



Owners Manual

RCM 1201 PT / RCM 1501 PT

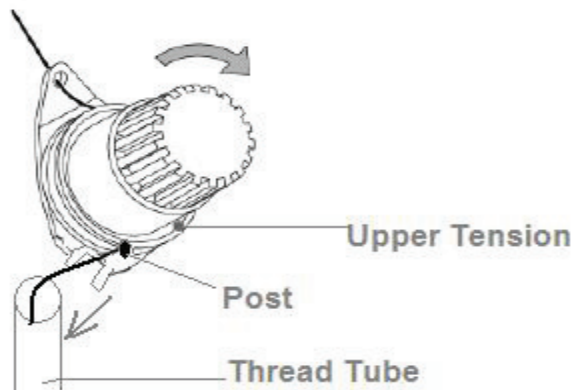
RiCOMA

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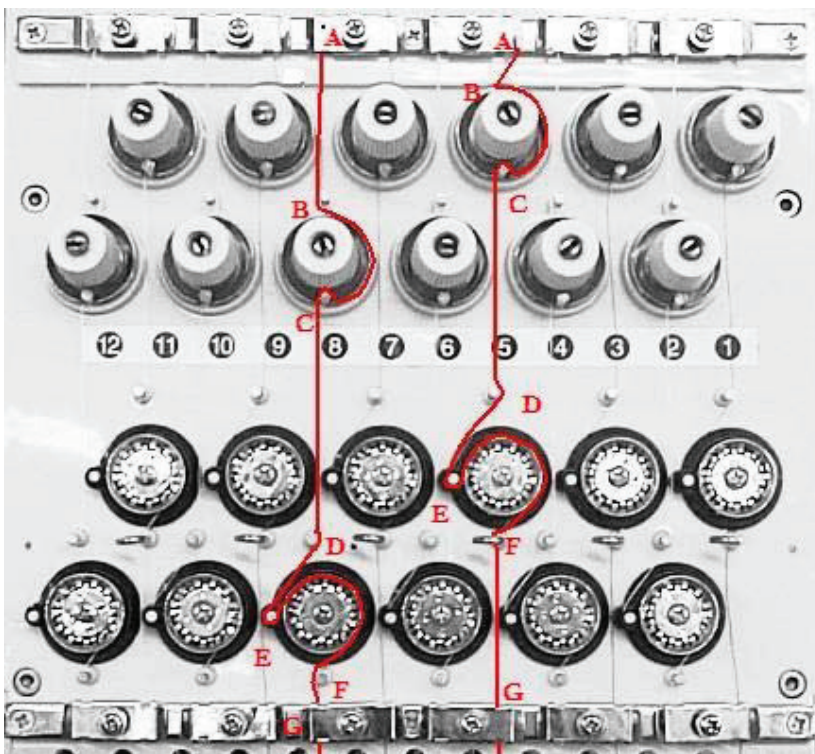
Threading your new machine

Pull the thread off the cone to the eyelet directly above the cone! Do not cross over another thread. Pass the thread through each eyelet necessary until you come to the upper tension.



Pass the thread around the upper tension making sure to pull the thread tight inside the disk and over the post at the bottom.

Pull the thread tube loose from the tension. Using the threading inserts provided, pass the inserts through the tube and wrap the thread into the cut on the insert and pull through. Replace the tube into the tension.



Showing two different needles #5 and #8.

Press on the opposite end of clip "A" to slide thread underneath.

Grab the post "B" with the thread and pull to the right around the tension disk and up and over the post "C". Pull tightly into the disk.

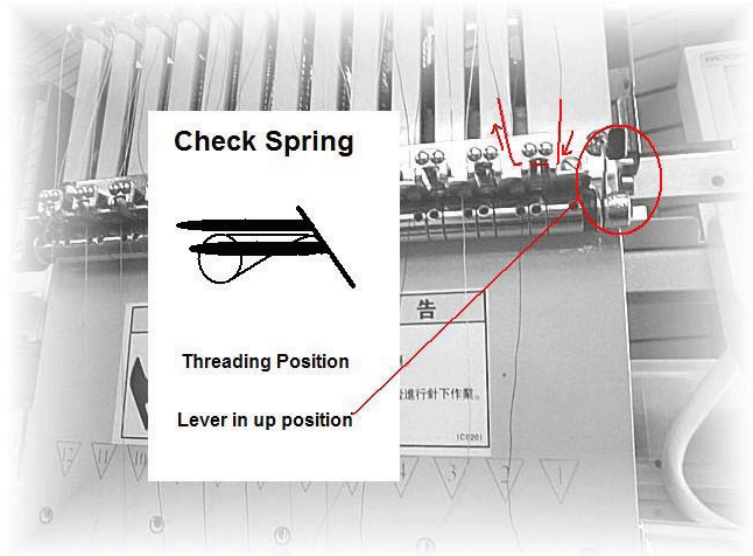
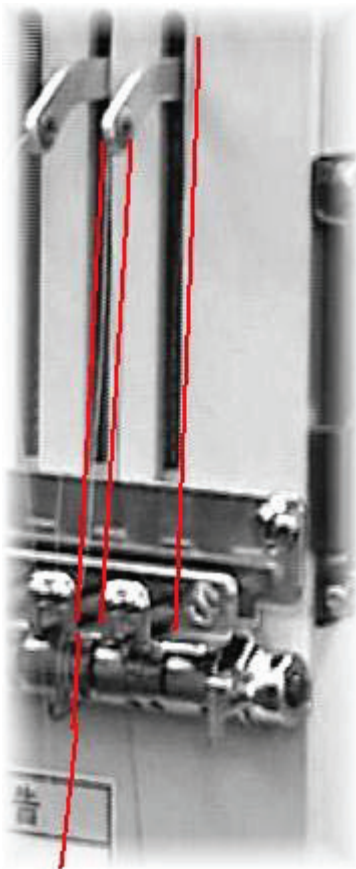
Come to the right side of post "D" to the left side of post "E" and back over the top of the roller wheel in a clockwise motion, finishing with a turn to the left side of post "F"

Another clip "G" same as top.

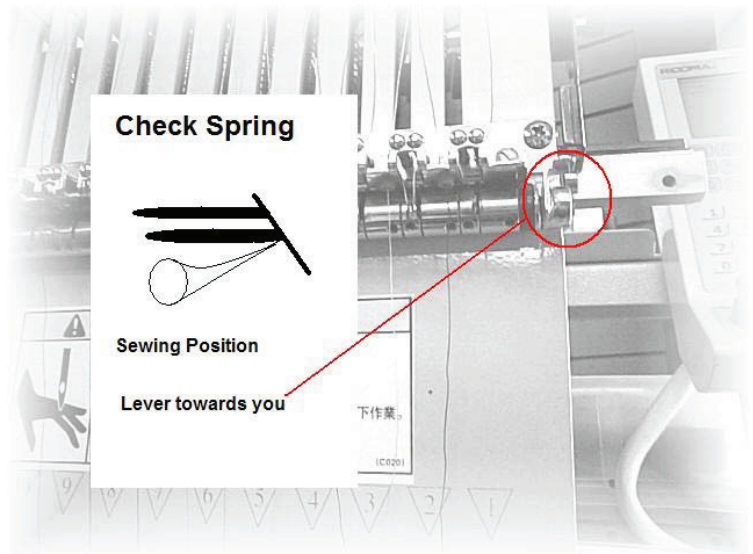
Lift the take-up spring lever to place the springs into the proper position.

Pass the thread under the bars and through the spring.

Pull upwards to the take up lever and down through the eyelet.



The check spring lever must be in the correct position to thread.
Be sure to place it back into the sewing position!



While the check spring and the lever may be a little confusing at first, you will notice that it will give you a better adjustment range for sewing lightweight to heavyweight materials.

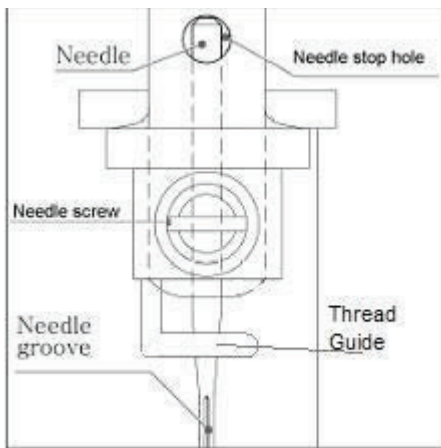
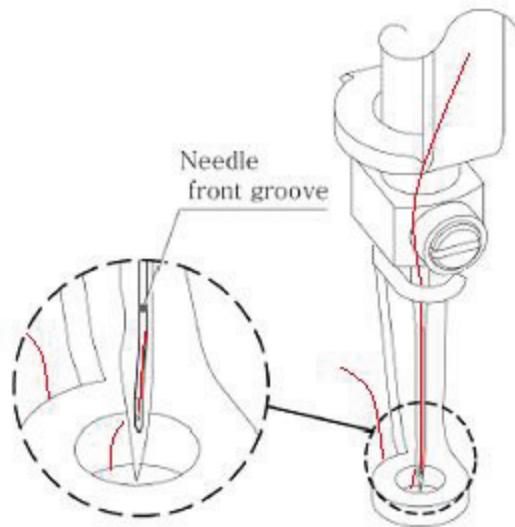
For sewing heavy materials place the springs lower.

For sewing lightweight materials place the springs higher. Make sure they are engaging!
Adjust using sewing quality as a guideline.

Thread the eye.

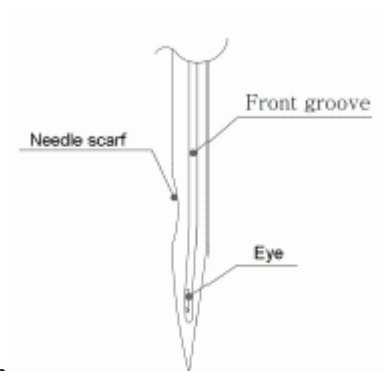
Place the thread behind the thread guide.

Pull the thread through the foot and back upwards to the spring to hold it for the first stitch.



When replacing a needle make sure you place it all the way upward to the needle stop hole.

Periodically clean the needle stop hole and do not overlook this area. A buildup of dirt will cause needle insertion problems, as well as stitch problems.

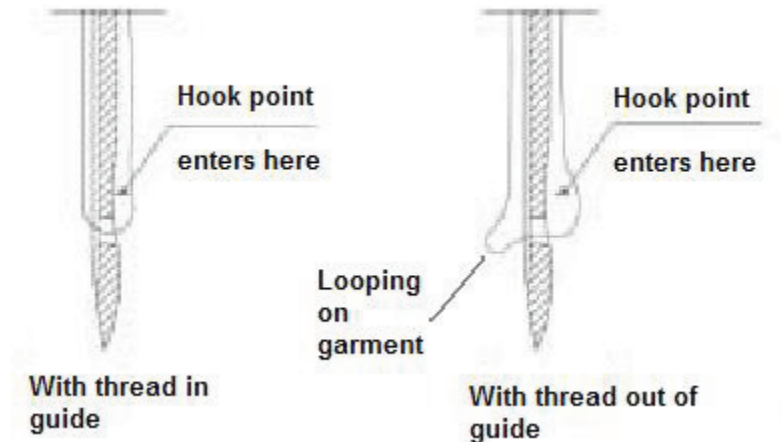


The front groove of a needle: It protects the thread from the fabric as it pierces the fabric reducing friction thread breaks. It is also instrumental in the formation of the sewing loop.

The scarf of the needle : this is where the hook picks up the thread. It should be placed to the rear.

Special note on using thread guides.

Be sure to always use the last thread guide located on the needle clamp. Below you can see the effect it has on your thread as it passes through the material.



NEEDLES

It is important to select the proper needle according to the material you embroidery and the type of threads.

Inadequate choice of the needle and the thread may cause various problems such as loops on top of the logo, thread breaks, and skipped stitches (areas that do not sew).

Use a DB x K5 for embroidery. Use ballpoints for stretch materials, use Sharps for cottons, etc.

