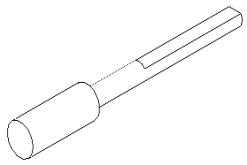
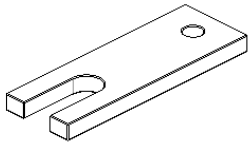
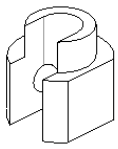
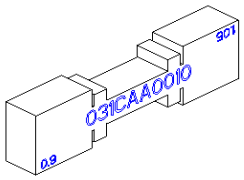
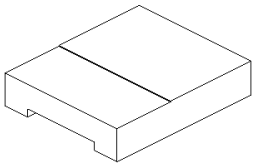
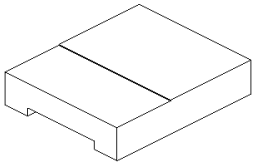
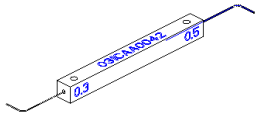
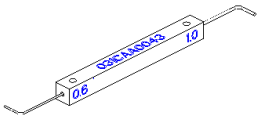
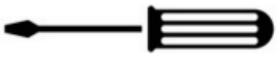
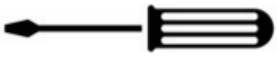
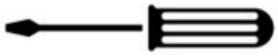
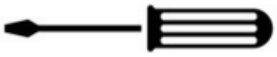
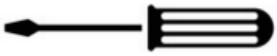
REPAIR MANUAL

CH04AX

Contents

1. Gauge & Tool List

Gauge Appearance	No	ZH SAP#	Item Description	Spec.	Purpose
	1	031CAA0044	Needle bar height gauge	**29.05mm**	For needle bar height adjustment (see page 16)
	2	031CAA0013	Hook timing gauge	**3.5mm**	For adjusting the hook timing (see page 18)
	3	031CAA0014	Hook timing gauge holder		For adjusting the hook timing (see page 18)
	4	031CAA0010	Feed dog gauge	**0.9~1.05mm**	For adjusting the height of feed dog (see page 25)
	5	031V8D0301	Presser bar Gauge	**6.0~6.5mm**	For adjusting the height of presser foot (see page 10)
	6	031CAA0012	Zigzag movement gauge	**6.0~6.2mm**	Checking the zigzag movement of the needle (see page10)
	7	031CAA0042	Rotary hook plate (1) gauge	**0.3~0.5mm**	Check the play allowance for the rotary hook plate (1) (see page 22)
	8	031CAA0043	Rotary hook plate (2) gauge	**0.6~1.0mm**	Check the play allowance for the rotary hook plate (2) (see page 23)

Tool Type	No	Head Type	Item Description	Specs	Remark
	1		Hexagon screwdriver	**1.5mm**	
	2		Hexagon screwdriver	**2.0mm**	
	3		Hexagon screwdriver	**2.5mm**	
	4		Hexagon screwdriver	**3.0mm**	
	5		Hexagon screwdriver	**4.0mm**	
	6		L-shape slotted screwdriver (twin heads)		

2. Remove machine covers

2-1. Remove accessory box

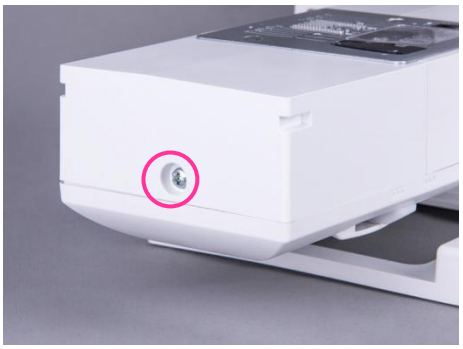
2-1-1.

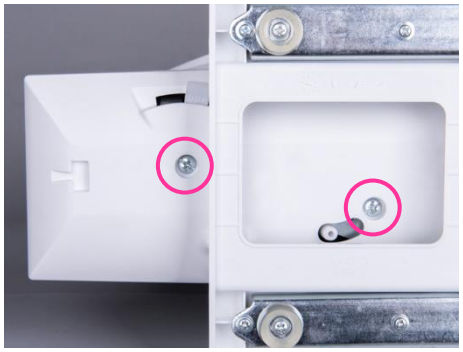
Grasp the accessory box then pull toward by the arrow direction to remove it.

