USER'S MANUAL

TMAR-KC TYPE-2
TMAR-VC

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A video can be played on PDF.

When the following title is pressed, it will jump to a video page.

▶ To thread

▶ How to lubricate presser foot shaft

Original Instructions
M-AR-20-E
(2017.10)

Foreword

This user's manual describes about the correct using method and instructions for use of this product. Please use this machine after understanding the contents of the manual.

This manual may contain discrepancies in detailed specifications as compared with the actual production model. If you have any questions about this manual, consult your TAJIMA distributor.

We believe that "BASICS TAJIMA EMBROIDERY MACHINES" and "MACHINE SETUP INSTRUCTIONS" are useful to deepen your knowledge about this product. Please also read those booklets.

Regarding how to handle the products related, refer to the user's manual exclusive for them included in the manual CD.

Tokai Industrial Sewing Machine Co., Ltd.

Safety precautions

To prevent any harm or damage to the person who use this product or other person, we describe items that must be surely followed as below.

Indicates that there is a lot of danger of death or serious injuries [*1] if handled by mistake.

Indicates that there is a likelihood of death or serious injuries [*1] if handled by mistake.

Indicates a potentially hazardous situation which may result in minor or moderate injury [*2] or property damage if handled by mistake.

*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

1. Functional Limit Level (Operation Level)

Various types of machine operations are controlled by each functional limit level. This functional limit level will limit some operation and it has the purpose to protect designs from taking out unnecessarily or prevent incorrect parameter setting.

Functional Limit Level "1" is set at shipment. To change Functional Limit Level, input of the password is necessary. For details, consult the distributor.

Functional Limit Level	Limit contents
SEL	ALL Yes e (Cancellation of Functional Limit Level)(→p.156) **(1)** All parameters will be displayed. **(2)** All parameters will be usable.
1 Setting at shipment	**(1)** Only items of parameter P1 to P5 will be displayed. However, "2 Functional Limit Level" of Page P8 will be displayed. **(2)** Writing the design data to the USB memory is prohibited.(→p.99) **(3)** Design data edit in the machine memory is prohibited.(p.103 to p.106) Insertion of stitch, deletion of stitch, modification of stitch **(4)** Detailed setting (shown below) at step unit setting will be hidden.(→p.133) Satin Stitch (area), Satin Stitch (density), Satin Stitch (Expansion)
2 (→p.152)	**(1)** All parameters will be hidden. However, "2 Functional Limit Level" of Page P8 will be displayed. **(2)** Writing the design data to the USB memory is prohibited.(→p.99) **(3)** Design data edit in the machine memory is prohibited.(p.103 to p.106) Insertion of stitch, deletion of stitch, modification of stitch **(4)** Detailed setting (shown below) at step unit setting will be hidden.(→p.133) Satin Stitch (area), Satin Stitch (density), Satin Stitch (Expansion) **(5)** Presser foot setting is protected.(→p.88)

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[Important]

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To display or change them, input a password.

For details of the password, consult the distributor.

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(1) I want to release the lock of the emergency stop switch.

→ Refer to "2-2. Emergency stop switch" of page 18.

(2) I want to turn ON/OFF the LED lamp

→ Refer to "6-1. To turn ON/OFF the LED lamp" of page 91.

(3) I want to change the frame travel speed.

→ Refer to "7-1. To move frame" of page 66.

2. Prepare before embroidering

(1) I want to embroider the design saved in USB memory.

→ Refer to "3-1. To input design in USB memory to machine memory" of page 54.

(2) I want to embroider the design saved in the machine memory.

→ Refer to "4. To decide embroidery design (Data Setting)" of page 60.

(3) I want to delete the design saved in the machine memory.

→ Refer to "1. To delete design" of page 94.

(4) I want to delete the design saved in USB memory.

→ Refer to "1-3. To delete a design in USB memory" of page 96.

(5) I want to copy the design saved in the machine memory.

→ Refer to "4-1. To copy a design" of page 109.

(6) I want to change the name of the design saved in the machine memory.

→ Refer to "2-3. To change the design name" of page 100.

(7) I want to set the color change order.

→ Refer to "5-2. To decide using order of needle bars" of page 62.

(8) I want to check the size of the design and the setting contents.

→ Refer to "6-1. To check size of design and setting contents" of page 64.

(9) I want to move the frame to check the size of the design.

→ Refer to "7-2. To check if design fits in embroidery space (Tracing)" of page 67.

(10) I want to change the size of the design to embroider.

→ Refer to "2. To change the size of a design/To change the direction of a design (Data conversion)" of page 122.

(11) I want to embroider repeatedly.

→ Refer to "3. To embroider repeatedly (Repeat)" of page 126.

(12) I want to rotate a design by 180° to embroider.

→ Refer to "3 Automatic design rotation (180 deg.) (Input of a password is necessary)" of page 190.

(13) I want to change the stroke and the lower dead point of the presser foot.

→ Refer to "5-2. To set presser foot in unit of needle bar or step" of page 88.

(14) After finish of embroidery, I want to move the frame to the front automatically.

→ Refer to "1-1. To move the frame automatically at start and end of embroidery (Automatic offset)" of page 116.

(15) I want to change the detecting sensitivity of the upper thread breakage.

→ Refer to "26 Upper thread detection" of page 173.

(16) I want to return the frame automatically when the thread breaks.

→ Refer to "12 Auto F.B. after T. detection" of page 162.

(17) I want to stop the machine in the middle of embroidery.

→ Refer to "33 Preset Halt by stitches" of page 178.

3. From start to completion of embroidery

(1) I want to specify the number of stitches to return the frame. I want to advance the frame.

→ Refer to "1-2. To perform "To return frame", "To advance frame" (Specification by number of stitches)" of page 75.

(2) I want to return by color change unit. I want to advance the frame.

→ Refer to "1-3. To perform "To return frame", "To advance frame"(Stop code)" of page 76.

(3) I want to trim the thread manually.

→ Refer to "2-1. To trim thread" of page 77.

(4) I want to change the color manually.

→ Refer to "2-2. To change color" of page 78.

(5) I want to return the frame to the start position in the middle of embroidery.

→ Refer to "3-3. To return frame to the start position (Start position return)" of page 80.

(6) I want to return the frame to registered position in the middle of embroidery.

→ Refer to "3-4. To move frame to the registered position (Offset return)" of page 80.

(7) I want to return moved frame to the previous position in the middle of embroidery.

→ Refer to "3-2. To return the moved frame to the previous position (Manual Offset)" of page 79.

4. To change frame

(1) I want to replace the frame.

→ Refer to the separate manual "Frame replacement".

(2) I want to know the necessary setting after replacing the frame.

→ Refer to "5 Frame Type, FS Mode" of page 159.

5. Optional device

(1) I want to raise/lower Sequin devices at all heads together in a batch.

→ Refer to "1-1. To raise/lower the Sequin devices on all heads together in a batch" of page 144.

(2) I want to raise/lower Sequin devices individually. (Sequin device III)

→ Refer to "1-2. To raise the Sequin devices individually" of page 145.

(3) I want to replace Sequin 1 of Sequin device with Sequin 2. (Sequin device III)

→ Refer to "1-4. To replace Sequin 1 with Sequin 2 (Step unit)" of page 146.

→ Refer to "1-5. To replace Sequin 1 with Sequin 2 (Design data in a batch)" of page 148.

(4) I want to change various settings of Sequin device.

→ Refer to "43 Sequin device (R)" of page 182.

→ Refer to "44 Sequin device (L)" of page 183.

Chapter 1
Items that must be followed carefully

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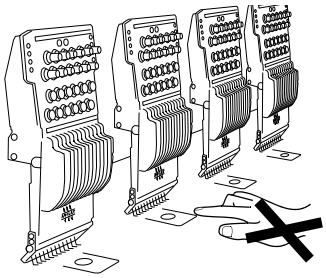
1. To use this machine safely

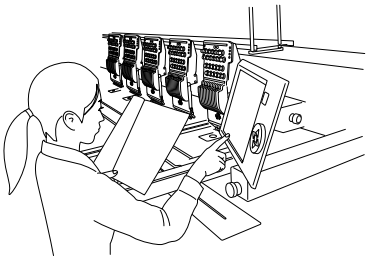
1-1. WARNING

⚠ WARNING

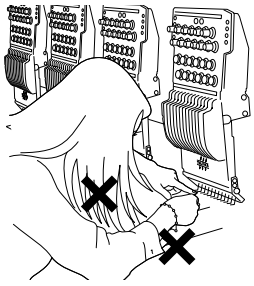
- This machine is designed for industrial use. Use this machine for semi- or finished textile products and similar materials. Using the machine for other purposes must be avoided.
- Do not stand on the machine.
- Do not use a device such as a cellular phone that generates microwave near the control circuits of the power supply box, the operation panel box, etc. Microwave may cause malfunctioning of the machine.
- Do not detach covers for the shaft and the pulley. Also, do not run the machine without the covers.
- Do not have your hands, etc. access to the vicinity of needle during operation. Otherwise, sticking of needle could injure you.



- During operation, do not access your hands and/or face to moving sections. Especially, it is dangerous around needle, rotary hook, take-up lever, pulley and speed-reduction box.
- Read this book thoroughly and understand the contents of operation certainly. Then, operate 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 plural operators are working together, make sure that no one is working near the moving units of the machine before starting the machine.



- Use the machine under the environment where access can be supervised so that unauthorized person does not operate the machine. Supervise children so that they do not access to the machine.
- Only the persons who are sufficiently trained for the operation must operate 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.
- Stop the machine before threading into the needle and checking the finish of embroidery.

WARNING

- 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 etc. touches an electrode in the plug, it may cause fire and/or electric shock.
- Keep away electrical units from water and chemicals. Entry or splashing of them into electrical units leads to short circuits, causing fire, electric shock and other troubles. If water or other chemicals enter the unit, turn OFF the power switch, shut OFF the primary power of the machine and contact your local distributor.
- Before opening the electrical boxes, be sure to turn OFF the power switch of the machine and shut OFF the primary power. If not, it may cause electric shock.

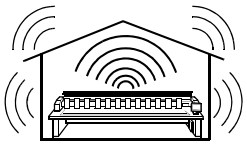
1-2. CAUTION

CAUTION

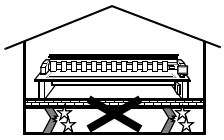
- Use the machine with about 70% of the maximum speed as "Operation for total fitting" for about one week after installing this machine. By performing operation for total fitting, life of the machine will become longer, which will be useful to avoid unexpected troubles.
- Do not use bent needles or needles that are not suitable for the material. Be sure to turn OFF the power switch after working, and turn OFF the primary power supply.
- Do not put things on the machine table.

⚠ CAUTION

Control 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.

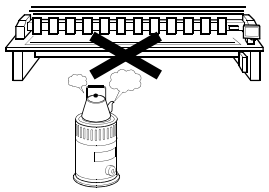


Install the machine on a sturdy floor.
The floor structure must be strong enough to bear the machine weight (indicated on the spec. plate).

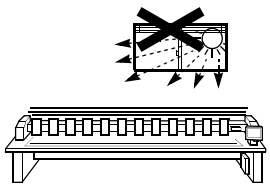


Avoid dust and moisture.
Since dust and moisture lead to dirt and rust on the machine, use the machine in an environment of facility of air conditioner, and clean the working place periodically. Use caution not to expose the machine to direct wind from the air conditioner so that embroidery threads do not become disheveled.

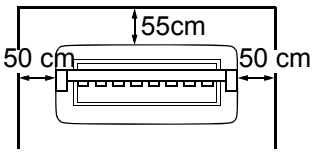
Humidity:
30 to 95% RH (relative humidity) without condensation
Ambient temperature:
5 to 40°C (during operation), -10 to 60°C (during storage)



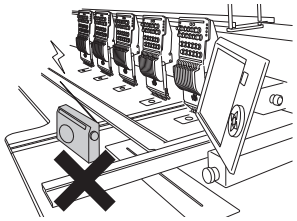
Avoid direct sunlight.
If the machine is exposed to direct sunlight over an extended period of time, the machine body may be discolored or deformed. Put curtains or shades to prevent the machine from direct sunlight.



Provide enough space for maintenance.
Taking account of workability when maintaining and inspecting the machine, provide working area of 50 cm or more to right and left, and 55 cm or more to rear directions for the machine against obstacles such as walls.



Pay attention to interference of radio wave.
Although the machine is designed not to affect radio wave interference to other equipments, there could be cases where it causes interference depending on operation environment and type of other equipment. If such problems arise, install the equipment with a space from the machine as big as possible.



2. Important warning items for safe operation (UL-spec., CSA-spec.)

The following contents explains about UL, and CSA spec. machines.

IMPORTANT SAFETY INSTRUCTIONS

(applied to UL-spec. and CSA-spec. machines)

UL is safety standard applied to USA and CSA is safety standard applied to Canada.

Read all instructions before using this appliance

When using an electrical appliance, basic safety precautions should always be followed, including the following:

DANGER

To reduce the risk of electric shock:

- An appliance should never be left unattended when plugged in. Always unplug this appliance from the electric outlet immediately after using and before cleaning.

WARNING

To reduce the risk of burns, fire, electric shock, or injury to persons:

- Do not allow to be used as a toy. Close attention is necessary when this appliance is used by or near children.
- Use this appliance only for its intended use as described in this manual. Use only attachments recommended by the manufacturer as contained in this manual.
- Never operate this appliance if it has a damaged cord or plug, if it is not working properly, if it has been dropped or damaged, or dropped into water. Please consult the nearest authorized dealer or service center and use this appliance after the examination, repair, electrical or mechanical adjustment has been made.
- Never operate the appliance with any air openings blocked. Keep ventilation openings of the sewing machine free from the accumulation of lint, dust, and loose cloth.
- Keep fingers away from all moving parts. Special care is required around the sewing machine needle.
- Always use the proper needle plate. The wrong plate can cause the needle to break.
- Do not use bent needles.
- Do not pull or push fabric while stitching. It may deflect the needle causing it to break.
- Switch the sewing machine off ("O") when making any adjustments in the needle area, such as threading needle, changing needle, threading bobbin, or changing presser foot, etc.
- Always unplug sewing machine from the electrical outlet when removing covers, lubricating, or when making any other user servicing adjustments mentioned in the instruction manual.

WARNING

- Never drop or insert any object into any opening.
- Do not use outdoors.
- Do not operate where aerosol (spray) products are being used or where oxygen is being administrated.
- To disconnect, turn all controls to the off("O") position, then remove plug from outlet.
- Do not unplug by pulling on cord. To unplug, grasp the plug, not the cord.
- Connect this appliance to a properly grounded outlet only. See Grounding Instructions.

SAVE THESE INSTRUCTIONS

GROUNDING INSTRUCTIONS

(applied to UL-spec. and CSA-spec. machines)

This product must be grounded. In the event of malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This product is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

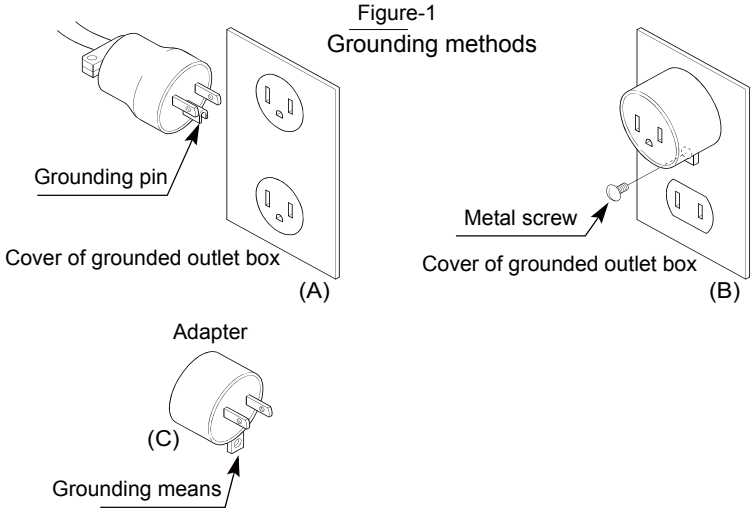
DANGER

- Improper connection of the equipment-grounding conductor can result in a risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal.
- Check with a qualified electrician or serviceman if the grounding instructions are not completely understood, or if in doubt as to whether the product is properly grounded.
- Do not modify the plug provided with the product - if it will not fit the outlet, have a proper outlet installed by a qualified electrician.

DANGER

This product is for use on a nominal 120V circuit, and has a grounding plug that looks like the plug illustrated in sketch A in Figure-1. A temporary adaptor, which looks like the adaptor illustrated in sketches B and C, may be used to connect this plug to a 2-pole receptacle as shown in sketch B if a properly grounded outlet is not available. The temporary adaptor should be used only until a properly grounded outlet can be installed by a qualified electrician. The green colored rigid ear, lug, and the like, extending from the adaptor must be connected to a permanent ground such as a properly grounded outlet box cover. Whenever the adaptor is used, it must be held in place by the metal screw.

Figure-1
Grounding methods



[If the product is used in a nominal rating more than 120V]
This product is for use on a circuit having a nominal rating more than 120V, and is factory equipped with a specific electric cord and plug. No adapter should be used with this product. If the product must be reconnected for use on a different type of electric circuit, the reconnection should be made by qualified service personnel; and after the reconnection, the product should comply with all local codes and ordinances.

3. Warning labels

The machine has warning labels that bear instructions for safe operation. Machine operators must follow the instructions shown on the warning labels. Do not detach the warning label nor make them illegible by painting, etc. If the warning label is missed or damaged, contact your TAJIMA distributor.

[a] 

There could be danger of burn, death or severe injury due to electric shock. Persons except the service personnel designated by Tajima should not open the covers. When you open the cover, turn OFF the power switch and wait for four minutes or more.

[b] 

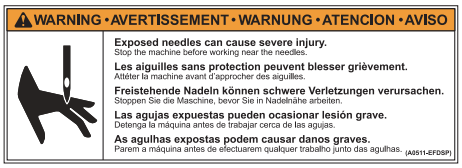
There could be danger of being caught.

Persons except the service personnel designated by Tajima should not open the covers.

[C] 

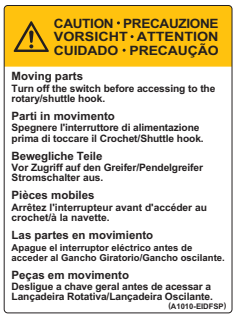
There could be danger of being clipped. Do not put nor touch your hands near the moving parts of the machine.

[d] Pay attention around needle.

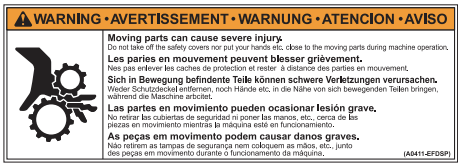


[e] Pay attention not to be clipped into the machine.

[f] Pay attention to rotary hook.

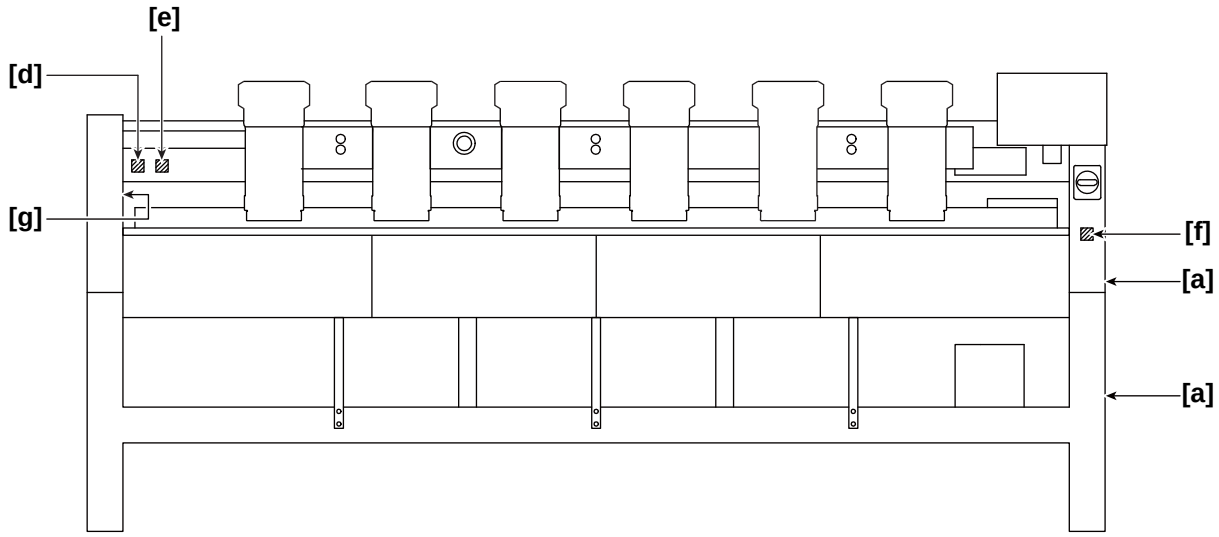


[g] Pay attention not to be caught into the machine.



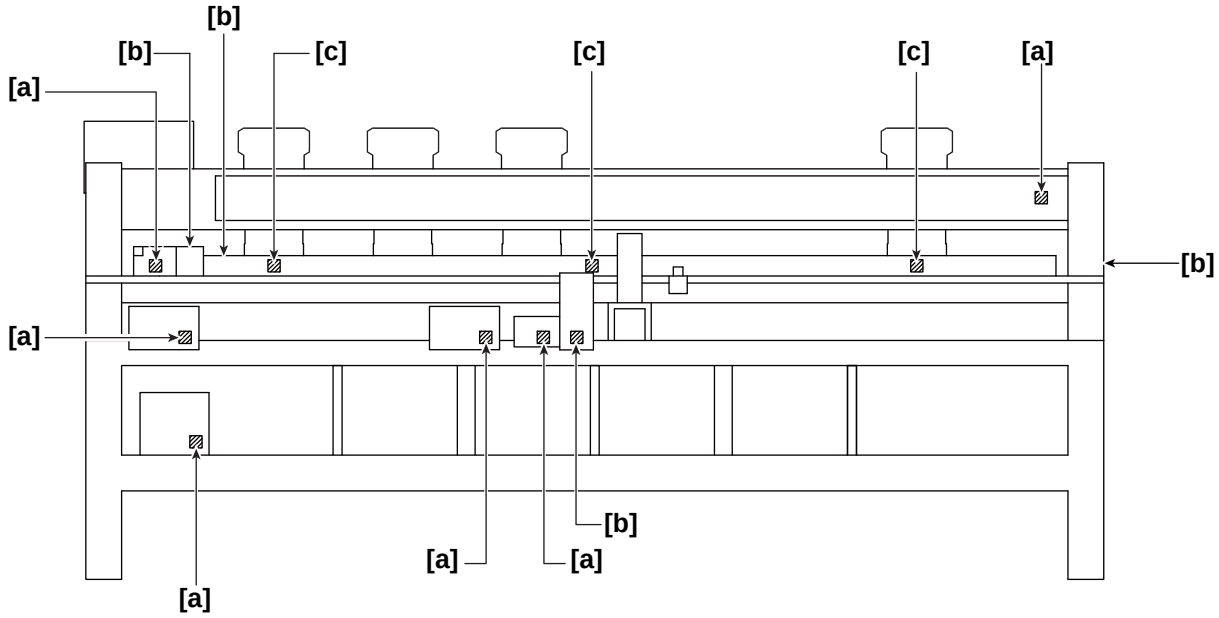
TMAR-KC TYPE-2

[Front view]



[Rear view]

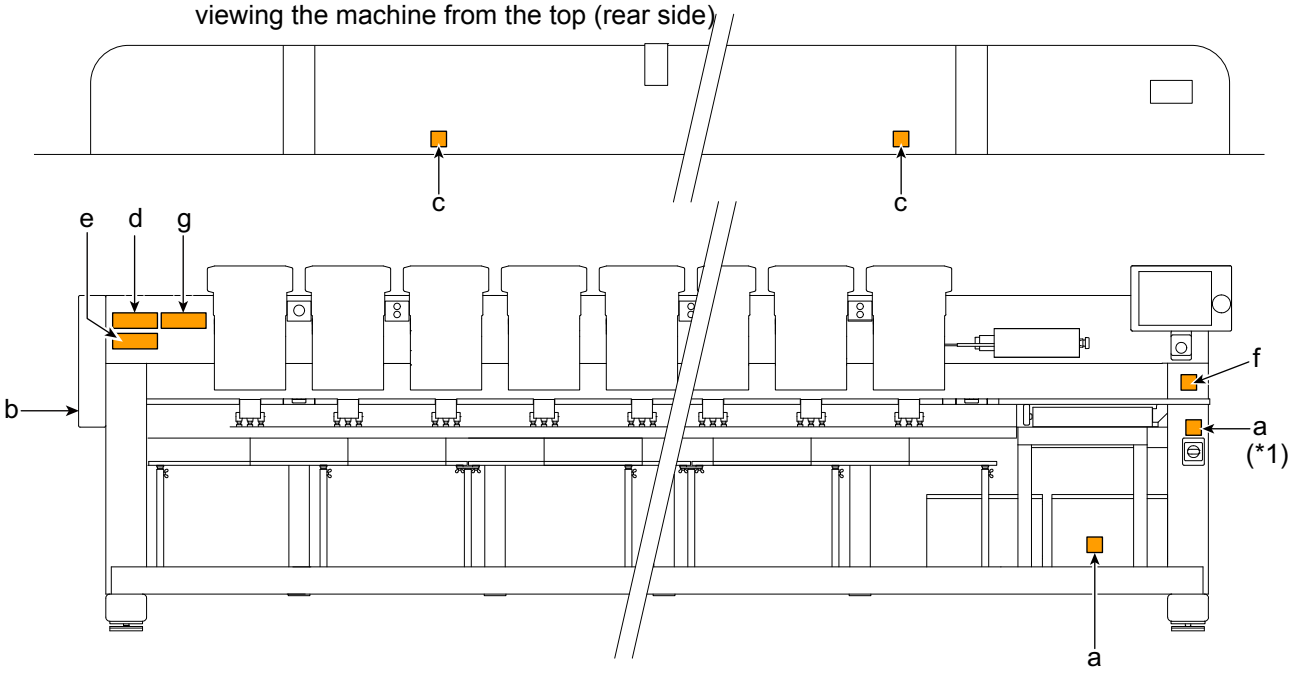
Quantity of label [c] varies depending on spec. of the machine.



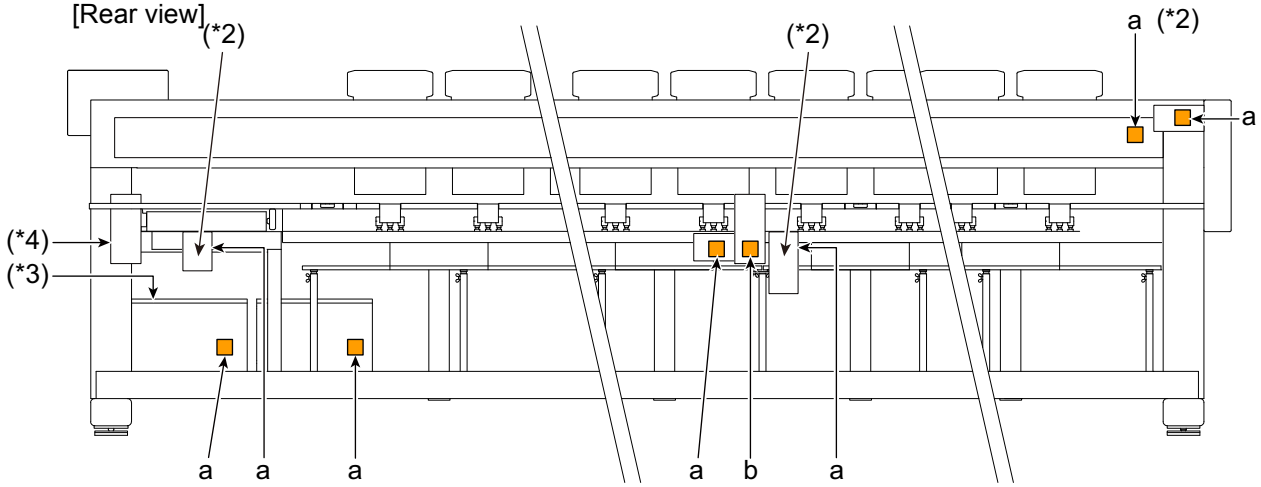
TMAR-VC

[Front view]

viewing the machine from the top (rear side)



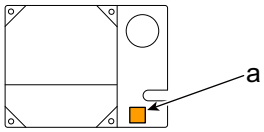
[Rear view]

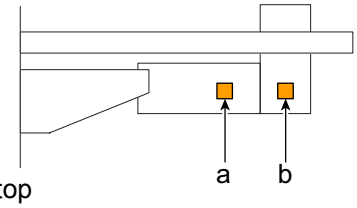


(*1) “a” is affixed also to the inside.

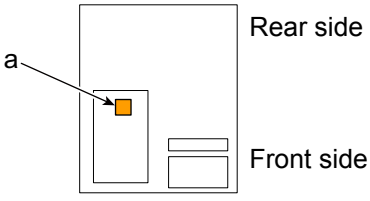
(*2) “a” is affixed also to X/Y/main shaft driver card base inside the cover.

(*4) “a” is affixed to X-axis motor cover.
“b” is affixed to X-axis gear box.





(*3) Viewing the power supply box from the top



4. Inspection before starting work

Before starting work, execute inspection (including cleaning, lubrication) of each part.

Spot	Check
Covers	Covers might be attached incorrectly.
Upper thread	The thread might be passed incorrectly to each part.(→p.51) The tension might be inadequate. The thread might be entwined around frame/drive system.
Under thread	The under thread (bobbin case) might be set to rotary hook incorrectly. The tension might be inadequate.
Needle	The needle might be bent. The direction of needle might have been wrong. The needle might be broken.
Rotary hook	Cleaning/lubrication might be performed in inadequate frequency. (→p.252)
Right LED of tension base	The right LED of the head to use might not been lit in green.(→p.27)

Chapter 2
Name and way to use of each part

1. Name of each part 14

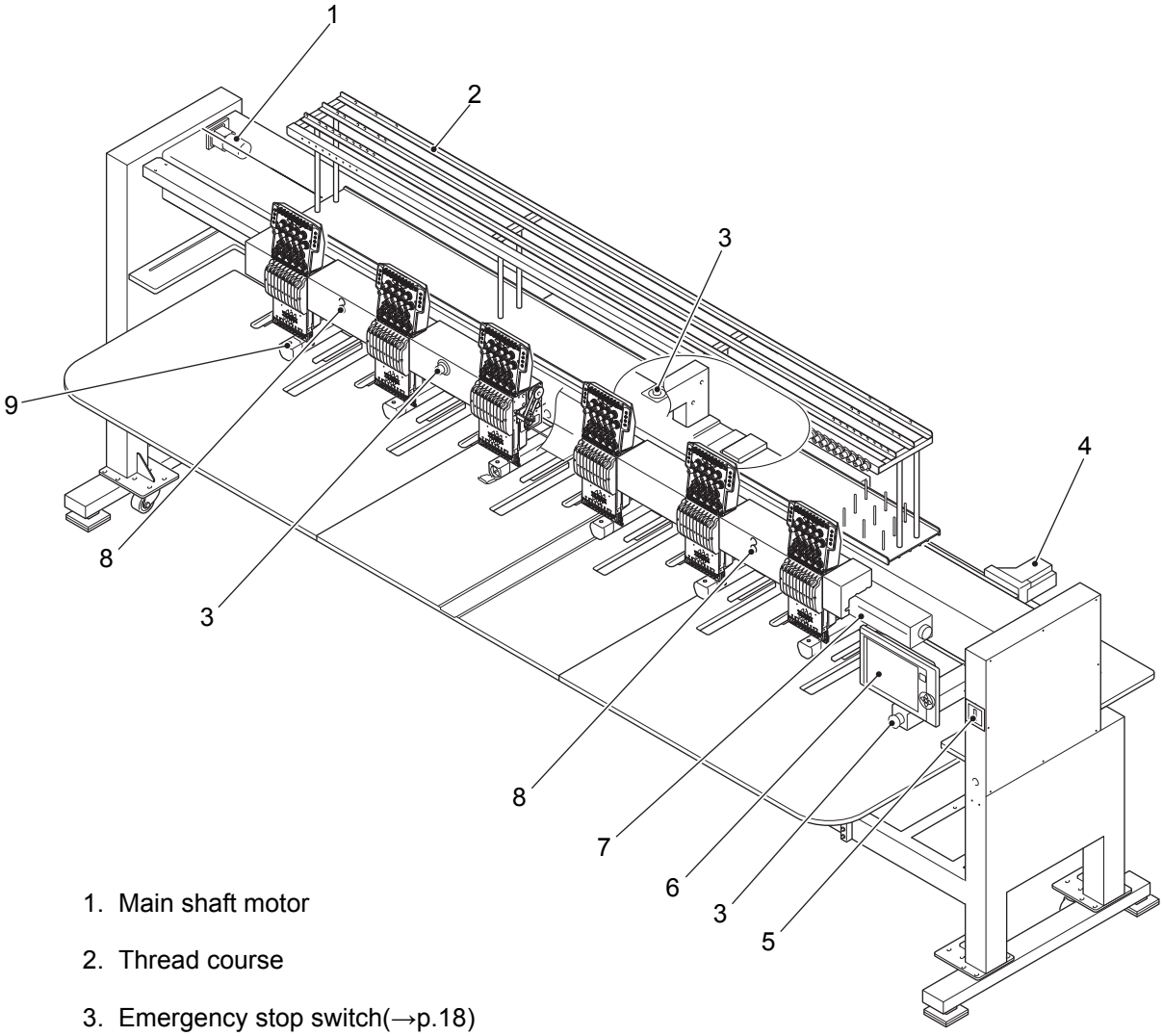
2. How to use each part..... 16

3. Tension base 27

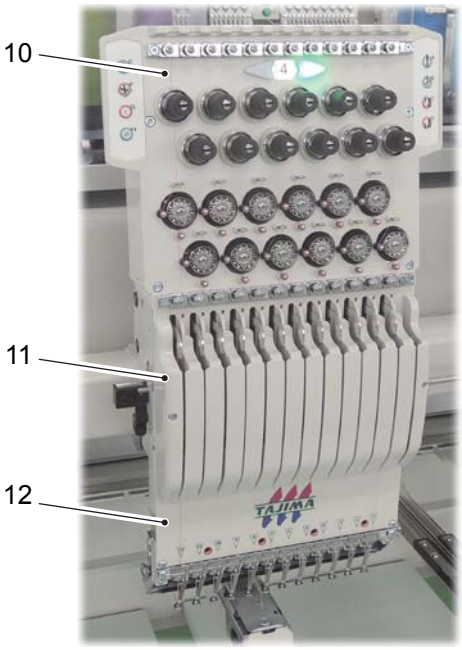
4. Functions that must be used practically 34

1. Name of each part

1-1. TMAR-KC TYPE-2

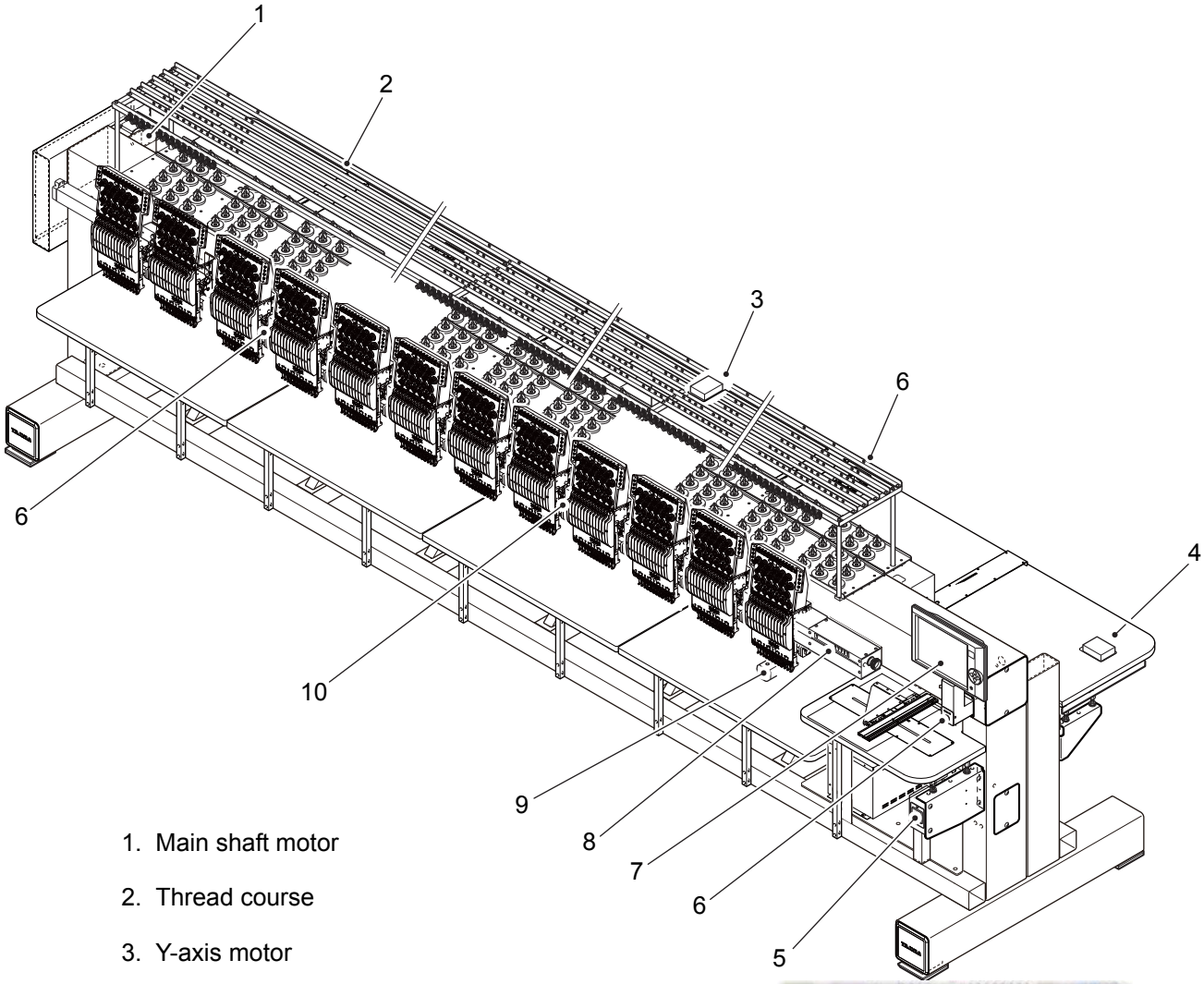


1. Main shaft motor
2. Thread course
3. Emergency stop switch(→p.18)
4. X-axis motor
5. Power switch(→p.16)
6. Operation panel(→p.23)
7. Color change system
8. Start/stop switch(→p.20)
9. Slim cylinder bed
10. Tension base(→p.27)
11. Snap-fit middle thread guide(→p.53)
12. Needle bar case

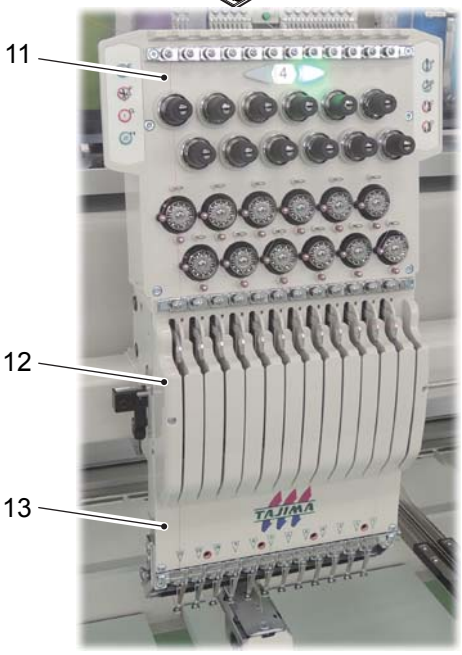


UO05

1-2. TMAR-VC



1. Main shaft motor
2. Thread course
3. Y-axis motor
4. X-axis motor
5. Power switch(→p.16)
6. Emergency stop switch(→p.18)
7. Operation panel(→p.23)
8. Color change system
9. Slim cylinder bed
10. Start/stop switch(→p.20)
11. Tension base(→p.27)
12. Snap-fit middle thread guide(→p.53)
13. Needle bar case



2. How to use each part

2-1. Power switch

When turning ON the power, set the power switch to "ON". When turning OFF the power, set this switch to "OFF". If the emergency stop switch is pressed or the power is shut off during operation, the power switch will be positioned at the middle.

CAUTION

- To turn ON the power again, wait for 30 seconds or more. The system sometimes may not start up normally.
- Do not turn ON the machine power with the USB memory connected to the operation panel. The system sometimes may not start up.

ON

OFF

Middle position between ON and OFF

To cancel, turn "OFF" once, then turn "ON".

To lock the power switch, use the padlock.

Padlock
(Commercial item)

There are also following types depending on the spec.

ON

OFF

Middle position between ON and OFF

To cancel, turn "OFF" once, then turn "ON".

To lock the power switch, use the padlock.

Padlock
(Commercial item)

2-2. Emergency stop switch

The emergency stop switch is equipped as a measure for safety. Pressing this switch during operation will turn OFF the power and stop the machine. At this time, the power switch will be switched to the middle position.

Below operation panel

Back of machine
TMAR-KC TYPE-2

Back of machine
TMAR-VC

[How to resume]

(1) Turn the switch to the right. The lock will be released.

(2) The power switch is set to "Middle position". Turn "OFF" → "ON" the power switch. At this moment, wait for 30 seconds or more.

(3) Execute "Power Resume" manually.(→p.84)

[When the power is shut off in the middle of embroidery]

When the power is shut off due to the power failure etc., restart embroidering according to the following procedure.

⚠ CAUTION

When performing this operation, do not put your hands, etc. on the table. Moving the frame could injure you.

(1) After the electricity is connected and the power starts up, press icon G. Code No.2E3 will be reset.

(2) Press either one of following 2 icons according to embroidery condition. Pressing icon will cause the frame to move.


The frame will be moved after thread trimming.

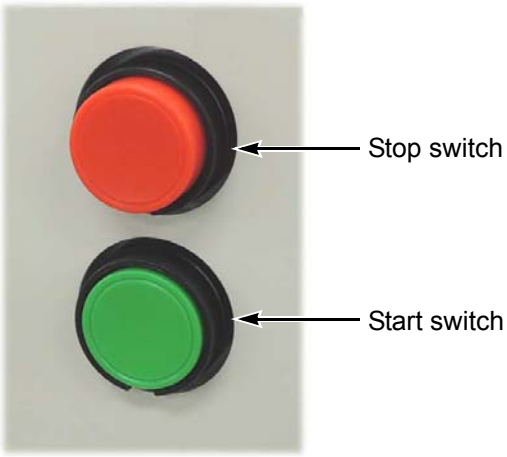

The frame will be moved without thread trimming.

(3) After frame travel, the frame may move forward by some stitches from the previous position. Check the frame position, and restart embroidery after returning the frame.(→p.21)

2-3. Start switch/Stop switch

CAUTION

Before starting the machine, pay enough attention to the surrounding safety. Moving needle bar and/or frame could injure you.



(1) Start switch

[During stop]

Press the start switch and release it immediately.	Operation starts.
Keep on pressing the start switch.	The machine will work slowly. When released, the machine will run normally.

[During operation]

Keep on pressing the start switch.	The embroidery speed will go down and become slow operation. Releasing it will return to the original embroidery speed.

(2) Stop switch

[During operation]

Press the stop switch.	Operation stops.

[During stop]

a.You want to return the frame.

To return the frame:

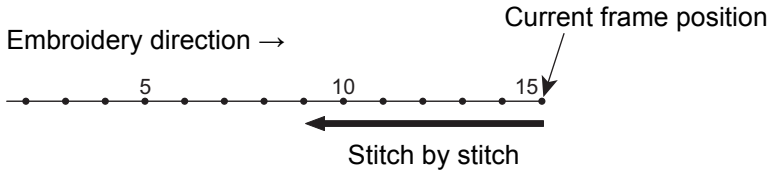
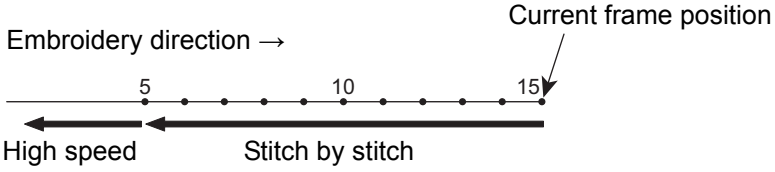
This function makes the frame move to the direction which stitches return with the needle bar stopped.

Check if the current setting is Frame Back (to return the frame).(→p.39)

Press the stop switch according to the chart below.

CAUTION

When performing this operation, do not put your hands, etc. on the table. Moving the frame could injure you.

Keep on pressing the stop switch. (Up to 10 stitches)	The head with thread breakage will lower its presser foot and the frame will return stitch by stitch up to 10 stitches. To stop, release it. 
Keep on pressing the stop switch. (11 stitches and more)	The head with thread breakage will lower its presser foot and the frame will return stitch by stitch up to 10 stitches. For 11 stitches or more, the frame will return at a high speed. [1] To stop the machine, press the stop switch again. 

[1]The frame returning speed can be selected from the frame feeding amount (one, three or five stitches).(→p.162)

b.You want to advance the frame.

To advance the frame:

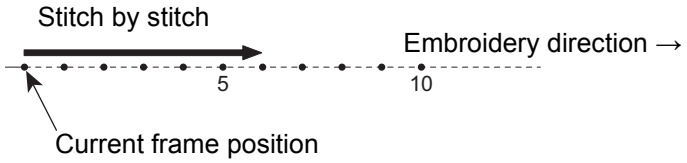
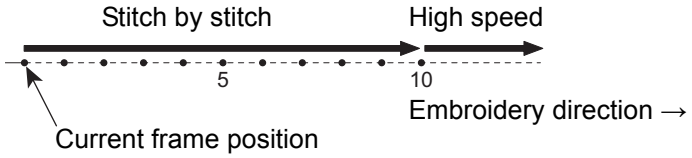
This function makes the frame move to the direction which stitches advance with the needle bar stopped.

Check if the current setting is Frame Forward (to advance the frame).(→p.39)

Press the stop switch according to the chart below.

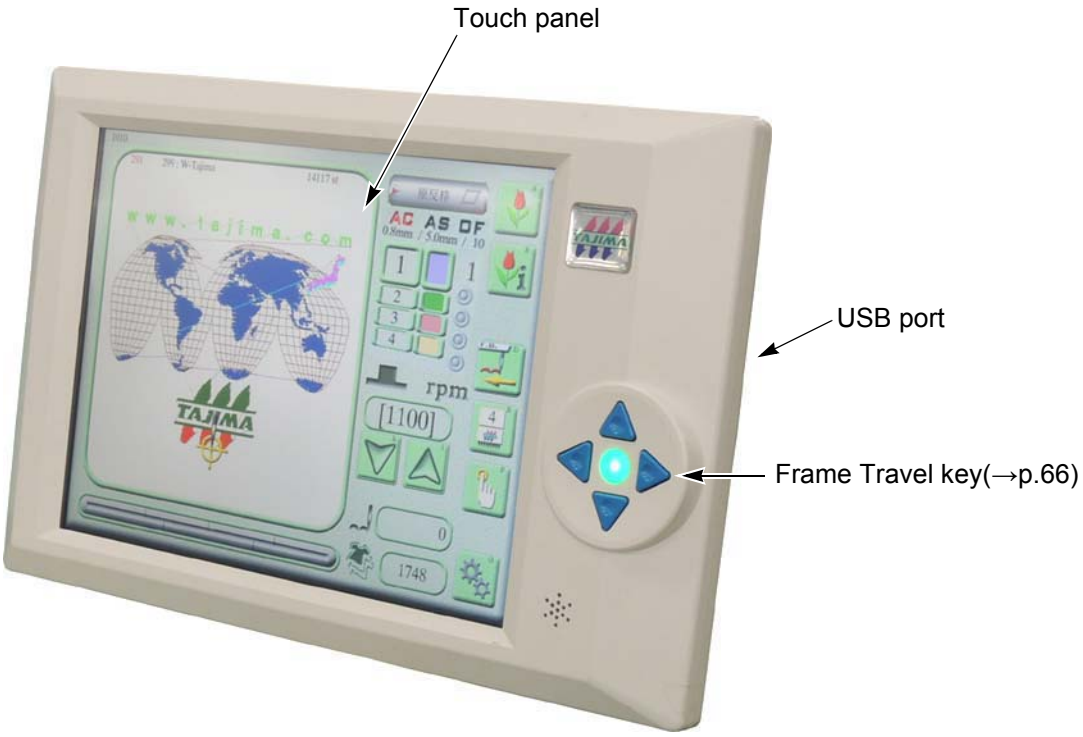
CAUTION

When performing this operation, do not put your hands, etc. on the table. Moving the frame could injure you.

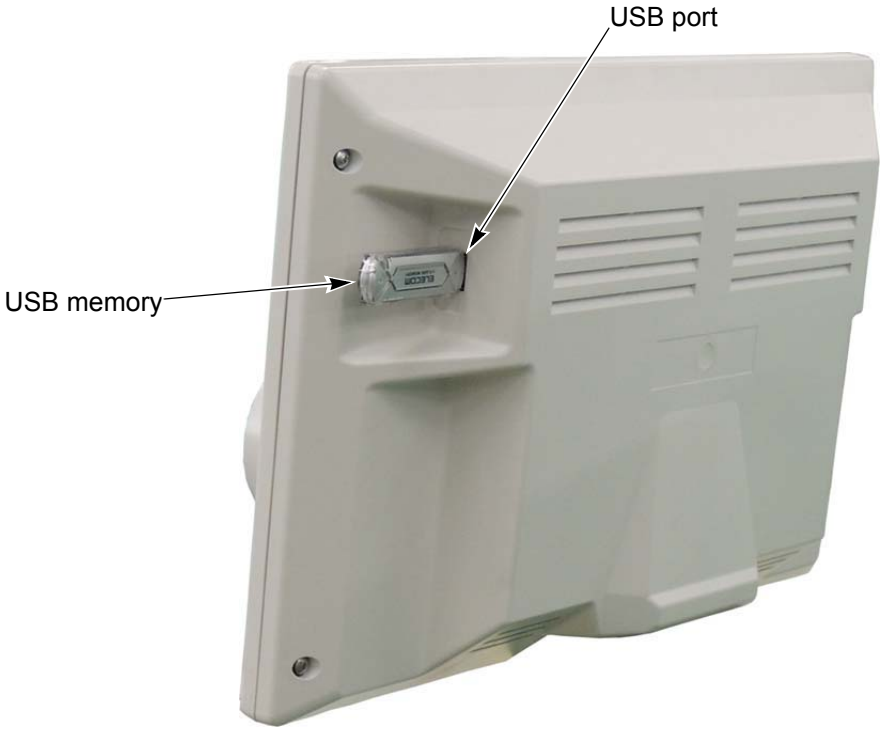
Keep on pressing the stop switch. (Up to 10 stitches)	The head with thread breakage will lower its presser foot and the frame will advance stitch by stitch up to 10 stitches. To stop, release it. 
Keep on pressing the stop switch. (11 stitches and more)	The head with thread breakage will lower its presser foot and the frame will advance stitch by stitch up to 10 stitches. For 11 stitches or more, the frame will advance at a high speed. [1] To stop the machine, press the stop switch again. 

[1]The frame advancing speed can be selected from the frame feeding amount (one, three or five stitches).(→p.162)

2-4. Operation panel



2-5. USB port



Prepare a commercial item for the USB memory. The USB memory is used for the following cases.

1. When registering a design stored in the USB memory into the machine memory.
2. When saving the design registered in the memory of the machine into the USB memory
3. When the software of the machine is upgraded

Some type and/or capacity of the USB memory could not be used for this machine. In this case, buy the USB memory recommended by Tajima. For details, consult the distributor.

CAUTION

- Do not turn ON the machine power with the USB memory connected to the operation panel.
- Do not insert the USB memory in the state of dirt or dust attached to the inside of the connector.
- Some kind and capacity of the USB memory may not be used for this machine. In this case, please buy the other USB memory.
- Do not push / pull the USB memory during operation of the machine.
- Insert the USB memory slowly and gently. If the USB memory is inserted impetuously, it could be damaged.
- Insert the USB memory upright against the port (insertion slot). Oblique insertion could damage to inside circuit board due to interference of connector with the circuit board.
- Start operation after inserting the USB memory for five or more seconds.

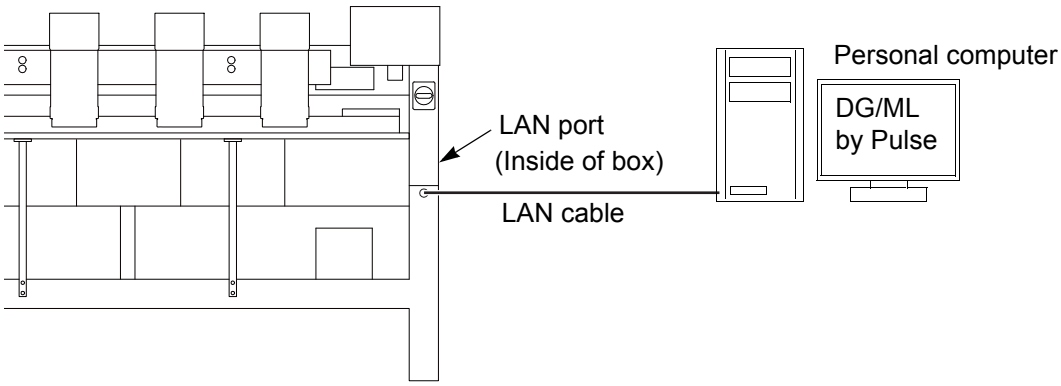
2-6. LAN port

[TMAR-KC TYPE-2]

WARNING

When you open the right-side box, turn OFF the power. There could be danger of electric shock.

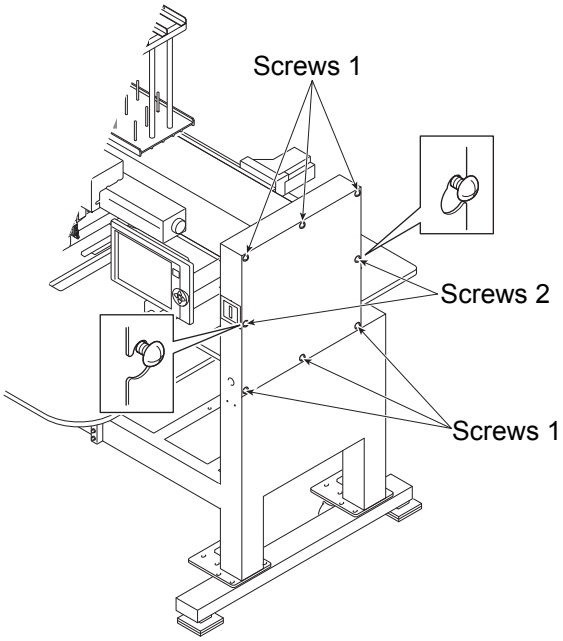
When connecting the personal computer with the machine, connect the LAN cable to the LAN port of the machine.

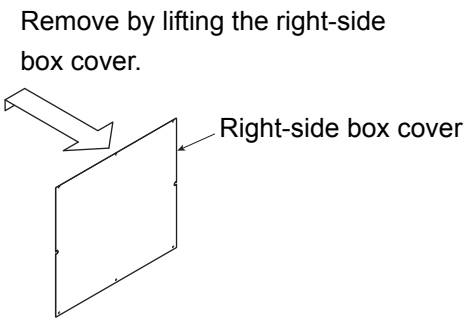


[Connecting method]

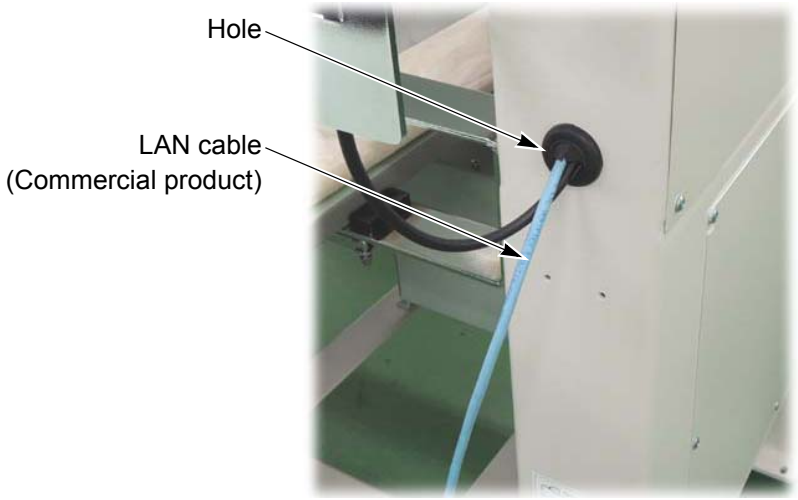
(1) Turn OFF the power.

(2) Remove the screws 1, and loosen the screws 2.

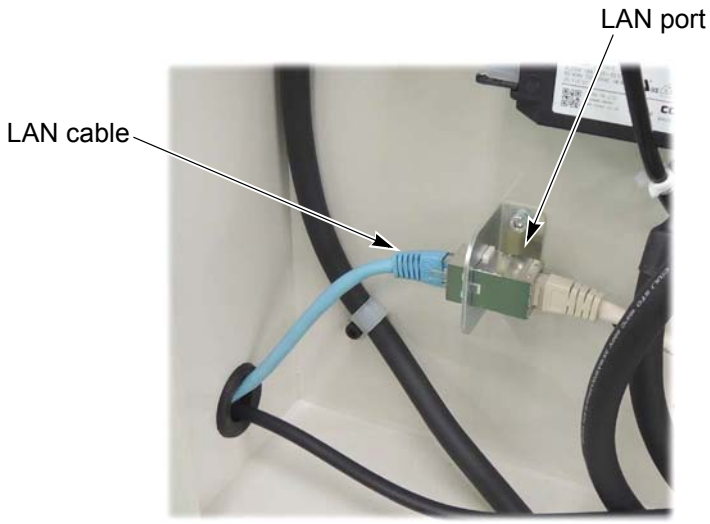




(3) Pass the LAN cable through the hole in the stand of the right side.

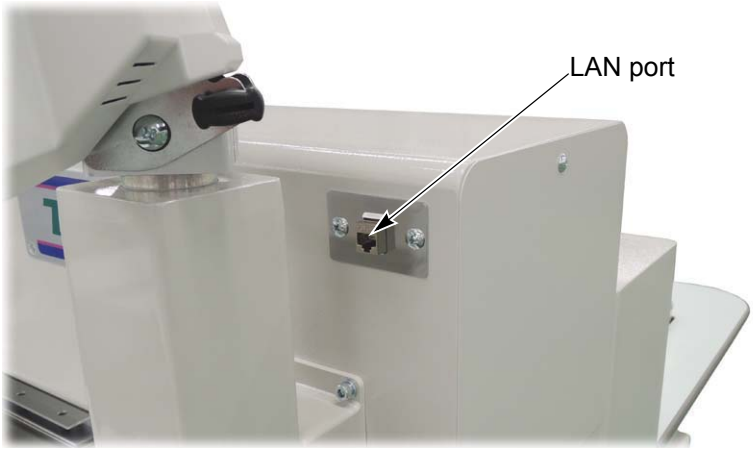


(4) Insert the LAN cable into the LAN port. The LAN port is at the lower left position.

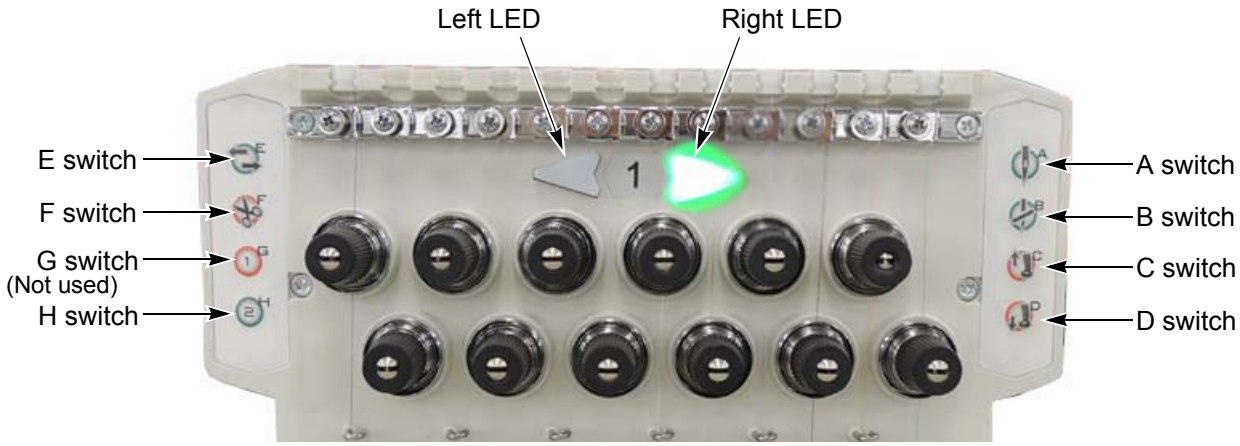


[TMAR-VC]

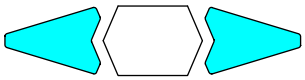
LAN port is located on the stand of the right side. Connect the LAN cable.



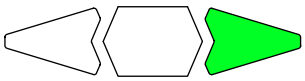
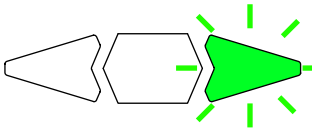
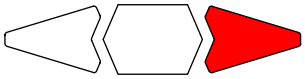
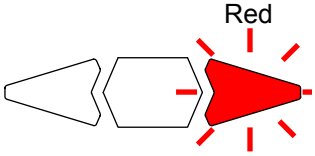
3. Tension base

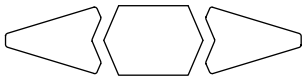
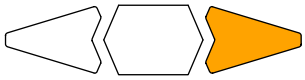


3-1. Right and left LED

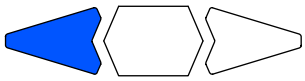
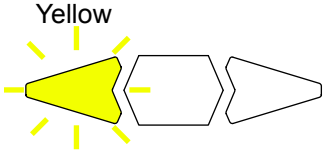
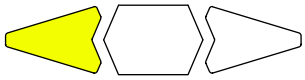
Lit in light blue Light blue Light blue 	It is ready to change to the main screen after turning ON the power.

3-2. Right LED

Lit in green Green 	During embroidery or ready for embroidery
Blinking in green Green 	While the frame is returned, it is blinking in green at the head without thread breakage.
Lit in red Red 	The upper thread has broken. When you start the machine after returning the frame, this head will perform repair stitches.(→p.71)
Blinking in red Red 	The under thread has broken. When you start the machine after returning the frame, this head will perform repair stitches.(→p.71)

Unlit 	The needle bar is suspended.
Lit in orange Orange 	Return stitches will be performed at start of sewing.

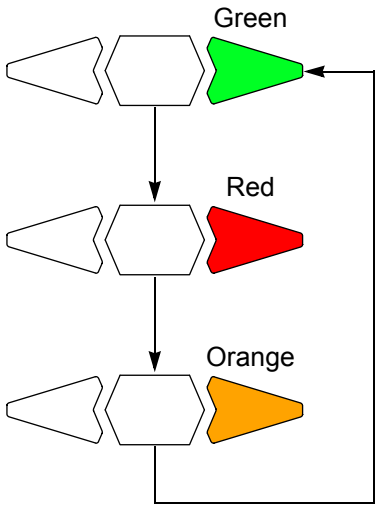
3-3. Left LED

Lit in blue Blue 	If the frame is moved manually while the machine is stopping in the middle of embroidery, the left LED at all heads will be lit in blue.(→ p.34)
Blinking in yellow Yellow 	Error occurred on the presser foot motor, etc.
Lit in yellow Yellow 	Various adjustment items have been selected at Parameter machine adjustment. Examples of adjustment 18 Presser foot lower dead point adjustment (Input of a password is necessary)(→p.213) 19 Presser foot installation (Input of a password is necessary)(→p.214)

3-4. Direct command switch

(1) A switch

Every time pressing A switch will change the color of the LED lamp.



Green: After returning the frame, do not perform repair stitches at the next start of machine.

Red: After returning the frame, perform repair stitches at the next start of machine.

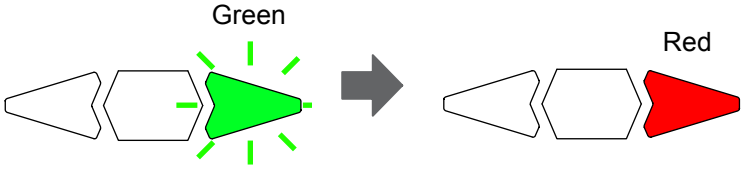
Orange: Perform return stitches. After returning the frame, perform return stitches and repair stitches at the next start of machine.

[An example of operation]

a.To make the suspended head possible to operate, press A switch one time.

A switch	Color of LED lamp
One time 	

b.When you want to embroider from the position where the frame is returned at the head without thread breakage, press A switch at the head one time.

A switch	Color of LED lamp
One time 	Blinking or lit in green 

c.When you want to perform return stitches at the beginning of the next sewing at the head where repair stitches are selected to perform, press A switch one time. In case of plural heads, press A switch at any one of these heads.

A switch	Color of LED lamp
One time 	

d.When you want to perform return stitches at the beginning of the next sewing at the head without thread breakage, press A switch twice.

A switch	Color of LED lamp
Twice 	

(2) B switch

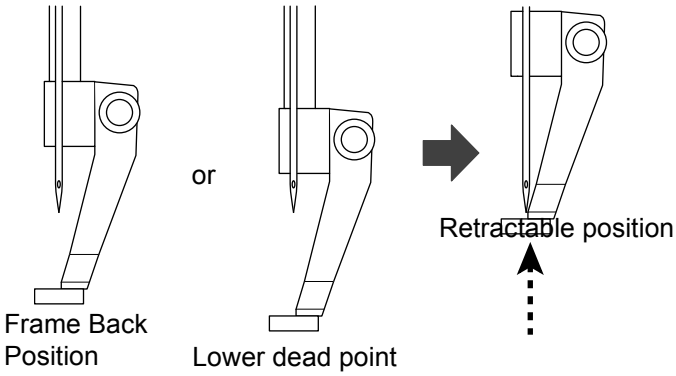
Press B switch at the head to suspend.

B switch	Color of LED lamp
	

(3) C switch

This switch will raise the presser foot locating at Frame Back position or lower dead point to retractable position.This operation is available only when the right LED is lit.

To raise or lower presser foots at all heads at the same time, refer to the detail page.(→p.87)

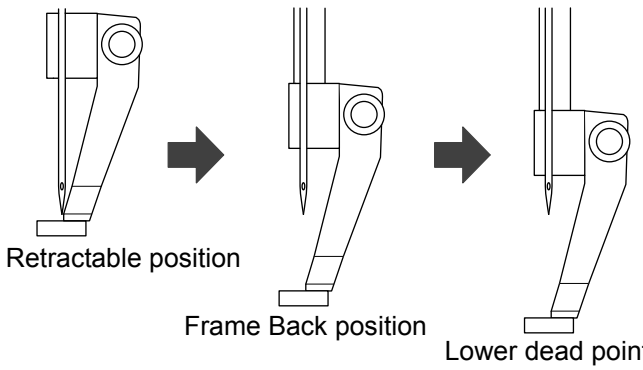
C switch	Condition of presser foot
	

Retractable position	When the machine stops, the presser foot is at this position.
Frame Back position	If the frame is returned, the presser foot at the head with thread breakage will move to this position.
Lower dead point	It means the lower dead point of the presser foot. (The position that lowered most) When you want to check the current selected needle bar No. and thickness of the fabric, set to this position.

(4) D switch

Lower the presser foot locating at the retractable position to Frame Back position or the lower dead point.This operation is available only when the right LED is lit.

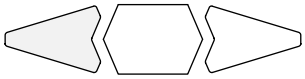
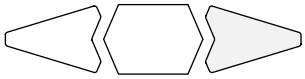
To raise or lower presser foots at all heads at the same time, refer to the detail page.(→p.87)

D switch	Condition of presser foot
	

(5) E switch

This switch will switch Frame Back (to return the frame) or Frame Forward (to advance the frame).

This operation is available only when the right LED is lit.

E switch	Lighting condition of lamp	
	Return the frame. White  The lamp will be lit in white for two seconds, and turn to the previous color.	Advance the frame. White  The lamp will be lit in white for two seconds, and turn to the previous color.

(6) F switch

This switch will perform manual thread trimming at all heads. Pressing F switch longer will perform thread trimming.

CAUTION

When performing this operation, do not put your hands etc. near the needle or on the table. Moving needle bar or frame could injure you.

F switch
Pressing longer 

(7) H switch (Machine adjustment mode)

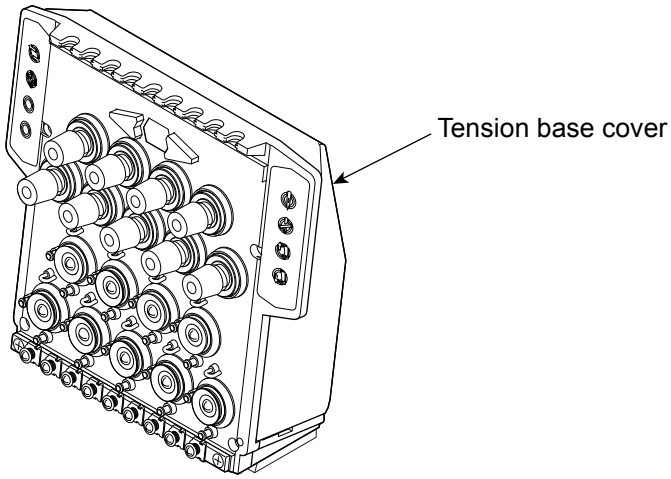
Sequin chips will be feed out.(→p.211)

H switch

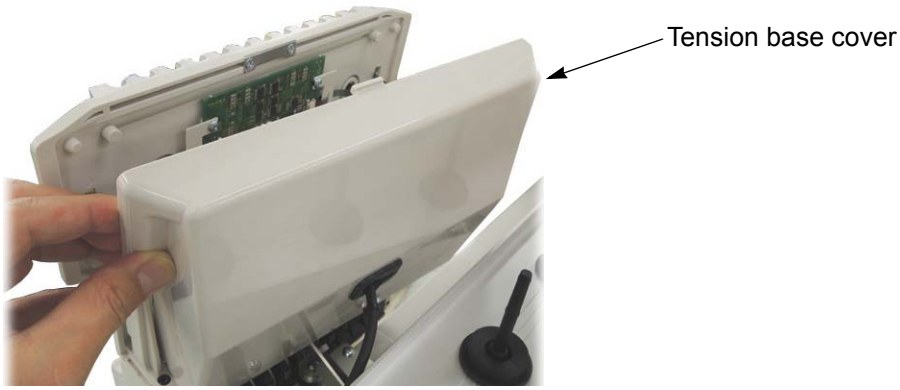

3-5. Items to notice when attaching tension base cover

CAUTION

When attaching the tension base cover, pull out the harness so that the mark tube comes out. Otherwise, the tension base card could be damaged.

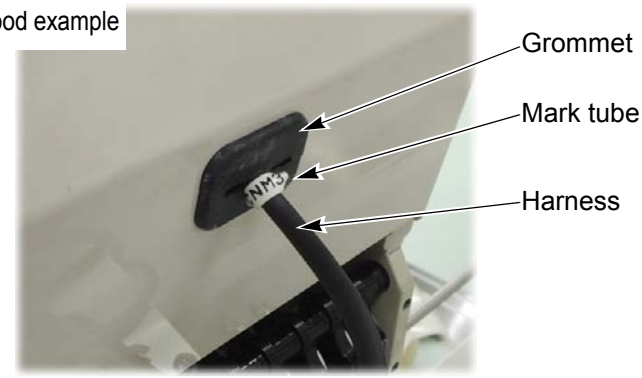


(1) The tension base cover is detached.



(2) When attaching the tension base cover, pull out the harness so that the mark tube comes out of the grommet.

Good example



Bad example

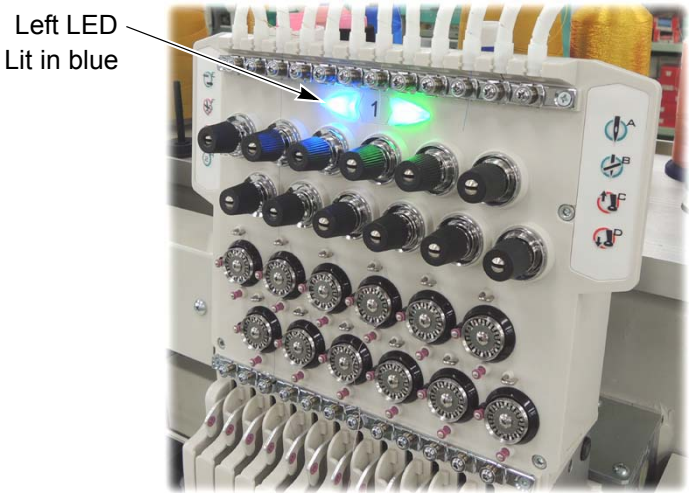
4. Functions that must be used practically

4-1. To notify the operator that the position of the frame is misaligned

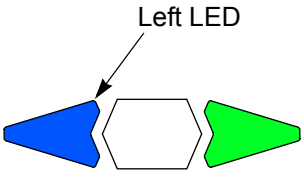
If the frame is moved by the following operations at stop of the machine in the middle of embroidery, left LED at tension bases of all heads will be lit in blue. Thus, the machine will notify the operator that the frame is not in the original position.

This function is effective only when "Return the frame after manual frame travel" is set to "Yes".(→p.176)

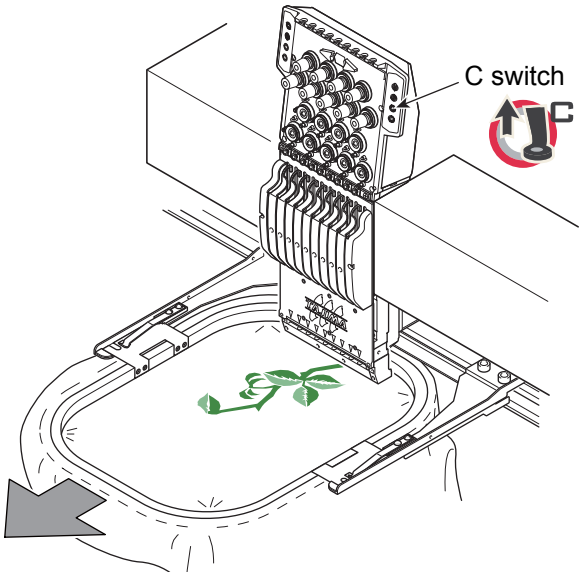
1. Manual Frame Travel
2. Return to the start position
3. Offset Return
4. Frame Travel to an optional position



(1) Stop the machine during embroidery, and pull out the frame to the front. The left LED will be lit.



If C switch is pressed during lighting up of left LED, left LED at all heads will be unlit and this function will be cancelled. To activate this function, press C switch again.



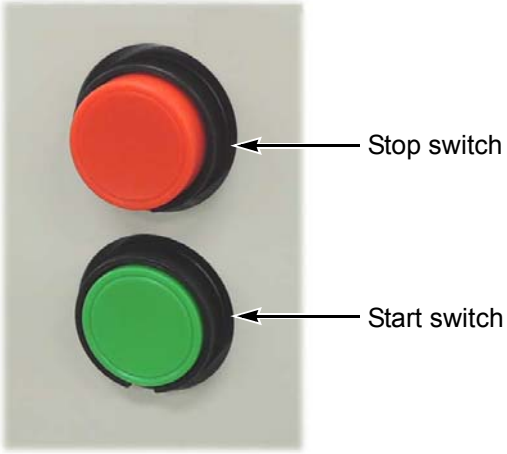
(2) To return the frame to the original position after checking the design, perform the following operation.

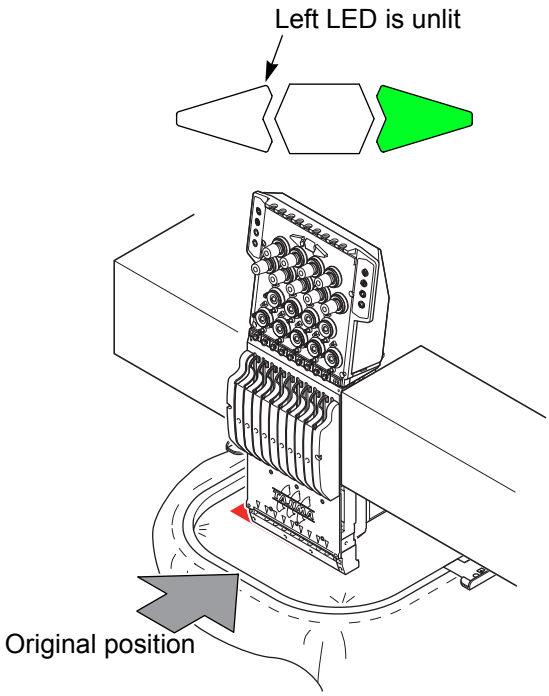
Press the stop switch.

→ The frame will return to the original position.

Press the start switch.

→ The frame will return to the original position and the operation will be started.





Chapter 3
Screen

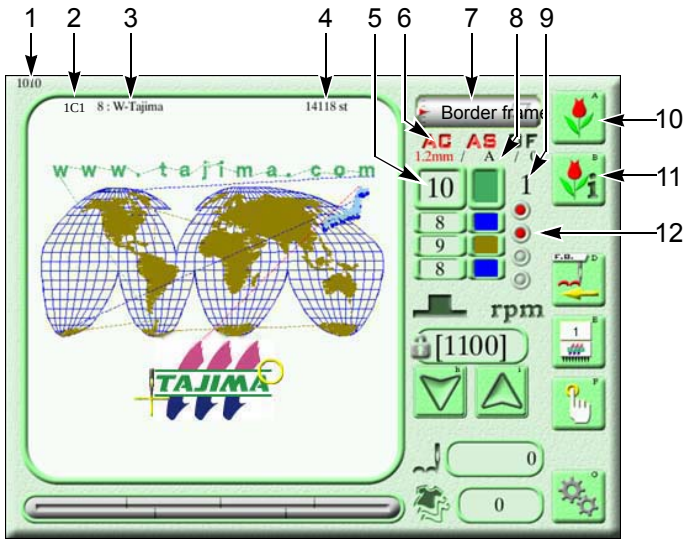
1. Basic screen 38

2. Input operation..... 47

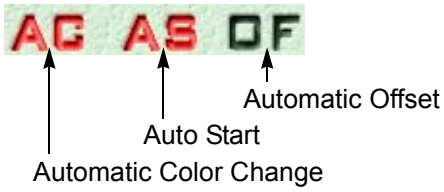
1. Basic screen

1-1. Main screen (Screen 1010)

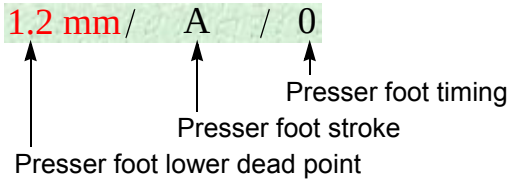
When the power is turned ON, the following screen will appear. From this screen, setting or operation will be started.



