SWF

USER'S MANUAL

Four Head Automatic Embroidery Machine With Flat

Six Head Automatic Embroidery Machine With Flat

SWF/D-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.

TABLE OF CONTENTS

CHAPTER 1 SAFETY RULES 1-1
- 1-1) MACHINE DELIVERY 1-1
- 1-2) MACHINE INSTALLATION 1-2
- 1-3) MACHINE OPERATION 1-3
- 1-4) REPAIR 1-3
- 1-5) PLACEMENT OF WARNING STICKERS 1-4
- 1-6) CONTENTS OF WARNING STICKERS 1-5

CHAPTER 2 INSTALLATION AND MACHINE ASSEMBLY 2-1
- 2-1) ENVIRONMENT 2-1
- 2-2) ELECTRICITY 2-2
- 2-3) LEVELING THE MACHINE 2-3
- 2-4) ASSEMBLY OF PERIPHERAL DEVICES

CHAPTER 3 PARTS OF THE MACHINE 3-1

CHAPTER 4 FUNCTIONS AND FEATURES 4-1

CHAPTER 5 FUNCTIONS FOR BASIC MACHINE OPERATION 5-1
- 5-1) NAMES AND FUNCTIONS OF PARTS IN OPERATION BOX 5-1
- 5-2) EMERGENCY POWER AND START/STOP/BAR SWITCH 5-4
- 5-3) EMERGENCY STOP 5-6
- 5-4) LAMP ON THREAD TENSION ADJUSTMENT BOARD 5-7
- 5-5) NEEDLE STOP CLUTCH (JUMP) 5-8
- 5-6) UPPER THREADING AND TENSION ADJUSTMENT 5-9
- 5-7) LOWER (BOBBIN) THREADING AND TENSION ADJUSTMENT 5-12
- 5-8) THREAD WINDER 5-13
- 5-9) FLOPPY DISKS 5-14
- 5-10) IN AND OUT OF DESIGNS 5-16
  - 5-10-1) FLOPPY 5-16
  - 5-10-2) TAPE 5-16
  - 5-10-3) EMBROIDERY OUTPUT 5-16
- 5-11) RETURN TO PREVIOUS LOCATION IN UNEXPECTED BLACKOUTS 5-16
- 5-12) NEEDLE- HOOK TIMING CONTROL 5-17
- 5-13) ASSEMBLY AND FUNCTIONS OF THREAD DETECTOR 5-22
  - 5-13-1) FUNCTIONS OF THREAD DETECTOR 5-22
  - 5-13-2) DISASSEMBLING THREAD DETECTOR 5-22

CHAPTER 6 BASIC MACHINE OPERATION 6-1

CHAPTER 7 NAVIGATING THE CONTROL PANEL 7-1
- 7-1) INSTALLING THE OPERATING SYSTEM 7-1
- 7-2) MAIN INDICATION SCREEN 7-7
- 7-3) THE FUNCTION MENU 7-9
  - 7-3-1) OUTLINE OF FUNCTION MENU 7-9
  - 7-3-2) FUNCTION MENU DIAGRAM 7-10
- 7-4) USE OF FUNCTION MENU 7-11
  - 7-4-1) IN AND OUT OF DESIGNS 7-11
  - 7-4-2) BASIC SET-UP FUNCTIONS 7-22
  - 7-4-3) SUB WORK 7-27
  - 7-4-4) REPETITION WORK 7-32

7-4-5) EMBROIDERY DATA SET-UP ····· 7-37
7-4-6) EMBROIDERY DESIGN EDITING ····· 7-42
7-4-7) FRAME MOVEMENT ····· 7-51
7-4-8) FLOAT (NON-STITCHING FUNCTIONS) ····· 7-53
7-4-9) MACHINE DATA SET-UP ····· 7-54
7-4-10) THE FLOPPY DRIVE AND DISK ····· 7-58
7-4-11) MANUAL CUTTING ····· 7-61
7-4-12) OFFSET SET-UP ····· 7-61
7-4-13) NEEDLE BAR SELECTION ····· 7-63

CHAPTER 8 ERROR MESSAGES AND CORRECTION ····· 8-1
8-1) MAIN SHAFT MOTOR ····· 8-1
8-2) PULSE MOTORS ON X AND Y AXIS ····· 8-1
8-3) COLOR CHANGE ····· 8-1
8-4) ENCODER ····· 8-2
8-5) REPETITION WORK ····· 8-2
8-6) FLOPPY DRIVE & COMMUNICATION ····· 8-2
8-7) TAPE READER & COMMUNICATION ····· 8-3
8-8) MEMORY ····· 8-3
8-9) SYSTEM INSTALLATION ····· 8-3

CHAPTER 9 THE CONTROL BOX ····· 9-1
9-1) CHANGING FUSE IN JOINT BOARD OF M/C WITH LESS THAN 12 HEADS ··· 9-1
9-2) STANDARD VOLTAGE FOR X, Y DRIVERS (BY MACHINE TYPE) ····· 9-2

CHAPTER 10 MAINTENANCE AND INSPECTION ····· 10-1
10-1) CHECK POINTS FOR REGULAR INSPECTION ····· 10-1
10-2) CLEANING ····· 10-1
10-3) OIL SUPPLY ····· 10-3
10-4) DRIVE BELT TENSION ····· 10-7

CHAPTER 11 MACHINE ADJUSTMENTS ····· 11-1
11-1) ADJUSTING THE TRIMMERS ····· 11-1
11-1-1) ADJUSTING THE POSITION OF THE TRIMMING CAM (INSERT ANGLE OF MOVABLE BLADE) ····· 11-1
11-1-2) ADJUSTING SPACE BETWEEN MOVABLE BLADE AND HOOK ··· 11-2
11-1-3) ADJUSTING BLADE TENSION ····· 11-2
11-1-4) ADJUSTING TENSION ON LOWER THREAD HOLDER ····· 11-3
11-2) ADJUSTING THE TRIMMER RETURN SPRING ····· 11-3
11-3) PICKER ADJUSTMENT ····· 11-4
11-4) ADJUSTING UPPER THREAD HOLDER ····· 11-4
11-5) ADJUSTING HEIGHT OF PRESSER FOOT ····· 11-6
11-6) CORRECT POSITION OF NEEDLE ····· 11-7
11-7) ADJUSTING HALF-TURN FILM FOR COLOR CHANGE ····· 11-8
11-8) ENCODER ADJUSTMENT ····· 11-8
11-9) JUMP SOLENOID ADJUSTMENT ····· 11-9

CHAPTER 12 TROUBLESHOOTING ····· 12-1

CHAPTER 13 BLOCK DIAGRAM ····· 13-1

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.

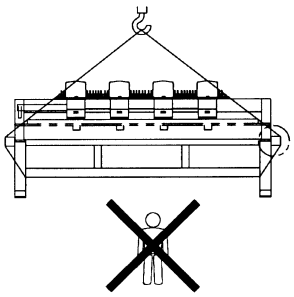
DANGER : These safety instructions MUST be observed to be safe from danger when installing, delivering, or repairing the machine.

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) MACHINE DELIVERY

DANGER

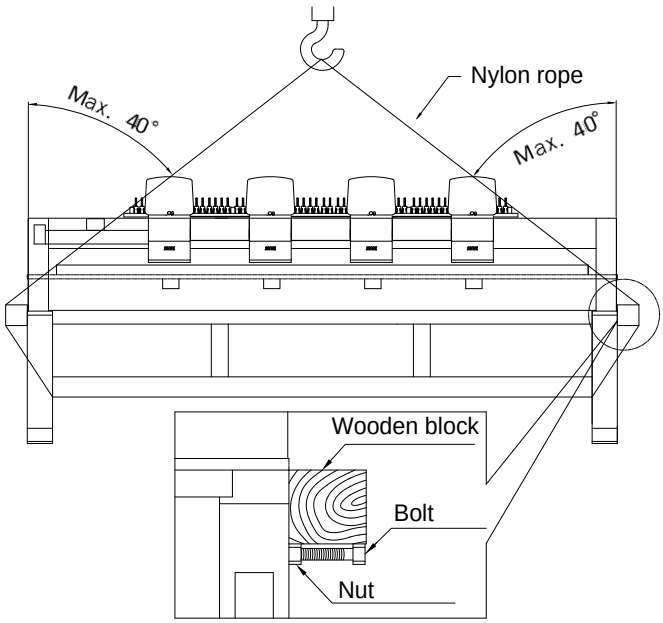


※ Make sure all persons and obstacles are out of the way of the moving equipment.

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

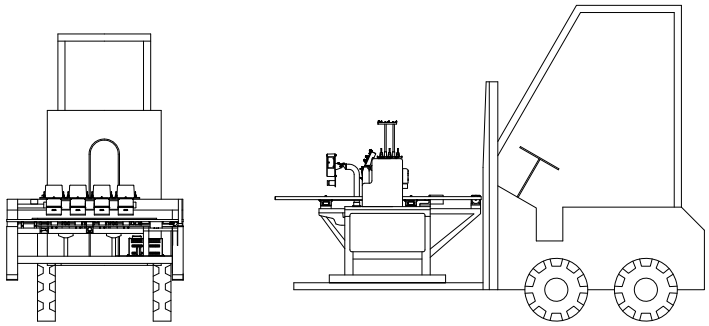
Make sure that the crane is large enough to hold the machine. Use a nylon rope of sufficient strength. Place a wooden block at either side of the machine before tying the rope. The angle should be 40° or less. Make sure that the rope does not touch the table.



[Fig.1-1]

2) Using a Forklift

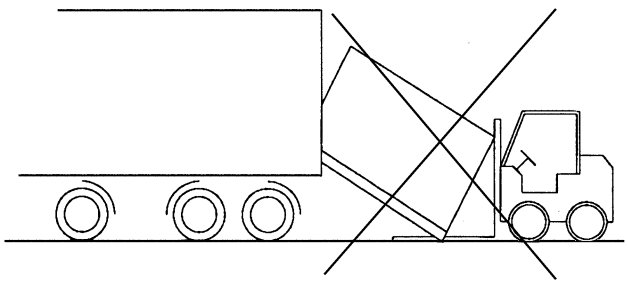
Make sure that size and weight of the forklift is sufficient to support the machine. Use the pallet to place the machine so that its center is on the forklift arm (see [Fig.1-2]). Lift the machine carefully so that the machine does not tilt to either side.



[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) MACHINE INSTALLATION

CAUTION

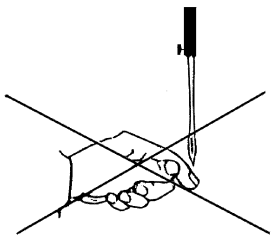
Installation environment may incur machine malfunction or breakdown. Make sure to meet the following conditions.

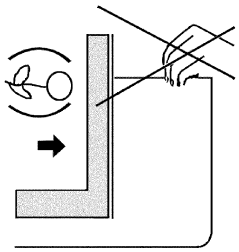
1) The foundation under the machine, i.e. table or desk, must be strong enough to support the weight of the machine (approximately 1 ton).
2) Air conditioning can eliminate dust and humidity that can cause pollution and corrosion of the machine. Make sure your machine is regularly cleaned.
3) Long exposure 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

WARNING





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

DANGER

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

WARNING

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.

WARNING

Injury may be caused by winding.

Be sure to turn off the power before cleaning, lubricating, adjusting or repairing.

WARNING

Physical damage may be caused by winding.

Don't put your hands near the arrow while the main shaft is rotating

WARNING

Physical injury may be caused by crevice.

Don't put your finger in a groove on the table.

WARNING

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.

WARNING

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.

WARNING

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

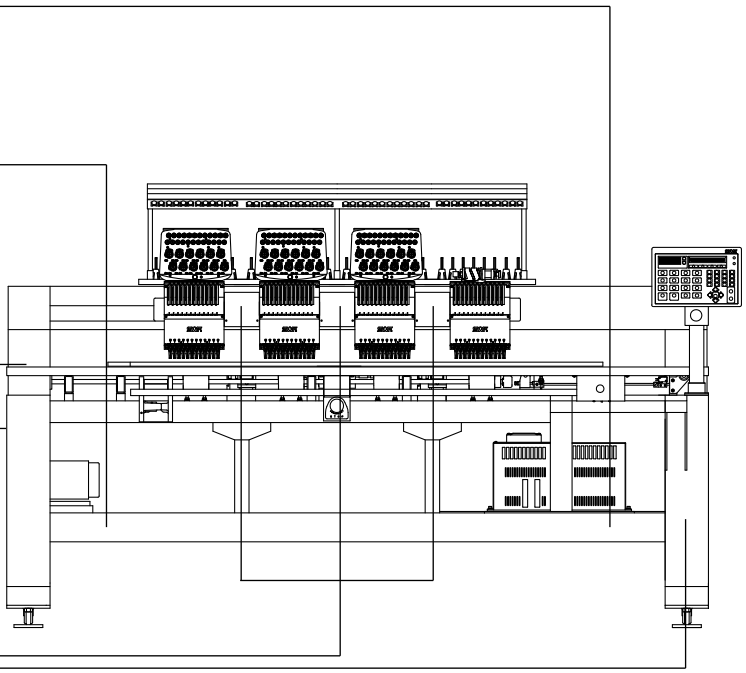
② Do not remove covers during operation!

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

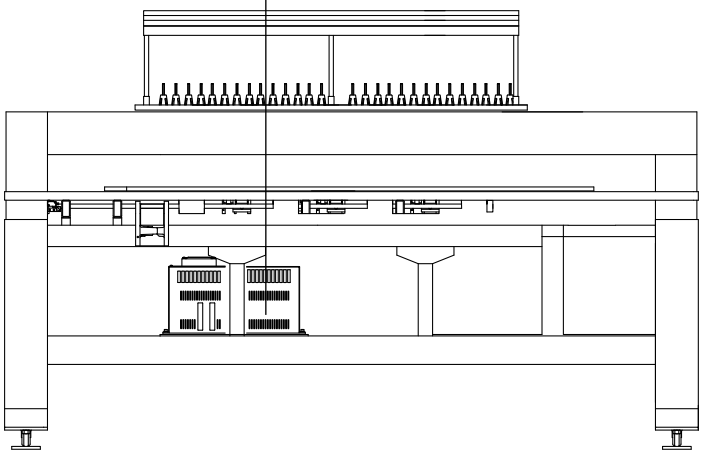
CAUTION

Physical damage may be caused by winding

Don't put your hands near the needle bar & take-up lever while machine is runing.



[Fig.1-3] Front



[Fig.1-4] From top

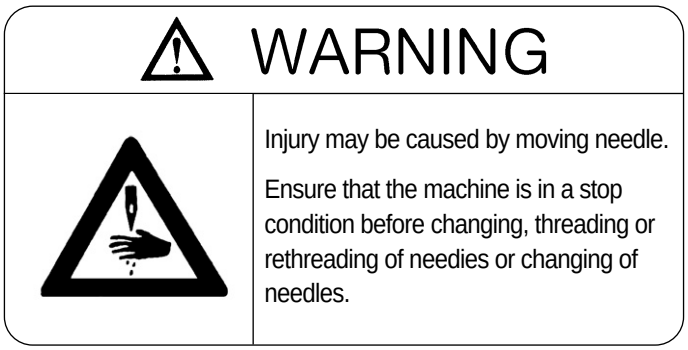
1-6) CONTENTS OF WARNING STICKERS

1) Warning

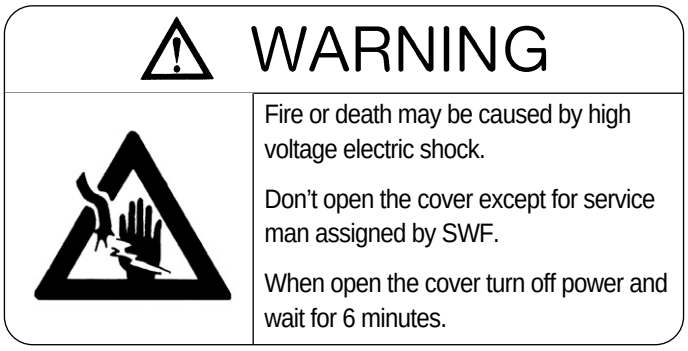
ⓐ

[Notice]
Cover in the “WARNING” means all covers near operating part 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℃ (32 ~ 104°F) when the machine is in operation
② −25 ~ 55℃ (−13 ~ 131°F) when the machine is not in operation
2) Humidity: 45 ~ 90% (relative)

[CAUTION]
- Do NOT let moisture drops on the machine.
- 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

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:

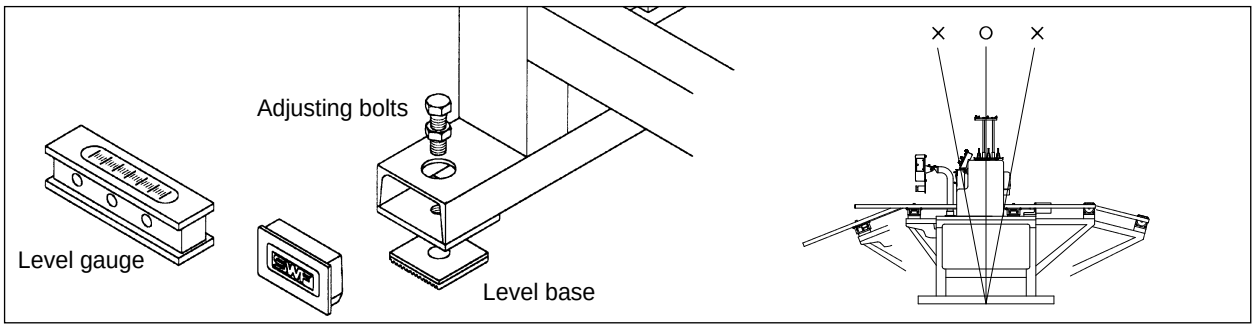
1) Input voltage (to be adjusted when installing): 100V, 110V, 120V, 200V, 220V, 240V
2) Allowed range of voltage: within ±10% of the voltage set
3) Electric capacity and voltage consumption: 640VA 440W
4) Insulation resistance: over 10M ohms (measured with 500V insulation tester)

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

2-3) LEVELING THE MACHINE

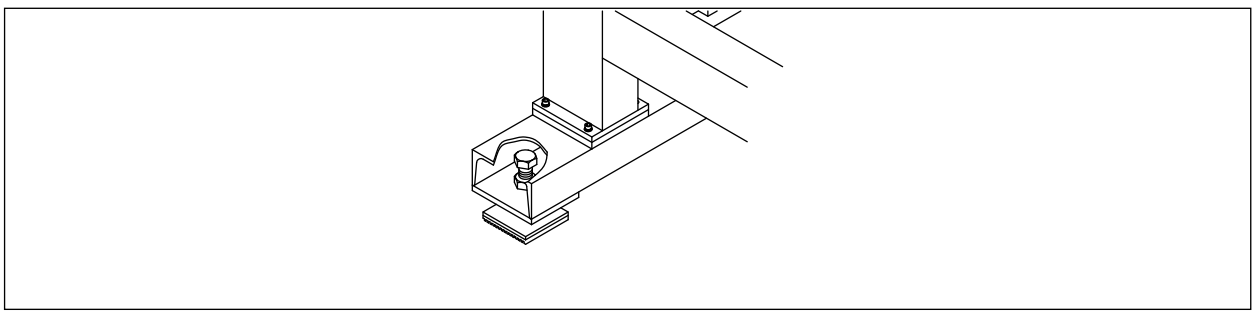
The machine must be accurately leveled (especially front and back) to prevent the needle from moving out of position.

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.



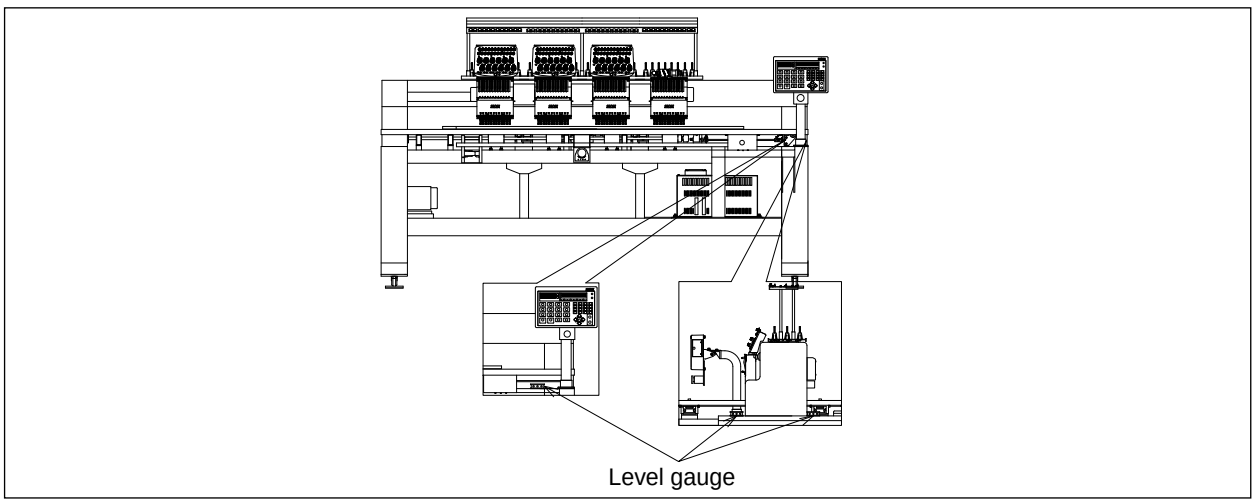
[Fig.2-1]

2) Use a nut to fasten the bolts when the machine is horizontally leveled.



[Fig.2-2]

3) Using the level gauge

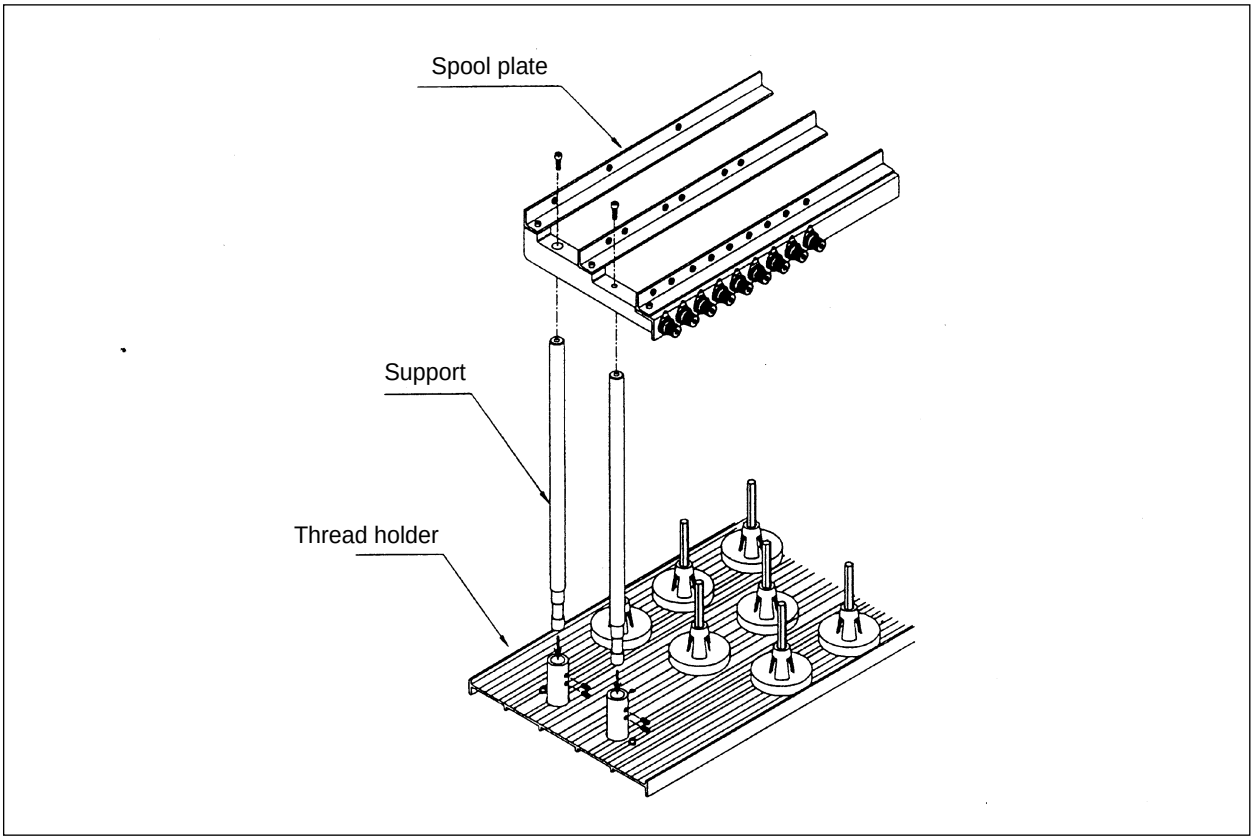


[Fig.2-3]

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

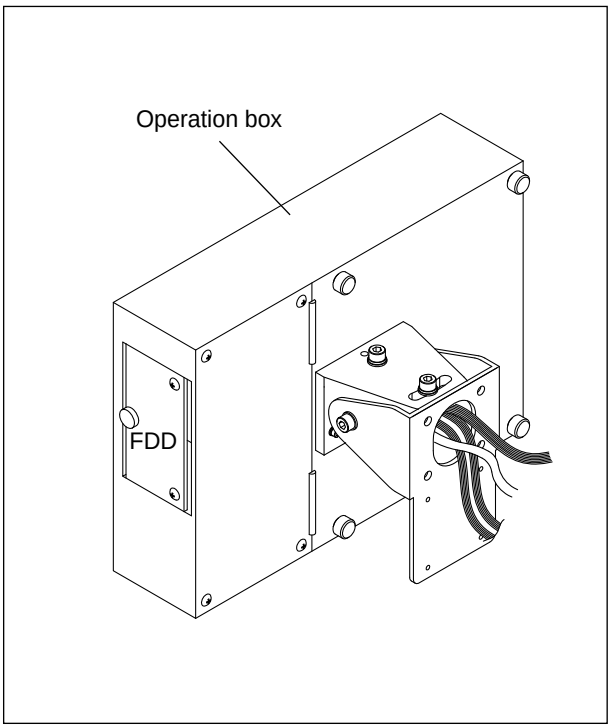
2-4) ASSEMBLY OF PERIPHERAL DEVICES

1) Assembling Upper Thread Stand

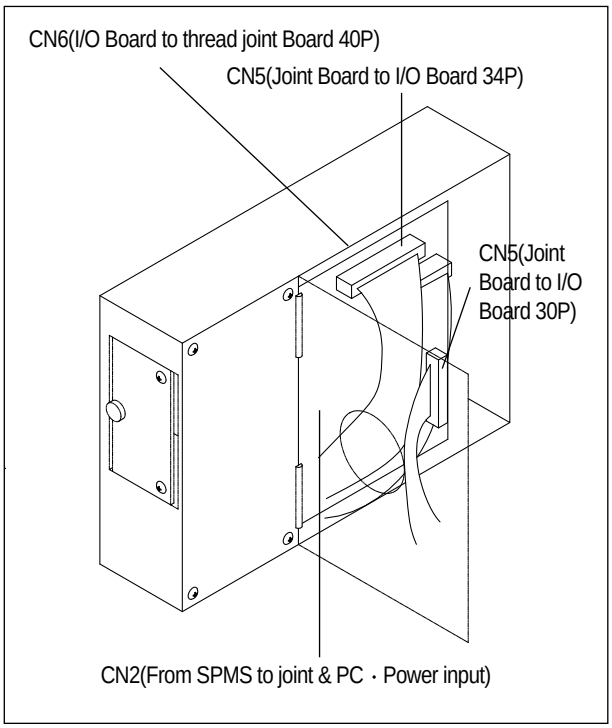


[Fig.2-4]