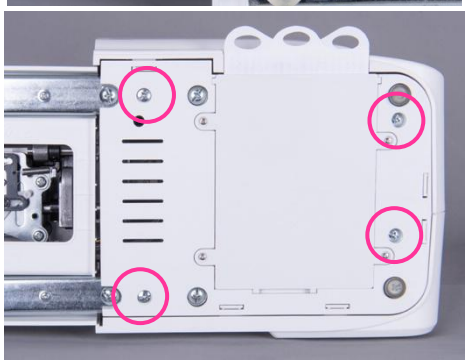
2-2. Remove face plate

2-2-1

Use Philips head screwdriver to remove the setscrews of the face plate, free arm cover, free arm base cover and bed cover.



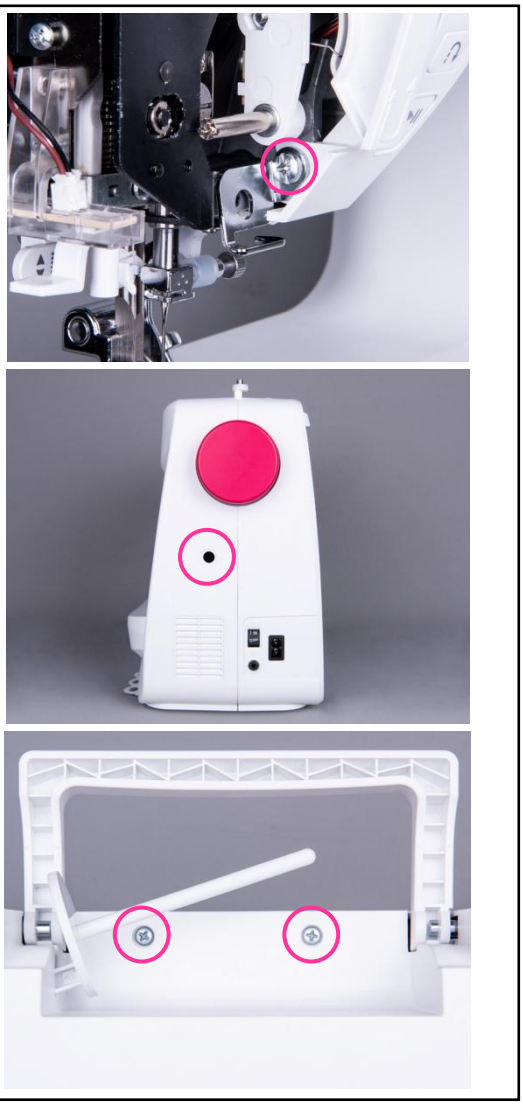




2-3. Remove Front cover

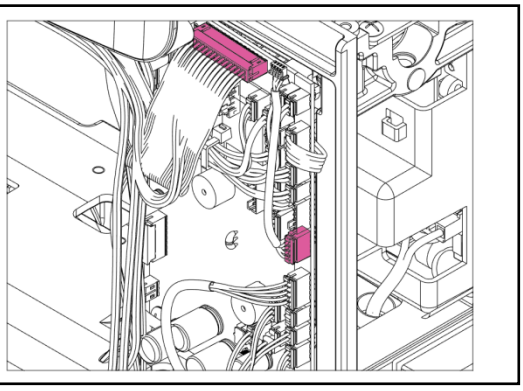
2-3-1

Use Philips screwdriver to remove the front cover



2-3-2

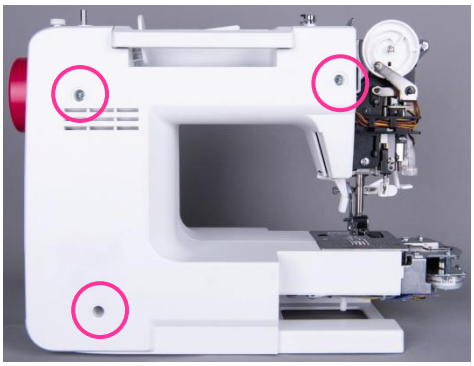
Remove the harness &WIFI module cable



2-4. Remove Back cover

2-4-1

Use Philips screwdriver to remove the back cover (Please lower the presser foot lever first)