1. Screen number (1010)
2. Stop factor (It will be displayed during stop of the machine.)
3. Design name
4. Total number of stitches of design
5. Current needle bar No.
6. Setting condition of Automatic Color Change, Auto Start and Automatic Offset. Red letters show the setting now.

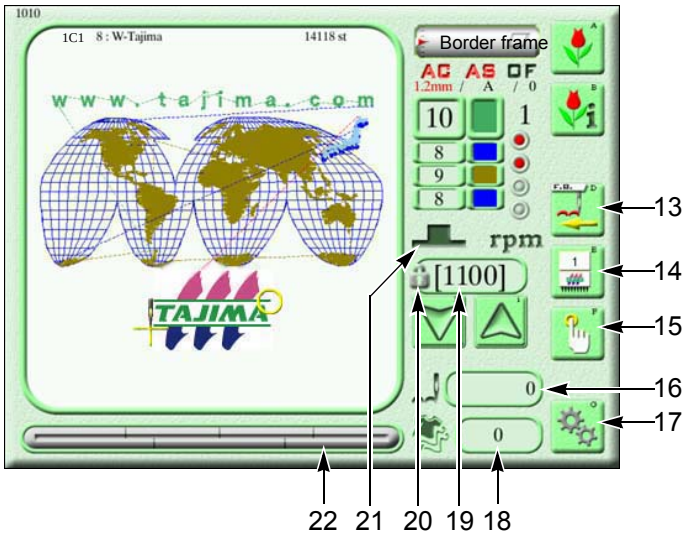


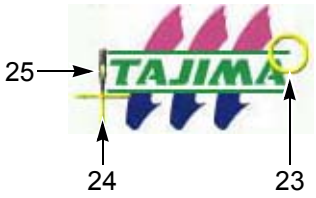
7. Currently selected frame type
8. Presser foot preset value of current step



Red letters means that the value has been changed at "Step unit setting". (→p.132)
When data set is performed after inputting the design data in which the presser foot setting is registered, all letters will be red.

9. Current needle bar step No.
10. Design selection screen (→p.41)
11. Screen of detailed design information (→p.64)
12. Auto Color Change Offset (→p.121)





13. Current setting value of FB (Return the frame) / FF (Advance the frame)

    FB  FF 

14. Manual color change screen (→p.78)
15. Manual operation screen (→p.77)
16. Current number of stitches
17. Setting item screen (→p.152)
18. The number of times of embroideries that have been done up to now
    Even if the power is turned OFF/ON, counting will continue.
19. Maximum speed (→p.65)
20. R.P.M. limit for each design
    When R.P.M. limit value is written for the design (****.TCF), the padlock icon will be displayed.
    To write R.P.M. limit value into the design (****.TCF), DG/ML by Pulse is necessary.
    The padlock icon will be displayed after inputting the design (described below).

    LAN input (except Sidekick)

    Design input by using USB memory

    Data set of the machine memory design

21. Current main shaft angle

     Fixed position

     "Main shaft brake" is set to "No". Blinking (→p.209)

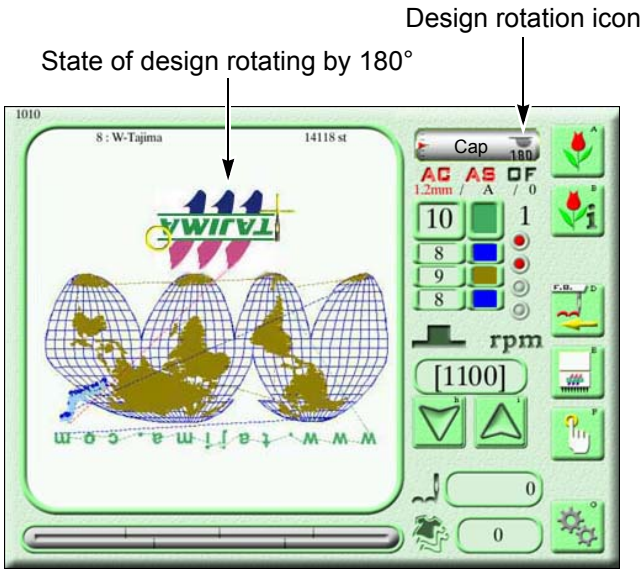
     Outside of range of fixed position

22. Process status of embroidery
23. End position 
24. Start position 
25. Current needle position 

When you want to rotate the design by 180° for the frame type you desire (Cap frame in this example), perform following setting.

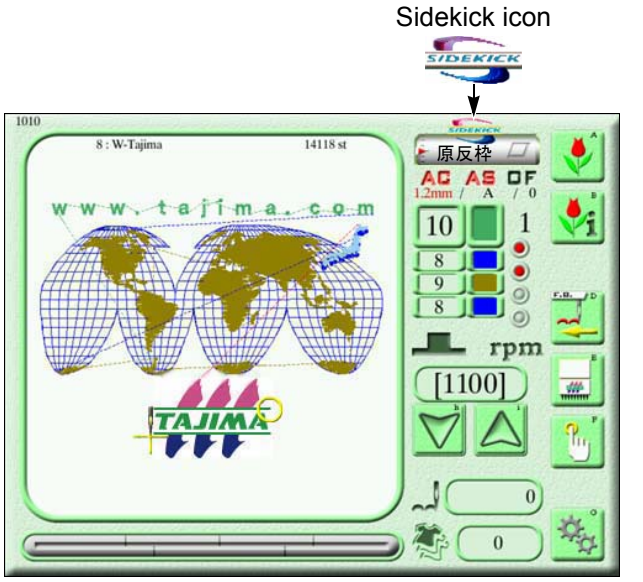
Automatic design rotation (180°)

After setting, the design rotation icon will appear as shown in the figure below. The design will be shown as rotating by 180°.



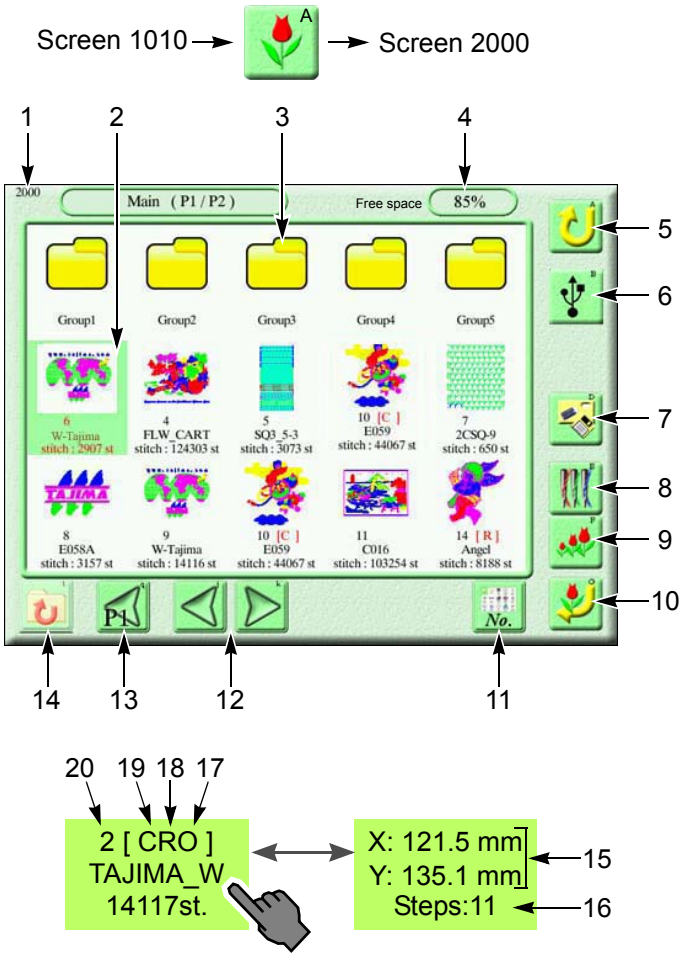
When “Sidekick [V2] is selected in the setting of the network, Sidekick icon will appear as shown in the figure below.

Regarding “Sidekick [V2], refer to the detail page. (→ p.199)



1-2. Design selection screen (Screen 2000)

Select a design in the machine memory and perform the edit of design, the change of needle bar order, and setting of repeat.



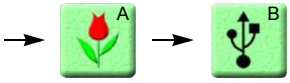
Selecting the design will switch it.

When there is no design in the machine memory, icons 7, 8 and 9 will not be displayed.

1. Screen number (2000)
2. Design data stored in the machine memory
3. Folder
   Design data can be saved in the folder. It is not possible to change folder name (Group1 to Group5).
4. Remaining number of machine memory (40,000,000 stitches)
   Free space will be displayed as "%". If remaining space becomes 20% or less, remaining number of stitches will be displayed.
5. Return to screen 1010.
6. USB memory screen (→p.42)
7. Design edit screen (→p.93)
8. Current needle bar setting (→p.62)
9. Screen of scaling up/down and repeat of design (→p.122)
10. Determine the data set.
11. Rearrangement of design
    None: Registering order
    Name: Alphabetical file name order
    Time: Updating order
12. Scroll the screen.
13. Return the screen to P1
14. If the folder is selected, the screen will be returned to the "Main" screen.
15. Design size (embroidery space)
16. Number of steps
17. With setting of automatic offset
18. With setting for repeat
19. With setting for scaling up/down of design
20. Machine memory number

1-3. USB memory screen (Screen 3100)

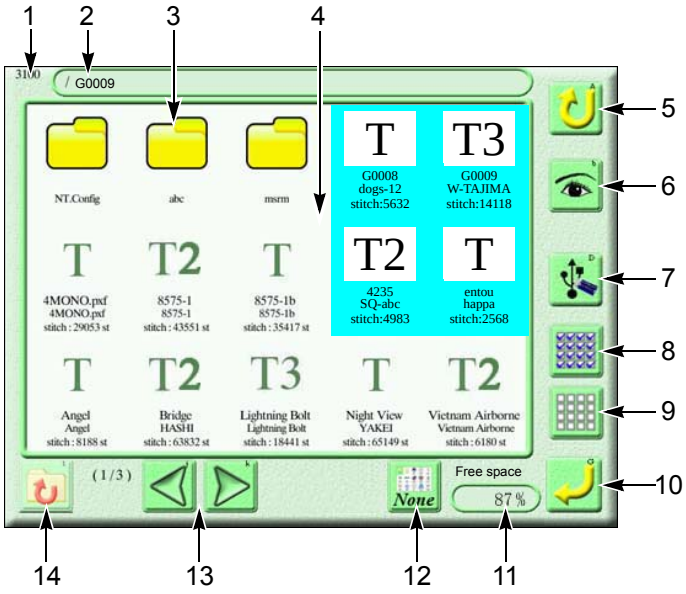
Screen 1010 → To set USB memory



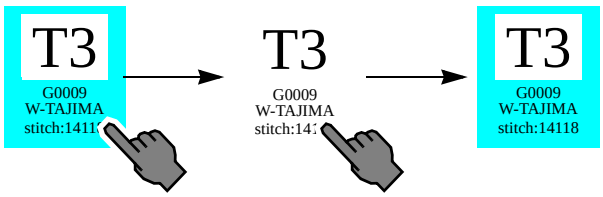
→ Screen 3100

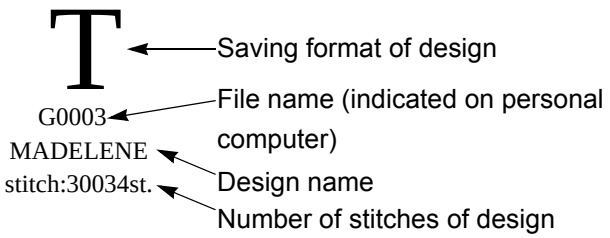
It is possible to select plural designs on this screen.

The below illustration shows an example that four designs are selected.



"Selected / not selected" will be switched each time the design is selected.





Saving format of design

T: TAJIMA format (DST)

T2: TAJIMA binary format (TBF)

T3: TAJIMA integrated file (TCF)

Depending on saving format of the design, the design except above one will be displayed.

1. Screen number (3100)
2. File name of selected design
3. Folder
   It is possible to display up to the third layer directory.
4. Design saved in USB memory
5. The screen returns to the screen 2000.
6. Images of all designs are displayed when pressing this icon without selecting any design. Only an image of this design is displayed when pressing this icon with a design selected.
7. Deletion of a design (→p.96)
   It will be displayed only when design is selected.
8. Select all designs.
9. Selecting the design will be canceled.
10. Decide the design.
11. Machine memory capacity (40,000,000 stitches)
    Free space will be displayed as "%". If remaining space becomes 20% or less, remaining number of stitches will be displayed.
12. Rearrangement of design (folder is excluded)
    None: Registering order
    Time: Updating order
    Name: Alphabetical file name order
13. Page switching (Only when the second page or after exists)
14. If the folder is selected, the folder level directory will be returned to the upper level

When reading a design (File name: G003) saved in USB memory by a personal computer, the display will be given as below.

Saving format	Indication on personal computer	Use
T3 (TCF)[1]	G0003.TCF	Data integrating "CT0, DGF, TBF and CT1" of T2 The following conditions are included in CT1. 1. Presser foot lower dead point (→p.88) 2. Presser foot stroke (→p.88) 3. Presser foot timing (→p.88) 4. Presser foot F.B. lower dead point (→p.88) 5. Message S (→p.61) 6. Message E (→p.61)
T2 (TBF)[2]	G0003.CT0	Color Change Sequence, Start Position
	G0003.DGF	Design data in personal computer
	G0003.TBF	Stitch data of TAJIMA binary format
T(DST	G0003.DST	Stitch data of TAJIMA ternary format

[1] T3 design is unified by following four files.

TBF (TAJIMA binary format)	CT0 (Condition data)
DGF (Thumbnail data)	CT1 (Presser foot setting, etc.)

[2] T2 design is one set of following three items. However, they are not unified.

TBF (TAJIMA binary format)	CT0 (Condition data)
DGF (Thumbnail data)	

1-4. Presser foot preset saving screen

This screen will save the setting value (described below) of the presser foot for each design.

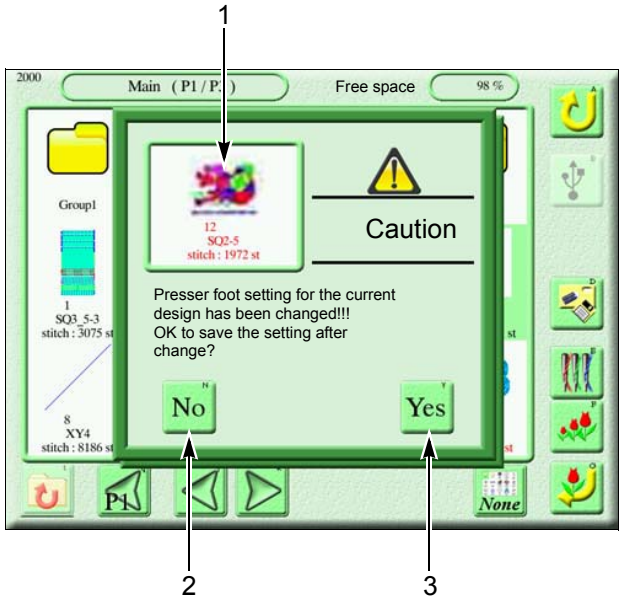
(1) Presser foot lower dead point

(2) Presser foot stroke mode

(3) Presser foot stroke

(4) Presser foot timing

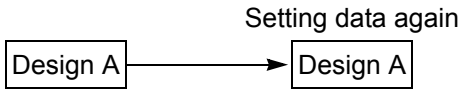
(5) Presser foot F.B. lower dead point



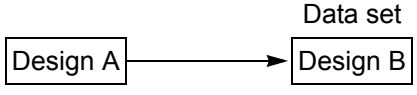
1. Current design (Currently set design data)
2. Do not save the setting value of the presser foot in this design data. (Return to the value before change.)
3. Save the setting value of the presser foot in this design data.

This screen will be displayed under the following conditions.

(1) When the data of the design A is set again after changing the presser foot setting of current design (design A)

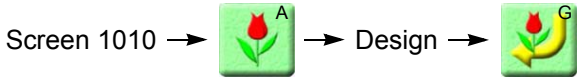


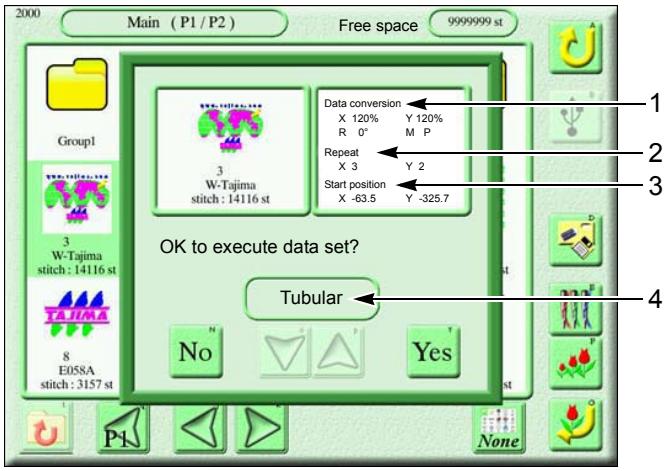
(2) When the data of the design B is set after changing the presser foot setting of current design (design A)



1-5. Data set screen

Select the design and enable to embroider. (Data set)

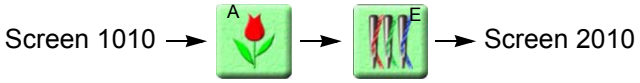


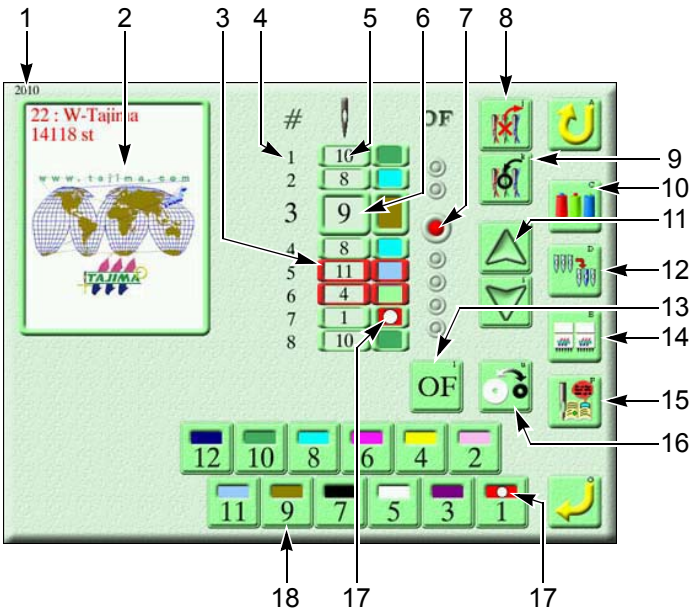


1. Setting for scaling up/down of design
2. Setting of repeat
3. Start position
   Frame position where machine started embroidering last time
4. Type of frame embroidered this design last time (This design was embroidered with a tubular goods frame last time.)
   The type of frame is memorized when you started embroidery.

1-6. Needle bar selection screen (Screen 2010)

Perform general settings about needle bar.





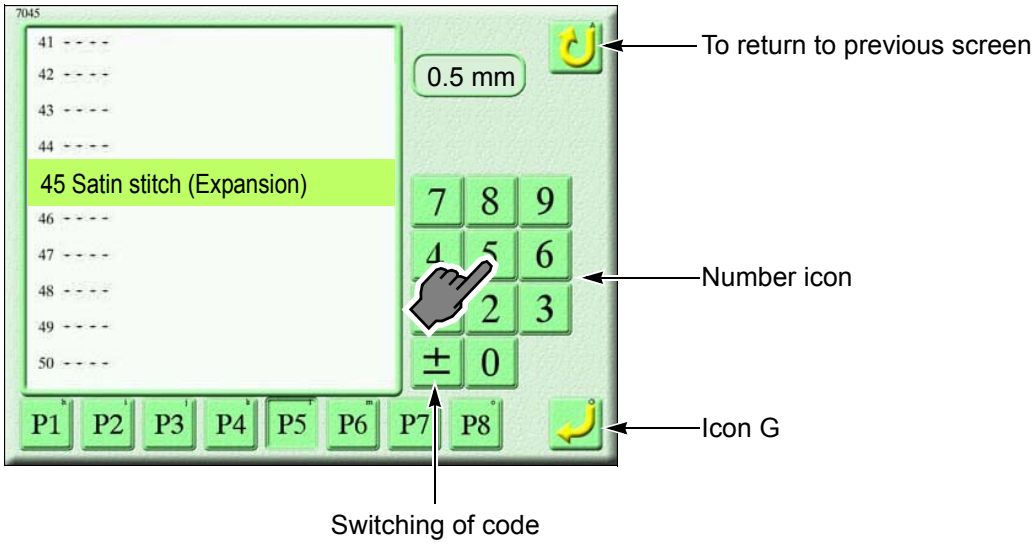
16 and 17 of the upper figure will be displayed only when Sequin Device III is equipped.

1. Screen number (2010)
2. Design of which data is set.
3. Red frame indication of the step
   Step that sewing condition was set at "Step unit setting" individually. (→p.132)
4. Needle bar step
   The section divided by a color change code in the design data. The first section is called step 1.
5. Needle bar No.
   In the example of the left figure, step 1 will be sewn at the needle bar number 10.
6. Cursor
   Step to perform needle bar selection from now
7. Offset lamp (→p.121)
   After step 3 is finished, the frame will move to the offset position.
8. Deletion of needle bar step (→p.131)
9. Insertion of needle bar step (→p.132)
10. Needle bar color (→p.142)
11. Cursor movement key
12. Needle bar conversion (→p.137)
13. Auto Color Change Offset Setting (→p.121)
14. Head selection (→p.138)
15. Step unit setting (→p.132)
    Change sewing condition of the desired step.
16. Sequin reversion (→p.146)
    Sequins to be output are replaced by reversing a sequin.
17. Sequin reversion (→p.146)
18. Needle bar selection icon

2. Input operation

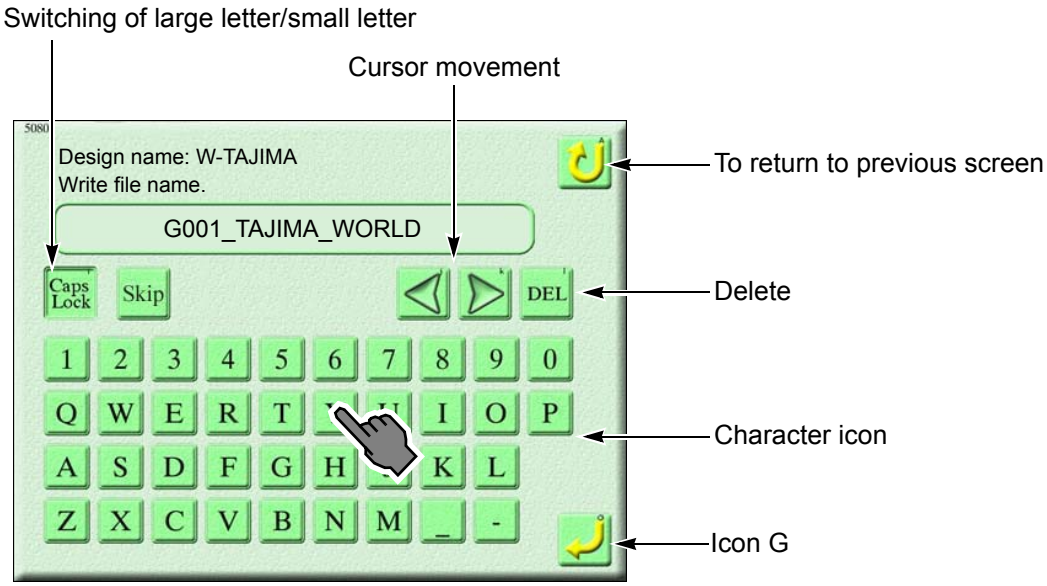
2-1. To input value

When inputting the value, select the number icon, and press icon G.



2-2. To input character

When inputting the character, select the character icon, and press icon G.



Chapter 4
How to operate

1. To turn ON the power 50

2. Preparation before embroidering 50

3. To input design to machine memory 54

4. To decide embroidery design (Data Setting) 60

5. To decide sewing mode 62

6. Items to check 64

7. To move frame to start position 66

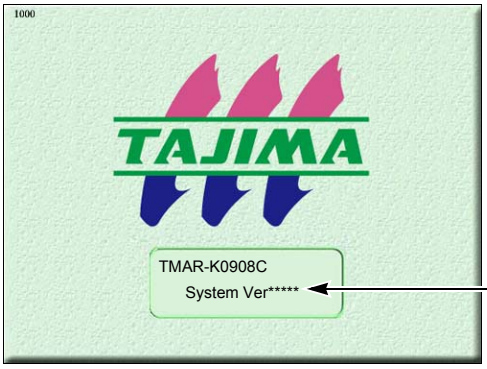
8. To start embroidering 69

1. To turn ON the power

CAUTION

Do not turn ON the machine power with the USB memory connected to the operation panel. The system sometimes may not start up.

When the power starts up, after the screen of software version displays, the main screen will appear. From this screen, setting or operation will be started.

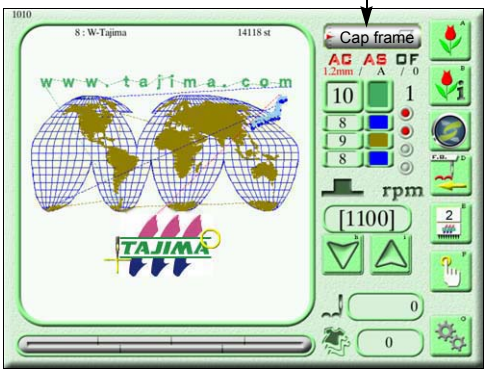


Screen of software version

Software version of panel card

Frame Type

Main screen



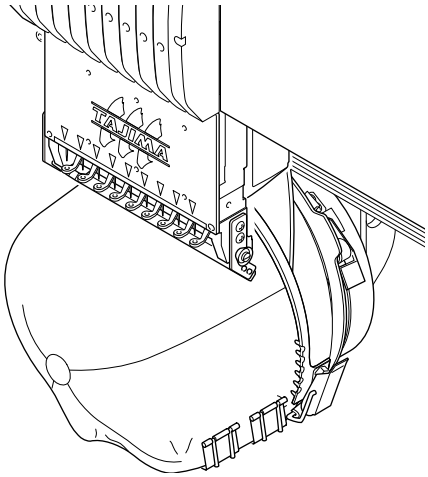
Frame Type

The example of the left figure shows the setting to use "Cap frame".

2. Preparation before embroidering

2-1. To set fabric

Regarding how to replace the frame, refer to the separate manual "FRAME REPLACEMENT".



RR08

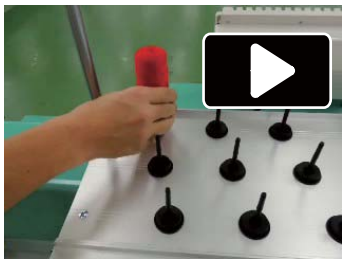
2-2. To thread

If the thread does not pass to each section correctly, it could cause trouble such as the deterioration of embroidery or the thread breakage, etc. Pass the thread correctly referring to the figure below.

(1) Place the thread cone on the thread stand blade.

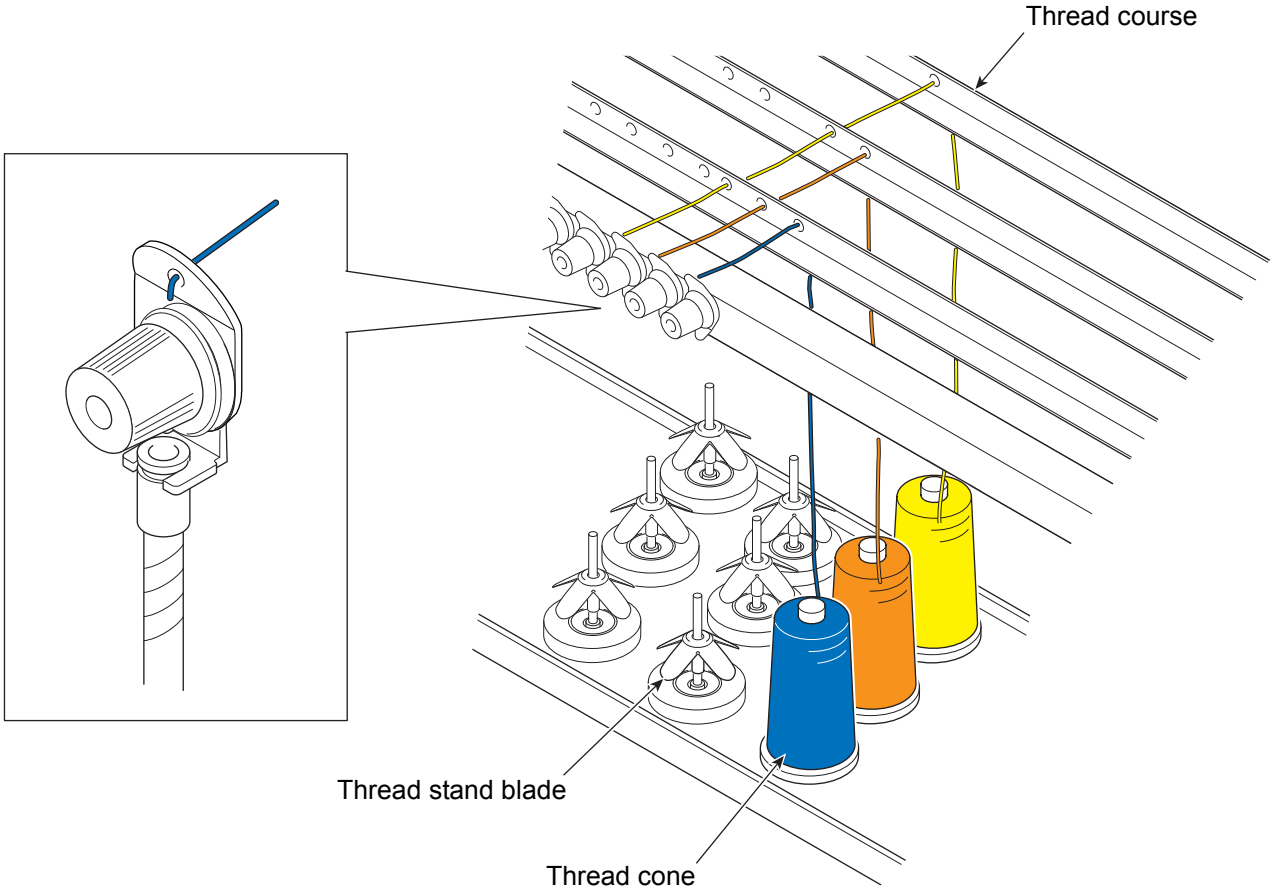
(2) Thread through the thread course.

Play a video.



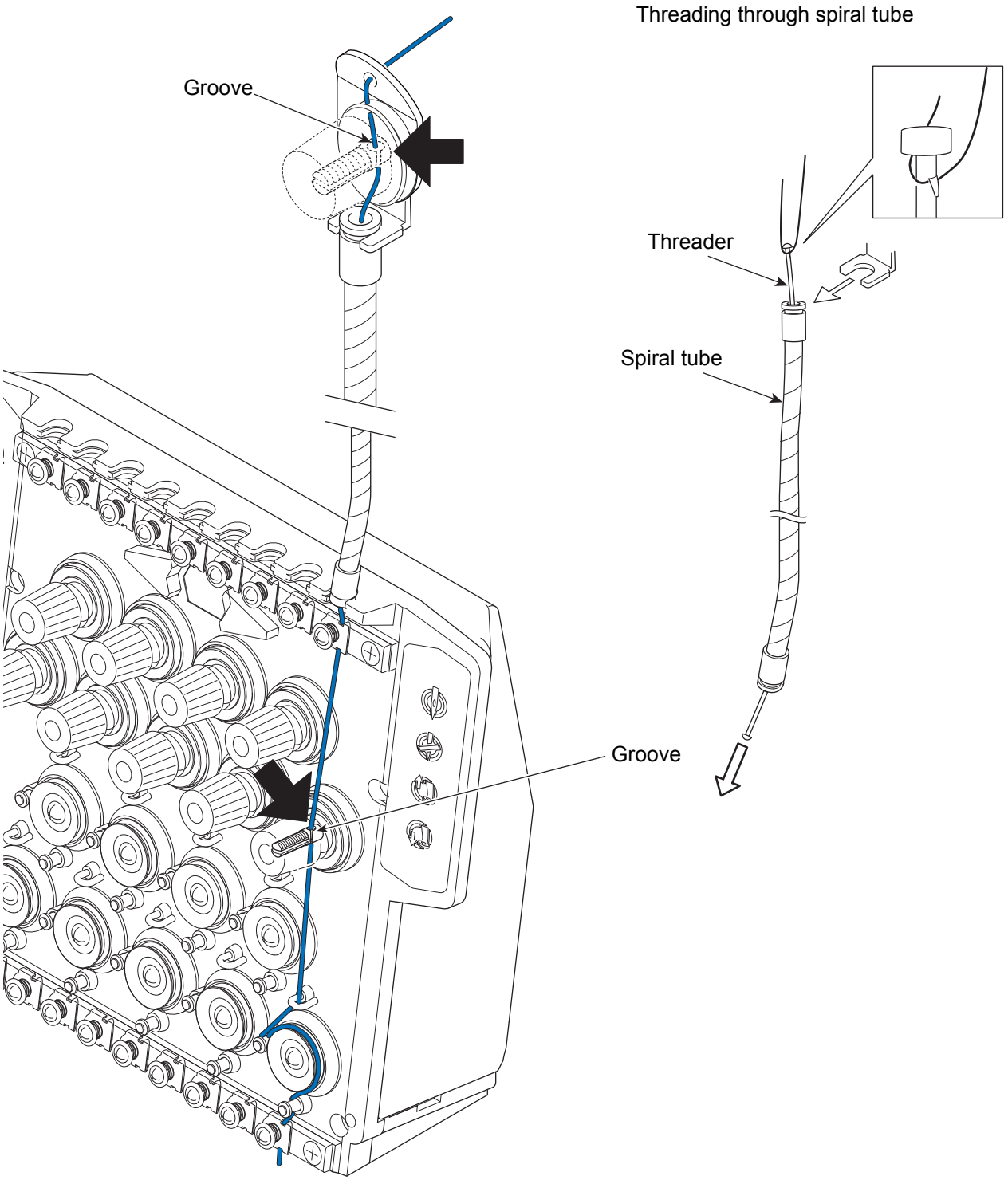
To play the video, Adobe Flash Player is necessary. Press the play button as shown left, and follow the displayed screen to install Adobe Flash Player.

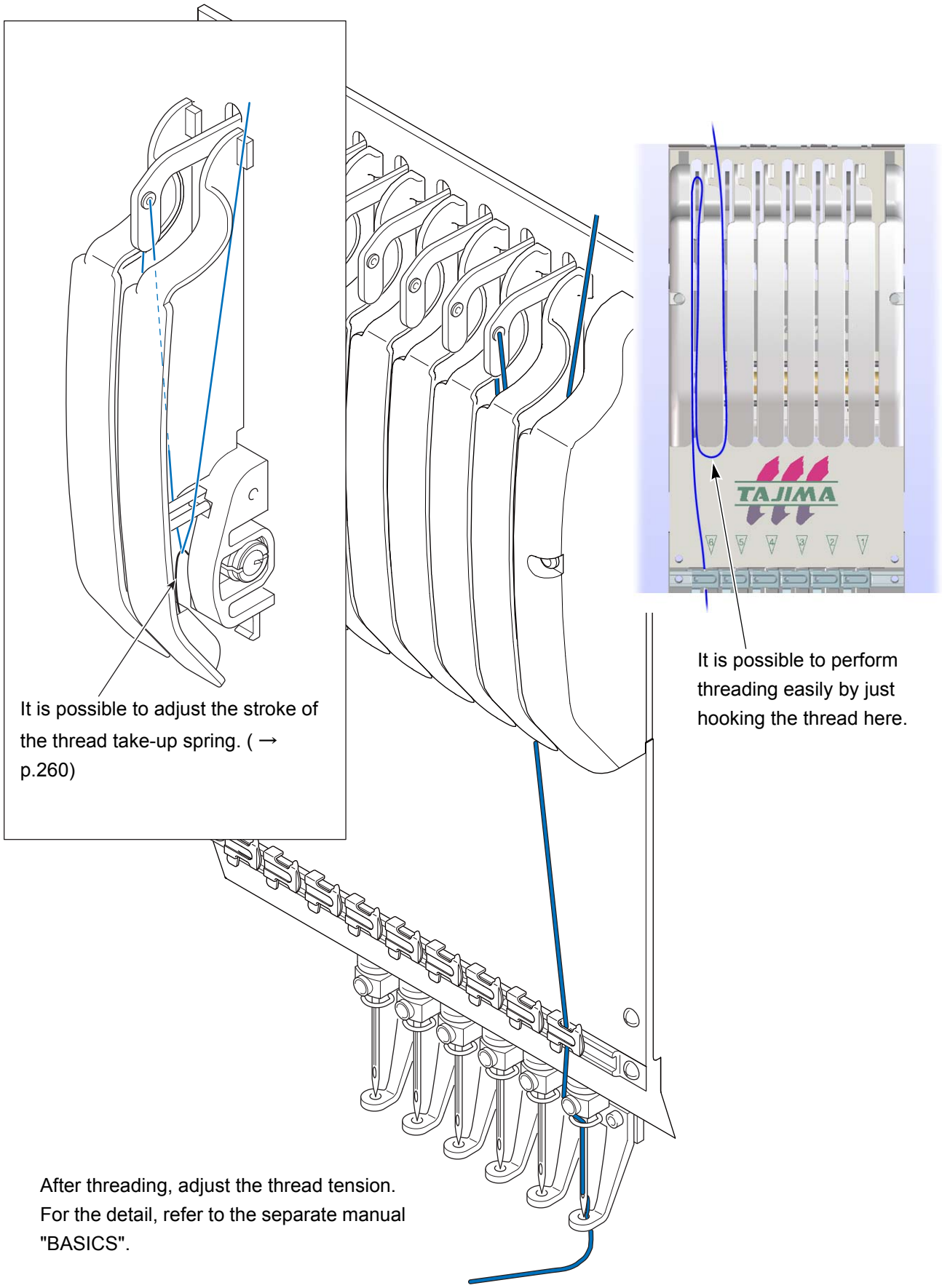
To close the video, scroll down to the next page.



(3) Put the thread into the groove of the tension stud. (Indicated by an arrow)

(4) To perform threading through the spiral tube, use the threader (accessory).





After threading, adjust the thread tension. For the detail, refer to the separate manual "BASICS".

3. To input design to machine memory

The machine memory can register up to 650 designs at the maximum. (Up to 2,000,000 stitches for one design)

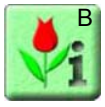
Main: 200 designs

Group 1 to 5: 90 designs each

3-1. To input design in USB memory to machine memory

Hereafter, icons are referred as icon A and icon B derived from each alphabet positioned at upper right of each icon.

Icon A 

Icon B 

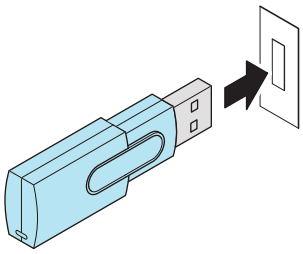
Design and its condition data (the color change sequence, the start position and the presser foot setting) in the USB memory can be registered into the machine memory. (→p.189)

This enables to omit the setting of the color change sequence, the start position and the presser foot.

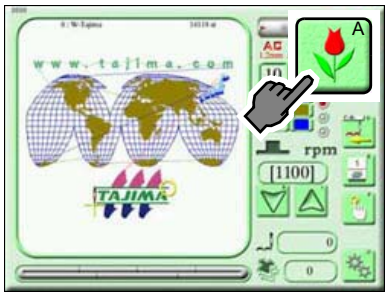
[How to operate]

Example: Select two designs and input to "Main" of the machine memory.

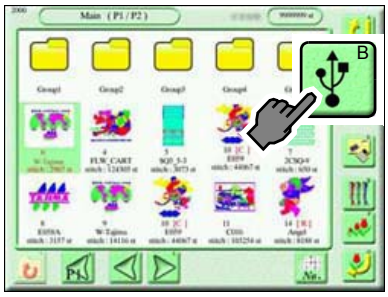
(1) To set USB memory



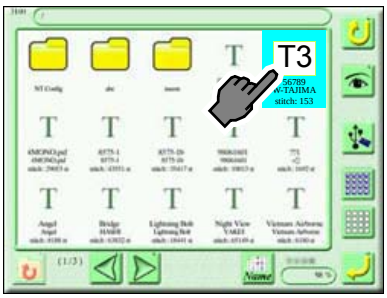
(2) Icon A



(3) Icon B



(4) 1st design

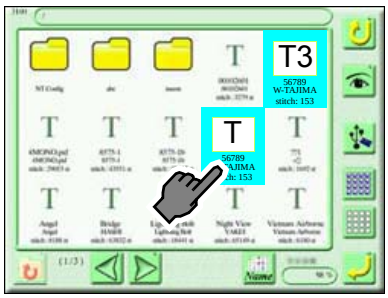


Regarding the screen 3100 of the left figure, refer to the detail page. (→p.41)

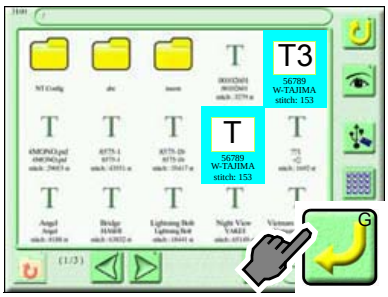
If this icon is pressed, all designs will be selected.

If this icon is pressed, selecting the design will be canceled.

(5) 2nd design

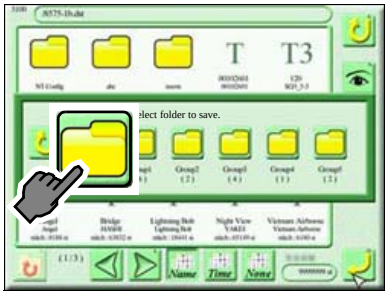


(6) To set

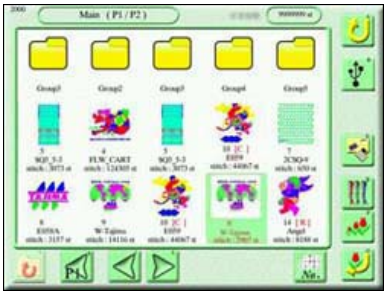


When the numbers of designs exceed the machine memory capacity or the machine memory capacity is not enough, the code No. 2BA will be displayed.

(7) Main



(8) Screen 2000 (Completed)



When embroidering this design continuously, proceed to the following operation.

"To decide embroidery design (Data Setting)" (→p.60)

3-2. To input design in personal computer to machine memory

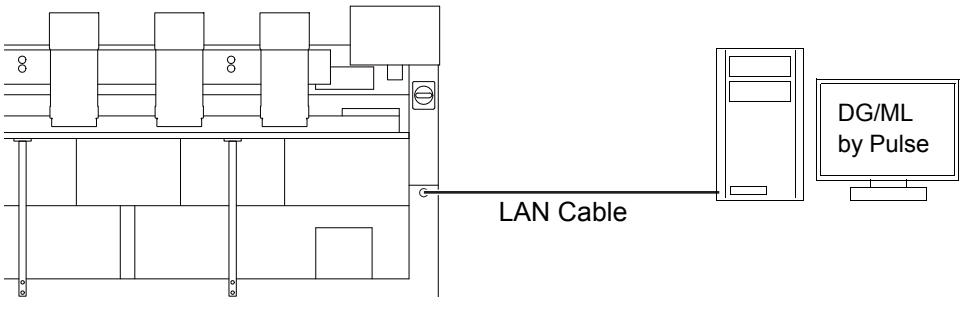
Software sold separately (DG/ML by Pulse) is necessary to perform this operation.
The below operating example is inputting method of data by "DG/ML by Pulse".

[How to operate]

Example: Select two designs and input to "Main" of the machine memory.

(1) Turn OFF the power of the personal computer and the machine.

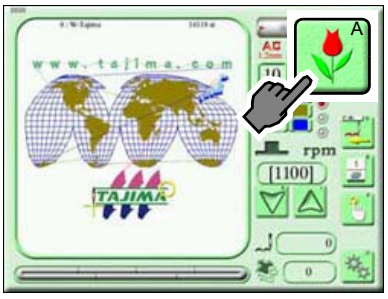
(2) Connect the personal computer to the machine with LAN cable.



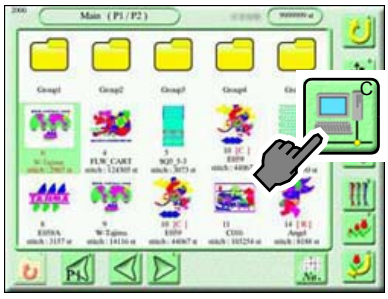
(3) Turn ON the power of the personal computer, and start up DG/ML by Pulse.

(4) Turn ON the machine power, and set "1 Network" to "DG/ML[V1]".

(5) Icon A



(6) Icon C



For DG/ML by Pulse, the below icons will appear.

Connected Unconnected

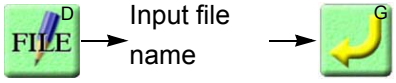
For Sidekick, the below icons will appear.

Connected Unconnected

(7) 1st design

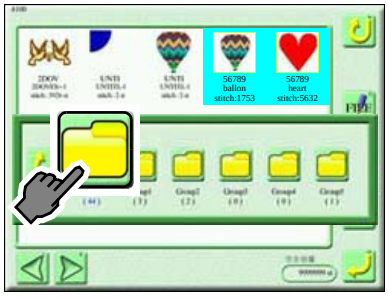
(8) 2nd design

To search the design from file name, after selecting icon D, input file name.

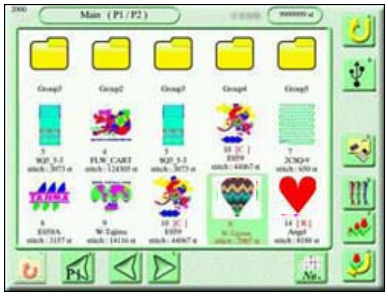


(9) To set

(10) Main



(11) Screen 2000



Registration is completed. When embroidering this design continuously, proceed to the following operation.

"To decide embroidery design (Data Setting)" (→p.60)

3-3. To input design in personal computer to machine memory (Using a bar code reader)

Select the design (saved in DG/ML by Pulse) by the bar code reader and input it to the machine memory. Regarding the bar code reader, prepare a commercial item. To perform this operation, software sold separately (DG/ML by Pulse) is necessary.

[How to operate]

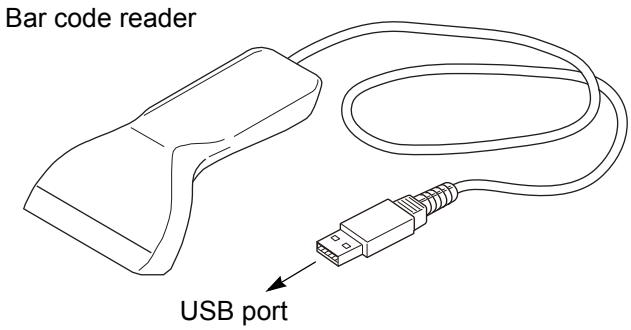
(1) Turn OFF the power of the personal computer and the machine.

(2) Connect the personal computer to the machine with LAN cable.

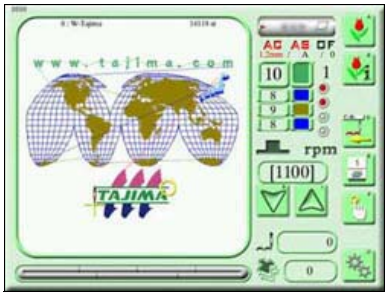
(3) Turn ON the power of the personal computer, and start up DG/ML by Pulse.

(4) Turn ON the machine power, and set "1 Network" to "DG/ML[V1]".

(5) Connect the bar code reader to the USB port of the operation panel.

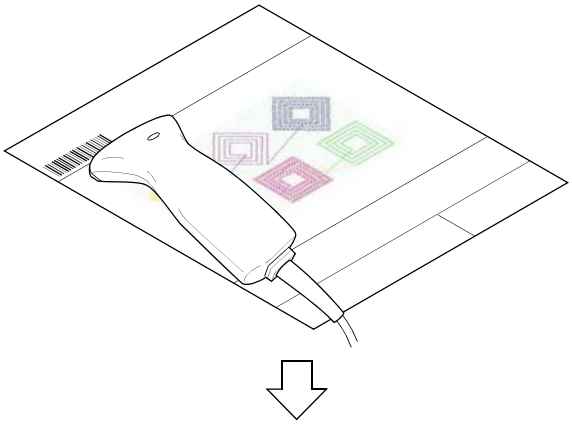


(6) Set to the main screen.



(7) Read the bar code by using the bar code reader.

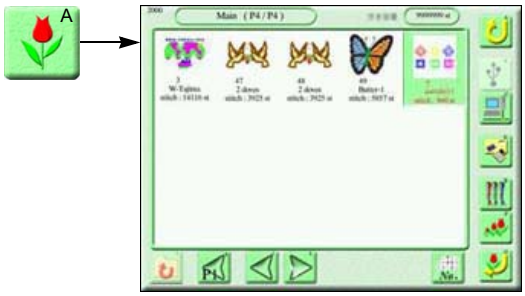
Bar codes can be printed by using the print function of DG/ML by Pulse.



The message will be transmitted from the personal computer to the machine, and it will be displayed on the operation panel.

The bar code can be read also from the following screen.

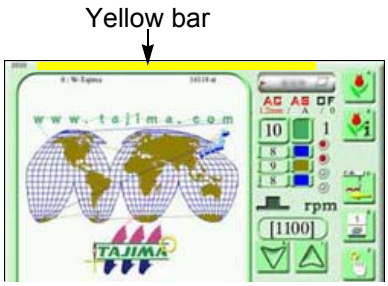
Screen 2000



In addition, the bar code can be read also from the following screens.

Screen 4100, Screen 4150

If the bar code of the design to be embroidered next is read during machine operation, the preread design will be set at the end of the current embroidery design and then a yellow bar will be displayed. (Pre-reading of the next design)



When performing the following operation, the yellow bar will disappear.

1. When performing panel operation
2. When the machine is started/stopped
3. When the power is turned OFF and ON, etc.

The pre-read design requires the following conditions.

1. The design which can be performed pre-reading is one design only.
2. When bar codes are read plural times during operation, the design read latest will be selected.
3. When suspending to embroider a design during operation and setting the data of another design, the preread design will be deleted.
4. To suspend embroidering a design during operation and perform the data setting of the preread design, read the bar code again.

4. To decide embroidery design (Data Setting)

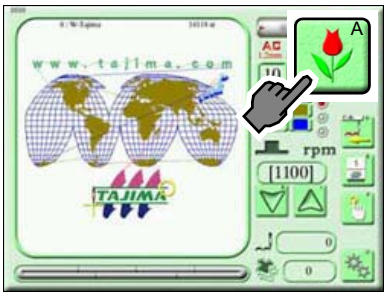
CAUTION

When performing this operation, do not put your hands, etc. on the table. Moving the frame could injure you.

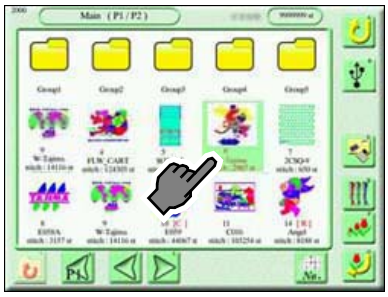
[How to operate]

Example: Select one design from designs saved in the machine memory.

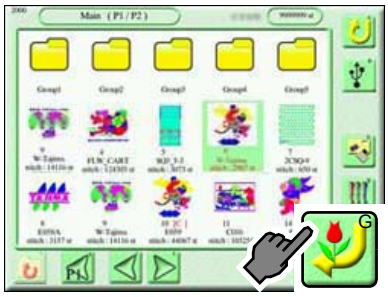
(1) Icon A



(2) Embroidery design



(3) To set



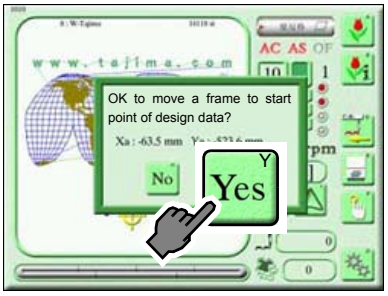
(4) Yes

"Presser foot setting saving screen" in the left figure may be displayed depending on the setting condition. Refer to the detail page. (→p.44)

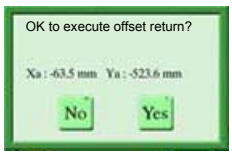
(5) Yes (Completed)

When "Start position" or "Offset position" is set in an embroidery design, the following display will appear.

(6) Yes (Completed)

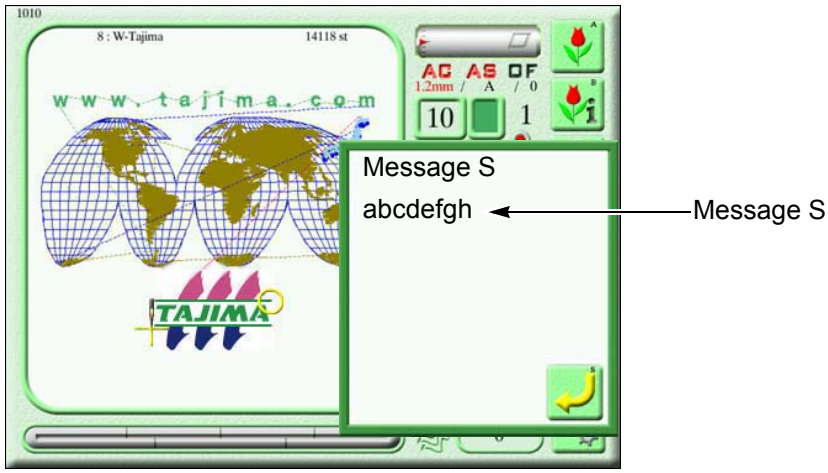


The screen described left shows the message when the start position is set. When the offset position is set, the message below will be displayed.

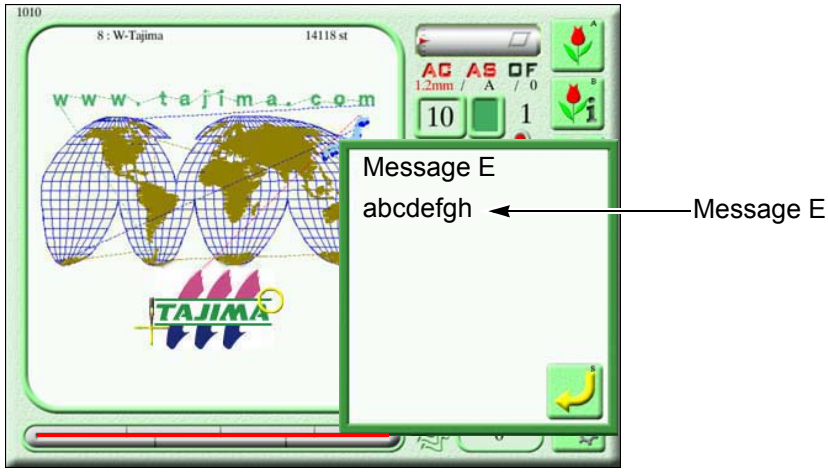


When some messages are written for the design (****.TCF), the following screen will be displayed. To write some message into the design (****.TCF), DG15 by Pulse or later version is necessary.

Display after data set



Display after completion of embroidery



5. To decide sewing mode

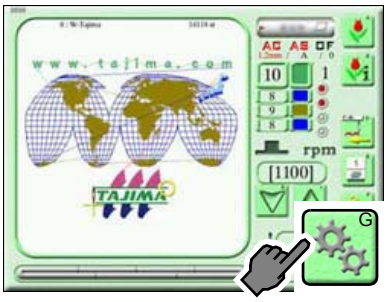
5-1. To perform color change and start operation automatically

According to usage order of needle bars, set "To perform" / "Not to perform" Color Change automatically. To sew with single color irrespective of using order, set "Auto Color Change" to "No". If "No" is selected at "Auto Color Change", it is not possible to set "Auto start" or "Auto start after auto data set".

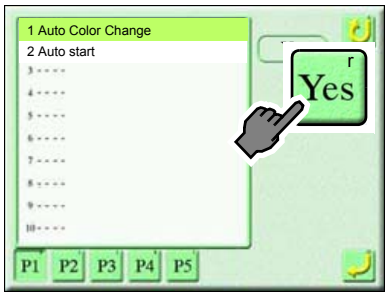
[How to operate]

Example: Perform Auto color change, and Auto start.

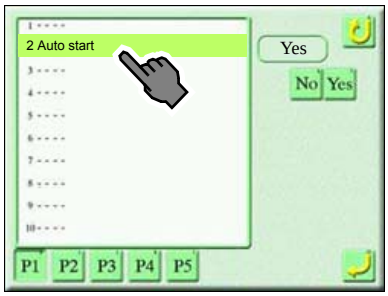
(1) Icon G



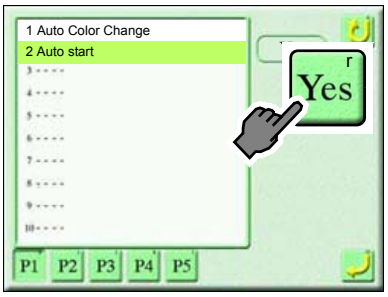
(2) Auto Color Change, Yes



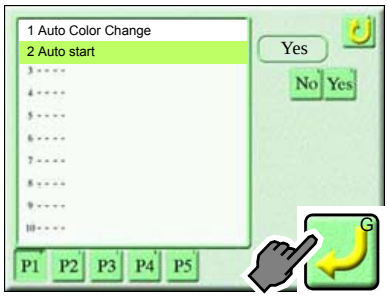
(3) Auto Start



(4) Yes



(5) To set (Completed)



5-2. To decide using order of needle bars

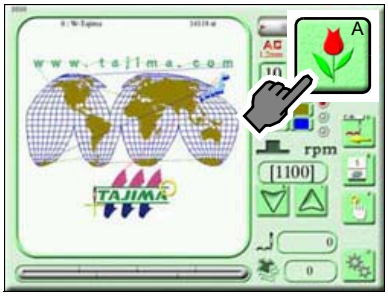
This setting is effective only when Auto Color Change is set to "Yes". (→p.157)

This setting is unnecessary when the order of needle bars to use is already included as the condition data in the design to be embroidered from now.

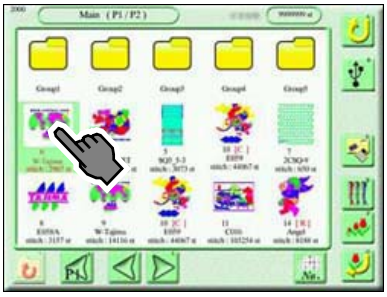
[How to operate]

Example: Set step 1 to needle bar No.4 and step 2 to needle bar No.6.

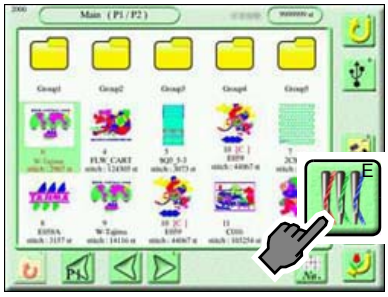
(1) Icon A



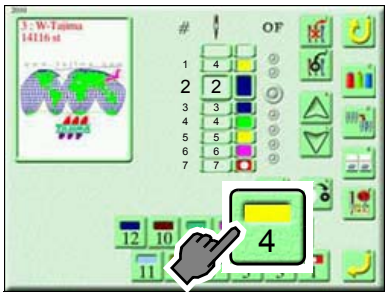
(2) Design



(3) Icon E

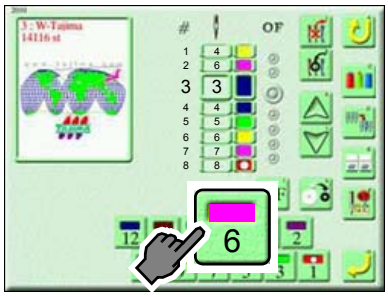


(4) Step 1, needle No.4

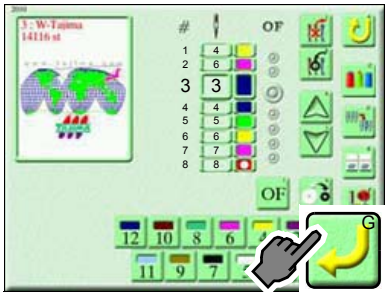


Regarding the screen 2010 of the left figure, refer to the detail page. (→p.46)

(5) Step 2, needle No. 6



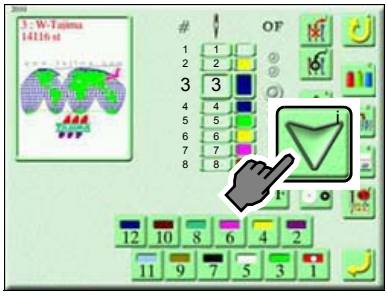
(6) To set (Completed)



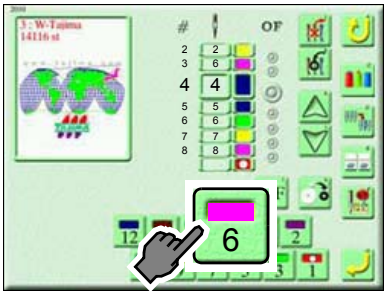
[How to operate]

Example: Set step 3 to needle bar No.6

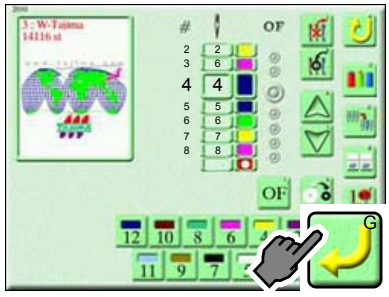
(1) Step 3



(2) Needle bar No. 6

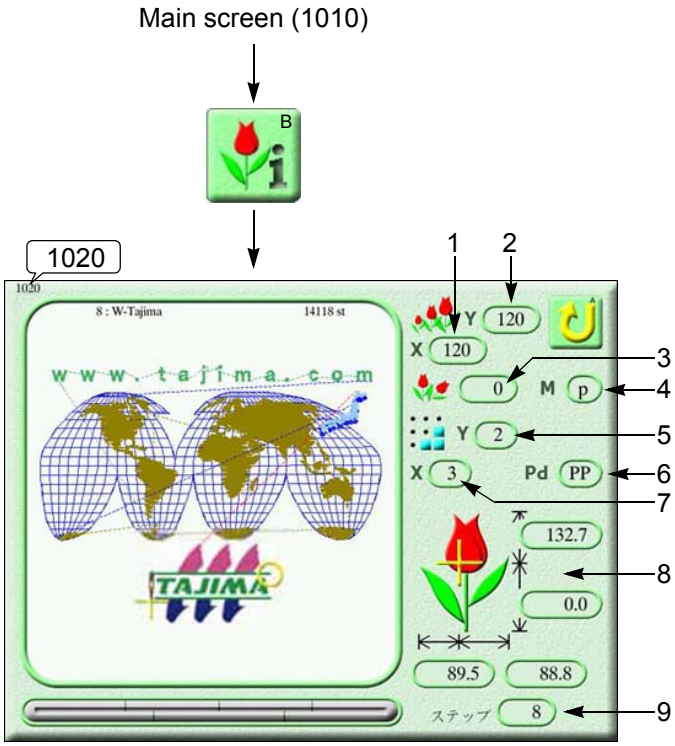


(3) To set (Completed)

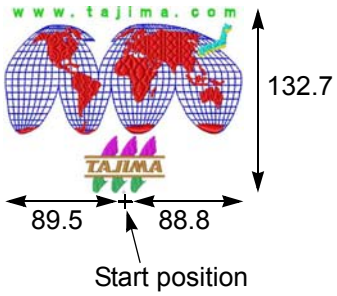


6. Items to check

6-1. To check size of design and setting contents

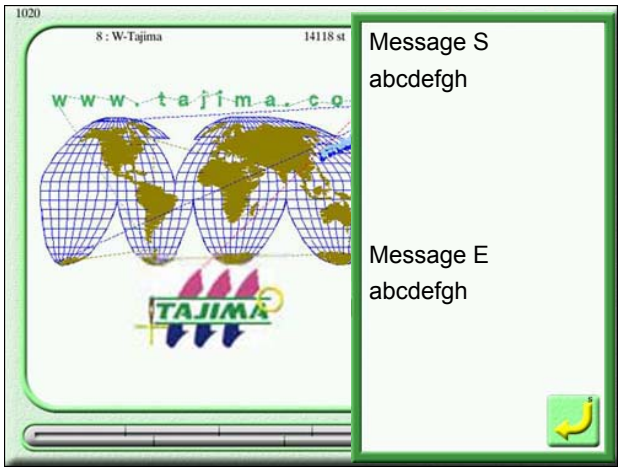


1. Scale ratio of design (Horizontal)
2. Scale ratio of design (Vertical)
3. Rotating angle of design
4. Reverse of design
   p: Not to perform q: To perform
5. Number of repeats of design (Vertical)
6. Repeat method
7. Number of repeats of design (Horizontal)
8. Size of design (mm)
   The size after scaling up/down will be displayed on the base of the start position.



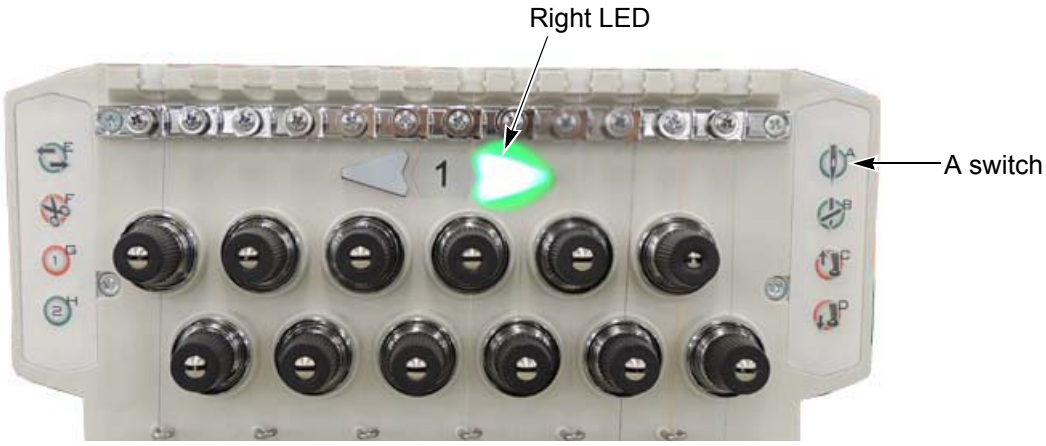
9. Number of steps of design

When some message is written for the design (****.TCF), the following screen will be displayed. To write message into the design (****.TCF), DG15 by Pulse or later version is necessary.



6-2. To check head to embroider

Check if the right LED of the head to embroider is lit in green. When the right LED of the head to embroider is unlit, press A switch. The right LED at the head will be lit in green.



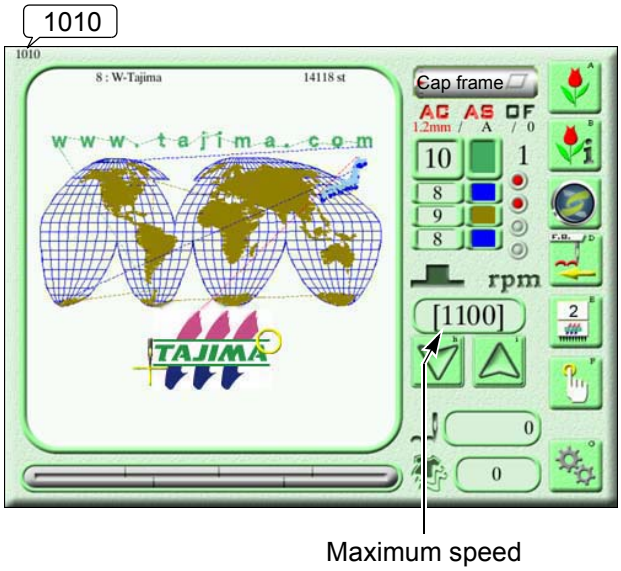
6-3. To decide maximum speed

Maximum speed means the maximum value of the embroidery speed. The embroidery speed will increase/ decrease automatically according to the stitch length of the design during the operation.

Besides, when the stroke mode of the presser foot is set to "M", the maximum speed sometimes may not be reached. In a example of the chart below, the maximum speed of the machine is limited to 940 rpm to give priority to the presser foot stroke (15 mm).

Setting of maximum speed on operation panel	1100 rpm
Presser foot stroke mode	M
Presser foot stroke	15 mm

When you want to increase the maximum speed to 1100 rpm, set the presser foot stroke mode to "A". If "A" is set, the stroke amount of the presser foot will change at a uniform ratio according to the embroidery speed.

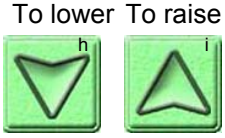


Maximum speed

The maximum speed will be displayed by [ ] during stop of the machine.

To change the maximum speed during stop or operating of the machine, press the following icons.

To lower To raise



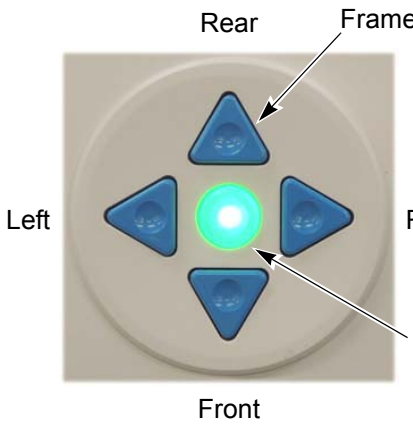
Keeping to press it will cause the value to be fast-forwarded.

When the setting of Maximum RPM has been changed by "Step unit setting" individually, the value of "Step unit setting" will take the priority.

7. To move frame to start position

7-1. To move frame

Perform this operation when moving the frame to the start position manually.



Speed switching key

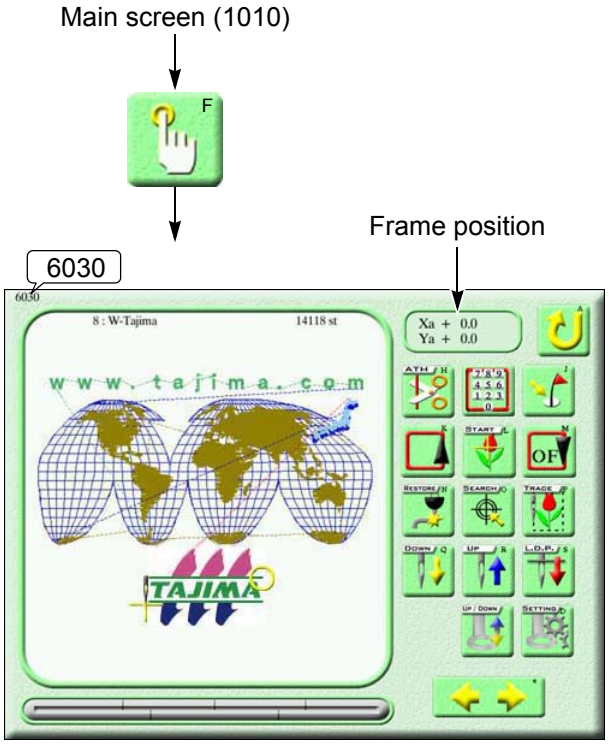
If pressing this key, the frame travel speed will change.

Low speed: Key will be unlit.

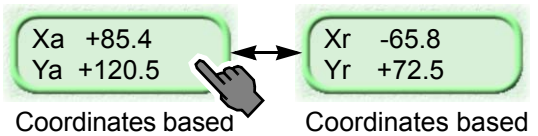
Middle speed: Key will be lit.

High speed: Press the frame travel key while pressing the speed switching key.

The current frame position can be checked on the screen 6030.



Selecting coordinates icon will change the indication.



Coordinates based on absolute origin of frame

Coordinates based on the start position of the design which data is set

7-2. To check if design fits in embroidery space (Tracing)

It is possible to check the size of the design by moving the frame along the design before embroidery. The position where tracing was executed will be the start position.

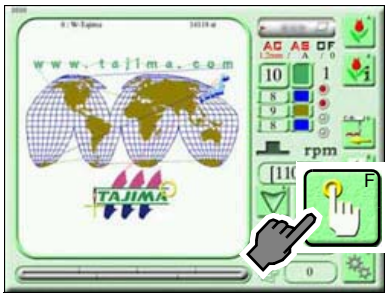
CAUTION

When performing this operation, do not put your hands, etc. on the table. Moving the frame could injure you.

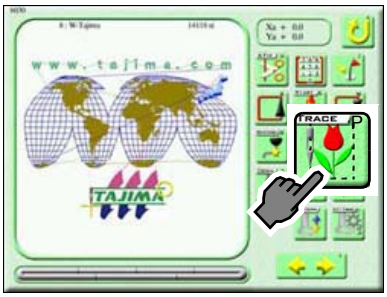
[How to operate]

Example: Execute tracing by high speed frame travel.

(1) Icon F



(2) Icon P



(3) High speed frame travel
(Completed)

Current needle bar No.

High speed frame travel

Low speed frame travel

To interrupt working, press the stop switch. To start again, follow the operating screen.

When the start position is correct, the frame will move to the direction indicated by arrows from the start position and will stop after finishing Trace. (Figure A)

When the start position is incorrect, the frame will stop during operation and the error No. 225 will appear. Decide the start position again. (Figure B)

Figure A

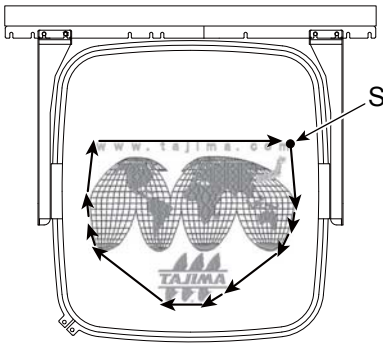
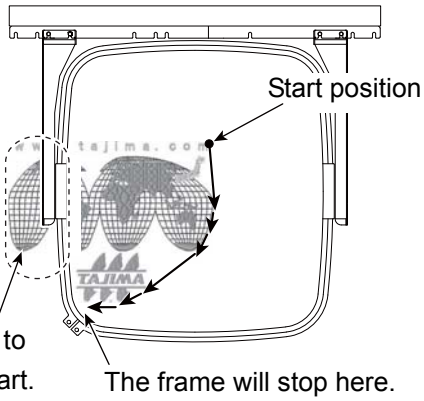


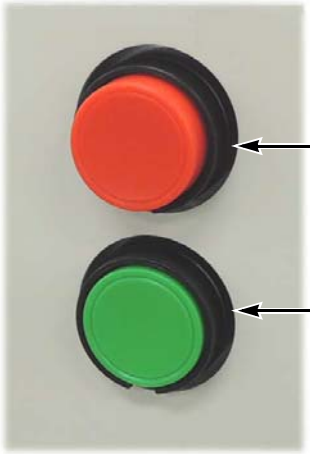
Figure B



8. To start embroidering

CAUTION

Before the start of the operation, pay enough attention to the surrounding safety. Moving the needle bar and/or the frame could injure you.



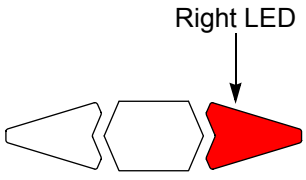
(1) When starting the operation, press the start switch. If the start switch is kept on pressing during the operation, the embroidery speed will go down and become slow operation.

(2) To start slow operation from the state that the machine stops, keep on pressing the start switch. Releasing it will start normal operation.

(3) To stop the machine, press the stop switch.

8-1. Handling against thread breakage

The machine will stop automatically. Besides, the right LED at the head with thread breakage will switch to red (lit, or blinking). Code No. 291 indicating the thread breakage will be also displayed on the operation panel. (→p.240)



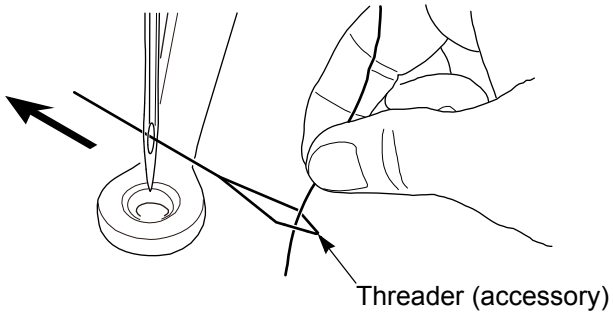
Condition of right LED

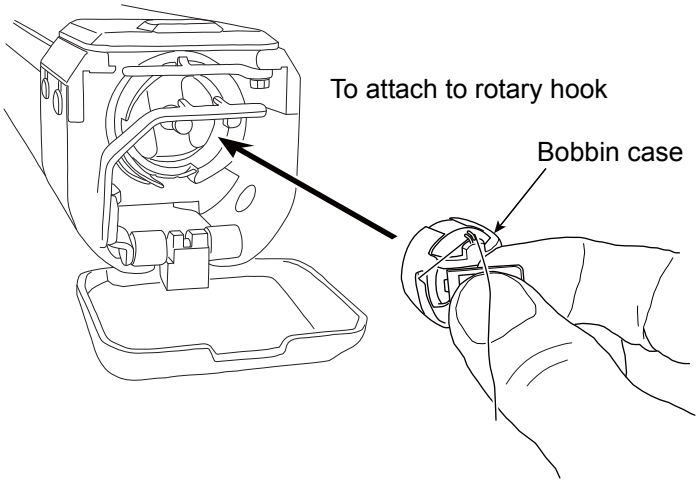
Lit: The upper thread has broken.

Blinking: The under thread has broken.

Start the embroidery again by the following procedure.