2) Assembling Operation Box



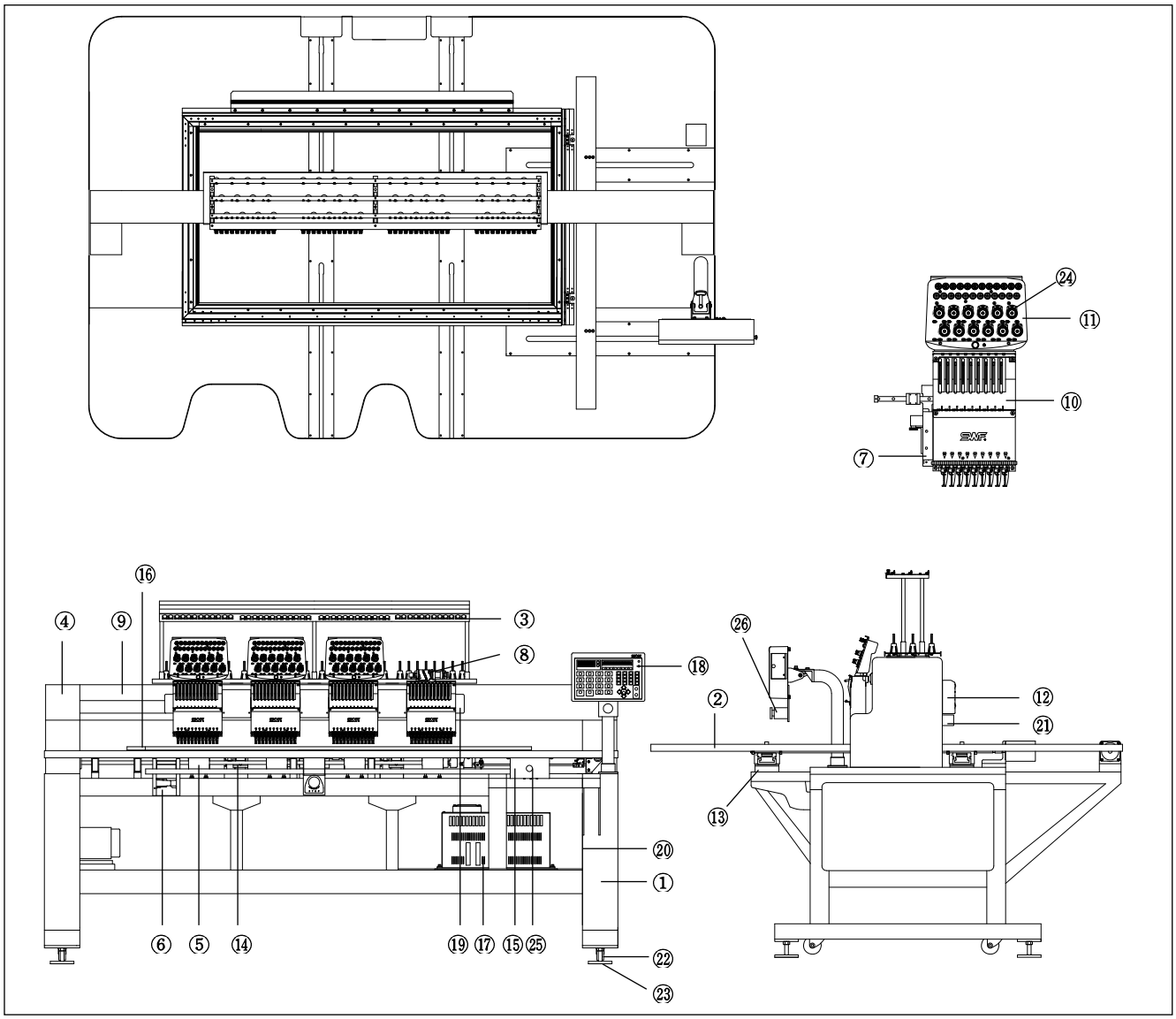
[Fig.2-5]



[Fig.2-6]

CHAPTER 3

PARTS OF THE MACHINE



[Fig.3-1]

① Machine 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 Bar switch
⑯ Frame
⑰ Main controller box
⑱ Operation box
⑲ Encoder
⑳ Main power switch
㉑ Lamp
㉒ Supporting bolt
㉓ Leveling base
㉔ Thread detector
㉕ Emergency power switch
㉖ Emergency stop switch

CHAPTER 4

FEATURES AND SPECIFICATIONS

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

The machine detects when the upper thread breaks or the lower thread is out of the needle and automatically stops the machine.

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) INDIVIDUAL HEAD OPERATION

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

17) MACHINE STOPPAGE

The screen will indicate why the machine has stopped.

18) RPM

The screen indicates rpm.

19) FRAME SPEED SET-UP

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

20) UNUSED MEMORY

The screen indicates the memory available for use.

21) TAPE CODE COMPATIBILITY

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

22) 800 ∗ 600 COLOR LCD MONITOR (OPTIONAL)

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

23) CODES FROM OTHER BRANDS

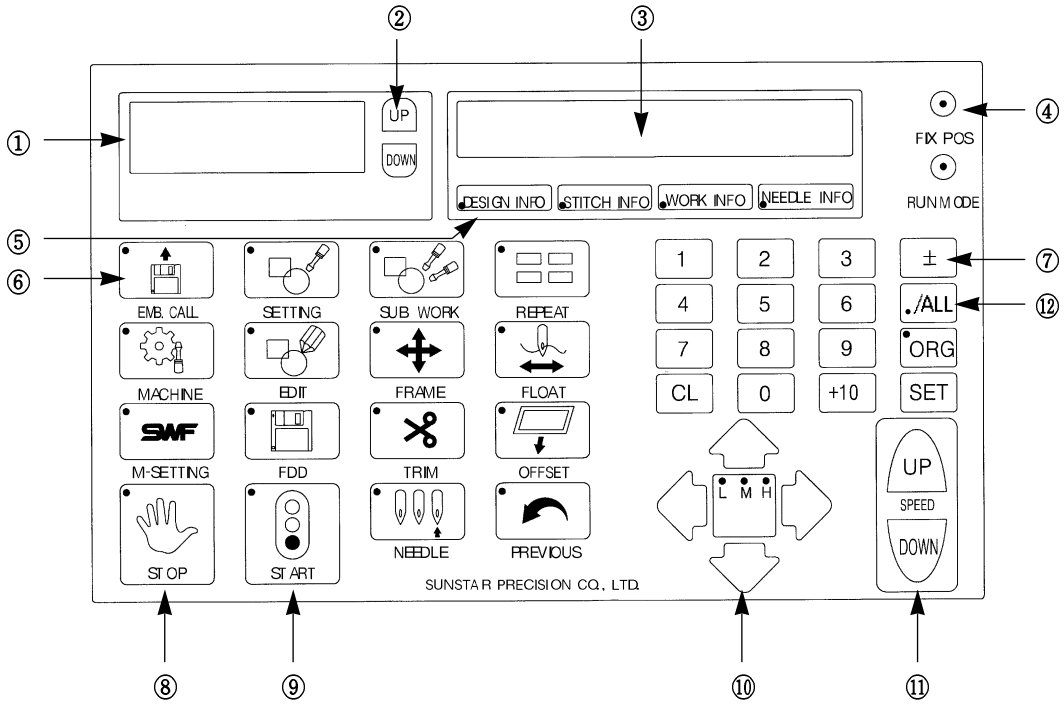
The machine can automatically read designs of various formats stored in the floppy disk. These formats include SST/ DST, DSB, DSZ/ TAP/ FMC, FDR/ ZSK/ 10O/ EXP.

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 MAIN INDICATION SCREEN 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.

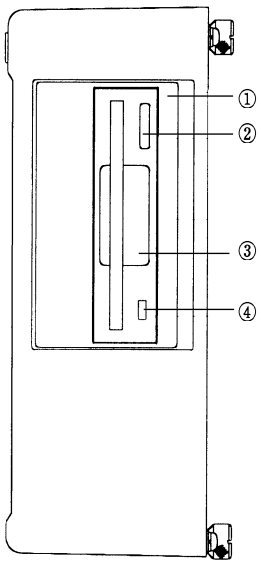
⑪ Main Shaft Speed Button

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

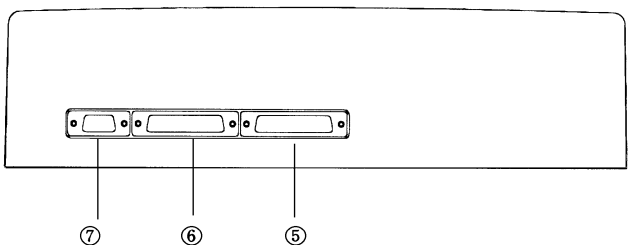
You can use this to input decimal numbers when setting the interval of repetition work. It can also be used to work on the previous head after back stitching.

[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/BAR SWITCH

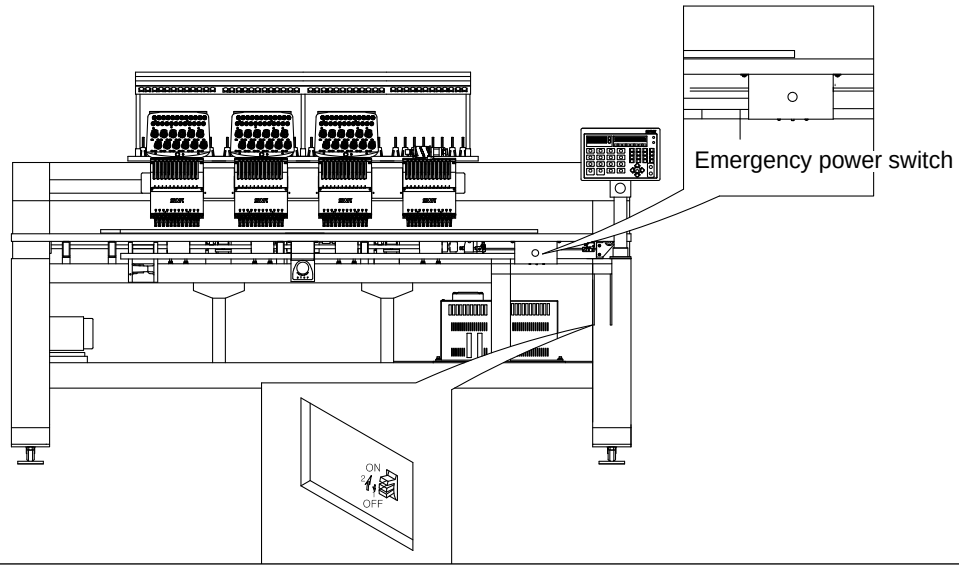
5-2-1) Emergency Power Switch

Starting the machine in the 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.

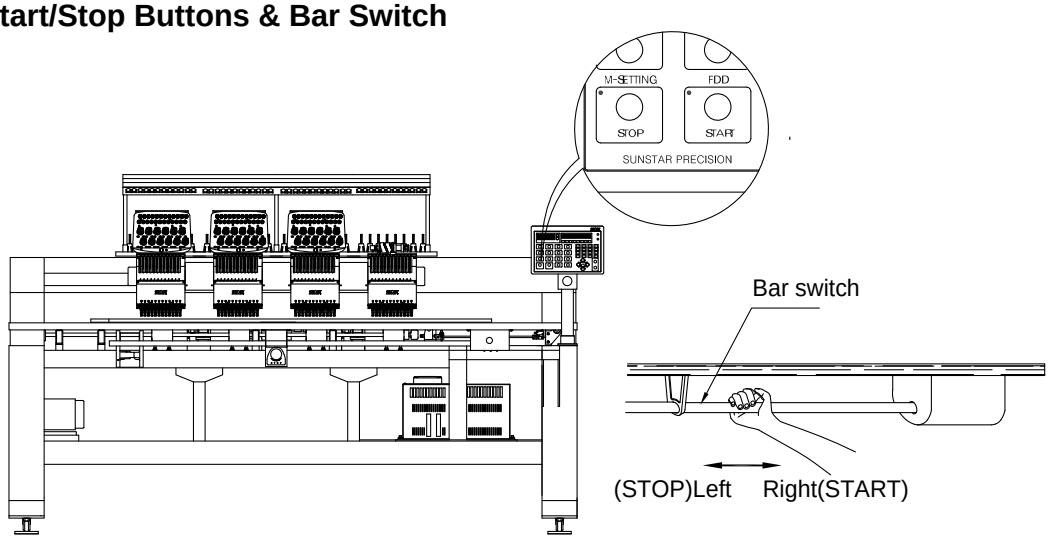


[Fig.5-4]

[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 & Bar Switch



[Fig.5-5]

Use the START/STOP buttons and Bar switch 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]

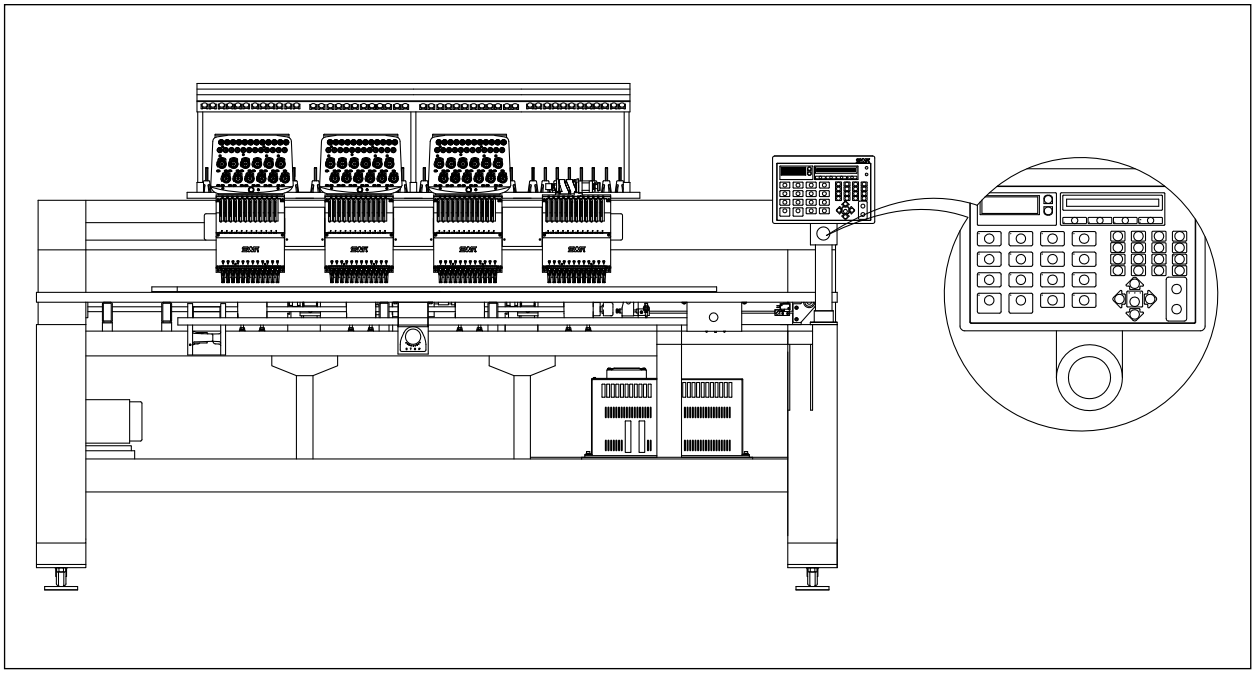
"Inching" refers to low-speed embroidery at a 100 rpm range, performed for stable stitching when the machine is re-started after stop.

[NOTE 2]

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

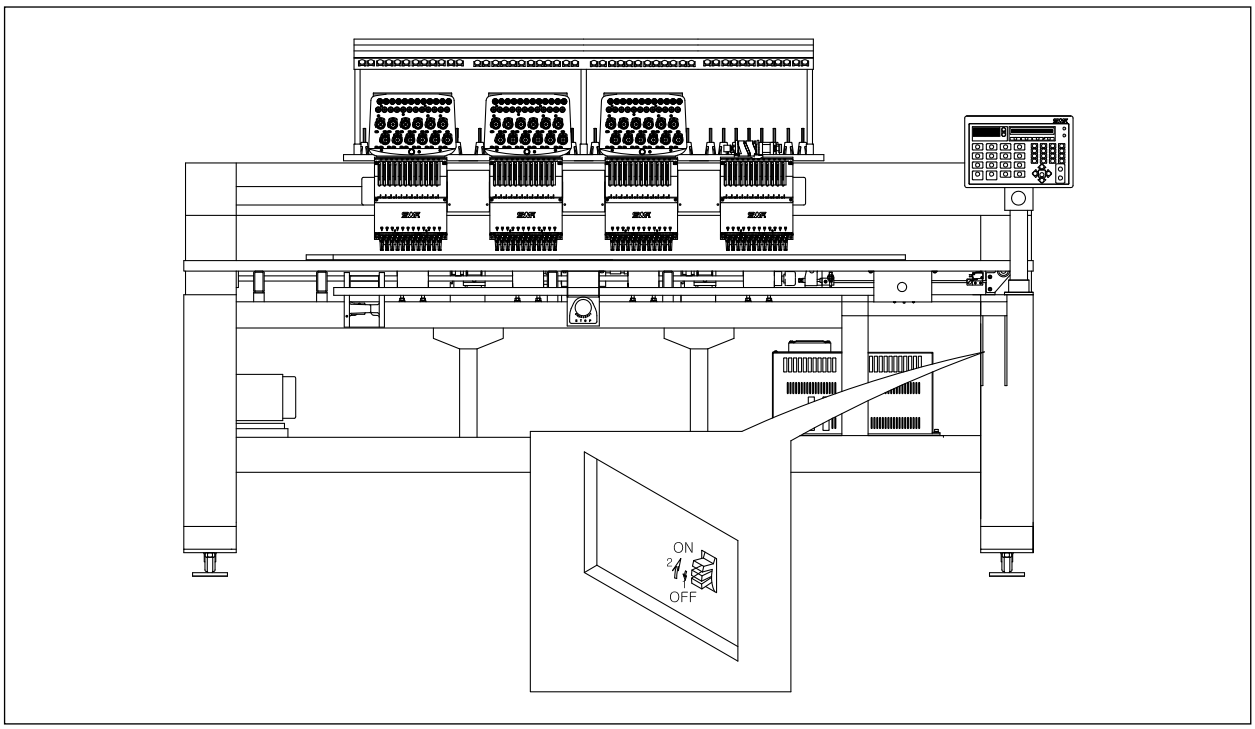
5-3) EMERGENCY STOP

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).

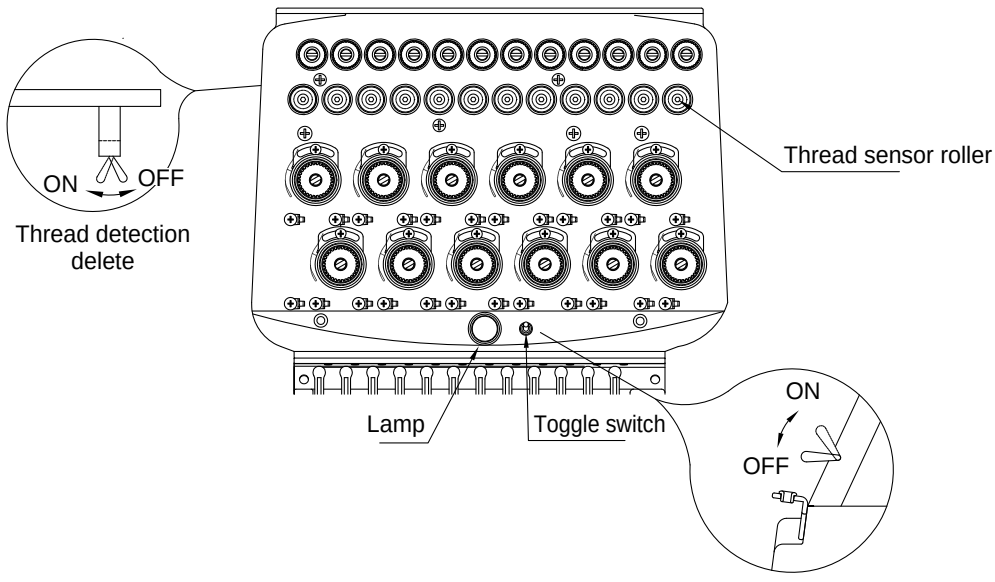
③ To set the needle bar so a specific head does not work, turn the toggle switch off.

> **[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.



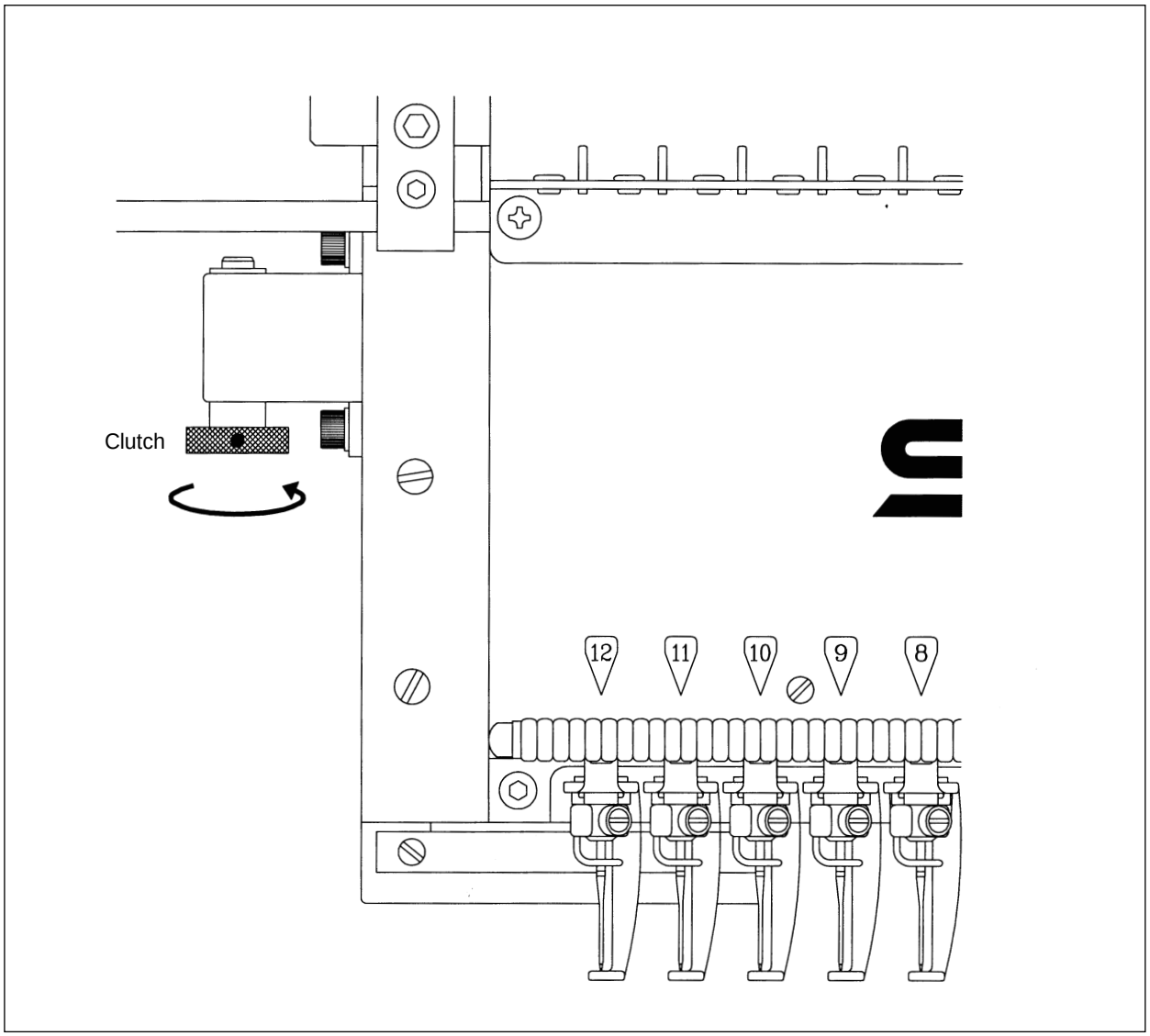
[Fig.5-8]

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

The needle bar moves when the red signal on the clutch is facing the operator ([Fig.5-9]). Turn the clutch 90° in the direction of the arrow to stop the needle bar.



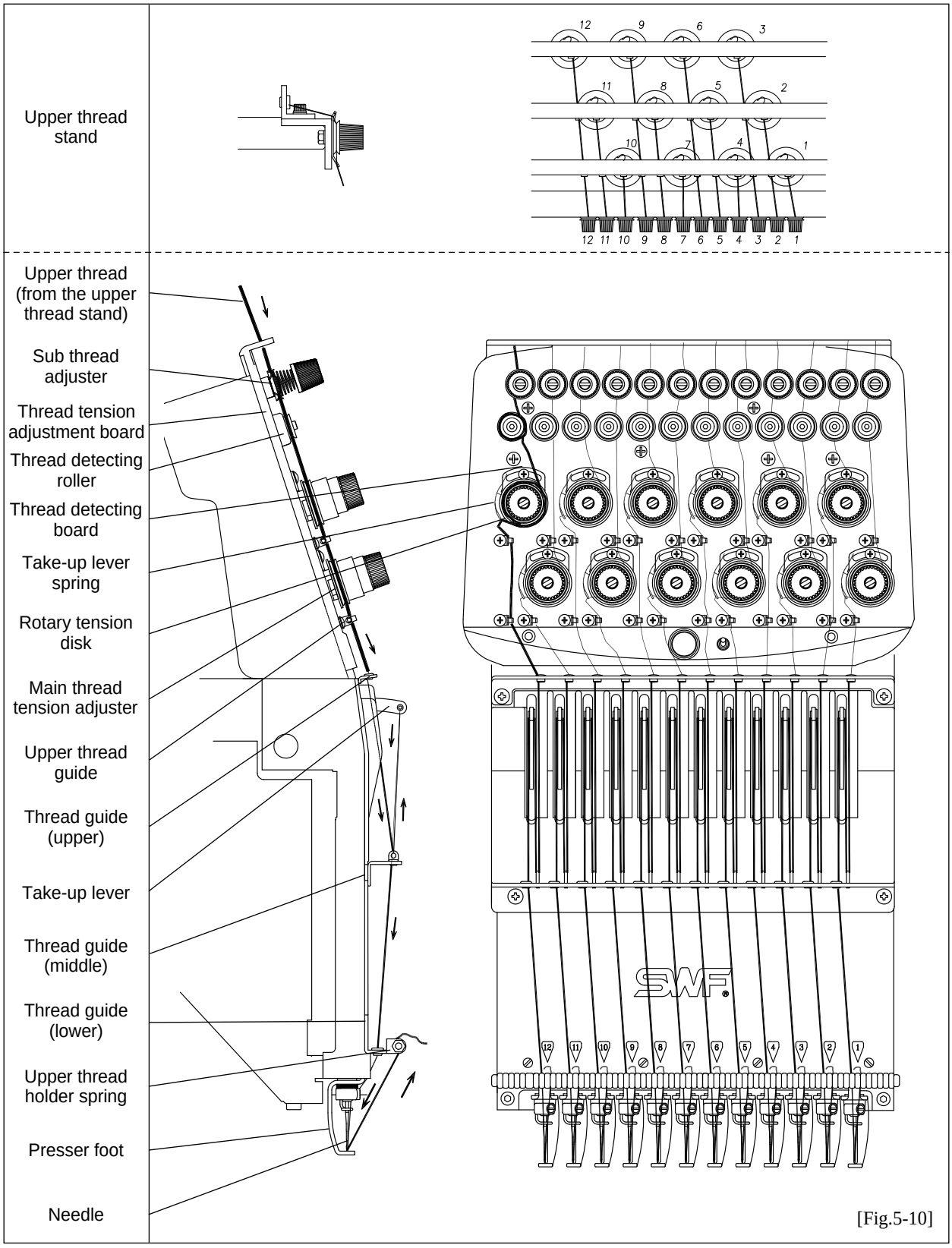
[Fig.5-9]

CAUTION

- 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.
- Long-time operation of the needle bar with the clutch may damage the bar controller.

