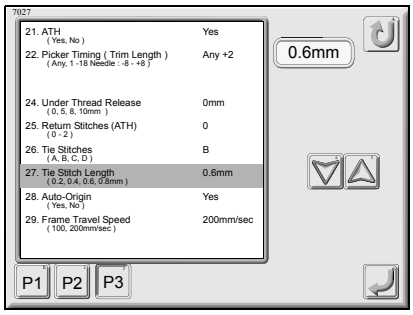
A / B / C / D + 

It performs tie stitching before thread trimming.

📖 A: Not to perform tie stitching
B to D: To perform tie stitching.

B
C
D ↓ Hard to fray

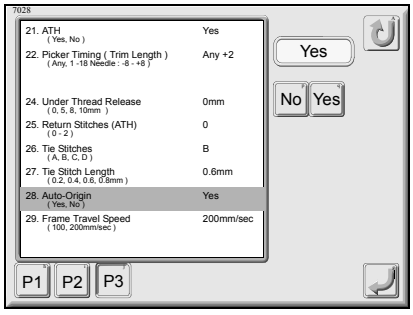
27. Tie Stitch Length



0.2 / 0.4 / 0.6 / 0.8 + 

Select a stitch length for tie stitching.

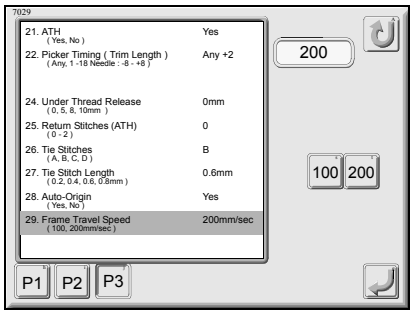
28. Auto-Origin



Yes / No + 

Make the frame move to the origin at completion of embroidery.

29. Frame Travel Speed



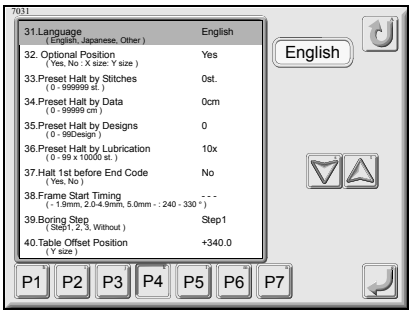
100 / 200 + 

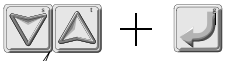
Select frame travel speed at offset return and offset.

30. ---

📖 It is not available for use currently.

31. Language

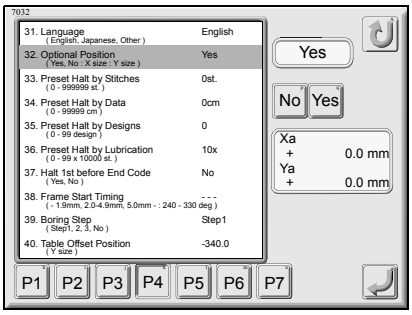




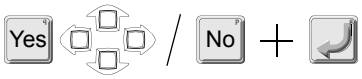
English, French, German, Italian, Japanese, Korean,Portuguese, Russian, Spanish, Turkish, Chinese, Czech, Korean, Thai

Switch the display language on the screen.

32. Optional Position



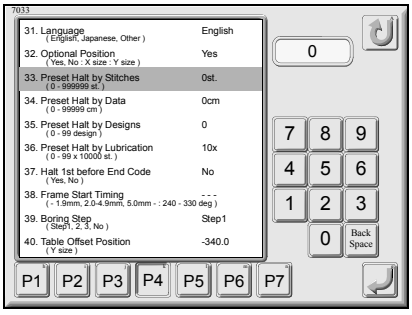
Frame travel



The machine memorizes the free setting position made by manual frame travel.

- Selecting “Yes” will cause XY coordinates to be displayed.

33. Preset Halt by Stitches

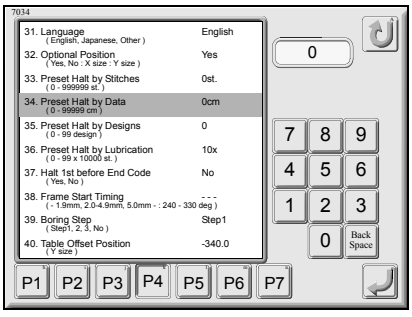


Numerical key

When stitch counter reaches the set value, the machine will stop automatically.

- Code number “1D2” will be displayed at stop of the machine.
- “0” makes no stop.

34. Preset Halt by Data

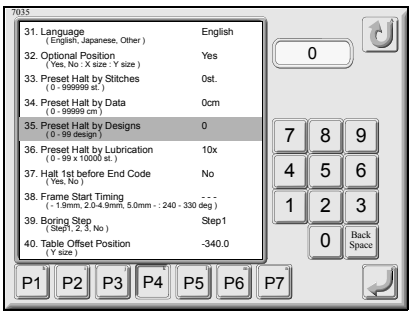


Numerical key

When frame move amount reaches the set value, the machine will stop automatically.

- Code number “1D2” will be displayed at stop of the machine.
- “0” makes no stop.

35. Preset Halt by Design

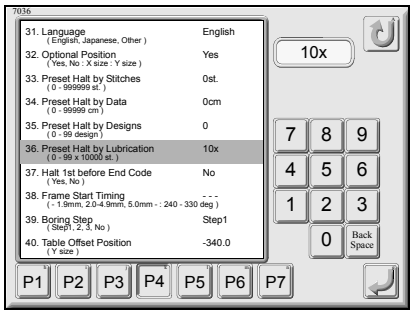


Numerical key

When the number of embroidered designs reaches the set value, the machine will stop automatically.

- Code number “1D2” will be displayed at stop of the machine.
- “0” makes no stop.

36. Preset Halt by Lubrication

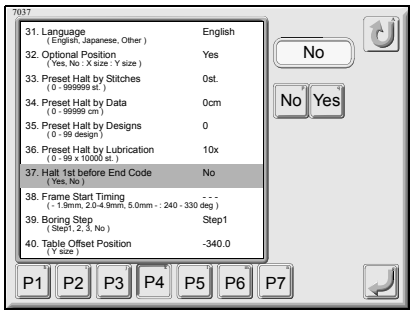


Numerical key + 

When count of stitches reaches the set value, the machine will stop automatically.

- 🕮 Setting value multiplied by 10000 stitches
- 🕮 Code number “OIL” will be displayed at stop of the machine.
- 🕮 “0” makes no stop.
- 🕮 It is effective when “No” is set to “51. Lubrication”.

37. Halt 1st before End Code

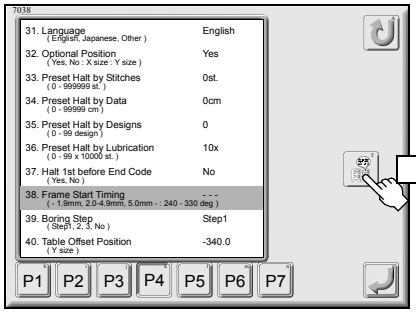


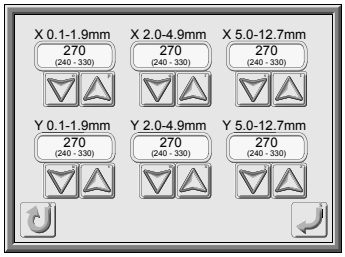
Yes / No + 

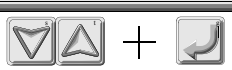
The machine will stop automatically before the end of embroidery.

- 🕮 It is possible to perform frame back after stop of the machine.

38. Frame Start Timing







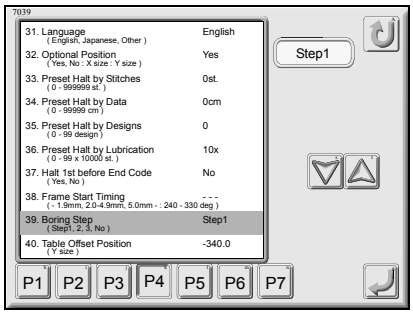
Select start timing (main shaft angle) of frame drive according to XY moving amount of stitch data (p.73).

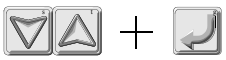
- 🕮 Do not set to 300° or more in usual embroidery.

240° ← Early (Thread tension: loose)

→ 330° Late (Thread tension: tight) (Stitch length: short)

39. Boring Step



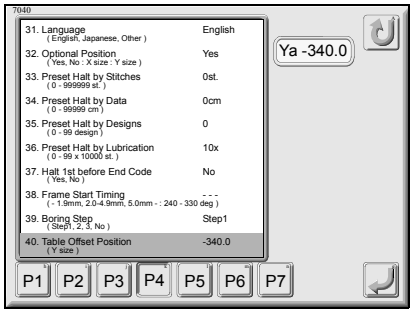


Step 1	No data modification
Step 2	Offset amount is deleted from data, and mechanical offset 12 mm is added.
Step 3	Add mechanical offset 12 mm
Without	Boring is not performed

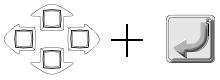
When the machine is equipped with mechanical type boring device, stitch data will be modified.

- 🕮 Do not perform enlargement/reduction, rotation, and reversion of design.
- 🕮 When there is boring offset data, select step 1 or step 2.
- 🕮 When there is no boring offset data, select step 3.

40. Table Offset Position



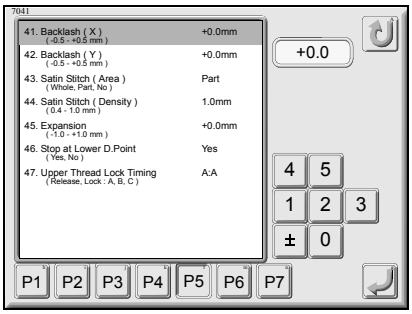
Frame travel



This operation makes the machine memorize the position to which manual frame travel was performed as table offset position.

- 🕮 To return it to the original position, use manual offset.
- 🕮 Setting range is 1/2 of Y-axis embroidery space.
- 🕮 The frame will move to the reverse direction (rear) of the setting position, if “Yes” is set to “58. AFC”.

41. Backlash (X)

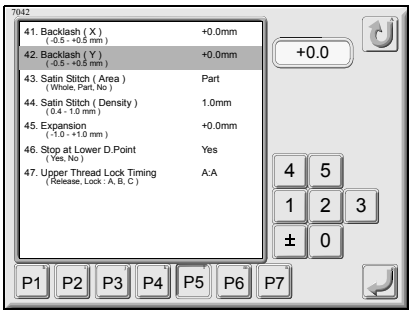


Numerical key + 

It corrects mechanical error generated when X-axis drive reverses with setting value.

- 🕮 “0” does not make correction.
- 🕮 When correction is performed, setting for satin stitch will become invalid.
- 🕮 Backlash => p.134

42. Backlash (Y)

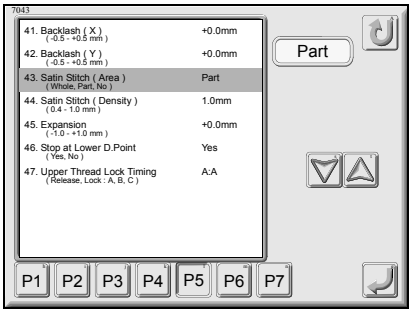


Numerical key + 

It corrects mechanical error generated when Y-axis drive reverses with setting value.

- 🕮 “0” does not make correction.
- 🕮 When correction is performed, setting for satin stitch will become invalid.
- 🕮 Backlash => p.134

43. Satin Stitch (Area)



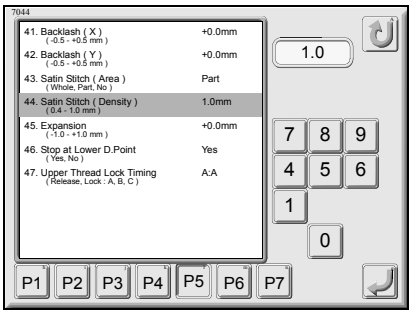
 + 

Whole	All design data
Part	corresponds to section of function code "Satin stitch"
Not to perform	Without addition

Select range for satin stitch (density for recognition)

- 🕮 When backlash correction is performed, setting for satin stitch will become invalid.
- 🕮 Satin stitch => p.135

44. Satin Stitch (Density)

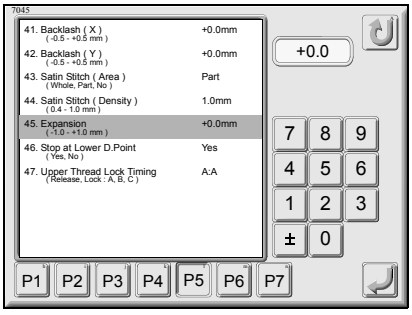


Numerical key + 

Stitches in Satin Stitch (Area) that have stitch density of the setting value or less are targeted as data to be added.

- 🕮 It is effective when “43. Satin Stitch (Area)” is set to “Whole” or “Part”.
- 🕮 Satin stitch => p.135

45. Expansion

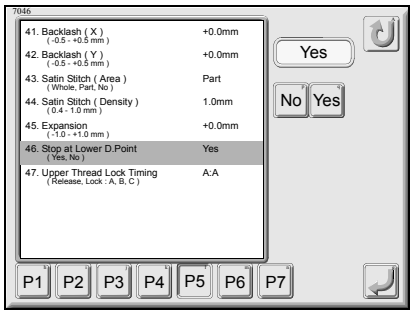


Numerical key + 

Add the setting value to the stitch that is applied to density of recognition of satin stitch.

- 🕮 Satin stitch => p.135

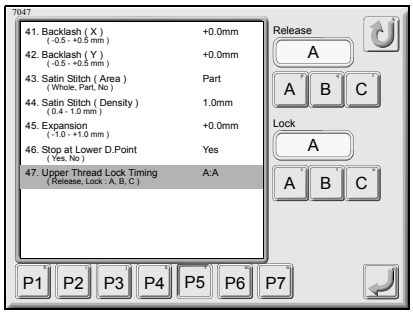
46. Stop at lower D.Point



Yes / No +

When the last stitch of design is given, the needle bar will stop at the lower dead point.

47. Upper Thread Lock Timing



When releasing
A / B / C

When locking
A / B / C

+

Set upper thread lock timing at start of sewing (release) and at thread trimming (lock).

A
B
C ▼ Thread tension is strong
- Upper thread is hard to remain on
- Hard to fray

48. ---

It is not available for use currently.

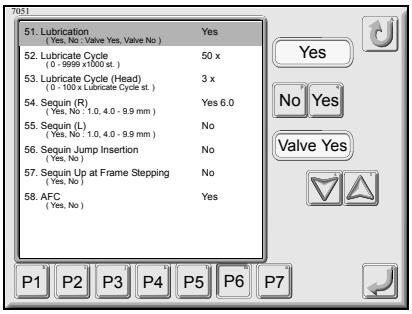
49. ---

It is not available for use currently.

50. ---

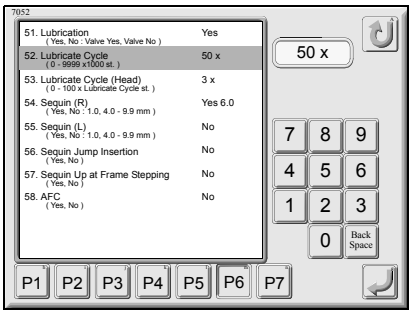
It is not available for use currently.

51. Lubrication



Select whether the automatic lubrication system is equipped or not. When the automatic lubrication system is equipped, select also whether the valve is equipped or not.

52. Lubricate Cycle

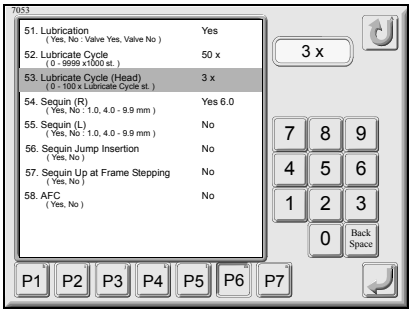


Numerical key +

When the stitch count reaches the setting value, the automatic lubrication system will activate.