(1) Pass the upper thread, or change the under thread (bobbin case).





(2) Return the frame for several repair stitches. (→p.21)

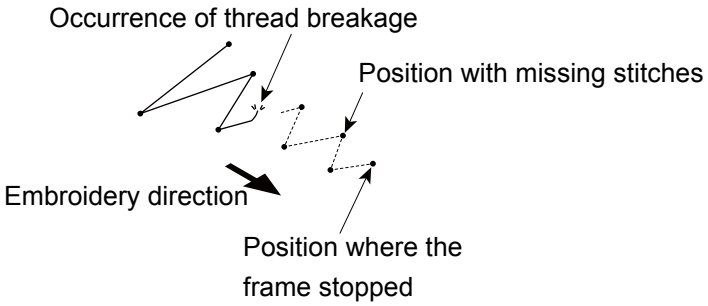
When you start the machine, only the head with the thread breakage will start repair stitches from where the frame was returned.

When you want to add return stitches at the beginning of repair stitches, press A switch on the head with the thread breakage one time.

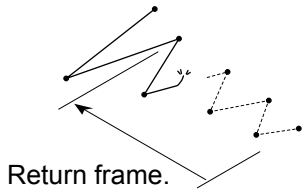
A switch	Color of LED lamp
One time 	Thread is broken. Red  State of return stitching Orange

[Process from thread breakage to repair stitches]

a. After thread breakage occurs, the frame will move some stitches and then stop.

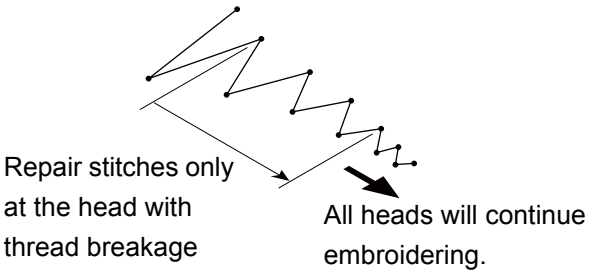


b. Return the frame for some stitches.



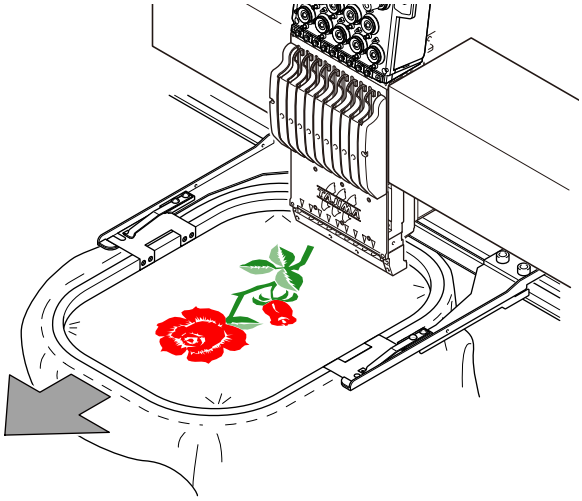
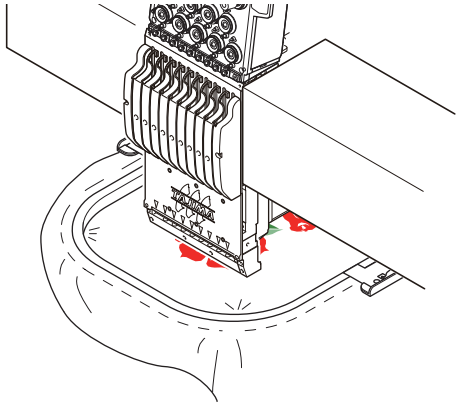
c. When starting the machine, repair stitches will be performed only at the head with thread breakage.

After that, all heads start working and will continue embroidering.



8-2. Completion of embroidery

Destination of the frame movement differs depending on setting of the machine.

Setting of Automatic Offset	
Yes	No
The frame will move to the offset position.  Offset position	The frame will not move. However, when Auto Origin Return has been set, the frame will move to the start position. 

Chapter 5
Manual operation

1. To return frame, to advance frame 74

2. Thread trimming, color change.....77

3. Frame Travel 79

4. Raising and lowering of needle bar 85

5. Raising and lowering of presser foot 87

6. Others.....91

1. To return frame, to advance frame

To return frame (Frame back):

The frame will be moved to the direction where stitches return with the needle bar stopped.

When thread breakage occurs, perform Frame Back by a few stitches automatically.(→p.162)

To advance frame (Frame forward):

The frame will be moved to the direction where stitches advance with the needle bar stopped.

There are following three types of the frame travel by Frame Back, Frame Forward.

1. Frame travel by 1-stitch unit

   Perform by the stop switch.(→p.21)

2. Frame travel specifying number of stitches (Frame travel for number of stitches)

   Execute on the operation panel.(→p.75)

3. Frame travel by Stop code

   Execute on the operation panel.(→p.76)

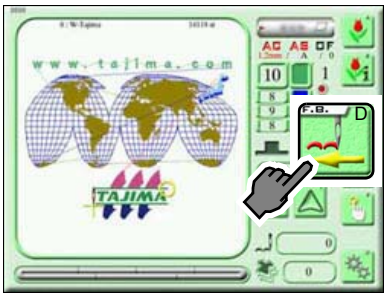
1-1. To switch "To return frame" , "To advance frame"

It is also possible to switch by direct command switch (E switch).(→p.32)

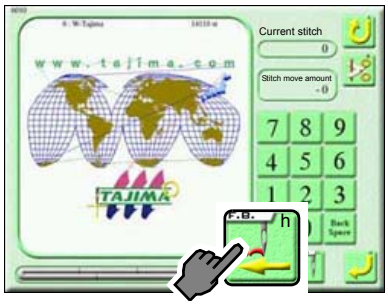
[How to operate]

Example: Switch from "To return frame" to "To advance frame".

(1) Icon D

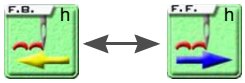


(2) Icon h (Completed)



Every time pressing icon h will switch to FB (return the frame), FF (advance the frame).

FB FF



1-2. To perform "To return frame", "To advance frame" (Specification by number of stitches)

Perform Frame Back or Frame Forward for all stitches being set together.

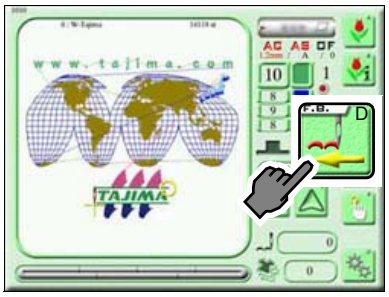
CAUTION

When performing this operation, do not put your hands, etc. on the table. Moving the frame could injure you.

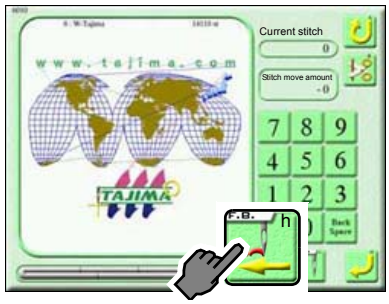
[How to operate]

Example: Perform frame forward for all 500 stitches in one piece.

(1) Icon D

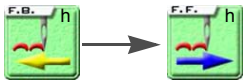


(2) Icon h

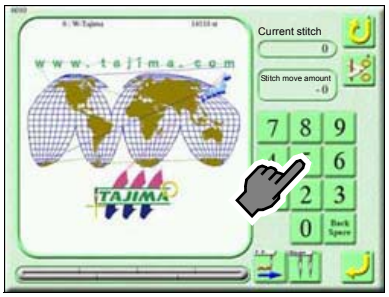


Every time pressing icon h will switch to FB (return the frame), FF (advance the frame).

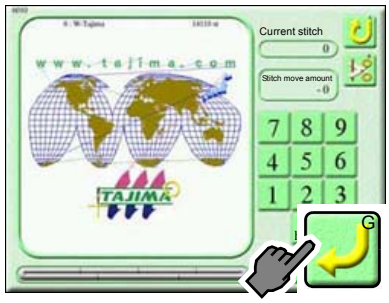
FB FF



(3) To input 500



(4) To set (Completed)



1-3. To perform "To return frame", "To advance frame"(Stop code)

Perform Frame Back or Frame Forward by Stop code

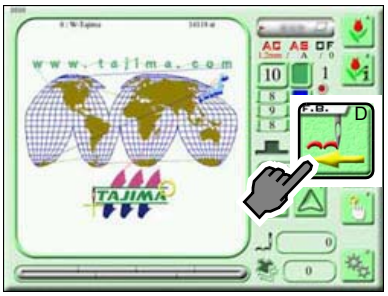
CAUTION

When performing this operation, do not put your hands, etc. on the table. Moving the frame could injure you.

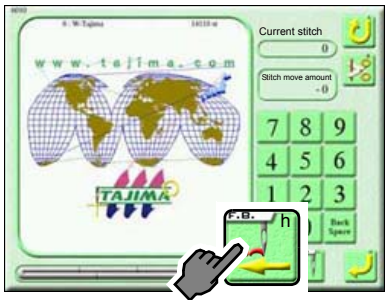
[How to operate]

Example: Advance the frame for five times of color change codes.

(1) Icon D

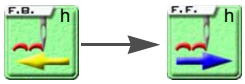


(2) Icon h

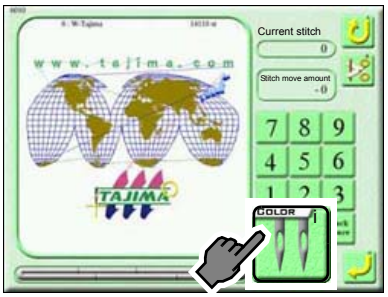


Every time pressing icon h will switch to FB (return the frame), FF (advance the frame).

FB FF

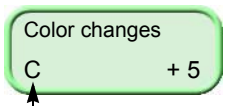


(3) Icon i



Every time selecting icon i will select the next color change code.

An example when selecting color change code five times



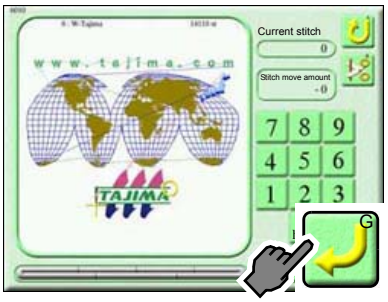
Code

+: To advance the frame

-: To return the frame

The last color change code will be displayed as "E"

(4) To set (Completed)



2. Thread trimming, color change

2-1. To trim thread

It is possible to trim thread also by using the direct command switch (F switch).(→p.32)

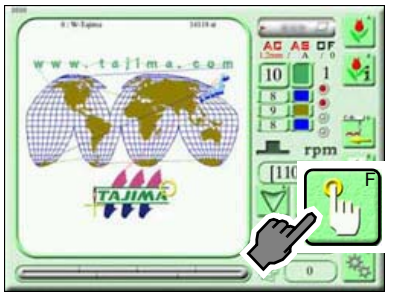
CAUTION

When performing this operation, do not put your hands etc. near the needle or on the table. Moving needle bar or frame could injure you.

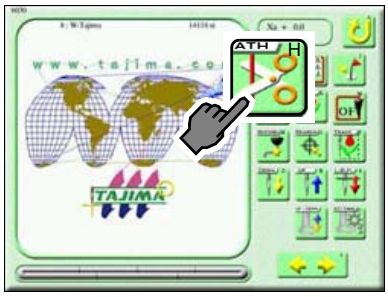
[How to operate]

Example: Trim upper/under thread.

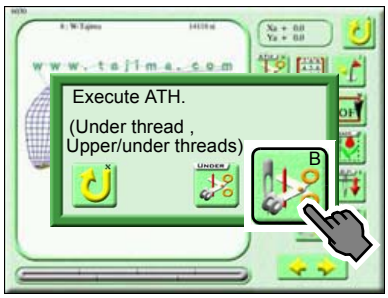
(1) Icon F



(2) Icon H



(3) Icon B (Completed)



To trim under thread only

To trim upper/under threads

2-2. To change color

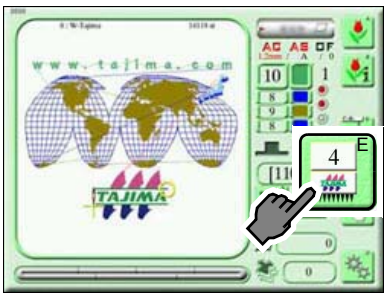
CAUTION

When performing this operation, do not put your hands etc. around the needle bar case. Moving needle bar case could injure you.

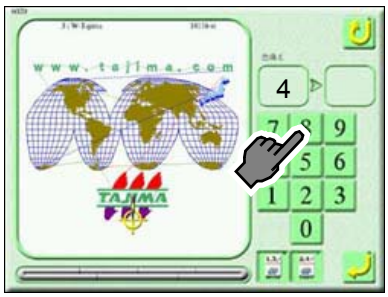
[How to operate]

Example: Perform color change at 8th needle.

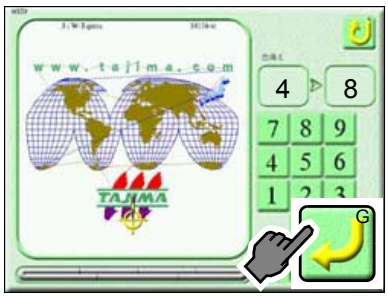
(1) Icon E



(2) Needle bar No. 8



(3) To set (Completed)



3. Frame Travel

3-1. To move frame to registered position (Frame travel to optional position)

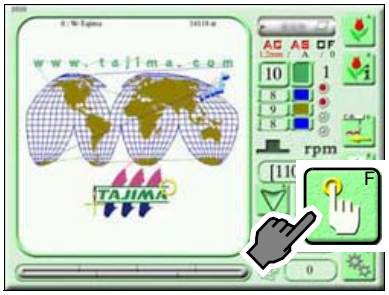
Move the frame to the position registered by parameter "39 Optional position".(→p.179)

CAUTION

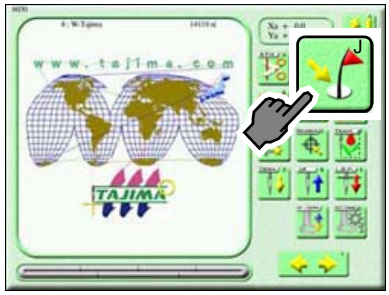
When performing this operation, do not put your hands, etc. on the table. Moving the frame could injure you.

[How to operate]

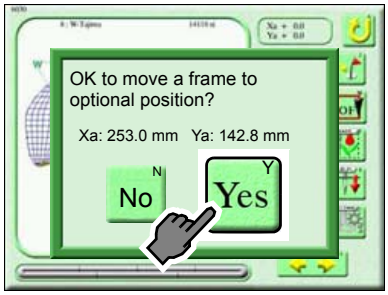
(1) Icon F



(2) Icon J



(3) Yes (Completed)



3-2. To return the moved frame to the previous position (Manual Offset)

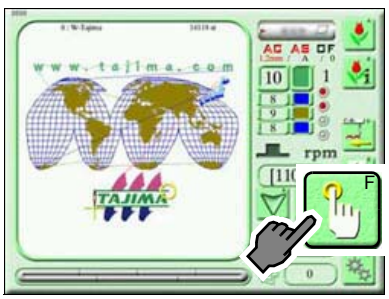
It is possible to operate this function during embroidery only.

CAUTION

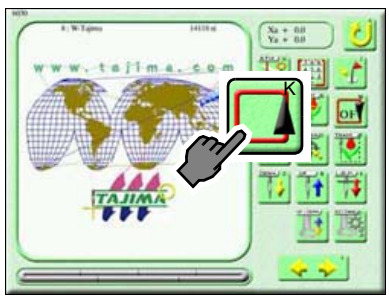
When performing this operation, do not put your hands, etc. on the table. Moving the frame could injure you.

[How to operate]

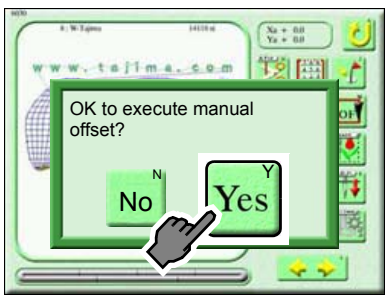
(1) Icon F



(2) Icon K



(3) Yes (Completed)



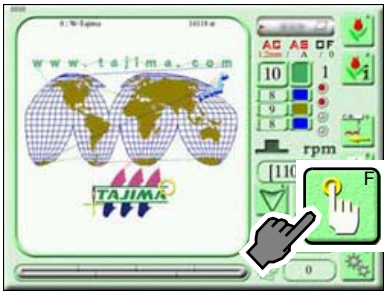
3-3. To return frame to the start position (Start position return)

CAUTION

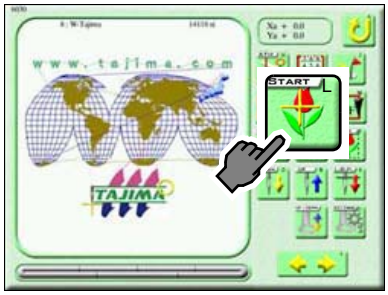
When performing this operation, do not put your hands, etc. on the table. Moving the frame could injure you.

[How to operate]

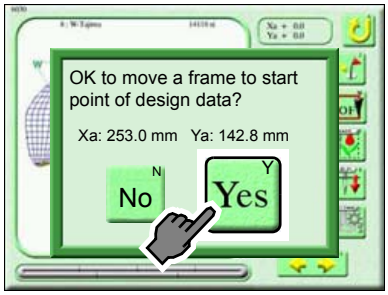
(1) Icon F



(2) Icon L



(3) Yes (Completed)



3-4. To move frame to the registered position (Offset return)

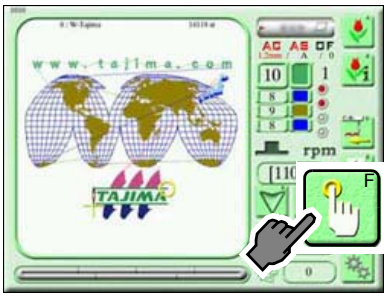
It is possible to operate only when the offset position is registered.

CAUTION

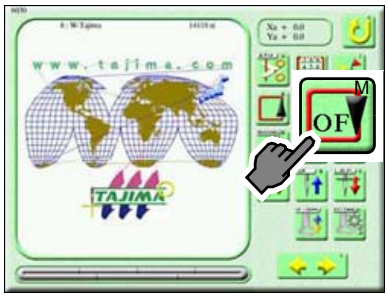
When performing this operation, do not put your hands, etc. on the table. Moving the frame could injure you.

[How to operate]

(1) Icon F



(2) Icon M



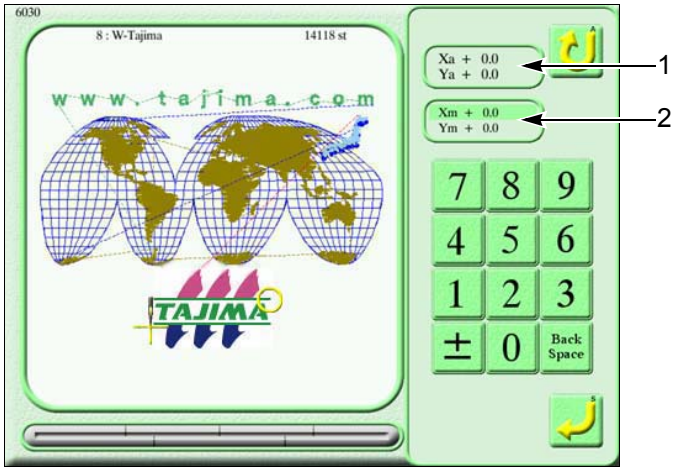
(3) Yes (Completed)

3-5. To move frame by inputing value (Input value for Frame Travel)

CAUTION

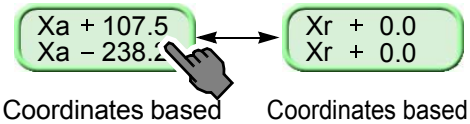
When performing this operation, do not put your hands, etc. on the table. Moving the frame could injure you.

[Explanation of screen]



1. Current frame position

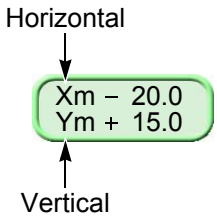
   Selecting coordinates icon will change the indication.



Coordinates based on absolute origin of frame

Coordinates based on the start position of the design which data is set

2. Frame Travel amount from current frame position

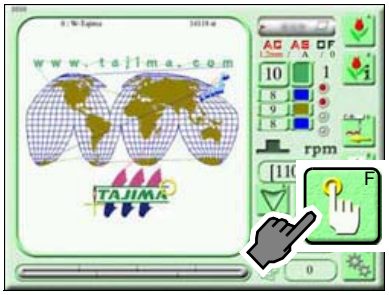


[How to operate]

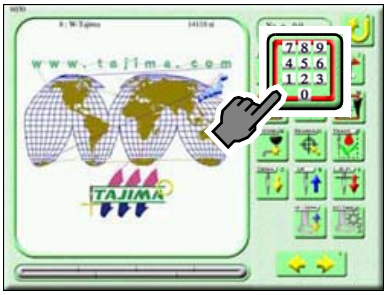
Move the frame by inputting the following value. The value is the moving amount from the current frame position.

X: +60.0 (mm), Y: -85.0 (mm)

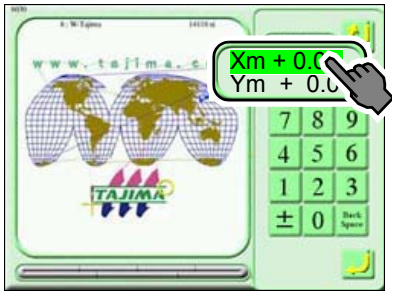
(1) Icon F



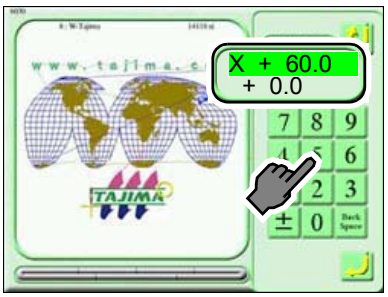
(2) Input value icon



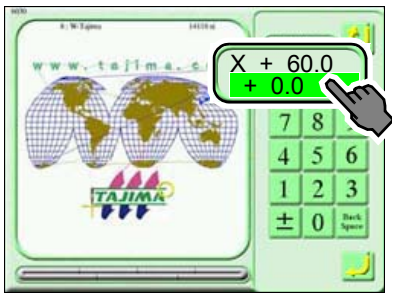
(3) Xm + 0.0



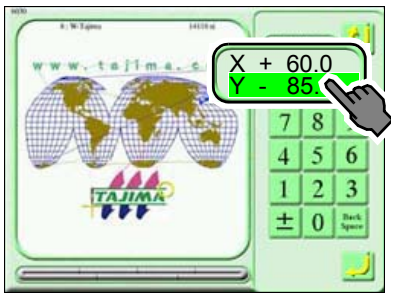
(4) + 60.0



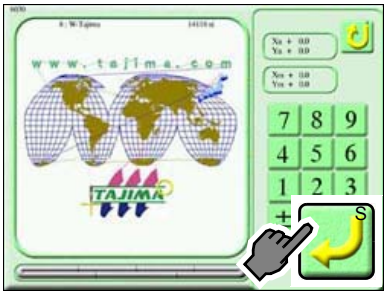
(5) Y + 0.0



(6) Y - 85.0



(7) To set (Completed)



3-6. To make machine memorize frame origin (Absolute origin search)

The frame origin is a reference point to calculate the frame position. (Xa:0.0, Ya:0.0)

Execute this function when moving the frame with the power turned OFF in changing frame etc. or when setting software frame limit.

If a frame origin is not correct, the following troubles will occur.

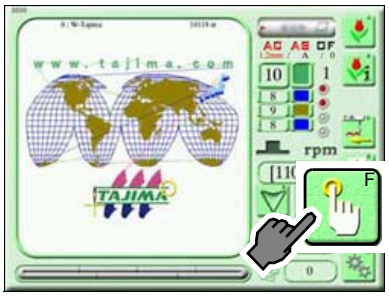
1. The frame coordinates are not displayed correctly.
2. The frame does not return to the interrupted position even after performing power resume, etc.

⚠ CAUTION

When performing this operation, do not put your hands, etc. on the table. Moving the frame could injure you.

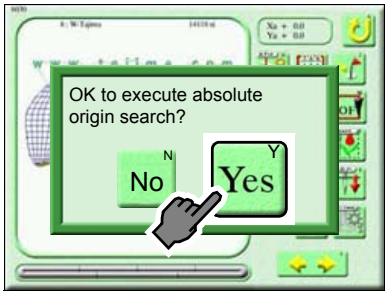
[How to operate]

(1) Icon F



(2) Icon O

(3) Yes (Completed)



After Frame Travel, the frame will return to the previous position.

3-7. Return operation when power is shut off (Power resume)

When the power is shut off by the emergency stop switch or the power failure etc., returning the frame to the previous position will prevent the design from displacing.(→p.18)

To perform origin return operation on the operation panel, follow the procedure below.

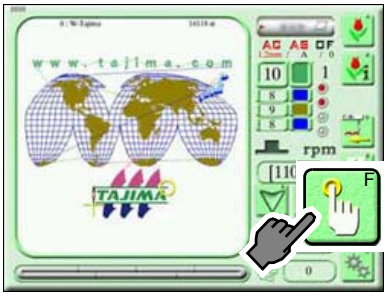
⚠ CAUTION

When performing this operation, do not put your hands, etc. on the table. Moving the frame could injure you.

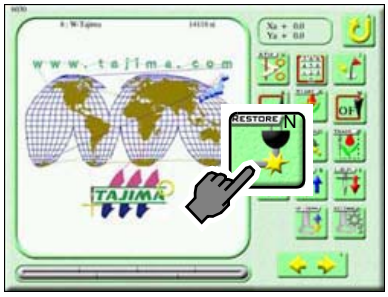
[How to operate]

Example: Execute the power resume after thread trimming.

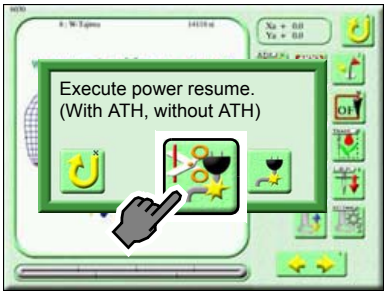
(1) Icon F



(2) Icon N



(3) To trim thread (Completed)



The frame will be moved after thread trimming.

The frame will be moved without thread trimming.

(4) After frame travel, the frame may move forward by some stitches from the previous position. Check the frame position, and restart embroidery after returning the frame.

4. Raising and lowering of needle bar

4-1. To lower needle bar

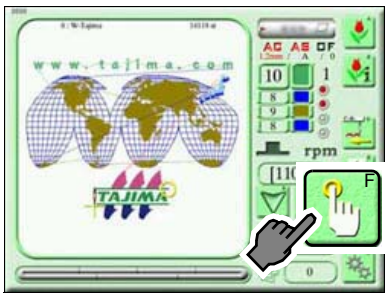
Lower the needle bars selected now at all heads together. Use this function to make positioning of the frame before embroidering.

CAUTION

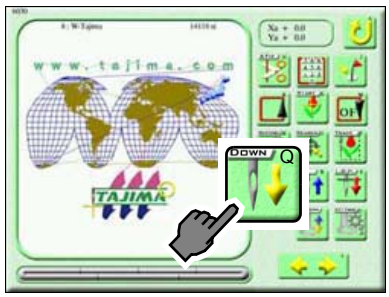
When performing this operation, do not put your hands etc. near the needle or on the table. Moving up/down of the needle bar could injure you.

[How to operate]

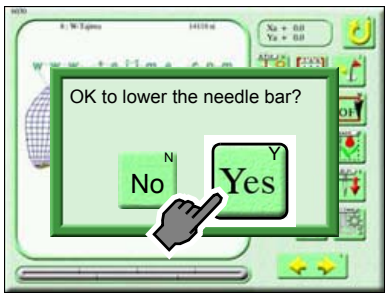
(1) Icon F



(2) Icon Q



(3) Yes (Completed)



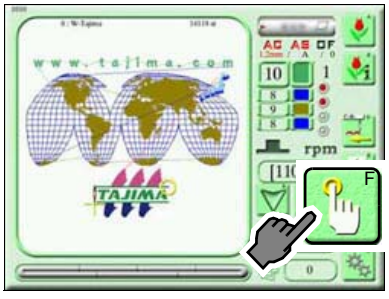
4-2. To raise needle bar

CAUTION

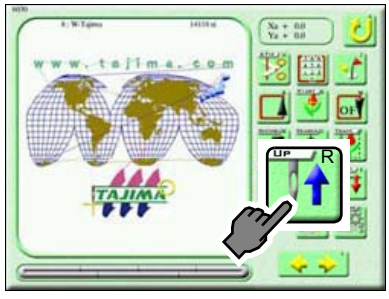
When performing this operation, do not put your hands etc. near the needle or on the table. Moving up/down of the needle bar could injure you.

[How to operate]

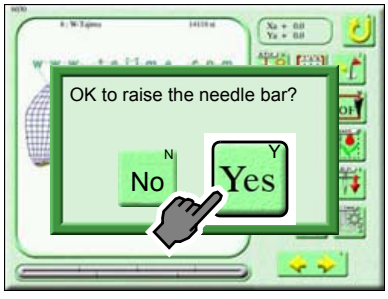
(1) Icon F



(2) Icon R



(3) Yes (Completed)



4-3. To lower needle bar to lower dead point

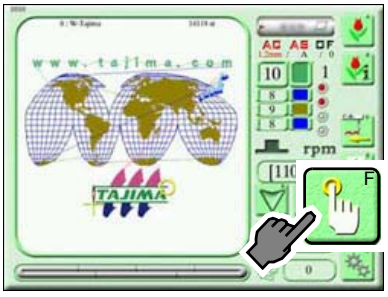
Lower the needle bars selected now to the lower dead points at all heads together. Performing this operation will cause the needle bar stuck in the fabric. Use this function to embroider consecutively on the long fabric.

CAUTION

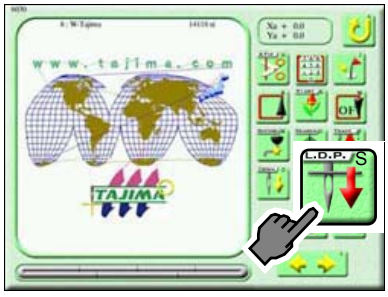
When performing this operation, do not put your hands etc. near the needle or on the machine table. Moving down of the needle bar could injure you.

[How to operate]

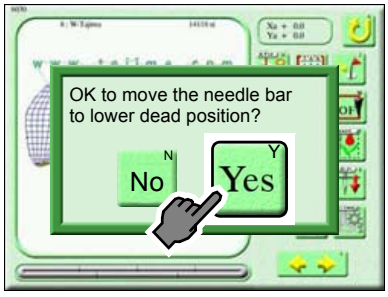
(1) Icon F



(2) Icon S



(3) Yes (Completed)



5. Raising and lowering of presser foot

5-1. To lower/raise the presser foot

Raise/lower currently selected presser foots of needle bars at all heads together. (Needle bars will not move down.)

It is possible to move up/down the presser foot also by direct command switch (C switch).(→p.31)

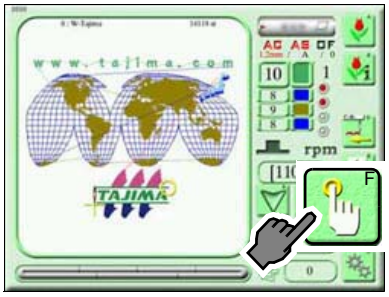
⚠ CAUTION

When performing this operation, do not put your hands, etc near the needle or on the table. Moving up/down of the presser foot could injure you.

[How to operate]

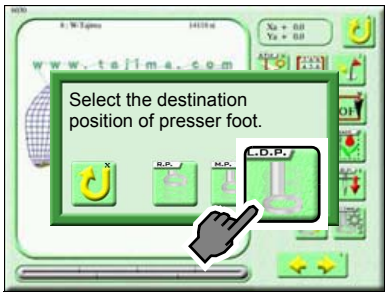
Example: Lower the presser foot to the lower dead point.

(1) Icon F



(2) Up/Down icon

(3) Lower dead point (Completed)



Retractable position(→p.31)

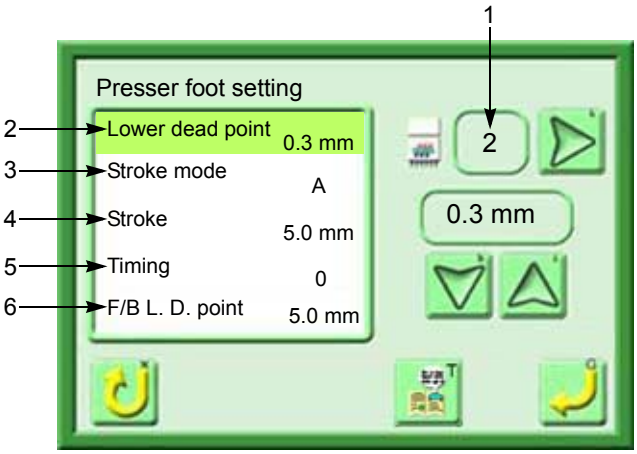
FB position (Frame Back position)(→p.31)

Lower dead point(→p.31)

5-2. To set presser foot in unit of needle bar or step

To use this function, it is necessary to set the functional level to "1" or "SEL". (→p.204)

[Setting screen]



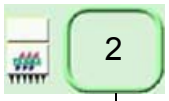
Stroke means up/down reciprocating motion of the presser foot.

1. Presser foot setting in unit of needle bar or step

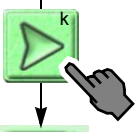
   Select one among Needle bar, Any or Step.

   It is possible to set for the current needle bar or step.

In case of the current needle bar 2

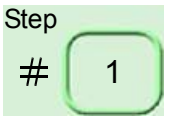


Items No. 2 to 6 in the left illustration will be applied to only second needle.



Items No. 2 to 6 in the left illustration will be applied to all needles.

In case of the current Step 1

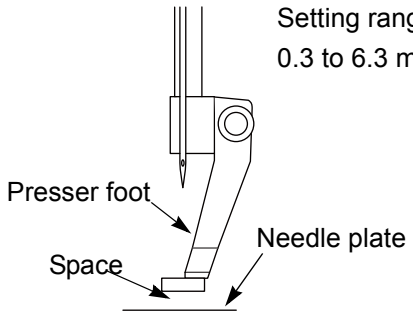


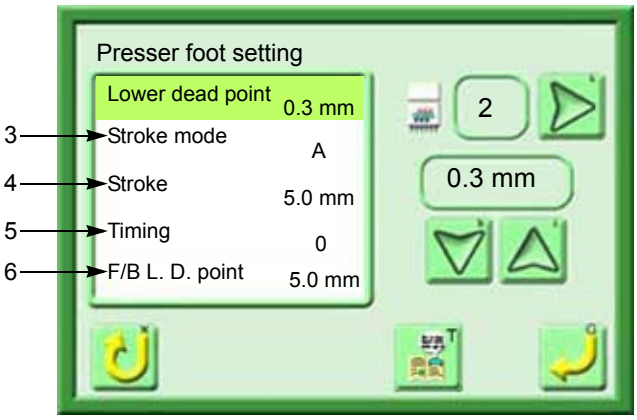
Items No. 2 to 6 in the left illustration will be applied to only Step 1.

The step setting takes higher priority than the needle bar setting.

2. Distance (mm) between the presser foot and the needle plate when the presser foot moves down to the lower dead point

Setting range:
0.3 to 6.3 mm





3. Stroke mode of presser foot

A: According to maximum speed of the machine, the presser foot will perform Stroke automatically (usual setting).

M: The maximum speed of the machine is limited depending on stroke amount. (The stroke amount is always fixed.)

Select "M" mainly when embroidering to thick fabric.

4. Stroke amount (mm) of presser foot

It is effective only when "Stroke mode" is set to "M". Setting range differs depending on the operation level.

Setting range (mm)	Operation Level
5.0 to 22.0	1
2.0 to 22.0	SEL

5. Timing when presser foot moves down

Setting range: -20 to 20

-20 ⟷ 20

Fast Slow

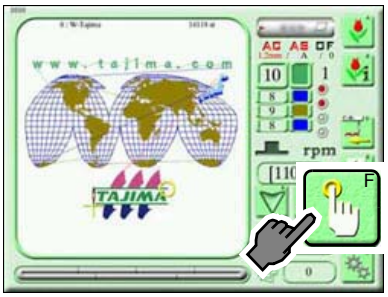
6. Presser foot lower dead point for Frame Back (Refer to 2)

Setting range: 5.0 to 22 mm

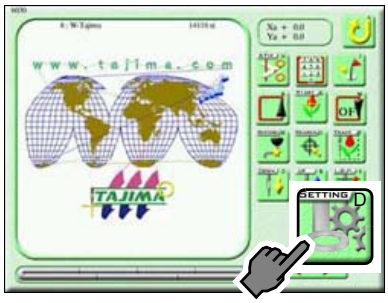
[How to operate]

Example: Set the lower dead point of the presser foot to 1.0 mm, stroke mode to "M" and stroke amount to 15 mm.

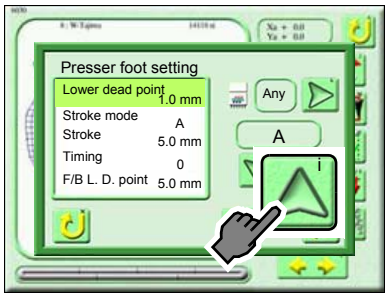
(1) Icon F



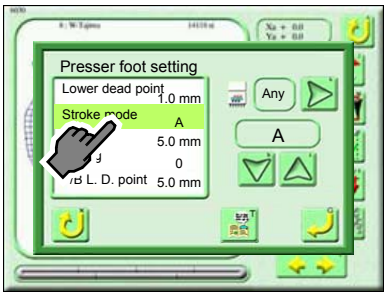
(2) Icon D



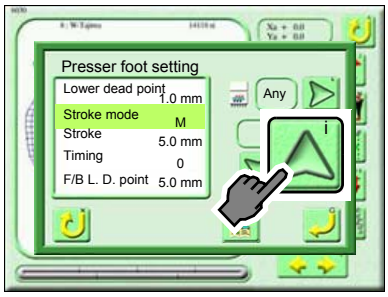
(3) Lower dead point 1.0 (mm)



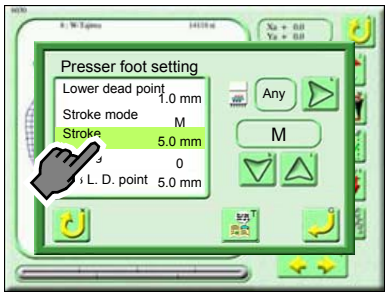
(4) Stroke mode



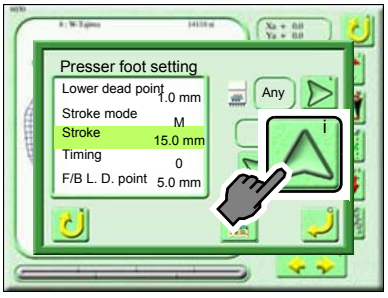
(5) M



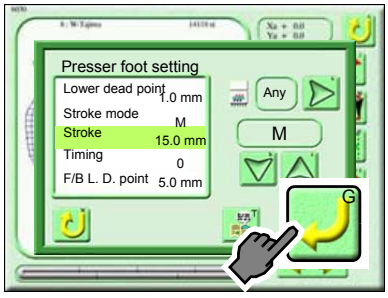
(6) Stroke



(7) 15 (mm)



(8) To set (Completed)

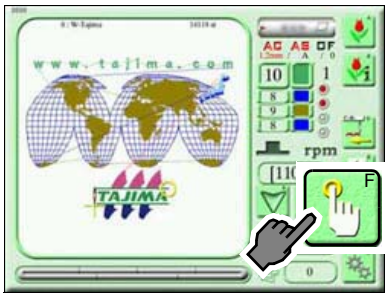


6. Others

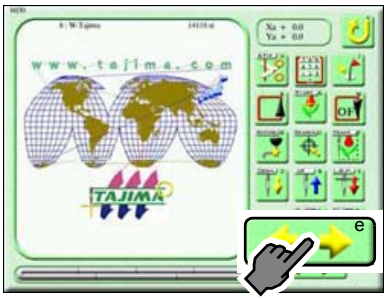
6-1. To turn ON/OFF the LED lamp

[How to operate]

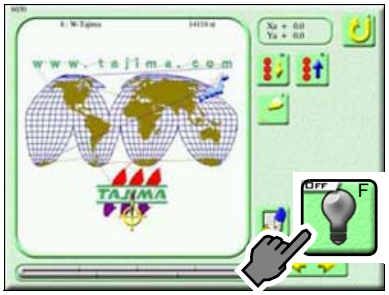
(1) Icon F



(2) Icon e



(3) Icon F (Completed)



OFF

Unlit

ON

Lit

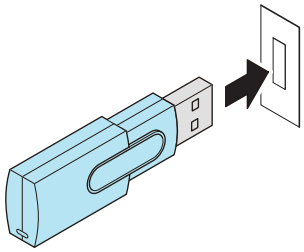
6-2. Machine log data Download

Get the operation logs and the communication records. This function is for analyzing cause of some trouble of the machine. When your distributor asks to get log datas, send datas to your distributor saving log data information in the USB memory by the following operation.

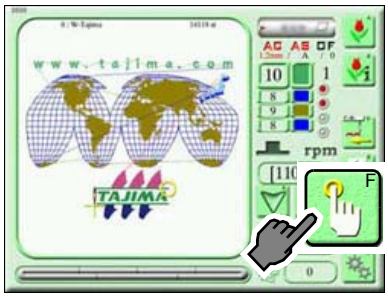
[How to operate]

Example: Save log data into the USB memory.

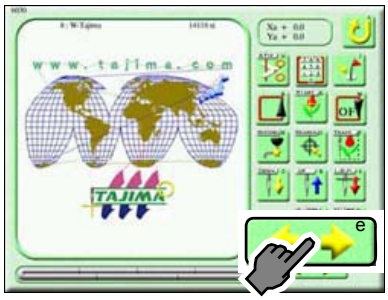
(1) To set USB memory



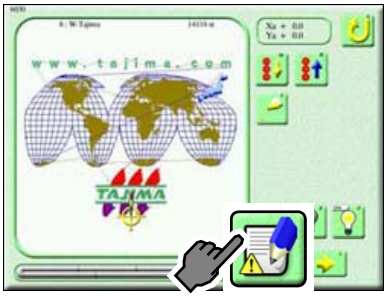
(2) Icon F



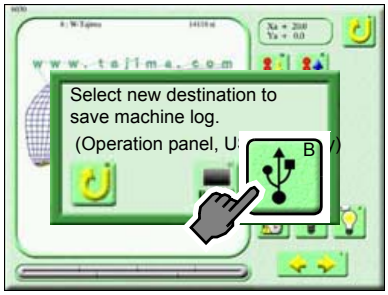
(3) Icon e



(4) Machine log



(5) Icon B



Save on operation panel[1]

Save into USB memory[2]

[1]Save the log datas into a CFast card inside of the operation panel for 50 times. The log datas exceeding 50 times will be overwritten.

[2]Save the log datas saved in a CFast card and log datas acquired this time into USB memory.

(6) Take out the USB memory.
(Completed)

Chapter 6
Delete, save and edit of design

1. To delete design 94

2. To save design, to change design name 97

3. To edit design 101

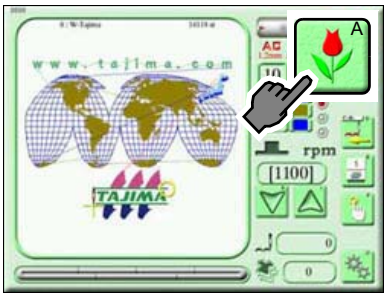
4. To copy, divide and combine design 109

1. To delete design

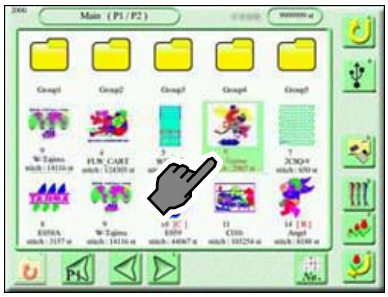
1-1. To delete a design in the machine memory in one design units

[How to operate]

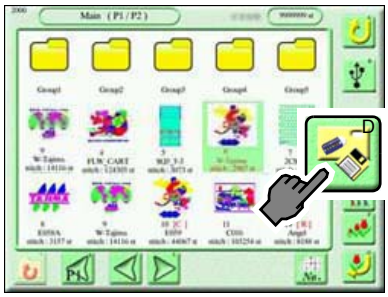
(1) Icon A



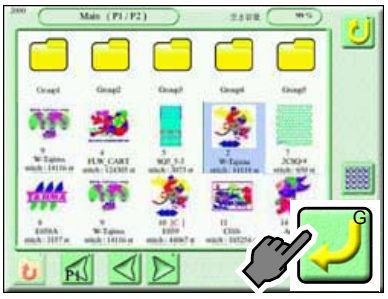
(2) Design to delete



(3) Icon D



(4) To set

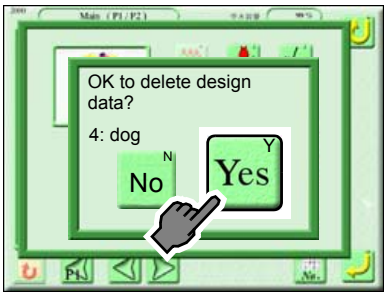


If this icon is pressed, all designs will be selected.

If this icon is pressed, selecting the design will be canceled.

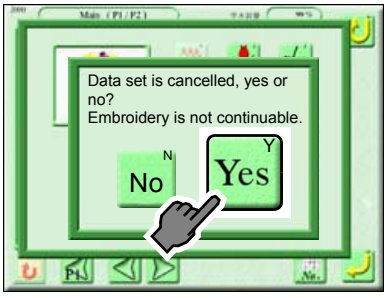
(5) Icon I

(6) Yes (Completed)



When selecting a design of which data is set, the following screen will appear.

(7) Yes (Completed)



Pressing "Yes" will delete the design of which data is set.

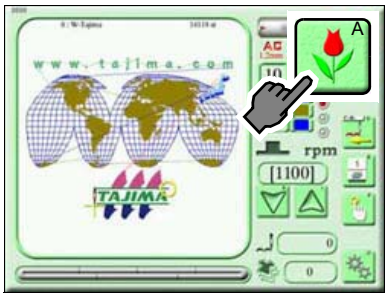
1-2. To delete plural designs in machine memory

It is possible to delete designs in the same layer without limit.

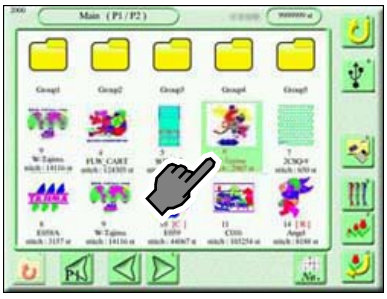
[How to operate]

Example: Two designs will be selected and deleted.

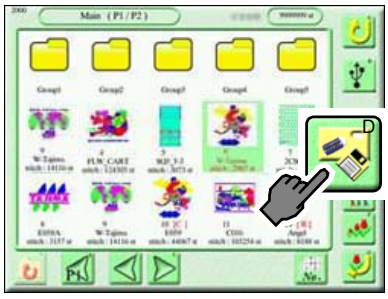
(1) Icon A



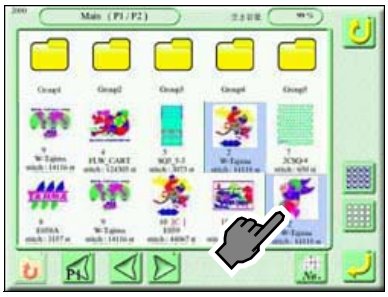
(2) 1st design



(3) Icon D



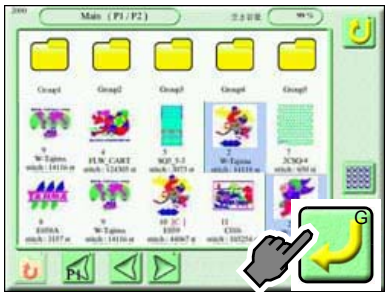
(4) 2nd design



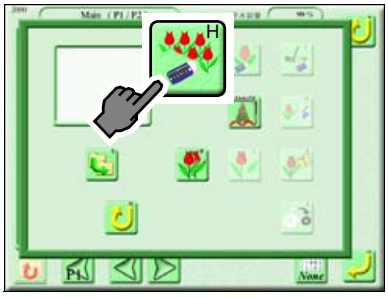
If this icon is pressed, all designs will be selected.

If this icon is pressed, selecting the design will be canceled.

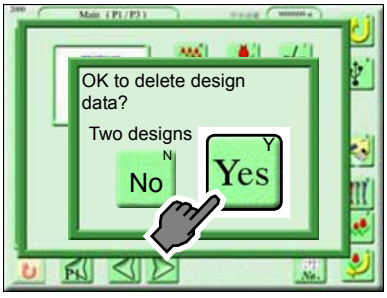
(5) To set



(6) Icon H



(7) Yes (Completed)



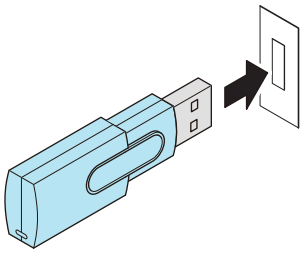
1-3. To delete a design in USB memory

It is possible to delete designs in the same layer without limit.

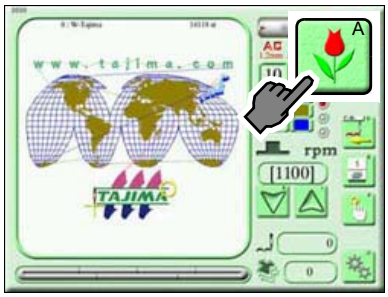
[How to operate]

Example: The selected two designs will be deleted.

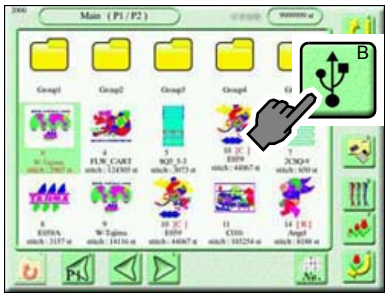
(1) To set USB memory



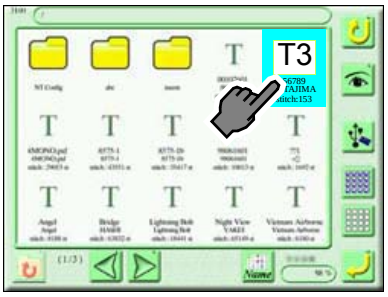
(2) Icon A



(3) Icon B



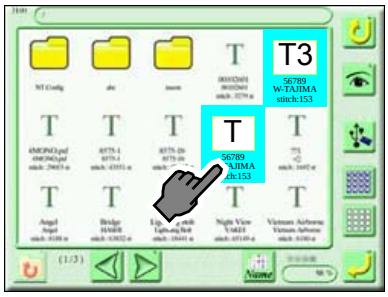
(4) 1st design



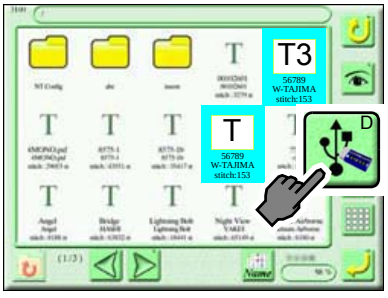
If this icon is pressed, all designs will be selected.

If this icon is pressed, selecting the design will be canceled.

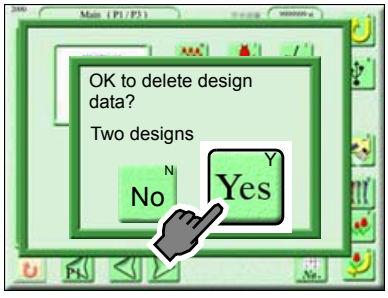
(5) 2nd design



(6) Icon D



(7) Yes (Completed)



2. To save design, to change design name

2-1. To write a design into USB memory (Input of the password is necessary)

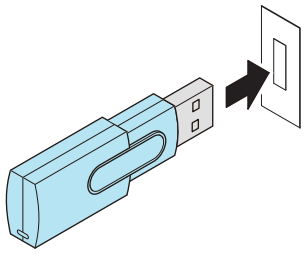
It is possible to write designs in the same layer into USB memory without limit.
To use this function, it is necessary to set the functional limit level to “SEL” by inputting a password. (→p.202)

[How to operate]

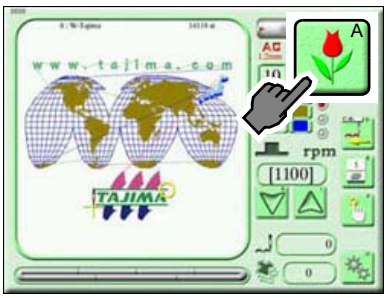
Example: Two designs will be selected and written into USB memory with the saving mode "T3".

(1) Switch the screen to page P8, input the password and select “SEL”. (→p.202)

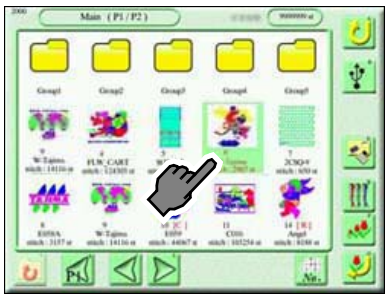
(2) To set USB memory



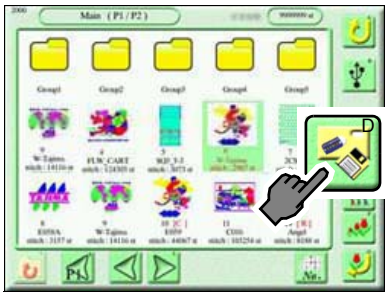
(3) Icon A



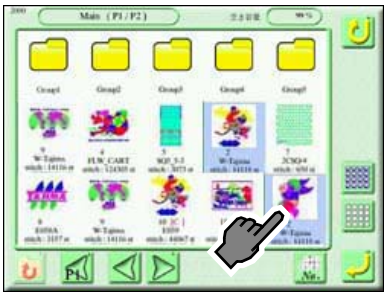
(4) 1st design



(5) Icon D



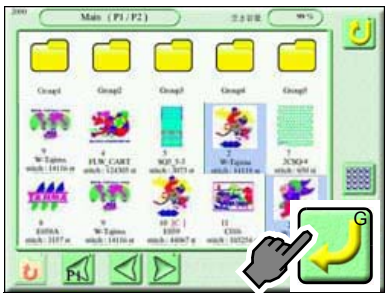
(6) 2nd design



If this icon is pressed, all designs will be selected.

If this icon is pressed, selecting the design will be canceled.

(7) To set

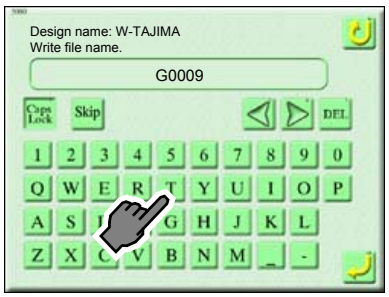


(8) Icon K

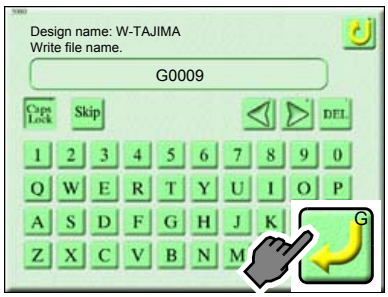
When the file name is changed, follow the procedure below. When the file name is not changed, proceed to the next operation after setting.

Change the file name of writing design 1. (Example: G0009)

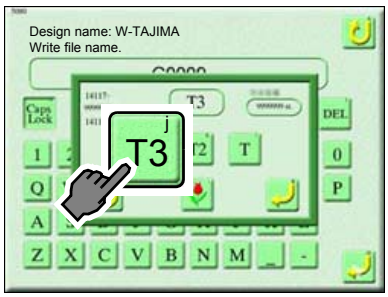
(1) G0009[1]



(2) To set



(3) T3[2]



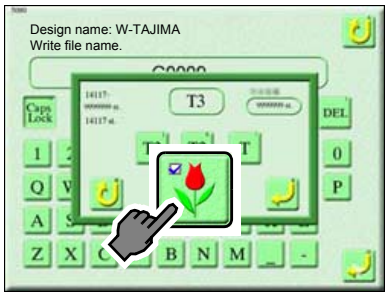
[1]Input the number or alphabet. (Up to 20 characters) Characters input here will become a file name on a personal computer.

G0009.TCF

File name on personal computer

[2]Select "T3" usually. When "T3" is selected, the setting of the presser foot and the frame type will be saved into USB memory.

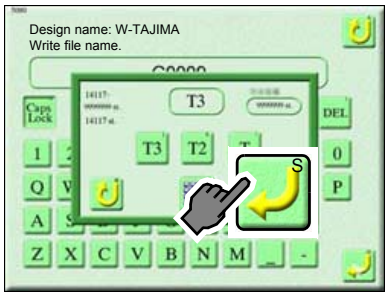
(4) Saving format



Save selected designs with each different saving mode.

Save all selected designs with the same saving mode.

(5) To set



Change the file name of writing design 2 continuously. (Example: G0010)

(6) G0010

(7) To set (Completed)

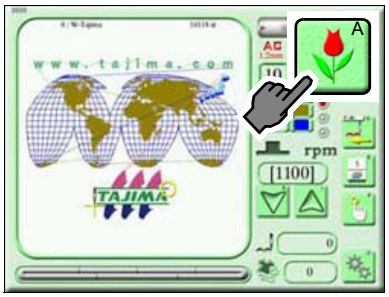
2-2. To change the saving place of a design

Move the saving place of the design saved in the machine memory. It is possible to change the saving place of the design in the same layer without limit.

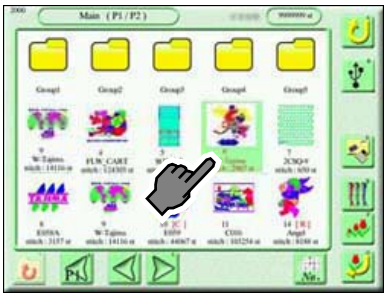
[How to operate]

Example: Two designs will be selected and moved to the saving place "Group 2" of the design.

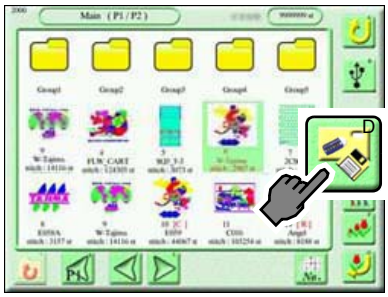
(1) Icon A



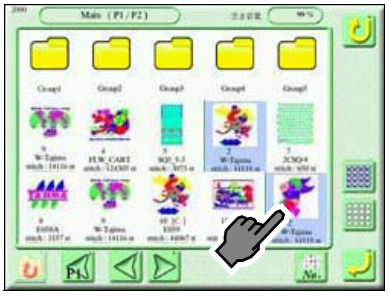
(2) 1st design



(3) Icon D



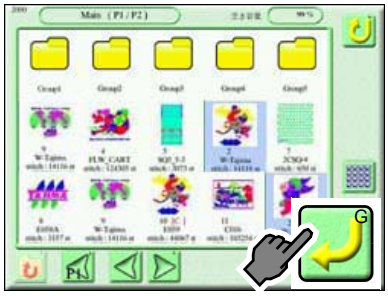
(4) 2nd design



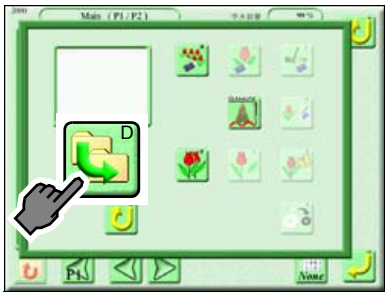
If this icon is pressed, all designs will be selected.

If this icon is pressed, selecting the design will be canceled.

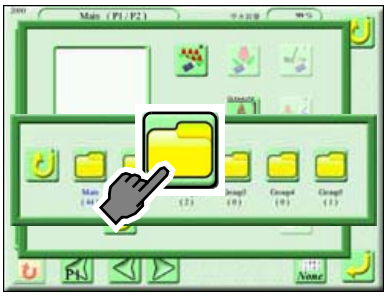
(5) To set



(6) Icon D



(7) Group 2 (Completed)

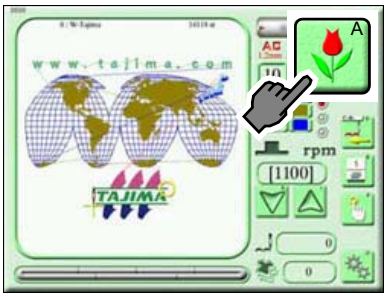


2-3. To change the design name

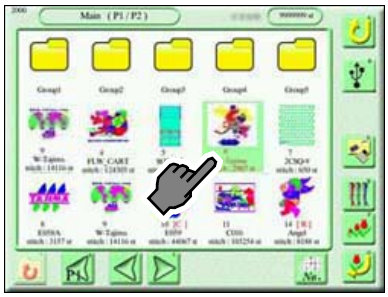
Change the name of the design saved in the machine memory by one design unit.

[How to operate]

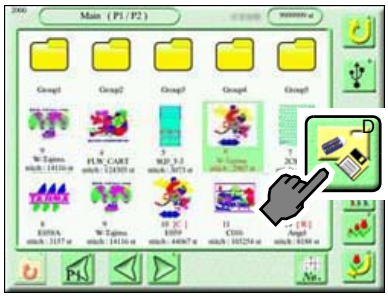
(1) Icon A



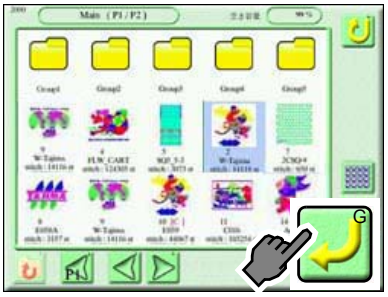
(2) Target design



(3) Icon D

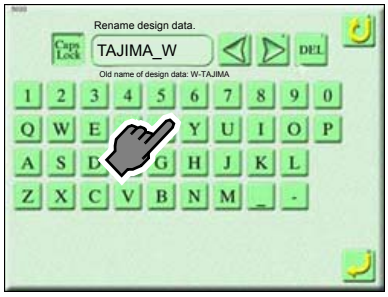


(4) To set



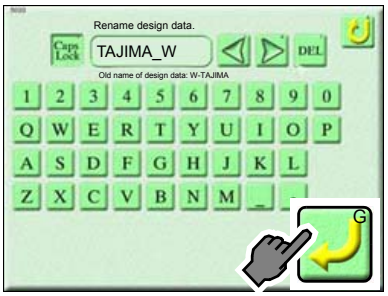
(5) Icon J

(6) To change design name[1]



[1] Up to 8 characters can be set for a design name.

(7) To set (Completed)



3. To edit design

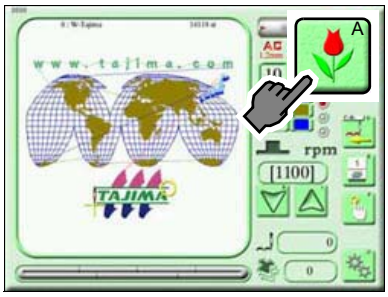
The design saved in the machine memory is targeted.

3-1. To search stitch by specifying stitch No.

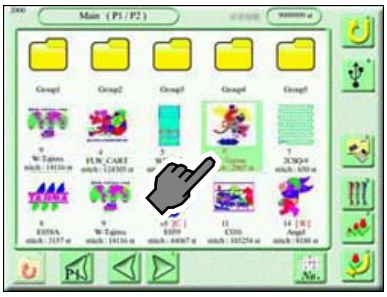
[How to operate]

Example: 480th stitch will be searched.

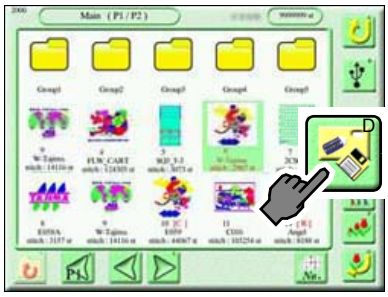
(1) Icon A



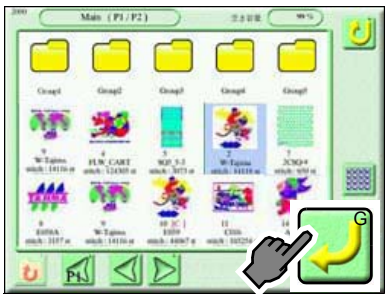
(2) Target design



(3) Icon D

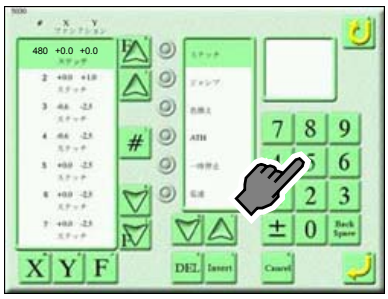


(4) To set

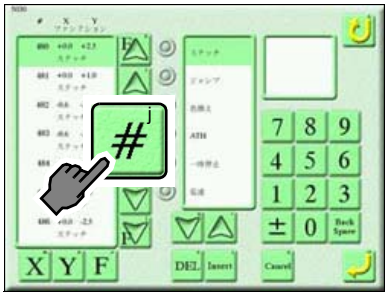


(5) Icon M

(6) Input 480



(7) Icon j (Completed)



3-2. To search stitch by specifying function code

Correspondent function code to the machine and the movement are as shown in the chart below.

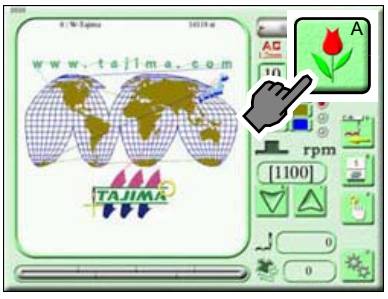
Function code	Movement	Detail
Stitch	Stitches will be embroidered.	
Jump	Jumping will be performed. (Frame travel without needle locating)	
Color Change	Stop by color change will be performed.	
ATH	Upper thread or upper/under threads will be trimmed automatically.[1]	Upper thread, upper/under threads
Temporary stop	Temporary stop will be performed at stitch or jump.	Stitch, jump
Low speed	A low speed operation will be performed at specified stitch section.	Start S, end S
	A low speed operation will be performed at specified jump section.	Start J, end J
Satin Stitch	Satin stitch conversion will be performed at specified section.	Start, end
Automatic Free-Setting Offset	Frame travel will be performed according to the setting of automatic offset.	
Sequin	Sequin device will work at specified section.	Start, end, output 1, output 2
Boring	Boring will be performed at specified section.	Start, end

[1] This machine trims upper/under threads even if “Upper thread” is selected.

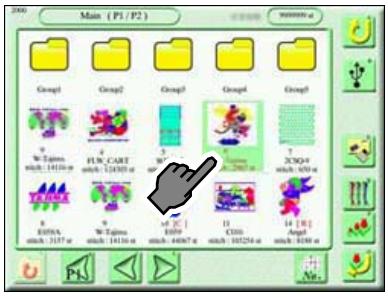
[How to operate]

Example: Jump code and color change code will be searched.

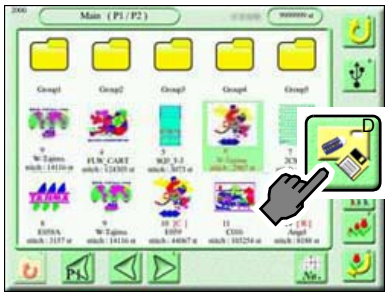
(1) Icon A



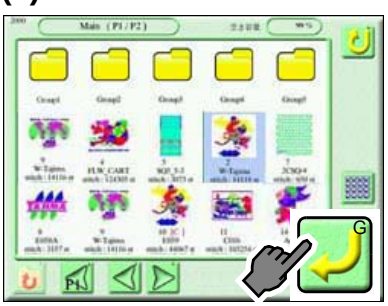
(2) Target design



(3) Icon D



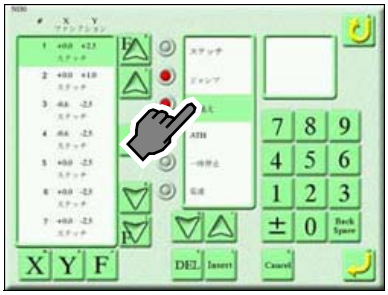
(4) To set



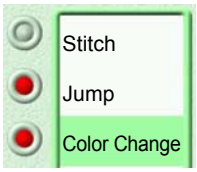
(5) Icon M

SQ11

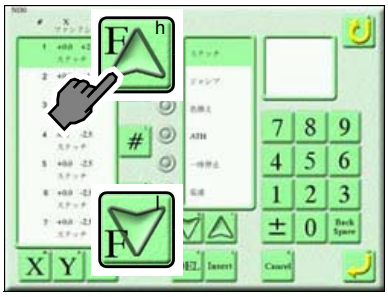
(6) Jump, color change



Selected item will be displayed as shown below.



(7) Icon h, or Icon I (Completed)



Stitches before the selected stitch will be searched.

Stitches after the selected stitch will be searched.

3-3. To insert a stitch (Input of the password is necessary)

A stitch will be inserted before a selected stitch. If a stitch having length is inserted, a design will be displaced hereafter.

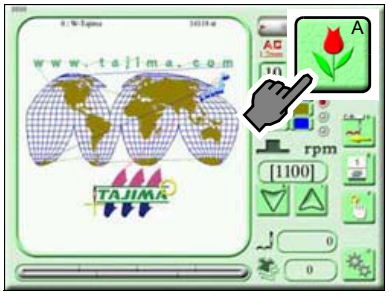
To use this function, it is necessary to set the functional limit level to “SEL” by inputting a password. (→p.202)

[How to operate]

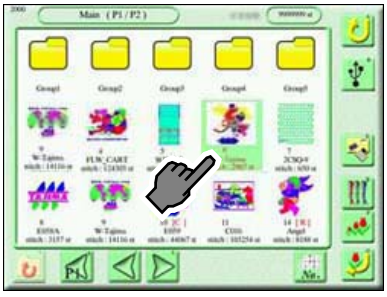
Example: Non-data ATH (trims upper/under threads) code will be inserted at 480th stitch.

(1) Switch the screen to page P8, input the password and select “SEL”. (→p.202)

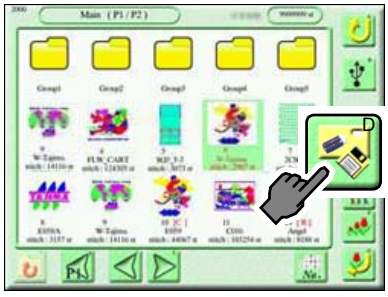
(2) Icon A



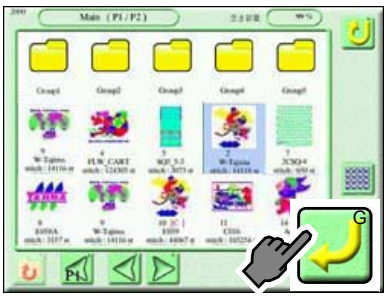
(3) Target design



(4) Icon D

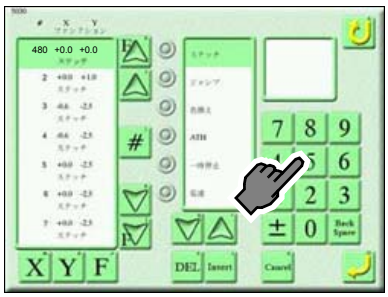


(5) To set

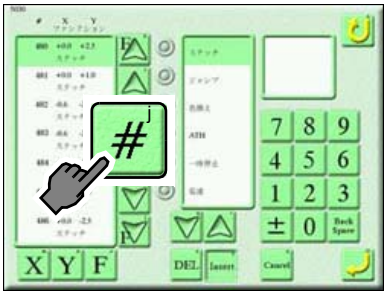


(6) Icon M

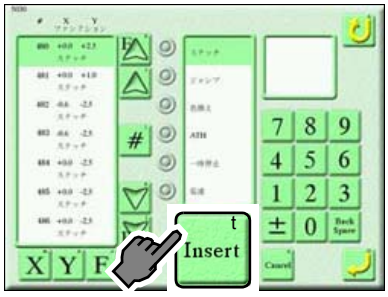
(7) Input 480



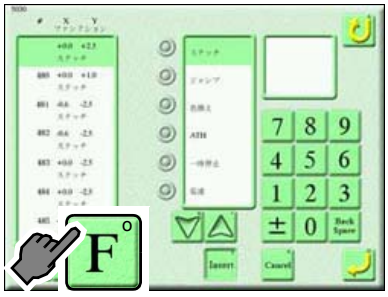
(8) Icon j



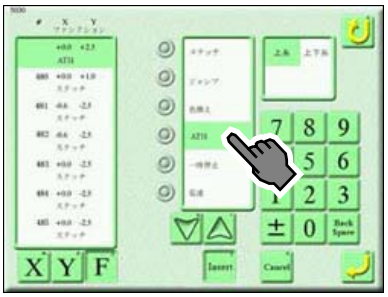
(9) Insert



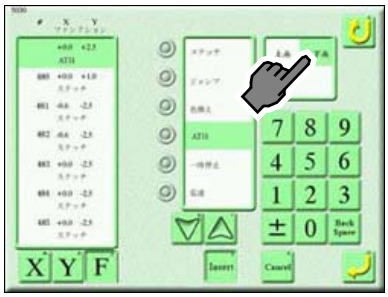
(10)F



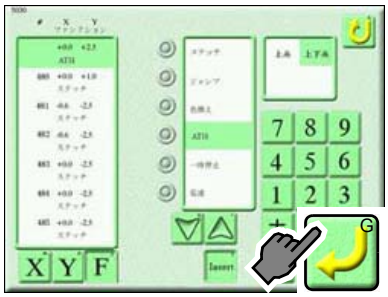
(11)ATH



(12) Upper/under threads



(13) To set (Completed)



3-4. To delete a stitch (Input of the password is necessary)

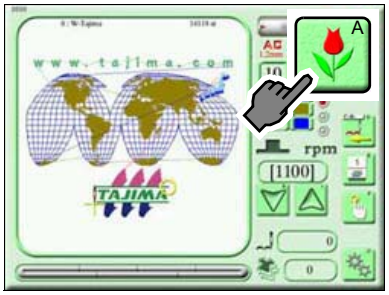
If the stitch having length is deleted, a design will be displaced hereafter.
To use this function, it is necessary to set the functional limit level to “SEL” by inputting a password. (→p.202)

[How to operate]

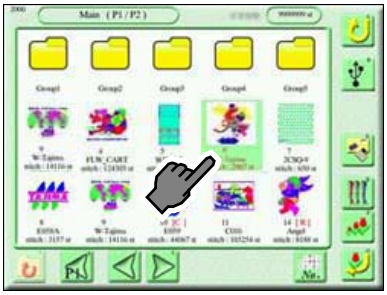
Example: 480th stitch will be deleted.

(1) Switch the screen to page P8, input the password and select “SEL”. (→p.202)

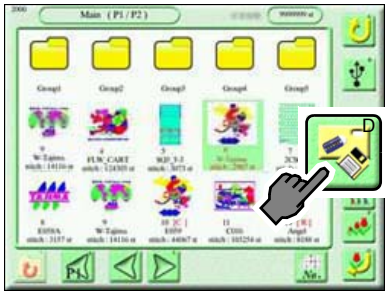
(2) Icon A



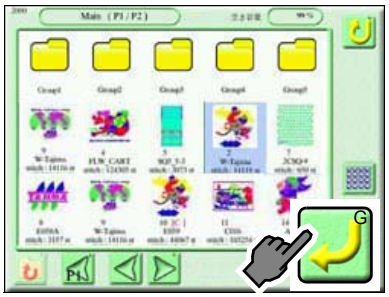
(3) Target design



(4) Icon D

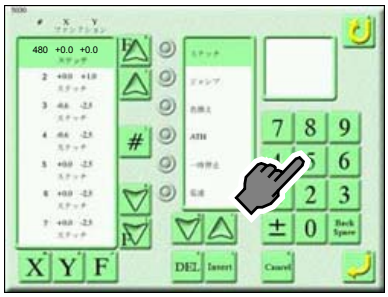


(5) To set

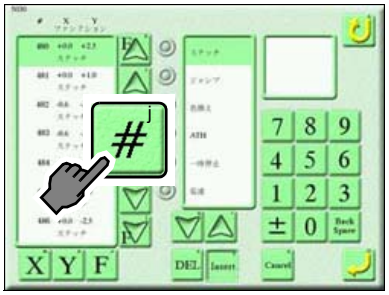


(6) Icon M

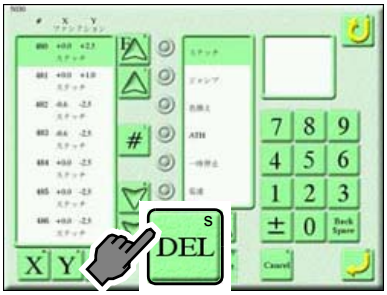
(7) Input 480



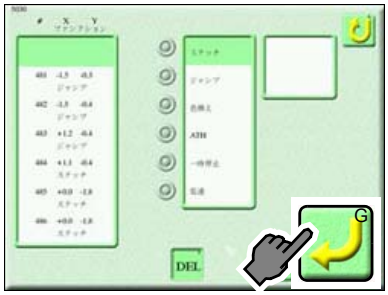
(8) Icon j



(9) DEL



(10) To set (Completed)



3-5. To modify a stitch (Input of the password is necessary)

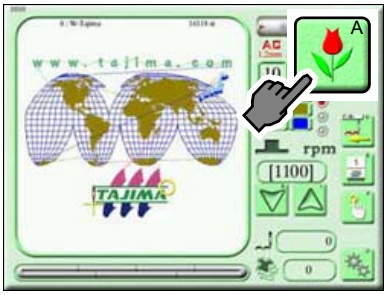
If stitch length after change is different from that before change, a design will be displaced hereafter.
To use this function, it is necessary to set the functional limit level to “SEL” by inputting a password. (→p.202)

[How to operate]

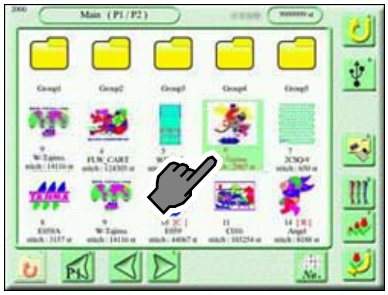
Example: Stitch code at 480th stitch will be modified to jump code.