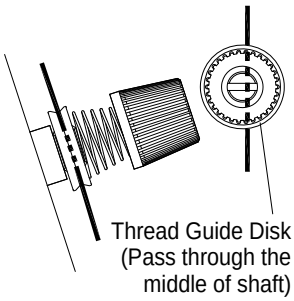
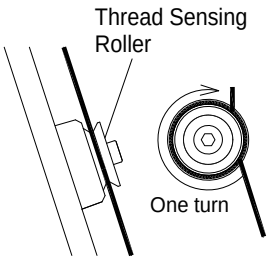
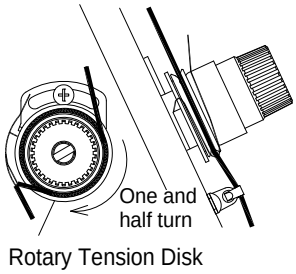
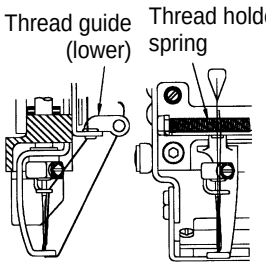
5-6) UPPER THREADING AND TENSION ADJUSTMENT

1) Upper Threading



[Fig.5-10]

[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.

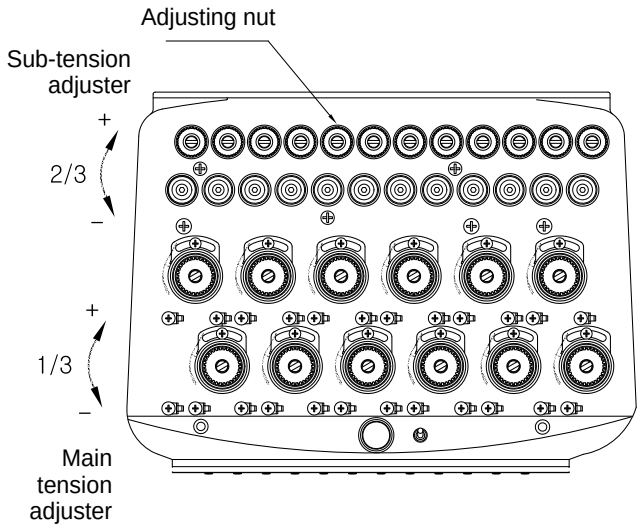
[Fig.5-11]

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 counterclockwise 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.5-12]

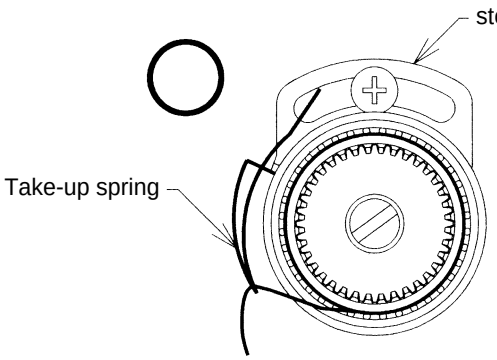
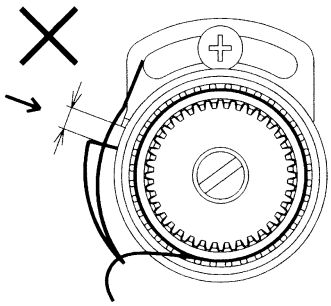
[CAUTION]

- If tension at the sub adjuster is too loose, the detector roller may not rotate well and make wrong detections.
- After adjusting the tension, check if the upper thread tension is what can be pulled with little force of around 100-120g.

[CAUTION]

- After adjusting the tension, pull the upper thread to see if the detector roller rotates well.
- 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.5-13]

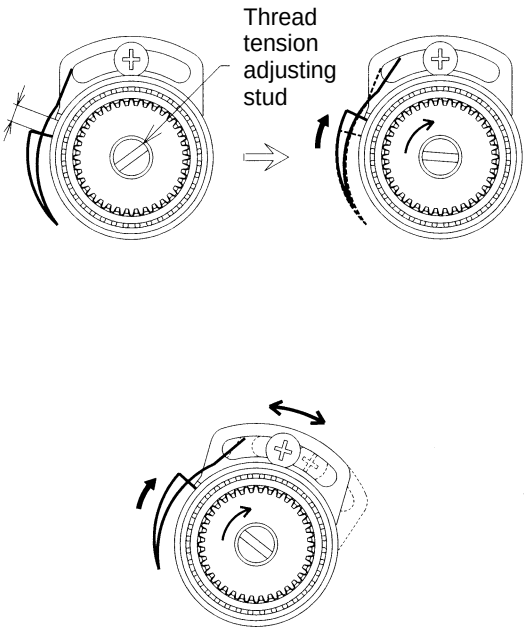
① Take-up Spring Functions

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

ⓐ Tension on the take-up spring affects the thread tension. Turn the tension adjusting stud clockwise to increase the tension and counter-clockwise to decrease the tension.

ⓑ 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.5-14].



[Fig.5-14]

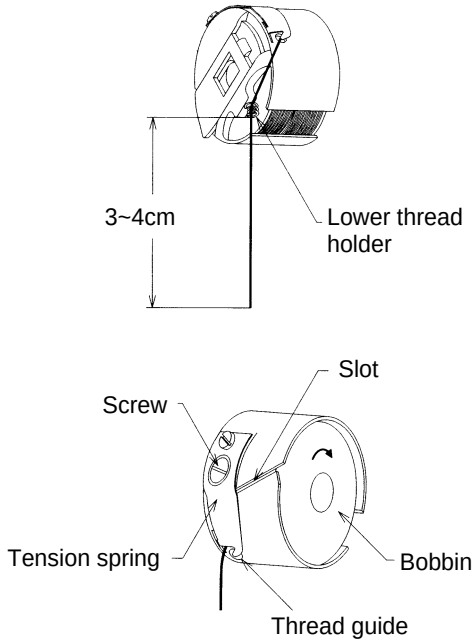
5-7) LOWER (BOBBIN) THREADING AND TENSION ADJUSTMENT

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.5-15]).
- 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.

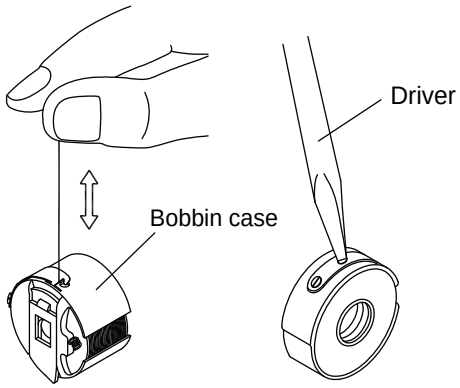


[Fig.5-15]

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. The case should drop and the tension should be 25-35g.

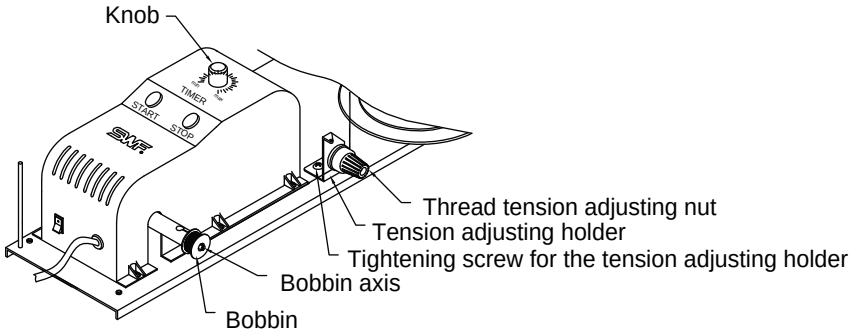


[Fig.5-16]

5-5) THREAD WINDER

1) Lower thread winding

① Insert the bobbin into the thread winder shaft as in [Fig. 5-17]. Wind the bobbin 5-6 times by hand in the thread winding direction. Then press the start button, and the thread winding begins.



[Fig. 5-17]

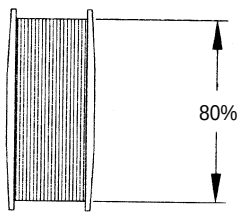
② If the thread winding status is poor, press the stop button. Then the winding stops immediately.

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. 5-18].

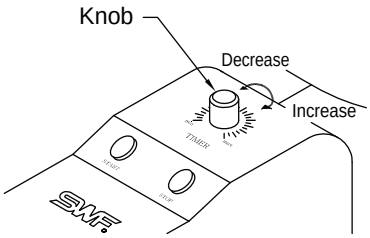
[CAUTION]

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. 5-18]

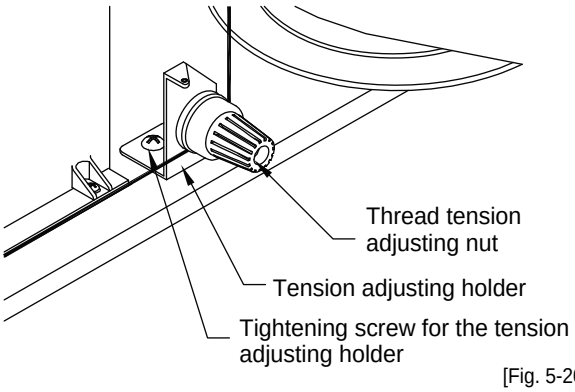
② Bobbin thread volume is adjusted by the thread winder knob. When the knob is turned clockwise, the bobbin thread gets thicker. When the knob is turned counter-clockwise, the bobbin thread gets thinner.



[Fig. 5-19]

3) Adjustment of bobbin thread status

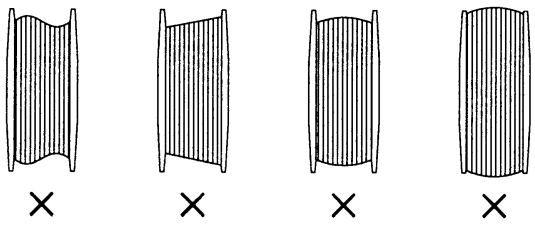
① The thread should be wound around the bobbin in parallel. Otherwise, loosen the tightening screw for the thread winder's tension adjusting holder and move the thread guide body left or right for adjustment.



[Fig. 5-20]

[CAUTION 1]

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



[Fig.5-21]

② The tightening level of the bobbin thread can be adjusted with the tension adjusting nut.

[CAUTION 2]

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

5-9) FLOPPY DISKS

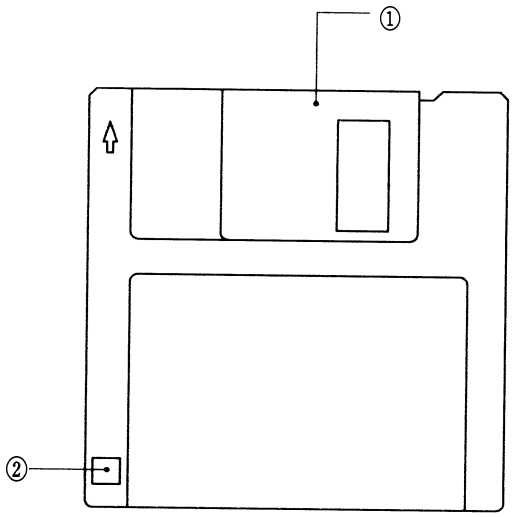
Make sure to meet the following guidelines when using floppy disks.

[CAUTION]

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

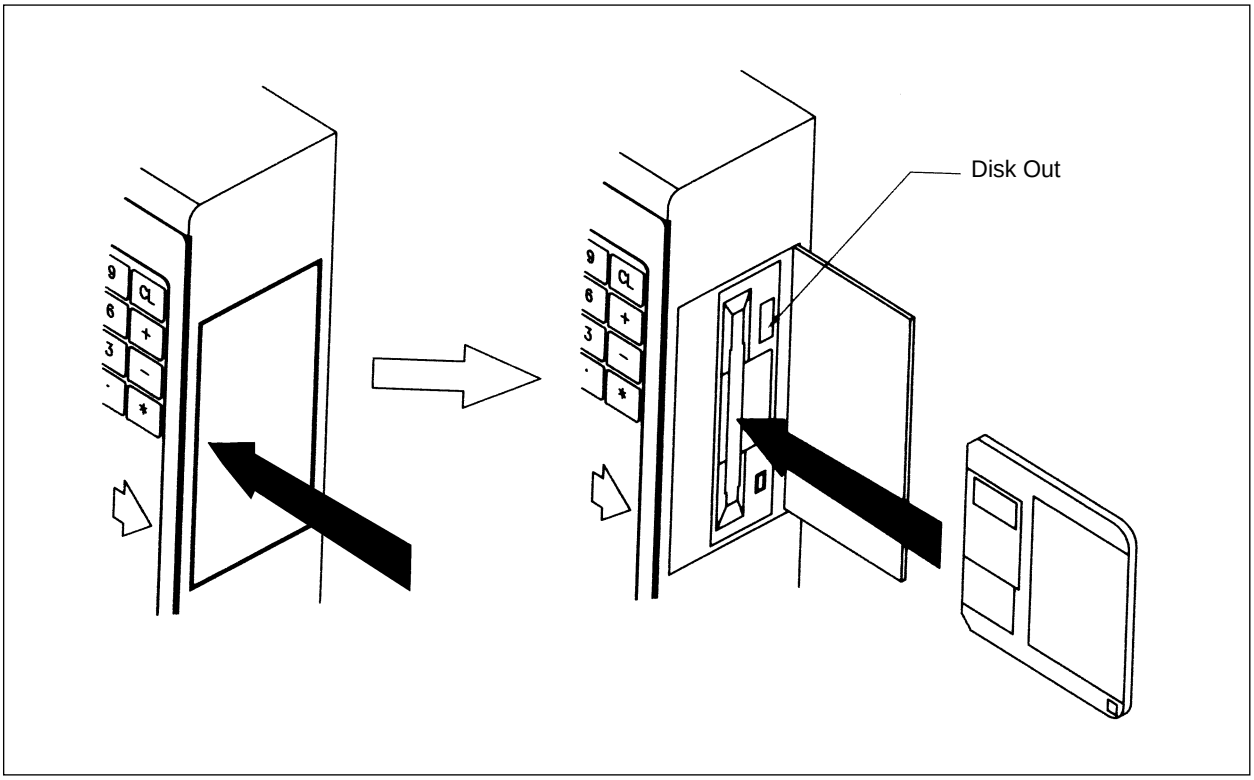
① Keep the disks away from objects with magnetic fields such as televisions.
② Protect the disks from excess heat, humidity, and direct sunlight.
③ Do not place heavy objects on the disks.
④ Do not remove the disk from the drive while formatting, reading, or writing the disk.
⑤ Do not open the cover 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.

① Shutter
② Protection tab



[Fig.5-22]

■ Inserting the Disk



[Fig.5-23]

① Press the cover of the disk drive to open (as shown in the left picture of [Fig.5-23]).
② Insert the floppy disk into the drive in the direction shown in the right picture of [Fig.5-23]

■ 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.5-23]).

5-10) 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 "LCD Monitor Manual 3-5-1. In and Out of Designs."

5-10-1) Floppy

You can store a design from the floppy disk to the memory (see 7-18 Floppy for details).

5-10-2) Tape

You can store a design in a tape onto the memory using a tape reader provided as an optional kit (see 7-24 Tape for details).

5-10-3) Embroidery Output

You can copy a design from the memory to the floppy disk (see 7-21 Design Output).

5-11) 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 "LCD Monitor Manual 3-4-4 Frame Movement."

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

5-12) 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				

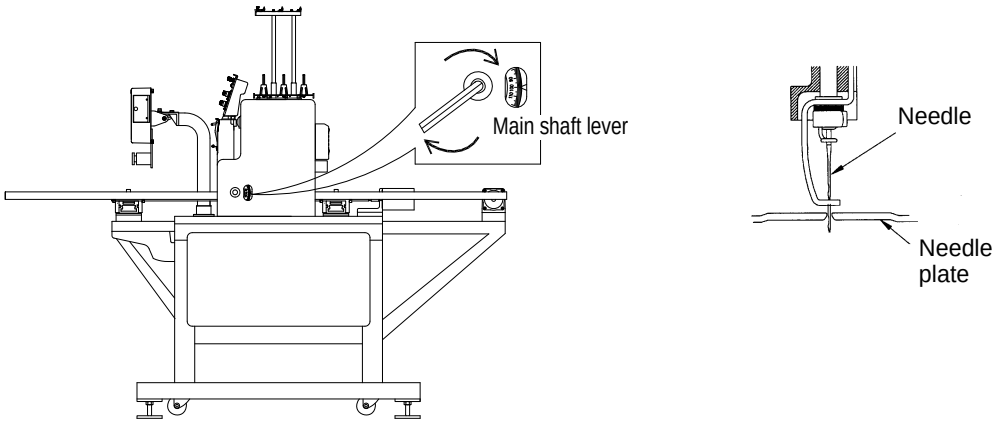
[CAUTION]
Needle and thread most commonly used in embroidery are DB ×K5 #11 and rayon yarn 120d/2.

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.

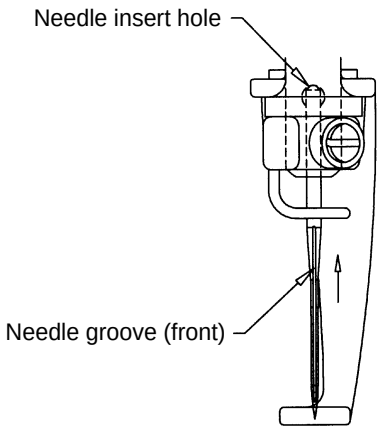
CAUTION

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



[Fig.5-24]

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.



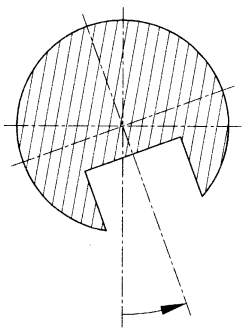
[Fig.5-25]

[CAUTION 1]

For special threads such as artificial silk, turn the needle slightly to the right to prevent thread breaks (see [Fig.5-26]).

[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.

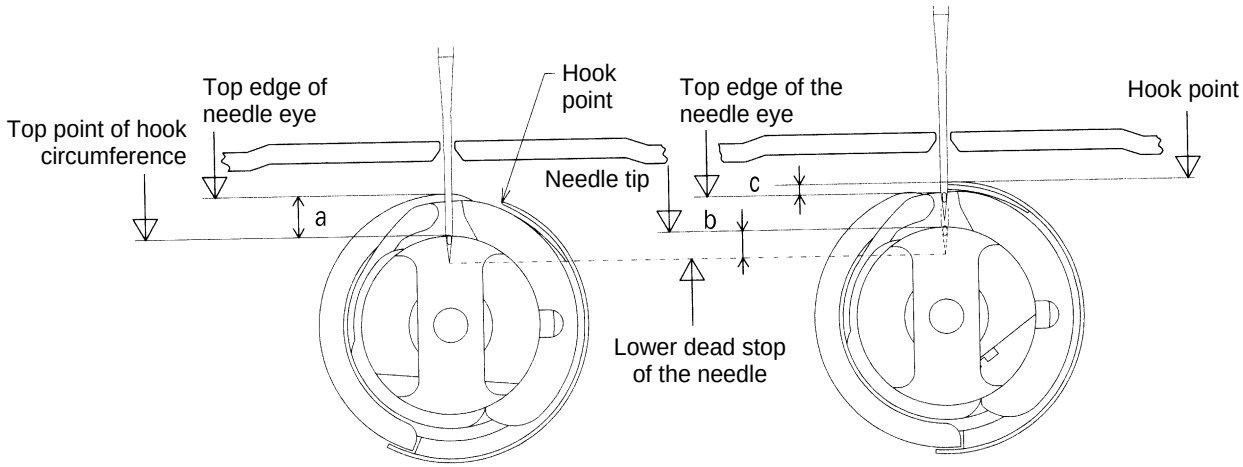


[Fig.5-26]

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 201° and varies as below.

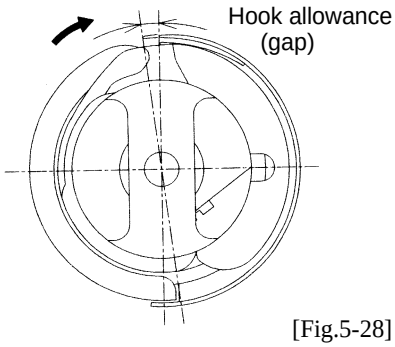


[Fig.5-27]

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	

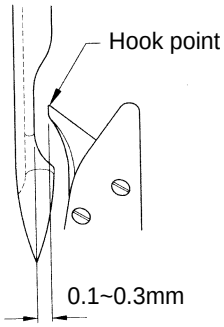
[CAUTION]

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.5-28]

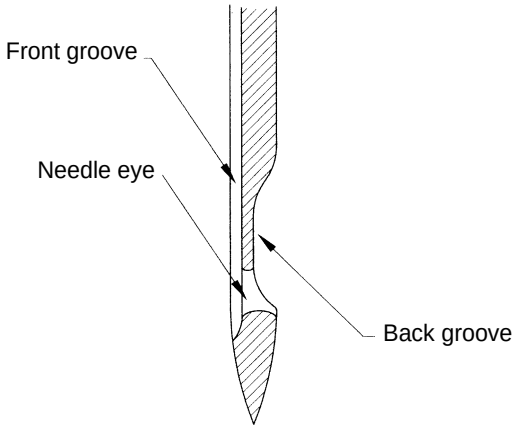
② Adjusting Gap between Needle and Hook Point



[Fig.5-29]

- 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



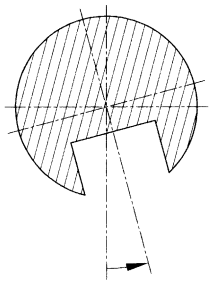
[Fig.5-30]

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.

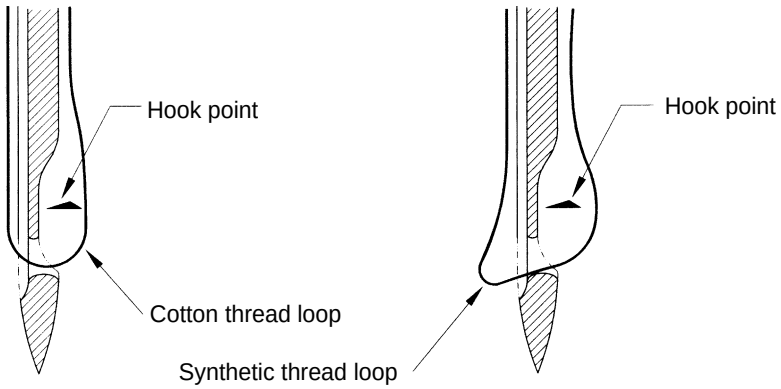
② If thread breaks or stitches are unstable, turn the needle slightly to the right.



[Fig.5-31]

[NOTE]

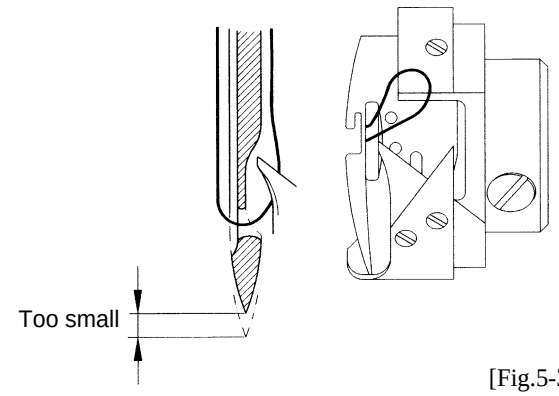
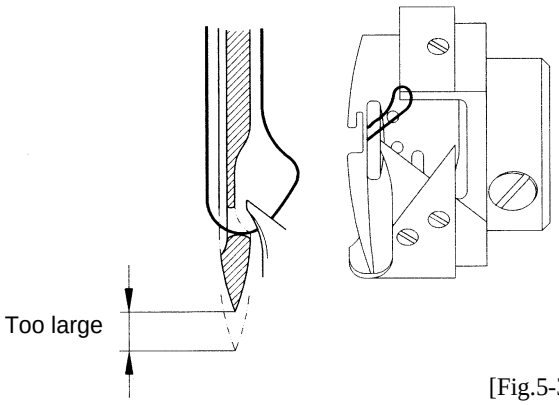
Shape of the loop varies by the type of thread or fabric. Unstable shape of the loop may result in skipped stitches. The following pictures show different shapes of loop formed by different types of thread.



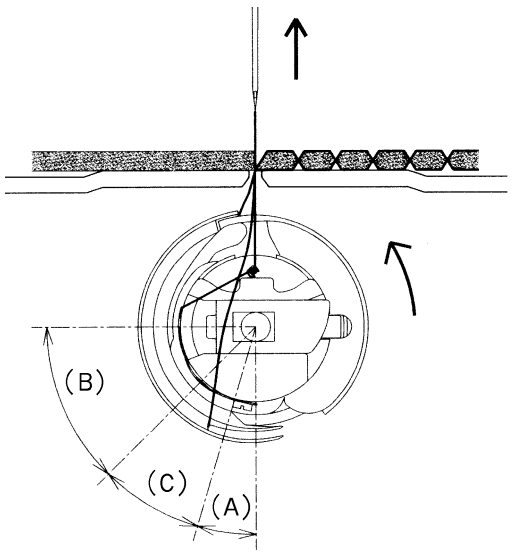
[Fig.5-32]

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.5-33]	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.5-34]	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.5-35]

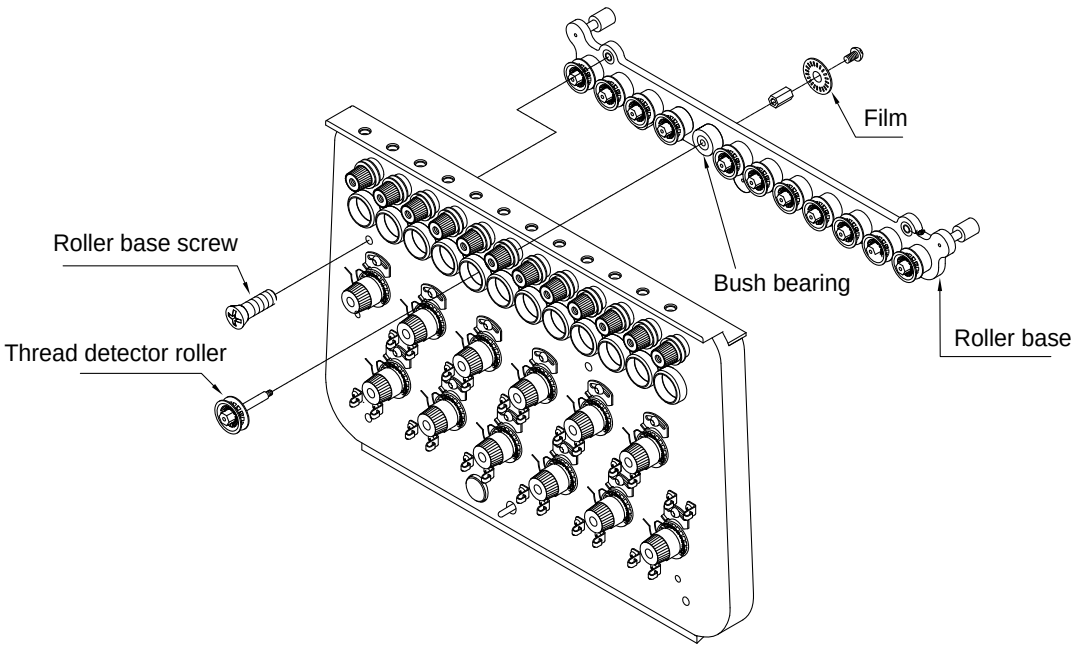
5-13) ASSEMBLY AND FUNCTIONS OF THREAD DETECTOR

5-13-1) 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.