The eye of DB x K5 needle is two times bigger than the DB1 (use for general sewing

The application range of a thread and a needle use for general embroidery is as follows.



6. Selecting a thread and a needle



CAUTION

It is important to select the proper needle according to the material you embroidery and the type of threads.

Inadequate choice of the needle and the thread may cause various problems such as loops on top of the logo, thread breaks, and skipped stitches (areas that do not sew).

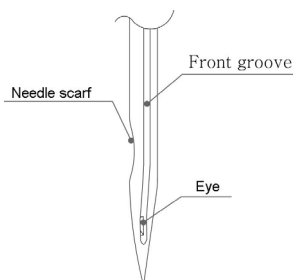
Use a DB x K5 for embroidery. Use ballpoints for stretch materials, use Sharps for cottons, etc.

The eye of DB x K5 needle is two times bigger than the DB1 (use for general sewing).

. The relation between a needle and a thread

1. The application range of a thread and a needle use for general embroidery is as follows.

Size of a Needle			Size of a Thread			
U.S.A.	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				



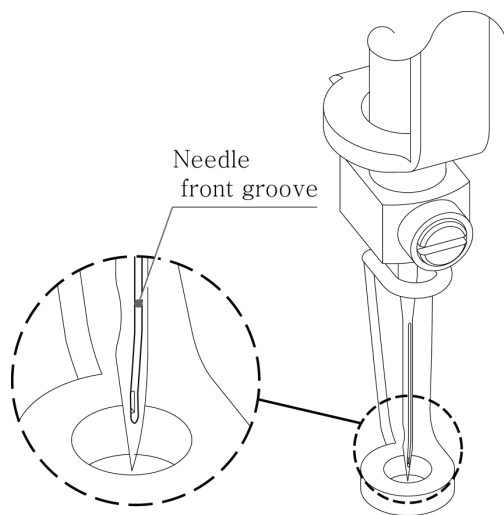
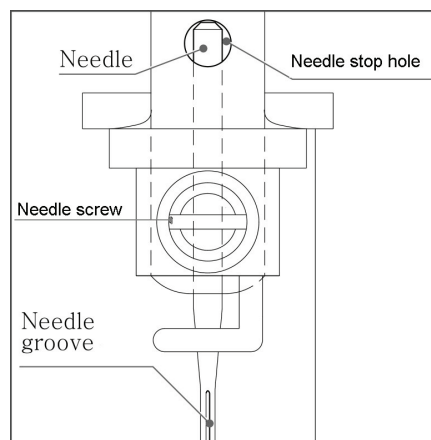
The front groove of a needle: It protects the thread from as it pierces the fabric reducing friction thread breaks.

It is also instrumental in the formation of the sewing loop.

The scarf of the needle : this is where the hook picks up the thread.

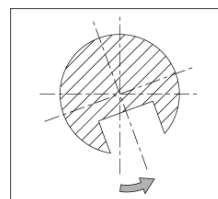
. Changing a needle

1. Insert a new needle into the needle clamp, pushing firmly upward until the needle is set against the top of the needle stop hole. You need to clean the hole occasionally to prevent a build-up of wax/lint.
2. Position the needle so the front groove faces forward with the scarf to the rear.



Check to make sure the needle is centered in the presser foot.

3. When using a special thread like rayon, metallic, etc., set the needle by turning the groove part of the needle to the right slightly as shown in the illustration.

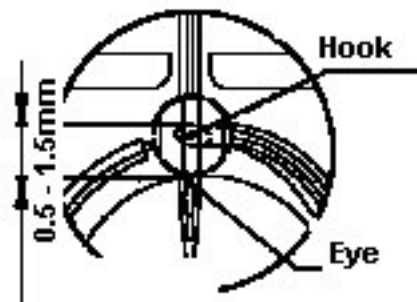




7. The relation between a needle and a hook

. Adjusting the timing of a needle and a hook

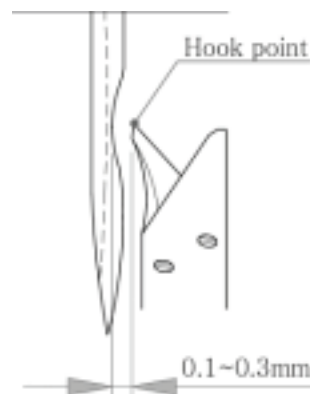
1. The timing of the needle and the hook is set up at 195° and the relation between the needle and the hook is as follows.



2. The space of the needle and the hook of 0.1 ~ 0.3 mm is proper.



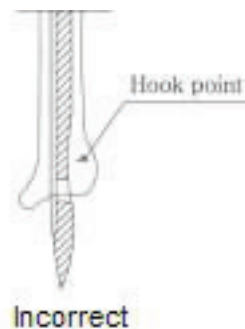
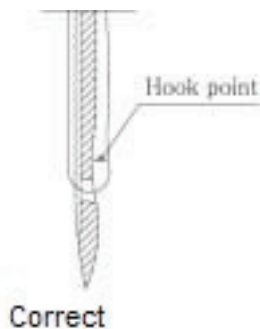
If the space between the needle and the hook point is out of the range, the thread will not catch causing thread breaks, and if too close broken needles.



. Special note on using thread guides.

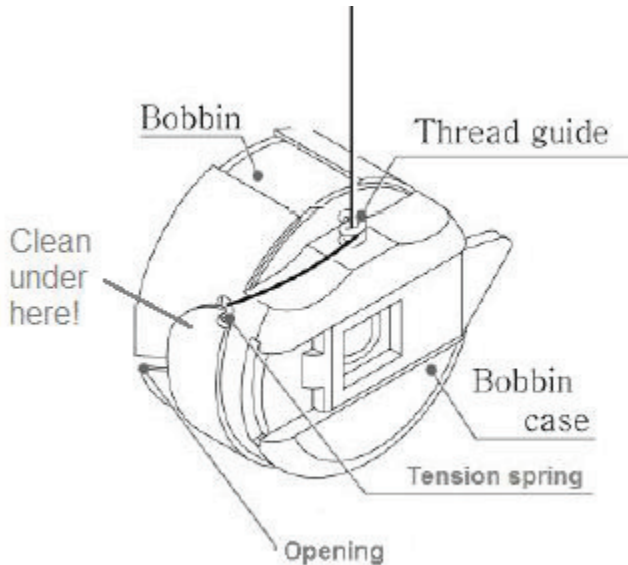
Be sure to always use the last thread guide located on the needle clamp.

Below you can see the effect it has on your thread as it passes through the material.



Replacing a Bobbin

1. Place a new bobbin in the bobbin case and pass the thread through the opening in the bobbin case, pull the thread under the tension spring.



2. Pull the thread through the thread guide, cut the thread leaving a 2 inch tail.

Insert the bobbin case into the hook; be sure it is locked in.

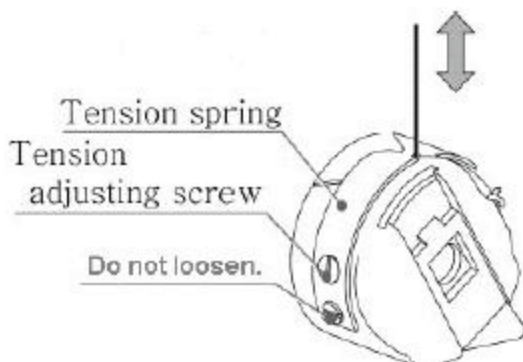


When viewed from behind, the bobbin should turn clock-wise.

Adjusting the lower thread tension

An adjusting screw adjusts the lower thread tension of the tension spring in the bobbin case.

If the screw is turned clockwise, the lower thread tension will be higher and if it is turned counterclockwise, the lower thread tension will be lower.



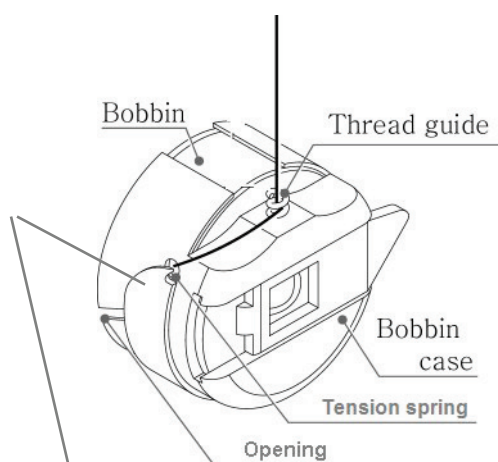
The approximate tension is set when one can shake the bobbin case slightly, and the thread unwinds and the bobbin case falls approximately 1 to 3 inches before stopping.

*Note- If using a bobbin case tension gauge the approximate setting should be between 25-35 grams.



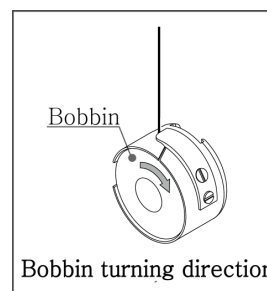
The bobbin case tension

. Replacing a bobbin



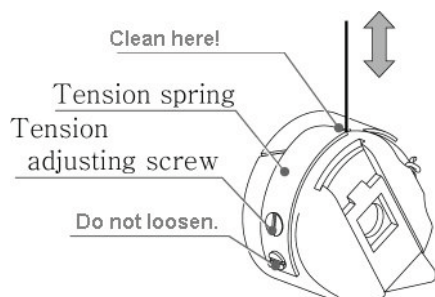
Clean under the tension spring everytime you replace your bobbin!

1. Place a new bobbin in the bobbin case and pass the thread through the opening in the bobbin case, pull the thread under the tension spring.
When viewed from behind, the bobbin should turn clock-wise.
2. Pull the thread through the thread guide, cut the thread leaving a 2 inch tail. Insert the bobbin case into the hook, be sure it is locked in.



. Adjusting the lower thread tension

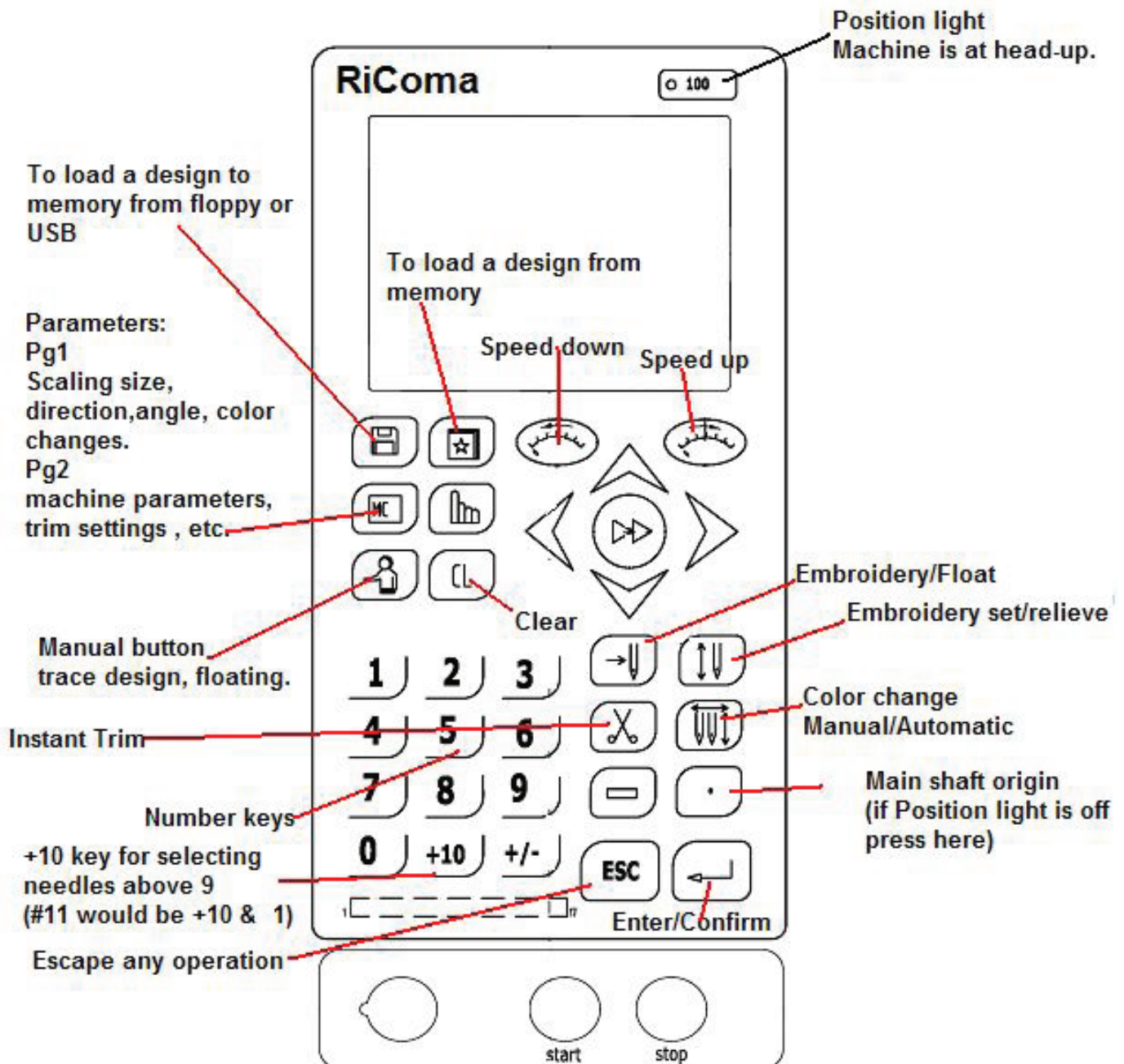
An adjusting screw adjusts the lower thread tension of the tension spring in a bobbin case. If the screw is turned clockwise, the lower thread tension will strengthen and if it is turned counterclockwise, the lower thread tension will weaken.