- Setting value multiplied by 1000 stitches

53. Lubricate Cycle (Head)

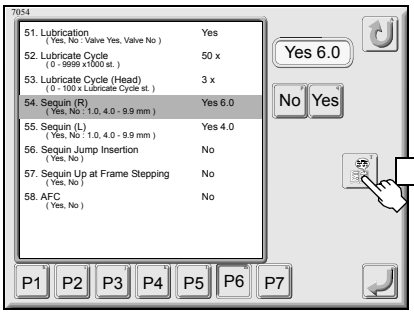


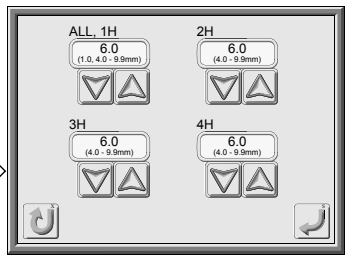
Numerical key +

This setting makes the machine lubricate automatically to lubricating spots at head side with the cycle multiplied by the setting value of "52. Lubricate Cycle".

- Setting value multiplied by "52.Lubricate Cycle"
- It is possible to perform setting only when "51. Lubrication" is set to "Valve Yes".

54. Sequin (R)

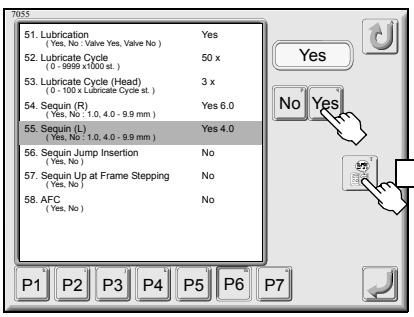


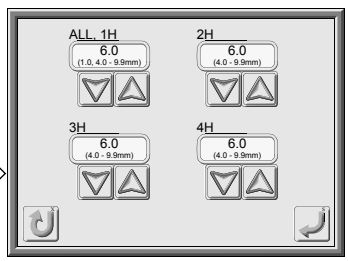


Select to use/not to use Sequin (R).

- Set a feed interval.
- Rough standard of sequin feed amount is +0.7 mm to sequin size.
  In case of old type sequin device, set feed amount to 1.0.
- When head group is set, set the 2nd head and after.
- It is not possible to perform setting when "66. Boring" is set to "Yes".

55. Sequin (L)

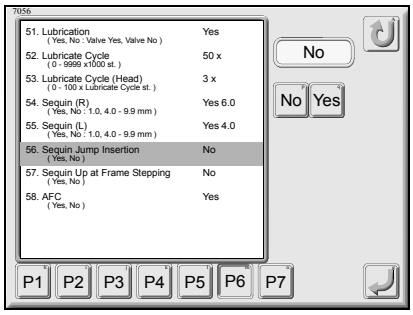




Select to use/not to use Sequin (L).

- Set a feed interval.
- Rough standard of sequin feed amount is +0.7 mm to sequin size.
  In case of old type sequin device, set feed amount to 1.0.
- When head group is set, set the 2nd head and after.
- It is not possible to perform setting when "67. Cording" is set to "Yes".

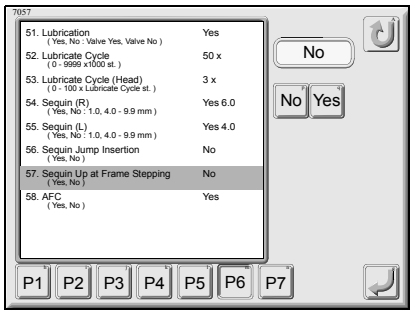
56. Sequin jump insertion



Yes / No + ↵

Select whether or not to insert non-data jump by one stitch automatically after sequin output.

57. Sequin up at frame stepping

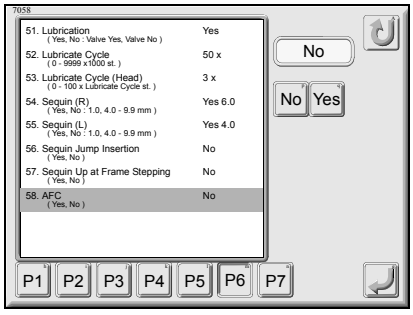


Yes / No + ↵

Select whether or not to raise the sequin device at ATH working by frame stepping.

📖 "Yes" inserts non-data jump by one stitch before thread trimming to raise the sequin device to perform thread trimming and activate the thread holding hook.
"No" does not make the sequin device move up and the thread holding hook does not work after thread trimming.

58. AFC



Select with/without of AFC

📖 At present, this function is not available as an option and is not possible to perform setting.

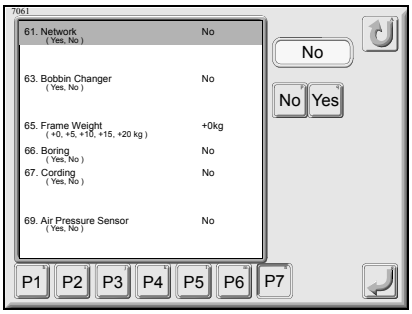
59. --

It is not available for use currently.

60. --I

It is not available for use currently.

61. Network



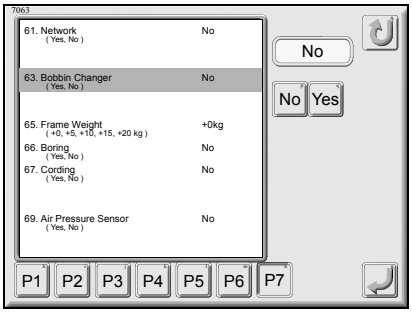
Yes / No + ↵

Select whether LAN connection is set or not.

62. ---

It is not available for use currently.

63. Bobbin Changer



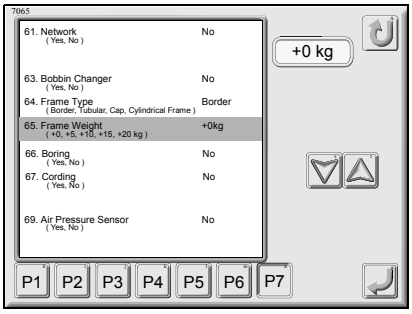
Yes / No + ↵

Select whether bobbin changer is equipped or not

64. --

At present, it is not available.

65. Frame Weight

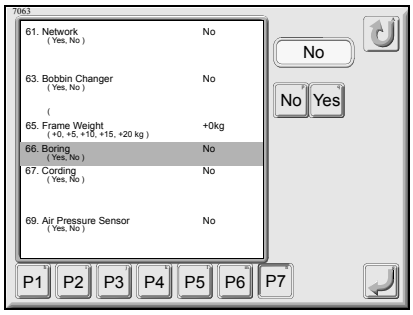


▽ △ + ↵

Select the weight to be added to the frame.

When frame weight becomes heavier, stitch length to X-axis direction may become larger. When stitch length becomes larger, perform adjustment.

66. Boring

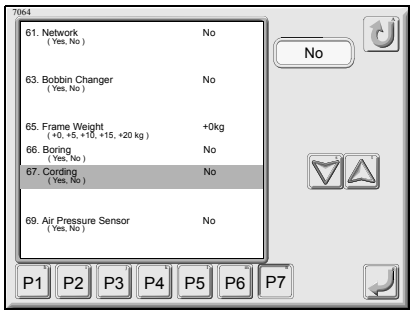


Yes / No + ↵

Select whether boring device is equipped or not.

🕮 It is not possible to perform setting when "54. Sequin (R)" is set to "Yes".

67. Cording



Yes / No + ↵

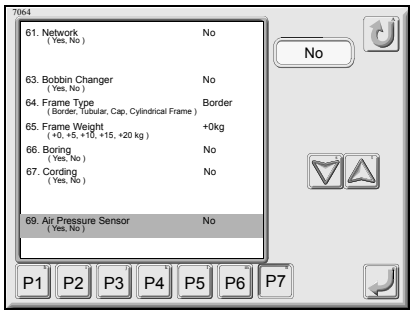
Select whether cording device is equipped or not.

🕮 It is not possible to perform setting when "55. Sequin (L)" is set to "Yes".

68. ---

It is not available for use currently.

69. Air Pressure Sensor



Yes / No + ↵

Select whether the air pressure switch is equipped or not.

🕮 It is displayed when any of sequin device, AFC or bobbin changer (Parameter 54/55/58/63 "Yes") is equipped.

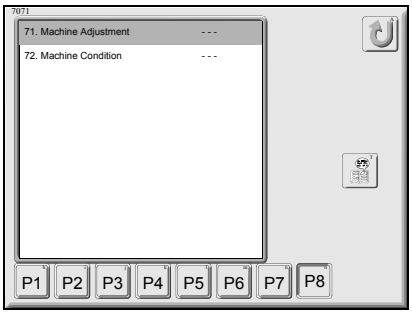
70. ---

It is not available for use currently.

CAUTION

Settings hereafter are the items set by the manufacturer at shipment of the machine. Customer should not change the setting except some of them (software installation, date and time).

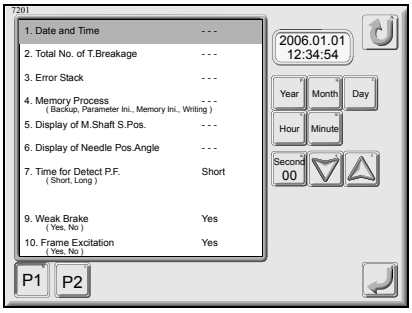
71. Machine Adjustment

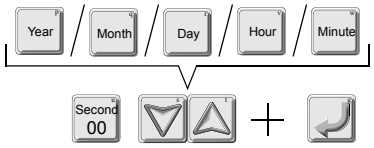


Adjust the machine.

Switch the screen to item of machine adjustment.

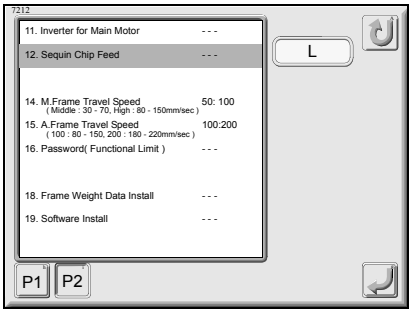
71-1. Date and Time

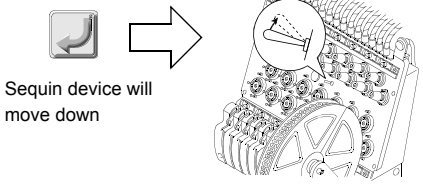




Adjust the current date and time.

71-12. Sequin Chip Feed



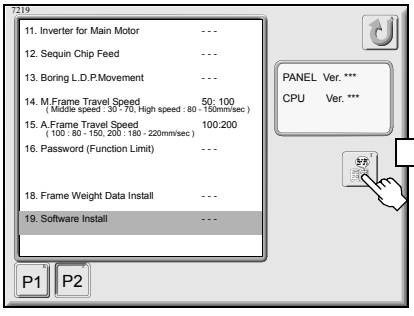


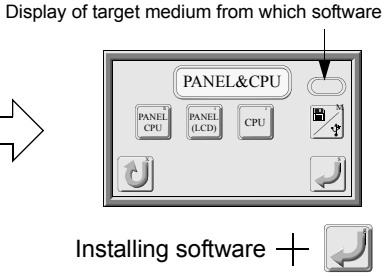
This makes the machine feed chip of sequins using the tension base switch.

It is not possible to perform operation if the needle bar equipped with sequin device is selected. The 1st needle is R and the last needle is L.

Switching screen will cause the sequin device to move up to stop the setting.

71-19. Software Install





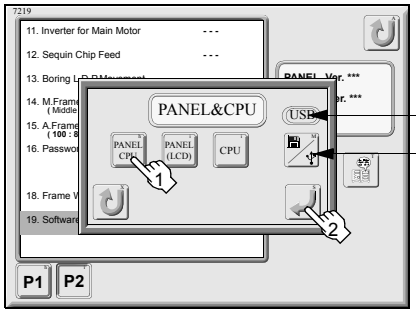
Install the PANEL software, CPU software.

The screen will switch to the screen for installation.

How to operate=> p.126

Installation of software (in case of floppy disk)

1. Selection of target medium from which software is input



◀ Screen 7219

Setting value of target medium from which software is input
USB: USB memory
FD: Floppy disk

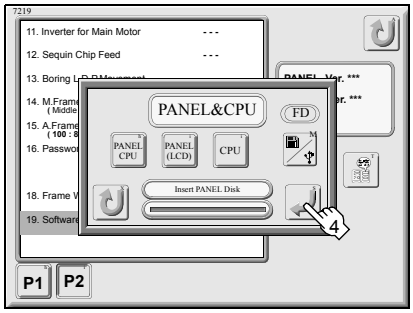
Selection of target medium from which software is input

📖 Select the target medium from which software is input.

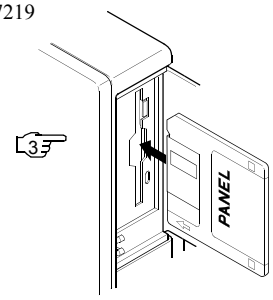
📖 When installing PANEL software or CPU software only, press individual key to perform the following procedure.

📖 Regarding special-ordered machines of 33 or more heads, it is necessary to install the CPU software again after end of installation.

2. Insert PANEL floppy disk. (In case of floppy disk)

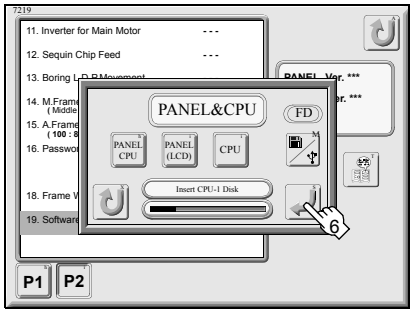


◀ Screen 7219

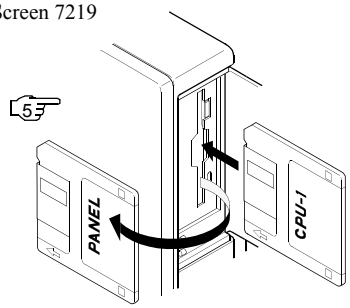


📖 When "Insert PANEL Disk" is displayed at pop-up window, replace with floppy disk of PANEL and press the execution key.

3. Change to insert CPU-1 floppy disk. (In case of floppy disk)

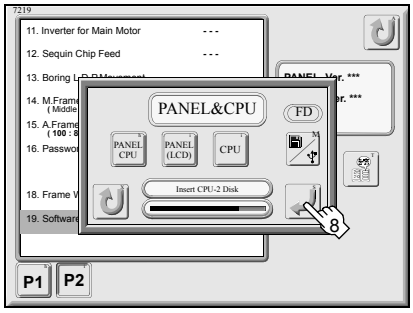


◀ Screen 7219

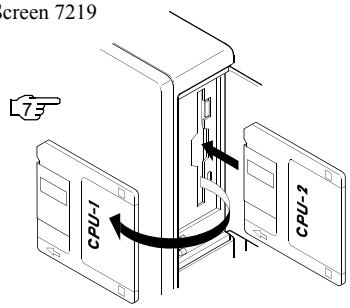


📖 When "Insert CPU-1 Disk" is displayed at pop-up window, replace with floppy disk of CPU-1 and press the execution key.

4. Change to insert CPU-2 floppy disk. (In case of floppy disk)

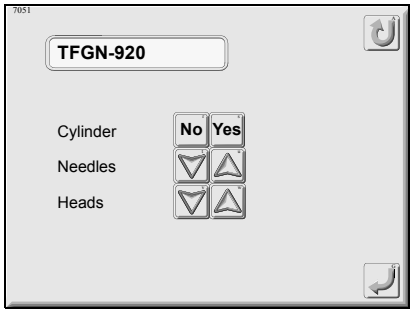


◀ Screen 7219

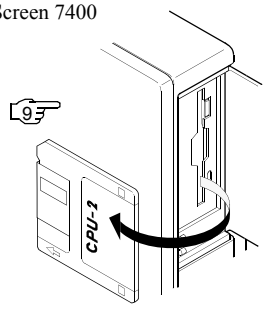


📖 When "Insert CPU-2 Disk" is displayed at pop-up window, replace with floppy disk of CPU-2 and press the execution key.

5. Confirmation of machine spec.



◀ Screen 7400

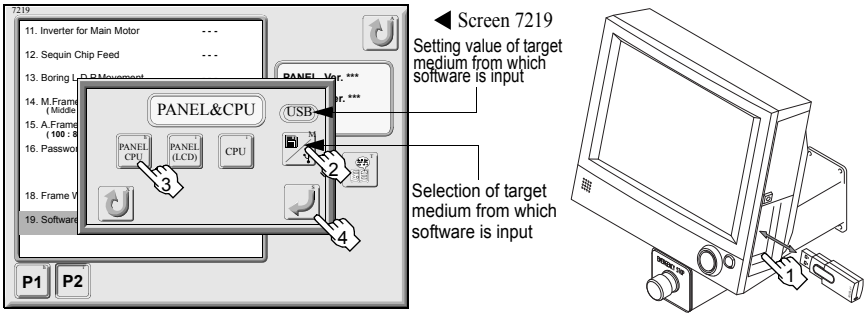


📖 Confirm the spec. of the machine, and turn OFF the power once if the spec. is correct. When specification is different, perform setting again by pressing each key.