5-13-2) 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.

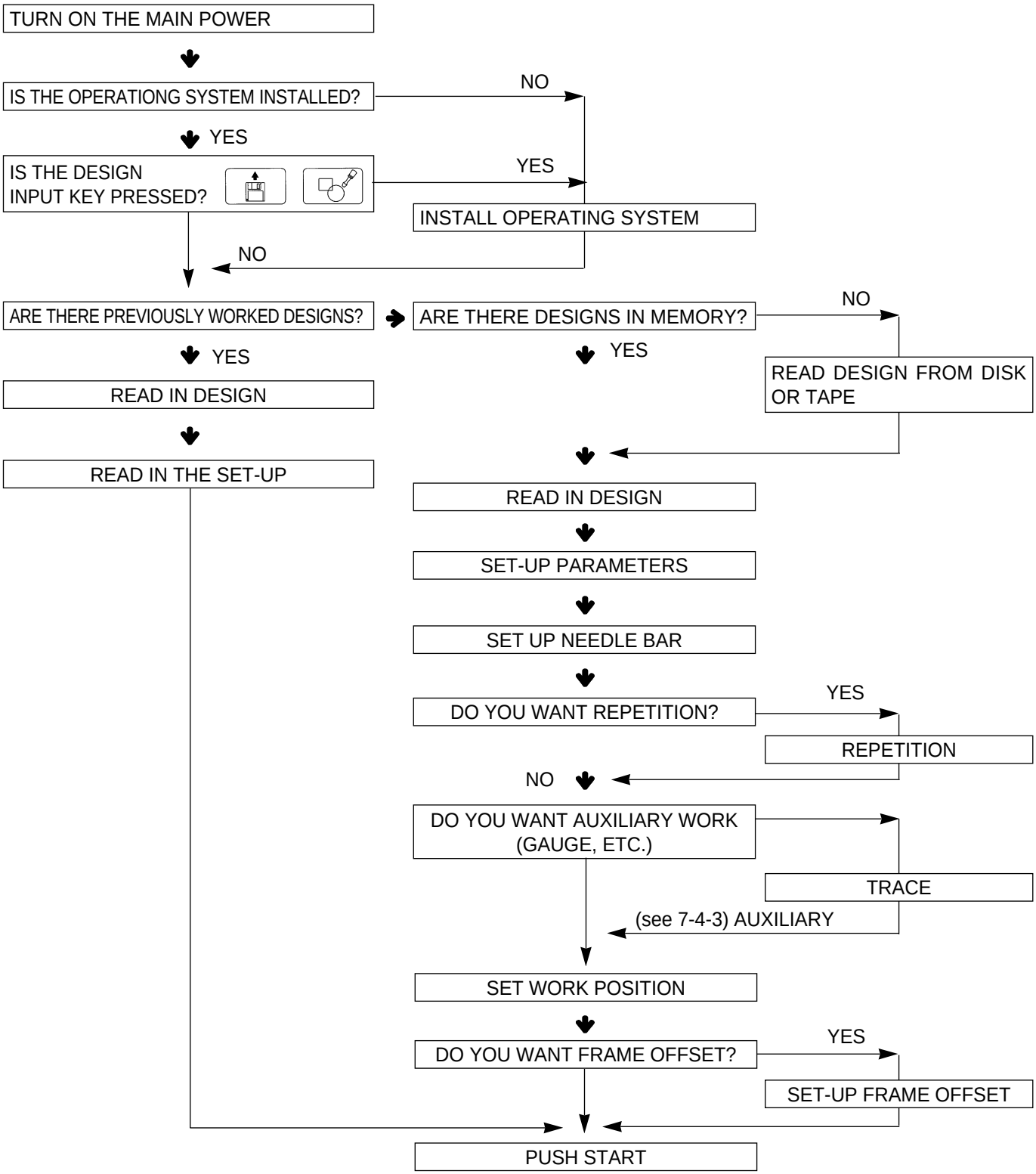


[Fig.5-36]

[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

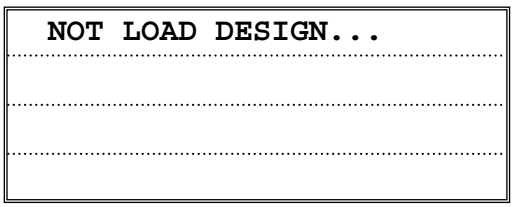
You may have to install an operating system in the event of the deletion of the system due to controller box malfunction or an upgrade to the latest OS version. You will see the program on the screen when:

※ there is no operating system in the memory

※ and keys are pressed at the same time in the start screen

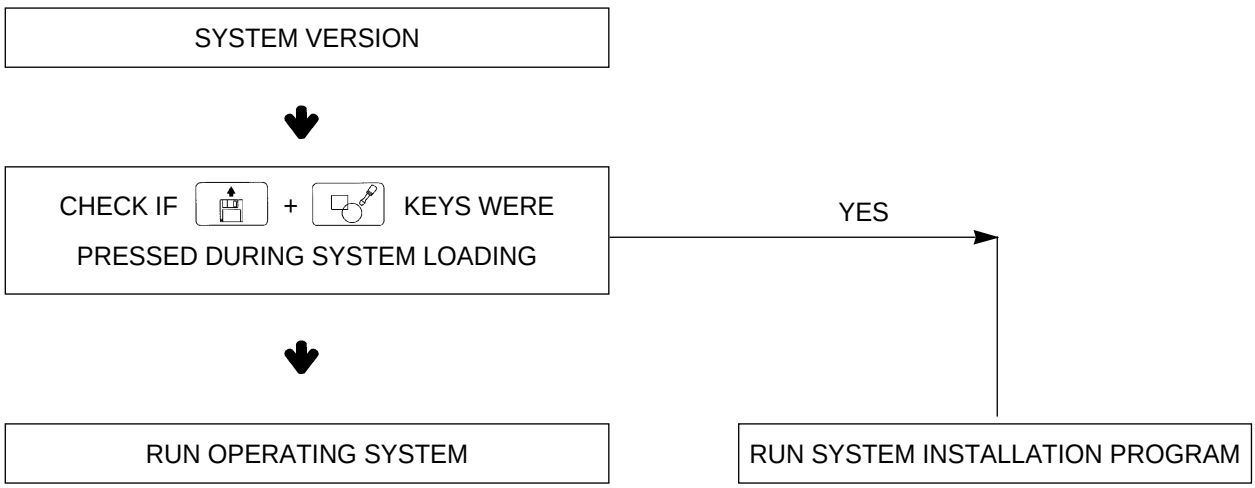
The first screen you will see when you turn on the main power looks like this:

[Machine Information Screen]



[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 and 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) START/STOP CHECK: checks START/STOP buttons during machine inspection.
(9) SETTING DEFAULT: turns the machine set-up and EMB set-up to default values.
(10) CURRENT SETTING: sets the voltage of X-Y driver during machine operation.
(11) GEAR RATIO CHECK: selects pulley ratio of the main shaft.
(12) MACHINE SETTING: selects the type of machine.
(13) 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 and 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 the following picture in each set-up.

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 display]

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

[Wheel Normal]

```
= SWF [W-18R] B/Vx.xx =
```

[Wheel 18-Hole]

```
= SWF [W-50R] B/Vx.xx =
```

[Wheel 50-Hole]

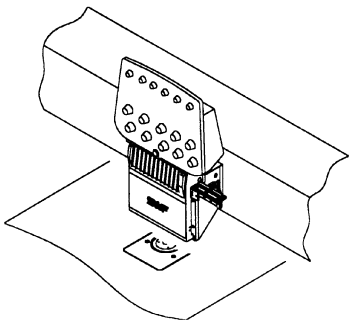
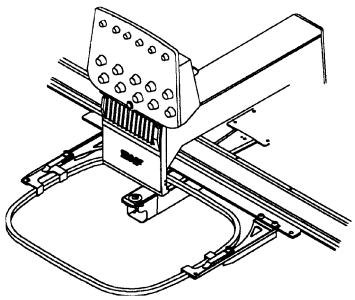
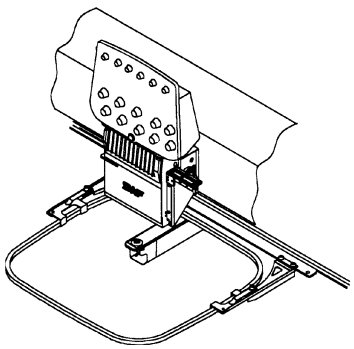
```
[WE1206] XXXX/XX/XX
```

※ 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/□-UH1208 SWF/□-UH1508	8-head Tubular Embroidery Machine
	SWF/□-UI1212	12-head Tubular Embroidery Machine

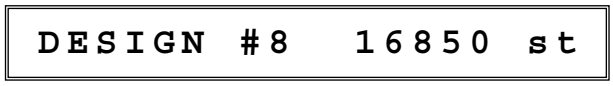
7-2) MAIN INDICATION SCREEN

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

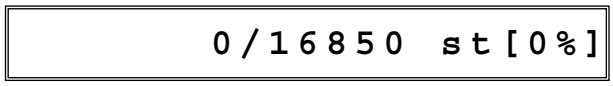
1) Machine Information Screen (VFD)

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

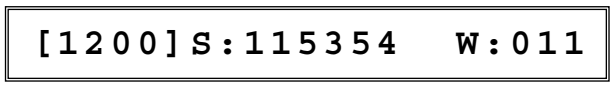
① Design information: number of stitches and the memory number of the selected design.



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



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



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

[CAUTION]

The VFD also indicates cause of machine stops and errors.

Ex: displays the cause of machine stoppage

Ex: displays machine error

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
NAME	:	SWF
STITCH	:	16850
COLOR	:	6

No.: memory number of the selected design
NAME: displays the name of the selected design
STITCH: number of total stitches in the selected design
COLOR: number of color changes (needle bars) in the design

JUMP	:	118
X [mm]	:	83.4
Y [mm]	:	101.6
ANGLE	:	45

JUMP: number of jump stitches in the design
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

MIRROR	:	OFF
X_SCALE	:	100
Y_SCALE	:	100

MIRROR: if the reverse function is selected
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

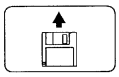
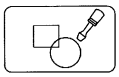
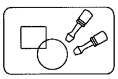
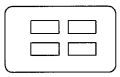
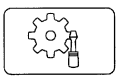
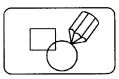
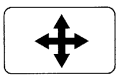
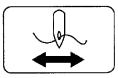
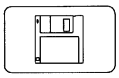
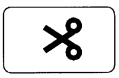
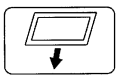
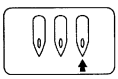
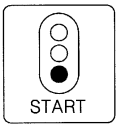
Main menus are selected by keys on the control panel. Sub menus will appear on the screen at your selection of a main menu. All sub menus cannot be indicated on a single screen. Use UP/DOWN buttons to move to another screen.

Ex) selection of basic set-up

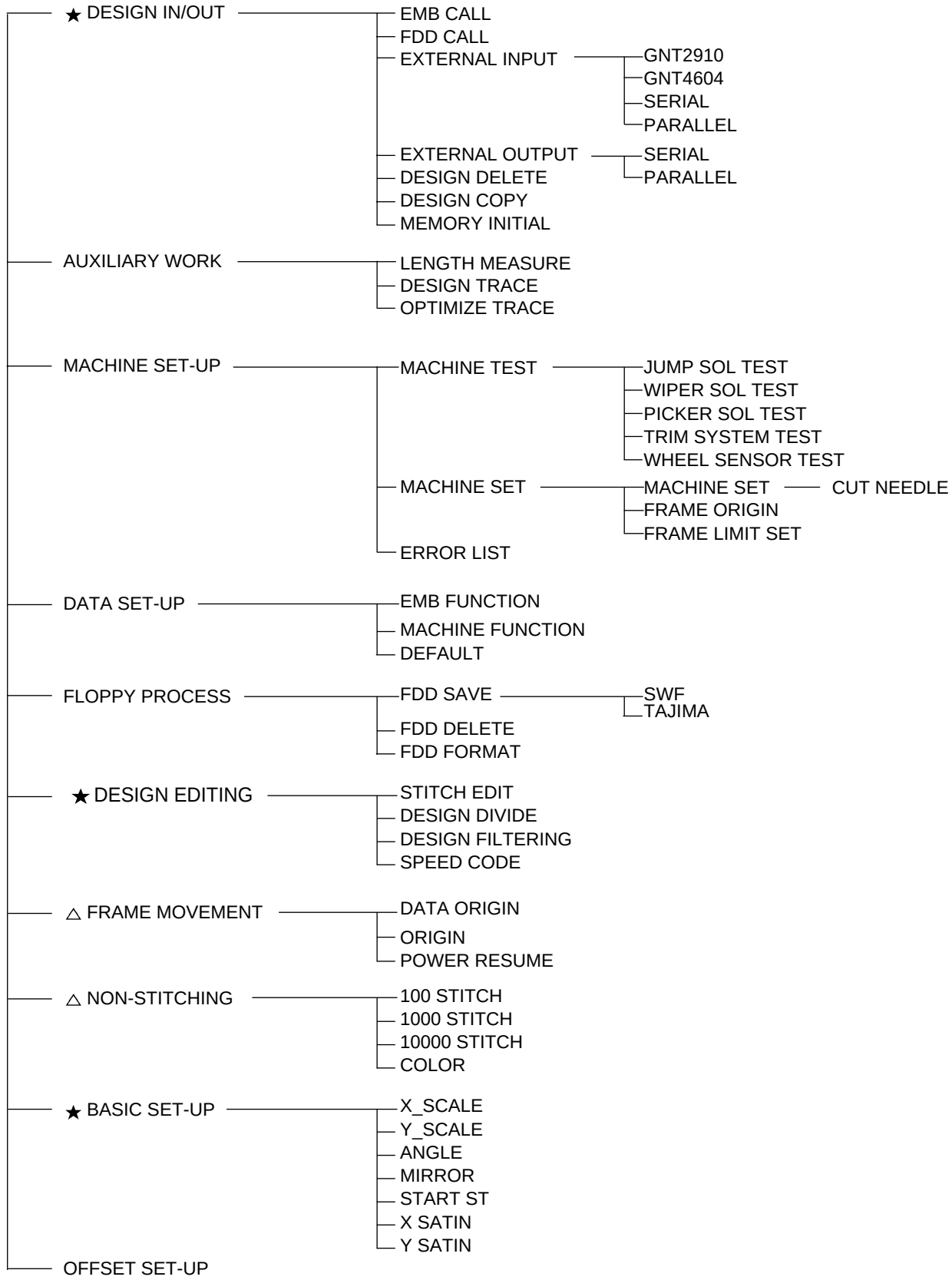
1] X_SCALE	:	100%
2] Y_SCALE	:	100%
3] ANGLE	:	0°
4] MIRROR	:	NO MIRROR

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



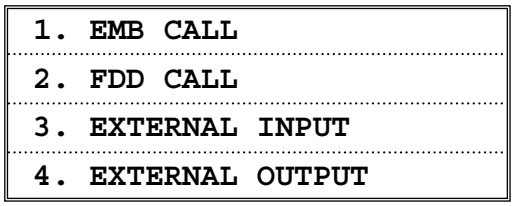
[CAUTION]

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:



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

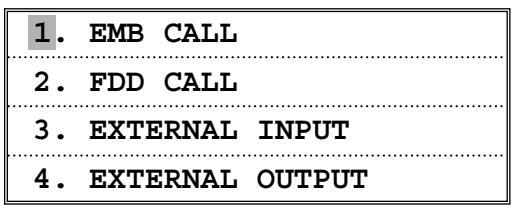
■ EMB CALL: Calling Design from Memory

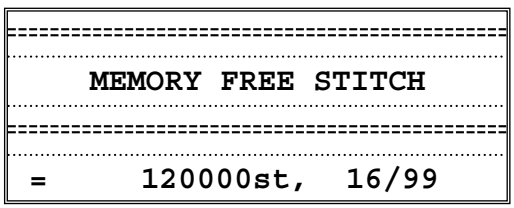
Ex) Calling design from memory # 8 (number of stitches: 16850).

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

Press **SET**

size of the memory available will be displayed





Move the cursor to memory #8.

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

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

Press SET

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

Press

No.	:	8
NAME	:	SWF
STITCH	:	16850
COLOR	:	6

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

You can also check it through the Machine Information Screen.

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] =
==========================================
```

```
==========================================
     DISK 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
NAME : GOLF
STITCH : 7667
COLOR : 6
JUMP : 10

Design from room no. 30 has been called.

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

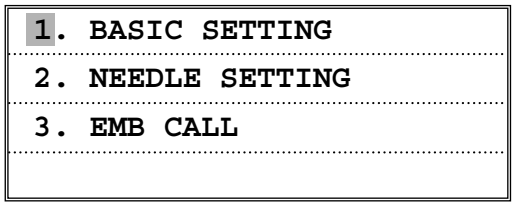
DOS : 2HD, 2DD USUAL DISKETTE
ZSK : ZSK DISKETTE
BAR FMC : BARUDAN FMC
BAR FDR : BARUDAN FDR
EXIT or PREVIOUS : END

= 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 & Out of Design"

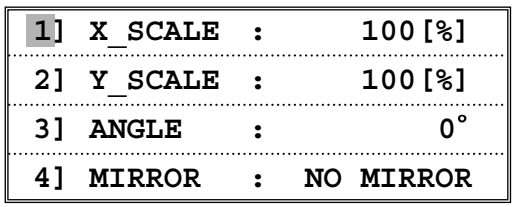
Select a design using EMB CALL or FDD CALL and you will see the following screen.



[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.

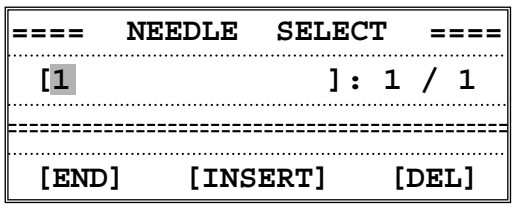


[Screen 2]

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

Press to end the set-up.

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



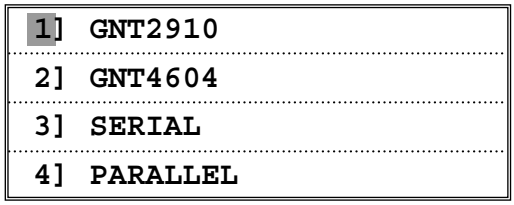
[Screen 3]

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

Press to end the set-up.

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

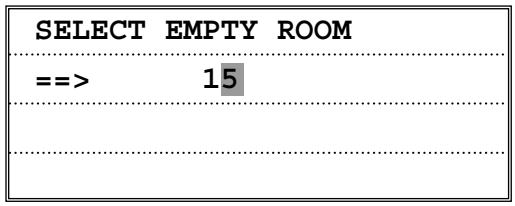
■ **EXTERNAL INPUT: Reading Design from Outside**



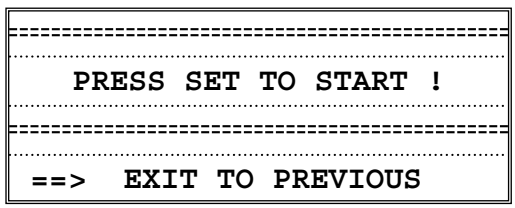
1. GNT2910: reads data from Tape Reader
2. GNT4604: reads data from Tape Reader
3. SERIAL: enables data correspondence between PC and the machine
4. PARALLEL: reads data from SWF-NET1

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

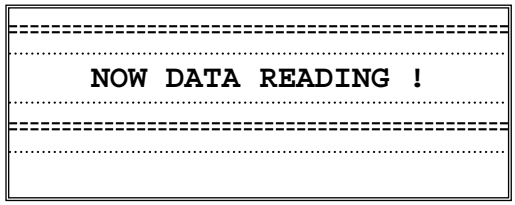
Place the cursor at GNT2910 and press **SET**

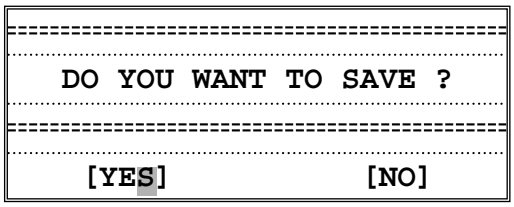


Move the cursor to #25

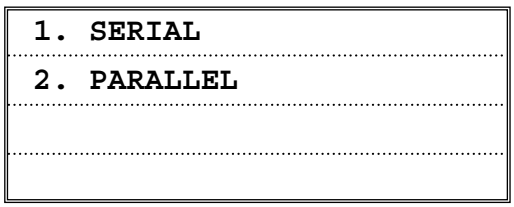


Press **SET**

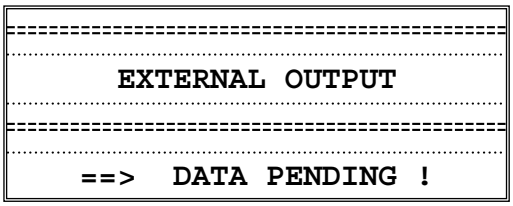
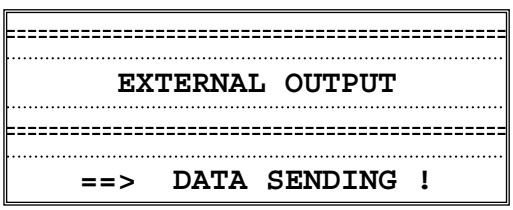


The following screen will appear after all data has been read from the tape. To store the data, move the cursor to "YES" and press **SET** ▼	 ※ The tape format is automatically detected as shown above. Procedures for GNT4604 and SERIAL are the same as for GNT2910.

■ **EXTERNAL OUTPUT: Outputting Design**



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

Call the desired design and select [ ] → "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**

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

Press **SET** to delete.

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

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

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

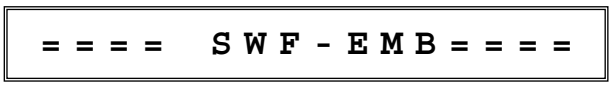
```
14)                 10898
15)                 55961
16)                  5718
30)                  7667
```

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

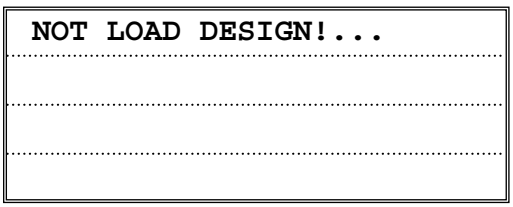
```
No.          :          2
NAME         :     SWF001
STITCH       :       5954
COLOR        :          4
```

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

①On Machine Information Screen:



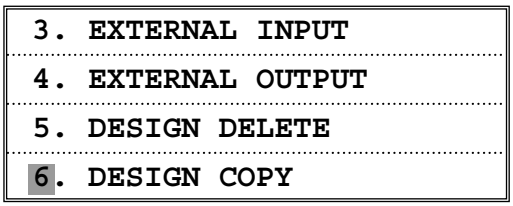
②On Menu Screen:



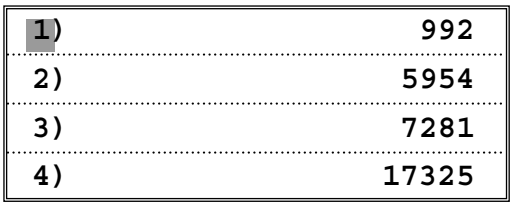
■ **DESIGN COPY: Copying Designs in Memory to Another Memory Room**

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

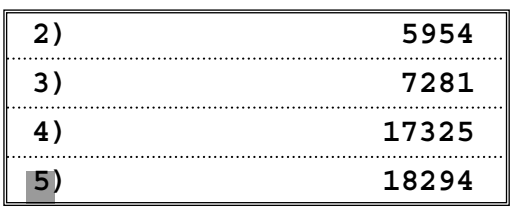
Place the cursor at "6. DESIGN COPY"



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

```
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 ↶