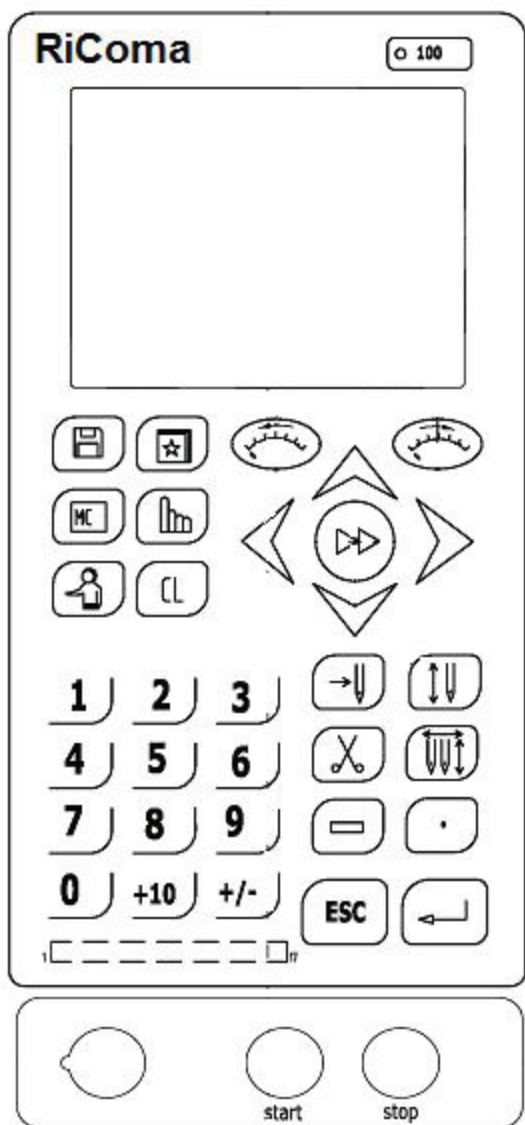
The approximate tension is set when one can shake the bobbin case slightly, and the thread unwinds and the bobbin case falls approximately 1 to 3 inches before stopping.

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Control and Operation




Loading a Design from Disk

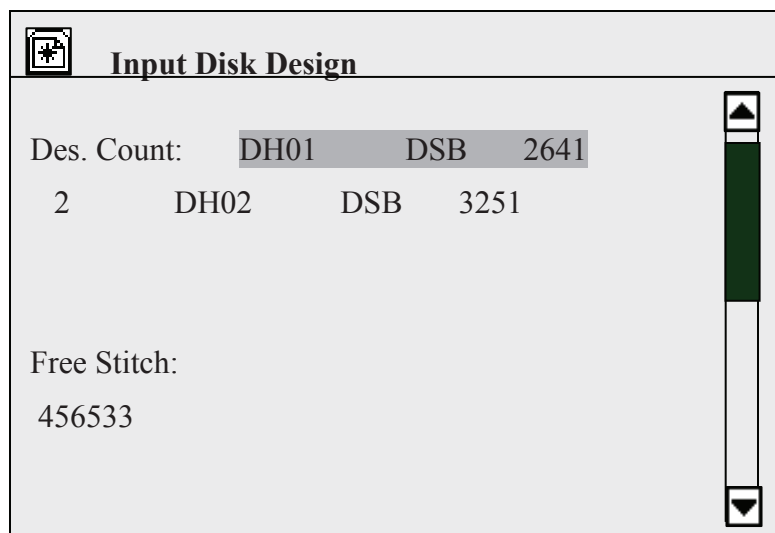


To load a design :

1. Push the  design key.
2. Scroll using  and  to Disk Input or press 3






3. Press the  enter key



The machine will read the disk
And display a directory.

4. Scroll using


 and  to select your design from the directory

press 

Loading a Design from Disk (continued)

You now have the opportunity to name the design and select a memory slot.

The preferred method is to name the design with your design software before loading to the disk, the machine will read the name and retain it when you

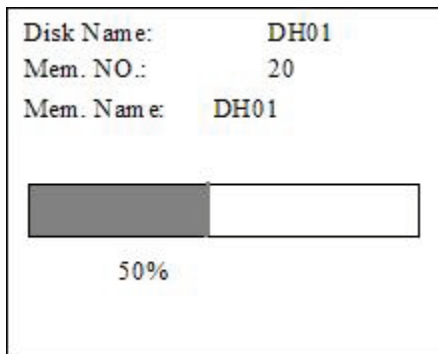
5. Press the  enter key.

It will always select the lowest available memory slot in which to place the design, though you may override and select your own.


After pushing enter it will begin reading the design into memory. The larger the design the longer it will take.

Disk Name: DH01
Mem. NO.: 20

A	B	C	D	E	F	G	H	I
J	K	L	M	N	O	P	Q	R
S	T	U	V	W	X	Y	Z	0
1	2	3	4	5	6	7	8	9



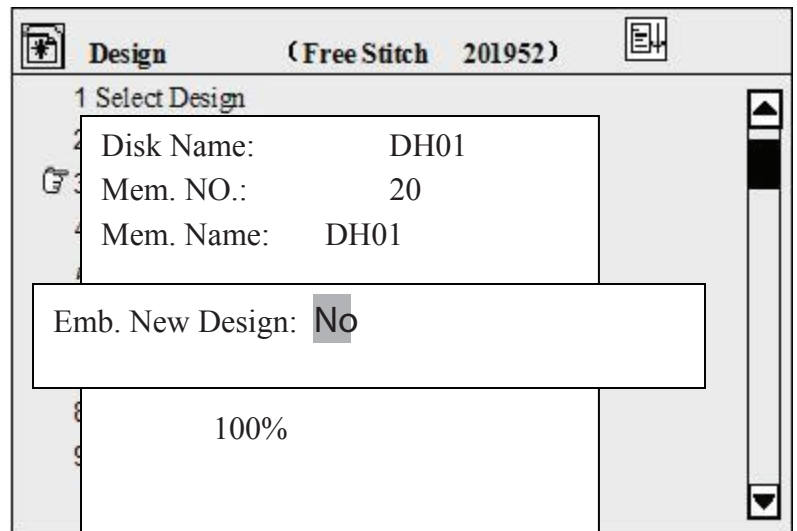
6. If loading another design from

disk press  enter and return to the main menu.

If you wish to proceed to sewing

press the up  or down  button to scroll

to select Yes and press  enter. You will now enter the parameter menu.



Design Parameters

Sizing, rotate, set color changes

1

Resize your design.

Press enter to place the cursor under the “X” coordinates, enter new size with number keys, press enter again to move to “Y” axis, once complete press enter a third time to exit.

2

Rotate your design.

Press 2 to enter the rotation menu. Pressing the up or down key will change the rotation.

P Flats **d** Hats

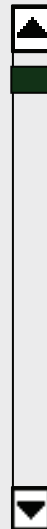
For best results, size the design in your design software instead of here.



Parameter



1 Scales X:100% Y:100%
 2 Direction: P
 3 Rot. Angle: 0
 4 Rep. Prior: X
 5 Rep. Times: X: 1 Y: 1
 6 R. Interval: X: +0.0 Y: +0.0
 7 Offset Org No
 8 Cyclic Emb. No
 9 Work Sequence:
 (01): 1 .1 .3 .9 .10



3

Color Sequence

Press 9 and then enter to set the color changes.

The number in parenthesis is the sequence number; the following numbers indicate the needle position. Press enter when finished.

Circulate the setting before? NO

Here you are asked if you wish to save the color change sequence as your default sequence. It is set to the default “NO” which is the preferred method.




Press enter to return to the main menu.

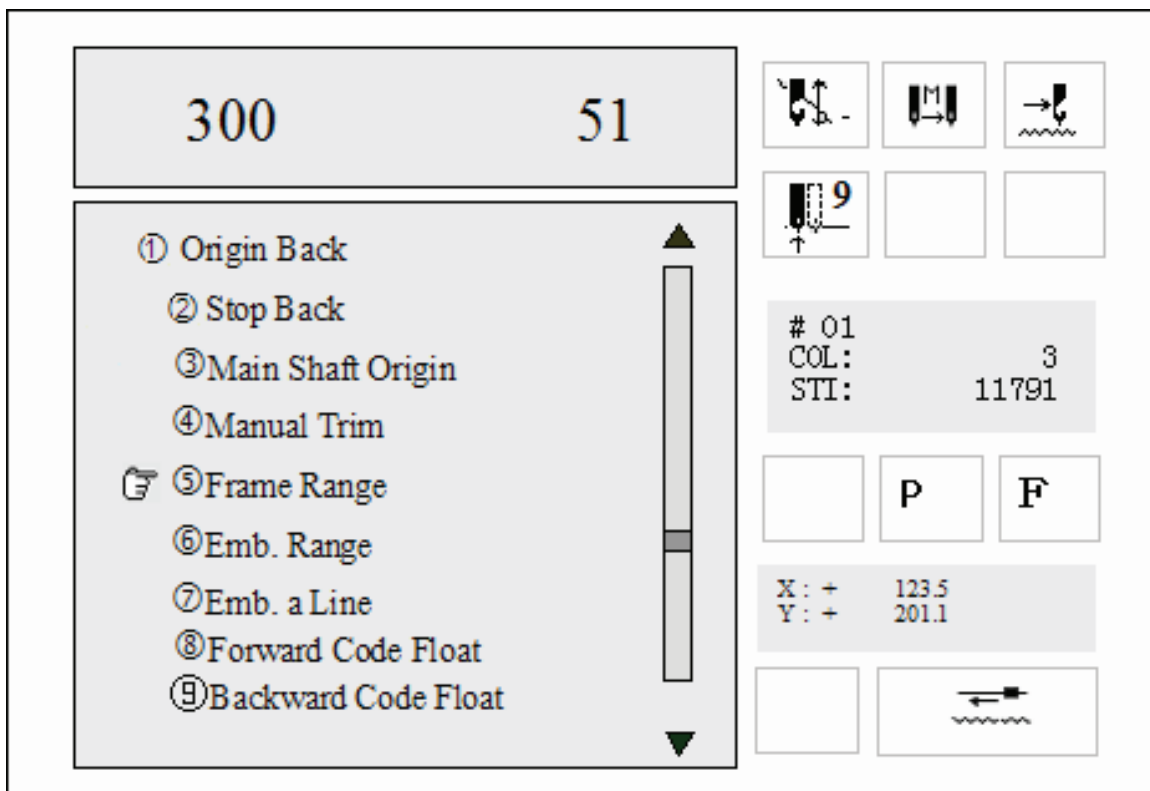
Proceed to  manual operations to trace the design!

