SWF

USER'S MANUAL

TWO-HEAD AUTOMATIC EMBROIDERY MACHINE

FOUR-HEAD AUTOMATIC EMBROIDERY MACHINE

SIX-HEAD AUTOMATIC EMBROIDERY MACHINE

EIGHT-HEAD AUTOMATIC EMBROIDERY MACHINE

SIX-HEAD AUTOMATIC EMBROIDERY MACHINE (Compact Type)

SWF/C-Series

SunStar CO., LTD.

MME-110103

1. THIS IS AN INSTRUCTION FOR SAFE USE OF SWF AUTOMATIC EMBROIDERY MACHINES. READ THOROUGHLY BEFORE USE.

2. CONTENTS IN THIS INSTRUCTION MAY CHANGE, WITHOUT PRIOR NOTICE, FOR IMPROVEMENT OF MACHINE QUALITY AND THUS MAY NOT CORRESPOND TO THE MACHINE YOU PURCHASED. CONTACT YOUR SALES AGENT FOR INQUIRIES.

3. THIS IS DESIGNED AND MANUFACTURED AS AN INDUSTRIAL MACHINE. IT SHOULD NOT BE USED FOR OTHER THAN INDUSTRIAL PURPOSE.

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CHAPTER 1

SAFETY RULES

The following set of safety rules categorized as DANGER, WARNING, and CAUTION indicates possibilities of physical or property damages if not fully observed.

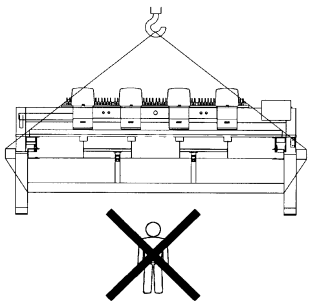
DANGER : These safety instructions MUST be observed to be safe from danger when installing, delivering, or repairing the machine.

WARNING : These safety instructions MUST be observed to be safe from machine injuries.

CAUTION : These safety instructions MUST be observed to prevent predictable machine errors.

1-1) DELIVERY OF YOUR MACHINE

DANGER

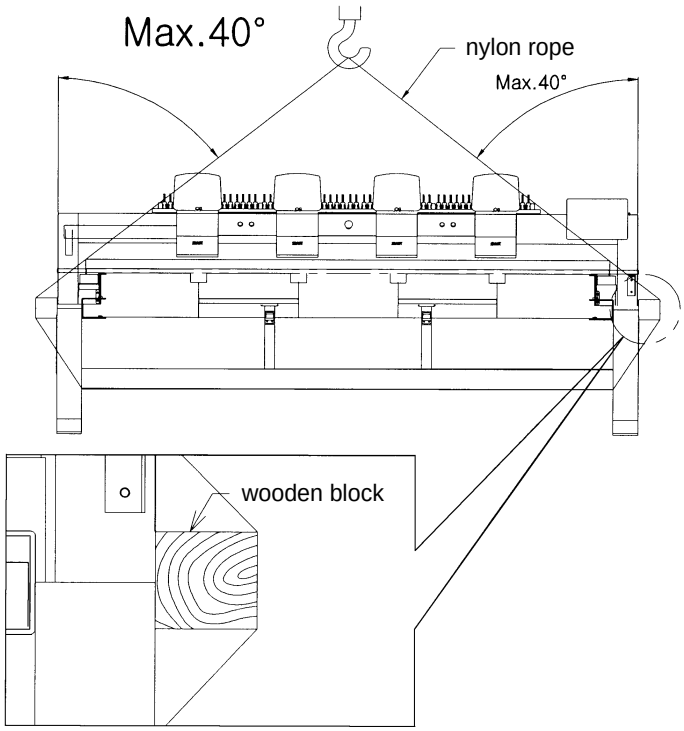


※ Make sure all persons and obstacles are out of the way of the moving equipment.

ONLY TRAINED AND EXPERIENCED PERSONS, FAMILIAR WITH THE RELEVANT SAFETY INSTRUCTIONS, SHOULD HANDLE THE MACHINE. MAKE SURE TO FULLY OBSERVE THE FOLLOWING INSTRUCTIONS.

1) **Using a crane**

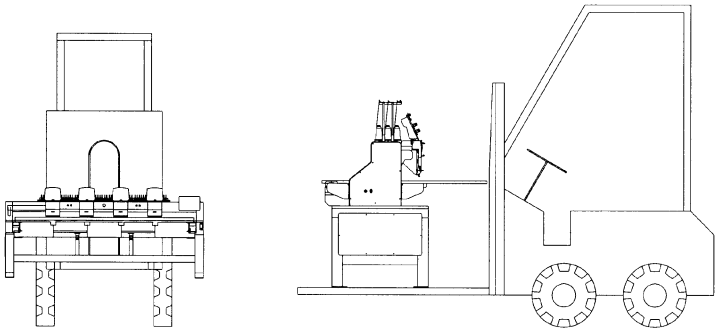
Make sure that the crane is large enough to hold the machine. Use a nylon rope of sufficient strength. Place a wooden block at either side of the machine before tying the rope. The angle should be 40°Δ or less. Make sure that the rope does not touch the table.



[Fig.1-1]

2) **Using a Forklift**

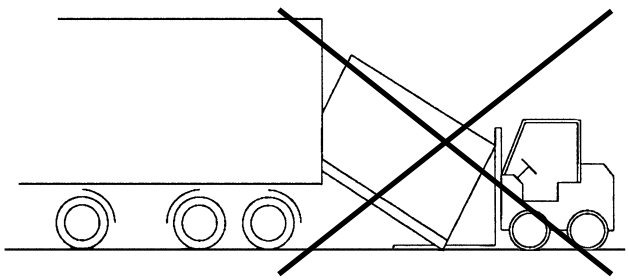
Make sure that size and weight of the forklift is sufficient to support the machine. Use the pallet to place the machine so that its center is on the forklift arm (see [Fig.1-2]). Lift the machine carefully so that the machine does not tilt to either side.



[Fig.1-2]

[WARNING]

Make sure to maintain the weight balance in machine deliveries, especially when unloading the machine from a forklift or crane, in order to prevent injury or machine damages.



1-2) INSTALLATION

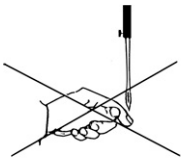
CAUTION

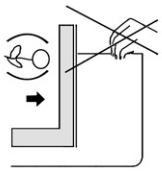
Installation environment may incur machine malfunction or breakdown. Make sure to meet the following conditions.

1) The foundation under the machine, i.e. table or desk, must be strong enough to support the weight of the machine (approximately 1 ton).
2) Air conditioning can eliminate dust and humidity that can cause pollution and corrosion of the machine. Make sure your machine is regularly cleaned.
3) Long exposure to direct sunlight can cause the paint of the machine to fade or change of the machine shape.
4) Allow at least 50cm (20 inches) of space on each side of the machine for convenient maintenance.

※ Please refer to 2. Machine Installation and Assembly for installation details.

1-3) MACHINE OPERATION





The SWF Automatic Embroidery Machine is designed for applying embroidery to fabric and other similar materials.

Pay careful attention to the WARNING and CAUTION stickers on certain parts of the machine. Make sure to observe the following when operating the machine:

1) Read thoroughly and fully understand the manual before operating the machine.
2) Dress for safety. Long and unbound hair, jewelry such as necklaces, bracelets, and wide sleeves can get caught in the machine. Wear shoes with non-slip soles.
3) Clear all persons from the machine before turning on the power.
4) Keep your hands or head away from the moving parts of the machine such as needle, hook, take-up lever, and pulley when the machine is in operation.
5) Do not remove the safety cover on the pulley or shaft when the machine is in operation.
6) Be sure the main power is turned off and the power switch is set to OFF before opening the cover of any electrical component or control box.
7) Be sure the main switch is OFF before manually turning the main shaft.
8) Turn the machine off when threading needles or inspecting the finished embroidery.
9) Do not lean against the cradle or place your fingers near the guide grooves of the frame.
10) The machine noise may exceed 85db when it is run at a maximum speed. It is not higher than the standard level, but you may need earplugs or sound-proof facilities for the operator and other workers.

1-4) REPAIR

Only SWF-trained and selected repair engineers should do repair work.

1) Turn OFF the power before cleaning or repairing the machine. Wait for 4 minutes so the machine electricity is completely discharged.

[CAUTION]
It takes about 10 minutes after turning off the main switch before the electricity is fully discharged from X/Y main shafts and the drive box.

2) Do not change the settings or any parts on the machine without confirmation from SWF. Such change may cause safety accidents.
3) Use only SWF parts when repairing your machine.
4) Replace all safety covers when you are finished with your repair.

1-5) Placement of Warning Stickers

Observe the directions on ALL warning stickers placed on the machine as reminders for your safety.

1) Location of Warning Stickers

⚠ CAUTION

Open the upper shaft cover of each head and supply the designated oil.

⚠ WARING

Fire or death may be caused by high voltage electric shock.
Don't open the cover except for service man assigned by SWF.
When open the cover turn off power and wait for 6 minutes.

⚠ WARING

Injury may be caused by winding.
Be sure to turn off the power before cleaning, lubricating, adjusting or repairing.

⚠ WARING

Physical damage may be caused by winding.
Don't put your hands near the arrow while the main shaft is rotating

⚠ WARING

Physical injury may be caused by crevice.
Don' t put your finger in a groove on the table.

⚠ WARING

Injury may be caused by moving needle.
Ensure that the machine is in a stop condition before changing, threading or rethreading of needies or changing of needles.

⚠ WARING

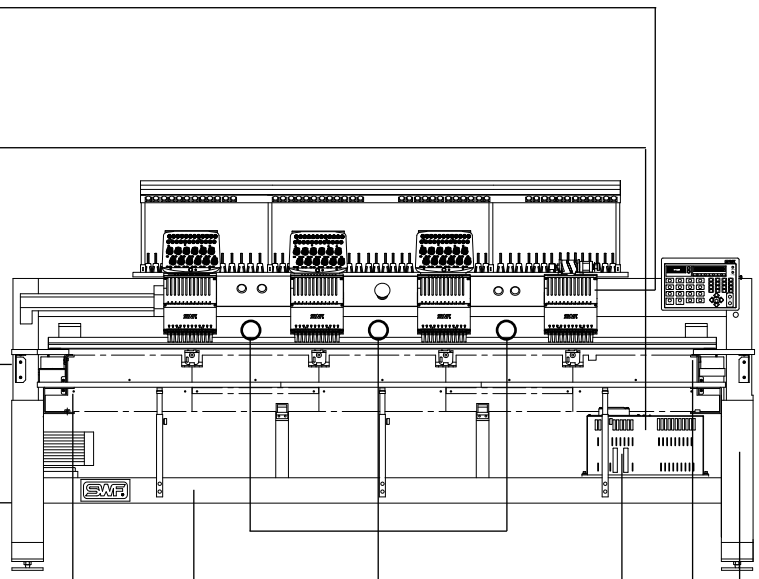
Physical damage may be caused by interposition.
While embroidery frame is running according to the direction of embroidery frame may be injured your hands by gap between fixed body and embroidery frame.

⚠ WARING

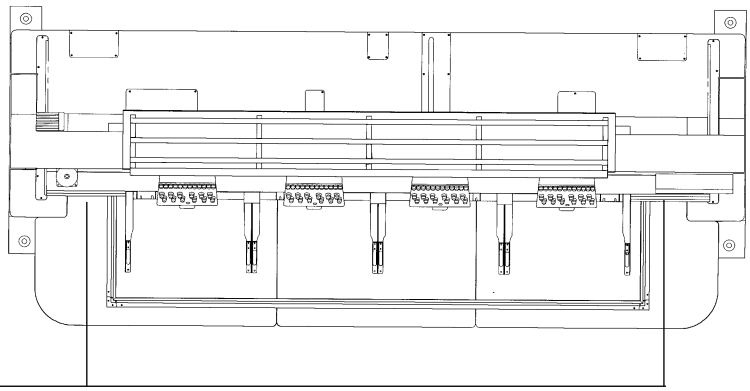
① Turn off the main power before rotating the main shaft by hand!

② Do not remove covers during operation!

③ Turn off the main power before opening electricity-related boxes!



[Fig.1-3 Front]



[Fig.1-4 From top]

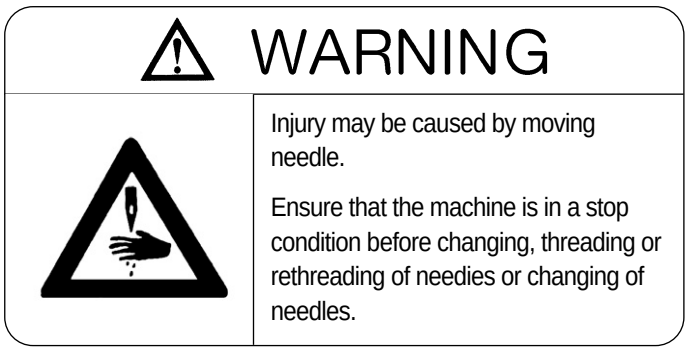
1-6) Contents of Warning Stickers

1) Warning

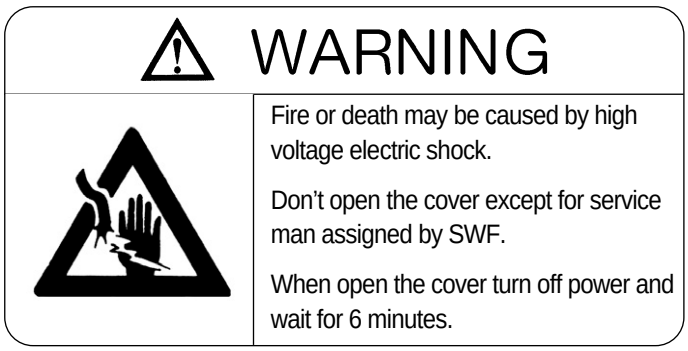
ⓐ

[Notice]
"Safety cover" in the 'WARNING' refers to all covers near the operating parts of the machine.

ⓑ



ⓒ



CHAPTER 2

INSTALLATION AND MACHINE ASSEMBLY

Install your machine in an appropriate environment and with adequate electrical supply. Failure to follow the directions may result in machine malfunction.

2-1) ENVIRONMENT

1) Temperature: ① 0～40°C (32～104°F) when the machine is in operation
② －25～55°C (－13～131°F) when the machine is not in operation
2) Humidity: 45～90% (relative)

[CAUTION]
① Do not let moisture drops on the machine.
② Provide air conditioning to control humidity and to prevent dust and corrosion.

3) Grounding: Ensure the electricity is properly grounded.

Properly ground the machine to avoid the possibility of electric shock. Use three-wire grounding (grounding resistance below 100 ohms).

4) Close any doors and windows near the machine to prevent direct light, dust, and humidity.
5) Foundation under the machine must be a sufficiently strong and flat concrete to support the weight of the machine.

2-2) ELECTRICITY INSTALLATION

Check if the input voltage of the machine is in the right range of the voltage supply before installing or operating the machine. The voltage required is as follows:

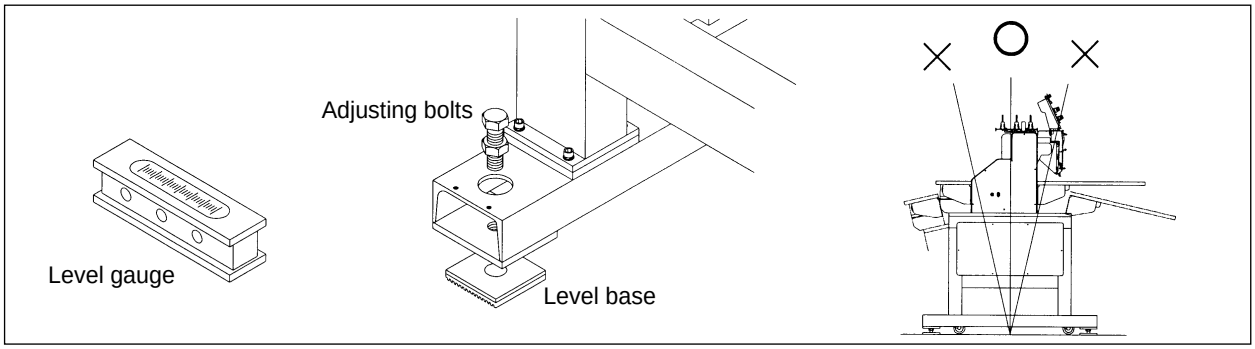
1) Input voltage (to be adjusted when installing): 100V, 110V, 120V, 200V, 220V, 240V
2) Allowed range of voltage: within ±10% of the voltage set
3) Electric capacity and voltage consumption: 640VA 440W
4) Insulation resistance: over 10M ohms (measured with 500V insulation tester)

① Check the voltage supply where the machine will be installed.
② Install the cable away from the operator's work space to prevent accident or injury.

2-3) LEVELING THE MACHINE

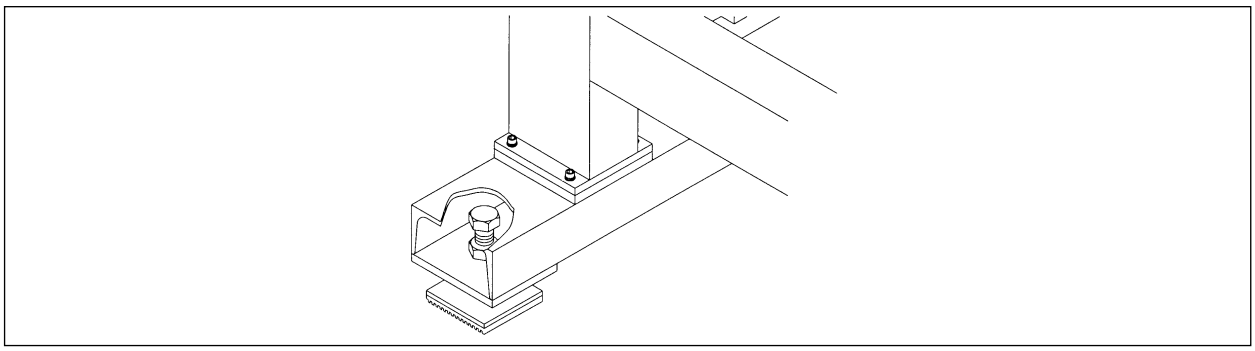
The machine must be accurately leveled (especially front and back) to prevent the needle from moving out of position.

1) Use the adjusting bolts installed at the four stands to level the machine (front, rear, left, and right). Use a level gauge.
   ① Check the voltage supply where the machine will be installed.
   ② Install the cable away from the operator's work space to prevent accident or injury.
   ③ If the difference in heights of the four bolts is over 10mm, place spacers beneath the lower adjusting bolts to make the heights even.



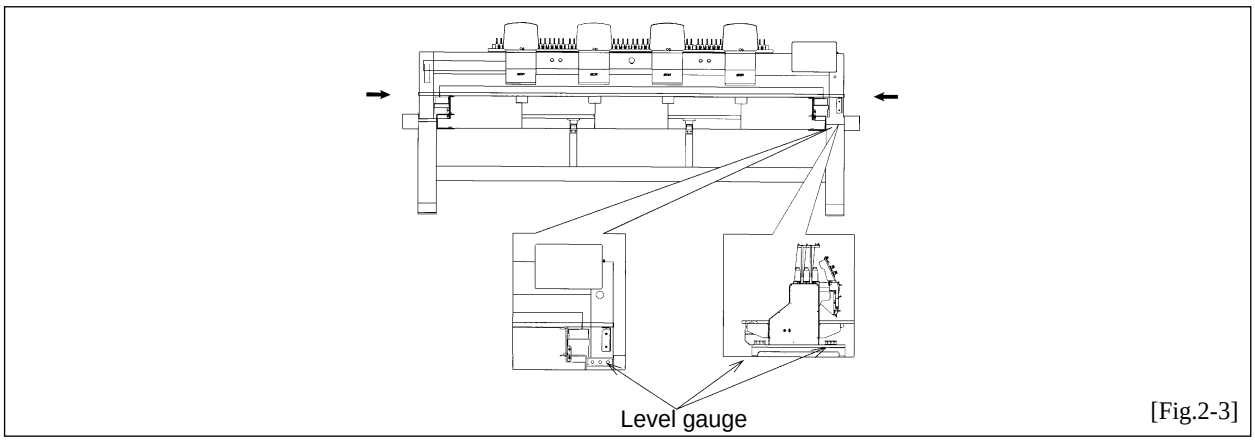
[Fig.2-1]

2) The machine must be horizontally balanced on all four sides - front, rear, right, and left.



[Fig.2-2]

3) Using the level gauge
   Use a nut to fully fasten the adjusting bolts when the machine is leveled.

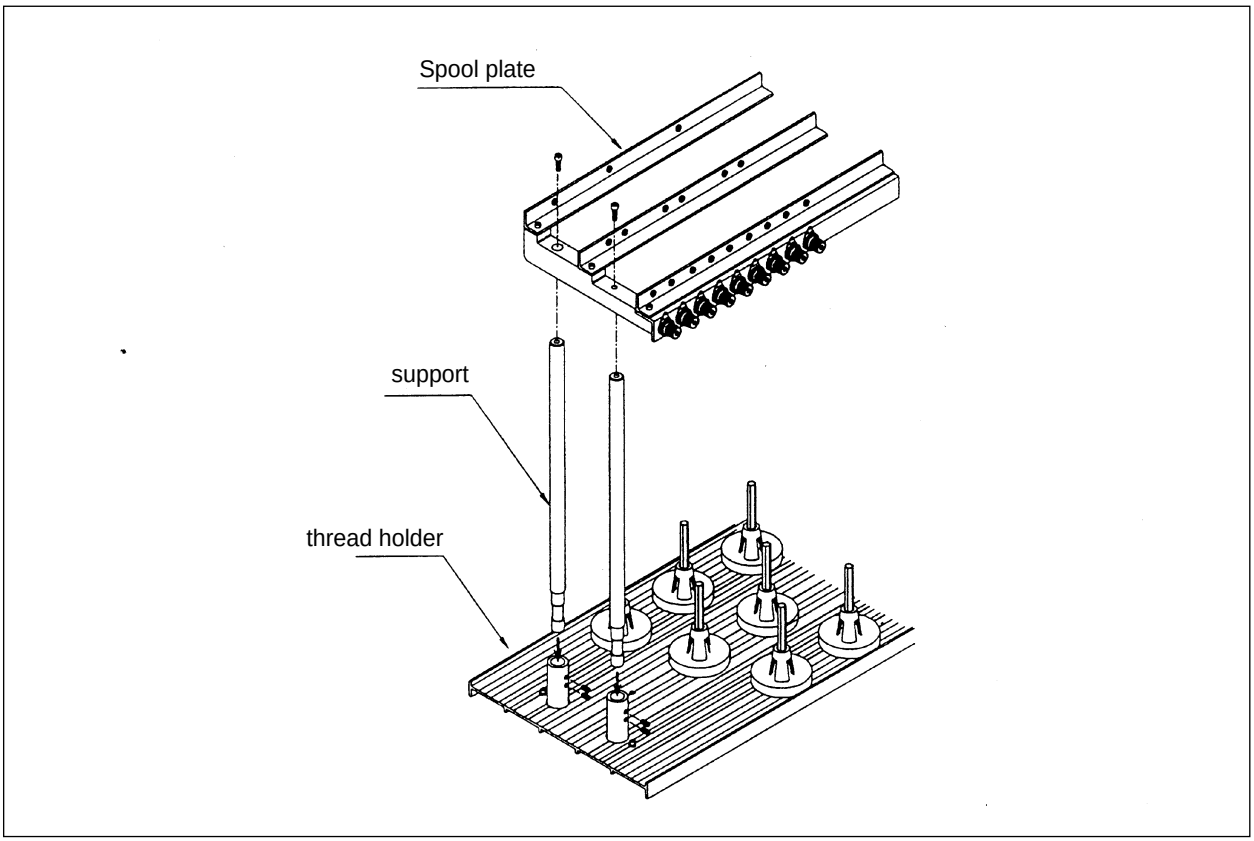


[Fig.2-3]

[CAUTION]
The level gauge does not measure accurately on a square pipe or a table.

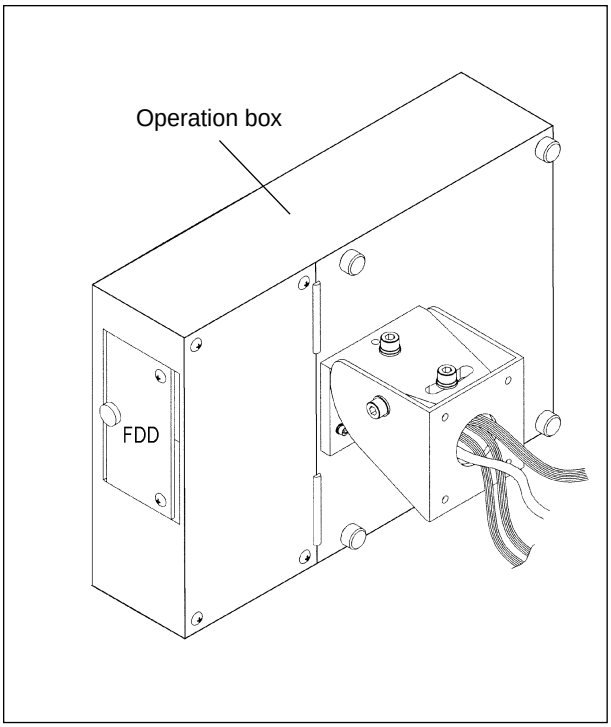
2-4) ASSEMBLY OF PERIPHERAL DEVICES

1) Assembling Upper Thread Stand

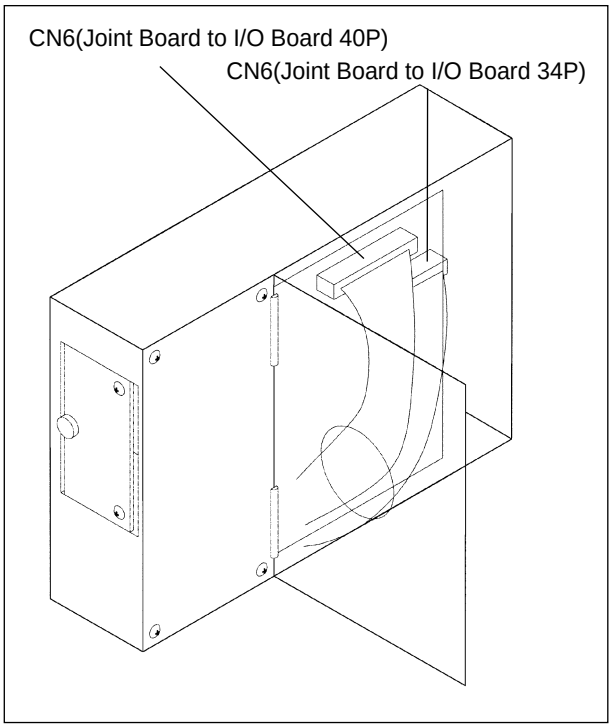


[Fig.2-4]

2) Assembling Operation Box



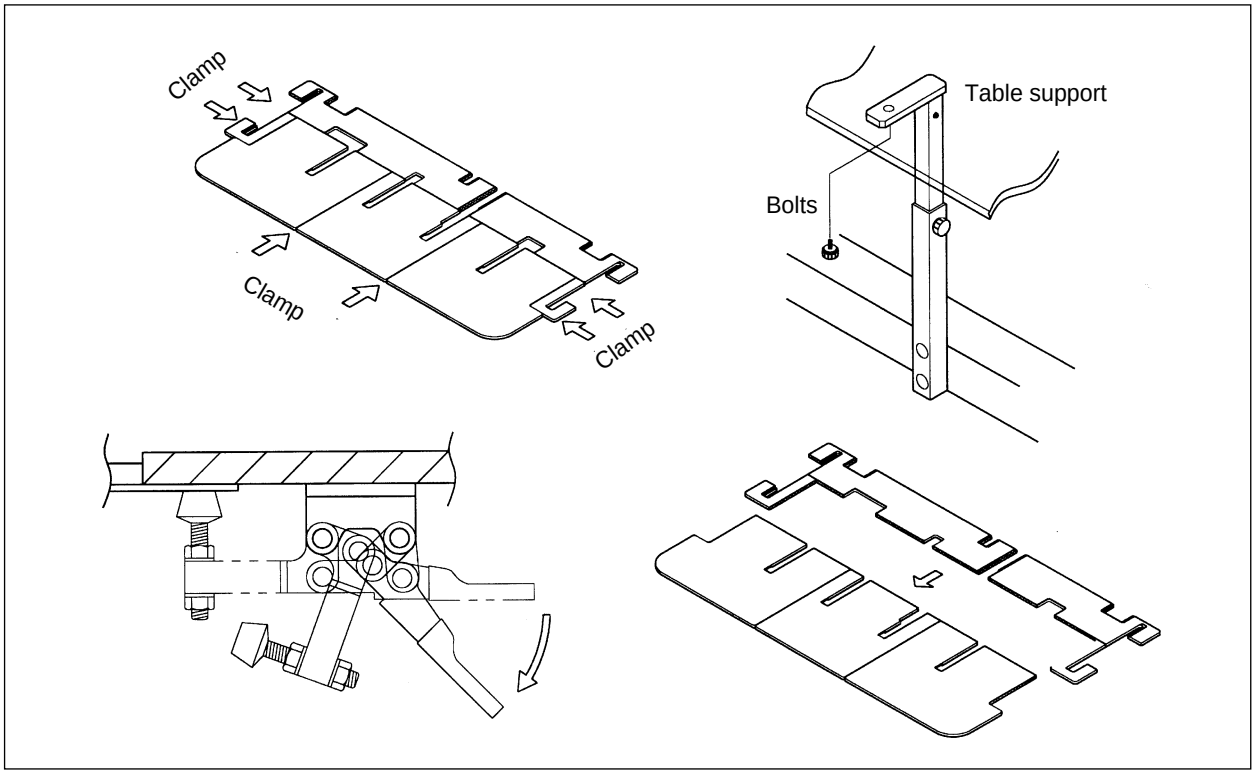
[Fig.2-5]



[Fig.2-6]

2-5) TABLE ASSEMBLY

1) Unscrew the eight clamps underneath the table and the bolts to disassemble the table.



[Fig.2-7]

2) Adjust the table support at an appropriate height and fasten the bolts.

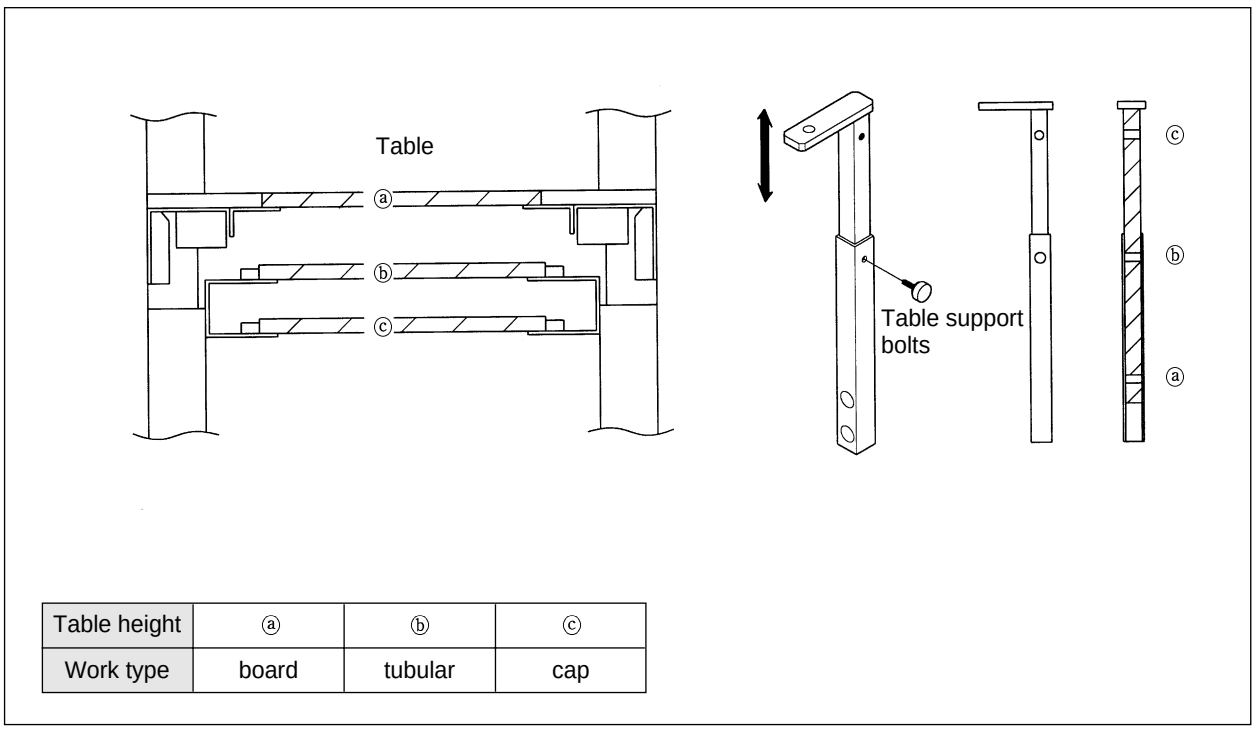
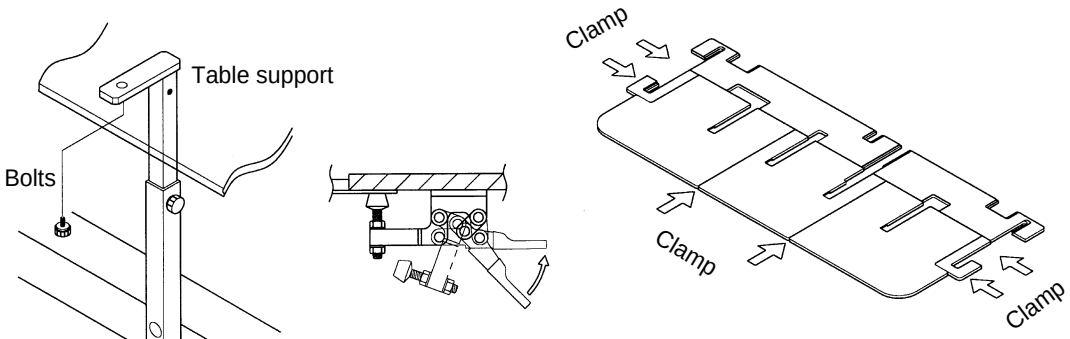


Table height	ⓐ	ⓑ	ⓒ
Work type	board	tubular	cap

[Fig.2-8]

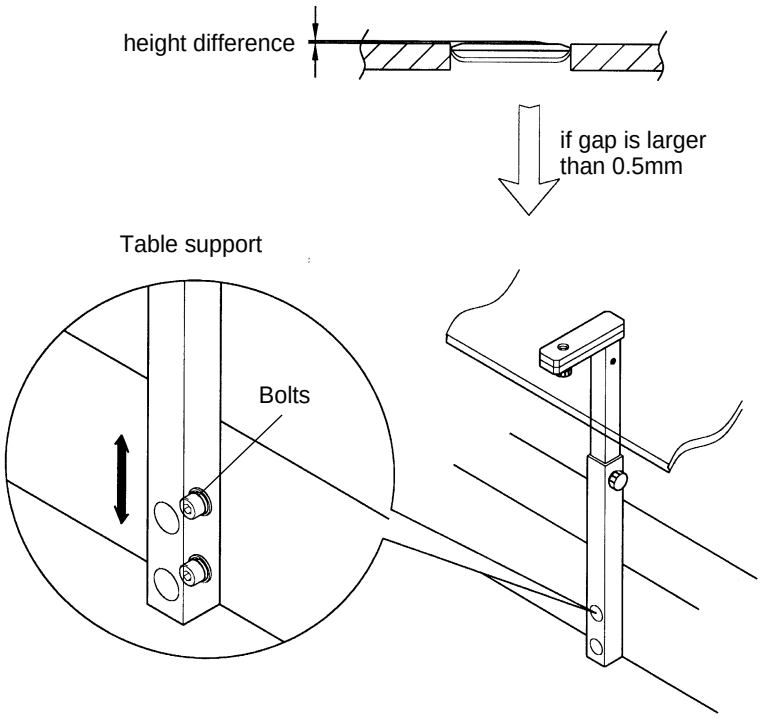
3) Insert the table and fasten the bolts and the clamps.



[Fig.2-9]

[CAUTION]

The table should not be higher than the upper side of the needle plate by 0.5mm for board frame work. If the height difference is over 0.5mm, unfasten the table support bolts, adjust the height, and fasten the bolts back.



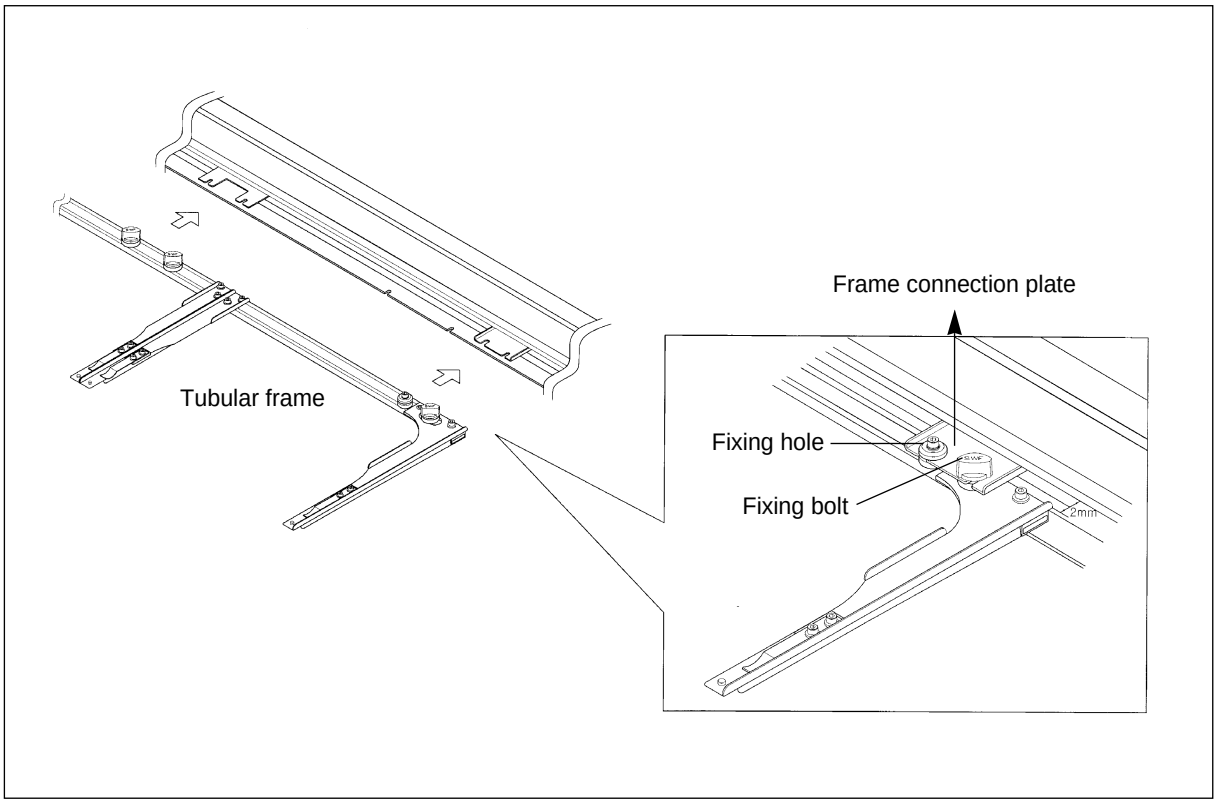
[Fig.2-10]

2-6) FRAME ASSEMBLY

2-6-1) Tubular Frame

1) Unfasten screws on the tubular frame 2/3, install the tubular frame in the groove of the frame connection plate, and fasten the bolt.

> **[CAUTION]**
> Do not install the tubular frame too close from the X frame. Keep the space at around 2mm.

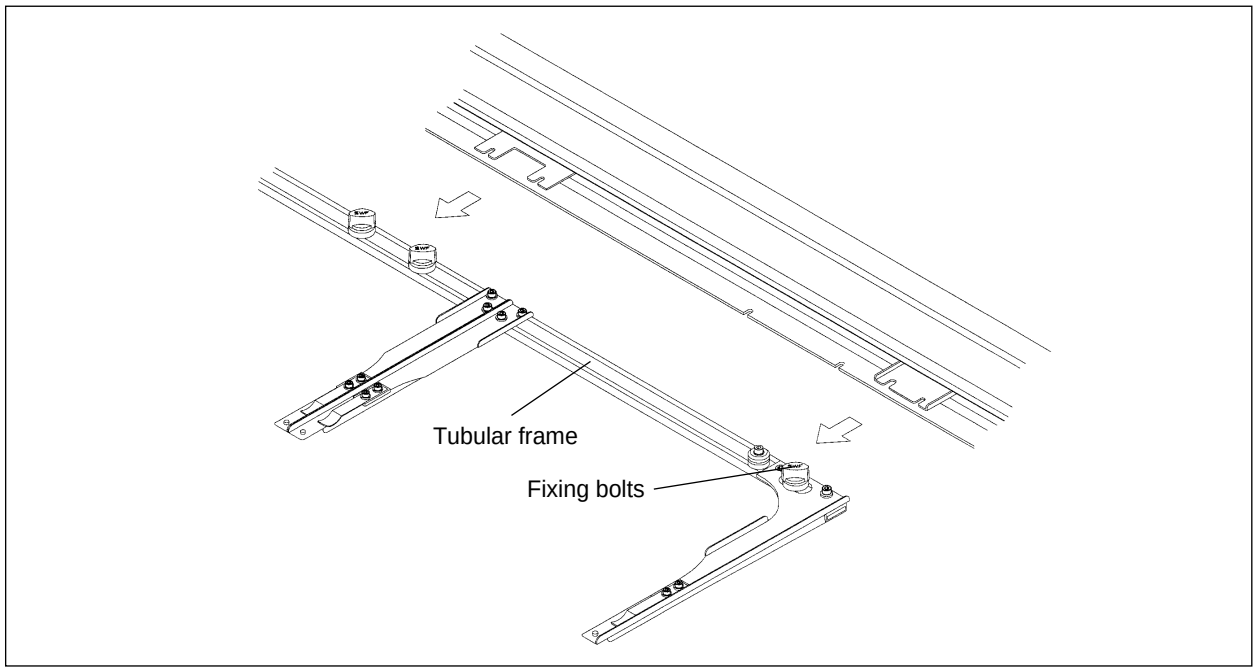


[Fig.2-11]

2) Insert the frame into the tubular frame. Use the screws to adjust the space.

2-6-2) Border Frame

1) Unfasten screws on the tubular frame 2/3 and remove the frame.