📖 Take out the floppy disk.

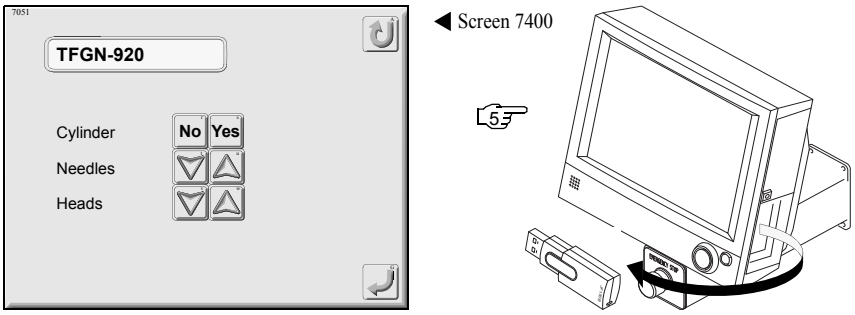
Installation of software (in case of USB memory)

1. Insert the USB memory.



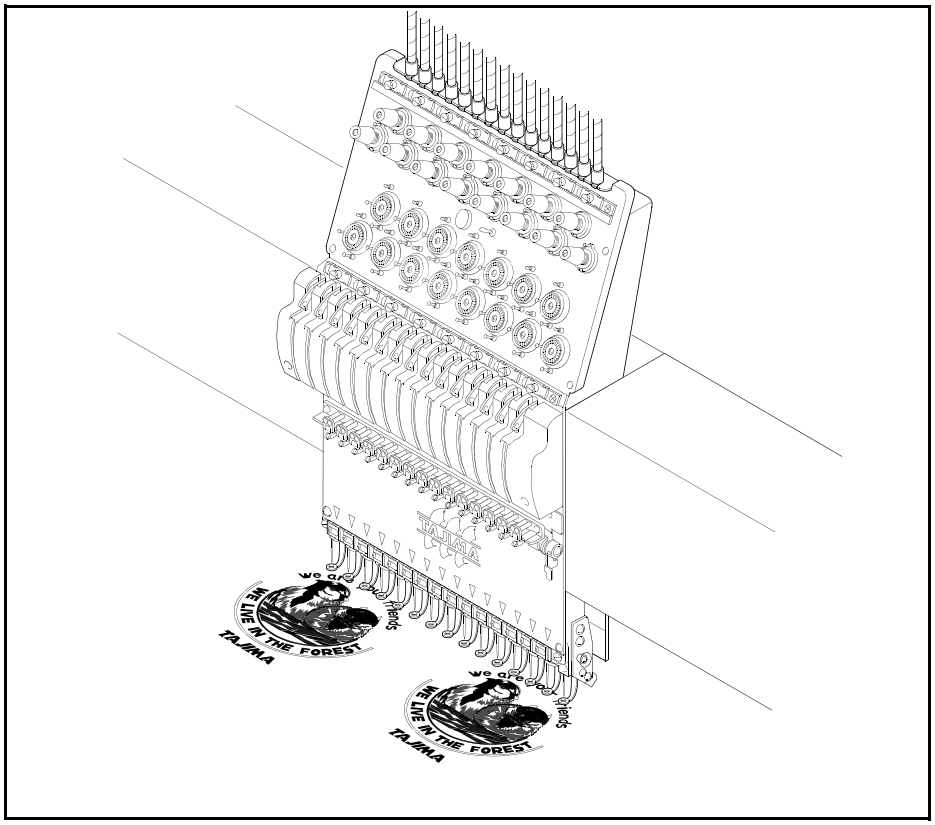
- Set the USB memory that contains software first.
- Select USB
- When installing PANEL software or CPU software only, press individual key to perform the following procedure.
- Regarding special-ordered machines of 33 or more heads, it is necessary to install the CPU software again after end of installation.

2. Confirmation of machine spec.



- Confirm the spec. of the machine, and turn OFF the power once if the spec. is correct. When specification is different, perform setting again by pressing each key.
- Take out the USB memory.

CHAPTER 9 OUTLINE OF FUNCTIONS



1. Condition data

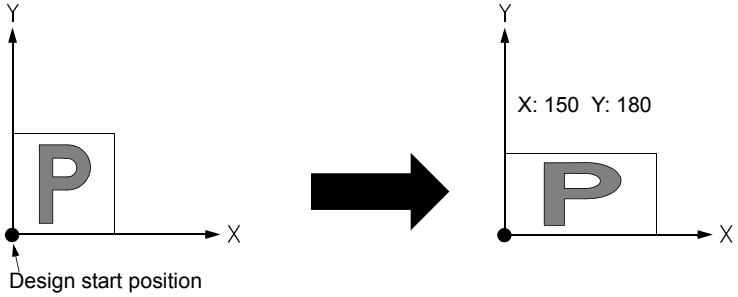
Conditional item	Memory	USB memory/Floppy disk storage	
		T2 code	T code
Needle bar setting	○	○	—
Enlargement/reduction, rotation, reversion	○	—	—
Design start position	○	○	—
Automatic offset	○	—	—
Repeat	○	—	—

📖 Condition data is embroidery condition included in design data.
Some item of condition data may not be stored depending on target where it is stored.

📖 When inputting data from USB memory/ floppy disk to memory, confirmation will appear whether condition data is to be read or not.
T code cannot store condition data

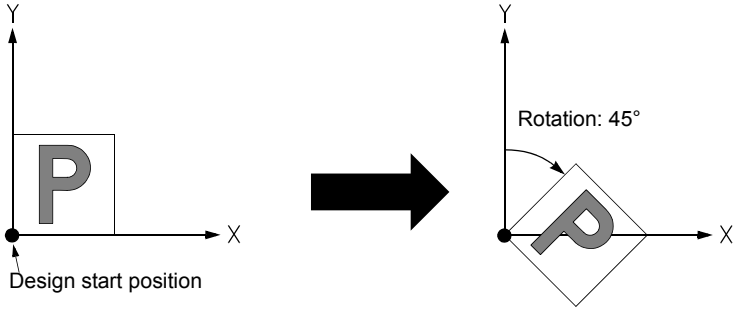
2. Design scale up/down

It is possible to perform enlargement/reduction in 50 to 200% in X/Y direction.



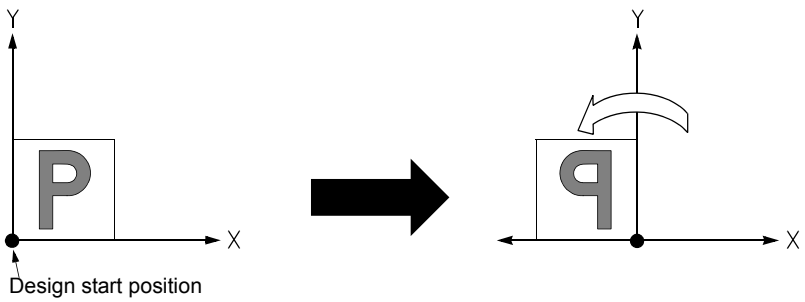
3. Rotation

It is possible to rotate a design up to 359° in increments of 1°.



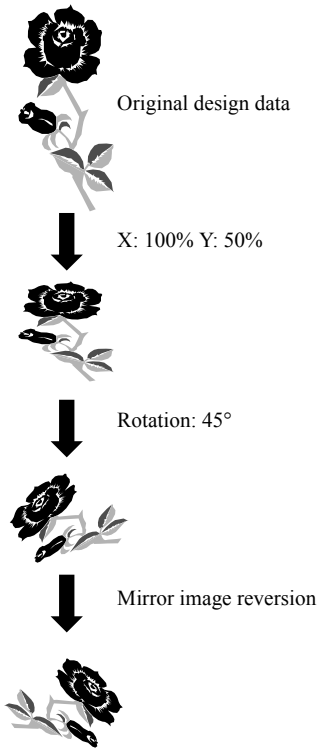
4. Mirror image reversion

It is possible to make reversion based on Y-axis.

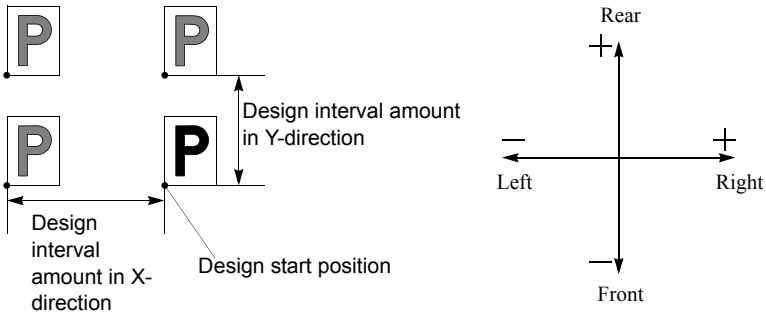


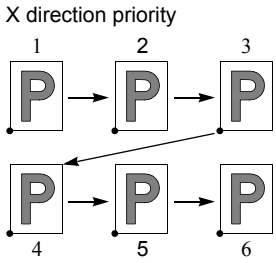
📖 When all of enlargement/reduction, rotation, and mirror image reversion are set, the data processing will have ranking of priority.
Enlargement/reduction --

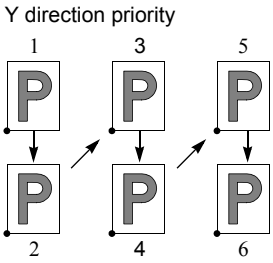
Example: X 100%, Y: 50%
45° rotation
Mirror image reversion



5. Repeat







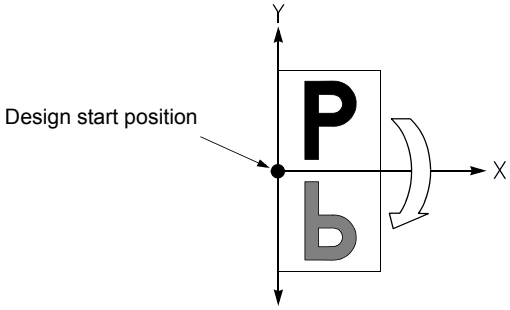
The repeat direction will be decided by +/- of amount of design interval.

Embroidering order differs depending on priority direction.

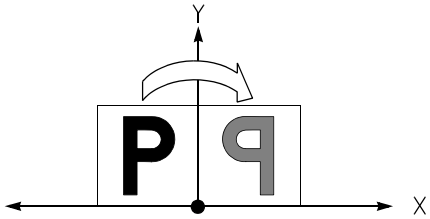
Design interval in Y in the left illustration is minus direction.

6. Converted arrangement

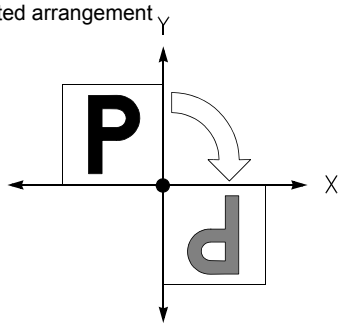
X-axis mirror image



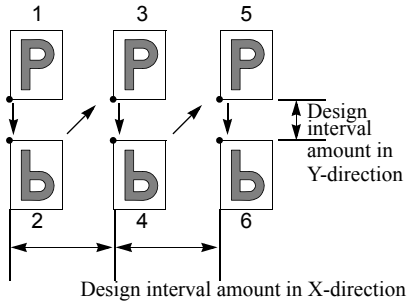
Y-axis mirror image arrangement



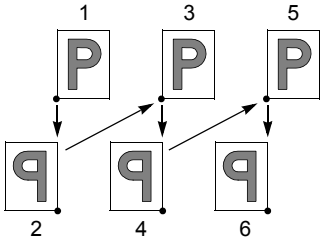
180° rotated arrangement



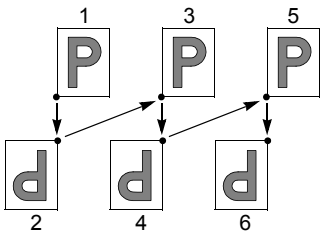
Converted arrangement arranges and repeats the design as it is set as the initial setting in odd-numbered times, and design arranged by mirror/ rotation in even-numbered times in order.



X: +, Y:-, Y priority



X:+, Y: -, Y priority



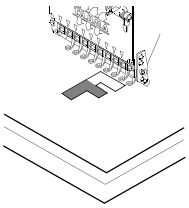
X:+, Y: -, Y priority

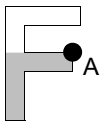
7. Manual Offset

This function makes the embroidery frame return to the original position when the machine was stopped at a free setting point in the middle of embroidery and the embroidery frame was moved to a free setting position by manual frame travel.

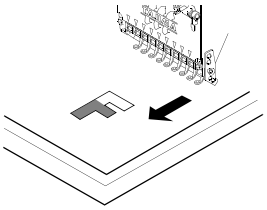
A: Free setting point B: Frame travel position

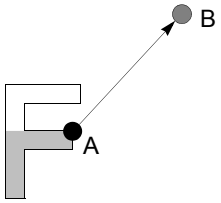
1. It performs manual thread trimming after it makes the machine stop at the free setting point (A).



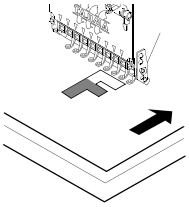


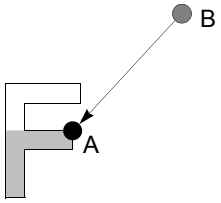
2. Move the embroidery frame forward (B) by manual frame travel for confirming the embroidery design, etc.





3. When it is executed, the frame will return to the free setting point (A).



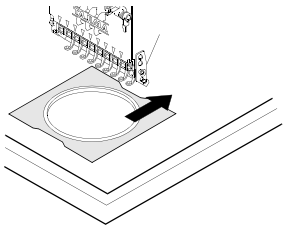


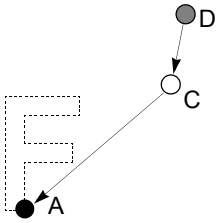
8. Automatic offset

This function makes the embroidery frame move to offset start position automatically at end position of design.

A: Design start position
B: End position of design
C: Middle position
D: Offset start position

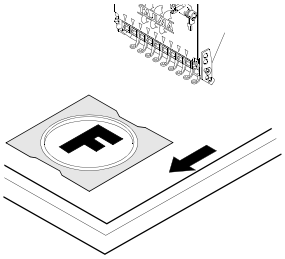
1. When starting the machine, the embroidery frame will move to the design start position (A) through the middle position (C) and embroidery will start.

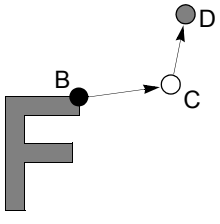




When there is no middle position (C), the frame will move to the design start position (A).

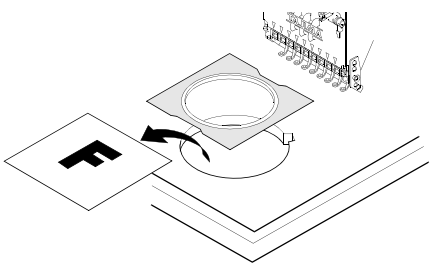
2. The machine will stop at the end position of design (B) to perform thread trimming, and the embroidery frame will move to the offset start position (D) through the middle position (C).





When there is no middle position (C), the frame will move directly to the offset start position (D).

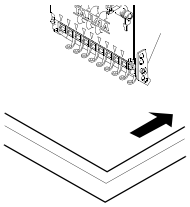
3. Change fabric or frame.



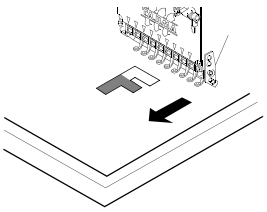
9. Automatic free setting offset

This function makes the machine stop at a free setting point in the middle of embroidery and makes the embroidery frame move to a free setting position..
Condition: There is automatic free setting offset in stitch data, "Yes" is set to "Automatic start (AS), and ATH" of parameter.

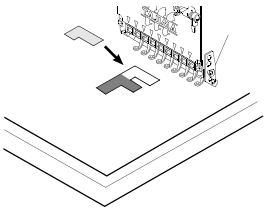
1. When starting the machine after changing fabric, etc., the embroidery frame will move to the start position (A) through the middle position (C) and embroidery will start.