(1) Switch the screen to page P8, input the password and select “SEL”. (→p.202)

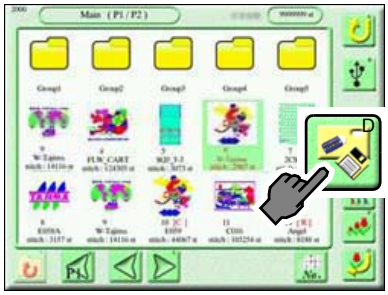
(2) Icon A



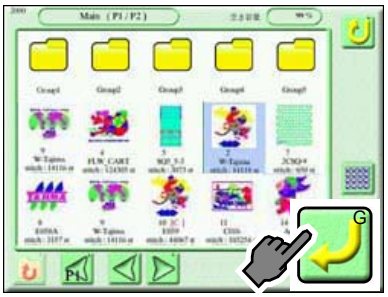
(3) Target design



(4) Icon D

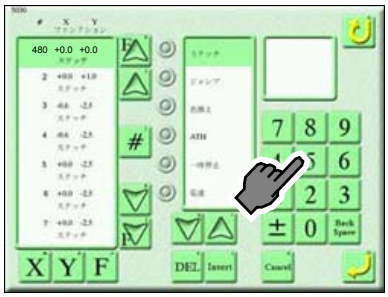


(5) To set

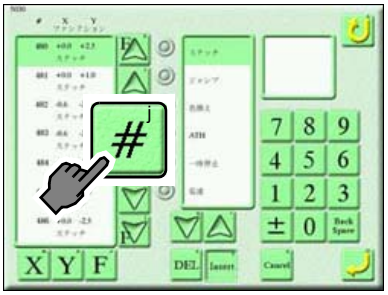


(6) Icon M

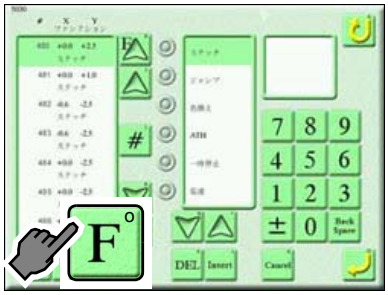
(7) Input 480



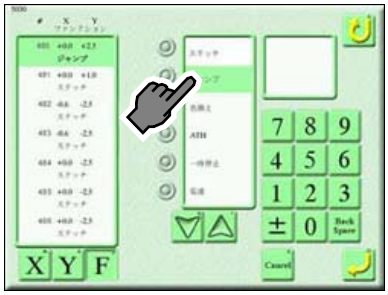
(8) Icon j



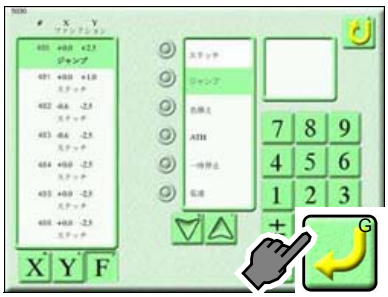
(9) F



(10) Jump



(11) To set (Completed)



3-6. To delete small stitches

Fine stitches will be absorbed in before-and after stitches. This function is effective to reduce thread cast-off and thread breakage. It is possible to process designs in the same layer without limit.

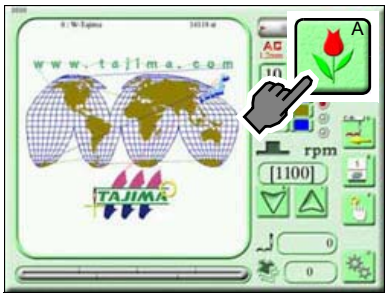
CAUTION

The previous design will be overwritten after removing fine stitches. Back up the design according to need.

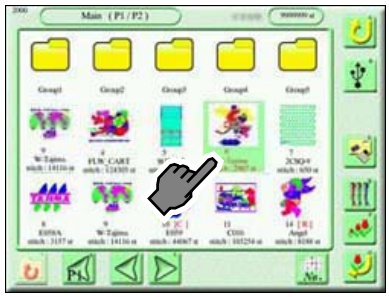
[How to operate]

Example: Two designs will be selected and the stitches of 0.5 mm or less in the design will be deleted.

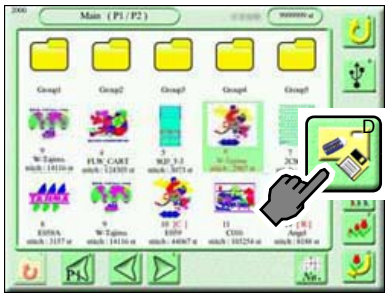
(1) Icon A



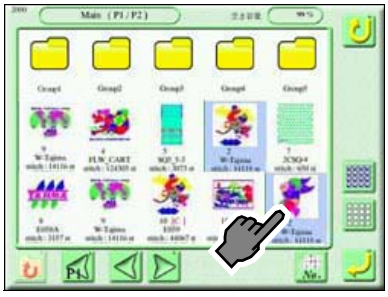
(2) 1st design



(3) Icon D



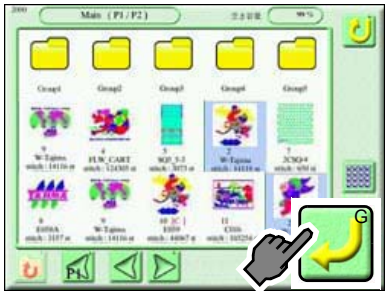
(4) 2nd design



If this icon is pressed, all designs will be selected.

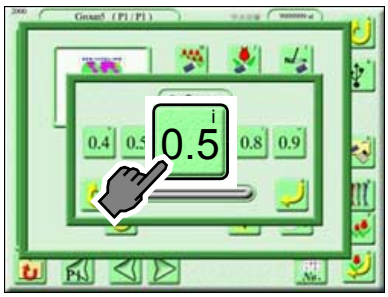
If this icon is pressed, selecting the design will be canceled.

(5) To set



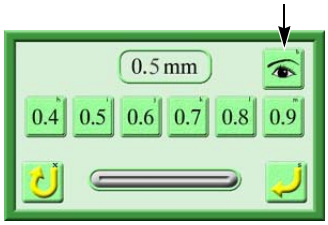
(6) Icon L

(7) 0.5

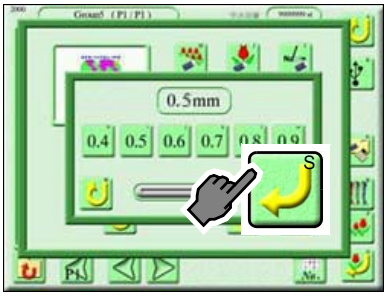


When the selected design is one design, icon b will appear. If you press icon b, the number of removable stitches will be displayed.

Icon b



(8) To set



(9) Yes (Completed)

4. To copy, divide and combine design

The design saved in the machine memory is targeted.

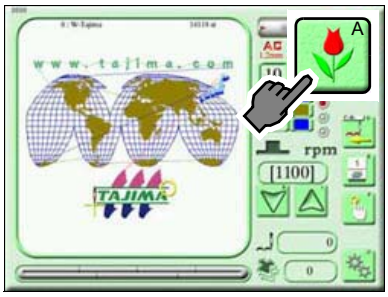
4-1. To copy a design

It is possible to copy designs in the same layer without limit.

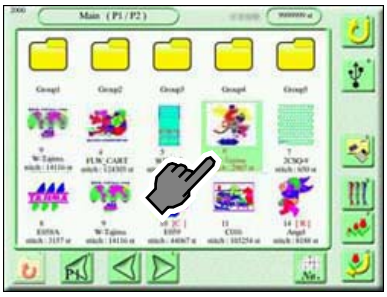
[How to operate]

Example: Two designs will be selected and copied in the saving place "Group 2" of the design.

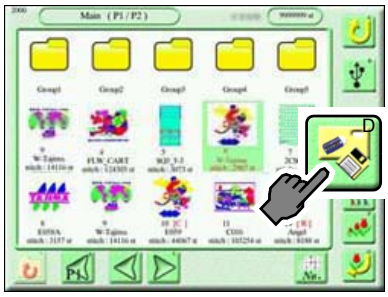
(1) Icon A



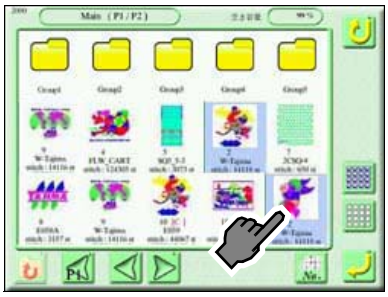
(2) 1st design



(3) Icon D



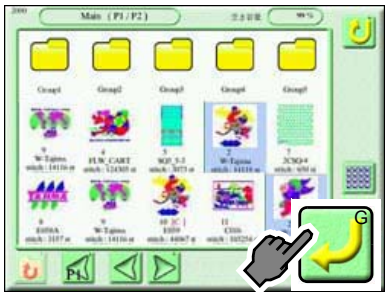
(4) 2nd design



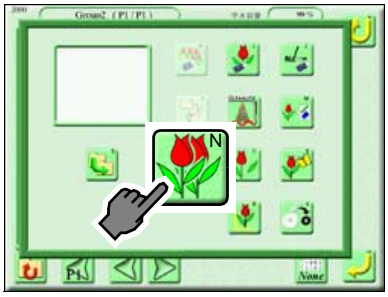
If this icon is pressed, all designs will be selected.

If this icon is pressed, selecting the design will be canceled.

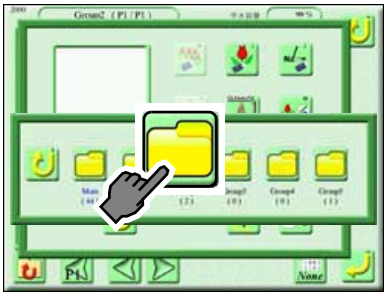
(5) To set



(6) Icon N



(7) Group 2 (Completed)



4-2. To divide a design

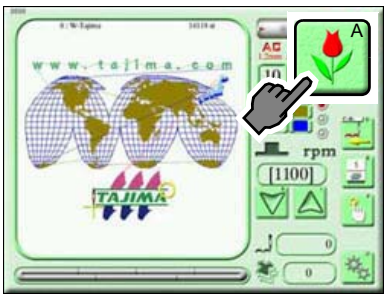
Divide the design by the color change code of a design.

CAUTION

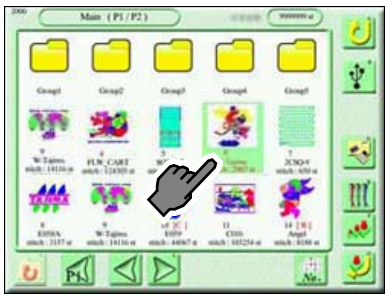
Previous design will be divided by this operation. Back up the design according to need.

[How to operate]

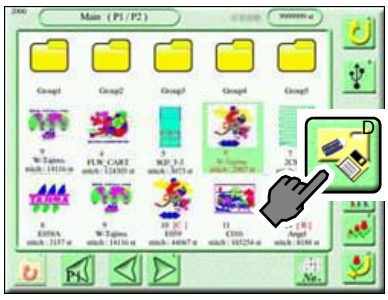
(1) Icon A



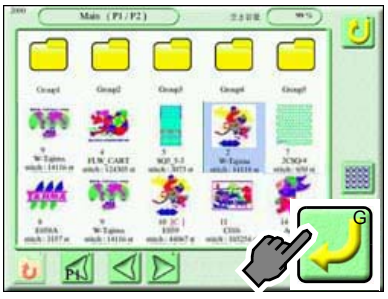
(2) Design to divide



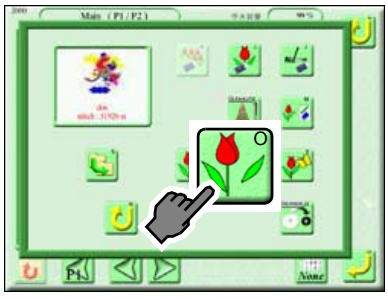
(3) Icon D



(4) To set

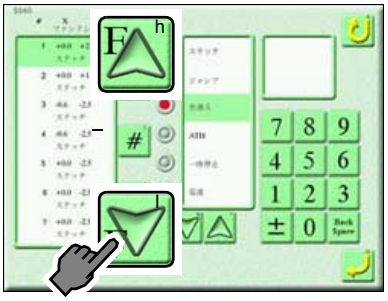


(5) Icon I



(6) Color Change

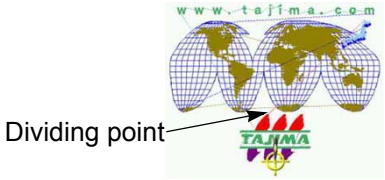
(7) Icon h, or Icon I



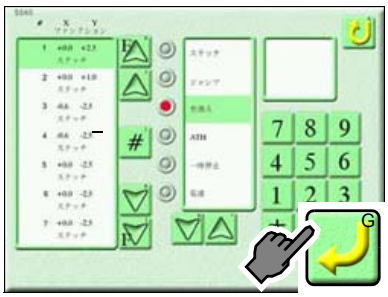
Stitches before the selected stitch will be searched.

Stitches after the selected stitch will be searched.

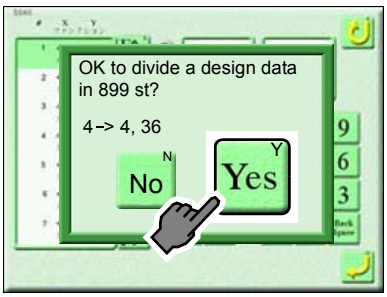
Search the color change code. The specified color change code will become the dividing point.



(8) To set



(9) Yes (Completed)



The design of a memory No.4 will be divided to a memory No.4 and that No.36 and saved in a example shown left.

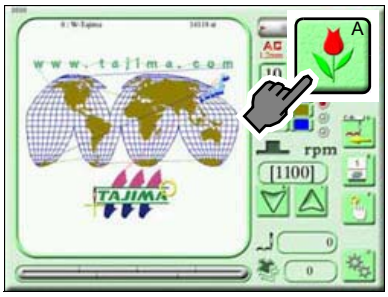
4-3. To combine a design

Combine the plural designs, and save as one design in the machine memory.

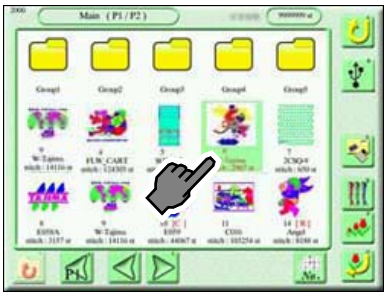
[How to operate]

Example: Two designs will be combined.

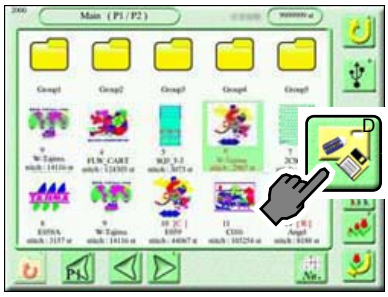
(1) Icon A



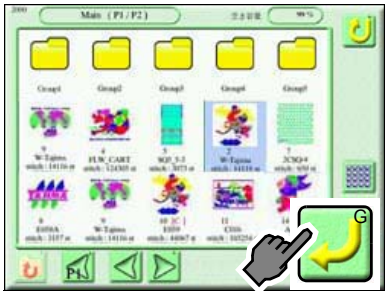
(2) 1st design



(3) Icon D

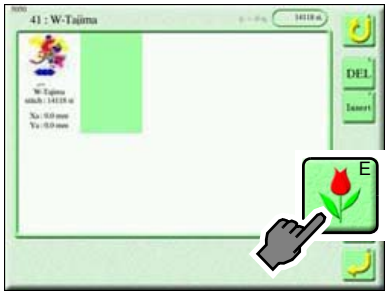


(4) To set

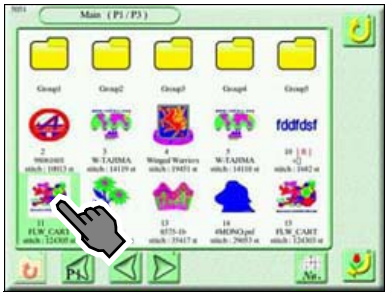


(5) Icon P

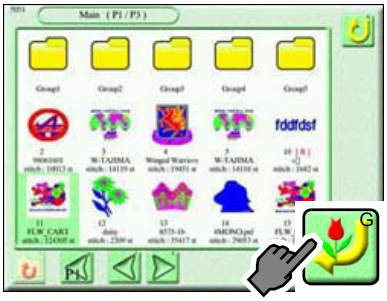
(6) Icon E



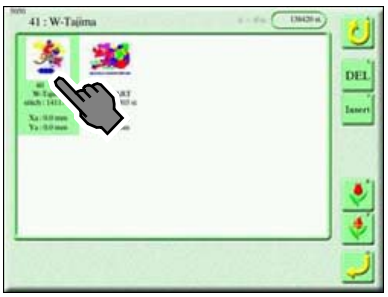
(7) 2nd design



(8) To set



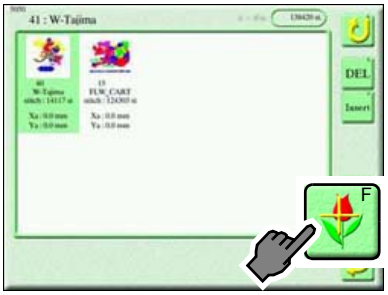
(9) 1st design



When deleting 2nd design, press "DEL" key with selecting 2nd design.

To copy a design, press "Insert" key while selecting a design.

(10) Icon F

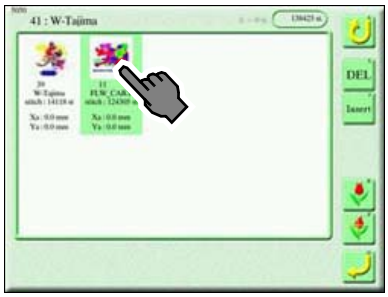


(11) Start position

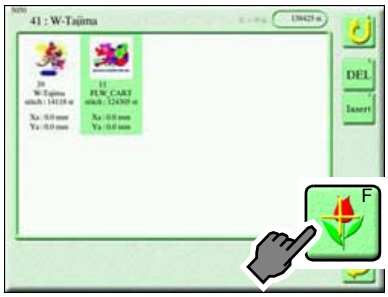
Input X/Y coordinates of the start position with numerical key.

(12) To set

(13)2nd design



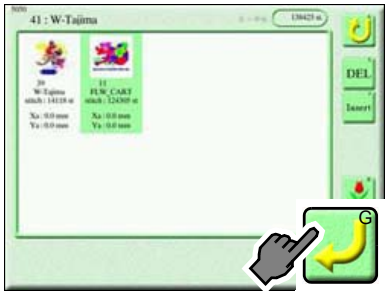
(14) Icon F



(15) Start position

(16) To set

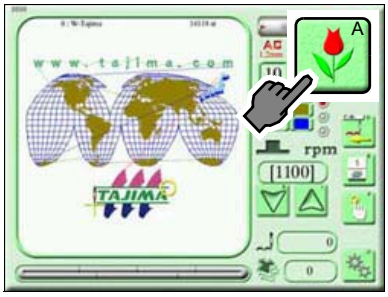
(17) To set (Completed)



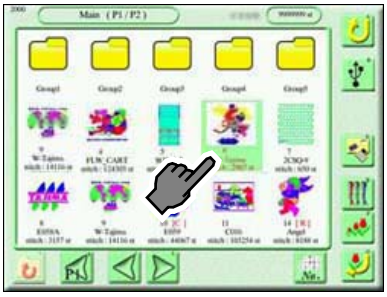
[How to operate]

Example: Three designs will be combined.

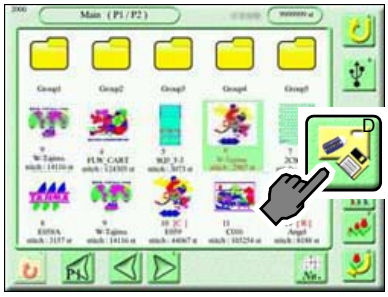
(1) Icon A



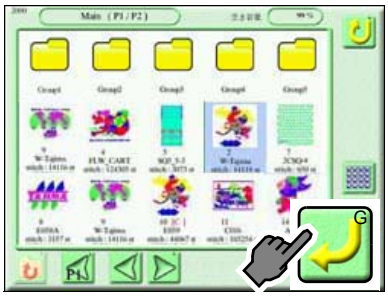
(2) 1st design



(3) Icon D

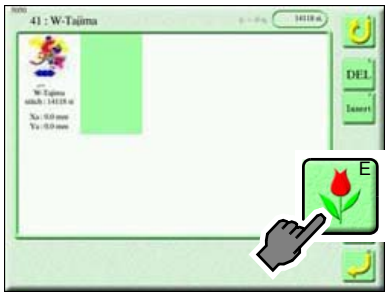


(4) To set

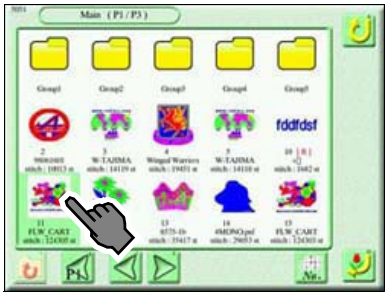


(5) Icon P

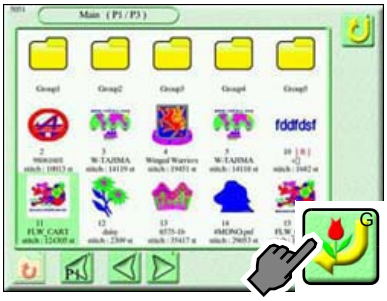
(6) Icon E



(7) 2nd design

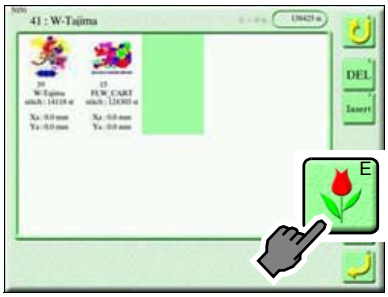


(8) To set

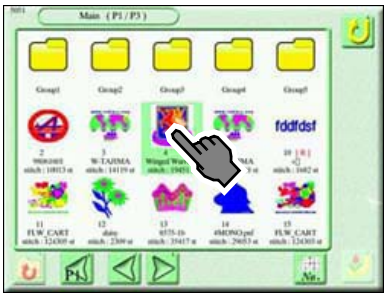


(9) Space of 3rd design

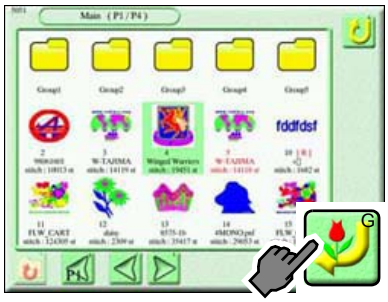
(10) Icon E



(11)3rd design



(12) To set



(13) After that, decide the start position of 1st design. (→p.112)

Chapter 7
Convenient functions

1. To move the frame to the position registered 116

2. To change the size of a design/To change the direction of a design (Data conversion).... 122

3. To embroider repeatedly (Repeat)..... 126

4. Advanced setting of the needle bar step 131

5. To select working head to embroider (Head selection)..... 138

6. Needle bar color 142

1. To move the frame to the position registered

1-1. To move the frame automatically at start and end of embroidery (Automatic offset)

The frame will move automatically between offset position and start position so that replacement of the frame and the fabric to be stretched can be performed easily. Regarding this function, refer to the detail page.(→p.226)

The frame can move through the middle positions (OF1, OF2) up to 2 spots. Setting contents here will be added in the design. So, when you embroider this design next time, setting again will be unnecessary.

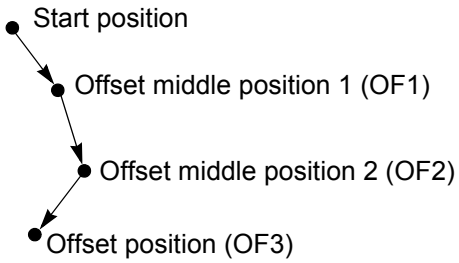
⚠ CAUTION

When performing this operation, do not put your hands etc. on the machine table. Moving the frame could injure you.

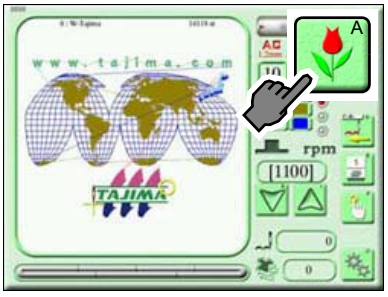
[How to operate]

Example:

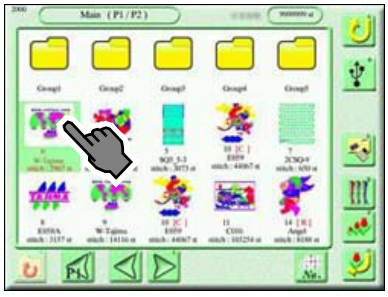
Automatic offset will be set and the frame will be moved through 2 spots (OF1, OF2). The below example is an illustration that indicates the frame movement by arrows.



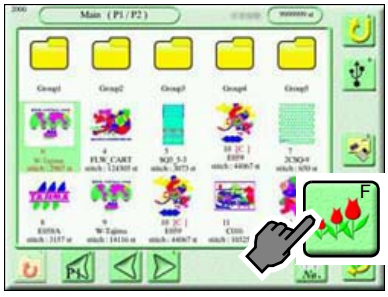
(1) Icon A



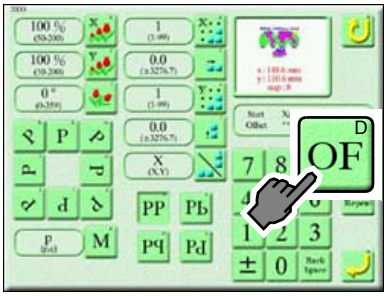
(2) Design



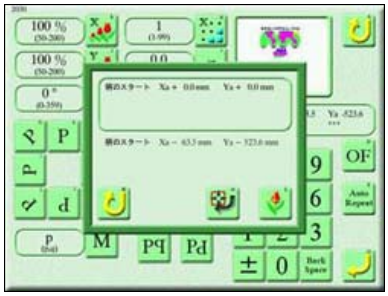
(3) Icon F



(4) OF



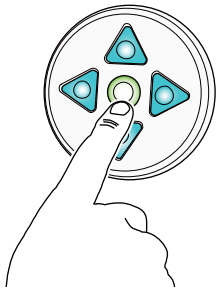
(5) Offset setting screen



Move the frame by the next operation.

QS04

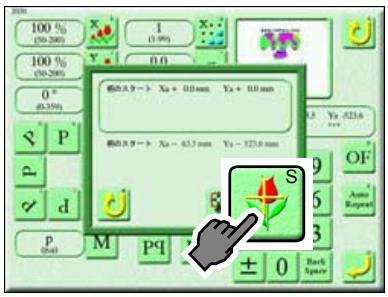
(6) Start position



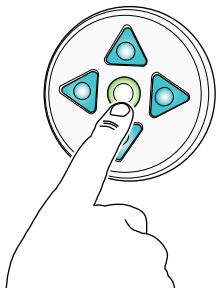
Move the frame to the start position by pressing the frame travel key.

- Start position

(7) Icon S



(8) Offset middle position 1

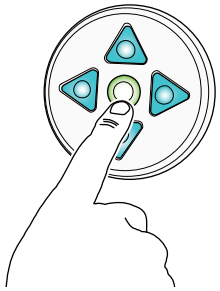


Move the frame to the offset middle position 1 by pressing the frame travel key.

- Start position
  - Offset middle position 1

(9) OF1

(10) Offset middle position 2

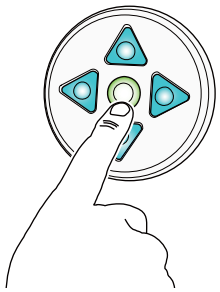


Move the frame to the offset middle position 2 by pressing the frame travel key.

- Start position
  - Offset middle position 1
    - Offset middle position 2

(11)OF2

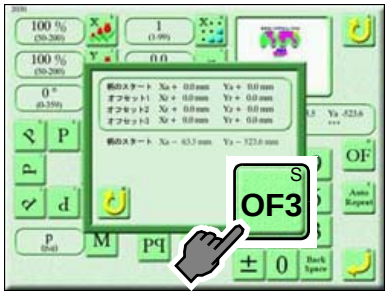
(12) Offset position



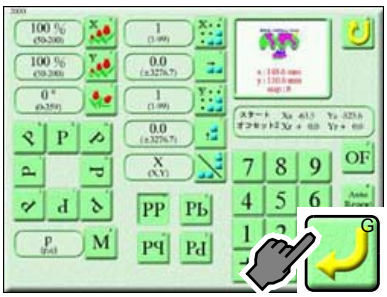
Move the frame to the offset position by pressing the frame travel key.

- Start position
  - Offset middle position 1
    - Offset middle position 2
      - Offset position

(13)OF3



(14) To set (Completed)



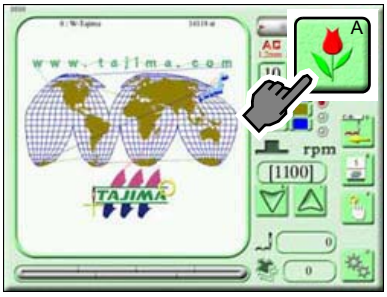
1-2. To delete the registered frame position (Automatic offset deletion)

⚠ CAUTION

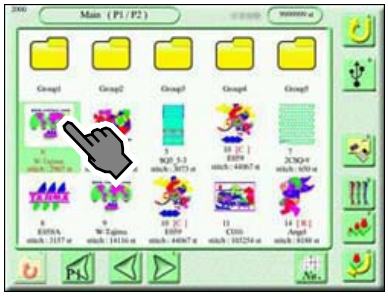
When performing this operation, do not put your hands etc. on the machine table. Moving the frame could injure you.

[How to operate]

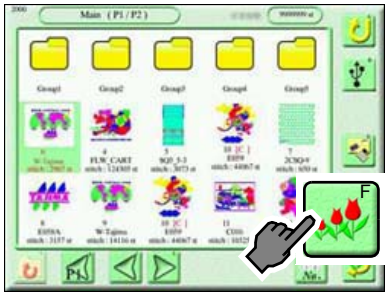
(1) Icon A



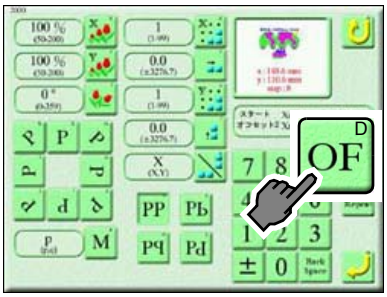
(2) Design



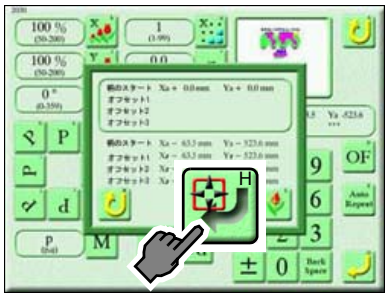
(3) Icon F



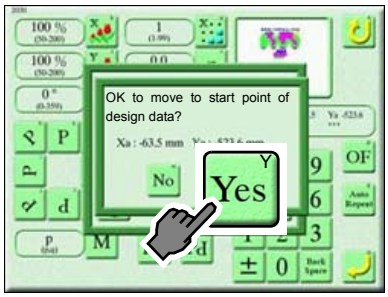
(4) OF



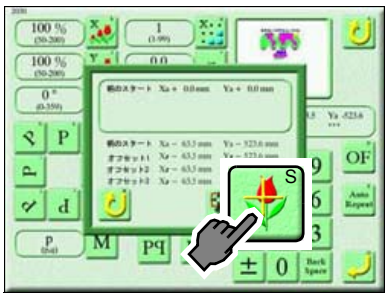
(5) Icon H



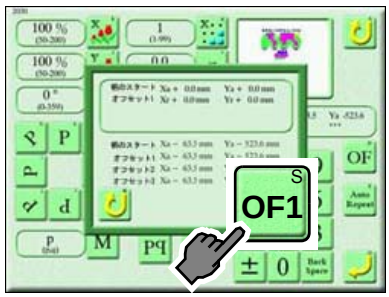
(6) Yes



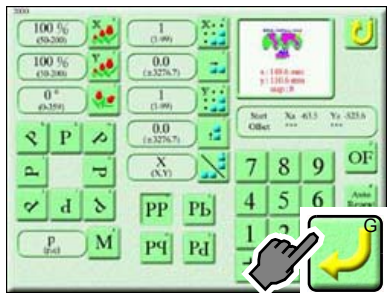
(7) Icon S



(8) OF1



(9) To set (Completed)



1-3. To move frame at a desired position during embroidery (Automatic free setting offset)

Non data "Automatic free-setting offset" code will be inserted in the design data. Then, the machine will stop by stitch you desire and the frame will move to the front (offset position) automatically during embroidery. Therefore, this function is suitable for works of applique and placing embroidery etc. Setting of "Automatic offset" is necessary to make this function available. (→p.116)

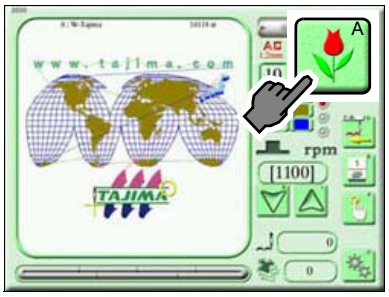
For this function, refer to the detail page. (→p.227)

[How to operate]

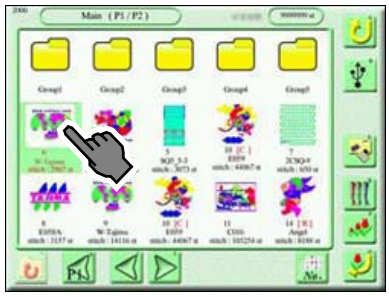
Example: Insert "Automatic free-setting offset" code to 480th stitch.

(1) Decide the frame position by "Automatic offset". (→p.116)

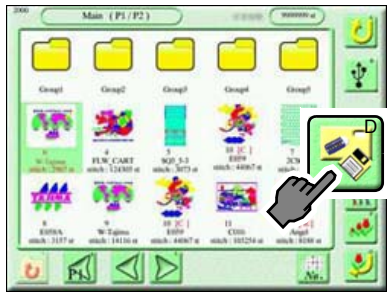
(2) Icon A



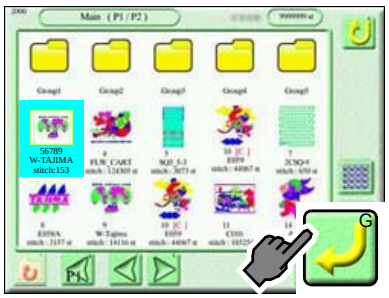
(3) Design



(4) Icon D

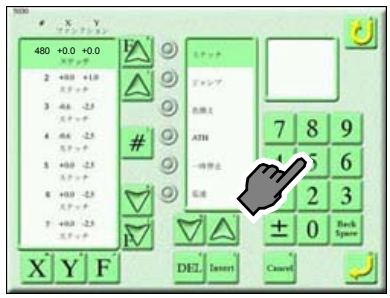


(5) To set

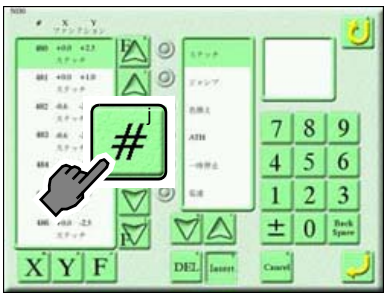


(6) Icon M

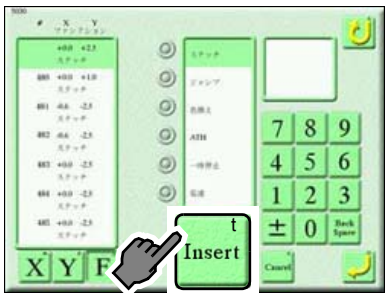
(7) Input 480



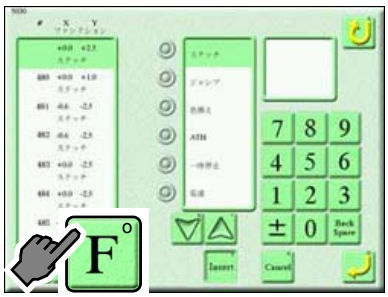
(8) Icon j



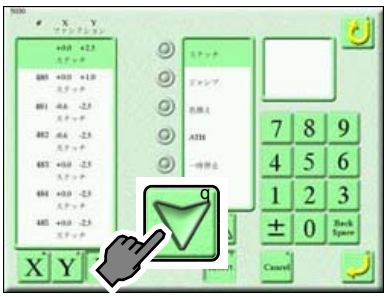
(9) Insert



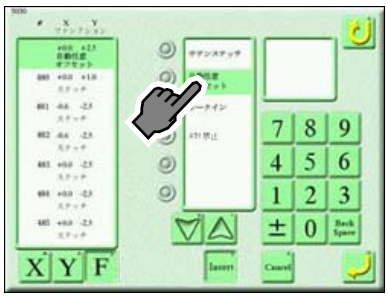
(10)F



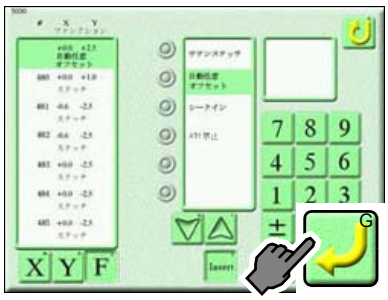
(11) Icon q



(12) Automatic Free-Setting Offset



(13) To set (Completed)



1-4. To move the frame at the color change position during embroidery (Auto color change offset)

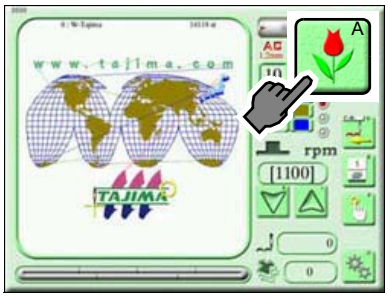
"Offset" will be inserted to the needle bar step by the operation of selecting needle bar. Then, the machine will stop at the color change position you desire and the frame will move to the front (offset position) automatically during embroidery. Therefore, this function is suitable for works of applique and placing embroidery etc.
Setting of "Automatic offset" is necessary to make this function available. (→p.116)
For this function, refer to the detail page. (→p.228)

[How to operate]

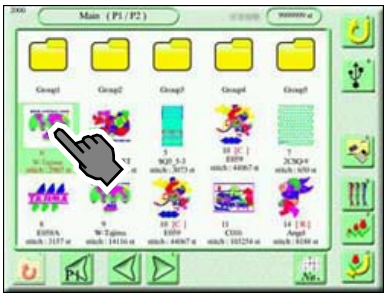
Example: Insert "Offset" after Step 4.

(1) Decide the frame position by "Automatic offset". (→p.116)

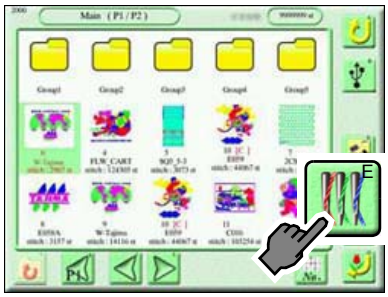
(2) Icon A



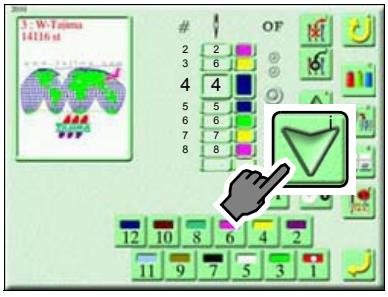
(3) Design



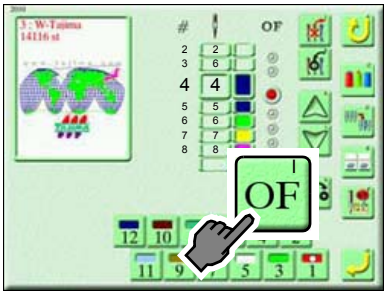
(4) Icon E



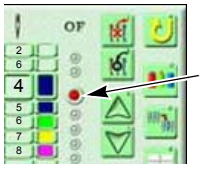
(5) Step 4



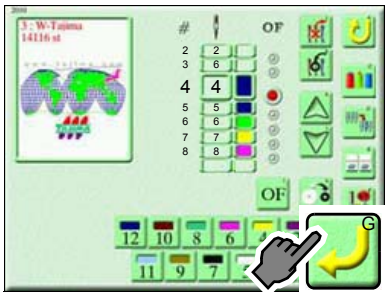
(6) OF



If "OF" is pressed, the offset lamp will light up in red.

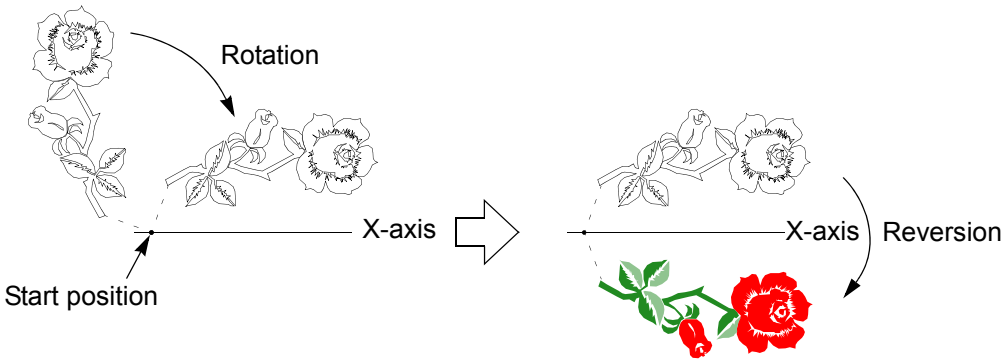


(7) To set (Completed)



2. To change the size of a design/To change the direction of a design (Data conversion)

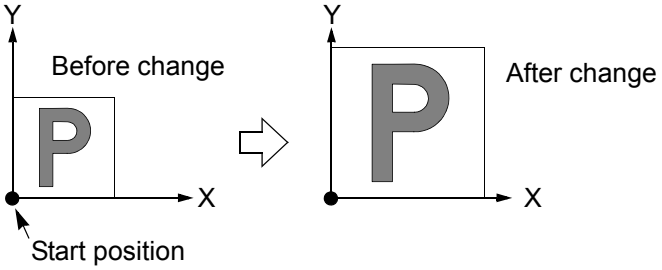
When Rotation and Reversion are set at the same time, the data will be changed in order from Rotation to Reversion.



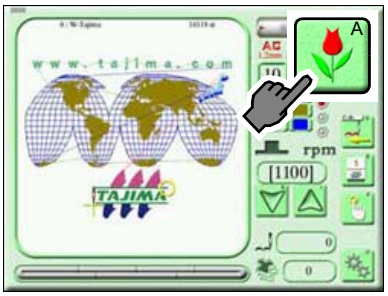
2-1. To enlarge/reduce a design

[How to operate]

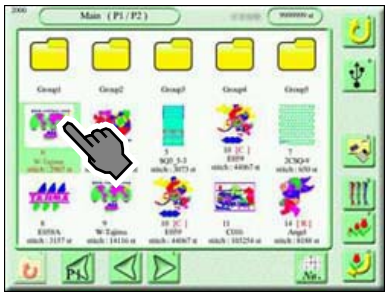
Example: Enlarge to 150% in vertical and horizontal.



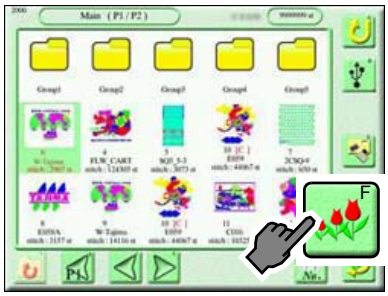
(1) Icon A



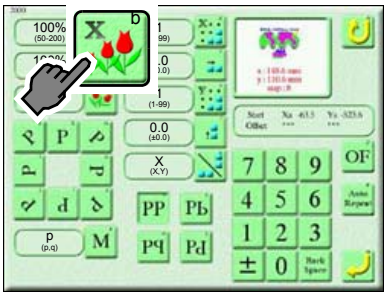
(2) Design



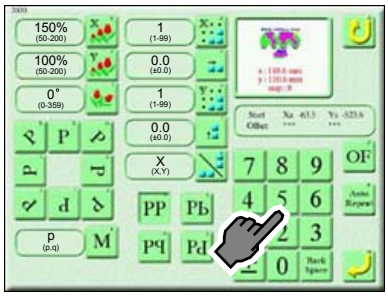
(3) Icon F



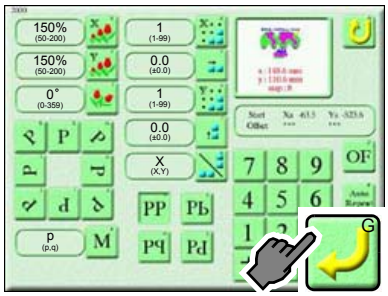
(4) X



(5) 150



(6) To set (Completed)

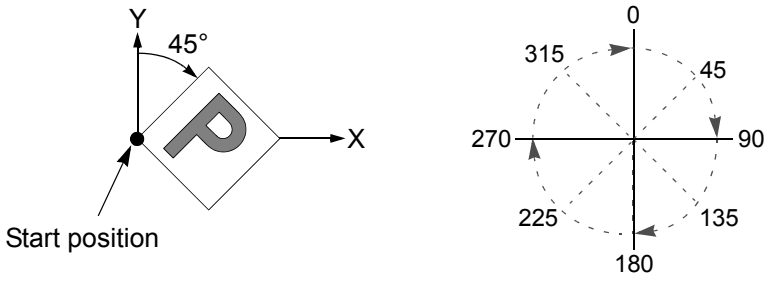


TP05

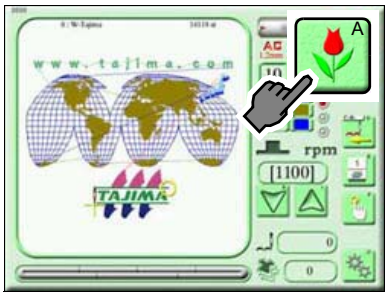
2-2. To rotate a design

[How to operate]

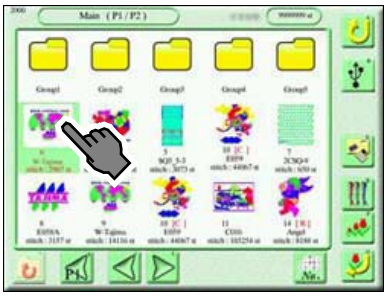
Example: Rotate the design by 45° unit. (45° in this example)



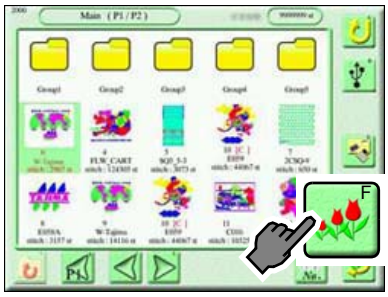
(1) Icon A



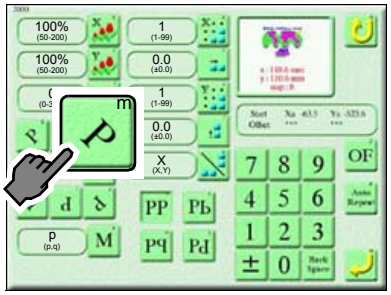
(2) Design



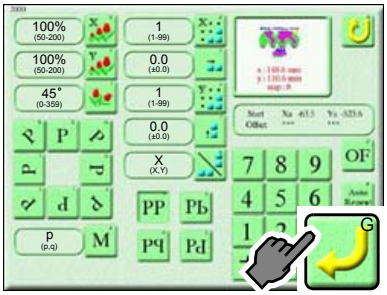
(3) Icon F



(4) Icon m

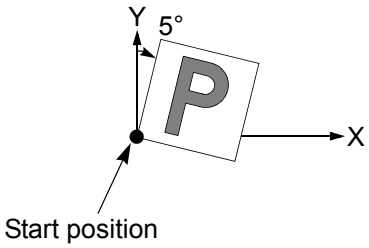


(5) To set (Completed)

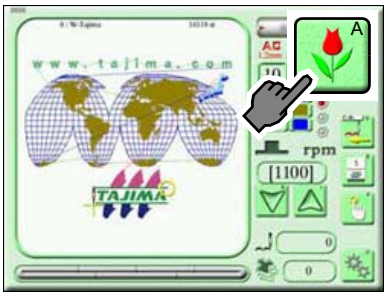


[How to operate]

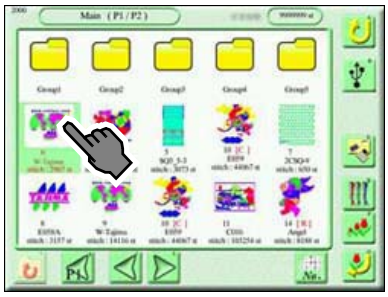
Example: Rotate the design by 1° unit. (5° in this example)



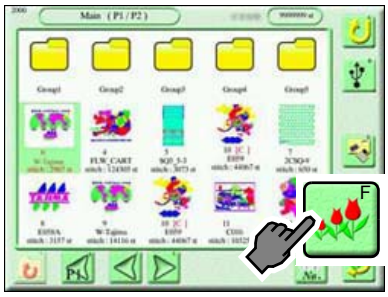
(1) Icon A



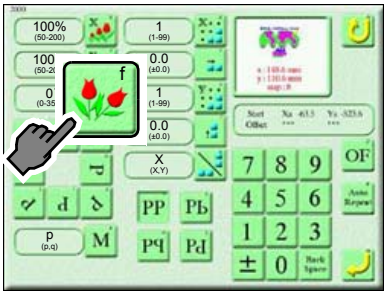
(2) Design



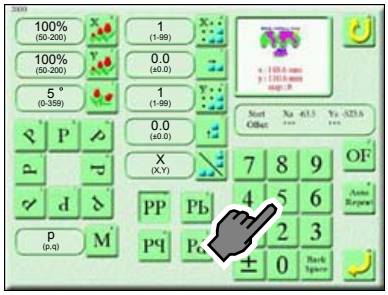
(3) Icon F



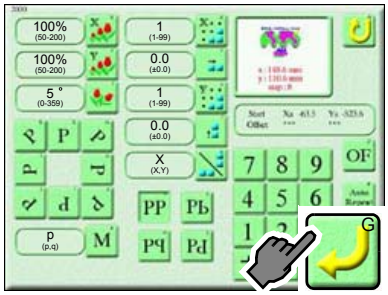
(4) Icon f



(5) 5°



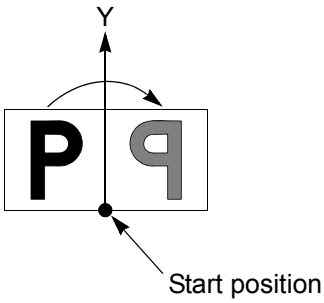
(6) To set (Completed)



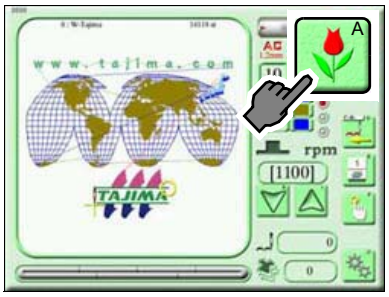
2-3. To reverse a design

[How to operate]

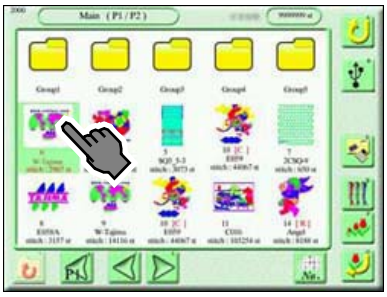
Example: Reverse the design.



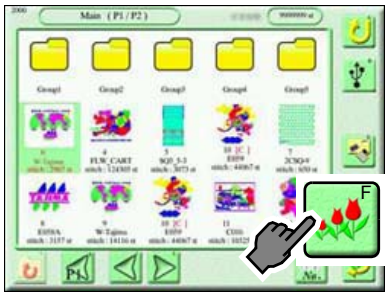
(1) Icon A



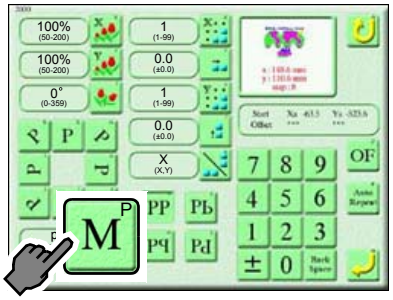
(2) Design



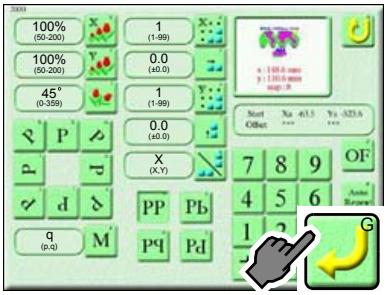
(3) Icon F



(4) M



(5) To set (Completed)



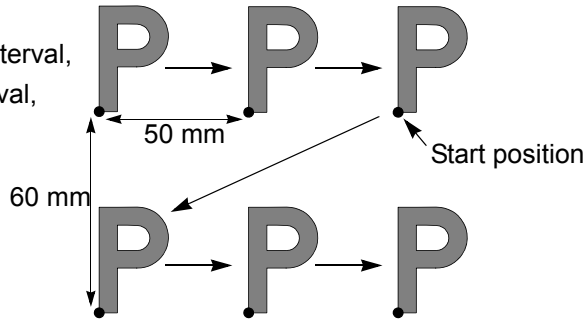
3. To embroider repeatedly (Repeat)

When repeating the design changed size and direction, this function will repeat the design of shape enlarged/ reduced, rotated and reversed.

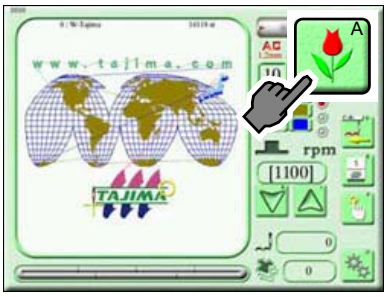
3-1. To repeat a design by specifying vertical or horizontal and the number to repetitions

[How to operate]

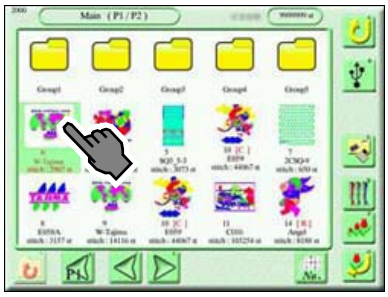
Example:
Three times in horizontal, 50 mm of design interval,
Two times in vertical, -60 mm of design interval,
Repeat direction, in horizontal



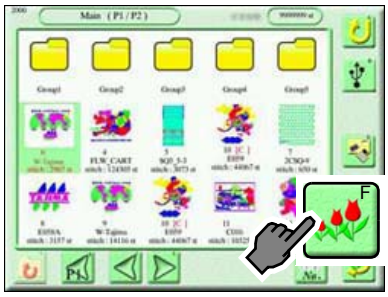
(1) Icon A



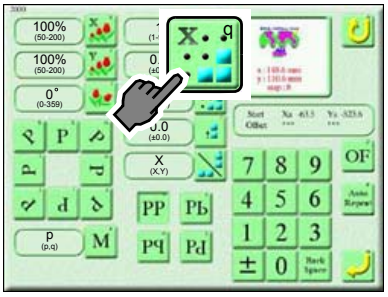
(2) Design



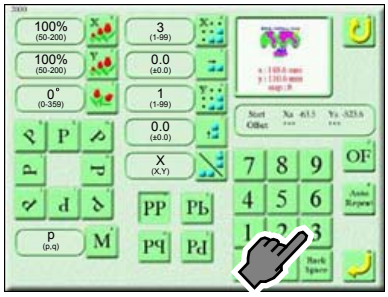
(3) Icon F



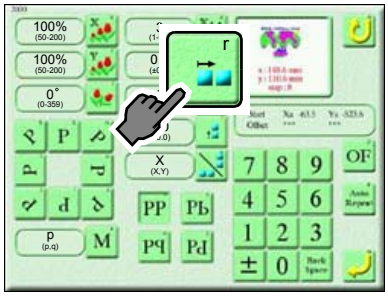
(4) X



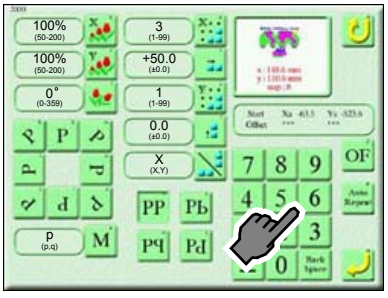
(5) 3



(6) Icon r



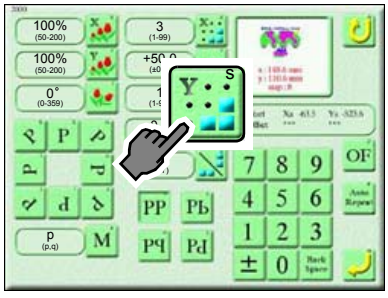
(7) +50.0



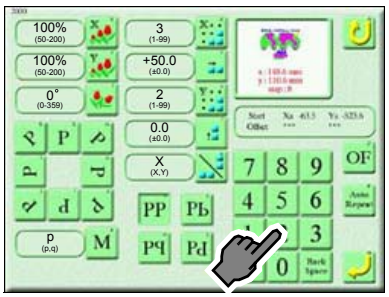
When repeating design to right direction

When repeating design to left direction

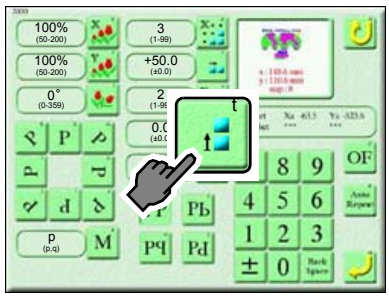
(8) Y



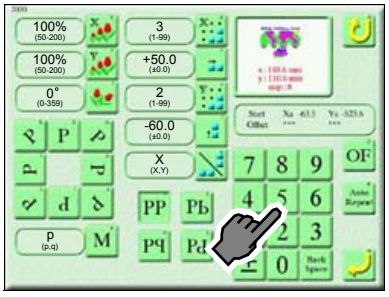
(9) 2



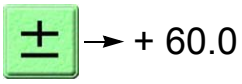
(10) Icon t



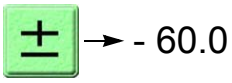
(11)-60.0



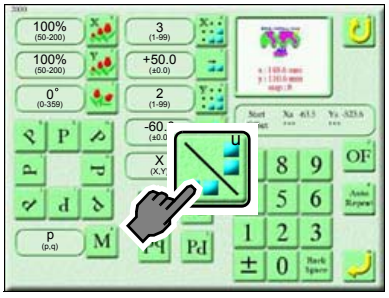
When repeating design to upper direction



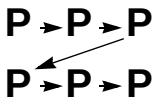
When repeating design to lower direction



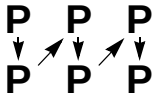
(12) Icon u



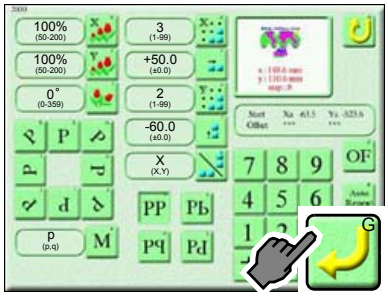
Priority to X (Horizontal)



Priority to Y (Vertical)



(13) To set (Completed)



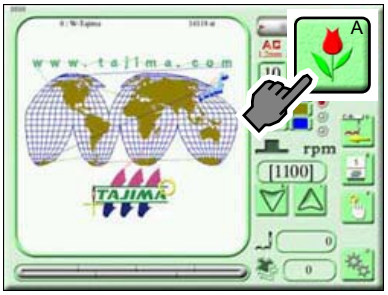
3-2. To arrange a design automatically

The machine will automatically calculate the number of designs that can be arranged within the embroidery space, and then will perform embroidery.

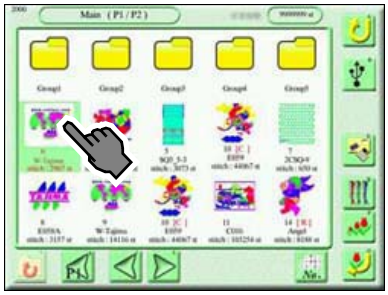
[How to operate]

Example: Arrange the distance (horizontal) of the design to 50 mm, the distance (vertical) of the design to 60 mm and at the center.

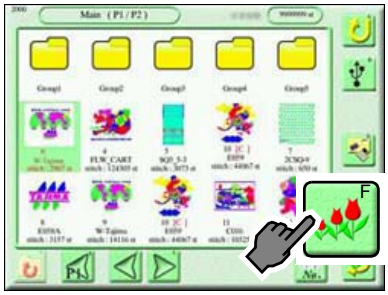
(1) Icon A



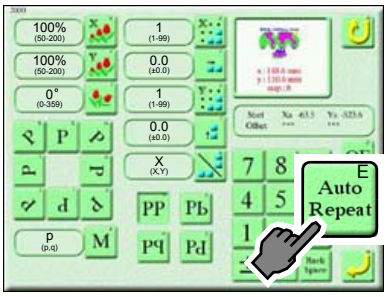
(2) Design



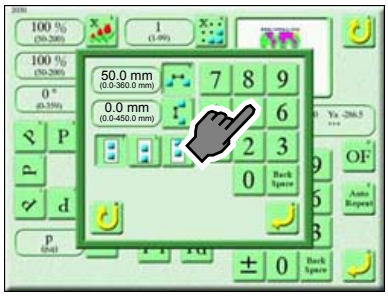
(3) Icon F



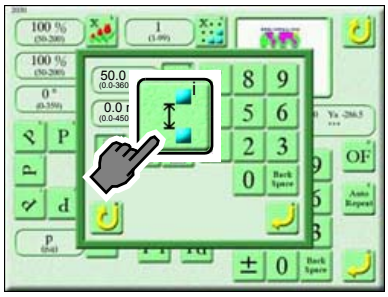
(4) Auto Repeat



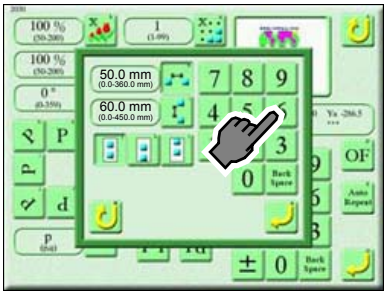
(5) 50.0



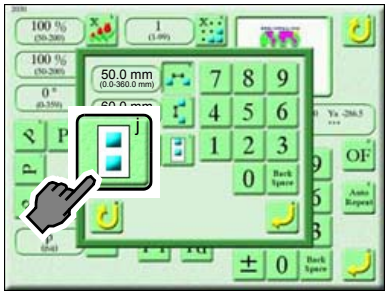
(6) Icon i



(7) 60.0



(8) Icon j

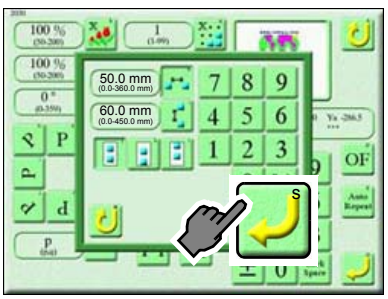


Arrange at the center.

Arrange from the front.

Arrange from rear.

(9) To set (Completed)



Number of repeating times in horizontal and vertical, and the start position are registered.

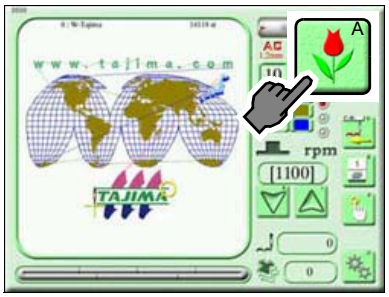
3-3. To reverse a design alternately

The design being set repeat will be embroidered at odd Nth (number) time and even Nth time by reversing alternately.

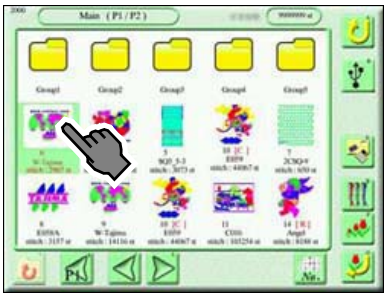
[How to operate]

Example: Reverse based on X-axis.

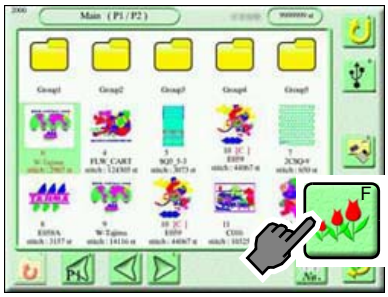
(1) Icon A



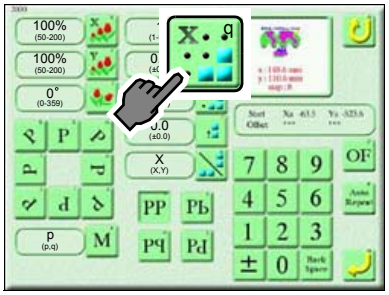
(2) Design



(3) Icon F



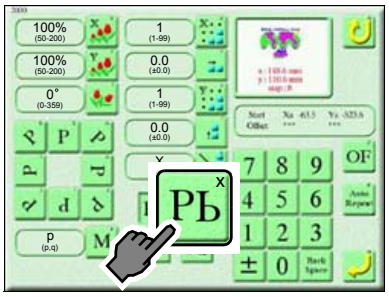
(4) X



After that, set a repeat time in horizontal and vertical, a distance and a repeat direction.

Regarding how to operate, refer to the detail page. (→p.126)

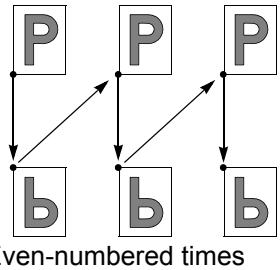
(5) Icon x

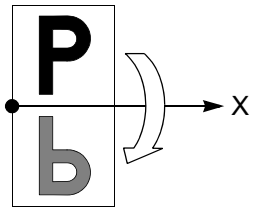


PЬ Reverse based on X-axis.

Example: Priority in vertical

Odd-numbered times



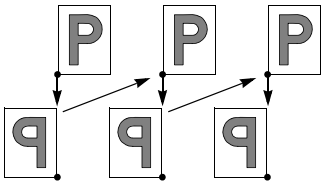


Even-numbered times

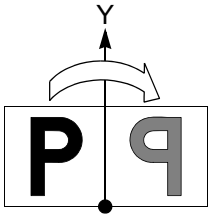
Reverse based on Y-axis.

Example: Priority in vertical

Odd-numbered times



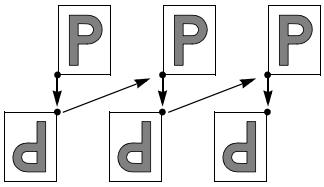
Even-numbered times



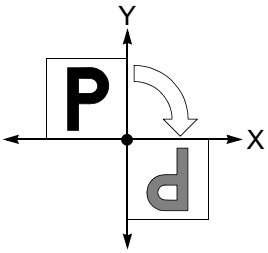
Rotate by 180°.

Example: Priority in vertical

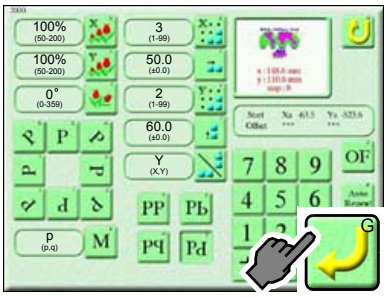
Odd-numbered times



Even-numbered times



(6) To set (Completed)



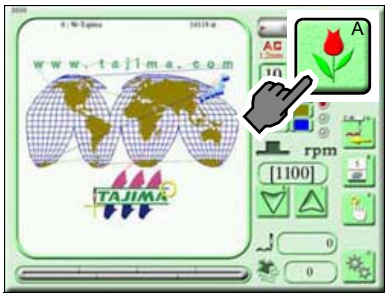
4. Advanced setting of the needle bar step

4-1. To delete a needle bar selection setting

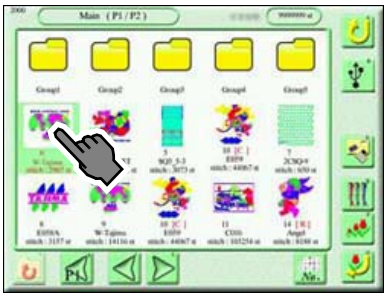
[How to operate]

Example: Delete the setting of needle bar selection at Step 4 to move up to the setting of after.

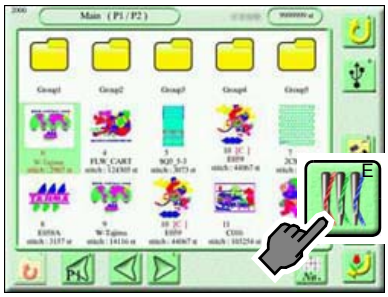
(1) Icon A



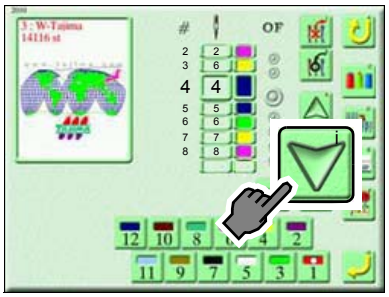
(2) Design



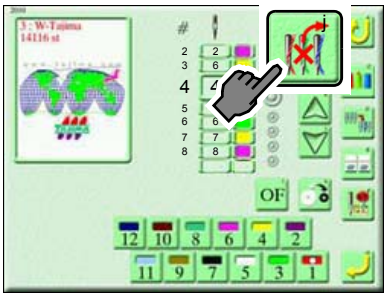
(3) Icon E



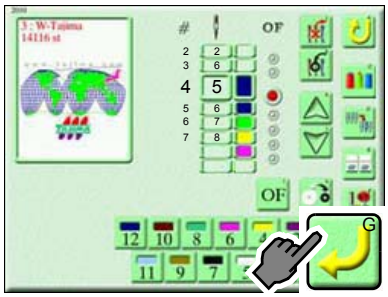
(4) Step 4



(5) Icon j



(6) To set (Completed)

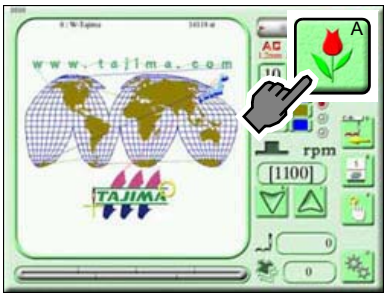


4-2. To insert a new setting in the needle bar selection setting

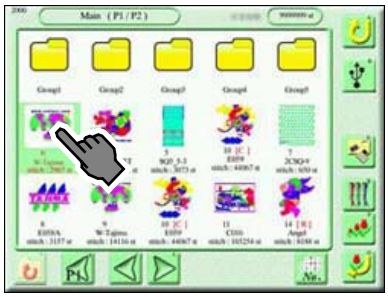
[How to operate]

Example: Insert step after Step 4 to move down to the setting of after.

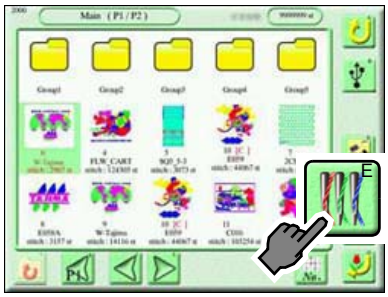
(1) Icon A



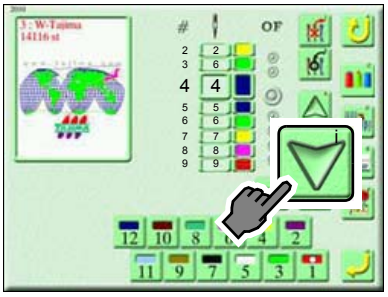
(2) Design



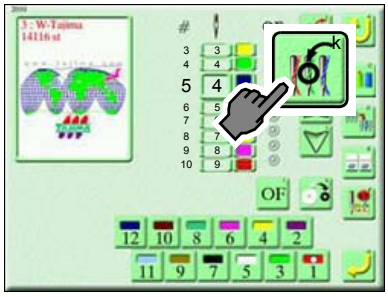
(3) Icon E



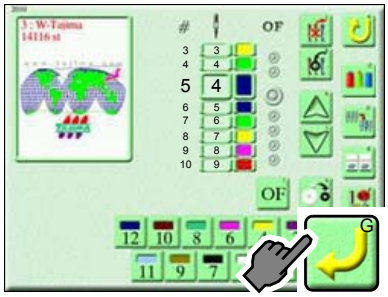
(4) Step 4



(5) Icon j



(6) To set (Completed)



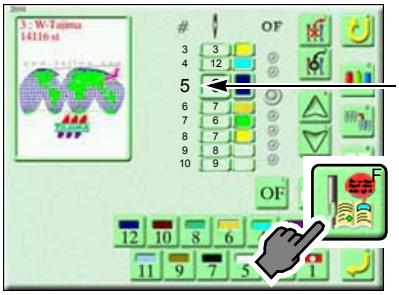
4-3. To embroider design by changing condition only for the desired step (Setting by step unit)

It is possible to give individual setting to desired steps to change the sewing condition by this machine.

For item overlapping with the setting value of the machine parameter, the value here will take priority.

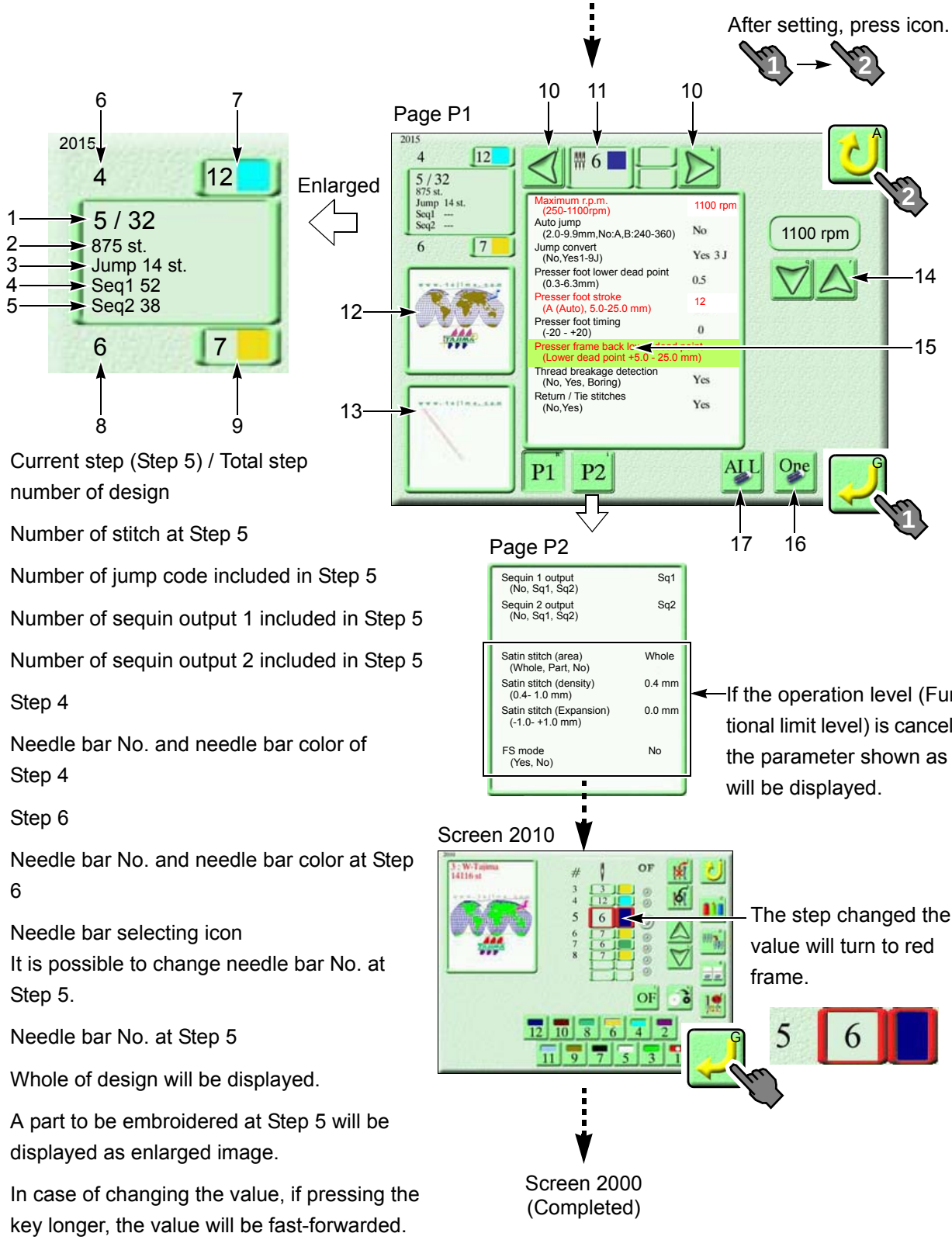
[Detailed explanation]

Screen 2010



Currently selected step (Step 5)

Next page



1. Current step (Step 5) / Total step number of design
2. Number of stitch at Step 5
3. Number of jump code included in Step 5
4. Number of sequin output 1 included in Step 5
5. Number of sequin output 2 included in Step 5
6. Step 4
7. Needle bar No. and needle bar color of Step 4
8. Step 6
9. Needle bar No. and needle bar color at Step 6
10. Needle bar selecting icon
    It is possible to change needle bar No. at Step 5.
11. Needle bar No. at Step 5
12. Whole of design will be displayed.
13. A part to be embroidered at Step 5 will be displayed as enlarged image.
14. In case of changing the value, if pressing the key longer, the value will be fast-forwarded.
15. The item changed the value will turn to red character.
16. Return the value changed to the initial value.
17. Return all values changed at screen P1 and P2 to the initial values.

Embroidery conditions are as shown in the chart below.

Page P1

Embroidery condition	Setting range
Maximum r.p.m.	250 rpm to Maximum r.p.m. of machine
Auto jump	2.0-9.9 mm, No: A, B: 240-360
Jump convert	No, Yes1-9J
Presser foot lower dead point	0.3-6.3 mm
Presser foot stroke	A (Auto), 5.0-22.0 mm[1]
Presser foot timing	-20 to 20
Presser foot F.B. lower dead point	5.0 to 22.0 mm
Thread breakage detection	No, Yes, Boring
Return / Tie stitches	Yes, No

[1]Setting range differs depending on the operation level.