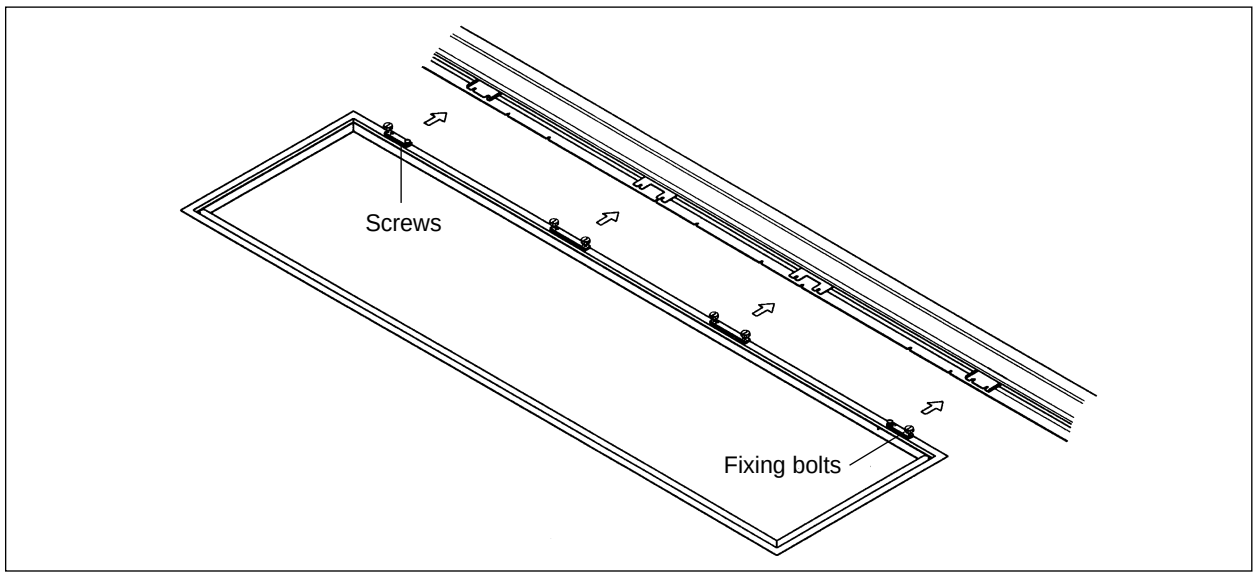


[Fig.2-12]

2) Adjust the table height at an appropriate level for border frame work. (See 2.5) TABLE ASSEMBLY)

3) Unfasten screws on the border frame 2/3 and install the border frame in the groove of the X frame connection plate. Fasten the bolt.

> **[CAUTION]**
> At this time, don't keep a border frame close to the X-frame by force and tighten the bolt while maintaining the gap of about 2mm between the two frames.

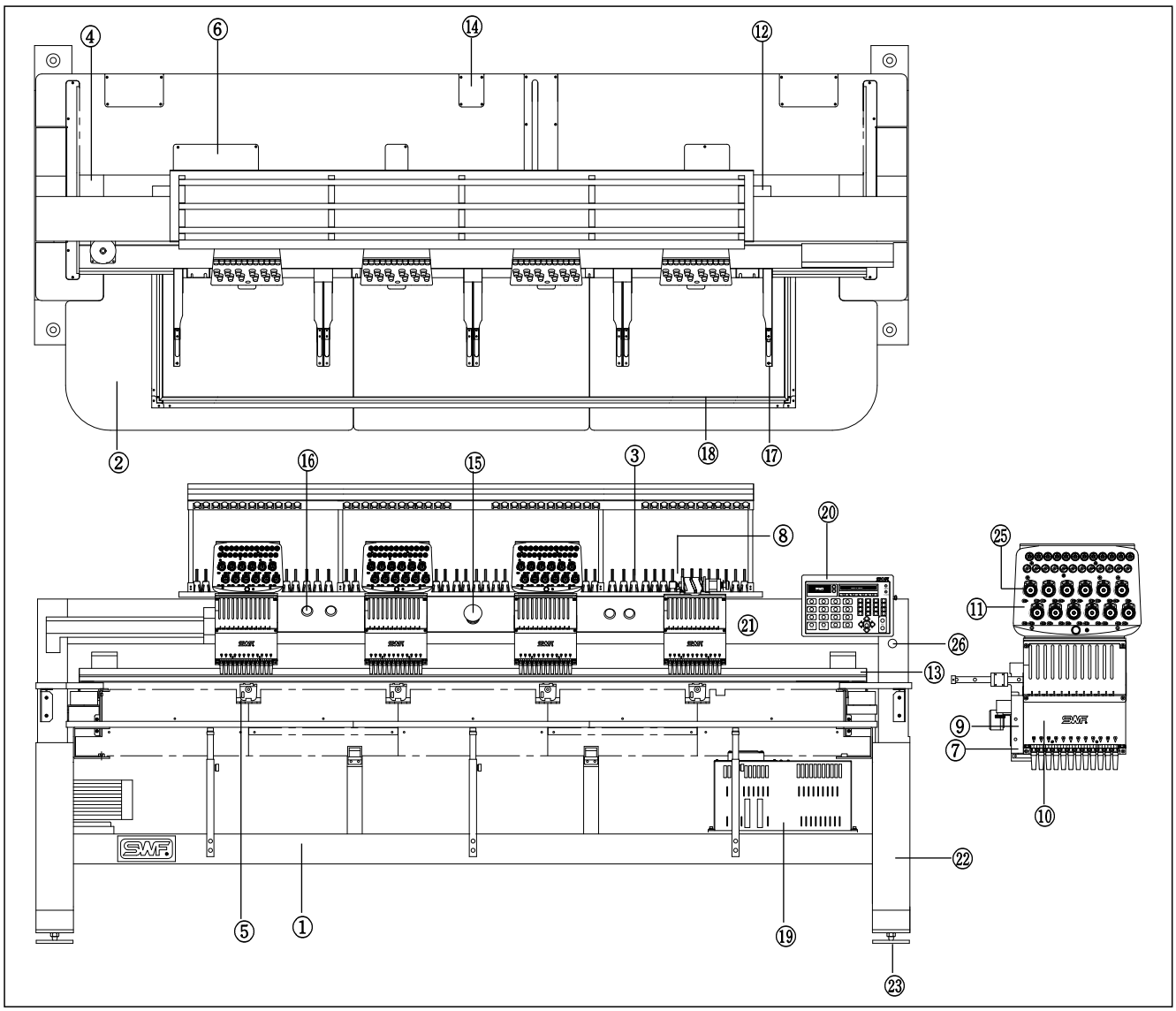


[Fig.2-13]

CHAPTER 3

PARTS OF THE MACHINE

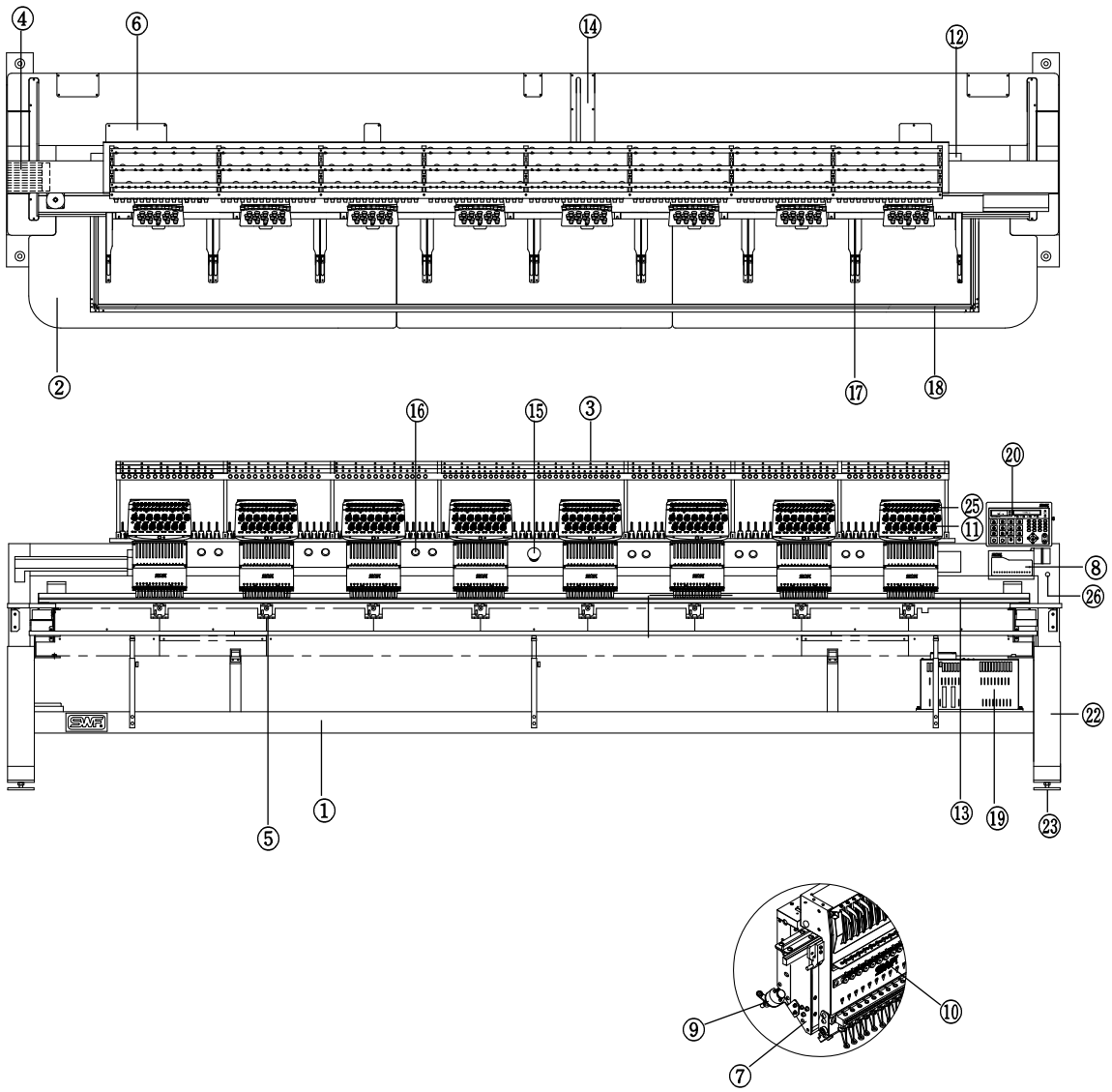
3-1) SWF/C-U SERIES



[Fig.3-1]

① Machine Body	⑧ Color Change	⑭ Y-axis driving system	㉑ Encoder
② Table	⑨ Upper thread holder	⑮ Emergency stop	㉒ Main power switch
③ Upper thread stand	⑩ Head	⑯ S/B button	㉓ Leveling base
④ Main shaft drive motor	⑪ Thread tension adjustment board	⑰ Tubular frame	㉔ Sub support
⑤ Rotary hook base	⑫ Sub-controller	⑱ Border frame	㉕ Thread detector
⑥ Trimming cam box	⑬ X-axis driving system	⑲ Controller box	㉖ Emergency power switch
⑦ Arm		⑳ Operation box	

3-2) SWF/C-UH1508-45



[Fig.3-2]

① Main Body
② Table
③ Upper thread stand
④ Main shaft drive motor
⑤ Rotary hook base
⑥ Trimming cam box
⑦ Arm
⑧ Color Change
⑨ Upper thread holder
⑩ Head
⑪ Thread tension adjustment board
⑫ Sub-controller
⑬ X-axis driving system
⑭ Y-axis driving system
⑮ Emergency stop
⑯ S/B button
⑰ Tubular frame
⑱ Border frame
⑲ Controller box
⑳ Operation box
㉑ Encoder
㉒ Main power switch
㉓ Leveling base
㉔ Sub support
㉕ Thread detector
㉖ Emergency power switch

CHAPTER 4

FUNCTIONS AND FEATURES

1) EXPANDED MEMORY SIZE
The machine can store a maximum of 100 designs. The basic memory size is 2 million stitches.

2) MIRROR IMAGE CONVERSION AND DESIGN DIRECTION
You can turn the design from 0° to 359° in the increments of 1° and also reverse the design in the X direction (mirror image).

3) ENLARGING AND REDUCING DESIGN
You can reduce or enlarge the embroidery design in size from 50% to 200% by 1% along the X and Y axis.

4) AUTOMATIC SELECTION OF NEEDLE BAR
You can select the order of the needle bars up to the 99th bar.

5) GENERAL REPETITION WORK
The same design can be repeated up to 99 times along the X and Y axis.

6) AUTOMATIC OFFSET
The frame automatically returns to the offset point when the embroidery is finished to make it easier for you to switch the frames. You can select AUTOMATIC OFFSET at PARAMETER SELECT MODE to move the frame automatically to the desired point, making it easier to do appliques and to switch the frames.

7) MANUAL OFFSET
You can manually move the frame to the pre-selected point to do appliques or change the frames during embroidery work. The frame can be moved back to its original place by simply pressing the right buttons.

8) RETURN TO START
The frame can be moved back to the start point of the design during the embroidery work.

9) NON-STITCHING
The frame and the needle bar can move back and forth by the units of 1, 100, 1000, and 10000 stitches and by color without stitching.

10) FRAME REVERSAL
When the thread breaks or runs out of track, you can move the needle bar back to the starting point of the design in the units of one to ten stitches.

11) AUTOMATIC TRIMMING
The automatic trimming function, determined by the design and the machine set-up, enhances work productivity and quality of the finished product.

12) AUTOMATIC DETECTION OF UPPER AND LOWER THREAD BREAKS

① Spring Type

The upper and the lower threads are detected by two separate devices. The machine stops automatically when the upper thread breaks or the lower thread is out of the needle (lower thread detector is optional for all machines except for single-head).

② Wheel Type

Wheel and wheel sensor board are installed in the tension adjustment board to detect both the upper and the lower threads. The machine stops automatically when the upper thread breaks or the lower thread is out of the needle.

13) AUTOMATIC RETURN TO STOP POINT IN UNEXPECTED BLACKOUT

When the power fails unexpectedly, the frame moves back to the exact point where the stitching stopped. This helps reduce the number of defects.

14) 3.5" FLOPPY DRIVE (EMBEDDED)

A 3.5" floppy drive is embedded in the operation panel for you to read or store designs. Both 2DD and 2HD disks can be used.

15) EDITING

You can delete, change, or insert stitch data and function codes (jump, finish, trimming).

16) AUTOMATIC STORAGE OF DESIGN SET-UP

The machine automatically stores "basic set-up" for each design and calls the set-ups when a specific design is called. This reduces your preparation time.

17) INDIVIDUAL HEAD OPERATION

You can work on the specific head with a broken thread.

18) MACHINE STOPPAGE

The screen will indicate why the machine has stopped.

19) RPM

The screen indicates rpm.

20) FRAME SPEED SET-UP

You can adjust the frame speed to high, medium, or low.

21) UNUSED MEMORY

The screen indicates the memory available for use.

22) TAPE CODE COMPATIBILITY

2-binary and 3-binary tape codes can be edited.

23) 800*600 COLOR LCD MONITOR (OPTIONAL)

You can install a 800*600 color LCD monitor onto your operation panel for easier reading of data.

24) CODES FROM OTHER BRANDS

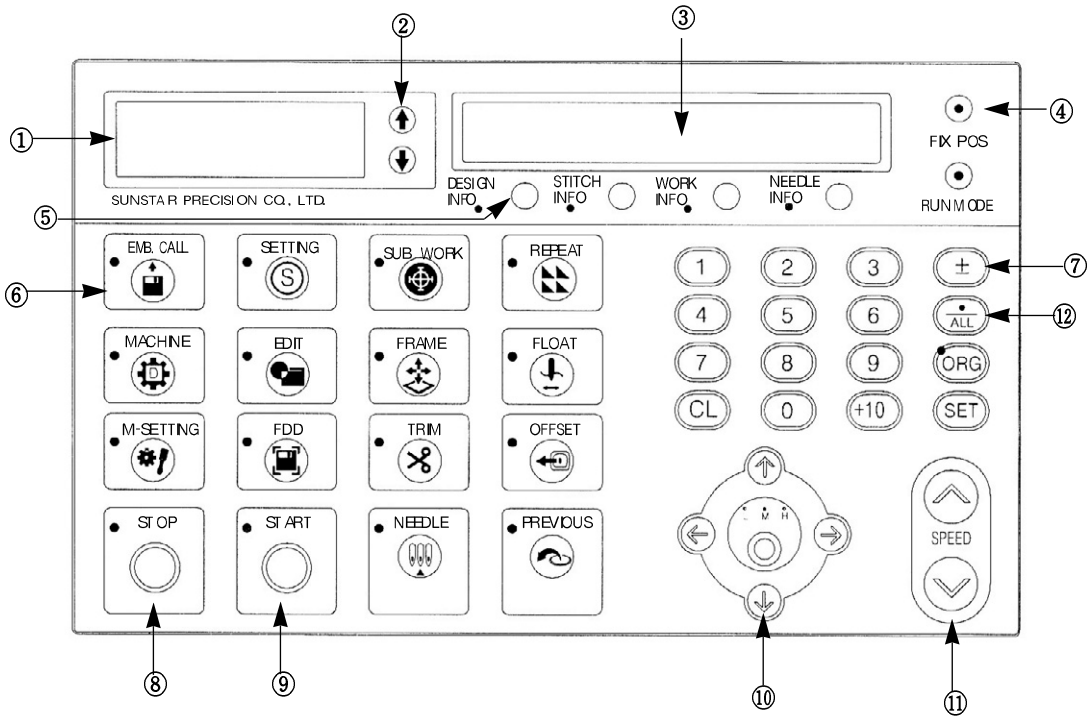
The machine can automatically read designs of various formats stored in the floppy disk. These formats include SST/ DST, DSB, DSZ/ TAP/ FMC, FDR/ ZSK/ 10O/ EXP.

CHAPTER 5

FUNCTIONS FOR BASIC MACHINE OPERATION

5-1) NAMES AND FUNCTIONS OF PARTS IN OPERATION BOX

[Front Side]



[Fig. 5-1]

① LCD Menu Screen
Shows 4 lines of 20 letters and indicates the menu you selected using key ⑥.

② Cursor Button
Moves the cursor on the screen ①.

③ Machine Information Screen
Indicates one of the four machine information you selected using key ⑤.

④ Indicator Lamp
Indicates FIX POS (Fixed Position) which indicates the main shaft is not moving. RUN MODE indicates that the machine is ready to accept and run the design.

⑤ Machine Information Button
Selects machine information to be displayed on the screen ③. See 7.2) SCREEN DISPLAY for details.

⑥ Menu Button
Selects the desired menu

[NOTE]

SET function

① Selects menu
② Sets number inputs
③ Completes work:
When the machine stops during operation, hold [SET] key until you hear a loud beep. The machine will complete the work (Press [SET] until the RUN MODE indicator light is turned off).

⑦ Number Buttons

This is used to input numbers when setting parameters.

[CAUTION]

CHANGING NEEDLE BAR WITH [SET] KEY
If you want to change the needle bar during operation, press number key and then [SET].

⑧ STOP Button

Stops the machine or performs reverse work

⑨ START Button

Starts the machine

⑩ Frame Movement and Speed Button

Moves the frame left, right, up, and down. Press the lamp key in the center to set the speed of the frame move to low, medium, or high.

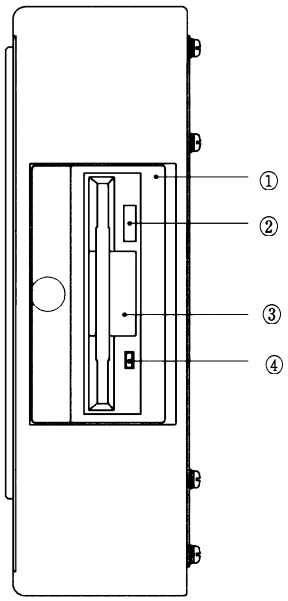
⑪ Main Shaft Speed Button

Changes the speed (by unit of 10 rpm) of the main shaft during operation. Press [UP] to increase and [DOWN] to decrease the speed.

⑫ ./ALL Button

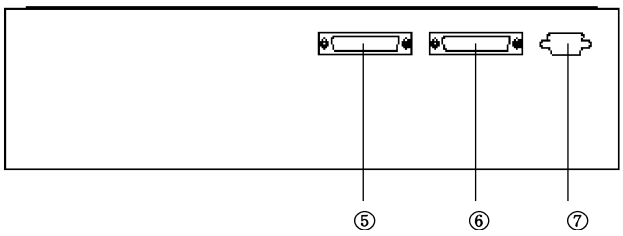
You can use this to input decimal numbers when setting the interval of repetition work. It can also be used to work on the previous head after back stitching.

[Right]



[Fig. 5-2]

[Bottom]



[Fig. 5-3]

① Acryl cover: protects the floppy disk drive
② Disk Out: takes the disk out
③ FDD: runs and reads the floppy disk
④ Work Lamp: blinks when FDD is in operation
⑤ COM1: serial port-1
⑥ Parallel port
⑦ COM2: serial port-2

5-2) EMERGENCY POWER AND START/STOP BUTTONS

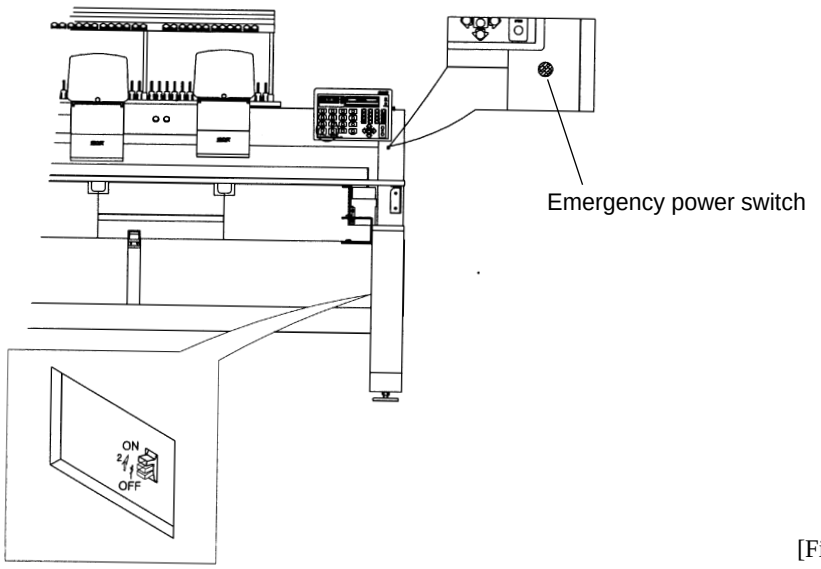
5-2-1) Emergency Power Switch

When starting the machine from initial stage,

① Turn on the main power ([Fig.5-4]).

② Press the emergency power switch (green color).

③ Emergency power switch will not turn on if the main power is off.

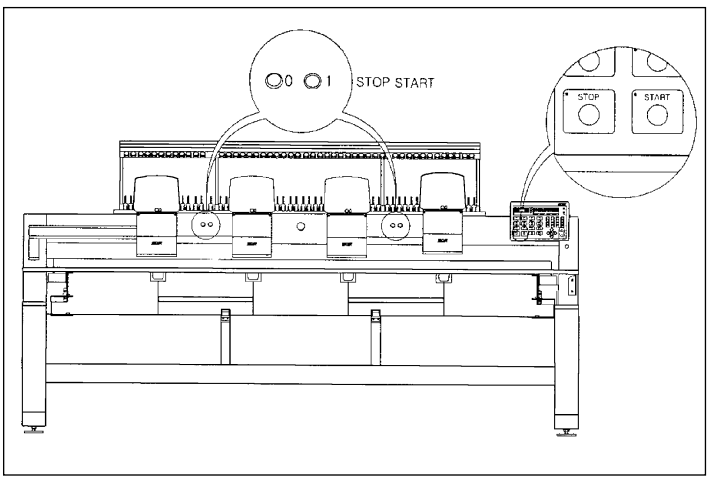


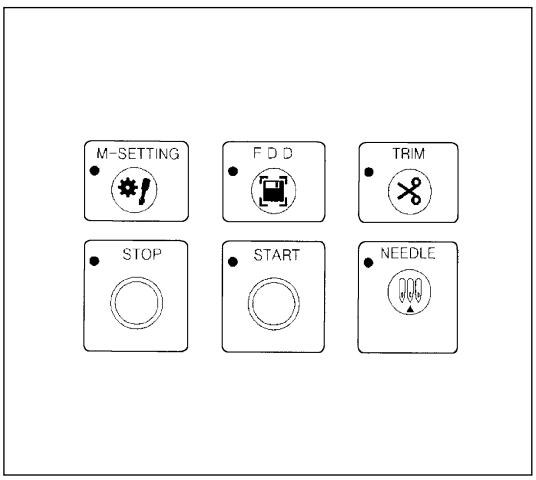
[Fig.5-4]

[NOTE]

Emergency power switch detects emergency stop failures and prevents accidents.
Emergency power function detects the failure of the emergency stop function and prevents the machine from being switched on.

5-2-2) Start/Stop Buttons





[Fig.5-5]

Use the START and STOP buttons to:

① Start the embroidery work or stop the machine during operation.
② Move the frame back during machine stop.
③ Move forward in design during machine stop (non-stitching)
④ Move backward in design during machine stop (non-stitching)
⑤ Do work other than embroidery

① START/STOP for starting embroidery and stopping the machine

BUTTON OPERATION	MACHINE OPERATION
Press START	Machine starts and embroidery work begins.
Hold START	Machine "inches (see Note1)" until you release the button.
Press STOP	Machine stops.

[NOTE 1]

You cannot perform non-stitching (floating) at the start of the embroidery because the function is not in the start menu. To perform floating at the start, press STOP to put the machine in STOP MODE. Then press button to select the non-stitching function.

② START/STOP during machine stop

BUTTON OPERATION	MACHINE OPERATION
Press STOP	Frame moves backward in selected movement units (see Note 2).
Hold STOP	Frame starts to move backward. If you press STOP before the machine goes 10 of the selected stitches, the machine will stop immediately (the machine moves back in the selected movement units). If you press STOP after the machine traveled 10 of the selected stitches, the machine will continue to move back.
Press STOP again	Press STOP one more time and the machine will stop moving backward.

③ START/STOP during forward non-stitching (during machine stop)

Refer to "7-4-8) Float (Non-Stitching) Functions."

BUTTON OPERATION	MACHINE OPERATION
Press START	Frame moves forward in selected movement units (see Note 2)
Hold START	Frame starts to move forward. If you press START before the machine goes 10 of the selected stitches, the machine will stop immediately (the machine moves back in the selected movement units). If you press START after the machine traveled 10 of the selected stitches, the machine will continue to move forward.
Press START Again	Press START one more time and the machine will stop moving forward.

④ START /STOP during backward non-stitching (during machine stop)

See ② START/STOP during machine stop.

⑤ Performing Work Other Than Embroidery

If you want to perform a solenoid test, a thread break sensor test, or manual trimming, select the function and press START.

Select function → Press START

[NOTE 1]

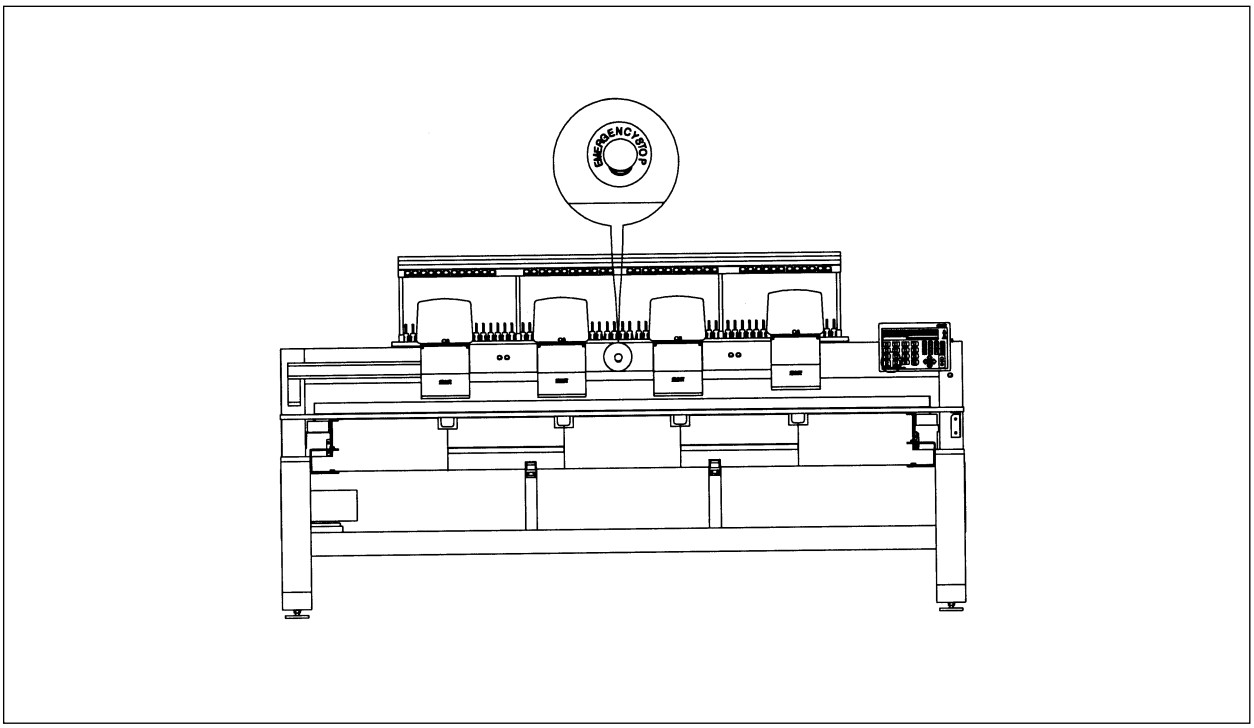
"Inching" refers to low-speed embroidery at a 100 rpm range, performed for stable stitching when the machine is re-started after stop.

[NOTE 2]

"Frame movement unit" refers to the "BKSTITCH UNIT" in "EMB FUNCTION." You can select from 1 to 10 stitches (by 1 stitch).

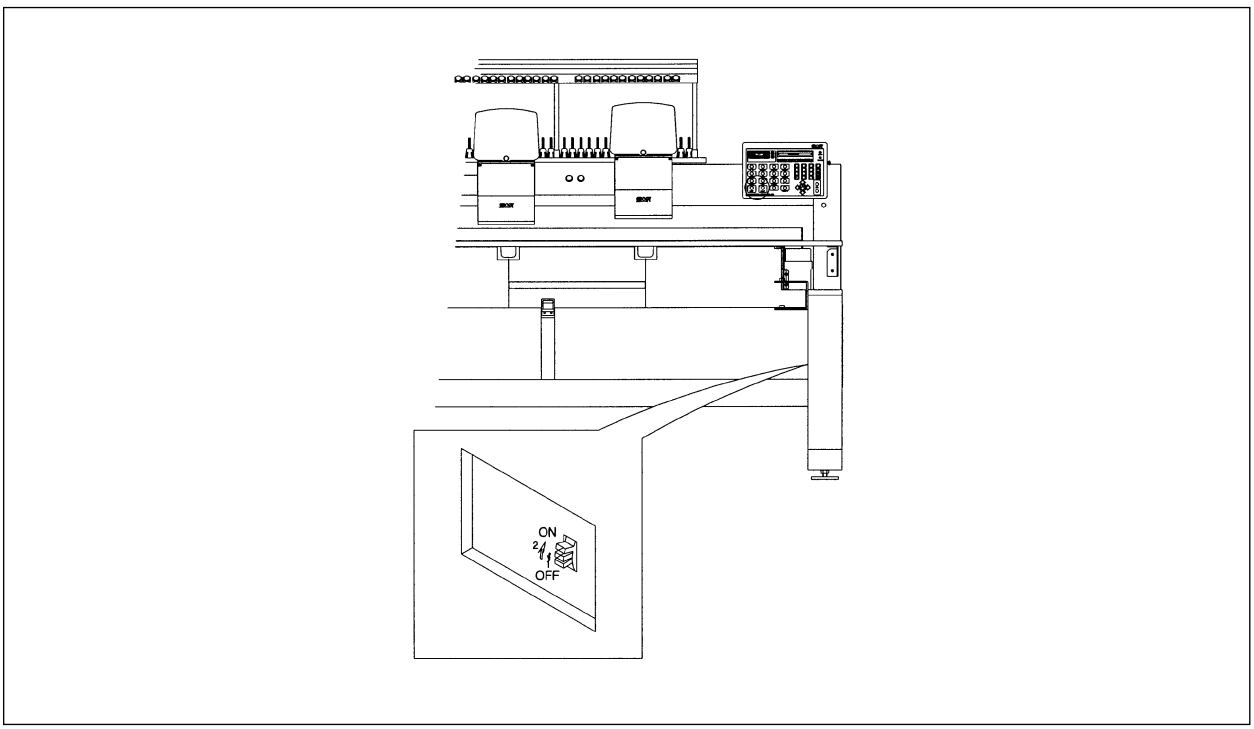
5-3) EMERGENCY STOP

Press EMERGENCY STOP if you have to stop the machine immediately, i.e. machine error.



[Fig.5-6]

1) EMERGENCY STOP will turn off the machine.
2) To restart the machine, rotate the main shaft to 100°.
3) Turn the EMERGENCY STOP button off and then on again.



[Fig.5-7]

5-4) LAMP ON THREAD TENSION ADJUSTMENT BOARD

1) Switch

① For normal operation, turn the toggle switch on to turn on the indicator lamp.

② If the machine stopped after detecting a thread break, move the frame back to the location of the thread break using STOP button and restart the machine to pick up stitching (design edit).

> **[NOTE]**
> If you want to move the frame back for any reason when a thread break has NOT occurred, press the toggle twice (OFF and ON again).

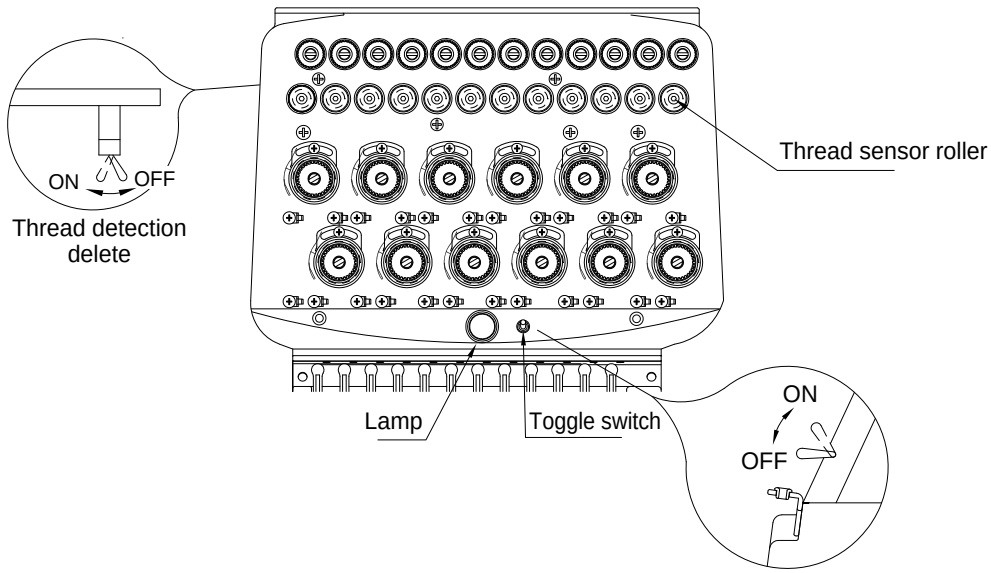
③ To set the needle bar so a specific head does not work, turn the toggle switch off.

> **[CAUTION 1]**
> The take-up lever continues to operate even when the head is turned off. This movement can cause the upper thread to come out of the holder. Use a rubber magnet to fix the unused upper thread.

2) Thread Break Detector Lamp

Lamp on a specific head will blink when thread break is detected at the head, while lamps on other heads will be turned off. You cannot turn the lamp on or off on the other heads using the toggle switch.

> **[CAUTION 2]**
> Foreign substances around the thread detector roller may block smooth rotation of the roller and cause wrong detection of thread break.



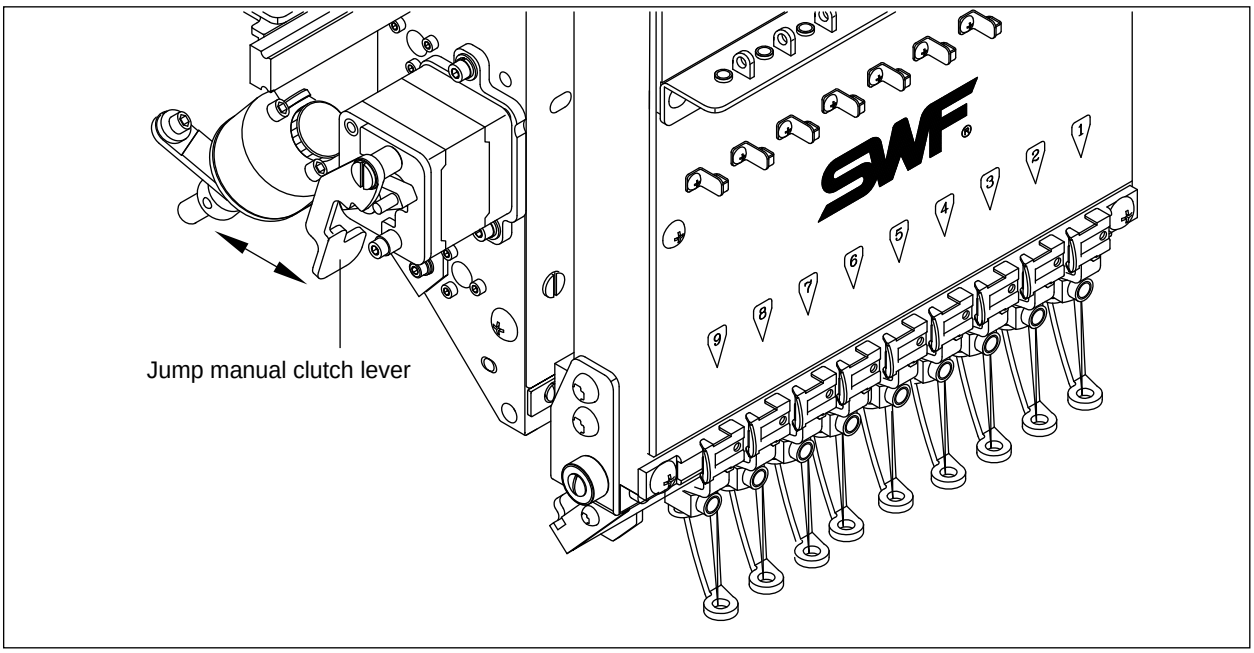
[Fig.5-8]

3) Deletion of Thread-Break Detection Function

Poor function of the thread detecting roller due to foreign substances around it may result in wrong and frequent detections, causing inefficiency of work. In this case, you can turn off the detecting function by turning off the toggle switch at the end of the thread tension adjustment board. This will turn off the detecting function on the head you are working with.

5-5) NEEDLE STOP CLUTCH

As illustrated in [Fig.5-9], the needle bar will not move when you pull the jump clutch lever. Push the level to the opposite direction of the operator to do move needle bar up and down.



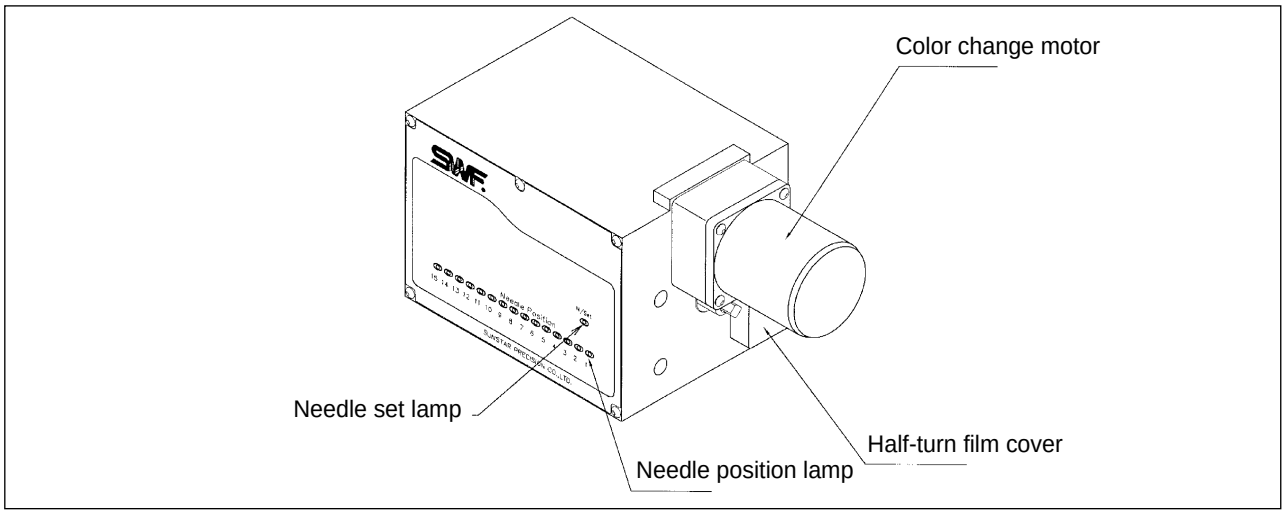
[Fig.5-9]

CAUTION

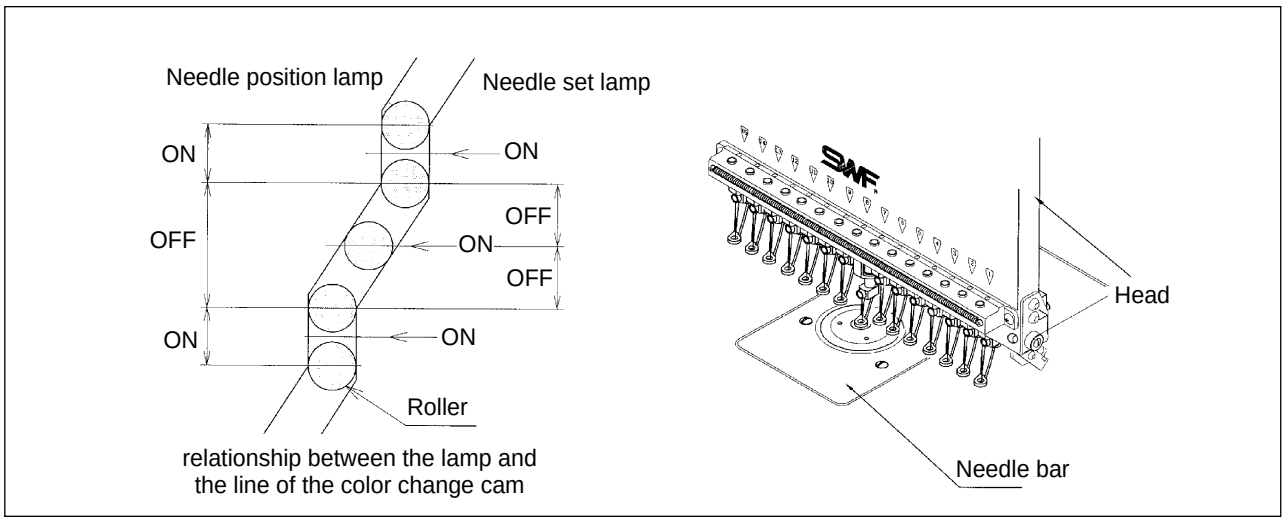
① The trimmer and the take-up lever continue to move even when the needle bar is stopped by the clutch. Avoid any operations, i.e. threading the needle or changing thread.
② Long-time operation of the needle bar with the clutch may damage the bar controller.

5-6) LAMP ON COLOR CHANGE BOX (SWF/C-UH1508)

Needle position lamp on the color change box blinks at the needle bar currently in operation. Needle set lamp blinks when the needle reaches the center of the needle hole on the plate (roller is positioned at the straight line of the color change cam) (see [Fig.5-10] on relationship between the lamp and the line of the color change cam). The needle bar moves when both the needle position lamp and the needle set lamp blink, preventing machine damage from incorrect needle position or color change malfunction.