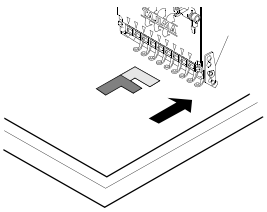
2. The machine will stop at the free setting point (D) in the middle of embroidery to perform thread trimming, and the frame will move to the offset start position (E) through the middle position (C).



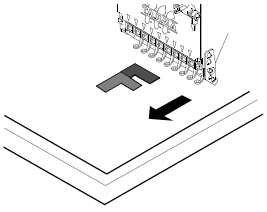
3. Place applique.



4. When starting the machine, the embroidery frame will move to the free setting point (D) through the middle position (C) and embroidery will be continued.

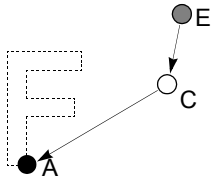


5. The machine will stop at the end position of design (B) to perform thread trimming, and the embroidery frame will move to the offset start position (E) through the middle position (C).

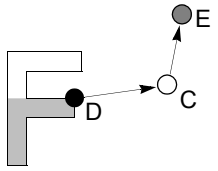


When using automatic free setting offset without setting an offset start position, the offset movement position will become the design start position.

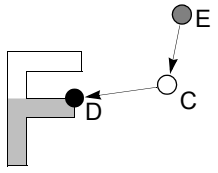
A: Design start position
B: End position of design
C: Middle position
D: Free setting position
E: Offset start position



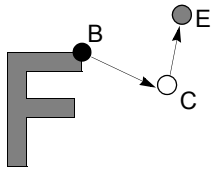
When there is no middle position (C), the frame will move directly to the design start position (A).



When there is no middle position (C), the frame will move directly to the free setting point (E).



When there is no middle position (C), the frame will move directly to the free setting point (D).



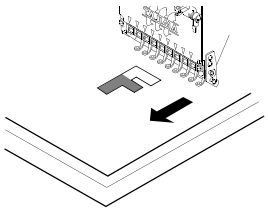
When there is no middle position (C), the frame will move directly to the free setting point (E).

10. Offsetting at automatic color change

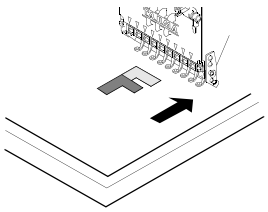
This function makes the embroidery frame move to offset start position at color change.

Condition: Offsetting at automatic color change is set, automatic offset is set, "Yes" is set to "Automatic color change (AC), automatic start (AS), and ATH" of parameter.

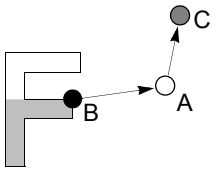
1. The machine stops at the color change point (B) to perform thread trimming, and the embroidery frame moves to the offset start position (C) through the middle position (A).



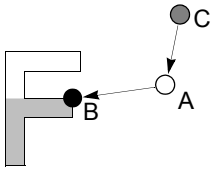
2. When starting the machine, the embroidery frame will move to the color change point (B) through the middle position (A), and the embroidery will be continued.



A: Middle position
B: Color change point
C: Offset start position



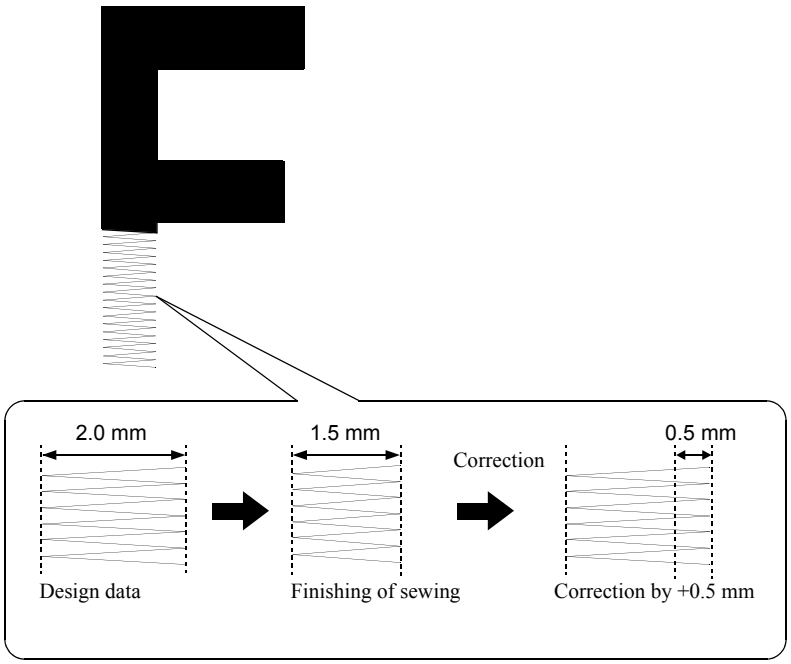
When there is no middle position (A), the frame will move directly to the offset start position (C).



When there is no middle position (A), the frame will move directly to the free setting point (B).

11. Backlash

This function corrects drive error generated when direction of stitch data reverses (reversion of polarity).

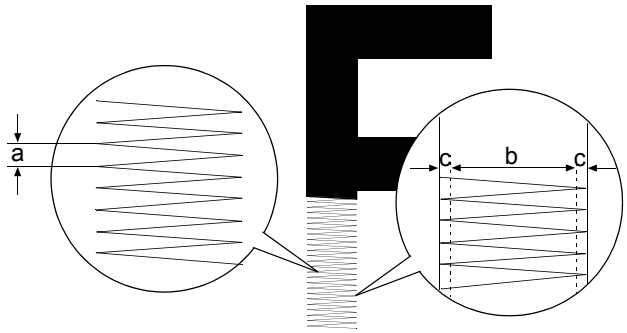


It is possible to correct X direction/Y direction individually.

12. Satin stitch

This function adds setting value to satin stitch length.

a: Density b: Stitch length c: 1/2 of the setting value

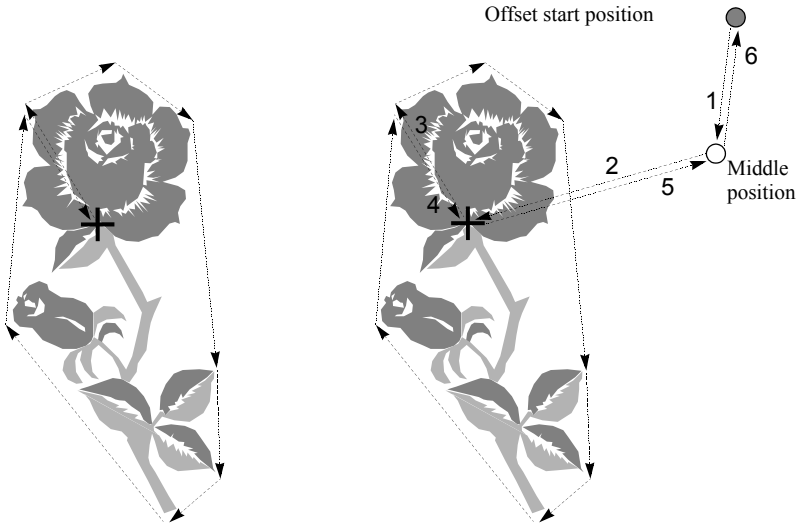


Density for distinction
When a distance (a) is the setting value or less of parameter “44. Satin Stitch”, the machine judges it as a satin stitch.

Data to be added
1/2 of the setting value of parameter “45. Satin Stitch” (c) is added to both sides of the stitch (b).

13. Trace

This function makes the frame move along the periphery of the design of which data is set.



Trace makes the frame move to each apex of the outer circumference of the design as if a rubber ring was hanged at each apex.

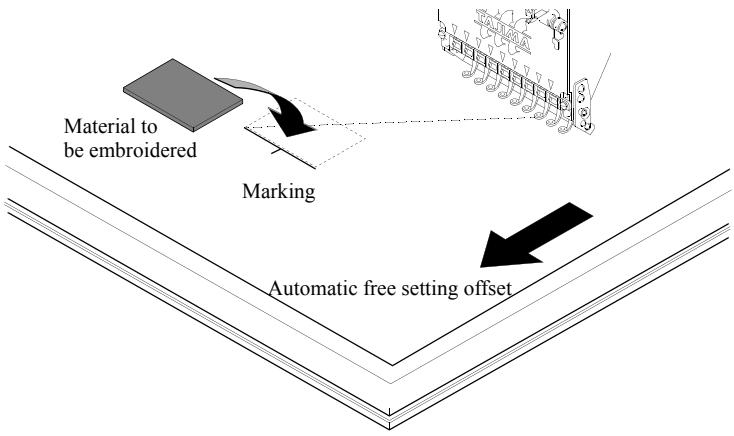
When there is an offset position, the frame will move to offset start position → middle position → design start position → outer circumference → design start position → middle position → offset start position.

Repeat of design

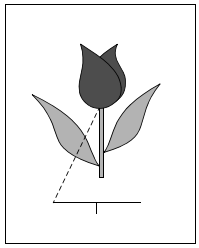
When repeat setting is made, whole designs will be traced after tracing the first design only.

14. Marking

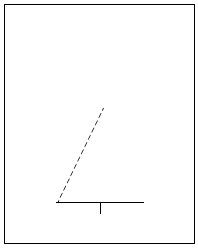
This function performs basting of a mark or contour for positioning. There are two types of marking: point and contour. It is possible to select to set whether design data will be included or not in each of them.



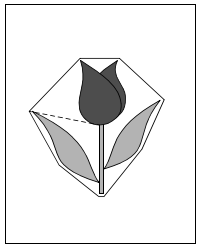
◆ Point+design



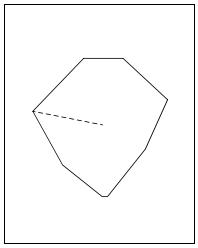
◆ Point only



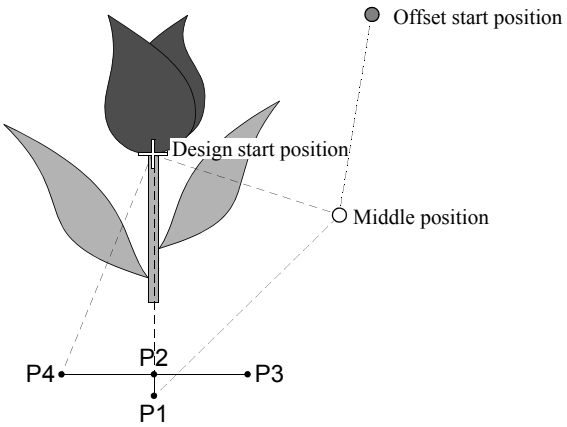
◆ Contour + design



◆ Contour only



Marking data with automatic offset



🕮 When setting marking points at 2 to 10 spots, it will be automatically converted to stitch data.

🕮 In case of marking that includes design, automatic free setting offset will be automatically set at the end of marking.

🕮 In case of marking data only, automatic free setting offset is not set.

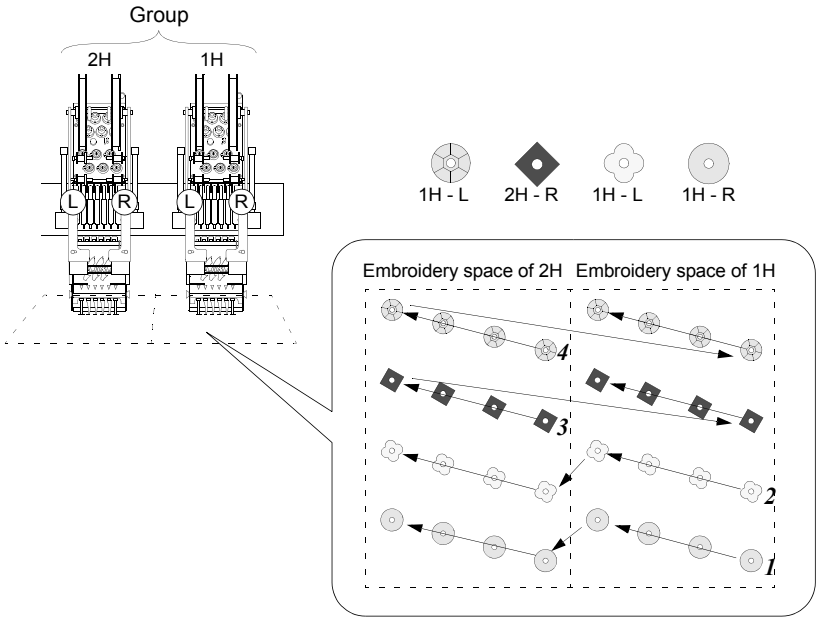
🕮 It is possible to perform setting of material to be embroidered easily by using automatic free setting offset after marking.

🕮 When setting stitch length after making marking (point/contour), marking data will be made automatically.
The produced marking data will be automatically registered in an empty number of screen 2000 as a name of "M-design name/none".

🕮 When automatic offset is set
The frame will move from the offset start position to the design start position through the middle position, and marking will be performed from P1 to P4. When the marking is finished, the frame will move to the offset start position through the design start position and the middle position and the machine will stop.
When starting the machine, the frame will move to the design start position through the middle position, and the embroidery will be started.

🕮 When automatic offset is not set
The machine will move from design start position to P1 and will perform marking from P1 to P4. When the marking is finished, the frame will move to the design start position and the machine will stop.
When starting the machine, embroidery will be started from the position.

15. WJ frame



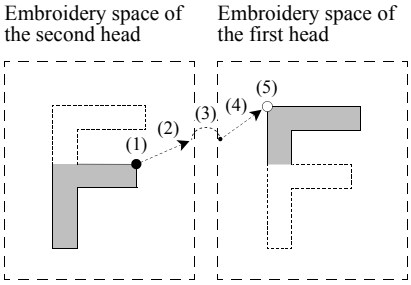
When a machine is WJ frame spec. and sequin device is LR spec., the machine will be able to sew four kinds of sequins on one design assuming that two heads are used as one group and one head.

The left illustration shows that after the machine sewed sequins at R side of 1H on the embroidery space of 1H, it also sews sequins on the embroidery space of 2H after frame travel. Next, the machine sews sequins at L side of 1H in the same manner. After the machine sewed sequins at R side of 2H, it also sews sequins on the embroidery space of 1H after frame travel. Next, the machine sews sequins at L side of 2H in the same manner.

It is also possible to perform embroidery with all heads.

16. Head offset

Head offset



(1) Thread trimming
↓
(2) Jump
↓
(3) Frame stepping
↓
(4) Jump
↓
(5) Color change

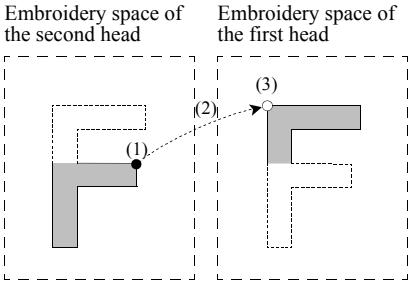
When an embroidering head switches from the second head to the first head, the frame will move to the next head position (jump → frame stepping over embroidery space → jump)automatically.

"Jump" does not make the needle bar move, and the frame moves by little and little according to rotation of the main shaft.

"Frame stepping" does not make the needle bar move, and the frame moves to the destination at once with the main shaft suspended.

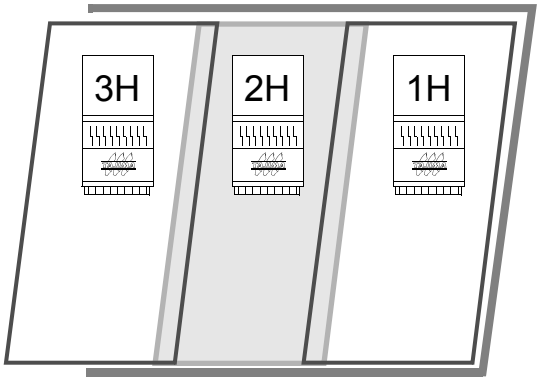
When jump conversion is set, consecutive "Jumps" will make the machine perform "Frame stepping".
Jump conversion => p.112

Head offset frame step



(1) Thread trimming
↓
(2) Frame stepping
↓
(3) Color change

When an embroider head switches from the second head to the first head by frame travel with head offset, the frame will move from the thread trimming position to the next embroidery start position at once by frame stepping.