To Trace a Design

Place the #1 needle into the sewing position by pressing 1

From the main menu press the  manual operations key

Scroll to or press 5 and press  enter.



Frame Range:

X+ 54.5 Y+ 14.6
X- 23.1 Y- 76.3

! Startup to begin floating range

After a moment the range appears on the screen. Press the start button to begin the frame movement.

Watch needle #1 carefully to insure it will sew inside your hoop.


Repeat the process if in doubt!

Setting the design to Sew

You must set the machine to sew by pressing the embroidery confirm/relieve



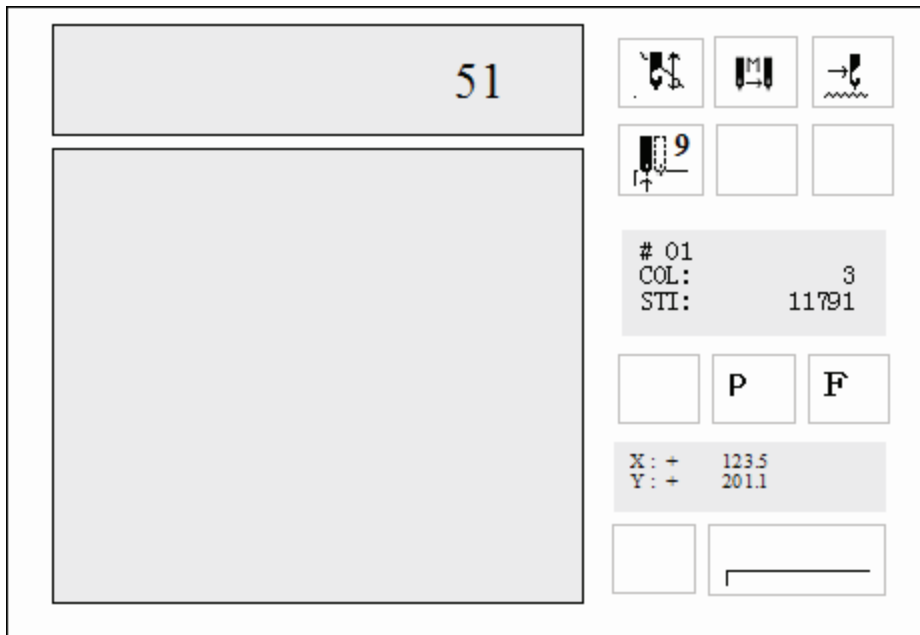
This indicates that you are not ready to sew

Press  to set embroidery or to relieve (quit) the design



This indicates you are ready to sew

Press the start button to begin sewing.





9. How to adjust the main part of the machine



WARNING

1. When checking out the machine, you should observe the mechanical and electrical safety instructions.
2. You should turn off the power before checkup the machine and position the main handle pulley at 100° (manual color change is possible at 100 °).
3. If you have any question about some parts that may have an effect on the embroidery quality or operation of the machine, ask to your supplier or SewTech agent in your area.

. Adjusting the needle position



When carrying the machine or adjusting the level, the needle position may change, so you should confirm the needle position.

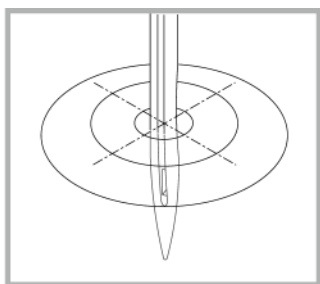
1. Use a new needle to make sure it isn't bent.
2. Position the main shaft handle at 130° by turning it by hand and confirm that the needle is positioned in the center of the needle hole on the needle plate.
3. If the needle position is out of the center, adjust the position in accordance with the instruction below. If head one is out of position, stop and call tech support.
The following instructions pertain to the remaining heads 2 through 6 only.

Detach the covers of both sides of the head.

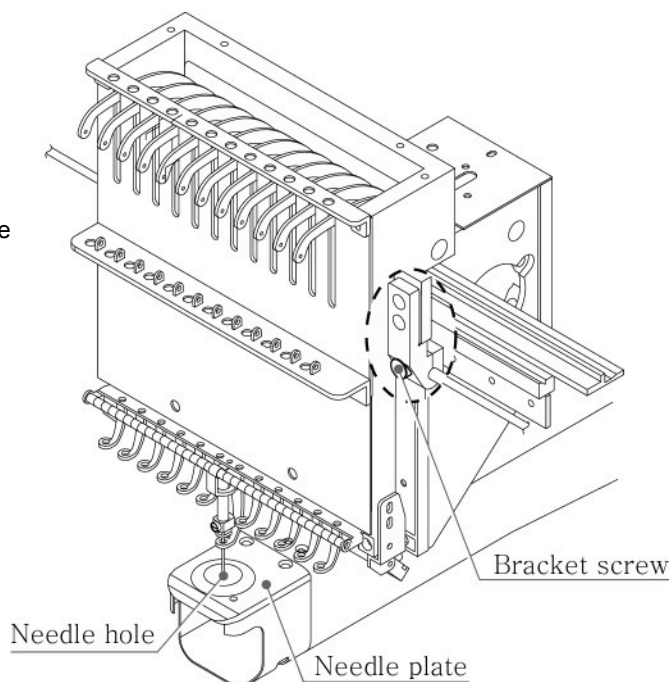
Take off the screw of the bracket fixed to both sides of the head.

Position the needle to the center of the needle hole on the needle plate by moving the head right and left.

Put the covers.



The right position of the needle



If you try to confirm the needle position, check out the No. 1, 6, 12 needles.

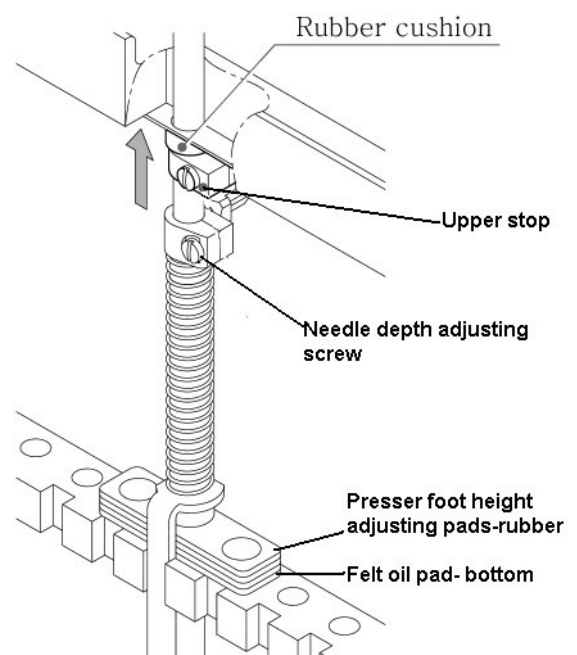
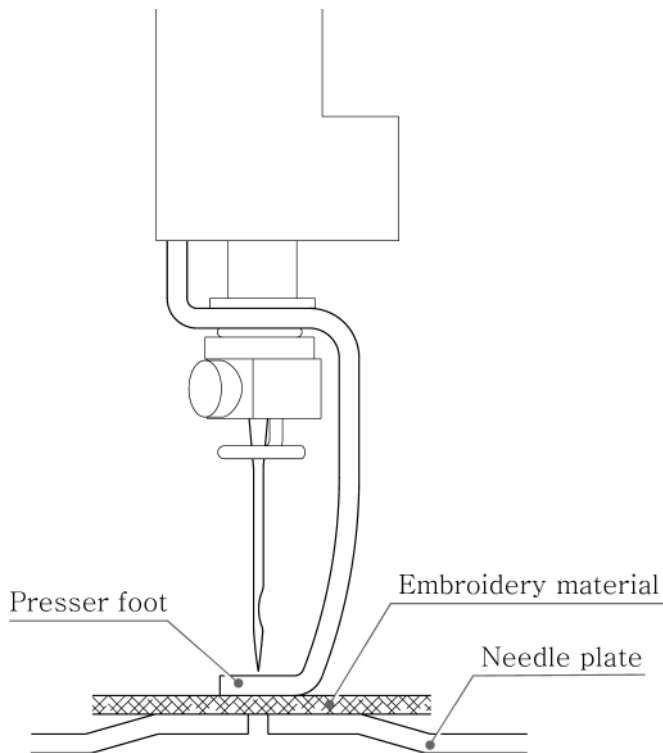
. Presser foot height

The presser foot should just touch the material without pushing it down.

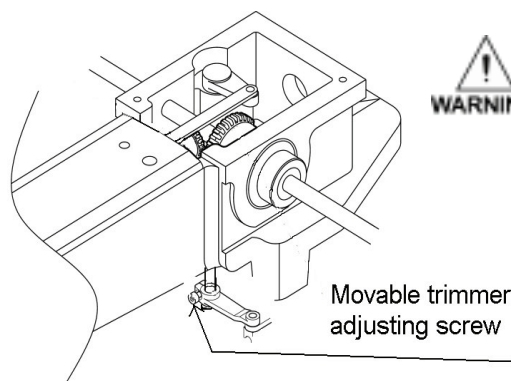
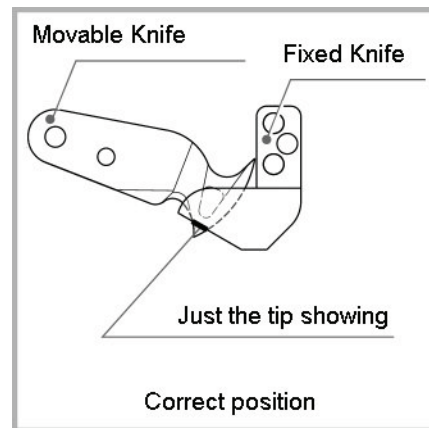
If the presser foot is set too low it will cause the material to distort and generally produce flattened logos.

If set too high the material will "lag" or rise with the needle and cause thread breaks, and needle breaks.

Adjust the height by either removing or adding the necessary number of presser foot height adjusting pads provided with your machine. You should make this change on hats as well.



3. After completing the above steps, be sure to check the position of the movable knife as shown in the illustration, the tip of the movable knife should come to rest just under the stationary knife. With just the tip of the knife viewable from above. If not adjust with the following procedures.

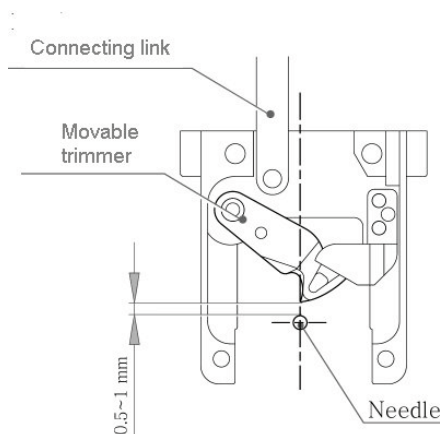


When moving the lever, keep up the position of the cam driving lever being positioned at the stopper.

Remove the cover underneath the rotary hook arm at the base of the machine.

Loosen the movable trimmer adjusting screw slightly and move the trimmer by hand to the point in the above illustration. Tighten the screw making sure the assembly has not dropped.

5. After making the adjustment check the following to insure proper stroke of the trimmer.



Detach the hook cover.

Detach the trimmer connecting link from the trimmer driving shaft.