[Fig.5-10]

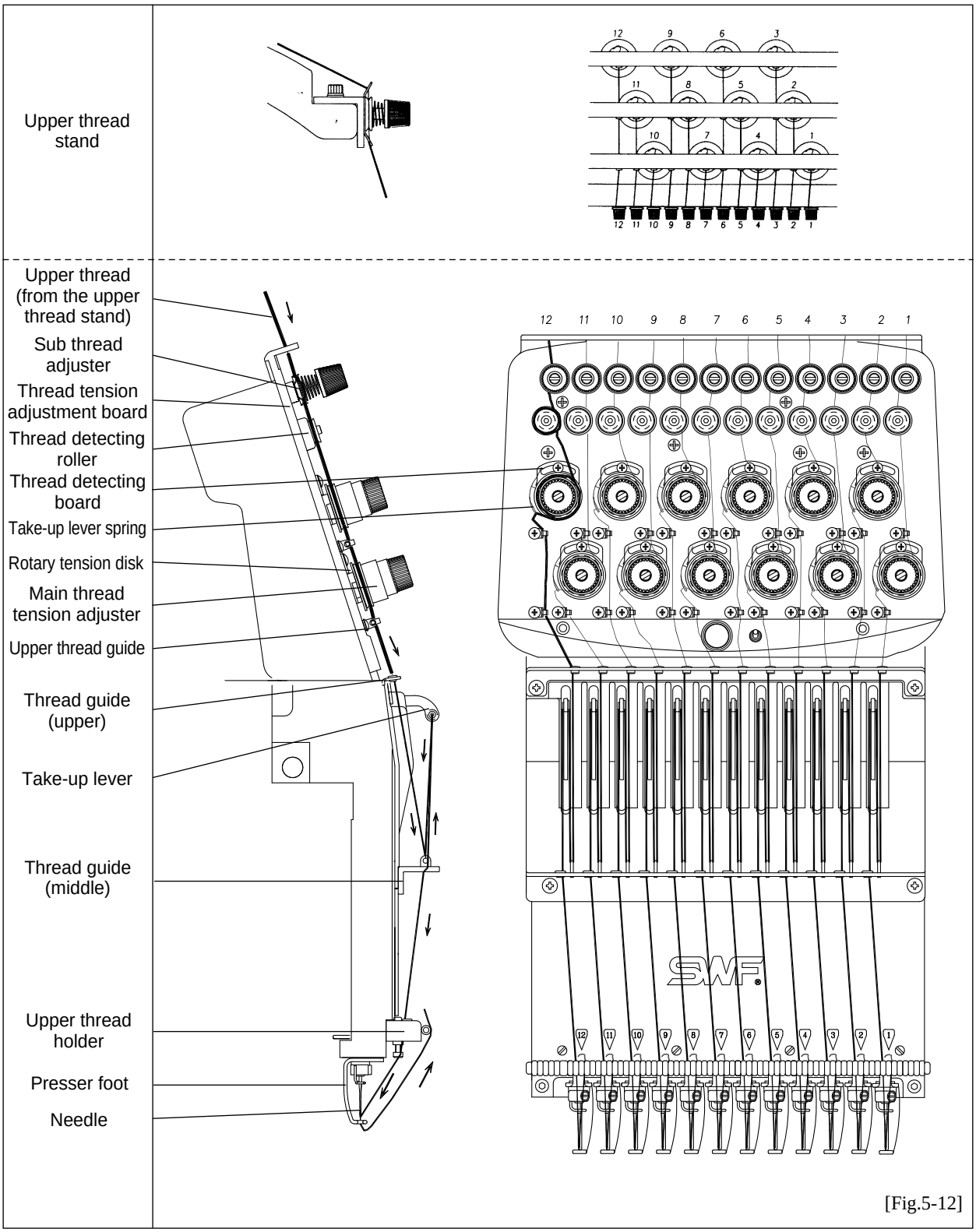


[Fig.5-11]

[NOTE]
Adjust the half-turn film if either of the lamps is off (see 11-8. ADJUSTING HALF-TURN FILM FOR COLOR CHANGE).

5-7) UPPER THREADING AND TENSION ADJUSTMENT

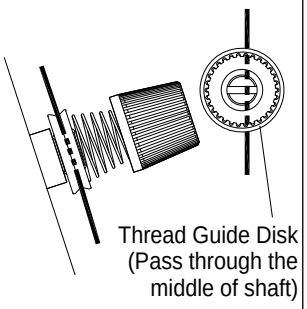
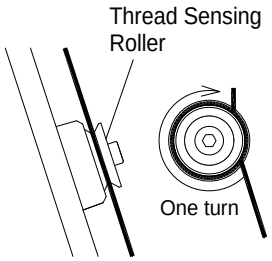
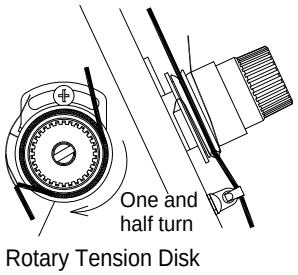
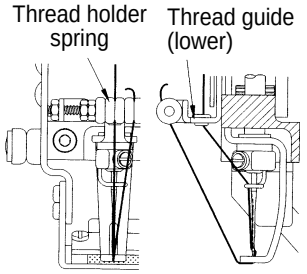
1) Upper Threading



[Fig.5-12]

[NOTE]

Do not stand on the table when threading the upper thread stand. The table may be damaged.

Threading the sub tension adjuster	Threading the thread detector roller	Threading the main tension adjuster	Threading around the needle
			
Wrap the thread clockwise around the thread guide disk.	Wrap the thread around the detector roller one time.	Wrap the thread 1.5 times around the rotary tension disk (V-shaped groove.)	Fix the upper thread between the thread holder spring of the lower thread guide.

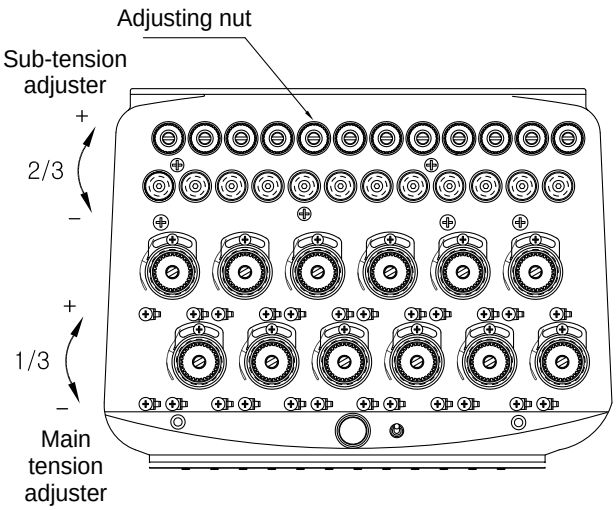
[Fig.5-13]

2) Upper Thread Tension Adjustment

Thread tension adjustment is critical for producing high quality of the embroidery. A balance of 2/3 upper thread and 1/3 lower thread generally indicates good tension. If the tension is too loose, the upper thread will loop, causing thread tangles or breaks. If the tension is too tight, puckering may occur as well as thread and needle breaks.

① The upper thread tension is controlled by the sub and main thread tension adjusters. Turn clockwise to increase the tension and counter-clockwise to decrease the tension.

② The sub-tension adjusters should control about 2/3 of the thread tension while the main adjuster should handle the other 1/3. Set the sub-tension adjuster so the upper thread flows smoothly through the rotary tension disks and into the rollers of the main tension adjuster.



[Fig.5-14]

[CAUTION]

① If tension at the sub adjuster is too loose, the detector roller may not rotate well and make wrong detections.

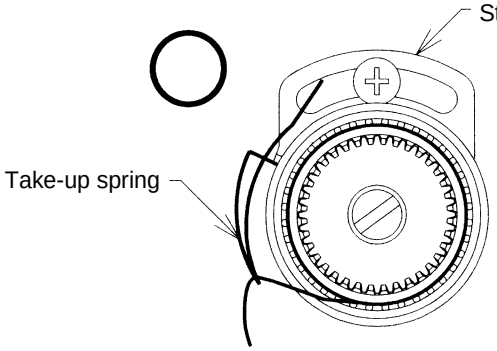
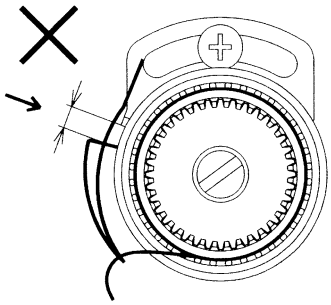
② After adjusting the tension, check if the upper thread tension is what can be pulled with little force of around 100-120g.

[CAUTION]

① After adjusting the tension, pull the upper thread to see if the detector roller rotates well.

② Adjust the tension according to the type of thread and fabric used.

3) Take-Up Spring

○ CORRECT	× WRONG
Connect between the take-up spring and the stopper.  	Take-up spring unable to connect with the stopper (due to dust or foreign substances in the stopper.) 

[Fig.5-15]

① Take-up Spring Functions

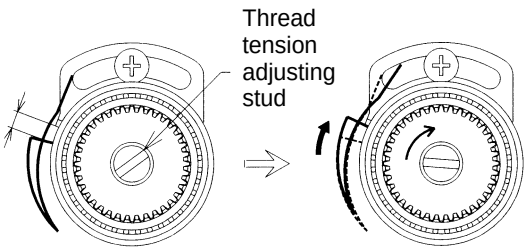
Difference in the length of the upper thread pulled by the take-up lever and pulled by the hook creates tension or looping. When the tension is too weak, the take-up spring handles the leftover length of the upper thread. Increase the tension or the stroke of the spring to form tight stitches on the embroidery.

② Take-up Spring Adjustment

ⓐ If the spring tension is too weak:
Turn the tension adjusting stud clockwise to increase the tension.

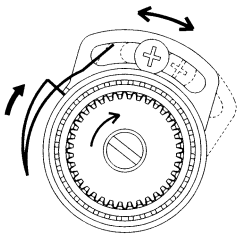
ⓑ If the spring tension is too tight:
Turn the tension adjusting stud counter-clockwise to decrease the tension.

[CAUTION 1]
Keep the area clean for connection between the spring and the stopper.



③ Adjusting stroke of the take-up spring:
To adjust the stroke of the spring during embroidery work, move the take-up spring stopper to right or left as shown in [Fig.5-16].

[CAUTION 2]
After adjusting the operating capacity of the take-up spring, check if the spring connects with the stopper.



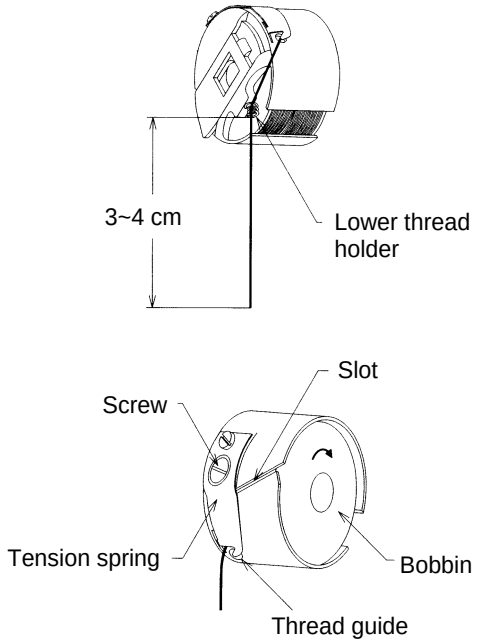
[Fig.5-16]

5-8) LOWER (BOBBIN) THREADING AND TENSION ADJUSTMENT

1) Lower Threading

① Use cotton yarn (#80 – #120) for your lower thread.
② Threading the bobbin:
ⓐ Insert the threaded bobbin into the bobbin case with the thread coming out from the case slot. Pull the thread through the thread guide. Check if the bobbin is rotating ([Fig.5-17]).
ⓑ Thread the lower thread holder and trim the thread to 3-4cm before inserting the bobbin and the case into the hook assembly. Long tail can cause the thread to tangle during stitching.

[CAUTION 1]
Direction of the Bobbin Rotation
Make sure that the bobbin rotates clockwise when you pull the thread holding the bobbin case in your left hand([Fig 5-17]).

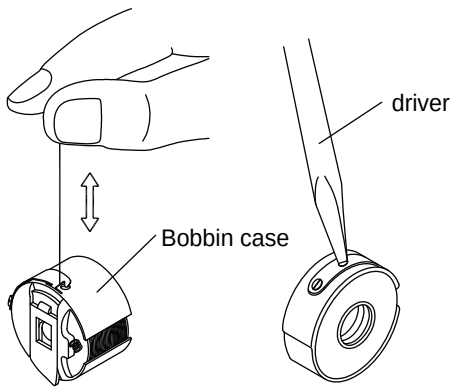


[Fig.5-17]

2) Lower Thread Tension Adjustment

Adjust the tension of the lower thread using the nut on the tension spring on the bobbin case. Turn the nut clockwise to increase the tension and counterclockwise to decrease the tension.

[CAUTION 2]
For adequate bobbin thread tension, hold a thread from the bobbin and jiggle the bobbin case lightly up and down([Fig 5-18]). The case should drop and the tension should be 25-35g.

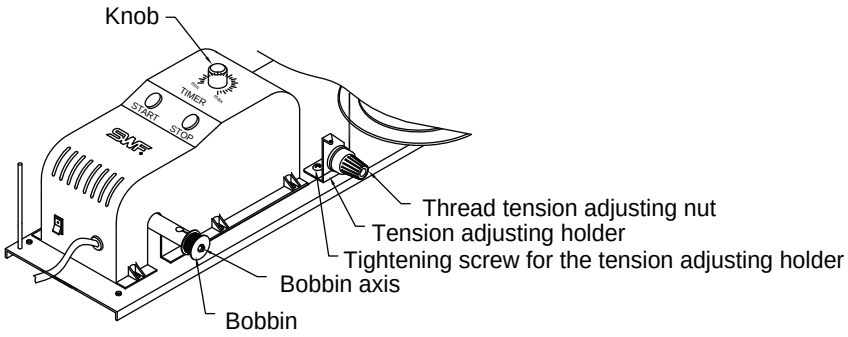


[Fig.5-18]

5-9) THREAD WINDER

1) Lower thread winding

① Insert the bobbin into the thread winder shaft as in [Fig. 5-19]. Wind the bobbin 5-6 times by hand in the thread winding direction. Then press the start button, and the thread winding begins.



[Fig.5-19]

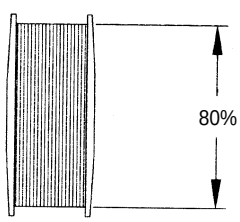
② If the thread winding status is poor, press the stop button. Then the winding stops immediately.

2) Adjustment of bobbin thread volume

① When winding thread around the bobbin, the thread volume should be some 80% of the bobbin size in terms of diameter as in [Fig. 5-20].

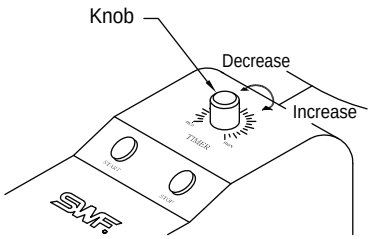
[CAUTION]

1. If the bobbin thread volume is too high, the lower thread is not properly released.
2. When the lower thread is wound by 80% of the standard bobbin size, it means some 80m.



[Fig.5-20]

② Bobbin thread volume is adjusted by the thread winder knob. When the knob is turned clockwise, the bobbin thread gets thicker. When the knob is turned counter-clockwise, the bobbin thread gets thinner.

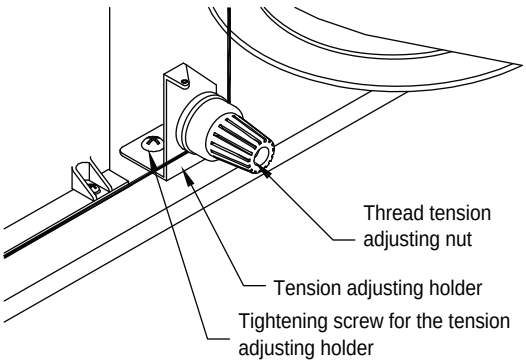


[Fig.5-21]

3) Adjustment of bobbin thread status

① The thread should be wound around the bobbin in parallel. Otherwise, loosen the tightening screw for the thread winder's tension adjusting holder and move the thread guide body left or right for adjustment.

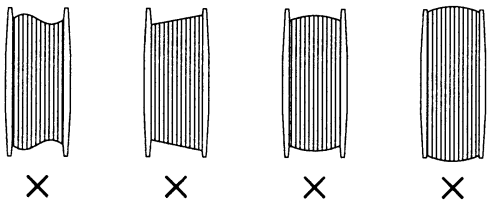
② The tightness of thread winding on the bobbin can be adjusted with the tension adjusting nut.



[Fig.5-22]

[CAUTION 1]

Winding the bobbin off-center or uneven as shown below can cause thread breaks, skipped stitches, or thread tangles.



[Fig.5-23]

[CAUTION 2]

Too tight tension of the bobbin thread may block smooth pulling of the thread and cause thread breaks or short tails.

5-10) FLOPPY DISKS

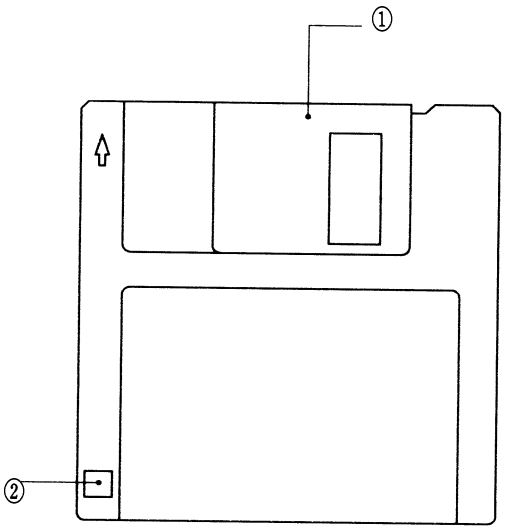
Make sure to meet the following guidelines when using floppy disks.

[CAUTION]

You can use pre-formatted disks, but be sure to use disks of recognized quality.

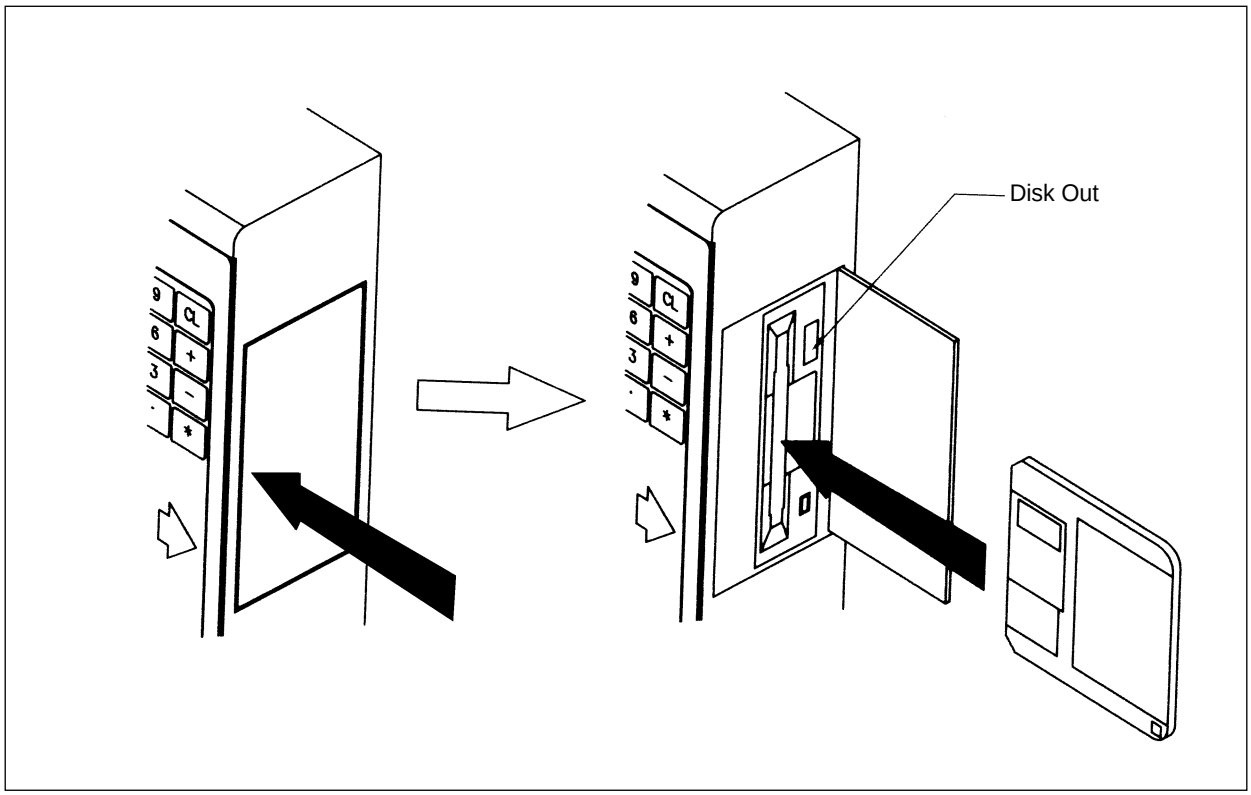
① Keep the disks away from objects with magnetic fields such as televisions.
② Protect the disks from excess heat, humidity, and direct sunlight.
③ Do not place heavy objects on the disks.
④ Do not remove the disk from the drive while formatting, reading, or writing the disk.
⑤ Do not open the cover of the disk drive.
⑥ Data cannot be written onto the write-protected disks.
⑦ Repetitious reading and writing on a single disk may cause errors.
⑧ Save your important data on more than one disk for back-up.

①Shutter
②Protection tab



[Fig.5-24]

■ Inserting the Disk



[Fig.5-25]

① Press the cover of the disk drive to open (as shown in the left picture of [Fig.5-25]).
② Insert the floppy disk into the drive in the direction shown in the right picture of [Fig.5-25]

■ Taking out the Disk

[CAUTION]
Do NOT remove a disk from the drive while formatting, reading, or writing the disk. Otherwise the data may be lost.

Press the Disk OUT button to take the disk out from the drive (see [Fig.5-25]).

5-11) IN AND OUT OF DESIGNS

You can use a floppy disk or a tape reader to read a design with SWF Machine. You can write the design on the floppy disks. See 7.4.1) In and Out of Designs for details.

5-12) RETURN TO PREVIOUS LOCATION IN UNEXPECTED BLACKOUTS

Your SWF machine goes back to the location of stop to pick up stitching when the power comes back on after unexpected blackouts. See 7.4.7) Frame Movement for details.

[CAUTION]
Make sure to turn OFF the power in unexpected blackouts until the power comes back on.

5-13) NEEDLE-HOOK TIMING CONTROL

1) Needle

① It is very important to select the right needle for the type of thread and fabric used.
② Inappropriate needle may cause bad embroidery, thread breaks, skipped stitches, etc.
③ For normal embroidery, use a DB × K5 needle.

[CAUTION]
DB ×K5 needle has an eye twice larger than that of DB1 (used for normal sewing). Use DB X K5 for normal embroidery.

2) Relationship between Needle and Thread

① Inadequate selection of thread and needle may result in thread breaks, skipped stitches, as well as in bad-quality embroidery.
② Refer to the following table of threads and needles used for normal embroidery.

NEEDLE SIZE			THREAD SIZE			
US	Japan	Germany	Cotton	Silk	Nylon	Rayon
0.25	9	65	70~80	100~120	130~150	70~100
0.27	10	70				
0.29	11	75	50~60	80~100	100~130	100~130
0.32	12	80				
0.34	13	85	50~60	60~70	80~100	130~150
0.36	14	90				

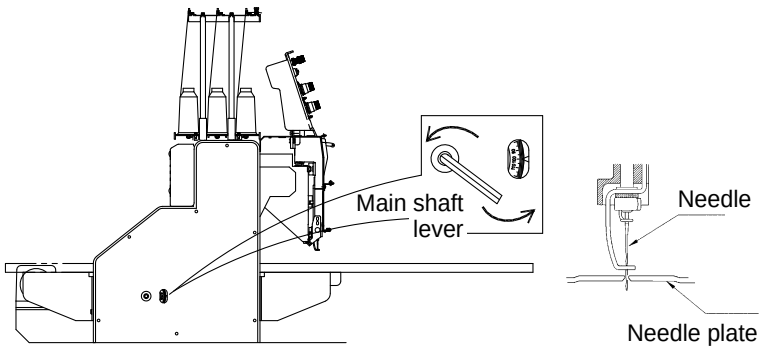
[CAUTION]
Needle and thread most commonly used in embroidery are DB ×K5 #11 and rayon yarn 120d/2.

3) Changing the Needle

① Make sure the needle is completely clear of the needle plate before attempting to change it. If the needle is not clear of the plate, manually turn the main shaft with a hand lever to put the needle in the right location for change.

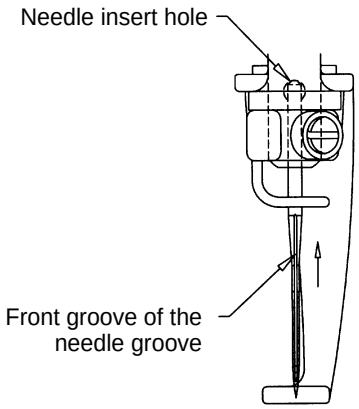
CAUTION

STOP the machine before turning the shaft manually. Immediately remove the lever afterward: it is dangerous to operate the machine with the lever inserted.



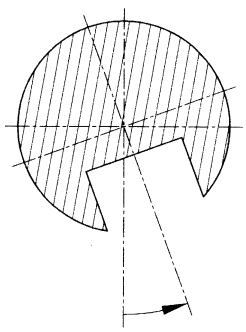
[Fig.5-26]

② When inserting the needle, make sure that the groove of the needle is facing front. Shaft of the needle should be inserted completely into the needle bar.



[Fig.5-27]

[CAUTION 1]
For special threads such as artificial silk, turn the needle slightly to the right to prevent thread breaks (see [Fig.5-27]).



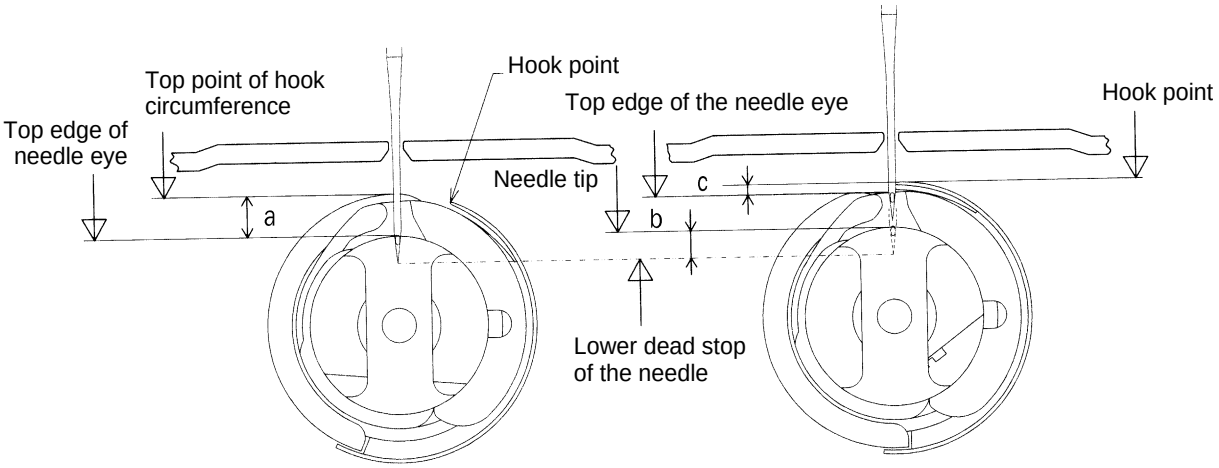
[Fig.5-28]

[CAUTION 2]
If the needle is not inserted all the way to the top of the needle bar hole, timing of the machine will go off, causing broken needles and thread breaks.

4) Relationship between Needle and Hook

① Adjusting Timing between Needle and Hook

Default timing of the needle and the hook is set by the main shaft angle of 200° and varies as below.

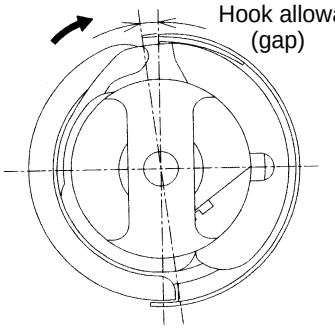


[Fig.5-29]

a. At lower dead stop of the needle bar	2.3～3.7 mm	The figures may change according to needle specification/number.
b. At needle-hook timing	1.8～2.2 mm	
c. At needle-hook timing	0.5～1.5 mm	

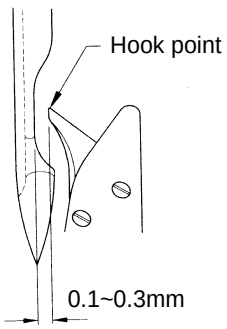
[CAUTION]

The hook can move right and left if there is an allowance in the lower shaft gear. Eliminate the allowance (gap) by turning the hook clockwise. Then adjust the timing.



[Fig.5-30]

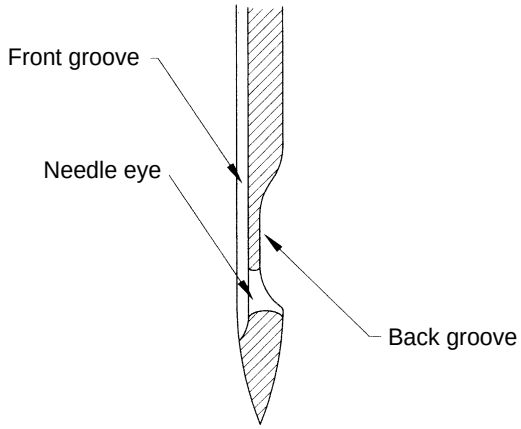
② Adjusting Gap between Needle and Hook Point



[Fig.5-31]

- Gap between the hook point and the scarf of the needle should be 0.1～0.3 mm minimum.
- Thread skip occurs due to thread looping or inadequate balance/gap between the needle and the hook. The closer the hook point is to the needle, the hook point will be inside the loop and threading will be more stable.

[CAUTION] Functions by Needle Shape



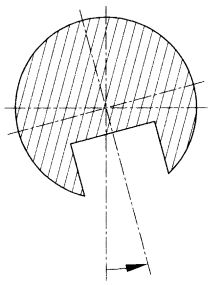
[Fig.5-32]

① Size of the hole and groove differs by needle.

- Front groove: protects the thread from the heat of the sewing friction (which may cause thread breaks).
- Back groove: helps regulate the hook timing and prevents looping.

Prevention of looping is important for stitching. Adjust the hook point as close to the needle as possible to achieve the perfect thread position.

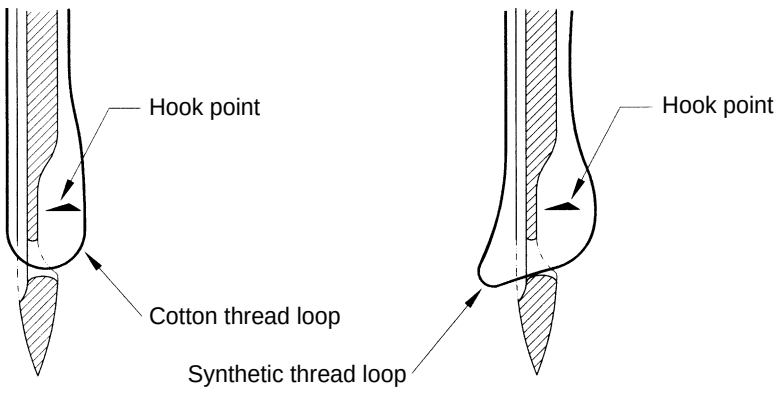
② If thread breaks or stitches are unstable, turn the needle slightly to the right.



[Fig.5-33]

[NOTE]

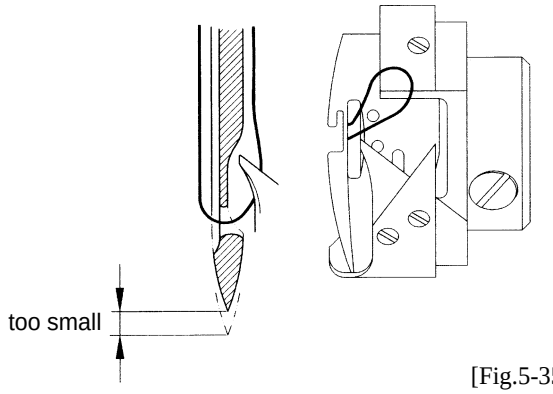
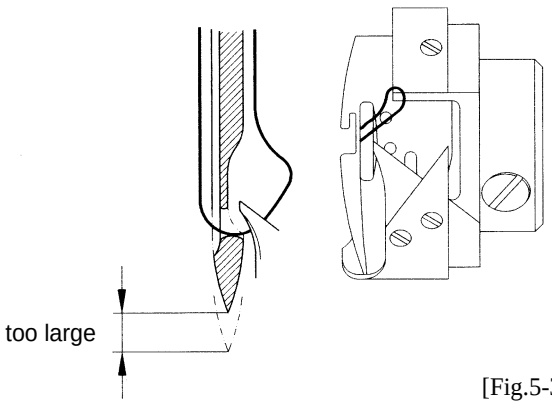
Shape of the loop varies by the type of thread or fabric. Unstable shape of the loop may result in skipped stitches. The following pictures show different shapes of loop formed by different types of thread.



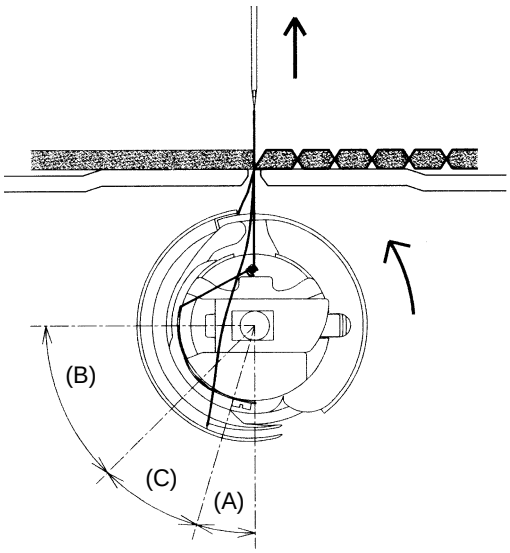
[Fig.5-34]

5) Relationship between the Take-up Lever and the Hook

Hook point timing is directly related to thread tension and thread breaks. The following pictures show the location of hook when the take-up lever starts to move up from the lower dead stop (main shaft rotation angle: 292°).

FAST HOOK TIMING	
 [Fig.5-35]	Groove of the hook is in the (A) range. The hook point will take up the thread when the loop is too small. Stitching will be faster than the take-up movement. As a result, the thread tension will be too loose, upper thread loop will be too small, and skipped stitches will occur.
SLOW HOOK TIMING	
 [Fig.5-36]	Groove of the hook is in the (B) range. The hook point will take up the thread when the loop is too large, so there may not be skipped stitches. However, the take-up movement will be faster than the stitching and thread breaks may occur.

[CAUTION] In normal hook timing, the hook should be in the (C) range in the picture below.



[Fig.5-37]

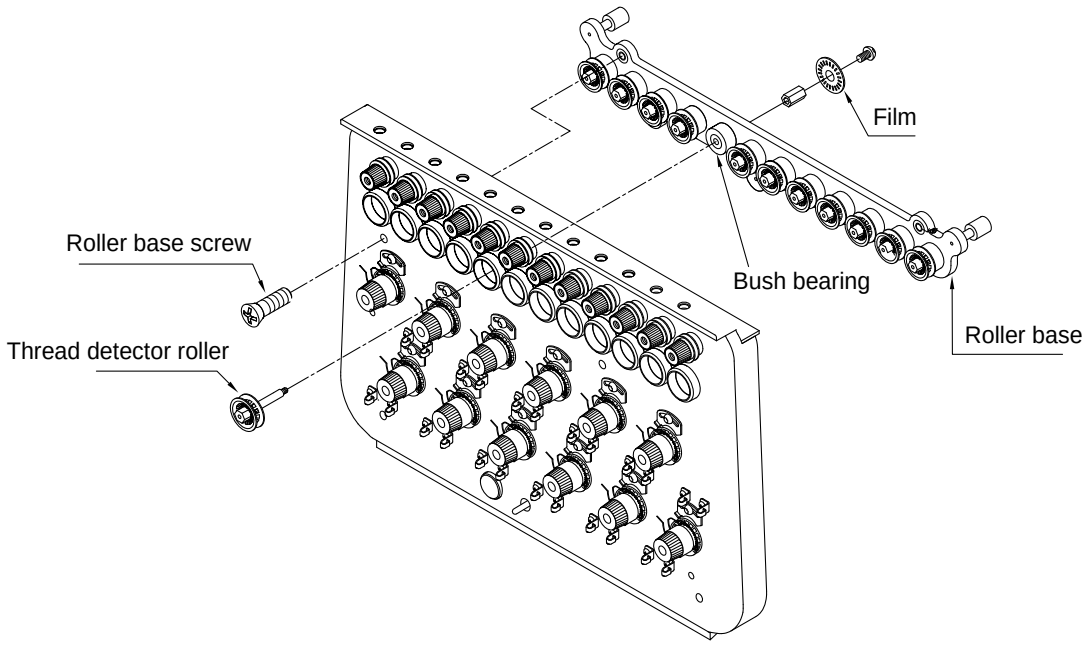
5-14) ASSEMBLY AND FUNCTIONS OF THREAD DETECTOR

5-14-1) Functions of Thread Detector

Detection of the breaks of upper or lower threads prevents ill quality embroidery. The thread- break detector unit contains rollers that sense the smooth feeding of the thread. Any dust, thread remnants, etc. will interfere the rollers' rotation and may cause wrong detection.

5-14-2) Disassembling Thread Detector

You will need to disassemble the thread-break detector unit to clean. Remove the cover of the thread tension adjusting plate, separate the cables and unfasten the roller base joint screw. The entire unit will be disassembled including the rollers and bush bearing.



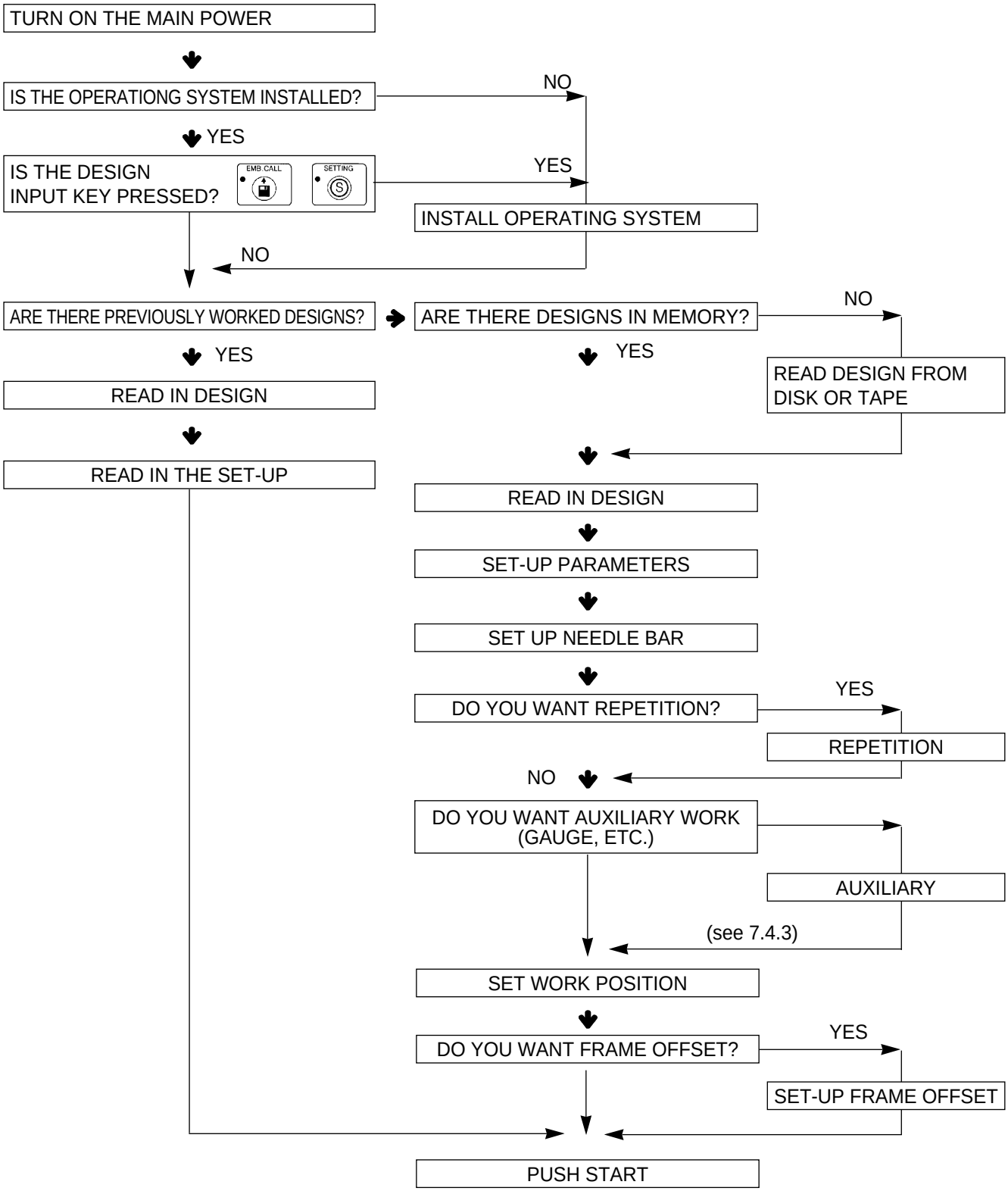
[Fig.5-38]

[CAUTION]

Make sure to correctly place the thread detecting roller to have the unit properly function. Check between the sensor groove and the film. If needed, unfasten the board base screw to adjust the board.

CHAPTER 6

BASIC MACHINE OPERATION



CHAPTER 7

NAVIGATING THE CONTROL PANEL

7-1) INSTALLING THE OPERATING SYSTEM

You may have to install an operating system in the event of the deletion of the system due to controller box malfunction or an upgrade to the latest OS version. You will see the program on the screen when:

※ there is no operating system in the memory

※ EMB.CALL and SETTING keys are pressed at the same time in the start screen

The first screen you will see when you turn on the main power looks like this:

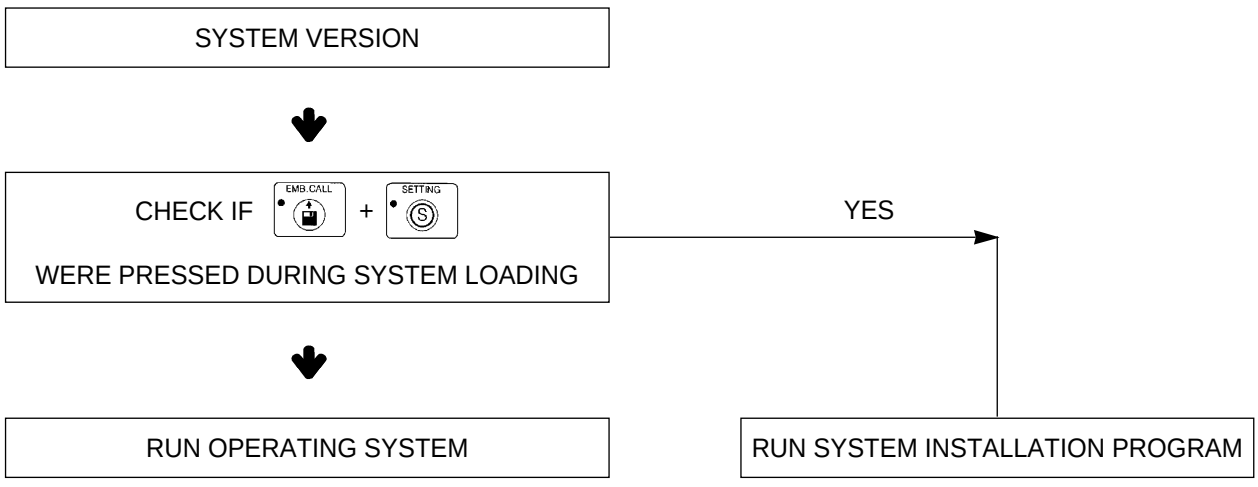
```
=== SWF-EMB Vx.xx ===
```

[Machine Information Screen]

```
NOT LOAD DESIGN...
```

[Menu Screen]

After "= = = SWF-EMB Vx.xx = = =" is indicated on the screen, the following information will be displayed:



If the machine operating system is not in the memory, or if EMB.CALL and SETTING keys were pressed at the same time, the system installation program will appear (see below).

```
= INSTALL PROGRAM =
```

[Machine Information]

```
1. VERSION INSTALL
2. VERSION BACKUP
3. ENCODER SETTING
4. C/C SETTING
```

[Menu]

The system installation program includes the following sub-menus.

