

# HCS2

**Computerized Compact Single Head Embroidery Machine**

## **INSTRUCTION BOOK**



 **HAPPY Industrial Corporation**

**Original instructions**

S2M412-4



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

## Read all instructions before using this appliance.



### **DANGER** - To reduce the risk of electric shock:

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



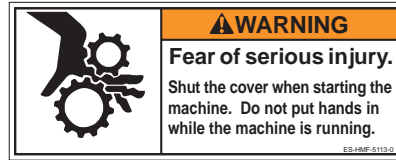
### **WARNING** - To reduce the risk of burns, fire, electric shock, or injury to persons:

1. Do not allow to be used as a toy. Close attention is necessary when this appliance is used by or near children.
2. 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.
3. 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. Return the appliance to the nearest authorized dealer or service center for examination, repair, electrical or mechanical adjustment.
4. Never operate the appliance with any air openings blocked. Keep ventilation openings of the sewing machine and foot controller free from the accumulation of lint, dust, and loose cloth.
5. Never drop or insert any object into any opening.
6. Do not use outdoors.
7. Do not operate where aerosol (spray) products are being used or where oxygen is being administered.
8. To disconnect, turn all controls to the off ("0") position, then remove plug from outlet.
9. Do not unplug by pulling on cord. To unplug, grasp the plug, not the cord.
10. Keep fingers away from all moving parts. Special care is required around the sewing machine needle.
11. Always use the proper needle plate. The wrong plate can cause the needle to break.
12. Do not use bent needles.
13. Do not pull or push fabric while stitching. It may deflect the needle causing it to break.
14. Switch the sewing machine off ("0") when making any adjustments in the needle area, such as threading needle, changing needle, threading bobbin, or changing presser foot, etc.
15. 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.

## SAVE THESE INSTRUCTIONS

## Trapping hazard

Shut the cover when starting the machine.  
Do not put hands in while the machine is running.



## Trapping, Puncture, Cut hazard wherever this label is found

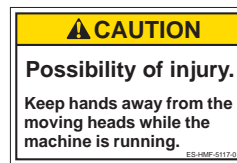


## Shock hazard on all electrical components



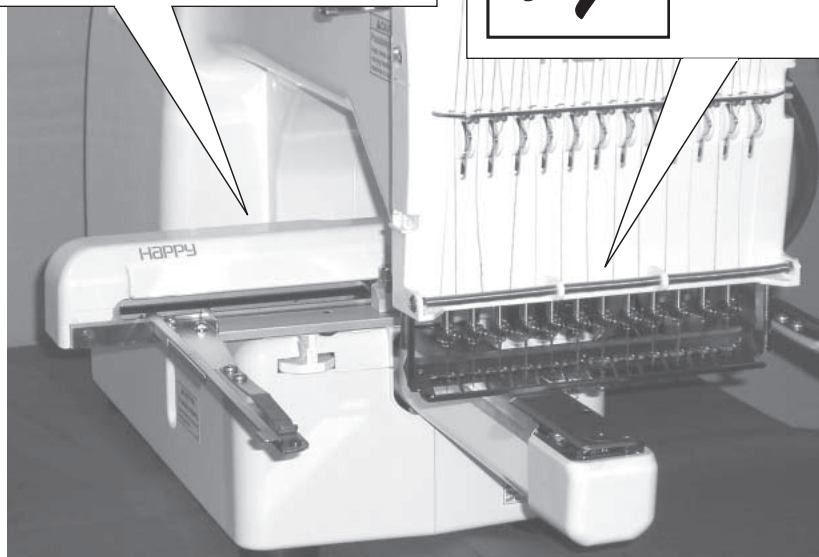
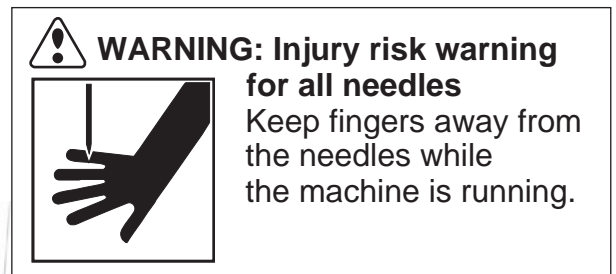
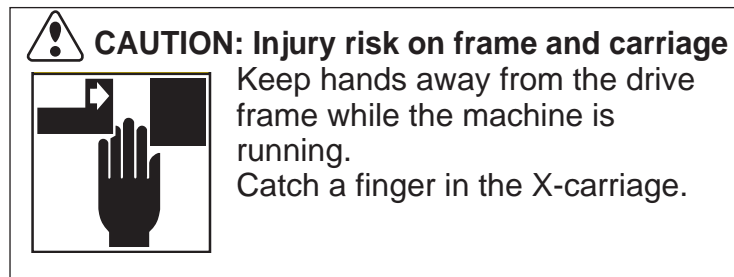
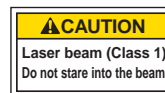
## Injury risk on moving head(s)

Keep hands away from the moving heads while the machine is running.



## Laser beam (Class 1)

Do not stare into the beam.



# SETTING UP THE MACHINE

## 2-1

We recommend unpacking should be done where it has enough room.



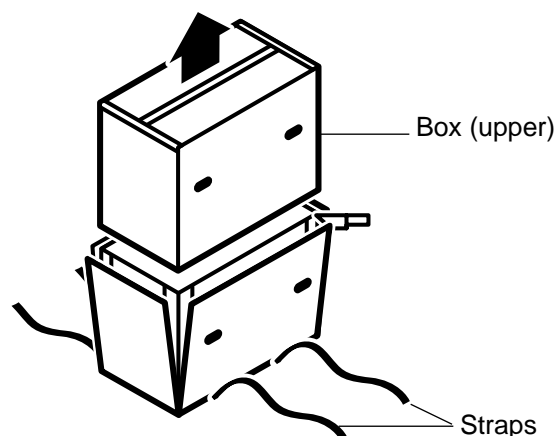
### **CAUTION: To prevent accidents.**

The machine is quite heavy for one person to carry. Please use two persons when unpacking or carrying.



### **CAUTION: To avoid problems.**

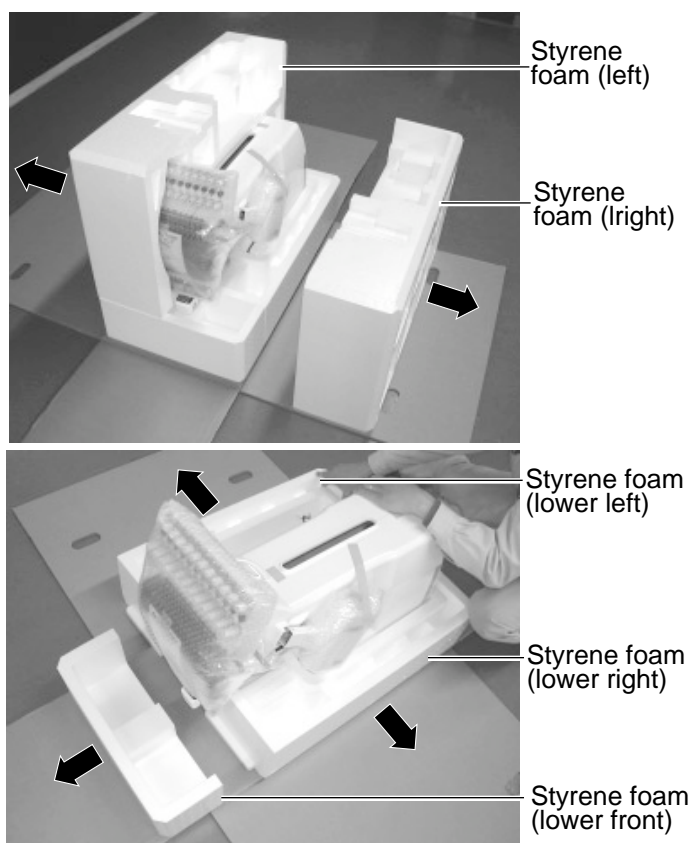
Make sure to hold bottom of the machine body when removing from the box. Do not hold any other place. (bed, moving head, control box etc.).



## ● Remove the machine from box

1. Remove 2 straps from the carton.
2. Lift the box (upper) to remove.
3. Take out the accessories.  
Refer to the next page.
4. Take out the styrene foam (right) and (left).
5. Take out the styrene foam (lower front), (lower right), and (lower left).  
Be careful not fall down the machine, tilt the machine slightly when taking out the styrene form (lower right) and (lower left).
6. Carry the machine to installation location.

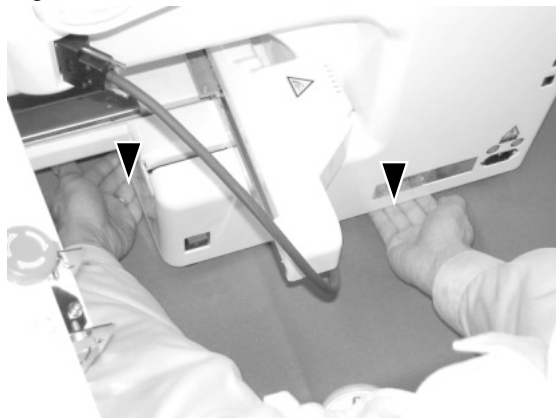
- Please keep those packing materials in case of necessary for repair or other reasons.
- Packing procedure is the reverse from unpacking procedure.



## ● How to carry machine

The unpacked machine should be carried by 2 person with the hand position at ▼ mark shown in photos.

Right side



Left side



The person holding the machine from left side need to hold the machine arm by right hand.

# SETTING UP THE MACHINE

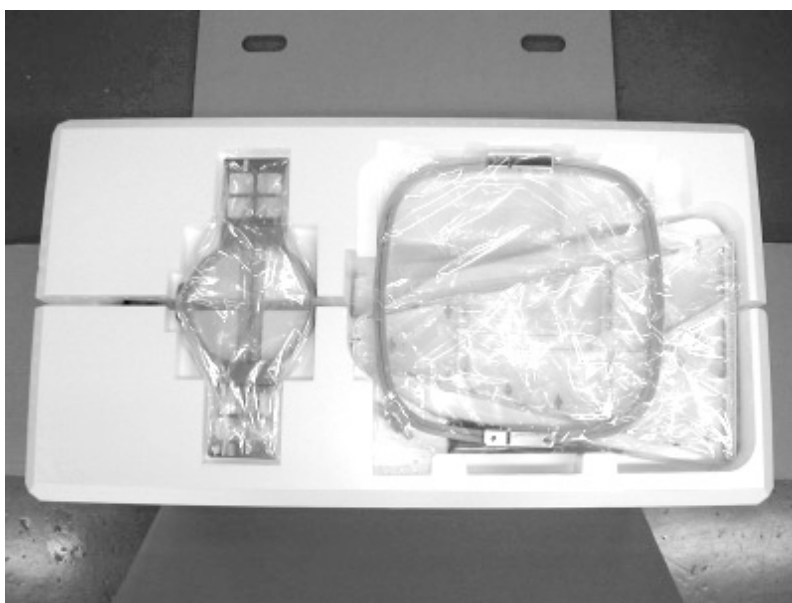
## 2-1b

### ● Placement of Accessories

Confirm all the accessories are contained when unpacking.



Frame base  
CD-ROM (Instruction manual, Parts list)  
CD-ROM (HAPPY Link Software)  
Instruction manual  
Embroidery sample



Embroidery frame (Round)  
Embroidery frame (Square)  
Thread stand  
Thread guide bracket



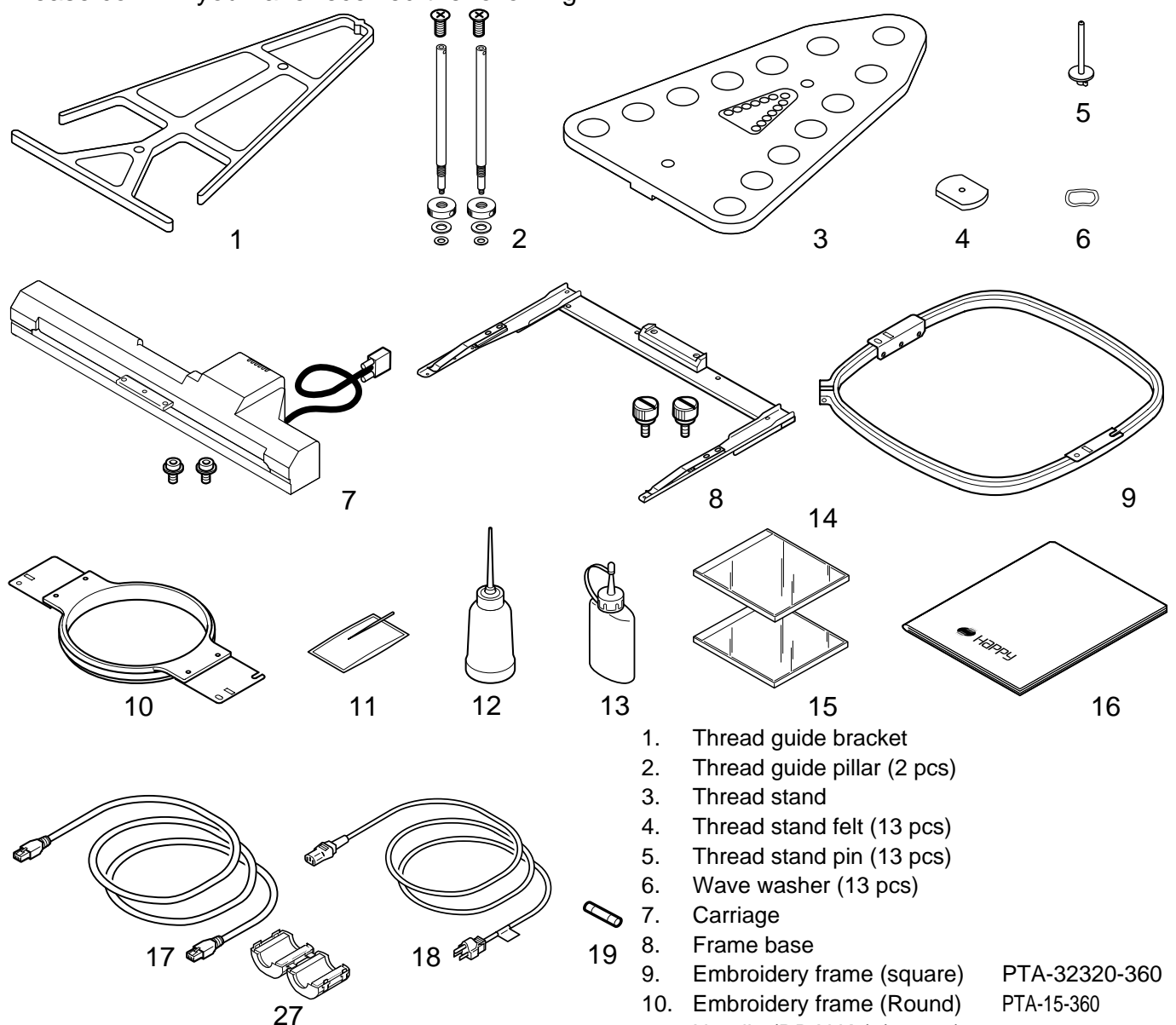
Carriage  
Thread stand felt (13 pcs)  
LAN cable  
Power line cord ass'y  
Tool set  
Needle (10 pieces)  
Fuse (6A)  
Oiler  
Sewing machine oil  
Thread guide pillar (2 pcs)  
Thread stand pin (13 pcs)  
Wave washer (13 pcs)

# SETTING UP THE MACHINE

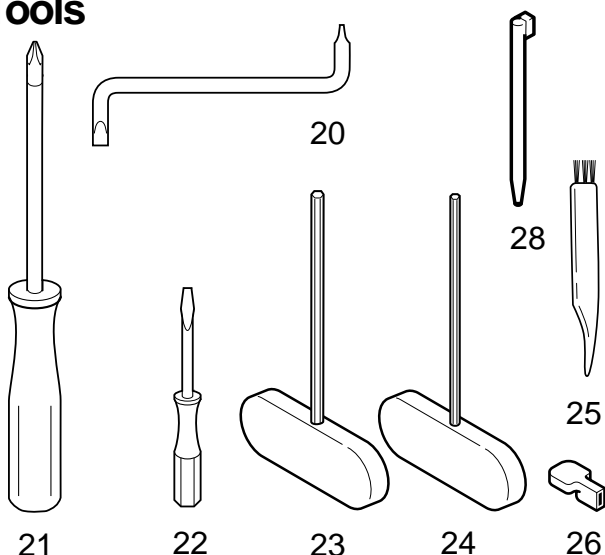
**2-2**

## ●Accessories

Please confirm you have received the following.



## Tools

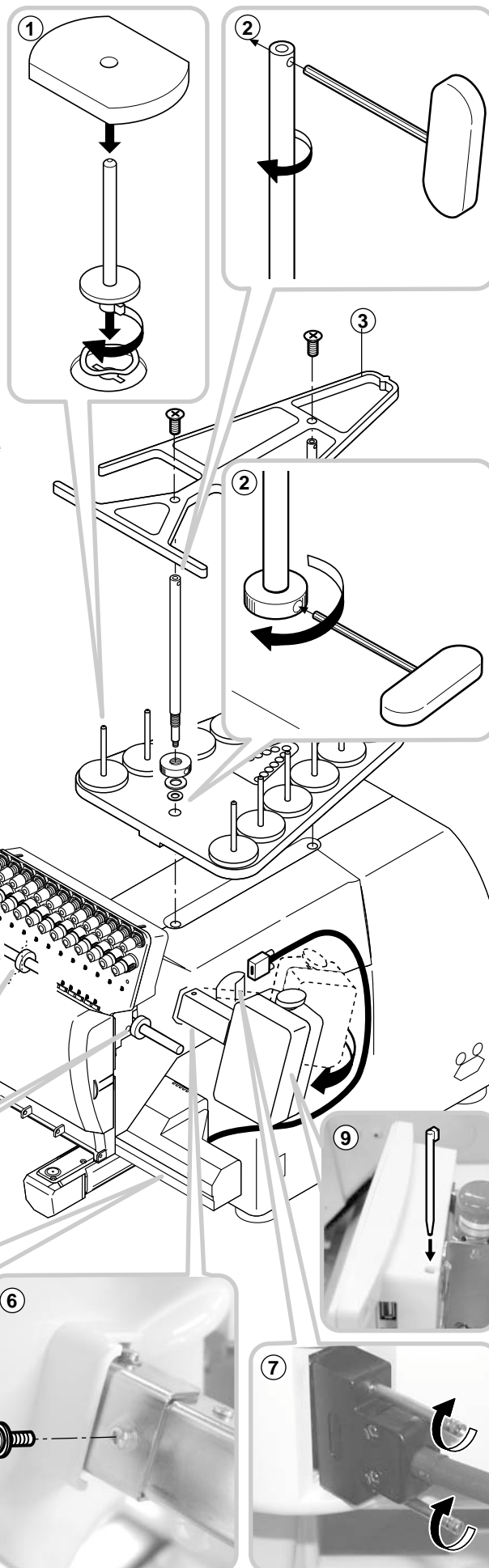


1. Thread guide bracket
2. Thread guide pillar (2 pcs)
3. Thread stand
4. Thread stand felt (13 pcs)
5. Thread stand pin (13 pcs)
6. Wave washer (13 pcs)
7. Carriage
8. Frame base
9. Embroidery frame (square) PTA-32320-360
10. Embroidery frame (Round) PTA-15-360
11. Needle (DB X K5) (10 pcs)
12. Oiler
13. Sewing machine oil
14. CD-ROM (Happy Link)
15. CD-ROM (Instruction manual, Parts list)
16. Instruction book (How to open the CD-ROM)
17. LAN cable
18. Power line cord ass'y (A shape will be changed depending on a destination)
19. Fuse (6A)
20. Off set screw driver
21. #2 (+) Screw driver
22. 2 mm (-) Screw driver
23. 3 mm hexagonal driver
24. 2.5 mm hexagonal driver
25. Brush
26. Manual lever
27. Clamp filter
28. Stylus



## ● Assemble machine unit

1. Insert the thread stand pin with wave washer on the thread stand by turning clockwise, Then insert thread stand felt.
  2. Put the thread stand on to the machine and insert the thread guide pillar.  
(set nut knob nut into the thread guide pillar and 2 washers)  
Turn the thread guide pillar clockwise with a 3 mm hexagonal driver until tight.  
Turn the knob nut clockwise with a 3 mm hexagonal driver until tight.
  3. Install the thread guide bracket with supplied screws (pan head screw M6 x 10 2 pcs).
  4. Loosen the screw with a offset driver and remove the red shipping collars that are equipped on the both side of the guide bar. (Keep the shipping collars. It is necessary when packing.)
  5. Put the carriage and carriage arm together with screw (M4 X 8 2 pcs).  
2 pins in the upper carriage arm will fit into holes on the lower carriage.
  6. Raise slowly the control box to the front then fix it with 2 supplied screws (M4 1 pcs).
  7. Connect the cable of carriage to the machine with fixed screw.
  8. Install the arm for tubular embroidery. Please refer to (page 6-1) "Installing and removing the frame base".  
Or, Install the cap frame for the cap embroidery. Please refer to (page 7-1) "Installing and removing the cap drive frame".
  9. Insert built-in stylus into the holder (slot) of control box.
- When taking the machine apart in case of packing, the process is opposite of assembling the machine. Please do exactly the opposite way of assembling.
- When packing the machine up for transportation, be sure to select the sixth needle and fix it with shipping collars on the both side of the guide bar.

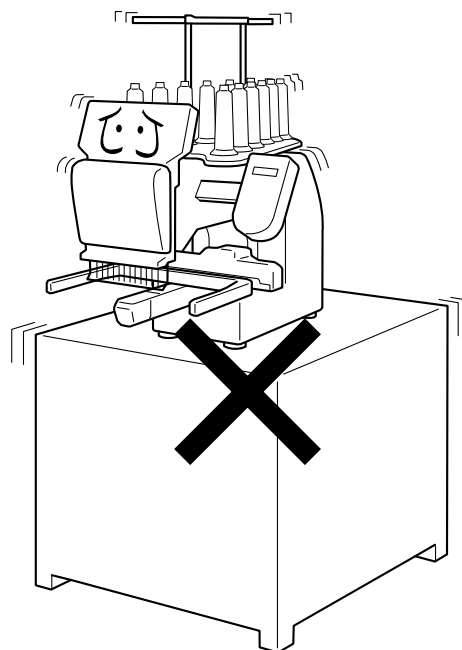


### ● Machine installation

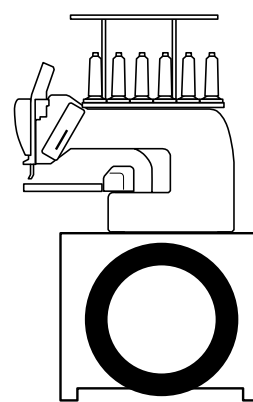
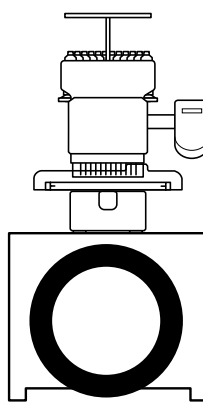
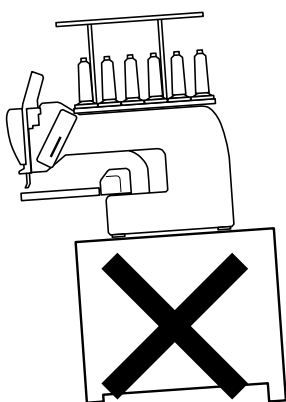
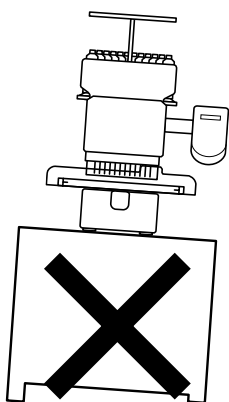
1. Please use a stout table to set the machine on.

Please check for any shaking or excessive vibrating of the machine table when the machine is running.

If you have a problem, Please use a stronger table for the machine.

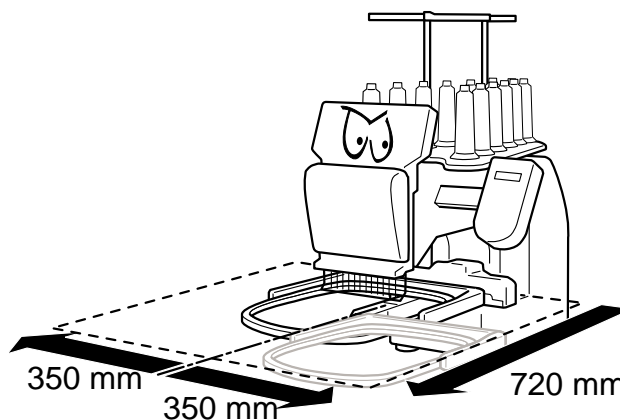


2. Please sit the machine level on the table.



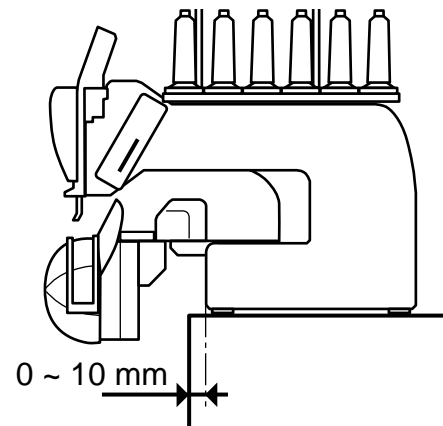
3. Please be sure you have this much room around your machine for it to move.

It is possible for the embroidery frame to hit you and cause injury.



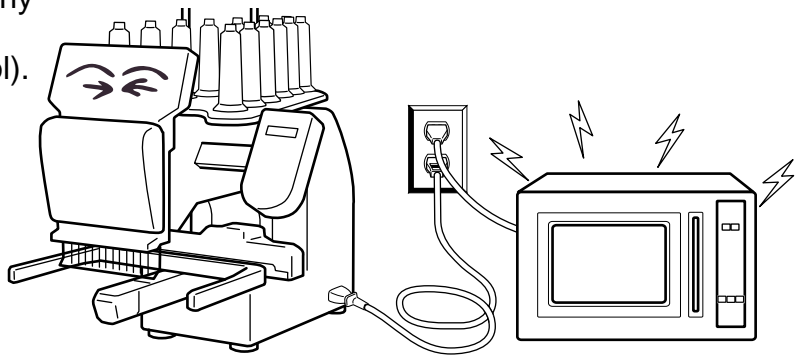
- Please be sure you have this much room around your cap drive for it to move.

Please machine on the table positioning like right side drawing.



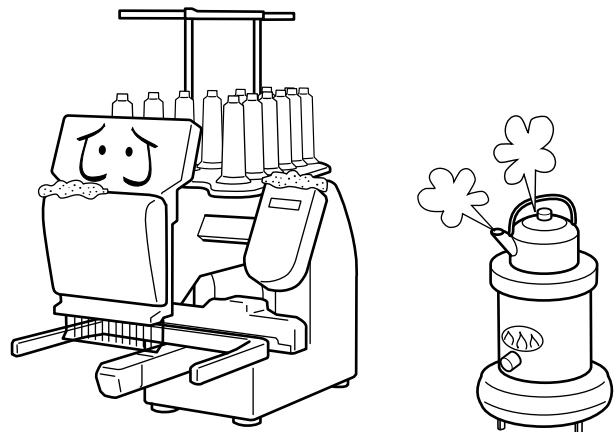
- Please do not sit the machine near any kind of other electric equipment (Examples: Microwave or electric tool).

Has possible to wrong movement of the machine.



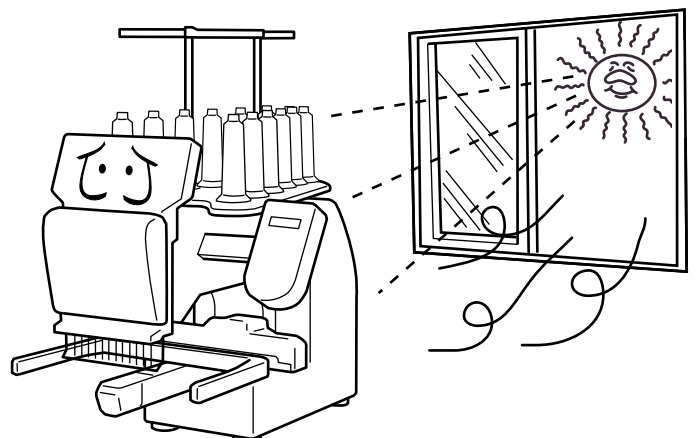
- Please keep away from dusty and high moisture environments.

Has case of rusting or damaging.



- Please do not sit the machine in direct sunshine or windy locations.

Has case of rusting or damaging.





## ●Grounding instruction (for type of 120V)

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.

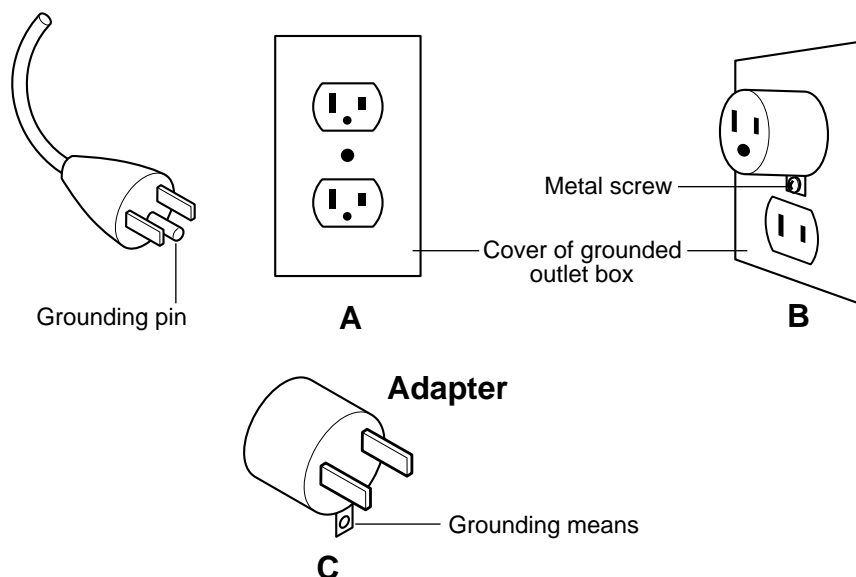
**⚠ DANGER** – Improper connection of the equipment-grounding conductor can result in a risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the cord or plug is necessary, 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.

This product is for use on a nominal 120 V circuit, and has a grounding plug that looks like the plug illustrated in sketch A in Figure. 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.

### Grounding methods

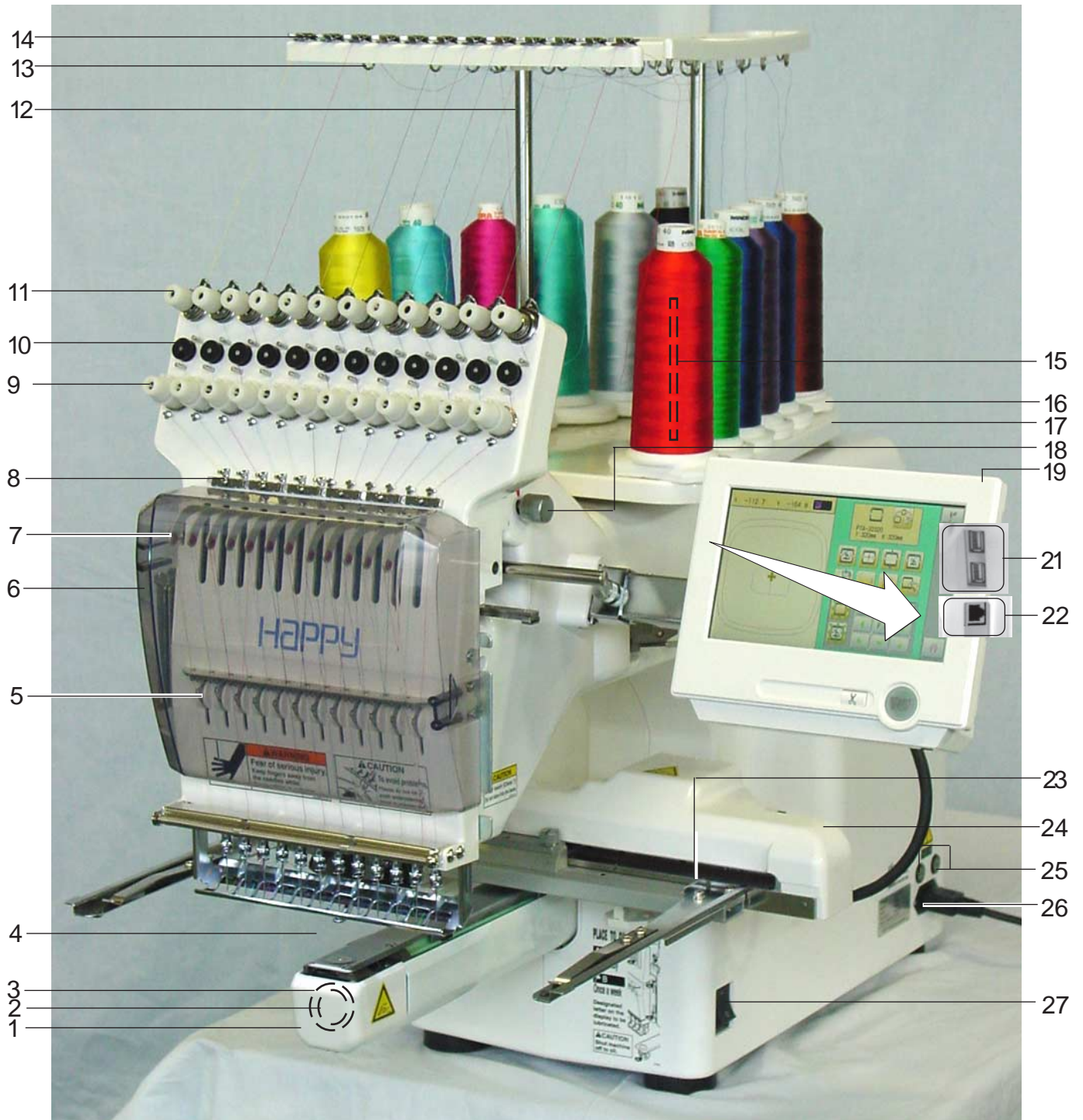


## ●Disposal of a battery



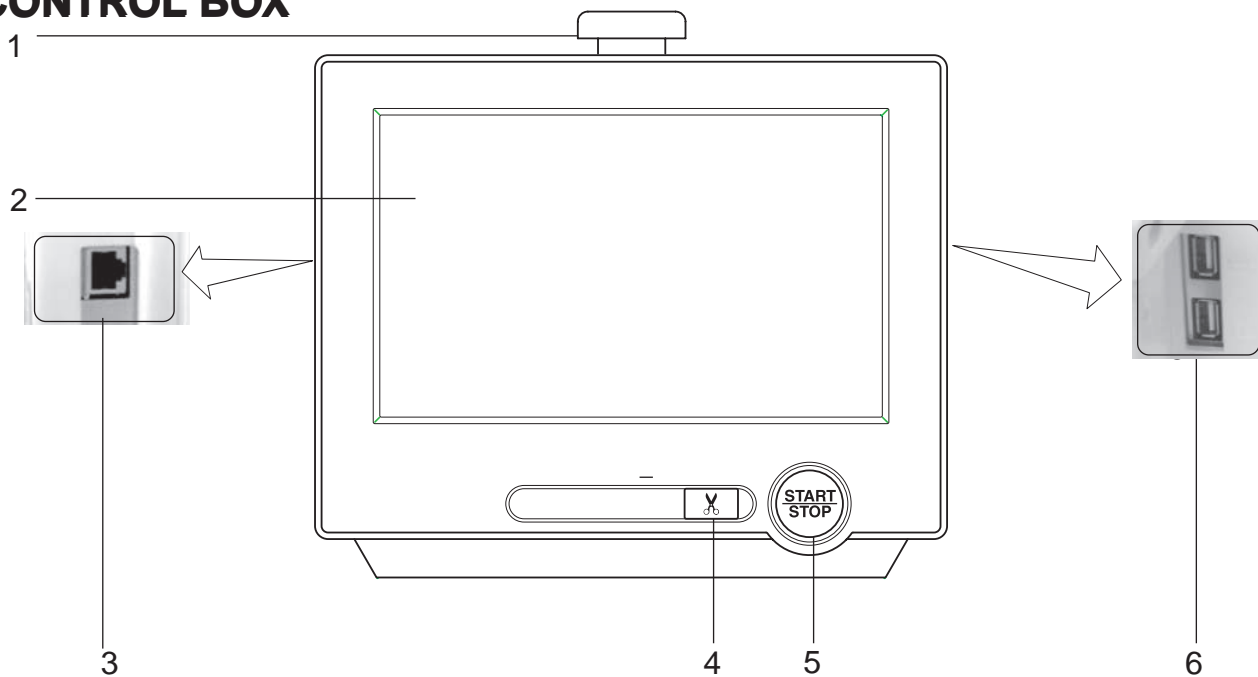
A battery is had built-in to this embroidery machine.

When you dispose of a battery, according to each country or a method determined in each area, please dispose appropriately.



- |                        |                               |                                 |
|------------------------|-------------------------------|---------------------------------|
| 1. Hook cover          | 11. Minor thread tension      | 21. USB port (based on the USB) |
| 2. Bobbin case         | 12. Thread guide support      | 22. LAN port                    |
| 3. Hook                | 13. Thread guide              | 23. Frame base                  |
| 4. Needle plate        | 14. Upper rectifier           | 24. Carriage                    |
| 5. Thread check spring | 15. Thread stand pin          | 25. Fuse (6A)                   |
| 6. Take-up lever cover | 16. Thread stand felt         | 26. Terminal box                |
| 7. Take-up lever       | 17. Thread stand              | 27. Power switch                |
| 8. Lower rectifier     | 18. Needle bar selection knob |                                 |
| 9. Thread tension      | 19. Control box               |                                 |
| 10. Detecting roller   |                               |                                 |

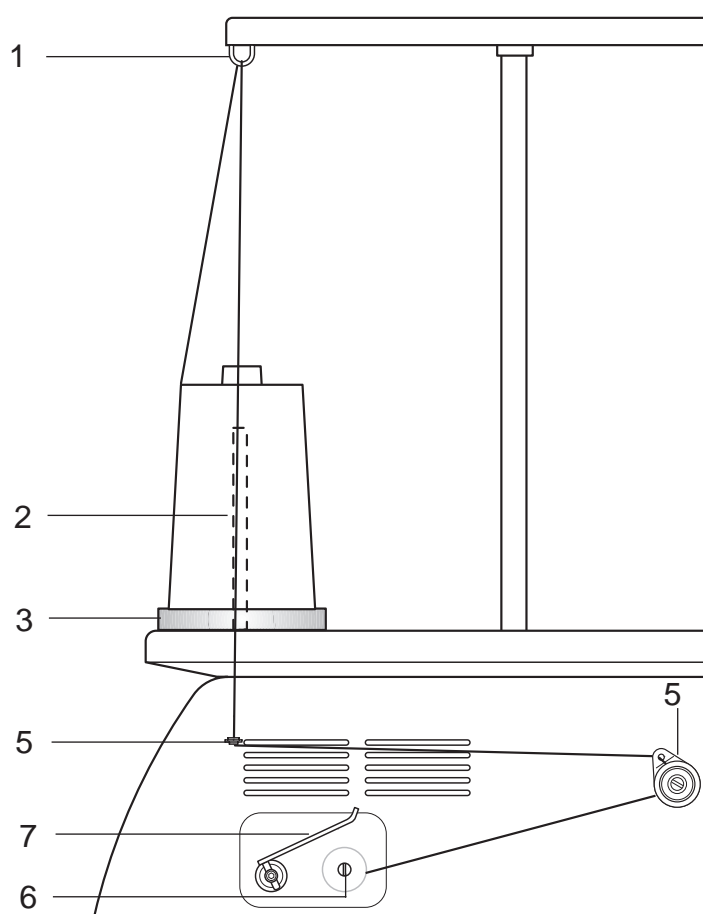
## CONTROL BOX



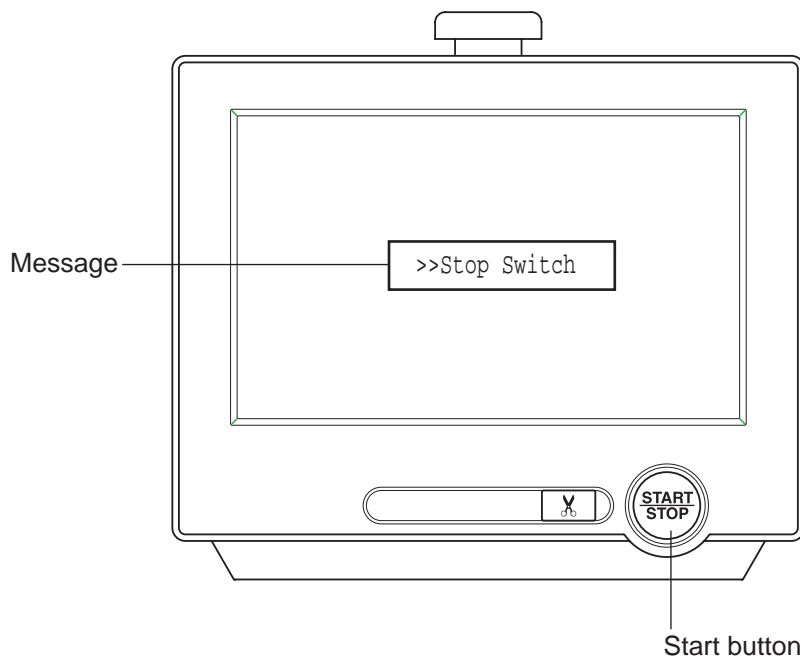
1. Emergency stop button
2. Display (L.C.D.)
3. LAN port
4. Thread cut button
5. Start/Stop button
6. USB port

## BOBBIN WINDING (Option)





1. Upper Thread guide
2. Thread stand pin
3. Thread stand felt
4. Thread guide
5. Thread tension
6. Spindle
7. Lever



Below is a list of possible messages that may appear while operating the machine, along with an brief explanation and suggested actions to take as a result.

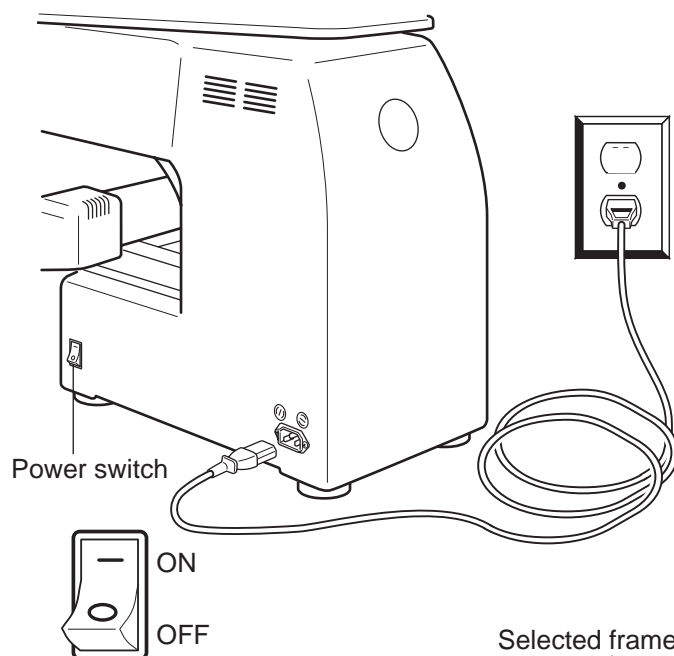


**CAUTION: To prevent accidents.**  
The embroidery frame may move. Please keep hands clear for your safety.

MESSAGE	EXPLANATION	OPERATION	PAGE
 <b>A</b>  <b>B</b> Place to oil	Designated letter on the display is due to be lubricated.	Lubricate the location indicated by A or B. Refer to the indicated page in this manual.	23-1
 Cleaning of rotary hook  Cleaning of thread cut knife	Clean the rotary hook and the thread cutting knife.	Clean with instruction in the reference page.	23-2
>>Stop Switch	The machine is stopped because the stop button was pressed while embroidering the design.	Press the start/stop button to resume sewing.	
>>End	The machine is stopped because it has finished the design.	If you wish to sew design again, please newly hooped item on machine & press start/stop button.	
>>Change Stop	Machine stopped, because you used "Stop at color change point" function.	When you press the start/stop button, the machine will select the next color and resume embroidering automatically.	
>>Color ?	Machine stopped because the next color has not been selected.	Please select next needle number by needle selection button then press the start/stop button.	
>>Thread Break	Machine stopped, because upper or bobbin thread broken.	Please thread upper thread or check bobbin thread then press start/stop button to resume sewing.	
>>Trace end	The machine is stopped because it has finished with the design trace.	Press the start/stop button if OK.	6-4 7-C

## ● How to turn on the machine

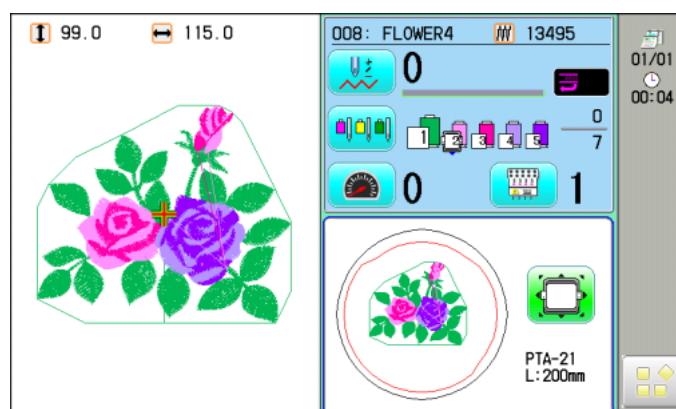
1. Connect the power cord to the inlet on the right side of the machine.
2. Connect the power plug to an electrical outlet.
3. Turn on the power switch.  
Please confirm the emergency stop button has been released.  
Push the power switch firmly so it will remain on.




4. In case you do not need to change frame type, press the **Next**.  
After the carriage and frame move slightly, the embroidery frame will return to the previous position automatically.  
Machine becomes ready for operation.



**CAUTION: To prevent accidents.**  
The embroidery frame and carriage will move.  
Please keep hands clear for your safety.












In case you want to change frame type,  
press the .

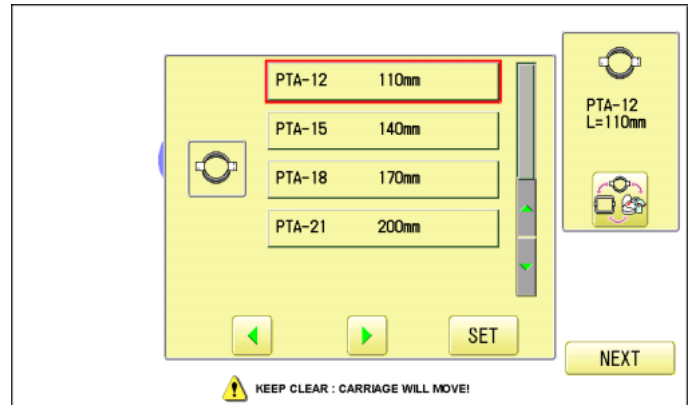


# TURNING THE MACHINE ON

## 3-5b

5. Select the desired frame with  .

-  : Tubular round frame
-  : Tubular square frame
-  : Cap and One-point frame.
-  : Border frame (for HCD2)
-  : Sock frame
-  : User-defined frame
-  : Non registered



6. Select desired type of frame and press the



The display returns to the view of Step 3.

To disconnect, switch the power switch to the off position, then remove plug from outlet.



**DANGER: To reduce the risk of electric shock.**

Never leave the machine unattended when plugged in.

Always unplug this machine from the electrical outlet immediately after use and before performing any maintenance on it.



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

Do not unplug by pulling on cord. To unplug, grasp the plug, not the cord.




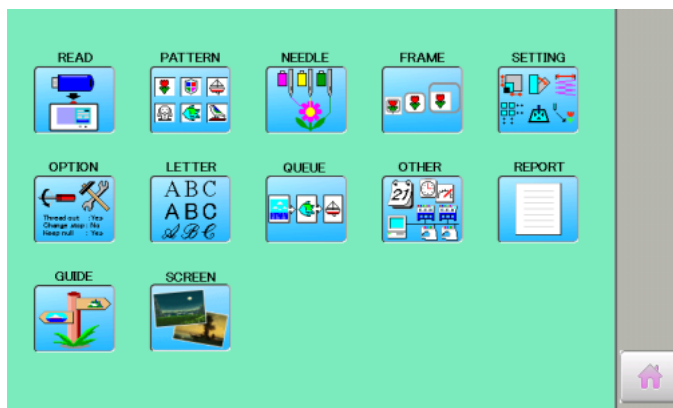
# TURNING THE MACHINE ON


3-7

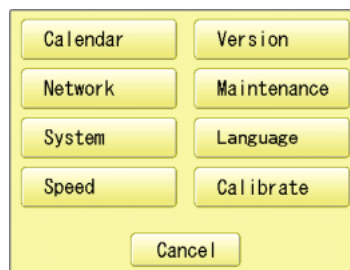
## ●Calendar and clock setting

Setting the calendar and clock lets the machine advise when oiling and other maintenance is scheduled to occur.

1. When the machine is stopped, press .







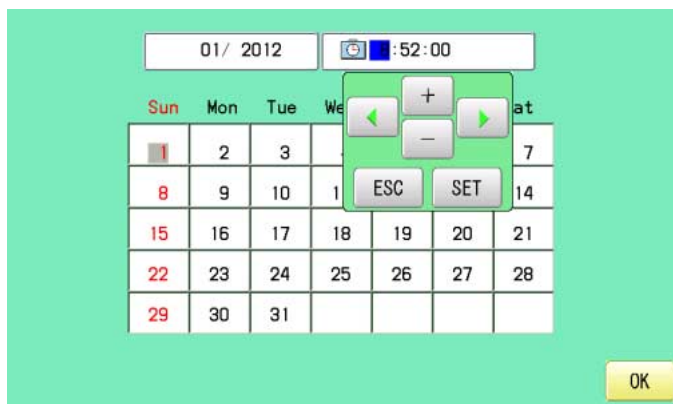
2. Press the .




3. Press the .  
Current year, month date and time is displayed.

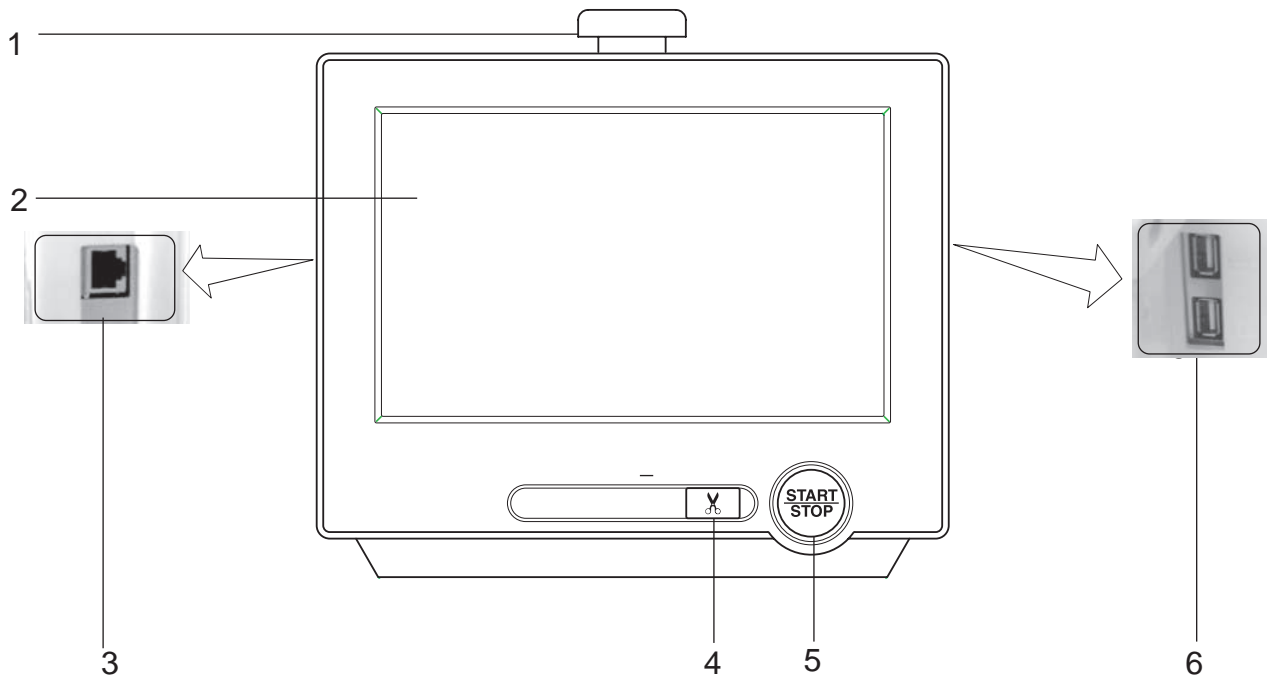


4. Select year/month, time or date.  
Press right /left of   to select the setting point, and press up/down of   to select the number of year, month and time.



5. Press the .  
The date is fixed.

6. Press  to return to Menu mode.



## 1. Emergency stop button

When pressed, the power is switched off and the machine stops immediately. The emergency button locks when pressed.

To unlock, turn the emergency button to the right (Arrow direction) then release. The button will unlock.

Use this button only for emergency.



## 2. Display

Shows the embroidery design name, the number of the current needle and other machine generated messages.