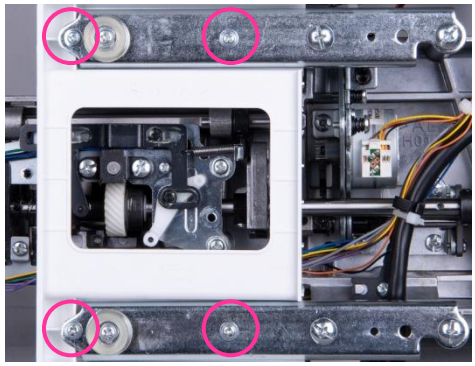
2-4-2

When removing the back cover, please pay attention to avoid hitting the receptacle holder and break it.

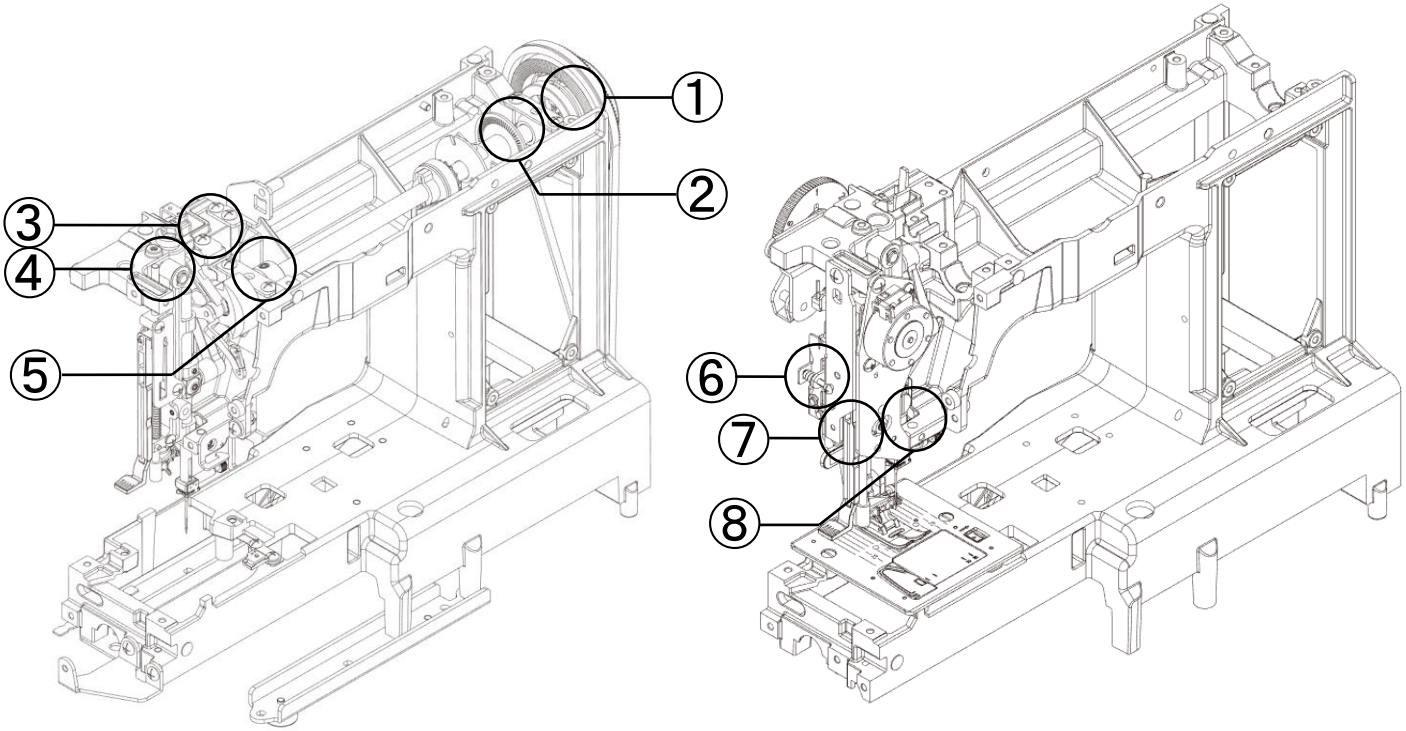
2-5. Remove bed cover

2-5-1

Use Philips screwdriver to remove the bed cover



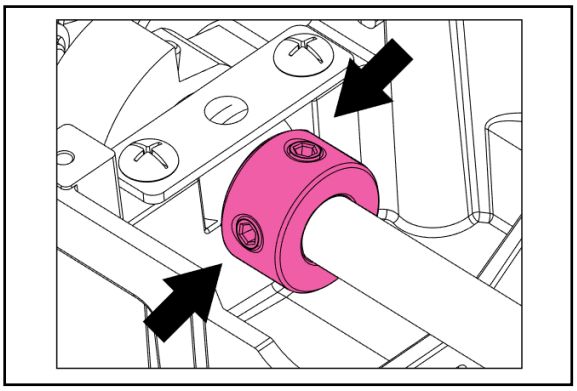
3. Mechanical components adjustment



3-1. Play of the Arm shaft

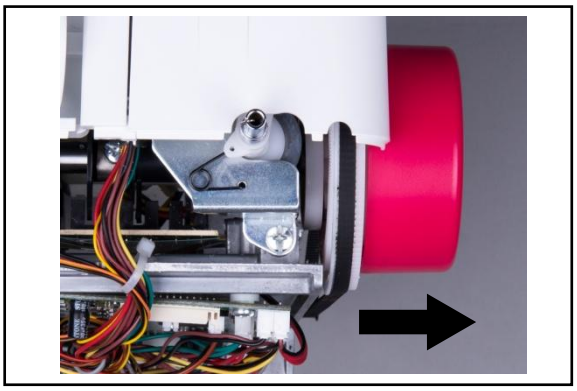
(※Please remove face plate, free arm cover, free arm base cover, base cover, front cover in advance)