(1) VERSION INSTALL: installs or upgrades the machine operating programs.
(2) VERSION BACKUP: copies the machine operating program in the memory onto a disk.
(3) ENCODER SETTING: sets the main shaft encoder.
(4) C/C SETTING: selects signals for the needle bar position.
(5) X ORIGIN SETTING: checks origin on the X-axis during machine inspection.
(6) Y ORIGIN SETTING: checks origin on the Y-axis during machine inspection.
(7) WIPER RET SENSOR: checks wiper solenoid return sensor during machine inspection.
(8) JUMP MOTOR SETTING: checks start point of jump motor during machine inspection.
(9) START/STOP CHECK: checks START/STOP buttons during machine inspection.
(10) SETTING DEFAULT: turns the machine set-up and EMB set-up to default values.
(11) CURRENT SETTING: sets the voltage of X-Y driver during machine operation.
(12) GEAR RATIO CHECK: selects pulley ratio of the main shaft.
(13) MACHINE SETTING: selects the type of machine.
(14) EXIT: goes back to the machine operating program.

Ex) Copying the Vx.1 operating system currently stored in the memory onto the DISK 1 and the Vx.2 program in the DISK 2 onto the memory.

Press EMB.CALL and SETTING at the same time when "= = = SWF-EMB Vx.xx = = =" appears on the screen. ▼ Inset DISK 1 into the drive and move the cursor to "2. VERSION BACKUP"	1. VERSION INSTALL 2. VERSION BACKUP 3. ENCODER SETTING 4. C/C SETTING

Press **SET**

Insert DISK 2 into the drive and move the cursor to "1. VERSION INSTALL"

Press **SET**

```
1. VERSION INSTALL
2. VERSION BACKUP
3. ENCODER SETTING
4. C/C SETTING
```

```
SYSTEM WRITE:      55[%]
            [>>>>>      ]
```

```
1. VERSION INSTALL
2. VERSION BACKUP
3. ENCODER SETTING
4. C/C SETTING
```

```
SYSTEM READ:       55[%]
            [>>>>>      ]
```

When the installation is completed, the cursor will be at "12. MACHINE SETTING"

Press **SET**

Select the machine type (check the machine model).

If you select "3. SWF - U Series" the screen will look like this:
Select the machine type.

Press **SET**

If you want to select wheel type, move the cursor to WHEEL. If you want to select spring type, move the cursor to SPRING.

Move the cursor UP and DOWN to choose suitable WHEEL TYPE machine.

```
12. MACHINE SETTING
13. EXIT
```

```
1. SWF - T series
2. SWF - W series
3. SWF - U series
```

```
1. UK1204
2. UK1206
3. UK1202
4. UK1504
```

```
==========================================
===== SENSOR SETTING =====
==========================================
 [SPRING]          [WHEEL]
```

```
==========================================
 =====  WHEEL TYPE  =====
==========================================
 NORMAL / 18HOLE / 50HOLE
```

Press **SET**

Move the cursor to "13. EXIT" to go to the new program.

Press **SET**

You will see this message on your VFD start screen if you selected WHEEL.

You will see this message on your start screen if you selected SPRING.

After the machine is automatically rebooted, check if the VFD screen correctly displays your selection. Check the version as well.

```
12. MACHINE SETTING
13. EXIT
```

```
12. MACHINE SETTING
13. EXIT
```

```
SYSTEM CHANGE...
```

[Machine data screen]

```
===SWF [W] B/Vx.xx===
```

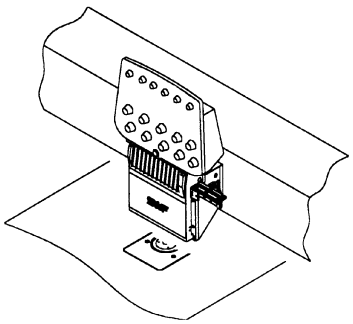
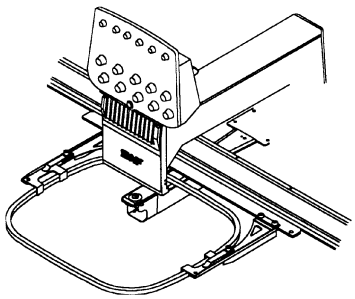
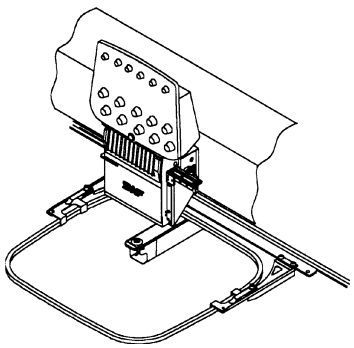
```
===SWF [S] B/Vx.xx===
```

```
[UK1206] xxxx/x/xx
```

※ If you skip "12. MACHINE SETTING" and go straight to "13. EXIT," the machine will ask for your machine set-up. "12. MACHINE SETTING" will automatically appear on the screen.

CAUTION	If the selection is incorrect, the machine will not operate normally.

■ Machine Model by Series

TYPE	NAME	DESCRIPTION
Bridge Type Arm + Flat Table  SWF/☐– W series	SWF/☐–W1201	Single-head Wide Embroidery Machine
	SWF/☐–WE1204	4-head Flat Embroidery Machine
	SWF/☐–WE1206	6-head Flat Embroidery Machine
	SWF/☐–WF912	12-head Flat Embroidery Machine
Arm Type Arm + Cylinder Bed  SWF/☐– T series	SWF/☐–T1201 SWF/☐–T1501	Single-head Tubular Embroidery Machine
Bridge Type Arm + Cylinder Bed  SWF/☐– U series	SWF/☐–UK1202 SWF/☐–UK1501	2-head Tubular Embroidery Machine
	SWF/☐–UK1204 SWF/☐–UK1504	4-head Tubular Embroidery Machine
	SWF/☐–UK1206 SWF/☐–UK1506	6-head Tubular Embroidery Machine
	SWF/☐–UH1206 SWF/☐–UH1506	6-head Compact Tubular Embroidery Machine
	SWF/☐–UI1212	12-head Tubular Embroidery Machine
	SWF/☐–UH1508	8-head Tubular Embroidery Machine

7-2) MAIN INDICATION SCREEN

The screen has two parts: one for machine information and the other for menu display.

1) Machine Information Screen (VFD)

Displays the current condition of the machine. You can select one of the four display styles.

① Design information: number of stitches and the memory number of the selected design.

```
DESIGN #8   16850 st
```

② Stitch information: number of total stitches, the stitches made, and the progress percentage.

```
          0/16850 st[0%]
```

③ Work information: current speed, number of total stitches, and number of total plates.

```
[1200]S:115354   W:011
```

④ Needle bar information: number of the previous, current, and next needle bars and the number of total colors.

```
N:4[1]2          TOTAL:6
```

[CAUTION]

The VFD also indicates cause of machine stops and errors.

Ex: displays the cause of machine stoppage

```
Stop Switch Stop...
```

Ex: displays machine error

```
Er#100:Main shaft is not at th
```

2) Menu Screen (LCD)

Displays the set-ups and the main & sub menus selected.

① Set-up

There are 10 types of set-up information. Four will be listed at a time. Press UP or DOWN on the right side of the LCD screen to move to another screen.

NO	:	8
STITCH	:	16850
COLOR	:	6
JUMP	:	118

NO: memory number of the selected design
STITCH: number of total stitches in the selected design
COLOR: number of color changes (needle bars) in the design
JUMP: number of jump stitches in the design

X [mm]	:	83.4
Y [mm]	:	101.6
ANGLE	:	45
MIRROR	:	OFF

X[mm]: the X dimension (left to right) of the selected design
Y[mm]: the Y dimension (top to bottom) of the selected design
ANGLE: the selected orientation of the design by degrees
MIRROR: if the reverse function is selected

X_SCALE	:	100
Y_SCALE	:	100

X_SCALE: if the design has been scaled up or down in the X direction
Y_SCALE: if the design has been scaled up or down in the Y direction
The above data are accurate based on instant calculation.

② Sub Menus

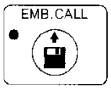
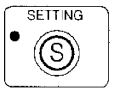
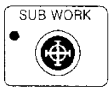
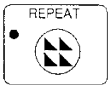
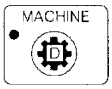
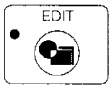
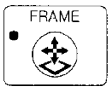
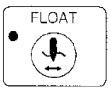
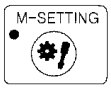
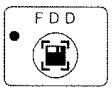
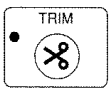
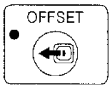
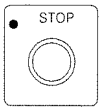
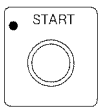
Main menus are selected by keys on the control panel. Sub menus will appear on the screen at your selection of a main menu. All sub menus cannot be indicated on a single screen. Use UP/DOWN buttons to move to another screen.

Ex) selection of basic set-up

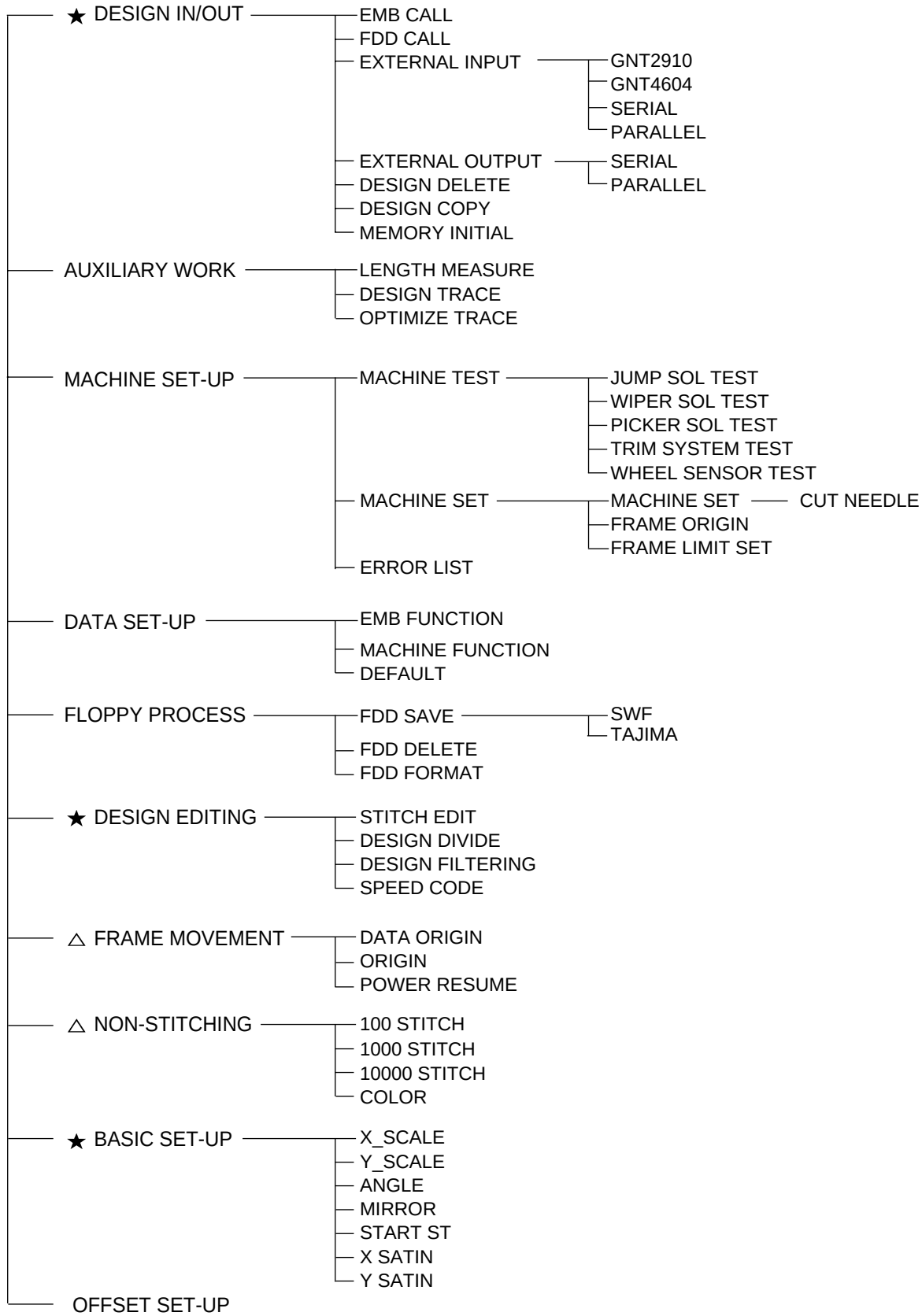
1] X_SCALE	:	100%
2] Y_SCALE	:	100%
3] ANGLE	:	0°
4] MIRROR	:	NO MIRROR

7-3) THE FUNCTION MENU

7-3-1) Outline of Function Menu

	**In and Output of Designs** PP. ~ (7-4-1)	reads in or outputs designs
	**Basic Set-Up** PP. ~ (7-4-2)	basic set-up (scale up/down, rotation, etc.)
	**Auxiliary Work** PP. ~ (7-4-3)	measures length, checks paths, etc.
	**Repetition Work** PP. ~ (7-4-4)	repetition work
	**Data Set-Up** PP. ~ (7-4-5)	sets up embroidery related data
	**Embroidery Design Edit** PP. ~ (7-4-6)	edits embroidery designs (STOP mode) or changes speed (OPERATION mode)
	**Frame Movement** PP. ~ (7-4-7)	moves the frame
	**Floating** PP. ~ (7-4-8)	non-stitching functions
	**Machine Set-Up** PP. ~ (7-4-9)	machine set-up
	**Floppy Functions** PP. ~ (7-4-10)	copying, deletion, formatting, etc.
	**Manual Trimming** PP. ~ (7-4-11)	manual trimming
	**Offset Set-Up** PP. ~ (7-4-12)	set-up offset
	Needle Bar Set-Up PP. ~ (7-4-13)	set-up the needle bar
	Previous	
	**Stop**	
	**Start**	

7-3-2) Function Menu Diagram



[CAUTION]

Main menus marked with "★" cannot be selected for repetition work.
Main menus marked with "△" are not available before the embroidery work begins.

7-4) USE OF FUNCTION MENU

7-4-1) In and Out of Designs

When the machine is turned on and the embroidery information loads, press

. You will see the following screen:

1. EMB CALL
2. FDD CALL
3. EXTERNAL INPUT
4. EXTERNAL OUTPUT

The sub menus for design input and output are:

1. EMB CALL: calls the design from memory
2. FDD CALL: reads design from the floppy disk
3. EXTERNAL INPUT: reads design from an outside source
4. EXTERNAL OUTPUT: outputs design from memory
5. DESIGN DELETE: deletes design stored in memory
6. DESIGN COPY: copies designs stored in memory
7. MEMORY INITIAL: deletes all designs stored in memory

■ **EMB CALL: Calling Design from Memory**

Ex) Calling design from memory # 8 (number of stitches: 16850).

Use UP/DOWN keys to move the cursor to "1. EMB CALL"

Press **SET**

size of the memory available will be displayed

1. EMB CALL
2. FDD CALL
3. EXTERNAL INPUT
4. EXTERNAL OUTPUT

MEMORY FREE STITCH
= 120000st, 16/99

Move the cursor to memory #8.

Press SET

Press

Check the menu screen that the design was called with no errors.

You can also check it through the Machine Information Screen.

1)	12372
2)	5954
3)	7281
4)	17325

5)	18294
6)	13826
7)	21064
8)	16850

1. EMB CALL
2. FDD CALL
3. EXTERNAL INPUT
4. EXTERNAL OUTPUT

No.	:	8
STITCH	:	16850
COLOR	:	6
JUMP	:	0

DESIGN #8 16850 st

■ **FDD CALL : Reads the Design from the Floppy Disk**

Ex) Move “GOLF” from the floppy disk to Location#30. Number of stitches:7667.

Place the cursor at “2. FDD CALL”.

Press **SET**

The size of empty space in the diskette is indicated.

You can find out the design of “GOLF” by moving the cursor by using UP/DOWN keys, or move to the “GOLF” design directly by using digit keys.

∗ In such state, you can confirm file name (GOLF) and design name (SWF008) alternately as you use key.

Press **SET**

```
1. EMB CALL
2. FDD CALL
3. EXTERNAL INPUT
4. EXTERNAL OUTPUT
```

```
==========================================
    MENUAL DISK SELECT
       = [EMB CALL] =
==========================================
```

```
==========================================
    MEMORY FREE STITCH
==========================================
=         32300[STITCH]
```

```
1]       FILA      5720 st
2]  PROWORLD       1377 st
3]        CAF        646 st
4]  P_WORLD1       7334 st
```

```
5]     SANTA1      2540 st
6]      BIRD1      7637 st
7]      DUCK1     61703 st
8]       GOLF      7667 st
```

```
5]     SWF005      2540 st
6]     SWF006      7637 st
7]     SWF007     61703 st
8]     SWF008      7667 st
```

```
SELECT EMPTY ROOM
===> # 17
```

Move the cursor using the UP and DOWN keys to "30".

Press **SET**

SELECT EMPTY ROOM
===> # 30

EMB READ : 55[%]
[>>>>>]

The screen shows the copying progress.

∗ Function that input automatically needle bar of ZSK diskette. (You can select information of needle bar in case of copy design of ZSK diskette)

‖ZSK NEEDLE SEQ‖
MANUAL(0), AUTO(1)

MANUAL SELECT → To save previous needle bar information.
AUTO SELECT → To save present needle bar information of design.

Press ↶

1. BASIC SETTING
2. NEEDLE SETTING

No. : 30
STITCH : 12346
COLOR : 6
JUMP : 10

Design from room no. 30 has been called.

∗ When diskette constantly appears error, you may select another diskette to press

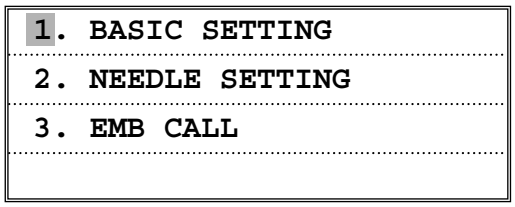
DOS : 2HD, 2DD USUAL DISKETTE
ZSK : ZSK DISKETTE
BAR FMC : BARUDAN FMC
BAR FDR : BARUDAN FDR
EXIT or PREVIOUS : END

= USER SELECT FORMAT =
1. DOS 2.ZSK
2. BAR FMC 4.BAR FDR
3. EXIT OR PREVIOUS

■ **New Menu for Design Calls**

⇒ Revision of the functions in "7.4.1) In and Out of Design"

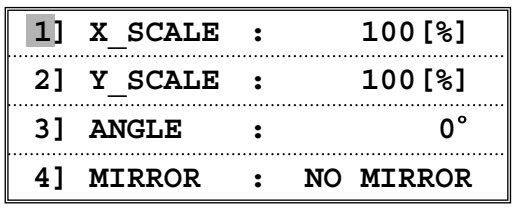
Select a design using EMB CALL or FDD CALL and you will see the following screen.



[Screen 1]

1. BASIC SETTING: menu for basic set-up
2. NEEDLE SETTING: menu for needle bar set-up
3. EMB CALL: menu for design selection

Place the cursor at "1. BASIC SETTING" and press **SET** to do basic set-up.

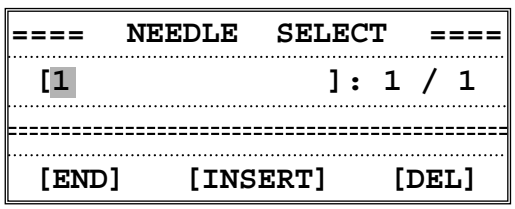


[Screen 2]

Basic set-up procedure is the same as pressing SETTING in the start menu.

Press PREVIOUS to end the set-up.

Place the cursor at "2. NEEDLE SETTING" and press **SET** to set-up the needle bar.



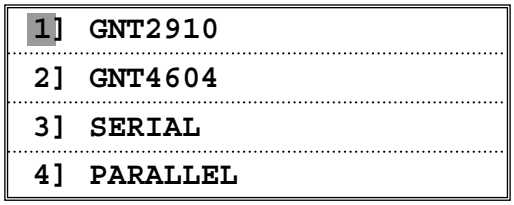
[Screen 3]

Needle set-up procedure is the same as pressing NEEDLE from the start menu.

Press NEEDLE to end the set-up.

At [Screen 1], you can press NEEDLE to start embroidery work or select "3. EMB CALL" to re-select design.

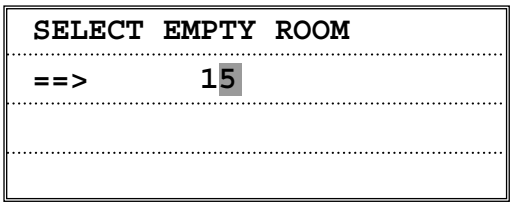
■ **EXTERNAL INPUT: Reading Design from Outside**



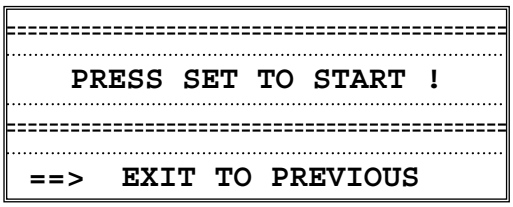
1. GNT2910: reads data from Tape Reader
2. GNT4604: reads data from Tape Reader
3. SERIAL: enables data correspondence between PC and the machine
4. PARALLEL: reads data from SWF-NET1

Ex) Reading data from GNT2910 and storing it in memory #25

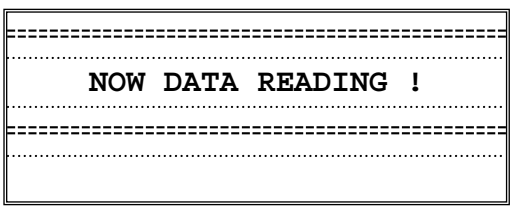
Place the cursor at GNT2910 and press **SET**



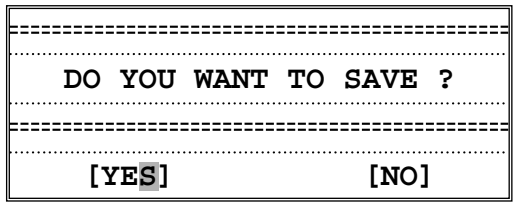
Move the cursor to #25



Press **SET**

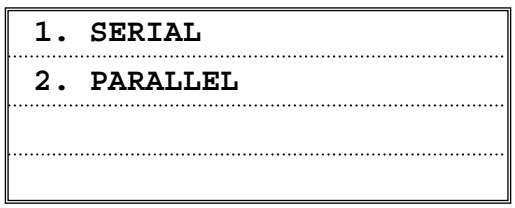


The following screen will appear after all data has been read from the tape. To store the data, move the cursor to "YES" and press **SET**



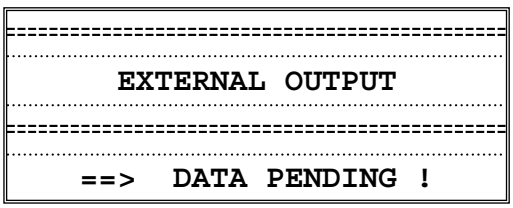
※ The tape format is automatically detected as shown above. Procedures for GNT4604 and SERIAL are the same as for GNT2910.

■ **EXTERNAL OUTPUT: Outputting Design**

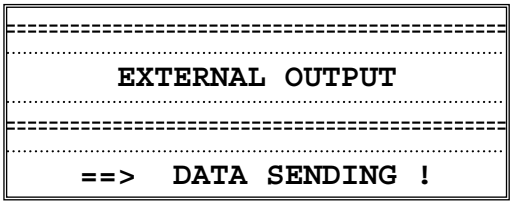


Ex) Sending data to another SWF machine via SERIAL communication.

Call the desired design and select EMB CALL → "4. EXTERNAL OUTPUT"



When the receiving machine presses SET, the data will be transmitted with the following screen.



■ DESIGN DELETE: Deleting Design in Memory

Ex) Deleting a design in memory #30 [number of stitches : 7667]

Place the cursor at "5. DESIGN DELETE."

Press **SET**

2. FDD CALL	
3. EXTERNAL INPUT	
4. EXTERNAL OUTPUT	
5. DESIGN DELETE	

1)	992
2)	5954
3)	7281
4)	17325

Move to #30 by moving the cursor UP/DOWN or using the numerical keys.

14)	10898
15)	55961
16)	5718
30)	7669

Press **SET** to delete.

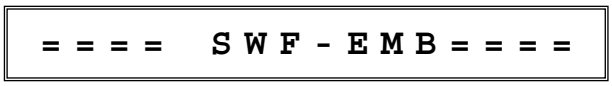
1)	992
2)	5954
3)	7281
4)	17325

If there are more designs to delete, repeat the process. Press PREVIOUS.

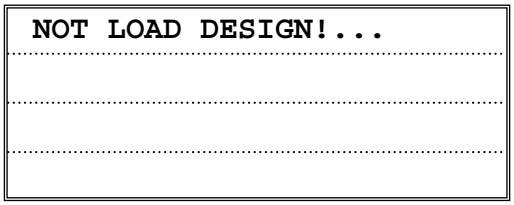
NO	:	2
STITCH	:	5954
COLOR	:	4
JUMP	:	0

※ If you delete a design that is currently in use, you will see the following message:

① On Machine Information Screen:



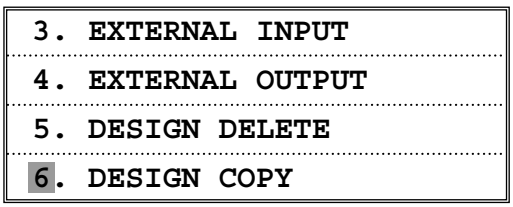
② On Menu Screen:



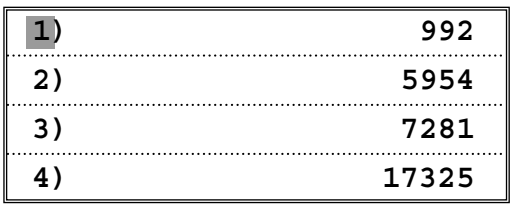
■ **DESIGN COPY: Copying Designs in Memory to Another Memory Room**

Ex) Copying design in memory #5 to memory #35 (number of stitches: 18294).

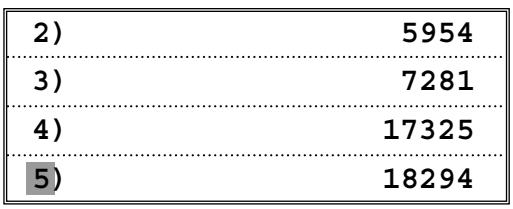
Place the cursor at "6. DESIGN COPY"



Press **SET**



Move to #5 by moving the cursor UP/DOWN or using the numerical keys.



Press **SET** to copy.

Move to #35 by moving the cursor UP/DOWN or using the numerical keys.

Press **SET**

Press PREVIOUS

```
SELECT EMPTY ROOM
===> # 17
```

Selecting the memory room.

```
SELECT EMPTY ROOM
===> # 35
```

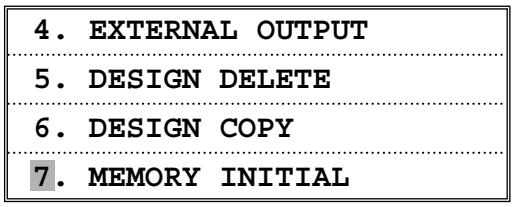
```
1. EMB CALL
2. FDD CALL
3. EXTERNAL INPUT
4. EXTERNAL OUTPUT
```

```
NO          :          2
STITCH      :       5954
COLOR       :          4
JUMP        :          0
```

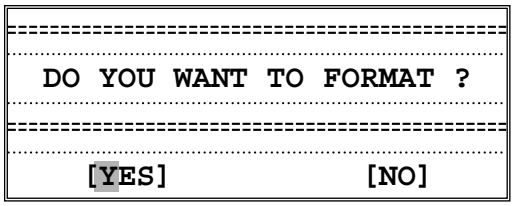
■ **MEMORY INITIAL: Deleting All Designs in Memory**

Ex) Deleting all designs in the memory

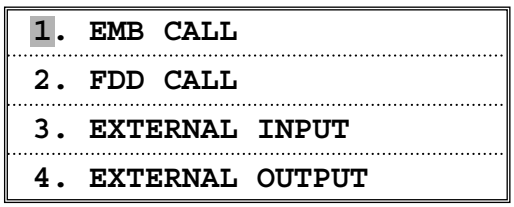
Place the cursor at "7. MEMORY INITIAL"



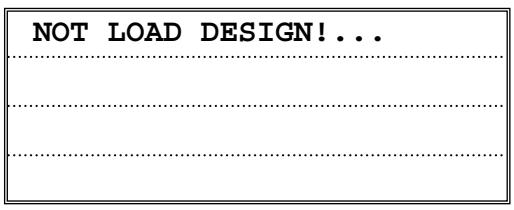
Press **SET**



Move the cursor to "YES" to delete and press SET (if you don't want to delete, select "NO" and press SET).



Press PREVIOUS

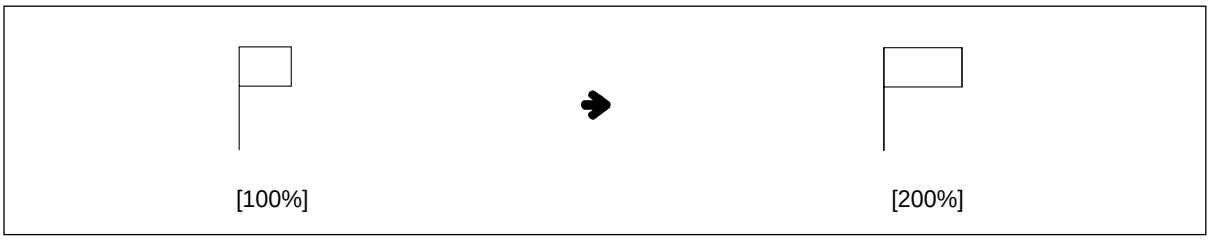


7-4-2) Basic Set-up

When the machine is turned on and operating system loads, press

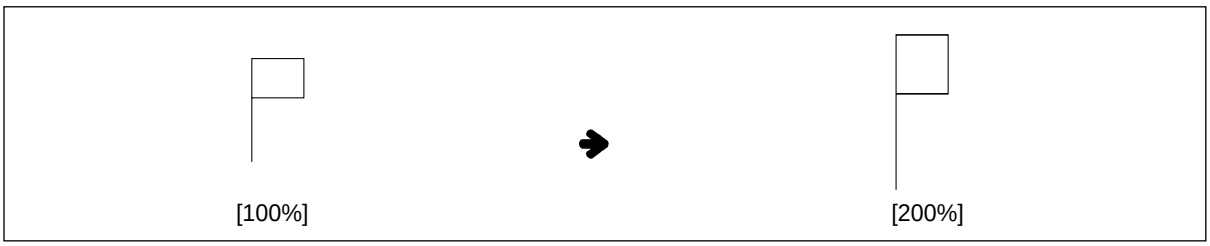
. This allows the set-up of basic design changes. Set-up items are as follows:

① **X_Scale:** Reduces or enlarges the design along the X axis (left to right).

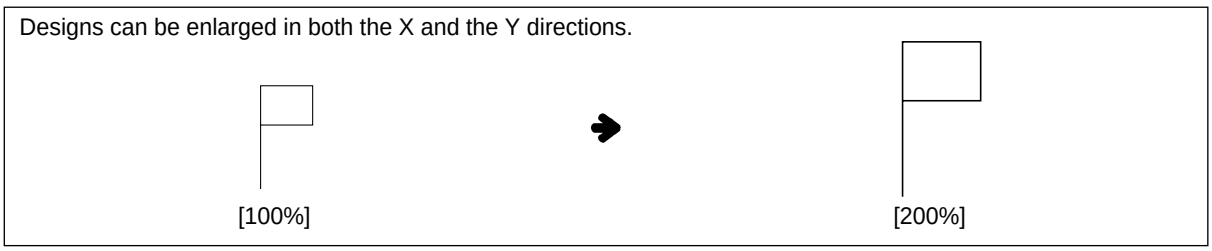


The default is 100% and the allowed range runs from 50% to 200%.

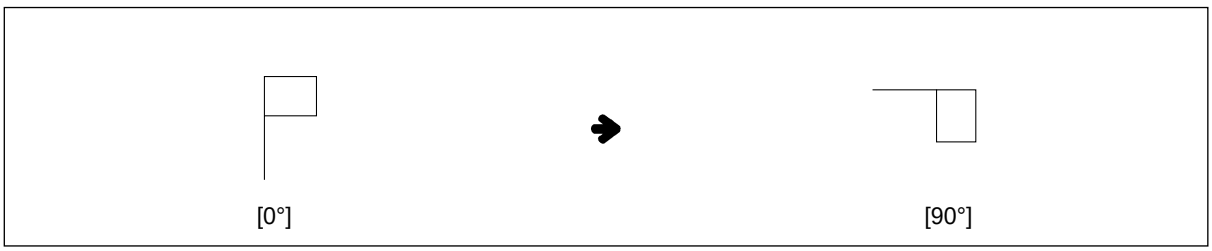
② **Y_Scale:** Reduces or enlarges the design along the Y axis (top to bottom).



The default is 100% and the allowed range runs from 50% to 200%.

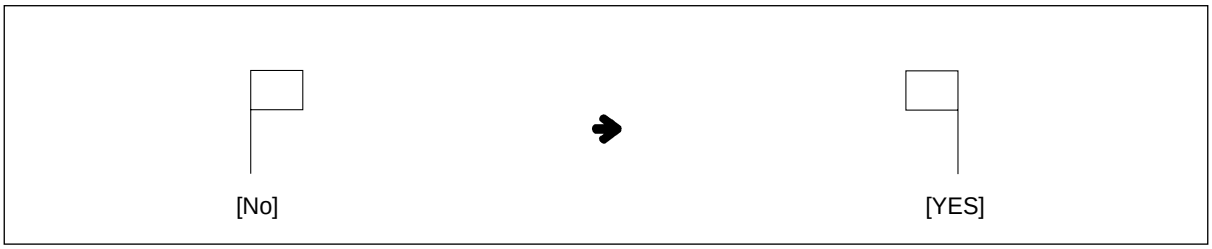


③ **Angle:** Rotates the design in a set angle.

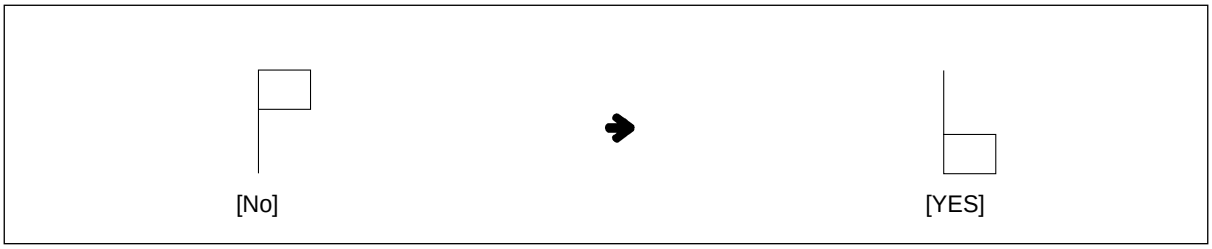


The default is 0° and designs can be rotated from 0 to 359° in the increments of 1°.

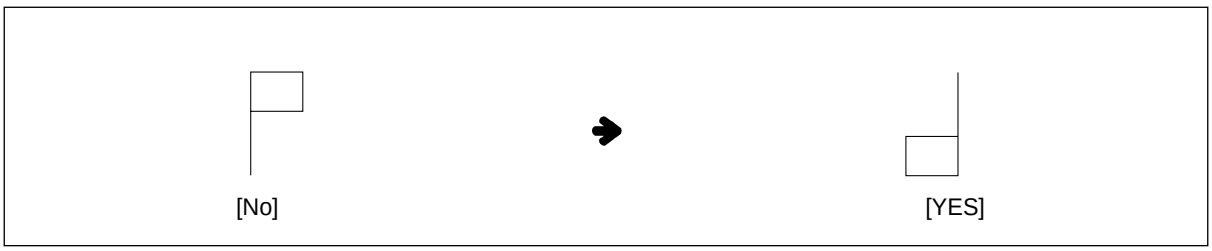
④ **Mirror:** Reverses the design on the X axis, the Y axis, or both.



[Mirror on the X axis]

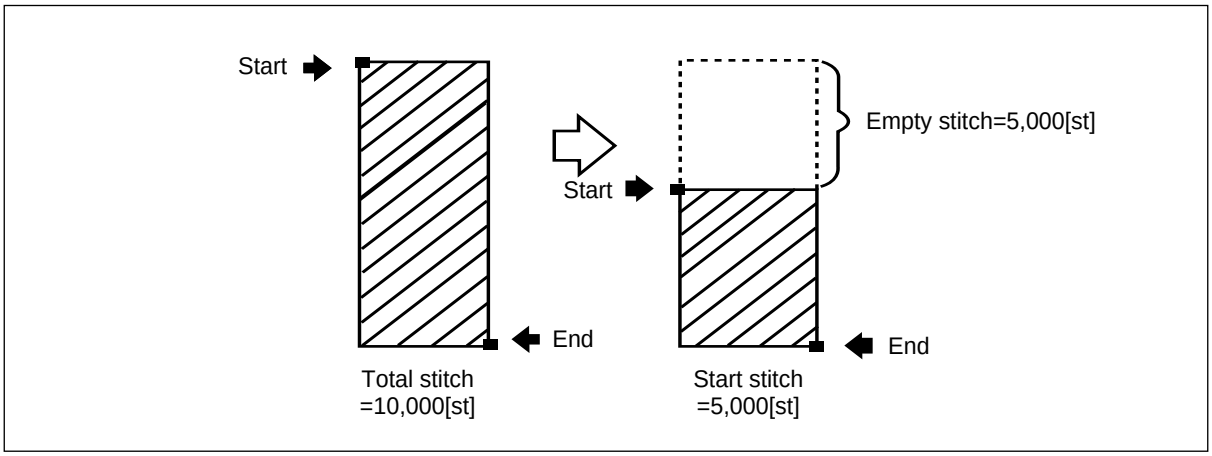


[Mirror on the Y axis]

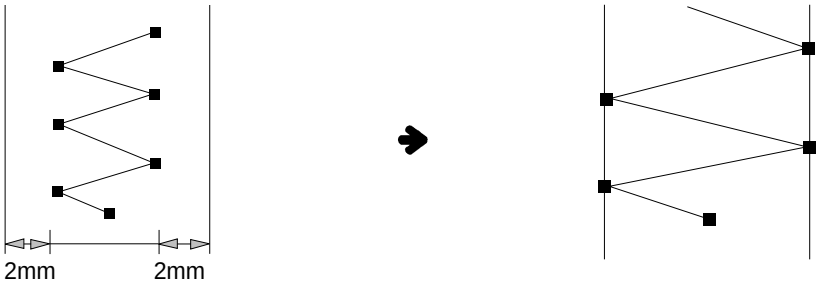


[Mirror on the X & Y axis]

⑤ START ST: Selects the start location on the design. You can skip certain number of stitches and start from the desired location.



⑥ **X SATIN:** Sets the width of a satin stitch in the X direction.



[Changing the satin width 2mm on each side] [After widening]

The setting can increase in increments of 0.1mm on each side. The default is 0 and the range is from 0 to 5.

⑦ **Y SATIN**: Sets the width of a satin stitch in the Y direction.

> **[NOTE]**
> Basic set-ups are not stored for each design. When a design is called in, all settings revert to the default.

Ex) Calling and editing the design in memory #5

X SCALE: 150% START ST: 100 stitches
Y SCALE: 120% X SATIN: 3
ANGLE: 45° Y SATIN: 2
Mirror: Y

Select the design in memory #5 (see 7.4.1) In and Out of Designs).

NO	:	5
STITCH	:	18294
COLOR	:	7
JUMP	:	7

Press

1] X_SCALE	:	100[%]
2] Y_SCALE	:	100[%]
3] ANGLE	:	0°
4] MIRROR	:	NO MIRROR

Move the cursor to set up the X Scale and press **SET**

```
X_SCALE  :  100
[RANGE : 50-200[%]]

==>
```

Input "150" using the numerical keys.

```
X_SCALE  :  100
[RANGE : 50-200[%]]

==>150
```

Press **SET**

```
1] X_SCALE  :      150[%]
2] Y_SCALE  :      100[%]
3] ANGLE    :          0°
4] MIRROR   :  NO MIRROR
```

X Scale was set at "150"

Move the cursor to set up the Y Scale and press **SET**

```
Y_SCALE  :  100
[RANGE : 50-200[%]]

==>
```

Input "120" and press **SET**

```
1] X_SCALE  :      150[%]
2] Y_SCALE  :      120[%]
3] ANGLE    :          0°
4] MIRROR   :  NO MIRROR
```

Y Scale was set at "120"

Move the cursor to set up the Angle and press **SET**

```
ANGLE    :    0°
[RANGE : 0 - 359°]

==>
```

Input "45" using the numerical keys and press **SET**

```
1] X_SCALE  :      150[%]
2] Y_SCALE  :      120[%]
3] ANGLE    :        45°
4] MIRROR   :  NO MIRROR
```

Use the same procedure to set up MIRROR, START ST, X SATIN and Y SATIN.

```
1] X_SCALE  :      150[%]
2] Y_SCALE  :      120[%]
3] ANGLE    :        45°
4] MIRROR   :   Y MIRROR
```

Move the cursor to check if all the settings have been input correctly

```
4] MIRROR   :   Y MIRROR
5] START ST :     100 st
6] X SATIN  :          3
7] Y SATIN  :          2
```

Press

```
NO          :          5
STITCH      :      18294
COLOR       :          7
JUMP        :          7
```

Press DOWN once.

Press WORK INFO

X[mm]	:	96.5
Y[mm]	:	135.0
ANGLE	:	45
MIRROR	:	OFF

The X and Y lengths changed and the Angle is set at 45 degrees.

100/18294 st[0%]

Machine Information Screen shows 100 stitches progressed already.

7-4-3) Auxiliary Work

Press

when the machine is turned on and the operating system loads. You will see a screen like this:

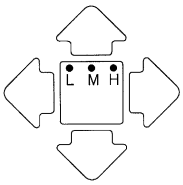
1. LENGTH MEASURE
2. DESIGN TRACE
3. OPTIMIZE TRACE

These menus help you prepare before starting embroidery work.