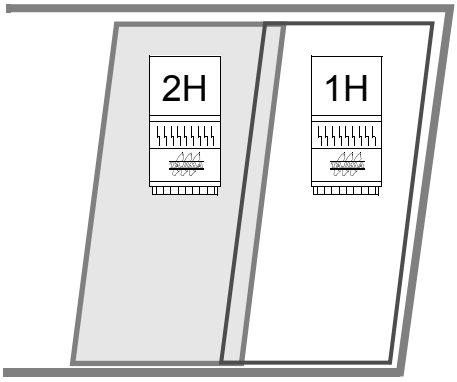


Set needle bar selection so that each head is set within an available embroidery space.

When the top of design data (start position) is jump data and a position of head to work (start to sew) changes, it is necessary to change head by a color change code.
For example, when a start position of design data exists within an embroidery space of 2H and a position to start to sew exists within an embroidery space of 1H, add a color change code to set an order of heads at beginning to 2H and 1H using needle bar selection.

Use the same head at end of design data as at start position. If a head at the end of design is different from that at start and automatic origin return is set to YES, the frame position will be displaced by an amount of head offset.
For example, a start position of design data exists within an embroidery space of 2H, add a color change code before the end according to need so that needle bar selection at end becomes 2H.

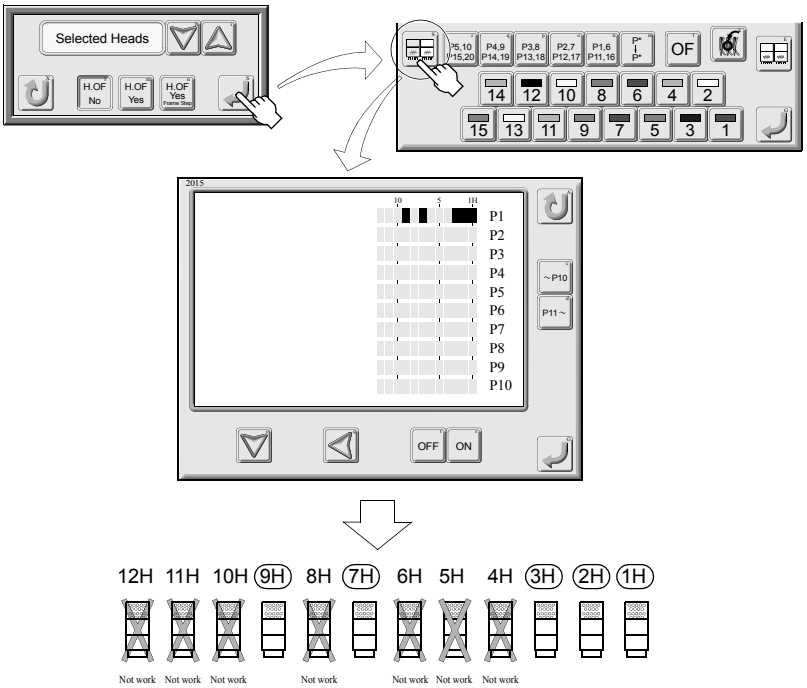
17. WJ2H (Head group)



- Upper limit of size of design data is decided by setting of head group and frame spec. Available size of embroidery space is decided by the number of heads that compose a head group.
- When head group is 3H and frame spec. is S, the size of embroidery space becomes as large as three times of that of one head.

- The size of design data is an embroidery size of one head.
- When frame spec. is 3W, embroidery size is available up to as large as that by two heads.
- Working of heads set by needle bar selection
  All: All heads perform sewing.
  1H: After the machine performs embroidery in an embroidery space of 1H using 1H, it will perform the same embroidery in an embroidery space of 2H.
  2H: After the machine performs embroidery in an embroidery space of 2H using 2H, it will perform the same embroidery in an embroidery space of 1H.

18. Selected heads

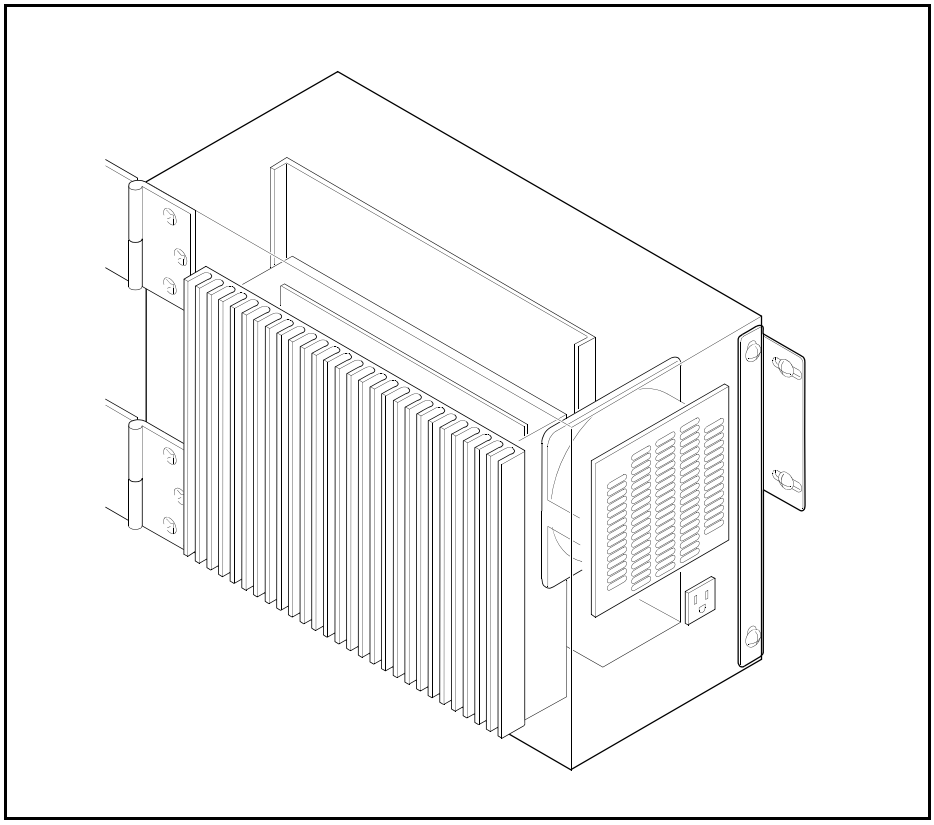


Selecting “Selected heads” in head group with needle bar setting will display the icon of setting pattern.

Select only the heads to work and set to “ON”.

JZ10

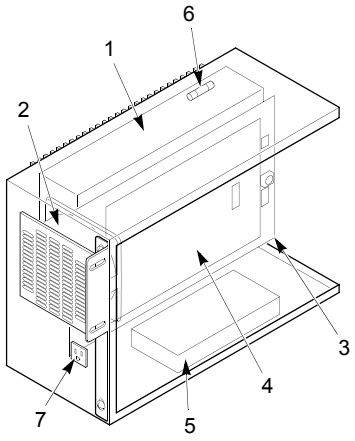
CHAPTER 10 ELECTRO-COMPONENT PARTS



1. Controller

CAUTION

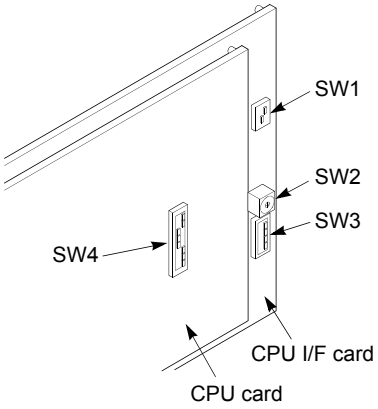
**Do not block wind flow of the cooling fan.
Inside of the box will be heated to cause the machine to malfunction.**



1	iDU amp.
2	Fan motor
3	CPU I/F card
4	CPU card
5	DC power supply
6	Glass tube fuse (7A: Discharging circuit)
7	Receptacle (AC 100V)

SW1

2 1 OFF —— Terminator /	1	Terminator ON: To set OFF: Not to set



SW3

4 3 2 1 OFF —— Ext. Control / Belt / Screw Slit D. 50/100	1	Slit disk ON: 50 OFF: 100
	2	X, Y-axis motor ON: M-spec. or shorter M/C OFF: G-spec.or greater machine
	3	Stop signal input of safety device ON: To set OFF: Not to set

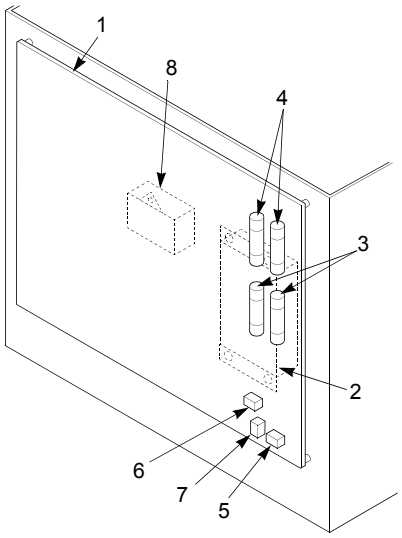
SW4

8 7 6 5 4 3 2 1 OFF HOOK 103/116 F.W.Data/ Arm 47/45 JOG R.CONTROL/ COLOR LCD / —— Y CW / CCW X CW / CCW	1	Rotating direction of X-axis shaft ON: Clockwise OFF: Counterclockwise
	2	Rotating direction of Y-axis shaft ON: Clockwise OFF: Counterclockwise
	4	Color LCD panel ON: To equip (Should be turned ON) OFF: Not to equip
	5	Jog remote-controller ON: Equipped OFF: Not to equip
	6	Arm ON: 47 mm OFF: 45mm
	7	Keeping of frame weight level data ON: To keep OFF: Not to keep
	8	Thread holding hooks ON: 103° OFF: 116°

When you changed switch setting, turn ON the power again.

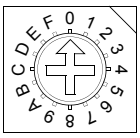
2. Power supply unit

1	Joint card
2	Noise filter
3	Glass tube fuse (10A: each circuit)
4	Glass tube fuse (15A: DC 24Vsystem)
5	Fuse (2A: Plug outlet)
6	Fuse (5A: Lubricating motor)
7	Fuse (5A: Fan motor, bobbin changer)
8	Surge protector



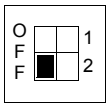
3. Tension base card

SW2



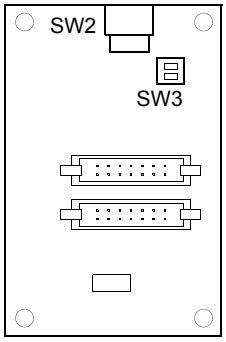
0: 1-2H	8: 17-18H
1: 3-4H	9: 19-20H
2: 5-6H	A: 21-22H
3: 7-8H	B: 23-24H
4: 9-10H	C: 25-26H
5: 11-12H	D: 27-28H
6: 13-14H	E: 29-30H
7: 15-16H	F: 31-32H

SW3



1	Card function switching ON: Even-numbered head OFF: Odd-numbered head

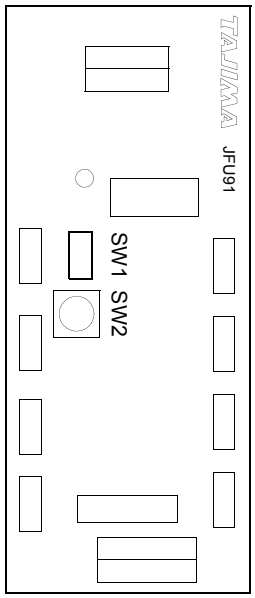
[TCM card] (rear side)



A TCM card is located on an odd-numbered head and a TCS card is located on an even-numberd head.

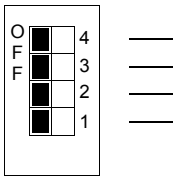
4. JFU card

[JFU card]



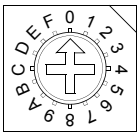
When you changed switch setting, turn ON the power again.

SW1



-	All should be positioned OFF

SW2

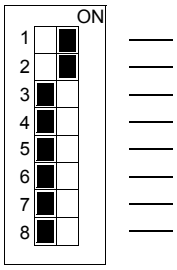


0: 1-12H
1: 13-24H

5. Operation panel box

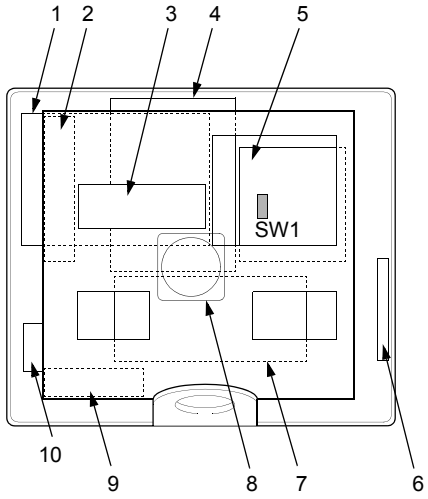
1	FDD
2	LCD inverter card
3	Computer I/F card
4	Computer card
5	Joint panel card
6	Joint LCD card
7	DC power supply
8	Fan motor
9	FSW card
10	USB port

SW1



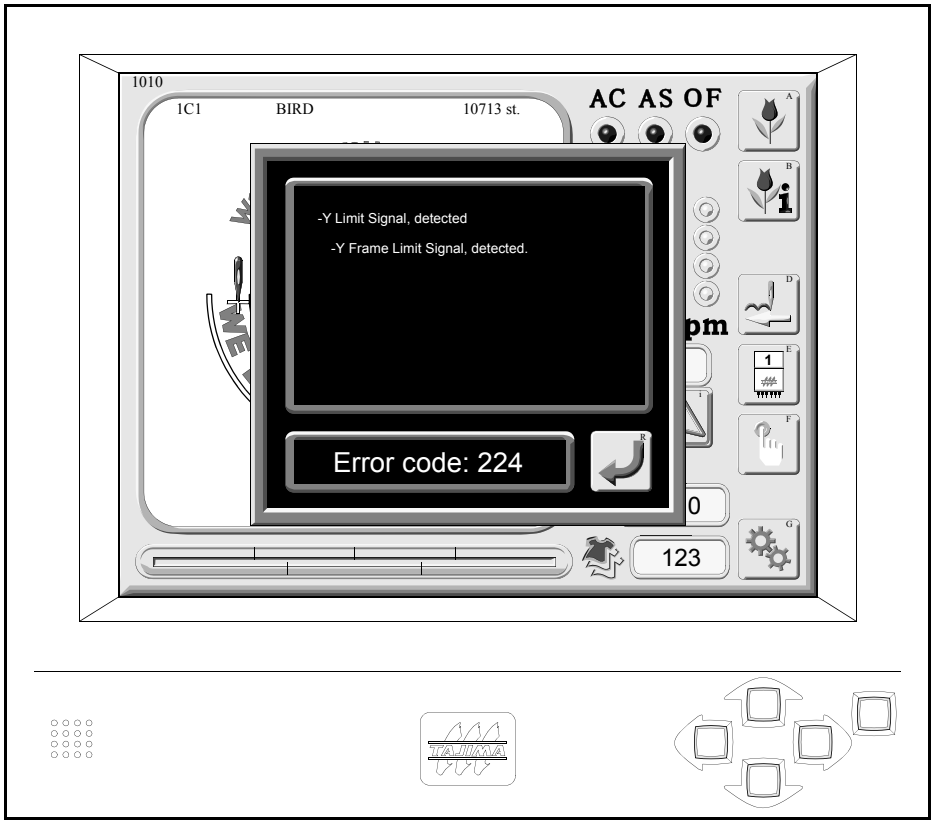
1	ON
2	ON
	All others must be turned OFF

[Rear view]

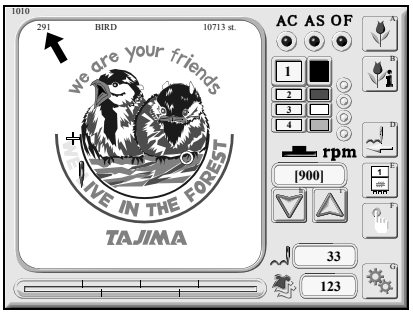


When you changed switch setting, turn ON the power again.

CHAPTER 11 TROUBLESHOOTING AND MAINTENANCE



1. When the machine is stopped during operation



An example of occurrence of error
(Code number 291)

There are two main machine stop factors: one is stop by occurrence of error and another is stop by normal stop factor. When the machine operation is interrupted with code number displayed on the screen, carry out the troubleshooting referring to the code chart below.

Stop code is displayed at upper left of design display or in other case, it is displayed with the pop-up window.

Stop by occurrence of error

If a code number of 300 series is displayed, contact your local distributor.