```
4. EXTERNAL OUTPUT
5. DESIGN DELETE
6. DESIGN COPY
7. MEMORY INITIAL
```

```
==========================================
 DO YOU WANT TO FORMAT ?
==========================================
    [YES]          [NO]
```

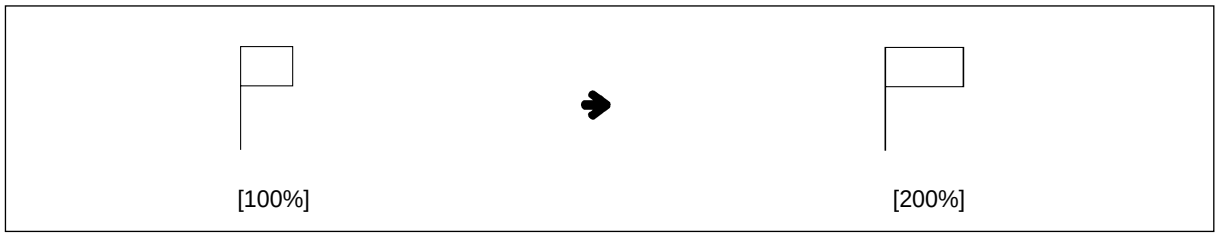
```
1. EMB CALL
2. FDD CALL
3. EXTERNAL INPUT
4. EXTERNAL OUTPUT
```

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

7-4-2) Basic Set-up Functions

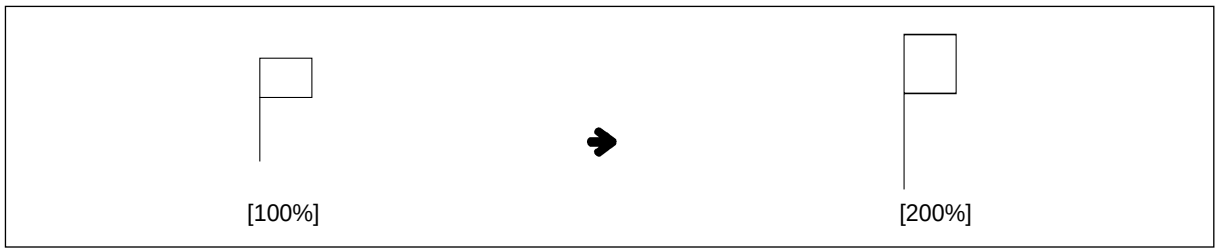
When the machine is turned on and operating system loads, press . This allows the set-up of basic design changes. Set-up items are as follows:

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

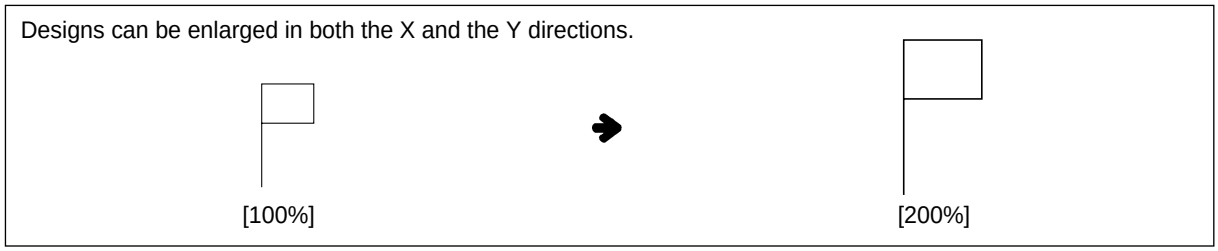


The default is 100% and the allowed range runs from 50% to 200%.

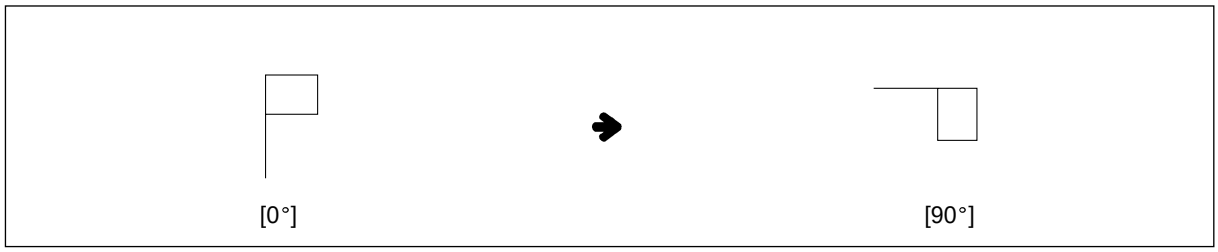
② **Y_Scale**: Reduces or enlarges the design along the Y axis (top to bottom).



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

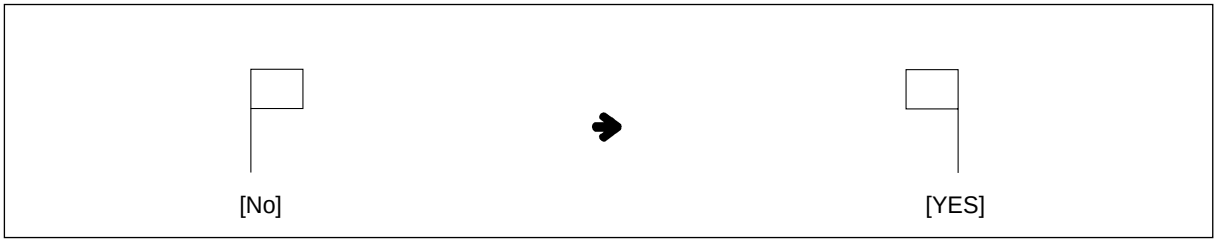


③ **Angle**: Rotates the design in a set angle.

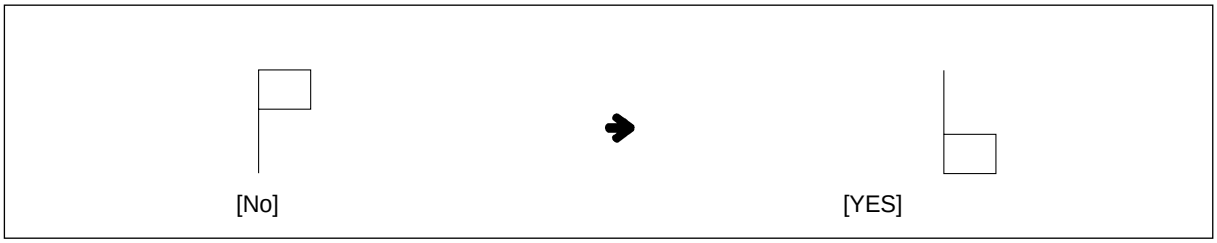


The default is 0° and designs can be rotated from 0 to 359°.

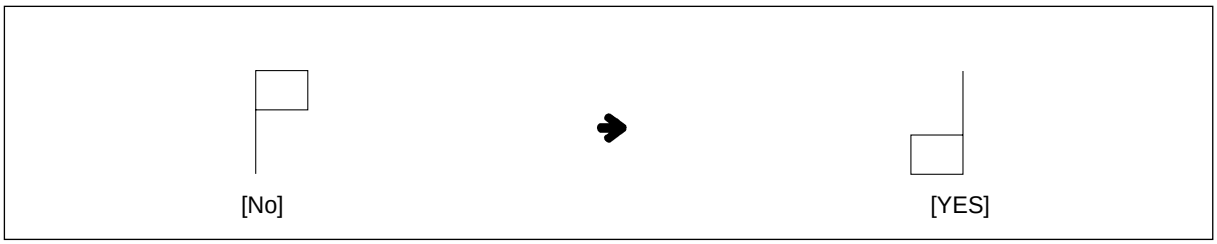
④ Mirror: Reverses the design on the X axis, the Y axis, or both.



[Mirror on the X axis]

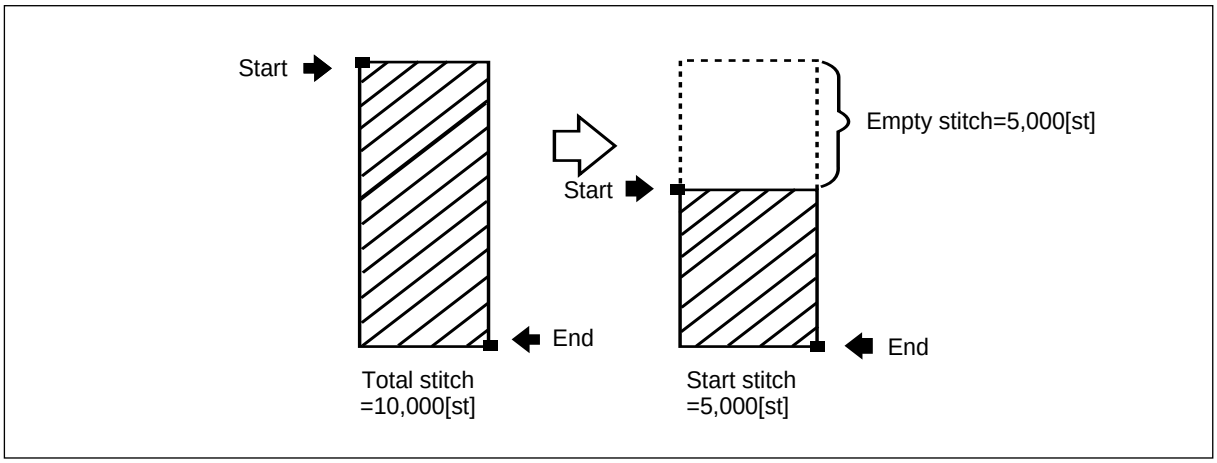


[Mirror on the Y axis]

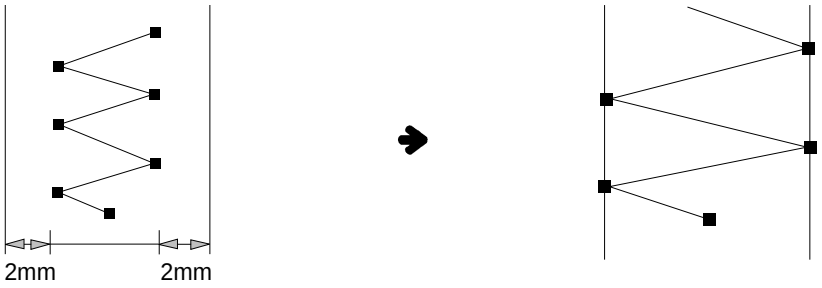


[Mirror on the X & Y axis]

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**:



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

Sets the width of a satin stitch in the X direction. 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
NAME	:	SWF002
STITCH	:	18294
COLOR	:	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
```

The X scale has been set up as "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
```

The Y scale has been set up as "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
NAME        :     SWF002
STITCH      :      18294
COLOR       :          7
```

Press DOWN once.

Press WORK INFO

JUMP	:	7
X[mm]	:	96.5
Y[mm]	:	135.0
ANGLE	:	45

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) Sub Work

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

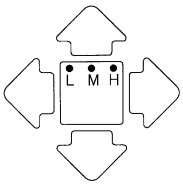
1. LENGTH MEASURE
2. DESIGN TRACE
3. OPTIMIZE TRACE

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 MEAUSRE" in the sub menu.

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

Press **SET**

[MACHINE INFORMATION DISPLAY]

X : 0 , Y : 0

[MENU DISPLAY]

LENGTH MEASURE

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

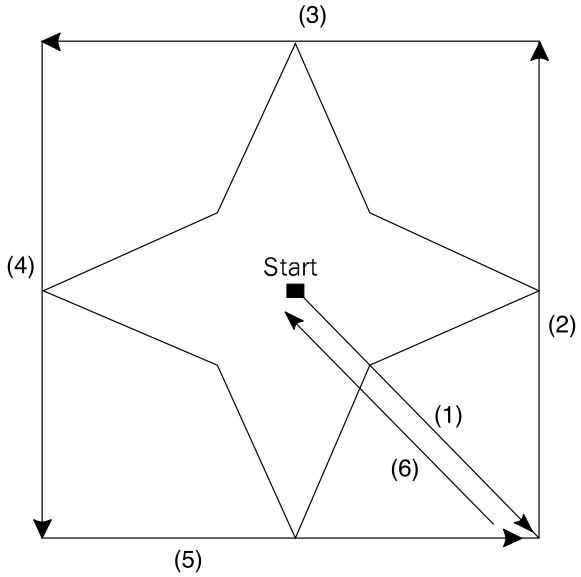
X : -108 , Y : 85

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

Press ↶ 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
NAME	:	SWF002
STITCH	:	18294
COLOR	:	7

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

FRAME TRACE

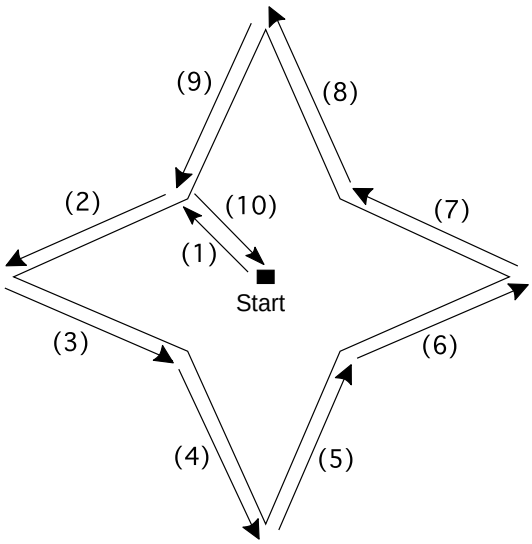
Frame traces the design with this screen.

[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

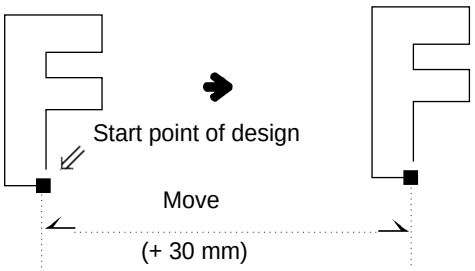
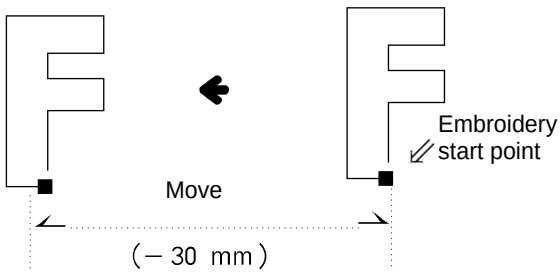
Press when the operating system loads. You will see a screen like this: The following parameters must be set for repetition work.

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

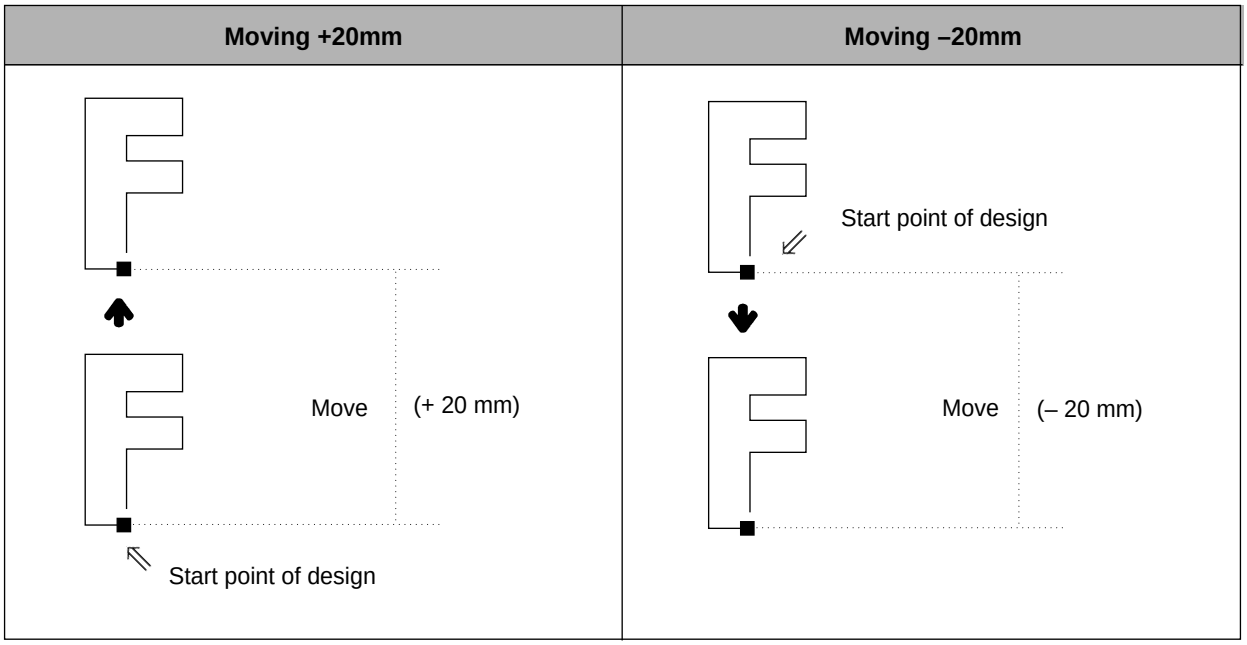
  – : repetition from right to left

Moving +30mm	Moving –30mm
	

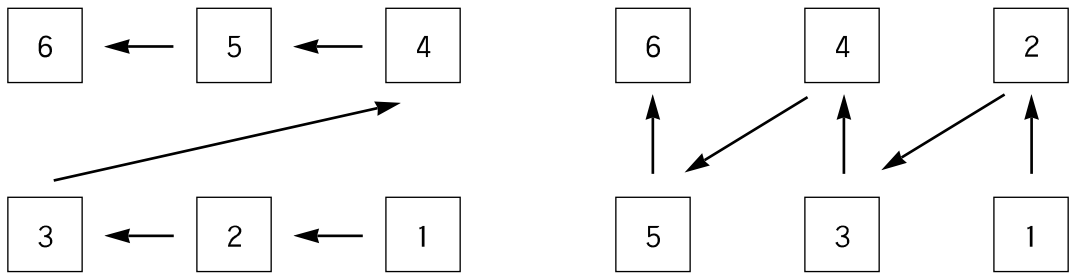
- Y DESIGN INTERVAL
  Set the distance between the start points of the design in the Y direction. Set the direction using +/- buttons.

  + : repetition from bottom to top

  – : repetition from top to bottom



- 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
NAME	:	SWF002
STITCH	:	18294
COLOR	:	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
NAME	:	SWF002
STITCH	:	18294
COLOR	:	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**

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

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

For design interval, press UP a few times.

Use the cursor to go to the next screen.

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

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

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

```
====  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.

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

Press ⊟ 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
NAME         :       REPEAT
STITCH       :       457350
COLOR        :          182
```

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

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

```
No.          :            5
NAME         :       SWF002
STITCH       :        18294
COLOR        :            7
JUMP         :            7
```

The screen shows that the repetition work is cancelled.

7-4-5) Embroidery Data Set-up

Press 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.

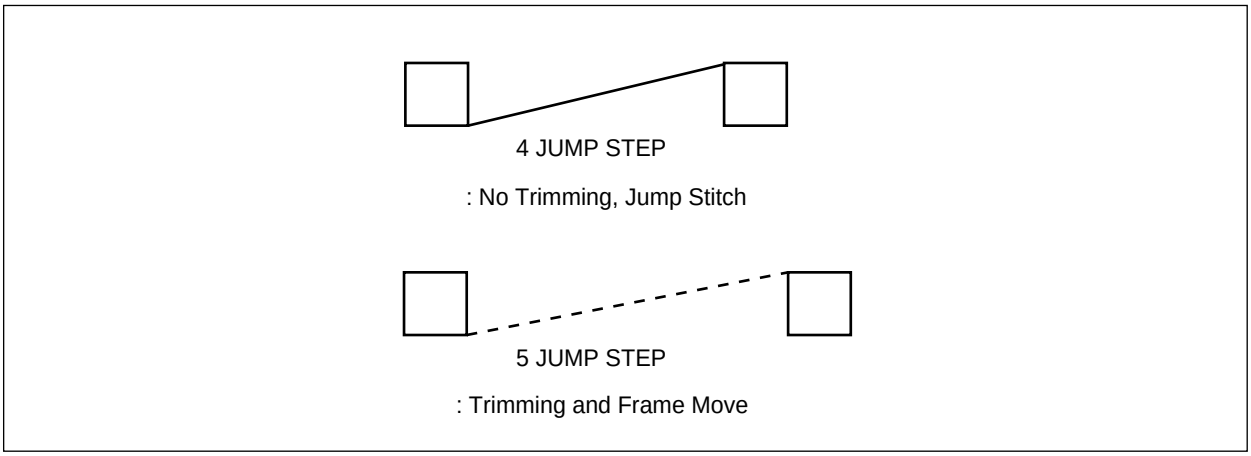
■ **EMB FUNCTION**

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 STOP 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:FLAT
2] CORDING:NO
3] BORING NEEDLE:0
4] SEQUIN:NO

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	0
	SWF/□-UH1208 · 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/□-UH1206 · UH1506	1000	1000	850
	SWF/□-UH1208 · UH1508	1000	850	850
	SWF/□-UI1212	850	750	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.

> Catuion
>
> **[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	100
	SWF/□-UH1208 · 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.

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 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

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 for STITCH 500.

```
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.

Press **SET**

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

```
   === 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 following function codes.

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

Data for STITCH 500 has been revised.

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 ↶ to end

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

```
 900]      0    0    N
 901]    -28   -3    N
=============================================
 DEL       INS       EDIT
```

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

```
 900]      0    0    N
 901]    -28   -3    N
=============================================
 DEL       INS       EDIT
```

```
=============================================
     EDIT DESIGN SAVE ?
=============================================
   [YES]           [NO]
```

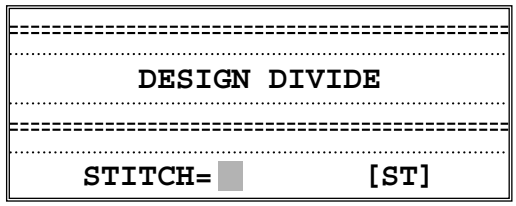
■ **DESIGN DIVIDE: Dividing the selected design in two**

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

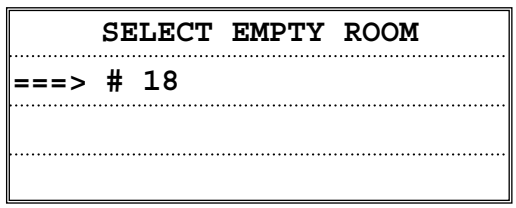
Call the design in #5 and press

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

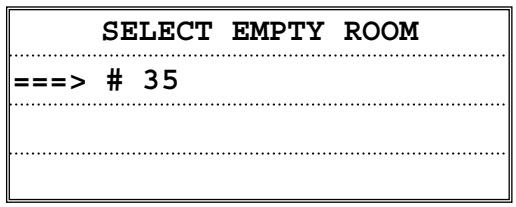
Place the cursor at "2.DESIGN DIVIDE" and press **SET**



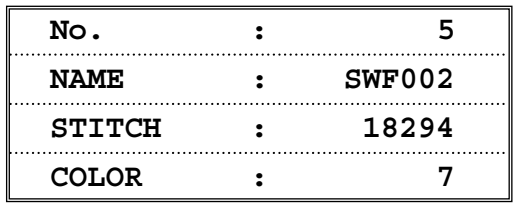
Input 1000 using the numerical keys and press **SET**

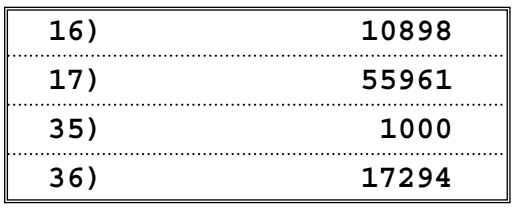


To store sub-design 1, select #35 using the cursor. Press **SET**



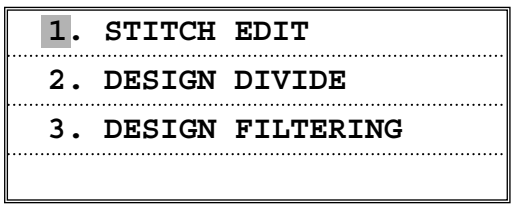
To store sub-design 2, select #36 using the cursor. Press **SET**
Press ↶ if you do not want to store the sub designs

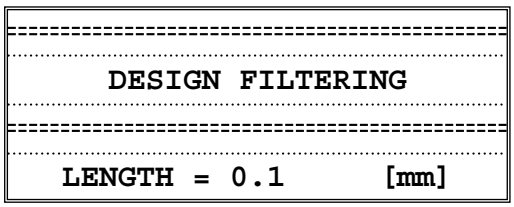


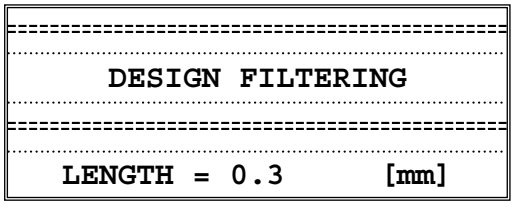
Press to check if the original design is separated. Move the cursor to #35.	

■ **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	
	

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.

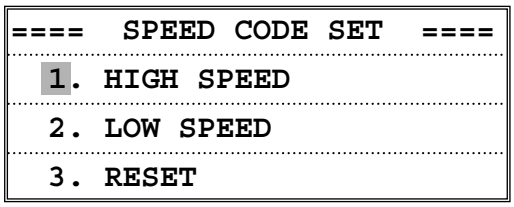
Press

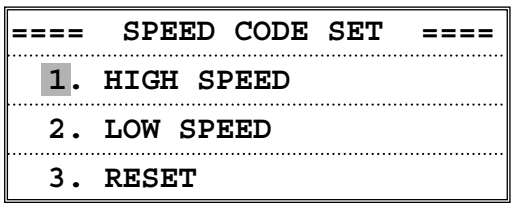
at STITCH 2000 to stop the machine.

Press to change the speed

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

Then press and re-start work.





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

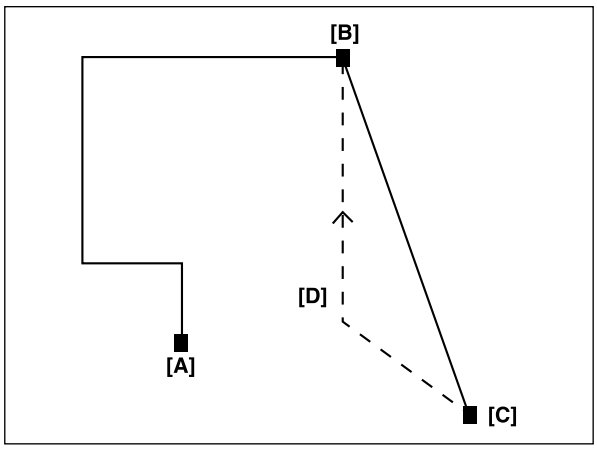
7-4-7) Frame Movement

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

1. DATA ORIGIN
2. ORIGIN
3. POWER RESUME

■ **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 [ ] function to automatically move the frame back to the previously stopped location to resume embroidery work.



Ⓐ Start point of embroidery

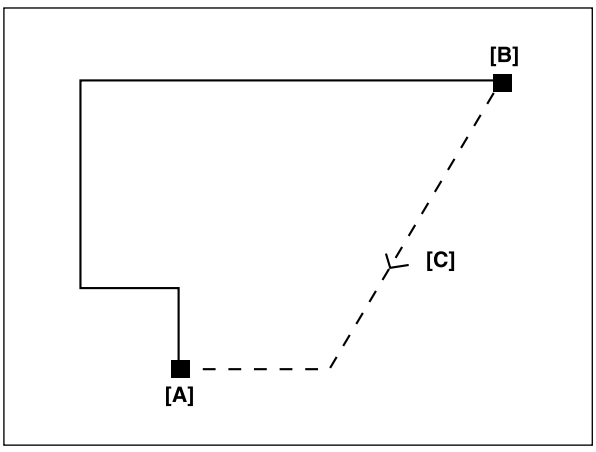
Ⓑ Stop point of embroidery

Ⓒ Frame moved by frame movement key

Ⓓ Frame moved by DATA ORIGIN

■ **ORIGIN (Start of embroidery)**

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



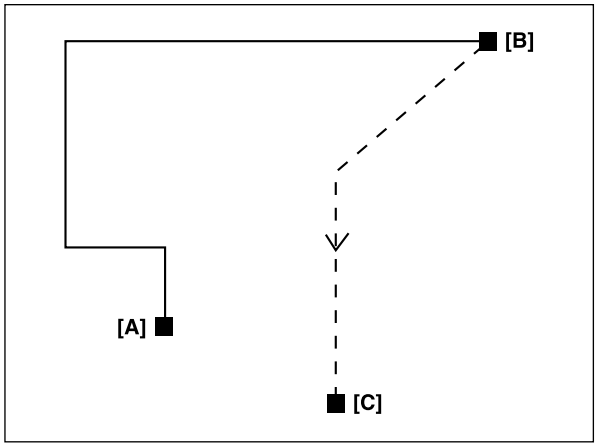
Ⓐ Start point of embroidery

Ⓑ Stop point of embroidery

Ⓒ 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.

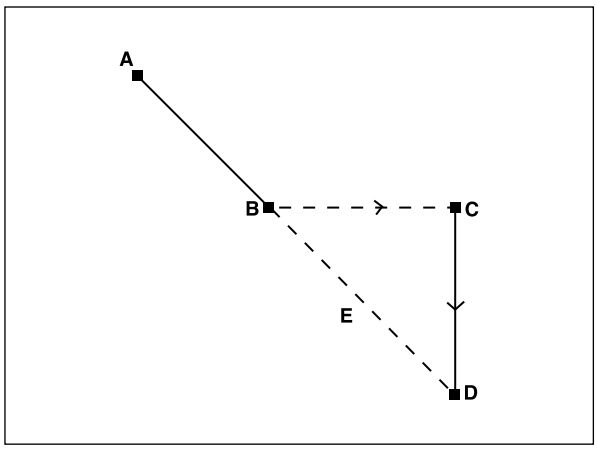


Ⓐ Start point of embroidery

Ⓑ Stop point of embroidery

Ⓒ 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.



Ⓐ Start point of automatic frame movement

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

Ⓒ Frame moved by frame movement key

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

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

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

Press 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**

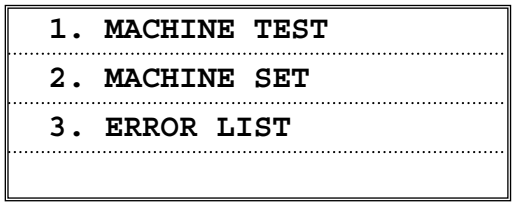
Press START for forward movement and STOP for backward.
Press to correct the data or to end the process.