1. LENGTH MEASURE: measures the length between two selected points.
2. DESIGN TRACE: checks the outline area of the selected design.
3. OPTIMIZE TRACE: traces the shape of the selected design.

■ **Length Measure - measuring length between two selected points**

Use the manual key to reach the standard point.



Place the cursor at "1. LENGTH MEASURE" in the sub menu.

```
1. LENGTH MEASURE
2. DESIGN TRACE
3. OPTIMIZE TRACE
```

Press **SET**

[Machine data screen]

```
X :          0 , Y :          0
```

[Menu screen]

```
==========================================
        LENGTH MEASURE
==========================================
```

Use the frame move key to move to the desired point.

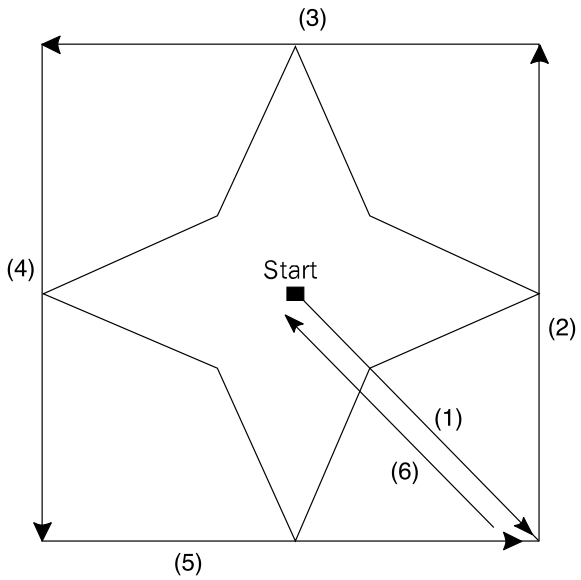
```
X :     -108 , Y :         85
```

Lengths in the X and Y directions up to the cursor are indicated on the screen (in mm) as you move the frame

Press PREVIOUS when you want to stop

■ **Design Trace - tracing outline of the selected design**

① This function enables you to quickly check if the X and Y limits of the selected design will fit in the current hoop.



② The arrows in the picture show the path of the design trace. The design will be traced at its furthest points (maximum and minimum X and Y). If the design is too large for the hoop, the frame stops and the message "Frame Limit Error" will appear on the screen. To use this function, select Machine Set-Up 2. Machine SET and 3. Frame Limit Set in the start menu to set the frame limits and set 15. Frame Limit to "YES" in the EMB FUNCTION.

Ex) Calling and tracing a design in memory #5

Call design from #5 using EMB CALL.

Press

Move the cursor to "2. Design Trace" and press **SET**

Press

when the trace is finished

NO	:	5
STITCH	:	18294
COLOR	:	7
JUMP	:	7

1. LENGTH MEASURE
2. DESIGN TRACE
3. OPTIMIZE TRACE

==========

FRAME TRACE

==========

Frame traces the design with this screen.

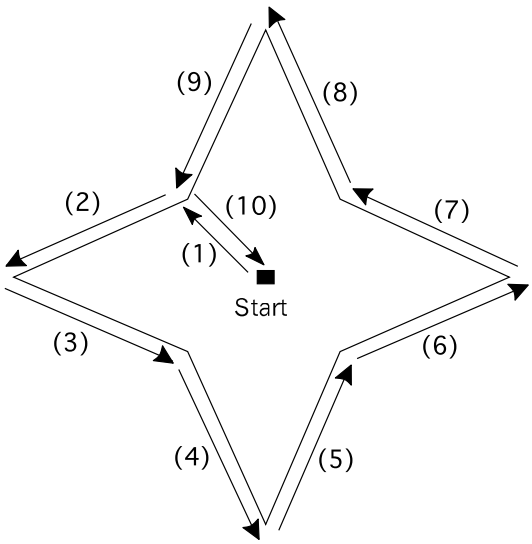
[CAUTION]

If the frame hits the needle bar or any other part of the machine during tracing, press **STOP** immediately and then press

.

■ **Optimize Trace**

① This enables you to quickly check the outline of the selected design by tracing the outline.



② The arrows in the picture show the path of the trace. The design will be traced at its furthest points. If it is too large for the hoop, the frame stops and the message "Frame Limit Error" will appear on the screen. To use this function, select Machine Set-Up 2. Machine SET and 3. Frame Limit Set in the start menu to set the frame limits and set 15. Frame Limit to "YES" in the EMB FUNCTION.

7-4-4) Repetition Work

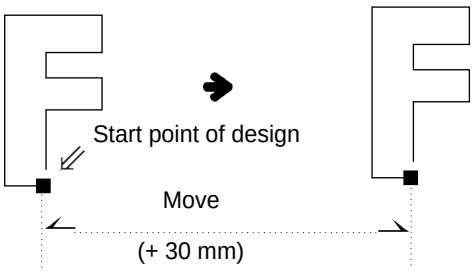
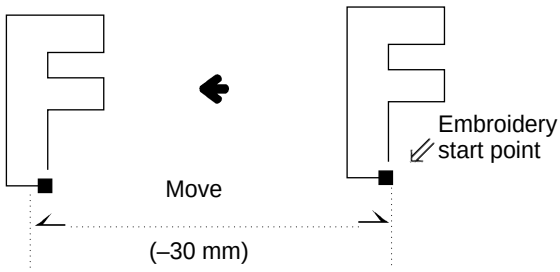
Press when the operating system loads. You will see a screen like this: The following parameters must be set for repetition work.

1. X REPEAT: sets the number of X repetitions
2. Y REPEAT: sets the number of Y repetitions
3. X DESIGN INTERVAL: sets the interval in the X direction (mm)
4. Y DESIGN INTERVAL: sets the interval in the Y direction (mm)
5. X/Y PRIORITY: sets priority between X and Y
6. DESIGN INTERVAL: sets how to move between designs

- **X REPEAT**
  Use the numerical keys to input the number of repetitions in the X direction. The range is from 1 to 99 times.
- **Y REPEAT**
  Use the numerical keys to input the number of repetition in the Y direction. The range is from 1 to 99 times.
- **X DESIGN INTERVAL**
  Set the distance between the start points of the design in the X direction. Set the direction using +/– buttons.

  +: repetition from left to right

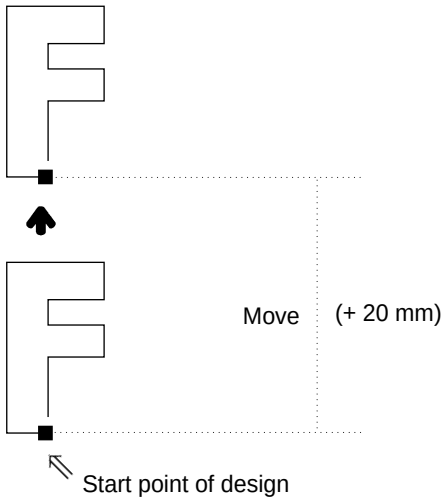
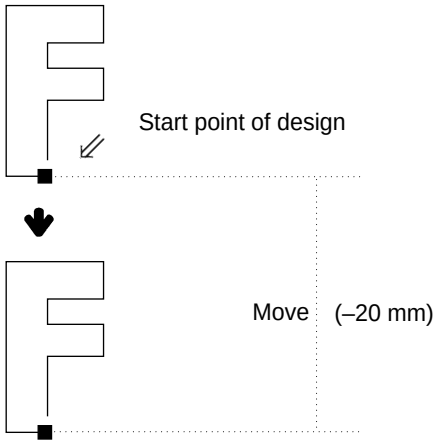
  –: repetition from right to left

Moving +30mm	Moving –30mm
	

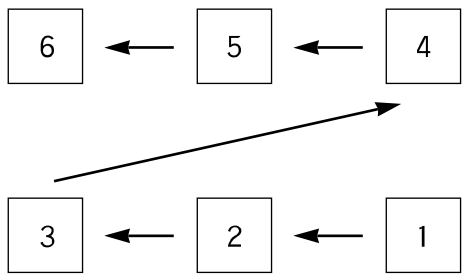
- **Y DESIGN INTERVAL**
  Set the distance between the start points of the design in the Y direction. Set the direction using (+/–) buttons.

  +: repetition from bottom to top

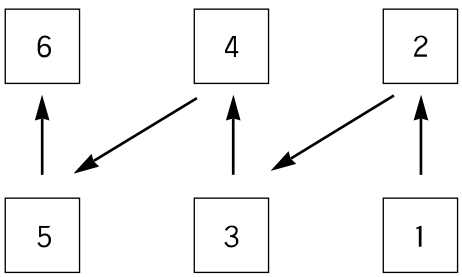
  –: repetition from top to bottom

Moving +20mm	Moving –20mm
	

- **X/Y PRIORITY**
  Set the priority between X and Y directions.



[X set as priority]



[Y set as priority]

- **DESIGN INTERVAL**
  You can select STOP CODE or JUMP CODE to move the design.

  STOP CODE: design moves to the next location and stops.

  JUMP CODE: design moves to the next location and automatically starts work.

- **NEEDLE BAR SET-UP**
  Needle bar set-up should be different for STOP and JUMP CODES.

  ① STOP CODE: color change is automatically added at the start point of the design. In the case of using four colors, the following revision is made:

1 → 2 → 3 → 4	⇨	1 → 1→ 2 → 3 → 4

  ② JUMP CODE: color change is not added automatically, so you are to select the exact number of colors used.

[NOTE] The number of needle bars (color changes) is indicated on the start menu screen.

NO	:	5
STITCH	:	18294
COLOR	:	7
JUMP	:	7

Ex) Calling a design from memory #5 for repetition work with the parameters set as below

X REPETITION: 5 — Y DESIGN INTERVAL: − 40mm
Y REPETITION: 5 — X/Y PRIORITY: X
X DESIGN INTERVAL: 40mm — DESIGN INTERVAL: JUMP CODE

Call the design from #5 (see "7.4.1) In and Out of Designs).

NO	:	5
STITCH	:	18294
COLOR	:	7
JUMP	:	7

↓

Press

↓

==== REPEAT SETTING ====		
1] X REPEAT		
1 -> 99		
=>		(0)

Input "5" using the numerical key to set the number of X repetitions.
Press **SET**

↓

==== REPEAT SETTING ====		
2] Y REPEAT		
1 -> 99		
=>		(0)

Input "5" using the numerical key to set the number of Y repetitions.
Press **SET**

↓

==== REPEAT SETTING ====		
3] X Design Interval		
-300 -> +300[mm]		
=>		(0)

Input "40" for X design interval and press **SET**

```
====  REPEAT SETTING  ====
 4] Y Design Interval
    -300 -> +300[mm]
 =>                  (    0)
```

Input "–40" for Y design interval and press **SET**

```
====  REPEAT SETTING  ====
 5] Y/X Priority
    Y(0), X(1)
 =>                  (    Y)
```

Input "1" to select X as priority and press **SET**

```
====  REPEAT SETTING  ====
 6] Design Interval
    JUMP(0), STOP(1)
 =>                  ( JUMP)
```

For design interval, press UP a few times.

```
====  REPEAT SETTING  ====
 4] Y Design Interval
    -300 -> +300[mm]
 =>                  (  -40)
```

You can check or change the set-up data. The data in the brackets is the set-up data.

Use the cursor to go to the next screen.

Input "0" for JUMP CODE and press **SET**

Press REPEAT if you want to cancel repetition work.

Move the cursor to "YES"

Press **SET**

```
====   REPEAT SETTING   ====
 6] Design Interval
    JUMP(0), STOP(1)
 =>                    ( JUMP)
```

```
NO              :          5
STITCH          :     457350
COLOR           :        182
JUMP            :        175
```

```
==========================================
 DO YOU WANT TO CANCEL ?
------------------------------------------
   [YES]           [NO]
```

```
==========================================
 DO YOU WANT TO CANCEL ?
------------------------------------------
   [YES]           [NO]
```

```
NO              :          5
STITCH          :      18294
COLOR           :          7
JUMP            :          7
```

The screen shows that the repetition work is cancelled.

7-4-5) Data Set-up

Press MACHINE when the operating system loads and you will see the following screen: There are 2 sub menus for data set-up.

1. EMB FUNCTION: sets parameters for the embroidery work.
2. MACHINE FUNCTION: sets parameters for the machine operation.

- **Setting parameters**
  Move the cursor to the desired parameter number and input the data within the "RANGE" indicated on the screen.
- **Storing the set-up data**
  Change the set-up data and press **SET** to store the data.

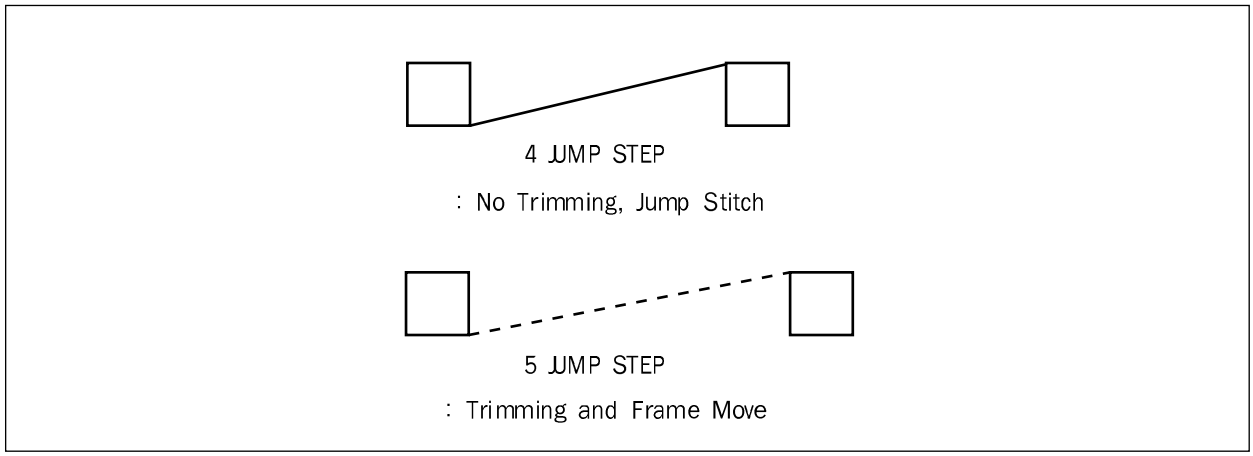
■ **EMB FUNCTION**

```
1] TOTAL STITCH CLEAR
2] TOTAL WORK CLEAR
3] JUMP CONVERT:3st
4] AUTO ORIGIN:YES
```

① TOTAL STITCH CLEAR (Total number of stitches)
Along with TOTAL ST in the main function menu, this indicates the number of stitches from clear to present. This is also used to clear the set-up data. (Only the numerical key "0" works)

② TOTAL WORK CLEAR (Total number of table sets)
Along with TOTAL WK in the main function menu, this indicates the number of table sets from clear to present. (Only the numerical key "0" works)

③ JUMP CONVERT (Maximum number of repeated jump stitches)
The machine trims if jump code is repeated more than the set-up data. You will need to set-up the number of repeated jump stitches required for long stitch work. The default is 3 stitches and the range is from 0 to 10 in the increments of 1 stitch.



④ AUTO ORIGIN (Return to the start position)

This move the frame back to the start position after work is finished. The default is "YES." Select "0" for "NO" if you do not want to use this function.

⑤ START INCHING (Number of inchings at the beginning)

The machine inches slowly when it starts. You can set up the number of stitches to inch. The default is 2 stitches and the range is between 0 and 5 (in the increments of 1 stitch).

⑥ TRIM INCHING (Number of inchings after trimming)

The machine inches slowly when it detects a signal for color change or finishes embroidery for one design. You can set up the number of stitches to inch. The default is 3 stitches and the range is from 2 to 5 (in the increments of 1 stitch).

⑦ AUTO JUMP (Interval of automatic jump stitches)

The machine automatically changes to JUMP CODE if the interval between the two stitches is longer than the set-up data. You can set the standard number of stitches for the automatic change to JUMP CODE. The default is 10.0mm and the range is between 5.0mm and 12.7mm in the increments of 0.1 mm.

⑧ BK_ST UNIT (Back stitching unit)

This sets the number of stitches to be made at a single bar switch action when you do forward or backward stitching using the bar switch. The default is 1 stitch and the range is 1-10 stitches in the increments of 1 stitch.

⑨ BK_ST START (Automatic start after back stitching)

When you moved the frame back from the stopped position to work with a bar switch, you can set whether the stitching will start automatically. The default is "YES" and you can select "0" for "NO."

⑩ BK_ST ALL (Previous needle bar operation after back stitching)

When you moved the frame from the stopped position and start embroidery with a bar switch, you can set whether only the head with a broken thread will operate or all heads will operate. The default is "EACH (single)" and you can input "1" to select "ALL."

⑪ TRIM START (Automatic start after trimming)

You can set whether embroidery work will start automatically after trimming by JUMP CODE, TRIMMING, and STOP CODE. The default is "YES" and you can select "0" to set at "NO."

⑫ ST BACKTACK (Automatic back-tack)

This selects a back-tack, a stitch at the start of the embroidery (to prevent thread unraveling). The default is "NO."

⑬ AUTO BACK (Automatic back stitching after detection of thread break)

This sets the number of the stitches that the frame automatically moves back when it detects a thread break. The default is 2 stitches and the range is from 0 to 5 in the increments of 1 stitch.

⑭ BKRUN ST POINT (Start position of previous needle bar after back stitching)

When the machine stops after belatedly detecting a problem in one or multiple needle bars used (i.e. thread break), it back-stitches and operates the error needle to correct the empty part, and moves further back to before the error so that all needles correct an undesired embroidery, if any (by stitching over the part). You can set the number of stitches the frame moves further back for all needles to operate. The default is 3 stitches and the range is 1-20.

⑮ FRAME LIMIT (Frame limit)

This sets virtual frame limit function (see 7.4.9.Machine Set-Up). The default is "NO."

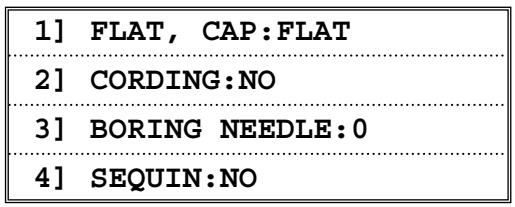
⑯ JUMP LENGTH (Maximum length of repeated jump stitches)

If the length of total stitches in repeated jump code is longer than the set-up data, the machine jump stitches to the set-up length, performs trimming, and resumes work. You can set the maximum jump stitch length for this process. The default is 0mm and the range is 0-50mm in the increments of 1mm.

⑰ THE BRK MOVE (Length of automatic frame back-move after detection of thread break)

When the machine stops after detecting a thread break, the frame moves back automatically for convenient upper threading. You can set the length of this frame move. The default is 0cm and the range is 0-30cm in the increments of 1cm. This function is only available at SWF/□-W1201.

■ MACHINE FUNCTION



① FLAT, CAP

This sets the type of work materials. The default is "FLAT (0)." To select CAP, input "1."

② CORDING

This selects the cording function. The default is "NO (0)" and you can input "1" for "YES."

③ BORING NEEDLE

This selects the needle and the boring function. The default is "0" and you can select a relevant needle. The trimming function and thread detecting function of the selected needle will be OFF.

④ SEQUIN

This selects the sequin function. The default is "NO" and you can input "1" for "YES."

⑤ UP_THD SENSE (Upper thread detection)

This selects the upper thread sensor function and the number of stitches for detection. Bobbin thread is not detected when this is set at "0." The default is "1" and you can set up to 10 stitches.

(※ Only upper thread sensor functions in the WHEEL TYPE)

⑥ UN_THD SENSE (Lower thread detection)

This selects the lower thread sensor function. Bobbin thread is not detected when set at "0." The default varies by machine type and the range is 1-10 stitches. (※ This function is only available in the SPRING TYPE)

Machine Type / Contents		Default Set-Up for Lower Thread Detection
W series	SWF/□–W1201	0
	SWF/□–WE1204	0
	SWF/□–WE1206 · WF912	0
T series	SWF/□–T1201 · T1501	4
U series	SWF/□–UK1202 · UK1502	0
	SWF/□–UK1204 · UK1504	0
	SWF/□–UK1206 · UK1506	0
	SWF/□–UH1206 · UH1506 · UH1508	0
	SWF/□–UI1212	0

⑦ TRIM LENGTH (Length of thread tail after trimming)

This sets the length of the upper thread that remains in the needle after automatic trimming. The default is MEDIUM. You can select SHORT with "0" and LONG with "2."

⑧ AUTO TRIM (Automatic trimming)

This selects the automatic trimming function. The default is "YES" and you can select "NO" to turn off this function.

⑨ AUTO C/C (Automatic color change)

This selects the automatic color change function. The default is "YES" and you can select "NO" to turn off this function.

⑩ MAX SPEED (Maximum speed limit)

This sets the maximum machine speed. The default varies by machine type in the following range. You can set in the increments of 10 rpm.

Machine Type / Work Material		TUBULAR	CAP	BORDER
W series	SWF/□–W1201	—	—	1000
	SWF/□–WE1204	—	—	1000
	SWF/□–WE1206	—	—	1000
	SWF/□–WF912	—	—	850
T series	SWF/□–T1201 · T1501	1200	1200	1200
U series	SWF/□–UK1202 · UK1502	1000	1000	900
	SWF/□–UK1204 · UK1504	1000	1000	900
	SWF/□–UK-1206 · UK1506	1000	1000	850
	SWF/□–UH-1206 · UH1506	850	750	850
	SWF/□–UH-1206 · UH1506	850	750	850
	SWF/□–UI1212	850	750	850
	SWF/□–UH1508	1000	850	850

⑪ MIN SPEED (Minimum speed limit)

This sets the minimum machine speed. The default is 300 rpm and the range is from 300 rpm to the maximum speed limit in the increments of 10 rpm.

⑫ JUMP SPEED

This sets the speed limit for jump stitching (frame moves without sewing). The default is 750 rpm and the range is from the maximum to the minimum speed limit in the increments of 10rpm.

> CAUTION
>
> Jump speed higher than 750 rpm may cause needle break or mechanical problems in the needle bar.

⑬ INC SPEED (Inching speed)

This sets the speed of inching (low-speed stitching) at the start of the embroidery. The default varies by the machine type and the range is 50-200 rpm in the increments of 10 rpm.

Machine Type / Contents		Default Inching Speed
W series	SWF/□–W1201	100
	SWF/□–WE1204	100
	SWF/□–WE1206 · WF912	100
T series	SWF/□–T1201 · T1501	180
U series	SWF/□–UK1202 · UK1502	100
	SWF/□–UK1204 · UK1504	100
	SWF/□–UK1206 · UK1506	100
	SWF/□–UH1206 · UH1506 · UH1508	100
	SWF/□–UI1212	100

⑭ SLOW SPEED

You can work at a slow speed on a particular part of a design by selecting

when the machine stops during the embroidery. The range is from the maximum to minimum speed limit in the increments of 10 rpm.

⑮ BOTTOM STOP (Lowest point stop of needle after work completion)

This sets the needle bar to stop at the lower dead stop when the embroidery is finished. The default is "NO" and you can input "1" to set it to "YES."

> **[CAUTION]**
>
> Do NOT attempt to manually change the needle bar when it bottom stopped.

⑯ POWER ORG (Back to start position when power comes on)

This selects the frame to move back to the start position when the power comes on.
The default is "NO(0)" and you can set "YES(1)".

⑰ FRAME SPEED (Speed of frame movement)

This sets the speed of the frame movement such as automatic return to start position or offset movement. The default is "LOW (0)" and you can select "HIGH (1)" for high speed.

⑱ SPEED DATA (Speed set-up data)

This decreases the overall embroidery speed if the work material becomes too heavy for normal operation. The default is "HIGH (1)" and you can select "LOW (0)" to slow down the speed by 30-50 rpm.

7-4-6) Embroidery Design Editing

Press SUB WORK when the operating system loads and you will see a screen like this: The following sub menus are available for editing the selected design.

1. STITCH EDIT: edits the stitch data of the selected design.
2. DESIGN DIVIDE: divides the selected design into two.
3. DESIGN FILTERING: optimizes the selected design.

■ STITCH EDIT: Editing the stitch data of the selected design

Ex) Editing the design in memory #5 with the following parameters.

1. Check STITCH 500 and set X and Y at "0"
2. Change STITCH 700 to a color change code.
3. Delete STITCH 800 and input "0" for X, Y and "JUMP CODE" for STITCH 900.

Call the design from #5 and press EDIT

For stitch edit, place the cursor at "1. STITCH EDIT" and press **SET**

To move to STITCH 500, move the cursor UP/DOWN to see the following screen.

Press **SET** to change data.

```
 1. STITCH EDIT
 2. DESIGN DIVIDE
 3. DESIGN FILTERING
```

```
     1]    0    0    J
     2]    0    0    J
==========================================
   DEL       INS       EDIT
```

1] in the first line is a stitch number, followed by X data, Y data, and JUMP CODE.

- N: normal
- CC: trimming or color change
- ED: end.

```
    500]    3    -33    N
    501]    3    -32    N
==========================================
   DEL       INS       EDIT
```

The set-up data for STITCH 500 are:
3 (X), –32 (Y) and NORMAL CODE.

Move the cursor to EDIT.

```
  500]    3    -33    N
  501]    3    -32    N
==========================================
  DEL      INS      EDIT
```

The cursor is on DEL. Press PREVIOUS if you want to move back to the stitch data. The cursor key is used to select DEL, INS, or EDIT.

```
  500]    3    -33    N
  501]    3    -33    N
==========================================
  DEL      INS      EDIT
```

Press **SET**

```
   === STITCH EDIT ===
X DATA     :          3
Y DATA     :        -33
FUNCTION   : NORMAL(0)
```

Input "0" to set X data.
Press **SET**

```
   === STITCH EDIT ===
X DATA     :          0
Y DATA     :        -33
FUNCTION   : NORMAL(0)
```

Input "0" to set Y data.
Press **SET**

```
   === STITCH EDIT ===
X DATA     :          0
Y DATA     :          0
FUNCTION   : NORMAL(0)
```

Function code change is not on the menu, so press **SET**

500]	3	-33	N
501]	3	-32	N
DEL		INS	EDIT

STITCH 500 data has been changed.

Using the same procedure, select STITCH 700 and select EDIT.

=== STITCH EDIT ===		
X DATA	:	3
Y DATA	:	-33
FUNCTION	:	NORMAL(0)

Press **SET** twice to change the function code.

=== STITCH EDIT ===		
X DATA	:	3
Y DATA	:	-33
FUNCTION	:	NORMAL(0)

Input "1" for color change mode.

=== STITCH EDIT ===		
X DATA	:	3
Y DATA	:	-33
FUNCTION	:	C/C(1)

Refer to the function codes below.
0 → normal code,
1 → color change code,
2 → jump code,
3 → end

Press **SET**

700]	3	-33	CC
701]	3	-33	N
DEL		INS	EDIT

STITCH 700 was revised as above.

To delete STITCH 800, press cursor key and **SET**

800]	-16	-1	N
801]	31	0	N
DEL		INS	EDIT

Move the cursor to DEL and press **SET**

800]	31	0	N
801]	-1	-3	N
DEL		INS	EDIT

STITCH 800 is deleted and STITCH 801 is now changed to STITCH 800.

To insert a stitch in STITCH 900, move the cursor to STITCH 900.

900]	-28	-3	N
901]	-35	-3	N
DEL		INS	EDIT

Press **SET**

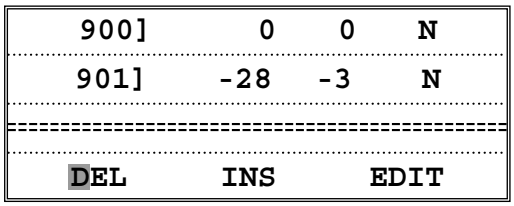
900]	-28	-3	N
901]	-35	-3	N
DEL		INS	EDIT

For data insert, move the cursor to INS and press **SET**

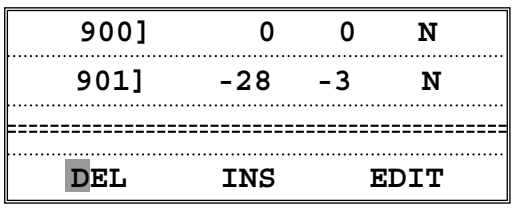
Using the same procedures, set JUMP CODE.

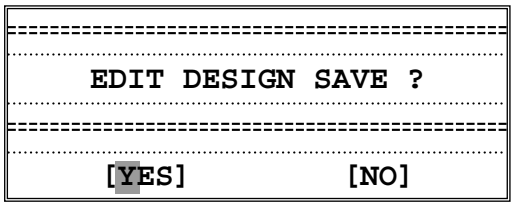
Press PREVIOUS to end

Select "YES" to save and "NO" if not. Press **SET**



STITCH 900 is changed to STITCH 901.X=0, Y=0, and NORMAL CODE was set for STITCH 900.

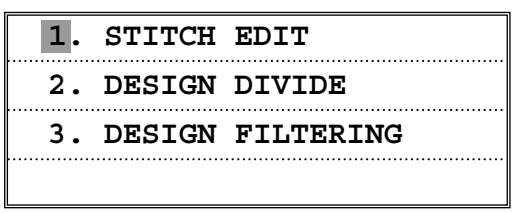




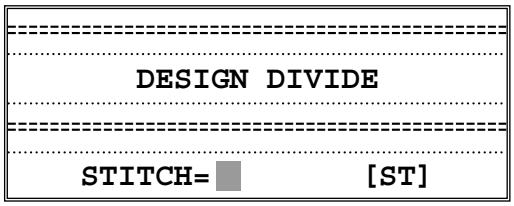
■ **DESIGN DIVIDE: Dividing the selected design in two**

Ex) Dividing design in memory #5 into two: sub-design ① from 0 to 1000 stitches and ② from 1001 to 18294 stitches

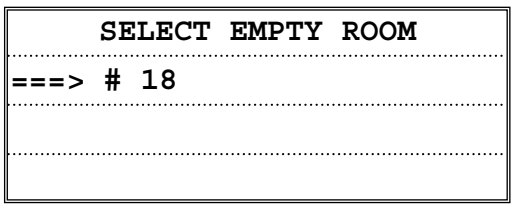
Call the design in #5 and press EDIT



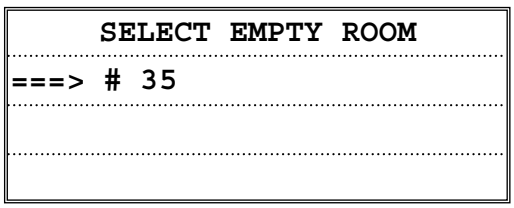
Place the cursor at "2.DESIGN DIVIDE" and press **SET**



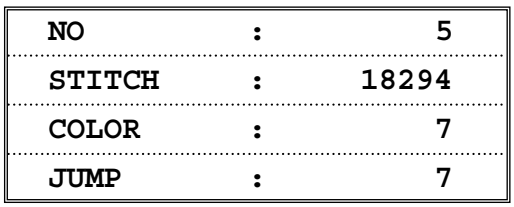
Input 1000 using the numerical keys and press **SET**

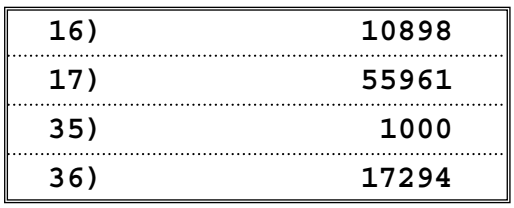


To store sub-design ①, select #35 using the cursor. Press **SET**



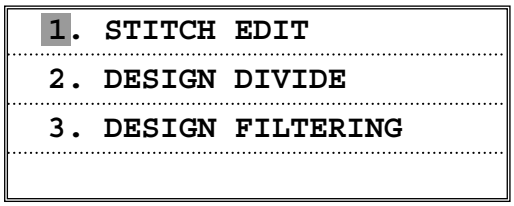
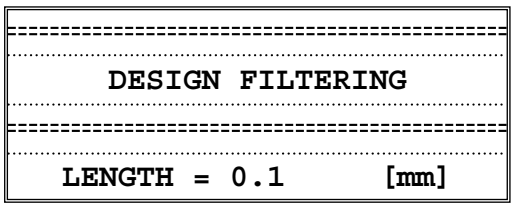
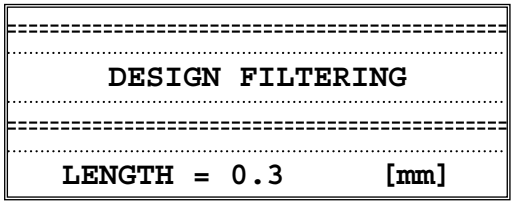
To store sub-design ②, select #36 using the cursor. Press **SET**
Press PREVIOUS if you do not want to store the sub designs



Press EMB.CALL to check if the original design is separated. Move the cursor to #35.	

■ **DESIGN FILTERING: Optimizing the selected design**

Ex) Editing the design in memory #5: setting the minimum stitch width at over 0.3mm and storing it in memory #17 (number of stitches: 18294)

Call the design in #5 and press EDIT	
Place the cursor at "3.DESIGN FILTERING" and press SET	
Move the cursor and input 0.3mm	
Press SET	

Select #17 using the cursor key.
Press **SET**

Press to check the editing

```
     SELECT EMPTY ROOM
===> # 17
```

```
 1. STITCH EDIT
 2. DESIGN DIVIDE
 3. DESIGN FILTERING
```

```
 14]                 11113
 15]                 10898
 16]                 55961
 17]                 17550
```

number of stitches changed from 18294 to 17550, stored in #17

■ SPEED CODE: Setting the speed in operation mode

Ex) Slowing down the speed while working on design from memory #5 (number of stitches: 18294) from STITCH 1000 to STITCH 2000

Stop the machine at STITCH 1000 by pressing

Press

to change the speed code

Place the cursor at "2.LOW SPEED" and press SET. Then press PREVIOUS and start work. You will be working at the speed pre-set at SLOW SPEED in MACHINE FUNCTION.

Press

at STITCH 2000 to stop the machine.

Press

to change the speed

Place the cursor at "1.HIGH SPEED" and press **SET**. Then press

and re-start work.

```
====  SPEED CODE SET  ====
  1. HIGH SPEED
  2. LOW SPEED
  3. RESET
```

```
====  SPEED CODE SET  ====
  1. HIGH SPEED
  2. LOW SPEED
  3. RESET
```

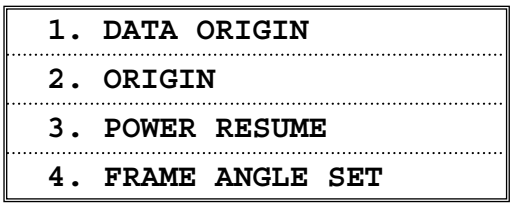
[CAUTION]

make sure that Angle, Enlarge/Reduce, X-Y Satin, START ST are set at default before changing the speed.

7-4-7) Frame Movement

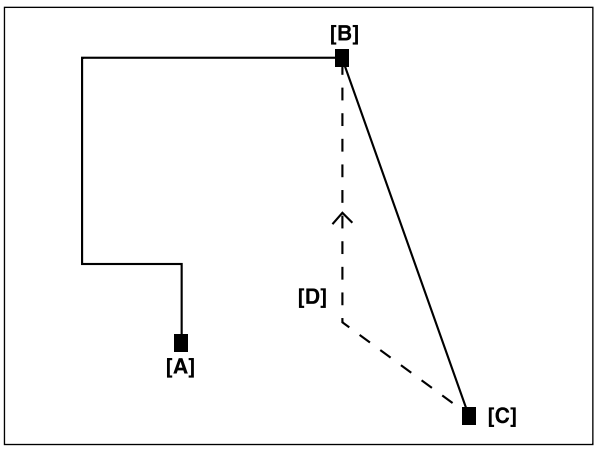
(1) Moving Frame During Embroidery

Press when the operating system loads and you will see the following screen:



■ **DATA ORIGIN (Frame moves back)**

Your SWF machine remembers the stopped position of the frame when it stops during operation (bar switch, thread break detection, etc.) After you move the frame by frame movement key and do work, you can use the DATA ORIGIN function to automatically move the frame back to the previously stopped location to resume embroidery work.



A) Start point of embroidery

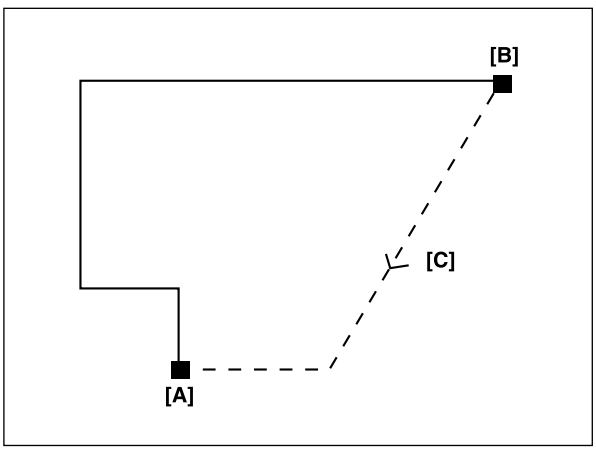
B) Stop point of embroidery

C) Frame moved by frame movement key

D) Frame moved by DATA ORIGIN

■ **ORIGIN (Start of embroidery)**

This function moves the frame back to the first point of work.



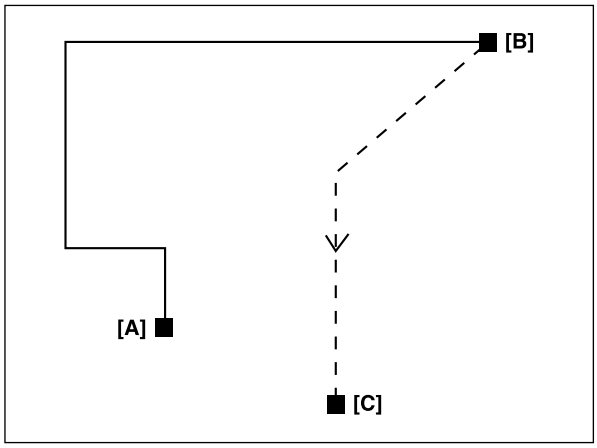
A) Start point of embroidery

B) Stop point of embroidery

C) Frame moved by ORIGIN

■ POWER RESUME

In case the frame was moved during blackout, this function moves the frame back to the previous position before the blackout.

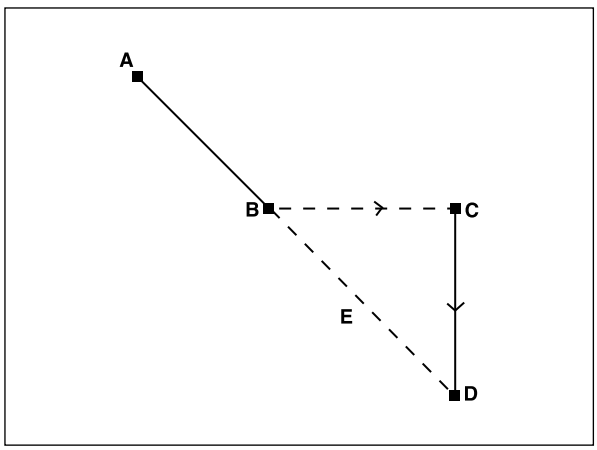


A) Start point of embroidery

B) Stop point of embroidery

C) Frame moved by POWER RESUME

※ The above three functions are about automatic movement of frame. If you press STOP during the frame movement, the frame will stop, in which case you can either move the frame to the desired location using the frame movement key or press START to resume the frame movement.



A) Start point of automatic frame movement

B) Emergency stop by the bar switch (turning the switch to left)

C) Frame moved by frame movement key

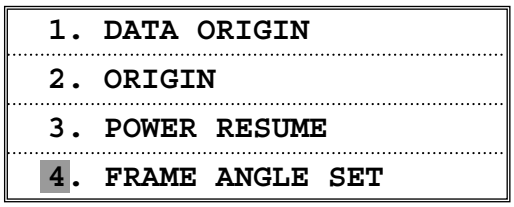
D) Frame movement resumed by the bar switch (turning the switch to right)

E) Path the frame would have been taken automatically without emergency stop

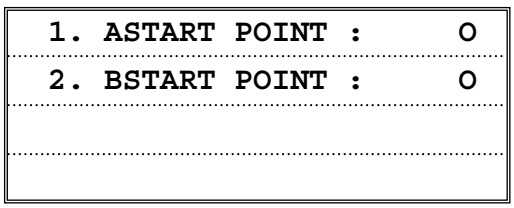
■ FRAME ANGLE SET

Changes the frame feed conditions and sets the main shaft's rotary angle.

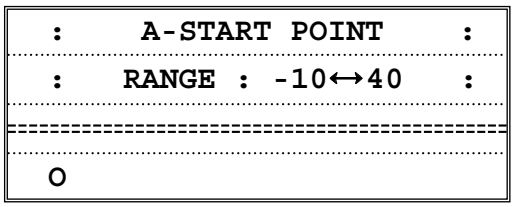
Moves the cursor to “4. FRAME ANGLE SET”.



Press **SET** .



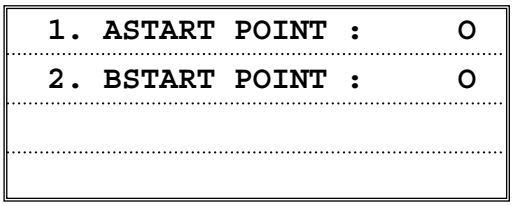
Move the cursor to “A/BSTART POINT” and press **SET** .



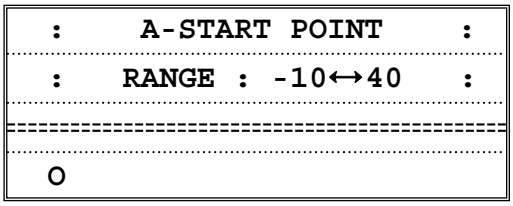
Use the number keys to enter the value within the range (− 10~40). After entering the value, press **SET** .

(2) Moving Frame Before Embroidery Begins

Press FRAME while the embroidery information is displayed on the menu screen.



When the cursor is in “A/BSTART POINT”, press **SET**. Then the following screen appears.



Enter the value within the range and press **SET**.

※Selecting Polyester Thread Mode

When all the values of “A/BSTART POINT” are set higher than 30, the polyester thread mode is chosen. This could prevent looping from occurring during embroidery.

7-4-8) Float (Non-Stitching Functions)

Press FLOAT when the operating system loads and you will see the following screen:

```
1. 100 STITCH
2. 1000 STITCH
3. 10000 STITCH
4. COLOR
```

1. 100 STITCH: forward or backward movement in units of 100 stitches.
2. 1000 STITCH: forward or backward movement in units of 1000 stitches.
3. 10000 STITCH: forward or backward movements in units of 10000 stitches.
4. COLOR: forward or backward movements by color code.

Select the desired number of non-stitches using the cursor.
Press **SET**

Press START for forward movement and STOP for backward.
Press PREVIOUS to correct the data or to end the process.

```
FLOAT 100 STITCH
==========================================

EXIT -> PREVIOUS
```

7-4-9) Machine Data Set-up

Press MACHINE when the operating system loads and you will find the following screen: This indicates the machine settings and information. The sub menus are:

```
1. MACHINE TEST
2. MACHINE SET
3. ERROR LIST
```

1. MACHINE TEST: tests solenoid or thread detecting functions.
2. MACHINE SET: sets frame limit.
3. ERROR LIST: stores a list of up to 10 latest errors.