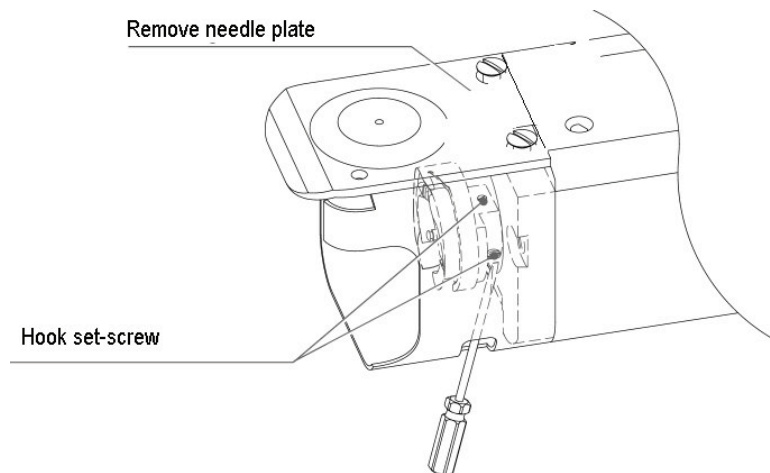
Position the main shaft handle at 180°.

Set the end point of the movable trimmer to the center of the needle as shown in the illustration and confirm that the distance is 0.5~1.0 mm.

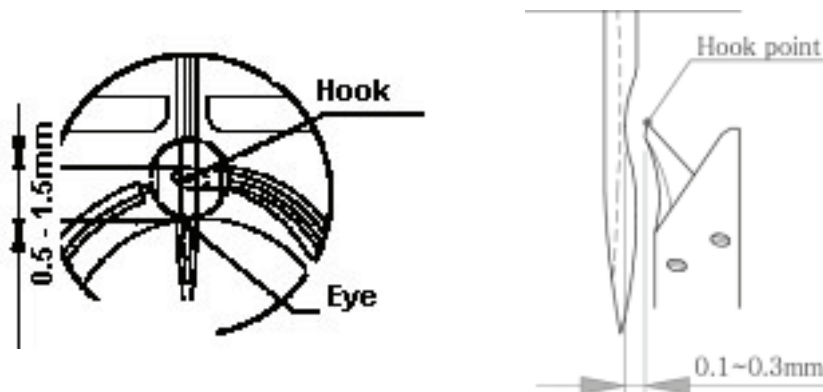
. Adjusting the hook

1. Unscrew the needle plate screw by using the needle plate screwdriver and detach the needle plate.

2. Loosen slightly each set-screw of the hook by positioning the main shaft handle at 20° , 140° , 260° by hand.



3. Position the main shaft pulley at 195° and adjust hook point directly behind needle as shown in the illustration below.



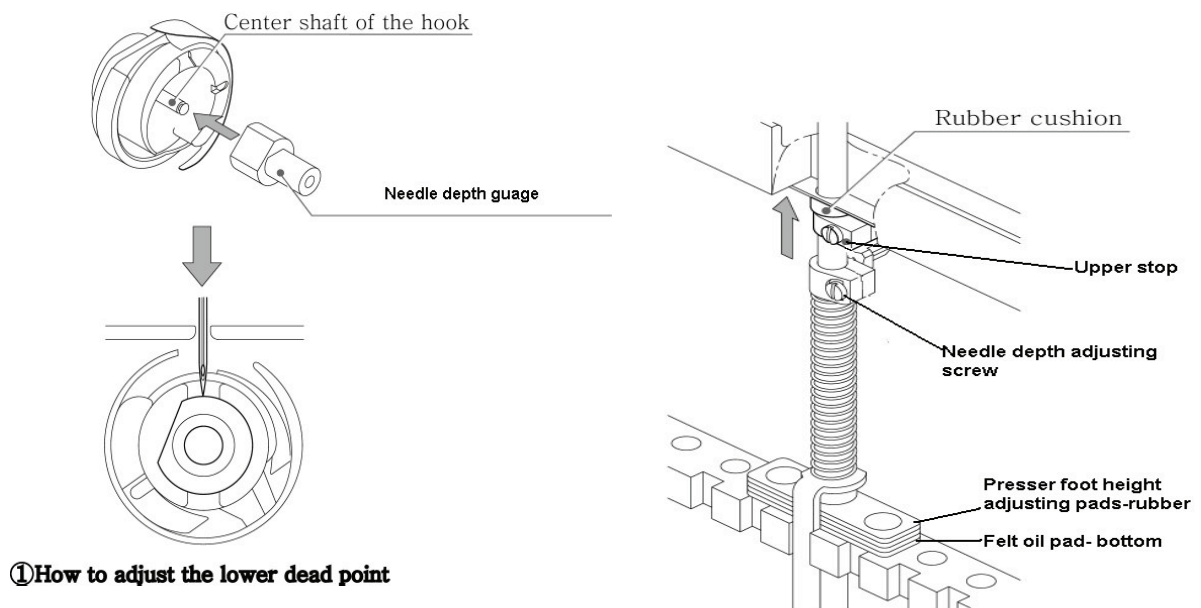
4. After adjusting the hook, tighten the three screws

5. Replace the needle plate.

. Adjusting the upper/lower dead point

1. Position the main shaft handle at 100° and move the needle bar to be adjusted to the center of needle plate hole by turning the color change handle.
2. Detach the upper and lower covers of the head.
3. If you try to adjust the lowest dead point of the needle bar, turn the main shaft handle and position it at 172°.
4. When adjusting the lower dead point, use the guage as shown below.

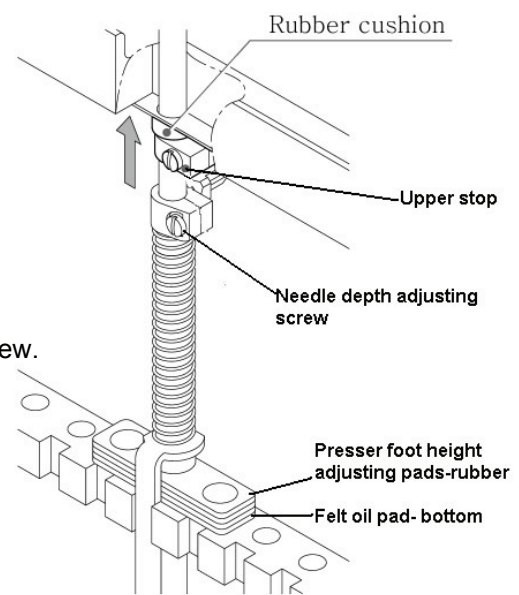
Insert the needle depth guage into the center shaft of the hook and pull the needle tip to the guage, and then firmly tighten the needle depth adjusting screw.



Continue to step 5 to set the upper stop setting.

5. If you try to adjust the upper dead point of the needle bar, position the main shaft pulley at 0° by turning it.

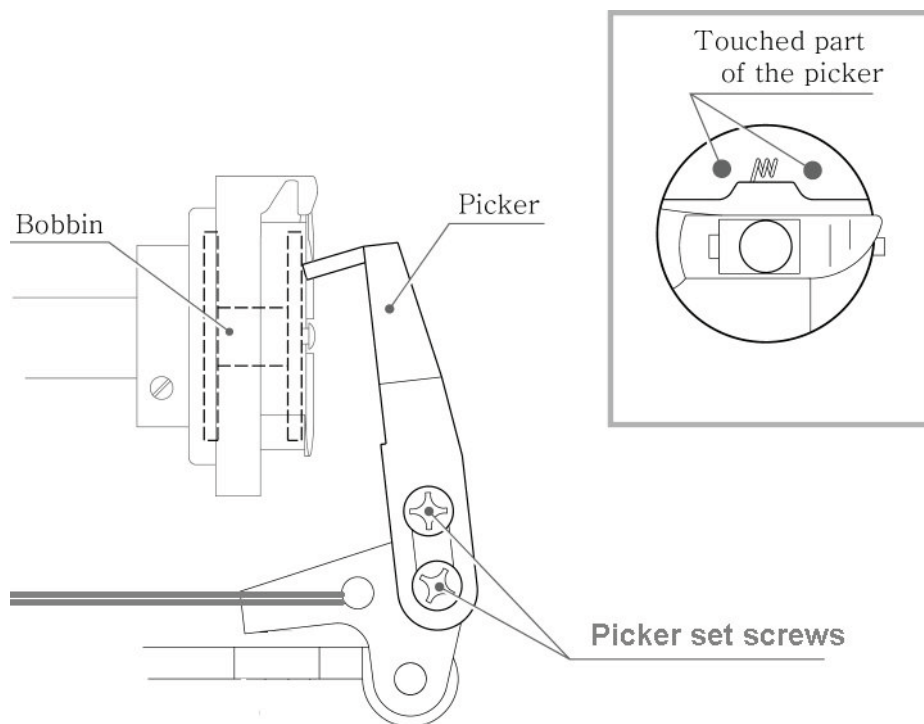
6. Slide the upper dead point stop securely to the cushion by sliding it up the needle bar, and then firmly tighten the upper dead point stop screw.



. Adjusting the picker

If the picker is not in the right position or doesn't operate, you may experience problems during trims such as, short tails, long tails, and pull-outs during the first stitch after a trim.

1. Adjust the entry position of the picker by using the set screws, move the picker up or down as well as in/out to make the fingers barely kiss the bobbin as shown.



2. Adjusting the X-Belt tension

The tension of the X-belt should be N when push down the center of the belt after move the LM block connecting plate to one side as shown in the illustration below.

If the belt tension is too tight or loose, the life span of the pulley, bearing and belt may get shorten or the embroidery width may get narrow or widen. Therefore adjust the tension as follows.

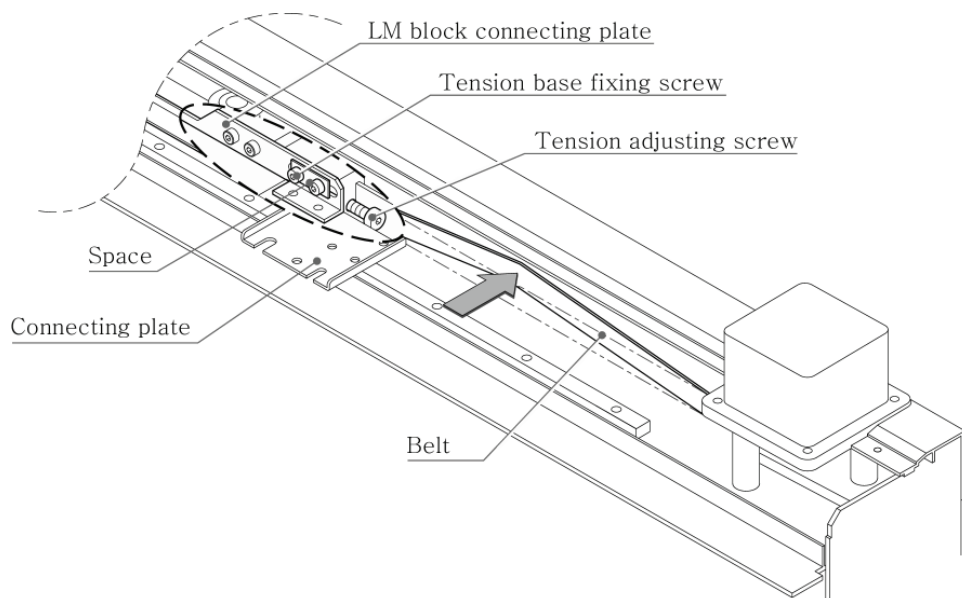
Detach the X-cover.

Move the connecting plate to one side.

Unscrew the two screws positioned on the space of the LM block connecting plate.

Adjusting the belt tension by using the tension adjusting screw.

Fix the bolt being unscrewed and put the X-cover.



3. Adjusting the Y-belt tension

The tension of the Y-belt should be N when push down the center of the belt after move the X-Y connecting bracket to one side as shown in the illustration below.