Menu and keys in the display can be operated with a finger or built-in stylus.

## 3. LAN port

You can connect PC with a LAN.

## 4. Thread trim button

The Machine will cut the upper and lower thread when this button is pressed.

In case you press and keep (around 2 sec.), you can cut only bobbin thread.



### **CAUTION: To prevent accidents.**

If you Press the thread trim button, the needle will penetrate the fabric. Please keep your hands clear for your safety.

## 5. Start/Stop button

This button starts the machine.

When pressed, while the machine is running, the machine will stop.

Green ..... Machine ready to sew.

Main menu also accessible by pressing MENU, which causes menu to display.

Blinking red . Indicates the upper thread has broken or the Bobbin thread has run out.

Red ..... Machine is running.

Orange ..... Machine has detected an error. An error number will be shown on the Display. [p 24-1](#)

## 6. USB port



USB memory socket.



USB mouse socket.

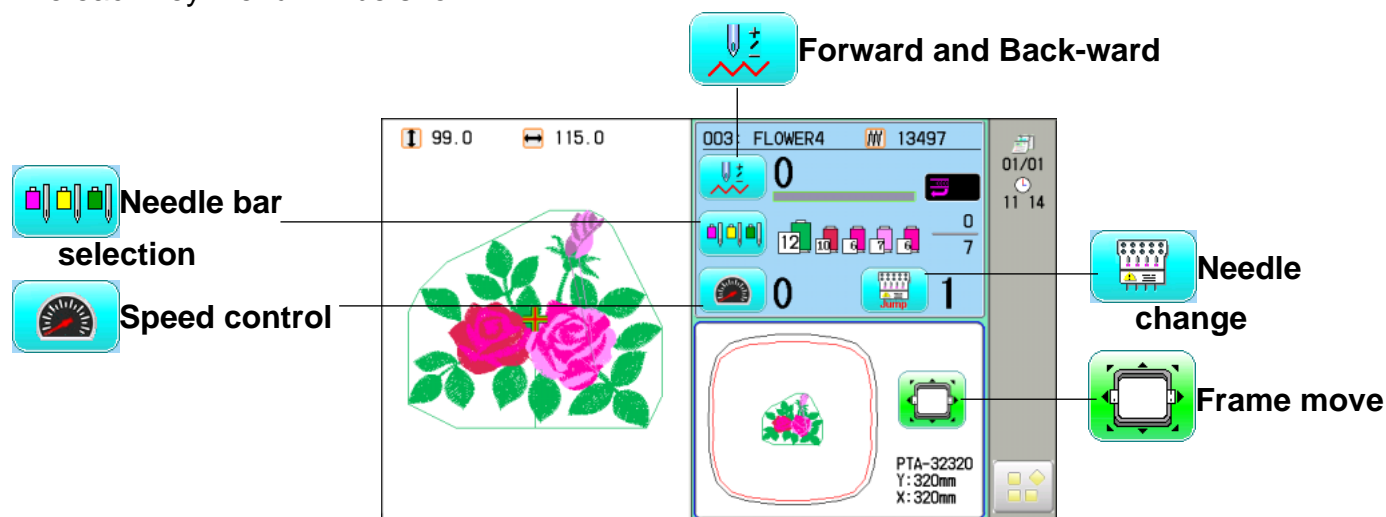
Menu and keys in the display can be operated with a commercial USB mouse.

Press the right mouse button to show a mouse pointer in the display.



## Drive key

The each key menu will be shown.



## Frame forward

This creates direct designations to the position and data to the designated sewing position.

## Needle bar selection

For each color change in a given pattern, the needle number loaded with the correct color thread is assigned by the operator.

P 5-E

## Piece

If "Repeat" is set, this allows the frame to move to the beginning of any piece at will. P 16-2

## Drive speed

Control embroidery speed.  
The speed can be controlled while embroidering.

## Change (Color position )

This moves the frame to the beginning of any Color change number at will beginning of color.

P 9-7



Speed control

## Stitch (Number of stitches )

This moves the frame to any stitch at will. P 9-6

Press the + button to increase the machine sewing speed and the - button to lower the machine speed. is displayed on the LCD display.



## Color position forward

Move the frame to the beginning embroidery position of the previous or later color position number



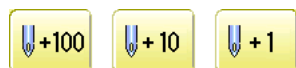
Low speed operation (OFF state)

Press the button to turn "ON" state.



Low speed operation (ON state)

Press the button to turn "OFF" state.



Stitch number forward

Move the frame forward or backward by the stitch number displayed in each button.



## Needle change



Change the needle bar directly to the indicated needle number on the button.



## Change

Move the sewing head to the adjacent needle in the direction of the arrows.



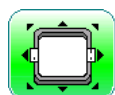
## Jump (Off)

The machine can embroider.



## Jump (On)

Machine becomes jump and the machine doesn't embroider.



## Frame move

Selection the way of frame movement and Move frame.



## Frame change

Change the frame to be used.



## Design centering

Move design to the center of frame.



## Center

Moves the embroidery frame to the center automatically.



## Frame out

Move frame to the front position which was set before.

It is convenience if hand work is required in the middle of embroider process.



## Position

When sewing is interrupted in the middle of a design, this returns the frame to current sewing position regardless of where frame may have been moved with the arrow keys after interrupt.



## Original point return

This returns the frame to \*pattern origin point. After performing this action once, repeating this again will cause the frame to return to the previous position.



## Origin registration

Register the current frame position as origin.



## Trace

When pressed while at the beginning of design, the embroidery frame moves following the outer edge of the design. This allows you to compare the design size and position against the frame before sewing.

Indicate target design on LCD panel when non-showing design.

If you press this key and hold, re-display your target design.



## Locate

Locate will restore the position of the frame to the last point before a power failure even if the point of origin or the pattern itself were changed.



## Frame move key

The frame moves toward direction of the arrow mark.



## Fast move

Press this key one time to move the frame faster toward the direction of the arrow.

Press this key one more time to cancel this function.



## Quick move

First press this key and then the arrow key to move the frame toward the edge of the embroidery area in the direction of the arrow.



## Quick embroidery design data position move

First press this key and then the arrow key to move the frame where the design data can be embroidered at the edge in the direction of the arrow.

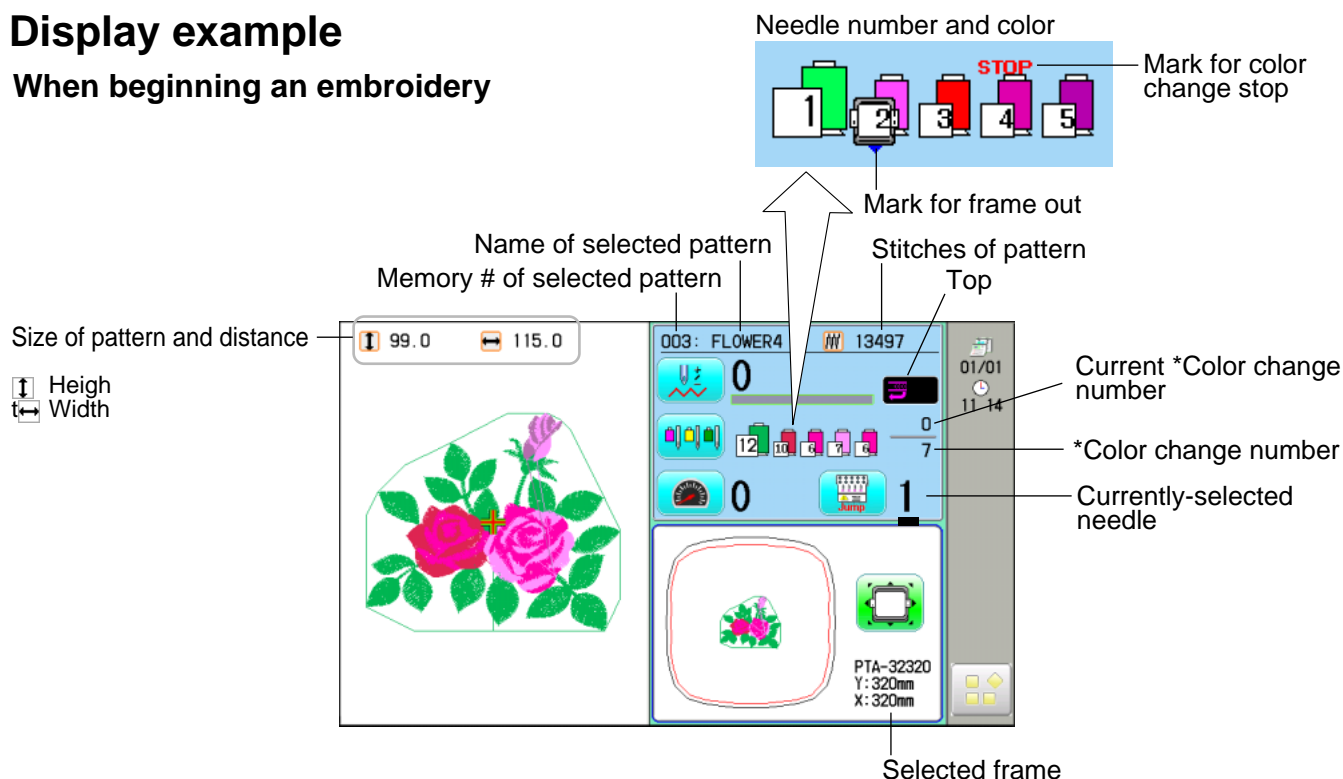


## Pointer (Option)

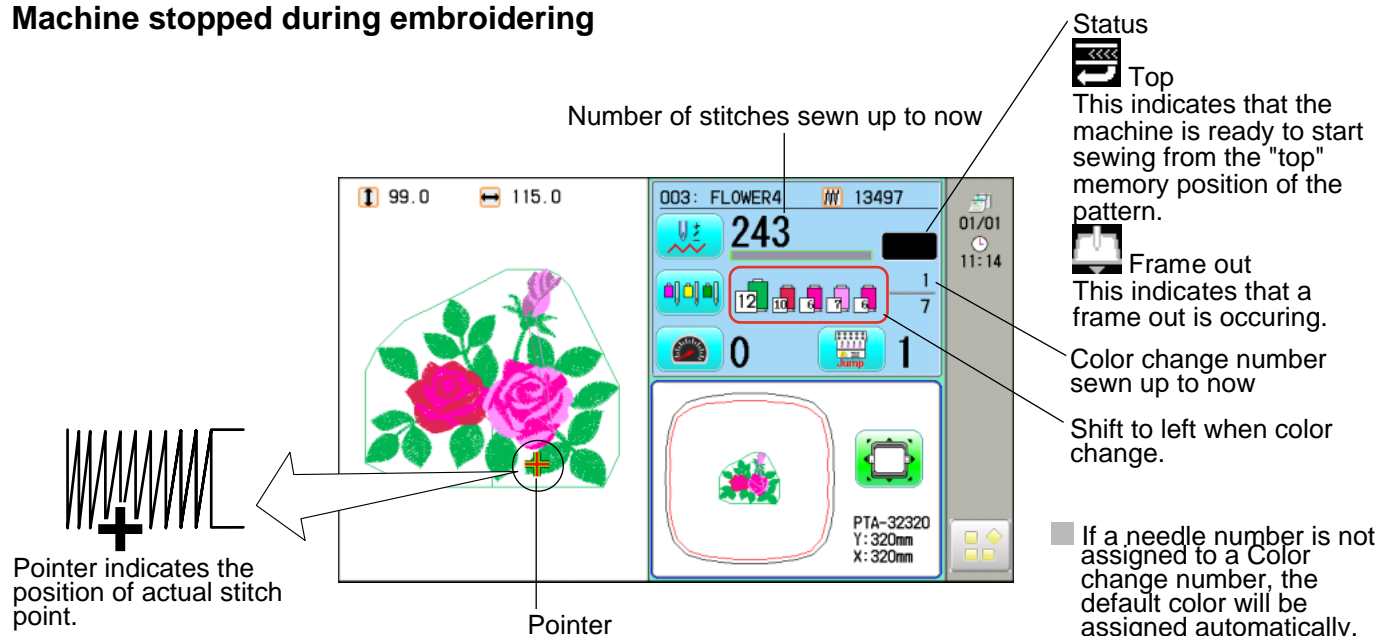
Turn on and off the laser pointer.

## Display example

When beginning an embroidery




## Machine stopped during embroidering



## Display if the machine has no design in memory

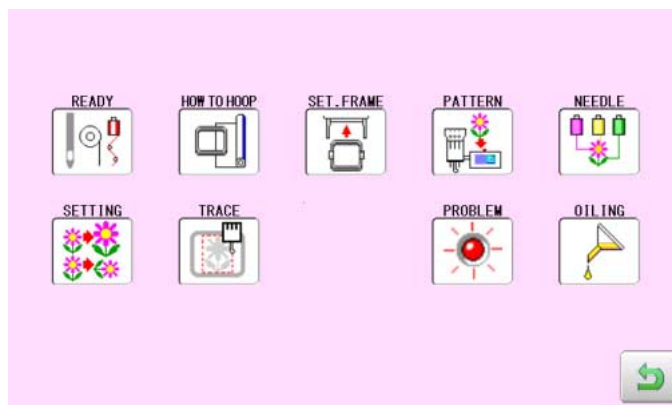


The GUIDE offers tips and step-by-step help for embroidering with the machine. In each stage of embroidery operation there is an easy to follow guide available.

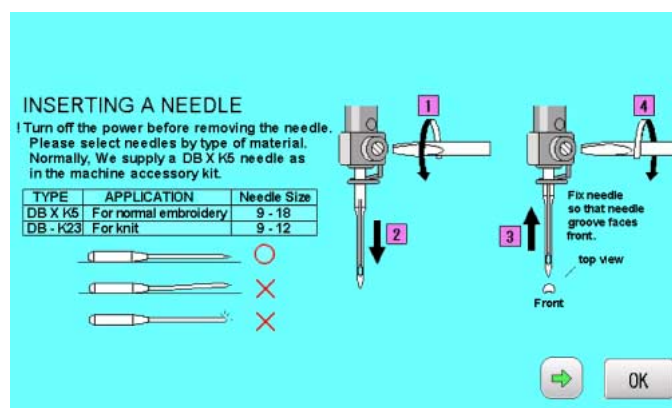
1. When the machine is stopped, press  .





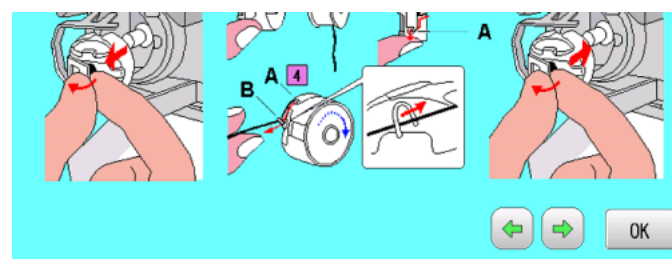
2. Select "GUIDE".



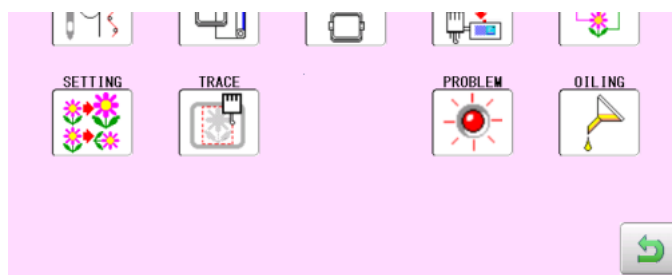
3. Select desired item.



4. When ◀ or ▶ is shown in the right lower portion of the display, you can move to next page by pressing   .



5. Press the  .  
You will return to the guide menu.



# INSERTING A NEEDLE

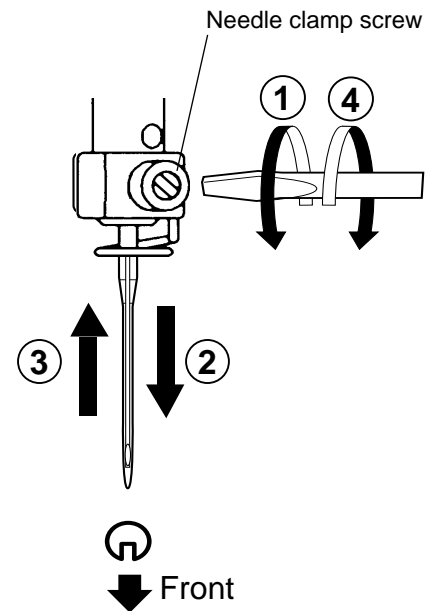
4-1

Select a needle of the right type. See the following “SELECT THREADS”.

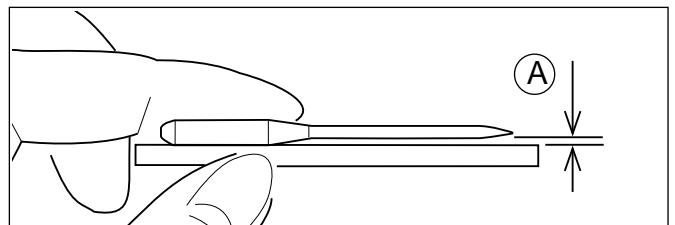


**CAUTION: To prevent accidents.**  
Turn off the power before removing the needle.

1. Loosen the needle clamp screw slightly with the screwdriver.
2. Remove the needle.
3. Insert a new needle into the needle clamp with push it up as far as it will go keeping the slotted side of the needle in front.
4. Tighten the needle clamp screw with the screwdriver.



- A. Do not use a bent or blunt needle.  
Place the needle on a flat surface and check for straightness.



## About needle

Please select needles by type of material .

Normally, We supply a DB X K5 needle as in the machine accessory kit.

TYPE	APPLICATION	Needle Size
DB X K5	For normal embroidery	9 ~ 18
DB - K23	For knit	9 ~ 12

## Relation of needle and upper thread

Please select type of needle and upper thread by flowing list.

Size		Relation of needle and upper thread					
Organ	German	Cotton #	Silk	Polyester	Rayon		
# 8	# 60	100 ~ 130	140 ~ 160	150 ~ 200	50 ~ 70		
9	65	70 ~ 80	100 ~ 120	130 ~ 150	70 ~ 100	Normal em- broidery field	
10	70						
11	75	50 ~ 60	80 ~ 100	100 ~ 130	100 ~ 130		
12	80						
13	85	36 ~ 40	60 ~ 70	80 ~ 100	130 ~ 150		
14	90						
15	95						
16	100	30 ~ 36	50 ~ 60	60 ~ 80	150 ~ 160		
17	105						
18	110	24 ~ 30	40 ~ 50	50 ~ 60	180 ~ 230		

► Normal use embroidery needle and upper thread.

Upper thread :      Rayon              120 d/2      (120 denier)  
                          Polyester        120 d/2      (120 denier)

Needle            :      #11 ( DB X K5 )

► If the relationship of needle size and thread type is incorrect, it is possible to have any of the following problems.

- Thread break
- Skip stitch (Upper thread does not catch bobbin thread)
- Other stitch quality problem

## Backing

Generally, Backing is used for hooped embroidery fabric. Knit fabrics particularly require the use of embroidery backings.

Embroidery backings will allow the hoop to move the fabric more accurately, creating a more beautiful embroidery.

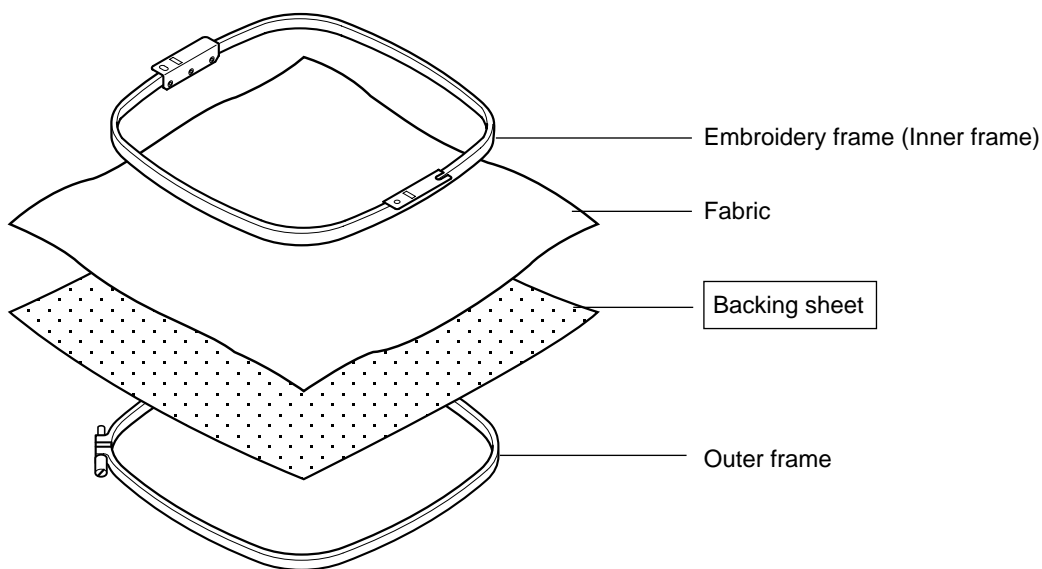
## Select backing type

Choose the thickness and number of sheets by the type of material and embroidery condition. Generally, you should consider the following items.

- Embroidery stitch quality
- Contraction or compression of fabric caused by sewing, etc.
- Stiffness of fabric

■ In case, if you sew lace and leather, you may not need backing sheet.

## Example of using a backing



## ●Winding the bobbin

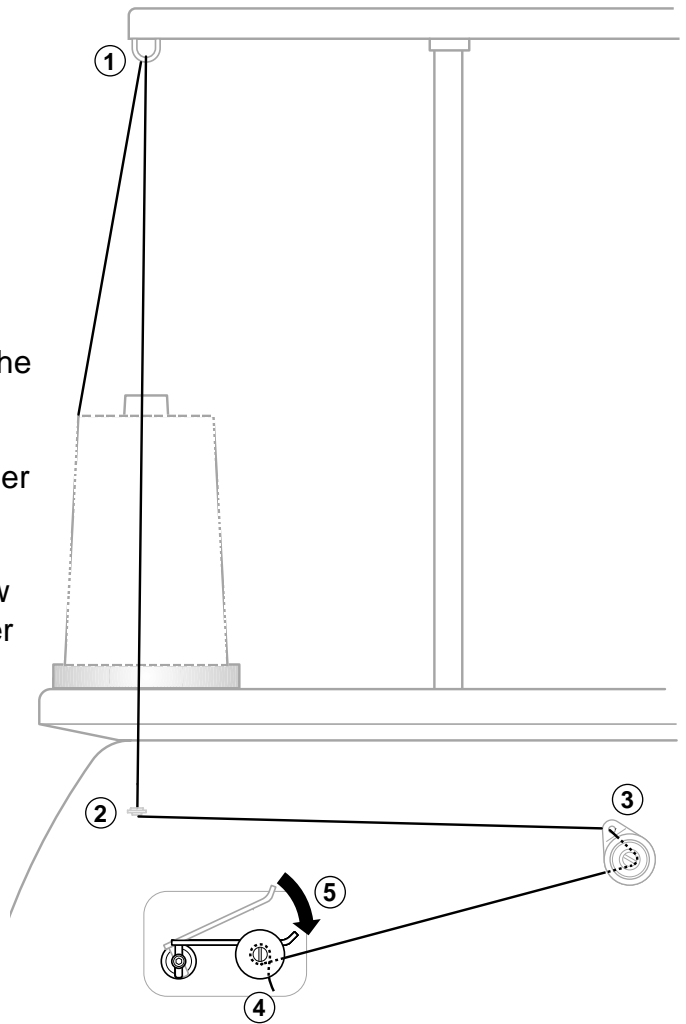
Thread the bobbin winder as shown below:

1. Upper Thread guide
2. Thread guide
3. Thread tension – Be sure to thread through the small eye before going between the disks.
4. Bobbin (Place the bobbin on the bobbin winder spindle.)
5. Press the limit lever as indicated by the arrow to start the winder. The lever stops the winder automatically after the winding is complete.



### **CAUTION: To prevent accidents.**

When lever is pressed down, the bobbin winder spindle and the bobbin start turning. Keep fingers and body away until the bobbin winder stops turning.



## Tension

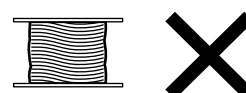
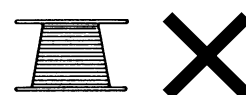
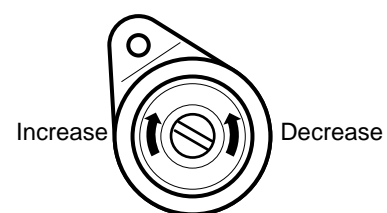
When adjusting bobbin winder tension:

- Ensure thread winds evenly on bobbin as shown.

Confirm that the bobbin is wound properly..

- Keep the tension constant while winding.

Tighten thread tension if thread winds too loosely.

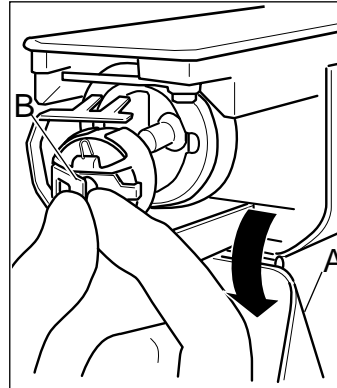




**⚠ CAUTION: To prevent accidents.**  
Please watch out for the point of the rotary hook when you replace the bobbin.

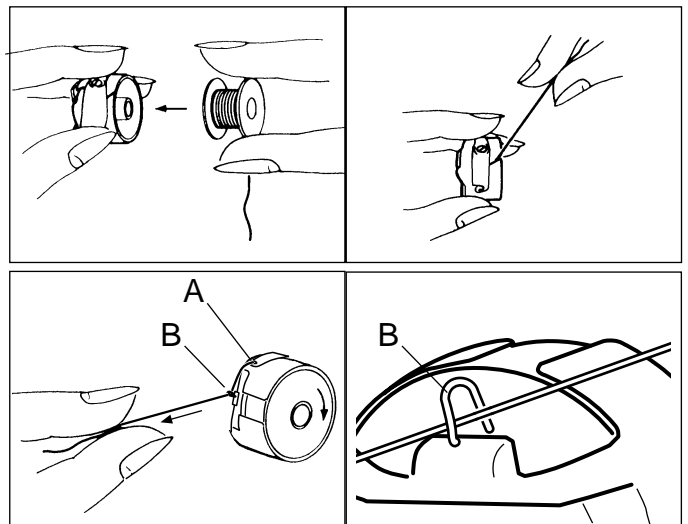
## ● Removing the bobbin

1. Open hook cover (A) to front.
2. Grasp bobbin case latch (B) and withdraw bobbin case from hook taking care not to damage the thread keeper.



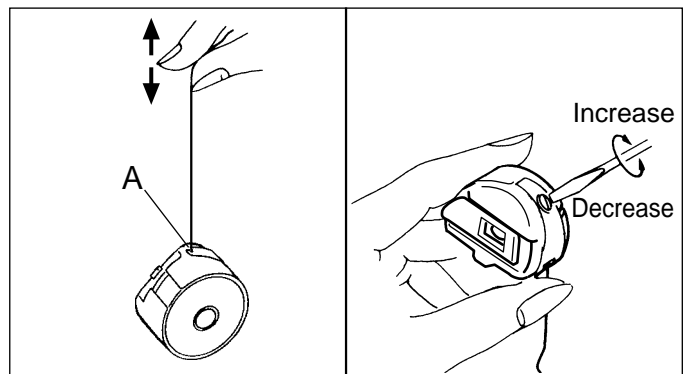
## ● Inserting the bobbin

1. Hold the bobbin case in left hand. Hold the bobbin in your right hand with thread on top leading from left to right.
2. Insert bobbin in case and draw thread up into slot in case.
3. Draw thread under tension spring (A) and wind into guide coil (B). The bobbin should turn clockwise in the case when the thread is pulled.



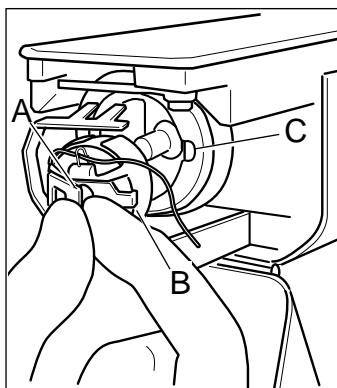
## ● Adjusting bobbin thread tension

1. Hold bobbin thread and jerk upward approx. an inch. Thread should unspool further approx. the same amount.
2. The screw on the tension spring is for adjusting bobbin tension. This adjustment is very delicate. Please turn the screw only a small amount. Only 1/8 of a turn maximum.

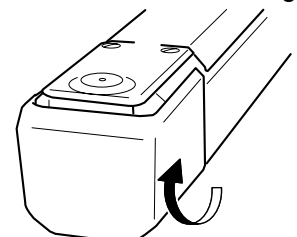


## ● Inserting the bobbin case

1. After threading bobbin in case, open bobbin case latch (A), grasping it in fingers as shown.  
Slip bobbin and case on stud of rotary hook body, and press in securely. Release bobbin case latch. Press the bobbin case in to be sure it is fully seated.
2. Close hook cover.



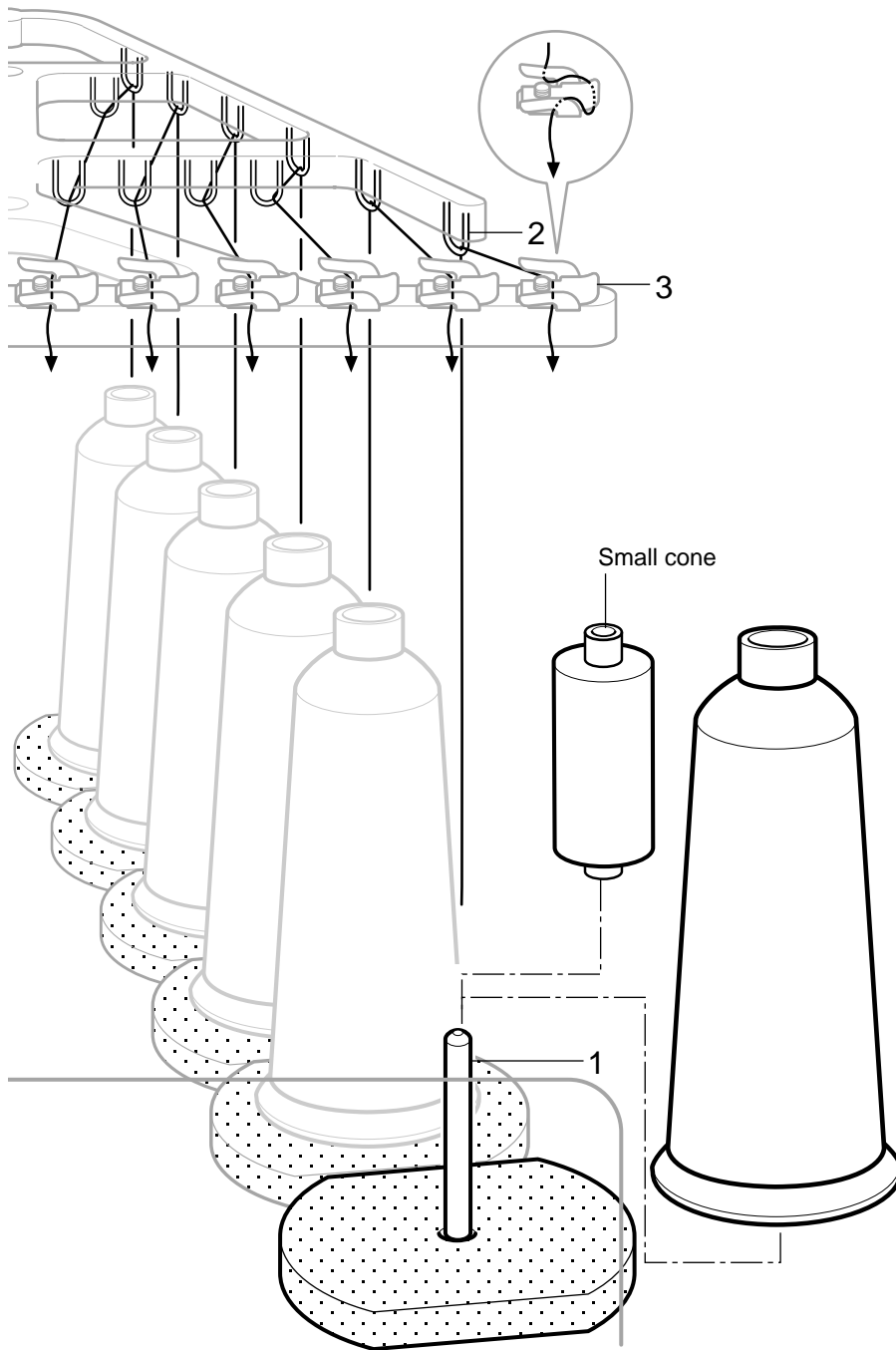
**⚠ CAUTION: To prevent accidents.**  
Keep hook cover close and fingers away while the machine is running.



■ The attached bobbin case is available only for this machine. Thread may be caught in thread guide coil if other types are used.

## ● How to thread upper thread

Pass upper threads in order according to the figure:



### 1. Thread stand

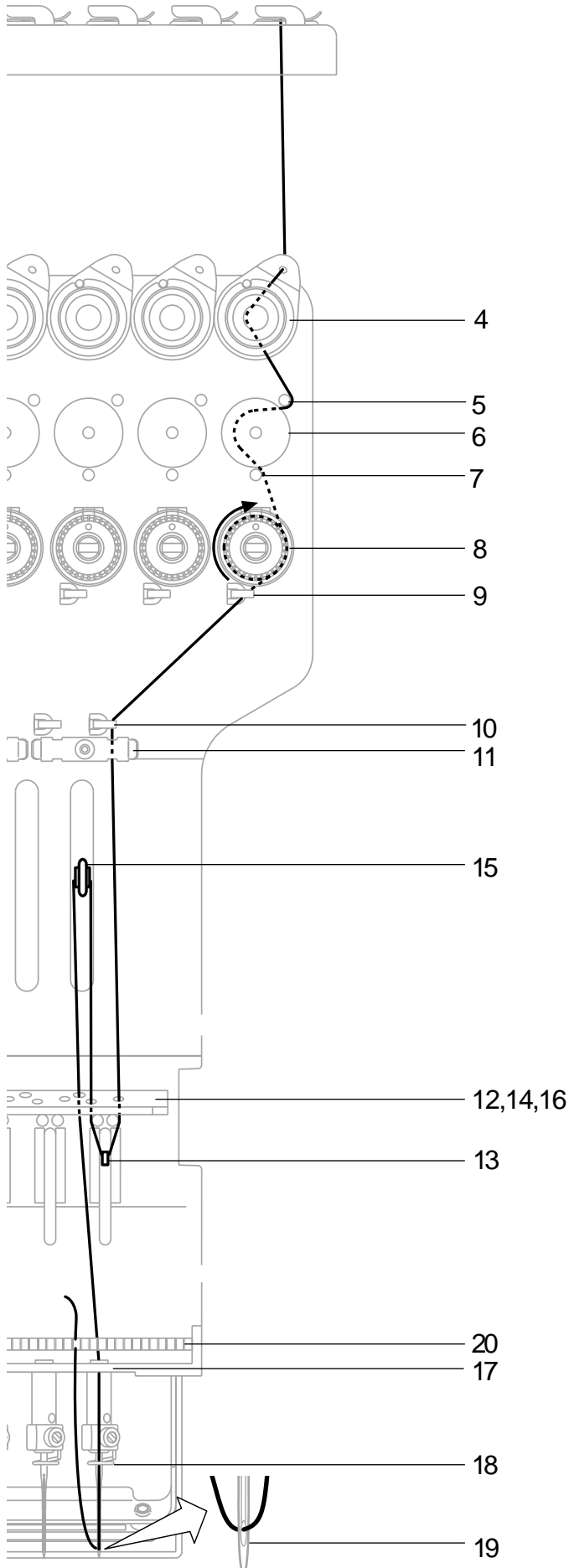
Set thread cone on the stand.  
Small cones can also be used as shown.

### 2. Thread guide

Thread through the thread guide above each thread cone.

### 3. Upper rectifier

Continued next page



4. Minor thread tension

5. Guide pin upper

6. Detecting roller

7. Guide pin lower

8. Thread tension

Wind upper threads one time around rotary tension disc clock-wise.

9. Upper thread guide

10. Lower thread guide

11. Lower rectifier

12. Thread guide plate upper

13. Thread adjusting spring

14. Thread guide plate upper

15. Take-up lever

16. Thread guide plate upper

17. Thread guide plate lower

18. Needle bar thread guide

19. Needle

Thread from front side of needle.

Pull upper threads slowly and see that the detecting roller moves smoothly by pulling the thread downward as much as possible.

20. Thread holding spring

Push thread into spring.






**CAUTION: To prevent accidents.**


Please be careful of the sharp point of the needles when threading upper threads through the needle.

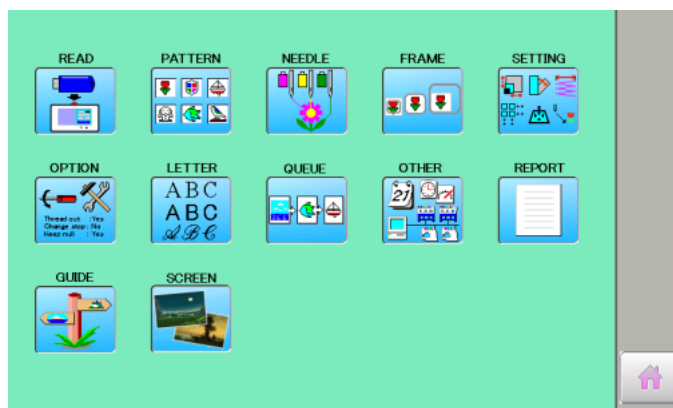
Before embroidering, check the basic settings of the machine.

The rest of the settings can be left at default values (as indicated by underline below).

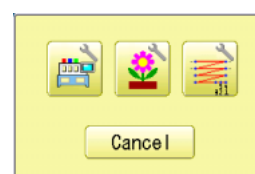
No. Display	Setting <small>Default is underlined</small>	Contents
1 Fine mode	Yes..... <u>No</u> .....	The machine emphasizes stitch quality by controlling embroidery speed. By default it is set to "No".
2 Tightness level	1 (Loose) 2 (Normal) 3 (Tight)	The machine adjusts thread tightness level by controlling the timing of frame move. By default it is set to "2".
3 TRD. break back	<u>Yes</u> No	On thread breaks, this causes sewing position & frame to move backwards by several stitches before the detected break before stopping.
4 All head mending	Yes ..... <u>No</u> .....	The machine mends threads only on heads with detected thread break. The machine mends threads for all heads irrespective of thread
5 Width data limit	1 - <u>13</u> mm (13=12.7)	When stitch length exceeds this length, the machine divides it by this jump length and creates multiple movements. Width data limit becomes 12.7mm only when setting value is set to 13. Please use a smaller number when you use thick and heavy material.
6 Quick start mode	..... Yes..... No.....	If you set to "No", the machine will increase speed slowly. Please select "No." when you have a problem with skipped stitches on the beginning stitch after thread trim. • The machine sews up to 3 stitches slowly after thread cut. • The machine sews up to 5 stitches slowly after thread cut.
7 Auto thread cut	<u>Yes</u> No	This performs automatic thread cut after color change and stop.
8 Cut at jump data	..... 1 ~ 8 ( <u>3</u> )..... 0.....	When a set number of continuous jumps exists in pattern data, the machine cuts threads before jumping. • Machine trims the thread on setting number of constant jump. • Does not trim.
9 Cut at null jump	<u>Yes</u> ..... No.....	This sets thread cuts before null jumps (isolated jumps with no net movement) • Does trim on empty jump data. • Does not trim on empty jump data.
10 CHG. always cut	Yes..... <u>No</u> .....	Forces a trim at every color change. • Always thread trim before color change. • If data does not have trim function at color change point, machine does not trim.
11 Length of TRD. cut	Max. Long <u>Normal</u> Short Min. Needle.....	The machine cuts upper threads to a longer length. • The upper threads of each needle will be cut off by registered length.  5-2b
12 Slow (mend out)	<u>Yes</u> No	When mending finishes and all heads start to embroider again, machine speed to be decelerated for safety purpose.
13 Width data all	-1.0 ~ 1.0mm <u>0.0</u> mm.....	This is to alter the widths of all satin stitches for all the designs in the memory. • Adjust satin stitch width by selected amount. • Does not adjust width.
14 TRD. break detect	Quick 3 ~ ~ <u>Normal</u> ~ ~ Slow 3 Off Needle.....	Sensitivity selection of the thread break detect sensor. By default it is set to "Normal". • You can set sensitivity of thread break detection needle by needle.  5-3
15 Convert cap	Yes <u>No</u>	When you install the cap drive frame on the machine, the machine will convert (rotate) your design automatically.
16 Revers frame move	Yes <u>No</u>	Frame will be moved in the opposite direction of the arrow key.
17 STR. Auto Position	<u>Yes</u> No	Machine remembers & returns to last sewn position after sewing interruption even if operator has moved the frame after interrupt.
18 Embroidery weight	<u>Light</u> Middle Heavy	This setting for heavy duty material depends by material weight. Normally, please select "middle" or "Heavy" for Border frame. Machine speed is decreased automatically, when you select "middle" or "heavy".

No. Display	Setting <small>Default is underlined</small>	Contents
19 Expand cap limit	1 ~ 10mm <u>0</u> mm.....	<p>The direction of Y-axis of the embroidery area (standard) is extended in the direction of the brim of the cap.</p> <p> If the embroidery area is extended too much, there is a possibility that a needle and pressure foot may hit a frame and may be damaged. Before start sewing, please check carefully the embroidery area by trace function etc..</p> <ul style="list-style-type: none"> <li>• The embroidery area is extended with the set-up size.</li> <li>• The embroidery area is not extended.</li> </ul>
20 Frameout position	0 ~ <u>100</u> ~ 780mm	Set movement of frameout in the drive menu.
21 Display inch	Yes <u>No</u>	<ul style="list-style-type: none"> <li>• Display the unit of dimensions at an inch.</li> <li>• Display the unit of dimensions by millimeters meter.</li> </ul>
22 Trace speed	0 ~ <u>100</u> ~ 300	You can change the Tracing speed. "100" mean the normal speed. If you change the number more bigger, the speed decrease.
23 Display off timer	<u>0</u> ~ <u>240</u> (min.)	<p>The machine turns off the display screen when the time without any operation exceeds the time entered in the parameter.</p> <p>Screen saver function is "off" when setting value is set to "0"</p>

1. When the machine is stopped, press .



2. Select "OPTION".



3. Select .



4. Select desired setting item and change the setting.

You can move to next page by pressing .

Press  to return to Menu mode.


## Detailed explanation of machine settings



### 11 Length of TRD.cut


If you select "Needle" with this setting, the upper threads of each needle will be cut off by registered length.

The length of each thread can be set up taking the following steps.

1. Follow the steps 1.- 3. on the previous page and the display shows machine setting page.


2. Press the .

3. Change the setting on the needle number you would like to change with  .


Press the  when returning the setting on all the needle numbers to default.

Needle number



4. Press the .

### 13 Width data all

This function adds additional width to all satin stitches in a design.  12-3


This is otherwise set in the "Settings" function, in which case any changes made to the setting from this screen will have no effect.



## 15 TRD. break detect


If you select "Needle" with this setting, you can set sensitivity of thread break detection needle by needle.


You can be set up taking the following steps.

1. Follow the steps 1.- 3. on the page 5-2 and the display shows machine setting page.

2. Press the .

3. Change the setting on the needle number you would like to change with  .

Press the  when returning the setting on all the needle numbers to default.

4. Press the  when returning the setting on all the needle numbers to default.




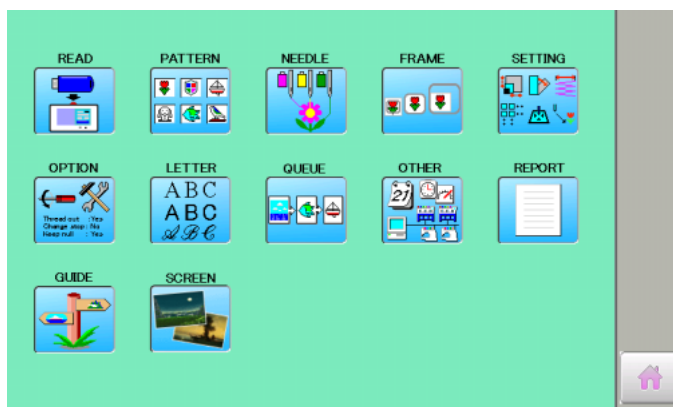
# MACHINE SETTINGS

## 5-3b

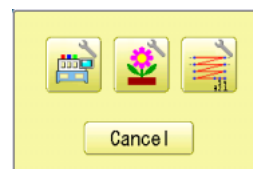
Settings related to lock stitches:


SETTING ITEM	SETTING RANGE	
1 Cut Lock stitch	OFF•ON•AUTO	: ON fi Conduct setting item 2 and 3. AUTO fi Conduct the best lock stitch.
2 Cut Lock Length	0.4~ <u>0.5</u> ~1.2mm	
3 Cut Lock Count	1 ~ <u>2</u> ~ 3	
4 STR. Lock stitch	OFF•ON•AUTO	: ON fi Conduct setting item 5 and 6. AUTO fi Conduct the best lock stitch.
5 STR. Lock Length	0.4~ <u>0.5</u> ~1.6mm	
6 STR. Lock Count	1 ~ <u>2</u>	

1. When the machine is stopped, press  .



2. Select "OPTION".



3. Select the .



4. Select desired setting item and change the setting.

Press  to return to Menu mode.

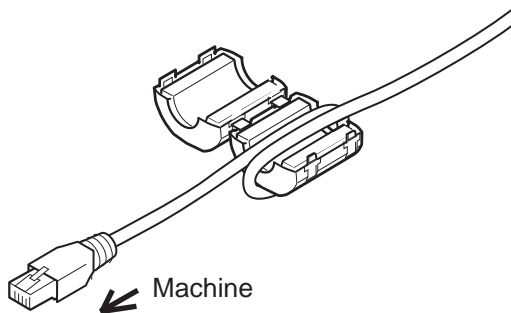


## ●Connecting to a PC

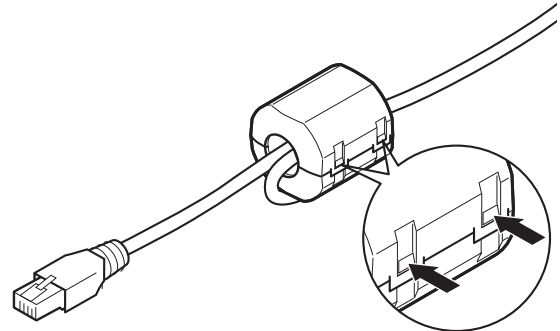
This embroidery machine will allow you to read design data from a connected PC.  
Please use bundled software "Happy LAN" (Design data control software).  
You cannot use "Happy Link" since "Happy Link does support LAN".

### Install the clampfilter

In order to avoid unexpected trouble caused by electric noise, install attached clamp filter on the embroidery machine side on LAN cable.  
Install attached clamp filter when also using other LAN cable than attached LAN cable.



1. Please set clampfilter on new cable as picture.  
Clampfilter should be located close to machine.  
Cable should be turned around clampfilter as picture.

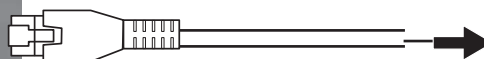
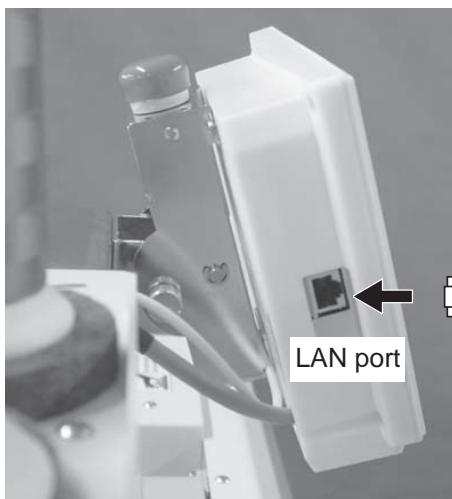


2. Please confirm filter is closed completely.  
When the filter is removed, please press latch (2 positions) on clampfilter by thin rod.  
Clampfilter opens and it can be removed from cable..

## LAN connection

Connect the LAN cable between the LAN port of the machine and the network of the PC.

Multiple and different type of machines can be connected to a PC which has Happy Link LAN software installed.  
Please refer to instruction book of "Happy Link LAN" for more precise information.



Connect to the Switching HUB or the Wireless LAN device.  
Please refer to instruction book of "Happy Link LAN" for more precise information.

## ●Reading embroidery pattern data from the PC

Designs can be transferred to the machine along with some functions by using the "Happy Link LAN" software.  
Please refer to the "Happy Link LAN" software manual for instructions.

## ●Read embroidery pattern data

Read the pattern to be embroidered from the memory media.

These types of memory media can be used.

This machine is able to read different kinds of memory media, which are generally used.

- USB memory

■ If you initialize the memory media with your PC, please proceed with FAT or FAT32 format.



### **Handling note of memory media.**

Do not bend, drop, disassemble, charge or heat the memory media.  
Keep away from humidity or direct sunlight.

## To insert a USB memory

1. Insert the USB memory all the way into the USB memory port of the machine (right side of controller).
2. Read embroidery design data according to following “Memory card reading” in the next section.



## To remove a USB memory

Please handle USB memory carefully.

## Reading pattern data

This reads pattern data and writes into memory.

When the HAPPY format pattern data with \*various function settings are read in memory, various functions such as needle bar selection, pattern data adjustments and etc. will be set automatically. (It is necessary to set "etc.func read". [P 14-4](#))

In addition to memory media, this machine can read pattern data saved in the PC connected with "Happy Link LAN".

Design folder settings on the "Happy Link LAN" is required before reading pattern data.

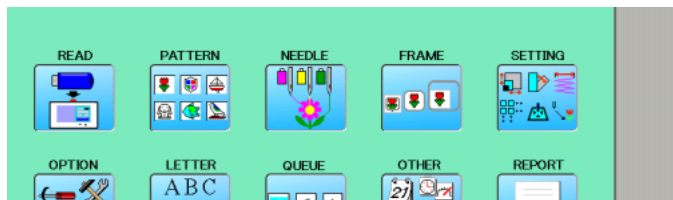
Please refer to "Happy Link LAN" System INSTRUCTION MANUAL regarding the settings method.

The pattern data can be read through the designated folder and sub-folders by accessing from the machine.

■ If the Happy or Tajima pattern data has Barudan or ZSK \*data and you can't read the pattern properly, change data format according to "Settings" in "Reading" and try again. [P 14-4](#)



1. Insert the USB memory into the machine as described in "Inserting USB memory".

2. When the machine is stopped, press .








3. Select "READ".



4. Select  (USB memory) or  (Pattern data in the PC).

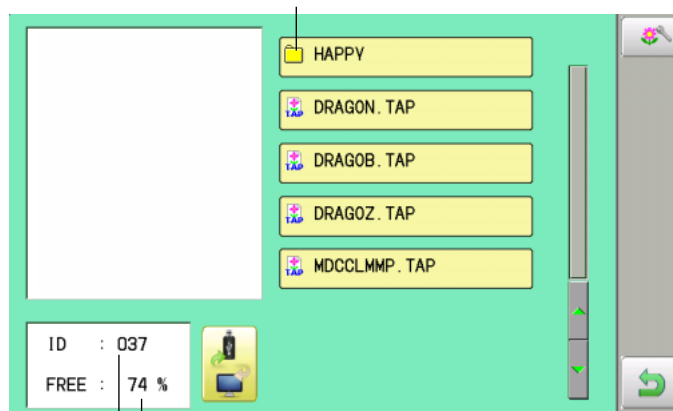
Indicates pattern data.

 TAP : HAPPY  
 DST : Tajima  
 DSB : Tajima (Barudan)  
 DSZ : Tajima (ZSK)

 Folder : Contents of folder will be displayed when you select this icon.

--- Serch pattern ---

Folder



Free memory

The designs new ID number in the machines memory.

## 5. Select pattern data.

1 % of free memory is equivalent to about 10,000 stitches.

If there are more stitches than remaining space, you may need to delete some designs to make room for the new patterns.

Once design is read.

Enable to read other pattern data.

If you wish to read another design, continue to read other pattern data.


If you press  , the display will return to step 3.


Switch the source you would like to extract pattern data from.

--- Reading ---

--- Check pattern data ---




When the screen displays pattern data in the folder,  is displayed.

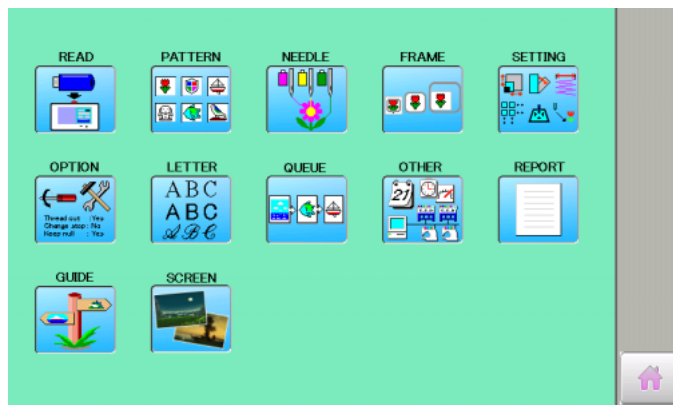
When  is pressed, the screen moves off from the current folder.