■ **MACHINE TEST: Tests solenoid or thread detecting functions**

Ex) Testing jump functions

Place the cursor at "1.MACHINE TEST" and press **SET**

```
1. JUMP TEST
2. WIPER TEST
3. PICKER SOL TEST
4. TRIM SOL TEST
```

Move the cursor to "1.JUMP TEST" and press START

```
JUMP TEST
SWITCH OFF -> ON!...
```

■ **MACHINE SET: Sets frame limit**

Select "2.MACHINE SET," press **SET** and you will find the following screen: The function has three sub-menus.

```
1. MACHINE SET
2. FRAME ORIGIN
3. FRAME LIMIT SET
```

① MACHINE SET

It sets parameters for machine set-up (selects CUT NEEDLE).

- CUT NEEDLE
  This is for cutting sewing materials, not embroidery materials.
  [NOTE] Needle designated for CUT NEEDLE does not support thread detection or trimming functions.

Ex) Designating needle #6 for CUT NEEDLE

Move the cursor to "2.CUT NEEDLE" and press **SET**

When the cursor blinks at needle #1, press "1" to designate CUT NEEDLE. The cursor will then automatically move to needle #2.

```
CUTTING NEEDLE SET
1 => USE, 0 => NO
NO.  1   5   9
    [1000000000000]
```

Move the cursor to needle #6 using "0"

```
CUTTING NEEDLE SET
1 => USE, 0 => NO
NO.  1   5   9
    [1000000000000]
```

With the cursor at needle #6, press "1" to designate it for CUT NEEDLE

```
CUTTING NEEDLE SET
1 => USE, 0 => NO
NO.  1   5   9
    [1000000000000]
```

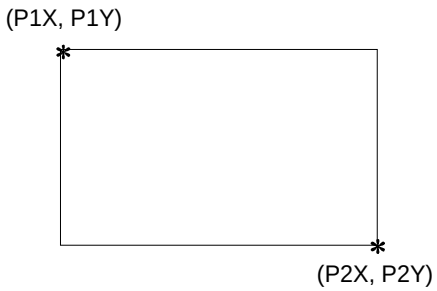
↓ Press [PREVIOUS] to end the process.	CUTTING NEEDLE SET 1 => USE, 0 => NO NO. 1 5 9 [1000010000000]

② FRAME ORIGIN

This moves the frame back to the start position. Start position of the frame must be set so the frame can move back to the previous position in case of a power failure.

③ FRAME LIMIT SET

As there is no physical frame limit switch, you have to set the limit in the software. Input two points on the frame to set the limit (see picture below.)



It produces an error message when the embroidery material goes over the frame limit set. To have the error message function, select "DATA SET-UP" → "EMB FUNCTION" → "15] FRAME LIMIT" and set "YES." This function is not available on SWF/□-W1201 and SWF/□-1204.

Ex) Setting P1X=100, P1Y=500, P2X=1500, P2Y= – 500

Move the cursor to "3.FRAME LIMIT" and press [SET] ↓	FRAME LIMIT SET PRESS SET KEY P1X : 100, P1Y : 300

Set P1X=100, P1Y=500 using FRAME

Press SET

Set P2X=1500, P2Y= –500 using FRAME

Press SET

```
P1X :    100, P1Y :    500
```

```
P2X :    100, P2Y :    500
```

```
P2X :   1500, P2Y :   -500
```

■ **ERROR LIST: List of the most recent errors**

Ex) Reading the latest errors

Move the cursor to "3.ERROR LIST"

Press SET

Check the errors using the cursor key.

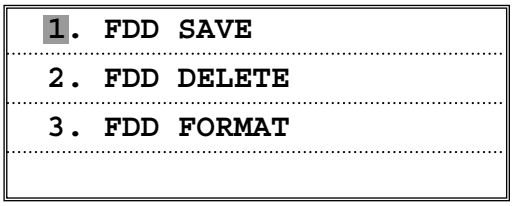
```
1. MACHINE TEST
2. MACHINE SET
3. ERROR LIST
```

```
1] #100
2] #101
3] #200
4] #203
```

Most recent errors are towards the top of the list

7-4-10) The Floppy Functions

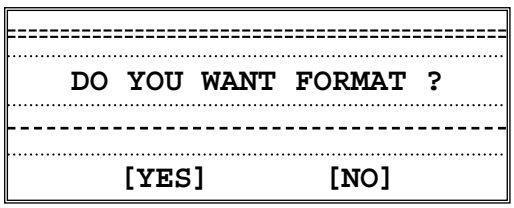
Press when the operating system loads and you will see a screen like this:



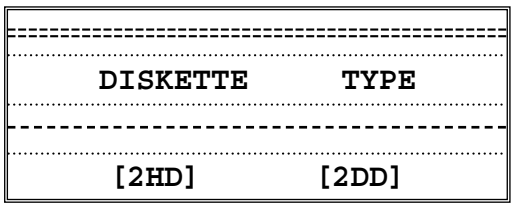
1. FDD SAVE: copies data in the memory onto a floppy disk.
2. FDD DELETE: deletes the designs in the disk.
3. FDD FORMAT: formats the disk.

Ex) Formatting a 2HD disk, copying a design in memory #5 (number of stitches: 18294) onto a disk in the SWF format, and deleting the design copied.

Place the cursor at "3.FDD FORMAT" to format the disk.
Press **SET**



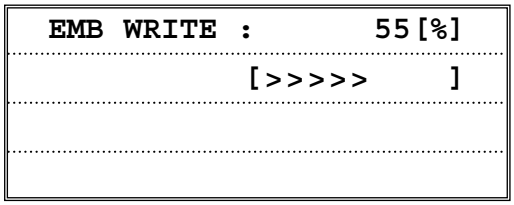
Point the cursor at "YES" and press **SET**

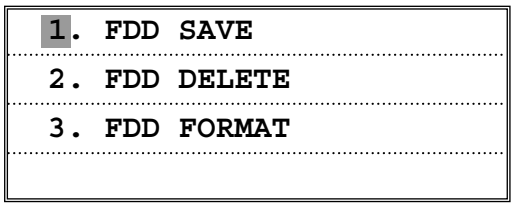


Move the cursor to "2HD" to select the disk type and press **SET**

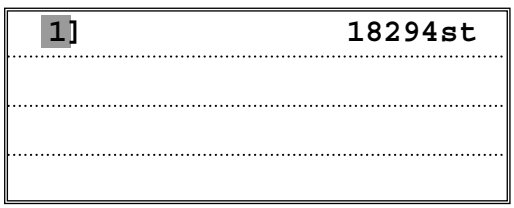
	FORMAT : 55[%] [>>>>>]
↓	**[CAUTION]** Incorrect selection of disk type may cause damage to the disk. Refer to the disk type indicated on the disk. If the disk information is not available, set "2HD" if there are two holes on the left and the right. Set "2DD" if there is only one hole on the left.
	1. FDD SAVE 2. FDD DELETE 3. FDD FORMAT
To copy the design from memory #5 to the floppy disk, move the cursor to "1.FDD SAVE" and press **SET**	
↓	1) 12372 2) 5954 3) 7281 4) 17325
Select #5 with the cursor	
↓	2) 5954 3) 7281 4) 17325 5) 18294
Press **SET**	
↓	1. SWF 2. TAJIMA

To copy the design onto a disk, you have to select an output format. In this case, select "1.SWF" and press **SET**

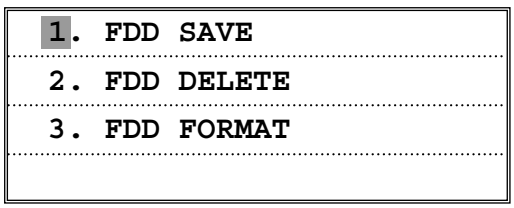




To delete the design copied onto the disk, move the cursor to "2.FDD DELETE" and press **SET**



Select the design to be deleted and press **SET**



7-4-11) Manual Cutting

Press TRIM when the operating system loads and you will see the following screen:

```
  TRIMMING OPERATION
================================================
  RUN => START SWITCH
  CANCEL => PREVIOUS
```

You can perform manual trimming other than the automatic trimming set by DESIGN CODE. Press START on the menu screen and the machine will automatically start trimming.

Press PREVIOUS to cancel.

7-4-12) Offset Set-up

Press OFFSET when the operating system loads and the following screen will appear:

```
================================================
===     START  POINT     ===
================================================
=> FRAME MOVE
```

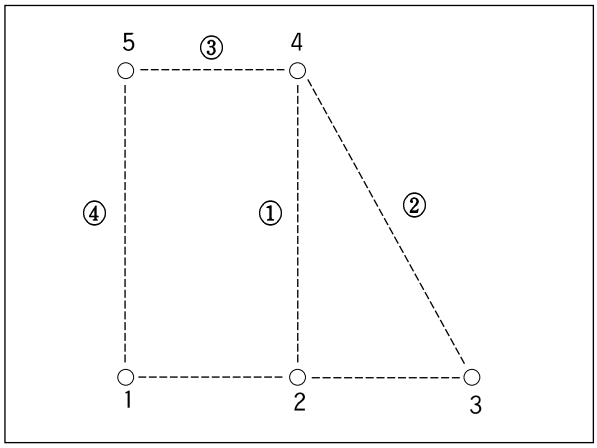
This sets the frame to automatically move to the location you selected at start or finish of the embroidery work. This function may be useful when changing frame or arranging fabric. Select the following four types of data for the offset function.

① START POINT
The start point of embroidery

② MIDDLE OFFSET
The middle point to prevent needle accidents when the frame moves to the offset point

③ OFFSET POINT
The point to where the frame should automatically move when it reaches the offset point set by needle bar (see 7-4-13. Needle Bar Set-up)

④ Set "0" for the desired offset point in the Needle Bar NEEDLE Set-Up (see 7-4-13)



1. Start point
2. Stitch for offset
3. Stitch for finish of embroidery
4. Middle offset point
5. Offset point

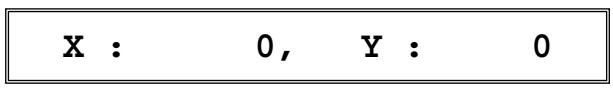
a) ④ : path at the start of the embroidery
b) ①→③→① : Movement from the offset stitch to the offset point
c) ②→③ : path after the embroidery is finished

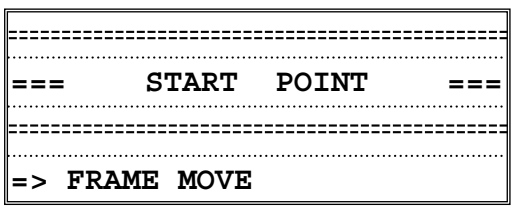
[CAUTION]
1. Middle point and offset point may be the same.
2. Offset data is automatically deleted when you call a new design.

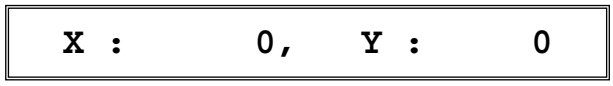
Ex) Offset set-up
1. Start point: X= – 300, Y=500
2. Middle point: X=600, Y=1500
3. Offset point: X=800, Y=2000

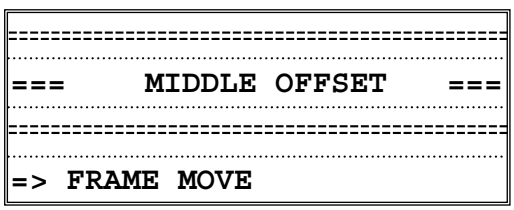
Press in the start menu

Set X= – 300, Y=500 using key and press **SET**

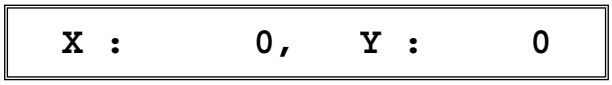


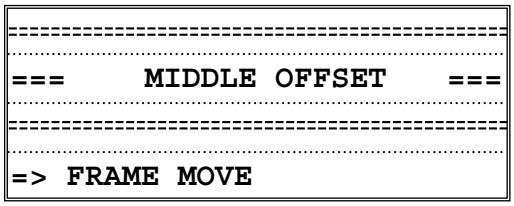




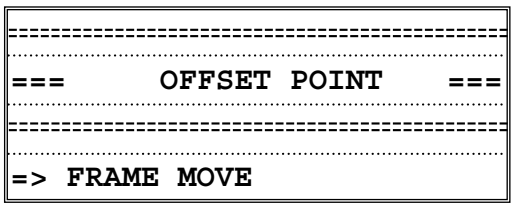


Set X=600, Y=1500 using FRAME key and press **SET**



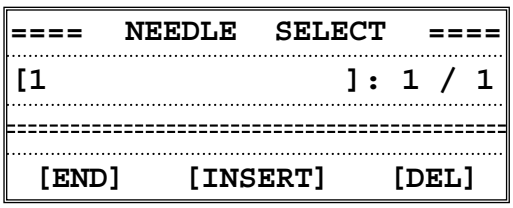


Set X=800, Y=2000 using FRAME key and press **SET**



7-4-13) Needle Bar Selection

Press NEEDLE when the operating system loads and you will see a screen like this:



This sets the automatic color changing functions and the needle bar order.

[NOTE]

You can set up to a 99th needle in the needle bar order.
Input "0" and the set-up data will be deleted.

Ex) Setting the needle order as 1-2-10-11-12 and arranging offset between 10 and 11

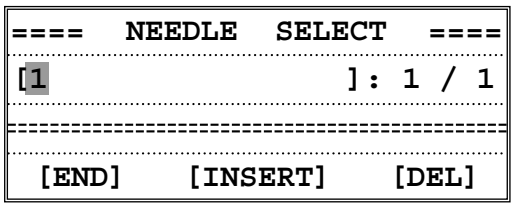
Press **SET** when the embroidery information loads

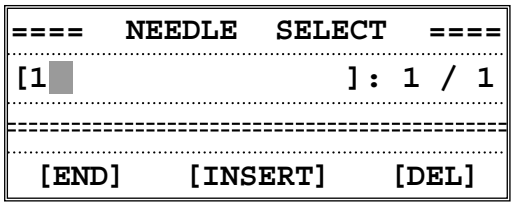
Press "1" numerical key

Press "2"

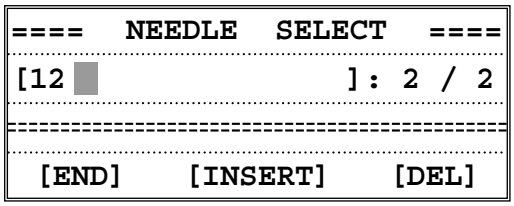
Press +10 and "0" for 10

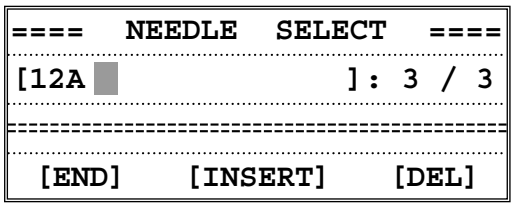
Press +10 and CL to set offset between 10 and 11



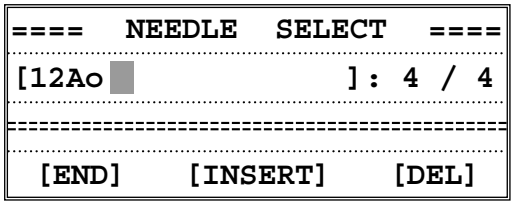


※ Cursor moves automatically.





※ 10th needle = A
11th needle = B,
12th needle =C,
offset = CL + +10

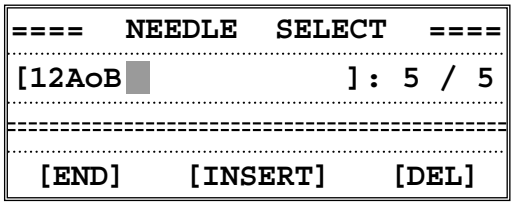


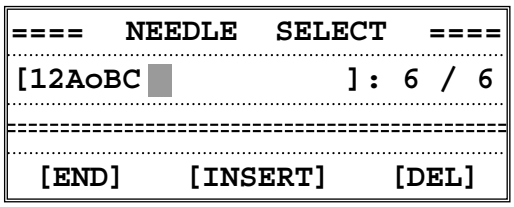
Press +10 and "1" for 11

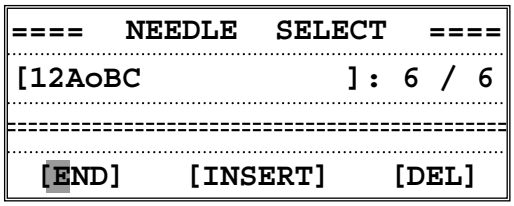
Press +10 and "2" for 12

Press SET to end set-up

Put the cursor at END and press SET







※ Cursor moved to END, INSERT, and DEL.

[NOTE]

You can press CL to change the needle bar table
Your SWF machine offers short keys for more convenient change of the needle bar

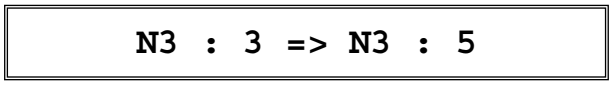
Ex) Setting the needle order as [1-2-3-4] and changing the needle #3 with #5 during operation

Press "5" to change the needle

Press CL

Resume work

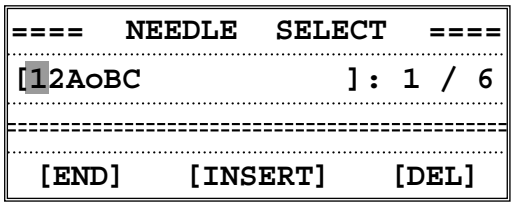
moves to needle #5



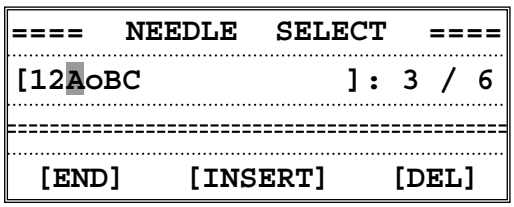
※ This is an easy way to change the needle bar set-up from 1-2-3-4 to 1-2-5-4.

Ex) Using INSERT and DEL to change the needle order from [1-2-10-offset-11-12] to [1-2-3-10-11-12]

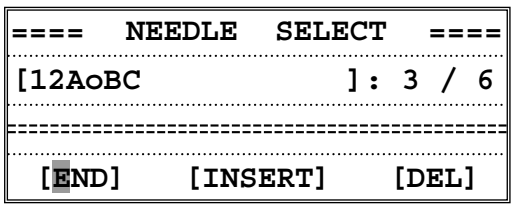
Press **SET** when the embroidery information loads



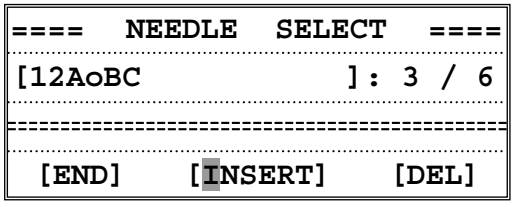
Move the cursor to A to insert "3" in between "2" and "A"



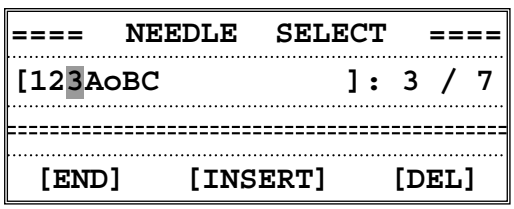
Press **SET**



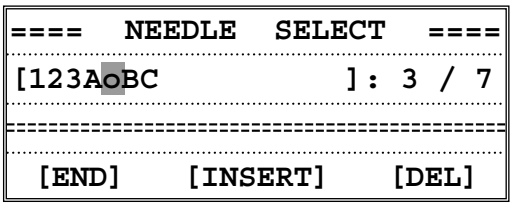
Place the cursor at INSERT



Press **SET**

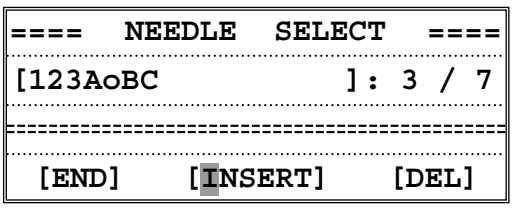


Move the cursor to “o” to delete the offset point between A and B

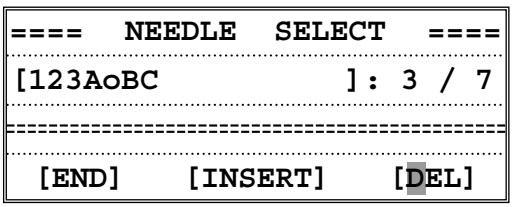


※ “3” is inserted between 2 and A

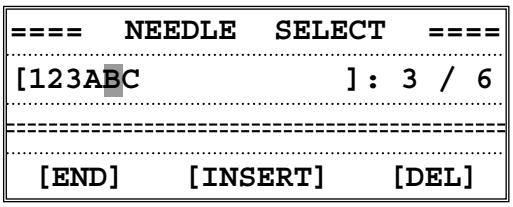
Press **SET**



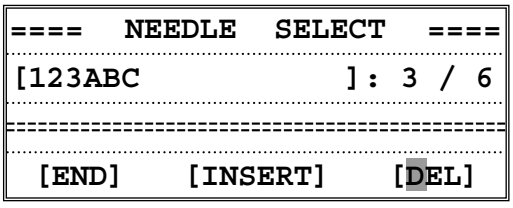
Move the cursor to DEL to delete



Press **SET**



Press **SET** to end set-up



Put the cursor at END and press **SET**

CHAPTER 8

ERROR MESSAGES AND CORRECTION

8-1) MAIN SHAFT MOTOR

NO.	ERROR MESSAGE	ERROR	CORRECTION
100	Main shaft is not at the fix position	Main shaft didn't stop at 100° when machine stopped	Use a lever to adjust the shaft angle at 100°
101	Main motor driver irregular signal detected	Error in main shaft motor driver	Turn the main switch OFF and ON again.
102	Over load error	Thread tangle around the hook, needle controller malfunctions, and thread tangle when trimming	Check the hooks on all heads and turn the main switch OFF and ON again.
103	Trimming system return error	Trimming sensor does not return after trimming	Check the trimming unit.
104	Start switch error	START button was pressed when power is turned on	Check if START button touches the connector
105	Stop switch error	STOP button was pressed when power is turned on	Check if STOP button touches the connector
108	Air pressure low error	Air pressure low or leak	Check air pressure supplying existence

8-2) PULSE MOTORS ON X AND Y AXIS

NO.	ERROR MESSAGE	ERROR	CORRECTION
200	(+X) Frame limit signal, detected	Frame reached +X limit.	Move the frame in the –X direction.
201	(–X) Frame limit signal, detected	Frame reached –X limit.	Move the frame in the +X direction.
202	(+Y) Frame limit signal, detected	Frame reached +Y limit.	Move the frame in the –Y direction.
203	(–Y) Frame limit signal, detected	Frame reached –Y limit.	Move the frame in the +Y direction.
204	X-axis driver irregular signal, detected	Error in X-axis driver	Turn the main power OFF and ON again.
205	Y-axis driver irregular signal, detected	Error in Y-axis driver	Turn the main power OFF and ON again.
206	Wiper Return Error	Wiper solenoid does not return	Repair the wiper.

8-3) COLOR CHANGE

NO.	ERROR MESSAGE	ERROR	CORRECTION
300	Needle position signal does not vary	Needle does not come to the correct position when changed	Manually turn the needle bar, check the load, and locate it in the right position.

8-4) ENCODER

NO.	ERROR MESSAGE	ERROR	CORRECTION
400	Encoder A signal does not vary	Error in A of the main shaft encoder.	Check cable connection. Turn the main power OFF and ON again.
401	Encoder Z signal does not vary	Error in Z of the main shaft encoder.	Check cable connection. Turn the main power OFF and ON again.

8-5) REPETITION WORK

NO.	ERROR MESSAGE	ERROR	CORRECTION
501	Repeat setting error (X number* Y number＜99)	Exceeded the set limit for repetition work	Reset the limit so X*Y does not exceed 99.

8-6) FLOPPY DRIVE AND COMMUNICATION

NO.	ERROR MESSAGE	ERROR	CORRECTION
600	Floppy drive not ready	No disk in the drive.	Insert the disk in the drive.
601	Diskette sector not found	Disk is not formatted or is of a different format.	Format or change the disk.
602	Diskette drive A file not found	No embroidery design in the disk.	Change the disk.
603	Write protect error	Disk is write-protected.	Remove the protection tab.
604	Disk error	Damaged disk.	Format or change the disk.
605	Diskette space insufficient	No space in the disk for copying.	Change the disk.
606	Drive open error	Disk was removed during operation.	Insert the disk and re-work.
607	Floppy reading error	Bad sectors in the disk.	Format or change the disk.
608	Floppy writing error	Bad sectors in the disk.	Format or change the disk.
609	Floppy driver error	Unknown disk error during operation.	Format or change the disk.
610	Floppy driver error	Unknown disk error.	Try with a new disk.
611 612	ZSF, Barudan disk not available	Damaged disk.	Try with a new disk.
613	Too many bad sectors	Damaged disk (occurred during formatting)	Try with a new disk.

8-7) TAPE READER AND COMMUNICATION

NO.	ERROR MESSAGE	ERROR	CORRECTION
630	Read data error	Error in data read from the tape reader.	Re-input the data through the tape reader.
640	Network system not found!	Network device is not connected.	Check the network connection.

8-8) MEMORY

NO.	ERROR MESSAGE	ERROR	CORRECTION
700	Memory file not found	No embroidery data in the memory.	Save the data in memory using disk or tape.
701	System memory insufficient	Not enough memory space for data storage.	Delete unnecessary data.
702	Memory room full	Memory is full.	Delete unnecessary data..
703	Memory system error	Error during copying/deletion in memory.	Reset or turn the power OFF and ON again.
704	Weakness of battery in memory	Memory saving battery is worn out during power off.	Contact the nearest SWF dealer and replace it.

8-9) SYSTEM INSTALLATION

NO.	ERROR MESSAGE	ERROR	CORRECTION
800	System file not found	Disk for system installation was not used.	Use the disk for system installation.

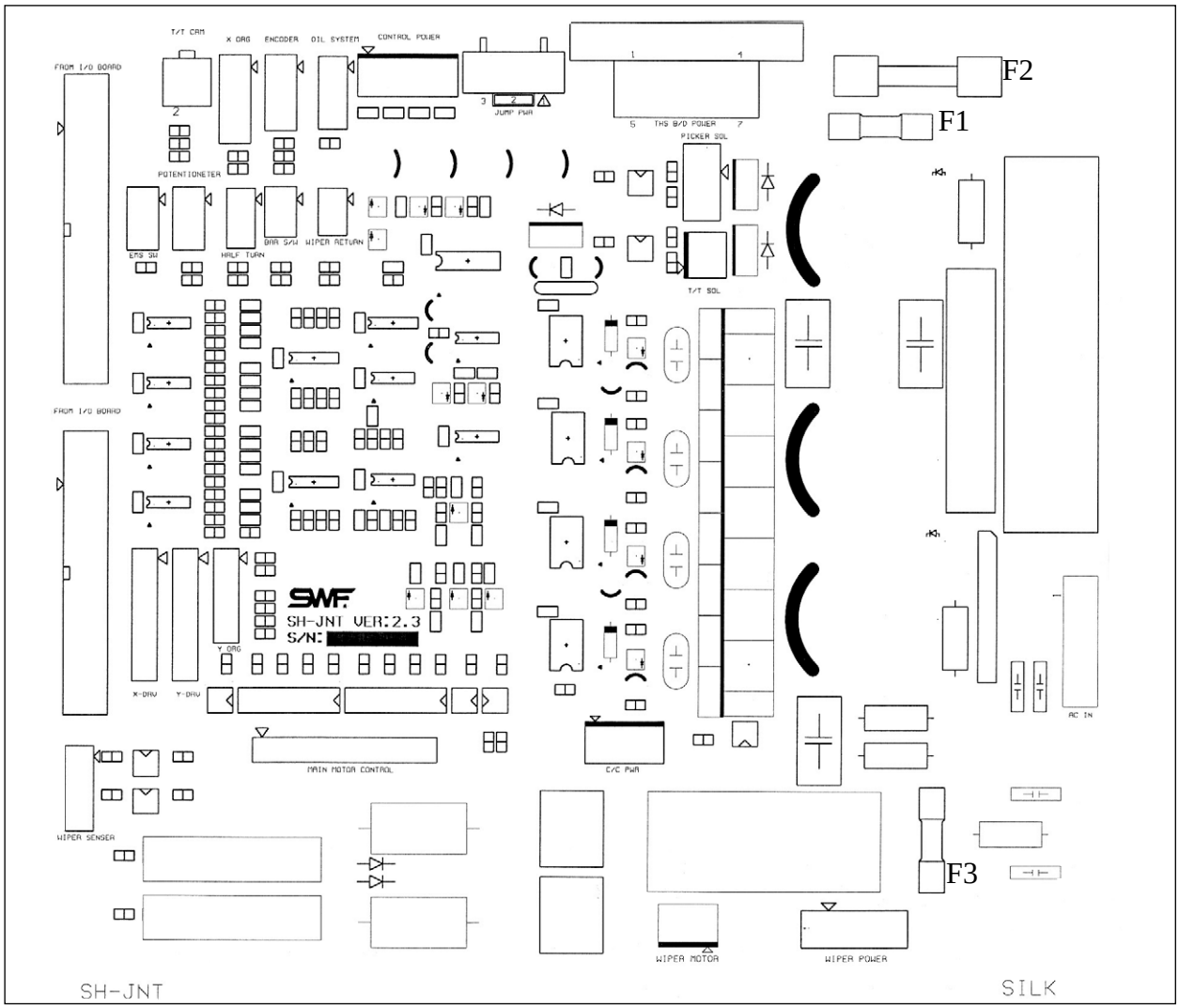
CHAPTER 9

THE CONTROL BOX

9-1) CHANGING FUSE IN JOINT BOARD OF M/C WITH LESS THAN 12 HEADS

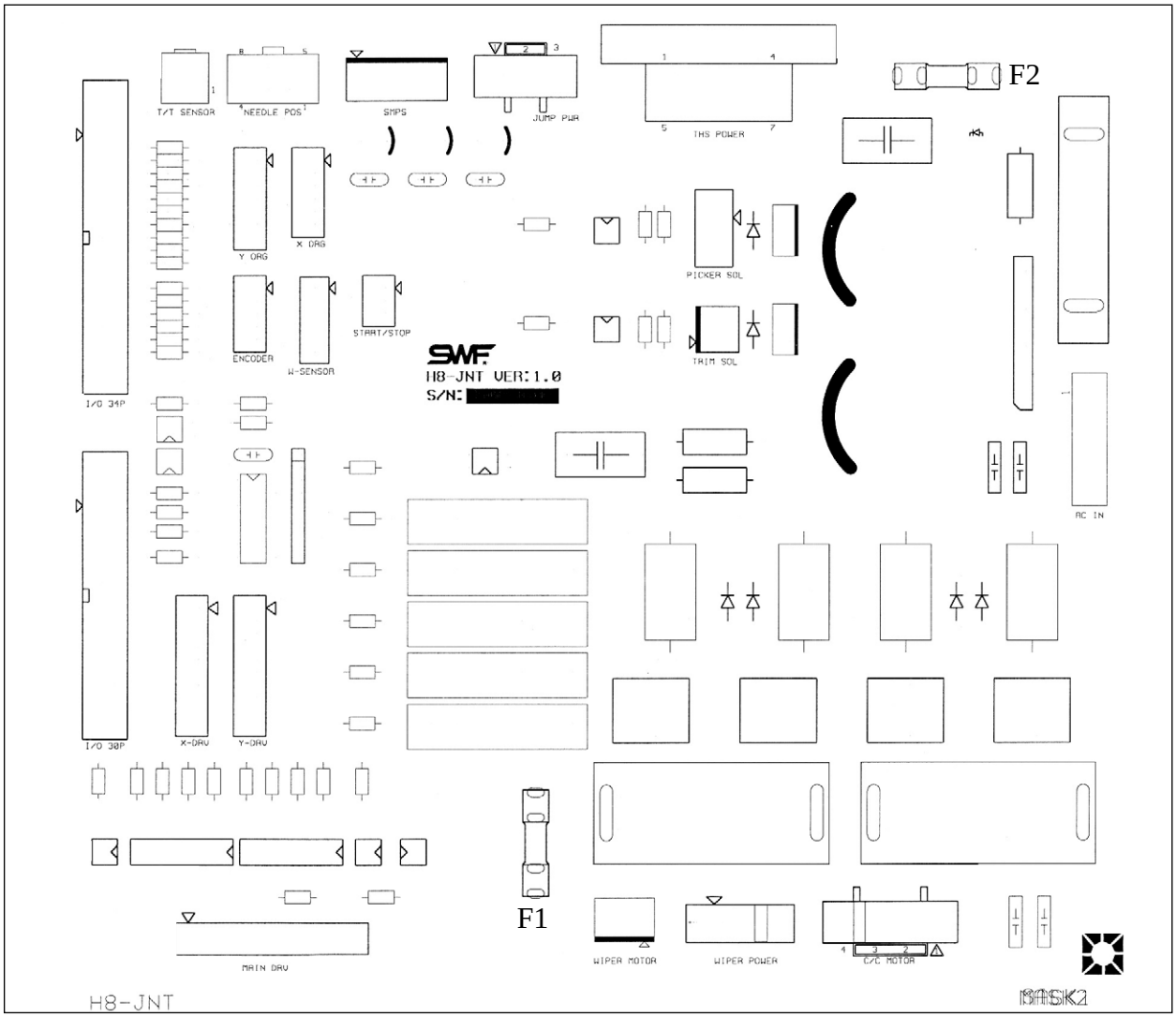
Refer to the table below and fill the exact amount of fuse when changing fuse in the joint board.

9-1-1) SWF/☐-U Series (excluding SWF/C-UH1508-45)



Fuse	F1 Trimming solenoid Picker solenoid	F2 Wiper solenoid	F3 Wiper motor
Fuse Capacity	250V/3A	250V/7A	250V/2A

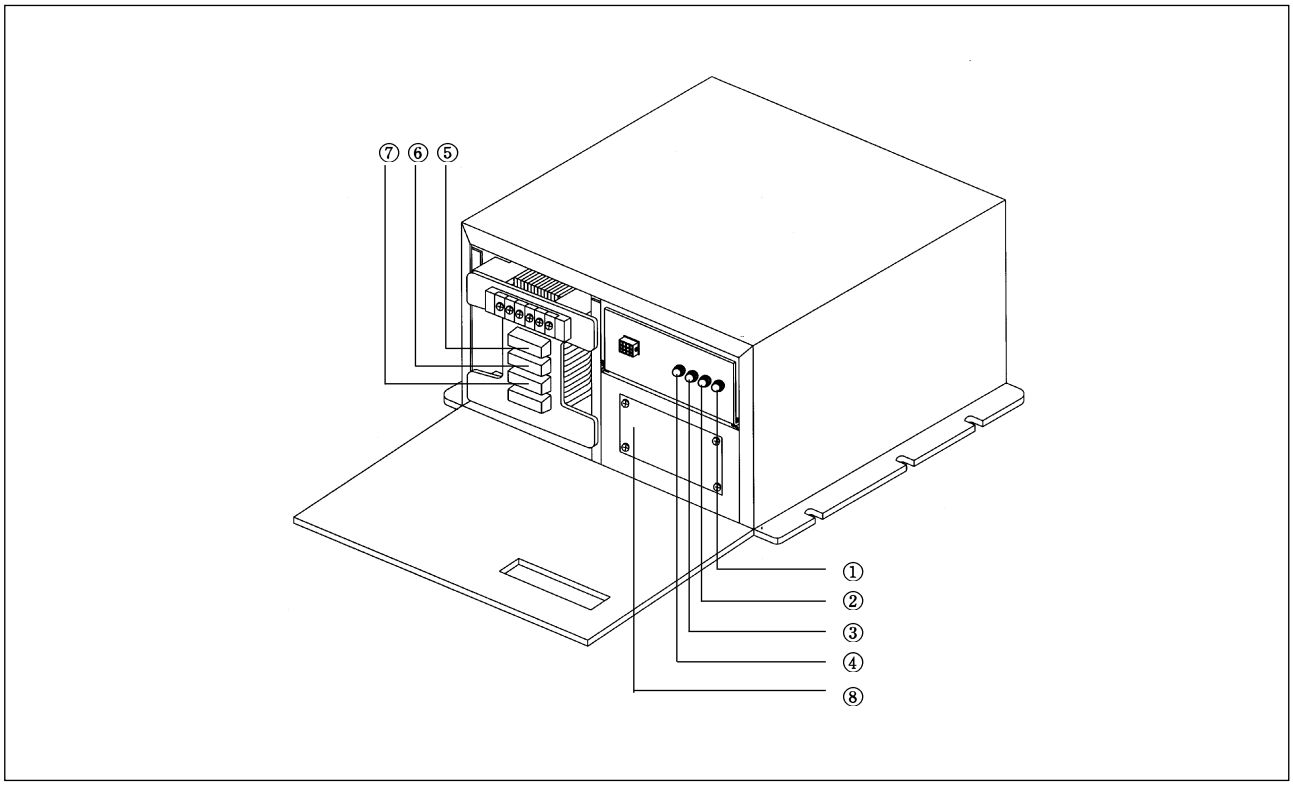
9-1-2) SWF/C-UH 1508-45



Fuse	F1 Wiper motor	F2 Jump solenoid, Trimming solenoid Picker solenoid
Fuse Capacity	250V/2A	250V/3A

9-2) CHANGING FUSE IN M/C WITH MORE THAN 12 HEADS

Refer to the table below and fill the exact amount of fuse when changing fuse in the control box.



[Inside Control Box]

① F1 -250V 15A : Fuse for jump solenoid
② F2 -250V 15A : Fuse for jump solenoid
③ F3 -250V 15A : Fuse for wiper solenoid
④ F4 -250V 15A : Fuse for wiper solenoid
⑤ F5 -250V 1A : Fuse for color change motor
⑥ F6 -250V 2A : Fuse for fluorescent light
⑦ F7 -250V 1A : Fuse for external 220V input (winder, tape reader, etc.), SWF-NET1
⑧ SMPS power

9-3) STANDARD VOLTAGE FOR X, Y DRIVERS (BY MACHINE TYPE)

Each machine has different structures and capacities of X, Y drivers. Refer to the table below for optimal settings for each machine type.

SWF Embroidery Machine Series			Voltage setting		Reference
			X	Y	
SWF/ □ – W Series	SWF/ □ – W1201		7	F	
	SWF/ □ – WE1204	Y-(550, 750mm)	8	F	※ 2A at F
		Y-(1000mm)	F	F	※ 2.5A at F
	SWF/ □ – WF912		A	A	※ 2.5A at F
SWF/ □ – U Series	SWF/ □ – UK1202		8	F	※ 2A at F
	SWF/ □ – UK1204		A	C	※ 2A at F
	SWF/ □ – UK1206		8	F	※ 2.5A at F
	SWF/ □ – UI1212		C	F	※ 3.5A at F
	SWF/ □ – UH1508		8	F	※ 2.5A at F

Failure to meet the above standards may cause the following:

- X and Y motors loose power and deviate.
- X and Y motors heat up.
- X and Y drivers produce noise and vibration.

CHAPTER 10

MAINTENANCE AND INSPECTION

Consumable parts shall not be guaranteed even in warranty period.

10-1) CHECK POINTS FOR REGULAR INSPECTION

CAUTION

Safety rules must be observed during the inspection.

① Clean, oil, and grease the set parts of the machine on a regular basis.
② Inspect tension of each driver belt.
③ Failure to perform regular inspections may cause the following:

- Corrosion of P/C circuit board
- Damage to the semi-conductor on P/C circuit board
- Malfunction of the floppy disk drive
- Ill connection of the connector
- Abnormal wear-out of machine parts due to insufficient oiling and greasing

10-2) CLEANING

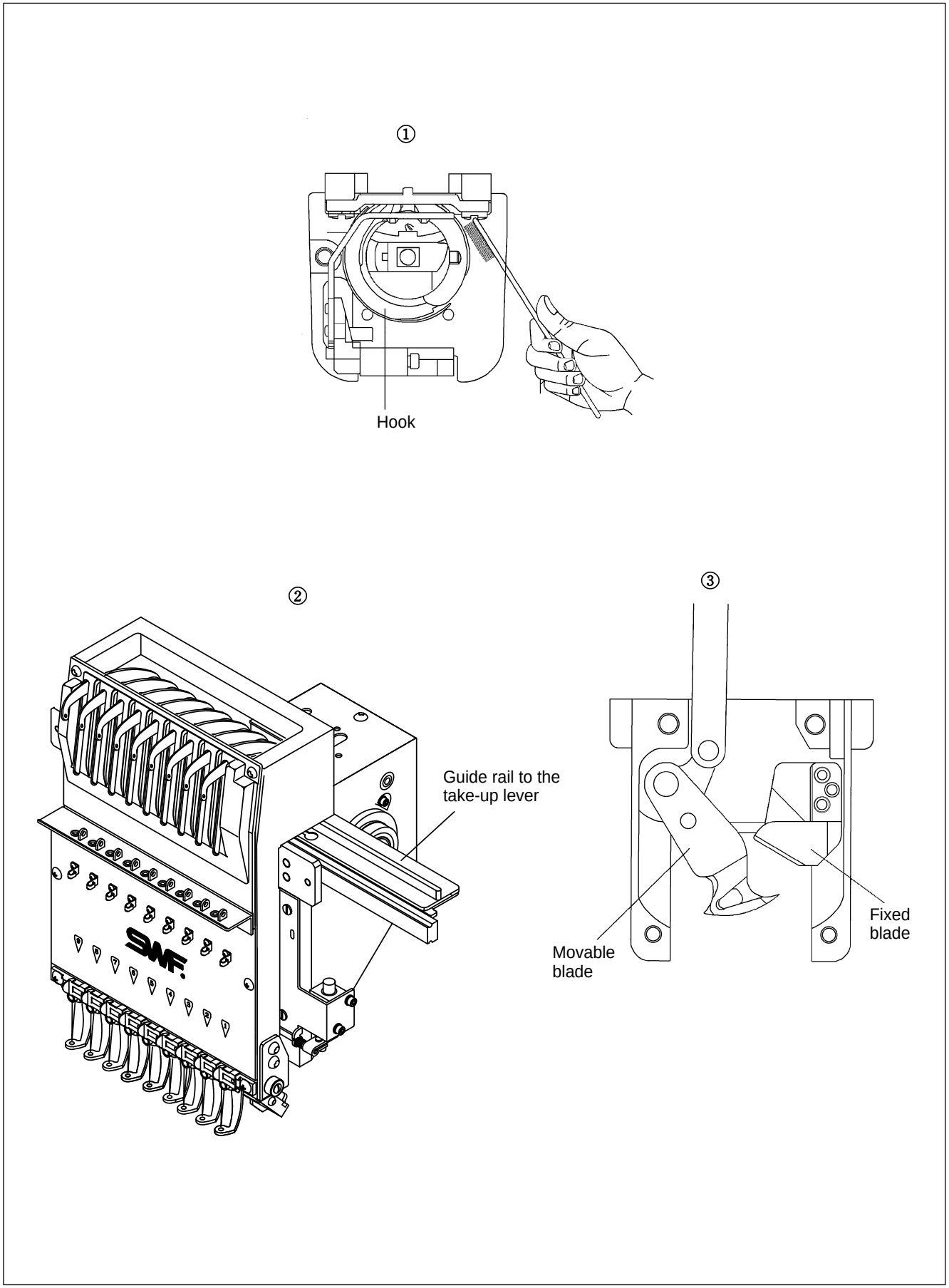
CAUTION

Sun Star is not responsible for machine damages or malfunctions caused by insufficient cleaning or oiling.