Code No.	Stop Factor	Corrective Action
211	The fixed position signal (main shaft Z signal) is not detected.	Return the main shaft to the fixed position. Check the encoder signal.
212	In the state of needle bar lowering	Move up the needle bar.
221	The frame has traveled exceeding the travel limit position. (Left direction)	Move the frame manually so that the design fits in the embroidery area.
222	The frame has traveled exceeding the travel limit position. (Right direction)	
223	The frame has traveled exceeding the travel limit position. (Front direction)	
224	The frame has traveled exceeding the travel limit position. (Rear direction)	
225	Embroidery space was exceeded.	
251	Lubrication pump oil is insufficient.	Supply oil to the tank.
281	The target needle position is not detected within 8 seconds after the start of color change.	Return the needle position so that it becomes the correct display. Adjust or replace the potentiometer (needle position sensor).
291	The machine detected thread breakage.	Check upper and under threads.
293	Under thread breakage has been detected.	Check the under thread.
2B2	Tajima code complement data error (The same + and - numbers exist in one stitch data).	Correct the design data.
2B3	Data exists in an end code.	
2B4	Function code error	
2B7	Data is not set.	Set data.
2B8	The pre-reading buffer has become empty and no data is output.	During operation: Lower the r.p.m. During frame forward: wait until the machine reads whole design data.
2B9	Memory write error	Check the CPU card or memory card. Replace the card if necessary.
2BA	Memory capacity over The design that exceeds 1,000,000 stitches was input.	Delete unnecessary designs among designs registered into the memory. Do not input a design that exceeds 1,000,000 stitches.
2BB	Available range to perform frame back was exceeded.	Do not perform frame back any more.
2BE	Regarding satin conversion and boring code, start and end codes are not set as a pair.	Set again so that start and end codes become as a pair.
2C1	The machine was started or stopped during program setting.	Cancel the program setting mode.
2C6	Machine operation was attempted although the bobbin changer was running.	Do not operate the machine during working of the bobbin changer.
2CB	The design data is too big to be put in the set embroidery space.	Change to smaller design data.
2CF	Stop by emergency stop switch	Release the emergency stop switch.
2E2	Air pressure has become lower than the rated value.	Check air pressure.

Code No.	Stop Factor	Corrective Action
2E3	The power supply was shut off during operation (including power shut off by the emergency switch).	Execute power resume operation.
311	Encoder A signal does not change for 5 seconds. Abnormality of motor, motor belt	Check the encoder or encoder signal. Check the motor or motor belt. Check excitation of the main shaft driver.
312	Encoder Z signal status does not change.	Check the encoder or encoder signal lines.
316	A main shaft driver error signal has been detected.	Replace the main shaft driver unit or main shaft motor.
321	Frame driver error signal is detected.	Replace the iDU amp.
322	An X-axis motor driver error signal is detected.	
323	An Y-axis motor driver error signal is detected.	
331	Bobbin changer error	Operate the bobbin changer manually to check the place where movements are bad, and adjust it.
382	The needle position signal status during color change does not change for 1 second or more.	Check the color change motor and power supply circuit. Check the potentiometer (needle position sensor).
383	There was no needle position signal during rotation of the main shaft.	Check the potentiometer (needle position sensor).
384	No one-turn signal is given while the main shaft is running.	Check the photo-interrupter (One-turn sensor).
386	Color change and thread trimming were activated at the same time.	Check the joint card.
3A1	There is abnormality in thread trimming driver.	
3A6	ATH knife retractable position has become nonuniform.	Check the position of ATH movable knife.
3A8	Error signal of thread holding driver was detected.	Replace the head card.
3B5	Abnormal signal communication between CPU card and computer card, CPU card and inverter, CPU card and Head card, or Computer card and Joint panel card.	Turn off the power once, and then turn it on again. "3B5" is still displayed even after that, check each harness between cards.
3C1	Contact error of the bar switch or start/stop switch, breakage of the switch harness, or bad connection of the connector	Check the connector and the connecting terminal. Replace the limit switch or switch assembly.
3C2	The power switch was turned on with the frame travel key pressed.	Turn on the power again.
	Frame travel key has abnormality.	Replace the card.
3D1	Backup battery voltage has decreased.	Turn on the power supply of the machine and charge the battery. Set parameters and input designs again.
3D3	There is abnormality in power supply.	Check the wiring. If there is no abnormality, replace the transformer.
3D4	There is error in data check sum.	Replace the CPU card.
3D5	There is abnormality in check sum.	Execute system installation. If the problem is not solved, replace the panel card.
3D9	The fan motor has abnormality.	Replace the fan motor in the operation panel.
3DA	There is an abnormality in the permanent counter.	Check if connector of the counter comes off.
B01	Format error of floppy disk or USB memory	Format floppy disk. Replace with formatted new floppy disk or USB memory.
	Read/write error occurred.	Copy other designs to new floppy disk/USB memory, and do not use the floppy disk/USB memory that error occurs.
B02	Management information error of floppy disk or USB memory	Copy the floppy disk/USB memory and do not use the floppy disk/USB memory that error occurs.
B03	Write protect window of floppy disk or USB memory is open.	Close the write protect window.
B04	Floppy disk or USB memory is not inserted.	Insert floppy disk/USB memory.
BC1	The selected design is not found in floppy disk, USB memory or on the network.	Select other design.
BC2	The set file name has been already used for design registered in floppy disk. (The same file name is set regardless of code formats T or T2.)	Change the file name.
BC4	Design was not written correctly from memory of the machine to floppy disk or USB memory.	Retry writing.
BC5	Remaining free space of floppy disk or USB memory is not enough.	Replace with floppy disk/USB memory of enough remaining space.
C01	The FDD does not work.	Check the FDD connector. If there is no problem with the connection, replace the FDD unit.

Stop by usual stop factor

Stop by the code numbers (100-series) described below is not caused by occurrence of error.

Code No.	Stop Factor	Corrective Action
1B1	Stop due to a frame stepping code.	In this case, it is not stop by abnormality. Perform “Start operation” or “Frame back/forward operation”, or press any operation key (excluding manual frame travel key) to continue operation of the machine.
1B2	Stop due to a color change code.	
1B3	Stop due to stop code 1.	
1B4	Stop due to thread trimming code.	
1B6	Stop due to an automatic free setting offset code.	
1B8	Stop due to a temporary stop code	
1C1	Stop due to the bar switch/stop switch.	Perform “start operation” or “frame back/forward operation”.
1C2	Stop by manual ATH or operation of needle bar	
1D1	Stop at the start of all-head embroidery due to the stop setting.	Start the machine and continue embroidery.
1D2	Stop by preset halt (except lubrication)	Reset. Total counter => p.112
OIL	Preset halt (lubrication)	Perform lubrication to the corresponding spots, and reset the machine. Total counter => p.115

2. If trouble occurs

CAUTION

Adjustment includes some complicated works. Consult your local distributor before working.

Cause of troubles and adjustments

	Cause	Adjust
Machine cannot start	Loose or broken belts	Adjust the belt tension or replace the belt.
	Needle position signal, NOT detected.	Adjust the needle position so that needle position is properly indicated in the manual color change section on the operation panel.
	Alarm lamp on the driver box (unit) is ON.	Switch the power from OFF to ON.
	Poor connection of power supply box connectors.	Securely connect the connectors.
Stop position error	Loose or soiled belt	Adjust the belt tension or clean the belt.
	Galling of driving parts	Adjust/replace the rotary hooks and/or needle bar drive system
Incorrect color changing	Stop position is incorrect.	Adjust the position.
	Position of take-up lever is wrong.	Adjust the position of the take-up lever at the stop position so that its position is the same as others.
	Needle position NOT detected.	Adjust the needle position so that needle position is properly indicated in the manual color change section on the operation panel.
Jump error	Incorrect positioning of parts related to needle bar drive system	Adjust the attaching position of the needle bar reciprocator set with the upper dead point stopper.
Design displaced	Incorrect tension of frame drive belt	Adjust the belt tension.
	Malfunctioning of frame drive system	Replace/adjust the parts.
	Overall frame weight is excessive.	Lower the r.p.m. of the main shaft.
	Drive unit (X, Y-axes) defective	Replace the drive unit.
		Replace the X-axis/Y-axis drivers.
Thread breakage	Wrong needle-rotary hook timing or improper gap	Adjust the timing or gap.
	Wrong needle bar lower dead point	Readjust the lower dead point.
	Scratches on rotary hooks, presser feet, or on thread passage areas	Remove the scratches.
	Incorrect upper/lower thread tension	Adjust the tension.
	Repeated stitching at the same point	Correct the data.
	Incorrect take-up lever timing	Readjust the take-up lever driving cam timing.
Matters related to ATH	The machine cannot trim thread.	Adjust the ATH knife position.
	Thread comes off at start of sewing.	Adjust the thread trimming length by “Picker timing” (p.115) setting.
	Poor tensioning of upper thread	Adjust the tension.
Needle bar activates even if the tension base switch is set to the “bottom” position.	Tension base card is faulty.	Replace the tension base card.
	Badness of sensor card	
	Poor adjustment for jumping	

3. Warning and cautions

⚠ WARNING

To prevent accidents resulting in injury or death and physical damage, the following must be observed when performing daily maintenance (cleaning, lubrication, greasing, and/or inspection).

- **The maintenance operations must be performed by properly trained personnel.**
- **When restarting the machine after maintenance operation, attach all covers etc. which were removed for maintenance operation.**

⚠ CAUTION

- **Perform daily maintenance in the specified schedule.**
  If the daily maintenance is not observed, the machine may fail to operate correctly. Since the loss incurred by ignoring the daily maintenance instructions can be judged “not covered by guarantee”.
- **If the machine is not used for a long period, turn the power switch ON in regular intervals.**
  Although each card of the machine has a backup battery, data may be lost for about one month because voltage of the battery will come down gradually due to discharge when the power switch is turned off.
- **Assure enough illumination.**
  Assure 300 lux or more for working areas including underneath part of the machine table when changing under threads or performing daily maintenance.

4. Cleaning

⚠ WARNING

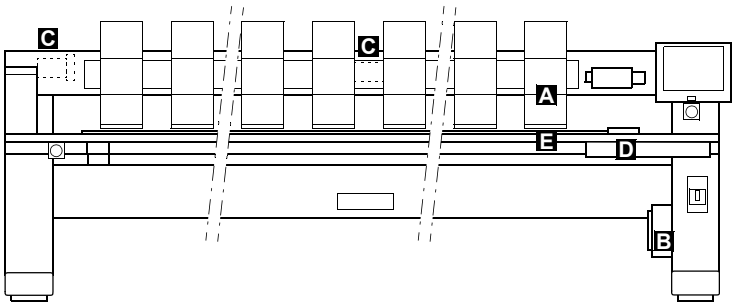
During machine cleaning, you could sustain severe injuries due to electric shock or being entangled by moving machine units. Therefore, observe the following items when you clean the machine.

- **Even if the primary power supply is turned off, some circuits are still charged. Wait (4 minutes) until these circuits are completely discharged and then start cleaning.**
- **The maintenance operations must be performed by properly trained personnel.**
- **When restarting the machine after maintenance operation, attach all covers etc. which were removed for maintenance operation.**

⚠ CAUTION

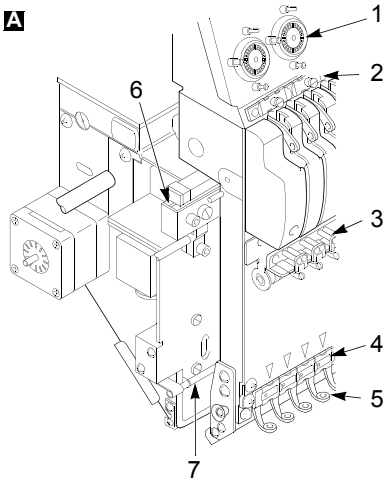
If the slits of the controller and/or the filter of the main shaft motor is clogged, temperature inside the boxes or the main shaft motor increases, which could cause malfunctioning of the machine.

- **Clean the slits and filters at the specified intervals.**

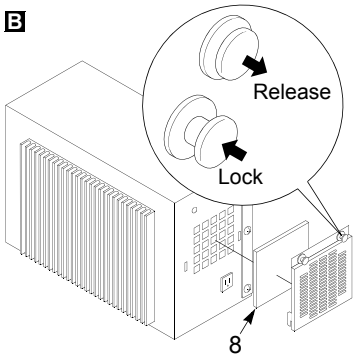


Cleaning spot	Cycle
1. Tension disk 2. Thread presser 3. Roller-type middle thread guide 4. Upper thread lock 5. Presser foot 6. Linear way 7. Upper thread lock drive lever 8. Filter section of the controller 9. Filter section of the main shaft motor	Once a week
10. X-axis drive system, Y-axis drive system	Once/2 weeks
11. ATH section	Everyday

A

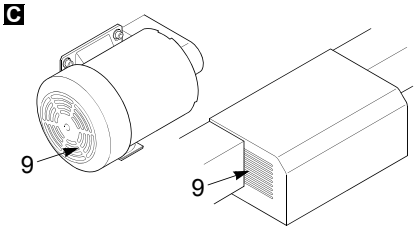


B



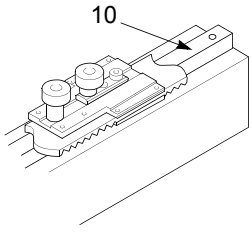
Release the lock to detach the cover, and clean the filter.

C

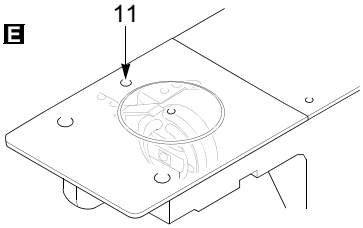


Attaching position of the main shaft motor differs depending on machine spec.

D



E



5. Lubrication

⚠ WARNING

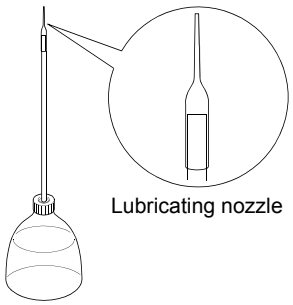
During machine lubrication, turn off the power switch. You may sustain severe injuries due to being entangled by moving machine units.

⚠ CAUTION

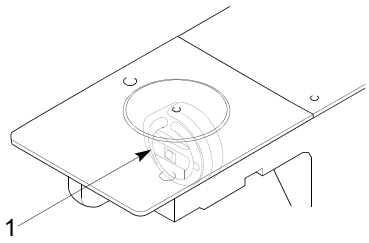
Keep the lubrication cycle as shown below. Deviated lubrication cycles may cause thread breakage.

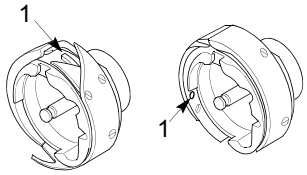
When performing lubrication, use only Tajima's genuine TF oil or equivalent (#150 spindle oil: ISO viscosity grade=VG18).

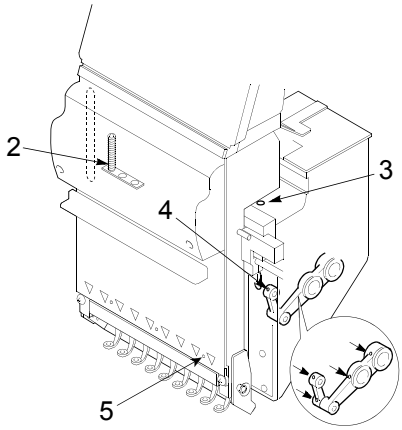
Lubricating spot	Lubricating Cycle
(1) Rotary hook	Every 3 to 4 hours of operation
(2) Needle bar (Perform lubrication from the slit section of top cover) (3) Needle bar drive shaft (4) Inside the arm (5) Felt packing (6) Presser foot reciprocator (wick)	Once/week

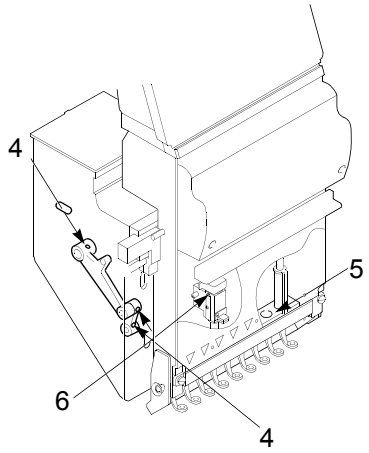


When lubricating the lubrication hole (red mark) of the rotary hook, attach the accessory lubricating nozzle to the tip of the oiler.
Cut the tip of the nozzle according to necessary length.