## ● Selection of folders

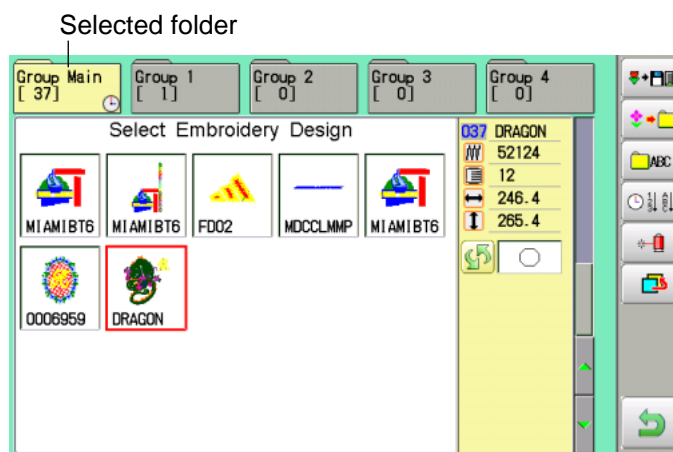
The pattern data memory is consist of five individual folders.  
Select desired folder to choose or input pattern data.

1. When the machine is stopped, press  .



2. Select "PATTERN".

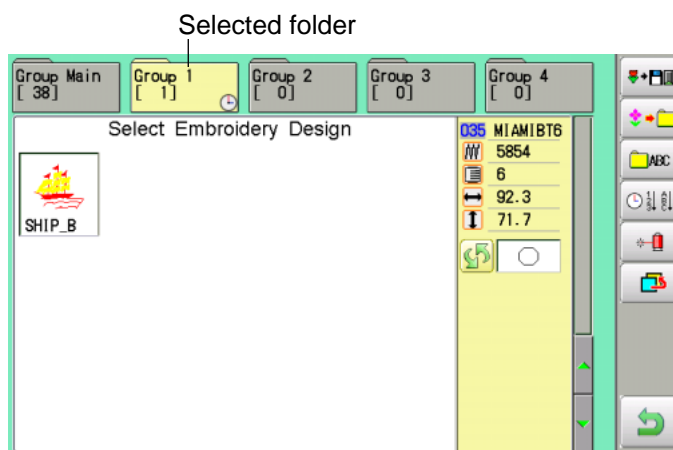
The pattern data of the selected folder will appear on the display.



3. Select desired folder.

The selected folder has been switched.


You cannot switch to the folder without pattern data.

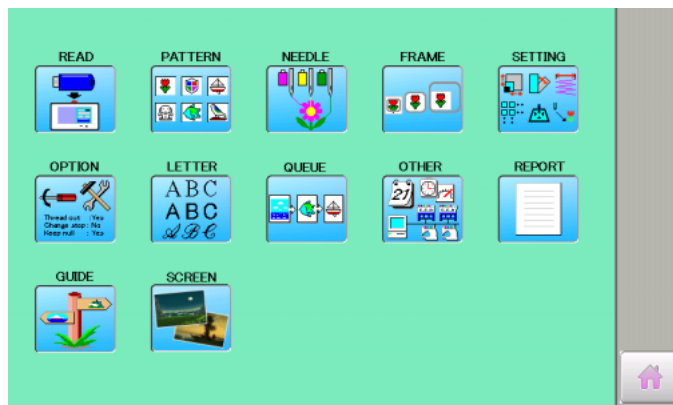


Press  to return to Menu mode.

## ●How to select patterns from memory





To select an embroidery design previously stored into the machine memory.

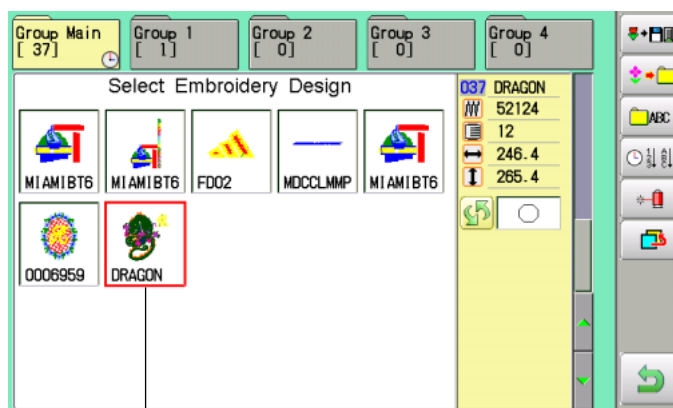
1. When the machine is stopped, press  .



2. Select "PATTERN".

The display indicates the current pattern.  
The left side of display shows the number, name and details for the current pattern.

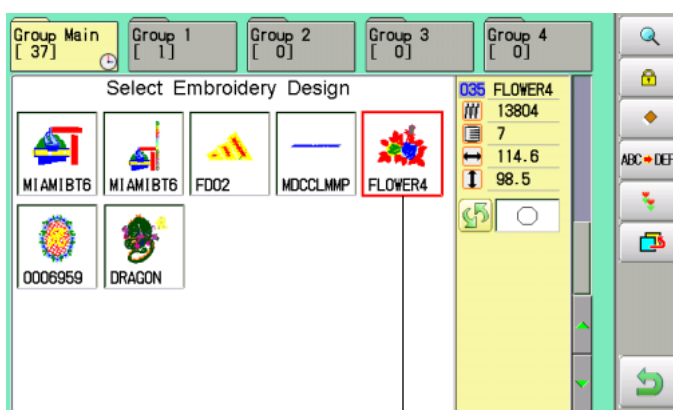
-  Number of stitches
-  Number of Color change number
-  Height
-  Width



Selected pattern data

3. Select pattern data.

This pattern will be selected.




Selected pattern data

Press  to return to Menu mode.

## ●Erasing patterns from memory

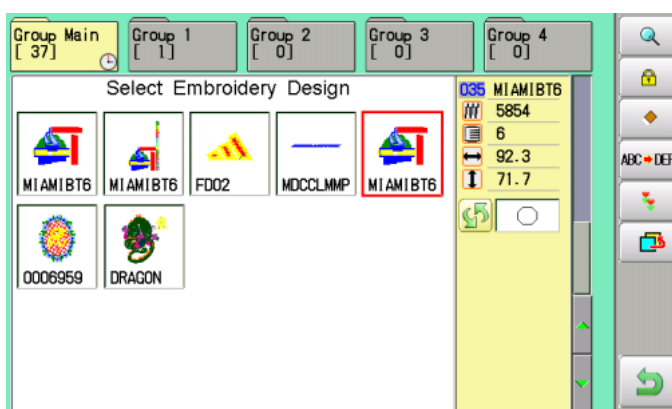
This is to erase an unnecessary design data from the machine memory.

 Pattern data cannot be erased if the lock is set.

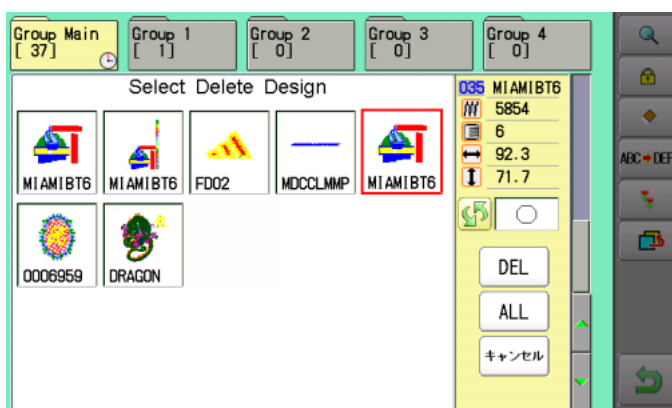
1. When the machine is stopped, press .



2. Select "PATTERN".




3. Press  from right submenu.

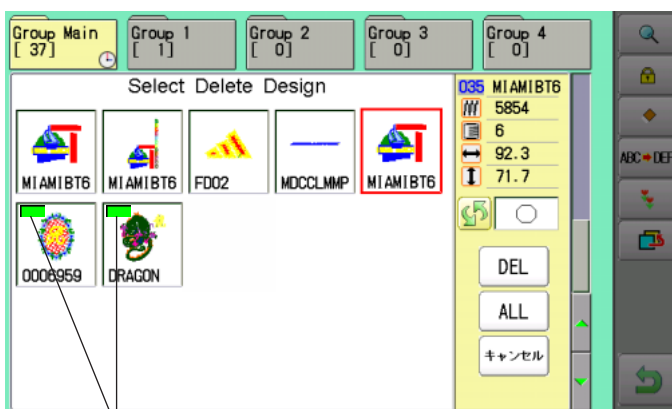


4. Select desired pattern.

Mark will appear left of the pattern.  
Mark will be cleared by press it again.  
Multiple pattern data can be selected.


 : Select all the pattern data

 : Cancel pattern data erasing

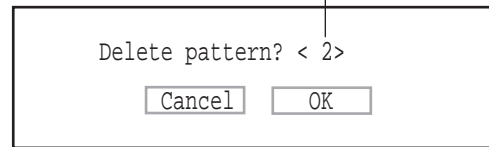


Mark



5. Press the .

Showing number of delete design(s)



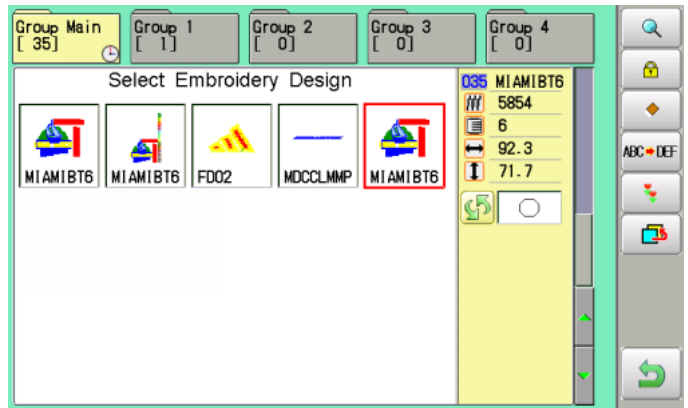
6. Push "OK" to delete.

The item will be deleted.

To delete other patterns, repeat steps 4 to 6.

Press "Cancel" to cancel the delete.

The display will return to step 2.



Press  to return to Menu mode.

# NEEDLE BAR SELECTION

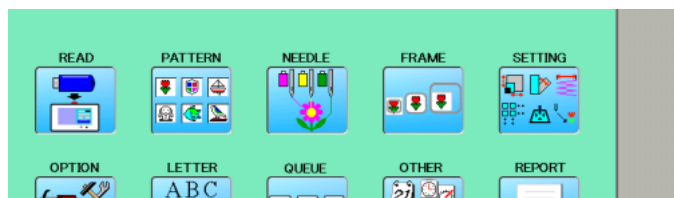
## 5-E

For each color change in a given pattern, the needle number loaded with the correct color thread is assigned by the operator. When this is set, the machine automatically changes to the programmed needle when the design reaches that point in the course of sewing the design.

You can not setting "NEEDLE" for selected "LOCK" design.

Please release "LOCK" from design. 11-1

1. When the machine is stopped, press .

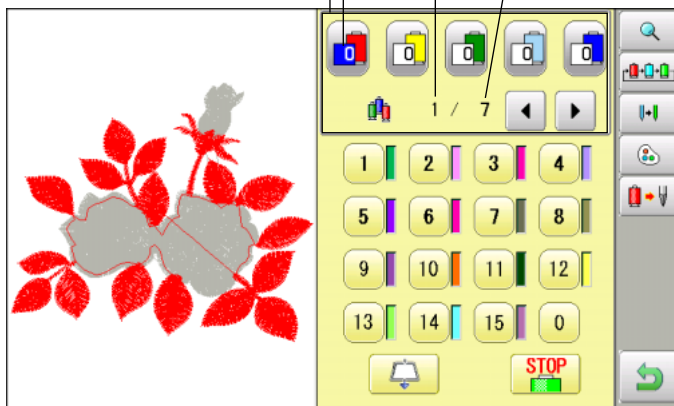


2. Select "NEEDLE".

The screen of color number 1 selection is displayed.

The current color number is showed in the pattern data display portion.

Color change number  
Needle number  
Current color change number  
Number of color change number



3. Select the needle number.

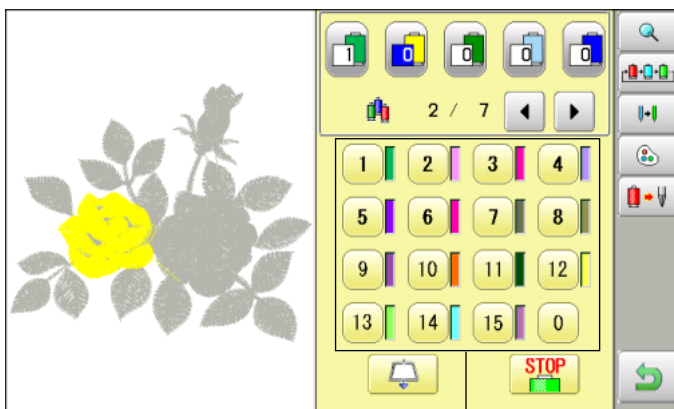
After setting the needle number on color number, the following color number selection is displayed.

You can also select color number directly.

You can switch color change numbers with if the color change number has more than 5.

4. Select the needle number on all the color change numbers.

Press to return to Menu mode.




Needle number

Press to on the sub menu to check the setting.



## **Color change stop functio**

When a color change stop is set to a color change number, the machine will stop after it finishes sewing the marked needle number, then following message will be shown:

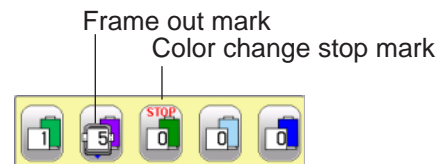
When you wish to start again, Press the  (Start/Stop button).

1. Select a color change number and

press .

The mark is displayed on the color change number.


2. Set it to the same on other color change number if necessary.



## **Selection of color change number**

Set Color change number to execute frameout.

A frame out command can be added to a design. By setting frameout to a \*Color change number in a design, you can move the frame to a desired position automatically and stop it after the machine finishes sewing of that color change number.

When you resume operation, the frame has an automatic return to previous position and you can continue sewing.  12-D

1. Select a color change number and

press .

The mark is displayed on the color change number.

2. Set it to the same on other color change number if necessary.

## ●Installing and removing the frame base

Please attach the frame base to the carriage when you wish to use a tubular embroidering hoop. Please remove it in the reverse order of installation.

1. When the machine is stopped, press





2. Press



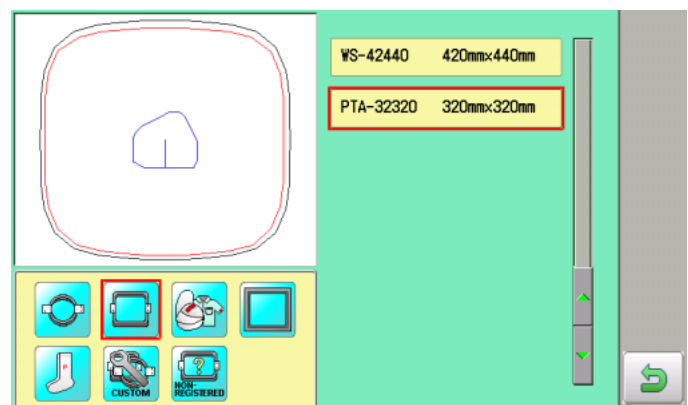
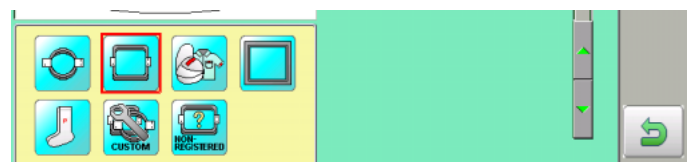
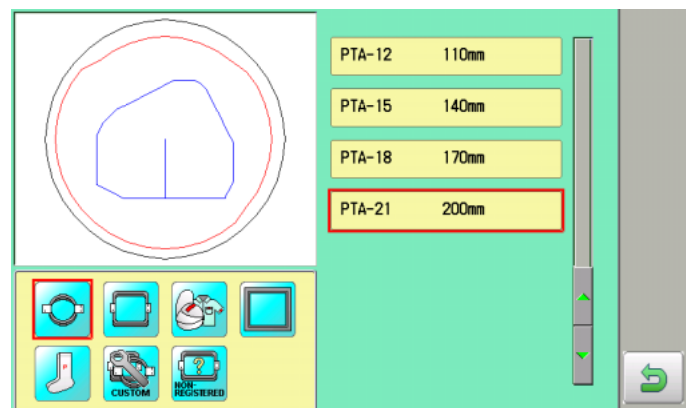
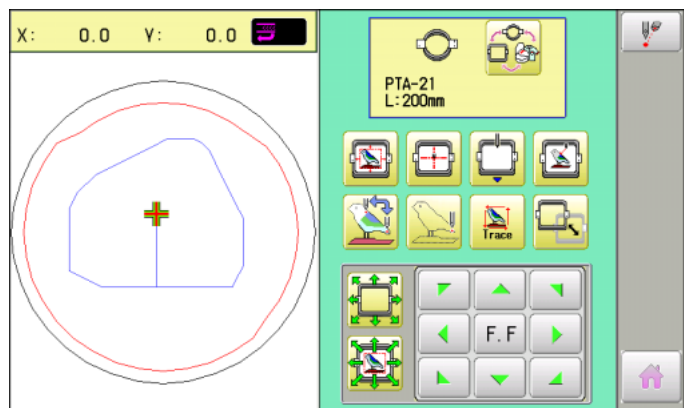
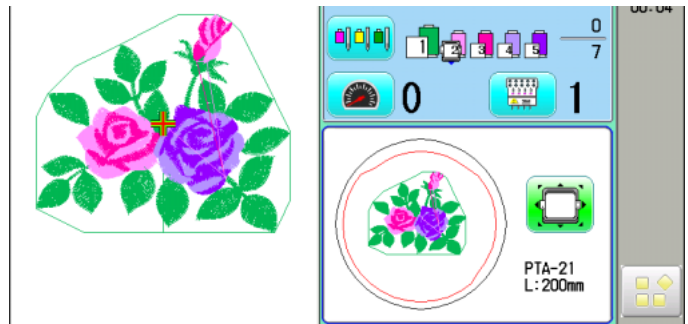
3. Select   or .

 : Tubular round frame

 : Tubular square frame

 : User-defined frame

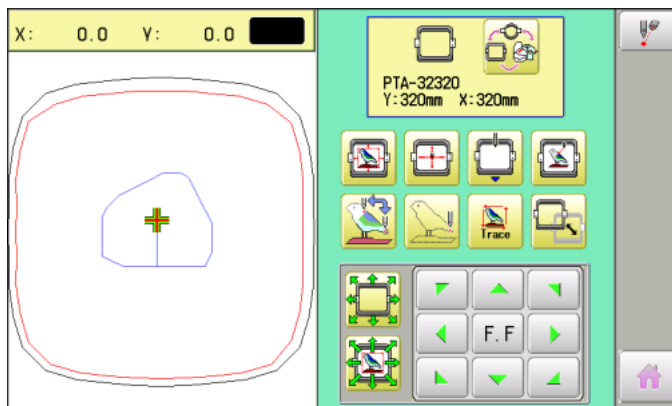
4. Select desired type of frame.



# SEWING WITH TUBULAR FRAMES

## 6-1b

5. Press the  button.

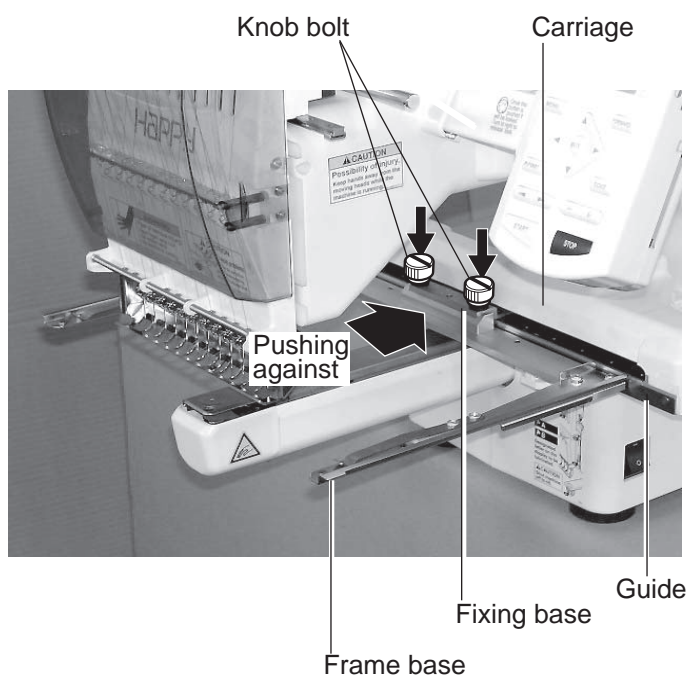


6. Move the carriage to the position shown by



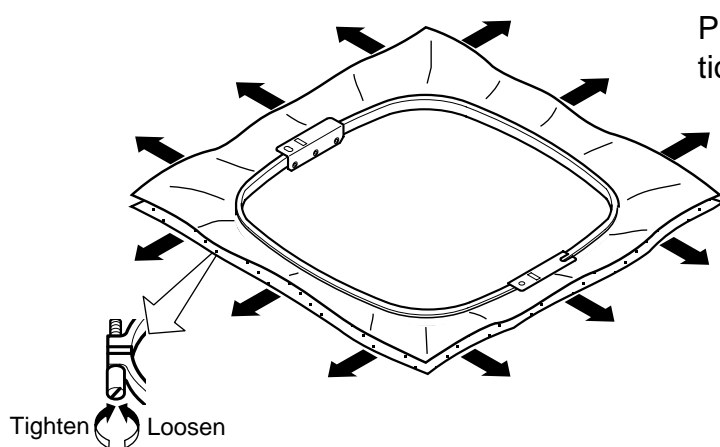
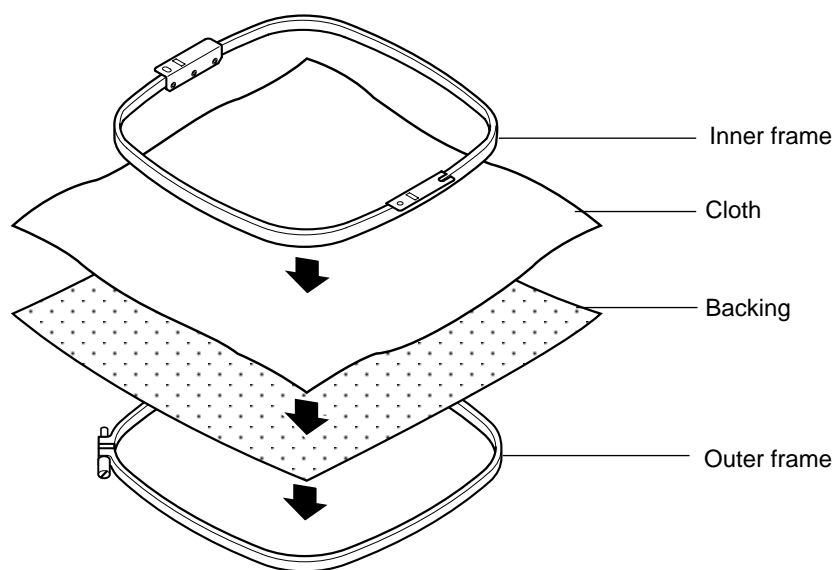
7. Place the frame base on the carriage guide and tighten the knob bolt on the tubular arm holder completely.

Move the frame base right or left when it is hard to go to the knob bolt.



Press  to return to Menu mode.

### ●How to hoop



Please smooth the embroidery cloth in all directions, but do not stretch it.

Please smooth the embroidery cloth before tightening.

## ●Putting the hoop on the machine

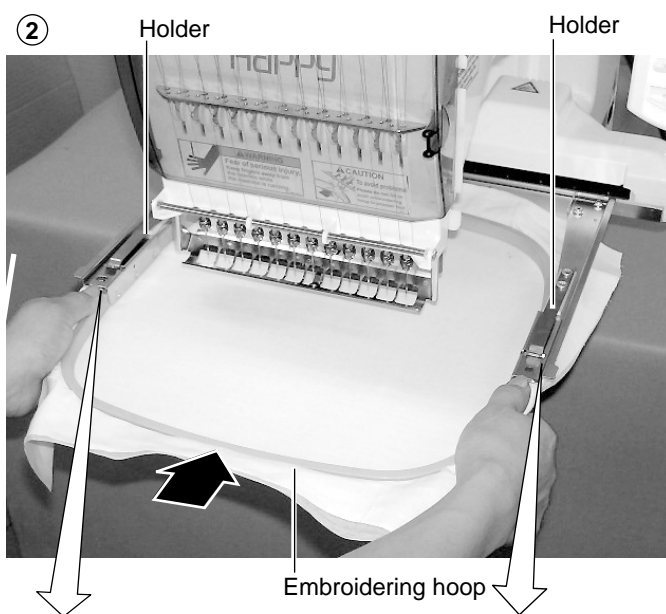
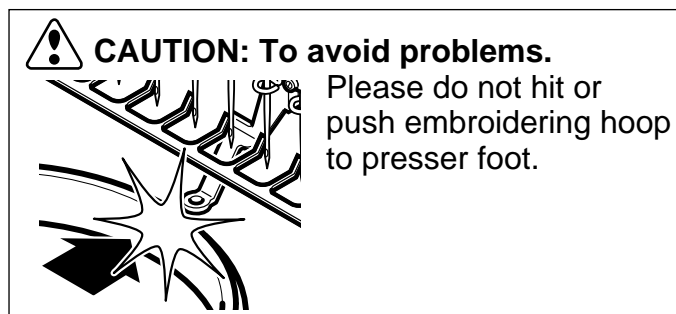
1. Move the frame base to the approximate center position before inserting the tubular embroidering frame.



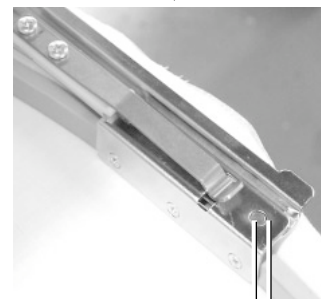
Frame base

2. Insert the embroidery frame.

Make sure that the holder pins are inserted into the positioning holes of the frame base on each side.




Positioning pin  
Positioning hole



Positioning pin  
Positioning hole



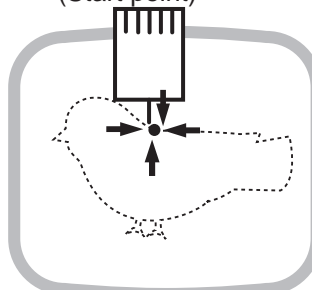
## ● Starting to embroider


1. Press the  and move the frame to the



original point with the




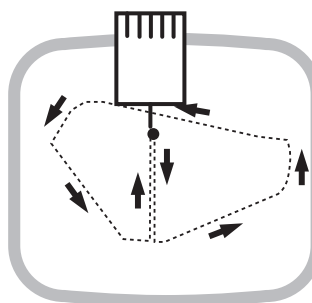
- : Original point (Start point)



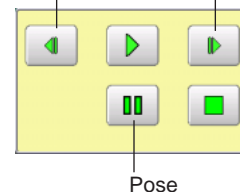
2. Press the .

Press , and the embroidering frame moves for the design trace.  14-5  
Make sure that the pressure foot and needle do not touch the frame.

Press , and trace is stopped.




Backward only when pressing  
Forward only when pressing




Go on to step 4 if you want to start embroidering without tracing.

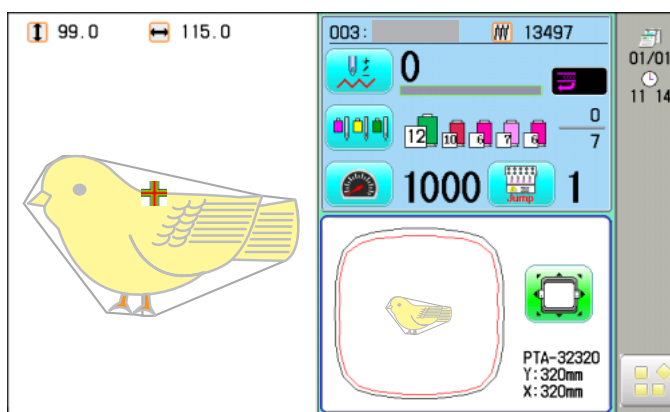
You can confirm outline trace and the position of the design.

3. Press  after the trace is completed.

The embroidering frame has moved to the first stitch point of the pattern.

4. Press the .

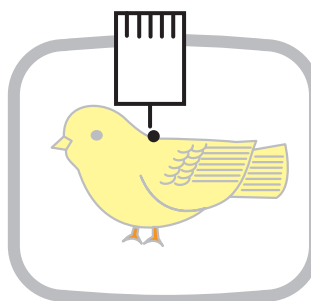
The embroidery will start.



5. After finishing your design, the display will show ">>End" and the machine will stop.

The embroidery frame returns to the original point automatically if the auto origin function has been activated.

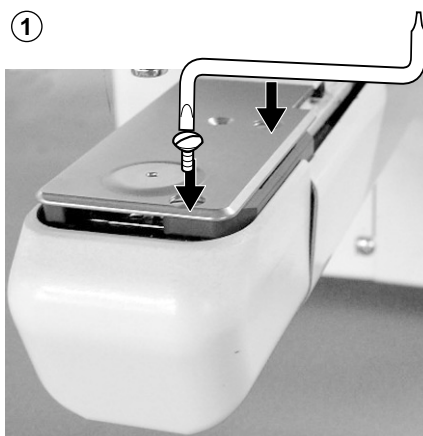
>>End



## ●Changing the needle plate

You need to change the needle plate when you embroider a cap.

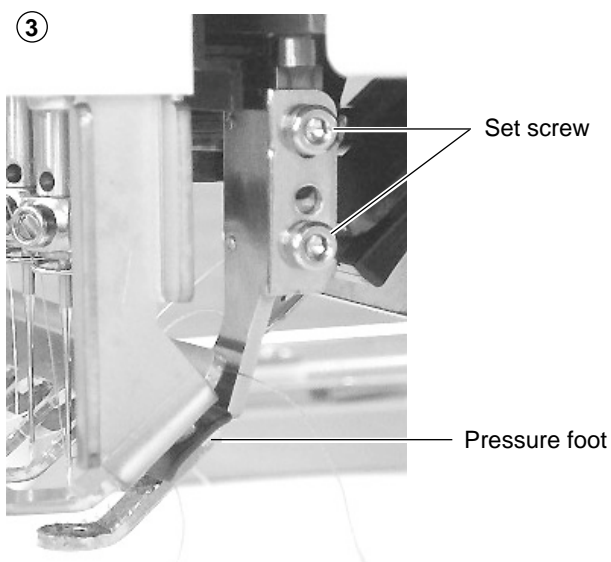
1. Remove the set screw (2 pieces) by offset driver and remove the needle plate.



2. Put the needle plate for cap on the bed and tighten with the set screw.



3. Loosen the set screw (upper side) of pressure foot and unscrew the set screw (lower side).





4. Press up the pressure foot and tighten set screw (upper side) and tighten set screw (lower side) as it shown in the diagram.



## ●Installing and removing the cap drive frame

You need to install the cap drive frame into the carriage when you embroider a cap.  
Please remove by reverse order of these step.



1. Press the  and press the .

The embroidery frame will move to the center .

**CAUTION: To prevent accidents.**  
The frame moves quickly.  
Keep hands away from the frame.



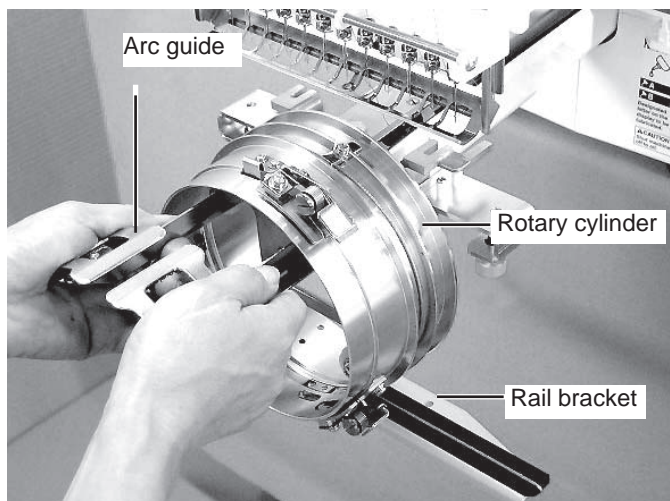
2. Turn on the power switch.



4. Hold the arc guide by hand and the rail bracket has to be faced downward, then install into the bed as showing picture.

When you hold the cap drive frame assembly, be sure to hold it by the guide.

If you hold the rail bracket, your fingers will be pout between the rail bracket and the rail bracket rotary cylinder and rail bracket can get out of place.



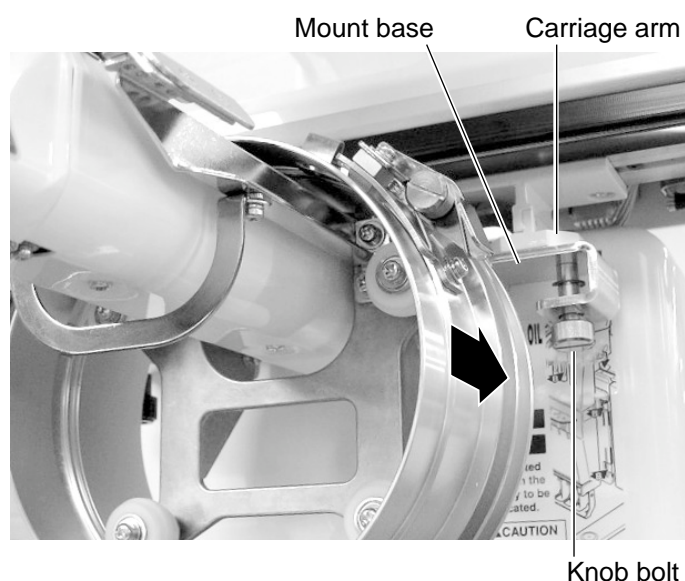
## CAP FRAME (OPTION)

7-3

5. Move the cap drive frame backwards away from you and rotate the rotary cylinder until the rail bracket is upward as shown at right.

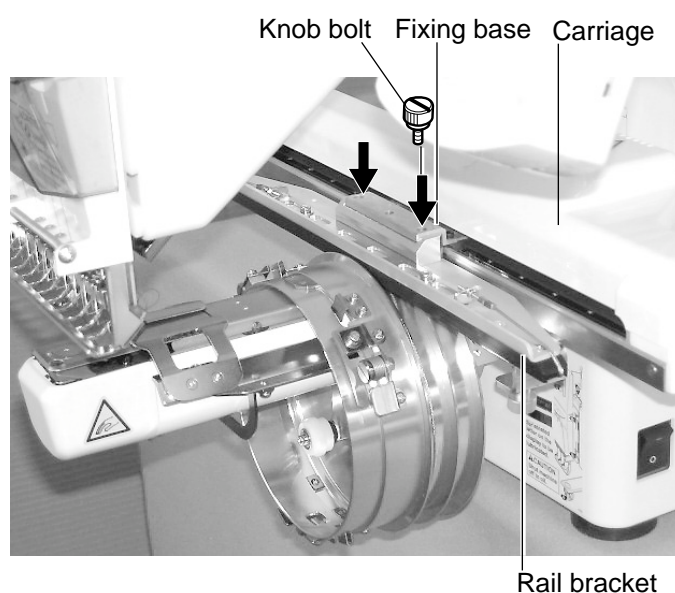


6. Move the cap drive frame in the direction of the arrow, adjust right-and-left mount base to carriage arm and fix them by knob bolts.



7. Fix the rail bracket to fixing base by knob bolts.

You can move the fixing base right or left when it is hard to get to the set screw.



8. Turn on the power switch.


Indicates the select frame.

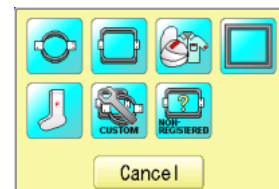


Selected frame



9. In case required Cap frame is already selected, please jump to operation no.11.

In case selected frame type is not same as your requirement, press the .



10. Select the desired frame.

11. Press the **Next**.

The embroidery frame will move to the center automatically.

**CAUTION: To prevent accidents.**  
The frame moves quickly.  
Keep hands away from the frame.





## ●Normal cap frame

### Adjustment

When you hoop a cap on the cap frame, please adjust in the following manner:

1. Adjust position of clamp support to the height of the cap. (Fig. 1)  
Adjust the height by removing the inner screws at left and right.  
  
If you adjust position of clamp support and shorten distance H, embroidery area will be reduced in Y direction (depth).
2. Adjust the clamp to fit the clamp support. (Fig. 2)  
Loosen wing nuts at left and right to adjust.

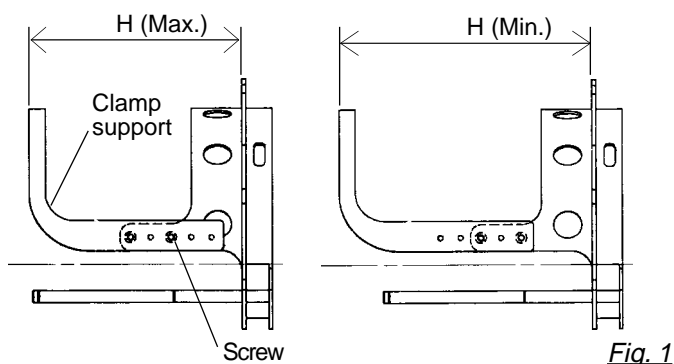


Fig. 1

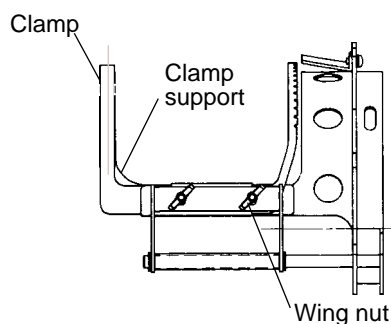


Fig. 2

3. Adjust up and down position of the hook according to the thickness of the cap to adjust clamp tension. At this moment, the hook should open and close without feeling too tight.  
(For adjustment, proceed to procedure 5 below).  
Use the wing nuts for adjustment. (Fig. 3)

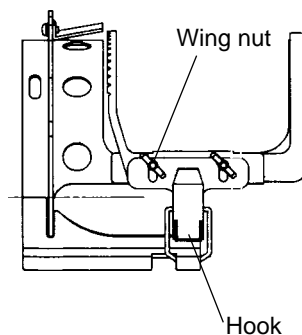


Fig. 3

If the hook is extremely tight, it will damage the cap frame permanently.

4. Put the cap frame without a cap to cap drive on the machine.  
(Please refer to operation 8 "Hooping caps" on next page for mounting).  
At this time, adjust so that guide on cap drive frame doesn't strike clamp support and gap is reduced as small as possible.  
Remove screws at left and right to adjust. (Fig. 4)

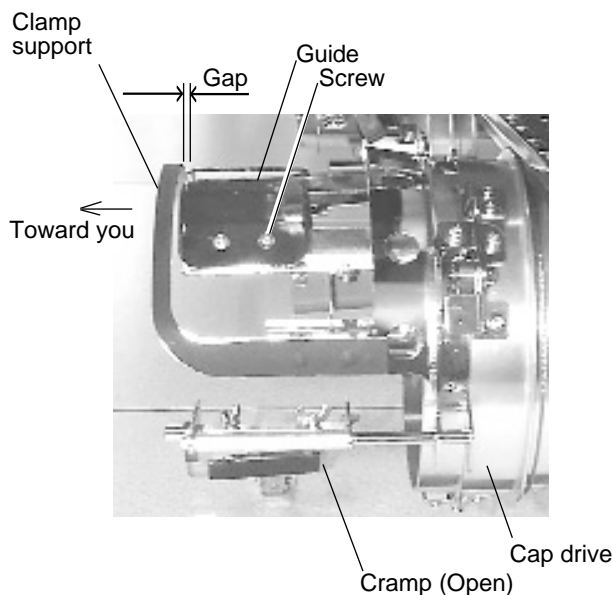


Fig. 4

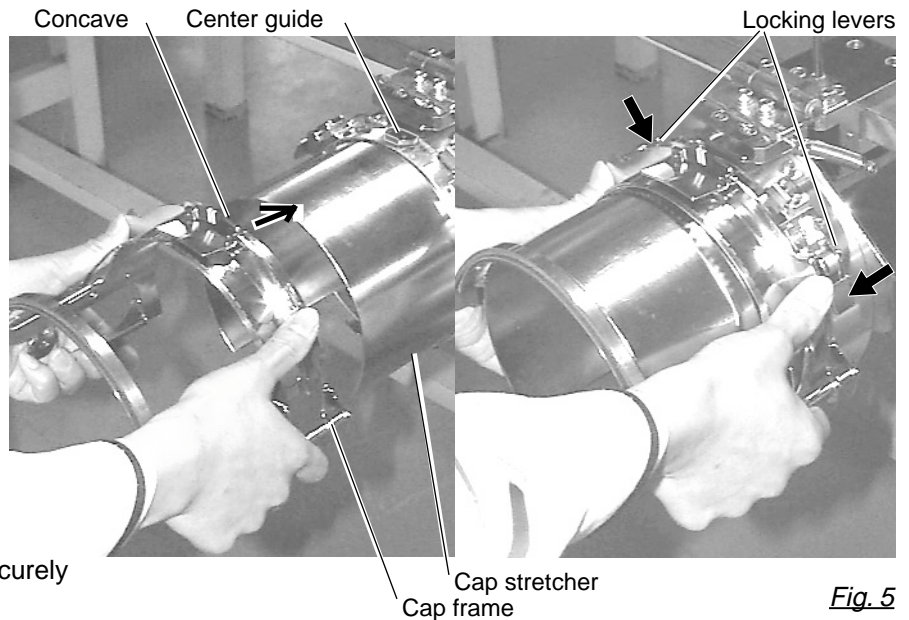
# CAP FRAME (OPTION)

7-6

## Hooping caps

1. Place cap stretcher securely on a sturdy work bench.
2. As shown in Fig. 5, hold cap frame with both hands and place on cap stretcher. By pushing locking levers at 2 places with fingers, place cap frame so that center guide of cap stretcher fits in concave area of cap frame.

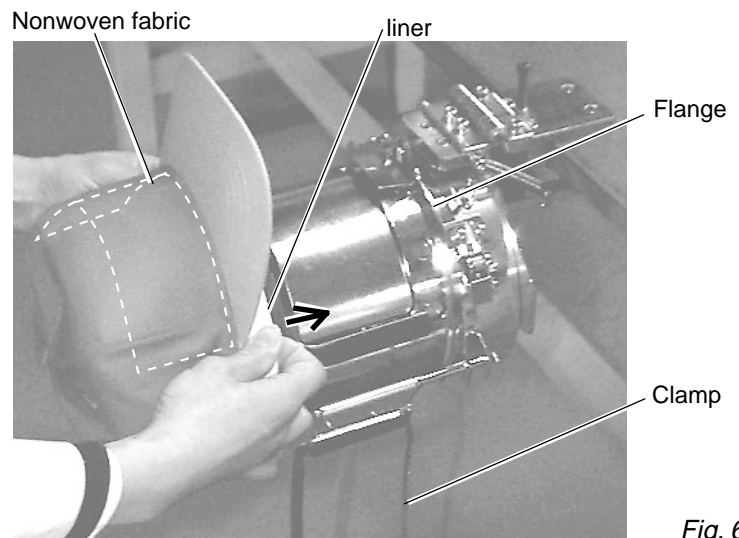
Confirm that the cap frame is securely placed on cap stretcher.



*Fig. 5*

3. As shown in Fig. 6, open clamp and keep open to the right.
4. Turn the sweatband of the cap inside out a slide onto the cap frame as shown. Place it so that the edge of the sweatband contacts the flange of the cap frame.

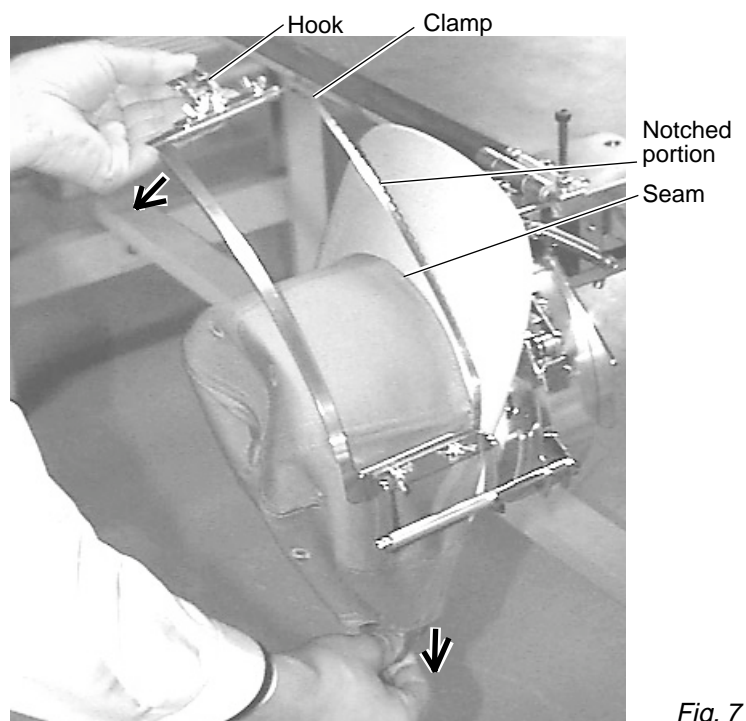
Please place one or two sheets of non-woven fabric (backing) of standard thickness under unstructured caps.



*Fig. 6*

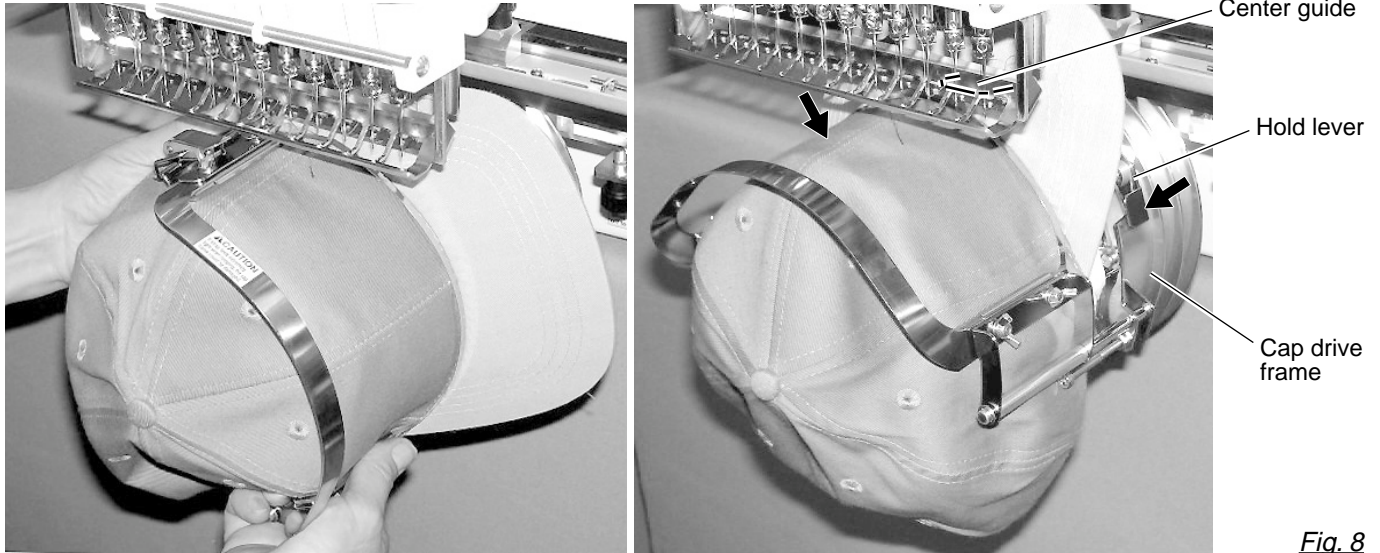
5. As shown in Fig. 7, pull back part of cap and hook it on the hook and smooth out creases on cap. At this time, align the center of the cap to the center mark on the cap frame so that notched portion of the clamp fits into the seam of the visor.
6. Latch the hook, taking care not to cause wrinkles in the cap.

If you can't get rid of wrinkles on the cap, adjust the cap frame again according to "Adjustment" on the previous.



*Fig. 7*





*Fig. 8*

7. Remove the cap frame from the cap stretcher.
8. As shown in Fig. 8, place the cap frame on cap the drive frame.  
You will have to rotate the brim of the hat to the side in order to get past the needle case.  
Then, push the holder lever in the 2 places shown, and place the cap frame on so that the center guide of the drive frame assembly fits into the cap frame notch.

Confirm that the frame is firmly seated on the cap drive frame assembly without any gaps.  
If there is a gap between the cap frame or the cap drive holding lever doesn't go into the hole of the cap frame, loosen the set screw on the hold lever for adjustment.

## ●Wide cap frame

### Adjustment

When you fix cap to cap hold frame, please adjust in the following manner.

Make sure to do the adjustment of the cap hold frame. If it is not adjusted properly, it may cause the deformity, damage of the cap, damage of the cap hold frame and break of the cap grip.

After adjusting the cap hold frame, make sure the cap to be set properly.

1. Adjust the length of the cap grip to suit the thickness of the fabric. At this moment, hook should open and close without feeling heavy.  
(For the adjustment follow the next page "Hooping caps" item 1 to 5.)  
The adjustment to be done by two adjusting screws. (Fig. 1)

If the cap grip is loose, even after hooked the cap is not fixed tightly and the cap is moving. (Fig. 2)

If the cap grip is too tight, you feel heavy when it is hooked and the grip bites into the cap too much. (Fig. 3)

If you feel hook extremely heavy in opening and closing, there is a case that cap hold frame will lose its shape or damage.

2. Adjust the guide position to suit the height of the cap.  
Remove screws at left and right to adjust. (Fig. 4)

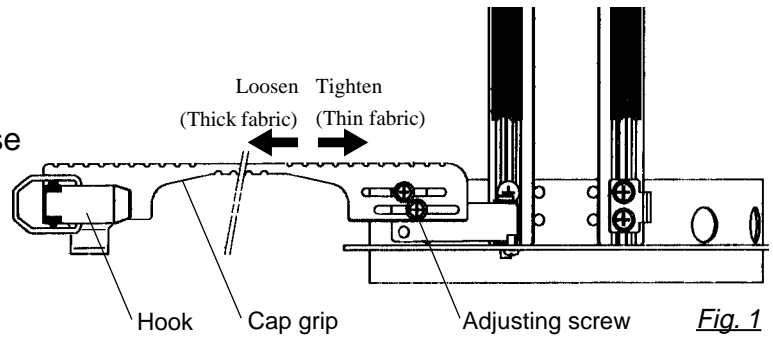


Fig. 1

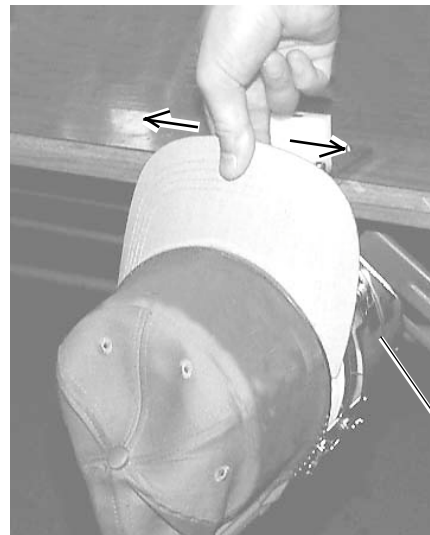


Fig. 2



Fig. 3

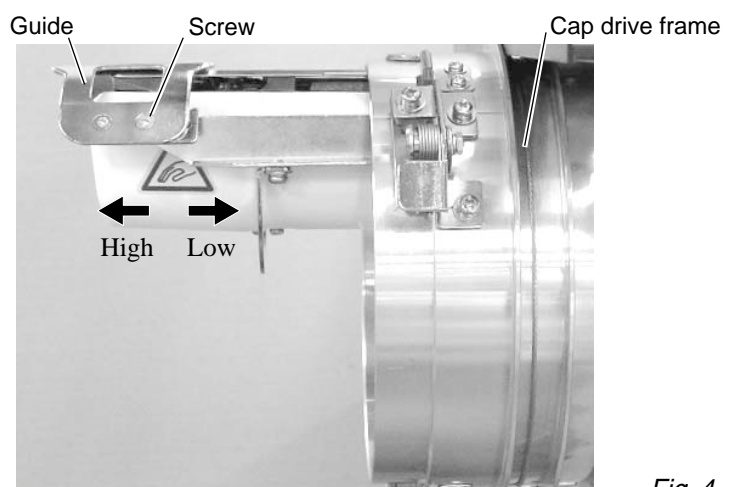


Fig. 4

# CAP FRAME (OPTION)

7-9

## Hooping caps

1. Place cap stretcher securely on sturdy work bench.
2. As shown in Fig. 1, hold cap hold frame with both hands and place on cap stretcher. By pushing hold lever at 3 places in arrow marks with fingers, place cap hold frame so that center guide of cap stretcher gets in concave of upper cap hold frame.

Confirm that cap holder frame is securely placed on cap stretcher without gap.