CAUTION

Turn OFF the main power before inspecting or cleaning of the following parts.
Clean your machine according to the usage condition and surounding environment

NO	Important Parts for Cleaning	Cleaning cycle	Reference Fig.
1	Around the hook	Every day	①
2	Guide rail to the take-up lever	Once a week	②
3	Around the movable blade and the fixed blade [How to Clean] ☐ Remove the needle plate and pull the movable blade forward (see picture). ☐ Use the SWF brush to remove dirt and dust.	Once in 3-7 days	③


①
Hook
②
Guide rail to the
take-up lever
③
Movable
blade
Fixed
blade

[Fig.10-1]

10-3) OIL SUPPLY

CAUTION	Make sure to turn the power OFF during oil supply.

CAUTION	Sun Star is not responsible for machine damages or wear-outs caused by insufficient oiling.

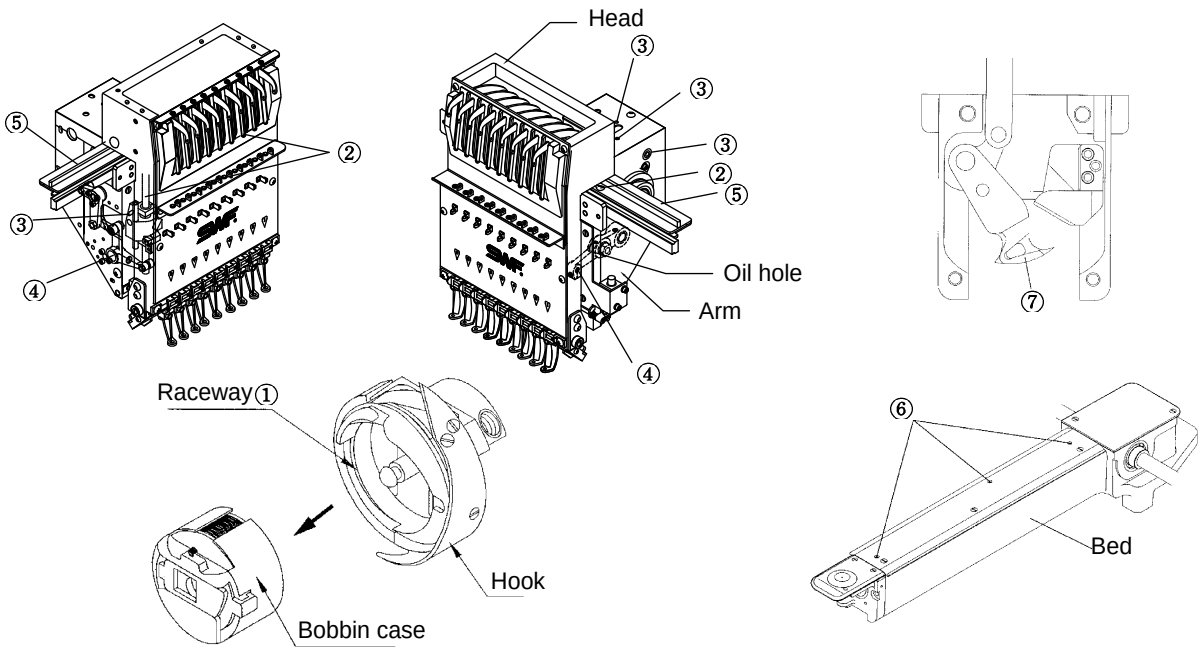
1) Oil supply

Use the SWF sewing machine oil (Spindle Oil) or ISO-standard VG18.

2) Manual oil supply

No.	Where to Oil	Oiling cycle	Ref. Fig.
1	Take the bobbin case out of the hook. Feed small amount of oil on the raceway.	3-4 times a day Over twice a day for the first month	①
2	Needle bar and needle bar shaft	Once a week	②
3	Inside the arm	Once a week	③, ④
4	Guide rail to the take-up lever	Once a week	⑤
5	3 oil holes on the bed cover	Once in 3 days	⑥
6	Juncture of the movable blade and the fixed blade in the trimming unit	Once in 2-3 weeks	⑦

[CAUTION]
1. Excess oil may stain the thread and the fabric.
2. Run the machine without stitching for 2-3 minutes after oiling.
3. Excessive oiling in the hook may cause trimming problems and thread breaks.



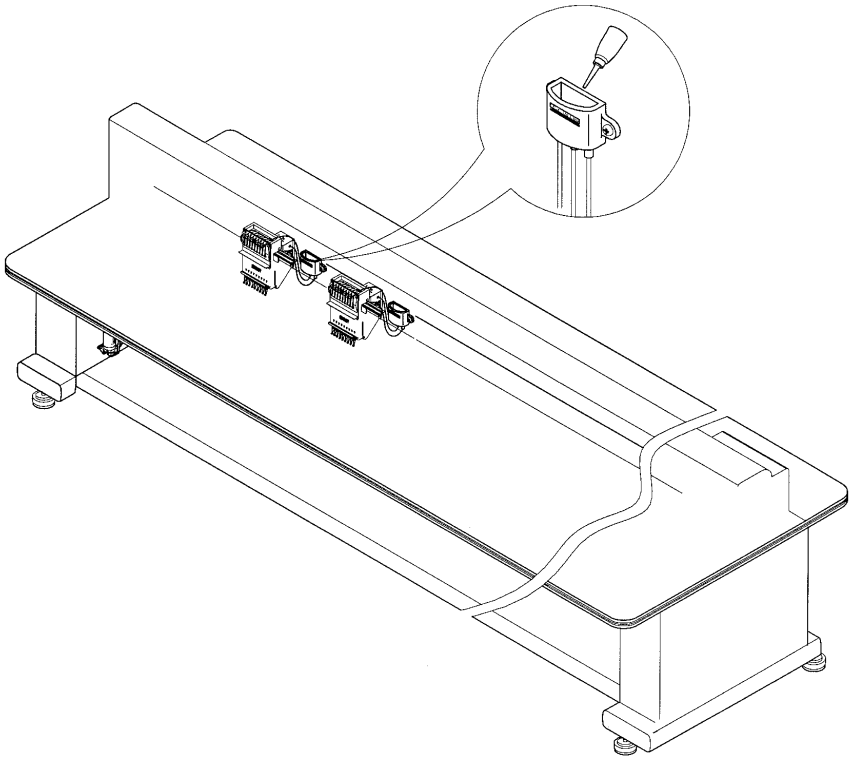
[Fig.10-2]

3) Oiling

① Cored drip-feed lubrication [Standard Type]

㉠ Location and Cycle of Oiling

No.	Where to oil	Oiling cycle
1	Inside arm a. driver pin of take-up lever b. driver pin of presser foot c. driver shaft of needle bar	Once in 2 days



[Fig.10-3]

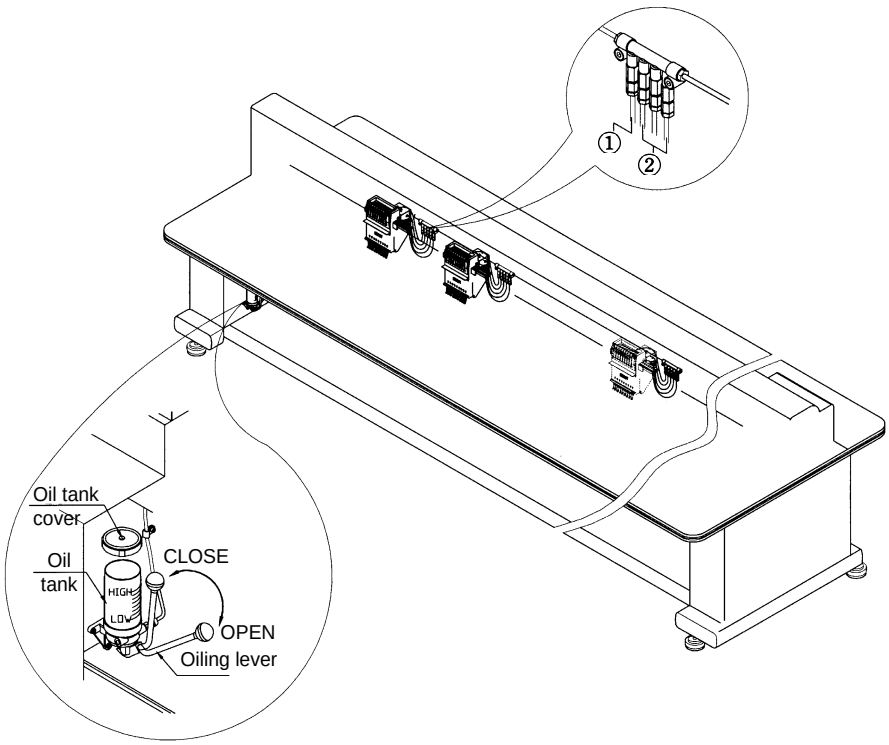
[CAUTION]

- Use the SWF sewing machine oil (Spindle Oil) or ISO-standard VG18.
- Oil just enough to damp the tape in the oil tank.

② Oiling via Pump [Option Type]

㉠ Location and Cycle of Oiling

No.	Where to oil	Oiling cycle	Reference Fig.
1	Needle bar	Twice a day	①
2	Inside arm a. driver pin of take-up lever b. driver pin of presser foot c. driver shaft of needle bar		②



[Fig.10-4]

[CAUTION]

- Use the SWF sewing machine oil (Spindle Oil) or ISO-standard VG18.
- Make sure to fill the oil tank to the middle point between HIGH and LOW.
- Do not oil with both of the ① and ② levers open.

③ Grease supply

CAUTION	Make sure to turn OFF the main power during the grease supply.

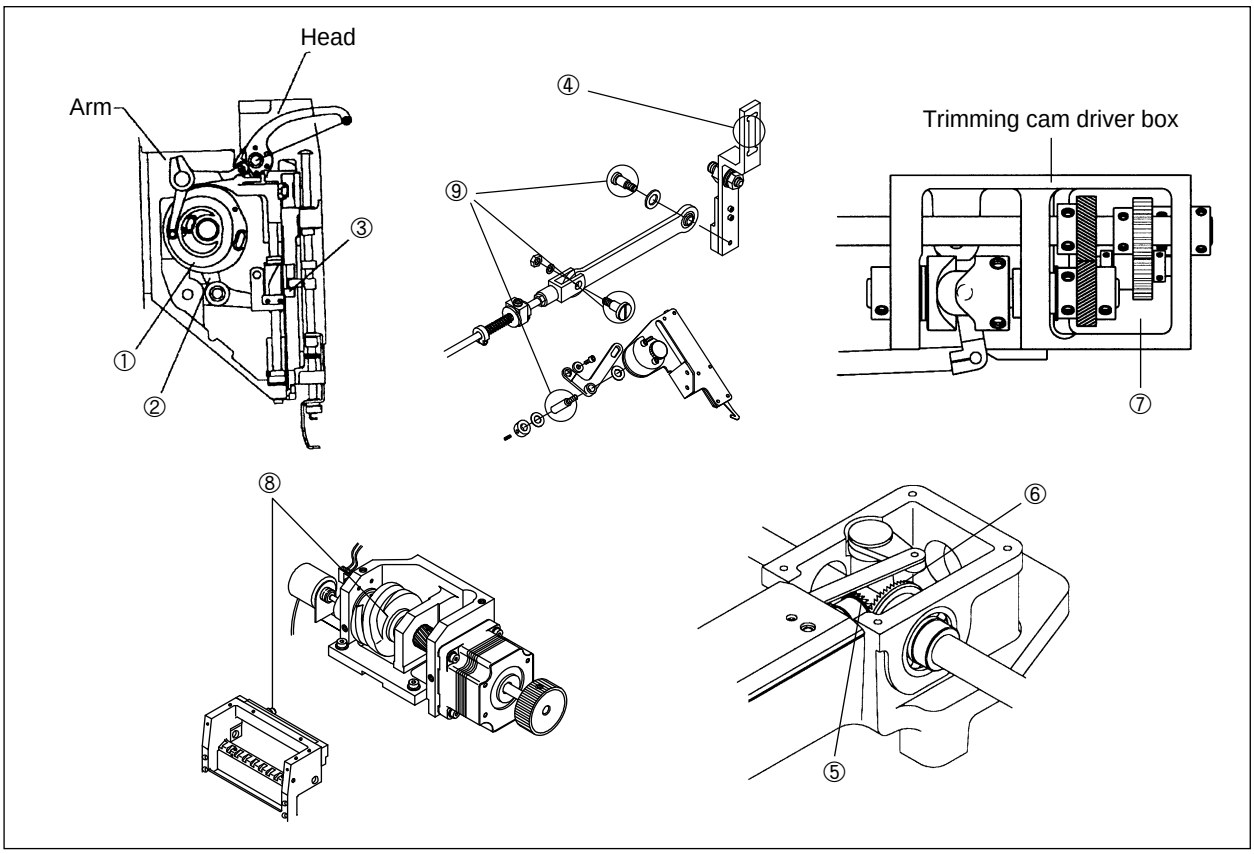
Use high-quality mineral-based lithium grease.

NO	Where to Grease	Greasing cycle	Reference Fig.
1	Inside the arm Take-up lever drive cam Needle bar drive cam Needle bar controller	Once in 3 months	① ② ③
2	Driving plate for the upper thread holder	Once in 1 months	④
3	Hook gear and lower gear in the rotary hook base Once in 3 months	Once in 3 months	⑤ ⑥

Places for supplying synthetic TM grease

NO	Where to Grease	Greasing cycle	Reference Fig.
1	Gears in the blade cam and trimming cam box	Once in 3 months	⑦
2	Color change cam, color change head roller	Once in 3 months	⑧
3	Hinge screw	Once in 1 months	⑨

[CAUTION]
Regular greasing prevents machine noise and abnormal wear-out.



[Fig.10-5]

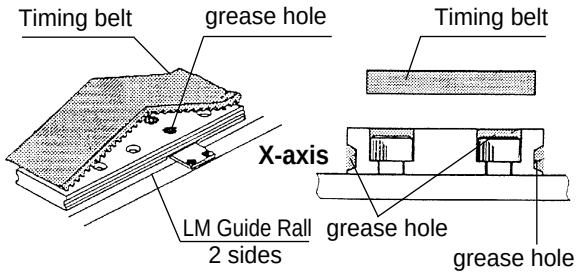
CAUTION	Turn OFF the main power during the grease supply.

Use lithium-type grease (JIS No.2) - Albania No.2.

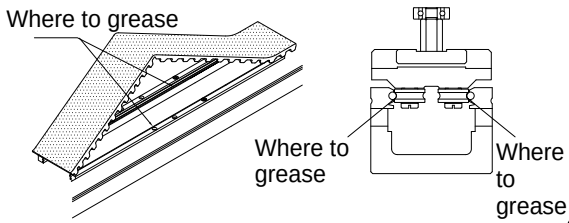
NO	Where to Grease	Greasing cycle	Reference Fig.
1	X-axis LM guide (2 on each side)	Once in 2 months	①
2	Y-axis LM guide (2 on each side)	Once in 2 months	②
3	Sub Y drive LM guide (1 on one side)	Once in 2 months	③
4	Head drive LM guide	Once in 2 months	④

[CATUION]
Do NOT grease the parts not indicated (needle bar, hook, etc.)

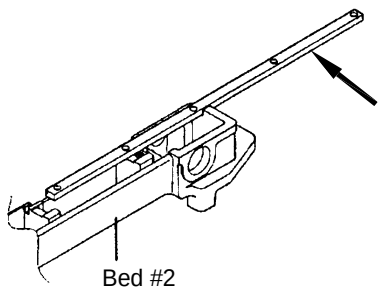
① X-axis LM guide (4 spots)



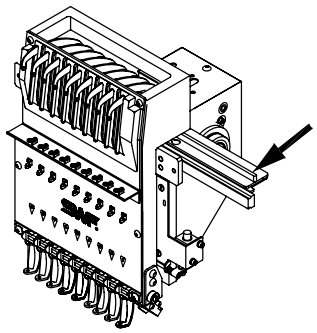
② Y-axis LM guide (4 spots)



③ Sub Y drive LM guide (1 spots)



④ Head drive LM guide (upper cover opened)



[Fig.10-6]

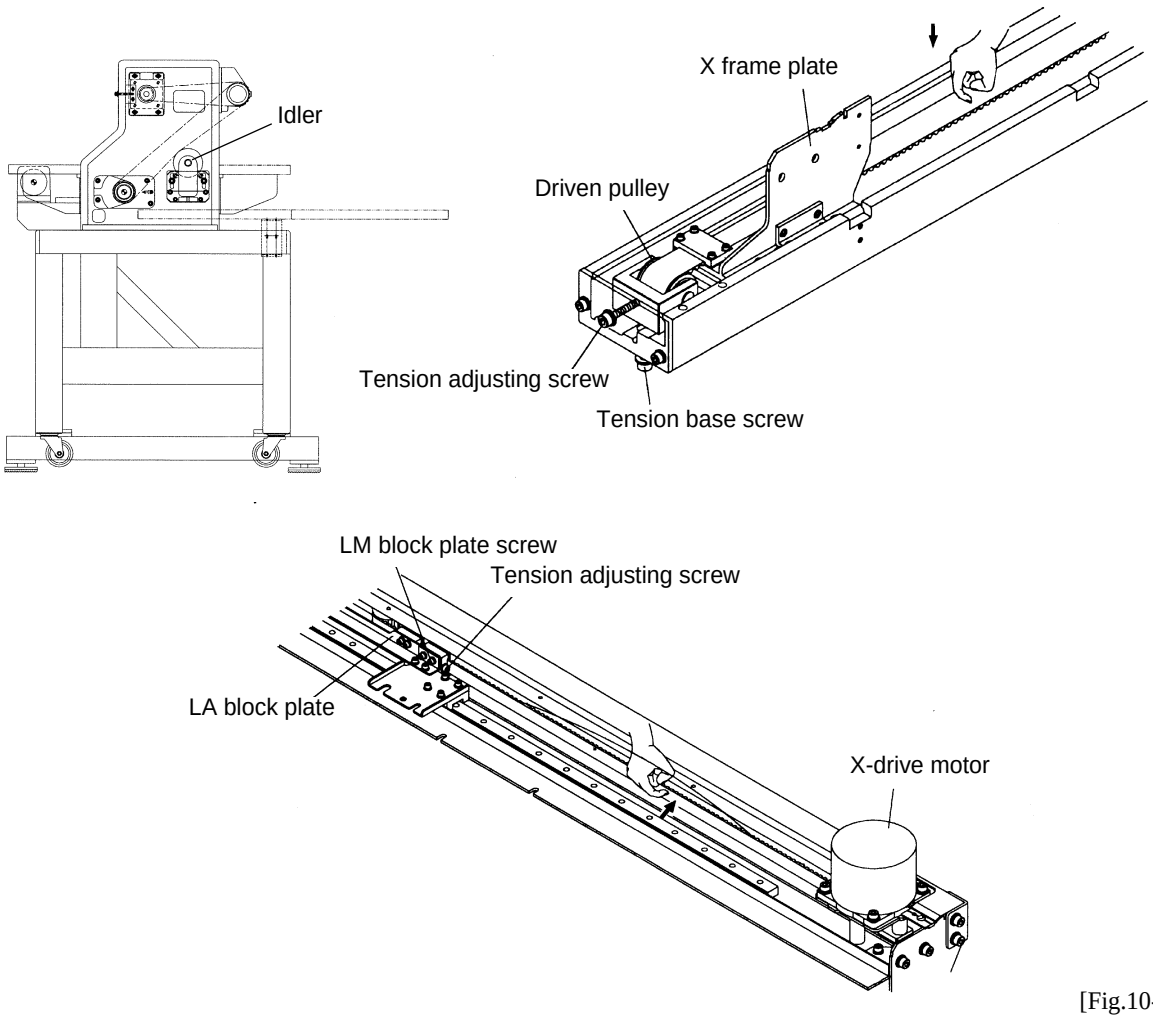
10-4) DRIVE BELT TENSION

CAUTION	Turn OFF the main power when inspecting drive belt tension.

Too weak or too tight tension on the drive belt may cause machine malfunction or damages (abnormal wear-out of drive unit). Inspect the driver belt on a regular basis.

NO	Location for inspection	Inspection cycle	Reference
1	Belt on main shaft motor	Once in 3 months	① check belt tension ② check for belt crack ③ check for belt wear-out ④ check for bearing damage ⑤ check for wear-outs of rotating & sliding parts
2	Belt on main shaft motor	Once in 3 months	
3	Others	Once in 3 months	

[CAUTION]
Inspect the tension in the direction of the arrows in the picture below.



[Fig.10-7]

CHAPTER 11

MACHINE ADJUSTMENTS

WARNING

Turn OFF the main power when adjusting the machine.

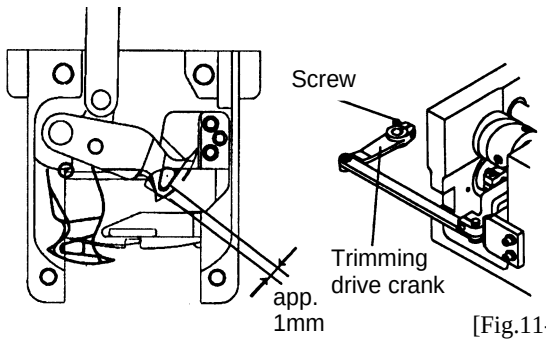
11-1) ADJUSTING THE TRIMMERS

11-1-1) Adjusting the Position of the Trimming Cam (Insert Angle of Movable Blade)

The movable blade is started by the trimmer cam in the angle it is inserted. As one of the basic trimming functions, it arranges the upper thread tails in the needle after trimming.

1) Adjusting the position of the movable blade

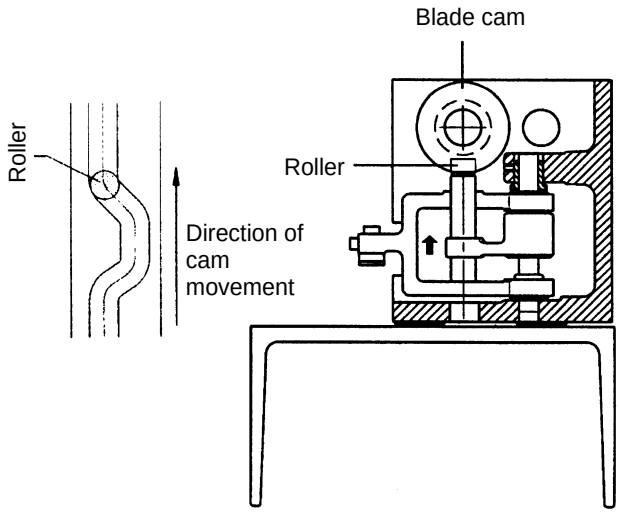
① Check if the movable blade is in the correct position.
② Cutting point of the movable blade should be inserted 1mm at the end of the fixed blade. Incorrect position of the movable blade can cause trimming errors or deviation of the upper thread.
③ Unfasten the crank screw to adjust the location of the movable blade (see [Fig.11-1]).



[Fig.11-1]

2) Adjusting the angle of the movable blade

① Unfasten two screws on the blade cam. Adjust the upper shaft rotary angle at 290°.
② Insert the trimming cam roller into the trimming cam. Turn the cam and when the roller aligns with the curve of the cam, fasten the two screws back.
③ Run the manual handle and check if the movable blade is well-inserted at 290°. Always check after the adjustment.



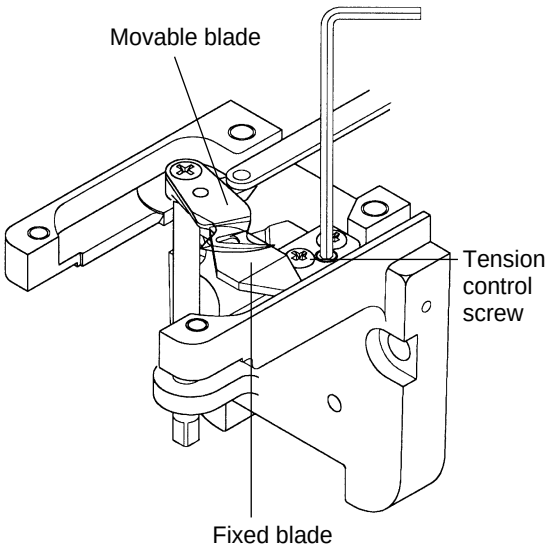
[Fig.11-2]

11-1-2) Adjusting Blade Tension

Make sure to check and adjust the cross-tension of the movable and the fixed blades after replacement or repair.

① Checking the cross tension
Manually move the movable blade and cut the upper and the lower threads. Check the cross-section of the thread cut.

② Adjusting the cross tension
Adjust the cross tension using fixed blade tension control screws (see [Fig.11-3]). Manually move the movable blade and adjust that it crosses in parallel with the cutting line of the fixed blade from its entry point to its return point.



[Fig.11-3]

[NOTE]
Avoid excess cross-tension. It may cause the movable blade to wear out from overload at its entry or return point.

11-2) ADJUSTING THE TRIMMER RETURN SPRING

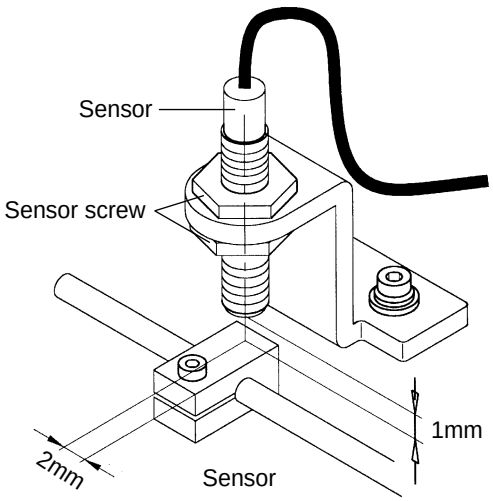
1) Function

The trimmer return spring detects if the movable blade returns to the correct position after trimming. If the machine operates without the blade returned to its correct position, the needle and the blade may be damaged. The trimmer return spring detects and stops the machine if the blade has not returned.

2) Adjustment

① Unfasten the spring shaft screw so that the center of the spring hole is around 2mm away from the surface to which the screw is attached (see [Fig.11-4]). Save the location of the spring. Turn the spring holder #1 to adjust the tension of the return spring and refasten the screw.

② Adjust the return spring so that the surface and the spring are around 1mm apart.



[Fig.11-4]

11-3) ADJUSTING UPPER THREAD HOLDING UNIT

1) Checking the assembly of upper thread holding lever and upper thread holder plate

① Stroke of the upper thread holder driver plate in the upper thread holder base should be 1mm from the base when the upper thread holding solenoid is on.

② If the space is shorter than 1mm, adjust the position of the upper thread holding solenoid up and down so that the stroke of the plate is 1mm.

③ If the solenoid is not adjusted with the above measure, you must adjust the position of the upper thread holding lever.

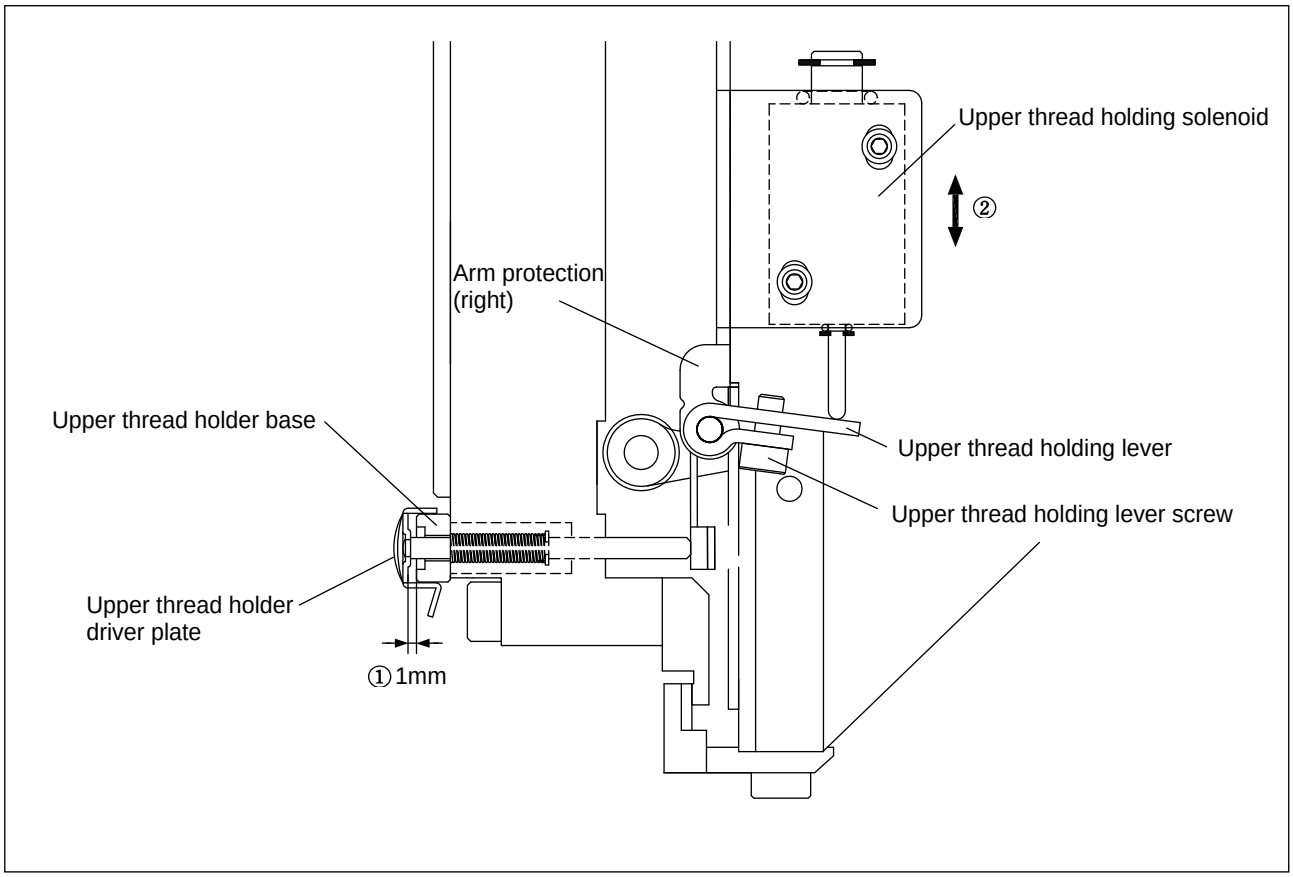
④ To adjust the upper thread holding lever, remove the arm protection plate from the arm. Adjust the upper thread holding solenoid over the center, and unscrew the lever. Support the arm protection plate with a flat plate so the lever touches the flat plate. Fasten the screw of the upper thread holding lever. Make sure that the upper thread holding lever is touching the axis of the upper thread holding solenoid.

⑤ Check if the lever moves smoothly left and right when you manually operate it.

⑥ Install the arm protection plate and go through ① and ② to complete.

[CAUTION]

If the upper thread holding unit does not function well, check if the upper thread holder driver plate of the unit moves smoothly when you manually move it. If not, adjust the position of the upper thread holding base.



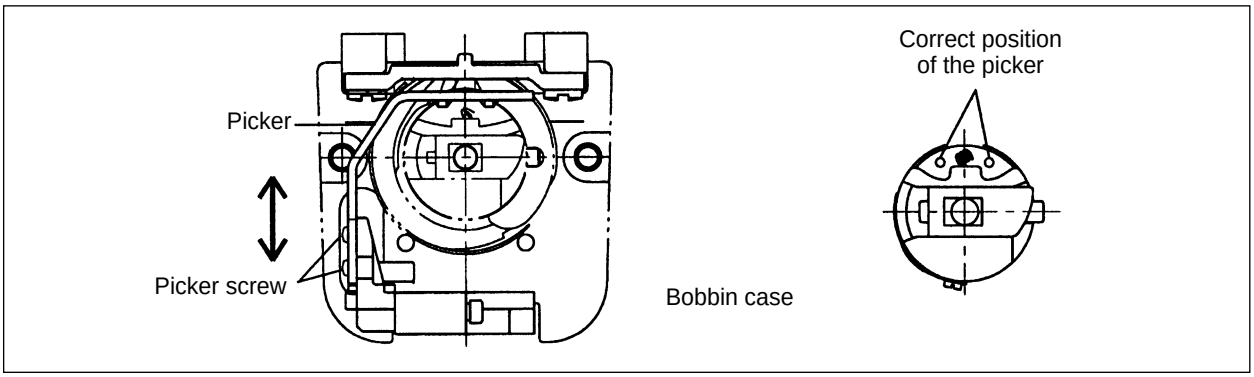
[Fig.11-5]

11-4) PICKER ADJUSTMENT

If the position or the starting height of the picker is incorrect, the machine may not be able to separate the upper and the lower thread and cut them both, resulting in short upper thread.

① Adjusting the picker position

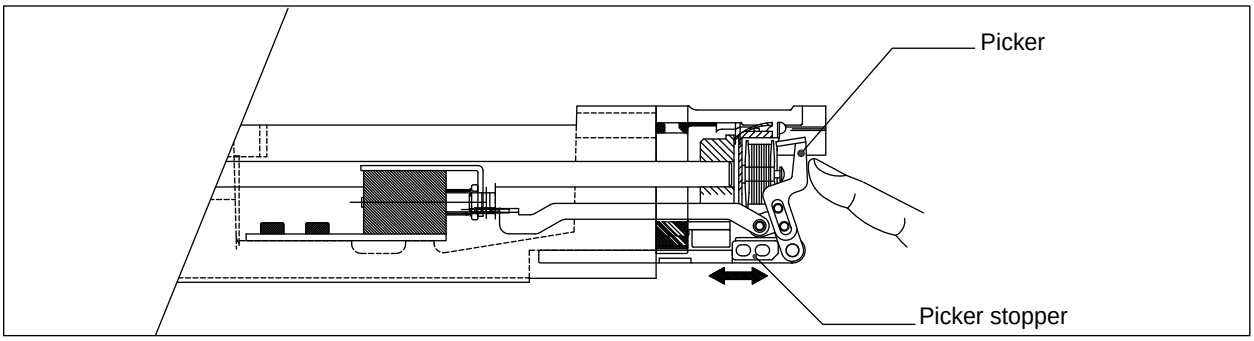
Manually move the picker so it touches the bobbin. Using the picker screws, adjust so the tip of the picker is in the correct position as in [Fig.11-5].



[Fig.11-6]

② Adjusting the starting height

Loosen the screw for the picker stopper and adjust the picker to be 0.2~0.5mm apart from the bobbin when the picker is pressed. Make left and right adjustments for the picker stopper. When all the adjustments are done, tighten the screw for the picker stopper.



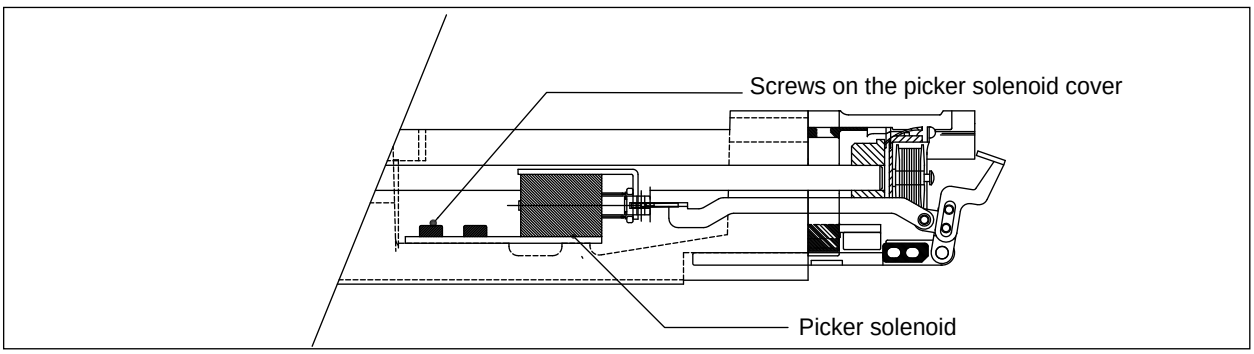
[Fig.11-7]

③ Adjusting picker standby position

Unfasten the screws on the picker solenoid cover. Adjust the position of the solenoid cover so that the tip of the picker is around 20mm away from the bobbin.

[CAUTION]

After adjusting the picker standby position, check if the bobbin case moves smoothly.



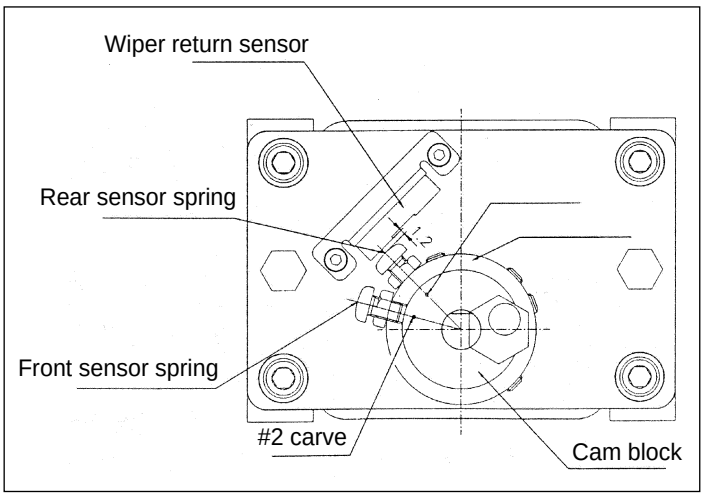
[Fig.11-8]

11-5) ADJUSTING UPPER THREAD HOLDER

① Adjusting the sensor springs (when wiper does not return)

Ⓐ Open the wiper motor cover. Of the two sensor rings, align the center of the rear sensor spring with #1 carve on the block on the shaft. Align the center of the front sensor spring with #2 carve on the block.

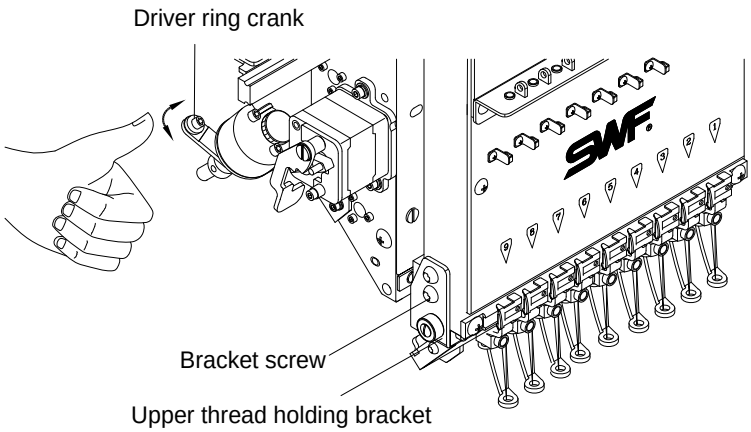
Ⓑ Adjust so that the head of the sensor spring is 1-1.2 mm apart from the wiper return sensor. Make sure to check if the wiper return sensor blinks.



[Fig.11-9]

② If the wiper does not operate smoothly, unfasten the screws on the drive link. Move the wiper lever up and down and unfasten the bracket screws so the wiper is not loaded by the upper thread holder bracket. Fasten the screws back when the wiper moves smoothly.

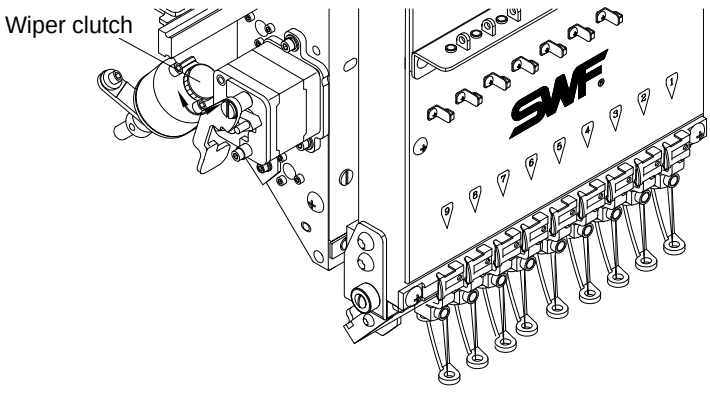
③ After the adjustment, run the color change function to check if the wiper operates well at each needle bar.



[Fig.11-10]

④ If trimming error or jump error occurs on a certain head during the embroidery, run the wiper clutch to protect the embroidery and the wiper.

- Press and turn the wiper clutch counterclockwise to run it. Turn it clockwise to stop.



[Fig.11-11]

11-6) ADJUSTING LOW-NOISE PRESSER FOOT

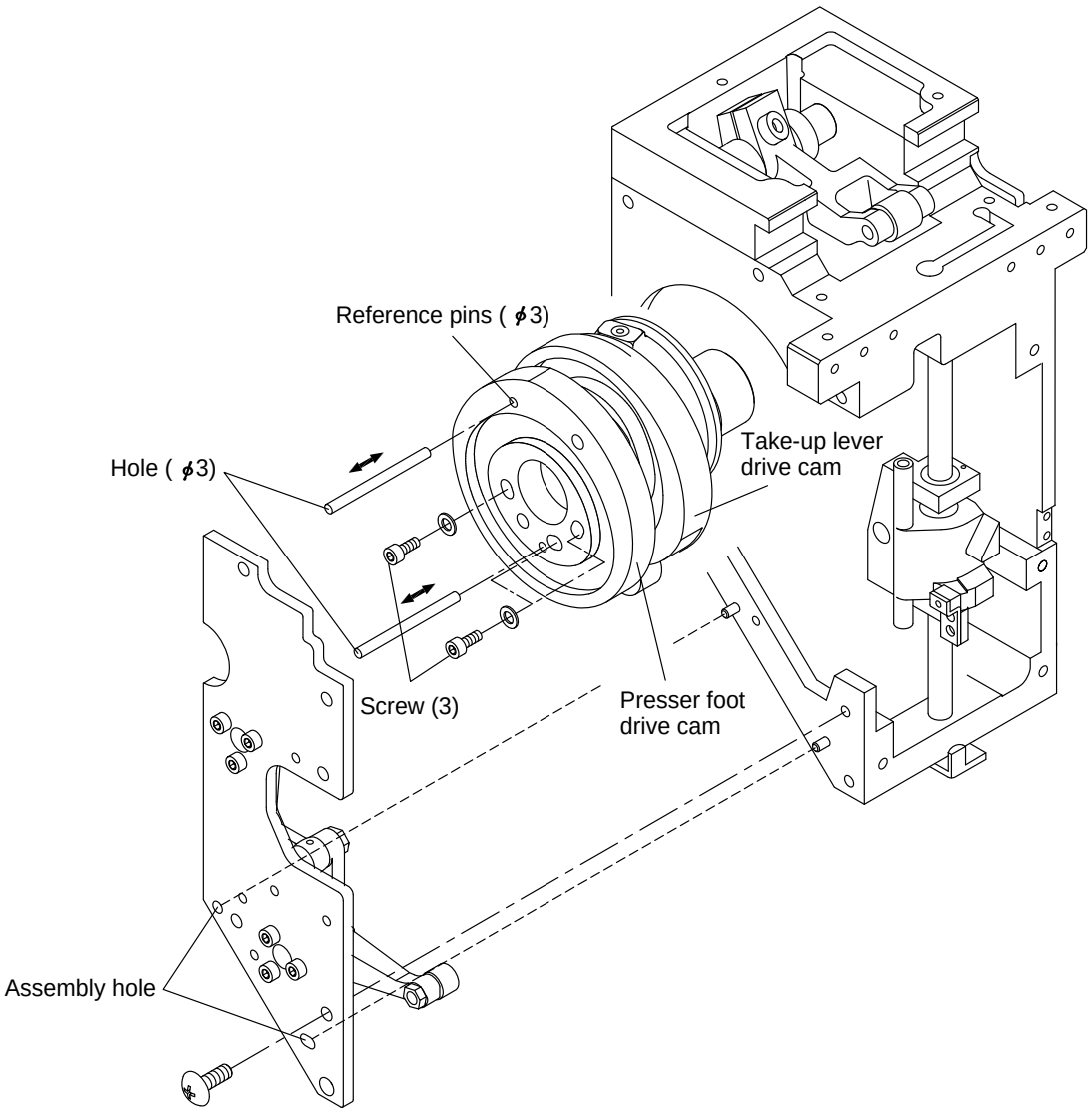
1) Assembly of Presser Foot Cam

① Set the main shaft at 178° and install two reference pins (ϕ 3) into the assembly hole of the presser foot driver cam (ϕ 3) as shown in [Fig.11-12]. Insert the pins then into the assembly hole of the take-up lever driver cam.