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

EXIT -> PREVIOUS
```

7-4-9) Machine Data Set-up

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

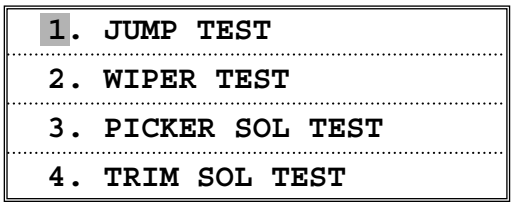


1. MACHINE TEST: tests solenoid or thread detecting functions.
2. MACHINE SET: sets frame limit.
3. ERROR LIST: stores a list of up to 10 latest errors.

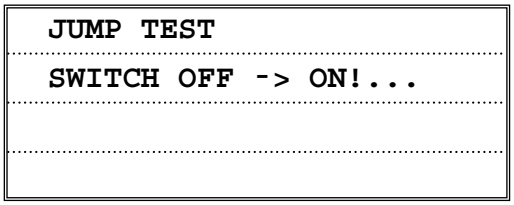
■ **MACHINE TEST: Tests solenoid or thread detecting functions**

Ex) Testing jump functions

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



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



■ **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).

① 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**

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

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

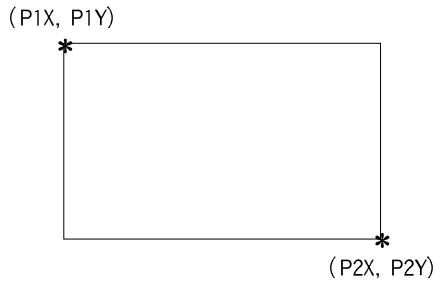
↓ Press [PREVIOUS] to end the process.	CUTTING NEEDLE SET 1 => USE, 0 => NO NO. 1 5 9 [1000010000000]

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

Press **SET**

Set P2X=1500, P2Y=−500 using

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.

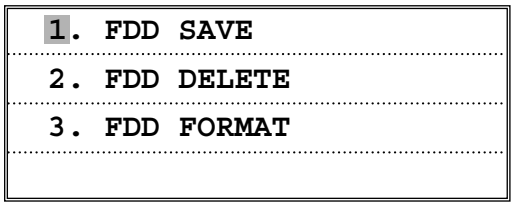
```
1. MACHINE TEST
2. MACHINE SET
3. ERROR LIST
```

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

Most recent errors are towards the top of the list

7-4-10) The Floppy Drive and Disk

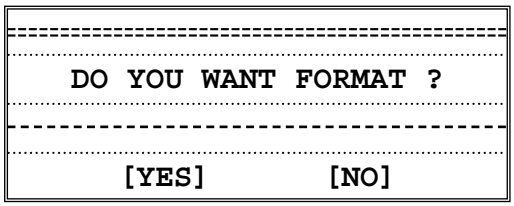
Press when the operating system loads and you will see a screen like this:



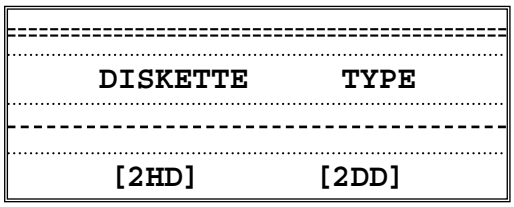
1. FDD SAVE: copies data in the memory onto a floppy disk.
2. FDD DELETE: deletes the designs in the disk.
3. FDD FORMAT: formats the disk.

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**

To copy the design to the floppy disk, move the cursor to "1.FDD SAVE" and press **SET**

Select #5 with the cursor

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
```

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

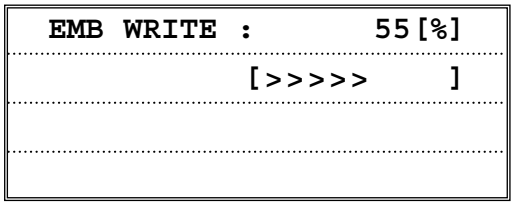
```
2)                   5954
3)                   7281
4)                  17325
5)                  18294
```

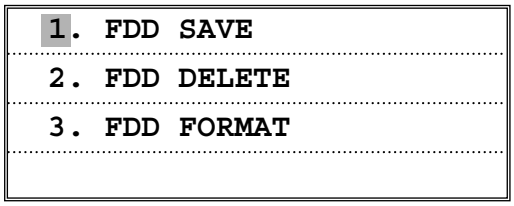
```
1. SWF
2. TAJIMA
```

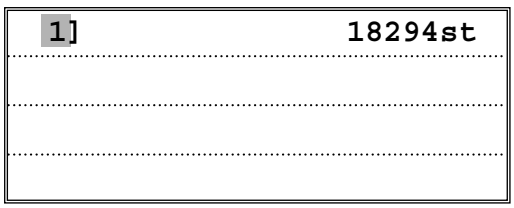
To copy the design onto a disk, you have to select an output format.
In this case, select "1.SWF" and press **SET**

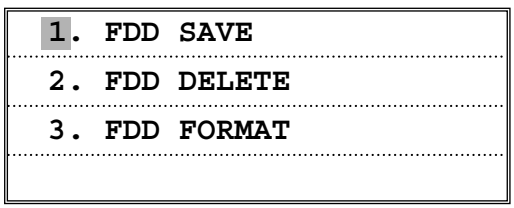
To delete the design copied onto the disk, move the cursor to "2.FDD DELETE" and press **SET**

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



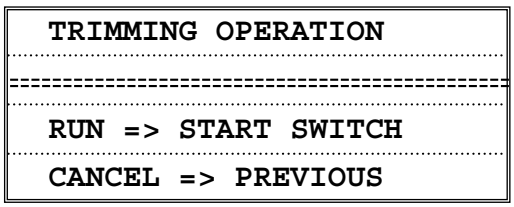






7-4-11) Manual Cutting

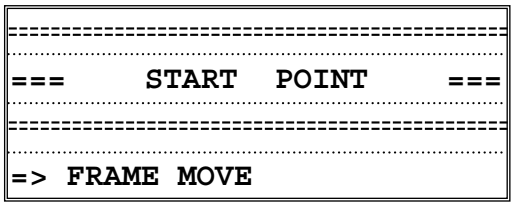
Press [ ] when the operating system loads and you will see the following screen:



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 [ ] to cancel.

7-4-12) Offset Set-up

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



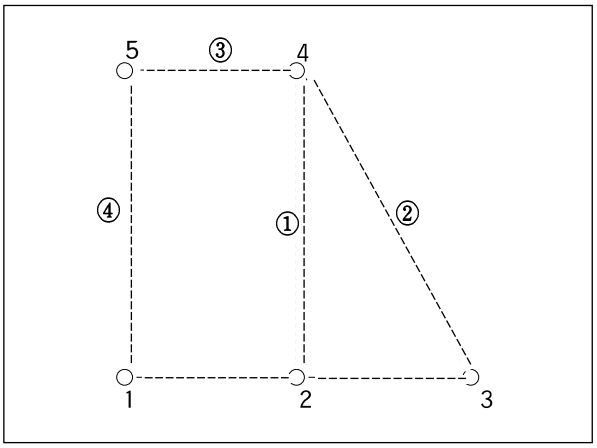
This sets the frame to automatically move to the location you selected at start or finish of the embroidery work. This function may be useful when changing frame or arranging fabric. Select the following four types of data for the offset function.

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 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

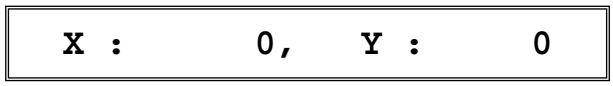
a) ④ : path at the start of the embroidery
b) ① → ③ → ① : Movement from the offset stitch to the offset point
c) ② → ③ : path after the embroidery is finished

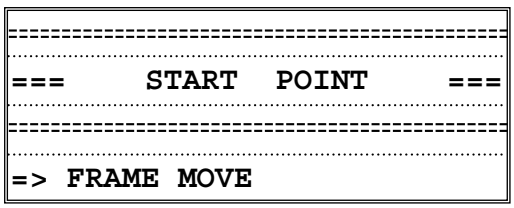
[CAUTION]
1. Middle point and offset point may be the same.
2. Offset data is automatically deleted when you call a new design.

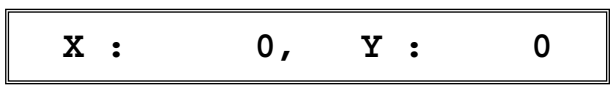
Ex) Offset set-up
1. Start point: X=−300, Y=500
2. Middle point: X=600, Y=1500
3. Offset point: X=800, Y=2000

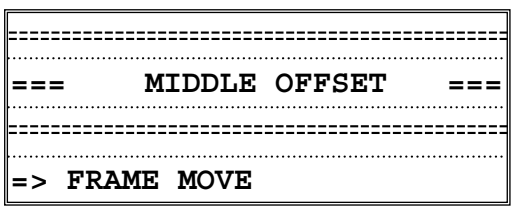
Press in the start menu

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

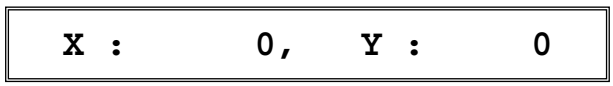


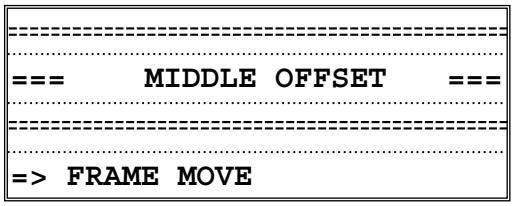




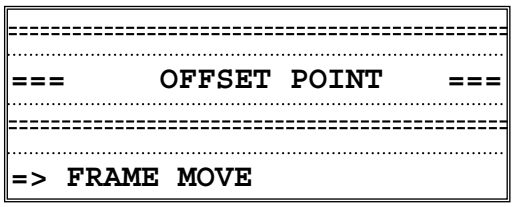


Set X=600, Y=1500 using key and press SET



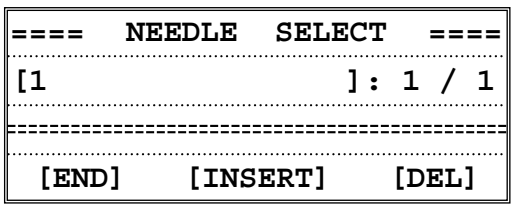


Set X=800, Y=2000 using key and press SET



7-4-13) Needle Bar Selection

Press [ ] 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

```
====   NEEDLE   SELECT   ====
[1                    ]: 1 / 1
=============================================
  [END]    [INSERT]    [DEL]
```

```
====   NEEDLE   SELECT   ====
[1                    ]: 1 / 1
=============================================
  [END]    [INSERT]    [DEL]
```

※ Cursor moves automatically.

```
====   NEEDLE   SELECT   ====
[12                   ]: 2 / 2
=============================================
  [END]    [INSERT]    [DEL]
```

```
====   NEEDLE   SELECT   ====
[12A                  ]: 3 / 3
=============================================
  [END]    [INSERT]    [DEL]
```

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

```
====   NEEDLE   SELECT   ====
[12Ao                 ]: 4 / 4
=============================================
  [END]    [INSERT]    [DEL]
```

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]

```
====  NEEDLE  SELECT  ====
[12AoB                ]: 5 / 5
==========================================
 [END]    [INSERT]    [DEL]
```

```
====  NEEDLE  SELECT  ====
[12AoBC               ]: 6 / 6
==========================================
 [END]    [INSERT]    [DEL]
```

```
====  NEEDLE  SELECT  ====
[12AoBC               ]: 6 / 6
==========================================
 [END]    [INSERT]    [DEL]
```

※ 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

moves to needle #5

Press [CL]

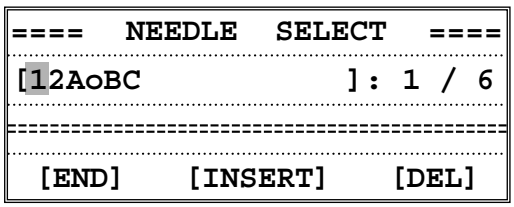
```
N3 : 3 => N3 : 5
```

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

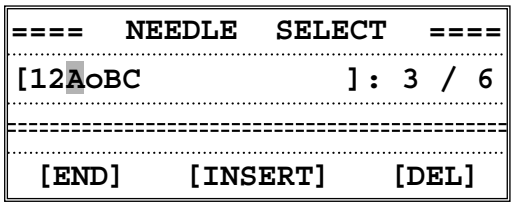
Resume work

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

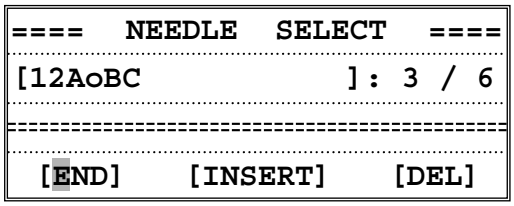
Press **SET** when the embroidery information loads



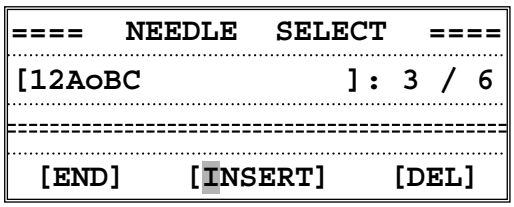
Move the cursor to A to insert "3" in between "2" and "A"



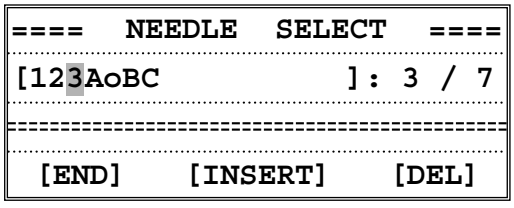
Press **SET**



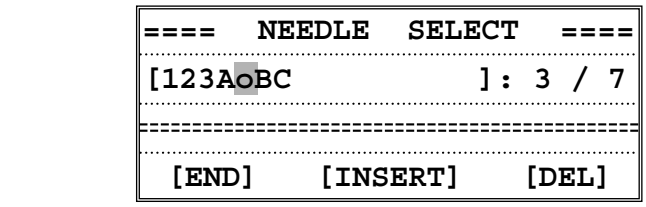
Place the cursor at INSERT



Press **SET**

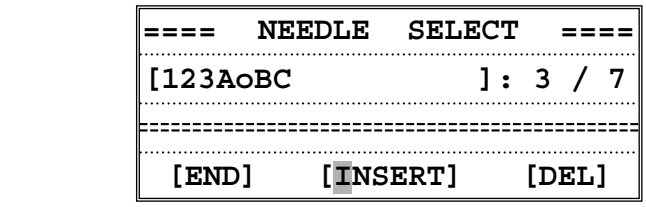


Move the cursor to "o" to delete the offset point between A and B

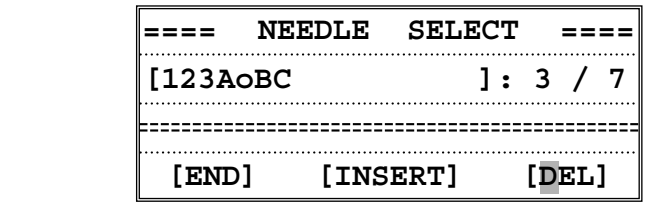


※ "3" is inserted between 2 and A

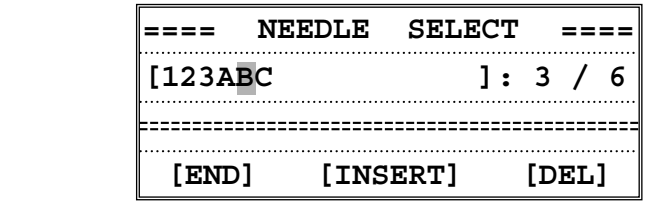
Press **SET**



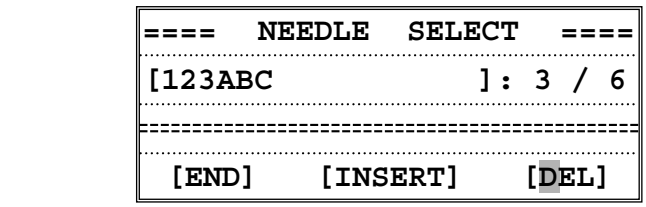
Move the cursor to DEL to delete



Press **SET** to delete.



Press **SET** to end the 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 located 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	Overload 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

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 & 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 is 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 & 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 the battery.

8-9) SYSTEM INSTALLATION

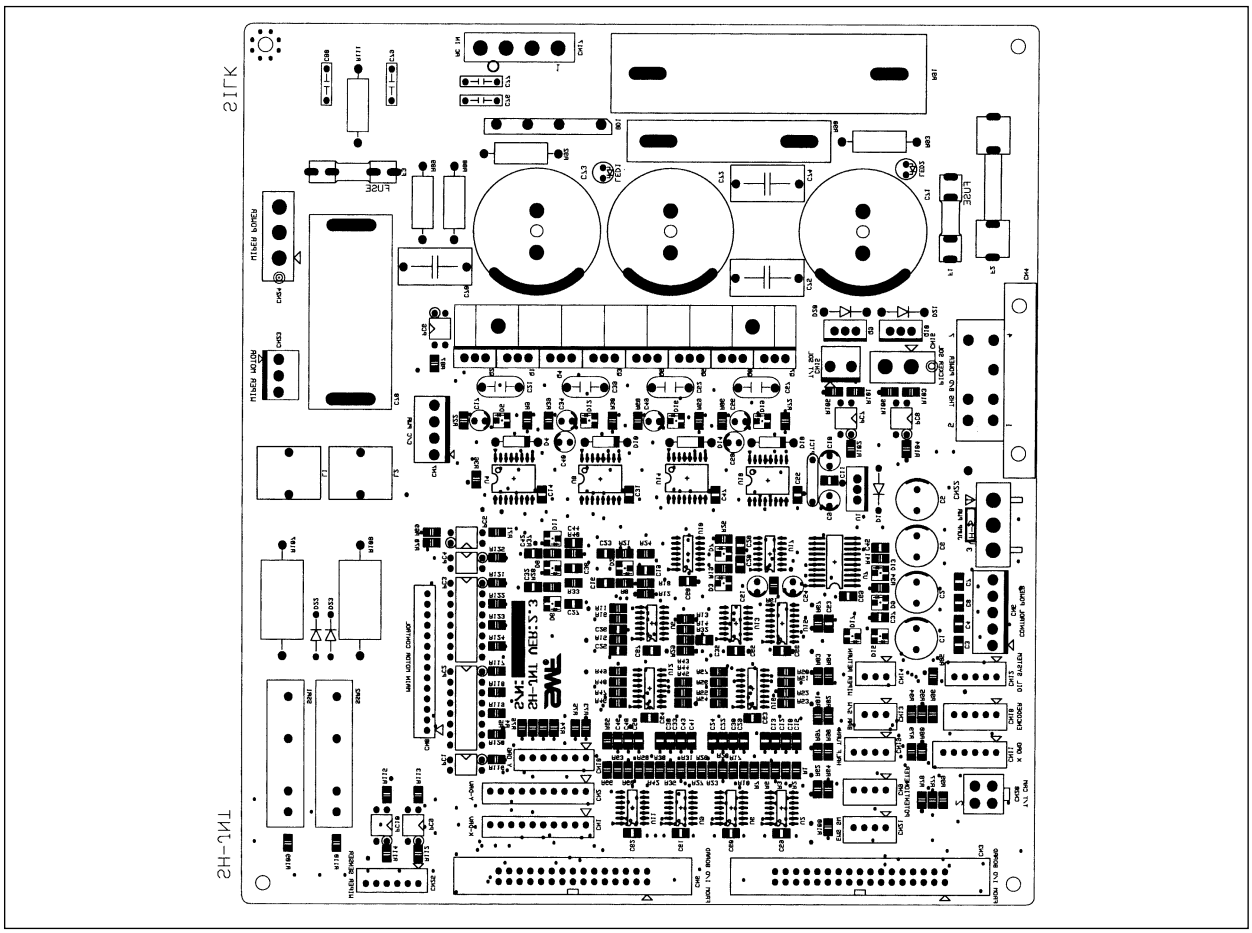
NO.	ERROR MESSAGE	ERROR	CORRECTION
800	System file not found	Disk for system installation was not used.	Use the disk for system installation.

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.



Fuse \ Fuse Capacity		F1 (Picker Sol, Trimming Sol, Wiper motor)	F2 (Wiper Sol, Picker Sol)	F3 (Jump Sol, Wiper motor)
W series	C-series	250V/3A	250V/7A	250V/10A
	D-series	250V/3A	250V/7A	250V/2A
T series		250V/3A	250V/7A	250V/10A
U series	2/4/6/7 HEAD	250V/3A	250V/7A	250V/2A
	8HEAD	250V/2A	250V/3A	

9-2) 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	6	A	※ 2.5A at F
	SWF/□-WE1204	8	F	※ 2.5A at F
	SWF/□-WE1206	F	F	※ 2.5A at F
	SWF/□-WJ(X)1206-100	D	D	※ 3.5A 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/□-UH1212	C	F	※ 3.5A at F
	SWF/□-UH1508	8	F	※ 2.5A at F

※ Failure to meet the above standards may cause the following:
1. X and Y motors loose power and deviate.
2. X and Y motors heat up.
3. 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

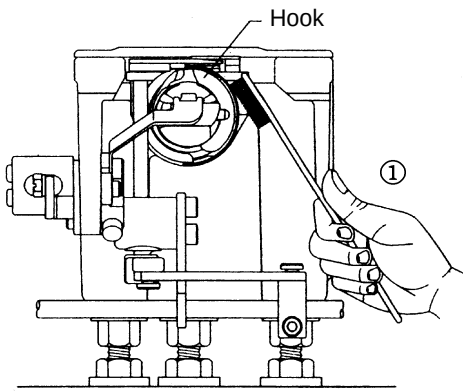
CAUTION

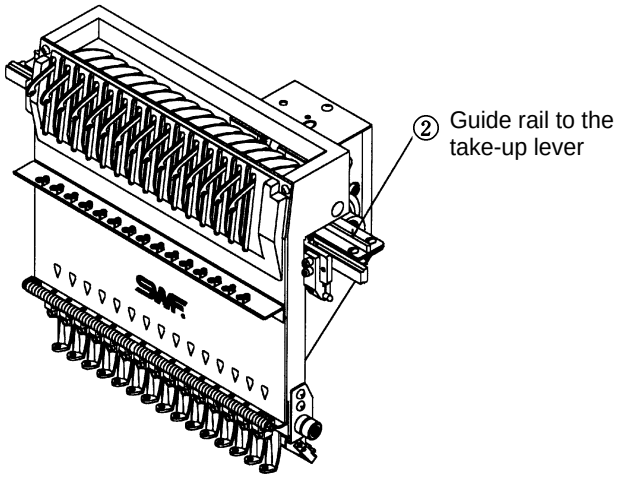
SWF is not responsible for machine damages or malfunctions caused by insufficient cleaning or oiling.

CAUTION

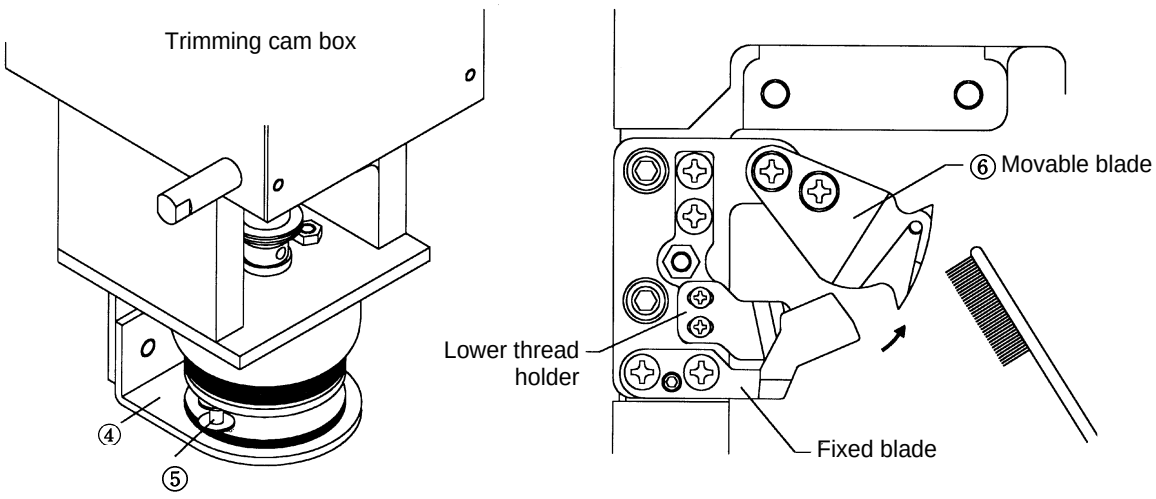
Turn OFF the main power before inspecting or cleaning of the following parts.

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 insert the bobbin (⑤) between the trimming solenoid flanger and stopper (④). Turn the main shaft with a lever and the movable blade ⑥ will move (see picture). • Use the SWF brush to remove dirt and dust.	Once in 3-7 days	③
4	X-Y drive pulley teeth and timing belt teeth **[How to Clean]** • Unscrew the stainless cover so X-Y drive belt shows. • Blow off the dust on the teeth of the timing pulley and the timing belt (turn the pulley once). • Close the cover after cleaning.	Once a month	


Hook
①


② Guide rail to the take-up lever

③


Trimming cam box
④
⑤
⑥ Movable blade
Lower thread holder
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

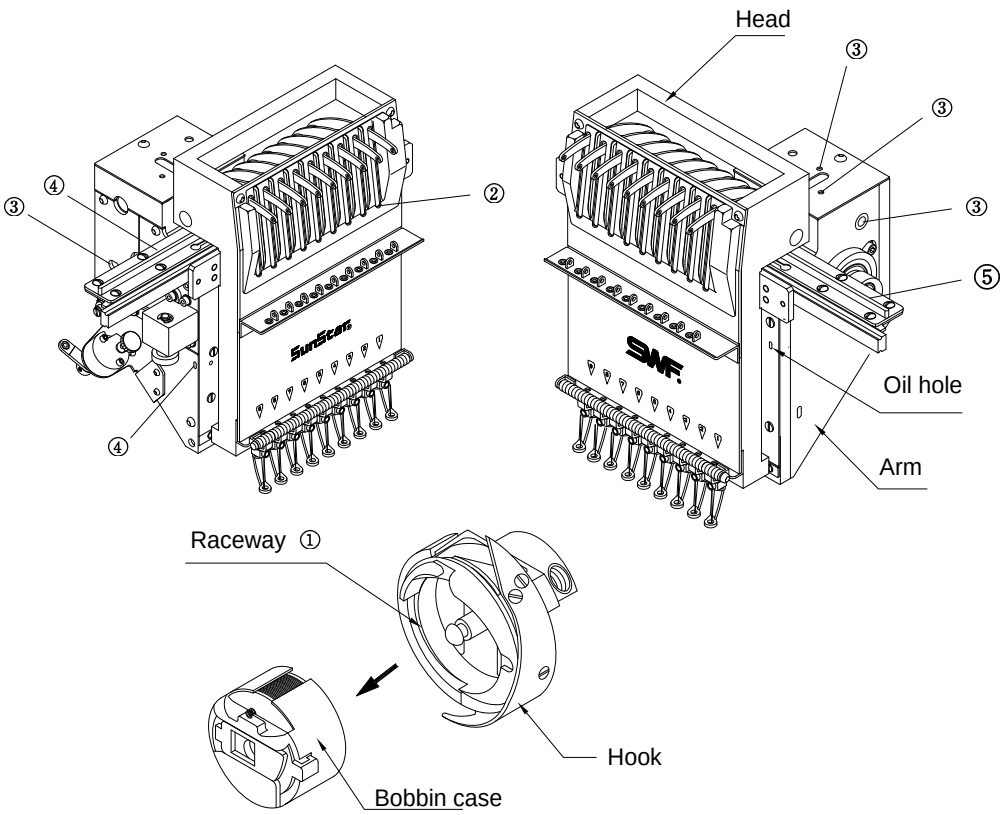
Use the SWF sewing machine oil (Spindle Oil) or ISO-standard VG18.