5.0 to 25.0 mm: Operation Level 1

2.0 to 25.0 mm: Operation Level SEL

Page P2

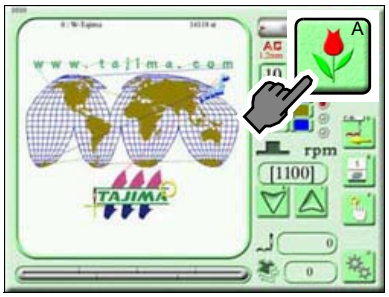
Embroidery condition	Setting range
Sequin output 1	No, sq1, sq2
Sequin output 2	No, sq1, sq2
Satin stitch (area)	Whole, part, no
Satin stitch (density)	0.4 - 1.0 mm
Satin stitch (Expansion)	-1.0 - +1.0 mm
FS Mode	Yes, No

[How to operate]

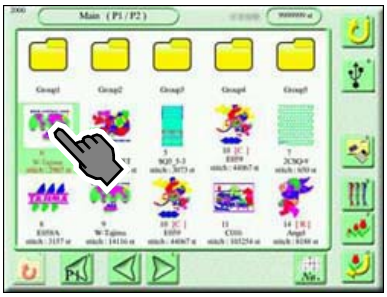
Example: Set Step 5 to the following stitching condition.

Needle bar No.: 9 (Changing from 6 to 9)
Maximum RPM: 700 rpm
Presser foot lower dead point: 3.0 mm
Presser foot F.B. lower dead point: 5.0 mm

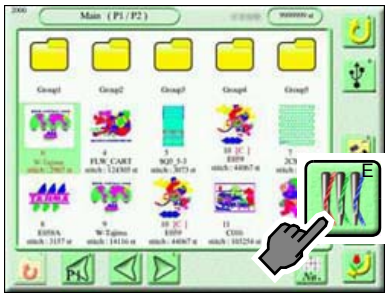
(1) Icon A



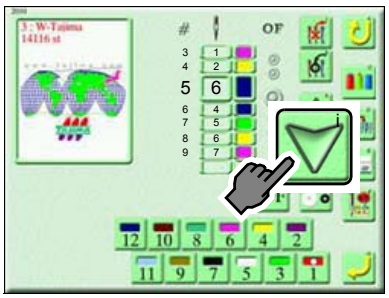
(2) Design



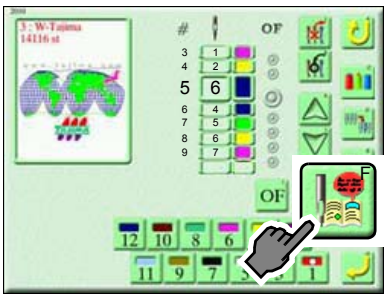
(3) Icon E



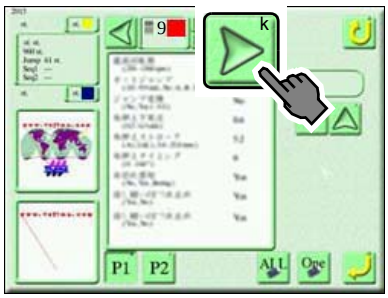
(4) Step 5



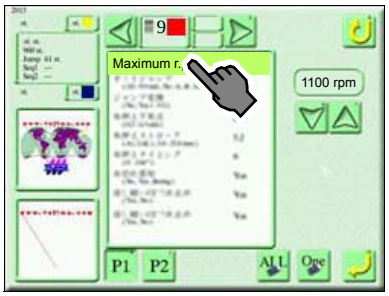
(5) Icon F



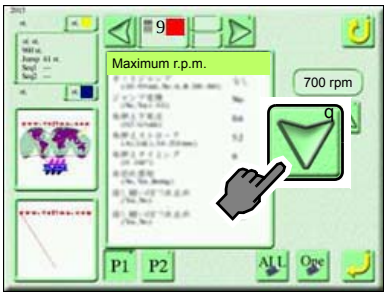
(6) Needle bar No.9



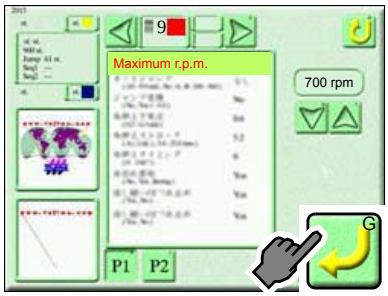
(7) Maximum r.p.m.



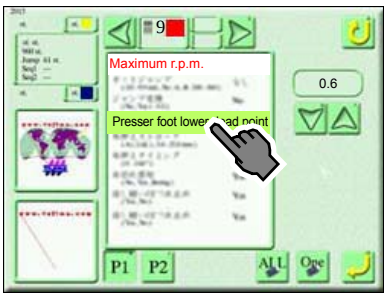
(8) 700



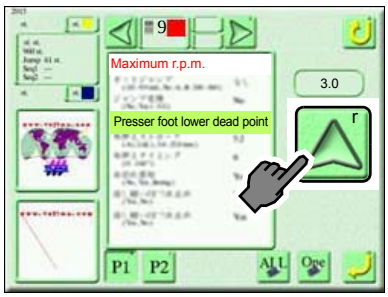
(9) To set



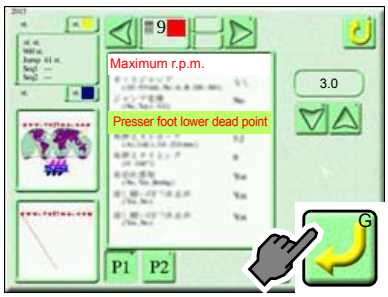
(10) Presser foot lower dead point



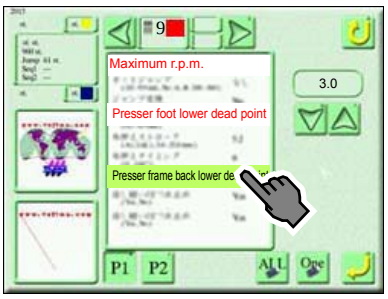
(11)3.0



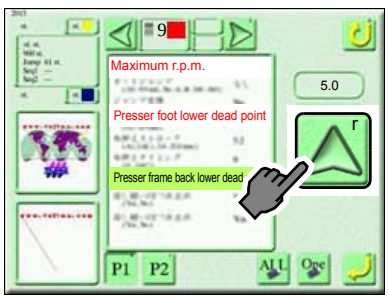
(12) To set



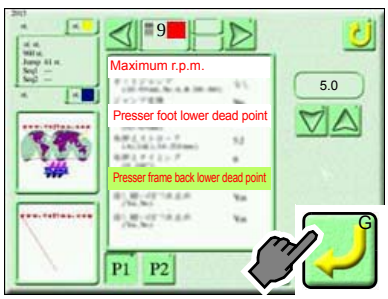
(13) Presser foot F.B. lower dead point



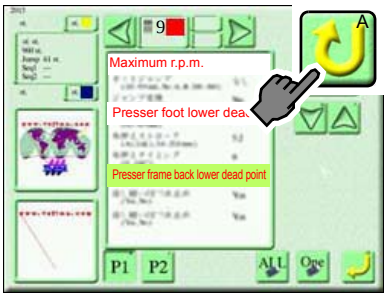
(14)5.0



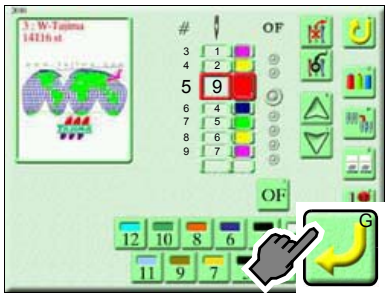
(15) To set



(16) Icon A



(17) To set (Completed)



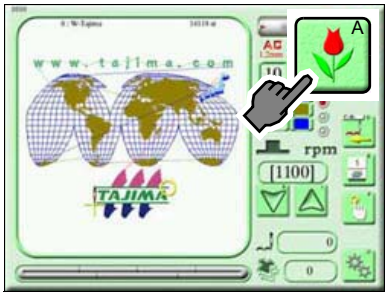
4-4. To replace a specified needle bar No. with another needle bar No. in a batch (Needle bar conversion)

[How to operate]

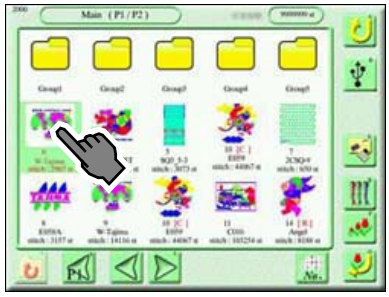
Example: Replace the needle bar No.8 to the needle bar No.6 in a batch.

Step No.	Needle Bar No.		Needle Bar No.
1	8	⇨	6
2	5		5
3	8	⇨	6
4	5		5
5	1		1
6	8	⇨	6

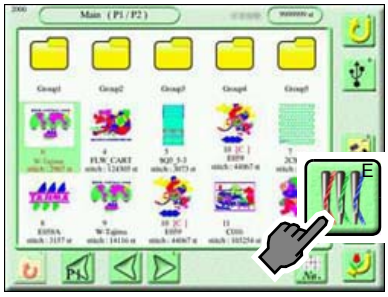
(1) Icon A



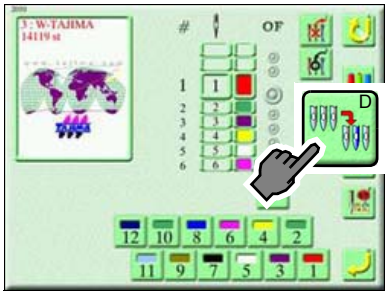
(2) Design



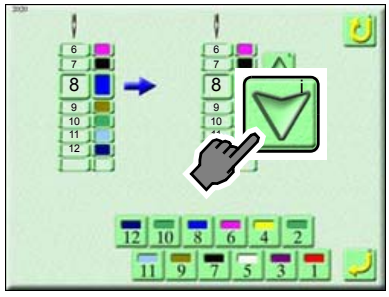
(3) Icon E



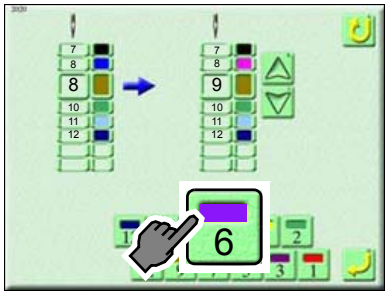
(4) Icon D



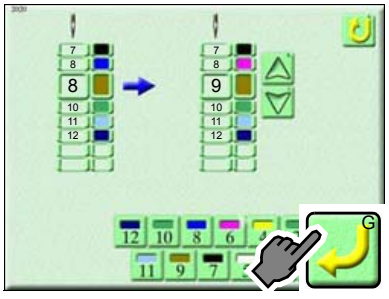
(5) Needle bar No.8



(6) Needle bar No.6



(7) To set (Completed)



5. To select working head to embroider (Head selection)

5-1. To set pattern No. in every needle bar step

Read "Outline of function" before operation. (→p.230)

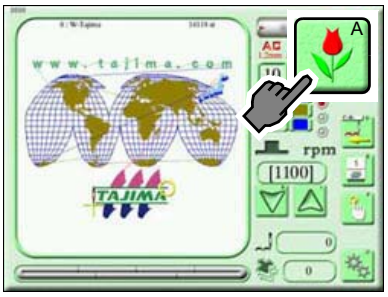
The value being set in the detail page will be applied as the pattern No. (→p.139)

[How to operate]

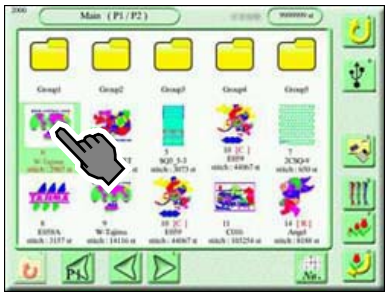
Example: Set the pattern No. to the needle bar step under the conditions in the chart below.

Needle bar step	Pattern No. Numbers in ( ) mean working heads
1	P7 (2, 4, 6, 8)
2	P5 (1, 3, 4, 6, 7)
3	P3 (2, 3, 5, 6, 8)

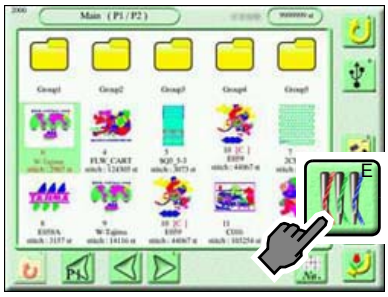
(1) Icon A



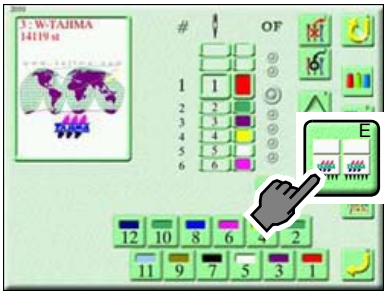
(2) Design



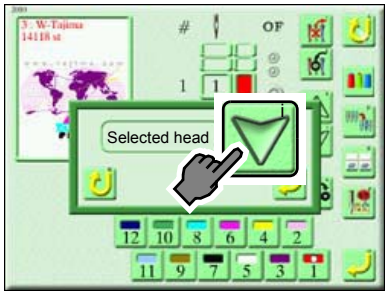
(3) Icon E



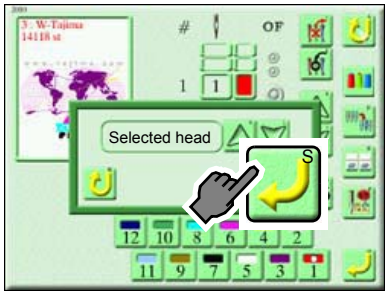
(4) Icon E



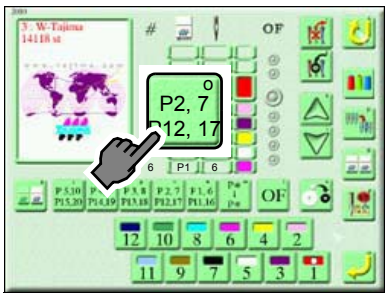
(5) Selected head



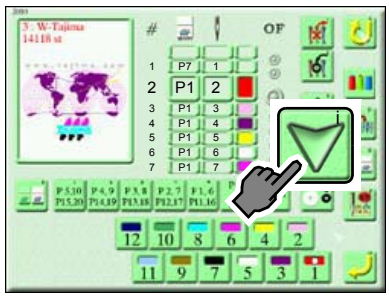
(6) To set



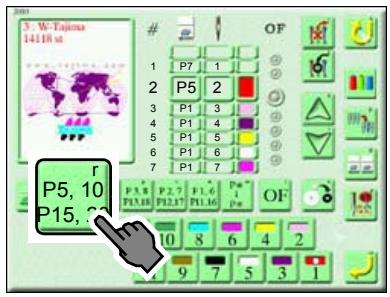
(7) P7 (Press icon twice)



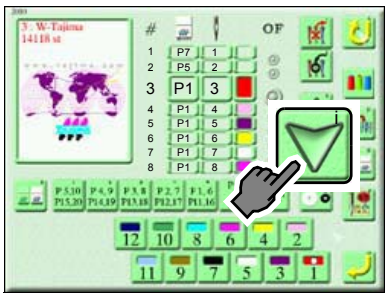
(8) Needle bar step 2



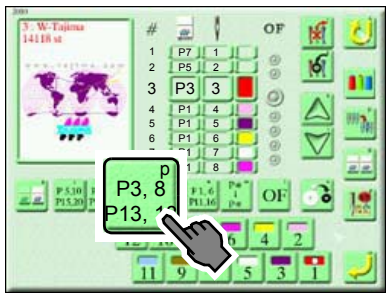
(9) P5



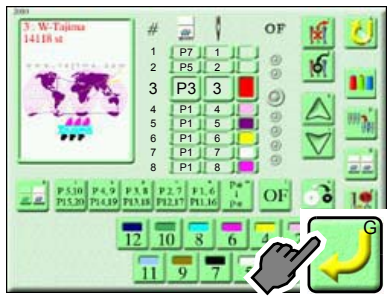
(10) Needle bar step 3



(11)P3



(12) To set (Completed)



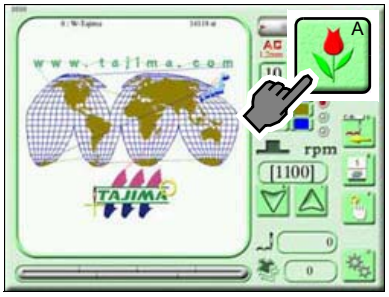
5-2. To set working head for each pattern

[How to operate]

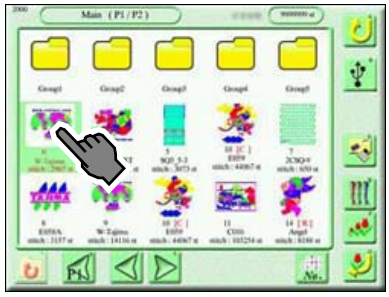
Example: Set working head for each pattern No. under the conditions in the chart below.

Pattern No.	Working head No.
P1	2, 4, 6, 8
P2	1, 3, 4, 6, 7
P3	2, 3, 5, 6, 8
P4 and after	All heads

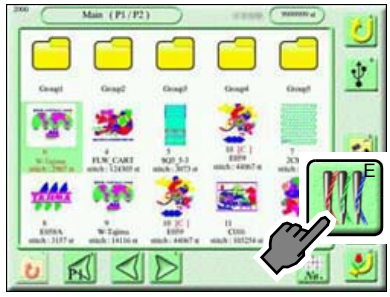
(1) Icon A



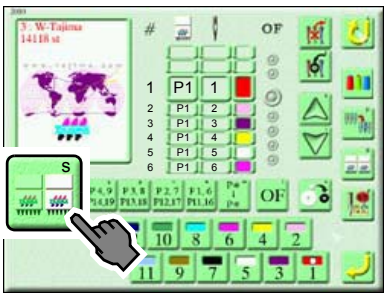
(2) Design



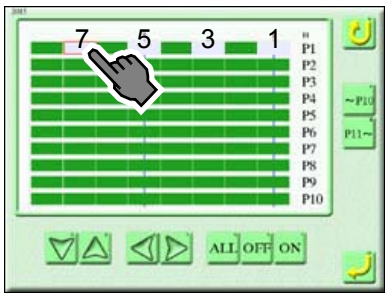
(3) Icon E



(4) Icon s



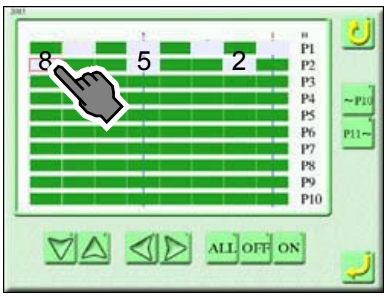
(5) 1, 3, 5, 7[1]



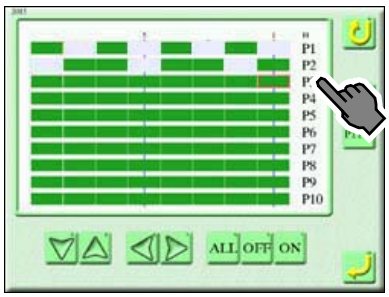
(6) P2

[1] Select the suspended head.

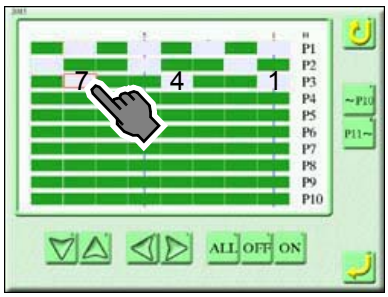
(7) 2, 5, 8



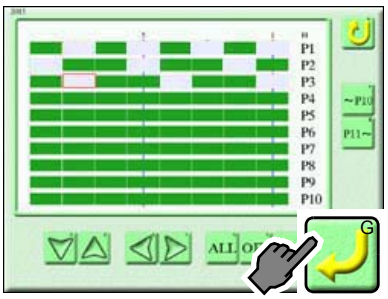
(8) P3



(9) 1, 4, 7



(10) To set (Completed)



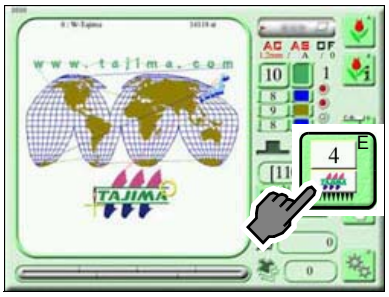
After that, perform the data set for this design.

5-3. Activate the odd-numbered head or the even-numbered head only.

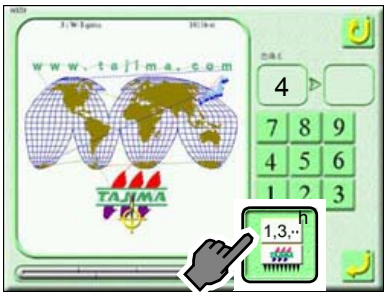
[How to operate]

Example: Suspend the odd-numbered head and activate the even-numbered head only.

(1) Icon E



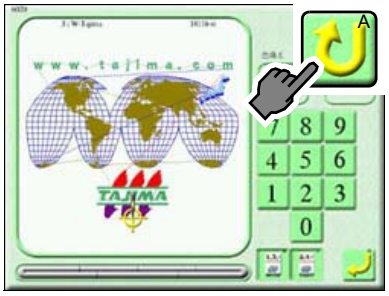
(2) Icon h



Suspend the odd-numbered head.

Activate the even-numbered head.

(3) Icon A (Completed)



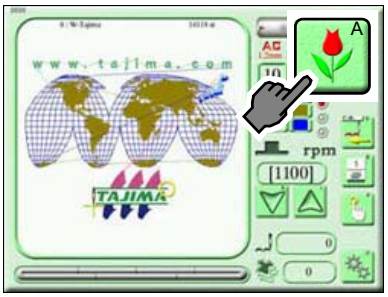
6. Needle bar color

6-1. To change the needle bar color

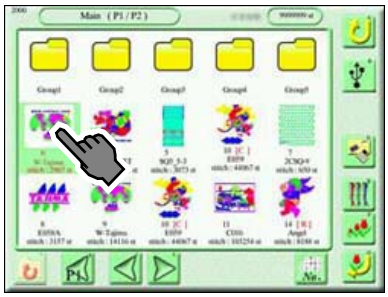
[How to operate]

Example: Change the needle bar No.1 to yellow, and the needle bar No.5 to black.

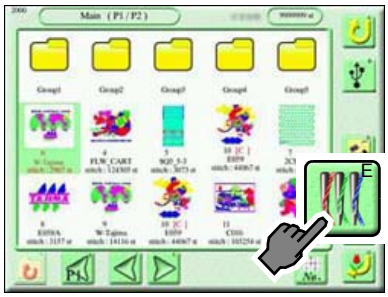
(1) Icon A



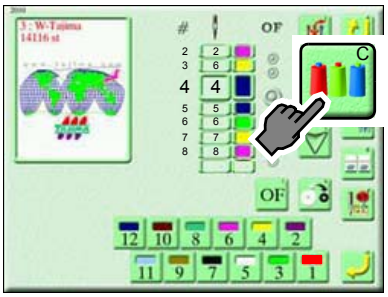
(2) Design



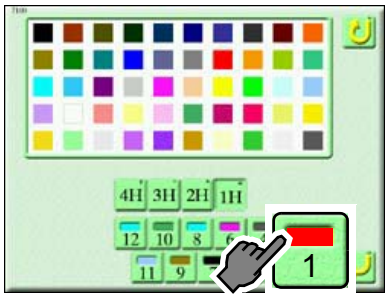
(3) Icon E



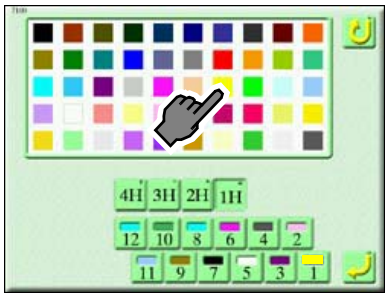
(4) Icon C



(5) Needle bar No.1

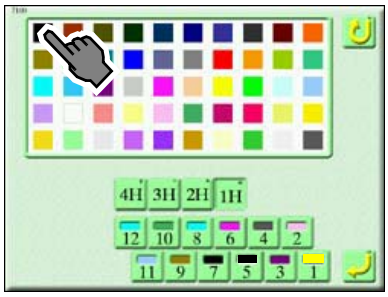


(6) Yellow

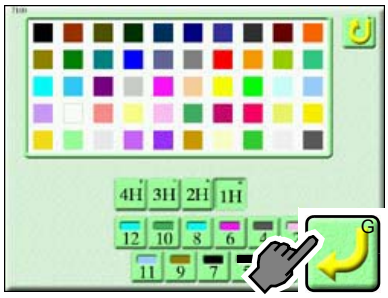


(7) Needle bar No.5

(8) Black



(9) To set (Completed)



Chapter 8
Optional device

1. Sequin Device 144

2. Automatic Lubrication System 149

1. Sequin Device

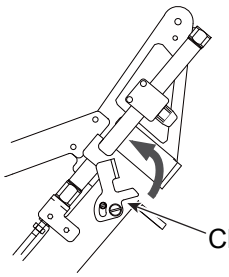
1-1. To raise/lower the Sequin devices on all heads together in a batch

This function can be operated only when the Needle Bar equipped with the Sequin Device is selected.

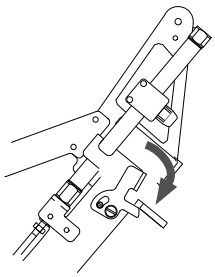
⚠ CAUTION

- When performing this operation, keep your hands, face etc. away from the Needle Bar Case. A moving Sequin Device could injure you.
- Do not raise/lower the air cylinder and its related parts by hand. It could damage the Sequin device.

About Sequin device IV operation



During use, raise the clutch lever.

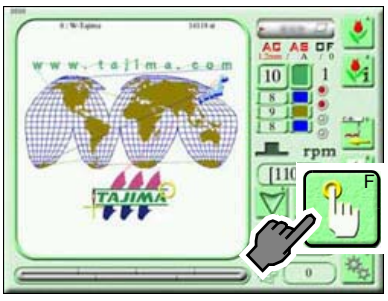


To turn OFF the power with the Sequin device raised, then lower the clutch lever.

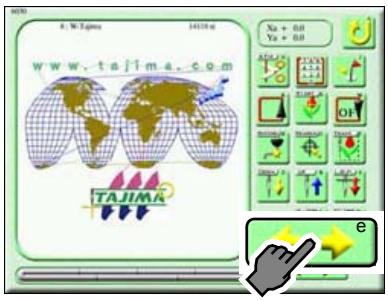
[How to operate]

Example: Lower the Sequin Device.

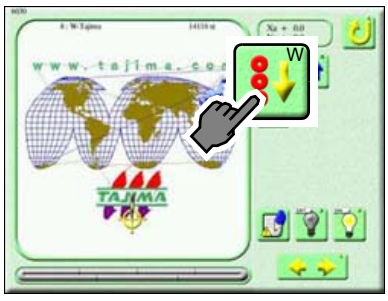
(1) Icon F



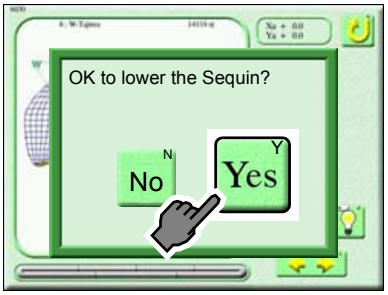
(2) Icon e



(3) Icon W



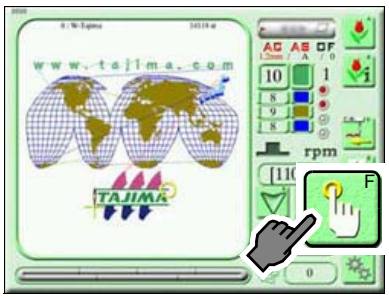
(4) Yes (Completed)



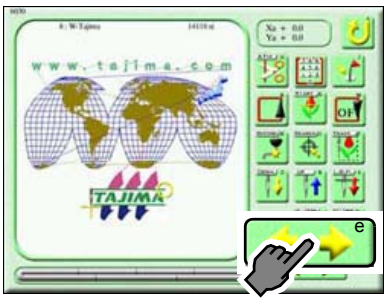
[How to operate]

Example: Raise the Sequin Device.

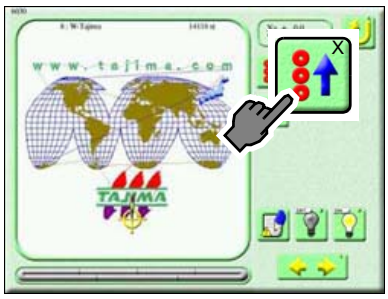
(1) Icon F



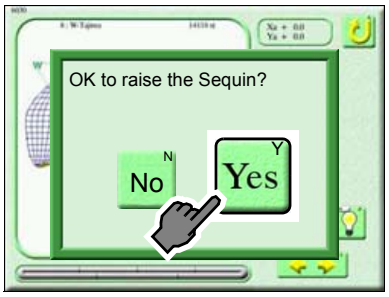
(2) Icon e



(3) Icon X



(4) Yes (Completed)



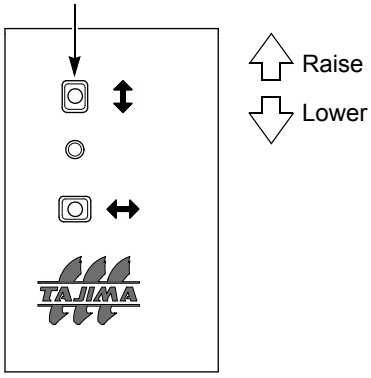
1-2. To raise the Sequin devices individually

This function corresponds to the Sequin Device III only.

⚠ CAUTION

When performing this operation, keep your hands, face etc. away from the Needle Bar Case. A moving Sequin Device could injure you.

Up/down switch



It is possible to operate only when the machine is stopped.

This function can be operated only when the Needle Bar equipped with the Sequin Device is selected.

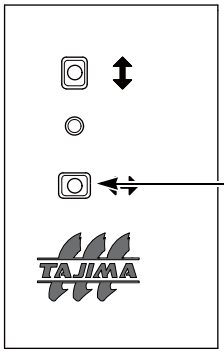
Flipping the switch during raising/lowering will cause the device to stop.

1-3. To perform Color Change manually

This function corresponds to the Sequin Device III only.

CAUTION

When performing this operation, keep your hands, face etc. away from the Needle Bar Case. A moving Sequin Device could injure you.



Color Change switch

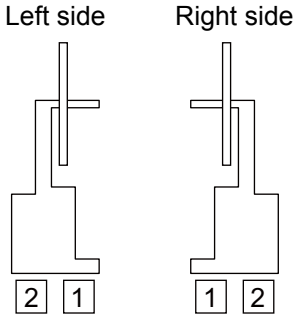
It will slide right and left.

It is possible to operate only when the machine is stopped.

This function can be operated only when the Needle Bar equipped with the Sequin Device is selected.

1-4. To replace Sequin 1 with Sequin 2 (Step unit)

Reverse Sequin 1 and Sequin 2 of the Sequin Device by step unit. This function corresponds to the Sequin Device III only.



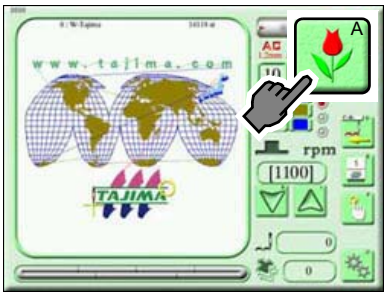
1 Sequin 1

2 Sequin 2

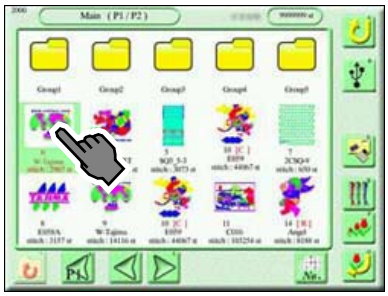
[How to operate]

Example: Reverse sequin embroidery of step 6 of the right side Sequin Device.

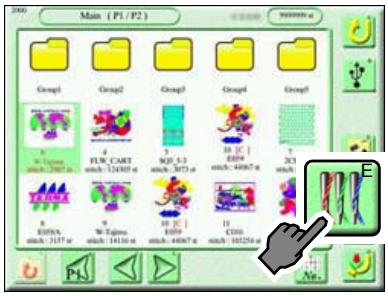
(1) Icon A



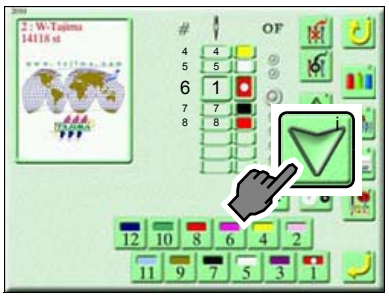
(2) Design



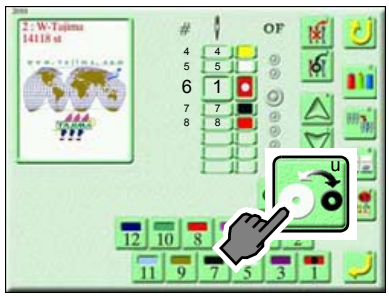
(3) Icon E



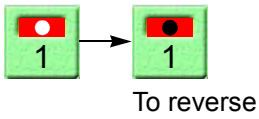
(4) Step 6



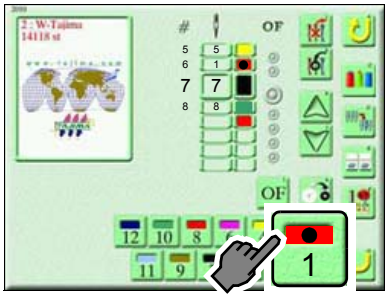
(5) Icon u



If icon u is pressed, the display of the needle bar icon of the 1st needle will be switched.



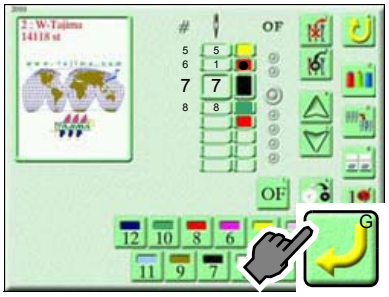
(6) Needle Bar No.1



If Needle Bar No.1 is pressed, Step 6 will be switched on the display as shown below.

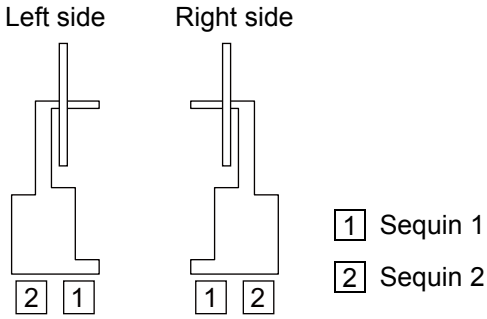
○ Not to reverse	Sequin 1 will be output by sequin output signal 1. Sequin 2 will be output by sequin output signal 2.
● To reverse	Sequin 2 will be output by sequin output signal 1. Sequin 1 will be output by sequin output signal 2.

(7) To set (Completed)



1-5. To replace Sequin 1 with Sequin 2 (Design data in a batch)

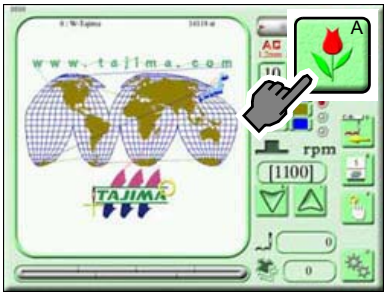
Reverse Sequin 1 and Sequin 2 of the Sequin Device together with the design data in a batch. After reversing, the design data will be overwritten. This function corresponds to the Sequin Device III only.



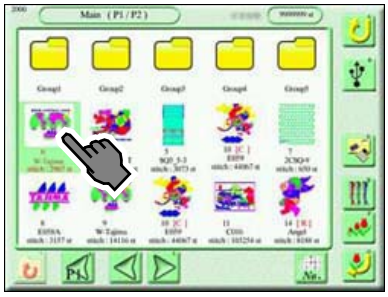
[How to operate]

Example: Reverse sequin embroidery of the right side Sequin Device in a batch.

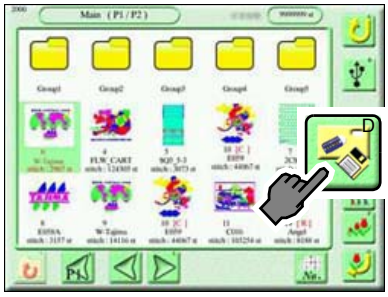
(1) Icon A



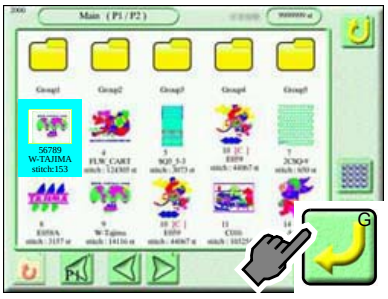
(2) Design



(3) Icon D



(4) To set



(5) Icon S

(6) Yes

(7) To set (Completed)

After that, perform the data set for this design.

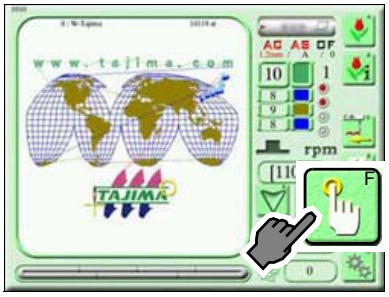
2. Automatic Lubrication System

2-1. To operate the Lubrication System

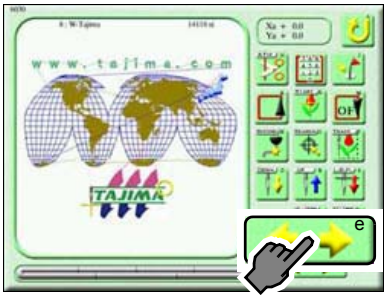
While the machine is stopped, operate the lubrication system manually and lubricate to the rotary hook or the inside of head.

[How to operate]

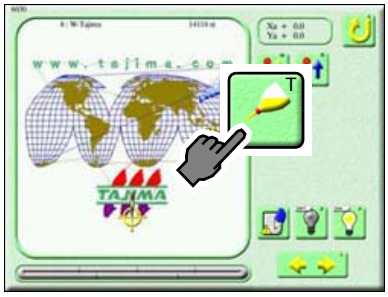
(1) Icon F



(2) Icon e

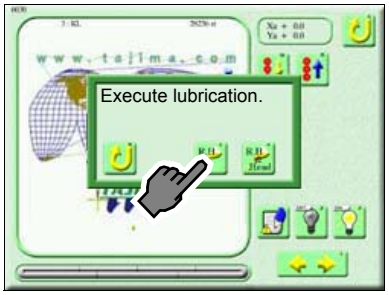


(3) Icon T



Type to lubricate rotary hook and inside of head

(4) Icon d (Completed)

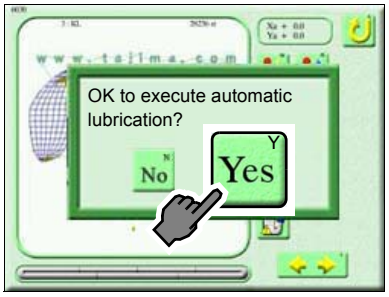


Lubricate to the rotary hook.

Lubricate to the rotary hook and inside the head.

Type to lubricate inside of head

(4) Icon d (Completed)



Chapter 9
Parameter (Setting item)

[Important]

About parameter display on the operation panel

All parameters are explained in this chapter. However, some parameters, which could affect embroidery quality if they are changed easily, are set to be hidden at shipment and they can not be changed.

To display or change them, input a password.

For details of the password, consult the distributor.

1. Display setting of parameter 152

2. Parameter 157

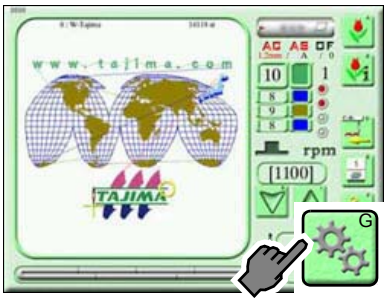
1. Display setting of parameter

This machine is shipped as the functional limit level "1". Display or hide parameters by the following operation according to the necessity of your use.

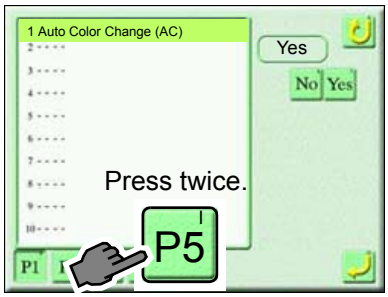
1-1. Not to display all parameters

From the state of the functional limit level "1", we explain operating method hereafter.

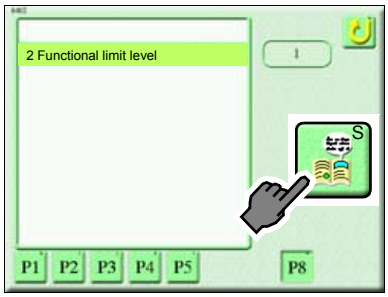
(1) Icon G



(2) Press P5 twice.



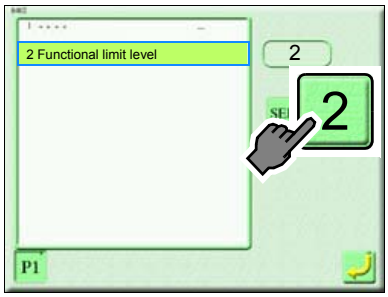
(3) Icon S



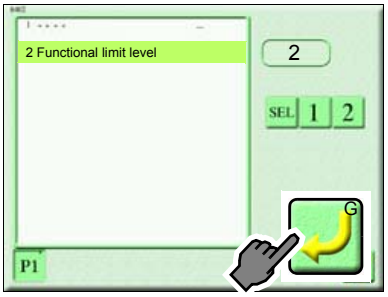
(4) Input a password.

(5) To set

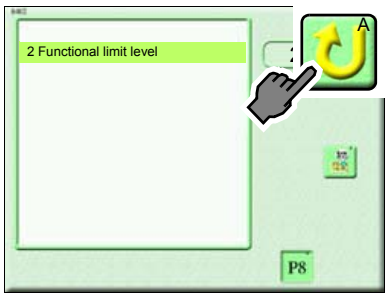
(6) Functional Limit Level 2



(7) To set



(8) Icon A (Completed)



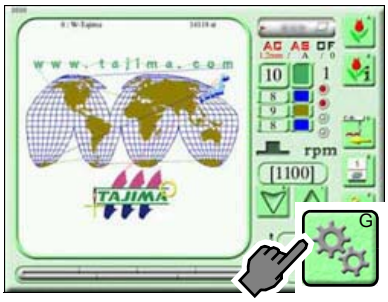
1-2. To display the desired parameter only.

From the state of the functional limit level "1", we explain operating method hereafter.

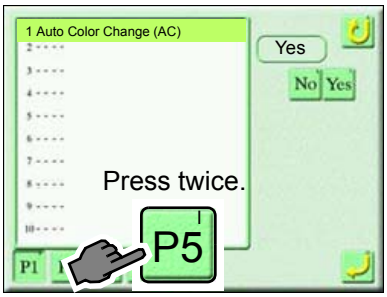
[An example of operation]

You want to display only "1 Auto Color Change (AC)" and "2 Auto Start".

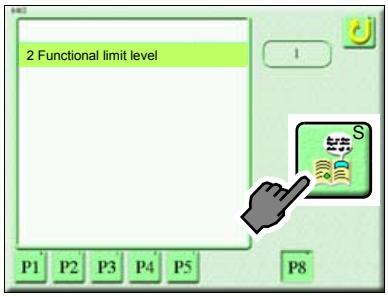
(1) Icon G



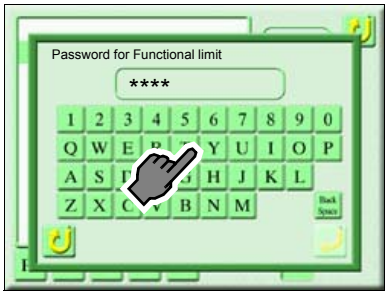
(2) Press P5 twice.



(3) Icon S

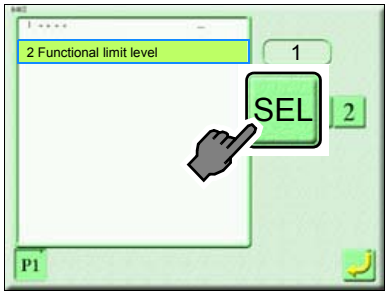


(4) Input a password.

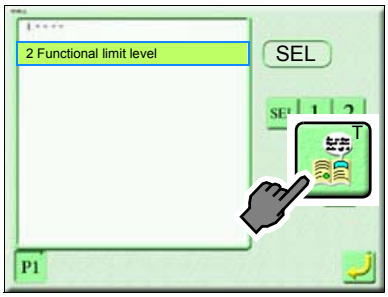


(5) To set

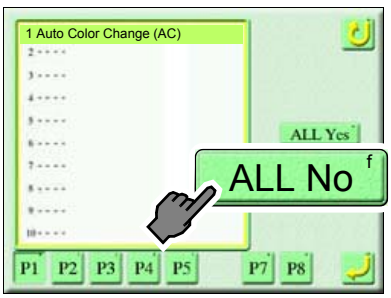
(6) SEL



(7) Icon T



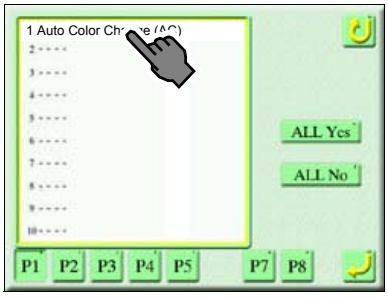
(8) ALL No



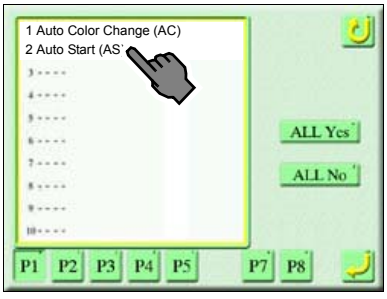
Outer frame turns yellow during setting level SEL.

Yellow

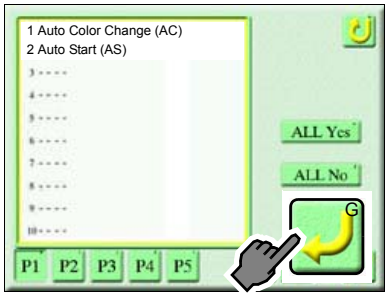
(9) 1 Auto Color Change (AC)



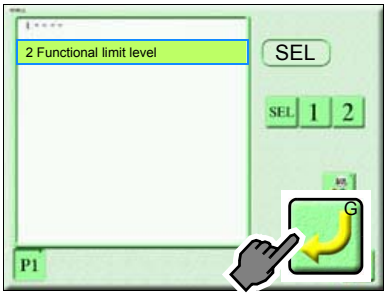
(10)2 Auto Start (AS)



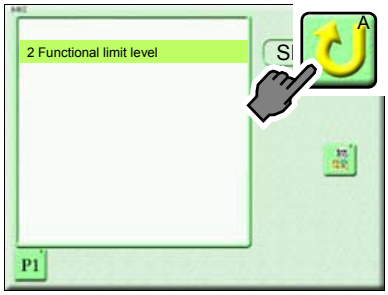
(11) To set



(12) To set



(13) Icon A (Completed)



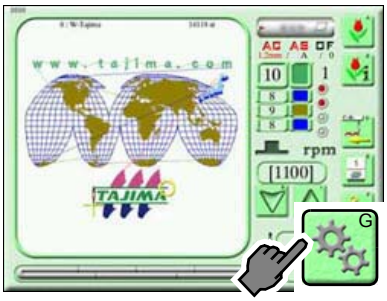
1-3. Not to display the desired parameter only.

From the state of the functional limit level "1", we explain operating method hereafter.

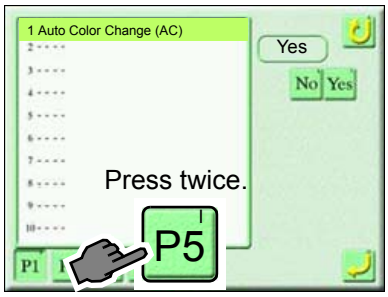
[An example of operation]

You want to hide only "9 Auto Jump" and "10 Jump Convert".

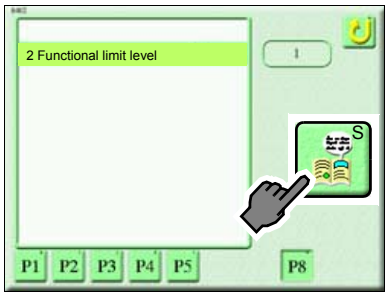
(1) Icon G



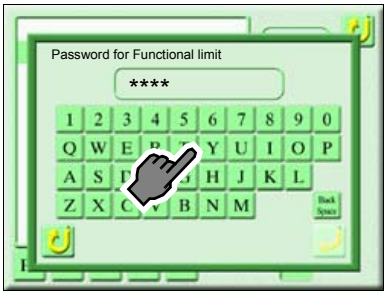
(2) Press P5 twice.



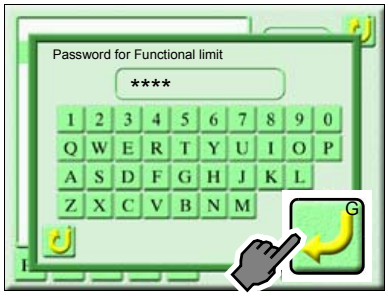
(3) Icon S



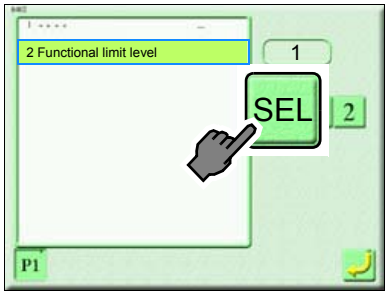
(4) Input a password.



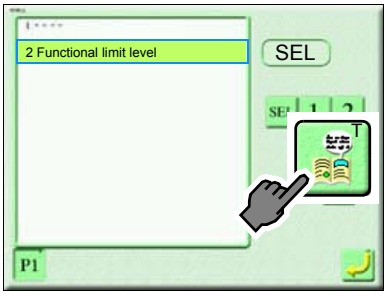
(5) To set



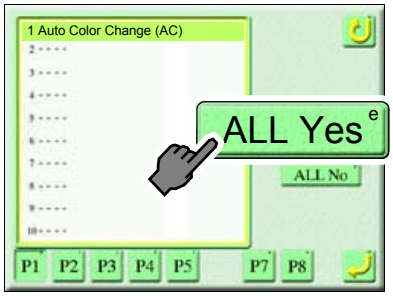
(6) SEL



(7) Icon T

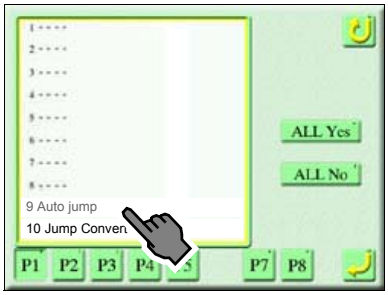


(8) ALL Yes

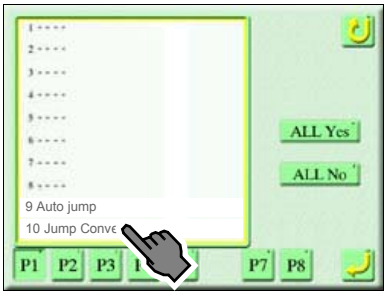


Outer frame turns yellow during setting level SEL.

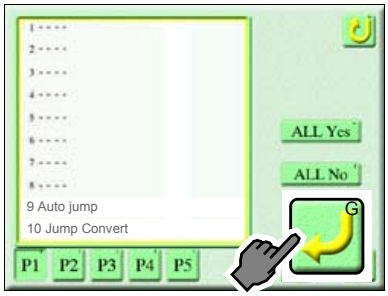
(9) 9 Auto jump



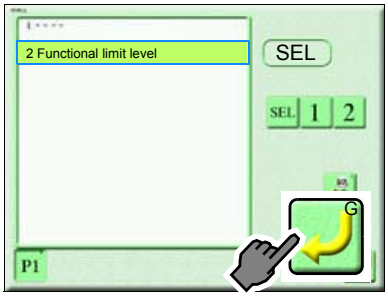
(10)10 Jump Convert



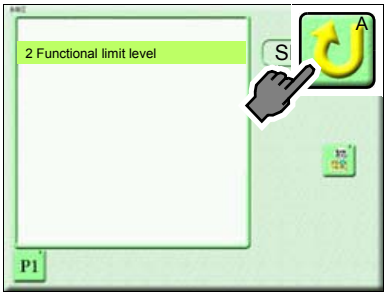
(11) To set



(12) To set



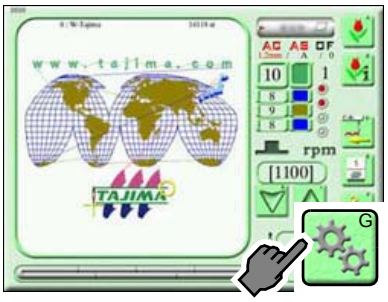
(13) Icon A (Completed)



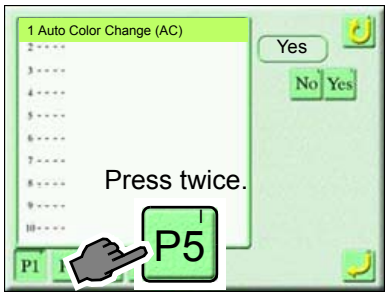
1-4. To display all parameters

From the state of the functional limit level "1", we explain operating method hereafter.

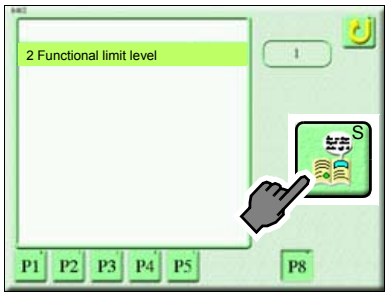
(1) Icon G



(2) Press P5 twice.

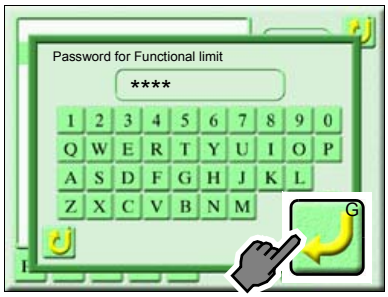


(3) Icon S

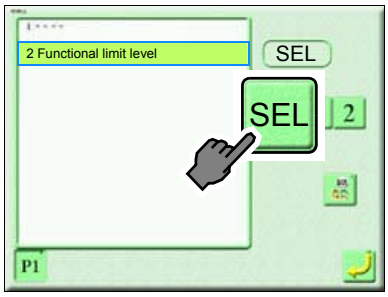


(4) Input a password.

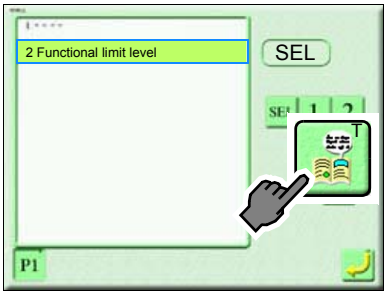
(5) To set



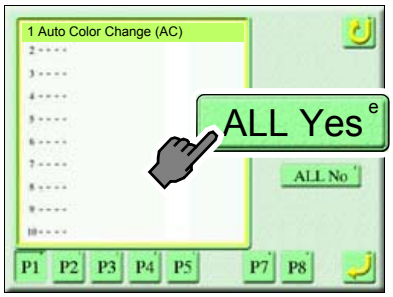
(6) SEL



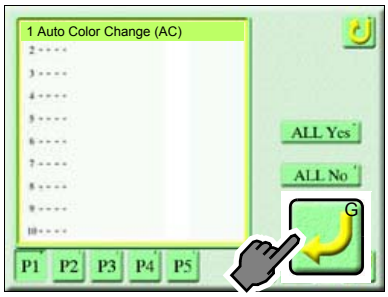
(7) Icon T



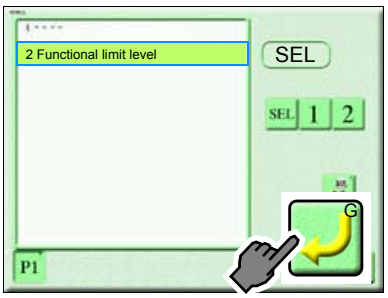
(8) ALL Yes



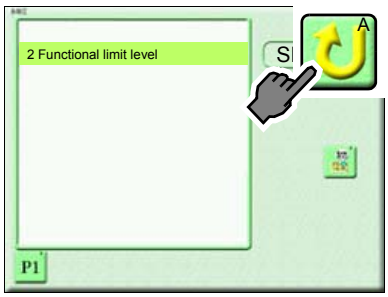
(9) To set



(10) To set



(11) Icon A (Completed)

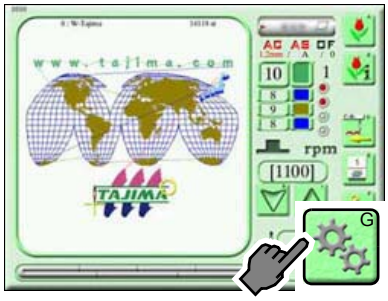


2. Parameter

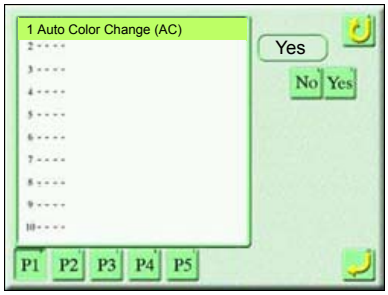
2-1. Page P1

[How to switch to page P1]

(1) Icon G

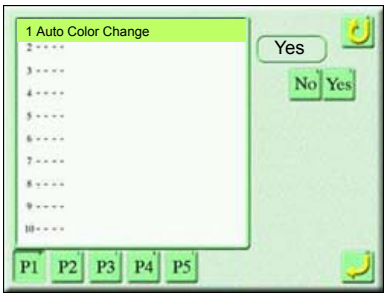


(2) Page P1



1 Auto Color Change (AC)

This is the setting to change the color automatically according to "Color change sequence".

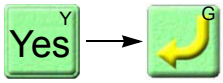


Setting range

Yes: Auto Color Change is performed.

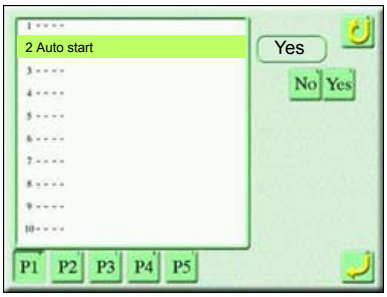
No: Auto Color Change is not performed.

Example: Yes



2 Auto Start (AS)

This is the setting to start the operation automatically after color change.

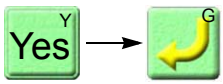


Setting range

Yes: Auto start is performed.

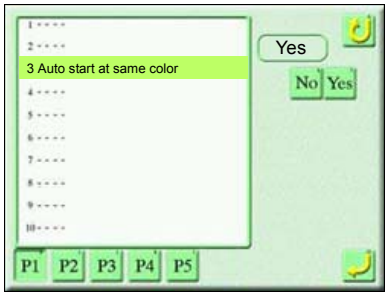
No: Auto start is not performed.

Example: Yes



3 Auto start at same color

This is the setting to start the operation automatically even if the same needle bar is selected before and after color change.



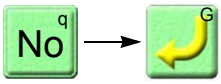
Setting range

Yes: Auto start is performed.

No: Auto start is not performed.

If "No" is selected, the machine will stop when the same needle bar is selected before and after color change. Therefore, it is effective for applique embroidery.

Example: No

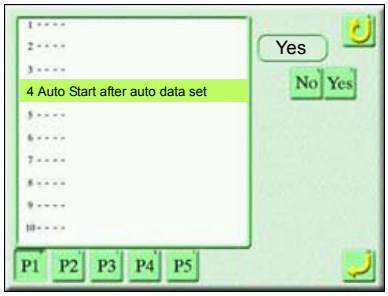


4 Auto Start after auto data set

CAUTION

After embroidery is finished, do not put your hands etc. on the table. Automatic start operation could injure you.

This is the setting to perform automatic start after finishing embroidery and embroider same design repeatedly.



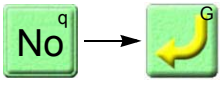
Setting range

Yes: Automatic start operation is performed after embroidery is finished.

No: Automatic start operation is not performed after embroidery is finished.

This function is effective for such a sock frame embroidery as changing sock frame one after another. Press "No" usually.

Example: No

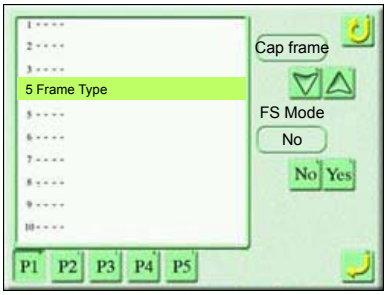


5 Frame Type, FS Mode

After replacing the frame, set the frame type. Also set FS mode.(→p.232)

CAUTION

When performing this operation, do not put your hands, etc. on the table. Moving the frame could injure you.



Setting range

TMAR-KC TYPE-2

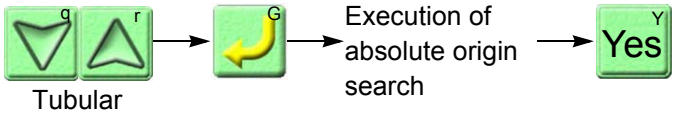
Border frame, cap frame, tubular goods frame

FS Mode is available only for border frame and tubular goods frame.

TMAR-VC

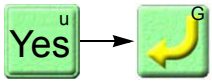
Cap frame, Tubular goods frame

Example: Select tubular goods frame.



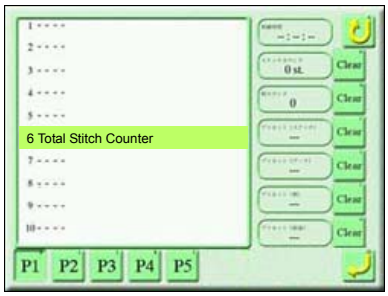
Frame type being set here will be displayed in the main screen (1010). (→p.50)

Example: Set FS Mode.



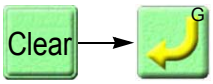
6 Total Stitch Counter

Display the time from start of operation to now, the number of stitches embroidered, the number of designs and remaining amount to Preset Halt.



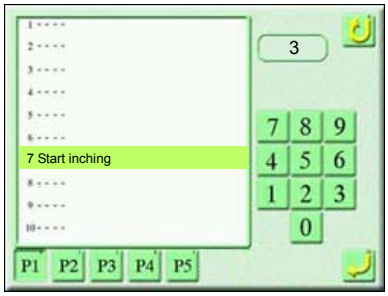
Example: Reset a design counter.

Design counter



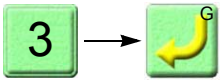
7 Start inching

After stopping the machine during embroidery, set the number of times of lowering the needle bar at slow operation performing when the operation starts again.



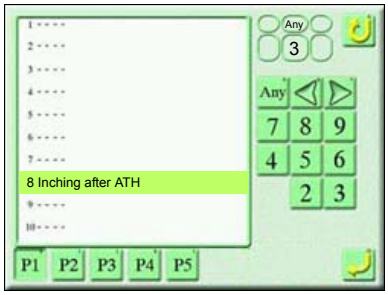
Setting range: 0 to 9 times

Example: 3 times



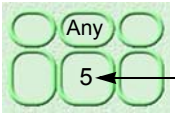
8 Inching after ATH

Set the times of lowering the needle bar by slow operation performed when starting operation again after data set and after thread trimming. It is possible to set by each needle bar.



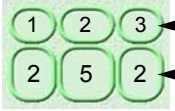
Setting range

Any: All needles in a batch



Times of lowering needle bar (2 to 9)

Unit of needle bar



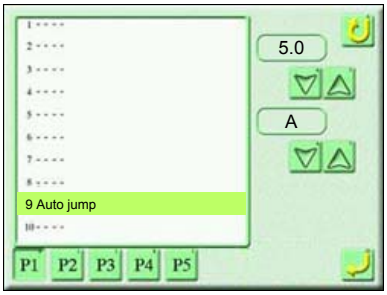
Needle bar No.

Times of lowering needle bar (2 to 9)

Example: Set all needle bars to three times.

9 Auto jump

This is the setting to perform jump automatically when stitch length is longer than the setting value. There are two types of auto jumps, A (Split auto jump) and B (Batch auto jump).
When the setting of Auto jump has been changed by "Step unit setting" individually, the value of "Step unit setting will take the priority.



Setting range

No: Auto jump is not performed.

2.0 to 9.9 mm: Automatic jump is performed.

A: Split auto jump

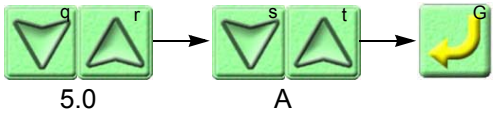
B: Batch auto jump

240 to 360°: Frame Start Timing

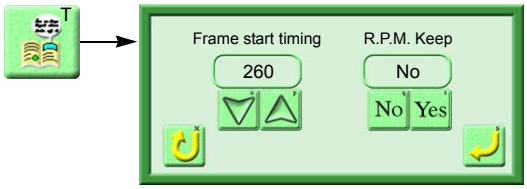
Yes: R.P.M. Keep is performed.

No: R.P.M. Keep is not performed.

Example: Set stitch length to 5.0 mm, and set to A (Split auto jump).

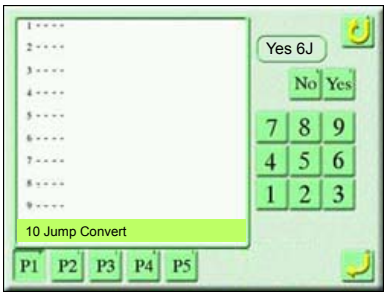


If B(Batch auto jump) was selected, press the icon T, and select Frame start timing and R.P.M. Keep.



10 Jump Convert

This is the setting to trim thread and move the frame to next stitch when jump codes continue more than the set times,
When the setting of Jump convert has been changed by "Step unit setting" individually, the value of "Step unit setting" will take the priority.



Setting range

Yes: Jump convert is performed. (1 to 9 times)

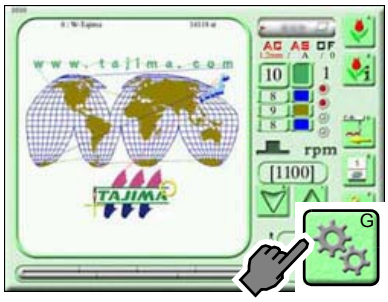
No: Jump convert is not performed.

Example: Set consecutive jump codes to 6 times.

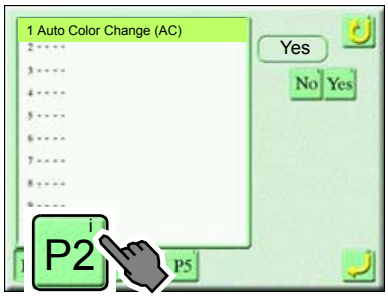
2-2. Page P2

[How to switch to page P2]

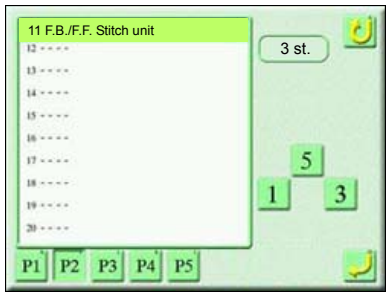
(1) Icon G



(2) P2

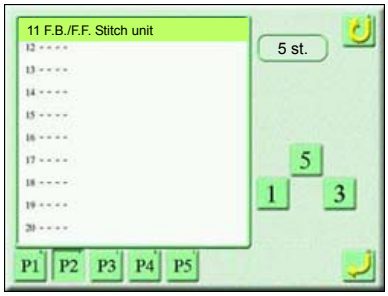


(3) Page P2



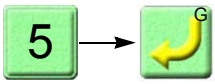
11 F.B./F.F. Stitch unit

Set frame feed amount when performing Frame back or Frame forward by 11 stitches or more.



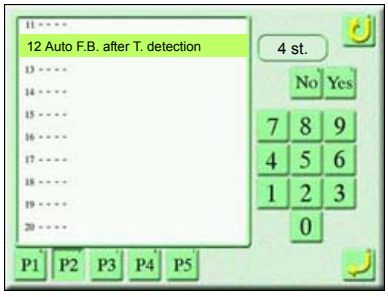
Setting range: 1, 3, 5 stitches

Example: Set feed amount to 5 stitches.



12 Auto F.B. after T. detection

This is the setting to perform Frame Back automatically at thread breakage.



Setting range

Yes: Auto F.B. is performed.

0 to 9: Number of stitches performing Frame Back

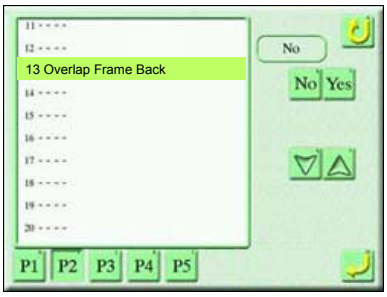
No: Auto F.B. is not performed.

The number of stitches to perform Frame Back is the total of this value and the value of "26. Upper thread detection" or "27. Under thread detection (unit)" of page P3 based on the stop point of the machine.

Example: Perform Frame Back by 4 stitches.

13 Overlap Frame Back

Set a start position of embroidering at all heads after Frame back.



Setting range

Yes: All heads start embroidery.

If "Yes" is selected, set All Head Sewing Start Point.

1: All heads start embroidering from the position where is one stitch prior to the start position of Frame back.

2: All heads start embroidering from the position where is two stitches prior to the start position of Frame back.

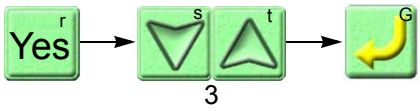
3 to 9:

All heads start embroidering from the position where is 3 to 9 stitches prior to the start position of Frame back.

Whole area: Embroider at whole area of Frame back section by all heads.

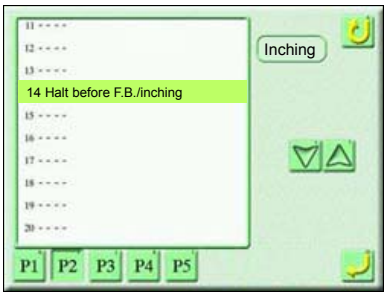
No: Overlap frame back at all heads is not performed.

Example: Embroider from the position where is 3 stitches prior to the start position of Frame back at all heads.



14 Halt before F.B./inching

Set a starting method to start embroidering at all heads after Frame back.

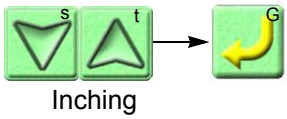


Setting range

Inching: Operate slowly.

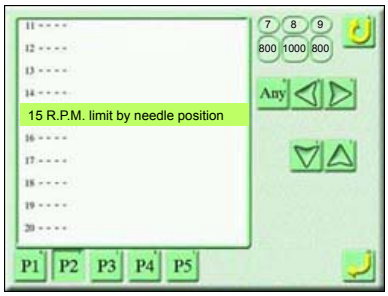
Stop: Stop at the position where all heads start embroidering

Example: Inching



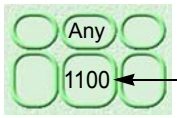
15 R.P.M. limit by needle position

Set the maximum speed by all needles in a batch or by needle bar unit. When Sequin device is equipped, set the maximum speed of Sequin device.



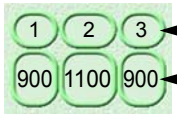
Setting range

Any: All needles in a batch



Maximum RPM (rpm)

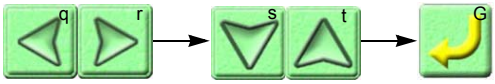
Unit of needle bar



Needle bar No.

Maximum RPM (rpm)

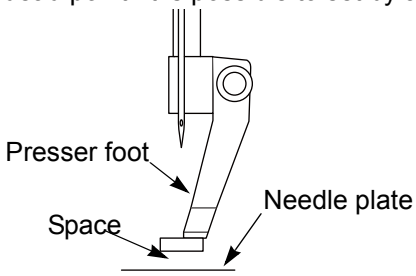
Example: Set 8th needle to 1000 rpm.



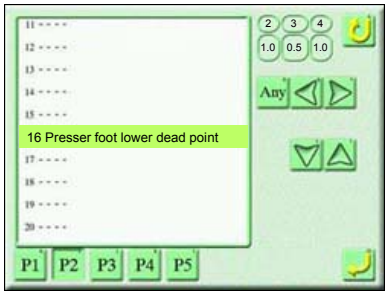
Needle bar No. 8 1000

16 Presser foot lower dead point

Set the distance between the presser foot and the needle plate when the presser foot goes down to the lower dead point. It is possible to set by all needles in a batch or by needle bar unit.

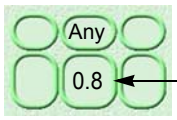


When the setting of Presser foot lower dead point has been changed by "Step unit setting" individually, the value of "Step unit setting" will take the priority.



Setting range

Any: All needles in a batch



Presser foot lower dead point (0.3 to 6.3 mm)

Unit of needle bar

Needle bar No.

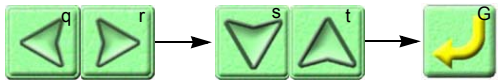
Presser foot lower dead point (0.3 to 6.3 mm)

Presser foot lower dead point setting range of the needle bar where Multi Cording Device is equipped will become the following value.

0.3 to 5.3 (mm)

When Sequin Device or Multi Cording Device is equipped, "Any" (all needles in a batch) icon will be not displayed, and the setting of needle bar unit only is available.

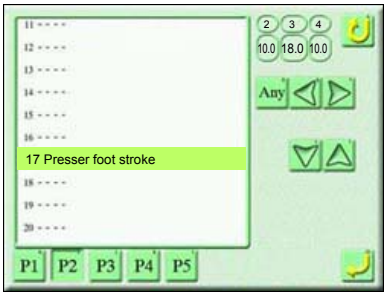
Example: Set Presser foot lower dead point of 3rd needle to 0.5 mm.



Needle bar No.3 0.5

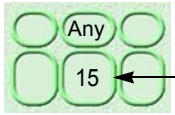
17 Presser foot stroke

Set stroke amount of the presser foot . It is possible to set by all needles in a batch or by needle bar unit.
This function is effective only when "19 Presser foot stroke mode" is set to "M".
When the setting of Presser foot stroke has been changed by "Step unit setting" individually, the value of "Step unit setting" will take the priority.



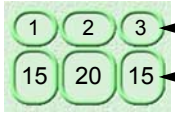
Setting range

Any: All needles in a batch



Presser foot stroke (mm)

Unit of needle bar



Needle bar No.

Presser foot stroke (mm)

Setting range of the presser foot stroke differs depending on the Operation Level.

5.0 to 22.0 (mm): Operation level 1

2.0 to 22.0 (mm): Operation level SEL

The presser foot stroke setting range of the needle bar where Sequin Device is equipped will become the following value regardless of the operation level.

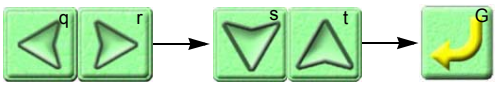
13.9 (mm) fixed

The presser foot stroke setting range of the needle bar where Multi Cording Device is equipped will become the following value regardless of the operation level.

0.0 to 22.0 (mm)

When Sequin Device or Multi Cording Device is equipped, "Any" (all needles in a batch) icon will be not displayed, and the setting of needle bar unit only is available.

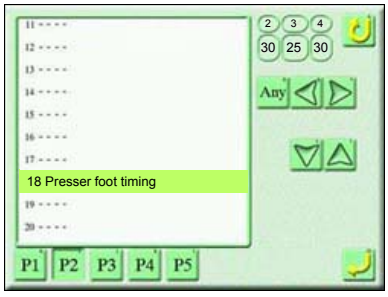
Example: Set Presser foot stroke amount of 3rd needle to 18.0 mm.



Needle bar No.3 18.0

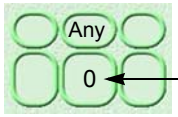
18 Presser foot timing

Set the timing when the presser foot goes down. It is possible to set by all needles in a batch or by needle bar unit. The initial value is 0. It is not necessary to change this value in usual use.
When the setting of Presser foot timing has been changed by "Step unit setting" individually, the value of "Step unit setting" will take the priority.



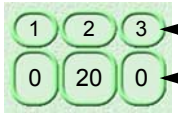
Setting range

Any: All needles in a batch



Presser foot timing (-20 to +20)

Unit of needle bar

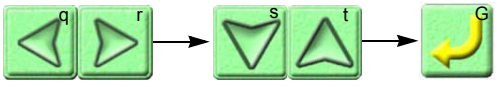


Needle bar No.

Presser foot timing (-20 to +20)

When Sequin Device is equipped, "Any" (all needles in a batch) icon will be not displayed, and the setting of needle bar unit only is available.

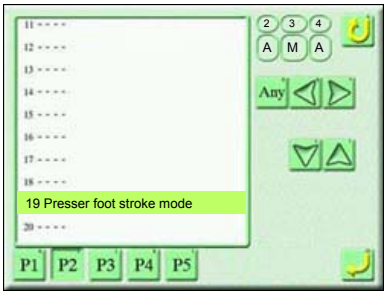
Example: Set Presser foot timing of 3rd needle to 10.



Needle bar No.3 10

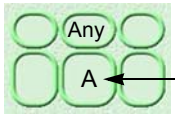
19 Presser foot stroke mode

Set Stroke mode of the presser foot . It is possible to set by all needles in a batch or by needle bar unit. When the setting of Presser foot stroke mode has been changed by "Step unit setting" individually, the value of "Step unit setting" will take the priority.



Setting range

Any: All needles in a batch



Presser foot stroke mode (A, M)

Unit of needle bar

Needle bar No.

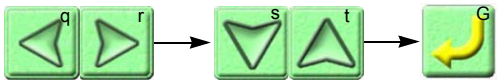
Presser foot stroke mode (A, M)

A (Automatic)
According to maximum speed of the machine, the presser foot will perform Stroke automatically (usual setting).

M (Manual)
The maximum speed of the machine is limited depending on stroke amount. (The stroke amount is always fixed.)

Select "M" mainly when embroidering to thick fabric.

Example: Set 3rd needle to M.