② Adjust the presser foot driver cam to where the reference pins freely move left and right. Fix the three screws (M4 × L35).

[CAUTION]

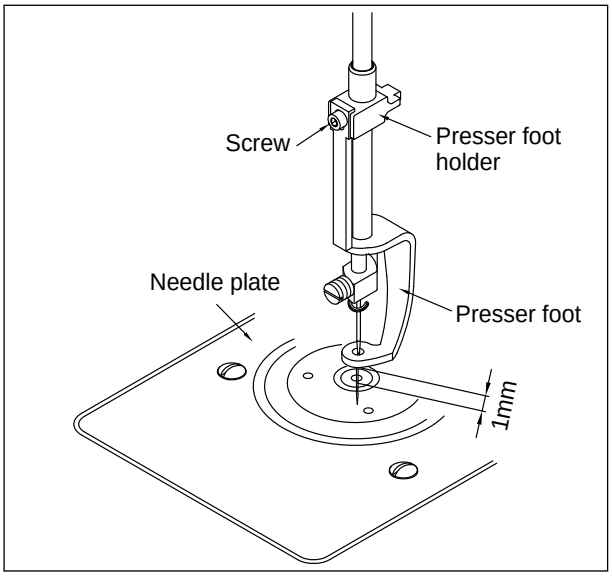
1. The assembly pin should smoothly move right and left with the three screws fastened.
2. The assembly unit and the assembly pin are not for commercial sale.
3. Contact your SWF dealer if you must adjust the location of the cam.



[Fig.11-12]

2) Adjusting the Height of the Presser Foot

① Check the relationship between the presser foot and the needle/embroidery material. Turn the main shaft lever to position the needle at the lowest point (178°). Remove the head cover and unfasten the screws on the presser foot so it moves up and down. Place a 1mm-thick gauge on the needle plat and lightly press the presser foot. Fasten the screws snugly when the presser foot touches the gauge.

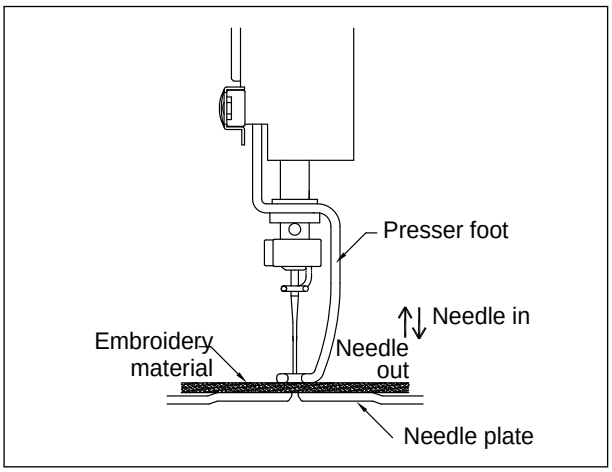


[Fig.11-13]

11-7) Relationship between Presser Foot and Needle

1) Relationship between Presser Foot, Needle, and Embroidery Material

For stable stitching, the presser foot must be pressing the embroidery material before the needle pierces into the material. The same is true for when the needle comes out of the material.



[Fig.11-14]

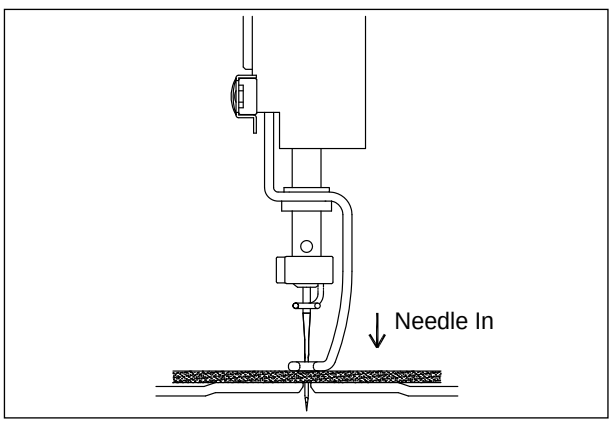
2) When the Presser Foot is Too High

① Needle In

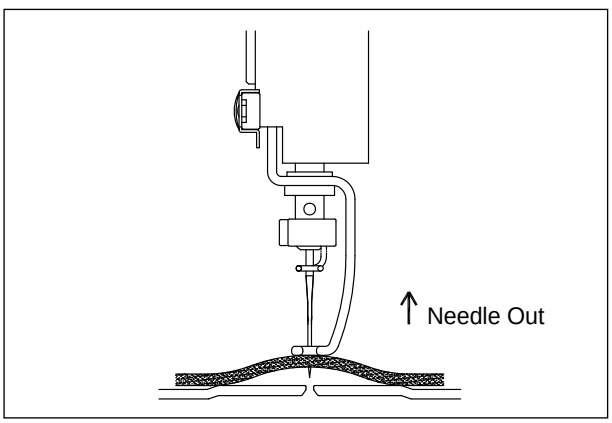
[Fig.11-15] shows the presser foot fails to press the work material when the needle pierces into the fabric, causing an unstable needlework.

② Needle Out

[Fig.11-16] shows the presser foot fails to press the work material when the needle comes out of the fabric. The embroidery material is lifted up along with the needle, making a gap between the fabric and the needle plate. This may cause thread breaks, skipped stitches, or unstable stitching.



[Fig.11-15]



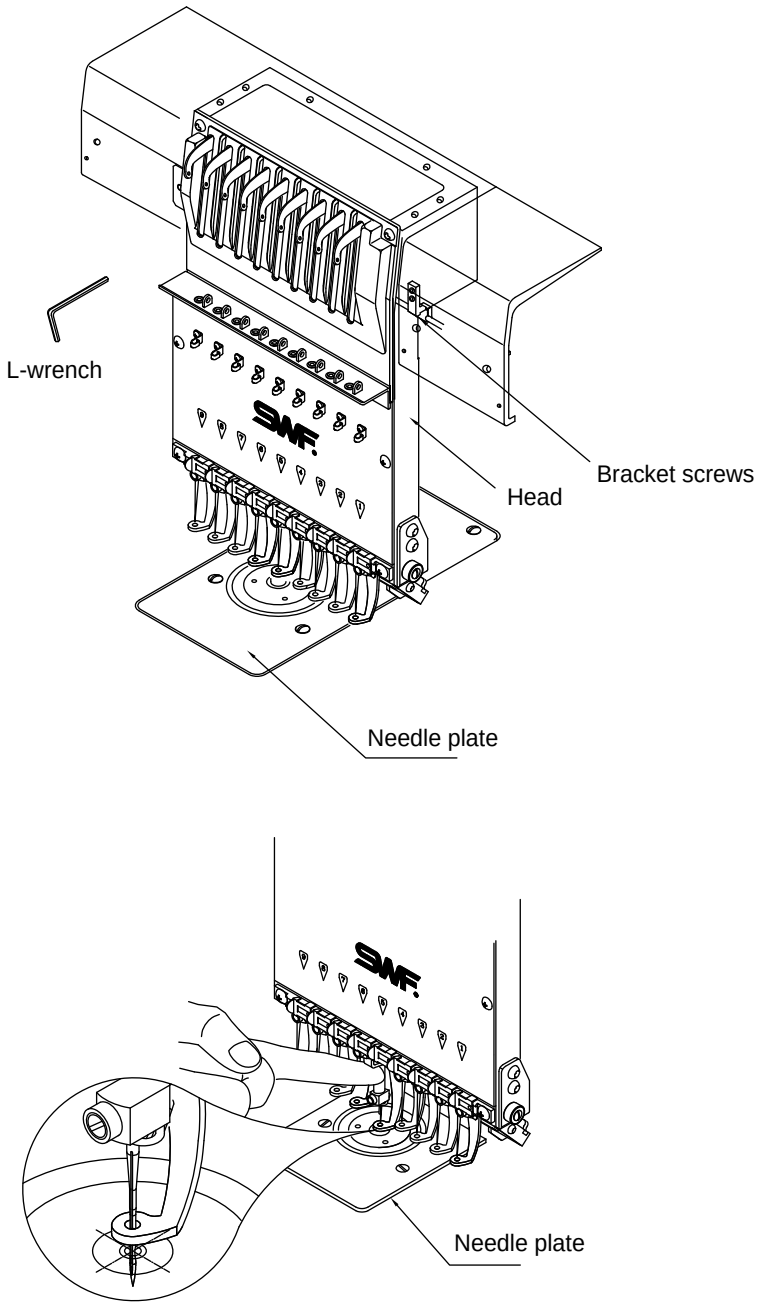
[Fig.11-16]

11-8) CORRECT POSITION OF NEEDLE

① Make sure to check the position of the needle - it may change during machine delivery or leveling. First check if the needle is bent. Then turn the main shaft lever to set the shaft at around 130°. Position the needle at the lower dead stop and check if the needle is at the center of the needle hole on the plate.

[CAUTION]
Check the needle position on all heads.

② If the needle is not in the correct position, unscrew the brackets (two screws) to adjust the head and the needle (see [Fig.11-17]).

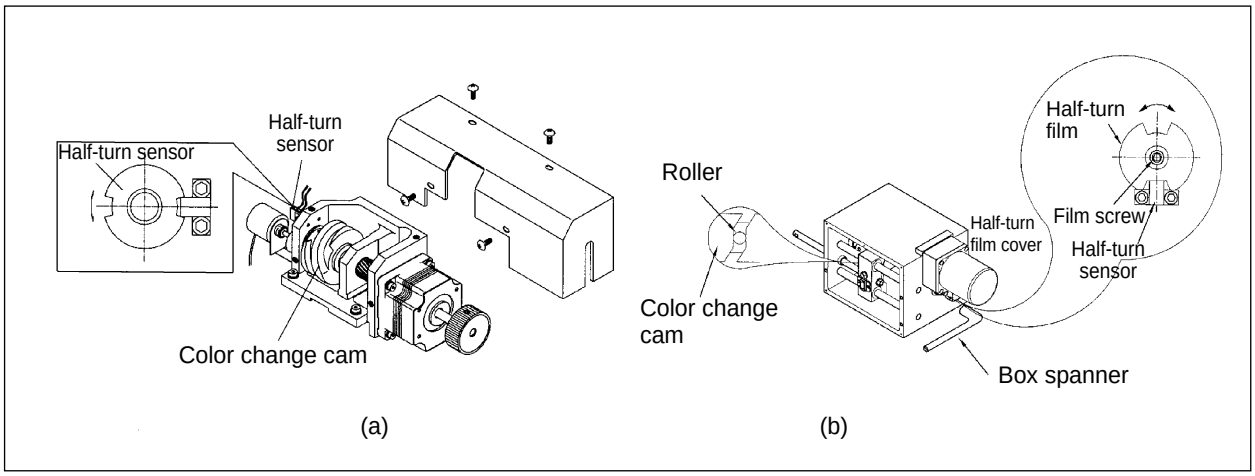


[Fig.11-17]

11-9) ADJUSTING HALF-TURN FILM FOR COLOR CHANGE

① (For automatic color change) If the needle is not at the center of the needle hole on the plate, turn the lever and adjust so that the roller is on the center of the color change cam on the straight line. Open the cover of the half-turn sensor and align the center of the half-turn sensor with the center of the film (see [Fig.11-18(a)]).

② For SWF/C-UH1508-45, the machine will stop automatically if any of the needle setting lamp or needle position lamp blinks. In this case, use a box spanner to adjust the position of the color change cam so the roller is at the center of the cam on the straight line (when the needle is at the center of the needle hole on the plate). Open the cover of the half-turn film and align the center of the half-turn sensor with the center of the film (see [Fig.11-18(b)]).



[Fig.11-18]

[CAUTION]

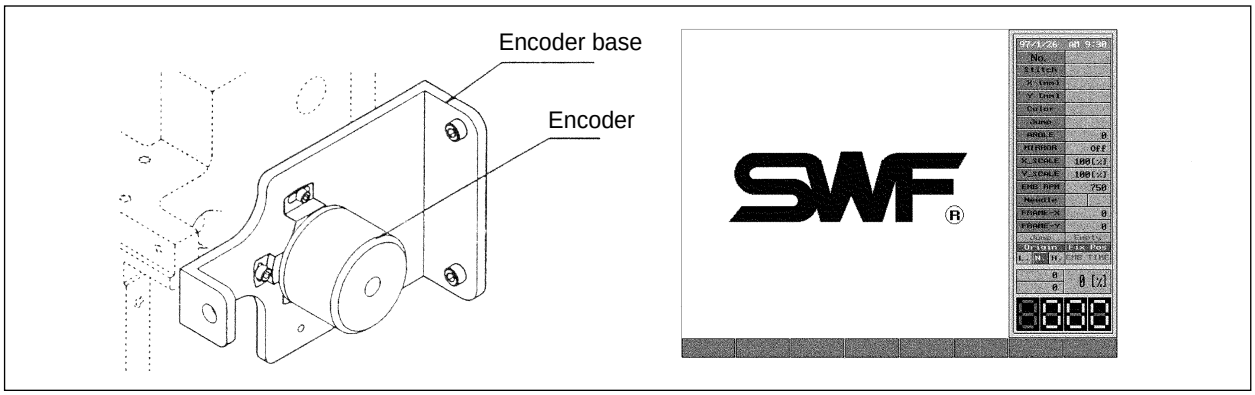
- Manual color change must be performed at the upper shaft angle of 100°.
- Manual color change at the upper shaft angles other than 100° may cause damage on the controller and the take-up unit.

11-10) ENCODER ADJUSTMENT

Adjust the encoder as below if the needle bar stops at an incorrect position.

① Unfasten the two encoder coupling screws.

② Turn the hand lever, fix the upper shaft angle at around 98°, and adjust the encoder as in [Fig.11-19]. Tighten the screws when FIX POS light is turned on.

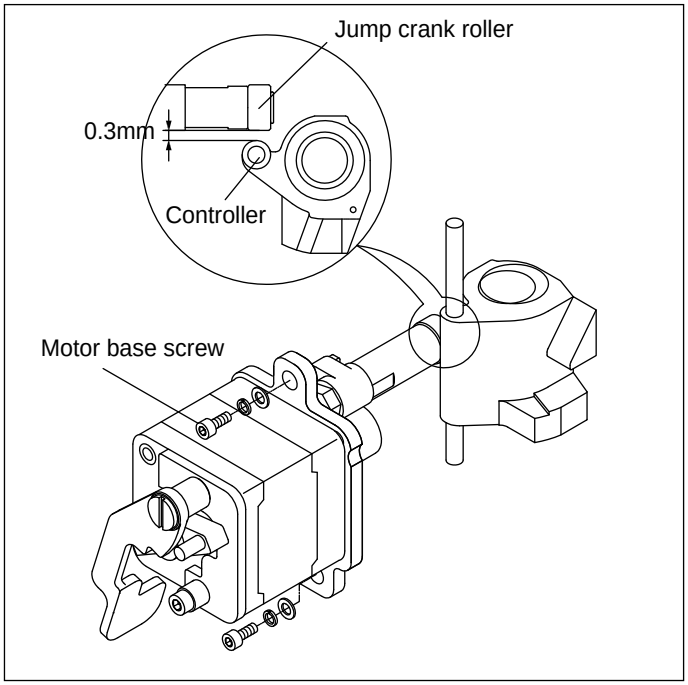


[Fig.11-19]

11-11) JUMP MOTOR ADJUSTMENT

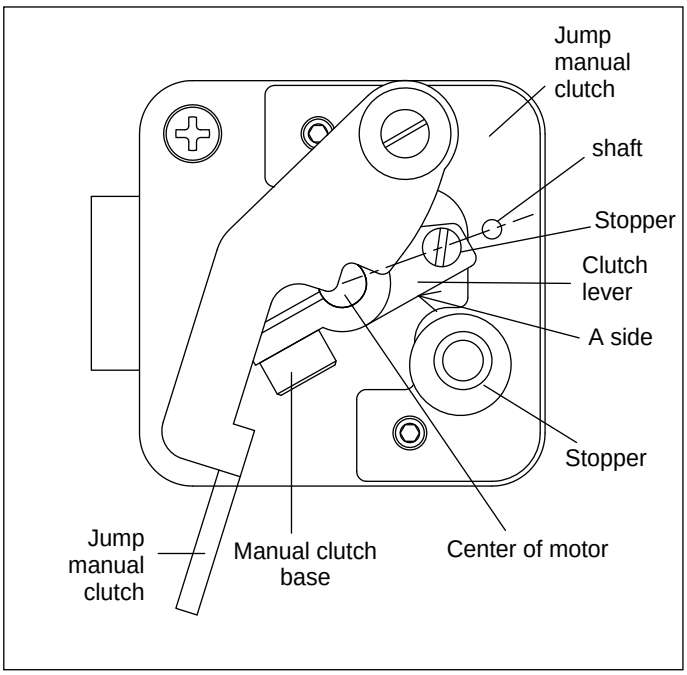
Adjustment is required for new or malfunctioning jump motor.

1) Adjusting the Standby Position (adjusting motor base)
   ① Unscrew motor base ([Fig.11-20]) and adjust so that the jump crank roller is 0.3mm away from the controller. Fasten the screw.
   ② If the gap is wider than 0.3mm, the needle may not jump well. If the gap is narrower than 0.3mm, the jump will cause noise.



[Fig.11-20]

2) Adjusting Jump Manual Clutch
   ① Jump manual clutch is used to turn the head off mechanically. If the clutch lever doesn't function properly, check the clutch assembly.
   ② First, pull the clutch lever forward and check if the carve on the clutch base is in line with the center of the clutch pin and the center of the motor shaft when in standby (see [Fig.11-21]). If not, unscrew and adjust the clutch body with the jump crank roller attached to the stopper. Fasten the screw back.
   ③ Pull the clutch lever forward and check if the clutch body and the stopper are completely attached. If not, adjust the stopper to be completely attached to the body.



[Fig.11-21]

CAUTION

1. If you will not be using the head with the head ON/OFF switch, make sure to use the jump manual clutch lever.
2. If the A side of the jump manual clutch does not touch the stopper, when you run the electric jump you will hear a noise.

11-12) ADJUSTING DRIVE BELT TENSION

11-12-1) Y-Axis Timing Belt

[CAUTION]

Specification of Drive Belt Tension Adjuster

- Model: U-305 Series Sound Wave Belt Tension Gauge - Standard
- Manufacturer: UNITTA

[CAUTION]

- Drive belt tension can be adjusted only by trained SWF engineers.
- Make sure to turn OFF the machine during the adjustment.

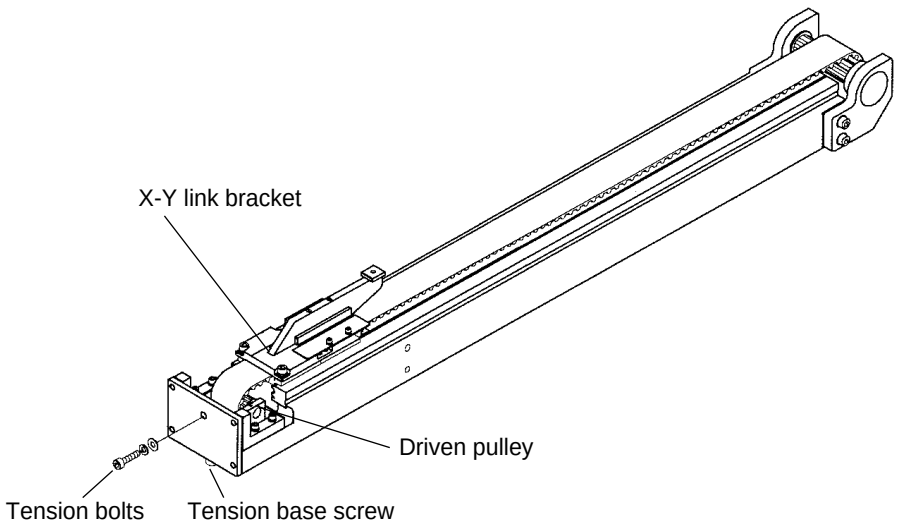
① Push the X frame plate to the driven pulley ([Fig.11-21]) and check the drive belt tension on the Y-axis. Use the sound wave tension gauge.

② Tension on the Y-axis belt should measure as below on the sound wave measurer when you pluck the middle of the belt between the X-Y link bracket and the drive pulley with your finger.

③ Input data for the sound wave tension measurer:

Type	2-head	4-head	6-head		6-head compact	8-head	
			2 at both ends, narrow	2 in the middle, wide		2 at both ends, narrow	2 in the middle, wide
Weight	4.0gf/m	3.8gf/m	4.0gf/m	3.8gf/m	3.8gf/m	3.8gf/m	3.8gf/m
Wide	25.0mm/#R	35.0mm/#R	25.0mm/#R	35.0mm/#R	35.0mm/#R	35.0mm/#R	35.0mm/#R
Span	480mm	510mm	900mm	535mm	510mm	924mm	512mm
Tension measurement	18kgf	18kgf	18kgf	25kgf	18kgf	21kgf	21kgf

④ Unfasten the tension base screws. Turn the bolts to adjust the tension. Turn clockwise to increase and counterclockwise to decrease the tension.



[Fig.11-22]

11-12-2) X-Axis Timing Belt

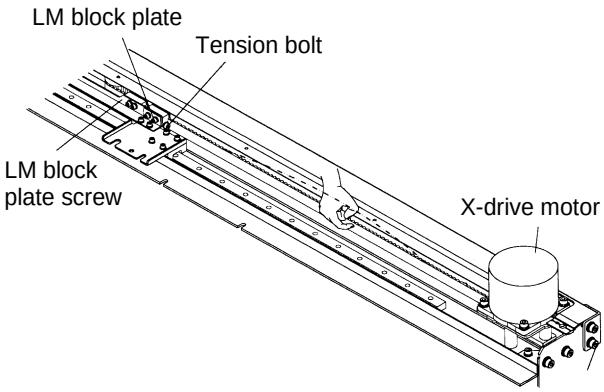
① Push the frame plate fully to the right ([Fig.11-22]). Check the drive belt tension on X-axis using the sound wave tension gauge.

② Tension on the X-axis timing belt should measure as below on the sound wave measurer when you pluck the middle of the belt with your finger.

③ Input data for the sound wave tension measurer:

Type	4-head	6-head & 8-head
Weight	004.0 gf/m	004.0 gf/m
Wide	015.0 mm/#R	015.0 mm/#R
Span	0590 mm	0590 mm
Tension measurement	18 Kgf	19 Kgf

④ Unscrew LM block plate. Turn the tension bolts to adjust the tension. Turn clockwise to increase and counterclockwise to decrease the tension.



[Fig.11-23]

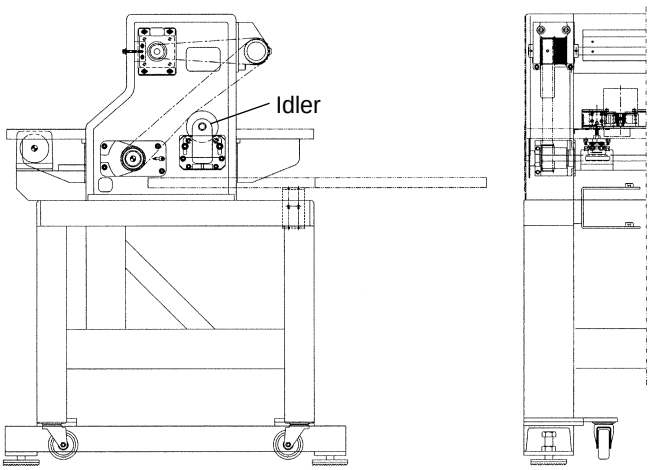
11-12-3) Timing Belt on Main Shaft Motor

① Tension on the timing belt of the main shaft motor should measure as below on the sound wave measurer when you pluck the middle of the belt with your finger.

② Input data for the sound wave tension measurer:

Type	4-head	6-head & 8-head
Weight	004.0 gf/m	004.0 gf/m
Wide	020.0 mm/#R	030.0 mm/#R
Span	0405 mm	0405 mm
tension measurement	18 Kgf	18 Kgf

③ Unscrew the idler and adjust it right and left to get the right tension. Turn the idler left to increase the tension and right to decrease the tension.



[Fig.11-24]

11-13) LAMP (OPTIONAL)

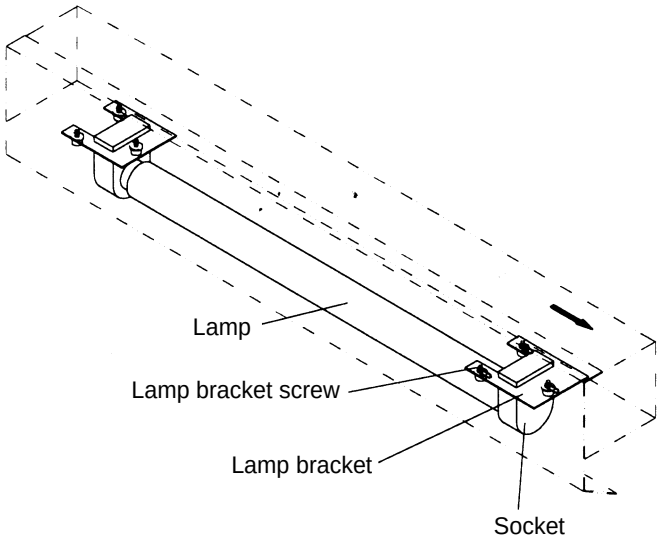
11-13-1) Lamp Socket Adjustment (4-head)

Standard lamp for SWF machines measures 580mm in length. If you have to use 590mm lamp for certain purposes, adjust the lamp in the following order.

① Unfasten the three screws on the socket.

② Push the lamp socket fully to the right of the shell.

③ Install a new lamp and adjust the socket according to the length of the lamp. Fasten the socket screws.



[Fig.11-25]

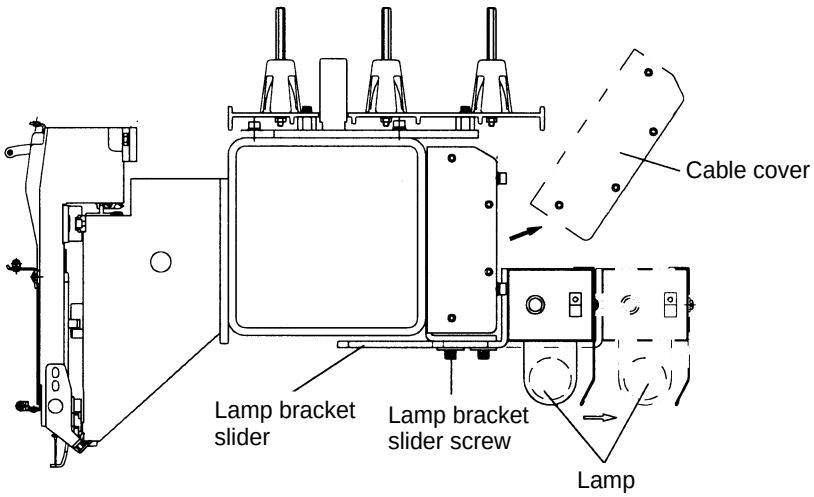
11-13-2) Disassembling Cable Cover (4-head)

If you have to open the cable cover for machine repair, etc., follow the procedures below.

① Slightly unfasten the six screws underneath the lamp bracket.

② Take out the lamp and open the cover. Do repair or other necessary work.

③ When finished, re-assemble the cover, push the lamp forward and fasten the bracket screws.



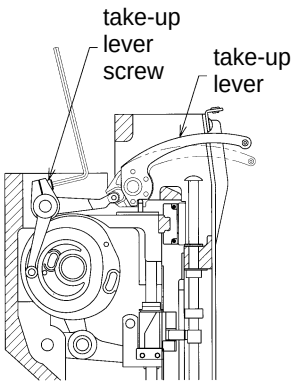
[Fig.11-26]

CHAPTER 12

TROUBLESHOOTING

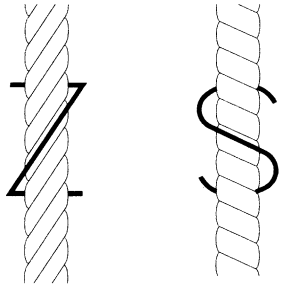
⚠ DANGER CAUTION	Inspect/repair the machine by the guideline when in machine failures.

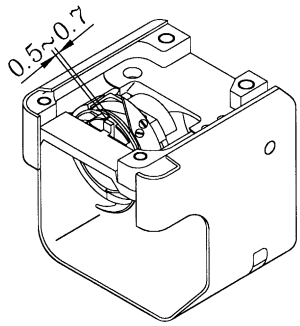
Error Type	Cause	Inspection & Repair	Reference
Operation failure	① Loose belt tension / belt damage	Adjust belt tension / change belt	See 11-9)
	② Power failure or short-circuit of fuse	Check fuse in main shaft motor and change fuse	
	③ Failure to sense signals for needle position or 1 rotation	Run manual color change and check if signal lamps (needle set lamp & needle position lamp) blinks at correct needle position. Adjust the half-turn film.	
	④ Red light on X/Y drive box	Address the cause and press RESET. Check if the lamp turns green.	
	⑤ Machine does not start at START	Check connection of START switch	
Incorrect Stop Position	① Loose tension on main driver belt	Adjust belt tension	See 11-10)
	② Incorrect position of encoder or bad encoder	Adjust encoder position or change encoder	

Error Type	Cause	Inspection & Repair	Reference
Bad Color Change	① Incorrect position of needle stop	Refer to user's manual	Set main shaft angle back at 100°, if you manually moved it for cleaning, inspection or repair.
	② Failure to sense signals for needle position or 1 rotation	Run manual color change and check if signal lamps (needle set lamp & needle position lamp) blinks at correct needle position. Adjust the half-turn film.	See 11-9)
	③ Incorrect position of needle bar	Set it to the correct position	
	④ Incorrect position of take-up lever	Adjust so take-up lever is in line with other levers in stop position (upper shaft angle:100°)	※ Adjusting position of take-up lever Unscrew the lever and adjust so it is in line with other take-up levers on the guide rail. 
	⑤ Bad connection	Change fuse F3 in joint board or check connection	※ Check fuse spec. See 9-1)

Error Type	Cause	Inspection & Repair	Reference
Poor detection of upper thread	① Poor connection of take-up spring and thread detector plate	Clean the spring and the plate, or adjust the spring tension.	
	② Poor connection & quality of tension adjusting plate	Check the plate connection and change the circuit board	
Bad jump	① Short-circuit of fuse for jump circuit	Change front fuse F3 in joint board	※ Check fuse spec See 9-1)
	② Bad solenoid and bad solenoid wiring	Check wiring and change solenoid	
	③ Bad connection	Check connection	
	④ Switch failure on tension adjusting board and bad circuit board	Change switch and circuit board	
Bad stitch quality	① Bad tape	Correct tape	
	② Inadequate tension on X-Y belt	Adjust tension	
	③ Foreign substance in X-Y rail	Clean the rail	
	④ Failure of X/Y driver board	Change circuit board	
	⑤ Heavy load on frame	Reduce speed of main shaft	

Error Type	Cause	Inspection & Repair	Reference
Thread breaks	① Stitch is too small/dense for thread	Re-punch design tape	Check design
	② Frequent thread break in the same spot	• Re-punch after checking design • Correct the stitches on operation box	See 7-4-6)
	③ Inadequate needle size for thread	Change needle	See 5-13)-1)
	④ Needle damage (bent, dent, worn)	Change needle	See 5-13)-3)
	⑤ Incorrect needle installation (height, direction, etc.)	Re-install needle	
	⑥ Dirty needle (adhesive, etc.)	Clean or change needle and hook	Use minimum adhesive for applique

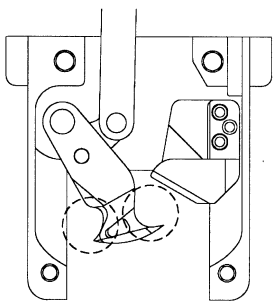
Error Type	Cause	Inspection & Repair	Reference
	⑦ Bad thread (weak, uneven thickness, poorly twisted, old)	Change thread	※ Check the thread used. How to select thread. • Select soft thread with ever thickness and stable tension. • Choose left-twisted thread.
	⑧ Right-twisted thread	Change to left-twisted thread	 • Z-direction: left twist • S-direction: right twist ※ left-twist prevents unraveling of the upper thread in the counterclockwise rotation of the hook
	⑨ Excessive thread tension	Adjust tension	See 5-7)-2)
	⑩ Tension imbalance between upper and lower threads		See 5-8)-2)
	⑪ Excessive tension & stroke on take-up spring	Adjust tension and stroke	See 5-7)-3)

Error Type	Cause	Inspection & Repair	Reference
	⑫ Dent on thread path on hook and bobbin case	Remove dent or change the case	
	⑬ Narrow space between hook holder and groove for hook holder (on hook)	Adjust space	※ Set it at 0.5-0.7mm for smooth feeding of upper thread 
	⑭ Insufficient oil in hook	Oil the raceway of hook	See 5-13)-4)
	⑮ Poor timing of needle and hook	Adjust timing	See 11-8)
	⑯ Incorrect lower dead stop	Adjust the lower dead stop	
	⑰ Dent on thread path	※ Check: • Thread path in presser foot • Around needle hole on needle plate • Thread guide on the head • Thread path in tension adjuster	
	⑱ Fabric moves on the frame	Fix the material firmly	See 11-7)
	⑲ Inadequate height of presser foot (does not press the work material)	Adjust height	

Error Type	Cause	Inspection & Repair	Reference
Skipped Stitches	① Bent needle		
	② Inadequate needle size for thread	Change needle	See 5-13)
	③ Incorrect installation of needle	Adjust installation	
	④ Poor timing of needle and hook	Adjust timing	
	⑤ Large gap between needle groove and hook point		
	⑥ Incorrect lower dead stop	Adjust the lower dead stop	See 11-8)
	⑦ Damaged hook point	Use whetstone to adjust hook point or change hook	
	⑧ Thread feeding is interfered	• Adjust thread tension • For upper thread, change bobbin or bobbin case	See 5-7)-2) See 5-8)-2)
	⑨ Inadequate thread (twist, elasticity, and flexibility)	Select right thread for embroidery	
	⑩ Excessive tension or stroke on the take-up lever spring	Adjust stroke or tension	See 5-7)-3)
	⑪ Fabric moves with needle - weak or damaged presser foot (spring)	Change presser foot spring	

Error Type	Cause	Inspection & Repair	Reference
Poor stitch tension	① Weak upper thread tension	Adjust tension	See 5-7)-2)
	② Uneven upper thread tension due to foreign substances	Clean main and sub tension adjusters in the thread tension adjusting plate	
	③ Weak lower thread tension	Adjust tension	See 5-8)-2)
	④ Uneven lower thread tension	Clean bobbin case and check tension on bobbin spring	
	⑤ Thread thickness	Change to quality thread	
	⑥ Poor timing of needle and hook	Adjust timing	See 5-13)
	⑦ Insufficient oil in hook	Oil the raceway of hook	See 10-3)
Needle breaks	① Bent needle		
	② Bad quality needle	Change needle	See 5-13)-3)
	③ Tip of the needle is worn or bent		
	④ Needle touches the hook point		
	⑤ Needle touches the hook point	Space the needle and the hook point	See 5-13)-4)
	⑥ Incorrect installation of needle	Correct the installation	See 5-11)-3)
	⑦ Needle touches the needle hole on the plate	• Check if needle plate is unscrewed • Adjust the position of the needle bar	See 11-8)

Error Type	Cause	Inspection & Repair	Reference
Puckering	① Excessive thread tension	Adjust tension	See 5-7)
	② Excessive pressure of presser foot	Change presser foot spring	
	③ Needle failure - worn out/damaged needle tip needle is too large for thread	Change needle	
	④ Needle hole is too large for needle	Use adequate size of needle	※ SWF/□ needle holes are 2.0mm
Trimming failure	① Short-circuit of trimming fuse	Check and change fuse F1 in joint board	※ Check fuse spec See 9-1)
	② Poor connection/quality of trimming solenoid	Check and change solenoid and solenoid connection	
	③ Bad connection	Check connection	
	④ Trimming driver TR damaged	Change joint board	

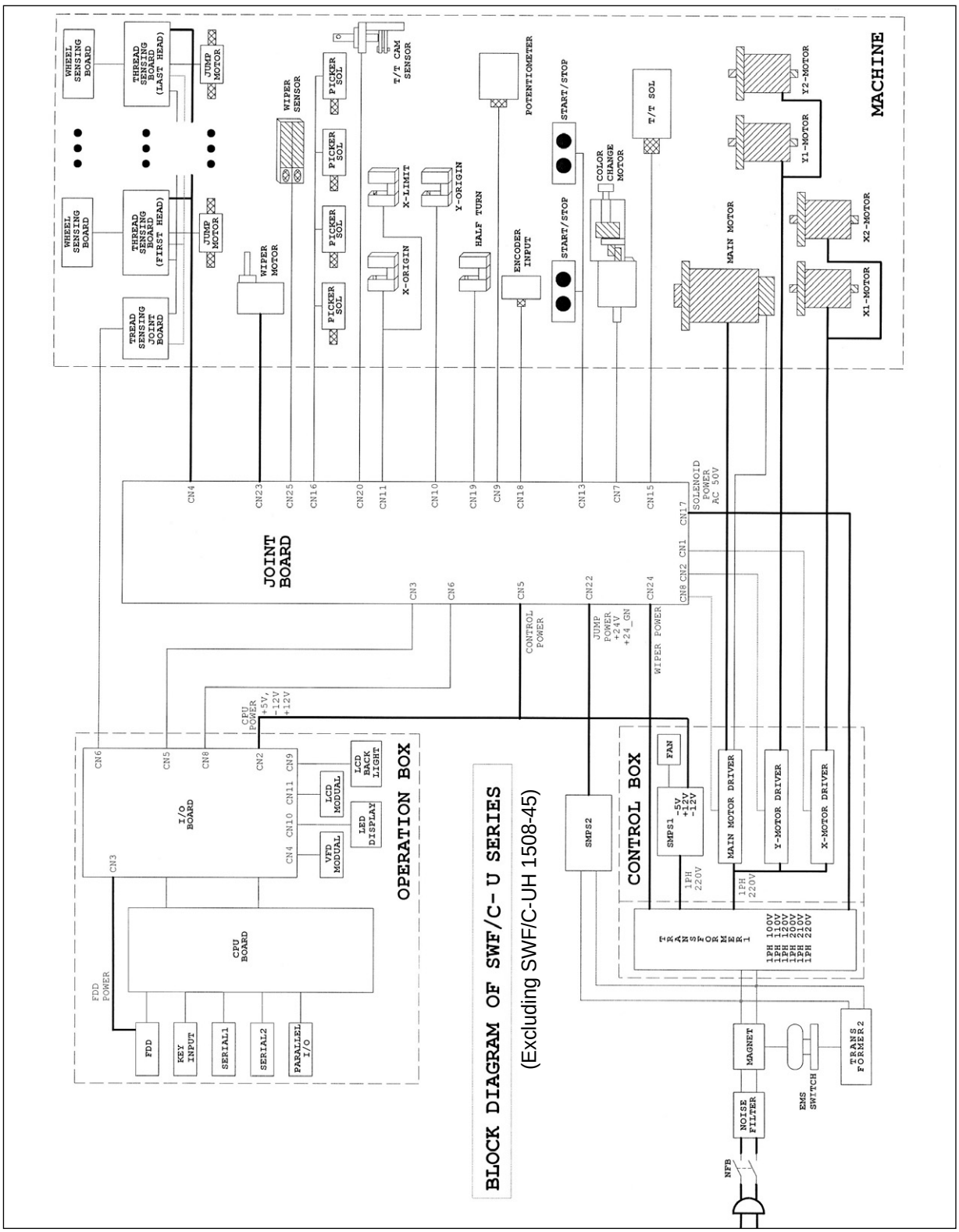
Error Type	Cause	Inspection & Repair	Reference
Trimmer return failure	① Poor connection of sensor	Check connection	
	② Bad circuit board	Change circuit board	
	③ Bad sensor or sensor position. Dirty area around the sensor.	• change sensor • clean around the sensor • adjust location of the sensor unit	See 11-2)
Short upper thread after trimming due to separation failure	① Movable blade is too fast or too slow to separate the upper thread	Adjust insert angle of movable blade (295˚)	See 11-1-1)
	② Incorrect position of picker	Adjust picker position	See 11-3)
	③ Picker failure	• Check and change fuse F1, F3 • Check/change solenoid and solenoid connection • Check connection and change joint board	Check fuse spec. See 9-1)
Thread break before trimming	① Upper thread is too short	Adjust upper thread tension	 Check for dent
	• check main and sub tension adjuster		
	• dent or damage to movable blade	remove dent using whetstone or sandpaper or change movable blade	
	② Lower thread is too short	• adjust or change bobbin case spring	
	• doesn˙t unwind smoothly	• clean/check for dent in thread guide on the bobbin case	• Too short lower thread cannot make stitches right after trimming
	• too weak or too elastic	• Change lower thread	

Error Type	Cause	Inspection & Repair	Reference
Short upper thread after trimming	① Upper thread is trimmed too short and comes unthreaded	• check upper thread tension • set [Long] or [Medium] length of trimmed thread in data set-up	The default is [Medium]. See 7-5)-3)
	② Upper thread is trimmed too long and thread tail remains on the embroidery	• set [Medium] or [Short] length of trimmed thread in data set-up • if upper thread is held due to narrow velcro space in upper thread holder, clean the velcro	
Thread is not cut (at specific head)	① Failure of movable and fixed blades	Check screws and crank driver clamp screws of the movable blade	
	② Loose cross tension of the blades	Check tension of fixed blade	See 11-1)-2)
	③ Movable blade damaged	Change movable blade	
	④ Incorrect return position of movable blade	Adjust the position of movable blade	See 11-1)-1)
Failure of upper thread holder solenoid	① Short-circuit of fuse (if all heads fail)	Check/change fuse F1, F2, F3 in joint board	※ Check fuse spec See 9-1)
	② Poor connection/quality of solenoid	Check/change solenoid & connection	
	③ Bad connection	Check connection	
	④ Poor quality circuit board	Change thread detecting plate in sub controller	
Failure to hold upper thread	① Short strokes of upper thread holder	Adjust stroke	See 11-4)
	② Upper thread holder overloaded	Adjust the workload	

CHAPTER 13

BLOCK DIAGRAM

1) BLOCK DIAGRAM OF SWF/C-U SERIES (Excluding SWF/C-UH 1508-45)



2) Block Diagram of SWF/C-UH1508-45