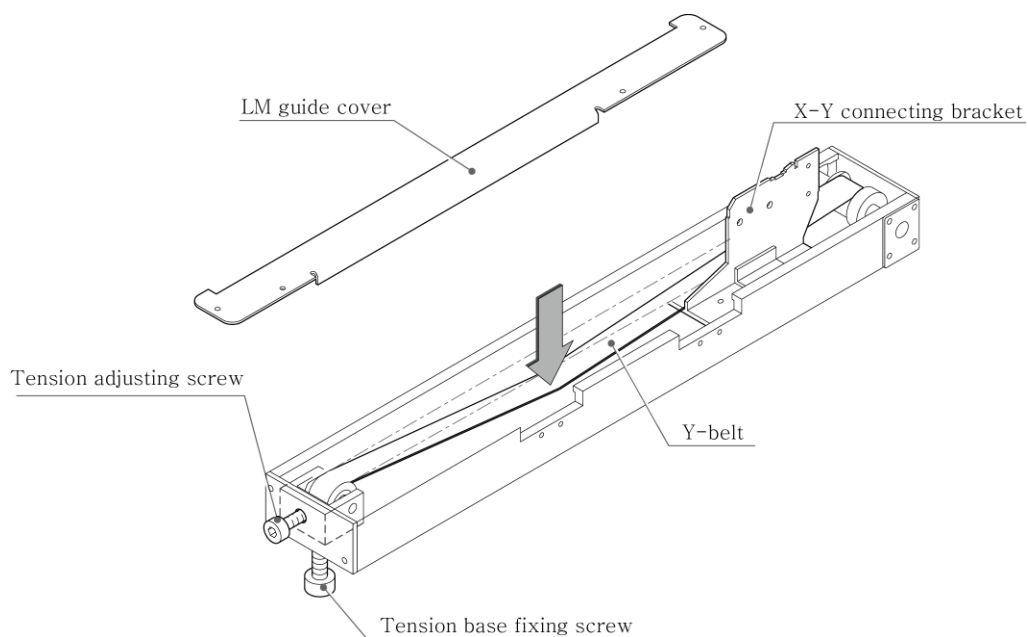
If the belt tension is too tight or loose, the life span of the pulley, bearing and belt may get shorten or the width of the embroidery may get narrow or widen. Therefore adjust the tension as

Detach the LM guide cover.

Move the X-Y connecting bracket to one side.

Unscrew the tension base tightening screw and adjusting the belt tension by using the tension adjusting screw.

Fix the tension base tightening screw firmly and put the LM guide cover.



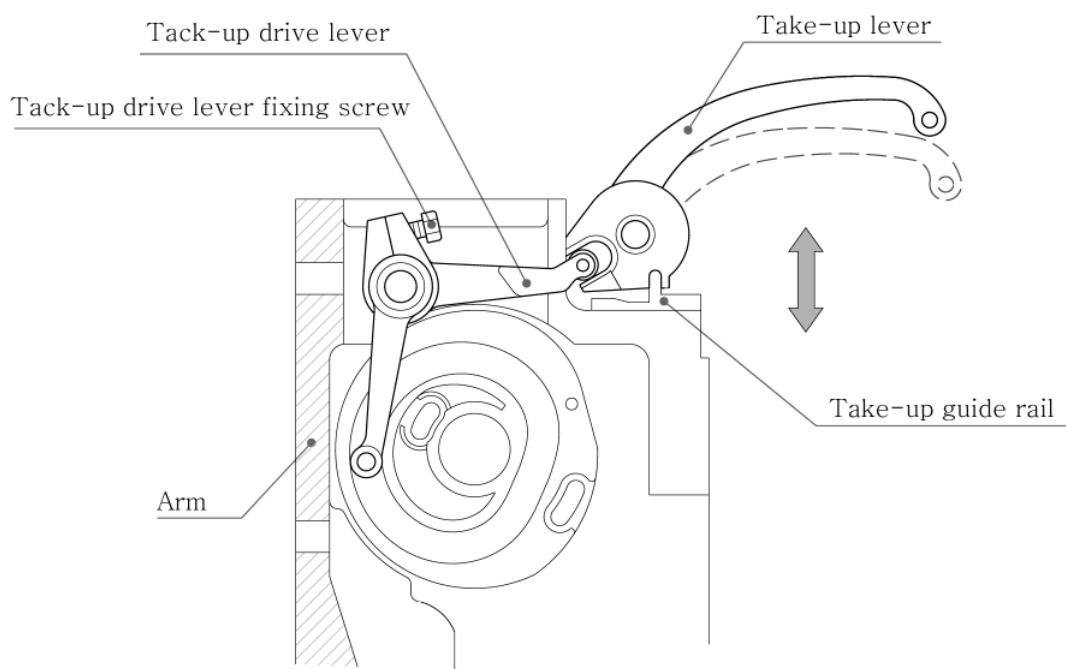
Adjusting the right and left of the Y-belt in the same method.

. Adjusting the take-up lever position

If the take-up lever position is wrong, the color change working will not be done.

In this case, adjust the take-up lever position as follows.

1. Position the main shaft handle at 100°.
2. Unscrew the take-up driving lever tightening screw of the take-up lever.
3. Adjust the take-up driving lever position in accordance with the other take-up lever position on the guide rail by moving the take-up driving lever to the arrow direction, and firmly fix the take-up driving lever fixing screw.



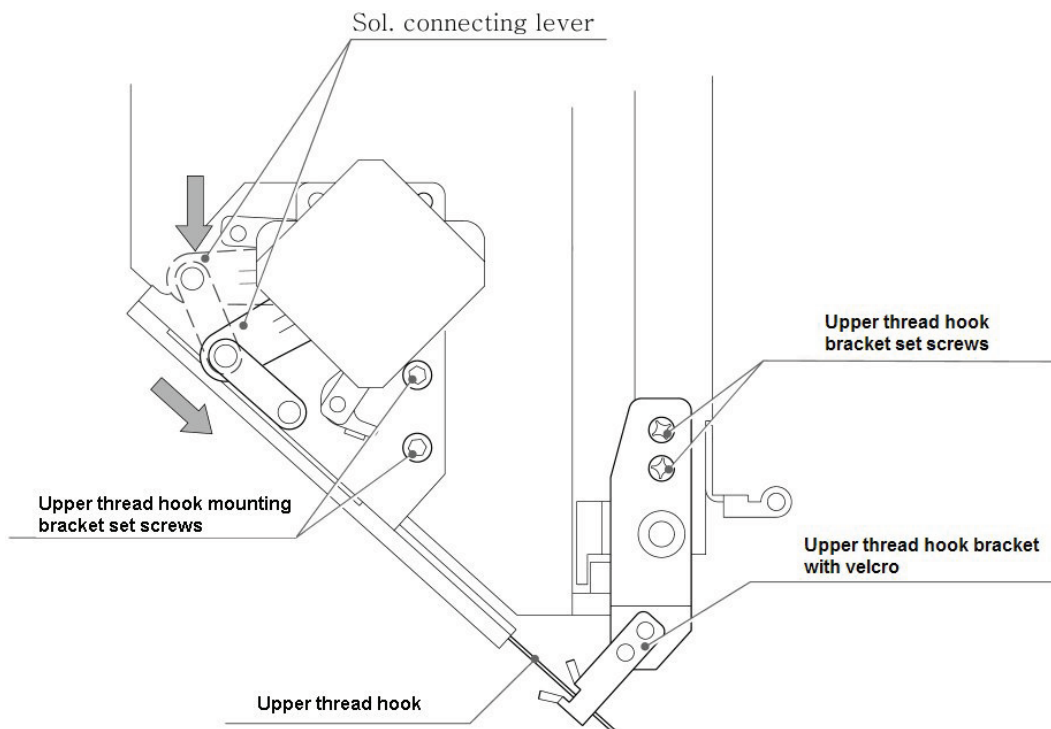
. Adjusting the wiper

When move the wiper up and down, it should move smoothly and the upper thread catcher should be positioned at the center of the upper thread catcher bracket.

If not, adjust the state of the wiper as shown in the illustration below.

Unscrew the two screws of the upper thread catcher base, position the upper thread catcher at the center of the upper thread catcher bracket and fix the upper thread catcher base screw. (when press the sol. connecting lever by hand, the upper thread should go through the center of the bracket).

If the upper thread catcher is not operated smoothly after fixing, adjust the upper thread catcher bracket by using the upper thread catcher bracket screw.



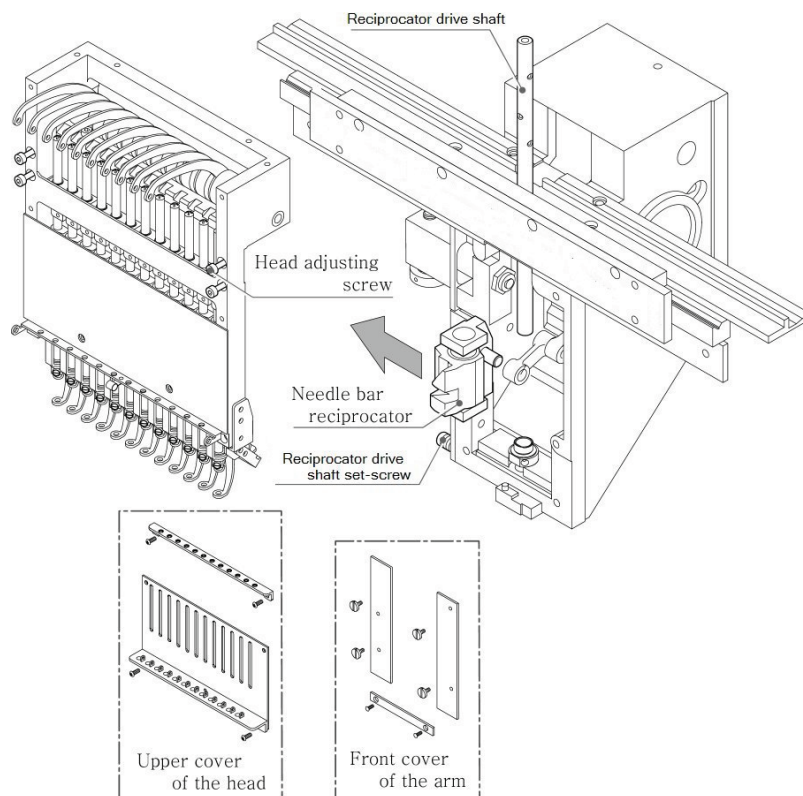
. How to replace the needle bar reciprocator

1. Detach the upper cover of the head.
2. Unscrew the four head adjusting screws and detach the head from the head rail.



Detach the cable connected to the thread tension plate together with the head.

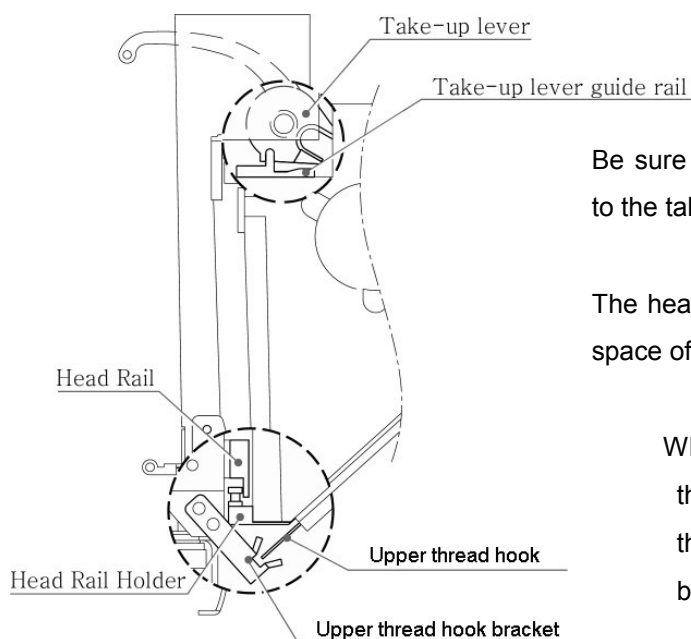
3. Detach the front covers of the arm.
4. Unscrew the drive shaft screw and push the reciprocator drive shaft up by hand, and then remove the needle bar reciprocator in the direction indicated, by disconnecting from linkages. Replace the assembly as a whole unit.



5. After you complete the replacement to the new reciprocator, reverse the procedure replacing the parts as you removed them.



At this time, take note of the items below.



Be sure that the take-up lever is correctly set to the take-up guide rail.

The head rail holder should be inserted in the space of the head rail.