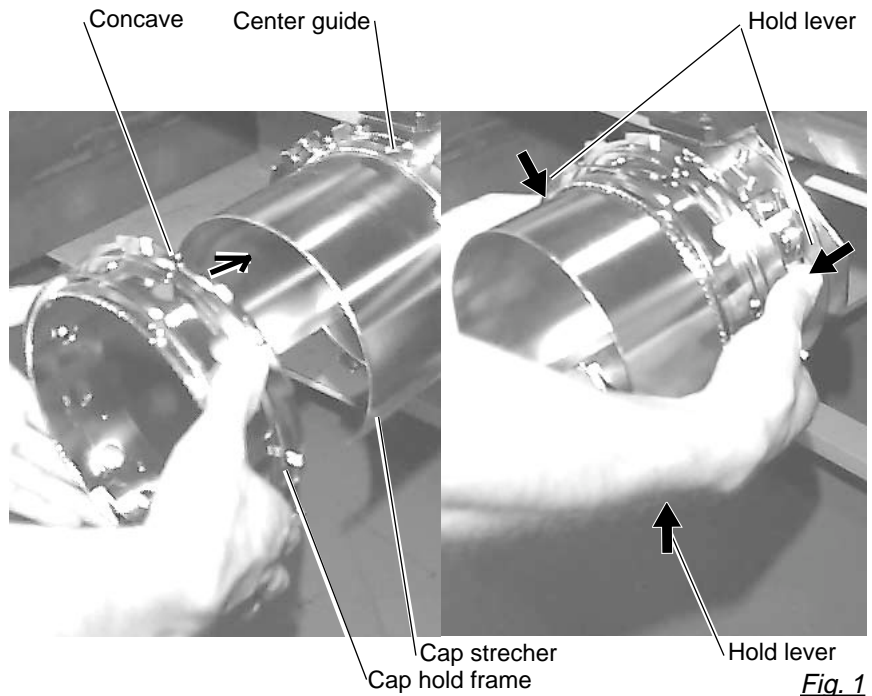


Fig. 1

3. As shown in Fig. 2, remove cap grip and keep open to the left.
4. Extend fore half of liner inside cap toward outward and place on cap stretcher. At this moment, place it so that tip of liner contacts flange of cap hold frame.

Please place one or two sheets of nonwoven fabric (backing) of standard thickness under unstructured caps.  
The length of nonwoven fabric should be some as one of round of cap.

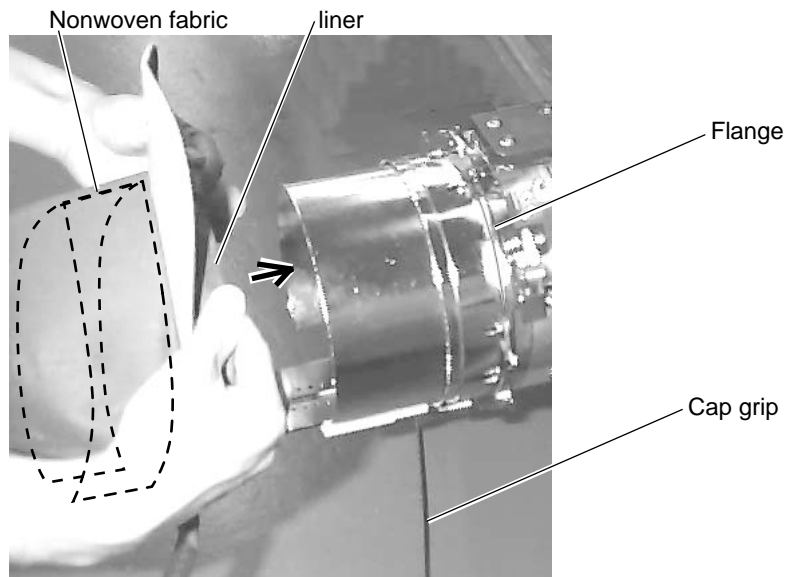


Fig. 2

5. Place hook of the cap grips. At this moment, set center of cap to center mark on cap hold frame so that notched portion of clamp gets into seam of visor. Close hook.

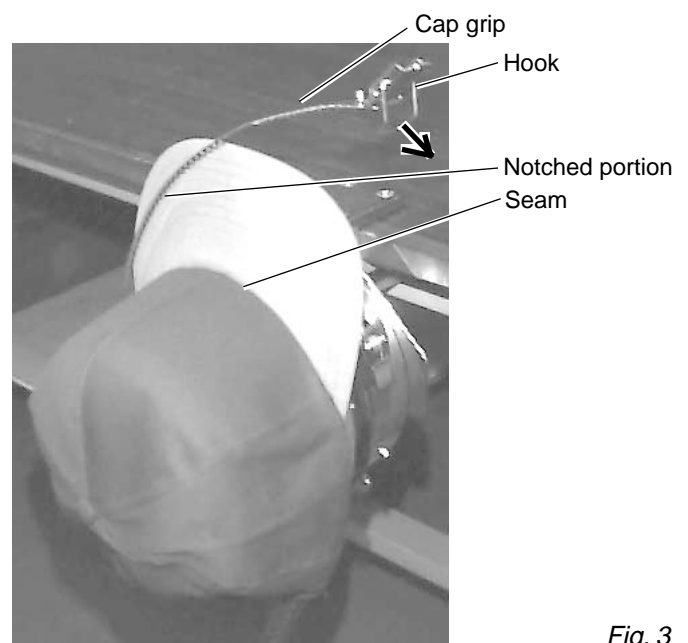


Fig. 3

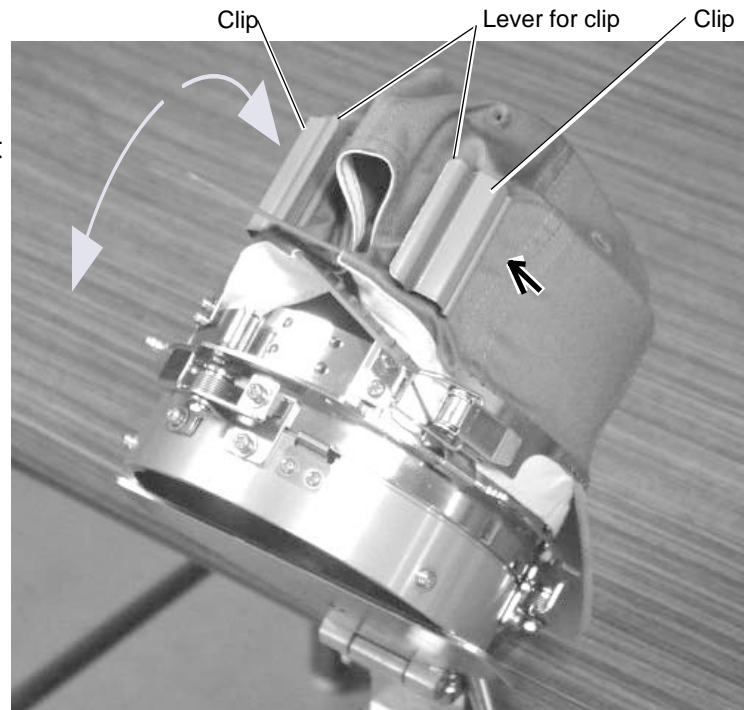


## CAP FRAME (OPTION)

**7-A**

6. As shown in Fig. 4, tip the cap stretcher forward. Clip the back of the cap in two places by stretching the crease out as shown by the arrows.

Make the clip lever face the inside.



*Fig. 1*

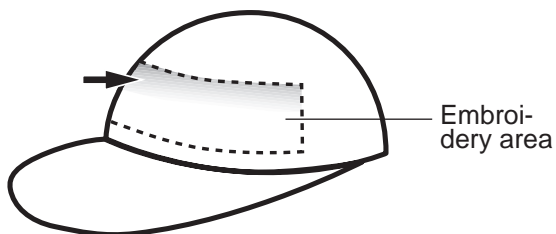


*Fig. 2*

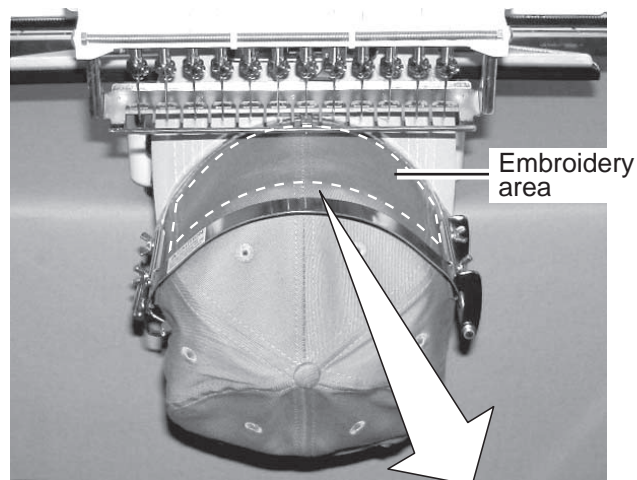
7. Remove the cap holder frame from the cap stretcher.
8. As shown in Fig. 5, place the cap holder frame the cap drive frame assembly. Push the hold lever in at 3 places as shown by the marks and place the cap holder frame so that center guide of the drive frame assembly gets in the upper cap holder frame.

Confirm that the cap holder frame is firmly attached to the cap drive frame assembly without any gaps. If there is a gap between cap holder frame and the cap drive frame, or hold lever doesn't go into hole on the cap holder frame well, loosen the set screw on the lever to adjust.

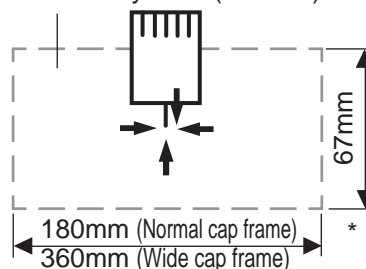
## ●Starting to embroider




There is a case that the upper part of the cap cannot be embroidered satisfactory depending on shape of a cap.  
We recommend to change design position or reducing size of the design.  
Refer to the instruction book of "Happy Link" to reduce the size of the design.



Embroidery area (Max. \*1)






\* The actual embroidery area will be restricted by the design and shape of a cap.

1. Press  and move the frame to the

original point of pattern data by




2. Press the .

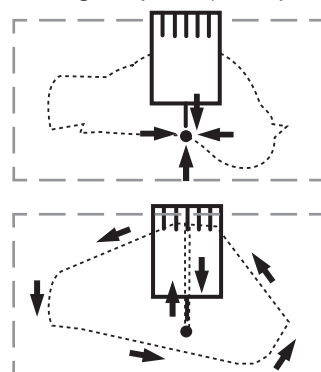
When you press the , the frame will start moving for the design trace.  14-5  
Make sure that the pressure foot and needle does not touch the frame.

When you press the , the machine will stop.

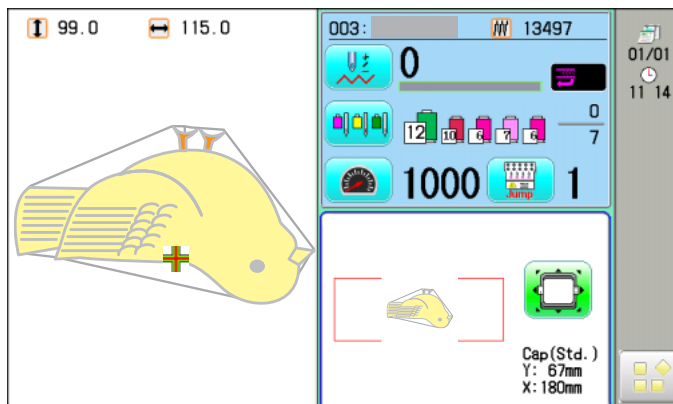
Go on to step 4 if you want to start embroidering without tracing first.


3. Press the , the design trace finished.

●:Original point (Start point)



You can confirm the outline and position of design.




4. Press the .

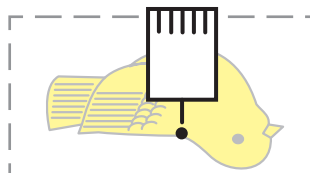
Embroidery will start.

5. After finishing your design, the display will show ">>End" and the machine will stop.

>>End

The embroidery frame will return to the original point automatically if the auto origin function has been activated.  12-7

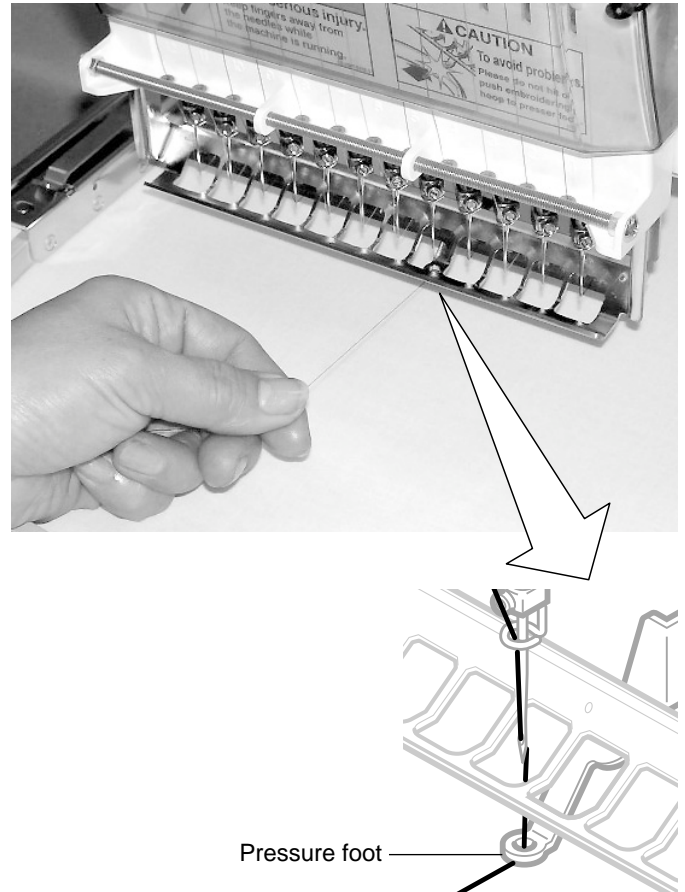
●:Original point (Start point)



# ADJUSTING THE THREAD TENSIONS

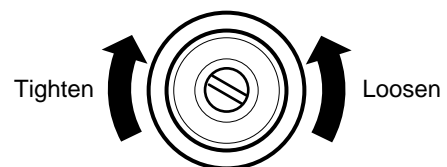
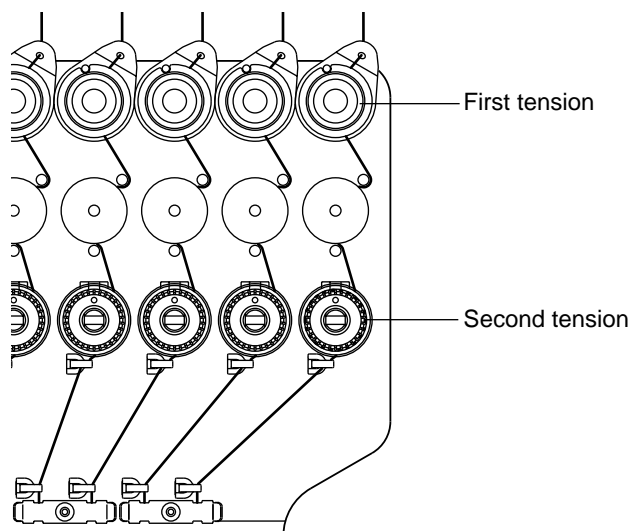
## 8-1

1. With the thread going through the hole of the pressure foot, pull it out slowly toward the front.



2. Adjust the Minor thread tension by the first tension knob and then the second Thread tension knob.

According to the type of upper thread and cloth.





# ADJUSTING THE LASER POINTER (OPTION)

## 8-2

Laser pointer indicates the needle position.

The beam of laser is coming from right upper side, thus the position of laser pointer can be changed depending on the height of surface of fabric.

Please adjust then angle of laser pointer depending on thickness of fabric and type of frame

1. For switch ON laser pointer, Press the



and press the on the submenu.

For switch OFF laser pointer, press the .



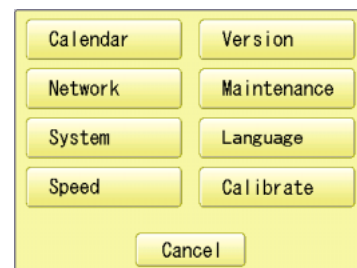
**CAUTION: Laser beam (Class 1)**

Do not stare into the beam.

2. Press to return to Drive mode, and  
press and set a position of moving  
head to needle No. 1.

3. Set fabric on the frame, then put white  
paper to the position of needle and fix by  
Scotch tape.

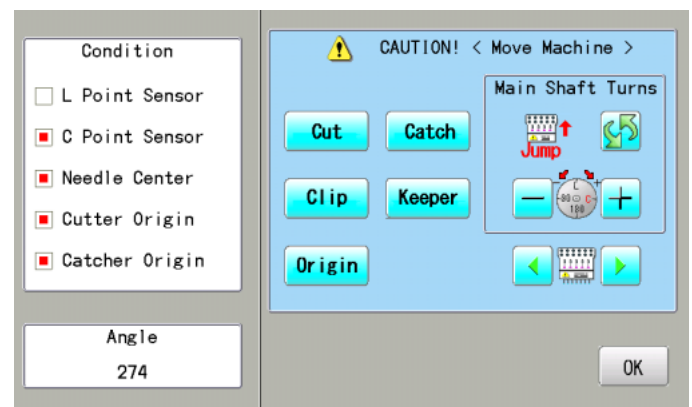
4. Press the and press the .



5. Press the .

6. Press to cancel "Jump".

7. Press and keep until needle reaches to  
the paper and makes hole.



**CAUTION: To prevent accidents.**  
The needle will penetrate the fabric.  
Please keep your hands clear for your safety.

## ADJUSTING THE LASER POINTER (OPTION)

8-3

8. Little loose the "Fixing screw for X" and move the screw head up and down for adjust red laser mark point to needle point mark.

9. Little loose the "Fixing screw for Y" and move the screw head up and down for adjust red laser mark point to needle point mark.

10. Fix the fixing screw for X and the fixing screw for Y.

11. Check the hole position on paper and the point of laser beam, and take paper out.

12. Press the **END** .

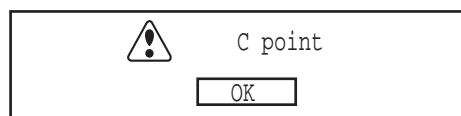
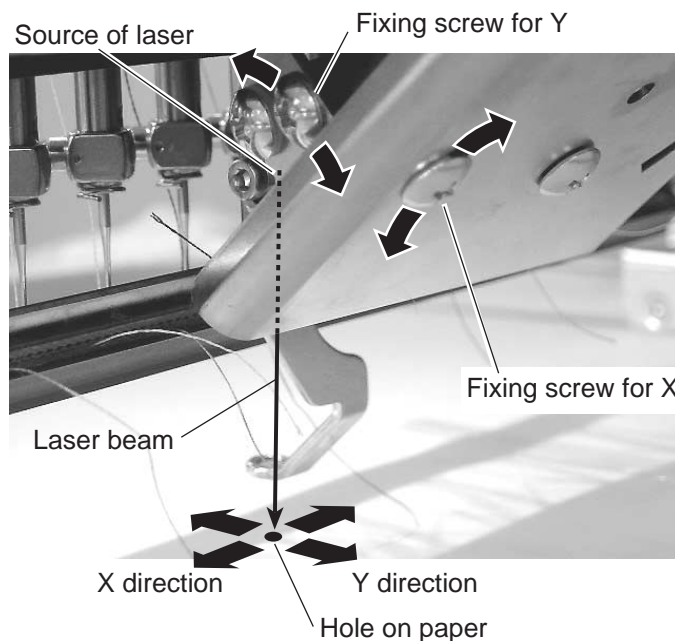
13. Press the **OK** .



**CAUTION: To prevent accidents.**  
The needle will penetrate the fabric.  
Please keep your hands clear for your safety.

14. Press the **END** .

Press  to return to Menu mode.



## ●What to do if the thread breaks while sewing

If the thread breaks or runs out while sewing, the machine senses the break, stops, and moves back several stitches from the break point.

(This prevents open sections in the design when sewing is resumed. See the thread break section. P5-1)

### If the upper thread breaks

Thread the upper thread again.

(Refer to P4-6)

### In case bobbin thread breaks

Thread lower thread again.

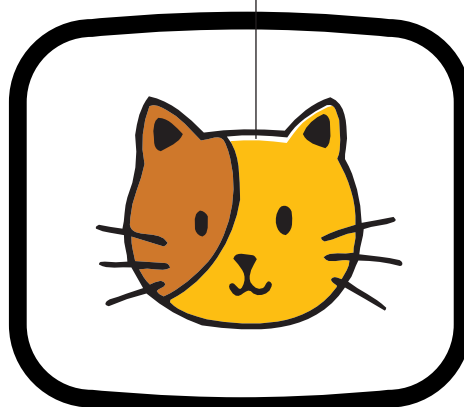
(See bobbin winding P4-5)

## ●Stopping and resuming sewing


If you need to turn off the machine in the middle of a design, you may resume from the stop point after turning on the machine back on.

■ If you leave the machine off for too long, the fabric may distort which will create gaps in the embroidery design.

Example: An unsatisfactory gap between lines because the machine stopped at a half point in embroidery and the material shrunk.



### To suspend sewing

1. Stop the sewing by pressing the  button.

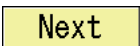
2. Press the  button.

The needle will go down and trim the thread.


3. Turn off the power switch.


### To resume sewing again from the last sewn position:


4. Turn on the power switch.


5. Press the  button.

After the carriage and frame move slightly, the embroidery frame will return to the previous position automatically.

6. Press the  and back up several stitches from the stop point by pressing the

 3-4 times.

7. Press the .

8. Start sewing again by pressing the .

>>Stop Switch



WELCOME

KEEP CLEAR : CARRIAGE WILL MOVE!

NEXT



**CAUTION: To prevent accidents.**  
When performing a thread trim, be careful of the needle which will pierce the fabric.



**CAUTION: To prevent accidents.**  
The frame moves quickly.  
Keep your hands and body clear of the machine.

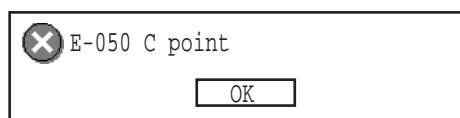
## ● Loss of power while embroidering

If you have a power failure while embroidering, follow these instructions and you can restore the position of the frame and the pattern data to its state before the failure.

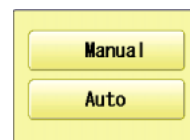
1. Turn on the power switch.



2. Press the **Next** button.



3. Press the **OK** button.



4. Press the **Auto** button.

The main shaft will make one rotation and stop at the "C" point (proper stop position).





5. Press the .


The needle will go down and trim the thread.

6. Press the **Next** button.

After the carriage and frame move slightly, the embroidery frame will return to the previous position automatically.

6. Press the  and back up several stitches from the stop point by pressing the  3-4 times.

7. Press the .

8. Start sewing again by pressing the .



### CAUTION: To prevent accidents.

When performing a thread trim, be careful of the needle which will pierce the fabric.



### CAUTION: To prevent accidents.

The frame moves quickly.  
Keep your hands and body clear of the machine.

## ●Moving the hoop while embroidering and then returning to the correct location (Position)

If you wish to move the embroidery frame in the middle of the design, follow these steps:

1. Stop the sewing by pressing the .

>>Stop Switch

2. Press the  and move frame with



3. Press the .

The frame will automatically return to the previous position.



**CAUTION: To prevent accidents.**  
The frame moves quickly.  
Keep hands away from the frame.

4. Press the .


## ●Moving back to the starting point (Origin)


The frame returns to the origin point (beginning position of design).

**CAUTION: To prevent accidents.**  
The frame moves quickly.  
Keep hands away from the frame.


1. Press the  and press the .

The frame will move to the origin point and the pattern data will return to the start point.

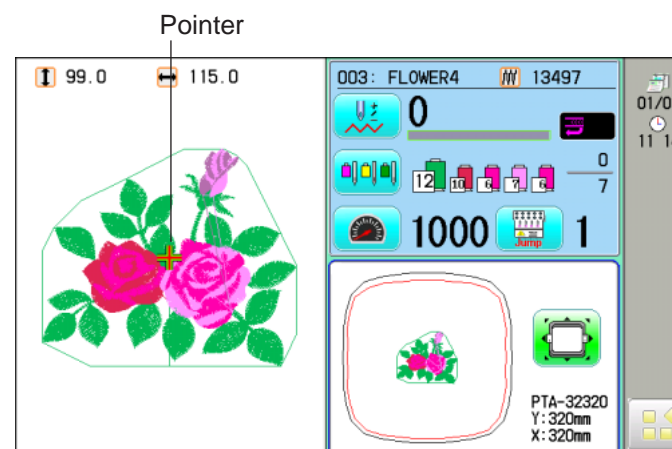
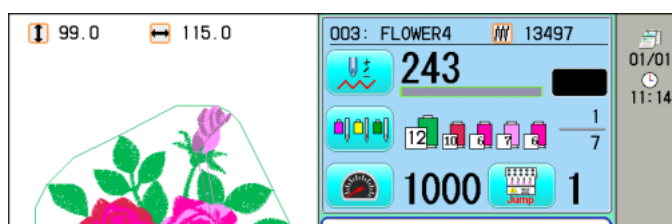
 (Top) will be shown on the display.

Press  again to go return to the previous point



 (Top) will be cleared on the display.

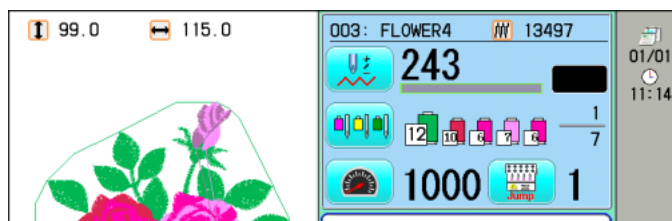
2. Press the .



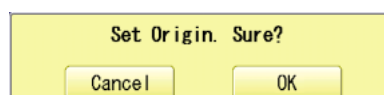
## ●Going back to the beginning of the design (Top)


Stopping sewing in the middle of a design, changing the design's location in the hoop, and then restarting from the beginning.

If you use "Top", you will return to the start point the frame position left where it is.





1. Press the  and press the .

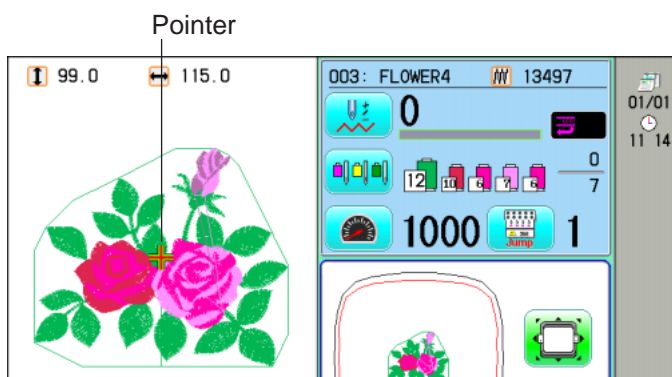


2. Press the .

The pattern data will return to the start point.


 (Top) will be shown on the display.

3. Press the .




## ●Placing the design in the center of the selected embroidery frame (Center)

Move embroidery frame position to the center automatically.


 **CAUTION: To prevent accidents.**  
The frame moves quickly.  
Keep hands away from the frame.

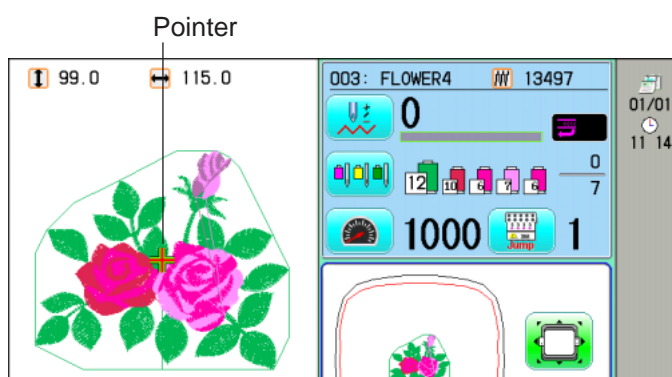
1. Press the  and press the .

The embroidery frame will move to the center automatically.

If you want to get back to the previous status from "Center". Do procedure of  "Position".

 9-3

2. Press the .





## ●Rotating and mirroring designs (Convert)

Convert selected pattern data.

### Setting example



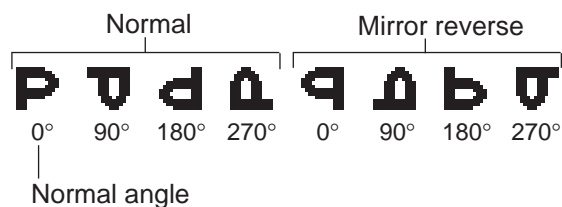
Normal



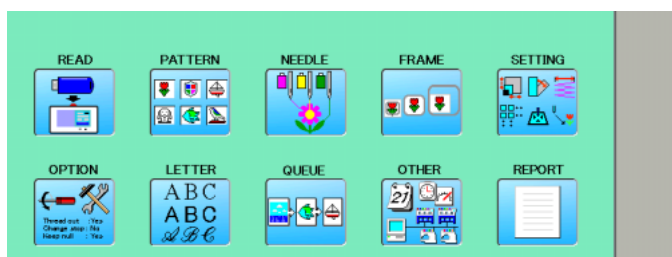
Mirror reverse + 90°

With the start point of pattern as a pivot, the machine changes the angle in 90 degree increments.

● : Start point of pattern

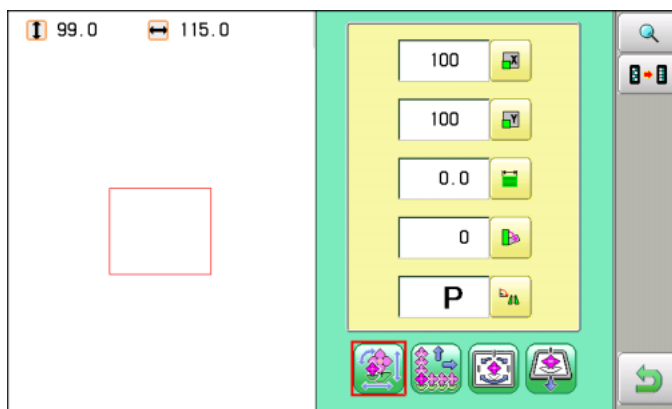



1. When the machine is stopped, press the



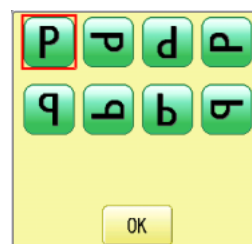
2. Press the  "SETTING".


The left side shows the number, scale of the current pattern.



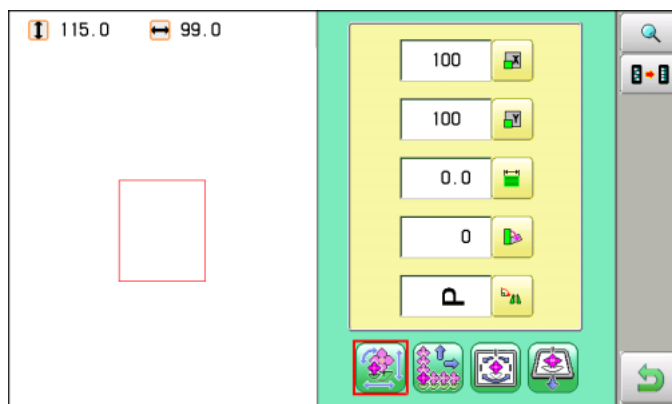
3. Press the .

The left side shows the number, name and details of the current pattern.



3. Press the  to select conversion of position required.

The setting is fixed.



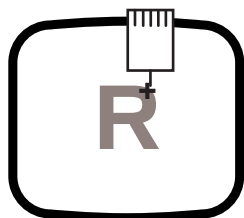
Press  to return to Menu mode.

## ● Starting in the middle of a design (POSITION)

This function allows you to go directly to a stitch number or a color change and positions the hoop correctly.

### Stitch (Number of stitches )

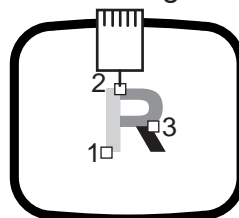
This moves the frame to any stitch number desired.



+ : Any stitches

### Change (Color position )

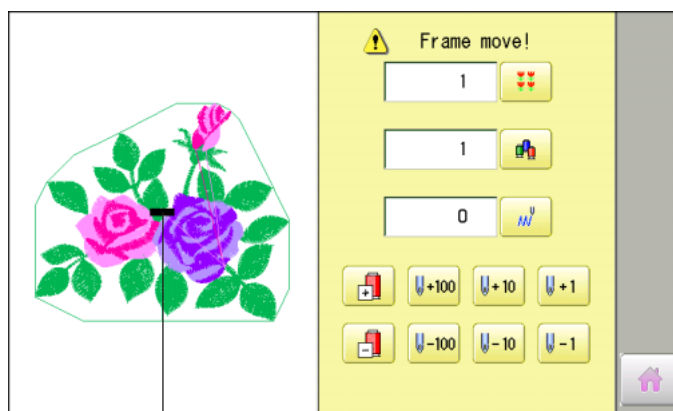
This moves the frame to the beginning of any Color change number.




□ : Beginning of any couloir number

## Stitch

1. Press the  "Frame forward".



Pointer shows you the current position of the frame.

2. Press the .

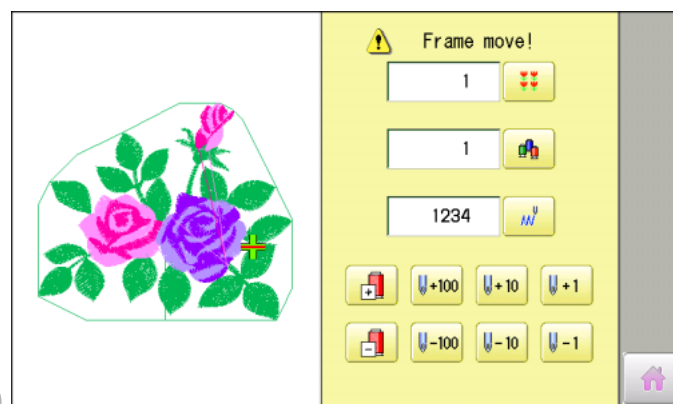


3. Input the stitich number and press .

The frame will move to the selected stitch number position.



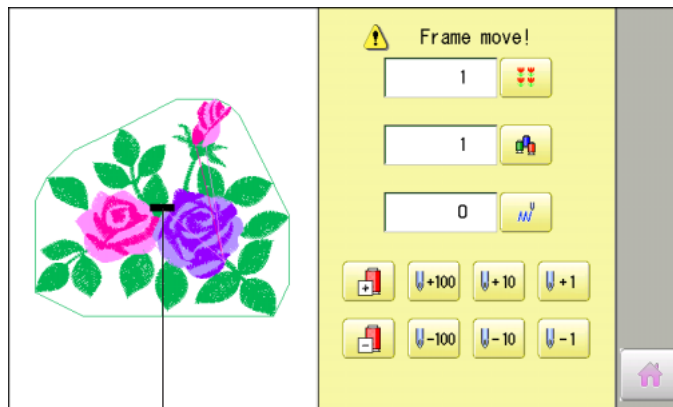
**CAUTION: To prevent accidents.**  
The frame moves quickly.  
Keep hands away from the frame.




Press  to return to Menu mode.

## Change

1. Press the  "Frame forward".




Pointer shows you the current position of the frame.

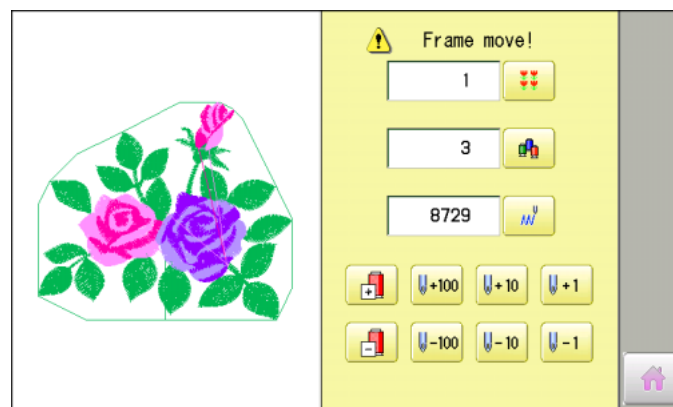
2. Press the .



3. Input the stitch number and press .

The frame moves to the selected color position.


 **CAUTION: To prevent accidents.**  
The frame moves quickly.  
Keep hands away from the frame.

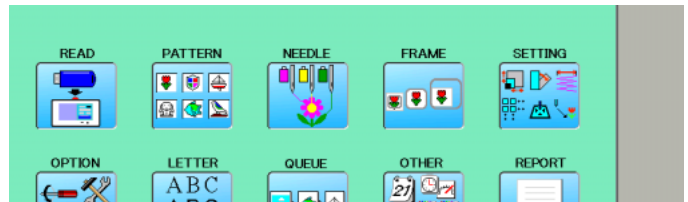


Press  to return to Menu mode.

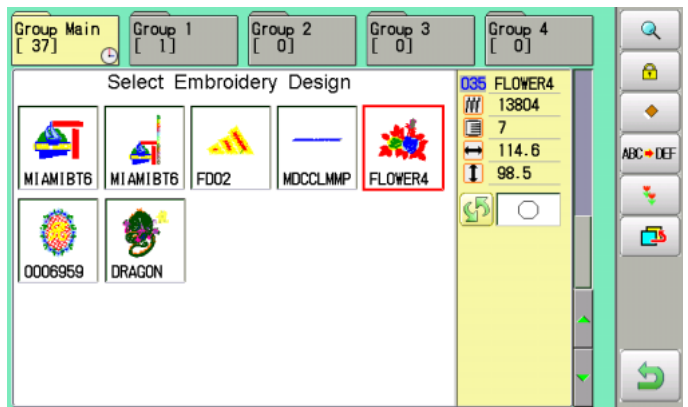
## ● Locking pattern data

Locking pattern data stored in the machine memory will prevent deletion and changes in settings.

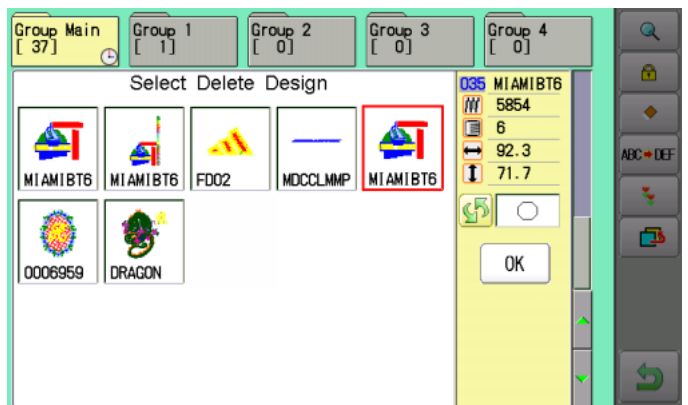
1. When the machine is stopped, press .



2. Select "PATTERN".

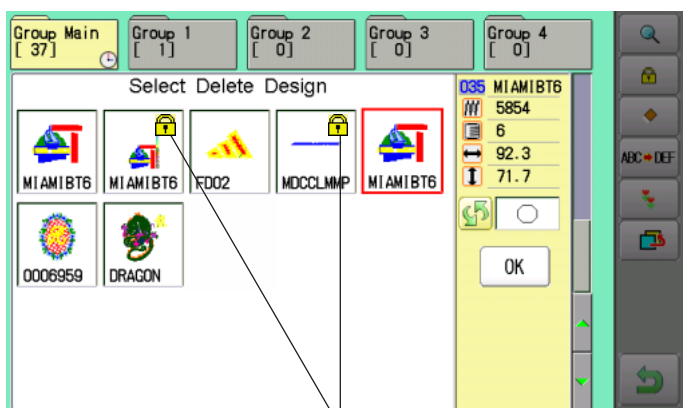


3. Press  from right submenu.




4. Select desired pattern.

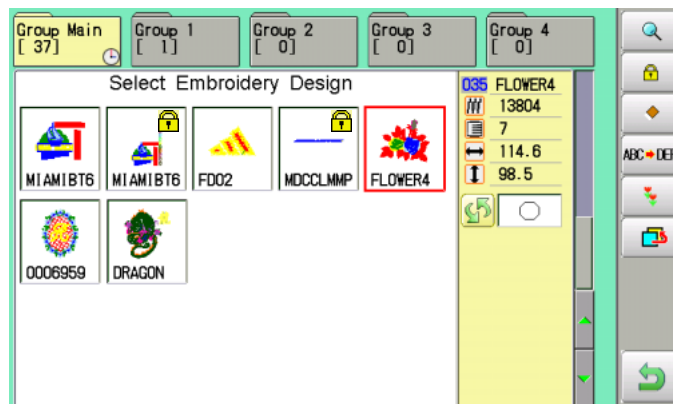
Mark will appear left of the pattern.  
Make will be cleared by press it again.  
Multiple pattern data can be selected.




Mark

5. Press the .

Repeat steps 4 and 5 to unlock.



Press  to return to Menu mode.

## ● Trace type

Changing the trace type of the pattern data in the machine memory. 14-5

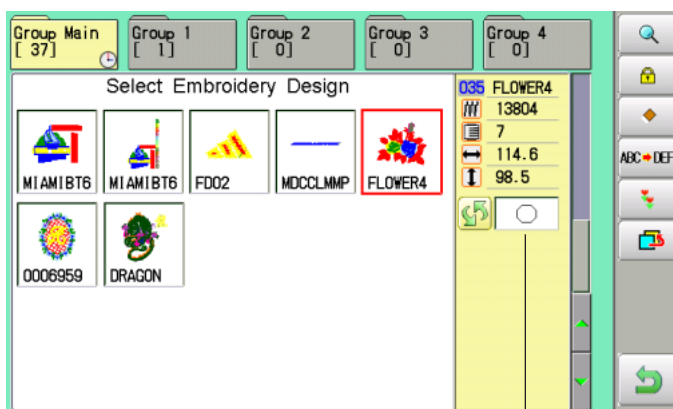
1. When the machine is stopped, press .



2. Select "PATTERN".

3. Select desired pattern.

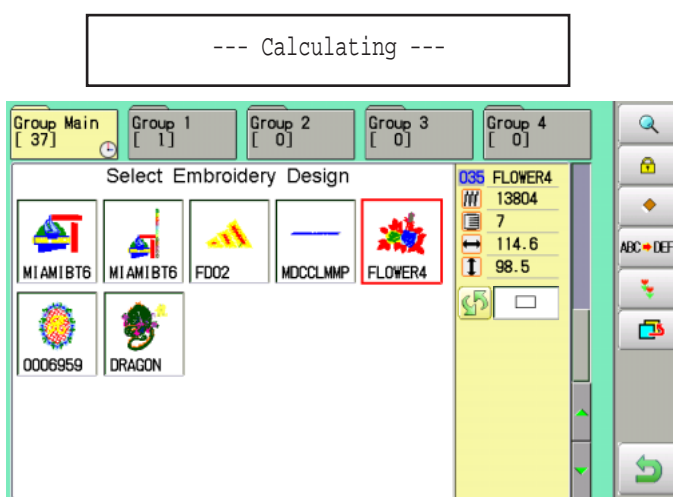
- Maximum embroidery area of pattern  
 Outline of pattern



Trace type

4. Press and select or .

Trace type is changed.




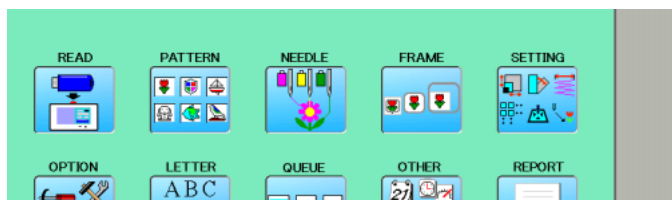
Press to return to Menu mode.



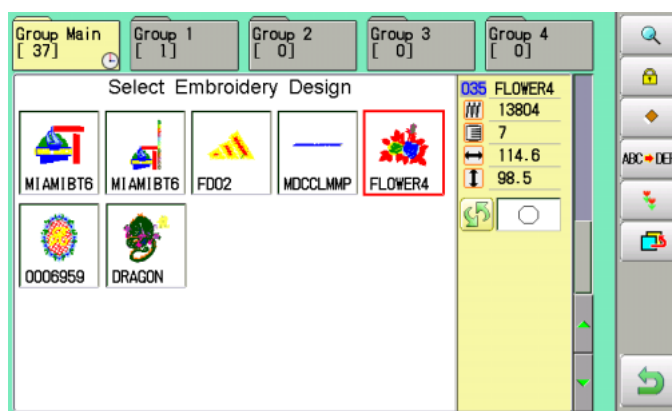
## ●Export

You can write out of machine memory to a memory media.

1. When the machine is stopped, press .

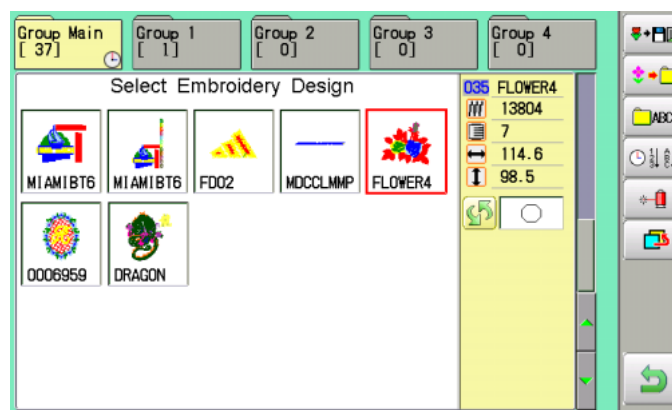



2. Select "PATTERN".



3. Select desired pattern.

4. Press  from right submenu.



5. Press  from right submenu.

The name of the pattern will be shown.



7. Press **SAVE** if the pattern name is not to be changed.

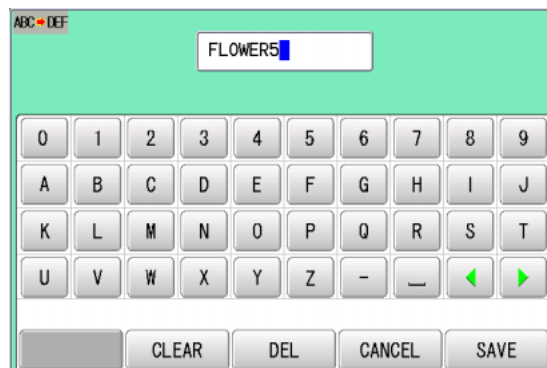
Choose the column with **◀ ▶**.

Then select each digit in the existing name.

Select word and press **SAVE**.

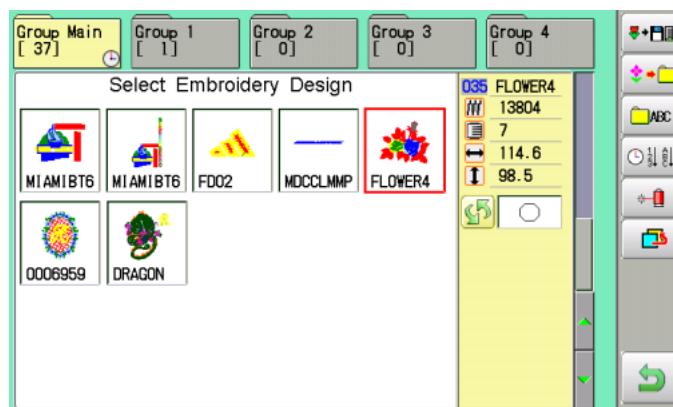
The maximum number of characters in a design name is eight letters or numbers.

- CLEAR** All the letters and/or numbers are deleted.
- DEL** Selected letter or number is deleted.
- CANCEL** Pattern export is cancelled.



The display returns to the view of Step 5.


The pattern data will be written.

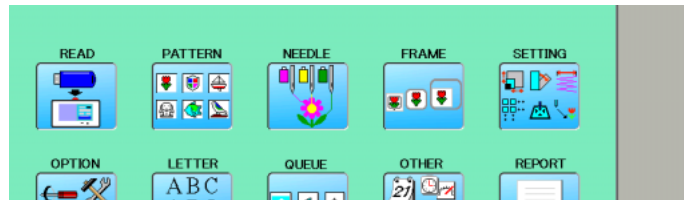


Press **↶** to return to Menu mode.

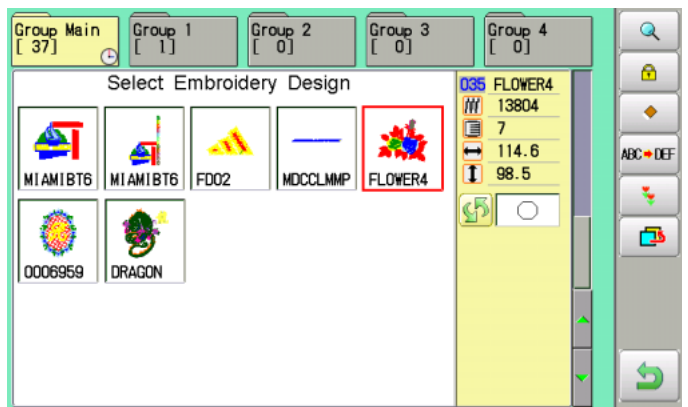
## ●Renaming patterns

Rename pattern in memory.

1. When the machine is stopped, press .

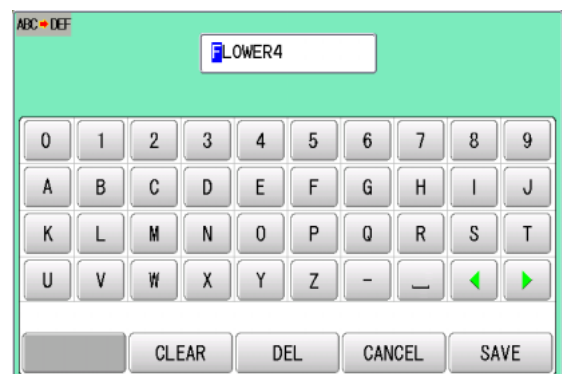




2. Select "PATTERN".






3. Select desired pattern.

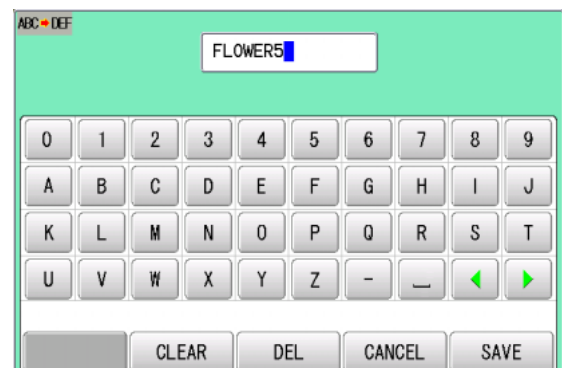
4. Press  from right submenu.



5. Choose the column with  . Then select each digit in the existing name. Select word.

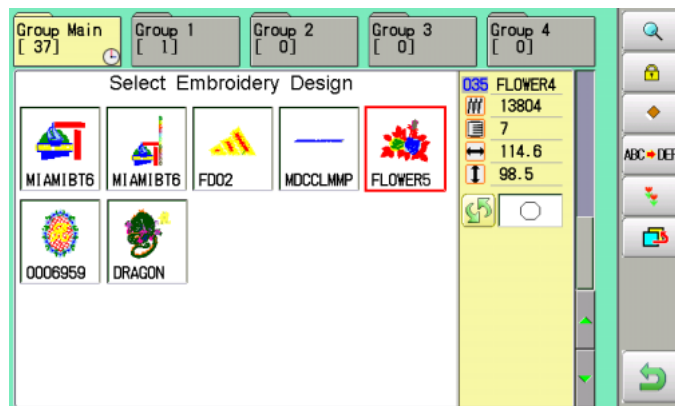
The maximum number of characters in a design name is eight letters or numbers.


-  All the letters and/or numbers are deleted.
-  Selected letter or number is deleted.
-  Renaming is cancelled.



6. Press  .


The pattern name will be changed.

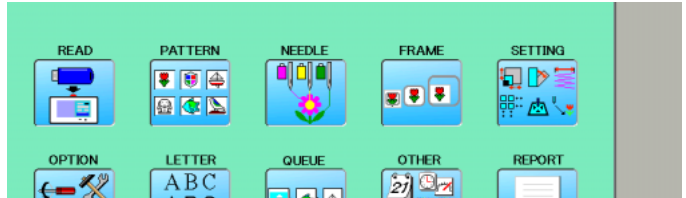


Press  to return to Menu mode.

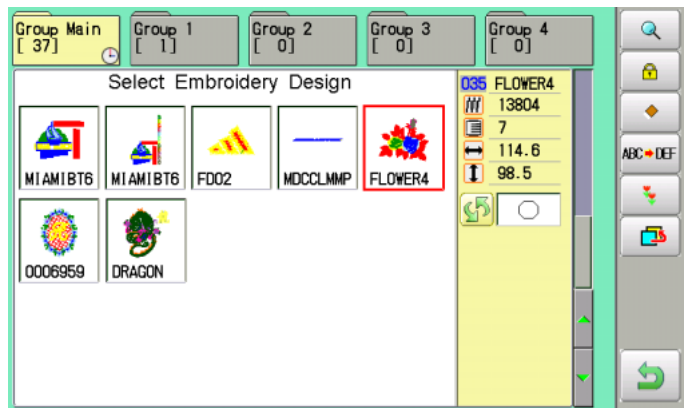
## ●Copying pattern data

Copying of the pattern data stored in the machine memory is available.

1. When the machine is stopped, press .



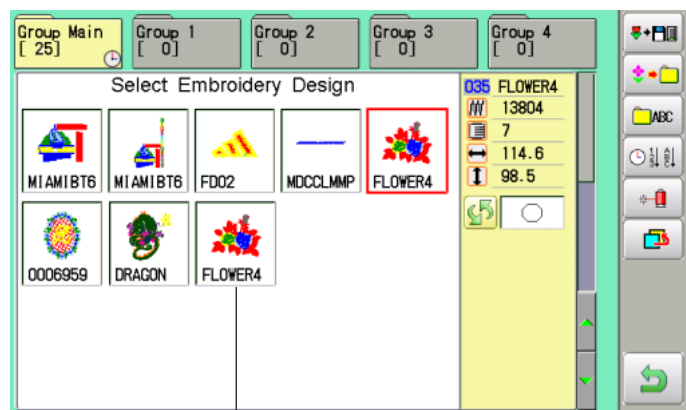
2. Select "PATTERN".