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

[CAUTION]

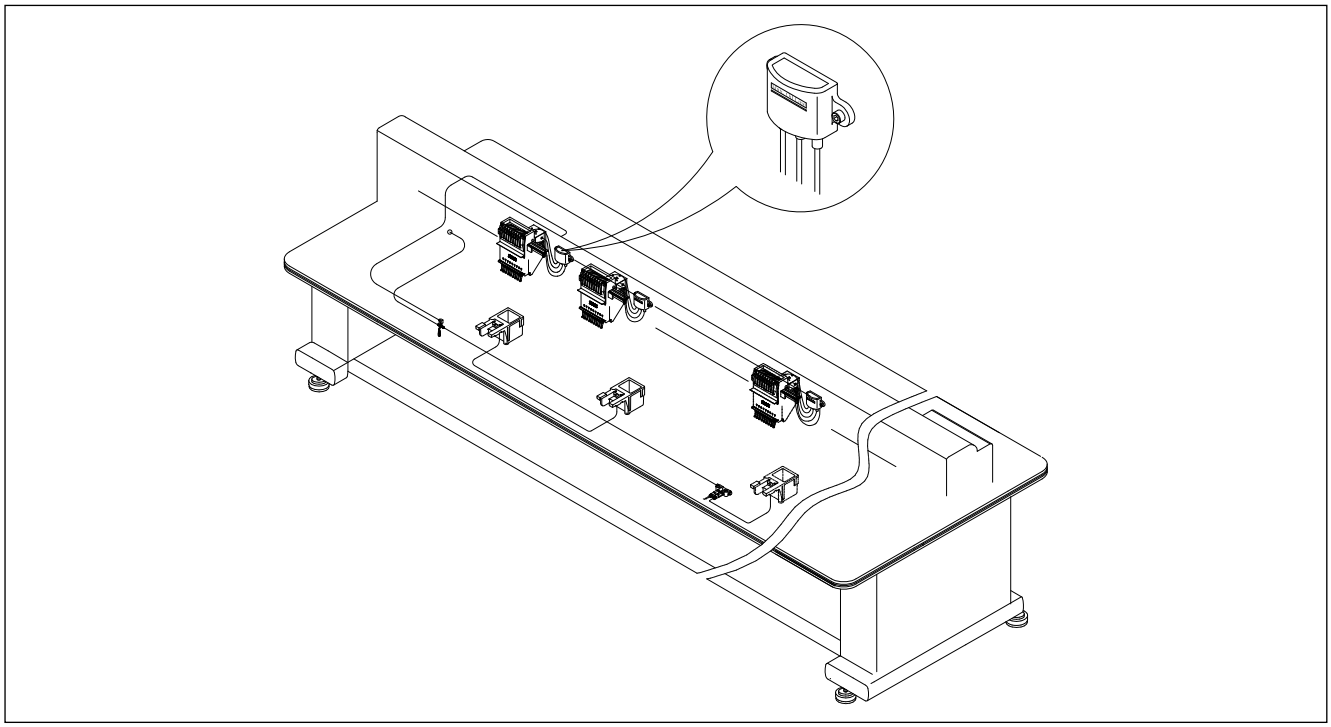
1. Excess oil may stain the thread and the fabric.
2. Run the machine without stitching for 2-3 minutes after oiling.
3. Excessive oiling in the hook may cause trimming problems and thread breaks.



[Fig.10-2]

3) Semi-Automatic Greasing from Oil Tank

① Greasing Cycle: once in 2-3 days



[Fig.10-3]

[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.

② Grease supply

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

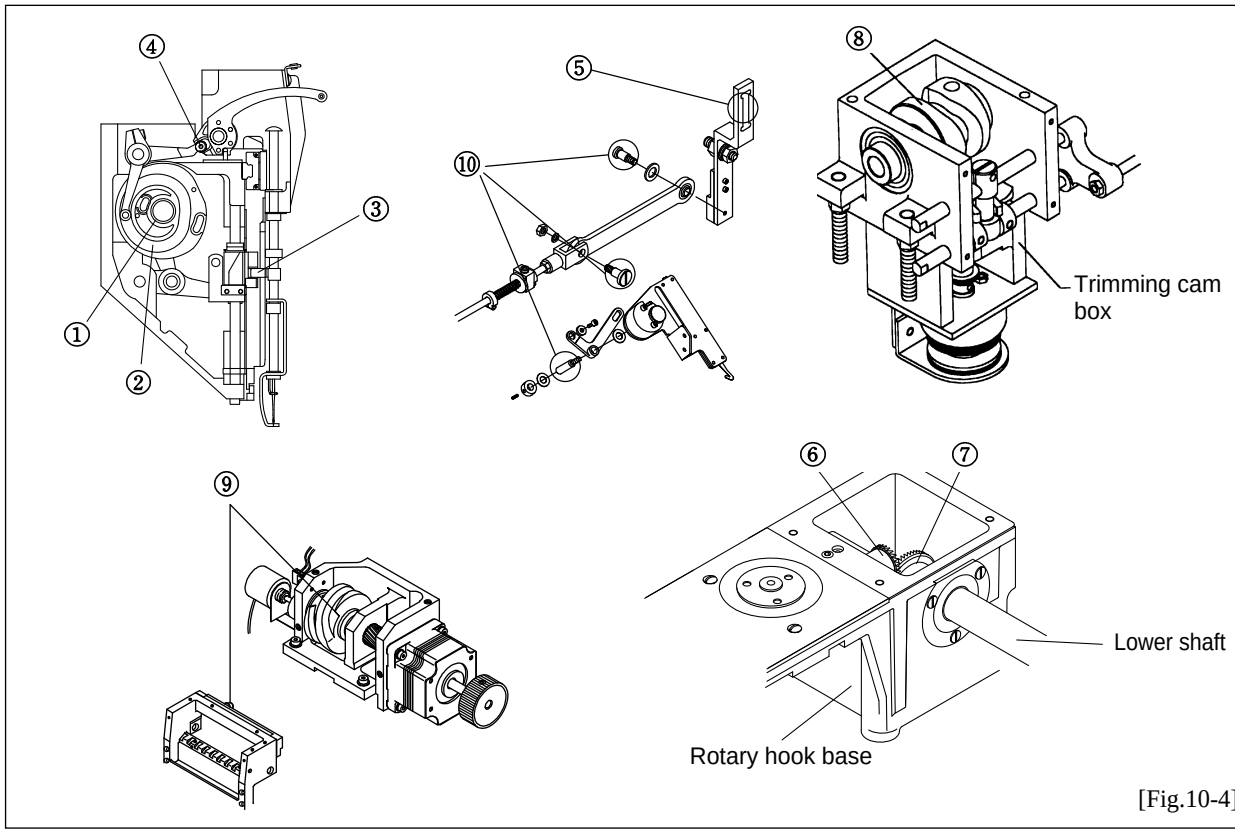
Use high-quality mineral-based lithium grease.

NO.	Where to Grease	Greasing cycle	Reference Fig.
1	Inside the arm Take-up lever drive cam Needle bar drive cam Needle bar controller Take-up lever drive roller	Once in 3 months	① ② ③ ④
2	Driving plate for the upper thread holder	Once in 1 months	⑤
3	Hook gear and lower gear in the rotary hook base	Once in 3 months	⑥ ⑦
4	Blade cam	Once in 3 months	⑧

Places for supplying synthetic TM grease

NO.	Where to Grease	Greasing cycle	Reference Fig.
1	Color change cam, color change head roller	Once in 3 months	⑨
2	Hinge screw Once a month	Once in 1 months	⑤

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



[Fig.10-4]

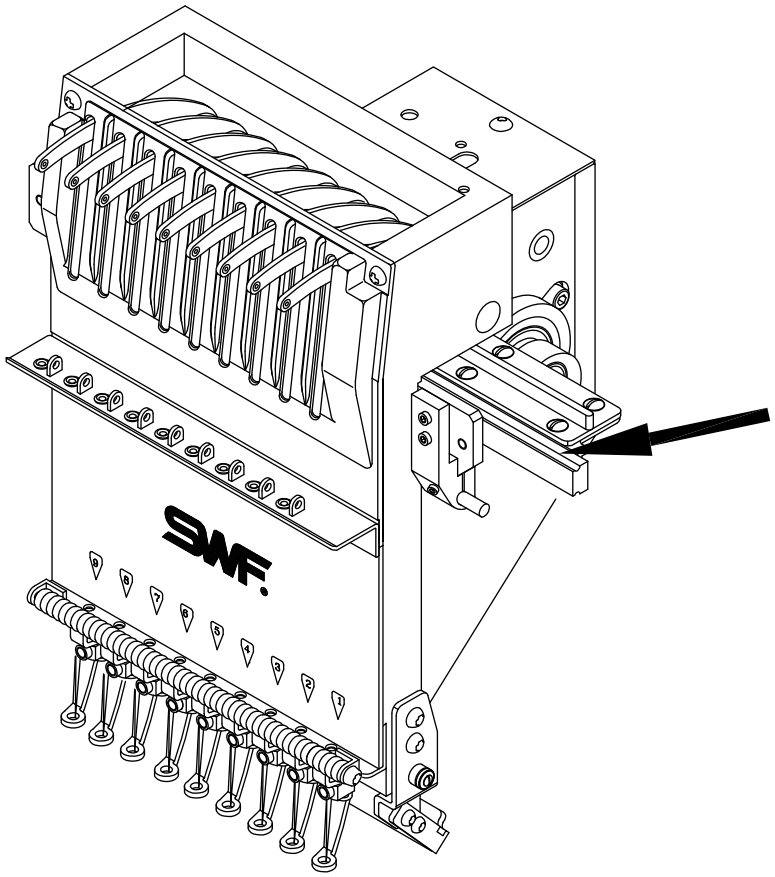
CAUTION	Turn OFF the main power during the grease supply.

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

NO.	Where to Grease	Greasing cycle	Reference Fig.
1	Head drive LM guide	Once a month	①

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

① Head drive LM guide (upper cover opened)



[Fig.10-5]

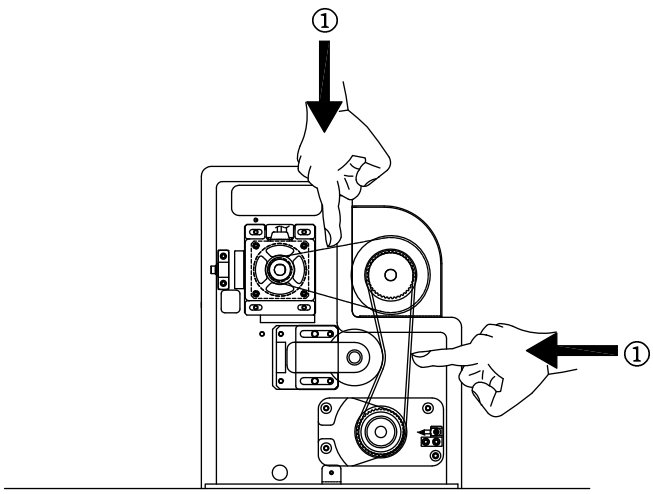
10-4) DRIVE BELT TENSION

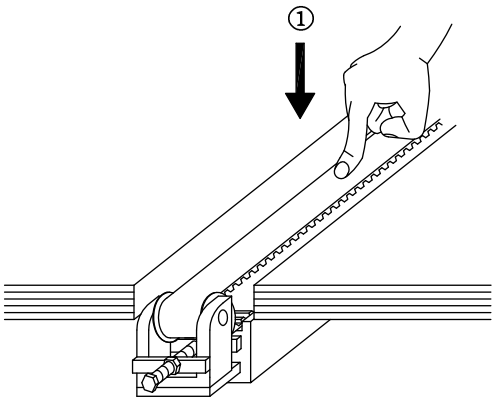
CAUTION	Turn OFF the main power when inspecting drive belt tension.

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	Inspection	Fig.
1	Belt on main shaft motor	Once in 3 months	① Belt tension ② Belt crack ③ Belt wear-out ④ Bearing damage ⑤ Wear-outs of rotating parts	①
2	Upper & lower shaft belt	Once in 3 months		
3	X-axis timing belt	Once in 3 months		
4	Y-axis timing belt	Once in 3 months		

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





[Fig.10-6]

CHAPTER 11

MACHINE ADJUSTMENTS

WARNING

Turn OFF the main power when adjusting the machine.

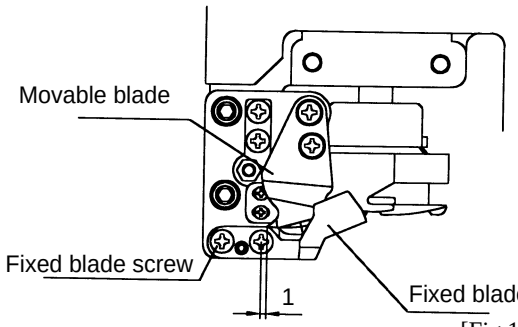
11-1) ADJUSTING THE TRIMMERS

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

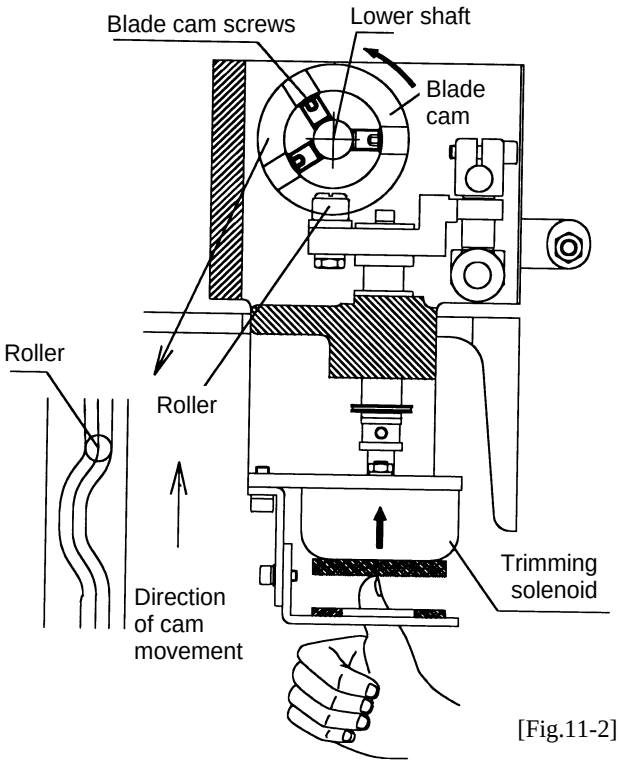
① Check if the movable blade is in the correct position.
② Tip of the movable blade should be around 1mm from the center of the fixed blade. Incorrect position of the movable blade can cause trimming errors or deviation of the upper thread.
③ Unfasten the crank screw to adjust the location of the movable blade (see [Fig.11-1]). Fasten the screws back.



[Fig.11-1]

2) Adjusting the angle of the movable blade

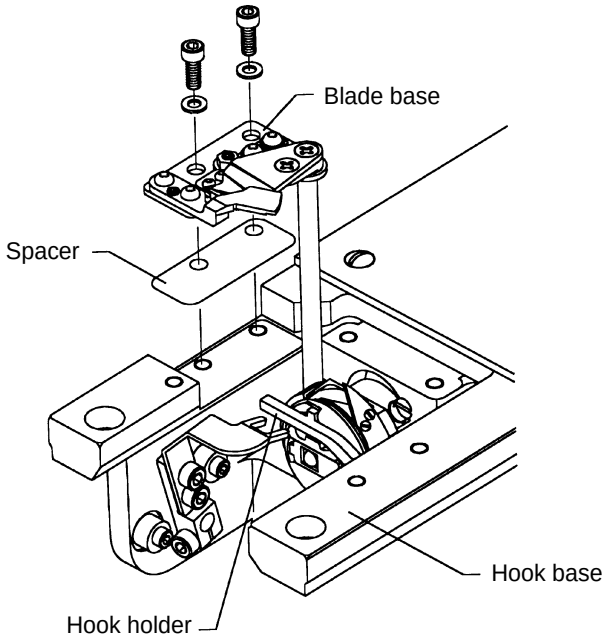
① Unfasten the screws on the blade cam directly connected to the lower shaft. Turn the lever to adjust the main shaft rotary angle at 295°.
② Press the trimming solenoid and insert the trimming cam roller into the trimming cam ([Fig.11-2]). Turn the cam and when the roller aligns with the curve of the cam, fasten the cam screws back.
③ Run the manual handle and check if the movable blade is well-inserted at 292°. Always check after the adjustment.

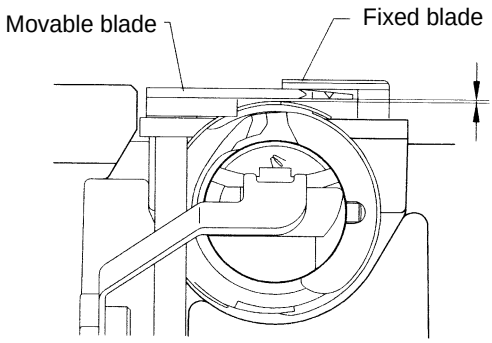


[Fig.11-2]

11-1-2) Adjusting Space between Movable Blade and Hook

To adjust a space between the movable blade and the hook, remove or insert a spacer (t 0.1) between the blade base and the hook base. In the case of spacer removal, make sure to check if the hook does not interfere with the movable blade.





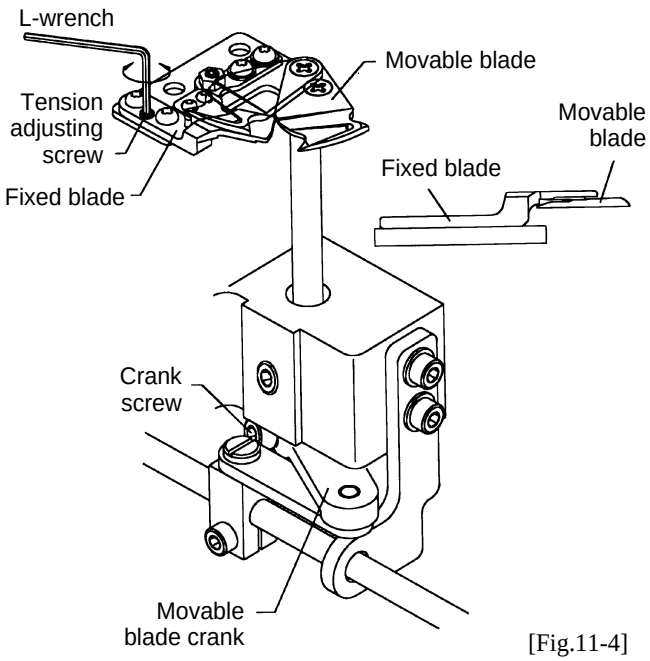
[Fig.11-3]

11-1-3) 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.11-4]

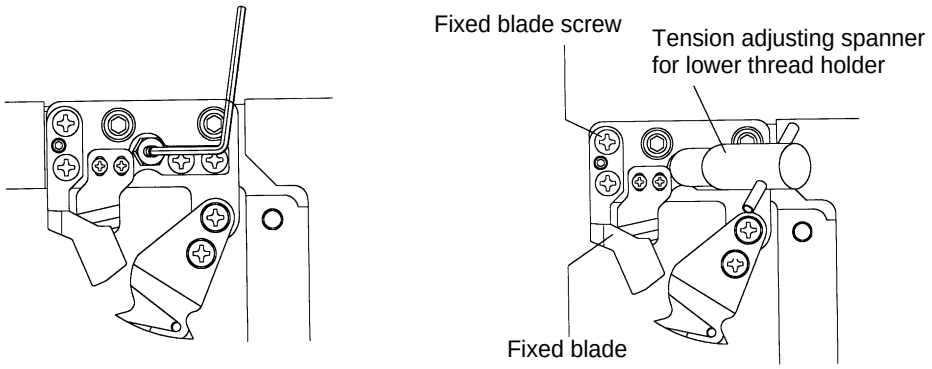
[NOTE]
Avoid excess cross-tension. It may cause the movable blade to wear out from overload at its entry or return point.

11-1-4) Adjusting Tension on Lower Thread Holder

By holding the thread coming from the bobbin case after trimming, the lower thread holder forms starting stitches after trimming.

① Unscrew the movable blade crank. Cut the lower thread with the movable blade and check the cross-section of the thread.
② If the lower thread tension is too weak or too tight, use the tension control spanner (included in the SWF basic kit) to unscrew the nut on the lower thread holder. Adjust the tension with the L-wrench.
③ Use the spanner to fasten back the nut.

[CAUTION]
Clean the thread debris around the lower thread holder on a regular basis.



[Fig.11-5]

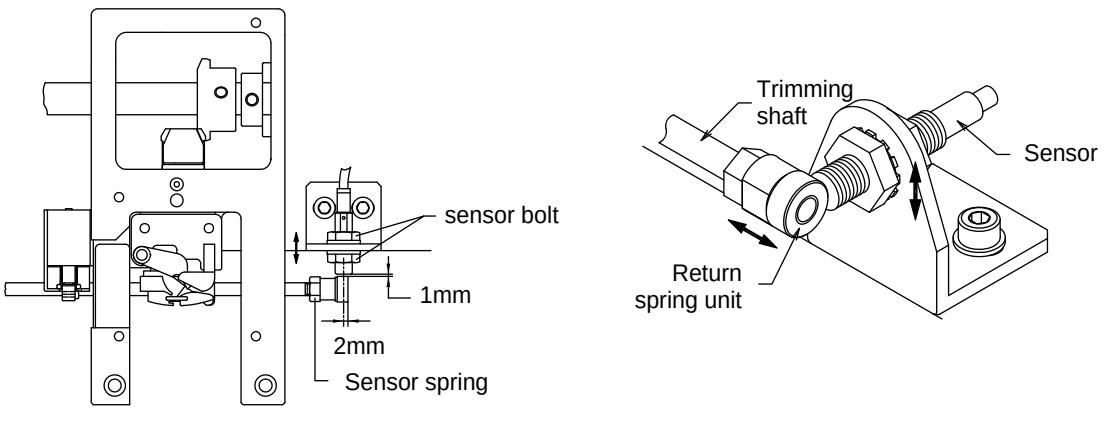
11-2) ADJUSTING THE TRIMMER RETURN SPRING

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 Adjust so that the sensor spring is around 2mm off the center of the sensor when the movable blade is in its correct position ([Fig.11-6]).
② Adjust so that the sensor spring and the sensor are around 1mm apart.
③ Center of the sensor spring should align with the center of the sensor.



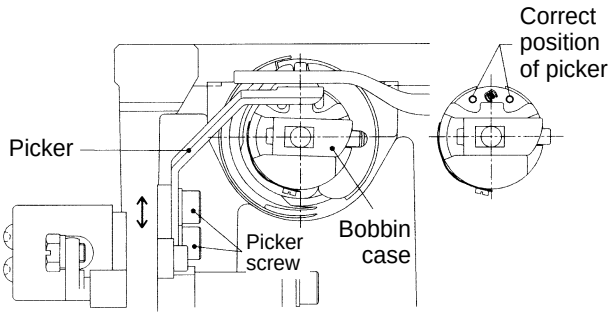
[Fig.11-6]

11-3) PICKER ADJUSTMENT

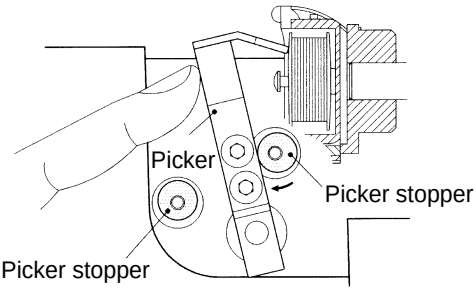
If the position or the starting height of the picker is incorrect, the machine may not be able to separate the upper and the lower thread and cut them both, resulting in short upper thread.

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.11-7].

② Adjusting the starting height
Unfasten the screw on the picker stopper. Adjust eccentricity so that the picker softly touches the bobbin when pressed by hand.



[Fig.11-7]



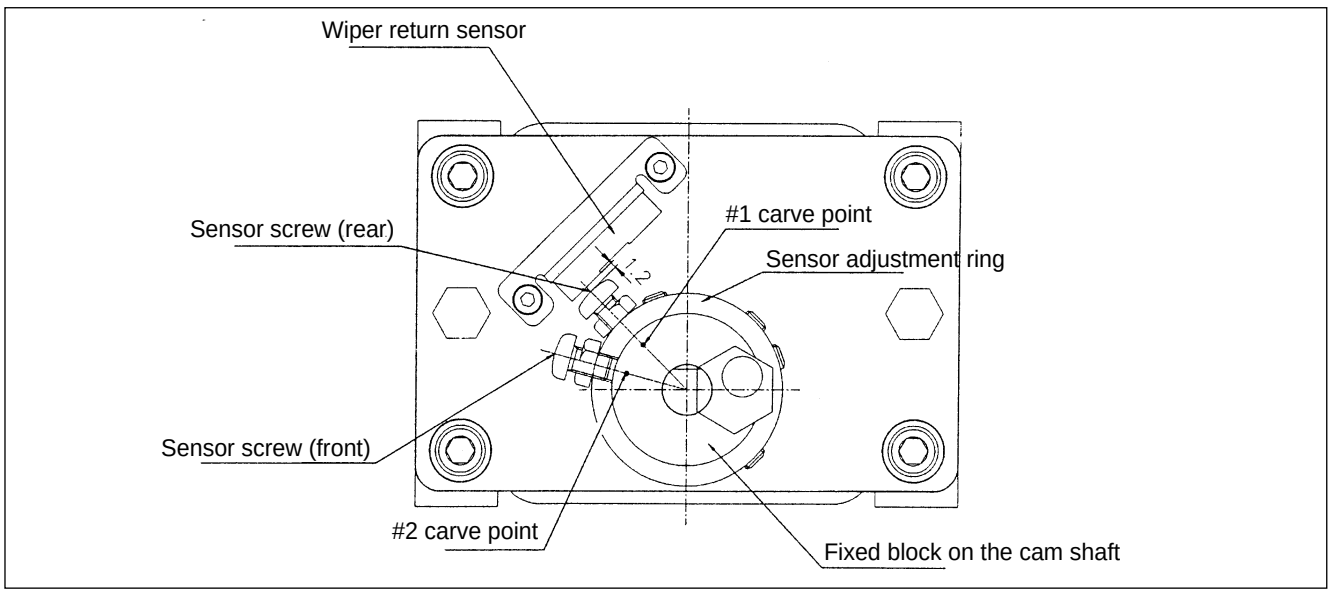
[Fig.11-8]

11-4) ADJUSTING UPPER THREAD HOLDER

① Adjusting Sensor Adjustment Rings
Make the following adjustments if you find errors in the wiper return system.

ⓐ Open the cover of the wiper motor. Of the two sensor adjustment rings, align the center of the sensor screw in the rear ring with the #1 carve point on the fixed block on the cam shaft. Align the center of the sensor screw in the front ring with the #2 carve point on the fixed block on the shaft.