When assembling the head, the upper thread hook should be positioned in the space of the upper thread catcher bracket.



After you complete the assembly of the head, confirm whether the assembled needle bar position is the same position of the needle bar before assembly, and then test the machine.

No trimming/Short Trims

The entry angle of the movable trimmer

-> Check up whether the entry angle of a movable trimmer is 290~295 referring to

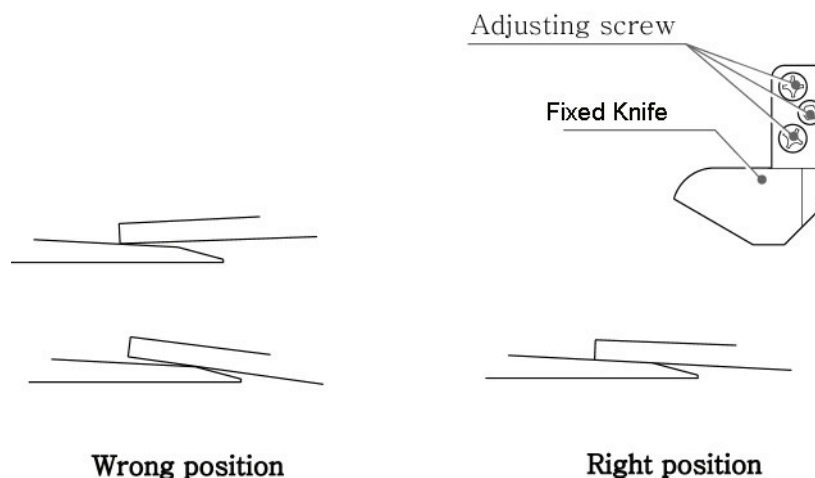
Adjusting the Movable trimmer Entry Angle and Position>

The position of the movable trimmer

-> Check whether the positions of the movable knife and fixing knife are correct or not. If not, adjust the position referring to the illustration of **Adjusting the Movable Trimmer Entry Angle and Position>**

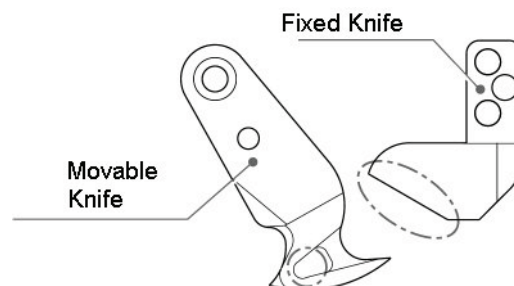
The assembling status of the movable trimmer and the fixing trimmer

-> When insert a movable knife to a fixed knife, check whether the position is right. If it is wrong, adjust the position by using the three movable adjusting screws.



Breakage of the movable trimmer and the fixing trimmer

-> Check up whether the knife (as indicated the circle in the illustration below) is broken. If it is broken, please replace the knife.





8. Maintenance and checkup of the machine

. The periodic checkpoint of the machine

1. Clean the machine and supply oil and grease to the appointed part of the machine periodically.
2. If you don't check out the machine periodically, mechanical error and reduction of life span of the machine will occur.

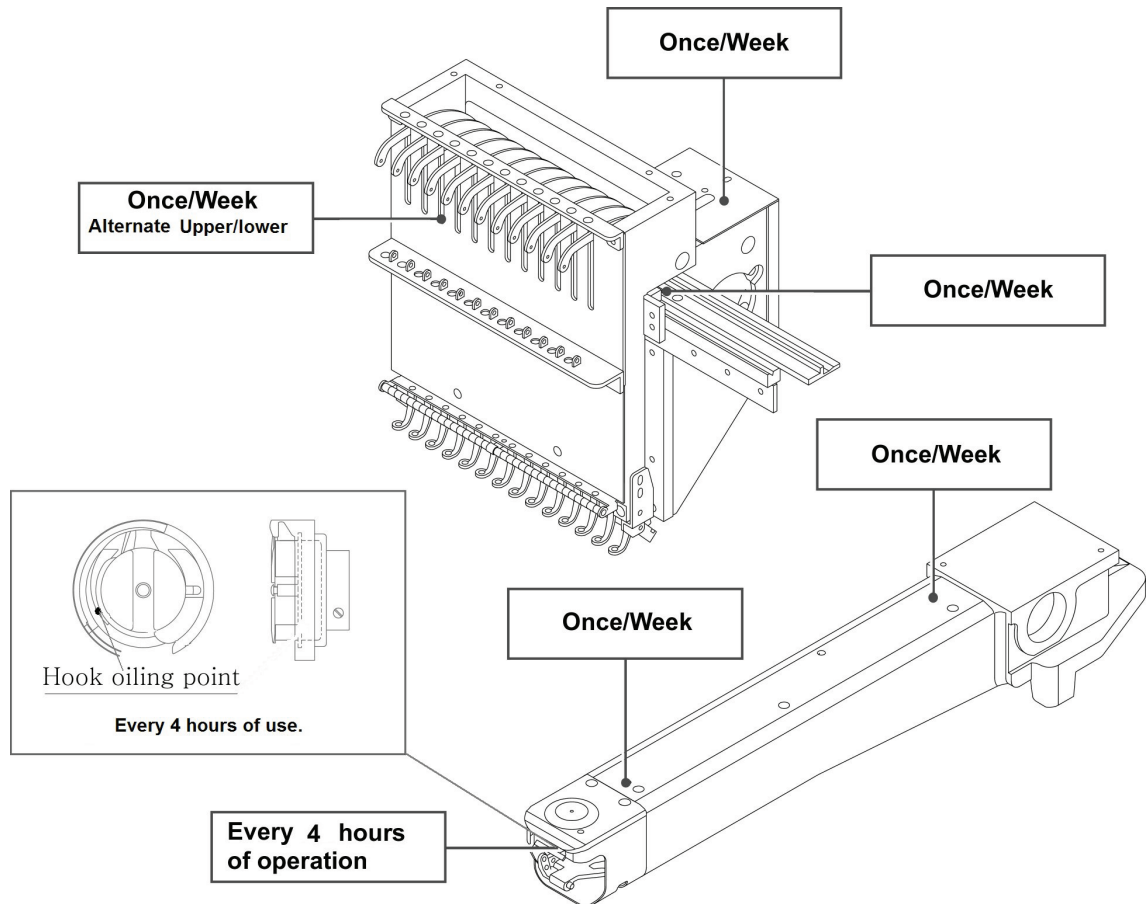


When you check out the machine, you should observe the mechanical and electric safety instructions. Turn off the power of the machine before checking out the machine.

. Oil supply



You should turn off the power before oiling the machine.

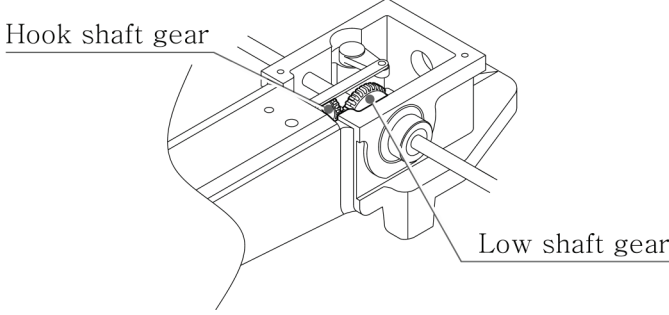
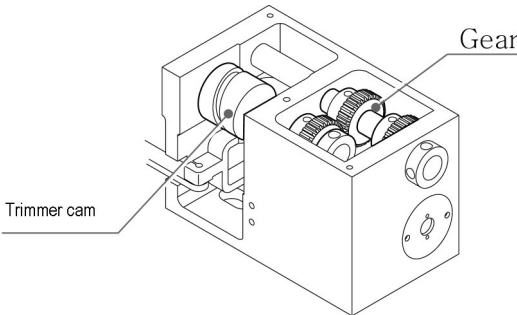
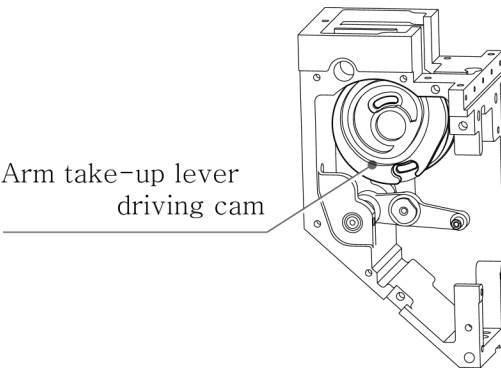
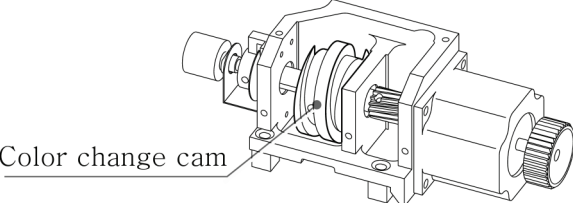


Excessive oil supply may stain the thread and the embroidery material.
Be sure to sew on test fabric before switching back to production.

. Supply of Grease



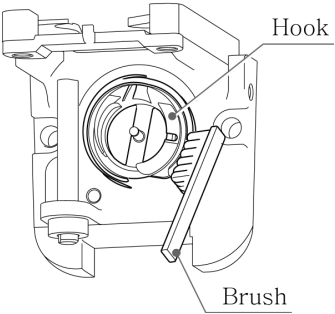
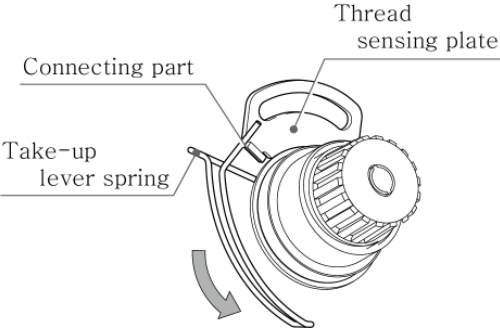
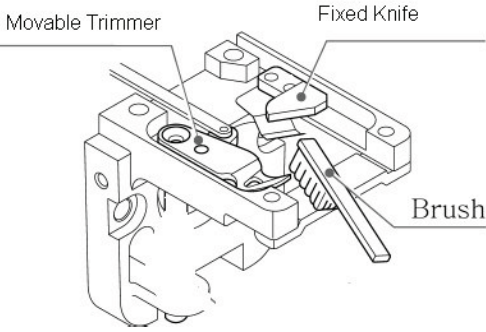
You should turn of the power before supply the grease.

Supplying Parts		Supplying Period
Hook shaft gear and Low shaft gear		Once per three months
Gear inside of the trimmer cam driving box		Once per three months
Arm take-up lever driving cam		Once per three months
Color change cam		Once per three months

. Cleaning



You should turn off the power before cleaning the machine.