3. Select desired pattern.

4. Press  from right submenu.

Copy of the selected pattern will be made.




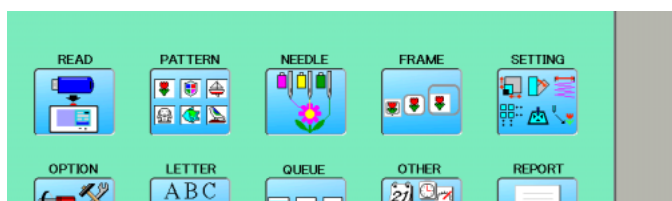
Copied pattern data

Press  to return to Menu mode.

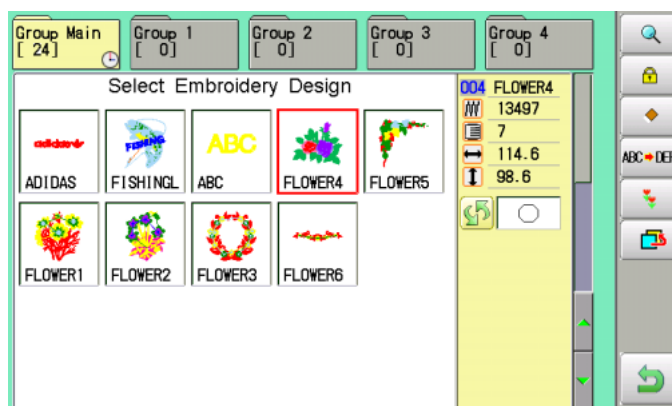
## ●Moving pattern data

Export pattern data into the other folder.

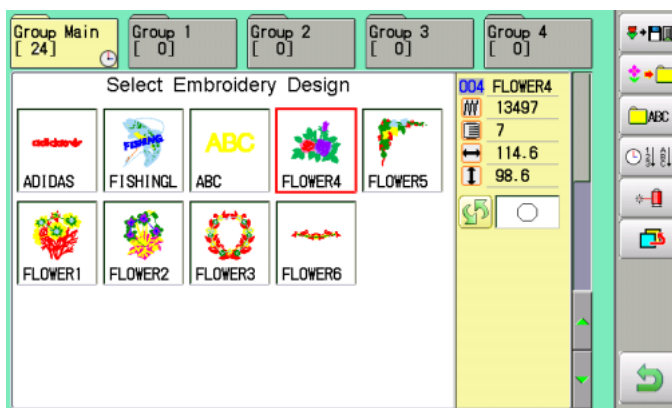
1. When the machine is stopped, press .



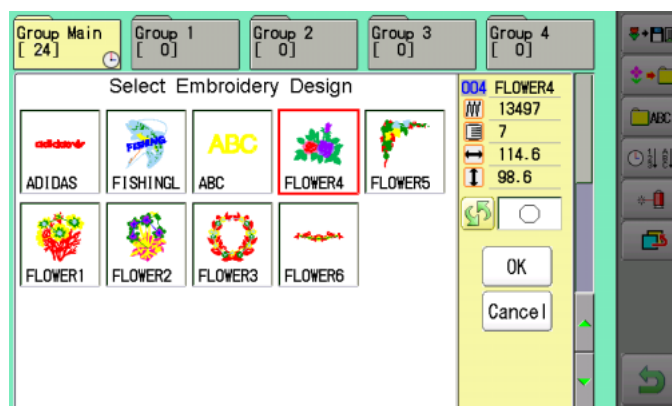
2. Select "PATTERN".



3. Press  from right submenu.



4. Press  from right submenu.

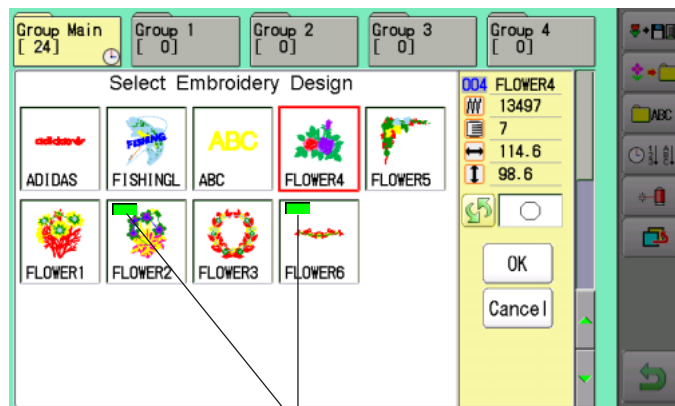




## 4. Select desired pattern.

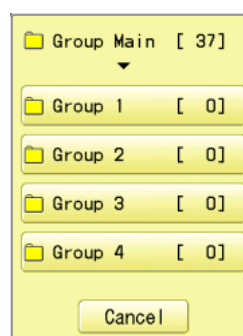
Mark will appear left of the pattern.  
Make will be cleared by press it again.  
Multiple pattern data can be selected.

**Cancel** : Cancel pattern data moving



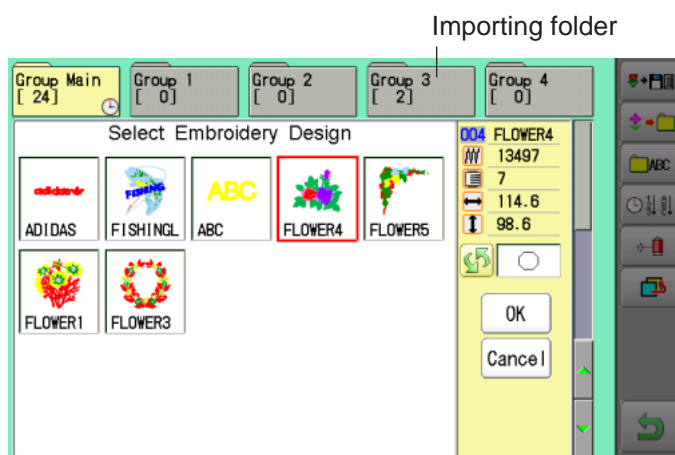
Mark

## 5. Press the **OK**.



## 6. Select the importing folder.


The pattern data will be transferred.

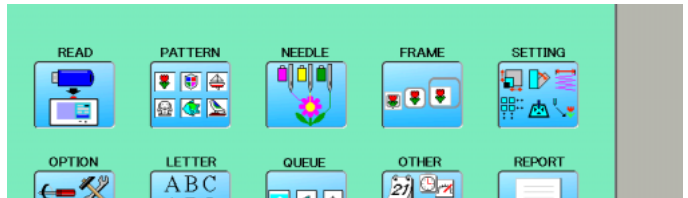


Press  to return to Menu mode.

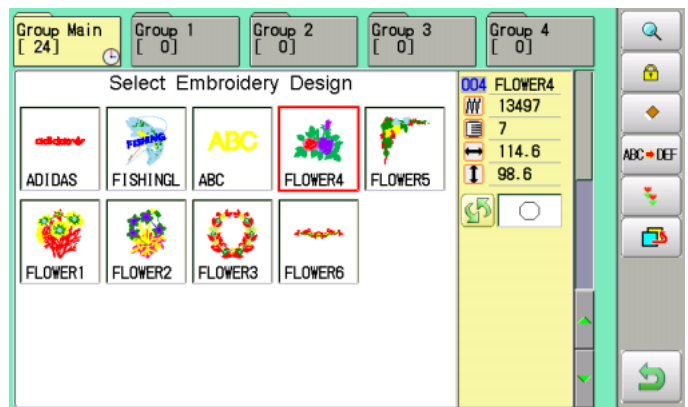
## ●Renaming folders

Rename folder in memory.

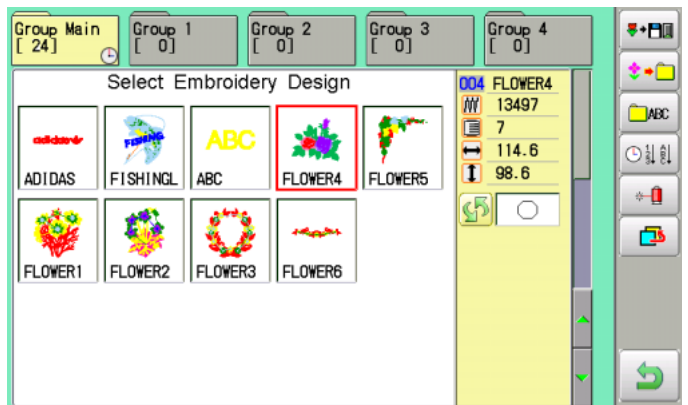
1. When the machine is stopped, press  .



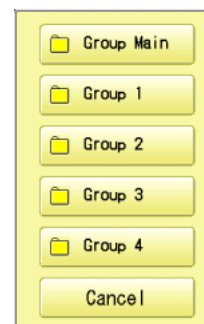
2. Select "PATTERN".



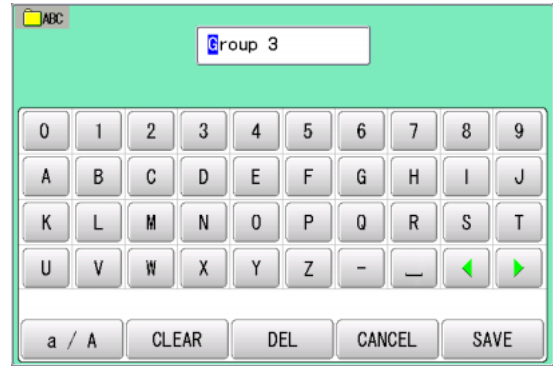
3. Press  from right submenu.





4. Press  from right submenu.







5. Select desired pattern.

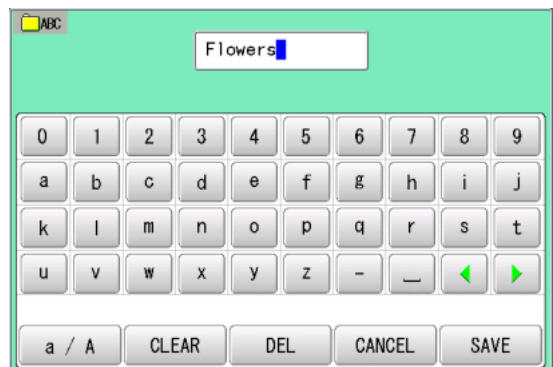


6. Choose the column with  .

Then select each digit in the existing name.  
Select word.

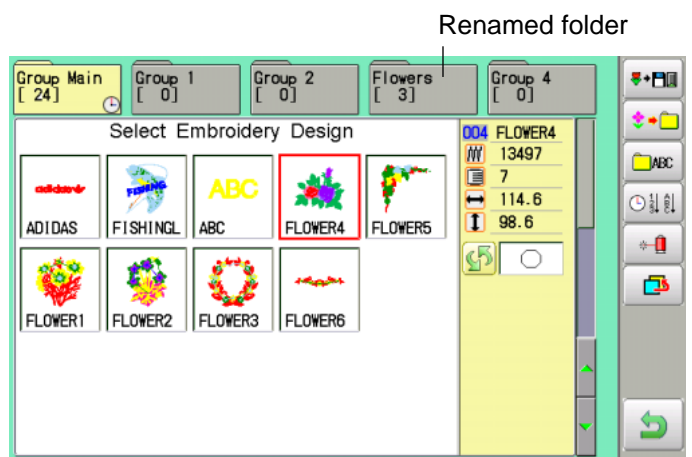
The maximum number of characters in a design name is 12 letters or numbers.


-  Uppercase and lowercase letter are switched.
-  All the letters are deleted.
-  Selected letter or number is deleted.
-  Renaming is cancelled.



7. Press .


The folder name will be changed.

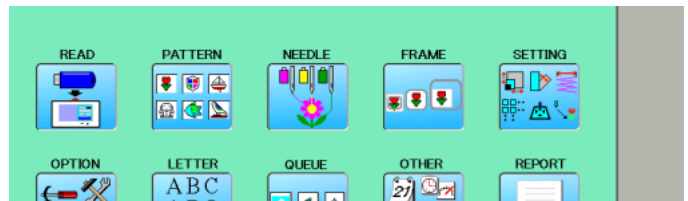


Press  to return to Menu mode.

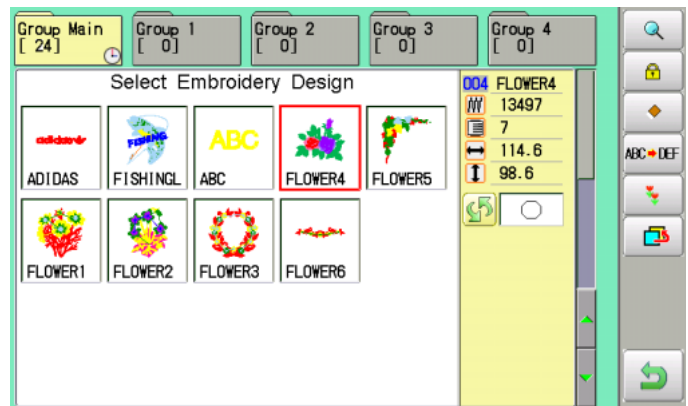
## ●Sort

Ordinate the pattern data in the displayed folder.

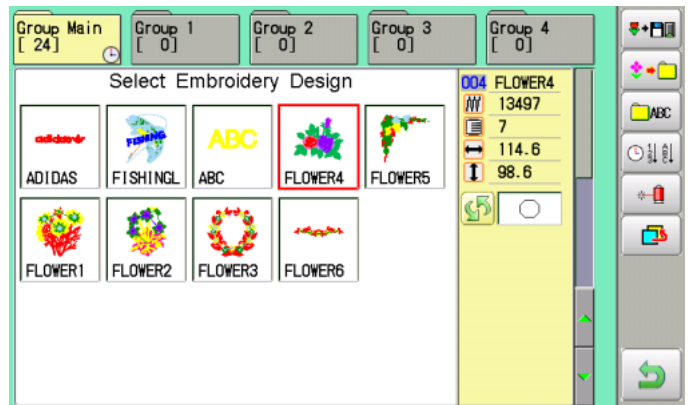
1. When the machine is stopped, press .



2. Select "PATTERN".



3. Press  from right submenu.



4. Press  from right submenu.



To sort in order of loading



To sort in order of pattern number

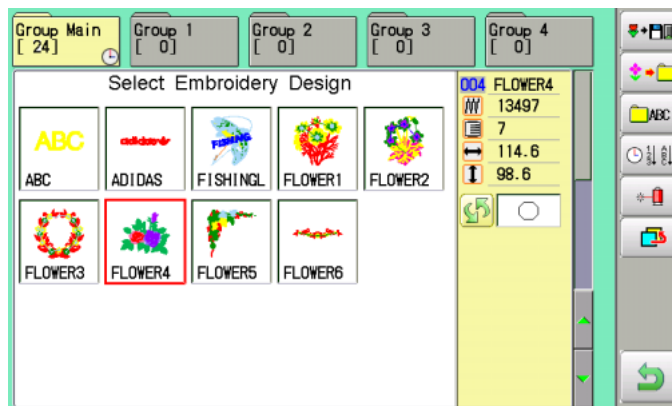



To sort in order of name of pattern



## 5. Select sorting method.


Sort will be carry out.

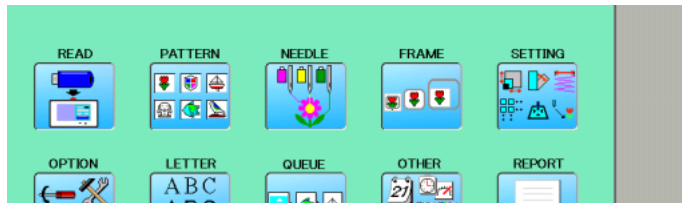


Press  to return to Menu mode.

## ● Thread break report

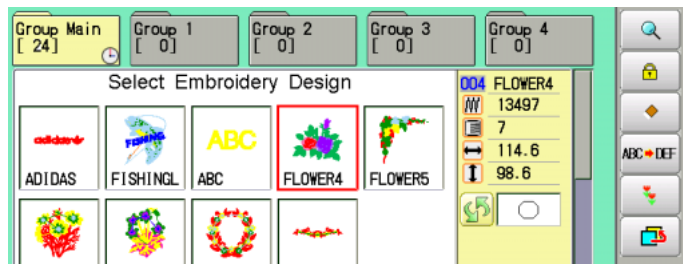
This function will show recorded thread break of pattern data. The machine detects break thread during operation and records by pattern the number of stitches at the stopped position. If thread break is happening at same number of stitches, please check construction of stitch design.

1. When the machine is stopped, press .

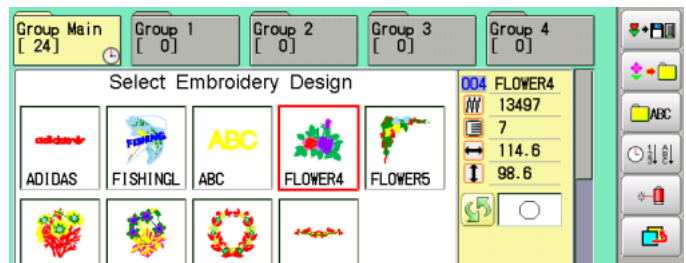


2. Select "PATTERN".

3. Select desired pattern.



4. Press  from right submenu.



5. Press  from right submenu.

Thread break report will appear in the window.  
The maximum memory is up to No. 30.  
If the record exceeds No. 30, the new records will be added to the latest 29 records.

 To delete the record

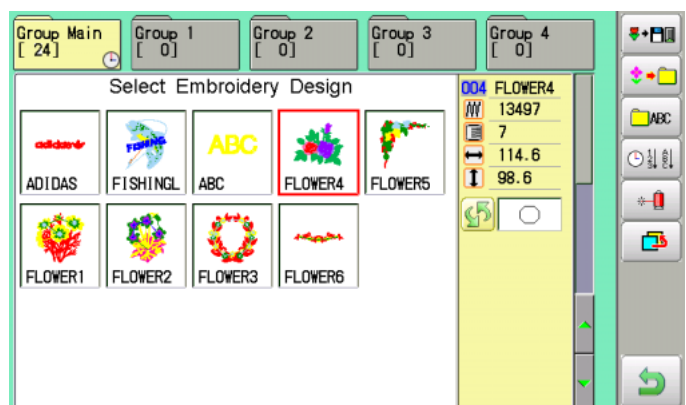
Pattern number  
Pattern name  
Number of stitches

009: FLOWER4 ( 13497 )			
No	No	No	No
1: 0	11: 0	21: 0	0
2: 0	12: 0	22: 0	0
3: 0	13: 0	23: 0	0
4: 0	14: 0	24: 0	0
5: 0	15: 0	25: 0	0
6: 0	16: 0	26: 0	0
7: 0	17: 0	27: 0	0
8: 0	18: 0	28: 0	0
9: 0	19: 0	29: 0	0
10: 0	20: 0	30: 0	0

Number of stitches at the stopped position  
by thread break

6. Press .

Exit the mode.



Press  to return to Menu mode.



Various settings such as the scaling, repeat sewing, offset and frame out can be applied to a pattern.

## **Adjust**

This menu contains settings such as scaling, width adjustment, angle and convert design.

## **Repeat sewing**

The machine repeats the pattern a number of times in the X and Y directions as set by the user.

## **Offset**

Sets the start point of the frame in the selected pattern.

## **Frame out**

Inserts a frame out command in the selected pattern.

■ Various settings are executed in assortment.

## ● **Adjust**

### **Scaling**

This adjusts the scale of the selected pattern.

### **Width adjustment**

This adjusts the width of the selected pattern.

### **Angle**

This adjusts the angle of the selected pattern.

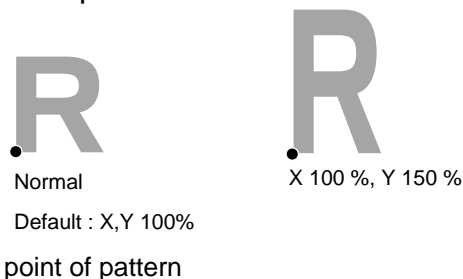
### **Convert design**

This sets the rotation of the selected pattern in increments of 90 degrees, normal or reversed.

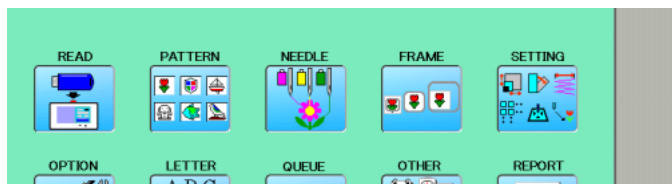
## Scaling

The pattern's scale can be increased or decreased in 1% increments.

### Setting example

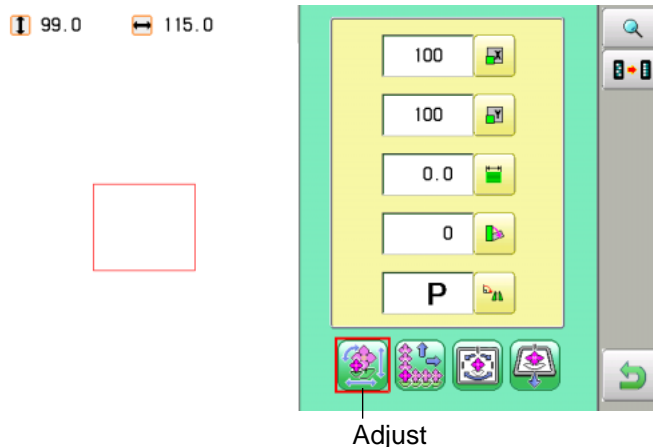


1. When the machine is stopped, press .

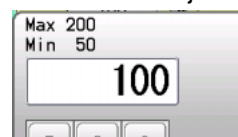


2. Select "SETTING".

The left side shows the number, size of the current pattern.



3. Select (Scaling X) or (Scaling Y).



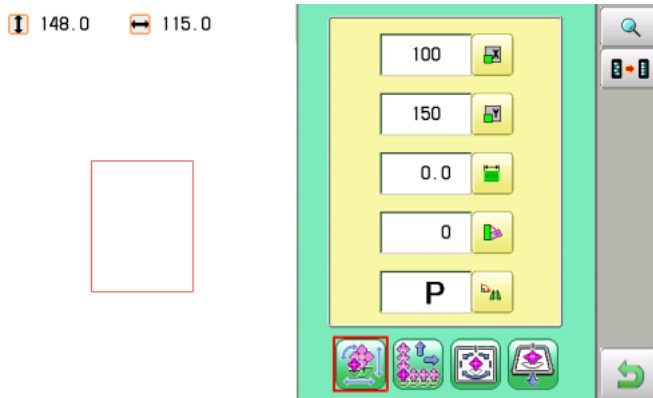
4. Select the number.

Changing is cancelled.  
 Numbers are deleted.



5. Press the .

The setting is fixed.



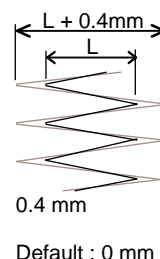
- Pattern data may be shown.
- Setting is returned to the default.
- To return to Menu mode.


## Width adjustment

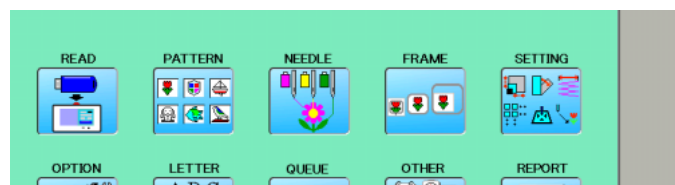
This setting adjusts stitch width (L) in a pattern in a range of -1.0 ~ +1.0mm in increments of 0.1mm.

■ In case "Width" (Width adjustment) is set and embroidery is made, there is a case that error occurs at end point. In such a case, please return setting figure of stitch width to "0.0".

### Setting example



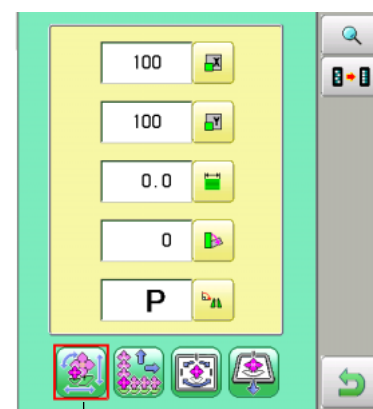
1. When the machine is stopped, press .



2. Select "SETTING".

The left side shows the number, size of the current pattern.

99.0 115.0





Adjust


3. Select  (Width adjustment).



4. Select the number.

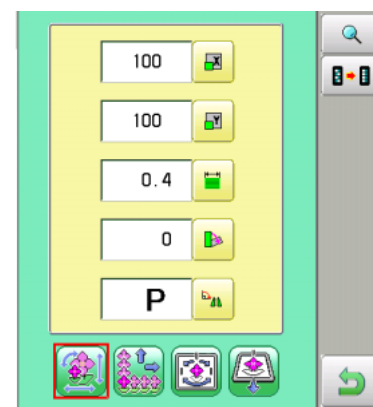
 Changing is cancelled.  
 Numbers are deleted.






5. Press the .

The setting is fixed.

99.0 115.0



 Pattern data may be shown.  
 Setting is returned to the default.  
 To return to Menu mode.

## Angle

With the start point of the pattern as a pivot, the machine rotates the angle clockwise.

### Setting example




Normal

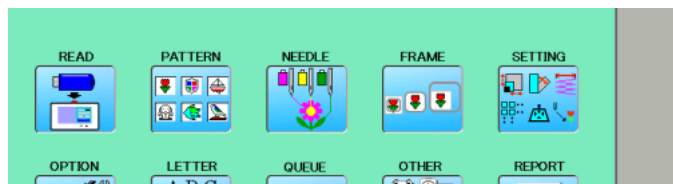
Default : 0°



30°

● : Start point of pattern

1. When the machine is stopped, press .



2. Select "SETTING".


The left side shows the number, size of the current pattern.

99.0

115.0



Adjust

3. Select  (Angle).



4. Select the number.




Changing is cancelled.



Numbers are deleted.



5. Press the .

The setting is fixed.

110.0

120.0



Pattern data may be shown.



Setting is returned to the default.

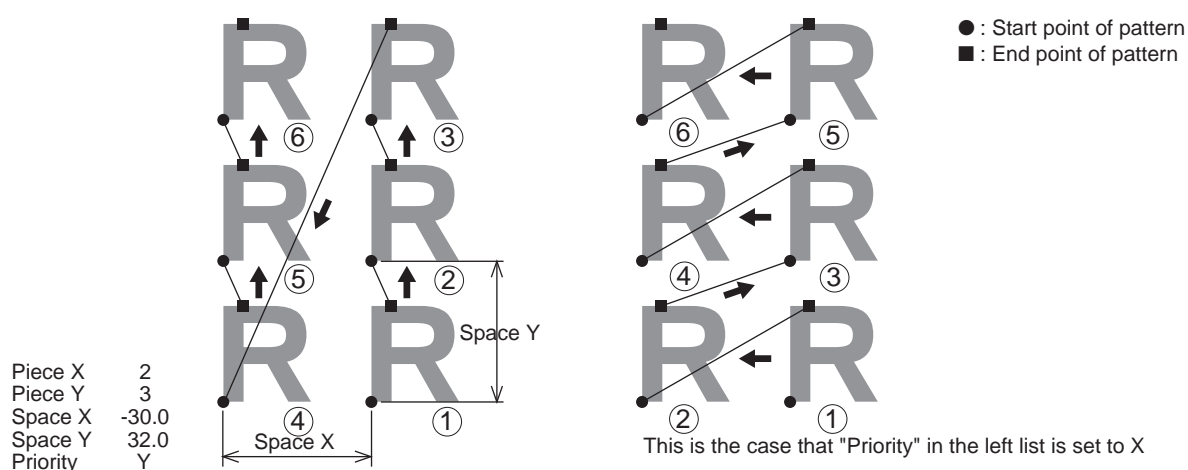


To return to Menu mode.

## ● Repeat sewing

The machine embroiders a user-specified number of copies in the X and Y directions.


### Setting example




SETTING ITEM	SETTING RANGE	DEFAULT	
Piece X	1 ~ 30	1	This sets number of pieces side wise and length wise when you perform repeat.
Piece Y	1 ~ 30	1	The number of pieces to be embroidered is product obtained by multiplying numbers in X and Y.
Space X	-999.9 ~ 999.9 mm	0	This sets side wise distance between start point of each pattern when you perform repeat. When plus number is input, the machine makes repeat toward right. In case of minus number, toward left.
Space Y	-999.9 ~ 999.9 mm	0	This sets length wise distance between start point of each pattern when you perform repeat. When plus number is input, the machine makes repeat upward. In case of minus number, downward.
Priority	X (Side)• Y (Length)	X	When you set more than 2 pieces for repeat length wise and side wise, this selects direction to embroider 2nd piece.

# PATTERN SETTINGS

12-6

- When the machine is stopped, press  .



- Select "SETTING" and select  (Repeat).

The left side shows the number, size of the current pattern.

99.0 115.0




Repeat

- Select each setting item and select the number.

 Changing is cancelled.

 Numbers are deleted.



- Press the  .




The setting is fixed.

339.0 265.0



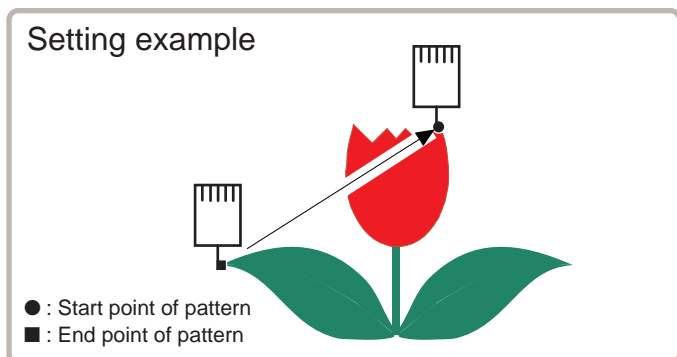
- Set necessary item by performing procedure no. 3 to no.4.


Set all the necessary items.

-  Pattern data may be shown.
-  Setting is returned to the default.
-  To return to Menu mode.


## ● Auto origin

When a pattern has different start and end points, the frame returns to the original point



1. When the machine is stopped, press .




2. Select "SETTING" and select  (Offset).

The left side shows the number, size of the current pattern.

99.0 115.0



Offset

3. Press  (Auto origin) and select ○ (ON) or ✕ (OFF).

The setting is fixed.

99.0 115.0



Pattern data may be shown.



Setting is returned to the default.



To return to Menu mode.

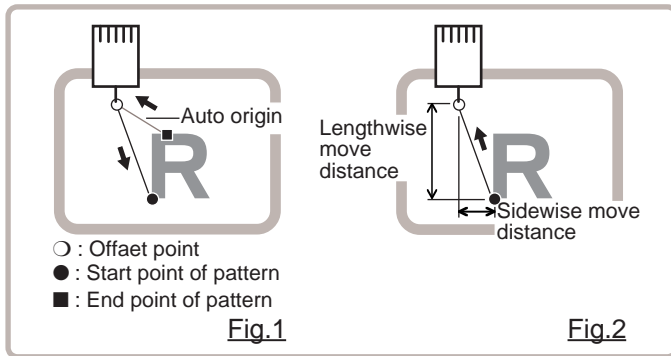


## ● Offset

Setting the offset point designates a place for the frame to rest before moving to the start point of the actual embroidery.

When used together with the auto origin feature, the machine will return to the offset when it is finished embroidering as well.

This allows you to send the frame to a place where it will be easier to handle, when you will need to change hoops for example.



## Direct input



You can move the offset point manually and save the position with "Teaching input".


## Preset

There are 9 preset points that can be used for offsets around and in the center of the pattern.

## Teaching input

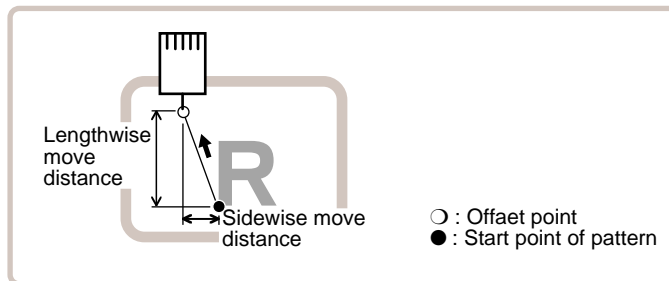
You can set the offset point manually.


■ When you press the  (Original point return) or use \*auto origin with an offset, the frame will return to the offset point.  12-7

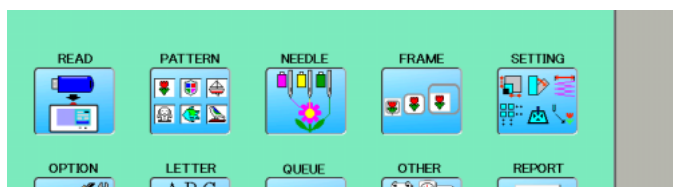
■ Make sure \*auto origin is activated when you are using the offset function repeatedly on the same pattern.  12-7


## Direct input

You can move the offset manually and save the position with "teaching input".

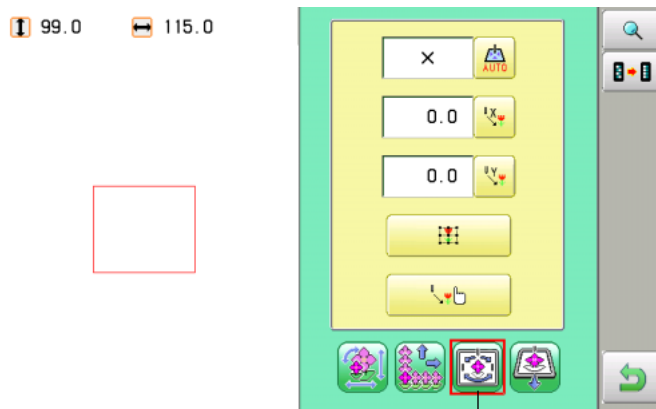




1. When the machine is stopped, press .





2. Select "SETTING" and select  (Offset).


The left side shows the number, size of the current pattern.



3. Select  (X axis distance) or  (Y axis distance) and select the number.

 Changing is cancelled.  
 Numbers are deleted.

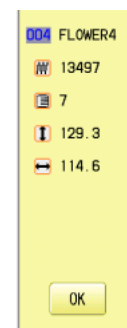





4. Press the .

The setting is fixed.




Offset point




 Pattern data may be shown.  
 Setting is returned to the default.  
 To return to Menu mode.

## Preset

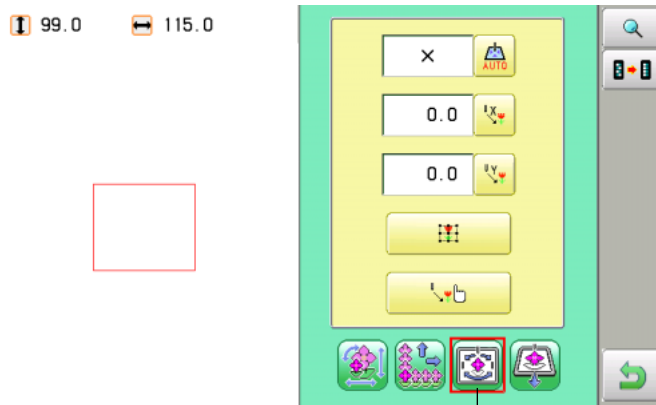
There are 9 preset points that can be used for offsets around the or in the center of the pattern.

1. When the machine is stopped, press .



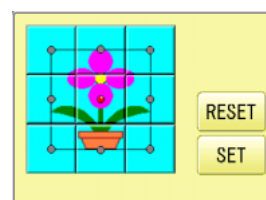
2. Select "SETTING" and select  (Offset).


The left side shows the number, size of the current pattern.



Offset

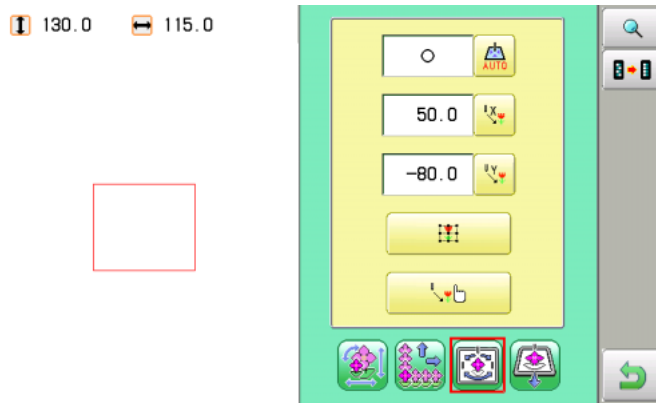
3. Select .






4. Select the offset point and press .

The setting is fixed.

 Setting is unset.



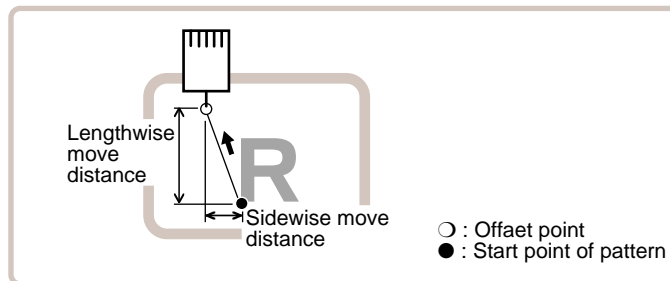
Offset point


-  Pattern data may be shown.
-  Setting is returned to the default.
-  To return to Menu mode.




## Teaching input

You can set the offset position manually.



1. When the machine is stopped, press .



2. Select "SETTING" and select  (Offset).

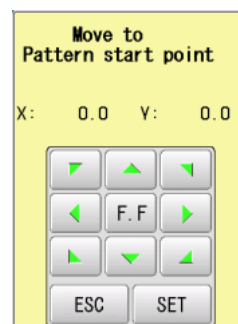
The left side shows the number, size of the current pattern.

99.0 115.0




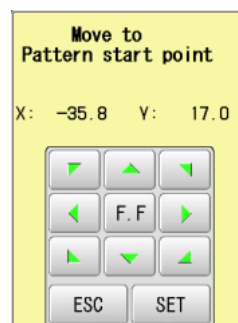
Offset


3. Select   .



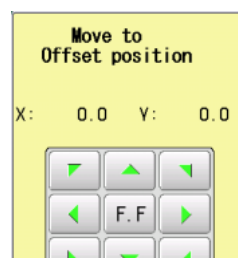
4. Move the frame to the offset point.

 Setting is cancelled.

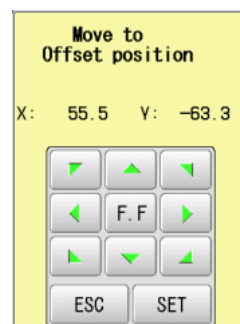


5. Press the .

The setting is fixed.



6. Move the frame to the offset point.



7. Press the **SET** .

The setting is fixed.



113.0 115.0



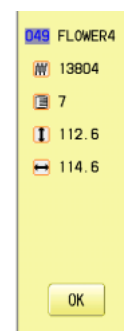
Pattern data may be shown.



Setting is returned to the default.



To return to Menu mode.



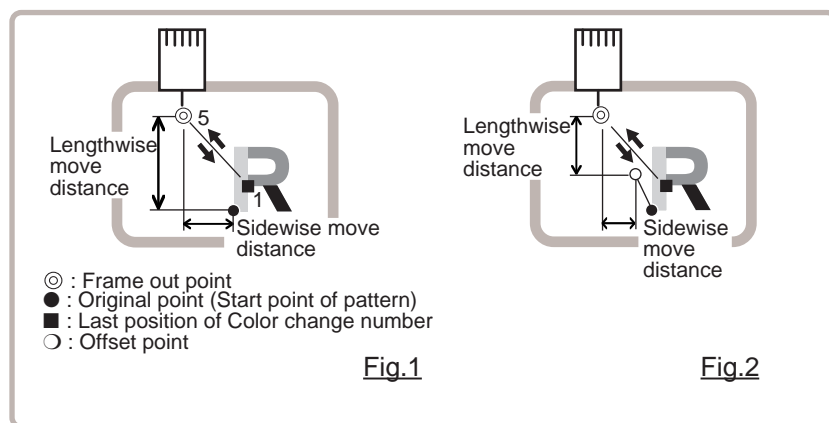
Offset point

## ●Frame out

A frame out command can be added to a design. By setting frameout to a \*Color change number in a design, you can move the frame to a desired position automatically and stop it after the machine finishes sewing of that color change number.

When you resume operation, the frame has an automatic return to previous position and you can continue sewing. (Fig.1)

This function will be convenient for trimming threads while embroidering or for sewing applique etc.



## Selection of color change number 5-F

Set Color change number to execute frameout.

## Teaching input

Set position of frame out and the distance of movement will be the frame out distance.

Usually move distance to frame out point is input, with original point as pivot.(Fig.1)

In case offset is set, the move distance is input with offset point as pivot.(Fig.2)

■ You can set number of stitches or Color change number to make frame out in plural, but frame out point is limited to one place. The point set finally becomes good for making frame out. The point set finally becomes good for making frame out.

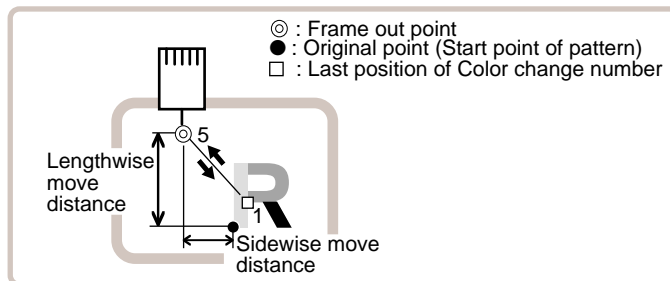
## Direct input


You can set the position of frame out directly by inputting by the number keys. You can also change the position of a frame out set by "Teaching input".


Normally, the distance to the frameout point is input with the original point as a pivot. (Fig. 1) In case where an offset is set, the move distance to frameout position is input with offset point as pivot. (Fig.2)

## Teaching input

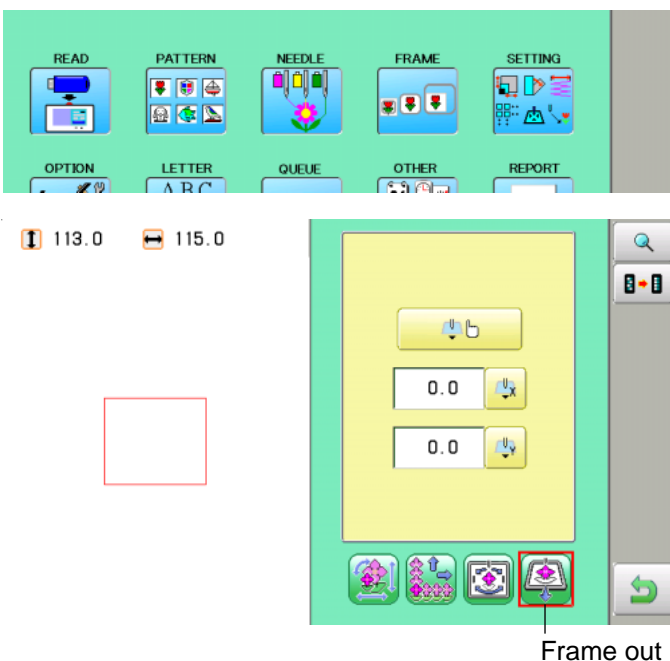
Move the frame with  and the position will be saved as the frame out.



1. When the machine is stopped, press .


2. Select "SETTING" and select  (Frame out).

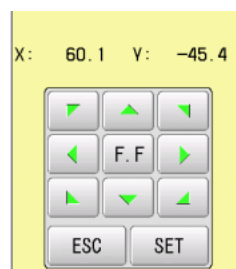
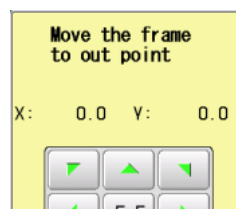
The left side shows the number, size of the current pattern.




3. Select .

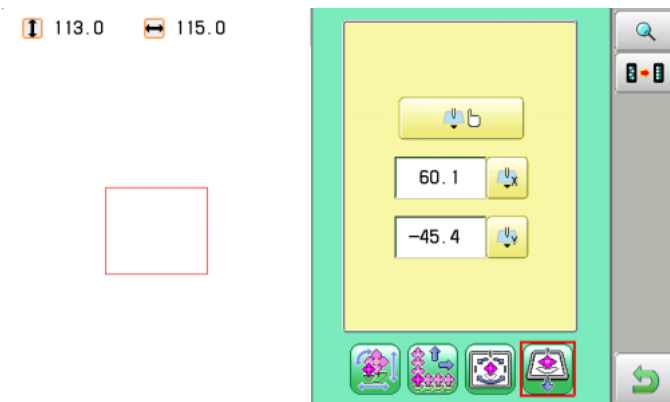
4. Move the frame to the frame out position.




 Setting is cancelled.



5. Press the .

The setting is fixed.

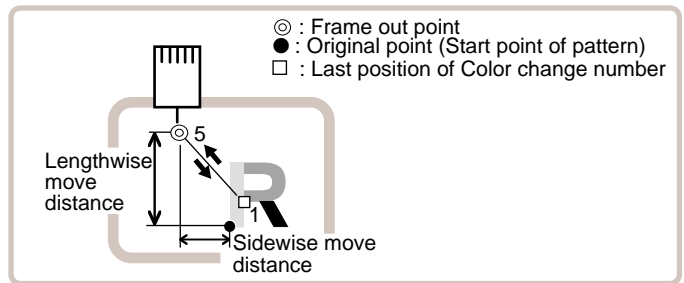



-  Pattern data may be shown.
-  Setting is returned to the default.
-  To return to Menu mode.

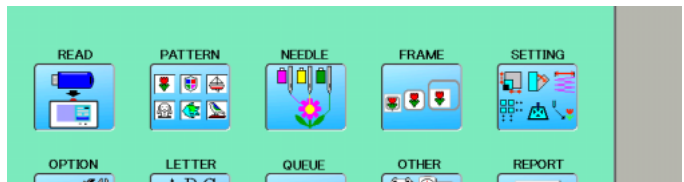



## Direct input

You can change the position of your frame out by using this function. You can change the moving distance of the frame out and change the frame out position, which saved by "Teaching input".

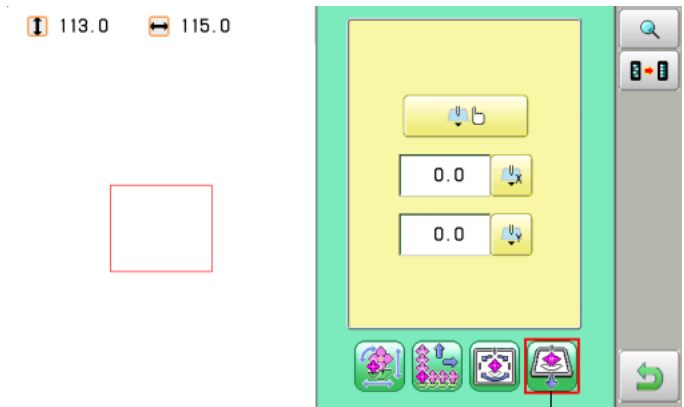


1. When the machine is stopped, press .







2. Select "SETTING" and select  (Frame out).

The left side shows the number, size of the current pattern.




Frame out

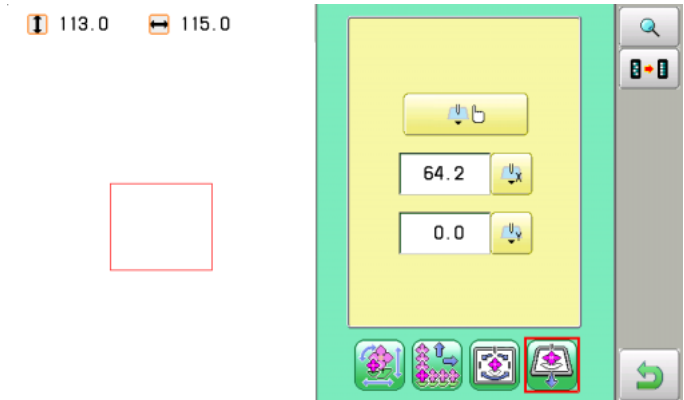
3. Select  (X axis distance) or  (Y axis distance) and select the number.




 Changing is cancelled.  
 Numbers are deleted.



4. Press the .

The setting is fixed.



-  Pattern data may be shown.
-  Setting is returned to the default.
-  To return to Menu mode.

## Needle number settings 5-E

A needle number can be assigned to a \*color change number.

When the needle number is assigned, the machine will embroider and automatically switch to the programmed for each color change number.

## Color change stop function 5-F

A \*color change stop can be assigned to a color change number.

When this is done, the machine embroiders the stitches for that color change number and then stops, displaying the following message:

>>Change Stop

## Auto setting

Changes all designated needle numbers at once.


## Color change data registration, Color change data read

You can use the color change data from a saved pattern, register it, and then export the registered data to the selected pattern for use.

## ●Auto setting

This changes all designated needle numbers at once.

For example, if you want to change all needles numbered "10" to "6", just select one of the color change numbers in which "10" is set, then all color change numbers can be changed into "6".

1. When the machine is stopped, press .



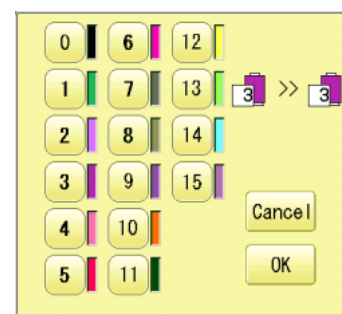
2. Select "NEEDLE".



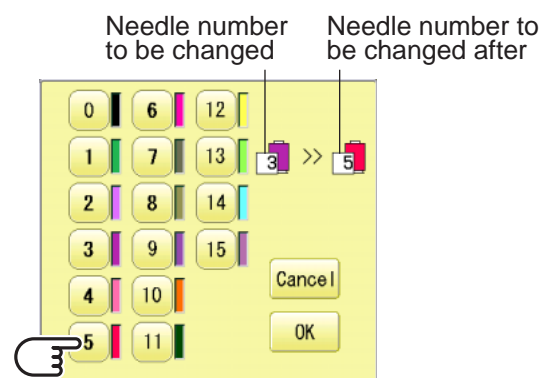
3. Press  from right submenu.



4. Select the current needle number you would like to change.





5. Select the needle number to be changed.




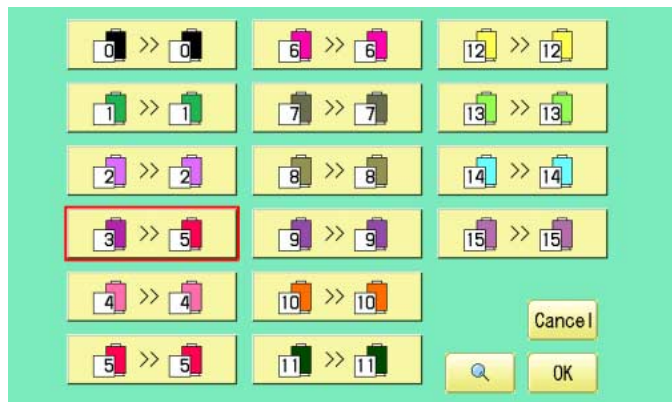
# NEEDLE BAR SELECTION

## 13-2b


6. Press the .

 Setting is cancelled.

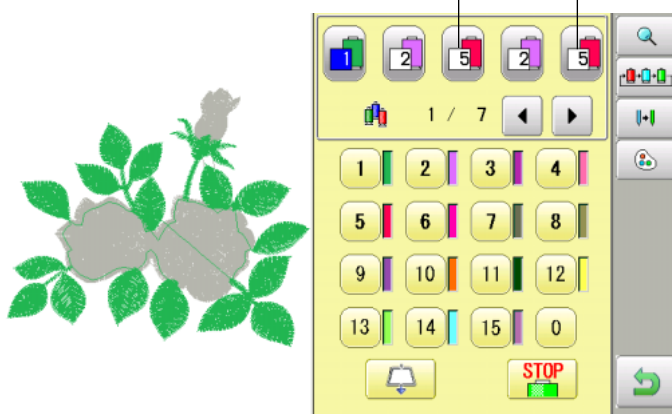
 Preview screen is displayed.




The needle number has been changed from 3 to 5.

7. Press the .

The setting is fixed.