6. Greasing

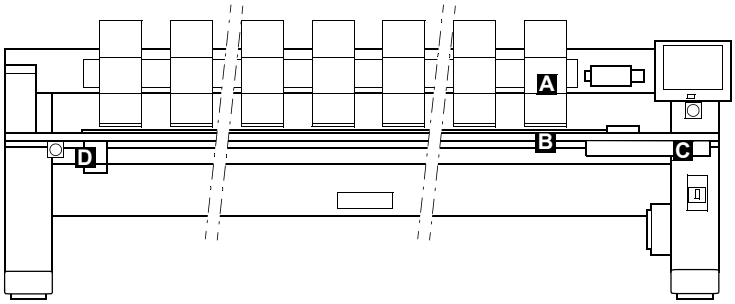
WARNING

During machine greasing, turn off the power switch. You may sustain severe injuries due to being entangled by moving machine units.

CAUTION

When performing greasing, consult the distributor.

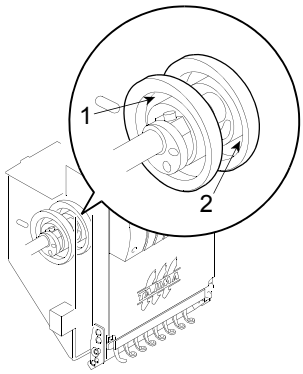
Use the recommended goods (mineral oil-based lithium grease) or equivalent.

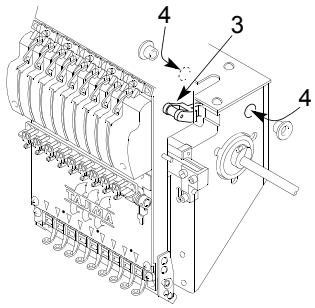


Greasing spot	Greasing cycle
(1) Presser foot cam (2) Take-up lever drive cam (3) Roller of take-up lever (4) Take-up lever bearing case (5) Bevel gear	Once/3 months
(6, 7) X/Y-axis drive system (8) ATH cam drive system	Once/6 months

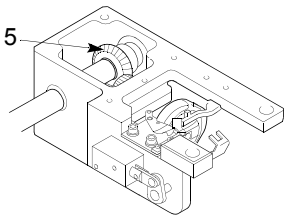
When greasing the bevel gears or ATH cam, detach the lid or cover and then perform working. After working is finished, attach the lid or cover and tighten screws securely so that they do not become loose.

A

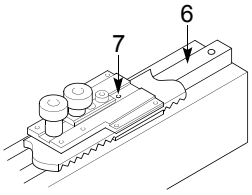




B

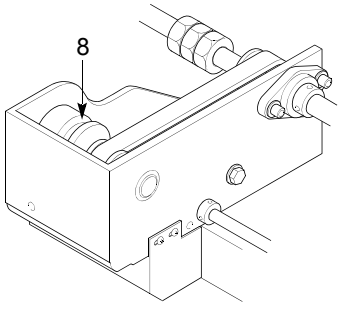


C



For the machine with greasing holes (7), inject grease from the greasing hole (7) using greasing gun, etc.

D



7. Inspection

WARNING

When inspecting the machine, be sure to turn off the primary power supply (before turning off the primary power supply, turn OFF the power switch). You could sustain severe injury due to being entangled by the machine.

Inspection Point	Contents of inspection	Inspection Cycle
(1) Each belt of main shaft drive system	Tension of belt, degree of wear, existence of crack	Once/3 months
(2) Each belt of X/Y drive system	Tension of belt, degree of wear, existence of crack	
(3) Rotating and sliding sections	Degree of wear	

8. Repair

WARNING

When repairing the machine, be sure to observe the following items to prevent accident resulting in injury or death.

Before working, be sure to turn off the primary power supply (Before turning off the primary power supply, turn off the power switch). Even if the primary power supply is turned off, some circuits are still charged. Wait (4 minutes) until these circuits are completely discharged and then start working.

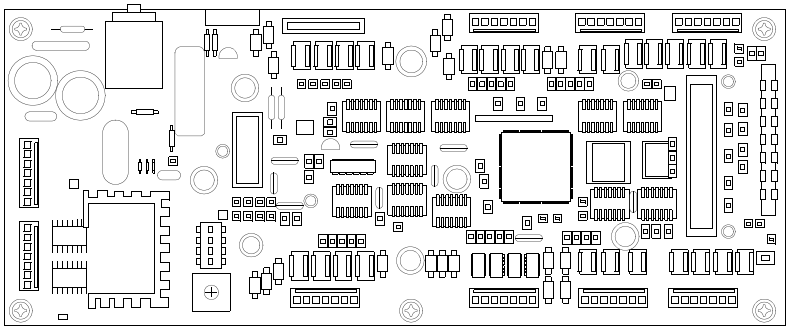
If the machine needs repairs, the repairs must be done only by the service personnel assigned and trained by Tajima or qualified technician. (Consult your distributor.)
Do not change the specification nor modify the parts of the machine without due consultation with Tajima. Such modification may risk the operational safety.

When restarting the machine after repairs, attach all covers etc. which were removed for repair operation.

CAUTION

For the machine repairs, use TAJIMA genuine parts for replacement.

APPENDIX



Electrical specifications

Electrical specifications of this machine are described below. Please use the machine complying with the condition.

CAUTION

If using the machine deviating from the conditions, trouble may occur.

Power supply

Allowable voltage range	Within +/- 10% of the rated voltage
Frequency	50/60Hz
Capacity/Power consumption	1.8kVA/1.1kW
Fluorescent lamp	624VA/286W

Insulating resistance

10M ohms or larger (measured with a 500 V insulation tester)

WARNING

Since there is a danger of electric shock due to leak current, be sure to ground the earth cable of the machine. In addition, degree of grounding should be type D or higher (grounding resistance 100 ohms or less).

Ambient noise level

The ambient noise level of the machine is less than 85 dB. Measuring conditions are as follows:

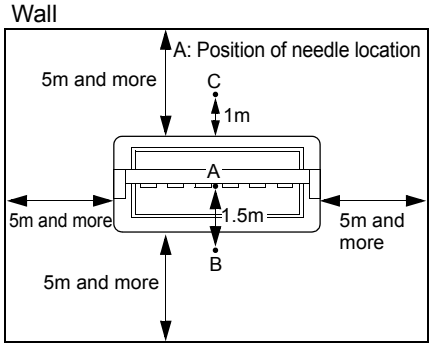
◆Measuring ambience (refer to the illustration shown right)

◆Measuring position
Measured at B and C of which height is 1.6 m from the floor, and higher value is adopted.

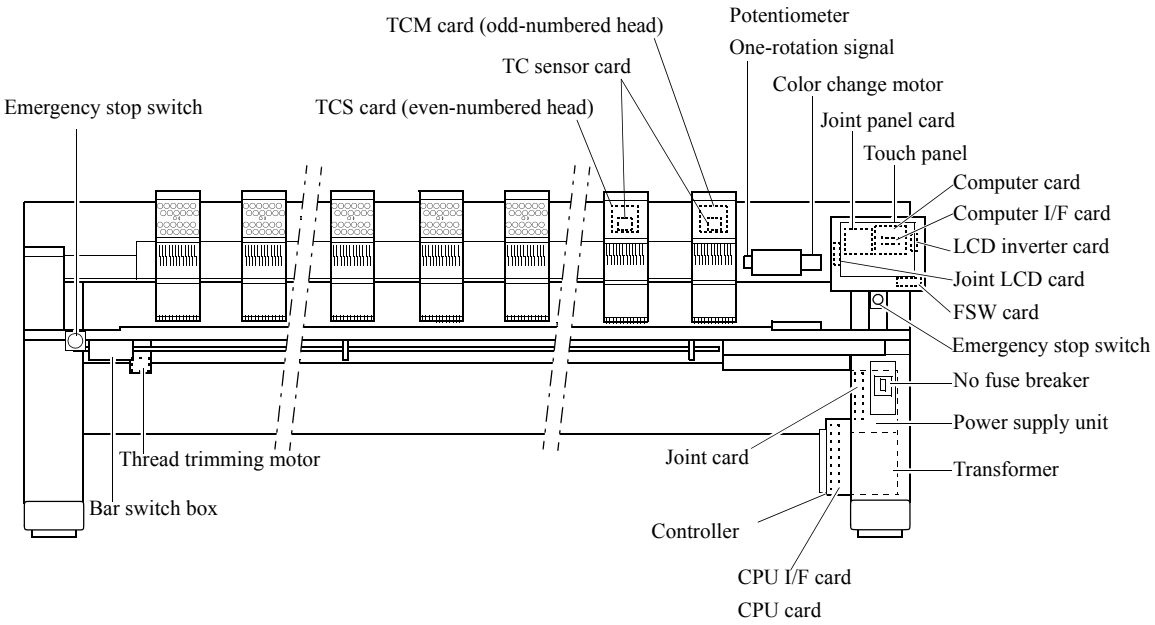
◆Operating condition of the machine
Fabric is stretched on the border frame and satin stitch sewing of stitch length 4 mm is executed.

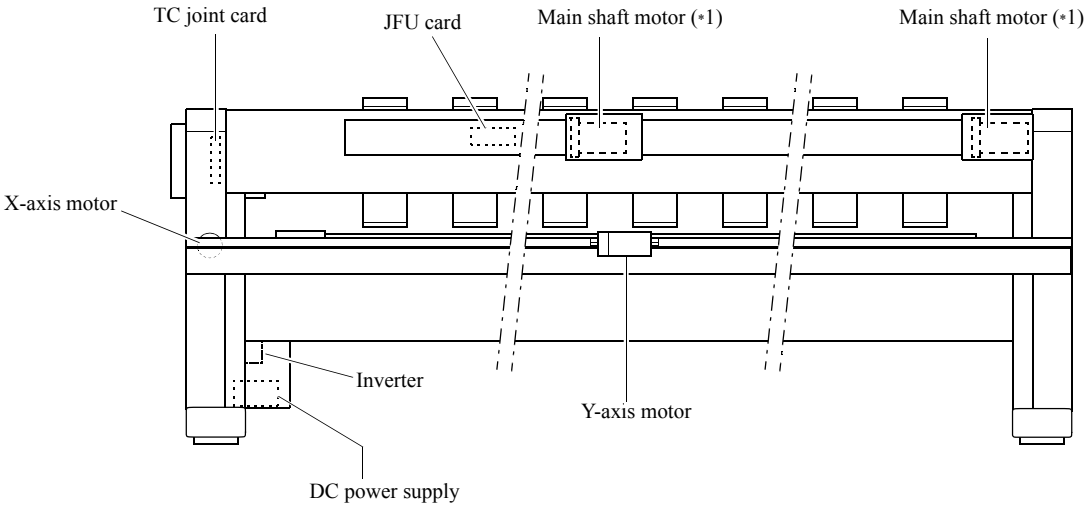
◆R. P. M.
The maximum number of revolutions of the machine

◆Measuring tool
Conformity to IEC61672-1: 2002 Class 1



Layout of electrical parts

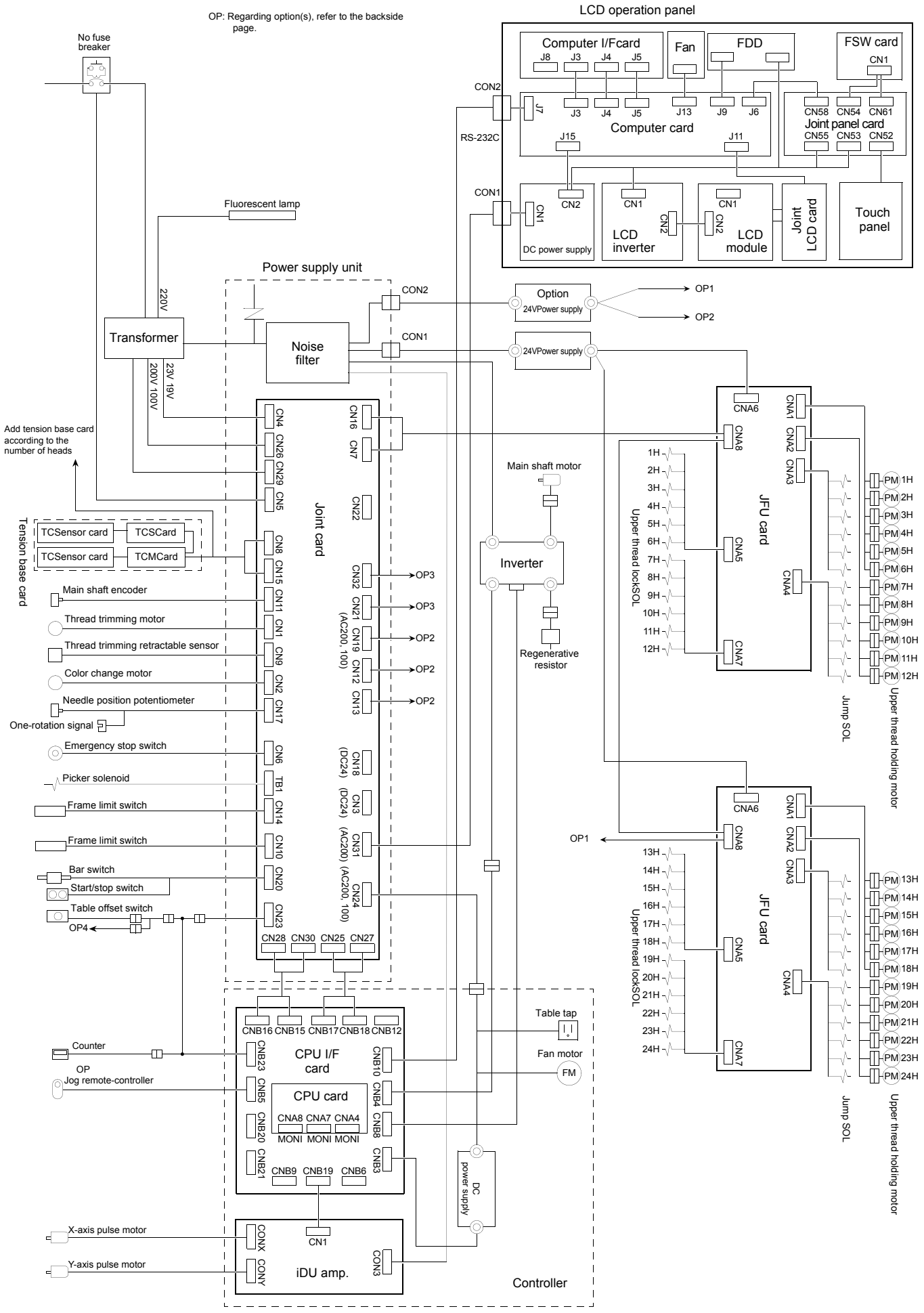




*1: The attaching position of the main shaft motor differs depending on machine specifications.

For formal name of cards, refer to the parts list.