Cleaning Point	How to clean	Cleaning Period
<p>Around the hook</p> 	<p>Detach the hook cover, pull out the bobbin case. Clean up the inside of the hook and it's surroundings by using a soft brush or an air compressor.</p>	<p>every day</p>
<p>Take-up lever spring and thread sensing plate</p> 	<p>Pull down the take-up spring and then clean the connecting part of the thread sensing plate.</p>	<p>once a week</p>
<p>Around fixed and movable knives</p> 	<p>After removing the needle plate, clean up around the movable knife and fixed knife by using a soft brush or an air compressor.</p>	<p>Once a week- Standard Twice a week - Heavy use</p>

Error message	How to check, adjust and judge	Removing trouble
The error display: MAIN MOTOR OVERTIME!	1. Check whether the power supply has dropped a phase, if so?•	Measure the voltage of input power supply with voltmeter and repair the power supply.
	2. The heat relay's protection function	First turn off the machine, then check whether the power supply is lack of phase, and examine whether the motor is overload, finally turn on the machine after these checks.
	3. The fuse of 3A on the main shaft control board is blown?	Replace the fuse.
	4. To examine whether the connectors are joined, if there are some pins damaged?R	Repair or replace it.
	5. There are problems on the main shaft control board.	Replace the main shaft board.
	6. The main shaft motor has malfunctions.	Repair or replace it.
	7. The main control board has some problems.	Replace the board.
The rev of slow start is less than 80 rpm .	Adjust the potentiometer VR2 clockwise on the main shaft control board to achieve 80 rpm.	
The rev of slow start is more than 80 rpm	Adjust the potentiometer VR2 anticlockwise on the main shaft control board to achieve 80rpm .	
The limit rotation speed of 700 rpm is less than 700 rpm.	Adjust the potentiometer VR2 clockwise on the main shaft control board to achieve 700 rpm.	
The limit rotation speed of 700 rpm transcends 700 rpm.	Adjust the potentiometer VR2 anticlockwise on the main shaft control board to achieve 700 rpm.	
Notes : Potentiometer VR3 is set as standard value before the machine leaving the factory, so the adjustment of VR3 is forbidden.		
Stopping after 100•	1. Adjust the potentiometer VR1 anticlockwise on the main shaft control board.	
	2. If the machine has trouble after the above adjustment, you should check whether the capacitor C6 on the main shaft control board has problems??>	Replace capacitor (C6 is 2.2uF's tantalum capacitor) .
	3. Check whether the screws connecting the shaft and the encoder become loose??¼	Tighten the screws after setting to 100 degrees
	4. To see if the mechanical transmission part is normal??G	Adjust the drive belt or the drive chain.
	5. The main shaft control board has some problems.?Ë	To replace the board .
	6. If the machine is still climbing after the above operation, then check to see whether the brake pad of main shaft motor is damaged. If so?²	Replace the brake pad.
	7. The software of model BECS-08 can be audjusted.?¼	Enter parameters by keyboard, change the setting of "SET BREAK PARA." and "MAIN MOTOR PARA."
Run over	1. The encoder has no continuous signals. 2. The cable connectors of the encoder have some trouble.	1. Replace the encoder. 2. Repair and adjust accordingly.

Error display: -----change color overlimit -----change color overtime. -----half return error!	1. If the lamp indicating half return is not bright on the needle location board , measure the direct current 12V's switching power supply , if it doesn't work:~ö	Replace the switching power supply.
	2. Examine whether the connectors are connected on the needle location board , and if there are some pins damaged:~	Replace the damaged cables.
	3. Uncover the cover plate above the needle location board, and check whether the machinery parts are normal, if unusual:~f	Repair it.
	4. Rotate the color-changing motor shaft with the spanner, at the same time check whether the needle location lamps change and light, if all do not light, or some lamps light and others do not, the needle location board is bad:~Ö	Replace the needle location board.
	5. If the machine still has trouble after the above-mentioned operations, the main control board is bad:~Û	Replace the main control board.
	6. Check whether the power supply of needle location board is normal or not, if unusual:~¼	Repair or replace the power supply.
Color change error.	1. To examine whether the connectors on the power supply board are connected, if there are some pins damaged:~Å	Replace the damaged parts.
	2. To see if the fuse is blown on the power supply board ? (F1 is a 15A , and F2 is 6A):	Replace the fuse.
Changes color orderly, but does not change color in reverse order.	Do the same as above.	Replace the damaged parts.
Changes color in reverse order, but does not change color orderly.	Do the same as above.	Replace the damaged parts.
Changes color orderly or in reverse order, but every time appears the error " change color overlimit! "	1. Check to see if Diodes D7 and D8 in the power supply board are damaged ?	Replace the damaged board/parts.
All of the embroidery heads cannot detect the broken thread.	1. Examine whether the connectors on the head cards are connected good, if there are some pins damaged: 2. The thread break detection is set in the parameters menu? 3. Is the signal lights on CPU working ? The indicating lamps are L36 and L35. 4. The control board has trouble.	Correct the setting or replace the damaged parts and board.
	5. Measure the direct current 12V's switch power supply in the board, if it doesn't work:~	Replace the power supply.
All thread broken detect lamps are bright while the thread of one head is broken .	1. Check whether the direct current 12V is normal. 2. Check to see if there is short circuit of connecting cable between the decode board and the thread broken detecting board ?	Repair the damaged parts or power supply .
When the thread of one head is broken, the thread break detection's lamp on this head is dark, but others are bright.	1. Is there some trouble in the decode board? 2. Is there some trouble in the needle location board? 3. Are there problems in the connecting cable between the decode board, the needle location board and thread break detecting board?	Repair or replace the damaged boards.

Irregular thread break detection. (thread broken of one needle position is not detected but another is detected , and so causes the machine to work abnormally.)	1. Is 12V's power supply normal? 2. Is the connection good on the board? 3. The decode board is bad.	Replace the damaged parts or the decode board.
One embroidery head will not engage needle .	1. Check to see if the head solenoid is damaged? 2. Check whether the triode TR7 in the head's board is damaged? 3. Check the clearance between the head solenoid and the needle drive reciprocator, adjust as needed.	Replace the damaged parts or the decode board.
All heads' solenoid cannot engage the heads completely.	1. The direct current 24V's voltage is normal?	Repair or adjust the power supply.
	2. With a voltmeter, measure the voltage of the diode D13 on the solenoid drive circuit of the thread break detecting board. The value should be 8V while the head is locked and the head switch is in down position.	Repair or adjust the potentiometer.
The system reports the error: "stepping motor error" or can not move the frame while press moving keys.	1. The stepping motor driver lamp is red 2. The power supply of the stepping motor driver is not normal, and the fuse is blown. 3. The stepping motor drivers is connecting cable loose. 4. The main control board has some trouble. 5. Mechanical obstruction exists.	Remove any obstruction, replace driver board, or CPU.
The stepping motor makes unusual noise while moving the frame, or the stepping motor loses some steps, or the embroidery design is distorted .	1. The cables between the stepping motor driver and the stepping motors are not connected 2. The stepping motor driver is lack of phase . 3. Mechanical malfunction exists.	Solve the problem or replace the stepping motor drivers.
The floppy disk driver is lit all the time after the machine is turned on.	1. The floppy disk driver's signal cable (34 pins) is plugged in wrong. 2. The floppy disk driver is bad.	Plug the signal cable correctly or replace the disk driver.
Cannot read the pattern from the floppy disk or read in error.	1. Type of pattern cannot be identified by the machine. 2. The floppy disk has some errors.	Replace the floppy disk.
	3. The signal cable (34 pins) or the power wire is damaged.	Replace the signal cable or the power wire.
	4. The floppy disk driver is damaged.	Replace the floppy disk driver.
	5. The main control board has some trouble.	Replace the board.
The memory design is lost after power off.	1. Confirm that the battery voltage on control board is good, cannot be lower than 3.6V. 2. The circuit of the main control board has some trouble.	Replace the battery or the board.
Trimmer will not engage	1. Measure the DC voltage between the 2,3 terminals of CZ3 in the power supply board with the multimeter. The normal value is 90V, if abnormal?	-- Replace the power supply board. -- The capacitance C1 (4700u) and resistance (100 Ω) connected with CZ3 have loose solder or is damaged. Solder again or replace the damaged parts.

	2. Trim thread by hand, and see if the lamp of L33 (JX) in the main control board is lit or not. If not, the board has some trouble (no signal output).	Replace the main control board.
	3. See if the position of the solenoid is correct.	Adjust to the correct position.
	4. To see if the solenoid is damaged	Replace the tread trimming solenoid.
	5. To see if the connected parts are normal or not.,	Replace the connectors.
	6. Measure the triode M6 (CPU) with voltmeter to see if it is normal or not. If not,	Replace the triode.
Upper Thread Hook does not engage	1. Measure the AC voltage between the 4,5 terminals of CZ6 in the power supply board with the voltmeter. The normal value is 63V, if abnormal?	-- Check the power supply voltage. -- Check if there are some loose connections. -- Replace the transformer.
	2. Measure the DC voltage between the 2,3 terminals of CZ3 in the power supply board with the voltmeter. The normal value is 90V, if abnormal?;	-- Check if the connectors are loose or not. ? Replace the power supply board.
	3. To see if the connectors between the UTH solenoid and the power supply board is loose or not.	Repair and adjust to make it connect well.
	4. Measure the resistance between the thread holding solenoid and the machine frame to see if there is short circuit(the resistance is 0).	Check every thread holding solenoid in turn and replace the damaged. The normal value is more than 10ohms
	5. To see if there is thread holding signal output from the main control board, the lamp of L32 (KX) is light or not. If not, the main control board has some trouble (no signal output).	Replace the main control board.
	6. To see if the connection between the power supply board and the main control board is reliable or not.	Repair and adjust to make it reliable.
	7 Measure the triode of M5 with voltmeter to see if it is normal, if not ?€	Replace the triode.
UTH has no action.	The measure of checking and solving is the same as above. The resistance value of the parallel connection of the thread catching solenoids is more than 50. The indicator of thread catching solenoid is L34(GX). The triodes in the power supply board are M1,M2,M3 and M4.	
LCD has no display.	1. Check to see the output steady-voltage of 5V(DC) is right or not. 2. Measure the power supply of AC 220V is right or not.	-- Check if there is loose connection. -- Replace the 5-volt power supply. -- Check the power supply.
	3. Check the connection between the 5V power supply output cable and the LCD control board to see if it is reliable or not.	Repair and adjust to make it reliable.

	4. Check the connection between the E709 board and the LCD control board to see if it is reliable or not.	Repair and adjust to make it reliable.
	5. The LCD screen has no background light.	-- Replace the LCD screen lamp. -- Check and repair the connection between the two terminals and the inverter to make it reliable. -- Replace the damaged inverter board.
	6. Check if the E709 board is normal or not.	Replace the damaged board.
	7. Check if the LCD control board is normal or not.	Replace the damaged board.
	8. Check to see if the connection between the two terminals of the 40P cable in the LCD control board is reliable or not. If not,	Repair and adjust to make it reliable.
Display stripes on the screen	1. Check to see if the connection between the flat cable in the operation box and the LCD screen is reliable or not. if not,	Repair and adjust to make it reliable.
	2. Check to see if the LCD screen is damaged or not. if so,	Replace the damaged screen.
	3 Check to see if the connection between the two terminals of the 40P cable in the LCD control board is reliable or not. If not,	Repair and adjust to make it reliable.
	4. Check to see if the LCD control board is damaged or not. if so,	Replace the damaged board.
LCD screen blinking.	The measure of checking and solving is the same as above.	
The frame can not be locked.	1. Check the two terminals of the stepping power supply to see if it is 100V or not. If not,	-- Check the fuse of the stepping power supply.
	2. Measure the voltage between the 1 terminal and 2 terminal of the 8P plug in the stepping motor driver to see if it is DC 140V; Measure the voltage between the 3 terminal and 7 terminal to see if it is AC 8V; Measure the voltage between the 4 terminal and 8 terminal to see if it is AC 15V. If not	-- Check the fuse in the power supply board in the stepping motor driver. -- Replace the power supply board in the stepping motor driver.
Frame does moves not continuously	1 Check the connection between the cables of X and Y to see if it is reliable. If not,	Repair and adjust to make it reliable.
	2. Check to see if the stepping motor driver and stepping motor are damaged.	-- Replace the damaged driver. -- Replace the damaged motor.
Design out of shape	1. Check the design to see if it out of shape at the same place, to see if it is a problem of the design itself.	-- Reread another design.

	2. Check to see if it is the cause of the 34P cable of the floppy disk driver or the connection of the two terminals of the connector.	Repair and adjust to make it reliable.
	3. To see if the design can return to the origin or not after it out of shape: If so, it may be the problem of the design. If not, the stepping motor driver may be damaged, or the stepping signal may be interfered.	-- Reread another design and check again. -- Replace the damaged driver and motor. -- To find the interference sources.
	4. 'Does the frame move steady? Are there pauses when the frame moves continuously?	Replace the damaged driver and motor.
	5. Design out of shape has no rule, the forward trail does not accord with the backward trail.	Replace the encoder.
	6. When power off, do you feel if it is loose or very heavy when you push the frame?	Check the relevant machine transmission parts, for example the frame drive belt.