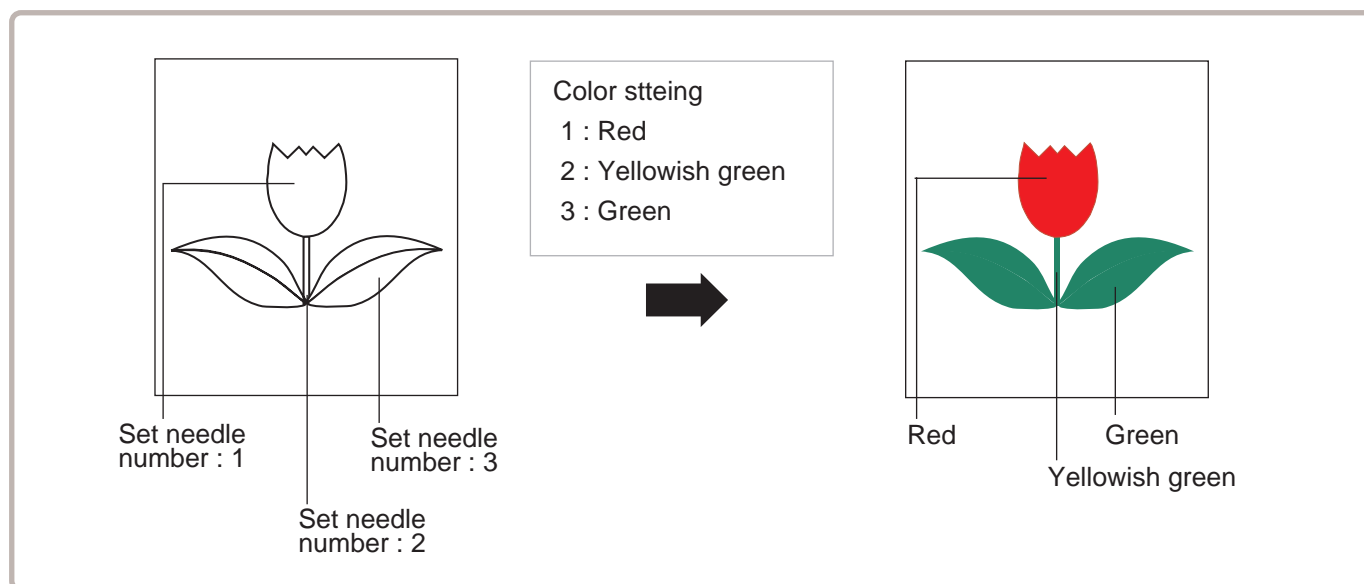



Press  to return to Menu mode.

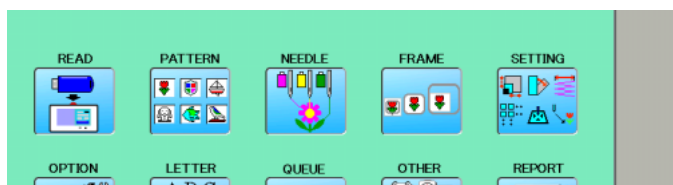
## ● Thread color

This sets the background color or color assigned to each needle bar to be shown in the display. This is useful to help confirm the correct color setup of a pattern. (128 colors are available)

- You will find difficulty to see the pattern if you set same color on both pattern and background.



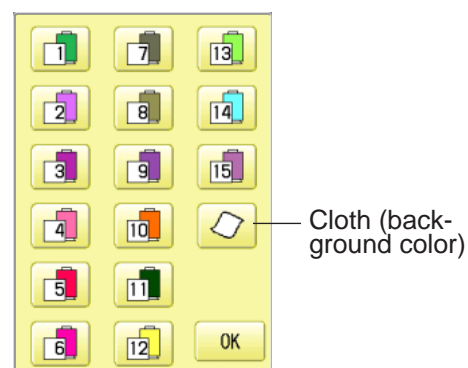
1. When the machine is stopped, press .



2. Select "NEEDLE".



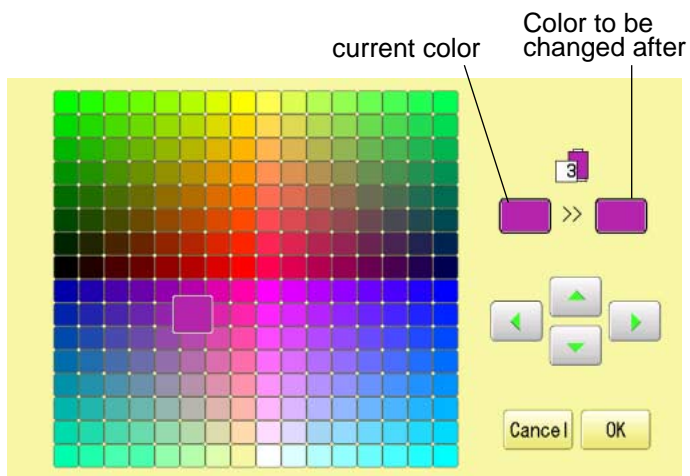
3. Press  from right submenu.






# NEEDLE BAR SELECTION

13-4

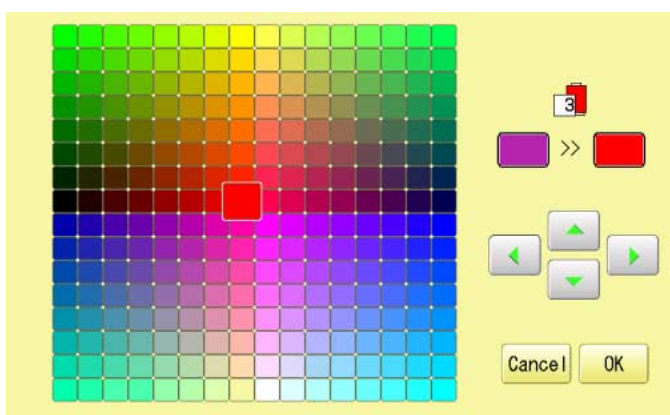
4. Select the needle number or cloth (background color).




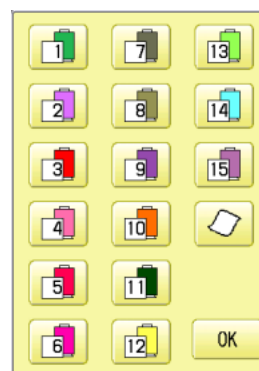
5. Select the color to be changed.


You can select the color with   .

Current color will be shown.




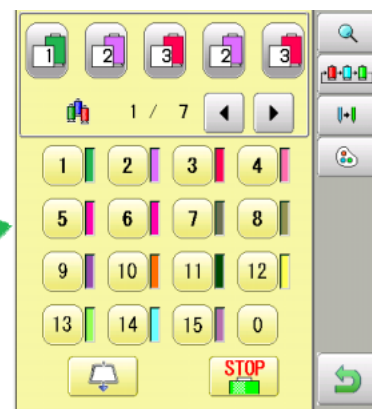
6. Press the .




7. Press the .

The setting is fixed.

 Preview screen is displayed.



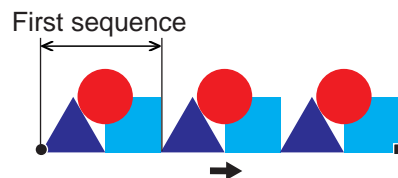
Preview

Press  to return to Menu mode.

## ● Repetition of color group setting


If your design has repetition of the group of the same color sequence, only set first sequence and set other automatically by following steps.

(If you have some function in the needle "Example: color change stop", the function also will set)



● : Start point of pattern  
■ : End point of pattern

Fig. 1

1. When the machine is stopped, press .

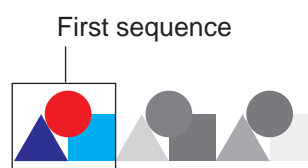


2. Select "NEEDLE".



3. Set first color sequence group.

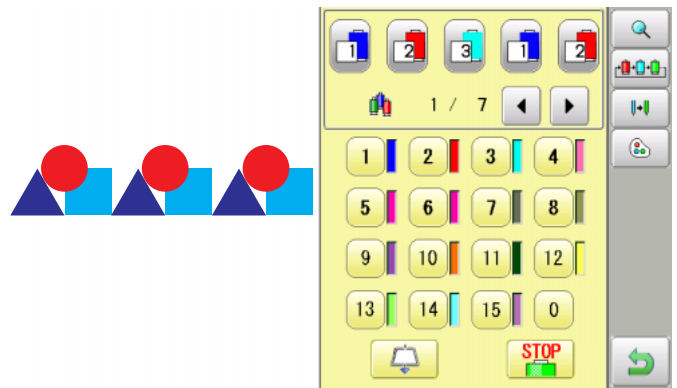
Please confirm that the next number of the group is "0".



4. Press  from right submenu.

Set other color change setting automatically.

If the number of total color change does not become the first number of group multiple number. Machine display warning.



Press  to return to Menu mode.

 Check repeat setting.

OK



## ●Join

Joining 2 patterns into 1 pattern data to be read from a memory media.

Function of joining patterns is not valid for pattern data in PC connected with LAN. 5-6

■ In case you would like to use "Join" function, please set "Join design data" to "YES" on "READING" setting in advance. 14-4

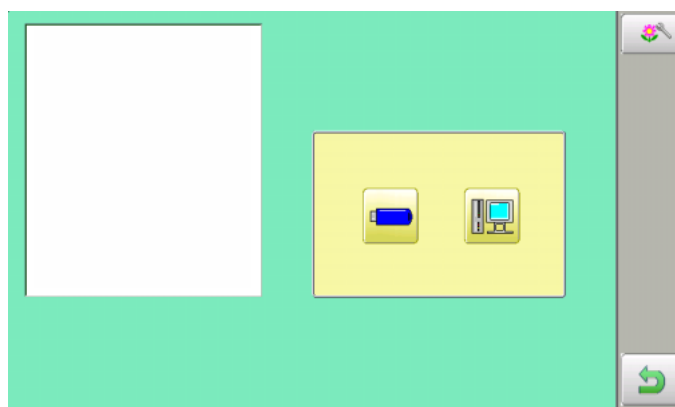
1. Insert the memory media into the machine as described in "Inserting memory media".

5-5

2. When the machine is stopped, press .



3. Select "READ".



4. Select (USB memory).

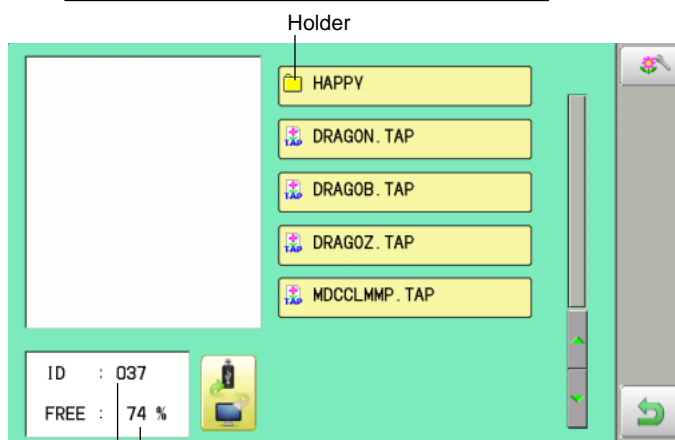
Indicates pattern data of the memory media or data disk..

TAP : HAPPY  
 DST : Tajima  
 DSB : Tajima (Barudan)  
 DSZ : Tajima (ZSK)

Folder : Contents of folder will be displayed when you select this icon.

1 % of free memory is equivalent to about 10,000 stitches.  
 If there are more stitches than remaining space, you may need to delete some designs to make room for the new patterns.

--- Serch pattern ---

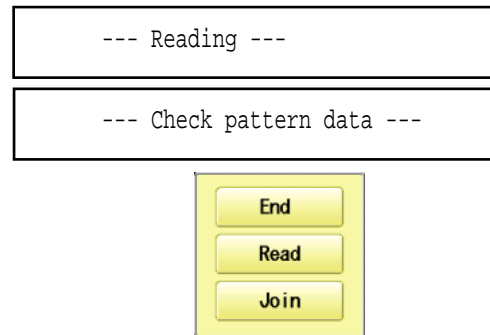


Free memory  
 The designs new ID number in the machines memory.

## 5. Select the pattern.

Once design is read.

Enable to read other pattern data.

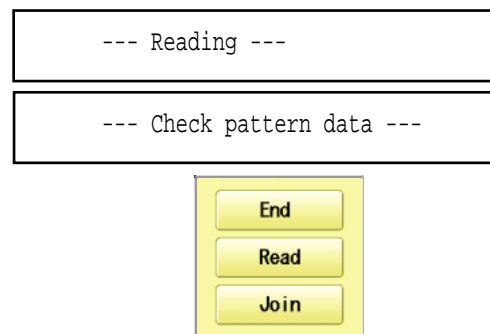


## 6. Press **Join**.

Shift the Memory media or data disk if the pattern data you desire to Join is in the other Memory media or data disk.



## 7. Select the pattern data to be Joined.

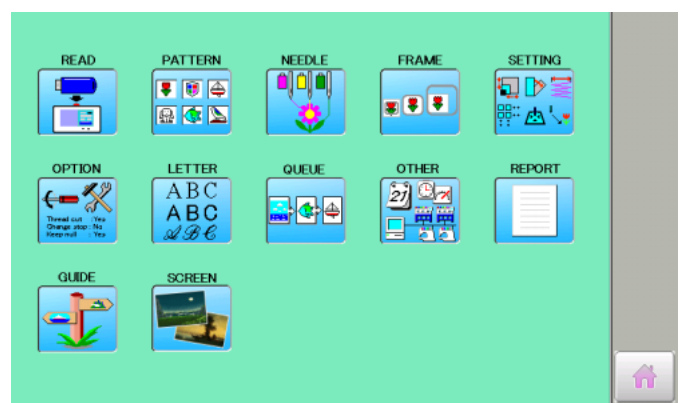



## 8. Press **End**.


Return to menu.

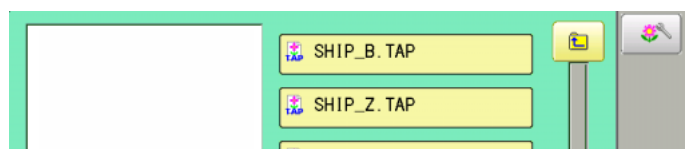
Press **Join** if you desire to join more patterns.

Necessary pattern data can be read by performing step 6 to 8.




When the screen displays pattern data in the folder,  is displayed.

When  is pressed, the screen moves off from the current folder.



## ●Pattern read settings

Settings related to pattern data reading:

SETTING ITEM	SETTING RANGE	
1 Keep null (CHG.)	No•Yes	: This function lets the machine read zero stitches as they are before color change when reading pattern data.
2 Skip null stitch	No•Yes	: This lets you choose to ignore all null stitches when reading pattern data.
3 Combine jump	No•Yes	: Allows you to combine multiple, consecutive jump stitches when reading pattern data, if desired. It combines them into jump stitches of the maximum 12.7mm and reads the pattern with the combined jumps.
4 <u>Stitch sweeper</u>	No•Yes	: This function eliminates extremely short stitch for stitch width when reading pattern data.
5 Sweep length	0~8 (0~0.8mm)	: This setting controls the length of the stitches eliminated by the Stitch sweeper. Stitches shorter than this setting will be eliminated.
6 Tajima name disp	Yes•No	: When patterns in Tajima format are read in, the display shows the file name.
7 <u>Data format</u>	Auto →Automatic Happy→HAPPY, Tajima Brd →Barudan Zsk →Zsk	: Turn data format for reading patterns from data disk of HAPPY or Tajima with "DISK READING". Usually, set it to Automatic.
8 <u>etc.func read</u>	Yes•No	: This function reads various function setting which are set in pattern data together with pattern data (type TAP).
9 <u>Trace type</u>		: Lets you select the type of trace data that is created as a pattern is read in. → Maximum embroidery area of pattern → Out line
10 Join design data	Yes•No	: This function reads various function setting which are set in pattern data together with pattern data (type TAP).

## Detailed explanation of machine setting

### 4 Stitch sweeper

This removes stitches that are extremely narrow when reading pattern data and writing to machine memory. If thread breaks occur often at the same point in a pattern, this may be because of narrow stitches.

■ If the thread still breaks in the same place you can use this function again but repeated usage may distort the shape of the stitch.

1. Save the pattern to disk.
2. Conduct a stitch sweeping of the pattern and load it into the machine again.

End

### 7 Data format

This enables you to select a different format and read the pattern again if the machine did not read it correctly the first time.

## 8 etc. func read

\*Various settings are saved together with a pattern. If some settings are changed in the pattern and you wish to return to the originals, simply reload.

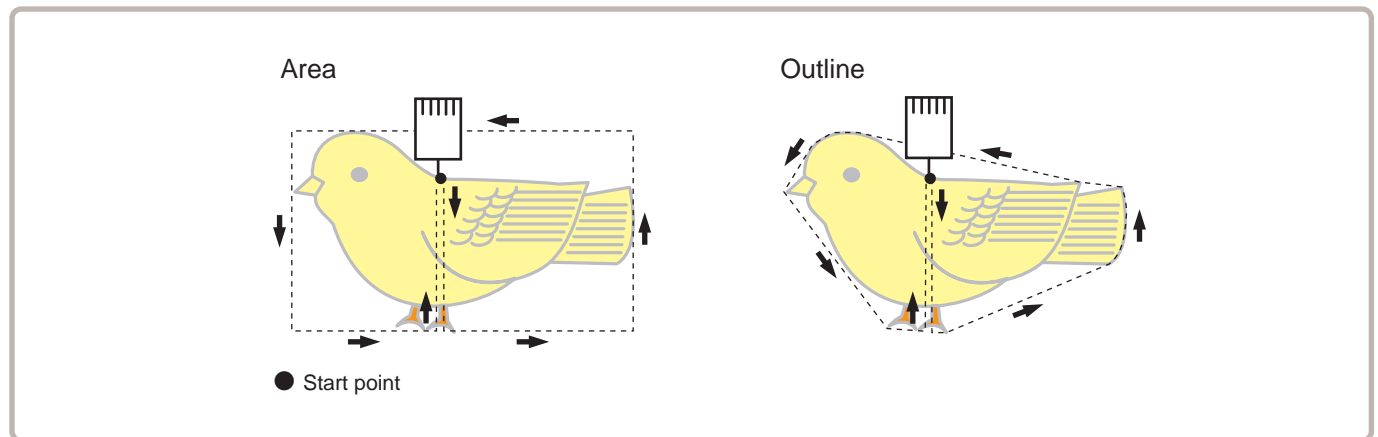
■ The data may only be HAPPY format (TAP).


## 9 Trace type

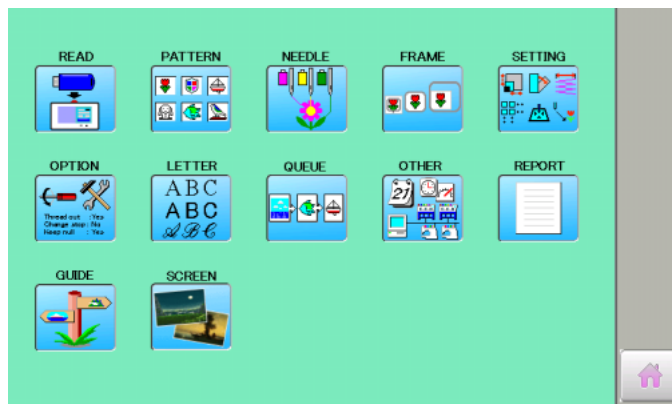
You can compare the design size and design position to the embroidery frame before you start sewing.

The embroidery frame will move around the actual design size.

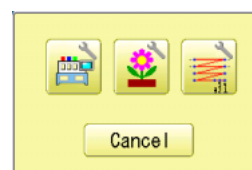
At this time you can choose which type of trace from the two types as seen in the following figure:



1. When the machine is stopped, press .



2. Select "OPTION".





3. Select .



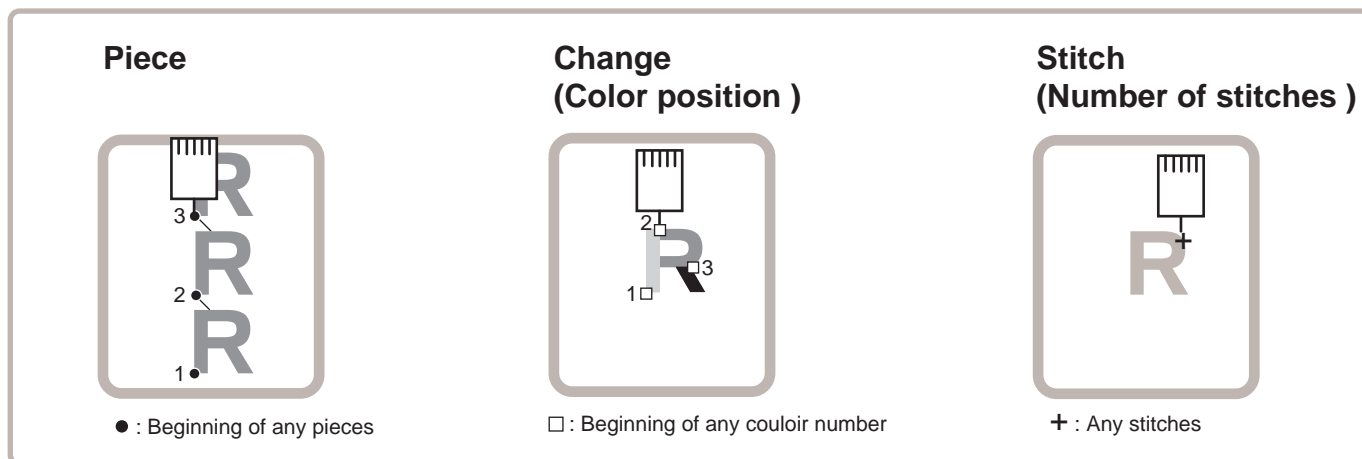
4. Select desired setting item and change the setting.

You can move to next page by pressing .

Press the , all settings are returned to the default.

Press  to return to Menu mode.

This creates direct designations to the number of stitches and \*color change number, as well as setting the frame and data to the designated sewing position.



## Piece

If "Repeat" is set, this allows the frame to move to the beginning of any piece at will.

- You can designate the order of pattern, the order of stitch and the order of piece by using "Number of Stitches", "Changing Position" and "Number of Piece".

## Change (Color position ) 9-7

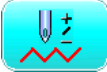
This moves the frame to the beginning of any Color change number at will beginning of color.

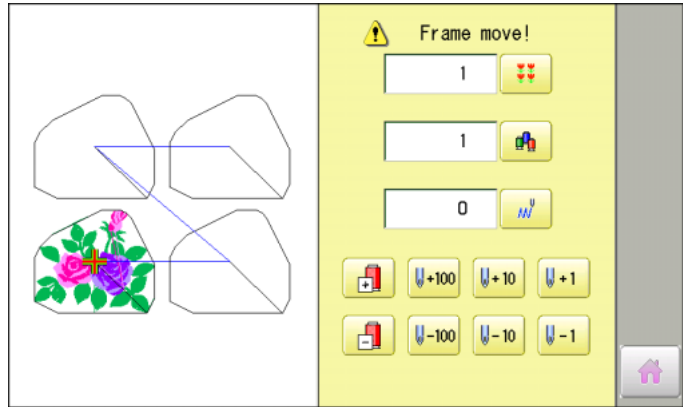
## Stitch (Number of stitches ) 9-6


This moves the frame to any stitch at will.

## Piece number

The frame and pointer can be moved a specified piece number.

1. Press the  "Frame forward".

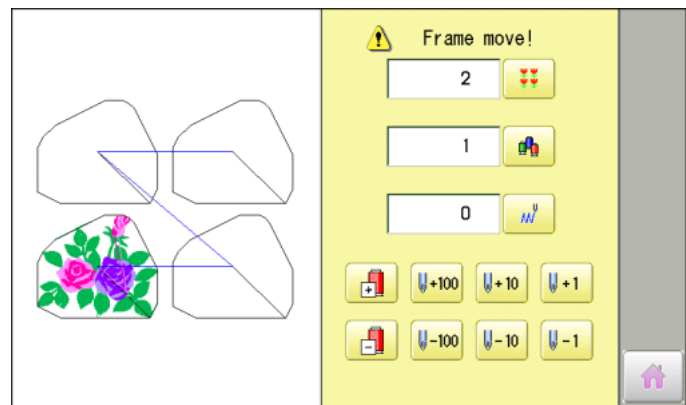



2. Press the .



3. Input the number and press .

The frame and pointer will move to the specified piece number.







 **CAUTION: To prevent accidents.**  
The frame moves quickly.  
Keep hands away from the frame.

Press  to return to Menu mode.



Locate will restore the position of the frame to the last point before a power failure even if the point of origin or the pattern itself were changed.

⚠ If locate is used with a cap drive frame, make sure that the machine recognizes it by showing  (Standard Cap)  (Wide cap)  (OnePoint S) or  (OnePoint L) the appropriate icon or the machine could be damaged.

Never use locate with the needle bar and presser foot lowered, as they could hit the cap drive frame and break.

⚠ When you use "LOCATE", keep clear of the frame and table. It is dangerous as the frame could make sudden movements.

■ It is not always necessary to set "Entry", but you can't set "Return". Once "Entry" is set, it is retained even if power is turned off.

If you change the position of the original point, set it again.

■ Even if you set "Entry", the frame may not return exactly to the original position in process of time.

Reset this monthly.

## Entry

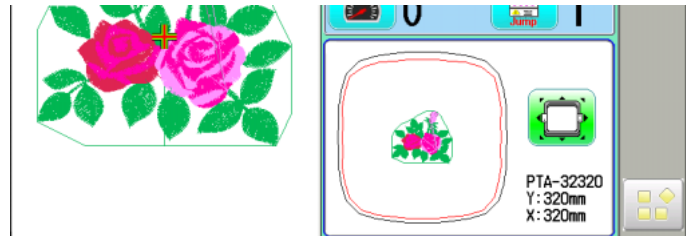
Registering the start point in the selected pattern.

## Return (Registered position)


When position of the frame changes because of power loss, this will restore the frame to the registered point.


## Entry


This registers the original point of the selected pattern.



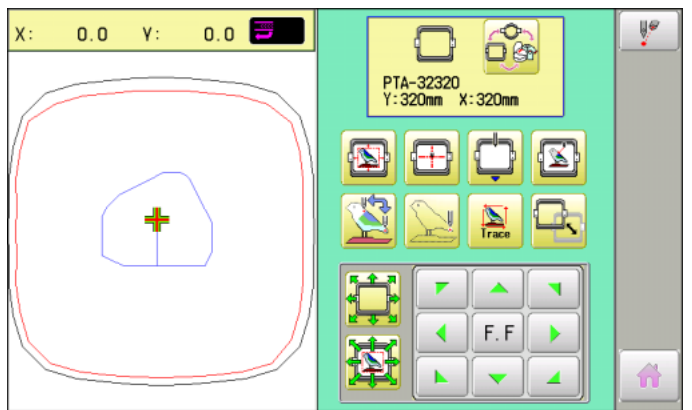
1. Press .

2. Confirm that there is indication of  (Top) in the display and go on to procedure no. 3.

Press  "Top", if there is not a indication.

Upper right indication of  will be shown.

 3-A

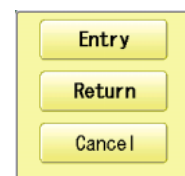


3. Move the frame to the original point with the



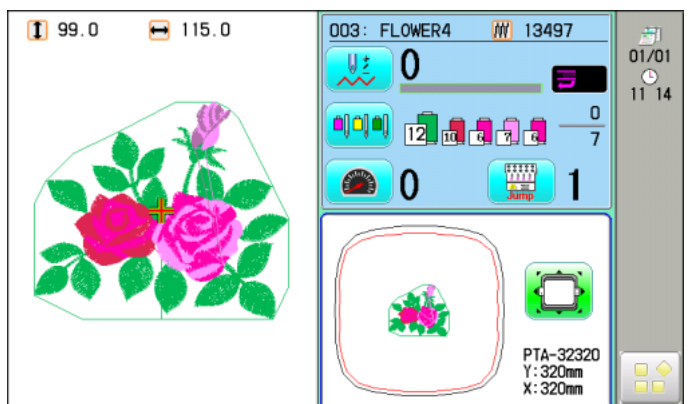
If the frame is located at the origin point, proceed to Step 3.

4. Press .



5. Press .




The origin point is registered and the display will return to Drive mode.




## Return

In case of power failure you can return to the original point you registered.

**CAUTION: To prevent accidents.**  
The frame moves quickly.  
Keep your hands away from the frame.

1. Press .
2. Confirm that there is indication of  (Top) in the display and go on to procedure no. 3.  
Press  "Top", if there is not a indication.

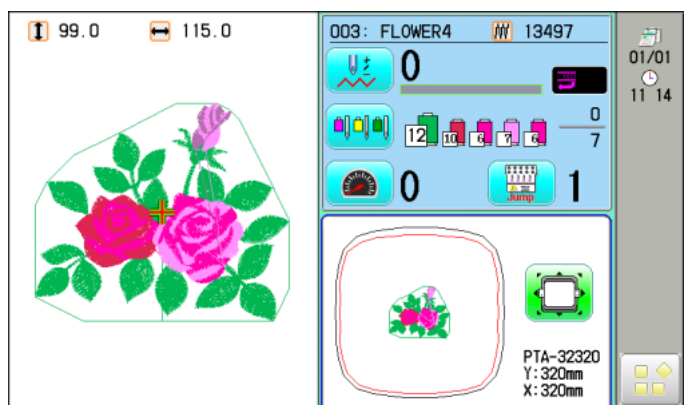
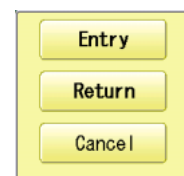
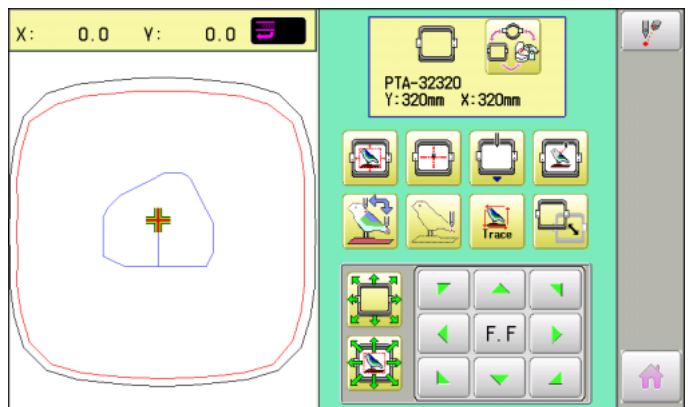
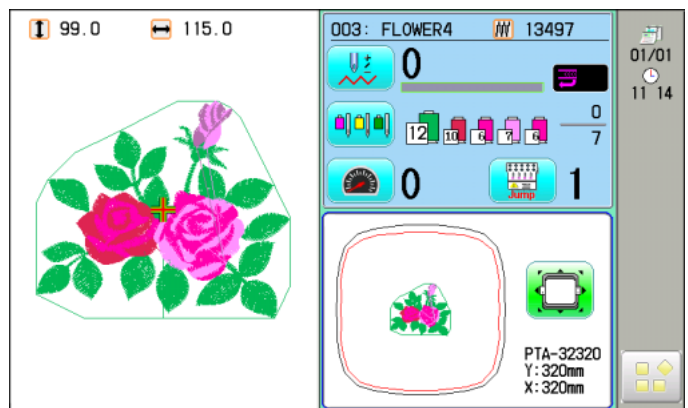
Upper right indication of  will be shown.

 3-A


3. Press .

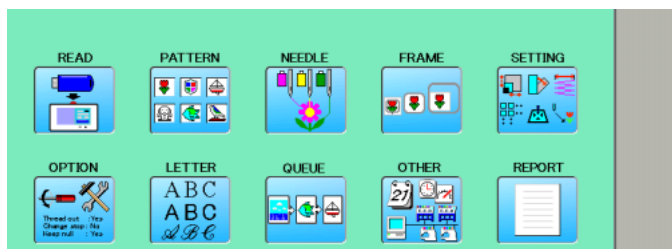
4.  press.

The frame will return to the origin point you registered and the display will return to Drive mode.

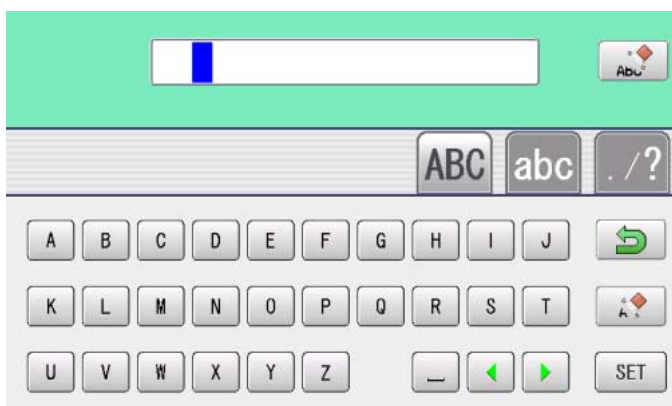


Selecting letters using the built-in fonts.  
Save lettering embroidery data to design memory automatically.

1. When the machine is stopped, press .










2. Select "LETTER".



## Letter selection


To select letters. (15 letters maximum)

3. Select word.

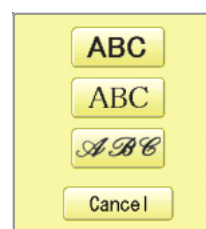
-  All the letters are deleted.
-  The screen is switched to uppercase.
-  The screen is switched to lowercase.
-  The screen is switched to symbol.
-  The screen returns to menu.
-  Selected letter or number is deleted.
-  The cursor moves left and right. Å@




Space or Delete

4. Press the  when you are finished with the letter selection.

Fix your setting and you can select fonts.



## Font Selection

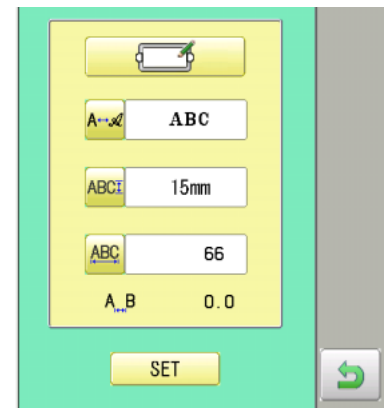
Enables you to select the preferred font.  26-3

Style1: ABC  
Style2: **ABC**  
Style3: *ABC*

### 5. Select the font.

Fix your setting and go to next step.

**Happy**



## Letter Height selection

To select the letter height from 15mm, 10mm, 7mm or 4mm.

The letters can be set to one of 4 sizes.

### 6. Select .



### 7. Select desired height.

Fix your setting and go to Line Length.




## Line Length


Enables you to change the line length.


Area : 0 to 290 mm (the maximum hoop size)


### 8. Select the number.


 The number is deleted.




9. Press .

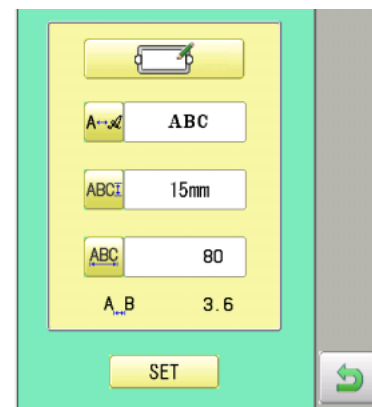
 Return to the Letter selection.

 Return to the Font Selection.

 Return to the Letter Height selection.

 Return to the Line Length.

**Happy**




## Create

You can create embroidery data from the letter settings.


10. Press .

The new pattern data will be created. Then you will return to menu mode.

Press  and go to Running Screen.

You can see letter created as embroidery data.

The first 8 letters will be shown as the name of the pattern which you have made by letter selection.

If you cancel, press .

You will return to Menu mode.



This sets up a succession of patterns that can be embroidered in any desired sequence. The machine will proceed with the \*various settings set to each pattern.

- If you embroider a pattern like in Fig.1, you will need to set an offset as a pivot to each pattern in advance. If the offset is set to the first pattern like in Fig. 2, you will need to set a setoff point to the first pattern with the offset of the other pattern as a pivot. P12-8
- If automatic original point return is set, the machine will return to the original point when finished. If automatic original point return is not set, the embroider will finish at the end point of the last pattern.

## Setting example

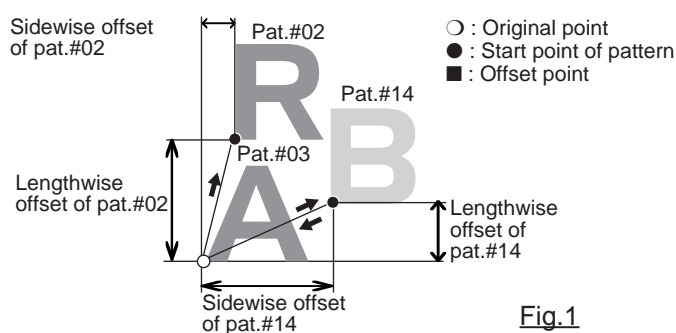


Fig.1

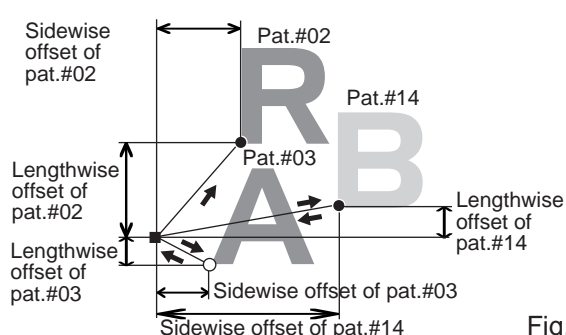


Fig.2

## Alter and Execution

This registers Queued patterns in order, and executes.

## Needle bar selection and Pattern settings

Needle bar selection and Pattern Settings for patterns selected to QUEUE operation can be applied by the following steps.

## Registration of QUEUE setting

Up to 10 QUEUE settings can be registered.

## Read QUEUE setting


Read registered QUEUE setting.

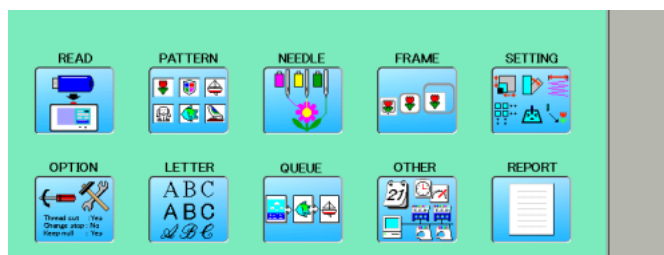
## Alter and Execution

This allows you to sew any combination of designs in sequence (up to 30 designs), and executes.

Once "QUEUE" is set, the pattern data registered and set in the "QUEUE" is embroidered until pattern data in "READ" is selected.

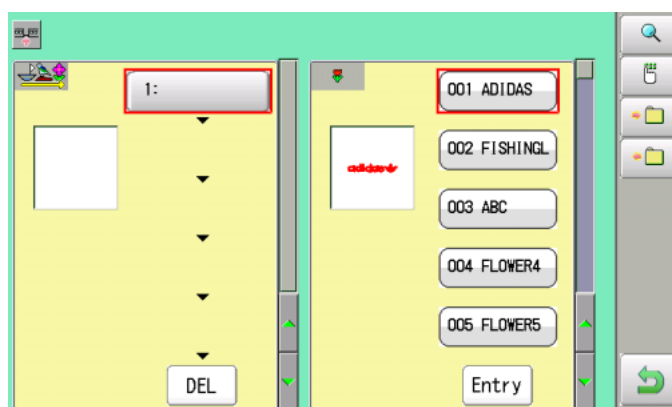
Therefore, you need to select other pattern data in "READ" to cancel QUEUE.

1. When the machine is stopped, press  .



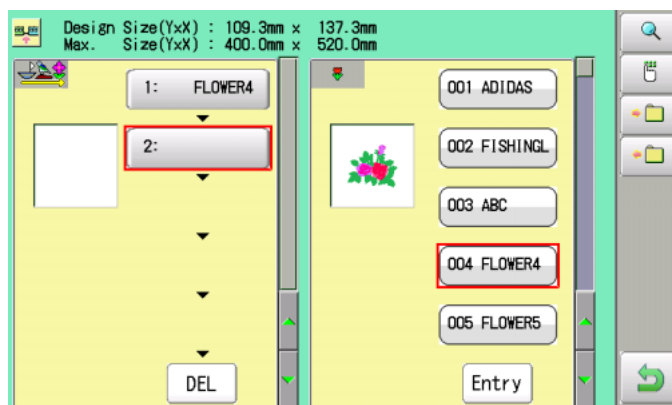
2. Select "QUEUE".

The left side shows the pattern data.



3. Select desired pattern and press  .

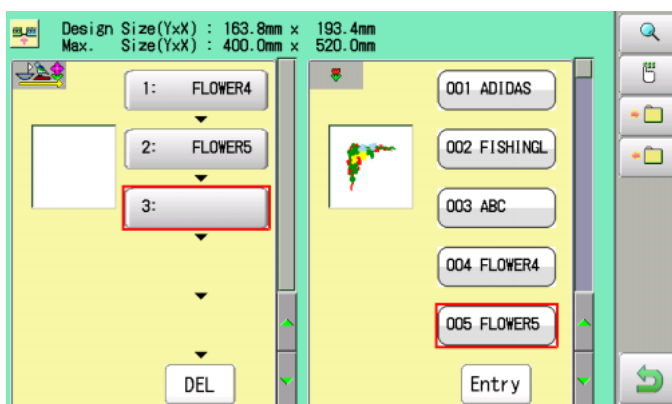
The selected pattern is shown to the left.



4. Select desired pattern and press  .

The selected pattern is shown to the left.

If you select other memory pattern data continuously, repeat step 4.



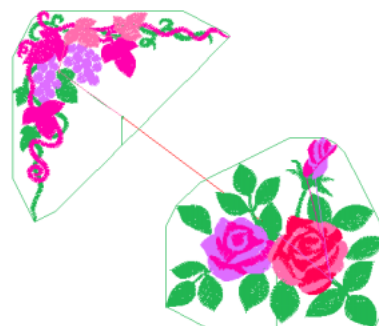


5. Combined design can be seen on Screen.  
To show combined design, please press



Illustration of the pattern selected will be displayed.

In case you do not need to check combined design, please go to step no.7.

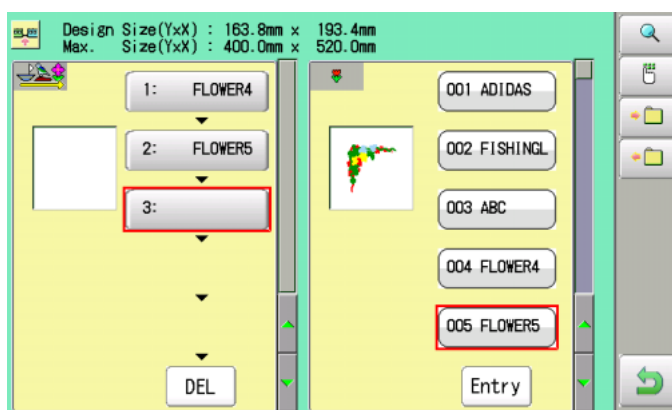


Design Size(YxX) : 163.8mm x 193.4mm  
Max. Size(YxX) : 400.0mm x 520.0mm

OK

6. Press

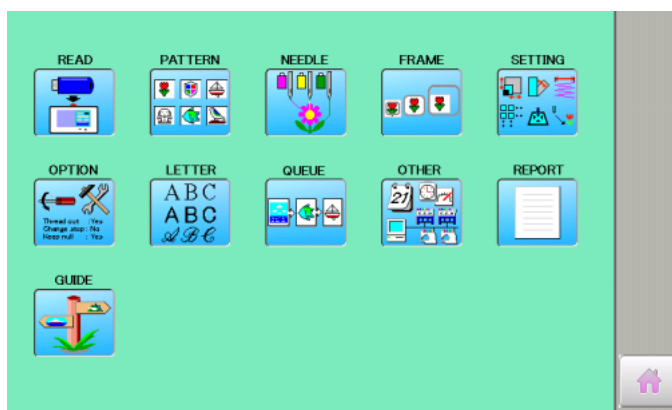
OK



7. Press



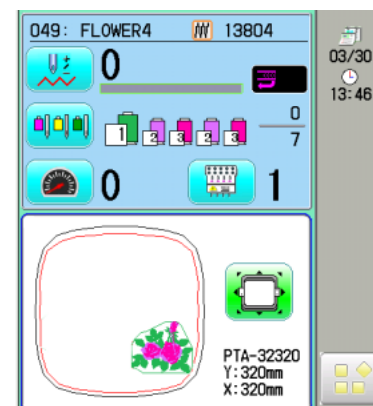
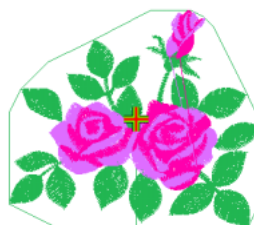
--- Check pattern data ---



8. Press



99.0 115.0



9. Press




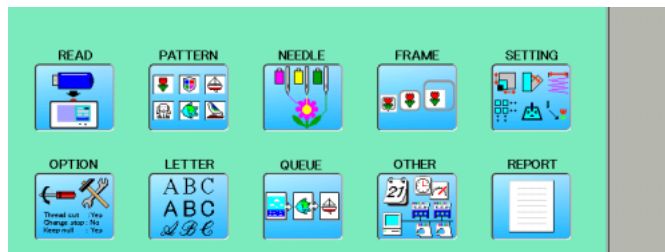
The machine will start a Queue embroidery with Queue operation in registered order.  
After finishing your last design, the display will show ">>End" and the machine will stop.

>>End

## Needle bar selection and Pattern settings

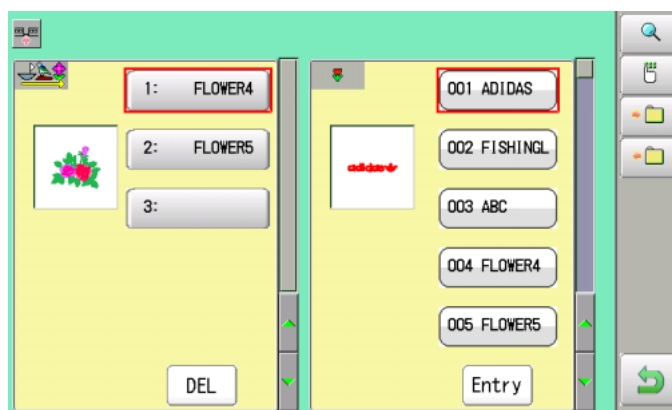
Needle bar selection and Pattern Settings for patterns selected to QUEUE operation can be applied by the following steps. (Setting can be done without returning MENU screen.)  
You can do these setting also from MENU screen, and the last setting will be valid.

1. When the machine is stopped, press .

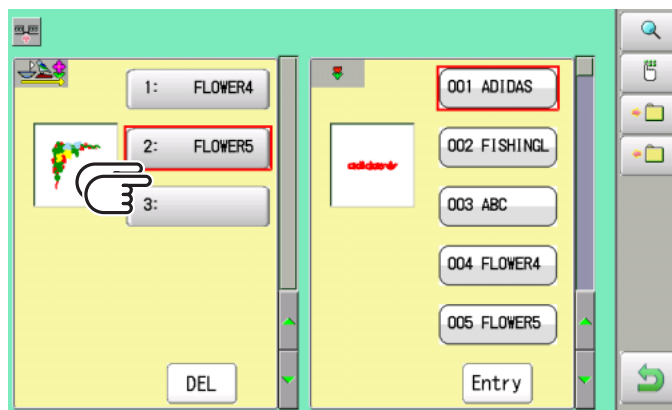


2. Select "QUEUE".

The selected pattern is shown to the left.





3. Select desired pattern.



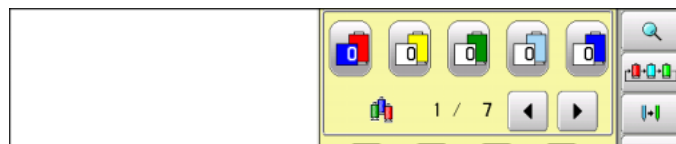
4. Press .



5. Select desired setting.

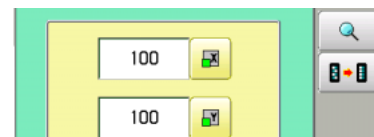
Please refer pages mentioned below for setting.  
"Needle bar selection"  5-E,  
"Pattern settings"  12-1


Needle bar selection



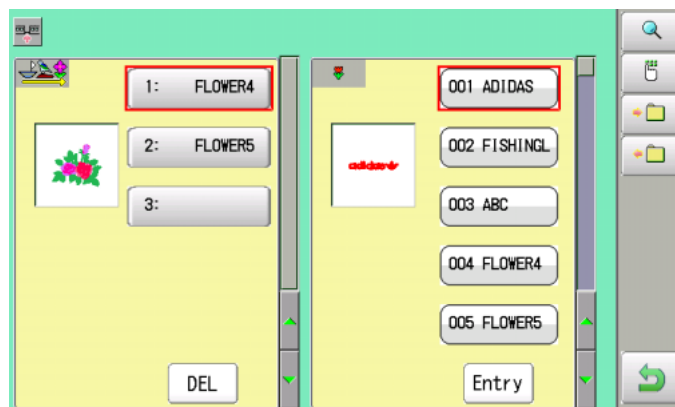
Pattern settings


 99.0  115.0



6. After setting, press .

For setting of "Needle Bar Selection"[NEEDLE] and "Pattern Setting"[SETTING] to other design, please do steps no.3-7.



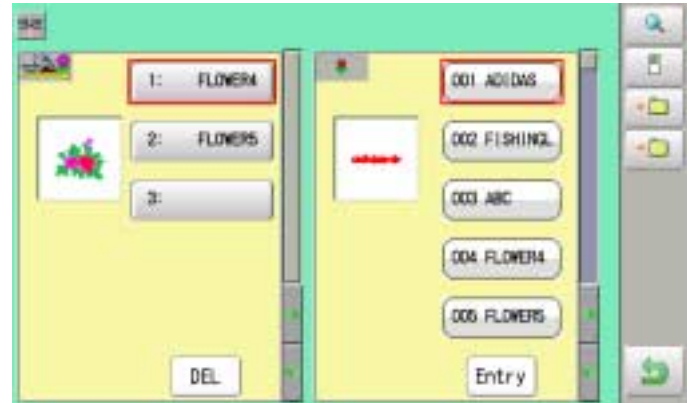
Press  to return to Menu mode.

## Registration of QUEUE setting

Up to 10 QUEUE settings can be registered.

Once you register QUEUE you can select registered QUEUE setting anytime.

1. According to step 1-8 of "Alter", select patterns.



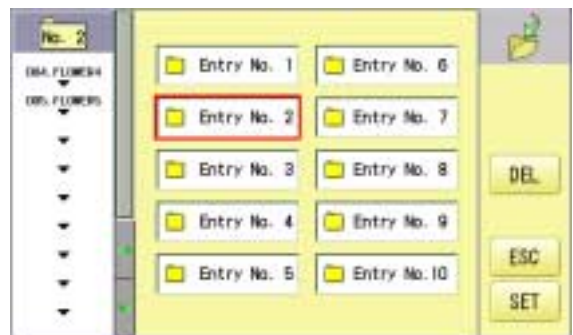
2. Select .




3. Select registration No. and press .

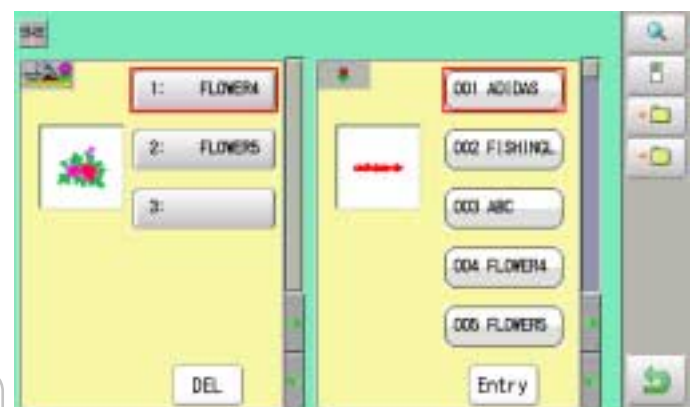
When pattern data is not displayed on the left side on the screen, no pattern data is registered in the holder of the setting Çmo.

 Registration is deleted.




4. Press .

QUEUE setting is registered as setting No.2.




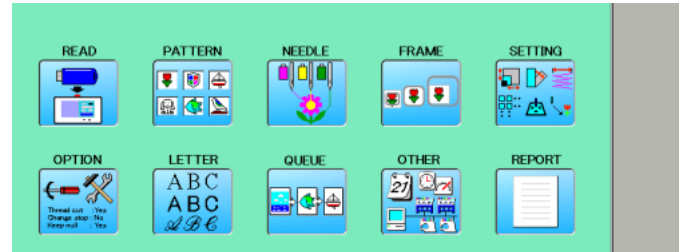
Press  to return to Menu mode.

■ In case you delete pattern from machine memory, QUEUE setting which has deleted pattern will be deleted too. (Erasing patterns from memory  5-B)

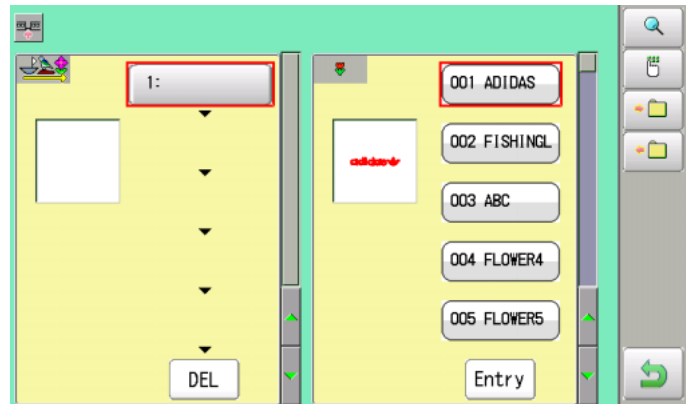
## Read QUEUE setting

Read registered QUEUE setting.

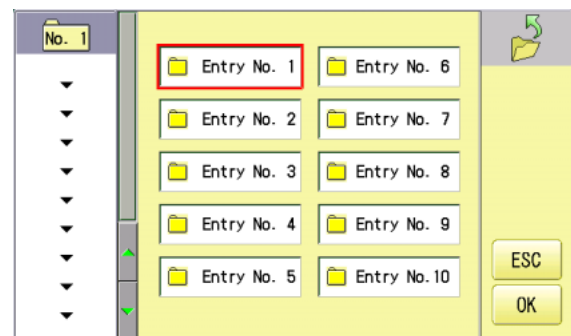
1. When the machine is stopped, press .