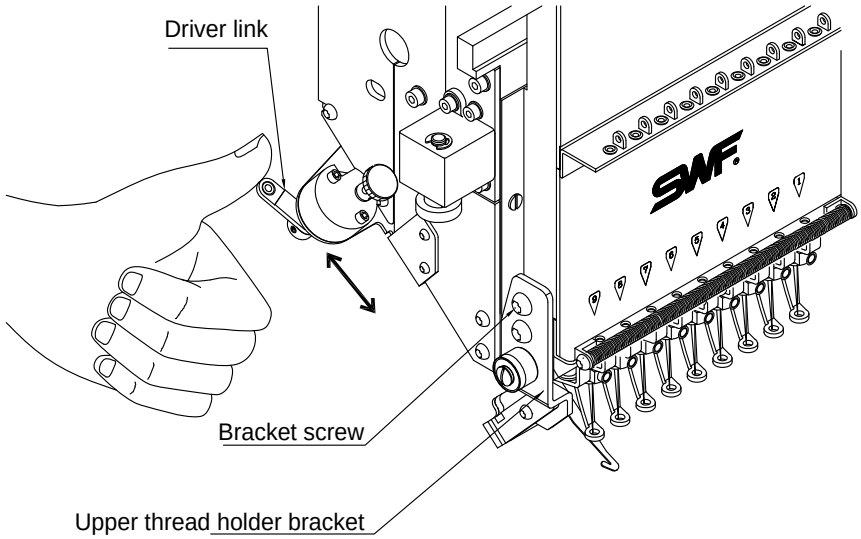
ⓑ Adjust so the wiper return sensor is 1-1.2mm from the upper head of the sensor screw. Make sure to check if the wiper return sensor turns on.



[Fig.11-9]

② If the wiper does not move well, unscrew the driver link and adjust the wiper lever up and down. Unfasten the bracket screw so there is lesser overload from upper thread holder bracket. Adjust and fasten the bracket back at the point where the wiper moves well.

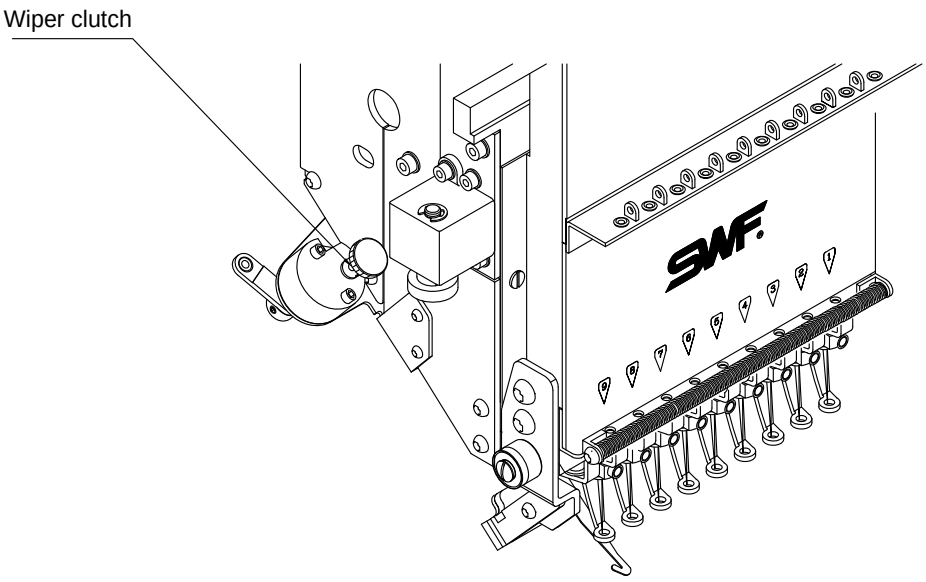
③ After adjustment, run the color change to check if the wiper functions well at each needle bar.



[Fig.11-10]

④ If there occurs a trimming or jump problem on a particular head during the embroidery, operate the wiper clutch to protect the embroidery and the wiper.

- Press and turn the wiper clutch counterclockwise to operate the wiper clutch. Press and turn it clockwise to stop the operation.

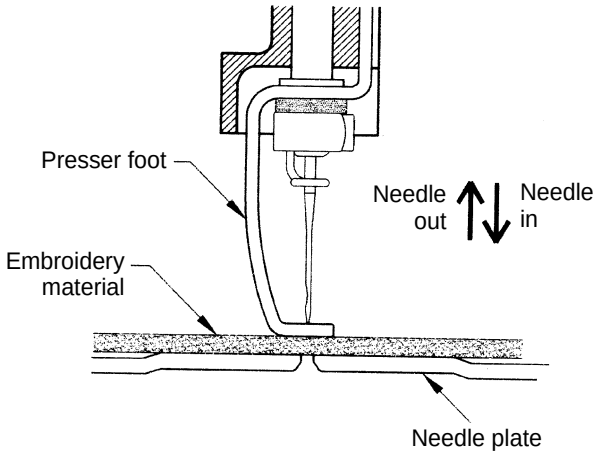


[Fig.11-11]

11-5) ADJUSTING HEIGHT OF PRESSER FOOT

1) Relationship between Presser Foot and Needle/ 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.11-12]

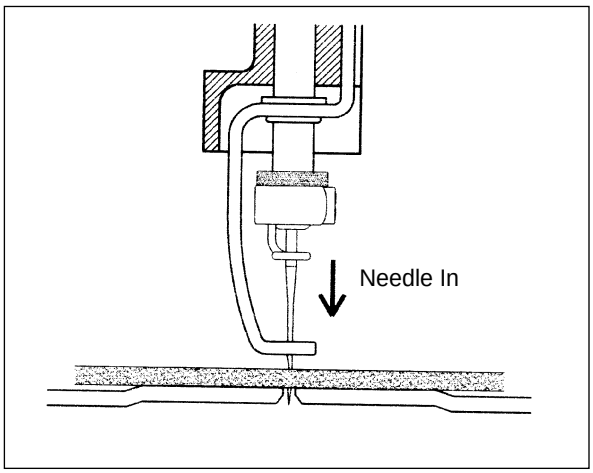
2) When the Presser Foot is Too High

① Needle In

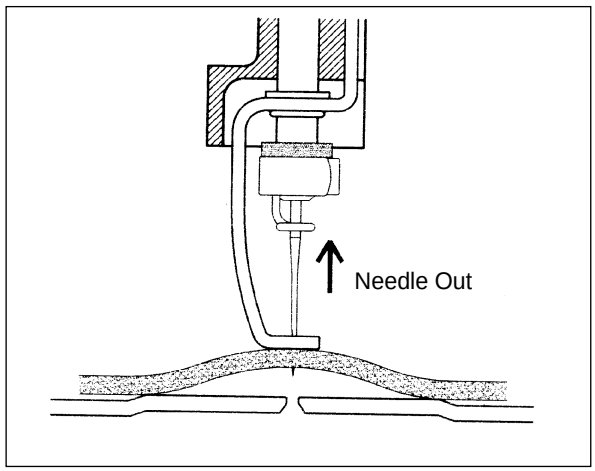
[Fig.11-13] shows the presser foot fails to press the work material when the needle pierces into the fabric, causing an unstable needlework.

② Needle Out

[Fig.11-14] 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.



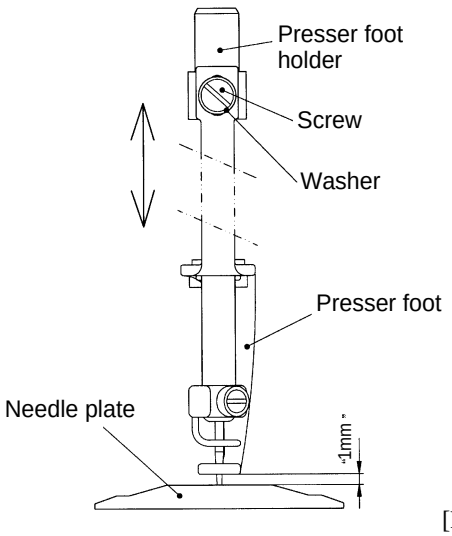
[Fig.11-13]



[Fig.11-14]

3) Adjusting the Height of the Presser Foot

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 ([Fig.11-15]). 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.



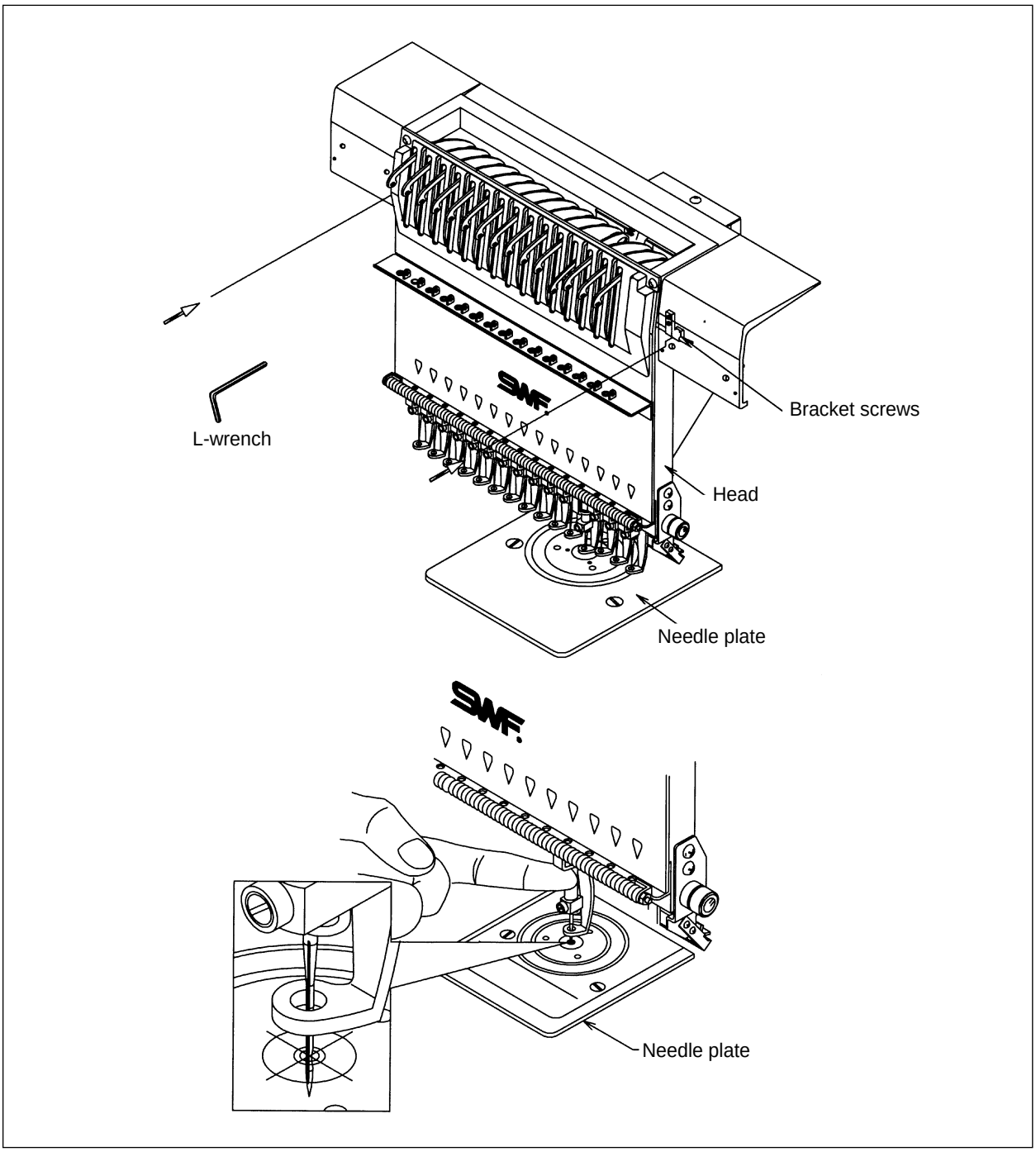
[Fig.11-15]

11-6) 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.11-16]).

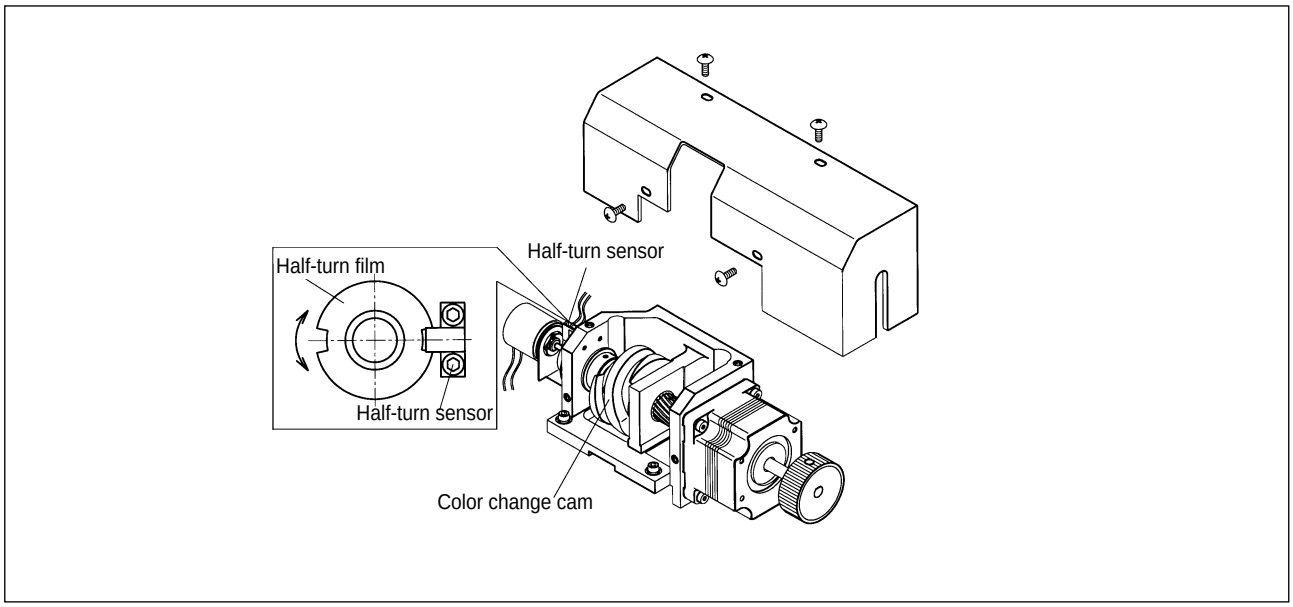


[Fig.11-16]

11-7) ADJUSTING HALF-TURN FILM FOR COLOR CHANGE

Adjust the half-turn film as below to align the needle to the center of the needle hole on the plate for automatic color change.

① Turn the hand lever for color change and align the roller at the center of the straight line of the cam (see [Fig.11-7]). Open the cover of the half-turn sensor and align the center of the half-turn sensor with the center of the film.



[Fig.11-17]

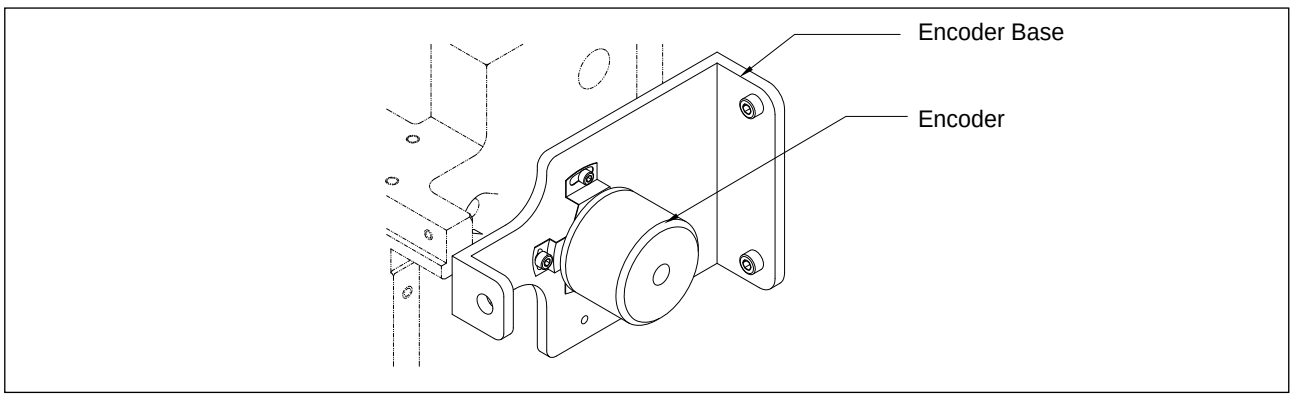
[CAUTION]

- 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.

11-8) 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.11-18]. Tighten the screws when FIX POS light is turned on.



[Fig.11-18]

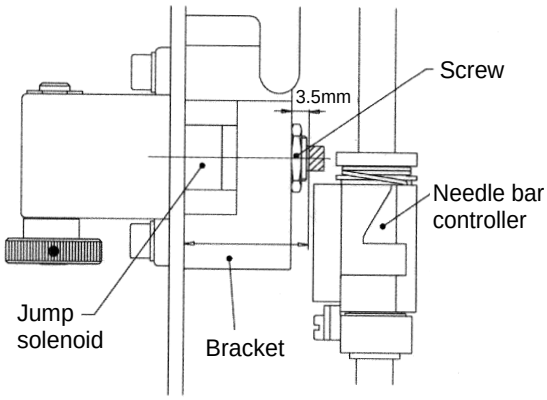
11-9) JUMP SOLENOID ADJUSTMENT

Adjust the position of the jump solenoid if the solenoid has been replaced or it malfunctions.

1) Adjusting the Standby Position (assembling the solenoid and the bracket)

① Use the spanner for jump solenoid adjustment (included in the SWF basic kit) to unfasten the solenoid. Re-fasten the nut with the solenoid 3.5mm away from the bracket.

② If the space is larger than 3.5mm, the solenoid will interfere the needle. If the space is smaller than 3.5mm, the needle bar controller will hold the needle in the JUMP CODE.

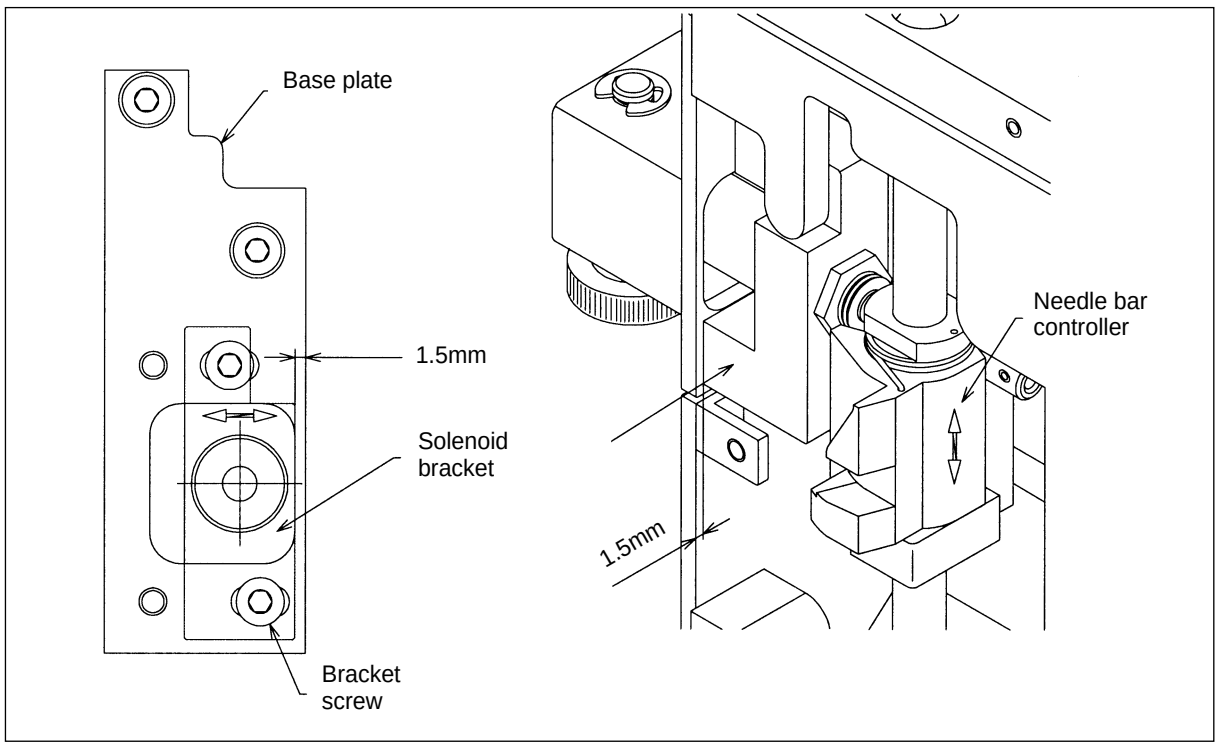


[Fig.11-19]

2) Adjusting the Installation Position (assembling a solenoid-installed bracket on the base plate)

① Adjust so that the bracket is around 1.5mm from the base plate ([Fig.11-20]). Fasten the bracket screw.

② Incorrect position of the bracket will interfere with the needle movement, as the needle bar controller will hold the needle in the JUMP CODE.



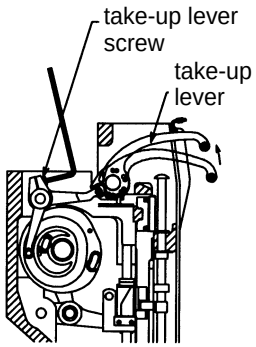
[Fig.11-20]

CHAPTER 12

TROUBLESHOOTING

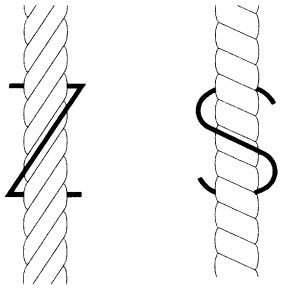
⚠ DANGER CAUTION	Inspect/repair the machine by the guideline when in machine failures.

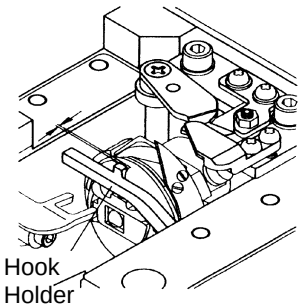
Error Type	Cause	Inspection & Repair	Reference
Operation failure	① Loose belt tension / belt damage	Adjust belt tension / change belt	
	② Power failure or short-circuit of fuse	Check fuse in main shaft motor and change fuse	
	③ Failure to sense signals for needle position or 1 rotation	Run manual color change and check if signal lamps (needle set lamp & needle position lamp) blinks at correct needle position. Adjust the half-turn film.	Ref. 11-8, 11-7)
	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	
	② Incorrect position of encoder or bad encoder	Adjust encoder position or change encoder	Ref. 11-8, 11-8)

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.	Ref. 11-8, 11-7)
	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°)	Unscrew the lever and adjust so it is in line with the others on the guide rail. 
	⑤ Failure in fuse for color change motor Bad connection	Change fuse F3 in joint board or check connection	※ Check fuse spec. Ref. 9-1, 9-1)

Error Type	Cause	Inspection & Repair	Reference
Poor detection of upper thread	① Failure of thread detecting roller	Disassemble the roller and clean the roller and bush bearing.	
	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 Ref. 9-1, 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	Ref. 7-42, 7-4-6)
	③ Inadequate needle size for thread	Change needle	Ref. 5-19, 5-12) 1)
	④ Needle damage (bent, dent, worn)	Change needle	Ref. 5-19, 5-12) 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

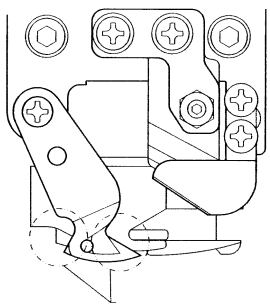
Error Type	Cause	Inspection & Repair	Reference
	⑦ Bad thread (weak, uneven thickness, poorly twisted, old)	Change thread	Check the thread used ※ How to select thread • Select soft thread with even thickness • Choose left-twisted thread
	⑧ Right-twisted thread	Change to left-twisted thread	 • Z-direction: left twist • S-direction: right twist ※ left-twist prevents unraveling of the upper thread in the counter-clockwise rotation of the hook
	⑨ Excessive thread tension	Adjust tension	Ref. 5-10, 5-6) 2) Ref. 5-12, 5-7) 2)
	⑩ Tension imbalance between upper and lower threads		Ref. 5-10, 5-6) 2) Ref. 5-12, 5-7) 2)
	⑪ Excessive tension & stroke on take-up spring	Adjust tension and stroke	Ref. 5-11, 5-6) 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  Hook Holder
	⑭ Insufficient oil in hook	Oil the raceway of hook	Ref. 5-21, 5-12) 4)
	⑮ Poor timing of needle and hook	Adjust timing	Ref. 11-9, 11-9)
	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	
	⑲ Inadequate height of presser foot (does not press the work material)	Adjust height	Ref. 11-6, 11-5)

Error Type	Cause	Inspection & Repair	Reference
Skipped Stitches	① Bent needle		
	② Inadequate needle size for thread	Change needle	Ref. 5-19, 5-12)
	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	Ref. 11-9, 11-9)
	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	Ref. 5-10, 5-6) 2) Ref. 5-12, 5-7) 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	Ref. 5-11, 5-6) 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	Ref. 5-10, 5-6) 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	Ref. 5-12, 5-7) 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	Ref. 5-19, 5-12)
	⑦ Insufficient oil in hook	Oil the raceway of hook	Ref. 10-3, 10-3) 1)
Needle breaks	① Bent needle		
	② Bad quality needle	Change needle	Ref. 5-19, 5-12) 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	Ref. 5-21, 5-12) 4)
	⑥ Incorrect installation of needle	Correct the installation	Ref. 5-19, 5-12) 3)
	⑦ Needle touches the needle hole on the plate	• Check if needle plate is unscrewed • Adjust the position of the needle bar	Ref. 11-7, 11-6)

Error Type	Cause	Inspection & Repair	Reference
Puckering	① Excessive thread tension	Adjust tension	Ref. 5-10, 5-6) 2) Ref. 5-12, 5-7) 2)
	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 Ref. 9-1, 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	Ref. 11-3, 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 (293°)	Ref. 11-1, 11-1-1)
	② Incorrect position of picker	Adjust picker position	Ref. 11-4, 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. Ref. 9-1, 9-1)
Thread break before trimming	① Upper thread is too short • check main and sub tension adjuster • dent or damage to movable blade	Adjust upper thread tension remove dent using whetstone or sandpaper or change movable blade	 Check for dent
	② Lower thread is too short • doesn' t unwind smoothly • too weak or too elastic	• adjust or change bobbin case spring • clean/check for dent in thread guide on the bobbin case • Change lower thread	• Too short lower thread cannot make stitches right after trimming

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. Ref. 7-44, 7-5-3) Ref. 7-40 (7)TRIM LENGT (Adjust length of the remaining thread after trimming)
	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	Ref. 11-3, 11-1-4)
	③ Movable blade damaged	Change movable blade	
	④ Incorrect return position of movable blade	Adjust the position of movable blade	Ref. 11-1, 11-1-1)
Failure of upper thread holder Motor	① Bad fuse in motor for upper thread holder and error in connector	Check and replace F1, FF2, and F3 on the joint board	※ Check fuse spec Ref. 9-1, 9-1)
	② Poor quality circuit board	Replace the joint board	
Failure to hold upper thread	① Short strokes of upper thread holder	Adjust stroke Adjust the workload	Ref. 11-4, 11-4)
	② Upper thread holder overloaded		

CHAPTER 13

BLOCK DIAGRAM