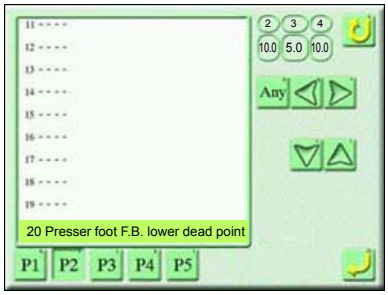


Needle bar No.3 M

20 Presser foot F.B. lower dead point

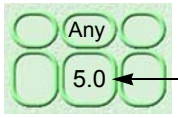
Set a presser foot lower dead point at Frame back. It is possible to set by all needles in a batch or by needle bar unit.

When the setting of Presser foot F.B. lower dead point has been changed by "Step Unit Setting" individually, the value of "Step unit Setting" will take the priority.



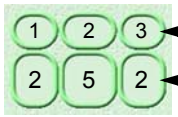
Setting range

Any: All needles in a batch



Presser foot F.B. lower dead point (5.0 to 22.0 mm)

Unit of needle bar



Needle bar No.

Presser foot F.B. lower dead point (5.0 to 22.0 mm)

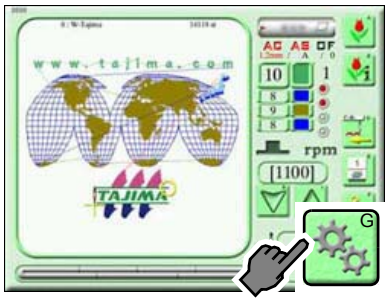
Example: Set all needles to 10.0 mm.

10.0

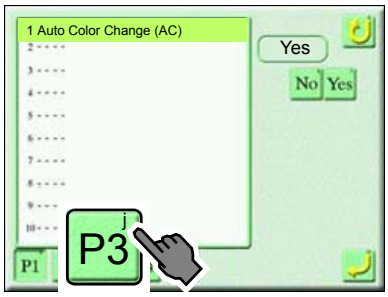
2-3. Page P3

[How to switch to page P3]

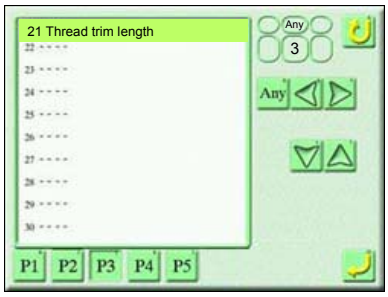
(1) Icon G



(2) P3

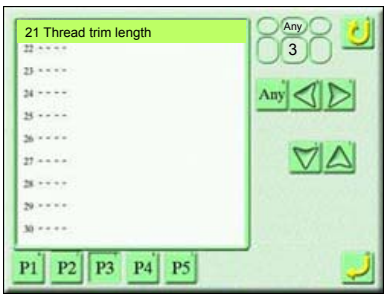


(3) Page P3



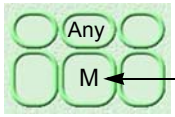
21 Thread trim length

Adjust the remaining length of the upper thread after thread trimming by all needles in a batch or by needle bar unit.



Setting range

Any: All needles in a batch



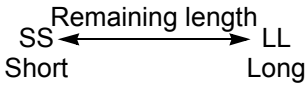
Thread trim length (SS, S, M, L, LL)

Unit of needle bar

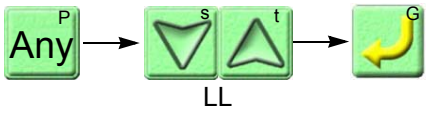
Needle bar No.

Thread trim length (SS, S, M, L, LL)

SS, S, M, L, LL

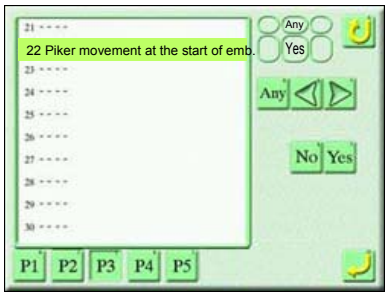


Example: Set all needle bars to "LL".



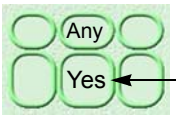
22 Piker movement at the start of emb.

Set the picker movement at start of embroidery by all needles in a batch or by needle bar unit.



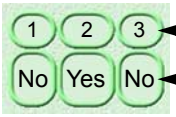
Setting range

Any: All needles in a batch



Picker movement at start of emb. (Yes, No)

Unit of needle bar



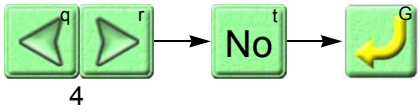
Needle bar No.

Picker movement at start of emb. (Yes, No)

Yes: The picker will move.

No: The picker will not move.

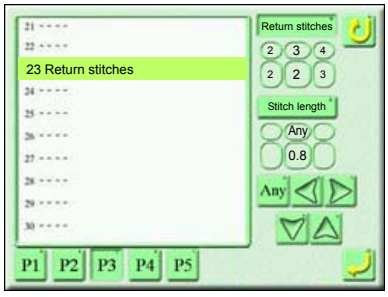
Example: Set to 4th needle and to "Picker will not move".



23 Return stitches

Set the number and the stitch length of Return stitches to be executed at start of embroidery by all needles in a batch or by unit of needle bar.

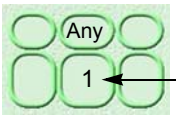
When the setting of Return stitches has been changed by "Step unit setting" individually, the value of "Step unit setting" will take the priority.



Setting range

Return stitches

Any: All needles in a batch



Number of Return stitches(0,1,2)

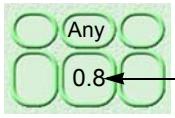
Unit of needle bar

Needle bar No.

Number of Return stitches(0, 1, 2)

Stitch length

Any: All needles in a batch



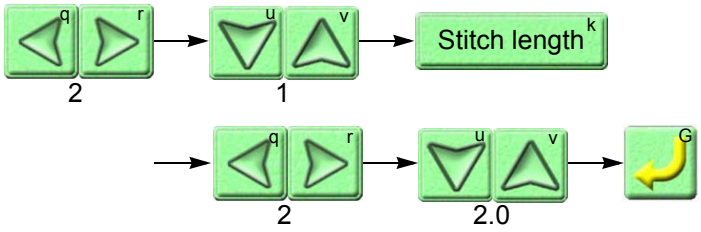
Stitch length (0.6, 0.8, 1.0, 1.2, 1.6, 2.0 mm)

Unit of needle bar

Needle bar No.

Stitch length (0.6, 0.8, 1.0, 1.2, 1.6, 2.0 mm)

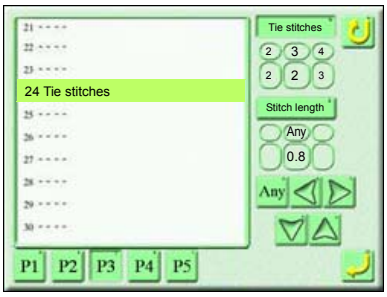
Example: Set to 2nd needle, Return stitch one time and 2.0 mm of stitch length.



24 Tie stitches

Set the pattern and the stitch length of Tie stitches to be executed before thread trimming by all needles in a batch or by unit of needle bar.

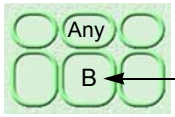
When the setting of Tie stitches has been changed by "Step unit setting" individually, the value of "Step unit setting" will take the priority.



Setting range

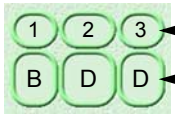
Tie stitches

Any: All needles in a batch



Tie stitches (A, B, C, D, E)

Unit of needle bar



Needle bar No.

Tie stitches (A, B, C, D, E)

A to E: Tie stitching methods

A: Tie stitching is not performed.

B: Tie stitching is performed.

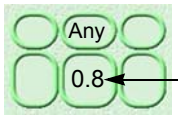
C: After embroidering 2 stitches at the same place, tie stitching will be performed.

D: Tie stitching will be performed twice.

E: B and D are switched to the direction of Tie stitches.

Stitch length

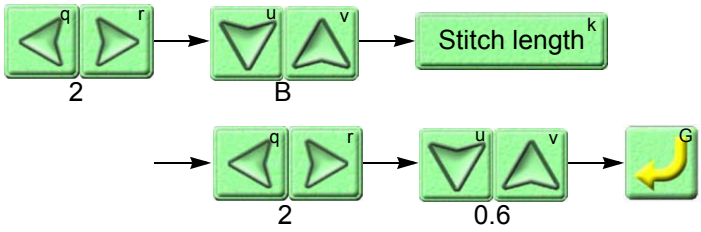
Any: All needles in a batch



Unit of needle bar

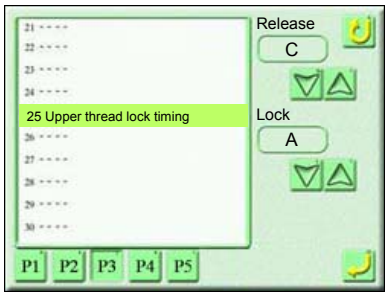
0.4, 0.6, 0.8, 1.0, 1.2, 1.6, 2.0 (mm)

Example: Set to 2nd needle, Tie stitch B and 0.6 mm of stitch length.



25 Upper thread lock timing

Set the remaining length of the upper thread at start of embroidery (Release) and at thread trimming (Lock).



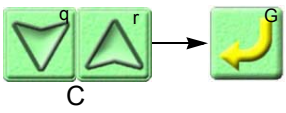
Setting range

Release: A, B, C

Lock: A, B, C

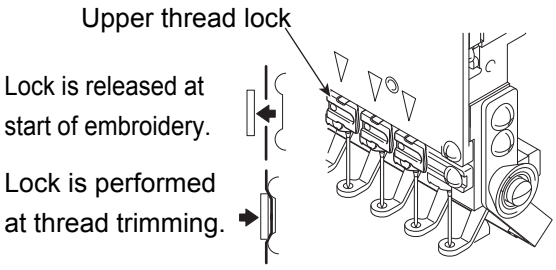
Example: Set "Release" to C.

Release



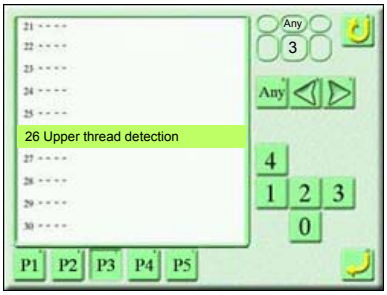
A
B
C ↓ Upper thread is easy to remain

Upper thread is hard to remain



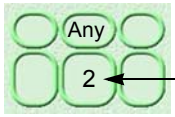
26 Upper thread detection

Set the sensitivity of detection when the thread breaks by all needles in a batch or by needle bar unit. When the setting of Thread breakage detection has been changed by "Step unit setting" individually, the value of "Step unit setting" will take the priority.



Setting range

Any: All needles in a batch



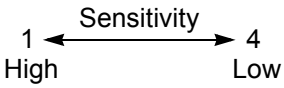
Detection sensitivity (0, 1, 2, 3, 4)

Unit of needle bar

Needle bar No.

Detection sensitivity (0, 1, 2, 3, 4)

"0" does not detect thread breakage. The machine does not stop even if thread breakage occurs.

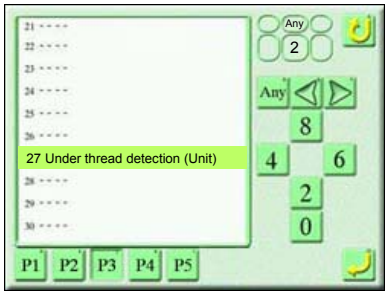


If the detection sensitivity is set to "3", the machine will stop working when detecting thread breakage three times.

Example: Set all needle bars to three times.

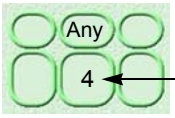
27 Under thread detection (Unit)

Set how many consecutive detection pulses for "28 Under thread detection (step ratio)" are regarded as thread breakage by all needles in a batch or by Needle Bar Unit.
When the setting of Thread breakage detection has been changed by "Step unit setting" individually, the value of "Step unit setting" will take the priority.



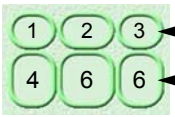
Setting range

Any: All needles in a batch



Detection sensitivity (0, 2, 4, 6, 8)

Unit of needle bar



Needle bar No.

Detection sensitivity (0, 2, 4, 6, 8)

"0" does not detect thread breakage. The machine does not stop even if thread breakage occurs.

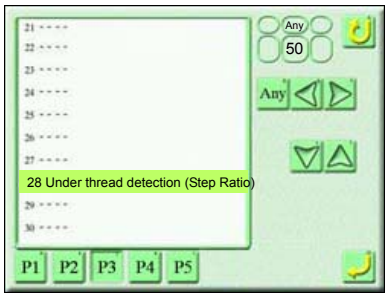
Sensitivity
2 ← → 8
High Low

If the number of detecting times is set to "2", the machine will stop working when detecting "28 Under thread detection (step ratio)" twice.

Example: Set all needle bars to two times.

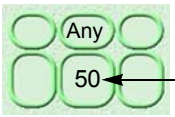
28 Under thread detection (Step Ratio)

Set the detection sensitivity of the under thread breakage by all needles in a batch or by needle bar unit.



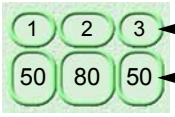
Setting range

Any: All needles in a batch



Detection ratio
(30, 40, 50, 60, 70, 80, 90, 100%)

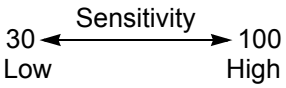
Unit of needle bar



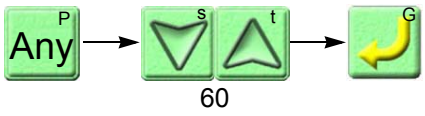
Needle bar No.

Detection ratio
(30, 40, 50, 60, 70, 80, 90, 100%)

Detection ratio (%)

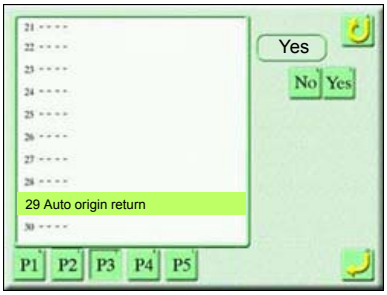


Example: Set all needle bars to 60%.



29 Auto origin return

This is the setting to return the frame to start position after embroidery is finished.

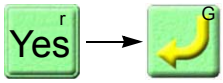


Setting range

Yes: Start position is returned.

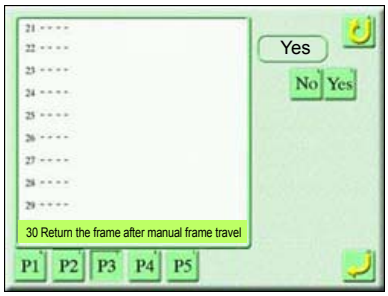
No: Start position is not returned.

Example: Yes



30 Return the frame after manual frame travel

This is the setting to return the frame to the previous position by the bar switch or the start switch operation after moving the frame during embroidery.



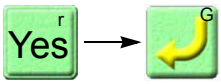
Setting range

Yes: The frame is returned to previous position.

No: The frame is not returned to previous position.

If "No" is selected, "Automatic data point return" will be invalid. In this case, the frame will not return and the embroidery will be started from the position after the frame moving by switch operation.

Example: Yes



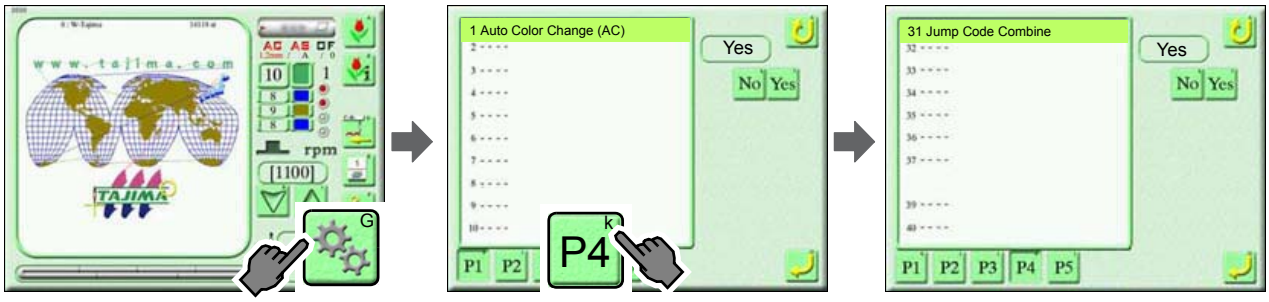
2-4. Page P4

[How to switch to page P4]

(1) Icon G

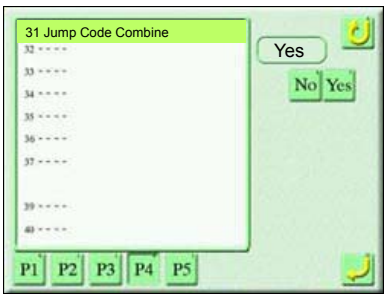
(2) P4

(3) Page P4



31 Jump Code Combine

This is the setting to combine moving amount of consecutive jump and to feed the frame all at once. It is possible to combine until moving amount becomes 36.0 mm.

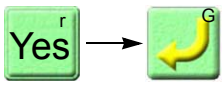


Setting range

Yes: Jump Code Combine is performed.

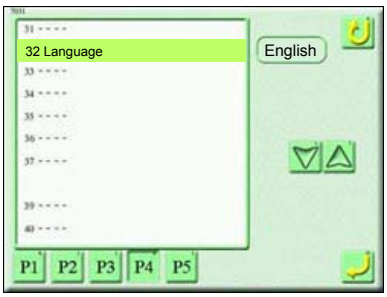
No: Jump Code Combine is not performed.

Example: Yes

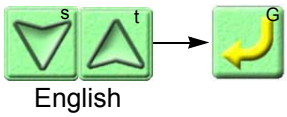


32 Language

Switch the language display of screen.

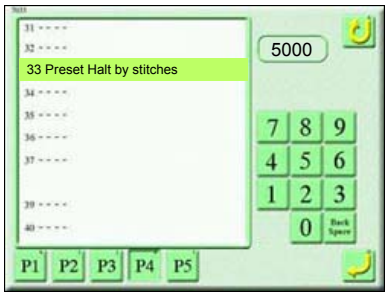


Example: English



33 Preset Halt by stitches

This is the setting to stop the machine automatically when the number of stitches are reached to setting value.



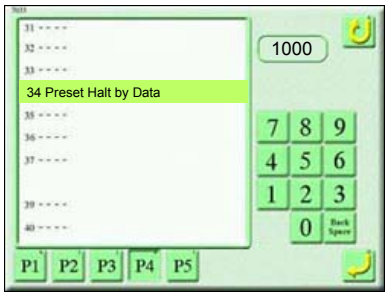
Setting range: 0 to 999,999 stitches

Example: Stop at 5000 stitches.

After stop, "1D2" will be displayed.

34 Preset Halt by Data

This is the setting to make the machine to stop automatically when the number of design embroidered is reached to the cumulative value.



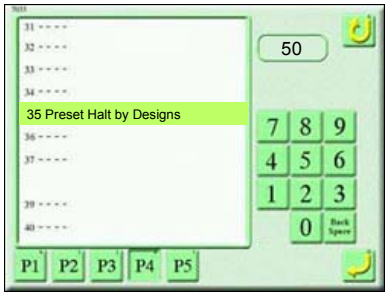
Setting range: 0 to 99,999 cm

Example: Stop at 1,000 cm.

After stop, "1D2" will be displayed.

35 Preset Halt by Designs

This is the setting to make the machine to stop automatically when the number of design embroidered is reached to the cumulative value.



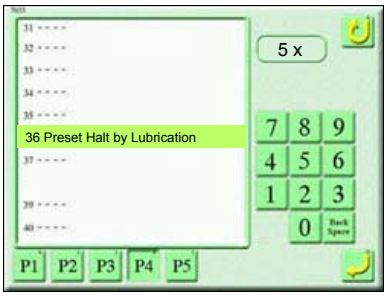
Setting range: 0 to 999 designs

Example: Stop at 50 designs.

After stop, "1D2" will be displayed.

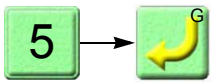
36 Preset Halt by Lubrication

This is the setting to stop the machine automatically when the number of stitches are reached to setting value.



Setting range: 0 to 990,000 stitches

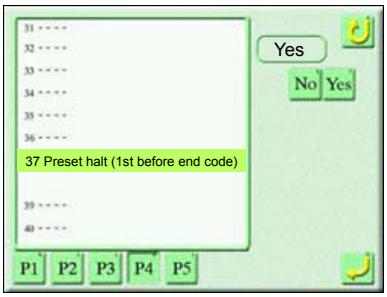
Example: Stop at 50,000 stitches.



The setting value x 10,000 stitches is the number of stitch to stop. After stop working, "OIL" will be displayed. It is effective only when the setting of "9 Automatic lubrication system" of page P7 is "No".

37 Preset halt (1st before end code)

This is the setting to stop the machine automatically at the position where one stitch before embroidering end.



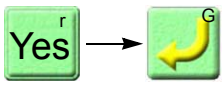
Setting range

Yes: Automatic stop is performed.

No: Automatic stop is not performed.

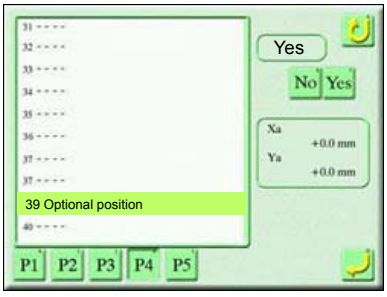
If "Yes" is selected, it is possible to perform frame back after stop of the machine.

Example: Yes



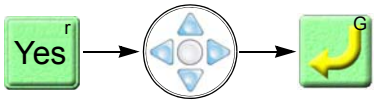
39 Optional position

Register the desired frame position.



Setting range: Embroidery space

Example: Register the frame position.

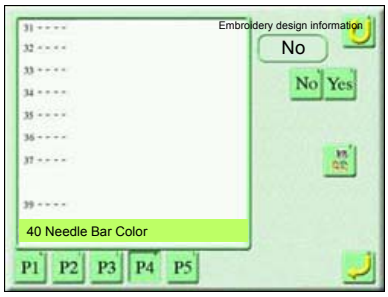


Frame Travel

If "Yes" is selected, X/Y coordinates from frame origin will be displayed.

40 Needle Bar Color

Color the design on the operation panel according to the color of thread to use actually.

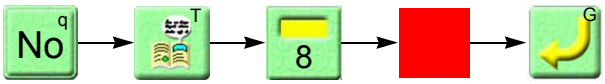


Setting range

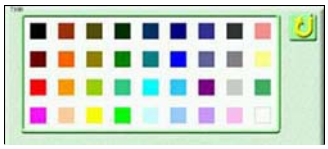
Yes: The color is set to the setting color when making design.

No: A color is selected in the palette.

Example: Change 8th needle to red.



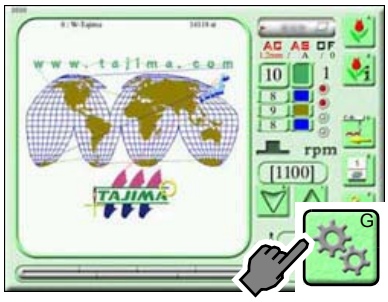
Select a color in the palette.



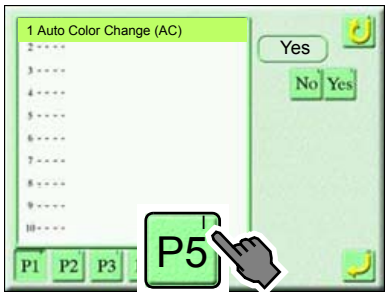
2-5. Page P5

[How to switch to page P5]

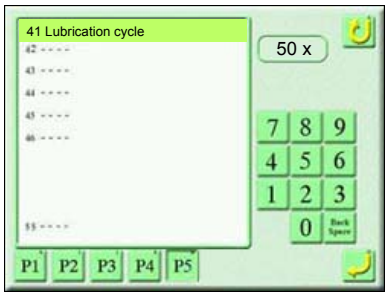
(1) Icon G



(2) P5

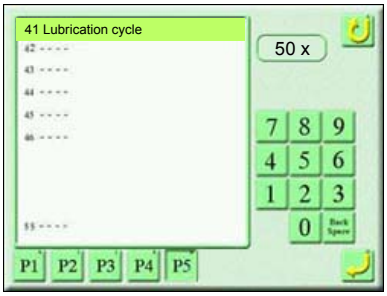


(3) Page P5



41 Lubrication cycle

Set the cycle (number of stitches) that Automatic lubrication system will lubricate the rotary hook.

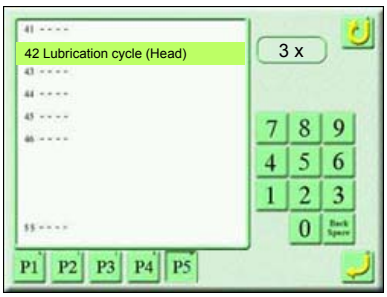


Setting range: 0 to 9,999 (x 1,000 stitches)

Example: Lubricate one time at 50,000 stitches.

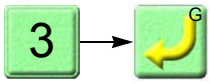
42 Lubrication cycle (Head)

Set the cycle (number of stitches) that Automatic lubrication system will lubricate to the inside of the head.



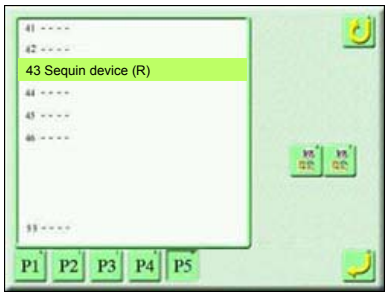
Setting range : 0 to 100 (X41 Lubrication cycle)

Example: Lubricate one time per 150,000 stitches.



43 Sequin device (R)

Set sequin feed amount of Sequin Device at the right side.



Setting range

Sequin Device III: 3.0 to 9.9 mm

Sequin Device IV: 3.0 to 23.0 mm

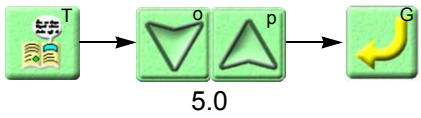
The left figure is an display example when the type of sequin is "SQ3".(→p.195)

Icon S will not be displayed in case of "SQ4".

Icon S

Example:

Set the sequin feed amount of Sequin 1 of the Sequin Device III to 5.0 mm.



5.0

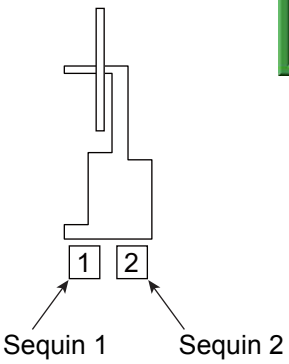
Icon T

Sequin 1

Icon S

Sequin 2

2H, 3H and 4H are not used currently.



Rough standard of sequin feed amount is +1.0 mm for sequin size.

According to the feed amount, the maximum speed of the machine will become as below.

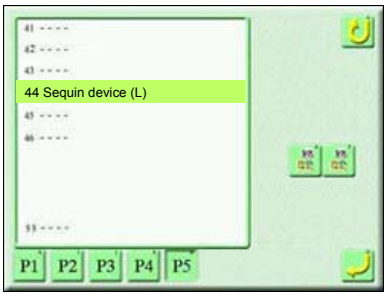
3.0 to 8.5 mm: 1,000 rpm

9.0 to 19.5 mm: Maximum speed will decrease at a uniform ratio.

20.0 to 23.0 mm: 600 rpm

44 Sequin device (L)

Set sequin feed amount of Sequin Device at the left side.



Setting range

Sequin Device III: 3.0 to 9.9 mm

Sequin Device IV: 3.0 to 23.0 mm

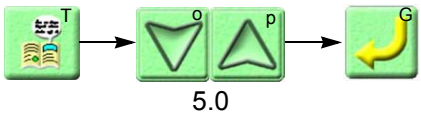
The left figure is an display example when the type of sequin is "SQ3". (→p.196)

Icon S will not be displayed in case of "SQ4".

Icon S

Example:

Set the sequin feed amount of Sequin 1 of the Sequin Device III to 5.0 mm.



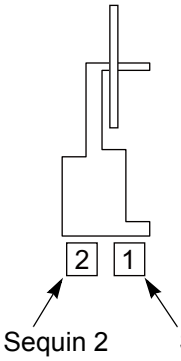
5.0

Icon T

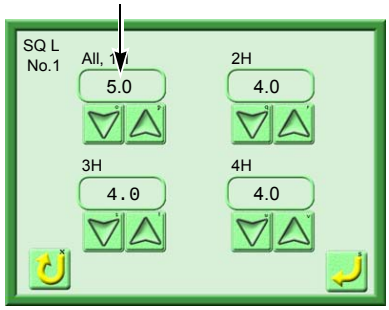
Sequin 1

Icon S

Sequin 2



5.0



2H, 3H and 4H are not used currently.

Rough standard of sequin feed amount is +1.0 mm for sequin size.

According to the feed amount, the maximum speed of the machine will become as below.

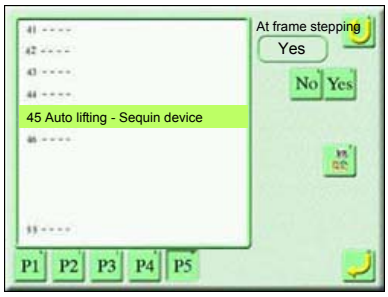
3.0 to 8.5 mm: 1,000 rpm

9.0 to 19.5 mm: Maximum speed will decrease at a uniform ratio.

20.0 to 23.0 mm: 600 rpm

45 Auto lifting - Sequin device

Set to raise/not to raise Sequin device at frame stepping, at thread breakage or when sequin chip runs out.



Setting range

Frame stepping

Yes: Move up Sequin device to the upper dead point at frame stepping.

No: Do not move up Sequin device at frame stepping.

Thread breakage

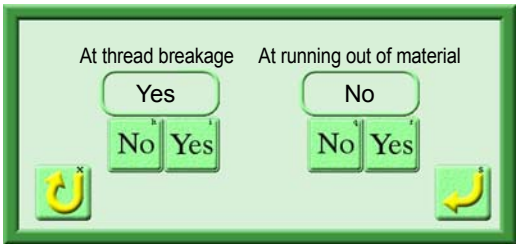
Yes: Sequin device is moved up to the upper dead point at thread breakage.

No: Sequin device is not raised at thread breakage.

Running out of material

Yes: When sequin runs out, Sequin device is moved up to the intermediate point.

No: When sequin runs out, Sequin device is not moved up.

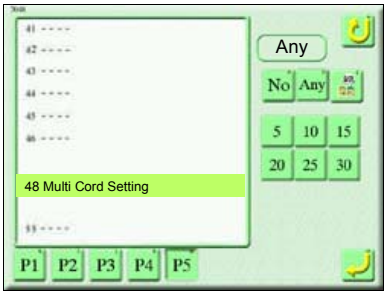


Example: Move up the sequin device to the upper dead point.

At thread breakage

48 Multi Cord Setting

This is the setting that sews several stitches and stop the operation to treat the cord material after starting the operation at needle bars equipped with Multi Cording Devices. The number of needles of return stitches are not counted.



Setting range

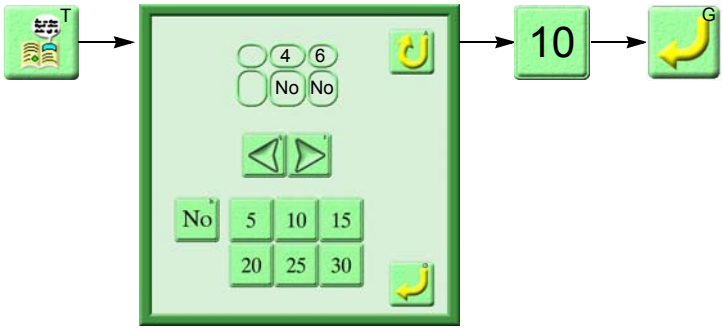
No: Do not stop the operation.

Any: Stop the operation at all needle bars equipped with Multi Cording Devices.

Needle bar: Select the needle bar equipped with Multi Cording Devices and stop the operation.

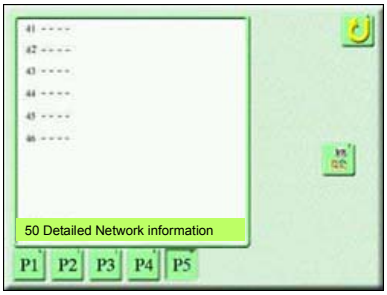
Example:

Sew 10 stitches at 4th needle and stop the machine.

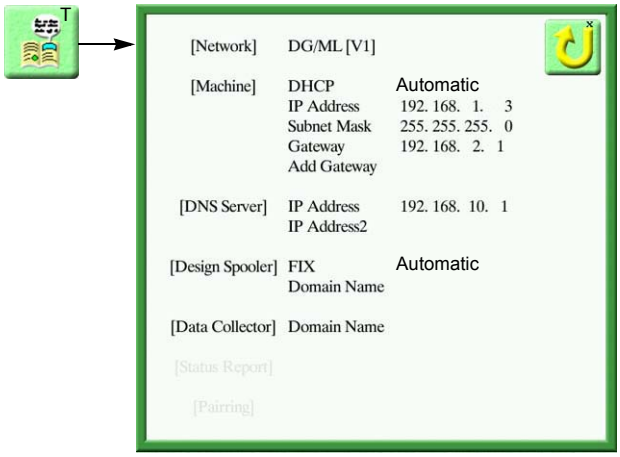


50 Detailed Network information

It is possible to check the setting state of Network.



How to check

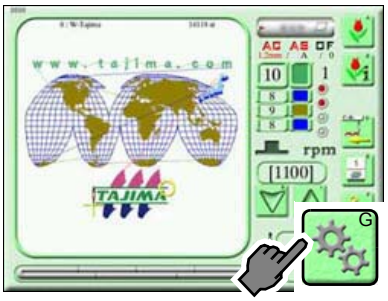


2-6. Page P7

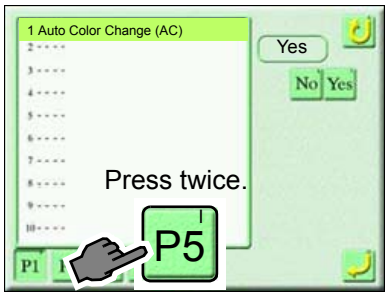
To change the parameter explained in page P7, it is necessary to input a password. For details, consult the distributor.

[How to switch to page P7]

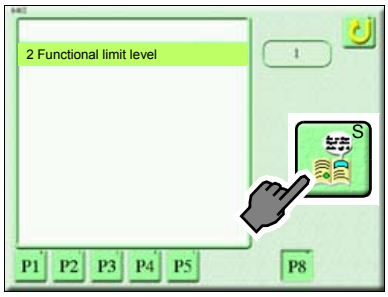
(1) Icon G



(2) Press P5 twice.



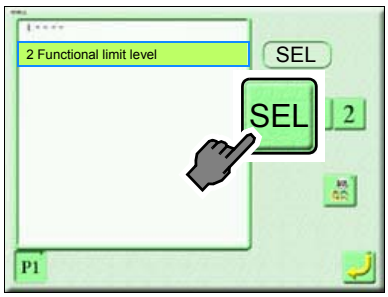
(3) Icon S



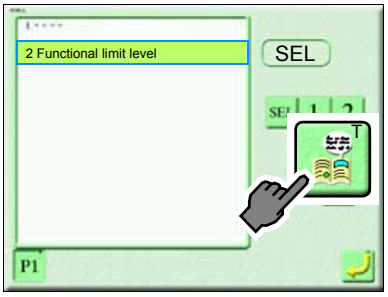
(4) Input a password.

(5) To set

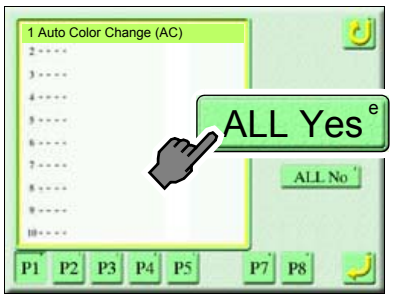
(6) SEL



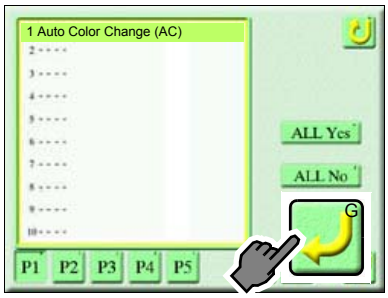
(7) Icon T



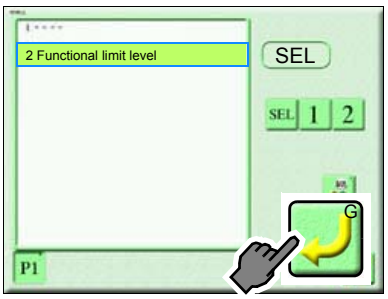
(8) ALL Yes



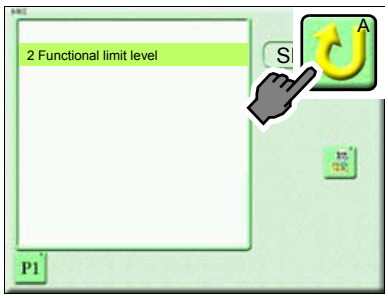
(9) To set



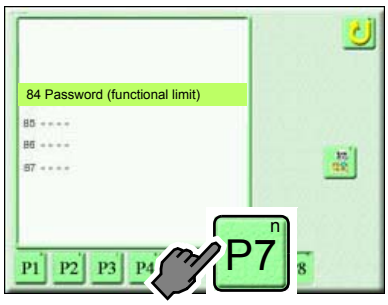
(10) To set



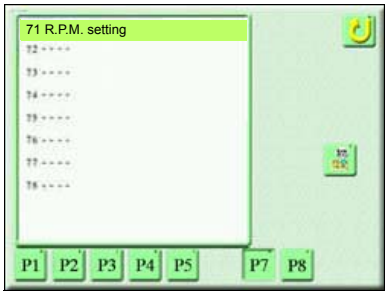
(11) Icon A



(12)P7



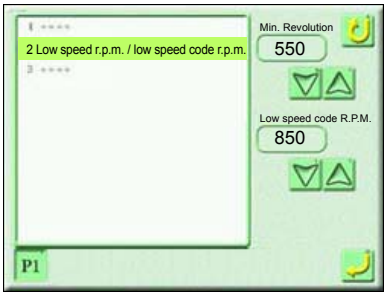
(13) Page P7



[71 R.P.M. setting]

2 Low speed r.p.m. / Low speed code r.p.m. (Input of a password is necessary)

Set the most decreased embroidery speed (Low speed r.p.m.) and the embroidery speed at low speed code section (Low speed code r.p.m.)

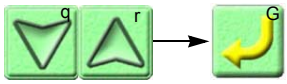


Setting range

Low speed R.P.M.: 250 to 600 rpm

Low speed code R.P.M.: 250 to Maximum RPM of machine

Example: Set Low speed R.P.M. to 550 rpm.



550

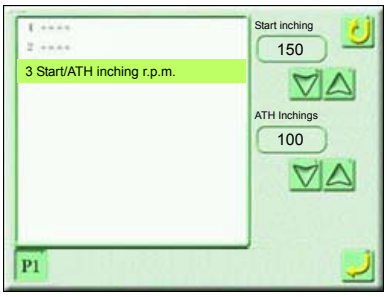
3 Start/ATH inching r.p.m. (Input of a password is necessary)

Start inching

After stopping the machine during embroidery, set the embroidery speed at slow operation performing when the operation starts again.

ATH Inchings

Set embroidery speed at slow operation performed when starting operation after data set and after thread trimming.



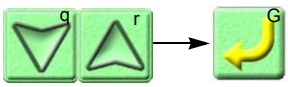
Setting range

Start inching: 100, 150, 200, 250 rpm

ATH Inchings: 100, 150, 200 rpm

Example: Set Start inchings to "150".

Start inching

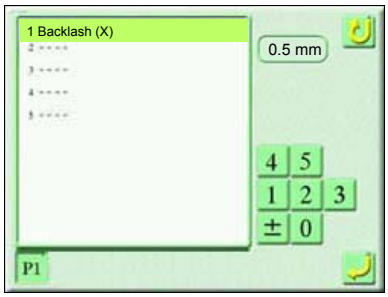


150

[72 Stitch Compensation]

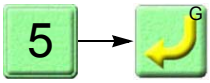
1 Backlash (X) (Input of a password is necessary)

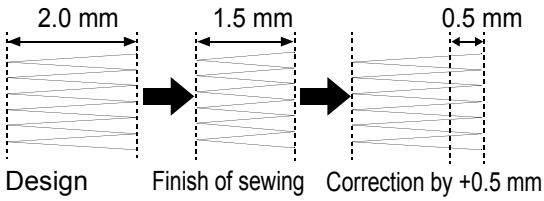
Correct driving error of the frame generated when a stitch turns back in horizontal direction.



Setting range: -0.5 to +0.5 mm

Example: Execute correction by 0.5 mm.

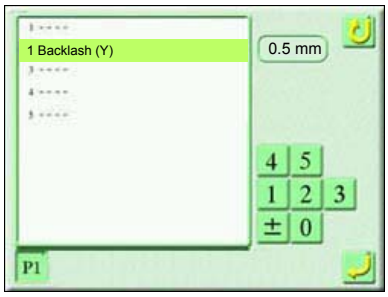




If the value is input, the setting of Satin stitch will be invalid.

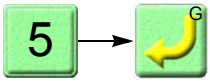
2 Backlash (Y) (Input of a password is necessary)

Correct driving error of the frame generated when a stitch turns back in vertical direction.



Setting range: -0.5 to +0.5 mm

Example: Execute correction by 0.5 mm.

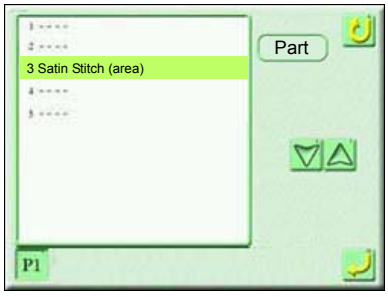


If the value is input, the setting of Satin stitch will be invalid.

3 Satin Stitch (area) (Input of a password is necessary)

Set a target range of Satin Stitch (Expansion).

When the setting of Satin stitch (area) has been changed by "Step unit setting" individually, the value of "Step unit setting" will take the priority.



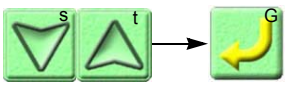
Setting range

Whole: All Satin stitches in design

Part: Function code "Satin stitch" section

No: It is not added.

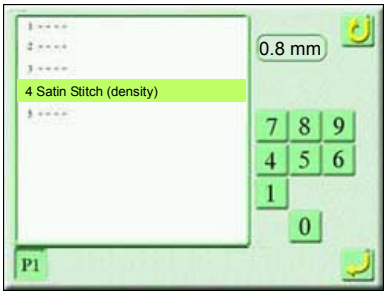
Example: Part



Part

4 Satin Stitch (density) (Input of a password is necessary)

Set stitch length (a in the figure below) that is regarded as Satin stitch. Stitches of the setting value or less will be regarded as Satin stitch.
When the setting of Satin stitch (density) has been changed by "Step unit setting" individually, the value of "Step unit setting" will take the priority.



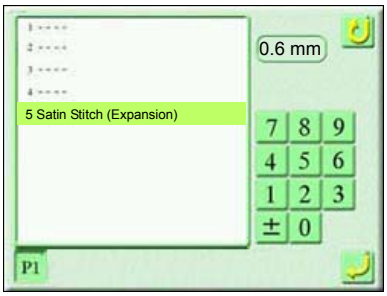
Setting range: 0.4 to 1.0 mm

Example: Regard the stitch of 0.8 mm or less as Satin stitch.

It is effective when "3. Satin Stitch (Area)" is set to "Whole" or "Part".

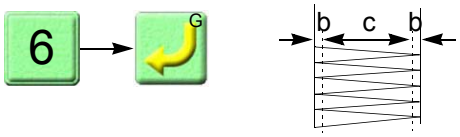
5 Satin Stitch (Expansion) (Input of a password is necessary)

This setting sets up an adding amount to a stitch that was judged as Satin stitch in above 4 Satin stitch (density). 1/2 (b) of the set value will be added to both sides of the stitch (c) respectively.
When the setting of Satin Stitch (Expansion) has been changed by "Step unit setting" individually, the value of "Step unit setting" will take the priority.



Setting range: -1.0 to +1.0 mm

Example: Add 0.6 mm.

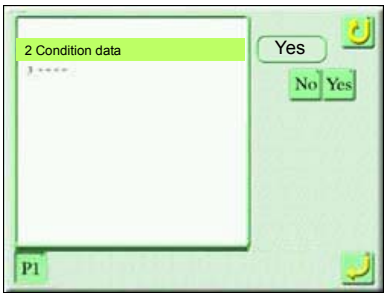


In this example, b is 0.3 mm.

[73 Design Setting]

2 Condition data (Input of a password is necessary)

When you register the design saved in the USB memory into the machine memory, set whether the Condition Data (Color change sequence, Start position, Presser Foot Setting) are registered together with the design into the machine memory or not.(→p.224)

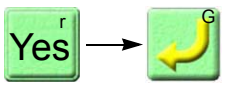


Setting range

Yes: It will be registered into the machine memory.

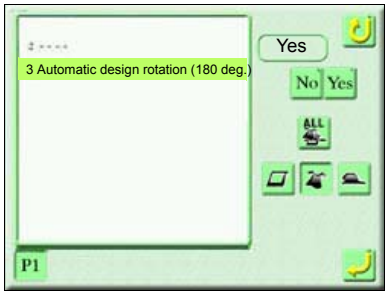
No: It will not be registered into the machine memory.

Example: Yes



3 Automatic design rotation (180 deg.) (Input of a password is necessary)

This is the setting to rotate the design by 180° automatically at data set.(→p.40)
Other designs in the machine memory are not affected. This function rotates a design not in each design like "Data Conversion" but in each type of frame.



Setting range

Yes: Rotate a design by 180° in the following frame types.

Tubular goods frame, Border frame, Cap frame


Border frame


Tubular


Cap frame

It is possible to select more than one frame type.

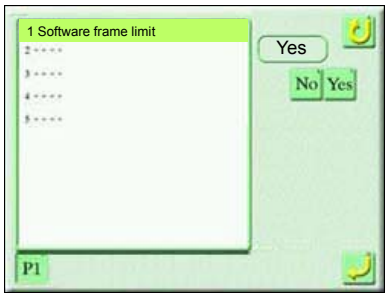
No: A design is not rotated.

Example: Rotate the design by 180° for cap frame specification.

[74 Frame Setting]

1 Software frame limit (Input of a password is necessary)

Set the Software Frame Limit (limit position that the frame can move) being set at "2 Frame type" valid or invalid.

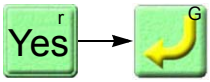


Setting range

Yes: Software Frame Limit is made effective.

No: Software Frame Limit is made invalid.

Example: Yes

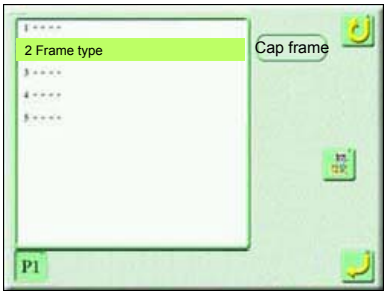


2 Frame type (Input of a password is necessary)

Set the limit position where the frame can be moved.(Software Frame Limit)

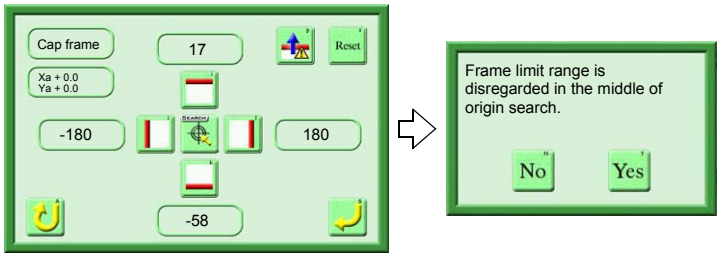
CAUTION

When performing this operation, do not put your hands, etc. on the table. Moving the frame could injure you.



Example: Set the limit position where the frame can be moved.

1. Execute absolute origin search.



2. Move the frame by the following procedure and decide the limit position.

a. After moving the frame to the front, press icon i in the right figure.

b. After moving the frame to the rear, press icon k in the right figure.

c. After moving the frame to the left, press icon l in the right figure.

d. After moving the frame to the right, press icon j in the right figure.

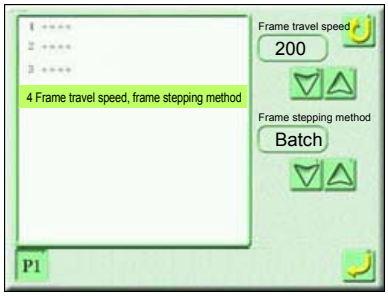
e. Press icon G in the right figure. (Set.)

When releasing Software Frame Limit temporarily, press icon p in the right figure.

When resetting Software Frame Limit, press the reset key in the right figure.

4 Frame Travel Speed, Frame Stepping Method (Input of a password is necessary)

Set the frame travel speed and the frame stepping method at frame stepping.



Setting range

Frame travel speed: 100, 200 mm/second

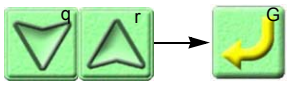
Frame stepping method: Batch, 1 stitch

Batch: Perform frame travel directly to frame stepping point.

By 1 stitch: Perform frame travel stitch by stitch as design data.

Example: Set Frame travel speed to "200".

Frame travel speed



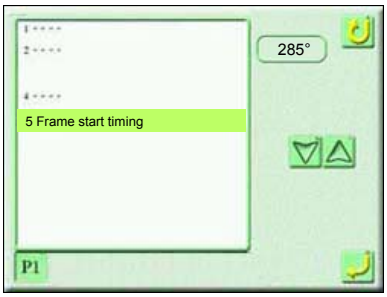
200

5 Frame start timing(Input of a password is necessary)

CAUTION

When changing the value, consult the distributor. Some operating condition could cause occurrence of bad effect in embroidery.

Set the main shaft angle where the frame starts moving.



Setting range

280 to 310: Frame start timing (°)

280° ← → 310°

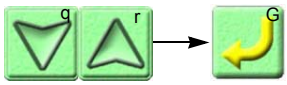
Fast — Slow

[Thread tension]
Weak

[Thread tension]
Strong

[Stitch length]
Narrow

Example: 285°

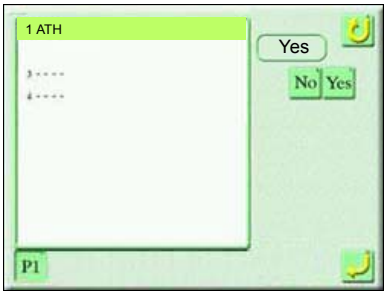


285

[75 ATH Setting]

1 ATH (Input of a password is necessary)

This is the setting to trim the thread automatically at Color change, Frame stepping and Offset frame travel.

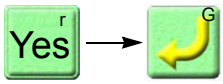


Setting range

Yes: ATH is performed.

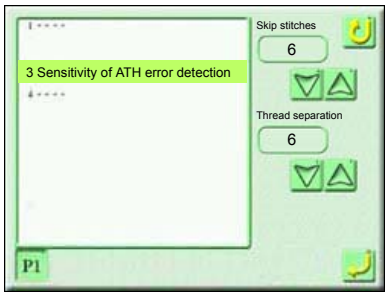
No: ATH is not performed.

Example: Yes



3 Sensitivity of ATH error detection (Input of a password is necessary)

Set the sensitivity of ATH error detection after thread trimming.



Setting range

Skip stitches (It will not be detected by cam type ATH.)

0: Do not detect.

1 to 50: Detect.

Select the value of 1 to 50.

Sensitivity

1 ← 6 → 50

High Default value Low

This is the detection sensitivity to make the machine judges that the thread is not broken due to skip stitches at thread trimming. The machine will stop at the detection, and the code No.3AC will be displayed.

Thread separation

0: Do not detect.

1 to 50: Detect.

Select the value of 6 or more.

Sensitivity

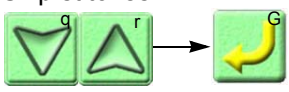
1 ← 6 → 50

High Default value Low

This is the detection sensitivity to make the machine judges that the thread is not broken due to thread separation of the movable knife at thread trimming. The machine will stop at the detection, and the code No.3AB will be displayed.

Example: Set "Skip stitches" to "10".

Skip stitches

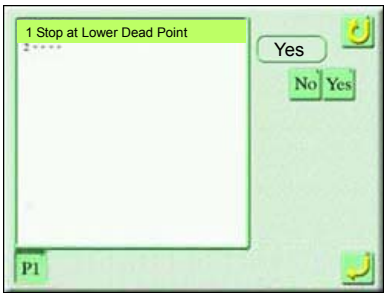


10

[76 Stop position]

1 Stop at Lower Dead Point (Input of a password is necessary)

This is the setting to stop (Stop at lower dead point) the machine at end of embroidery with the needle stuck.

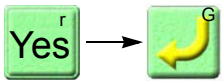


Setting range

Yes: Stop at Lower Dead Point is performed.

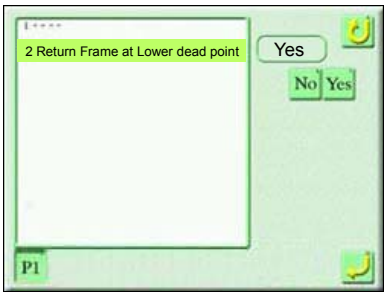
No: Stop at Lower Dead Point is not performed.

Example: Yes



2 Return Frame at Lower dead point (Input of a password is necessary)

This is the setting to return the frame by manual offset even after frame travel during Stop at Lower Dead Point.

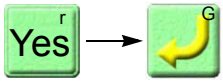


Setting range

Yes: The frame is returned by manual offset.

No : The frame is returned by manual offset. However, the amount of frame travel remains during stop at the lower dead point.

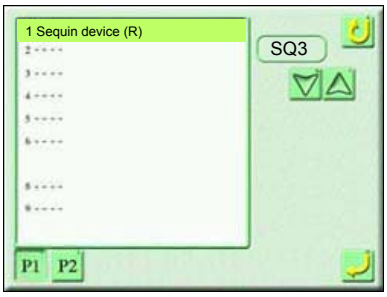
Example: Yes



[77 Optional Device (Hardware)]

1 Sequin device (R) (Input of a password is necessary)

Set whether Sequin device (R) will be equipped or not and the type of device.



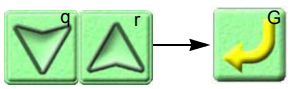
Setting range

SQ3: Sequin device III

SQ4: Sequin device IV

Without: Without sequin device

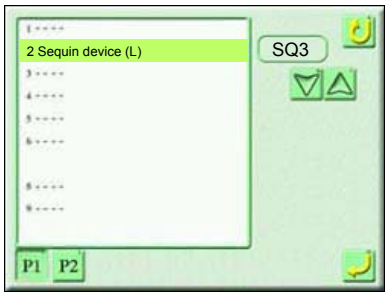
Example: SQ3



SQ3

2 Sequin device (L) (Input of a password is necessary)

Set whether Sequin device (L) will be equipped or not and the type of the device.



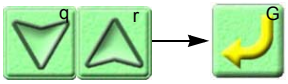
Setting range

SQ3: Sequin device III

SQ4: Sequin device IV

Without: Without sequin device

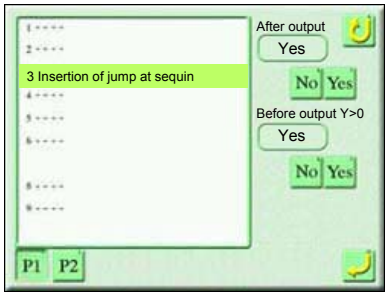
Example: SQ3



SQ3

3 Insertion of jump at sequin (Input of a password is necessary)

This is the setting to insert one stitch of non-data jump code just before or after sequin feed.



Setting range

After output

Yes: Non-data jump code is inserted just after sequin feed.

No: Non-data jump code is not inserted.

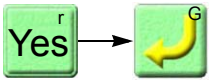
Before output Y>0

Yes: Non-data jump code is inserted just before sequin feed.

No: Non-data jump code is not inserted.

Example: After output, Yes

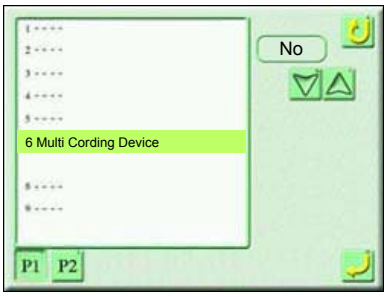
After output



5 Multi Cording Device (Input of a password is necessary)

Set to equip/not to equip Multi Cording Device.
It is possible to allocate the cording needle for one head up to 6 needles. The needle bar No. to be allocated differs depending on models.

Machine type	No. of attachable needle bar
9-needle machine	2 to 7
12-needle machine	4 to 9
15-needle machine	5 to 10

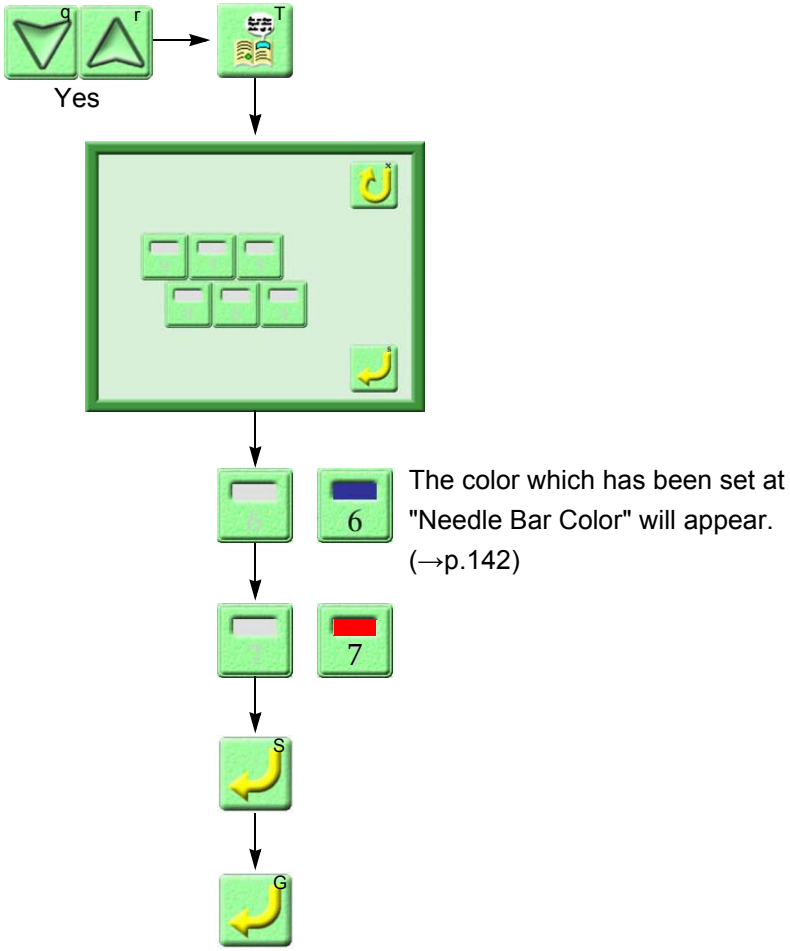


Setting range

Yes: Multi Cording device is equipped.

No: Multi Cording device is not equipped.

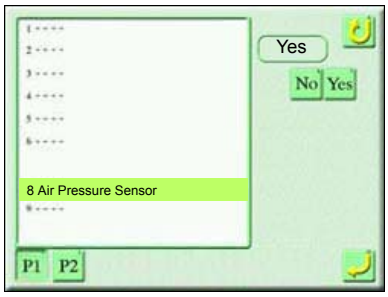
Example: Equip to 6th and 7th needles.



The color which has been set at "Needle Bar Color" will appear. (→p.142)

8 Air Pressure Sensor (Input of a password is necessary)

Set to equip/not to equip an air compressor.



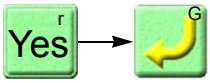
Setting range

Yes: Air compressor is equipped.

No: Air compressor is not equipped.

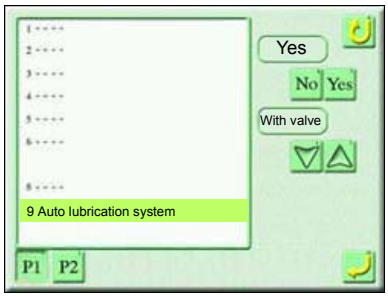
In this function, when option that needs air compressor is equipped, select "Yes". (Example: Sequin device IV, etc.)

Example: Yes



9 Auto lubrication system (Input of a password is necessary)

Set whether Automatic lubrication system will be equipped or not and the type of the device.



Setting range

Yes: Automatic lubrication system is equipped.

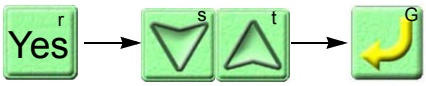
If "Yes" is selected, select the type of the device.

With valve

Without valve

No: Automatic lubrication system is not equipped.

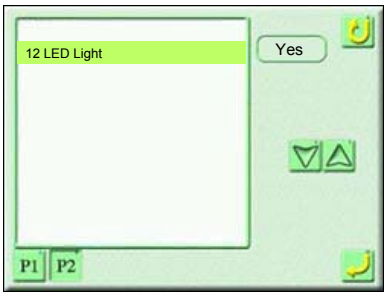
Example: Yes, With valve



With valve

12 LED lamp (Input of a password is necessary)

Perform setting as with/without LED lamp.

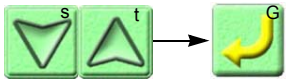


Setting range

Yes

No

Example: With LED lamp

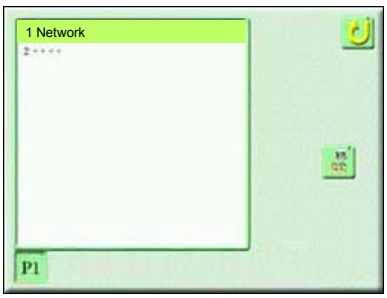


Yes

[78 Optional device (Software)]

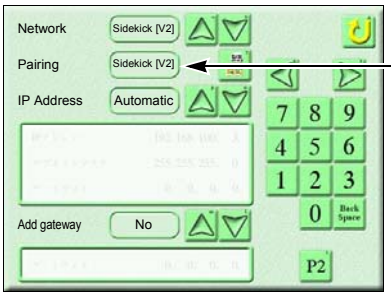
1 Network (Input of a password is necessary)

Set whether network connection with DG/ML by Pulse or Sidekick is performed or not and IP address, etc.



Setting range

[Page P1]



Pairing is displayed only in case of Sidekick [V2].[*1]

*1 Embroidery machine and Sidekick terminal are connected one to one.

Network

DG/ML [V1]: Connect with DG/ML by Pulse.

Sidekick [V2]: Connect to Sidekick directly.

The design is not registered in the machine memory.

No: Network is not connected.

Pairing

When pairing is canceled.

IP Address

Auto: IP address will be obtained from DHCP server.

Manual: Obtain following items manually without using DHCP server.

IP Address

Subnet mask

Gateway

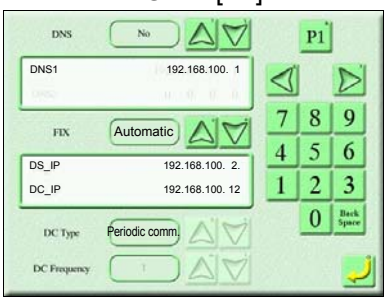
Add gateway

Yes: Add gateway.

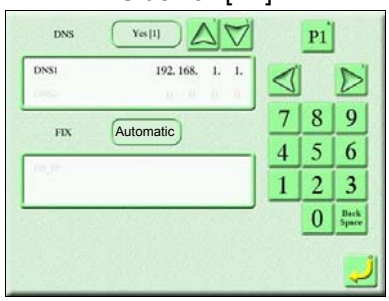
No: Do not add gateway.

[Page P2]

DG/ML [V1]



Sidekick [V2]



DNS

Yes[1]: IP address of DNS1 server

Yes[2]: IP address of DNS2 server

No: Not to use

FIX

Auto: Search IP address of the host PC side automatically.

Manual: Set IP address of the host PC side manually.

Individual: Set the IP address of the host PC side individually.

DS_IP

Input the IP address of the host PC used as Design Spooler to "DS_IP".

It is possible to use by combining with DG15 by Pulse or later version.

DC_IP

Input the IP address of the host PC used as Data Collector to "DS_IP".

It is possible to use by combining with DG15 by Pulse or later version.

DC Type

To select information transmitting method to Data Collector

Not to transmit.

Periodic comm.: Communicating periodically

Event comm.: Transmitting at the start and the stop of operation only

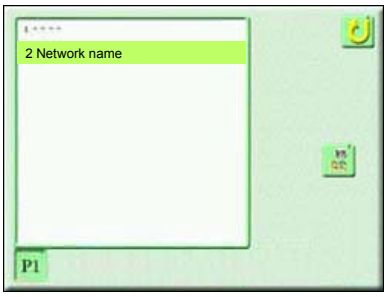
DC Frequency

To select information transmitting frequency (time interval)

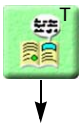
1 to 999,999/1 second

2 Network name (Input of a password is necessary)

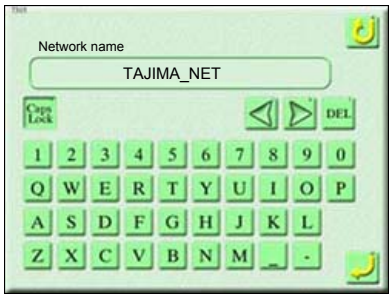
Set Network name.



Example: Set Network name to "TAJIMA_NET".



Input Network name.



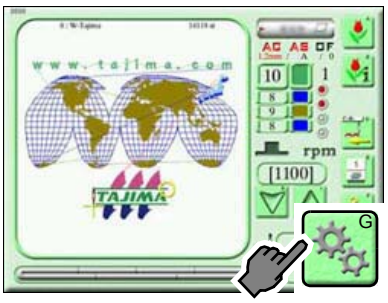
2-7. Page P8

Page P8 shows the operation that has the purpose to perform the maintenance of the machine by the service personnel of your distributor. To change the parameter, it is necessary to input a password.

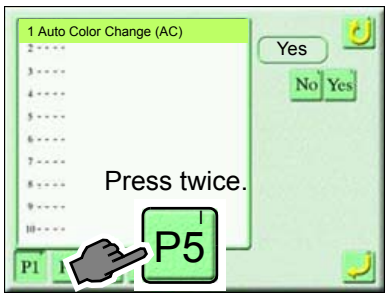
For details, consult the distributor.

[How to switch to page P8]

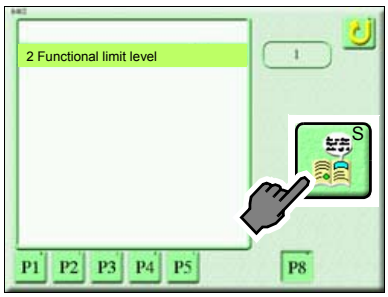
(1) Icon G



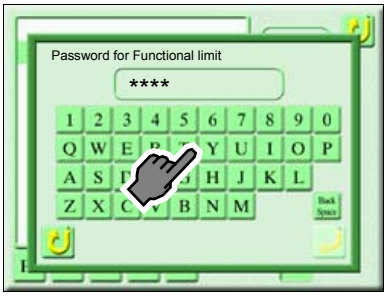
(2) Press P5 twice.



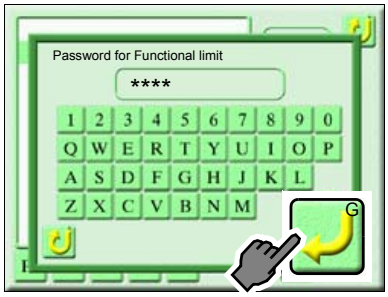
(3) Icon S



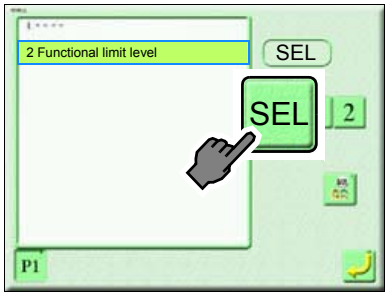
(4) Input a password.



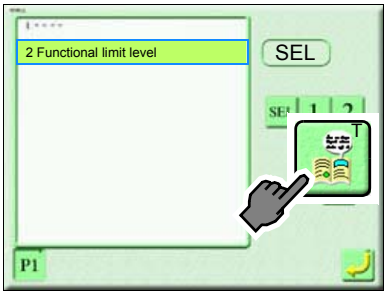
(5) To set



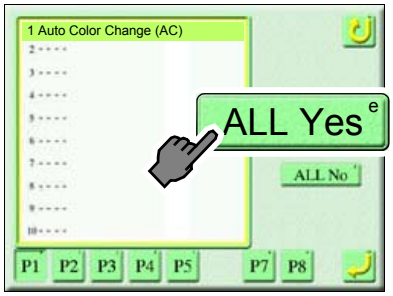
(6) SEL



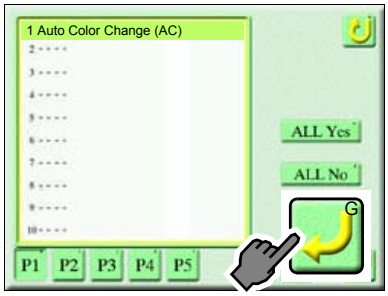
(7) Icon T



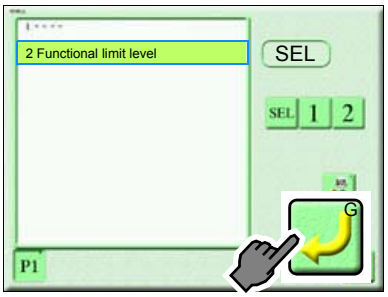
(8) ALL Yes



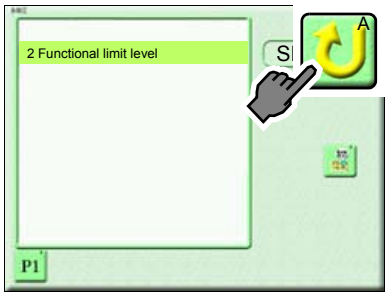
(9) To set



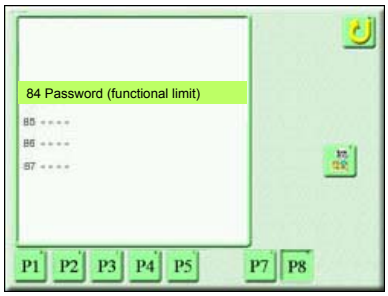
(10) To set



(11) Icon A



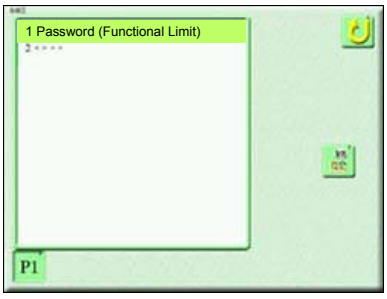
(12) Page P8



[84 Password (functional limit)]

1 Password (Functional limit level) (Input of a password is necessary)

Change the password. Select the password from 4 to 8 digits alphanumeric characters.



Example: Set password.

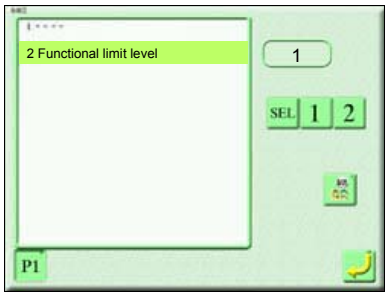
Input the password (example: 57HJ) after change.

Input the password again after change.

For details of the password, consult the distributor.

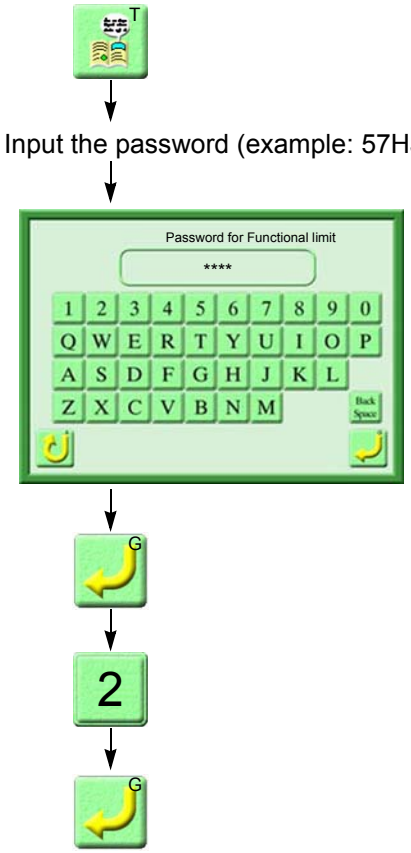
2 Functional limit level

Change the operation level (1, 2, SEL). The operation will be limited depending on the operation level.



Setting range: 1, 2, SEL

Example: Change Functional Limit Level from "1" to "2".

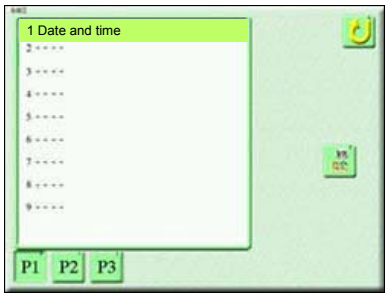


For details of the password, consult the distributor.

[85 Machine adjustment]

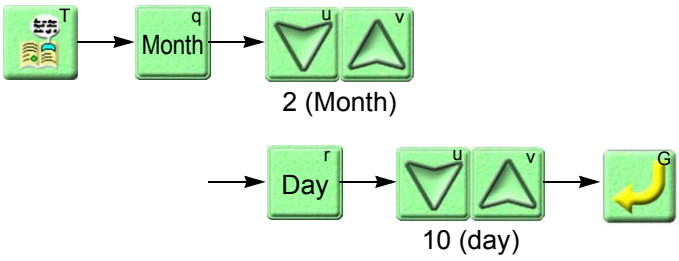
1 Date and time (Input of a password is necessary)

Set date and time.



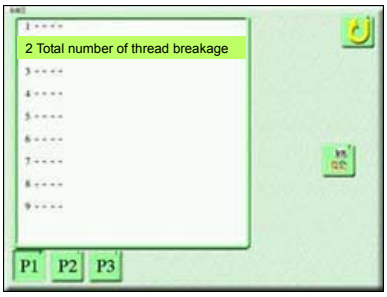
Setting range: Year, month, day, time, second

Example: Set date and time to February 10th.

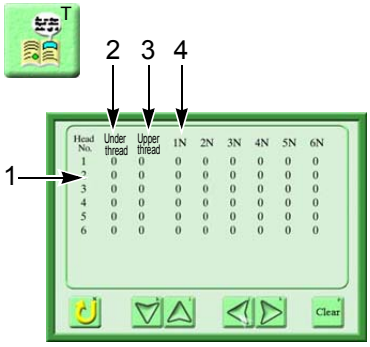


2 Total number of thread breakage (Input of the password is necessary)

Display the number of thread breakage of upper thread/under thread by head unit.



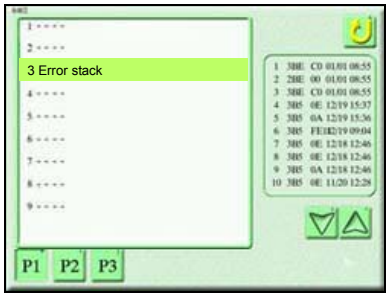
Example: Display Total number of thread breakage.



1. Head No.
2. Number of under thread breakage
3. Number of upper thread breakage
4. Number of upper thread breakage by needle bar unit

3 Error stack (Input of a password is necessary)

Display errors that have ever occurred and time of occurrence on the operation panel.



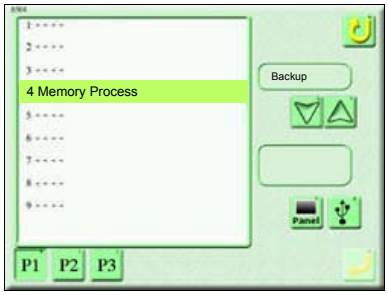
The error to be occurred last is No.1

4 Memory Process (Input of a password is necessary)

Deal the data in the machine memory.

CAUTION

If "Memory initialize" is executed, the design data, general setting data and the setting value of "86 Machine Condition" will be deleted.



Setting range

Backup

The setting data recorded in the machine will be saved into the USB memory or the operation panel. (It is also possible to select both the USB memory and the operation panel.)[1]
When saving the data into the USB memory, set the USB memory to the operation panel before operating, then select icon B.

USB memory Operation panel

Parameter initialize

The setting data[1] will be returned to the value at shipment from the factory. However, the value of “86 Machine condition” will not be changed.

Memory initialize

The design data and general setting data[2] will be deleted.
When setting again after this operation, refer to "Parameter setting chart" attached to the machine at shipment.

---

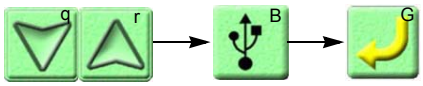
[1] Parameter setting value, Error stack

[2] R.P.M., Total stitch count, Display of finishing embroidery, Frame Back, Frame Forward

Writing

The setting data saved in the USB memory or the operation panel will be written into the machine by the operation of "Backup". To write the setting data written in the USB memory into the machine, set the USB memory to the operation panel before operating, then select icon B.

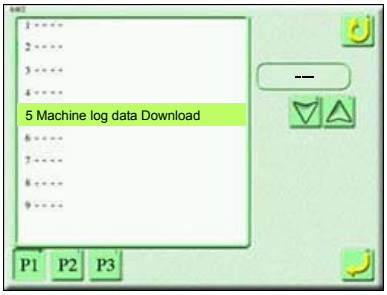
Example: Write the setting data saved in the USB memory into the machine.

To set USB memory → 

Writing

5 Machine log data Download (Input of password is necessary)

Get the operation logs and the communication records. This function is for analyzing cause of some trouble of the machine. When your distributor asks to get log datas, send datas to your distributor saving log data information in the USB memory by the following operation.



Setting range

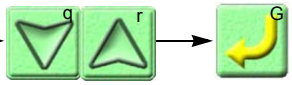
Save on operation panel

Save the log datas into a CFast card inside of the operation panel for 50 times. The log datas exceeding 50 times will be overwritten.

Save in USB.

Save the log datas saved in a CFast card and log datas acquired this time into USB memory.