2. Select "QUEUE".

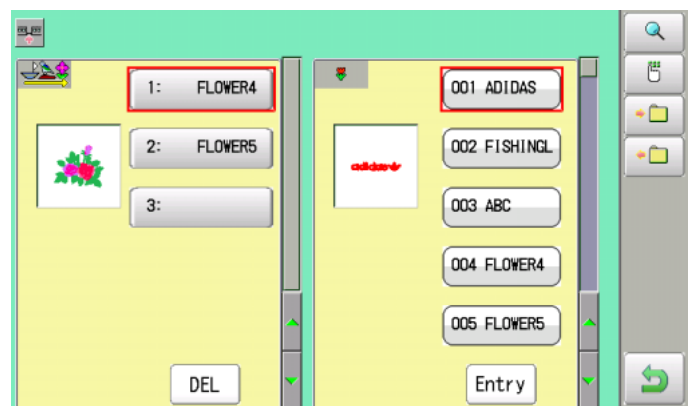



3. Select .



4. Select number and press .

QUEUE setting is selected.



Press  to return to Menu mode.

By default the machine checks if the pattern fits the embroidery area.

This helps you to check whether or not the selected pattern fits in the desired hoop.

This helps confirm positioning between the embroidery area and the pattern.

If you change the frame position by the frame move key, the display will be changed and you can check the position onscreen.

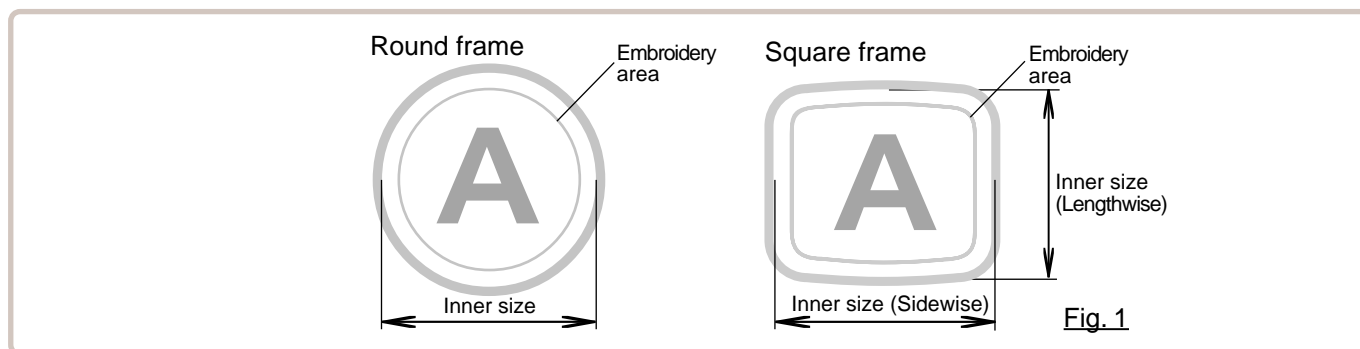
- ⚠ The "monitor display" checks whether or not the pattern fits the embroidery area of the frame you are going to use before starting the operation.  
This is not a safety device that will prevent crashes if pattern size is too large for the frame; it is intended for your reference only when judging the fit of a pattern to a given size frame. After using "monitor display", do not move the frame. If you do so the machine may be damaged due to the needle or pressure foot hitting the frame.
- ⚠ Make sure to perform "Registration number selection" when changing hoop size. If not done, the machine may be damaged from the needle or pressure foot hitting the frame.


## ●Frame selection

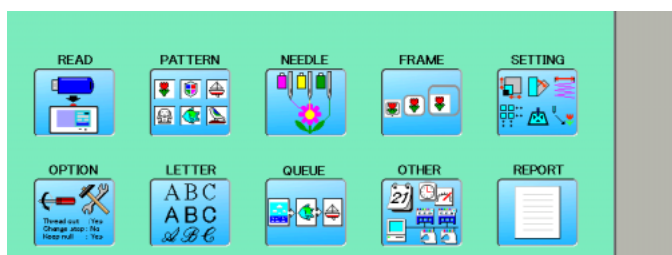
Selecting a frame.

The embroidery area for each registered frame is set to the inside of the frame edge to allow for pressure foot clearance. (Fig. 1)









This allows confirmation of positioning between the embroidery area and the pattern.

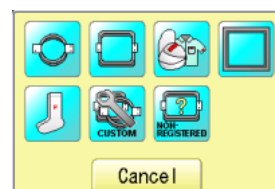


1. When the machine is stopped, press .





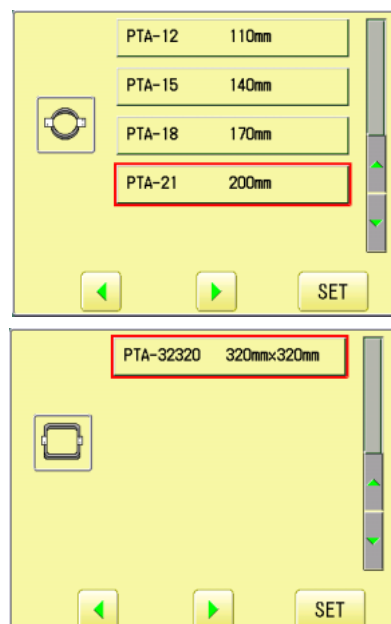
2. Select "FRAME".

-  Tubular round frame
-  Tubular square frame
-  Cap and One-point frame
-  Border frame (for HCD2)
-  Sock frame
-  User-defined frame
-  Non registered 



2. Select type of frame.


  Change the type of frame.




6. Select desired size of frame and press

SET .

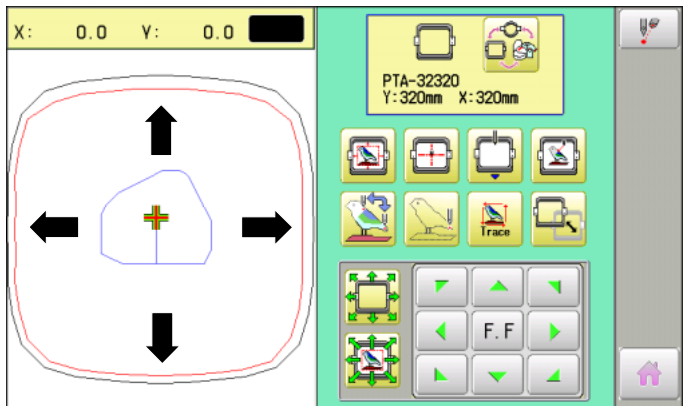
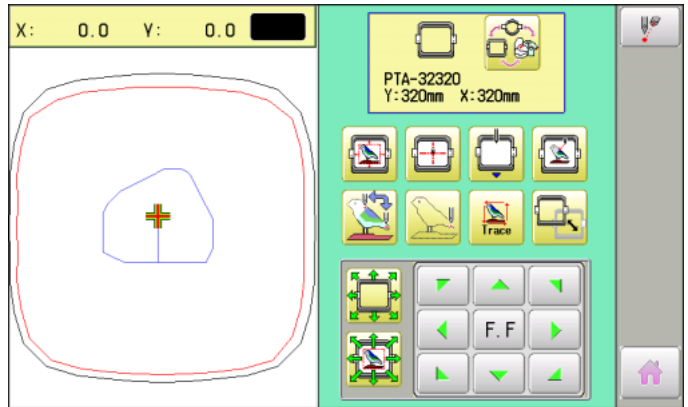
The type and shape of the frame is in black and embroidery area and outline of the pattern itself appear in red. All are displayed on the left together.


7. Confirm that  (Top) appears in the display and go to step 4.  
If this does not appear, go to step 3.

8. Press  "Top".


Upper right indication of  will be shown.

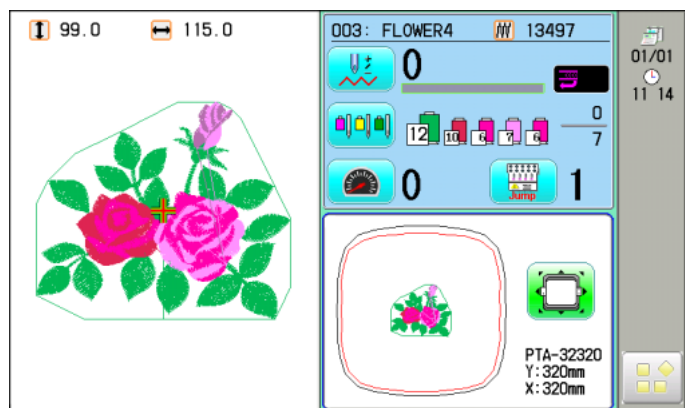
9. By  position of design can be moved.



10. Press .

The display returns to MENU.

Start sewing by pressing .

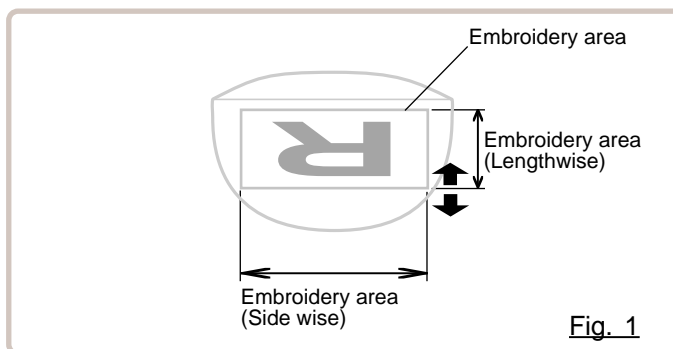




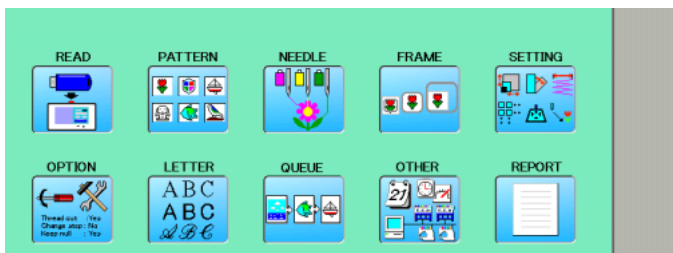
## ● Adjusted for embroidery area

### Cap frame

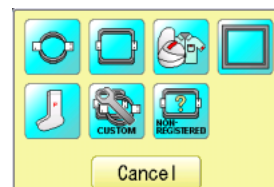
The embroidery area of HAPPY semi-wide and wide cap frames is saved in the machine.  
The Y axis of the embroidery area can be adjusted for a variety of caps. (Fig. 1)



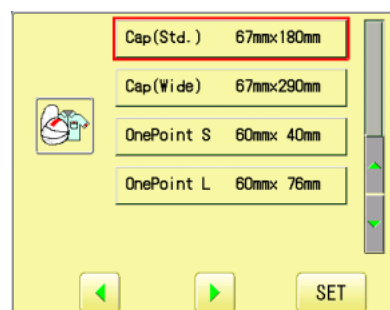
1. When the machine is stopped, press



2. Select "FRAME".



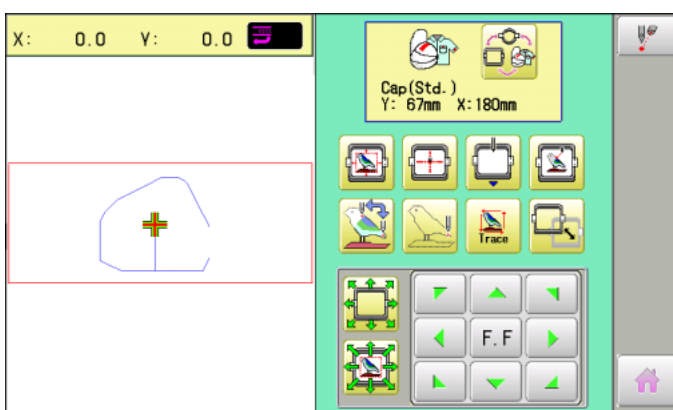
3. Select "Cap" and "One-point frame".



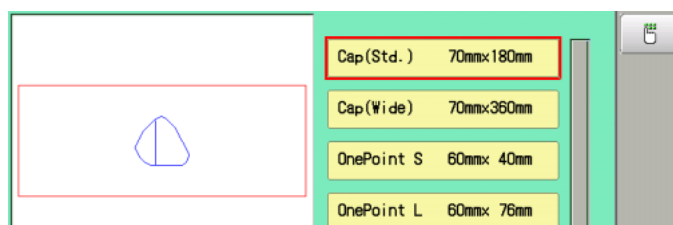
4. Select desired size of frame and press




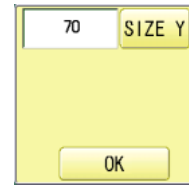
The embroidery area and outline of the pattern itself appear in red. All are displayed on the left together.



5. Press



6. Press .



7. Press .




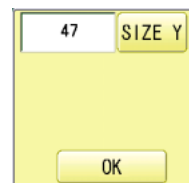
8. Select the number .

Enter the width of the cap.

Size Y : 40 ~ 67mm

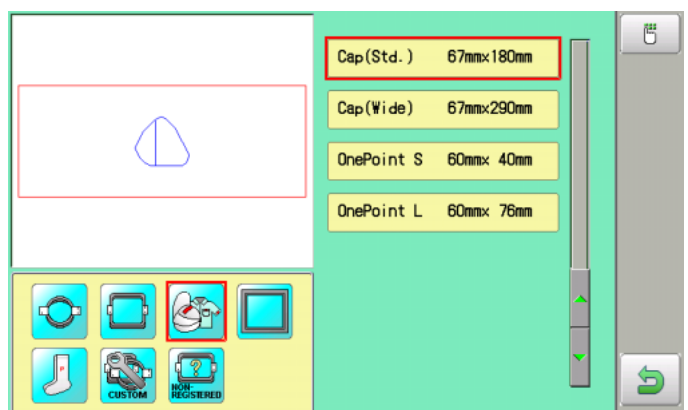


9. Press .

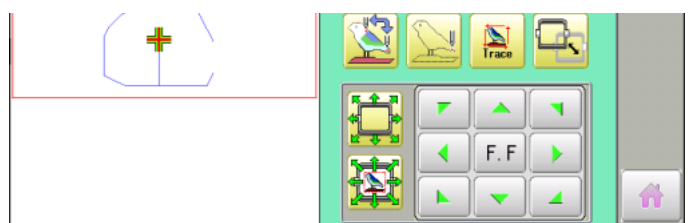


10. Press .

The setting is fixed.



11. Press .



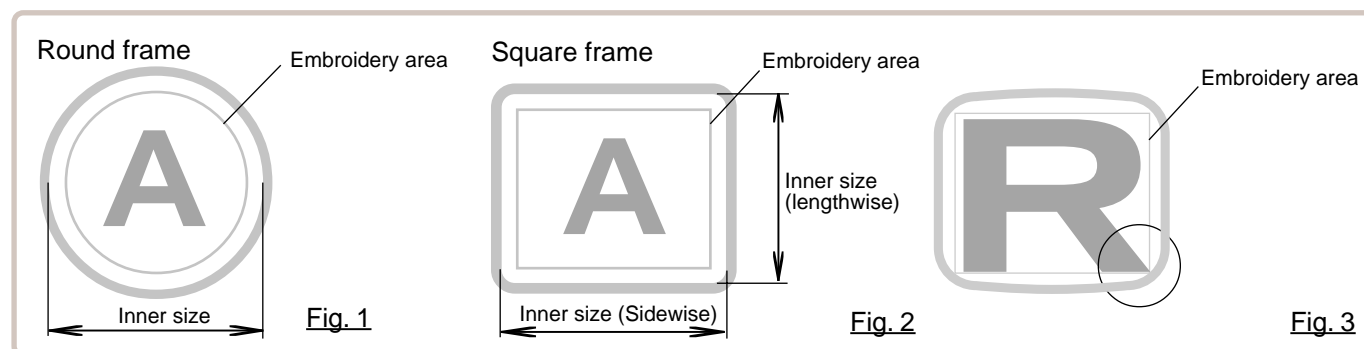
Press  to return to Menu mode.


## User-defined frames (1 ~ 5)

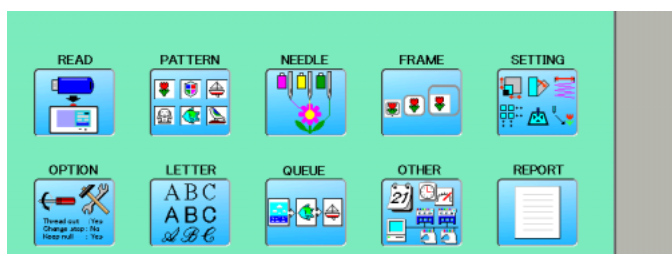
The embroidery area of each registered frame is set to the inside of the frame edge for pressure foot clearance. (Fig. 1, 2)

■ The embroidery area of each registered frame is set to the inside of the frame edge for pressure foot clearance. (Fig. 1, 2)

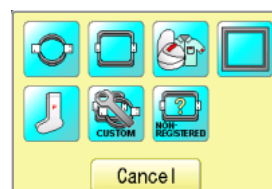
When you use square frame as shown in fig.3, pressure foot may hit the corner of frame. In this case you need to create frame as special shape under the frame No.6 - 20.



1. When the machine is stopped, press .



2. Select "FRAME".



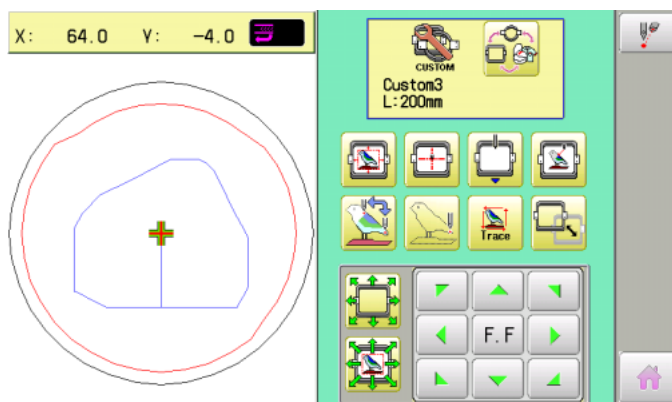
3. Select  "User-defined frames".



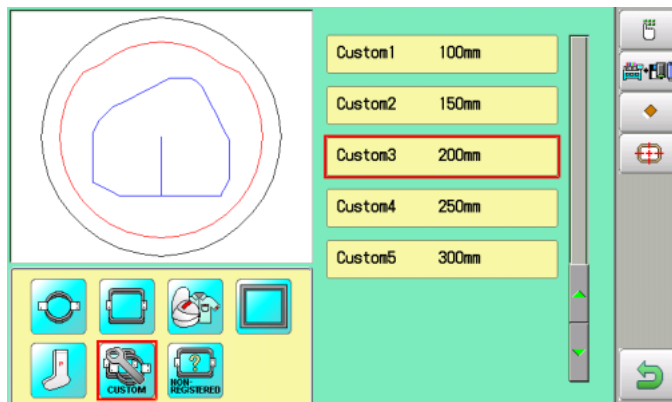
4. Select desired size of frame and press




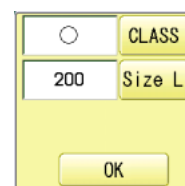
The embroidery area and outline of the pattern itself appear in red. All are displayed on the left together.



6. Press .



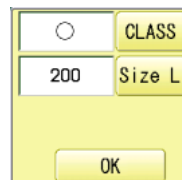
7. Press .



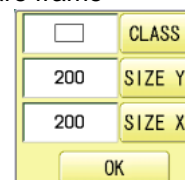
8. Press **CLASS** to select the hoop (Class).

- ☐ : Round frame
- ☐ : Square frame

Case for selected round frame



Case for selected square frame



9. Press **Size L**.

Select **SIZE Y** or **SIZE Y** you wish to change square frame size.

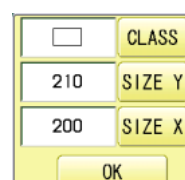
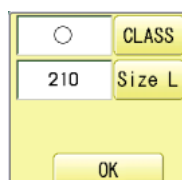


10. Select the number .

Input number for size of embroidery area.



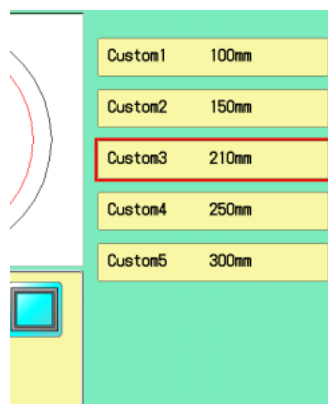
11. Press **SET**.



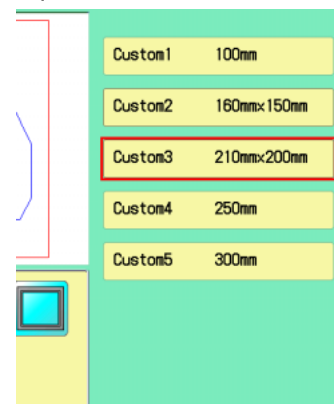
12. Press .


The date is fixed.

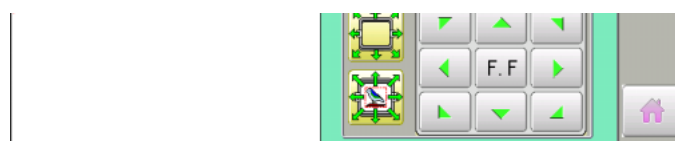
Case for selected round frame



Case for selected square frame



13. Press .



Press  to return to Menu mode.

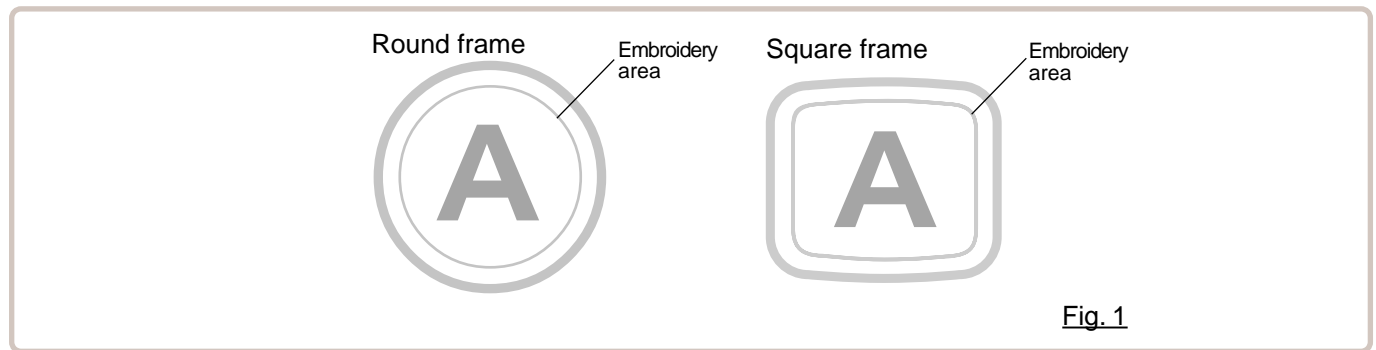
## ●User-defined frames (6 ~ 20)

You need to prepare for the data which entered the shape of the frame and entry the entered data.

You can entry the data up to 15 different size of custom frames.

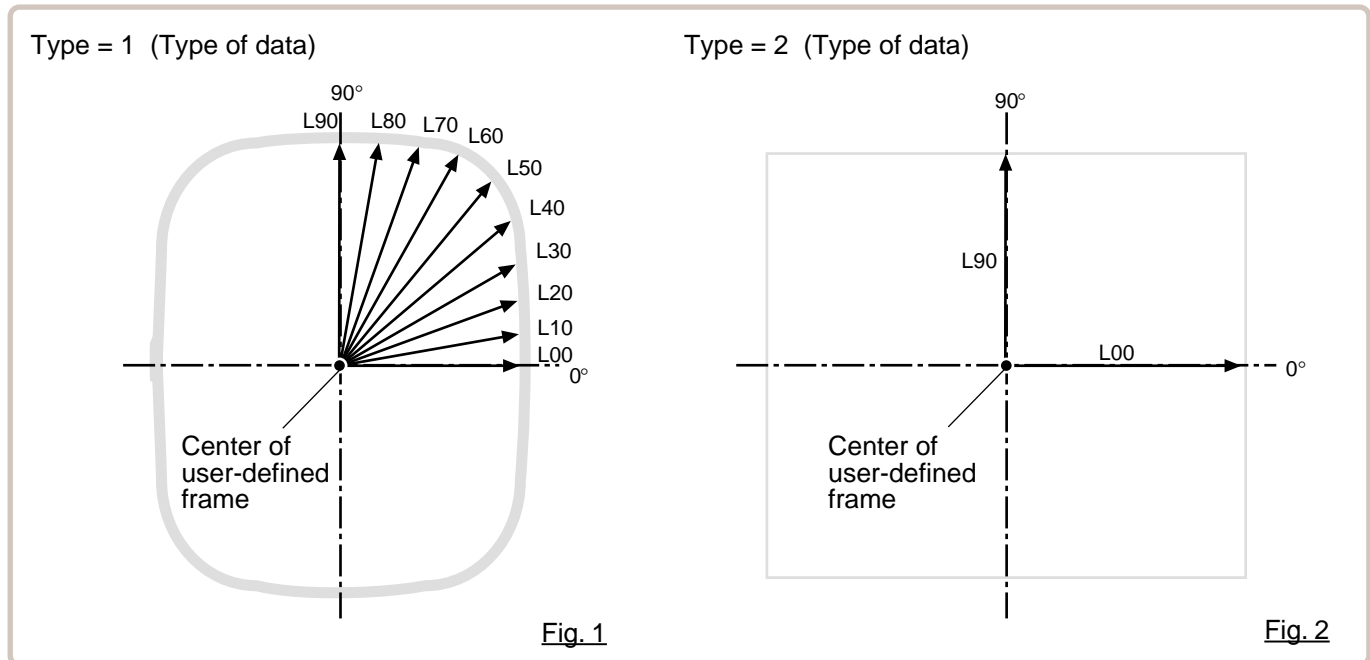
You need to prepare custom frame size data for entry the size to your machine.  20-B

The embroidery area for each registered frame is set to the inside of the frame edge to allow for pressure foot clearance. (Fig. 1)



## How to make frame size data of your User-defined frames (6 ~ 20)

We need to use text edit software of PC like "WordPad" and make frame size data with following constitution, then entry the data to your machine.



## Frame data constitution

Type = [Type of data]

Name = "[Name of frame]"

Form = [L00],[L10],[L20],[L30],[L40],[L50],[L60],[L70],[L80],[L90] (Frame shape)

Type : Select type of data by following number.

1 : Frame size    2 : Possible embroidery size

Note: If select "1", machine will memory reduced size for Presser foot diameter automatically.

If select "2", machine will memory exactly same size as can embroider it on.

Name : Naming the your User-custom frame. Pick up to 10 letters up with a "mark.

Form : Refer the above figure. Please fill it out every 10 degrees of dimensions to the inside of the frame in a frame heartily. (20 to 500mm)

Fill it out length from point from No. L00 till L90 total 10 points size using ", " between the each size data.

If your frame shape is Round, the every 10 points length frame size data should be same.

If you select Type (Type of data) "2", please put length data of L00 and L90 only.

END : Please fill out the line of the last of data. Please make entry of "END" by all means.

Please use half width character for the length data.


Please cut off the decimal of the length.

Example: 102.3mm -> 102

When you save the frame size data, please save as text document form and file name should be less than 8 characters.

Extension should be ".TXT"

Example: ROUND250.TXT

Please save the frame size data to machine usable memory media and read the data by embroidery machine.  20-D

## Example of making the frame size data

Sample for each teaching method (Type 1 and 2).

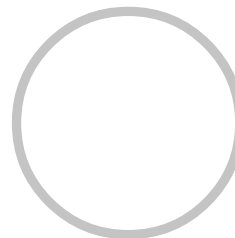
Ex. Round frame

Type = 1

Name = "Round"

Form = 125,125,125,125,125,125,125,125,125,125

END



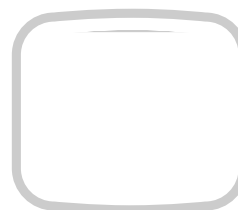
Ex. Square frame

Type = 1

Name = "PS240"

Form = 120,122,126,130,128,120,106,100,96,94

END



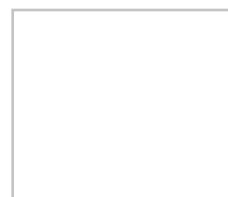
Ex. Possible embroidery size

Type = 2

Name = "T-SC-01"

Form = 90,60

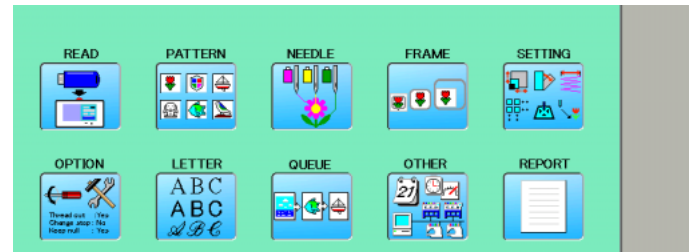
END





## Reading frame data

1. When the machine is stopped, press



2. Select "FRAME".

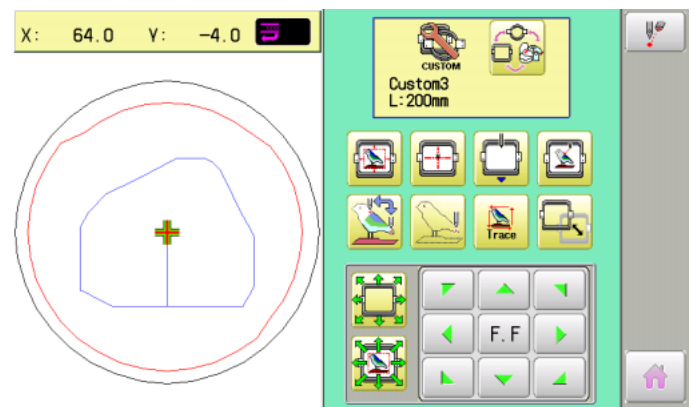


3. Select  "User-defined frames".

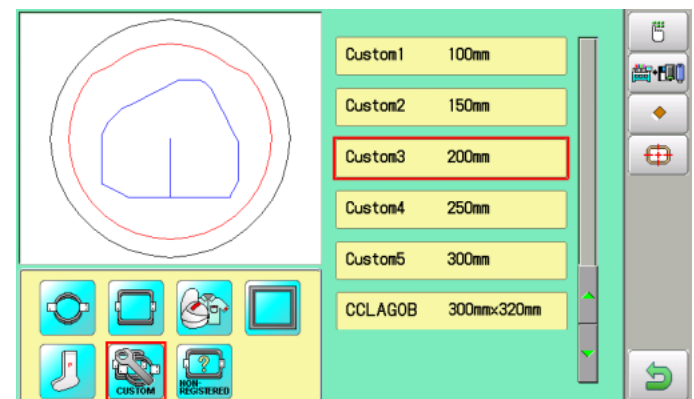



4. Press .

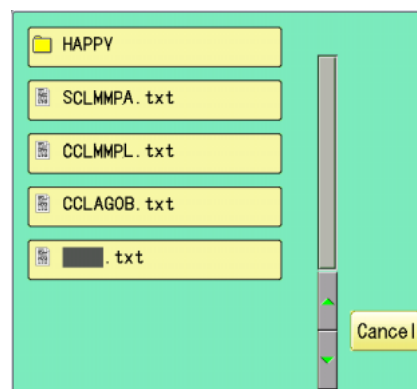
You can choose any frame options.



5. Press .

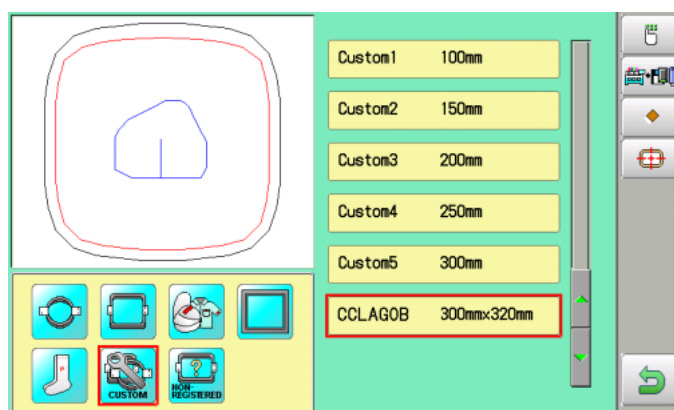



6. Press .

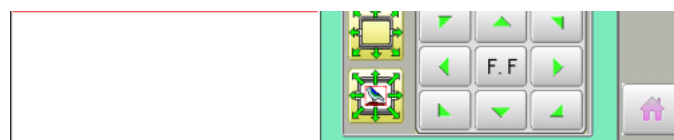


7. Select the frame data "\*\*\*\*\*.txt".

The frame data has been read.




8. Press .

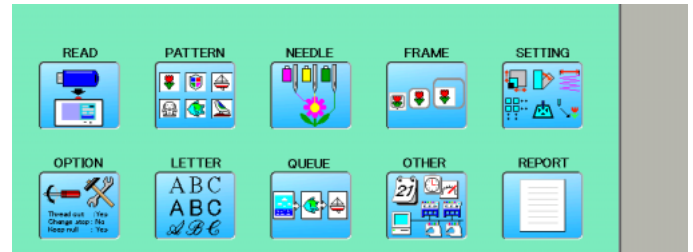


Press  to return to Menu mode.

## How to delete the resisted user-defined frames (6 ~ 20)


Delete resisted User-defined frame from memory.

1. When the machine is stopped, press .




2. Select "FRAME".

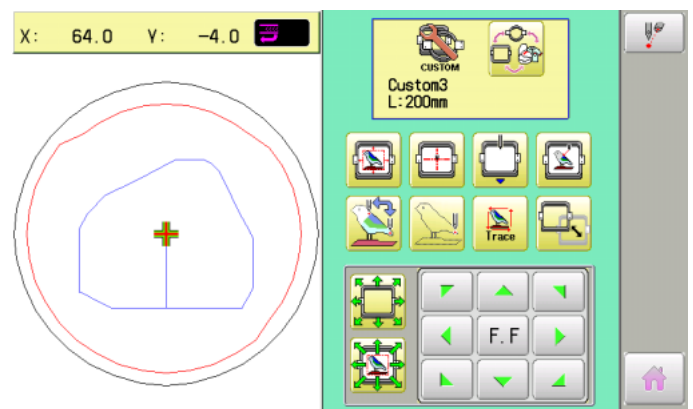


3. Select  "User-defined frames".

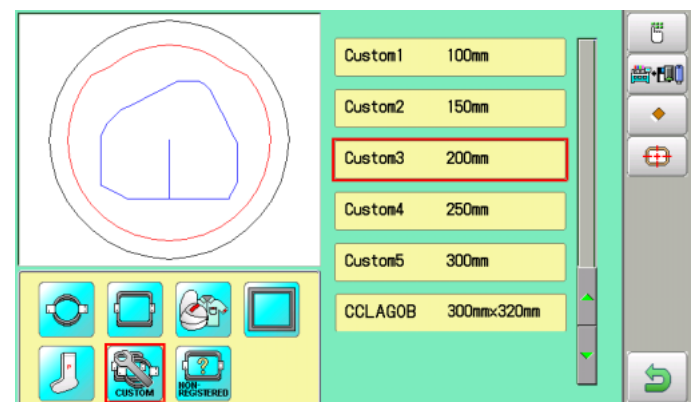


4. Press .

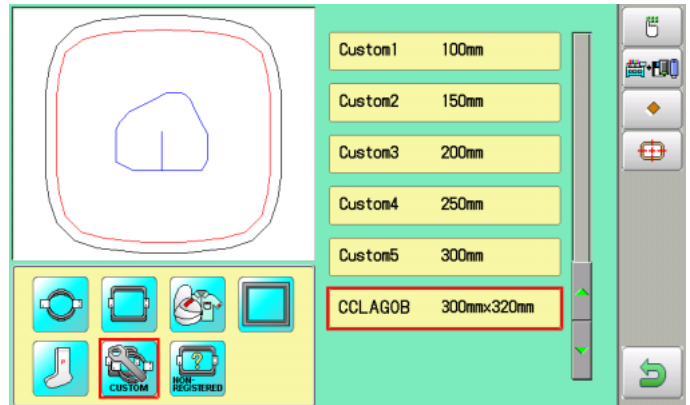
You can choose any frame options.



5. Press .

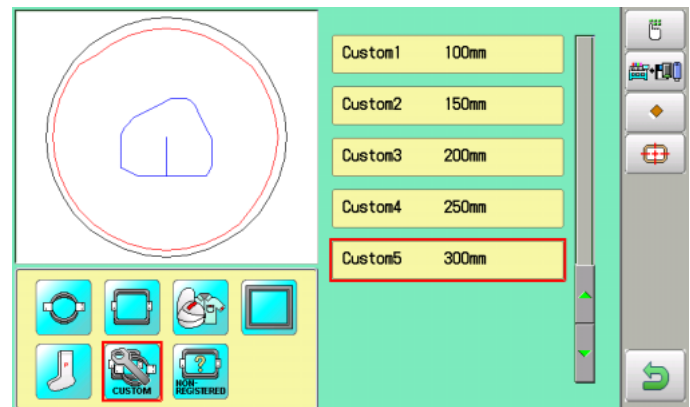


6. Select desired User-defined frames.

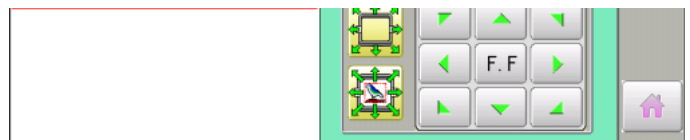



7. Press .

The user-defined frames will be deleted.



8. Press .




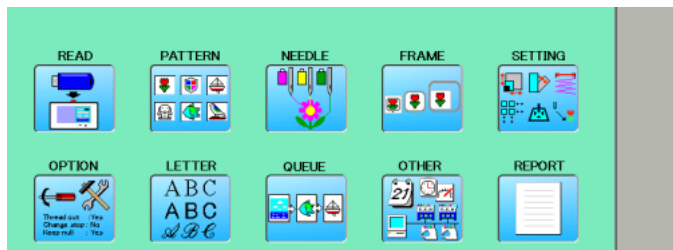
Press  to return to Menu mode.

## ●How to change center point of frame (1 ~ 5, 6 ~ 20)

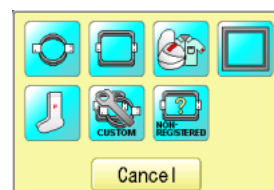
You can change memorized frame center point.


When you set your frame and use machine function of "Frame move" and "Center" ( P 3-9b ), If your frame is not center, please practice following steps for center setting again.

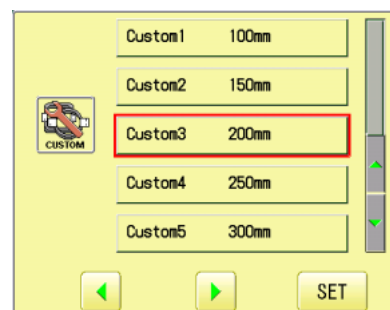
1. When the machine is stopped, press  .



2. Select "FRAME".

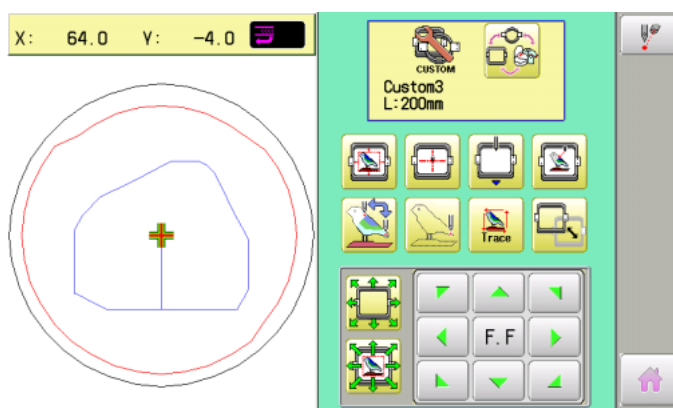


3. Select  "User-defined frames".

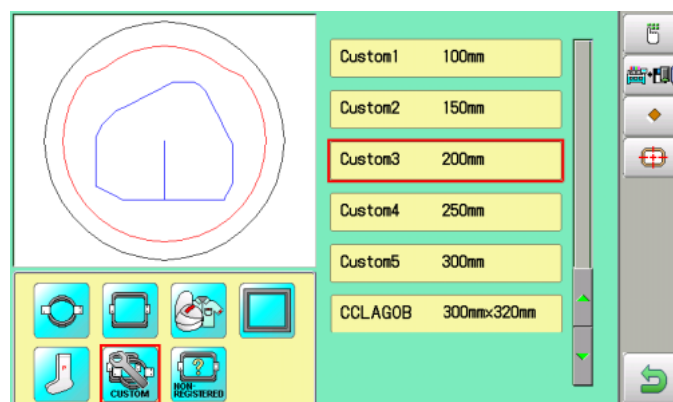


4. Press  .

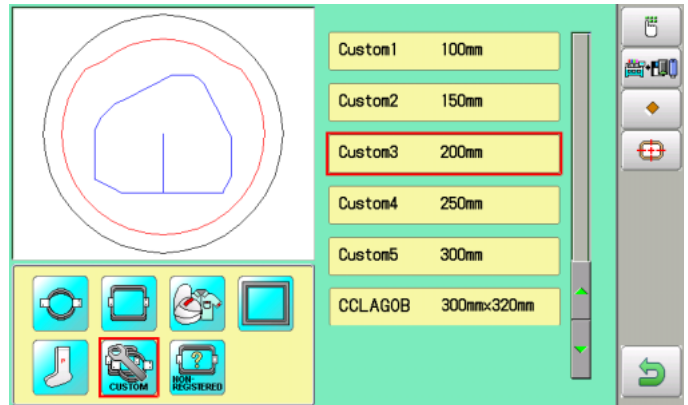
You can choose any frame options.



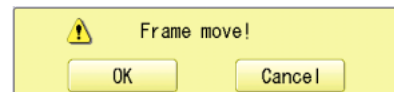
5. Press  .



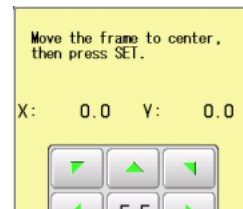
6. Select desired User-defined frames.



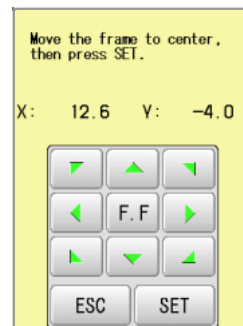
7. Press .




8. Press .

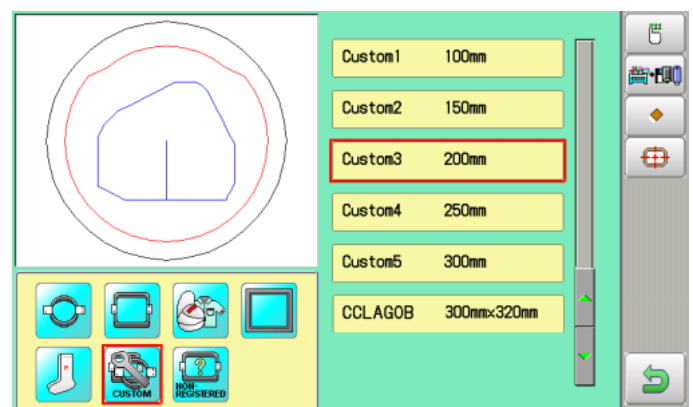



9. Move embroidery frame to frame center

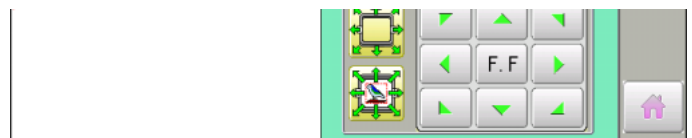



10. Press .

Memorized frame center point coordinate to the machine.



11. Press .





Press  to return to Menu mode.

## ● Non registered


In case Non Registered Frame is selected, carriage does not have movement for creating the coordinates of frame position at the time of turning machine on.  
Please select Non Registered Frame, when you need use special frame which can hit pressure foot or other machine parts by movement of carriage for creating the coordinates of frame position.

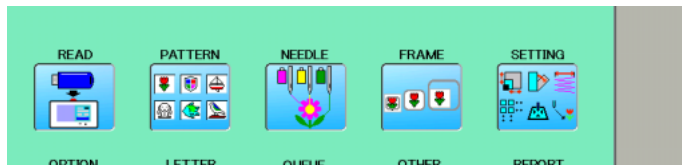
The following functions is canceled by selecting Non Registered Frame;

- \* Frame confirmation
- \* Restore the position at the time of power failure  9-2
- \* Locate  17-1
- \* Autostop function when movement exceeds the carriage limit.

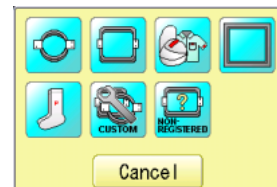


Except using special shape frame, please do not select Non Registered Frame.  
In case you have operation mistake, needle and/or pressure foot may hit frame and machine and/or frame can be damaged.

1. When the machine is stopped, press  .



2. Select "FRAME".

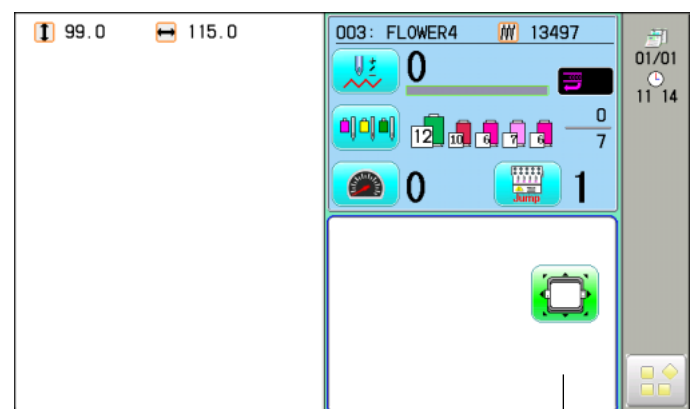


3. Select  "Non registered".



4. Press  .

Indication of frame type disappears.  
It means that "Non Registered" is selected.




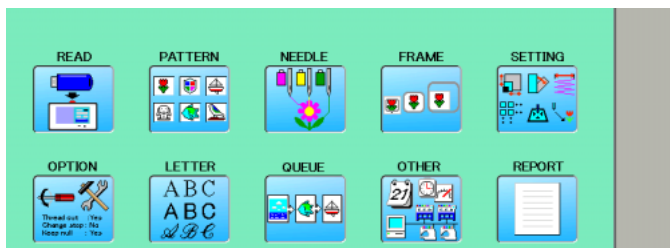
Frame indication disappears

- When you need to change from Non Registered frame to other type of frame, please power machine off and start again.  
Without re-starting machine, machine will move incorrectly.

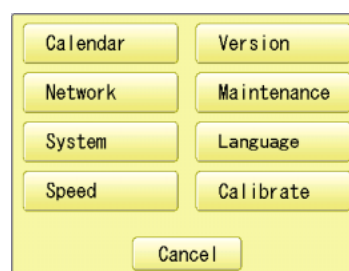
## ● Create network

Set this menu when you use Network cable to connect PC and machine(s).  
Also use separate network software instruction together with this setup.

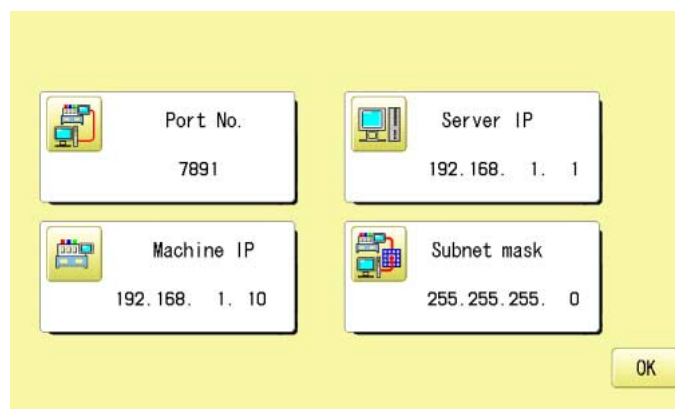
1. When the machine is stopped, press .



2. Press the .





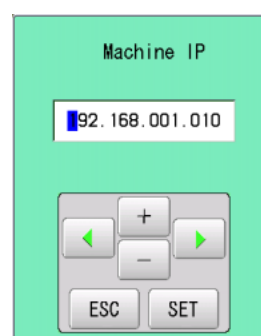
3. Press the .




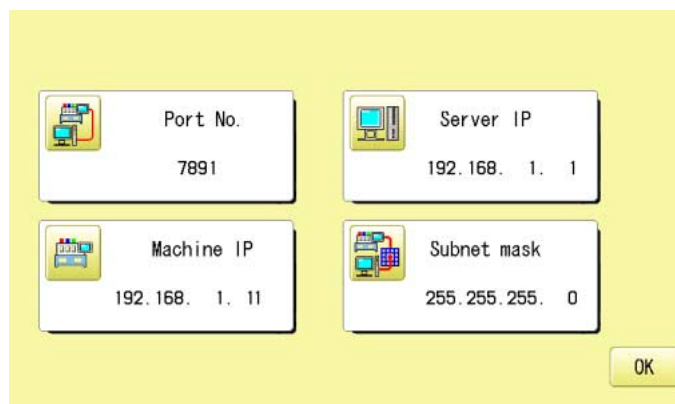
4. Select desired item.

Press right /left of   to select the


setting point, and press up/down of   to select the number.

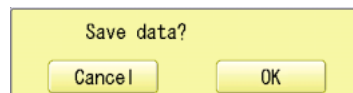



5. Press the .






6. Press the .



7. Press the .




8. Press the .

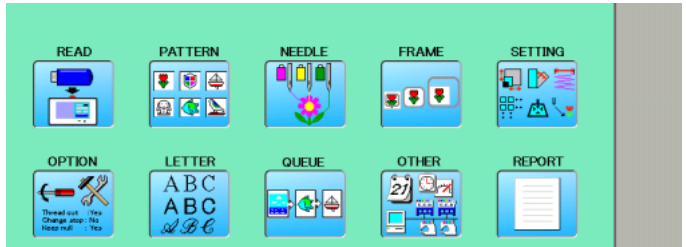
The machine will be rebooted and show Drive mode in the display.  
The date is fixed.



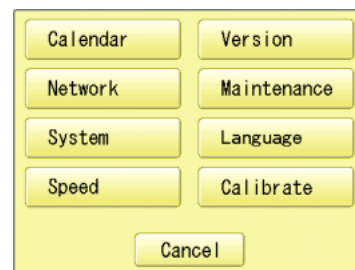
## ● Version information


Displaying machine operation software version number.

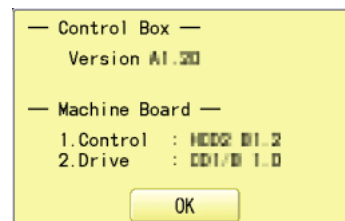
1. When the machine is stopped, press .



2. Select "OTHER".

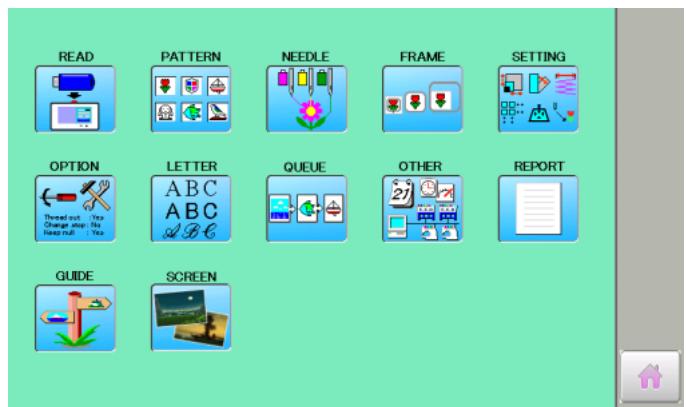


3. Press .



4. Press  after confirm version number.


The display returns to MENU.

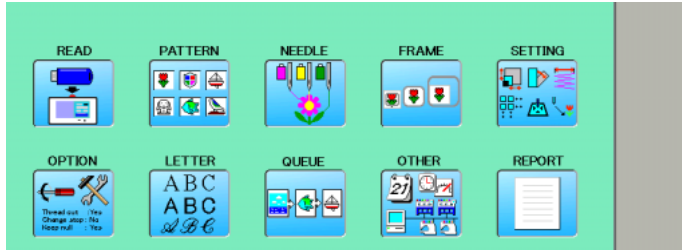


Press  to return to Menu mode.

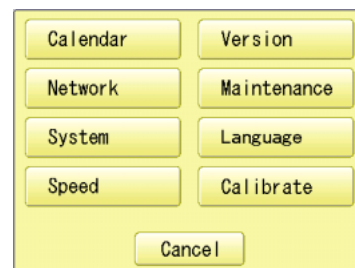
## ●Language

Change the language displayed on control box.

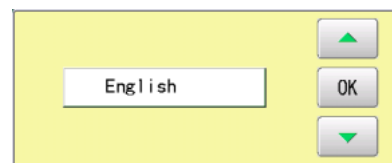
1. When the machine is stopped, press .



2. Select "OTHER".



3. Press .




2. Select the Language by  .



3. Press .

The language has been changed, and the display returns to MENU.



Press  to return to Menu mode.