Electrical system diagram

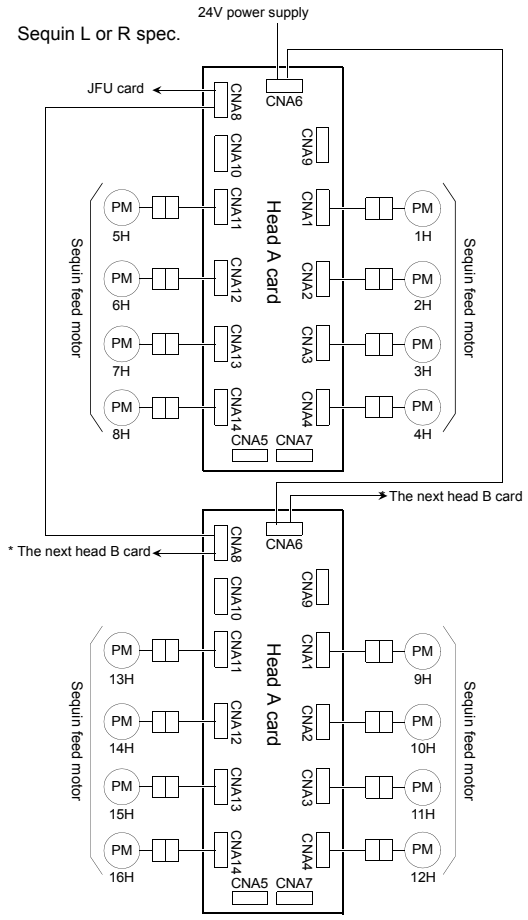


Electrical system diagram (option)

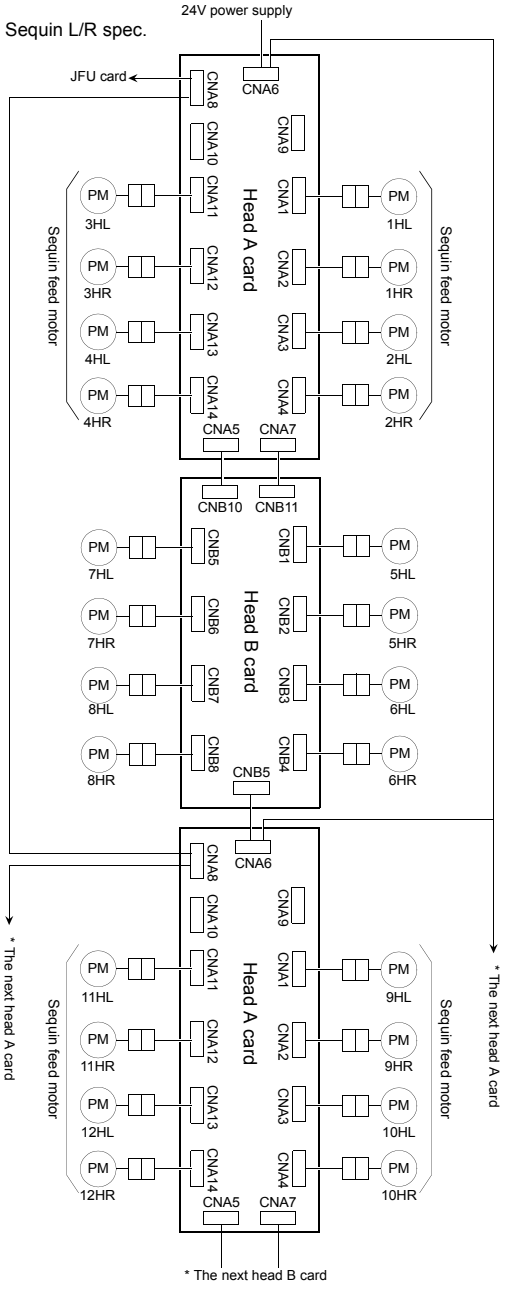
Option 1 (OP1)

* : Add the card according to the number of heads.

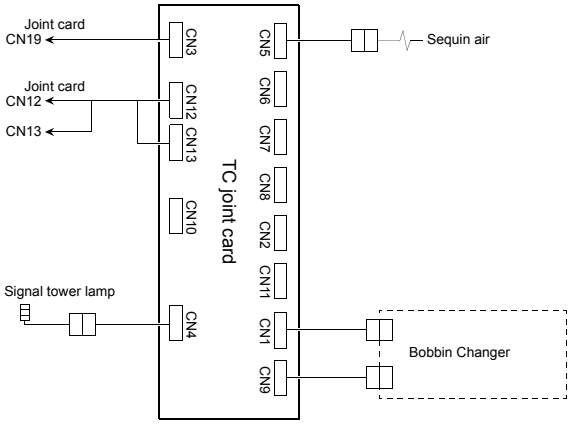
Sequin L or R spec.



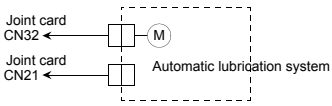
Sequin L/R spec.



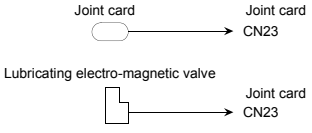
Option 2 (OP2)



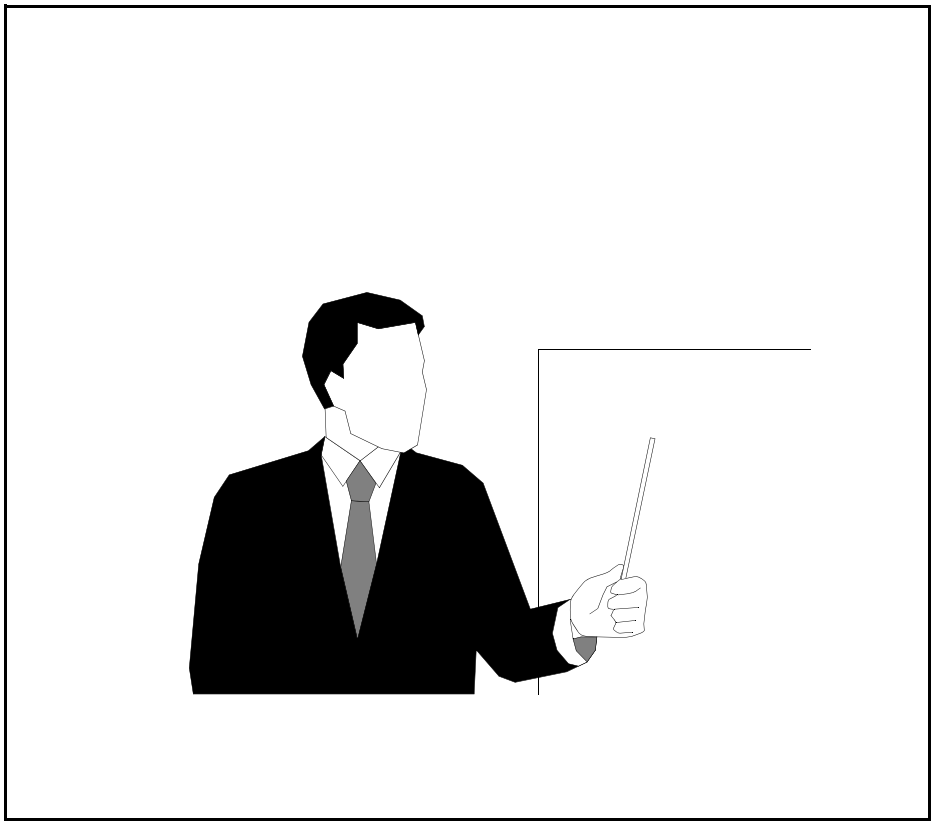
Option 3 (OP3)



Option 4 (OP4)



TERMINOLOGY



A

ABSOLUTE ORIGIN

An anchoring point that makes the machine calculate the current frame position (The position of origin differs depending on model).

AFC

Abbreviation of Automatic Frame Changer.

Device for performing automatic embroidery continuously against piece goods fabric to be embroidered

AFC VALVE

Air valve that activates AFC

APPLIQUE

The method to sew colored clothes, etc. that are cut to various shapes on the material

ATH

Abbreviation of Automatic Thread Trimming and Holding Device

AUTOMATIC FRAME TRAVEL

Automatic frame travel by inner processing in such an occasion as at the end of embroidery or during set of offset

AUTOMATIC JUMP

To make jump automatically when a stitch length exceeds the setting value

AUTOMATIC LUBRICATION SYSTEM

An optional device to lubricate to each factor of the machine head and rotary hook section

B

BOBBIN CHANGER

A device attached to the bottom of a machine table that changes bobbins automatically (option)

BORDER FRAME

A kind of embroidery frames. Basic frame to hold cut cloth (material) to be stretched to overall embroidery space, embroidered by all the embroidery heads.

BORING DEVICE

A device that makes hole(s) on the cloth (material) by knife attached to the needle bar to add values to embroidery

BUFFER (BUFFER MEMORY)

Buffer memory media to smooth input/output of data

C

CAP FRAME

A kind of embroidery frames for embroidery on cap. There are two types of cap frame. One is wide cap frame, another is semi-wide cap frame. The wide cap frame can embroider wider area of circumference directions compared with the semi-wide cap.

CHECK SUM

A kind of measures to detect error of data transfer or saved (memory) contents

CLEANUP

To make preceding and succeeding stitches absorb fine stitches in a design data for removal to prevent thread coming off or thread breakage

CODE FORMAT

Data type (tape code) for data input

COILING

To coil cord-shaped material around core thread to be sewn on the material to be embroidered

CONDITION DATA

Setting data for needle bar setting, design scale up/down, rotation, reversion, repeat, design start position, and automatic offset that are included in design data

CORDING DEVICE

The device that sews cord-shaped material on the material to be embroidered

CURSOR

A mark that indicates the position where character or value is to be input/displayed on the screen. Some of marks blink or reverse character.

CYLINDRICAL FRAME

A type of embroidery frame. Frame used to perform embroidery on tubular material such as a head cover of golf club (option).

D

D-AXIS

Driving shaft to rotate sewing needle or nipple (TCMX series)

DATA CONVERSION

To reduce/enlarge, rotate, or reverse the original design data

DATA SET

Operation to decide a series of setting contents in data input

DESIGN DATA

Data to embroider design. It consists of design and data such as embroidery mode.

DESIGN INTERVAL

Amount of movement (mm) when one design moves to the next design in repeat embroidery of the same design

DESIGN INTERVAL FUNCTION

Moving method when moving one design to the next design in embroidering the same design repeatedly.

Moving method includes by stitch and by frame stepping (frame stepping only for TCMX600 series, TCMX mixed type series and TLMX series)

DESIGN START POSITION

The position where trace or start/frame forward at the beginning after data set was performed (origin).
It becomes 0th stitch on data. *In case of no setting of automatic offset

DIP SWITCH

A small slide switch to change conditions of machine movements

DST

Tajima ternary data format. Refer to TBF.

DSW

Abbreviation of Dual in Package Switch Refer to DIP switch

E

EMBROIDERY FRAME

A general term of frames that hold material to be embroidered such as cloth, leather, etc.

END CODE

There are the code that indicates the end point of embroidery (end code 2) and the code that indicates the pause in designs to be repeated (end code 1)

EXCITATION

To generate magnetic power by sending electric current into coil such as electric magnet, etc.

F

FDD

Abbreviation of Floppy Disk Drive. Refer to Floppy Disk Drive.

FIXED PITCH MOVEMENT

To move the frame to right or left direction (X-axis direction) by preset head pitch (head interval)

FIXED POSITION

It is the regular stop position, and is indicated by angle of the main shaft of the machine.

FLOPPY DISK

An external memory device of which round shaped polyester surface is pasted with magnetic powder. It is used for storing design data, etc.

FLOPPY DISK DRIVE

A device to write or read data or program of floppy disk

FRAME BACK

To move the embroidery frame only to the returning direction of stitches with the needle bar(s) stopped

FRAME FORWARD

To move the embroidery frame only to the advancing direction of stitches with the needle bar(s) stopped

FRAME LIMIT SWITCH

Switch to limit the embroidery range

FRAME LIMIT

The embroidery space limited by the frame limit switches

FRAME

Refer to embroidery frame

FRAME STEPPING

To move the embroidery frame only with the main shaft of the machine kept stopped during embroidery

FUNCTION CODE

A control code to specify function or action of the machine

H

HALF CUT

To cut only the upper material of piled materials (usually two pieces) by laser irradiation

I

INCHING

Very slow rotation of the main shaft when the machine starts or before it stops

J

JUMP

Not to activate needle bar by cutting off the driving force from needle bar driving mechanism. It is possible to generate longer stitch than the maximum length of one stitch (12.7 mm) by making the machine perform jumping. In addition, when the machine stops, it is always in a state of jumping.

L

LAN

An abbreviation of Local Area Network. High-speed communication network that connects computer(s) and terminal(s) in a factory.

LCD

Abbreviation of Liquid Crystal Display

LED

Abbreviation of Light Emitting Diode

LOOPING

It means the state in which take-up lever cannot lift upper thread adequately and results in upper thread remaining on fabric with uncompleted thread tightening.

M

MANUAL FRAME TRAVEL

To move the embroidery frame to a free setting position by key switch operation

MANUAL THREAD TRIMMING

To activate ATH by key switch operation to trim thread

MARKING

To draw illustrations or letters by scorching the surface of the material by laser irradiation (only when laser processing) To make basting data (marking design) for positioning the material to be embroidered in applique embroidery or placing embroidery

M-AXIS

Driving shaft to rotate nipple or bobbin (TLMX series)

MEMORY CARD

An external memory device that can delete and overwrite data. It can handle a large capacity of data compared with a floppy disk.

MEMORY DESIGN

Design data that is written in the memory

MEMORY

Internal memory device

MEMORY REGISTRATION

To write to memory (memory writing)

MEMORY WRITING

To write to memory (memory registration)

N

NEEDLE BAR SELECTION

To set orders of needle bars to be used

NIPPLE

Part to press material to be embroidered in LH head.

Attachment suitable for material to be sewn such as cord, tape. etc. is attached

NIPPLE STROKE

Stroke of nipple in up and down direction

NUMERICAL KEY

Numerical key switches of 0 to 9

O

OFFSET START POSITION

A free setting position that makes the embroidery frame wait temporarily in offset setting.

ORIGIN

The position where start or frame forward was made at the beginning after data set * When automatic free setting offset is set, the offset start position will become the start position.

P

POLARITY

Posture of a design when embroidering

R

RESET

To return the control system of the machine that stopped movement by stop factor to the previous condition to its stop

RETURN STITCHING

It prevents misstitching or fraying, and is executed when the machine starts to sew.

S

SEQUIN

A kind of decorative materials to be sewn on clothes, etc. Thin round plate(s) that have hole at the center to be sewn

SOLENOID

A kind of electro-magnetic driven device, moving in reciprocating or circular motion when the power is turned on.

SPEED CODE

Design data code to switch setting for embroidery speed (high speed/low speed)

STEP

Sequence of color changes for one design

STEP

To advance value one by one

STITCH DATA

It is set at every one stitch. It consists of X//Y data, function code, and speed code.

STOP AT LOWER D. POINT (PSEUDO-FIXED POSITION)

To stop the machine with needle stuck in cloth at end of embroidery (end code 2) (Stop at the lower dead point))

T

TABLE OFFSET

It means to move the frame temporarily to the rear direction to facilitate threading. It is convenient to use this function when the frame is positioned at table cut section.

TAJIMA COMPLEMENT ERROR

Error related to composition of X and Y data (10 values: +/-1, +/-3, +/-9, +/-27, +/-81) of design data for Tajima embroidery machine. It means two values that are complemental each other (for example, +27 and -27) exist on X or Y.

TAJIMA TWO-WAY NETWORK SYSTEM

System that performs centralized control of plural machines using a personal computer. It can transmit design data or receive running condition of each machine.

TBF

Abbreviation of Tajima Binary Format

This format can correspond to more function codes compared with DST (Tajima format). It is also possible to store embroidery conditions of design data (needle bar setting, start position of design etc.).

THE NUMBER OF STITCHES

The number of needle sticks when embroidering

TIE STITCHING

It means stitching that prevents fray of thread. It is executed at thread trimming.

TUBULAR GOODS FRAME

A kind of embroidery frames. It mainly holds T-shirt, sweat shirt, etc. to be stretched.

U

UBC

Abbreviation of Under thread Bobbin Changer. Refer to BOBBIN CHANGER.

UNDER THREAD RELEASE

Action that makes the frame perform slight reciprocating movement to pull out under thread for loosening its tension before thread trimming not to trim under thread by other sections than the thread trimming section

USB

Abbreviation of Universal Serial Bus. Spec. name of data bus that connects an embroidery machine and peripheral devices such as memory stick..

V

VERSION NUMBER

The number that shows developing order of software or hardware of the machine

W

WEAK BRAKE

A weak brake to hold the main shaft at the fixed position when the machine stops normally with power turned ON

WRITE DESIGN NUMBER

Memory registration number to set for data management when design data is written (memorized)

X

X DATA

The data that makes the embroidery frame move right/left direction (X direction) by the X-axis drive system. The value displayed as X data indicates movement amount (mm), and the symbol indicates movement direction (+left, -right)

X-AXIS DRIVE SYSTEM

The drive system that makes the embroidery frame move to right and left direction against the front of the embroidery machine

Y

Y DATA

The data that makes the embroidery frame move front/rear direction (Y direction) by the Y-axis drive system

Y-AXIS DRIVE SYSTEM

The drive system that makes the embroidery frame move to front and rear direction against the front of the embroidery machine

Z

Z-AXIS

Driving shaft to change needle height (TCMX series)

ZIGZAG SWING EMBROIDERY

To sew cord-shaped material by zigzag swing. * Needle is not generally located to cord-shaped material.

1st Edition **September, 2004**
2nd Edition **May, 2005**
3rd Edition **February, 2006**
4th Edition **October, 2006**
5th Edition **January, 2007**

■ **Manufactured by:**
Tokai Industrial Sewing Machine Co., Ltd.

NO.1800, Ushiyama-cho, Kasugai, Aichi-pre., 486-0901, Japan
Telephone:568-33-1161 Fax:568-33-1191

■ **Distributed by:**
Tajima Industries Ltd.

19-22, Shirakabe, 3-chome, Higashi-ku, Nagoya, 461-0011, Japan
Telephone:52-932-3444 Fax:52-932-2457

■ **Authorized Distributor:**