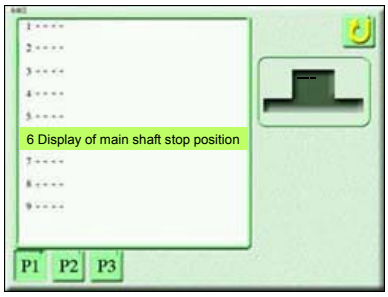
Example: Save in USB.

To set USB memory → 

Save in USB.

6 Display of main shaft stop position (Input of a password is necessary)

It displays whether the current main shaft angle is within the range of fixed position or not.




Within fixed position

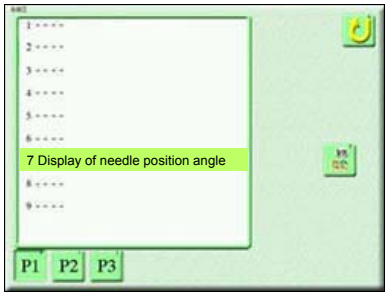

Out of fixed position, or Stop at Lower Dead point

7 Display of needle position angle (Input of a password is necessary)

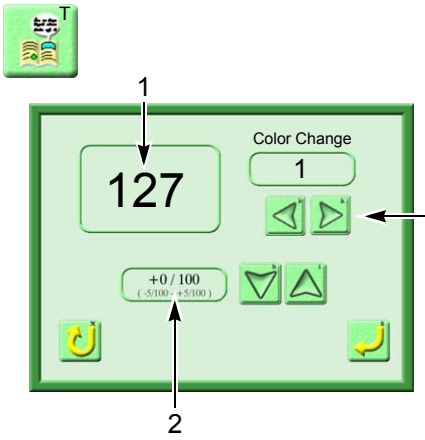
Display the value of the color change potentiometer and set the ball-screw type color change system.

CAUTION

If icon q or r is selected, color change will be performed. Do not put your hands etc. near the needle bar case. You could be injured.



Example: Display the value of color change potentiometer.

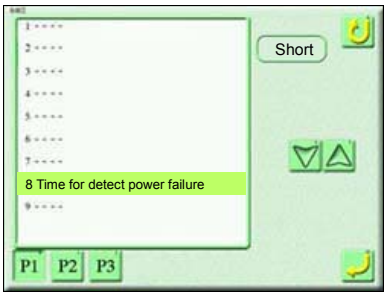


If icon q or r is selected, color change will be performed.

1. Value of potentiometer of needle bar selected currently
   It is normal when the value at the first needle is "127".
2. Correcting value of color change position
   After Memory initialize, set the value of "Correction of Color interval" mentioned on the label stuck on the operation panel stand.

8 Time for detect power failure (Input of a password is necessary)

Set the machine movement when the power is shut off momentarily.



Setting range

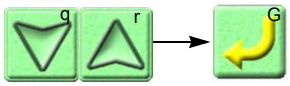
Short

When the power is shut off momentarily, the machine will stop at the fixed position.

Long

It is possible to embroider without stopping the machine even if the power is shut off momentarily in longer time than "Short". However, when the power is shut off during some period of time, the machine will stop. In this case, the design in the middle of embroidery cannot be guaranteed.

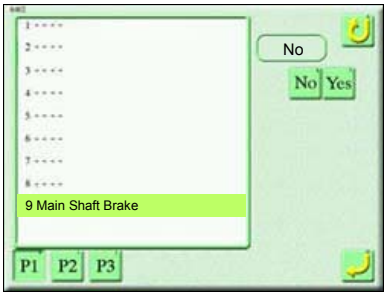
Example: Short



Short

9 Main Shaft Brake (Input of a password is necessary)

This is the setting to apply/not to apply the brake of Main shaft motor at stop of the machine.



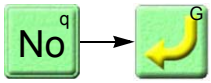
Setting range

Yes: Apply the brake. (Fixing main shaft)

No: Do not apply the brake. (Release of fixing main shaft)

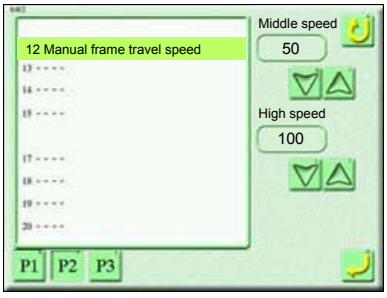
If "No" is selected, it is possible to turn the main shaft by hand with the power ON.

Example: No



12 Manual frame travel speed (Input of a password is necessary)

Perform fine tuning of Frame travel speed when Manual frame travel speed is performed.



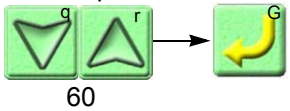
Setting range

Middle speed: 30 to 70 mm/second

High speed: 80 to 150 mm/second

Example: Set Middle speed to "60".

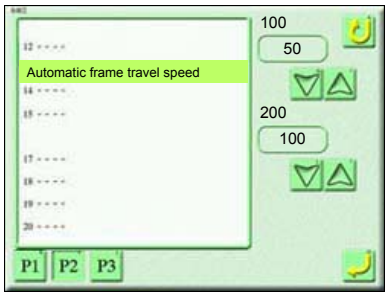
Middle speed



60

13 Automatic frame travel speed (Input of a password is necessary)

Perform fine adjustment of frame travel speed at offset frame travel.



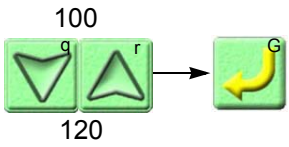
Setting range

100: 80 to 150 mm/second

200: 180 to 220 mm/second

The value here will be reflected in "4 Frame Travel Speed" of page P7.

Example: Set "100" to "120".



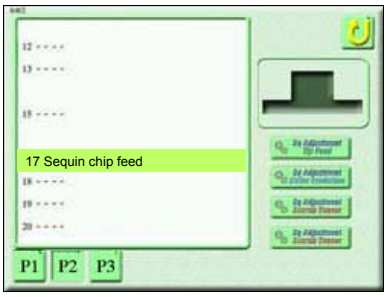
15 Software install (Input of a password is necessary)

Upgrade the version of the software.

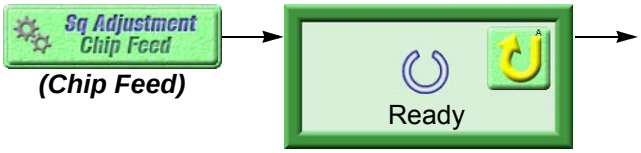
Refer to the detail page.(→p.263)

17 Sequin chip feed (Input of a password is necessary)

This is the setting to feed sequin chips one by one with the tension base switch.
It is possible to operate only when the needle bar equipped with Sequin device is selected.



Example: Feed out sequin ship of 3rd head.



(Chip Feed)

Tension base
H switch

Completed.

Press H switch. Sequin chips will be feed out.

Main shaft angle

Fixed position

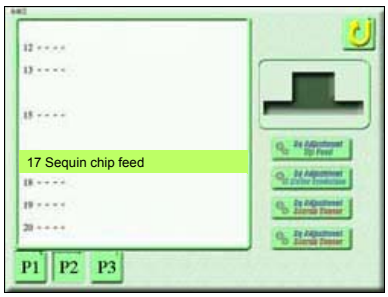
Out of fixed position

17 Installation of presser foot for sequin (Sequin chip feed) (Input of a password is necessary)

This is the operation to move down the needle bar and attach the presser foot or adjust the height of the presser foot for Sequin Device.

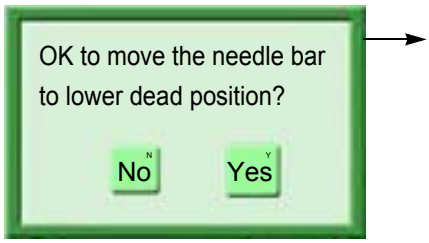
CAUTION

If Yes is selected, a needle bar will be moved down. Therefore, do not put your hands etc. near the needle bar case. You could be injured.



Example: Adjust the presser foot position of Sequin Device.

(Presser Foot)



Pressing Yes will move down the presser foot

Adjust the movable knife presser 2 so that the intervals 3 and 4 between the needle clamp 1 and the movable knife presser 2 are the same (Fig. A), and also the needle clamp 1 and the lower end face 5 of the movable knife presser 2 are in the same position (Fig. B), and tighten the screw 6.

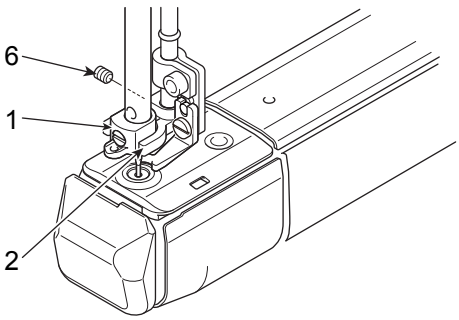


Figure A
Front

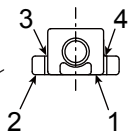
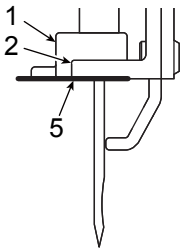
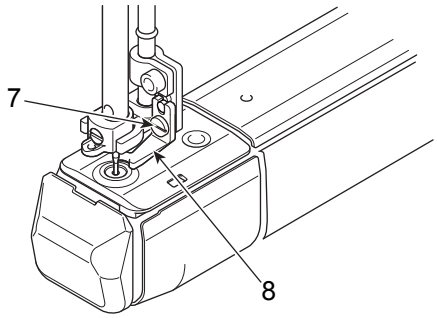
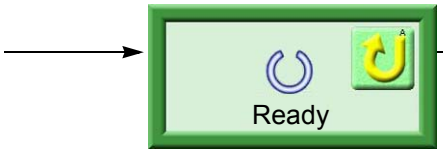


Fig. B
Side





Loosen the screw 7, and adjust the height of the presser foot 8 according to the fabric thickness.

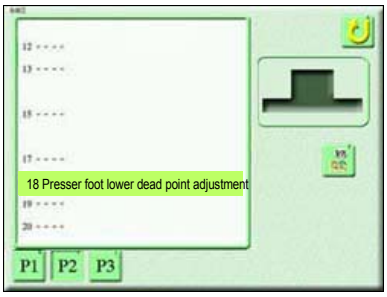


Completed.

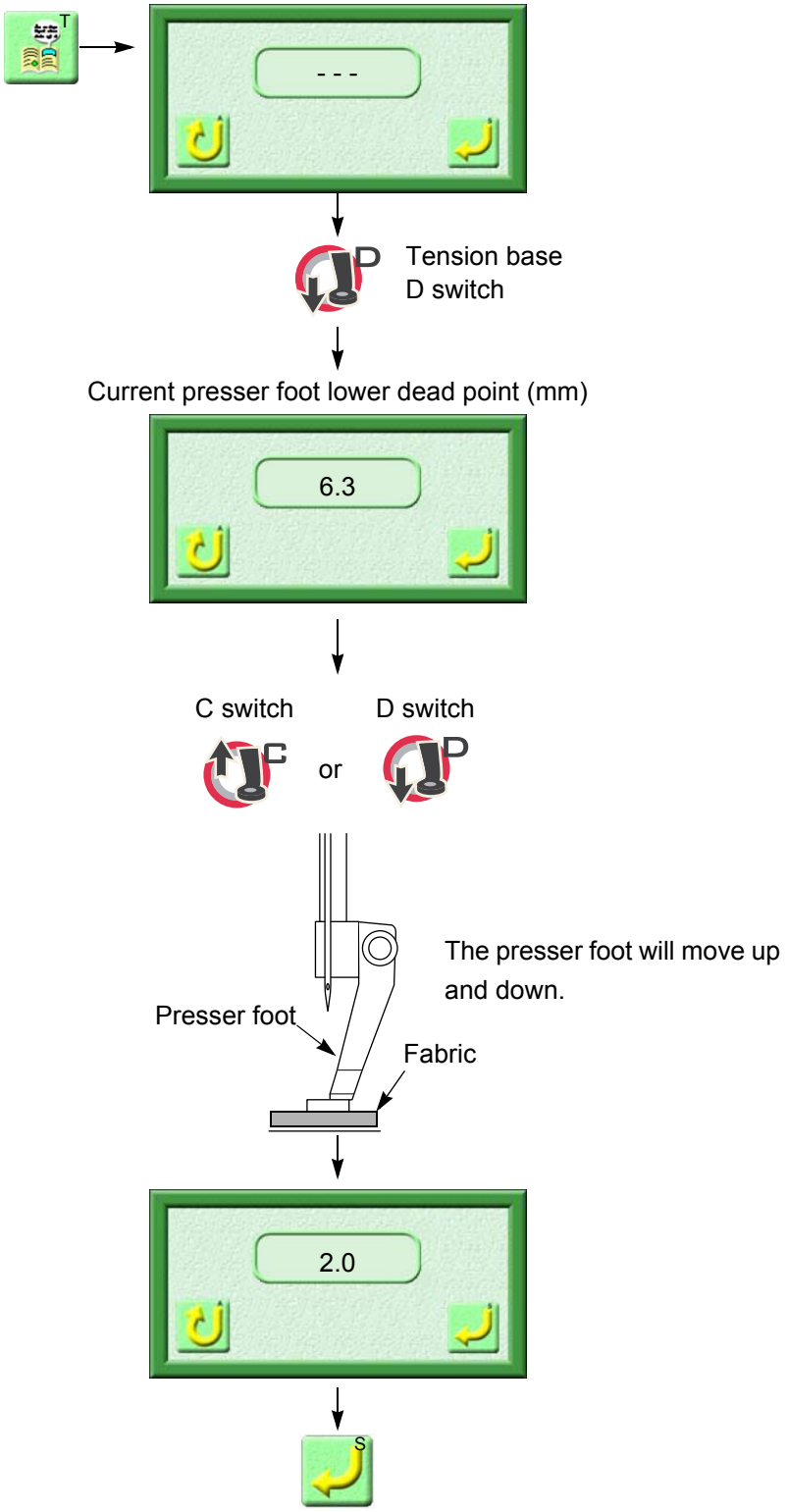
Pressing icon A will move up the needle bar and the presser foot.

18 Presser foot lower dead point adjustment (Input of a password is necessary)

Adjust the presser foot lower dead point. Adjust the presser foot lower dead point not by inputting the value but by touching the presser foot to the fabric visually. The value set here will be reflected to all heads.

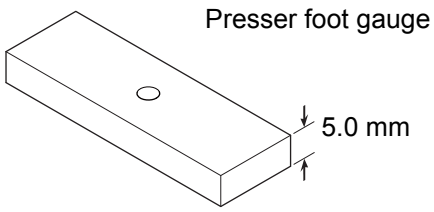


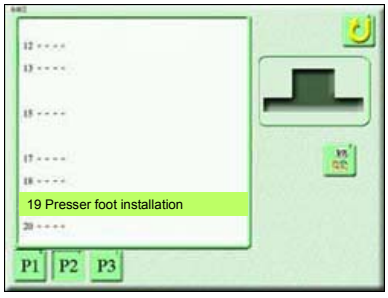
Example: Adjust Presser foot lower dead point to the thickness of the fabric visually.



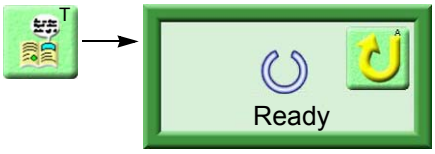
19 Presser foot installation (Input of a password is necessary)

Return the height of the presser foot to the correct height at shipment from the factory by using the accessory "Presser foot gauge".

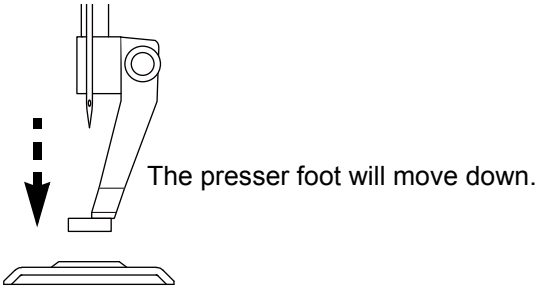




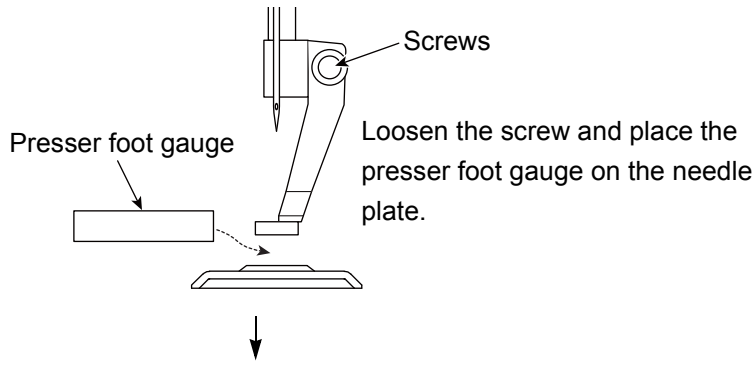
Example: Adjust the presser foot to the correct height.



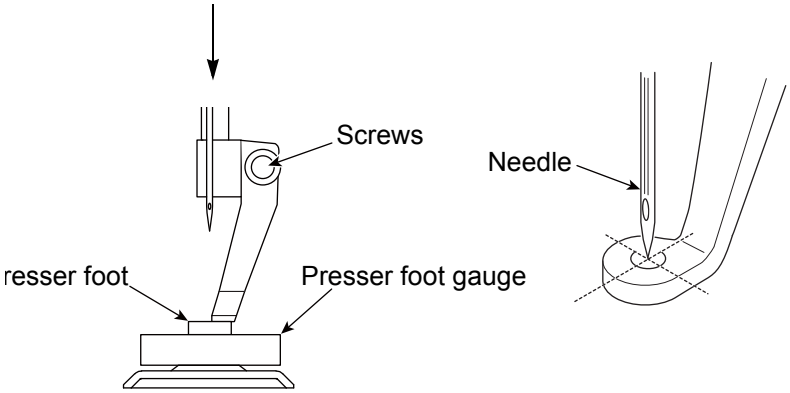
Tension base
D switch



The presser foot will move down.



Loosen the screw and place the presser foot gauge on the needle plate.



Touch the presser foot to the presser foot gauge. Tighten the screw so that the needle locates at the center of the hole of the presser foot.

When adjusting the presser foot of the next needle bar continuously, start the operation. The presser foot will rise, and the needle bar case will move to the next needle bar. Since pressing D switch will lower the presser foot, perform adjustment in the same way.

A Completed.

20 Needle bar upper dead point adjustment (Input of a password is necessary)

Refer to the separate volume "MACHINE SETUP INSTRUCTIONS".

21 Air lifter adjustment (Input of a password is necessary)

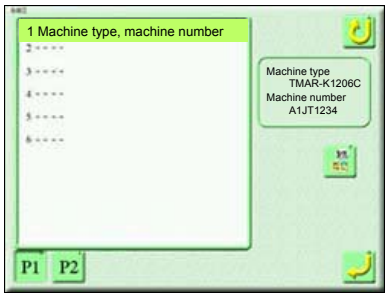
[86 Machine condition]

CAUTION

The setting items described below are already set at shipment. Therefore, do not change these settings. Wrong setting could cause trouble in movements of the machine.

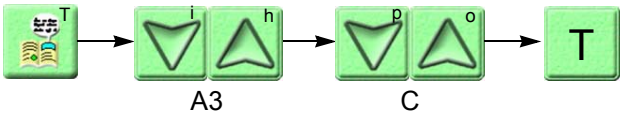
1 Machine type, machine number (Input of a password is necessary)

Set the machine number and the machine type.



Example: Set Machine Number to "A3CT1234", Number of needle to “12”, and Number of head to “6”.

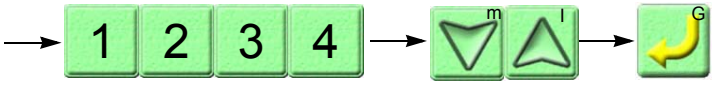
Machine number



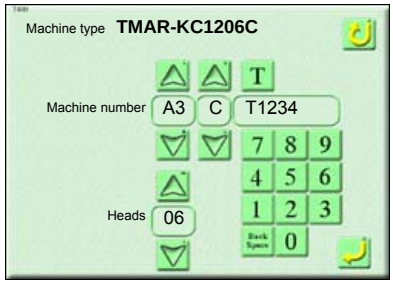
A3 C

9: 9 needles, C: 12 needles,
F: 15 needles

Heads

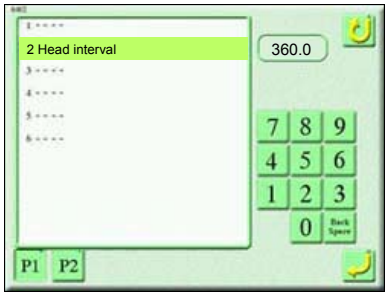


6



2 Head interval (Input of a password is necessary)

Set X-axis embroidery space.

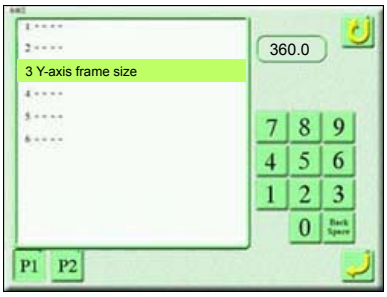


Setting range: 135.0 to 1720.0 mm

Example: 500.0

3 Y-axis frame size (Input of a password is necessary)

Set Y-axis embroidery space.

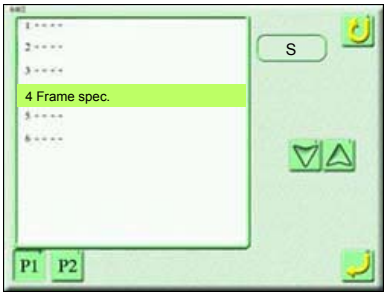


Setting range: 200.0 to 1800.0 mm

Example: 450.0

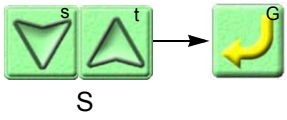
4 Frame spec. (Input of a password is necessary)

Set Frame spec.



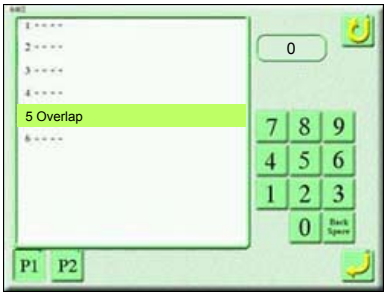
Setting range: S, D, T, Q, DE, T2E, TE

Example: S



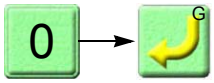
5 Overlap (Input of a password is necessary)

Set Overlap width between heads.



Setting range: 0.0 to 600.0 mm

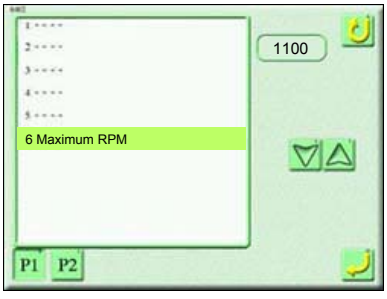
Example: 0



6 Maximum RPM (Input of a password is necessary)

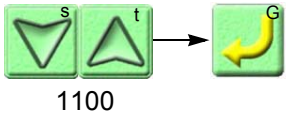
Set the maximum speed.

When the setting of Maximum RPM has been changed by "Step unit setting" individually, the value of "Step unit setting" will take the priority.



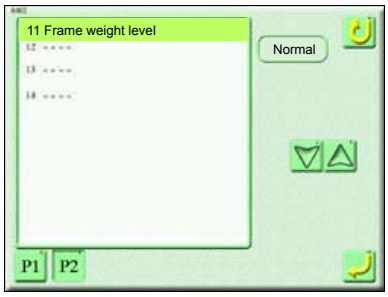
Setting range: 250 to Maximum speed of machine (rpm)

Example: 1100



11 Frame weight level (Input of a password is necessary)

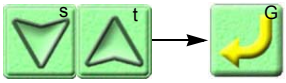
Set the frame weight level.



Setting range

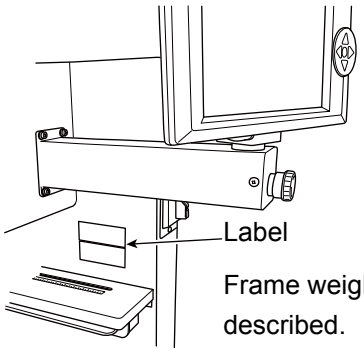
Normal, little, minute

Example: Set to "Little".



Little

To return to the initial value, refer to the label stuck on the position as shown below figure.



Frame weight level at shipment is described.

To perform fine adjustment, set the frame weight level, and then change the following settings.

13 X Stitch Length Adjustment (Input of a password is necessary)

14 Y Stitch Length Adjustment (Input of a password is necessary)

15 X stitch length adjustment (FS mode) (Input of a password is necessary)

16 Y stitch length adjustment (FS mode) (Input of a password is necessary)

12 Available head setting (Input of a password is necessary)

This is the setting to suspend the head occurring trouble and enable other heads to continue embroidering.

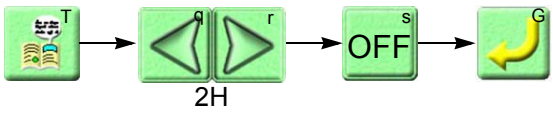
Setting range

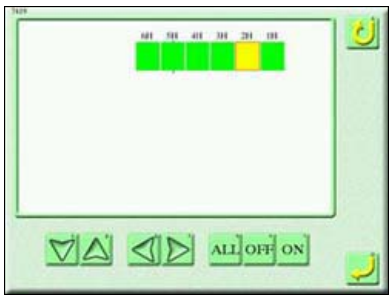
ALL: All heads are selected.

OFF: Selected head is suspended.

ON: Selected head is enabled to embroider.

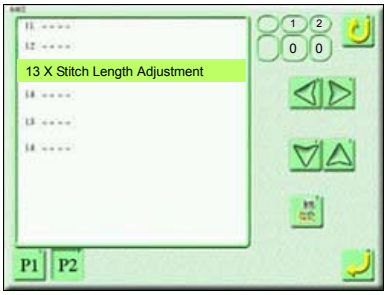
Example: Suspend the 2nd head.





13 X Stitch Length Adjustment (Input of a password is necessary)

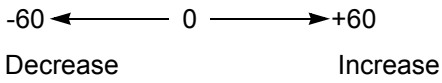
Perform fine adjustment of stitch length according to its length.



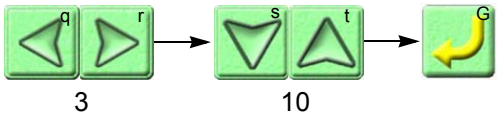
Setting range

1 to 12: Applicable stitch length (mm)

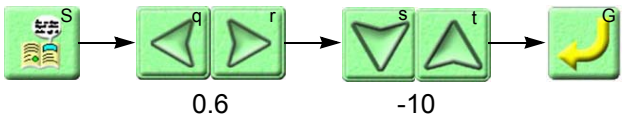
-60 to +60: Increasing/decreasing amount



Example: Set 3 mm stitch to +10.

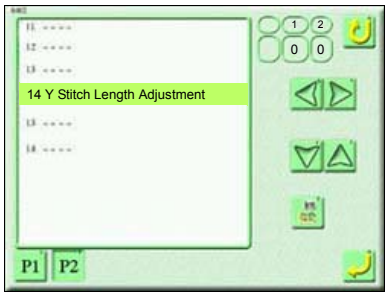


Example: Set 0.6 mm stitch to -10.



14 Y Stitch Length Adjustment (Input of a password is necessary)

Perform fine adjustment of stitch length according to its length.



Setting range

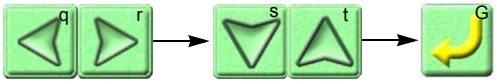
1 to 12: Applicable stitch length (mm)

-60 to +60: Increasing/decreasing amount

-60 ← 0 → +60

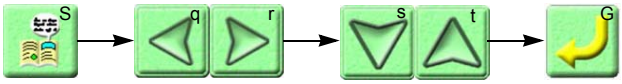
Decrease Increase

Example: Set 3 mm stitch to +10.



3 10

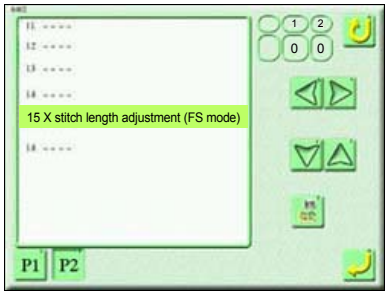
Example: Set 0.6 mm stitch to -10.



0.6 -10

15 X stitch length adjustment (FS mode) (Input of a password is necessary)

In FS mode, perform fine adjustment of stitch length according to its length.



Setting range

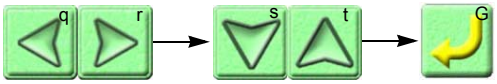
1 to 12: Applicable stitch length (mm)

-60 to +60: Increasing/decreasing amount

-60 ← 0 → +60

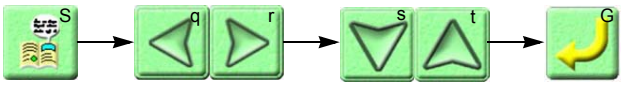
Decrease Increase

Example: Set 3 mm stitch to +10.



3 10

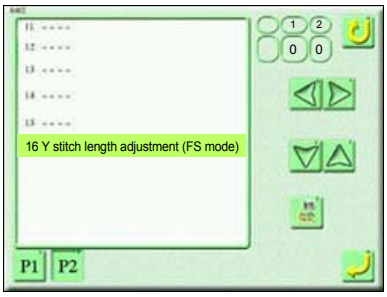
Example: Set 0.6 mm stitch to -10.



0.6 -10

16 Y stitch length adjustment (FS mode) (Input of a password is necessary)

In FS mode, perform fine adjustment of stitch length according to its length.



Setting range

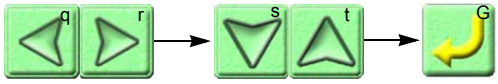
1 to 12: Applicable stitch length (mm)

-60 to +60: Increasing/decreasing amount

-60 ← 0 → +60

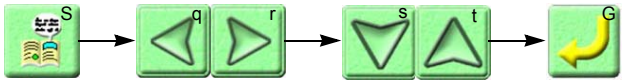
Decrease Increase

Example: Set 3 mm stitch to +10.



3 10

Example: Set 0.6 mm stitch to -10.

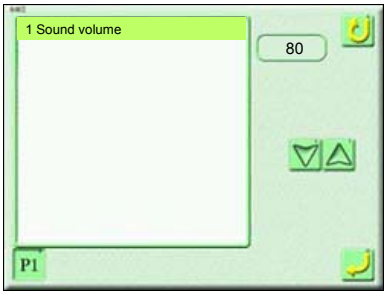


0.6 -10

[87 Panel setting]

1 Sound volume (Input of a password is necessary)

Adjust a sound volume of a buzzer.



Setting range

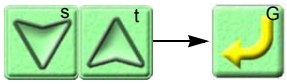
80 to 100 (%)

Sound volume

80 ← → 100

To lower To raise

Example: Turn up the sound volume to 95.



95

Chapter 10
Outline of functions

1. Condition data 224

2. Offset Frame Travel 226

3. Trace 229

4. Head selection 230

5. FS Mode 232

1. Condition data

When a design saved in the USB memory is registered into the machine memory, it is possible to register the condition data (three items below) together with the design into the machine memory. However, the design is limited to "T2" or "T3" saving format.

This function is effective only when the parameter setting "2 Condition data" is "Yes".(→p.189)

Color change sequence

The whole color change sequence included in the design can be registered into the machine memory. Therefore, it is unnecessary to set it again.

Start position

The frame position where the machine started embroidering last time can be registered in the machine memory. Therefore, it is unnecessary to adjust the position of the frame.

Presser foot setting

The whole presser foot setting included in the design can be registered in the memory of the machine. Therefore, it is unnecessary to set again. It is also possible to change the setting after data set.

Moreover, by setting the following 4 items after data set, each of the setting contents will be added to the design. Therefore, it is unnecessary to set it again when you embroider this design next time.

1. Data conversion(→p.122)
2. Design repetition(→p.126)
3. Automatic Offset(→p.116)
4. Presser foot setting(→p.132)

The following setting items can be saved / or cannot be saved depending on saving destination.

○ : Enable to save

× : Unable to save

Setting item	Saving into machine memory	Saving into USB memory		Saving from DG/ML by Pulse to memory of the machine
		T3, T2	T	
Color change sequence[1]	○	○	×	○
Start position	○	○[2]	×	×
Data conversion	○	×	×	×
Design repetition	○	×	×	×
Automatic Offset	○	×	×	×
Presser foot setting	○	○[3]	×	○

[1] Automatic Free Setting Offset included in the color change sequence is also included.

[2] When you embroider the design between models with different embroidery spaces, the start position may differ depending on the model.

[3] Only T3 can be saved in USB memory.

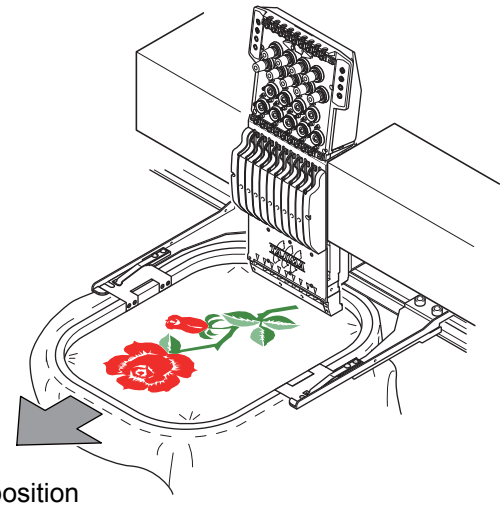
2. Offset Frame Travel

2-1. Automatic Offset

The frame will move to the registered position (Offset position) automatically after completion of embroidery.
The frame will move to the start position automatically after starting the machine operation.

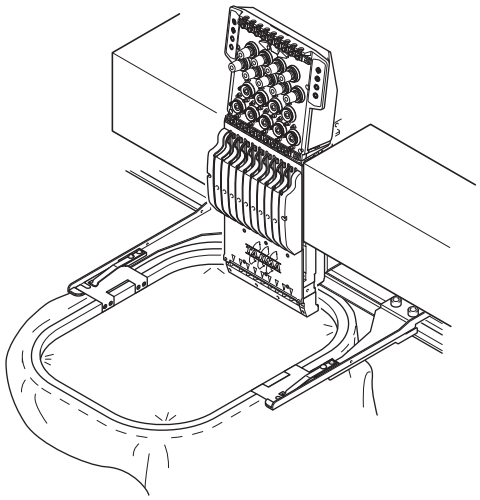
[Examples of use]

(1) The frame will move to the offset position automatically after completion of embroidery.



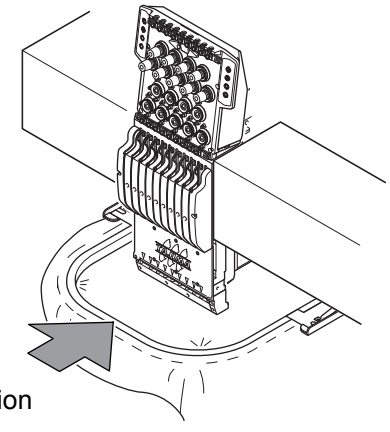
Offset position

(2) Replace the frame.



(3) Start the machine operation.

After starting of the machine, the frame will move to the start position automatically, then the machine will start embroidering. After completion of embroidery, the frame will move to the offset position automatically.



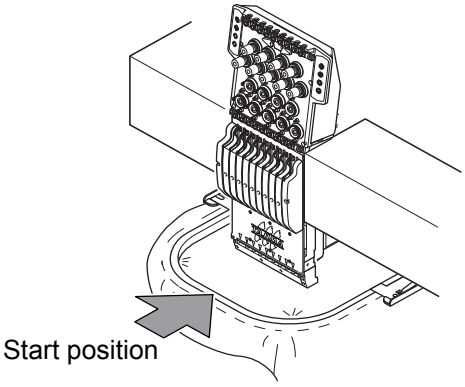
Start position

2-2. Automatic free-setting offset

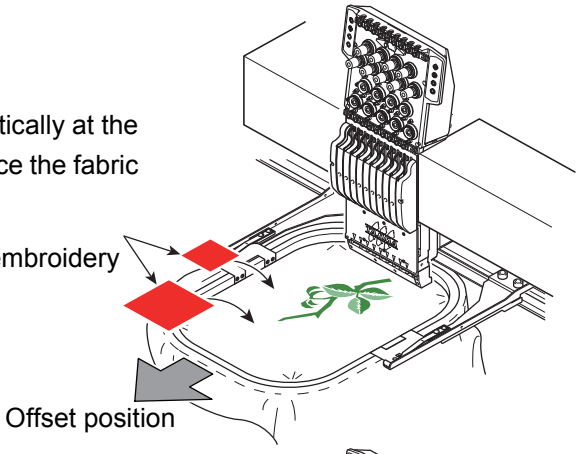
In addition to the function of "Automatic offset" described previously, the frame will move to the position registered (Offset position) automatically at the free-setting point in the middle of embroidery. The frame will move to the free-setting point after starting the machine.

[An example when using appliques]

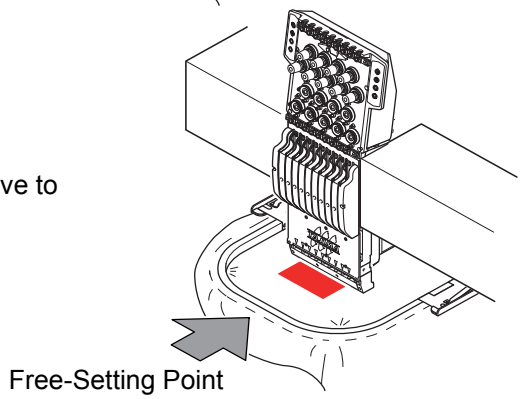
(1) Start the machine operation.
After starting the machine operation, the frame will move to the start position automatically.



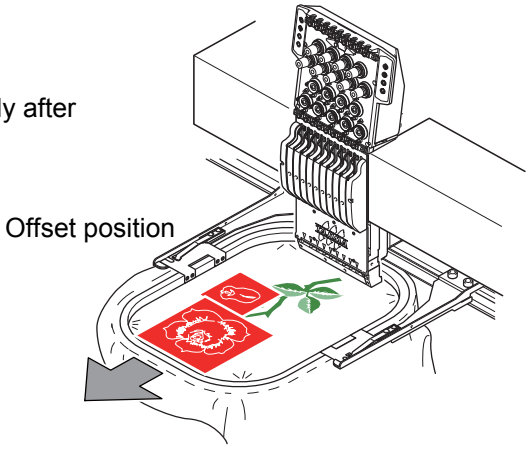
(2) The frame will move to the offset position automatically at the free-setting point in the middle of embroidery. Place the fabric to be fixed here.



(3) Start the machine operation.
After starting the machine operation, the frame will move to the free-setting point, then the machine will restart embroidering.



(4) The frame will move to the offset position automatically after completion of embroidery.

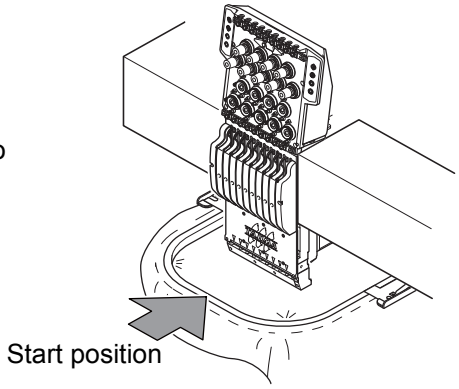


2-3. Auto Color Change Offset

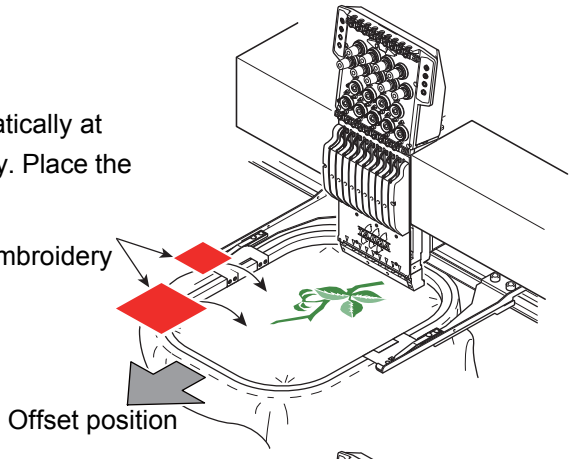
In addition to the function of "Automatic offset" described previously, the frame will move to the position registered (Offset position) automatically at the color change point in the middle of embroidery. The frame will move to the color change point after starting the machine.

[An example when using appliques]

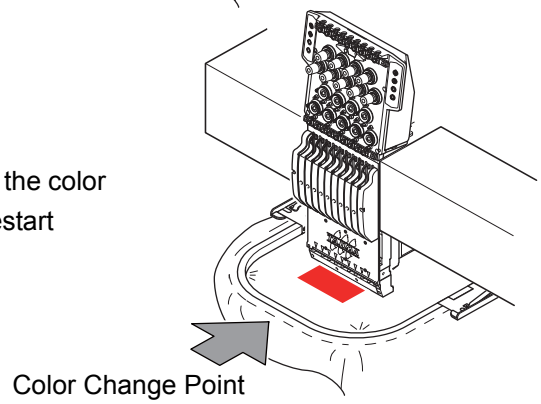
(1) Start the machine operation.
After starting the machine operation, the frame will move to the start position automatically.



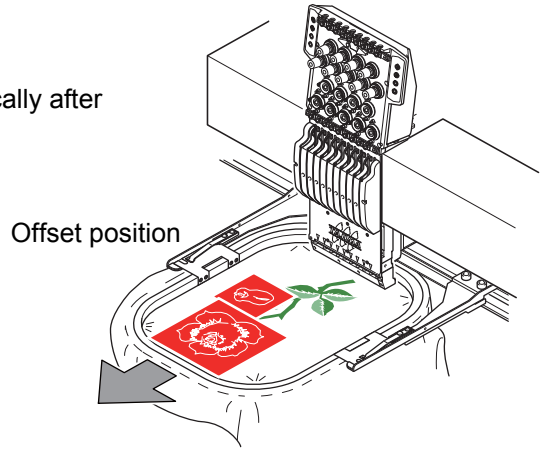
(2) The frame will move to the offset position automatically at the color change point in the middle of embroidery. Place the fabric to be fixed here as an example.



(3) Start the machine operation.
After starting of the machine, the frame will move to the color change point automatically, then the machine will restart embroidering.

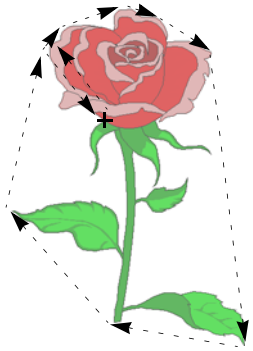


(4) The frame will move to the offset position automatically after completion of embroidery.



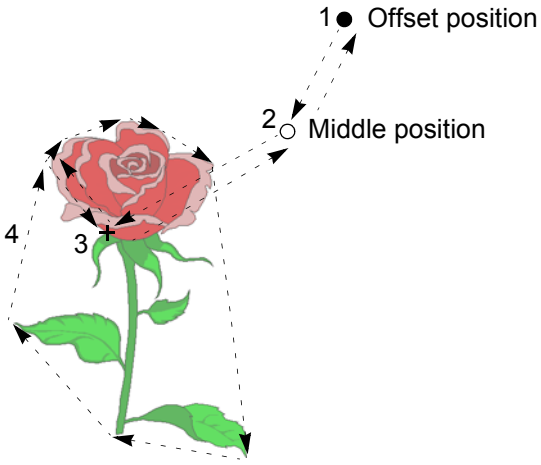
3. Trace

The frame will move along a periphery of the design from the start position.

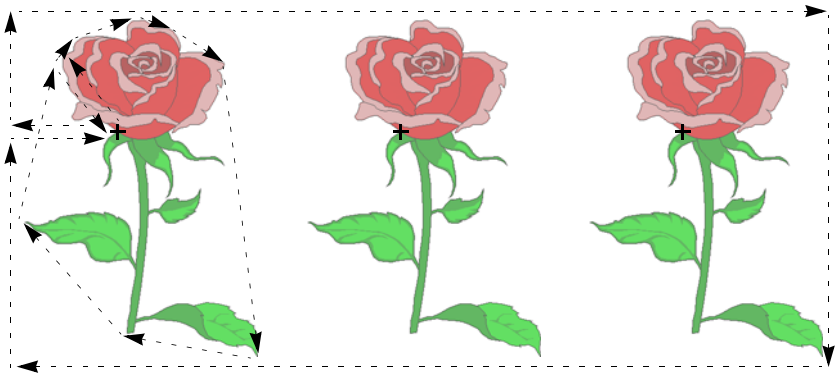


+ Start position

When automatic offset is set, the frame will move to → 1 Offset position → 2 Middle position → 3 Start position → 4 Periphery → 3 Start position → 2 Middle position → 1 Offset position (in the order).



When repeat is set, the machine will trace the whole design after tracing the first design.



+ Start position

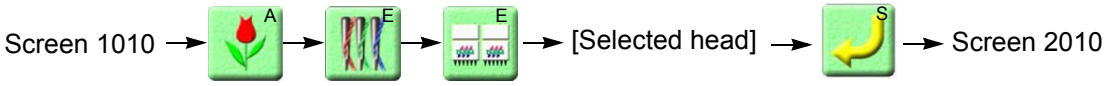
4. Head selection

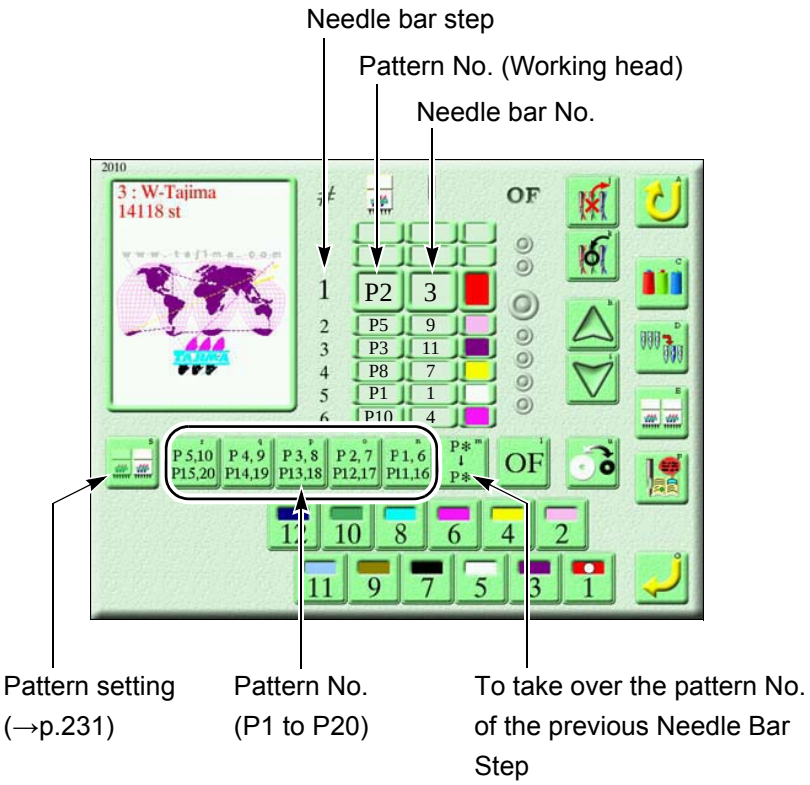
Use this function when you want to select the working heads for each Needle Bar Step.

4-1. Head selecting screen (Screen 2010)

Set the pattern No. for the Needle Bar Step on this screen. The pattern No. will be displayed as P1 to P20, and it is possible to select the working heads for each pattern.

[How to switch the screen]





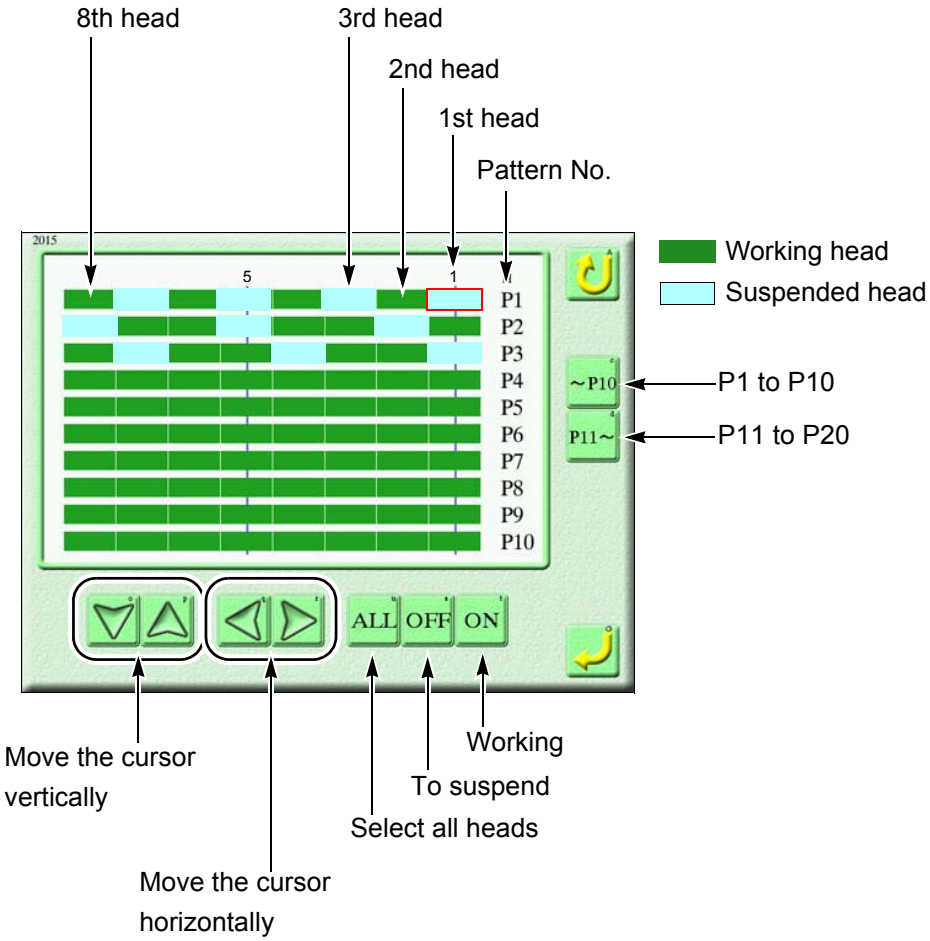
Embroidery will be performed under the conditions as shown below chart in the above example.

Needle bar step	Pattern No.	Needle bar No.
1	P2	3
2	P5	9
3	P3	11
4	P8	7
5	P1	1
6	P10	4

4-2. Pattern setting screen (Screen 2015)

Set the working head and the suspended head for each pattern from P1 to P20.

[How to switch the screen]



Heads in the chart below will work for each pattern No. in the example above.

Pattern No.	Working head
P1	2, 4, 6, 8
P2	1, 3, 4, 6, 7
P3	2, 3, 5, 6, 8
P4 and after	All heads

5. FS Mode

Operation of this function will improve finish of sewing even in case of using badly passing thread (the tinsel, the thick thread) or loosely twisted thread. (Conventional ratio)

This function is specially effective for the embroidery using loosely twisted thread that was improper for the embroidery machine.

(1) Improved points in FS Mode

The following points are not applicable to all embroidery conditions. Depending on the embroidery condition, improvement may not be seen.

(a) Decrease of thread breakage (Tinsel)

(b) Improvement of thread tension for Satin stitch (Loosely twisted thread, Thick thread)

(c) Stabilization of Satin stitch (Loosely twisted thread)

(d) The balance between the upper thread and the under thread is stable on the back of the fabric. (All thread type)

(e) Decrease of bad thread tension points of the emblem embroidery (Polyester yarn)

(2) Movement of machine in FS Mode

FS Mode is the function giving priority to the embroidery quality. Therefore, the productivity may lower in the following points.

Use it after understanding the followings.

(a) Maximum R.P.M. is limited.

(b) Becoming a certain stitch length will perform Auto jump.

5-1. Sewing comparison

(1) Sewing comparison by the difference between standard mode and FS Mode

Thread type: Rayon 300 d/1

Standard mode

FS Mode

(2) Sewing comparison by the difference of threads

Sewing samples (A, B, C) as below are embroidered by FS Mode. It is possible to embroider like samples A, B even if loosely twisted thread is used. If the sample A and B (specially A) are embroidered by standard mode, problems such as fluffing and looping could occur.

Loosely twisted thread

(Rayon 300 d/1)

Thread twisted a little looser (Middle level of twist between A and C) (Polyester 120 d/2)

Normal embroidery thread

(Rayon 120 d/2)

5-2. To improve finish of sewing further

We prepares the following optional parts to improve finish of sewing further. Select the optional parts according to the embroidery condition such as the thread and the fabric.

(1) to (2) are not items of a set.

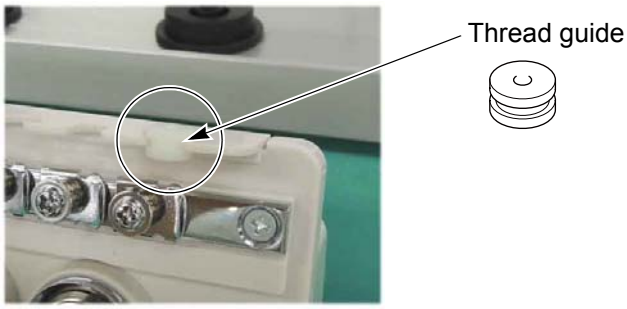
Before using the product, please understand [Note], and consult the distributor.

5-3. Optional parts

(1) Thread guide

Part name	Part No.
THREAD GUIDE :2.2 MM DIA.	516501040000

In case of using badly passing thread, the upper thread tension will be too tight. Therefore, detach the spiral tube, and attach this thread guide.



[Note]

When the color change having large slide volume is performed, the thread tangle sometimes occurs.

(2) Needle

Part name	Part No.
NEEDLE :DB-K5Z1 FS #11 U	616500570000
NEEDLE :DB-K5Z1 FS #11 Y	616500580000
NEEDLE :DB-K5Z1 FS #14 U	616500590000
NEEDLE :DB-K5Z1 FS #14 Y	616500600000

This is the needle specially developed for FS Mode. It is effective for loosely twisted thread that could not be embroidered so far.

[Note]

It is not suitable for the fabric that requires the strong force to be embroidered through.

Skip stitches or thread breakage may occur on a highly elastic fabric. It is also necessary to adjust the lower dead point of presser foot according to need.(→p.88)

Chapter 11
Troubleshooting, maintenance

1. Troubleshooting 238

2. Maintenance 248

3. Adjustment of Snap-fit middle thread guide 260

4. Upgrading of software (Input of a password is necessary) 263

1. Troubleshooting

When the machine stops during operation, an error code will be displayed on the screen.

When the machine stops during operation and a code No. is displayed on the screen, cope with the trouble according to the code chart described below.

1-1. Stop factor (Code No.)

Cord	Stop factor	Corrective Action
0D1-**	Buffer error	Turn OFF/ON the main power. Install the system software.
0D2	Communication parameter error	
0D3-**	Internal-controller error	
1B1	Stop by frame stepping code. Machine stopped due to thread treatment because frame stepping was performed after the start of zig-zag cording device.	After treating thread, continue the operation of the machine if needed.
1B2	Stop by color change code This stop is not caused by an error.	Perform "Start operation" or "Frame Back/ Forward operation", or press any operation key to continue the operation of machine.
1B3	Stop by end code This stop is not caused by an error.	
1B4	Stop by thread trimming code This stop is not caused by an error.	
1B5	Stop by sequin code This stop is not caused by an error.	Perform "Start operation" or "Frame Back/ Forward operation", or press any operation key to continue the operation of machine.
1B6	Stop by automatic arbitrary offset code This stop is not caused by an error.	
1N8	Stop by temporary stop code This stop is not caused by an error.	
1C1	Stop by the stop button Machine stopped by operator s operation.	Continue the operation of the machine if needed. By turning OFF the main power during 1C1 indication, the embroidery may not be continued.

Cord	Stop factor	Corrective Action
1C3	Halt by input of external stop signal Machine stopped by the stop signal from an external device.	Continue the operation of the machine if needed.
1C4	Stop by switch operation of tension base M/C stopped by the change of tension base switch from clutch to normal during color change SQ/ Zigzag cord.	Perform "Start operation" to continue the operation of machine if needed.
1C5	Installation interrupted. Software installation was interrupted by operator s operation.	Press reset key and select Retry.
1D1	Halt at Frame Back start point Machine stopped by the halt setting at the start point of embroidery for all heads after Frame Back operation.	Perform "Start operation" to continue the embroidery.
1D2	Preset Halt Machine stopped by the preset halt setting.	Reset by pressing the reset key. Perform "Start operation" to continue the embroidery.
1D4	Pause (Temporary halt) by data preparation	"Now processing" is displayed. Wait until the indication goes out.
1D6	Receipt of PCB-reset request Transmit a message to reset request in the middle of embroidery.	"Now processing" is displayed. Wait until the indication goes out.
211-01	Fixed position signal error Machine stopped at other than the fixed position.	Return the main shaft to the fixed position. Adjust encoder/encoder Z signal.
211-02	Fixed position signal error Machine stopped at other than the fixed positions of main shaft and needle position.	Return the main shaft/needle position to the fixed position. Adjust the encoder/encoder Z signal.
211-03	Fixed position signal error Machine stopped at other than the fixed position of main shaft during power resume.	Adjust the encoder/the encoder Z signal. Initializing the error code causes frame origin search starts after the main shaft moves to the fixed position automatically.
211-04	Fixed position signal error Encoder Z signal cannot be detected due to poor encoder adjustment even when the main shaft is at the fixed position.	Check the encoder. Adjust the encoder so that the mechanically fixed position synchronize to the encoder Z signal correctly.
212	In the state of needle bar lowered Needle bar is descending.	Move needle bar up and operate the machine.
213	Lower dead point error Machine is stopping at the lower dead point.	Move needle bar up and operate the machine.
221	Frame Too Far Left Embroidery frame moved to the limit position (left). (+X direction)	Move the frame manually to embroider within the setting of embroidery space.

Cord	Stop factor	Corrective Action
222	Frame Too Far Right Embroidery frame moved to the limit position (right). (-X direction)	Move the frame manually to embroider within the setting of embroidery space.
223	Frame Too Far Front Embroidery frame moved to the limit position (front). (+Y direction)	Move the frame manually to embroider within the setting of embroidery space.
224	Frame Too Far Back Embroidery frame moved to the limit position (rear). (-Y direction)	Move the frame manually to embroider within the setting of embroidery space.
225	Design size too large Design does not fit within the embroidery space due to the present start position of design.	Move the frame manually to embroider within the setting of embroidery space.
251	Lubrication level error Lubrication level is irregular.	Supply oil to the lubrication tank.
258	Upper dead point sensor error Upper dead point sensor error detected.	Check/replace the upper dead point sensor of ESQ-C.
259	Lower dead point sensor error Lower dead point sensor error detected.	Check/replace the lower dead point sensor of ESQ-C/zigzag cording device.
25A	Sequin color change sensor failure Color change sensor error detected.	Check/replace the color change sensor of ESQ-C.
291	Stop by detecting thread breakage Machine detected upper thread breakage.	Check the upper and under threads. Check/ replace the tension base card.
293	Under thread break Machine detected under thread breakage.	Check the under thread. Check/replace the tension base card.
294	Running out of material detected Machine detected running out of sequin material.	Check/replace Sequin material.
2A1	Thread trimming position adjustment error Adjustment time of thread trimming position was exceeded.	Return ATH movable knife to the correct position. Check and replace the thread trimming motor/thread trimming encoder.
2B2	TAJIMA Complement error Complement error detected in TAJIMA data.	The same values (+ and -) of the design data are valid at the same time. Correct the design data.
2B3	Data found in end code Data is found in end code.	Delete "X/Y moving amount of the end code" of the design data.
2B4	Function code error Function code error occurred.	There is a function code that is not defined. Correct the design data.
2B7	Data set incomplete Data set is not completed.	Operate the machine after setting the data of embroidery design.
2B8	Frame Forward limit over Frame Forward exceeded available range.	Frame Forward is not available beyond the current stitch count.

Cord	Stop factor	Corrective Action
2B9	Memory write error Cannot write data onto memory.	Check and replace CPU card/operation panel.
2BA	Memory capacity exceeded Free space of memory is insufficient.	Increase the free space of memory by deleting unnecessary designs in the designs registered in the memory (after taking the backup if needed).
2BB	Frame Back limit over Frame Back exceeded available range.	Frame Back is not available before the current stitch count.
2BC	Design No. error Design No. cannot be found. Not editable due to data setting. Design is not registered in memory.	Edit the design you wish to edit after the data set of the design. Register the design to the memory.
2BE	Incorrect function code segment Start/end codes are not registered in a pair for the function which has start/end.	Modify/set the design again so that the codes of start/end become a pair.
2BF	Memory read error Memory cannot be read.	Check and replace CPU card/operation panel.
2C1	Insufficient program setting	Operate after coming out of parameter setting screen/the other setting screens/manual operation screen.
2C7	Password requested Password is requested. The input password is wrong.	Input the password.
2CE	Stop by safety device Machine was stopped by the stop signal from the safety device.	After confirming safety, continue the operation of machine if needed.
2E2	Air pressure error Air pressure has become lower than the standard level.	Check/adjust the pressure of air supplying.
2E3	Power failure during operation The power supply was shut off during main shaft operation.	Turn ON the main power and perform the operation of power resume.
311-**	Encoder A signal error	Check the encoder or encoder signal lines. Check the excitation of the main shaft driver.
312-**	Encoder Z signal error	Check the encoder or encoder signal lines.
314-**	Main shaft revolution error (Overload error)	After checking around the rotary hook and the main shaft, remove the factor that the main shaft can not rotate.
316-**	Main shaft motor error	Turn OFF/ON the main power.

Cord	Stop factor	Corrective Action
319-	Main shaft stopped by embroidery data reception error. It was not possible to receive stitch data during two rotations of main shaft.	Turn OFF/ON the main power. Check/replace the main shaft motor/main shaft driver.
321-**	Frame driver irregular signal	Lower the revolution of the main shaft. Check/replace the XY-axis driver card/frame motor.
32C	X-axis frame travel incomplete	Turn OFF/ON the main power. Check/replace X-axis driver card.
32D	Y-axis frame travel incomplete	Turn OFF/ON the main power. Check/replace Y-axis driver card.
32E	X-axis origin search incomplete	Check the embroidery space setting. Check/replace the sensor card.
32F	Y-axis origin search incomplete	
352	Sequin device IV driver error	Check/replace Sequin device IV card.
353	Sequin device III driver error	Check/replace Sequin Device III card.
354	Motor overcurrent	Turn OFF/ON the main power. Lower the revolution of the main shaft. Check/replace the head card.
361-**	Jump Driver signal error	Turn OFF/ON the main power. Lower the revolution of the main shaft. Check/replace the head card.
376	Presser foot position error	Set the presser foot to the retractable position.
378-**	Presser foot driver error	Turn OFF/ON the main power. Lower the revolution of the main shaft. Check/replace the head card.
379-**	Error detection of Hook driver	Turn OFF/ON the main power. Check/replace the hook motor/head card.
382-**	Time to move to target position	Check/replace the color change motor/encoder and potentiometer (needle position sensor).
383-**	Needle position error	Move the needle position within the set range. Check/replace the potentiometer (the needle position sensor) or the color change encoder.
384	One-turn signal is not detected	Check/replace the photo interrupter (1-rotation sensor) and color change encoder.
388-**	Color change driver error	Turn OFF/ON the main power. Check the change device. Check/replace the controller card.
3A1-**	ATH Driver signal error	Turn OFF/ON the main power. Check/replace ATH motor/controller card.

Cord	Stop factor	Corrective Action
3A2	Time out for ATH	Check if thread is crowded. Turn OFF/ON the main power. Check/replace ATH motor/ controller card.
3A3	Upper Thread Lock Driver	Turn OFF/ON the main power. Check/replace the head card.
3A6	Movable Knife Open	Check the position of ATH movable knife.
3AB	ATH thread separation error	Set the tension base SW at the detected head to the top and make LED lit green. Then press the reset key or start by the bar switch.
3AC	ATH Skip stitch error	
3B4	Communication error	Check/replace the head card.
3B6	Communication error	Check/replace the driver card.
3B8	Sequin device twin type error	Check/replace Sequin device III card.
3B9	Up/Down Color change driver com. error	
3BE-**	Network communication error	Check the setting of network connection. Turn OFF/ON main power of machine and connecting device such as DG/ML. Check connecting cable.
3C1	Start/Stop switch error	Check/replace the connector/connection terminal/limit switch. Turn OFF/ON the main power.
3C2-**	Frame travel key error	Check/replace the frame moving switch. Turn ON the main power supply.
3D1	Battery signal error	Charge/replace the battery of the operation panel.
3D4	ROM Check Sum error	Turn OFF/ON the main power. Install the system software. Check/replace CPU card.
3D5	RAM Check Sum error	
3D6	Watch Dog error	
3D7	RAM error	
3D8	CPU exception handling error	
3DA	Permanent Counter error	Check/replace the connection of permanent counter.
3DB	System RAM insufficient capacity	Turn OFF/ON the main power. Install the system software. Check/replace CPU card.
3DC	Memory device error	
3DD-**	System installation error	After pressing the reset key, install again by pressing the retry key. After turning OFF/ON the main power, install again. Check/replace CPU card.

Cord	Stop factor	Corrective Action
3DE	External memory device error	Turn OFF/ON the main power. Check/replace the external memory media. Check/replace CPU card.
3DF	Memory device broken	Turn OFF/ON the main power. Check/replace CPU card.
5B1	Design information error	Replace the design data. Use the design data made by DG/ML.
5C1	Frame origin memory incomplete	Perform the operation of absolute origin search.
5C2	Sequin device in operation	Do not operate the machine when Sequin Device is moving up and down.
5C3	Sequin device twin type setting error	Check/change the parameter setting of sequin device on operation panel.
5V6	General external device is operating.	Do not operate the machine during the operation of general external device.
6B1	Communication error	Check/replace Sequin Device IV card.
6B2	Communication error	Check/replace the main shaft driver card.
6B3-**	Logger communication error	Turn OFF/ON the main power. Check/replace the Logger card.
6B5-**	Communication error	Turn OFF/ON the main power. Install the system software. Check/replace each card.
6D1	Frame parameter file error	Install the system software.
6D2	Disconnection of communication line	Turn OFF/ON the main power. Check the connection of each harness. Install the system software.
6D3	Communication error	
6D4	SHT connection error	Connect the harness for SHT control.
6D5	Power interruption detector connection error	Connect the harness for the detection of power failure.
OIL	Preset Halt Machine stopped by the preset halt (Lubrication) setting.	After lubricating the necessary spots, reset the machine by the reset key. Perform "Start operation" to continue the embroidery.
B01	Formatting error Abnormal format of storage media. Reading/writing error occurred.	After taking the backup, format the memory media. Use the new memory media.
B02	Disk FAT error Abnormal File Allocation Table found on.	Take the backup of memory media. Do not use the memory media that caused error.
B03	Write protect error The memory media is write-protected.	After cancelling the write-protection for memory media, perform the writing operation.

Cord	Stop factor	Corrective Action
B04	Empty media error Media is not inserted.	Insert memory media.
BC1	Unregistered design No. Design No. is not found.	Perform the selection of design again.
BC2	Design name overwrite error The same design name already exists in USB Memory/FD.	Change the file name.
BC3	Disk file error This memory media cannot be read.	After taking the backup, format the memory media. Use new memory media.
BC4	Verify error Abnormal Stitch Data found on Media.	Perform writing again.
BC5	Memory capacity insufficient error	Replace with a memory media with enough remaining capacity. Then, by pressing the reset key, the operation will continue.

1-2. When the machine does not sew well

(1) Thread breakage

Cause	Corrective Action
Improper thread tension	Adjust tension. Upper thread (120 to 140 g), under thread (20 to 30 g)
Poor thread flow	Use silicone.
Direction of needle is bad or needle bents.	Adjust to face to the front or to the right a bit. Replace.
Applique glue is stuck on needle.	Remove adhered glue.
Lint, run-out of oil of rotary hook	Clean and lubricate.(→p.249)
Numerous tiny stitches of 0.5 mm or less in design data	Remove tiny stitch(es).(→p.107)
The fabric is lifted too much against the needle plate. The fabric touches the needle plate excessively.	Stretch the fabric again so that it touches needle plate lightly.
Run-out of oil of needle bar	Lubricate.(→p.252)
There is a scratch on the thread course and /or rotary hook.	Grind a scratch with sandpaper etc. Replace them.
Bad height of presser foot	Perform adjustment so that height fits to fabric/material.
The combination of Frame drive timing and embroidery condition is inappropriate.	Change setting.(→p.193)

(2) Needle breakage

Cause	Corrective Action
Improper thread tension	Adjust tension. Upper thread (120 to 140 g), under thread (20 to 30 g)
Density of design data is very high.	Correct data. Delete unnecessary underlay stitching.
The material is too thick or hard.	Use material suitable for embroidery.
Bobbin is deformed and it touches the needle.	Replace the bobbin.
Deterioration of needle, mis-matching to embroidery condition	Replace needle. Use needle that fits to condition.
Vibration of the machine is big.	Center support is too much touched to the table. Tighten the support by hand. Adjust leveling.
The combination of Frame drive timing and embroidery condition is inappropriate.	Change setting.(→p.193)

(3) Embroidery results not good

Cause	Corrective Action
Improper thread tension	Adjust tension. Upper thread (120 to 140 g), under thread (20 to 30 g)
Poor thread flow	Use silicone.
Density of design data does not match with material and/or thread.	Correct data.
Bad frame attaching and fixing of the fabric	Attach the frame correctly. Fix the fabric firmly.
The combination of thread, needle and/or the size of needle plate is inappropriate to the embroidery condition.	Make combination that fits to design data/material.
R.P.M. is too high.	Decrease R.P.M.
The combination of Frame drive timing and embroidery condition is inappropriate.	Change setting.(→p.193)

2. Maintenance

WARNING

- Daily maintenance (cleaning, lubrication, greasing, inspection) should be performed by personnel who has been trained properly.
- 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.)
- When starting operation again, attach all the detached covers as they originally were.

CAUTION

- Perform daily maintenance. Neglect of daily maintenance could cause troubles. Damage due to neglect of daily maintenance may be judged as "Outside the scope of warranty".
- 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 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.

2-1. Cleaning

WARNING

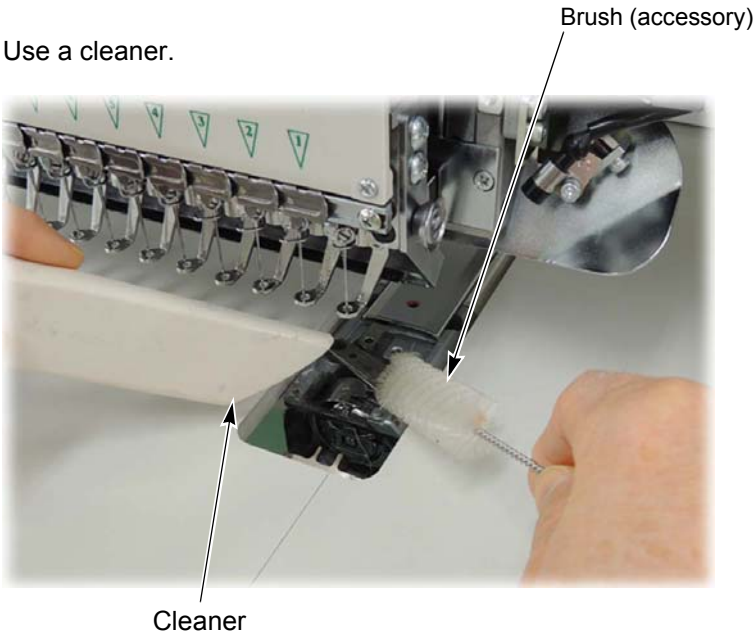
When performing cleaning, be sure to turn OFF the power switch. You could be injured seriously by being entangled in the machine.

Clean each section by using a cleaning tool or an air compressor, etc. on the market.

(1) Rotary hook, ATH

Cleaning cycle: Every day

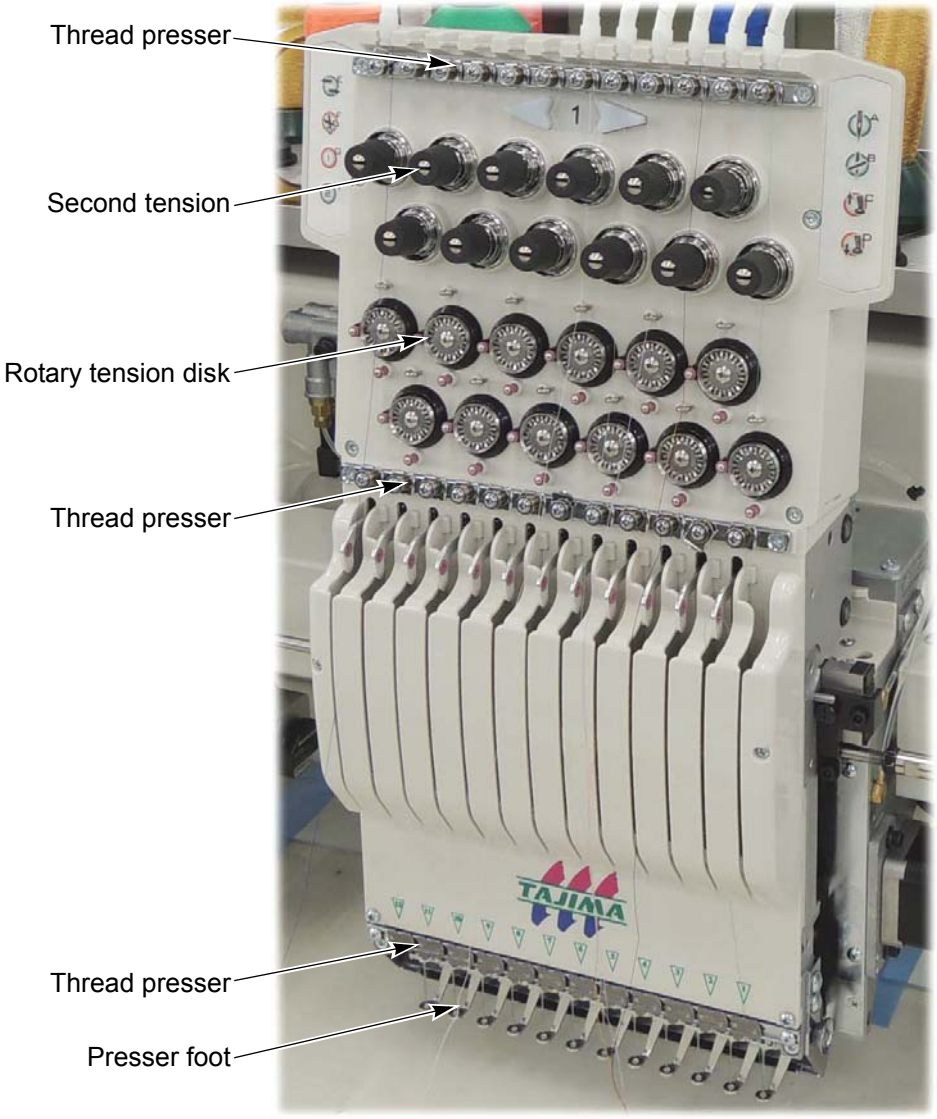
Use a cleaner.



Use an air compressor.

(2) 1st tension, head

Cleaning cycle: Once/week



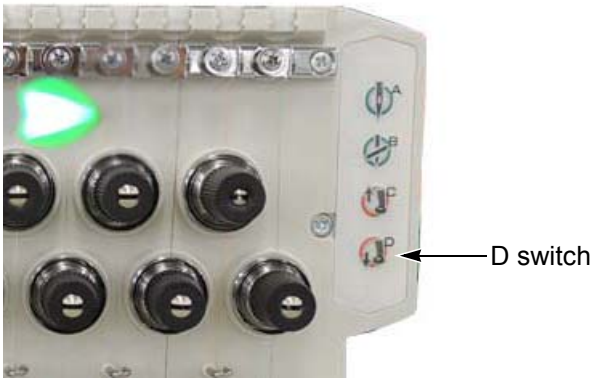
(3) Presser foot shaft

The motion of the presser foot shaft may be getting poor because of adhering thread and dust. Clean the surrounding of the presser foot shaft using an air compressor or an brush periodically.

Cleaning cycle: Twice/week

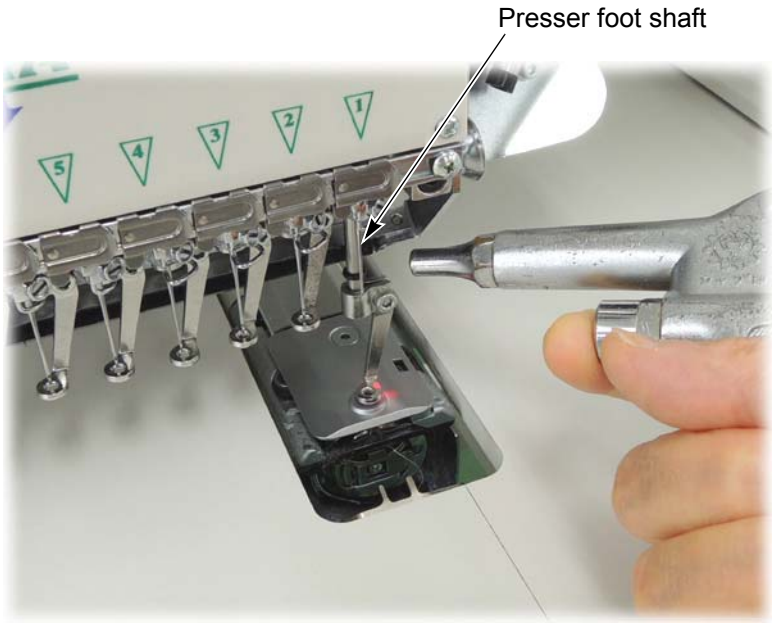
a. Press D switch at the tension base twice. The presser foot at the head will move down to the lower dead point.

It is possible to lower the presser foots at all heads all together.(→p.87)



Retractable position
↓
FB position
(Frame Back position)
↓
Lower dead point

b. Clean the presser foot shaft.



An example when using an air compressor

2-2. Lubrication

WARNING

To perform lubrication, turn OFF the power switch. You may sustain severe injuries by being caught in the machine.