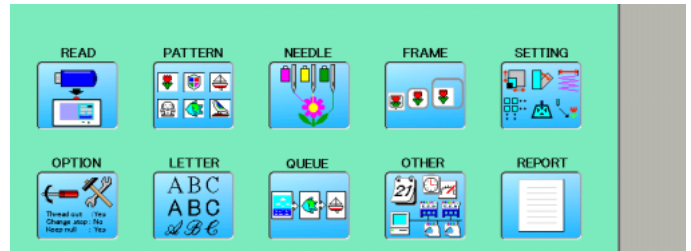
## ●Calibrate

Calibration for the touch panel LCD.

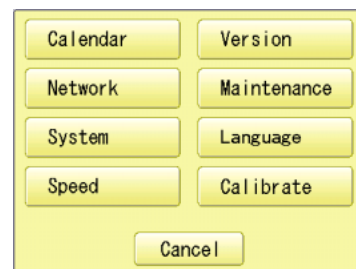
Touch panel is already adjusted and you do not need adjustment of the panel.

If the screen does not recognize correct position of each icon and you cannot operate, please adjust the screen as follows:

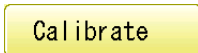
1. When the machine is stopped, press



2. Select "OTHER".



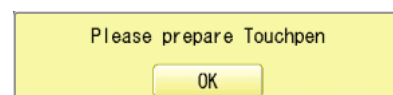
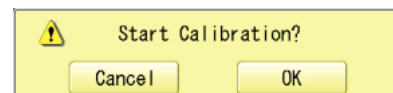
3. Press



4. Press

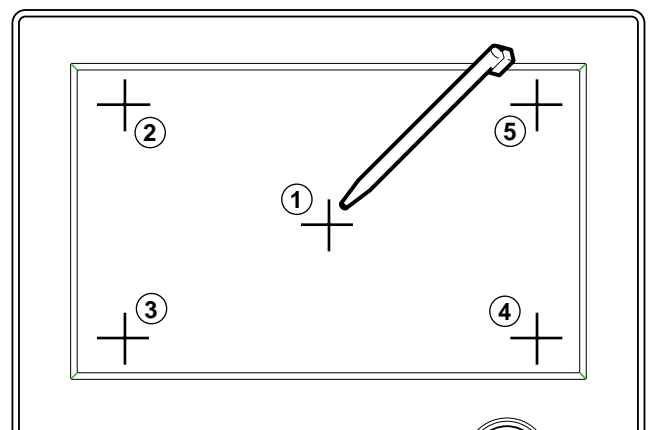


Prepare built-in stylus.



5. Press the center of "+" displayed in screen in numerical order by a stylus.

"+" will appear in numerical order.



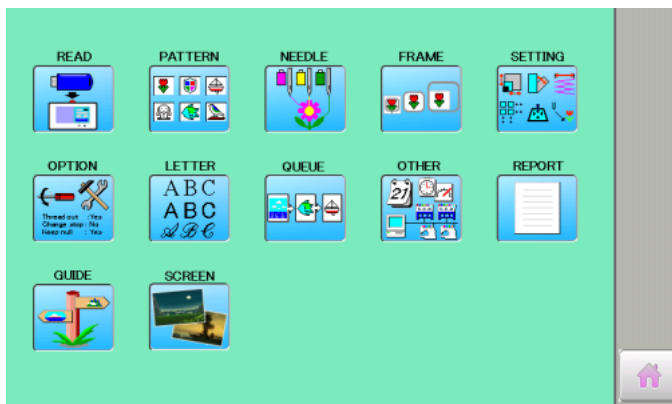
6. Press the 5th "+" by stylus.

The screen shows "New calibration settings have been measureÄc." at small letters.



- Press the screen with a finger (any location is okay).

After this operation, you can press the screen with a finger.  
Adjustment is complete, and the screen returns to Menu mode.




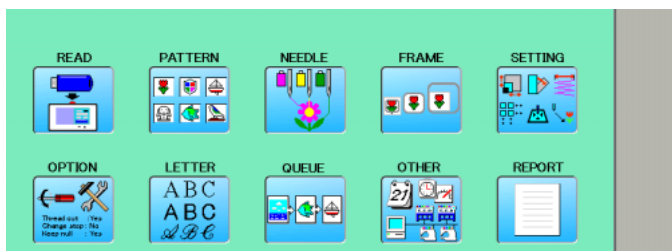
Press  to return to Menu mode.

Indicating operation record of machine.

Time of power on/off, and number of operated stitches will be recorded in machine memory.

If the machine is switched on without embroidery operation, it will not be recorded in memory.

1. When the machine is stopped, press .



2. Select "REPORT".


Indicate operation record



Maximum memory is up to 10.

If the record exceeds over 10, the new record will be added to the latest 9 records.

3. In order to exit the mode, proceed to the step 4.

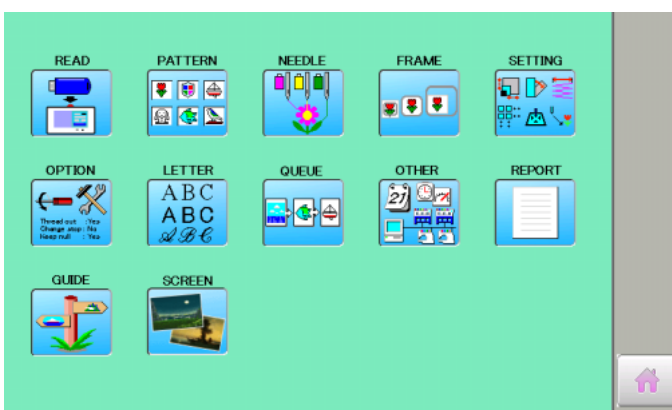
If you want to delete the record, press

 .

	Time of power on month/day/year/ hour:minute:second	Time of power off (1st raw is time of reporting.)	Number of stitches
1	04/07/2012/13:18:33	04/07/2012/13:19:27	0
2	04/06/2012/10:43:32	04/06/2012/11:09:08	24
3	04/05/2012/11:38:37	04/05/2012/15:38:33	13860
4	04/05/2012/11:30:05	04/05/2012/11:34:12	1929
5	04/05/2012/11:22:37	04/05/2012/11:29:09	4131
6	04/05/2012/11:18:27	04/05/2012/11:21:24	409
7	04/05/2012/10:42:58	04/05/2012/11:15:51	12842
8	04/05/2012/10:37:25	04/05/2012/10:40:32	399
9	04/05/2012/10:34:03	04/05/2012/10:36:32	112
10	04/05/2012/09:08:50	04/05/2012/10:28:36	74
	03/26/2012/10:56:20	04/07/2012/13:19:27	308261
			
	Time of deleting record or power on	Current time (time of viewing the report)	Number of stitches after deleting record

4. Press .

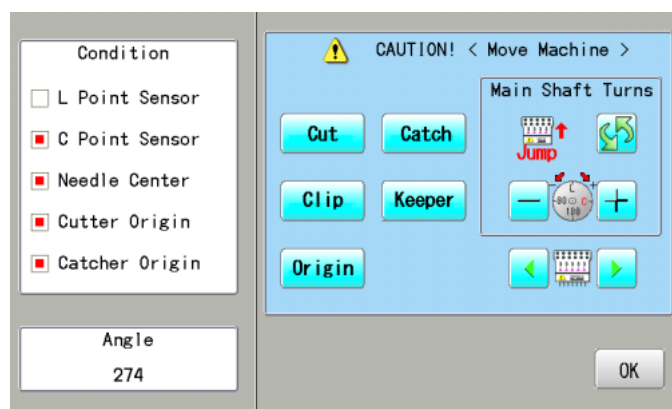
The display returns to MENU.


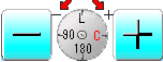










Press  to return to Menu mode.

## ● User maintenance mode

User maintenance mode has 5 items as below.  
Indicates point which sensors are active.




Button	Machine movement
 Change jump	Change the needle bar's movement. "JUMP" : Needle Jump, "DRIVE" : Needle Drive
 Upper shaft turns	Upper shaft turns clockwise and counterclockwise. When release button, upper shaft stops.  Caution: please be careful that Needles for all head move at once.
 Needle change	Move the sewing head to the adjacent needle in the direction of the arrows.
 Cutter Open/Close	When cutter is open position, cutter move to close position. When cutter is close position, cutter move to open position.  Caution: please be careful that cutter for all head move at once.
 Catcher Open/Close	When catcher is open position, cutter move to close position. When catcher is close position, cutter move to open position.
 Clip-type thread holder	When clip is open position, clip move to close position. When clip is close position, clip move to open position.
 Keeper	When keeper is open position, keeper move to close position. When keeper is close position, keeper move to open position.
 Standby position	In case, each equipment position without standby position, as example "Upper shaft is not at C point, Thread cut blade is not at stop position, Thread Catcher is open position", this key work for back to standby position automatically.

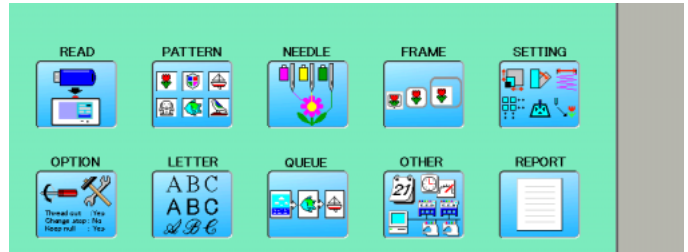
## Conditions


L point sensor	The point that indicator becomes RED is L-point, when upper shaft is turned.
C point sensor	The point that indicator becomes RED is C-point, when upper shaft is turned.
Needle sensor	The point that indicator becomes RED is needle position, when moving head is moved.
Origin point of cutter	The point that indicator becomes RED is origin point of cutter.
Origin point of thread catcher	The point that indicator becomes RED is origin point of thread catcher.

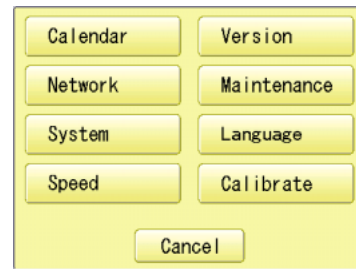
## Angle

Indicate angle of upper shaft.

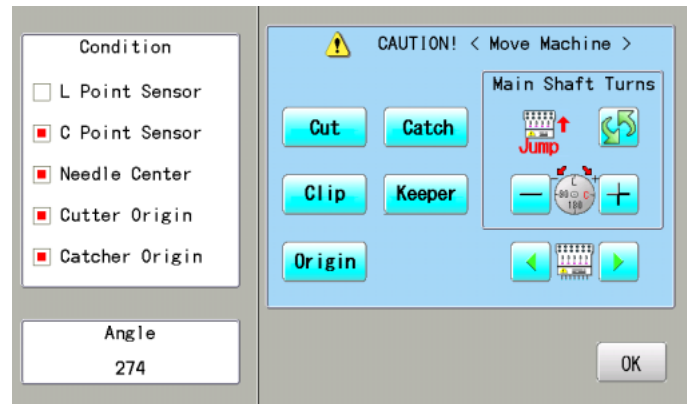
1. When the machine is stopped, press .



2. Press the .



3. Press the .




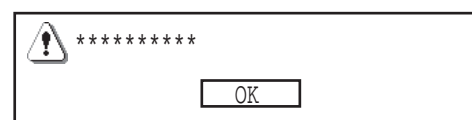
4. Press one key and check machine movement.

**CAUTION: To prevent accidents;**  
The machine moves quickly.  
Keep hands away from the machine.

One equipment was not standby position,  
machine show following message  
when you press key.

C point : Upper shaft is not at C point.  
Cut blade : Thread cut blade is not at  
standby position.  
Thread Catcher : Thread Catcher is open  
position.

Please press  for back to standby potion  
and repeat step 4 again.




Press  to return to Menu mode.




If screen saver is set, images saved in the machine are displayed on the screen in numerical order when the machine is stopped and is not in operation for a certain amount of time. Screen saver is cancelled when any place on the touch screen is touched.

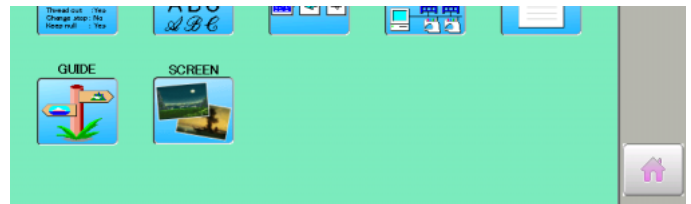
■ If the setting time of "display off timer" on "OPTION" is shorter than one of screen saver, screen saver is not displayed.

Make sure the setting time of "display off timer" is longer than one of screen saver when both screen saver and "display off timer" are used.  5-2

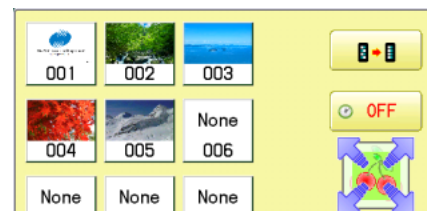
## Start-up time

Set the time to start screen saver

1. When the machine is stopped, press .



2. Select "SCREEN".




3. Press .



4. Select the number. (Unit : minute)

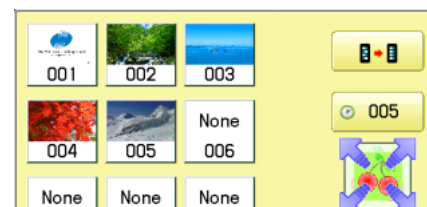
 Changing is cancelled.

 Numbers are deleted.



5. Press .

6. Press .




The setting is fixed and display returns to MENU.

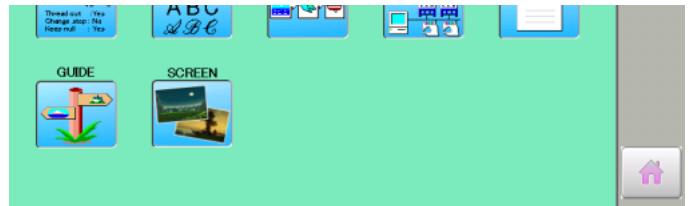
Press  to return to Menu mode.



## Slide direction

Set the slide direction of the screen saver image switched to the next image displayed on the screen.

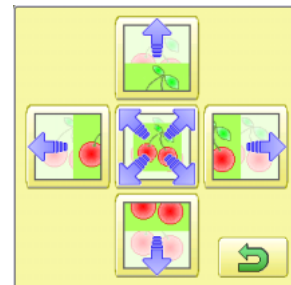
1. When the machine is stopped, press .





2. Select "SCREEN".

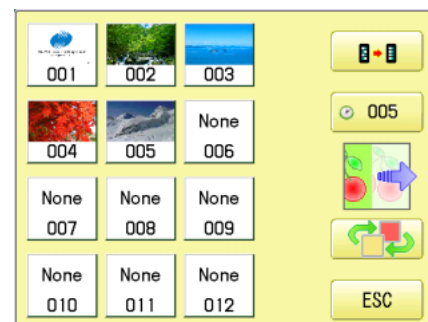


3. Press .



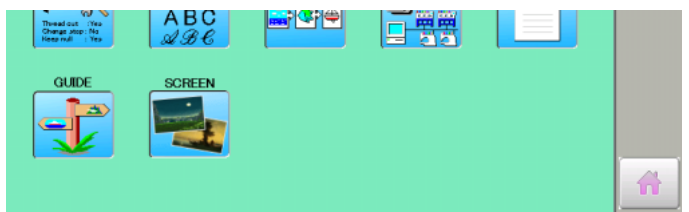
4. Select the direction.


 Changing is cancelled.  
 Numbers are deleted.



5. Press .

The setting is fixed and display returns to MENU.



Press  to return to Menu mode.


## Change and delete image(s)

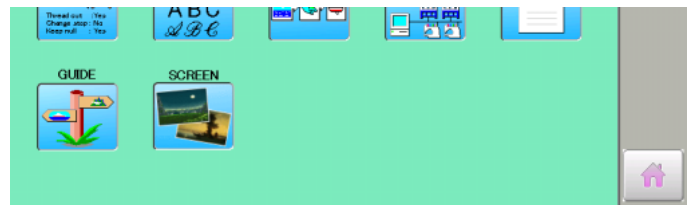
This is done to change or delete screen saver image(s) 5 images are pre-installed in 001 thru 005.

Maximum 12 images can be saved by adding images.

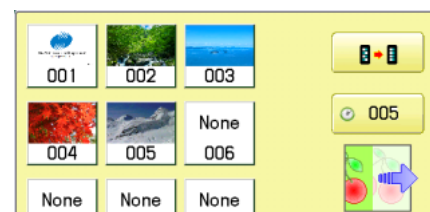
Please refer to 22-B regarding how to make the image file.

1. When an image is changed, insert the USB memory into the machine.

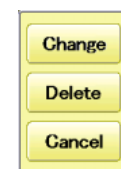
2. When the machine is stopped, press .



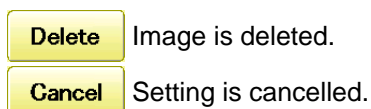
2. Select "SCREEN".



4. Select the image to be unwanted or deleted saved on the screen.



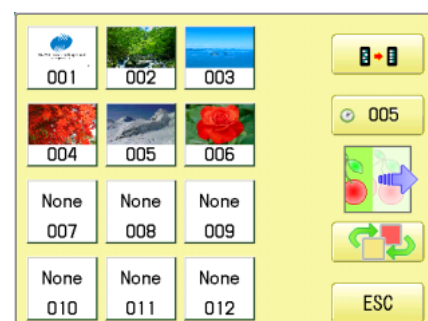
3. Press .



4. Select Image file.

Press the image file name you would like to add on the screen.

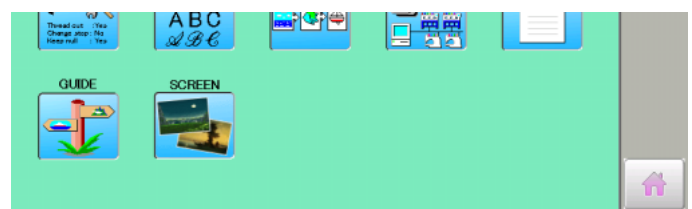
Ex: The new image is added in the 006.



5. Press .

The setting is fixed and display returns to MENU.

Press  to return to Menu mode.




## Initialization of registered images in the machine

Screen saver images to set current status to initial status (factory setting).

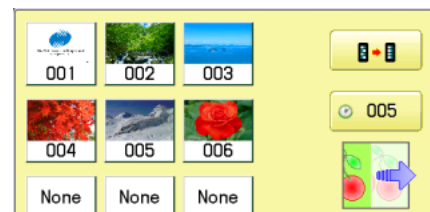
Original images in 001 to 005 are restored although they are deleted.

All the images saved in 006 to 012 are deleted.

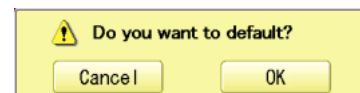
1. When the machine is stopped, press .




2. Select "SCREEN".

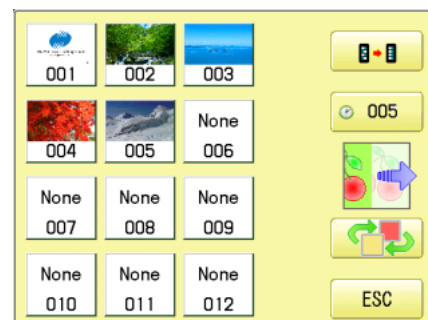


3. Press .



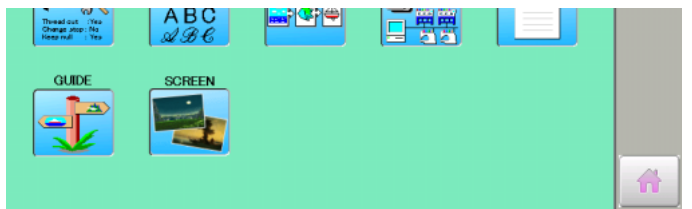
4. Press .

 Initialization is cancelled.



5. Press .

The setting is fixed and display returns to MENU.



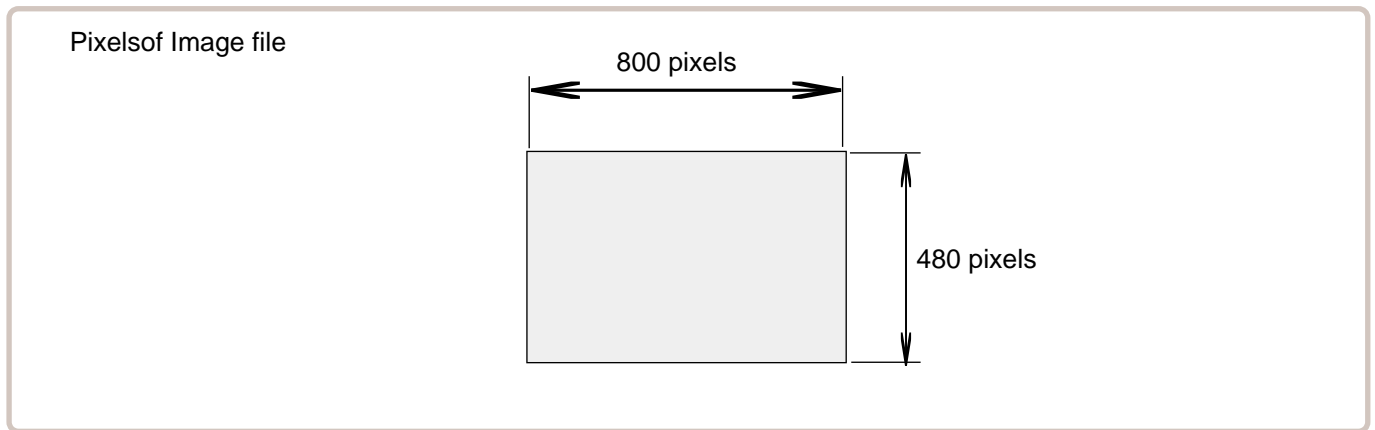
Press  to return to Menu mode.

## How to make the screen saver image

You can display any image(s) in addition to pre-installed images.

Create image(s) to meet the following specifications by using your image editing software.

Save the image(s) in USB flash memory.



## File format

BMP format

Ex : "\*\*\*\*\*.bmp"

## Pixels

800 x 480 is recommended.

1600 x 1200 can be displayed. However, capacity of the file is larger and the machine consumes the memory for pattern data.

## The number of color

Maximum 24 bits color (full color)

## ● Specifications

Voltage	1 phase 100V ~ 115V -10% ~ +5%	1 phase 200V ~ 230V -10% ~ +10%
Electricity consumption	220 Wh	220 Wh
Frequency	50 /60Hz	
Noise level	Under 72dB(A) (at 0.5m away from needle point)	
Environmental condition	Temperature 0 ~ 40° C Moisture 45 ~ 85 %	
Dimension (Width x Height x Depth)	642 mm x 734 mm x 745 mm, 25.3" x 29" x 29.3"	
Weight	42 Kg	
Embroidery area (Y x X)	Tubular frame (Sew field of PTA-32320) 285 mm x 290 mm, 11.2" x 11.4" Max.*1 Normal cap frame (Option) 67 mm x 180 mm, 2.6" x 7" Max.*2 Wide cap frame (Option) 67 mm x 290 mm, 2.6" x 11.4" Max.*2	
Memory capacity	About 2,000,000 stitches	
Registered pattern	250 pat.	

\*1 Actual embroidery area will be restricted in accordance with inner frame size.

\*2 Actual embroidery area will be restricted in accordance with shape of a cap.

■ Specifications are subject to change without notice.

## ● Oiling



### CAUTION: To prevent accidents.

When performing maintenance, be sure to disconnect the power cord.

The machine will periodically prompt periodically for lubrication based on the number of stitches sewn.

When powered on, the machine will display an icon and letter to indicate that lubrication is necessary. 3-4



A Place to oil



B Place to oil

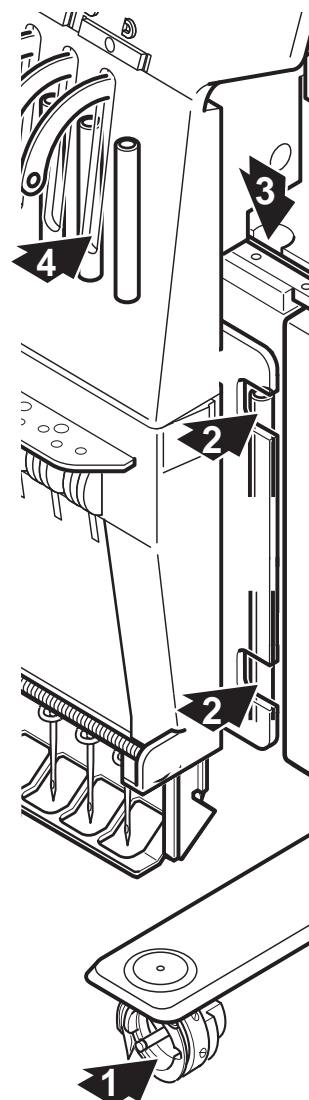
Please lubricate the specified oil locations according to the instructions below.

Running the machine without proper oiling will damage the machine. Lint will gather in and around the rotary hook. Rotary hooks then wear which will cause the threads to break. Please clean lint with a brush and run the machine idly for 2 ~ 3 minutes.

Mark	No.	Place to oil	Specified oil
A	1	Rotary hook (Lubricate with oil slightly with a small brush and sewing machine oil between the outer and inner rotary hook parts.)	Sewing machine oil
B	2	Pressure foot guide bar	
	3	Head shaft	
	4	Needle bar	

■ When oiling the pressure foot guide bar, please move the head to the left and set it to needle No. 1.

■ Too much oil may stain fabrics and threads.



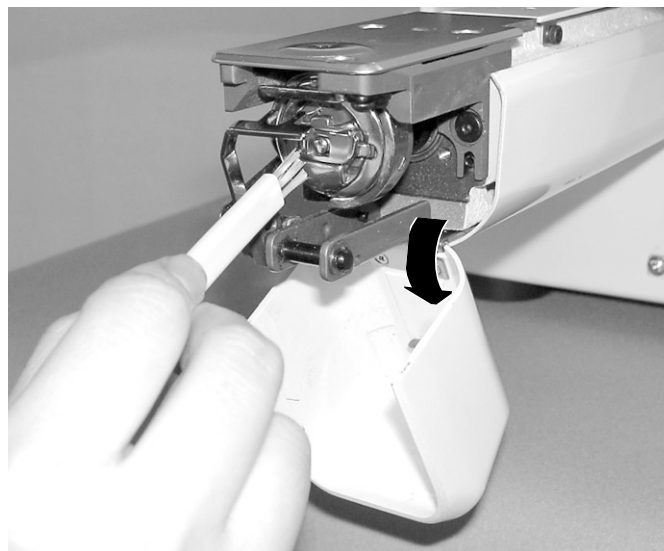


**CAUTION: To prevent accidents.**  
When taking care of the machine, be sure to remove the plug.

## ●Cleaning of the rotary hook

If the rotary hook is clogged with waste thread or dust, it will degrade the stitch quality of the embroidery or may cause other problems. For a long sewing life, please keep the rotary hook clean.

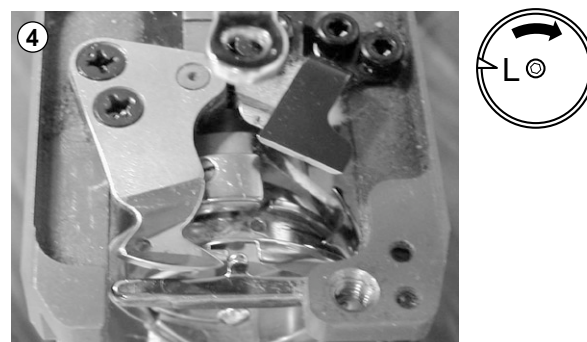
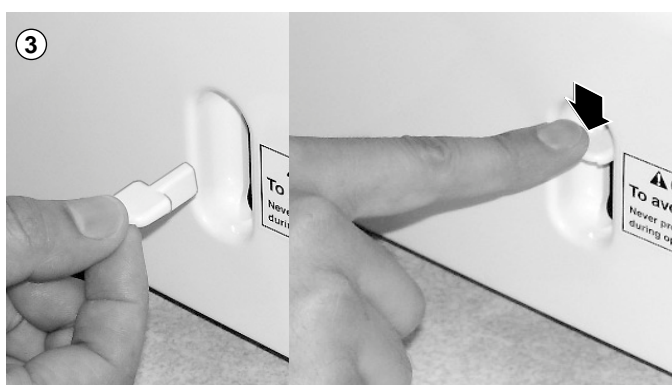
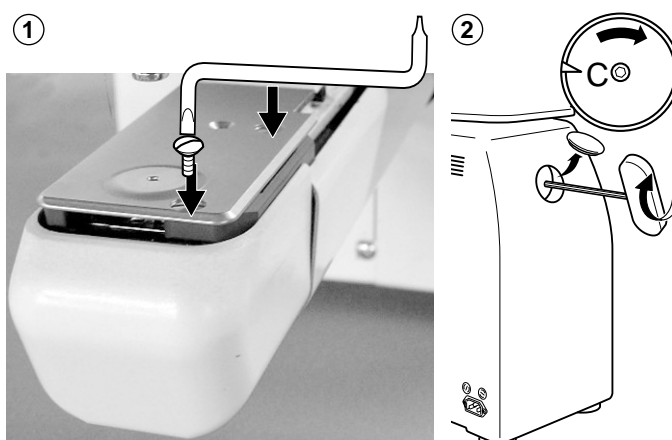
Use the included brush for cleaning the hook.



## ●Cleaning the thread cutting knife

If the thread cutting knife is clogged with waste thread or dust, the knife will not work correctly. Please keep the thread cutting knife and device clean.

1. Remove set screw (2 pieces) by offset driver and remove the needle plate.
2. Turn the main shaft toward the arrow mark until the gauge points to the "C" point by using the 3 mm hexagonal driver.
3. Insert manual lever and pull down the manual lever that is in the left hand side of the machine as you face it.
4. Keep pressing the manual lever and turn the main shaft toward the arrow mark until it points to the "L" point.
5. Remove any waste thread and dust from the thread cutting knife and surrounding area.
6. Adjust the main shaft until the gauge points to the "C" point.  
Thread cutting knife returns to the original position.
7. Remove manual lever and put the needle plate back on the bed and attach it with the screws (2 pieces).  
Please do not keep manual lever to knob.  
Please take care of manual lever.



**CAUTION: To avoid problems.**  
Never press the manual lever while the machine is running.



The machine has an extensive error code list to aid in trouble-shooting when problems occur, as listed below. Upon error, press **OK** to release the error and correct it according to the list below.

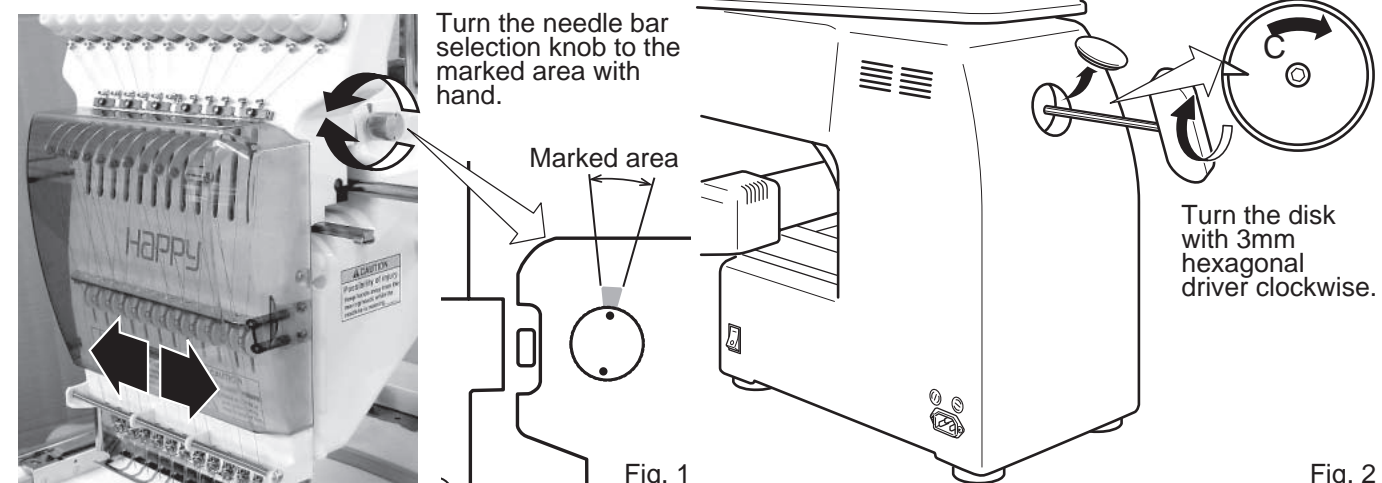
When errors occur frequently, please contact your dealer.

## Automatic errors backup

The machine recovers from some errors (E-050, E-190, E-193) automatically automatically after detecting the error(s) by it self. In cases where the machine does not recover from the error automatically, follow the "Solutions" below according to the indicated error number.

**CAUTION: To prevent accidents.**  
In case of "Automatic errors backup", the machine's sudden movement might be caused without showing errors or messages after its stoppage.

No.	Display	Error	Solutions	Page
001	Circuit board	Abnormality detected in control circuit board	Power down machine and, after 10 seconds, power on again.	
004	System memory	System memory fault		
015	Inverter trip	Sewing motor-related trouble. Overload, short circuit, trouble with motor drive unit	Cut power and turn main shaft by hand. If turns normally, power on again. Fig. 2	
018	Main shaft	Main shaft will not turn.	Turn main shaft manually at least 1 full turn & ensure that it turns freely, clearing any jam. Then, re-initialize machine system and speed.	25-1 25-2
020	Needle detect	Machine not detecting current needle # correctly, or needle bar selection unit is off its stop position. Trouble with position-detecting circuit board.	Turn needle bar selector to the fixed position (marked area shown below in Fig.1).	
021 022	Needle move	Motor for needle bar selection unit has stopped partway through its path. No movement due to malfunction of thread take-up lever or trouble of position-detecting circuit board	After fixing malfunction of needle and thread take-up lever, turn needle bar selector shaft with wrench to have it set at center of fixed position (range within which needle bar selector doesn't move) Fig. 1	
024	Needle center	Needle bar stop position is off-center; needle bar stop position is out of place.	Turn needle bar selector with 3mm hex wrench to have it set at center of fixed position (scope within which needle bar selector doesn't move). Fig. 1	
025	Needle over	Needle # out of range of actual needles on given machine.		
026	Needle differ	Needle # differs between		
030	Slow mismatch	Improper speed adjustment at low speed. Speed does not decrease below 100rpm at low speed.	Re-initialize machine system and speed.	25-1 25-2
050	C point	Main shaft is stopped in a position other than "C" point	See Fig. 2 below.	24-4 25-1 25-2

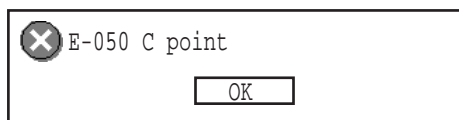





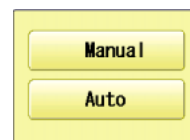
No.	Display	Error	Solutions	Page
051	L sensor	Timing detection board fault, or marred photo-sensor. Malfunction of "Lowest needle position" sensor [PH2] on detection circuit board. Improper adjustment of slit plate.	Check to see if photo sensor is clean or if the slit plate contacts sensor. Re-initialize machine system and speed.	25-1 25-2
052	C sensor	Timing board detection fault, or marred photo-sensor. Malfunction of "Color change position" sensor [PH1] on timing detection circuit board. Improper adjustment of slit plate.		
055	Take-up cover	Take up lever cover is open.	Close the take up lever cover.	
060	X limit	Frame/pantograph has moved beyond sewing area along X-axis.	Return frame within sewing area using the frame movement keys on the control boxl.	
061	Y limit	Frame/pantograph has moved beyond sewing area along Y-axis.	Check pattern size and center mark to ensure that it is within size range of selected hoop and also properly centered.	
090	Miss reception	Error has occurred during data transfer (via cable) between machine and PC.	Try reading pattern data again. Verify that transmission speed setting is correct at (1) transfer software; (2) device manager of PC and (3) RS-232C speed of machine.	5-4
091	No send	Machine has not received data for > 10 seconds during data transfer.		
103	Data format	Machine unable to determine format of pattern data.	Verify format of pattern data and fix if necessary.	14-1
104	Miss function	Timing to read pattern data does not conform.	Read pattern data again from the start.	5-4
105	Dual function	Data has been detected in the pattern that has ambiguous/dual function.	Read pattern data again from the start.	5-4
108	Improper read	While reading pattern data, error has occurred in internal processing.	Read pattern data again from the start.	5-4
110	Memory full	Memory has filled while reading in a design.	Delete unnecessary patterns from machine memory and try again.	5-B
111	Change over	While reading pattern data, # of color changes (color No.) has exceeded 250.	Divide pattern data such that number of color changes of each segment is less than 250.	
112	Data error	Pattern data of current design is damaged.	Delete pattern and re-load.	5-B
114	Id over	# of patterns in control panel memory has exceeded the maximum of 99.	Delete unnecessary patterns from machine memory and try again.	5-B
118	Trace data over	Over 1024 stitches trace data were created during reading of pattern data.	Set maximum stitch length to embroidery area of pattern data within 2m (lengthwise) x 2m (sideways).	
120	Memory error	Fault in retaining contents of pattern memory.	If this occurs frequently, it is likely that CPU is faulty. Contact your Dealer.	
130	Disk error	Unable to communicate continuously with memory media or data disk.	Power down machine and after a 10 seconds, power on again. If error remains, contact your Dealer.	
131	Device no ready	Memory media or data disk is not set.	Check if memory media or data disk is properly set.	5-5
133	Bad disk	Improper or faulty memory media or data disk.	Memory media that media reading unit can't read or faulty media or un-initialized media. Data disk that disk drive unit can't read or faulty data disk or un-initialized disk.	5-5
141	Not found name	Designated pattern is not found.	Memory media is not correct.	5-5

No.	Display	Error	Solutions	Page
190	Cut blade	Thread cut knife is not at stop position.	Follow the instructions below.	24-5
193	Catcher	Thread catch hook is off its position. Limit switch to detect position is not "OFF".	Please follow the example below: 1. Check whether thread was actually cut by thread cutting knife. If not, cut thread and return catch hook to its normal position. 2. If thread is actually cut, check if thread catch hook on head has returned to its position completely.	24-6

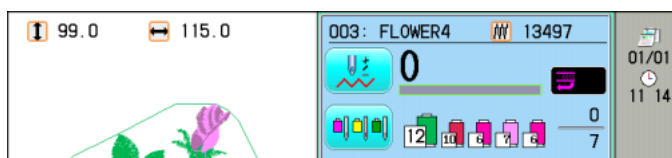
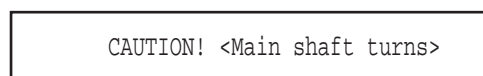
## What to do when Stop position of main shaft is out of place (error E-050)



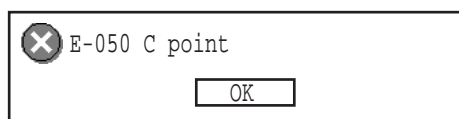
1. Press the .
2. Select "Auto".




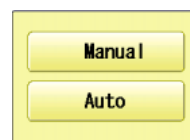
The main shaft turns 2 to 3 times and returns to a stop position ("C" point ) automatically.  
The display returns to drive mode.



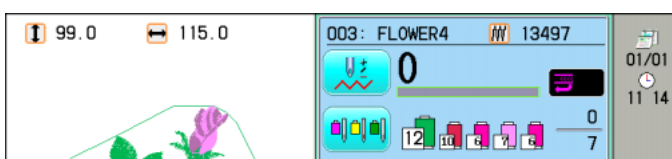
## When you cannot clear by the method above (Auto)



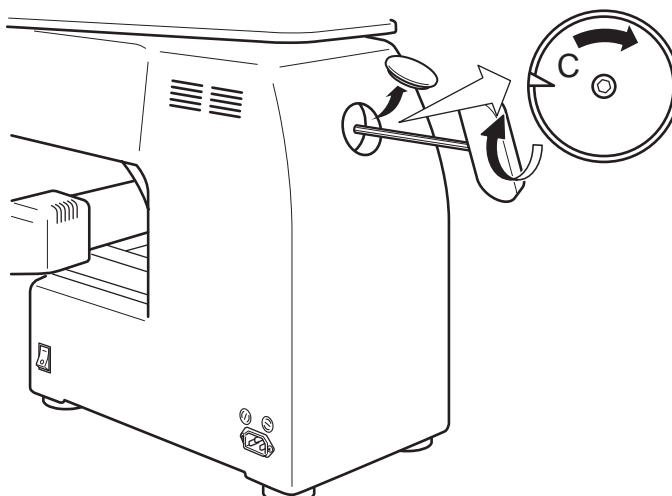
1. Press the .
2. Select "Manual".



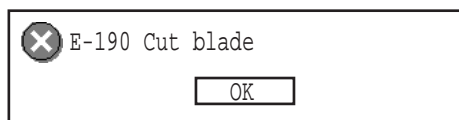
The error status is released and the display shows "drive mode".




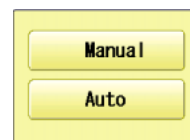
3. Remove the cap over the small hole in the rear of the machine. Using a 3 mm hexagonal driver, Please turn the main shaft and adjust it to the "C" point.



## What to do for "Thread cut knife is not at the stop position (error E-190)"

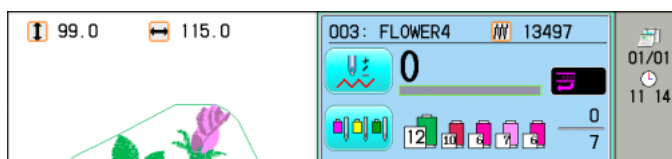


1. Press the .

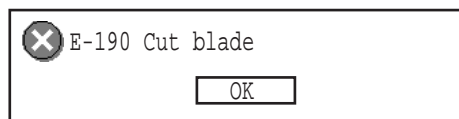



2. Select "Auto".

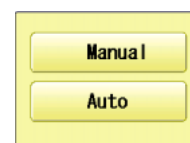
The display returns to the drive mode.



## When you cannot clear by the method above (Auto)

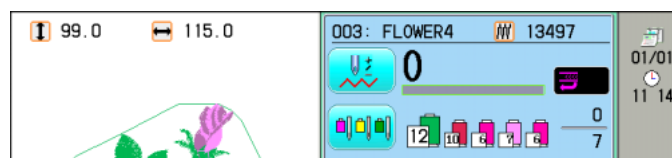


1. Press the .



2. Select "Manual".

The error status is released and the display shows "drive mode".



3. Using the 3 mm hexagonal wrench, Please turn the main shaft and adjust it to the "C" point.

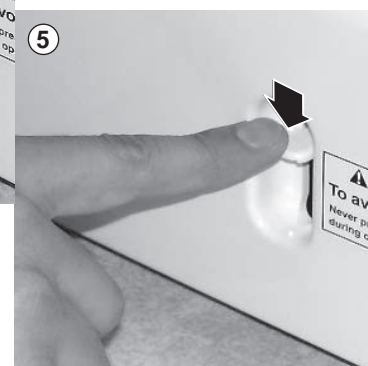
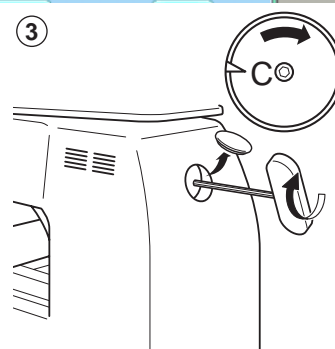
4. Insert manual lever that is in the left hand side of the machine as you face it.

5. While pressing the manual lever, turn the main shaft a complete revolution and set it to the "C" point.

The knife will return to it's proper position.

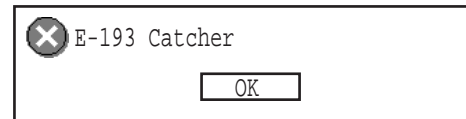
6. Remove the manual lever.

Please do not keep manual lever to knob.  
Please take care of manual lever.

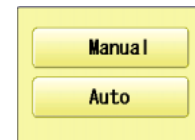


**CAUTION: To avoid problems.**  
Never press the manual lever while the machine is running.

## What to do for "Thread catch hook is off its position (error E-193)"

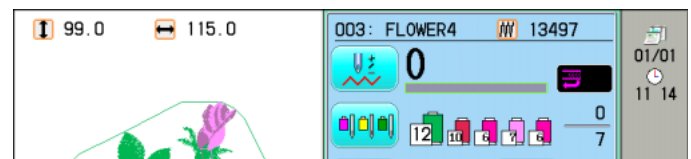


1. Press the .

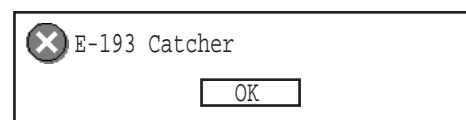



2. Select "Auto".

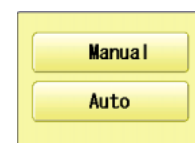
The thread catch hook returns to the original position.  
The display returns to drive mode.



## When you cannot clear by the method above (Auto)

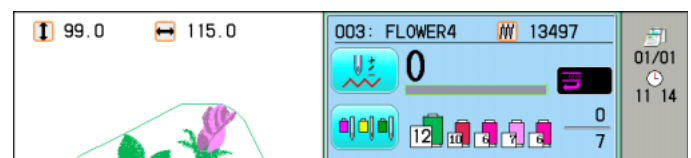


1. Press the .



2. Select "Manual".


The Error status is cleared and the display shows "drive mode".



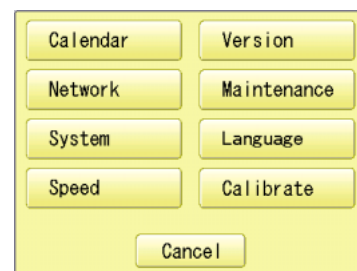
3. Refer to the page in the section (ERRORS AND WHAT TO DO), and determine what may be preventing the hook from returning to the original position, and follow the steps outlined. [P 24-3](#)

## ● Re-Initialization of machine system

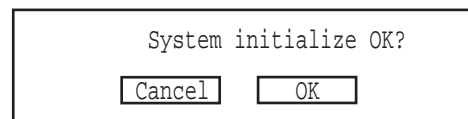
Perform this function only to fix problems with the machine.  
When performed, all settings in the "OPTION" menu are lost.  
Be sure to reset the "OPTION" menu after performing this function.

1. When the machine is stopped, press 

and press the



2. Press the 



3. Press the  to carry out.

Formatting of the machines systems are carried out.  
Indicate HAPPY logo in screen.


If you cancel, press the .

The display returns to MENU.

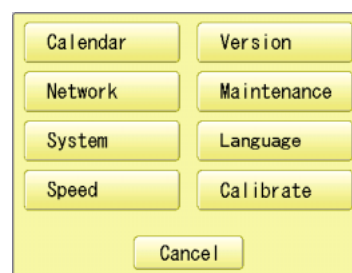


## ●Initializing of machine speed

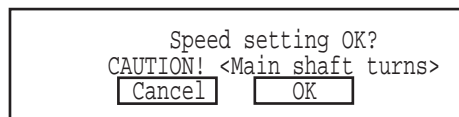
If you have E-18, E-30, E-51 or E-52 while sewing, Please try initializing the machine settings.

1. When the machine is stopped, press 

and press the

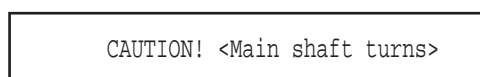


2. Press the 



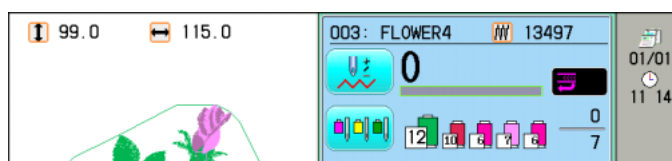
3. Press the  to execute.

The machine will display a warning, then start turning the main shaft automatically.  
The speed will slowly increase from slowest speed to maximum and then stop automatically and return to Drive mode.



If you cancel, press the .

The display returns to MENU.



PROBLEM	CAUSE	CORRECTION	PAGE
Upper thread breaks	Machine not properly threaded. Needle inserted incorrectly.  Thread tension too tight. Poor thread quality. Dry hook Empty stitches or continuous tiny stitches in design data. Thread is tangled in an upper thread cone.	Re-thread machine. Re-insert needle. (remember, needles have a front and back!) Readjust thread tension. Replace with good quality thread. Oil the hook. Turn on stitch sweep function, then read design data in again. Un-tangle thread.	4-6 4-1  8-1  23-1 14-4
Lower (bobbin) thread breaks	Bobbin threaded incorrectly. Bobbin wound unevenly or too full. Thread tension too tight. Dirt on the hook. Dry hook	Re-thread the bobbin. Re-wind the bobbin. Readjust thread tension. Clean the hook. Oil the hook.	4-5 4-4 4-5 23-2 23-1
Thread break lamp lights up despite thread not being broken (False thread breaks)	Upper thread is not passing around the detecting roller.	Thread upper thread correctly.	4-7
Machine skips stitches	Needle inserted incorrectly. Bent or blunt needle. Incorrect size of needle.	Re-insert needle. Insert new needle. Choose correct size needle for fabric.	4-1 4-1 4-2
Fabric puckers	Machine not properly threaded. Bobbin threaded incorrectly. Blunt needle. Thread tension too tight.	Re-thread machine. Re-thread the bobbin. Insert new needle. Readjust thread tension.	4-6 4-5 4-1 8-1
Machine makes loose stitches or loops	Bobbin threaded incorrectly. Machine not properly threaded. Tension not adjusted properly.	Re-thread the bobbin. Re-thread machine. Readjust thread tension.	4-5 4-6 4-5,8-1
Poor tension balance	Bobbin threaded incorrectly. Machine not properly threaded. Dry hook	Re-thread the bobbin. Re-thread machine. Oil rotary hook.	4-5 4-6 23-1
Poor design registration	Fabric not hooped correctly. Garment is made of elastic material. Hoop not installed into machine properly.	Set hooping correctly. Use correct backing and ensure that design has proper underlay. Set hoop correctly.	6-2,7-9 6-2,7-9 6-3,7-5
Needle breaks	Bent or blunt needle. Needle setting incorrect. Thin needle against material. Poor hooping.	Insert new needle. Re-insert needle. Change to thicker needle. Re-hoop fabric.	4-1 4-1 4-2
Machine runs with difficulty	Dirt on the hook race.	Clean rotary hook. Oil rotary hook.	23-2 23-1
Machine will not run	Cord not plugged into electrical outlet. Power switch is not turned on. Power source fuse has blown.	Insert plug fully into outlet.  Turn on the switch. Replace power source fuse (6A).	  3-5 3-1



## Thread break back

With this setting, drive frame backs up several stitches after a thread break before stopping.

## Color change number

The Needle number (thread color) to be sewn can be set to each Color change number. For example, if a pattern is divided by a color change function in 2 places, 3 color change numbers exist in the pattern. When the needle number is set to its respective color change number, the pattern is sewn in 3 colors.

## Memory pattern

Patterns stored in memory.

## Start point of the frame

This is the point where the frame begins to move before the machine starts sewing.

## Various function settings

A general term for Needle bar selection, Convert, Pattern adjustment, Repeat sewing, Offset and frame out which are set in the pattern data.

## Zero stitch

This is a stitch whose net movement in both the X- and Y- direction is zero, and the needle lands in the same position.

## Original Point

The frame position where the machine embroiders the pattern from the beginning is automatically registered as the original point.

## Stitches

This is the minimum unit within the pattern data. There are different types of such "stitches": "stitches" that command determine the sewing sequence; "functions" that dictate functions such as jumps, thread cut, etc; "sideways movement distance" and "lengthwise movement distance" that command the movement distance of the frame.

## Auto origin

This returns the frame automatically to the original point upon finishing the embroidery.

## Tubular round frame, Tubular square frame

The frames made by HAPPY and used for cylinder sewing, such as on T-shirts, bags, etc. These frames have brackets at both sides.

## Memory media

What saves design data by things, such as memory card and a USB memory.

## Data format

This is the format that the pattern data is converted into/

## Color change stop

When a color change stop is assigned to a color change number, the machine embroiders the set color change and stops.

## Conversion

This is a user-adjustable design setting of a given pattern that allows rotation in increments of 90 degrees.

Style 1

<b>A B C D E</b>	<b>a b c d e</b>	<b>0 1 2 3 4</b>
<b>F G H I J</b>	<b>f g h i j</b>	<b>5 6 7 8 9</b>
<b>K L M N O</b>	<b>k l m n o</b>	<b>- , . ' /</b>
<b>P Q R S T</b>	<b>p q r s t</b>	<b>? ! &amp;</b>
<b>U V W X Y</b>	<b>u v w x y</b>	<b>&lt; &gt; ( ) _</b>
<b>Z</b>	<b>z</b>	

Style 2

<b>A B C D E</b>	<b>a b c d e</b>	<b>0 1 2 3 4</b>
<b>F G H I J</b>	<b>f g h i j</b>	<b>5 6 7 8 9</b>
<b>K L M N O</b>	<b>k l m n o</b>	<b>- , . ' /</b>
<b>P Q R S T</b>	<b>p q r s t</b>	<b>? ! &amp;</b>
<b>U V W X Y</b>	<b>u v w x y</b>	<b>&lt; &gt; ( ) _</b>
<b>Z</b>	<b>z</b>	

Style 3

<i>A B C D E</i>	<i>a b c d e</i>	<i>0 1 2 3 4</i>
<i>F G H I J</i>	<i>f g h i j</i>	<i>5 6 7 8 9</i>
<i>K L M N O</i>	<i>k l m n o</i>	<i>- , . ' /</i>
<i>P Q R S T</i>	<i>p q r s t</i>	<i>? ! &amp;</i>
<i>U V W X Y</i>	<i>u v w x y</i>	<i>&lt; &gt; ( ) _</i>
<i>Z</i>	<i>z</i>	



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