CAUTION

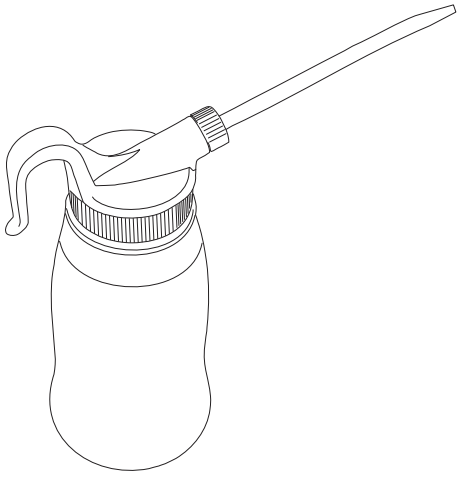
Use only Tajima s genuine TF oil or equivalent (Viscosity grade = VG20).

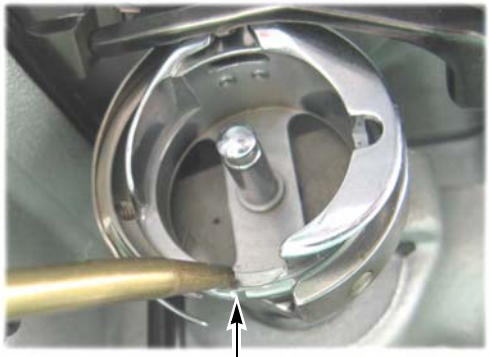
(1) Rotary hook

Lubrication cycle: Once/5 to 6 hours

To lubricate, use the oiler. There are two lubricating spots, raceway and lubrication hole.

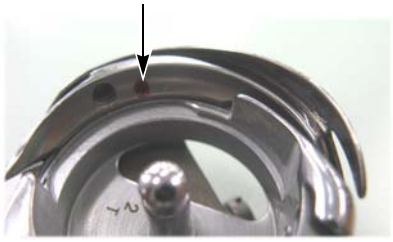
Oiler (accessory)



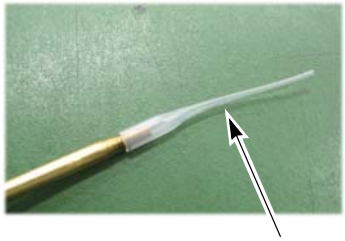


Raceway

Lubrication hole (red mark)



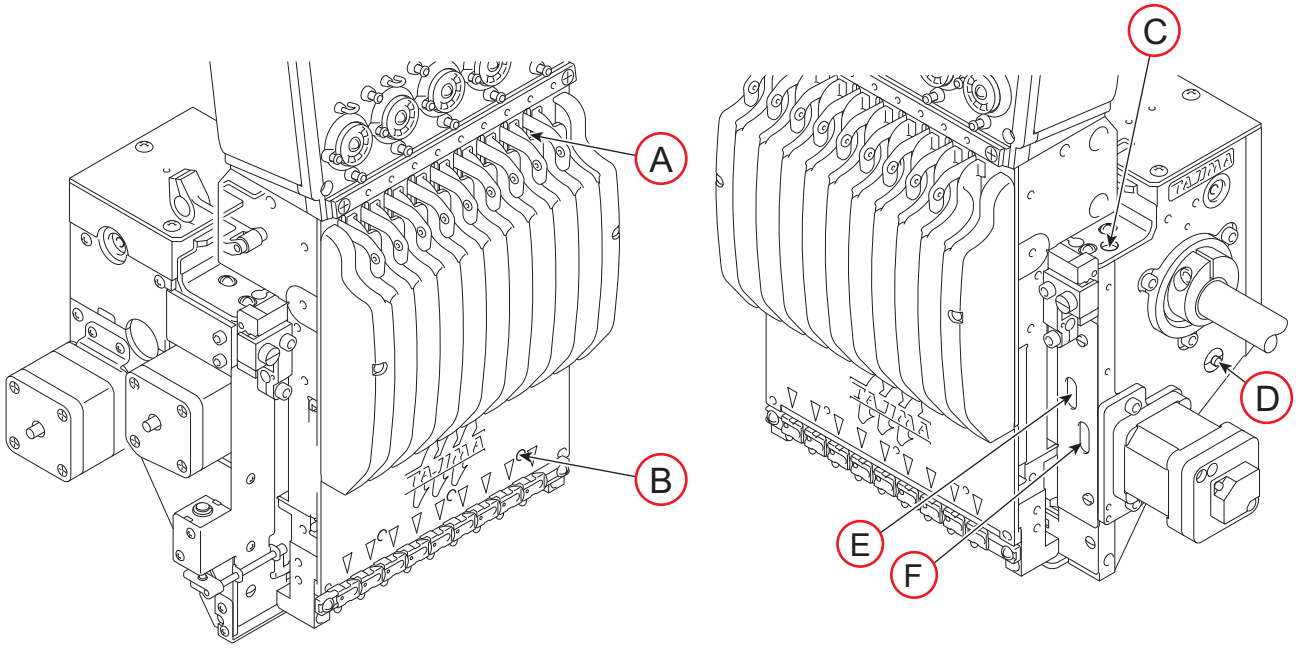
To lubricate lubrication hole, attach the nozzle (accessory) to the tip of the oiler.

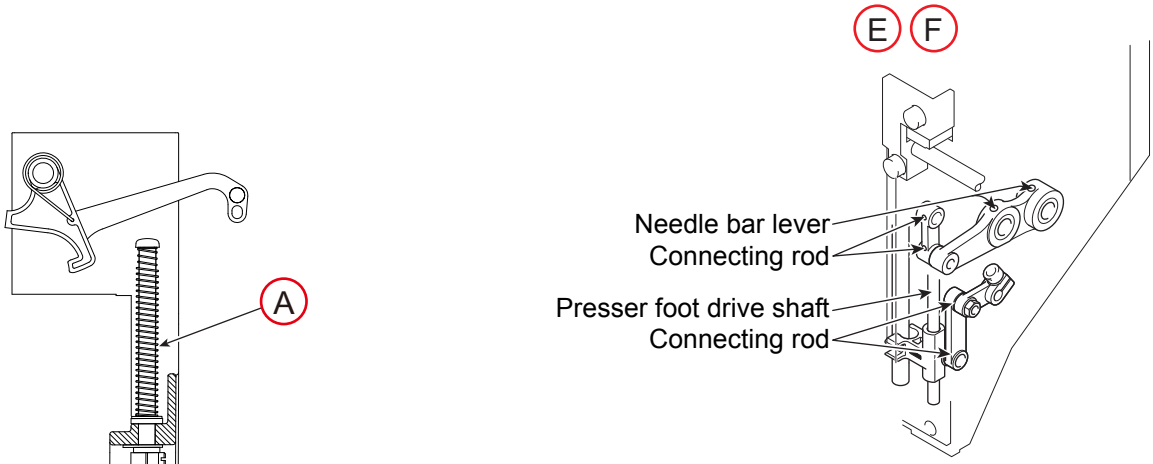


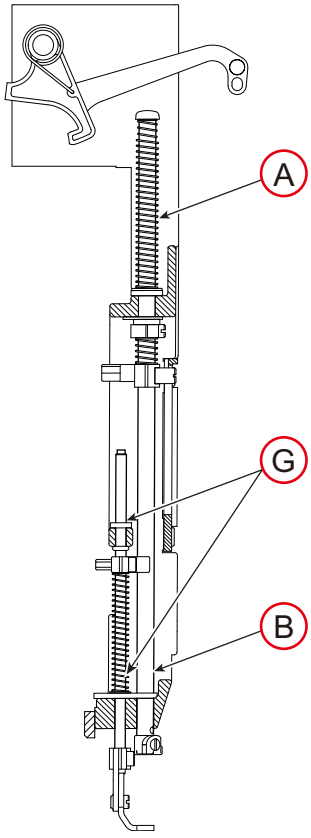
Nozzle

(2) Head

Lubrication cycle: Once/week



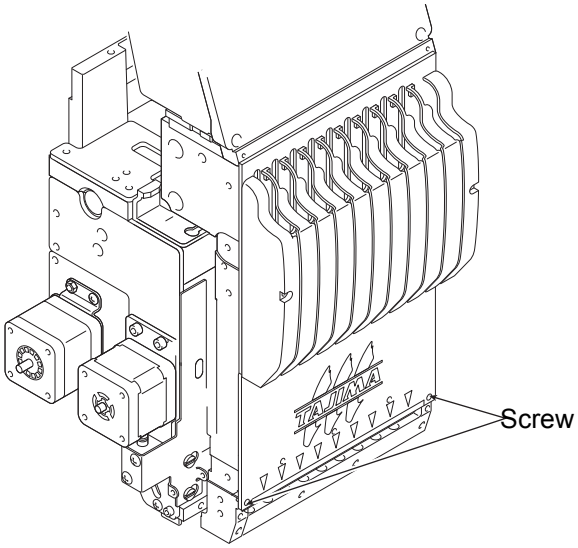




Lubricating spot
A: Needle bar
B: Needle bar
C: Needle bar drive shaft
D: Wick of stepped pin
E: Needle bar lever, presser foot drive shaft, connecting rod
F: Connecting rod
G: Presser foot shaft(→p.254)

[How to lubricate presser foot shaft]

a. Remove screws at two spots.

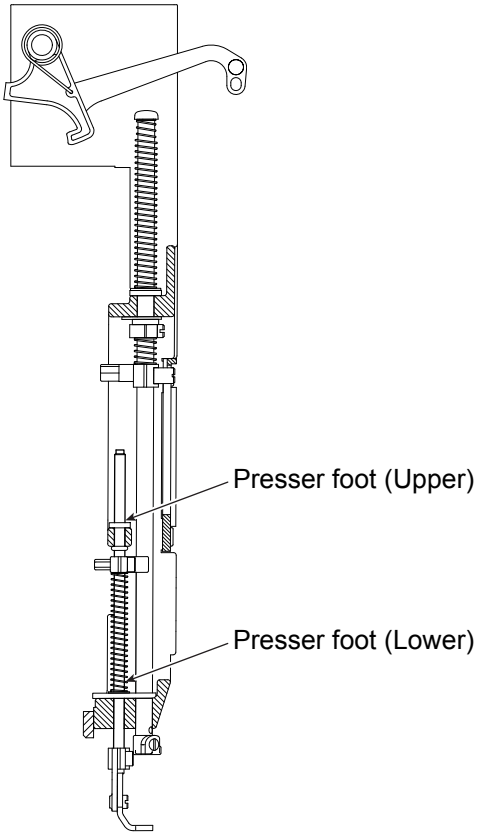


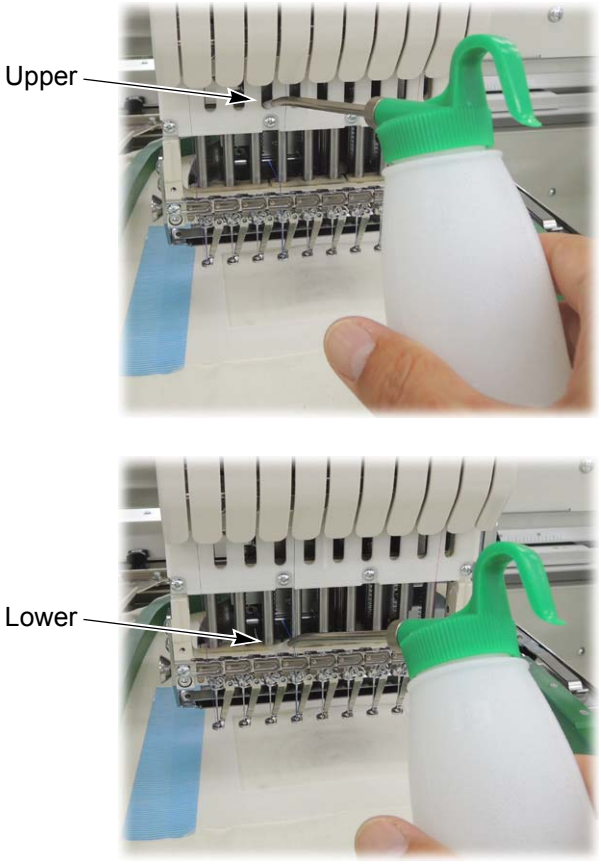
↓Play a video

To play the video, Adobe Flash Player is necessary. Press the play button as shown above, and follow the displayed screen to install Adobe Flash Player.

To close the video, scroll down to the next page.

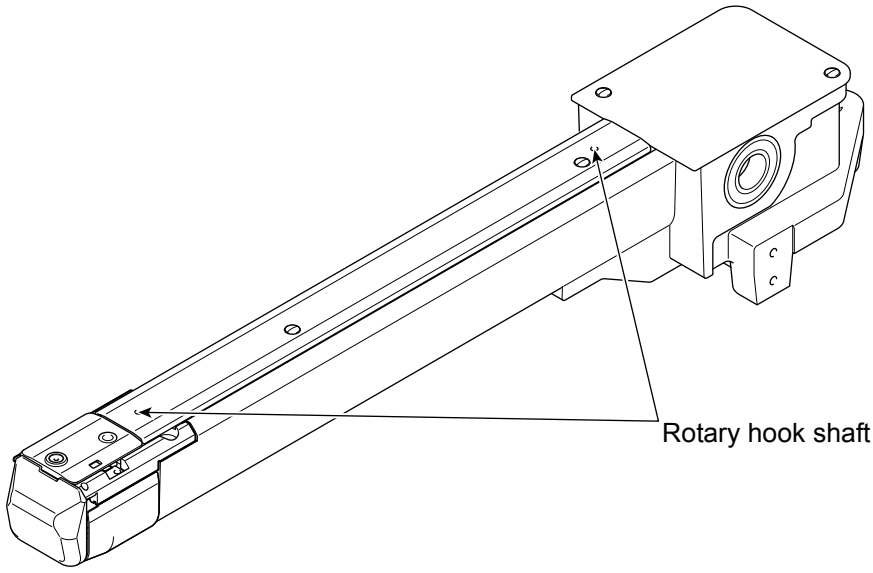
b. Lubricate the presser foot shaft (upper, lower).





(3) Slim cylinder bed

Lubrication cycle: Once/week



2-3. Greasing

When you perform greasing, consult the distributor.

WARNING

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

CAUTION

Use a grease specified(described below) by TAJIMA or equivalent to keep the lubricity inside of the head normally. Use of the grease except these could cause trouble due to deterioration of the lubricity. Regarding how to obtain it, consult the distributor.

[Items specified by TAJIMA]

Part name	Item No.	Base oil	Thickener
KING STAR EP NO.2: 400G	750103004000	Refined mineral oil (about 75%)	Lithium soap (about 15%)
NIG LUBE PG: 300ML	750104001000	Olefinic synthetic oil	Lithium soap

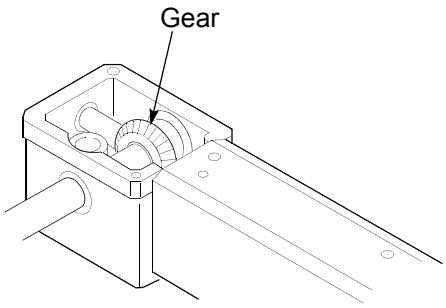
Grease manufacturer: NIPPON GREASE Co.,Ltd.

URL: http://www.nippon-grease.co.jp/

(1) Slim cylinder bed

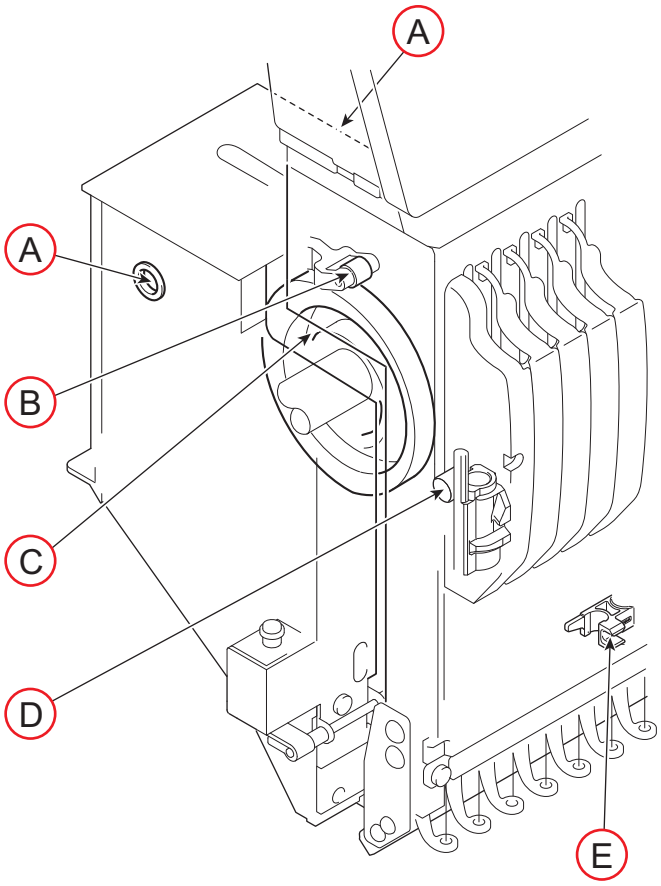
Grease to use: KING STAR EP NO.2: 400G

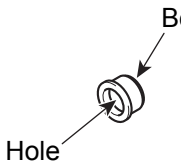
Greasing cycle: Once/6 months



(2) Head

Greasing cycle: Once/3 months

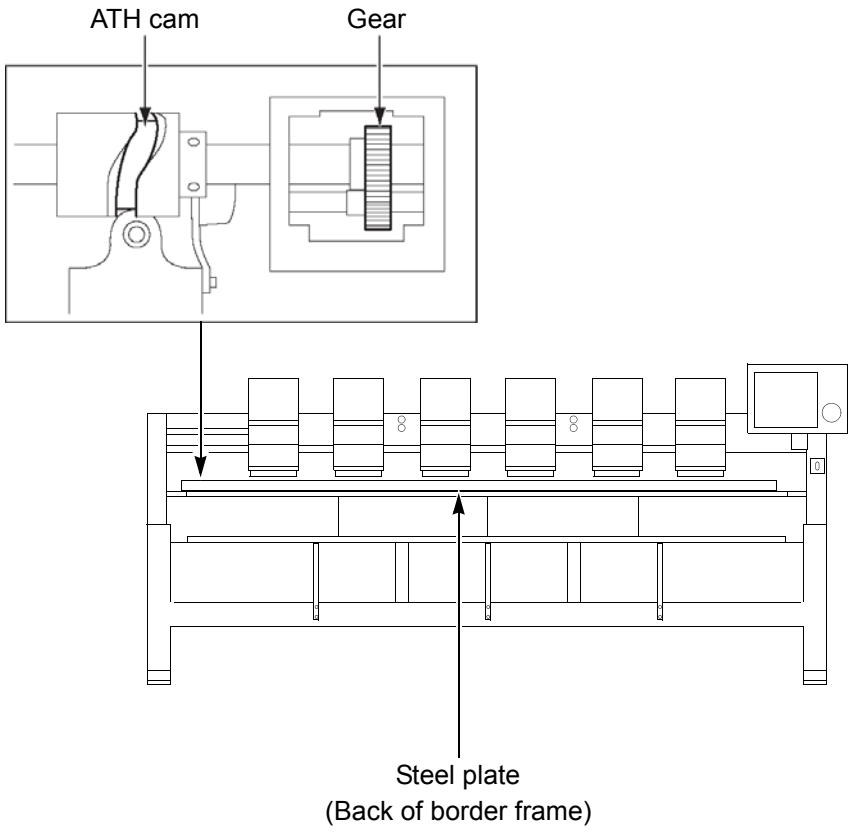


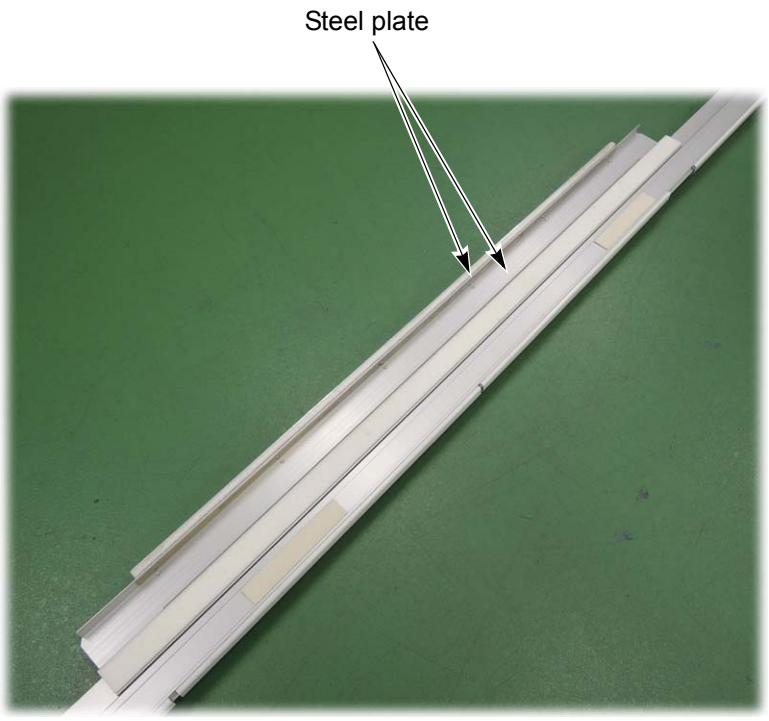
Greasing spot	Grease to use
A: Take-up lever shaft holder  Inject grease from the hole of the bearing case lid by using the syringe.	NIG LUBE PG: 300ML
B: Take-up lever drive lever roller	
C: Take-up lever cam	
D: Jump lever roller	
E: Presser foot reciprocator	

(3) ATH cam etc., steel plate (back of border frame)

Grease to use: KING STAR EP NO.2: 400G

Greasing cycle: Once/6 months





Grease to steel plates at both sides.

2-4. Inspection

WARNING

Be sure to turn off the main power supply before working. Even if the main power supply is turned off, some circuits are still applied voltage. Wait until they are not applied voltage completely (4 minutes), and then start working.

Inspection point	Contents of inspection	Inspection cycle
Each belt in main shaft drive system	Tension of belt, degree of wear, existence of crack	Once/3 months
X- and Y-axis drive belts	Tension of belt, degree of wear, existence of crack	
Rotating, sliding section	Degree of wear	

2-5. Repair

WARNING

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.

Be sure to turn off the main power supply before working. Even if the main power supply is turned off, some circuits are still applied voltage. Wait until they are not applied voltage completely (4 minutes), and then start working.

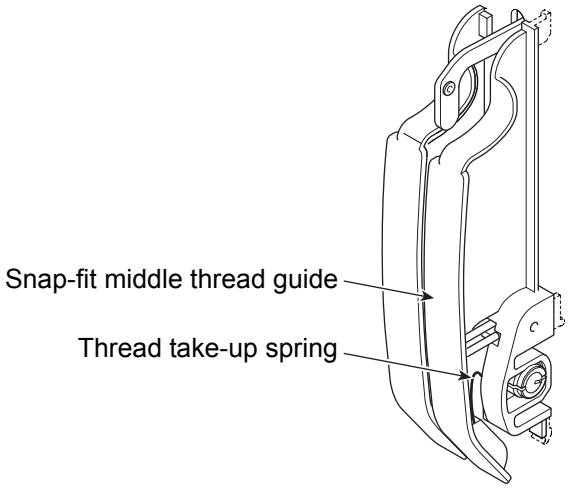
When restarting the machine after repairs, attach all removed covers etc. as they were.

CAUTION

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

3. Adjustment of Snap-fit middle thread guide

To adjust the stroke amount of the thread take-up spring inside the snap-fit middle thread guide, follow the procedure below.



[How to adjust]

(1) Push the pawl inside the hole of the top cover with some thin-tipped stick (Fig. A), and release the locking pawl from the top cover (Fig. B).

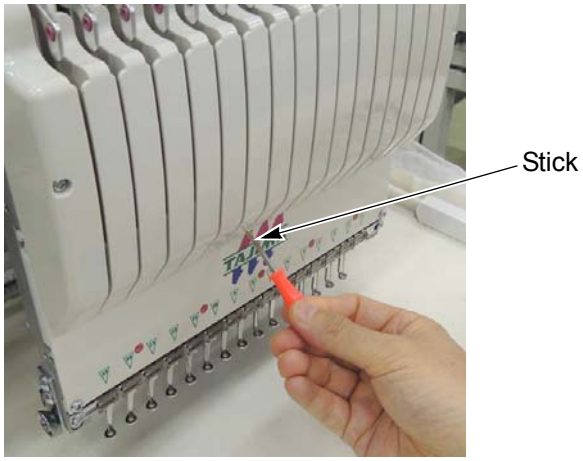


Fig. A

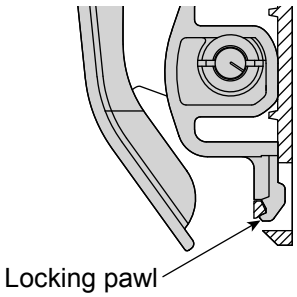
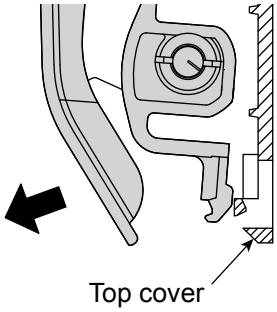
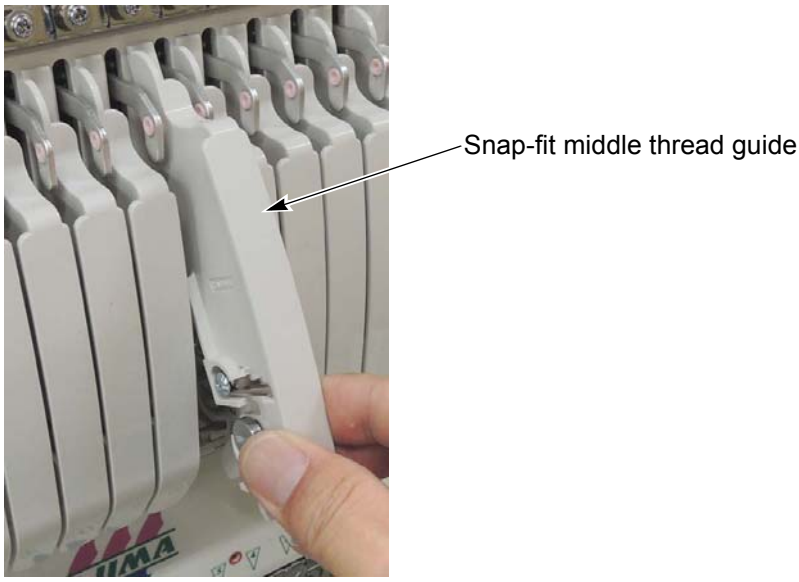


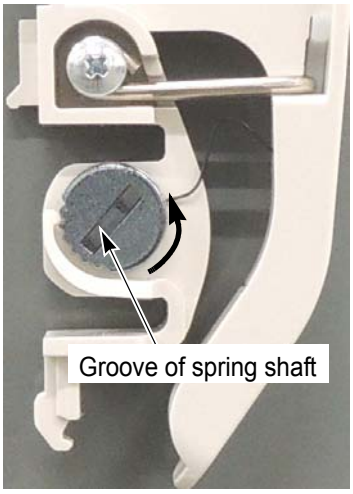
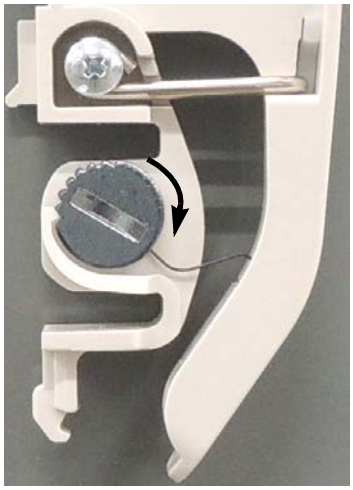
Fig. B



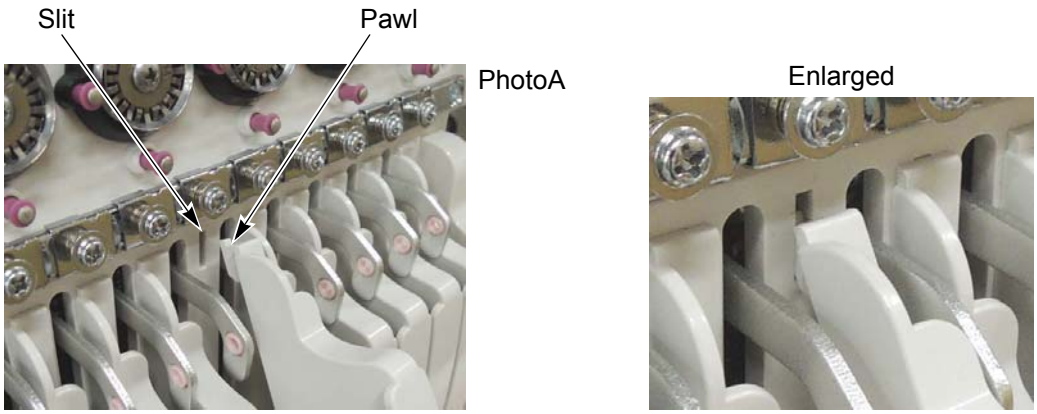
(2) Detach the snap-fit middle thread guide.

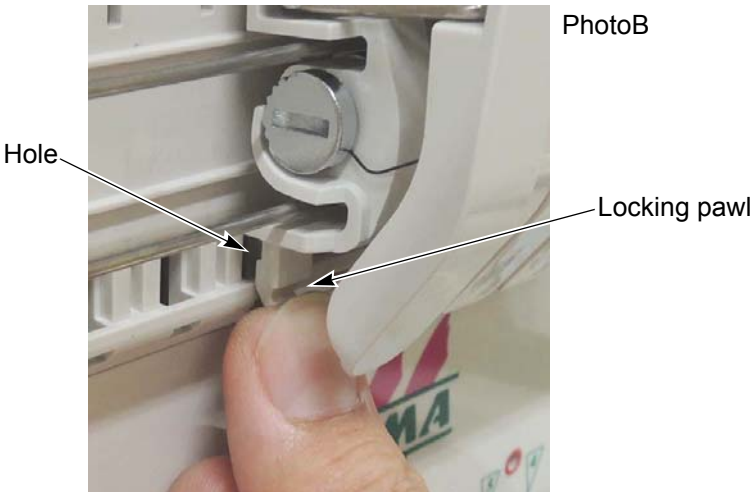


(3) To adjust stroke of the thread take-up spring, put some coin, etc. in the groove of the spring shaft and turn the spring shaft.

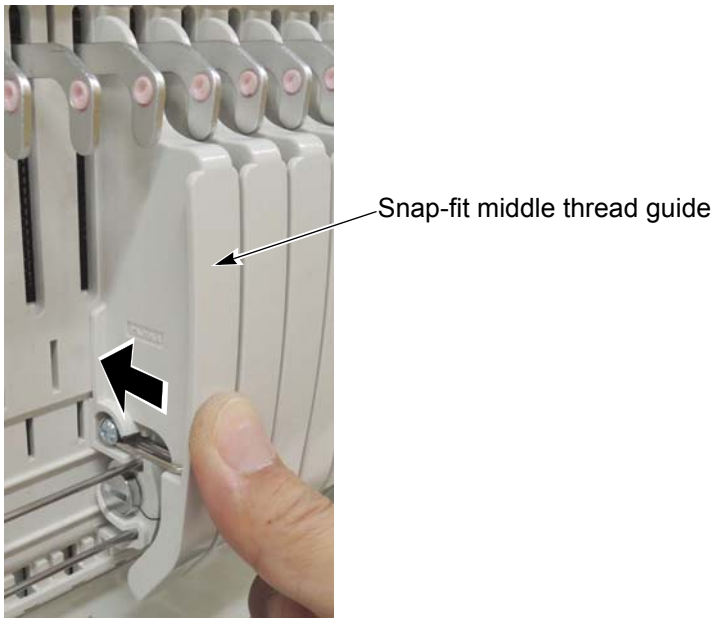
Minimum stroke	Standard stroke	Maximum stroke
Click three times in the counterclockwise direction	Position at shipment from the factory	Click twice in the clockwise direction
		

(4) Put the pawl into the slit (Photo A), push up the locking pawl with your thumb and put it in the hole (Photo B).





(5) Push the snap-fit middle thread guide securely to fit until you hear a "Click" sound.

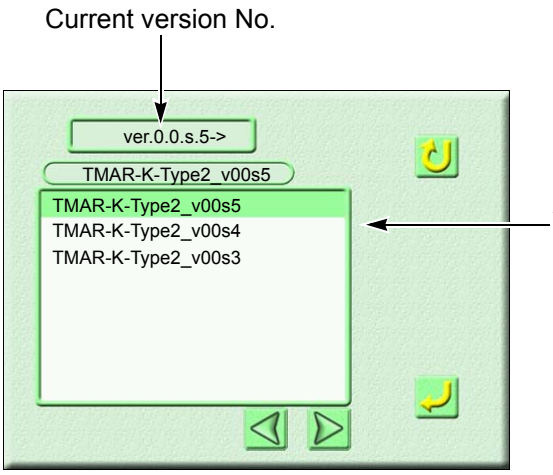


4. Upgrading of software (Input of a password is necessary)

The latest software at shipment is installed to the machine. When upgrading of the software is necessary in later use, install the latest software according to the following procedure.
Regarding the contents and how to obtain the latest software, please consult the distributor.

To perform this work, input of the password is necessary. After input of the password, the following operation will become possible until you turn ON the power again next time. For details, consult the distributor.

[Explanation of screen]

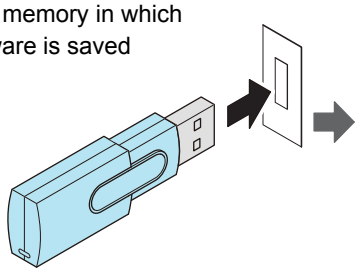


When plural softwares differed in version are saved in the USB memory, the display as the left figure will appear.
It is possible to select and install your desired software.

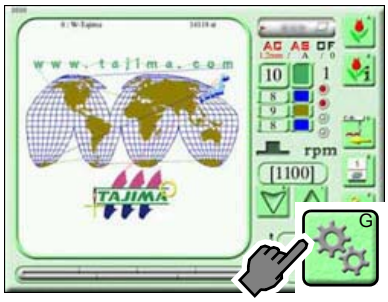
[How to operate]

(1) To set USB memory

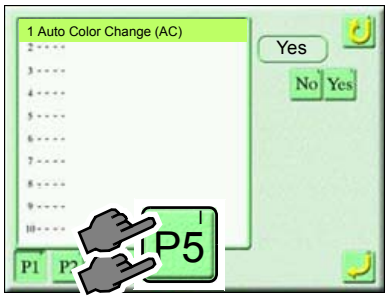
USB memory in which software is saved



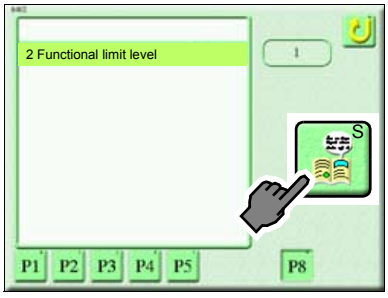
(2) Icon G



(3) Press P5 twice.

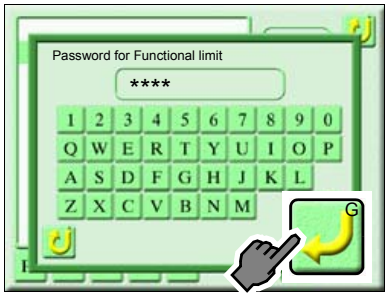


(4) Icon S

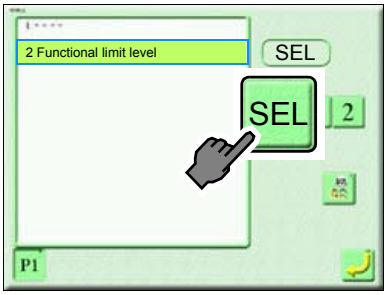


(5) Input a password.

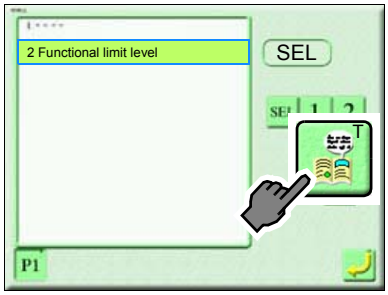
(6) To set



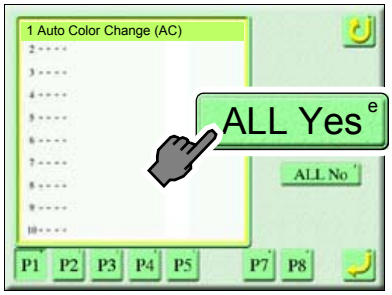
(7) SEL



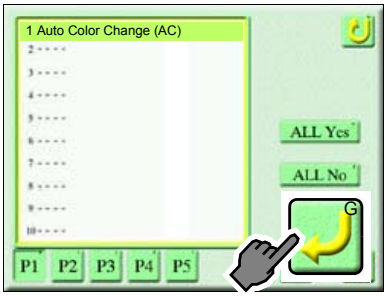
(8) Icon T



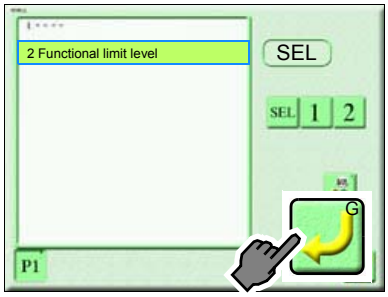
(9) Icon T



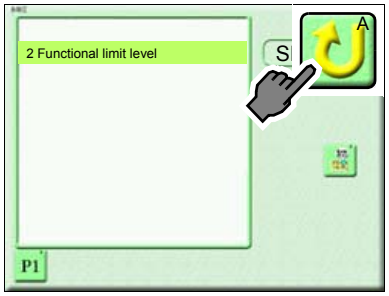
(10) To set



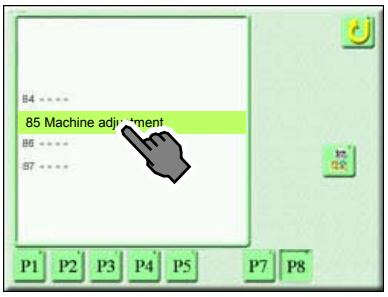
(11) To set



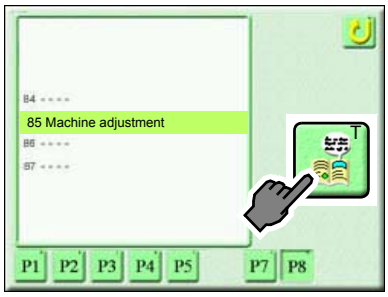
(12) Icon A



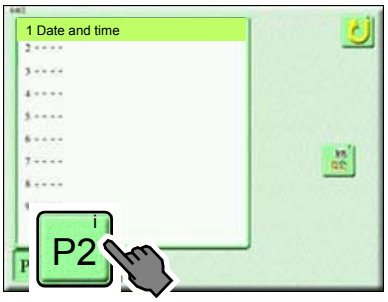
(13)85 Machine adjustment



(14) Icon T



(15)P2

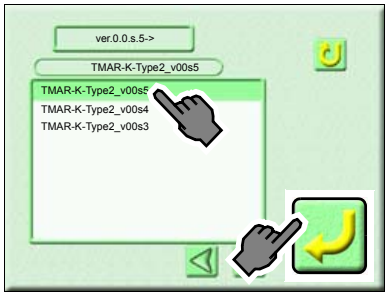


(16)15 Software install

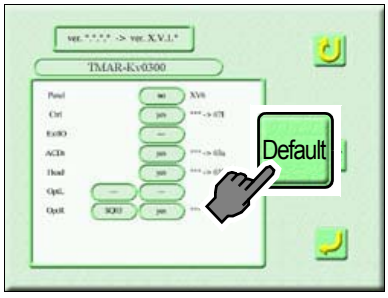
(17) Icon T

(18) To set

(19)A desired software to set



(20) Default (Recommended)

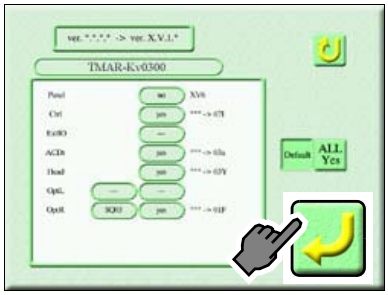


Default — Install only the necessary system.

ALL Yes — Install all systems. When overwriting the same software, select this icon.

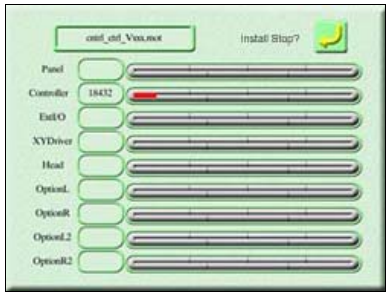
SQ12

(21) To set

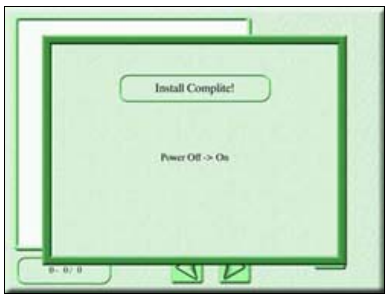


Now processing

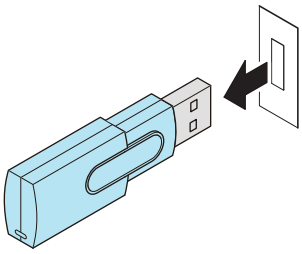
Now processing



(22) Completed.



(23) Pull out the USB memory.



(24) Turn OFF and ON the power. At this moment, wait for twenty seconds or more.

Chapter 12
Appendix

1. Specification of the machine 268

2. Electrical system diagram 270

3. Terminology 277

1. Specification of the machine

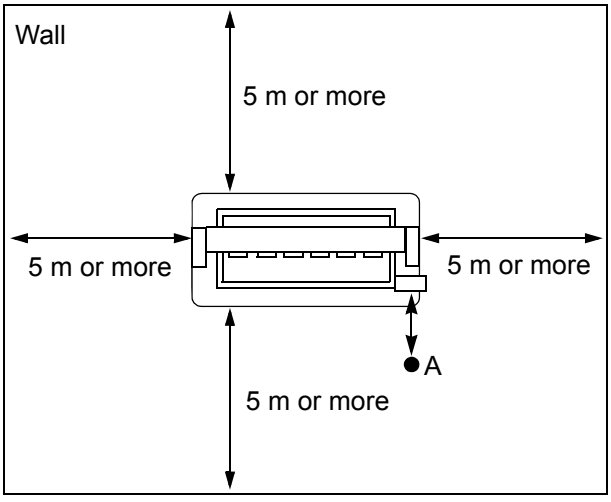
1-1. Electrical specifications

Allowable voltage range	Within ±10% of the rated voltage
Frequency	50 / 60 Hz
Apparent power	TMAR-KC TYPE-2 8-head machine: 960VA (Maximum) TMAR-VC 12-head machine: 900VA (Maximum)
Active power	TMAR-KC TYPE-2 8-head machine: 500W (Maximum) TMAR-VC 12-head machine: 700W (Maximum)
Insulated resistance	10 M ohms or greater (500 megger insulation tester)

1-2. Ambient noise level

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

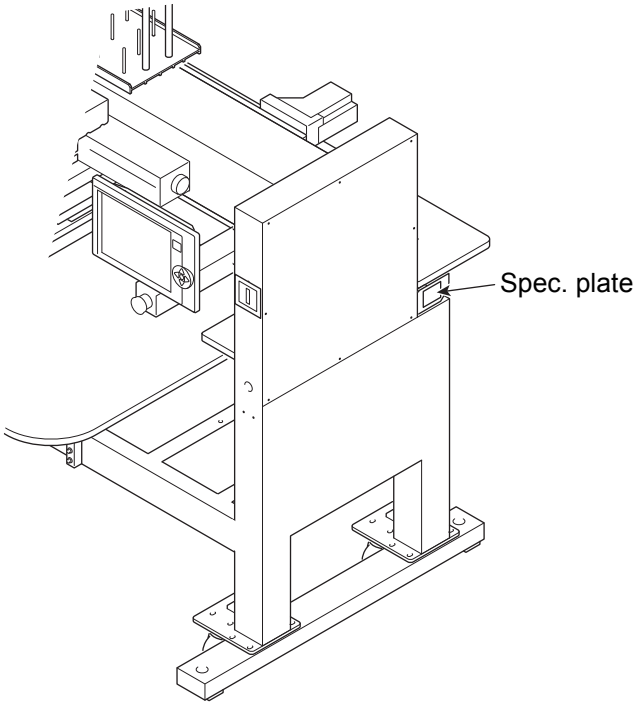
Measuring ambience	Refer to the figure below.
Measuring position	Measured at the position A which height is 1.6 m from the floor and the distance is 0.3 m from the front of the operation panel
Working machine condition	Fabric is stretched on the tubular goods frame or the border frame, and embroidered a design which has 2 mm width.
RPM	Maximum number of revolutions of machine
Measuring instrument	Conformity to IEC61672-1: 2002 Class 1



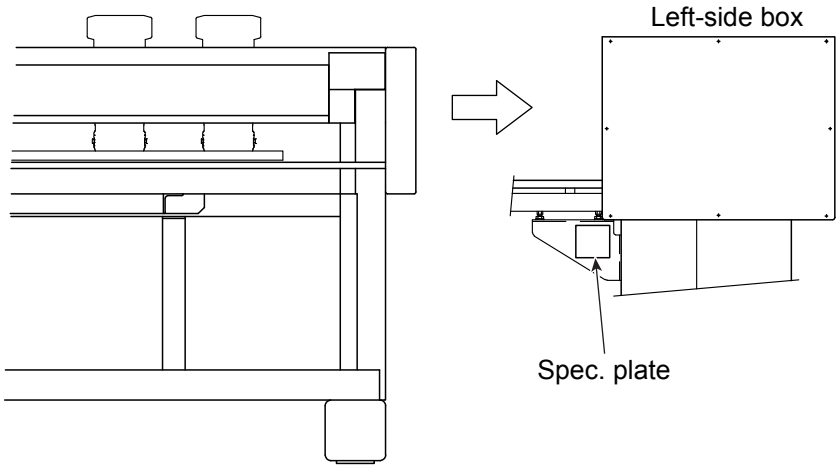
1-3. Machine weight

Machine weight is described on the spec. plate.

(1) TMAR-KC TYPE-2



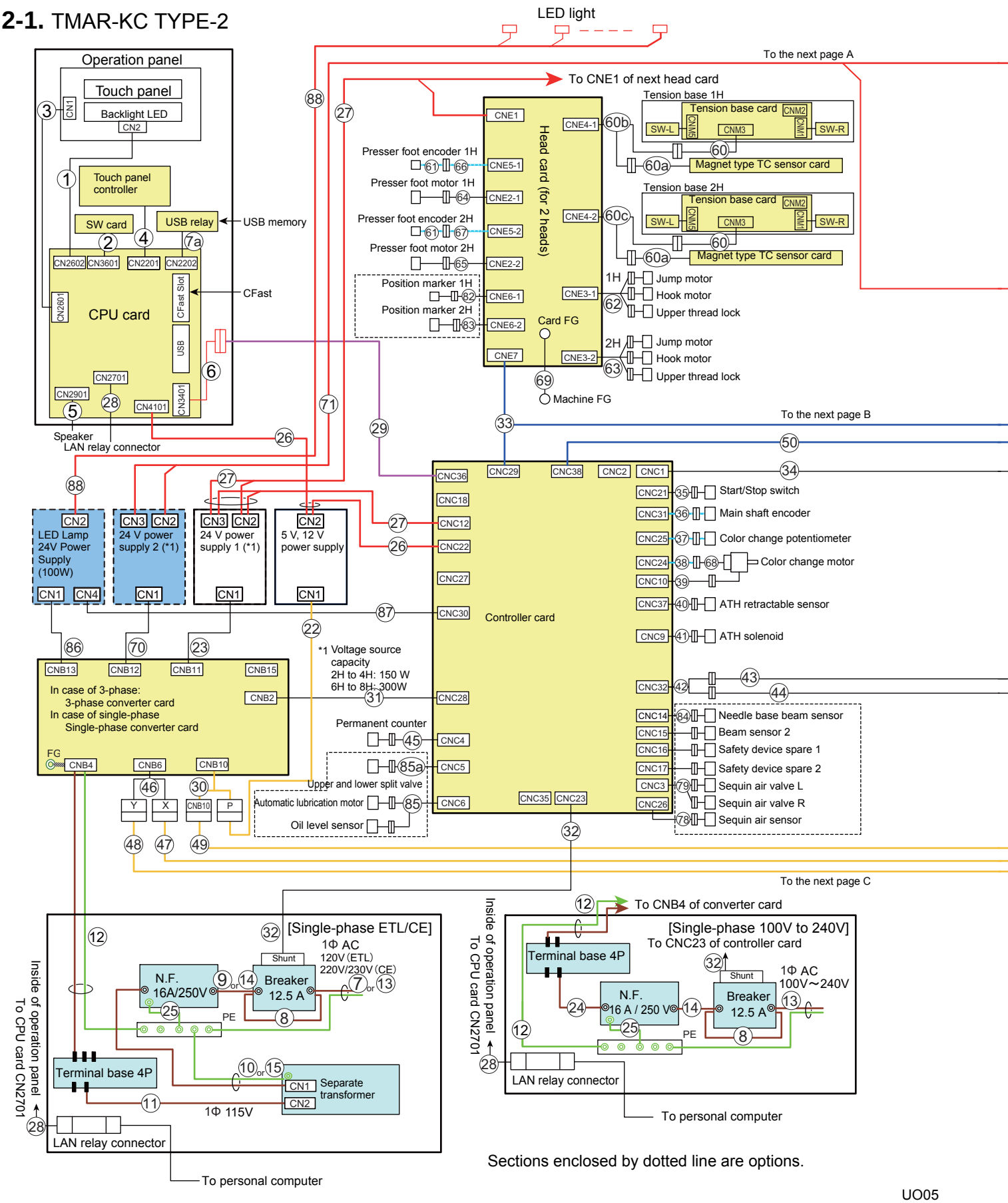
(2) TMAR-VC



2. Electrical system diagram

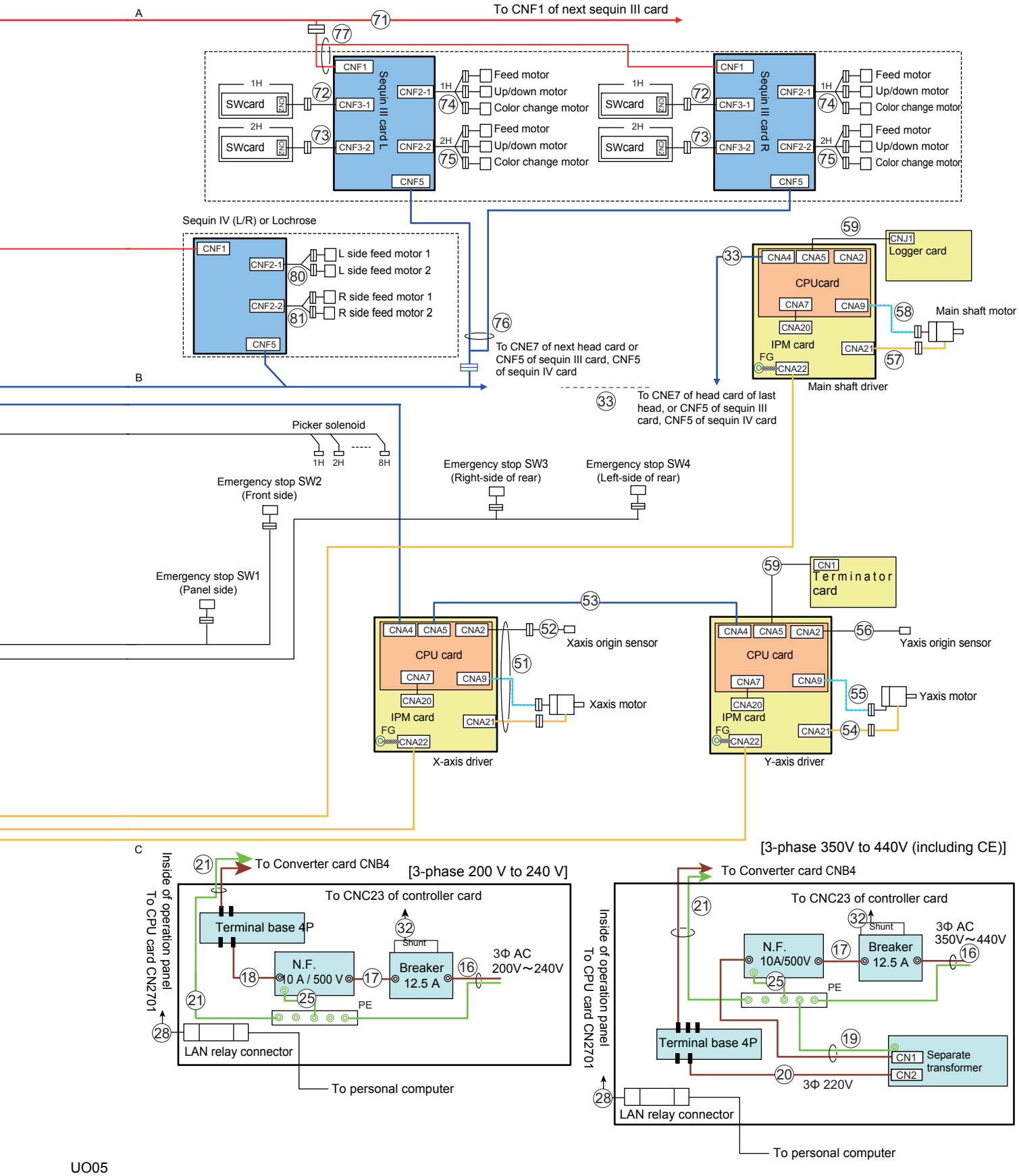
Refer to the details page about the harness name for the number in the figure.(→p.274)

2-1. TMAR-KC TYPE-2



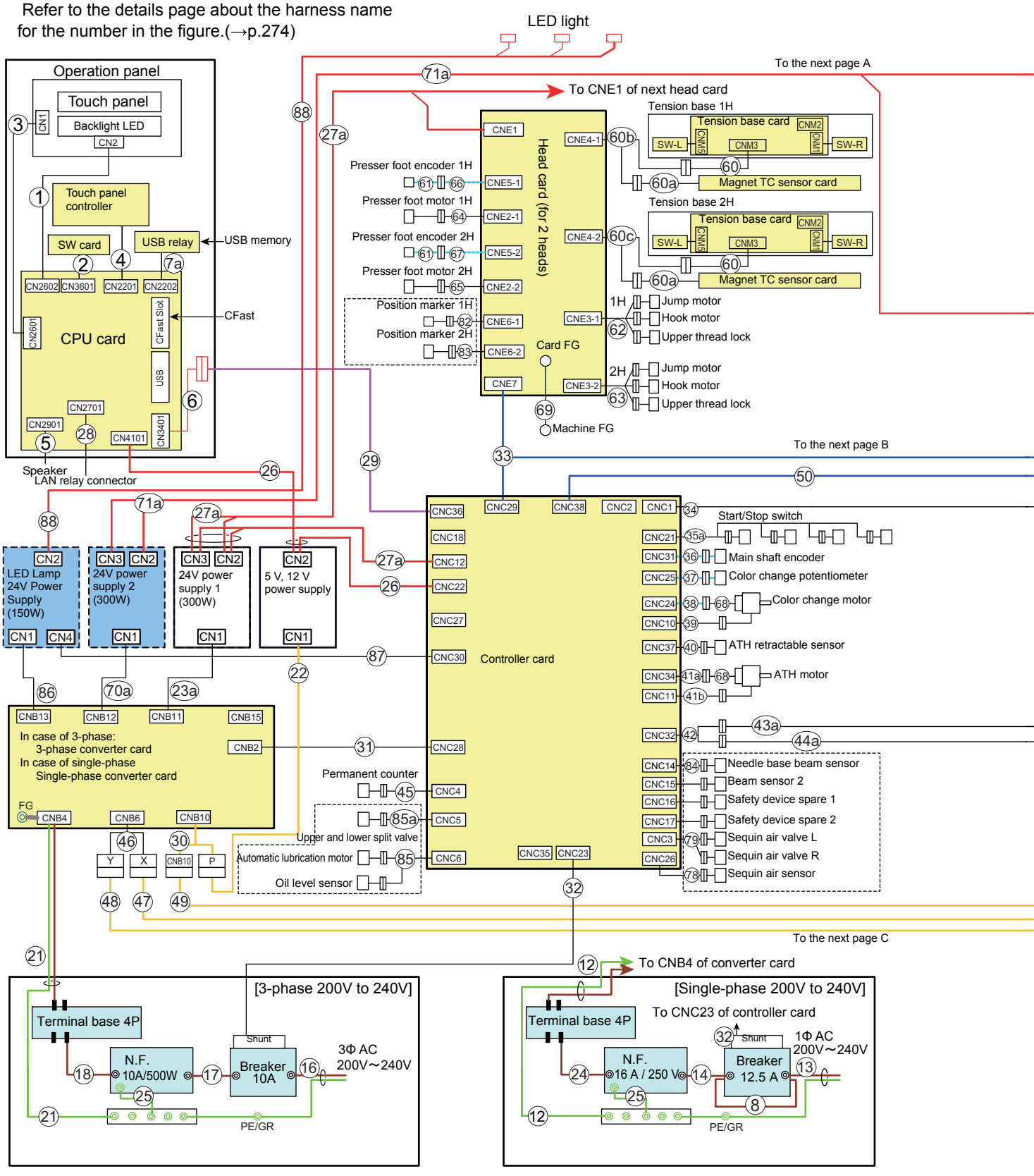
Sections enclosed by dotted line are options.

UO05

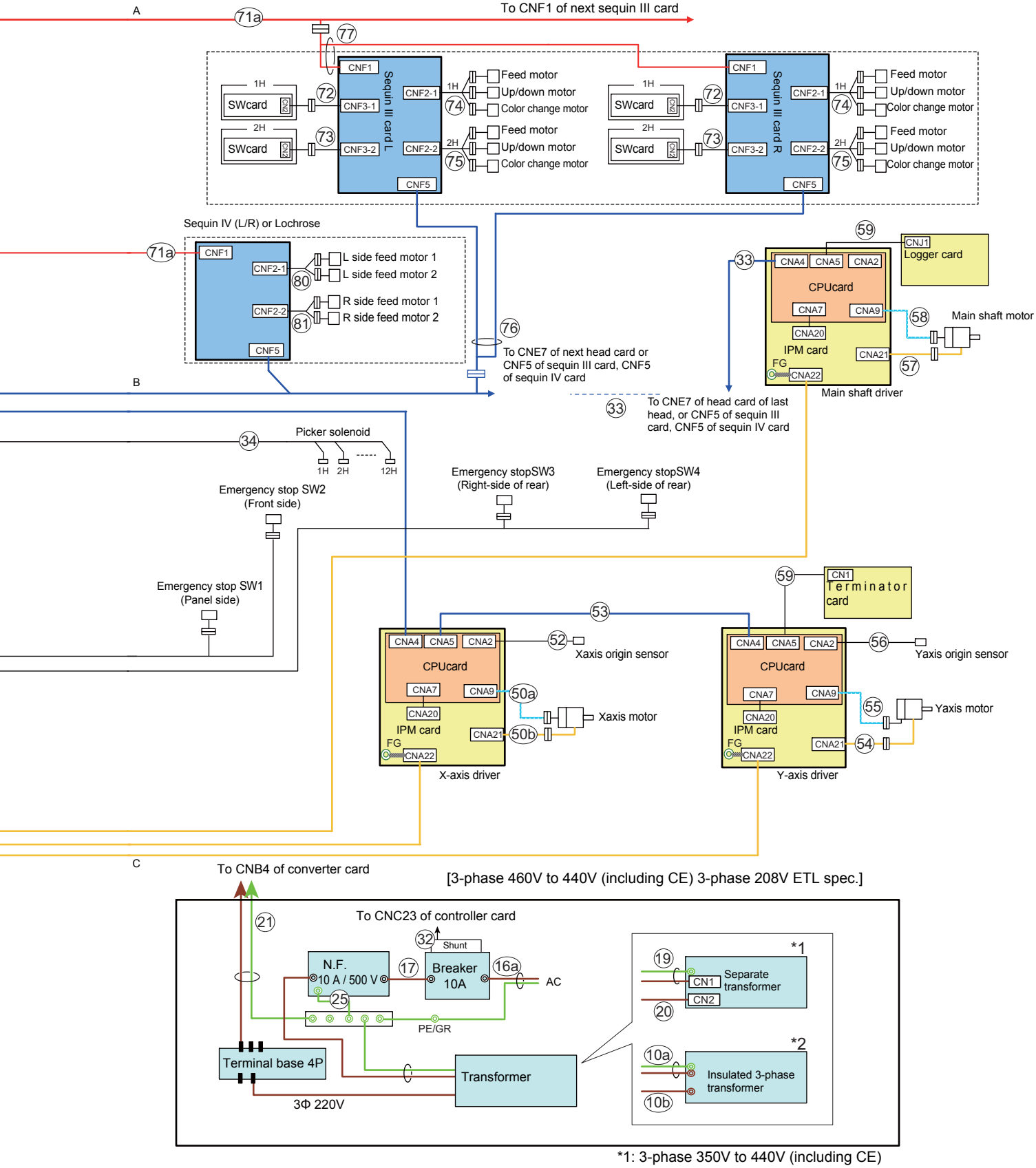

A
To CNF1 of next sequin III card
71
77
CNF1
Sequin III card L
CNF2-1
CNF2-2
CNF3-1
CNF3-2
CNF5
1H
2H
SWcard
CN3
72
73
74
75
Feed motor
Up/down motor
Color change motor
Sequin III card R
Sequin IV (L/R) or Lochrose
L side feed motor 1
L side feed motor 2
R side feed motor 1
R side feed motor 2
80
81
76
To CNE7 of next head card or CNF5 of sequin III card, CNF5 of sequin IV card
B
33
To CNE7 of head card of last head, or CNF5 of sequin III card, CNF5 of sequin IV card
59
CNJ1
Logger card
CPUcard
CNA4
CNA5
CNA2
CNA7
CNA9
CNA20
IPM card
CNA21
FG
CNA22
58
Main shaft motor
57
Main shaft driver
Picker solenoid
1H
2H
8H
Emergency stop SW2
(Front side)
Emergency stop SW3
(Right-side of rear)
Emergency stop SW4
(Left-side of rear)
Emergency stop SW1
(Panel side)
CN1
Terminator card
53
CPU card
52
Xaxis origin sensor
51
Xaxis motor
X-axis driver
56
Yaxis origin sensor
55
Yaxis motor
54
Y-axis driver
C
[3-phase 350V to 440V (including CE)]
To Converter card CNB4
[3-phase 200 V to 240 V]
Inside of operation panel
To CPU card CN2701
21
To CNC23 of controller card
Terminal base 4P
32
Shunt
N.F.
10 A / 500 V
18
17
Breaker
12.5 A
16
3Φ AC
200V～240V
25
PE
28
LAN relay connector
To personal computer
N.F.
10A/500V
3Φ AC
350V～440V
19
Separate transformer
CN1
CN2
20
3Φ 220V

2-2. TMAR-VC

Refer to the details page about the harness name for the number in the figure.(→p.274)



Sections enclosed by dotted line are options.



*1: 3-phase 350V to 440V (including CE)
*2: 3-phase 208V ETL spec.

No.	Part Name
①	HARNESS :BACKLIGHT :LCD
②	HARNESS :OPERATION PANEL SWITCH :PANEL
③	HARNESS :PANEL :LVDS
④	HARNESS :TOUCH :OPERATION PANEL
⑤	SPEAKER :OPERATION PANEL
⑥	HARNESS :SERIAL COMMUNICATION : OPERATION PANEL :RELAY
⑦	HARNESS :INPUT POWER SUPPLY : SINGLE-PHASE AC :ETL-SPEC.
⑦a	HARNESS :USB :OPERATION PANEL
⑧	HARNESS :BREAKER RELAY :SINGLE-PHASE AC
⑨	HARNESS :NOISE FILTER INPUT : SINGLE-PHASE AC :ETL-SPEC.
⑩	HARNESS :TRANSFORMER :SINGLE-PHASE AC :ETL-SPEC.
⑩a	HARNESS :TRANSFORMER INPUT :3-PHASE AC :A
⑩b	HARNESS :TRANSFORMER OUTPUT :3-PHASE AC :A
⑪	HARNESS :TERMINAL BASE INPUT : TRANSFORMER OUTPUT :SINGLE-PHASE AC
⑫	HARNESS :CONVERTER CARD INPUT : SINGLE PHASE AC
⑬	HARNESS :INPUT POWER SUPPLY : SINGLE-PHASE AC
⑭	HARNESS :NOISE FILTER INPUT : SINGLE-PHASE AC
⑮	HARNESS :TRANSFORMER INPUT : SINGLE-PHASE AC
⑯	HARNESS :INPUT POWER SUPPLY :3-PHASE AC
⑯a	HARNESS :INPUT POWER SUPPLY :3-PHASE AC :ETL SPEC.
⑰	HARNESS :NOISE FILTER INPUT :3-PHASE AC
⑱	HARNESS :TERMINAL BASE INPUT :3-PHASE AC
⑲	HARNESS :TRANSFORMER INPUT :3-PHASE AC
⑳	HARNESS :TERMINAL BASE INPUT : TRANSFORMER OUTPUT :3-PHASE AC
㉑	HARNESS :CONVERTER CARD INPUT : 3-PHASE AC
㉒	HARNESS :INPUT DC :12V POWER SUPPLY
㉓	HARNESS :INPUT AC :24V POWER SUPPLY 1 : 3-PHASE :1[1]
	HARNESS :INPUT AC :24V POWER SUPPLY 1 : 3-PHASE :2[2]
	HARNESS :INPUT AC :24V POWER SUPPLY 1 :SINGLE-PHASE :1[1]
	HARNESS :INPUT AC :24V POWER SUPPLY 1 :SINGLE-PHASE :2[2]
㉓a	HARNESS :INPUT AC :24V POWER SUPPLY 1 :SINGLE-PHASE :2
	HARNESS :INPUT AC :24V POWER SUPPLY 1 :3-PHASE :2

No.	Part Name
㉔	HARNESS :TERMINAL BASE INPUT : SINGLE-PHASE AC
㉕	HARNESS :GROUNDING WIRE :NOISE FILTER
㉖	HARNESS :OPERATION PANEL POWER SUPPLY :DC5V 12V
㉗	HARNESS :HEAD CARD POWER SUPPLY :DC24V :1[1]
	HARNESS :HEAD CARD POWER SUPPLY :DC24V :2[2]
㉗a	HARNESS :HEAD CARD POWER SUPPLY :DC24V :2
㉘	HARNESS :LAN CABLE
㉙	HARNESS :SERIAL COMMUNICATION : OPERATION PANEL
㉚	HARNESS :MAIN SHAFT DRIVER/PANEL POWER SUPPLY :RELAY
㉛	HARNESS :POWER FAILURE DETECTION
㉜	HARNESS :SHUNT RELEASE
㉝	HARNESS :COMMUNICATION :BETWEEN HEAD CARD
㉞	HARNESS :PICKER
㉟	HARNESS :START/STOP SWITCH :1[3]
	HARNESS :START/STOP SW :2[4]
	HARNESS :START/STOP SW :3[5]
	HARNESS :START/STOP SW :4[6]
㉟a	HARNESS :START/STOP SW :4
㊱	HARNESS :ENCODER :MAIN SHAFT TIMING
㊲	HARNESS :NEEDLE POSITION POTENTIOMETER
㊳	HARNESS :COLOR CHANGE ENCODER
㊴	HARNESS :COLOR CHANGE MOTOR
㊵	HARNESS :ATH RETRACTABLE SENSOR
㊶	HARNESS :ATH SOLENOID
㊶a	HARNESS :ENCODER :ATH MOTOR
㊶b	HARNESS :ATH MOTOR
㊷	HARNESS :EMERGENCY STOP SWITCH :RELAY

[1] For 2 to 4H

[2] For 6 to 8H

[3] 2H500P

[4] 4H360P, 4H500P, 6H360P

[5] 8H360P, 6H500P

[6] 8H500P

UO05

No.	Part Name
㊸	HARNESS :EMERGENCY STOP SWITCH :FRONT :1[1]
	HARNESS :EMERGENCY STOP SWITCH :FRONT :2[2]
㊸a	HARNESS :EMERGENCY STOP SWITCH :FRONT :2
㊹	HARNESS :EMERGENCY STOP SWITCH :REAR :1[3]
	HARNESS :EMERGENCY STOP SWITCH :REAR :2[4]
㊹a	HARNESS :EMERGENCY STOP SWITCH :REAR :2
㊺	HARNESS :PERMANENT COUNTER
㊻	HARNESS :XY DRIVER POWER SUPPLY :RELAY
㊼	HARNESS :DRIVER POWER SUPPLY :X-AXIS
㊽	HARNESS :DRIVER POWER SUPPLY :Y-AXIS
㊾	HARNESS :DRIVER POWER SUPPLY :MAIN SHAFT
㊿	HARNESS :COMMUNICATION :CONTROLLER :BETWEEN X-AXIS DRIVER
㊿a	HARNESS :ENCODER :X-AXIS MOTOR
㊿b	HARNESS :X-AXIS MOTOR
(51)	HARNESS :X-AXIS MOTOR/ENCODER/ORIGIN
(52)	HARNESS :ORIGIN SENSOR :X-AXIS
(53)	HARNESS :COMMUNICATION :X-AXIS DRIVER :BETWEEN Y-AXIS DRIVER
(54)	HARNESS :Y-AXIS MOTOR
(55)	HARNESS :ENCODER :Y-AXIS MOTOR
(56)	HARNESS :ORIGIN SENSOR :Y-AXIS
(57)	HARNESS :MAIN SHAFT MOTOR
(58)	HARNESS :ENCODER :MAIN SHAFT MOTOR
(59)	HARNESS :TERMINATOR CARD
(60)	HARNESS :TENSION BASE
(60a)	HARNESS :TC SENSOR
(60b)	HARNESS :TENSION BASE RELAY :1
(60c)	HARNESS :TENSION BASE RELAY :2
(61)	HARNESS :PRESSER FOOT ENCODER
(62)	HARNESS :HOOK/JUMP/LOCK :1
(63)	HARNESS :HOOK/JUMP/LOCK :2
(64)	HARNESS :PRESSER FOOT MOTOR :1
(65)	HARNESS :PRESSER FOOT MOTOR :2
(66)	HARNESS :PRESSER FOOT ENCODER RELAY :1

No.	Part Name
(67)	HARNESS :PRESSER FOOT ENCODER RELAY :2
(68)	HARNESS :ENCODER :RELAY
(69)	HARNESS :GROUNDING WIRE :HEAD CARD
Sequin Device III	
(70)	HARNESS :INPUT AC :24V POWER SUPPLY 2 :1[5]
	HARNESS :INPUT AC :24V POWER SUPPLY 2 :2[6]
(70a)	HARNESS :INPUT AC :24V POWER SUPPLY 2 :2
(71)	HARNESS :24V POWER SUPPLY 2 :DC24V :1[5]
	HARNESS :24V POWER SUPPLY 2 :DC24V :2[6]
(71a)	HARNESS :24V POWER SUPPLY 2 :DC24V :2
(72)	HARNESS :SWITCH RELAY :1
(73)	HARNESS :SWITCH RELAY :2
(74)	HARNESS :FEED/UP/DOWN/COLOR CHANGE :1
(75)	HARNESS :FEED/UP/DOWN/COLOR CHANGE :2
(76)	HARNESS :COMMUNICATION :RELAY[7]
(77)	HARNESS :24V POWER SUPPLY RELAY[7]

[1] 2H500P, 4H360P, 4H500P, 6H360P

[2] 6H500P, 8H360P, 8H500P

[3] All except 8H500P

[4] 8H500P

[5] For 2 to 4H

[6] For 6 to 8H

[7] L/R specification only

Sequin device IV	
⑦⓪	HARNESS :INPUT AC :24V POWER SUPPLY 2 :1[1]
	HARNESS :INPUT AC :24V POWER SUPPLY 2 :2[2]
⑦⓪a	HARNESS :INPUT AC :24V POWER SUPPLY 2 :2
⑦①	HARNESS :24V POWER SUPPLY 2 :DC24V :1[1]
	HARNESS :24V POWER SUPPLY 2 :DC24V :2[2]
⑦①a	HARNESS :24V POWER SUPPLY 2 :DC24V :2
⑦⑧	HARNESS :AIR PRESSURE SENSOR
⑦⑨	HARNESS :AIR VALVE
⑧⓪	HARNESS :FEED :L
⑧①	HARNESS :FEED :R

Position marker	
⑧②	HARNESS :POSITION MARKER :1
⑧③	HARNESS :POSITION MARKER :2

Needle base beam sensor	
⑧④	HARNESS :BEAM SENSOR :NEEDLE BASE

Automatic lubrication

⑧⑤	HARNESS :LB SYSTEM
⑧⑤a	HARNESS :LUBRICATION :

LED light	
⑧⑥	HARNESS :INPUT AC :LED LAMP DC POWER SUPPLY
⑧⑦	HARNESS :REMOTE :LED LAMP
⑧⑧	HARNESS :LED LAMP POWER SUPPLY :DC24V

[1] For 2 to 4H

[2] For 6 to 8H

3. Terminology

The following terms apply to all common models. There might be a case where it does not correspond.

<A>

Absolute origin

An anchor point to calculate the current frame position (X: 0.0, Y: 0.0).

ATH

Abbreviation of Automatic Thread Trimming and Holding Device.

Auto Jump

To make a stitch divided into two stitches as less than setting value automatically when its stitch length exceeds the setting value. It is effective to prevent the slippage of the frame and the displacement of the design.

<B>

Backlash

A play (gap) generated at the drive system and/or around the frame by shock when a stitch returns (when frame drive is reversed). It may affect embroidery finish.

<C>

CT0

File including information of needle bar selection and start position. It is necessary to handle TBF, CT0 and DGF as a set on a personal computer.

Cleanup

To remove minute stitch included in design data to make before and after stitches absorb it. It is effective to reduce thread breakage.

Condition data

Operating condition of the machine included in the design data (Needle bar selection, data conversion, repeat, start position, automatic offset).

<D>

D-axis

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

Data mode

Saving format of design data (T, T2, T3).

Data set

To set the design data in the memory of the machine to start the machine..

DGF

File that indicates design image. It is necessary to handle TBF, CT0 and DGF as a set on a personal computer.

Driver

Control card to make the frame or main shaft drive. X-axis driver, Y-axis driver, main shaft driver etc. are included.

DST

Stitch data of Tajima ternary format. Data saving format is T.

<E>

Excitation

To keep frame motor drive. It is not possible to move the frame by hand during excitation.

<F>

Fixed position

Main shaft angle at which the main shaft motor stops (stop position).

Fixed pitch movement

Horizontal frame travel to the neighboring head by head interval.

Frame Back

To move the embroidery frame only to the direction where the stitches return with the needle bar(s) stopped.

Function Code

Command code that controls general movements of the machine. All design data consists of function codes (Stitch, Jump, Color, etc.).

Frame coordinates

Frame position in embroidery space. It is indicated such as "X: -153.2, Y: +120.4".

Frame Forward

To move the embroidery frame only to the direction where the stitches advance with the needle bar(s) stopped.

Frame Limit

Limit position that the frame can move (it is indicated by mark-off line on the table)..

Frame origin

An anchor point to calculate the current frame position (X: 0.0, Y: 0.0).

Frame stepping

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

<H>

Head group

Function that assumes multiple heads as one head by grouping them. This enables large design embroidery or multi-colored embroidery of more colors than the number of needles per head.

<I>

Inching

Movement to stabilize start of sewing by moving a needle bar slowly before the main shaft starts usual operation. It is executed before thread trimming to stabilize thread trimming.

<J>

Jump

To make only the frame move in the state that needle bar does not move down during operation. It is possible to make a longer stitch than one stitch of the maximum length

<M>

M-axis

Drive shaft to rotate nipple or bobbin (TLMX series).

Main shaft brake

To hold the main shaft with the brake of the main shaft motor so that the main shaft does not rotate when it stops.

Minute stitch

Tiny stitch as a factor causing thread breakage.

Stitch of which stitch length is 0.5 mm or less.

<O>

Offset start position (Offset position)

A frame travel start position set by operation of automatic offset. A position to make the machine stand by to facilitate changing of frame and/or fabric by moving the frame to the front automatically in the middle or at the end of embroidering.

<P>

Parameter

Setting item that decides the working condition of the machine.

Pseudo-fixed position (stop at the lower dead point)

To stop the machine with the needle stuck in the cloth at the end of embroidery. Moving the frame in this condition will enable consecutive embroidery.

<R>

Return stitches

Tie stitch to be executed at start of sewing (stitch to prevent mis-stitching at the start).

Running stitch

Decorative stitch of straight line or curved line only.

<S>

Satin Stitch

Repeated zigzag stitches. It is mainly used for hem of applique, logo, mark, flower design etc.

Sequin needle

Needle that embroider with sequins by sequin device. It indicates the first needle or the last needle.

Sidekick

Name of the network application software manufactured by Pulse Microsystems Ltd. It is possible to input the design data to the machine by wireless LAN as the main function.

Step

The section divided by a color change code in the design data. The first section is called step 1, and the next section is called step 2.

<T>

Table offset

To move the frame to the rear direction temporarily to facilitate threading. It is mainly effective when the frame is positioned at the table cut section.

Tatami stitch

Stitch to fill in a certain amount of area. It is mainly used for a big logo, background, underlay etc.

TBF

Stitch data of Tajima binary format. Data saving format is T2. It can hold many more function codes compared to DST. It is necessary to handle TBF, CT0 and DGF as a set on a personal computer.

TCF

Data integrating TBF, CT0 and DGF. Integration facilitates handling of design data. Data saving format is T3.

Tie stitches

Tie stitch to be executed before thread trimming (stitch to prevent fray).

<X>

X-axis drive system

Drive system to make the embroidery frame move in the horizontal (X) direction.

X data

Data to make the embroidery frame move in the horizontal (X) direction. It is indicated by moving direction (code: +/-) and value (mm).

<Y>

Y-axis drive system

Drive system to make the embroidery frame move in the vertical (Y) direction.

Y data

Data to make the embroidery frame move in the vertical (Y) direction. It is indicated by moving direction (code: +/-) and value (mm).

<Z>

Z-axis

Driving shaft to change needle height (TCMX series).

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