Use 2.5mm hexagon screwdriver to loosen 2 setscrews on arm shaft collar (as shown in area ⑤).



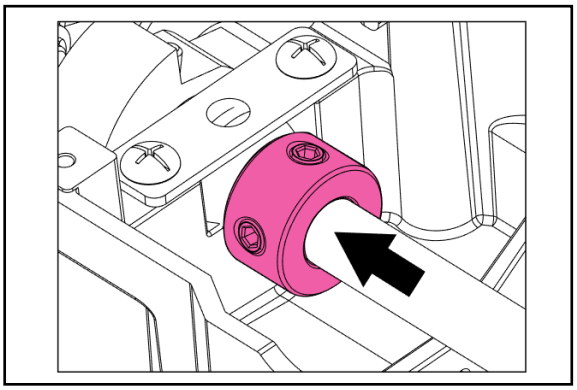
3-1-2

Follow the arrow direction to pull the hand wheel outward.



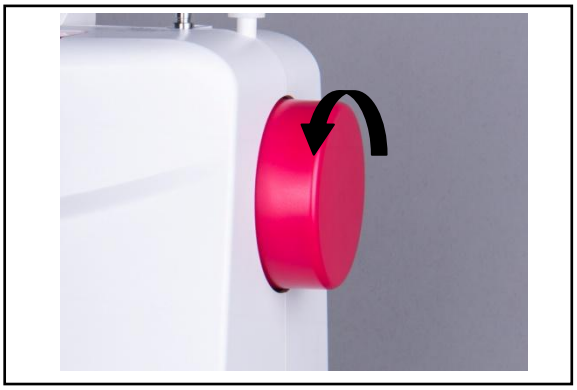
3-1-3

Pull arm shaft collar to left (as shown in area ⑤) and fit tightly against the arm shaft bushing. Then tighten 2 setscrews on the arm shaft collar



3-1-4

Check if the arm shaft can rotate smoothly. If not, the arm shaft collar may fit too tightly against the arm shaft bushing.



3-1-5

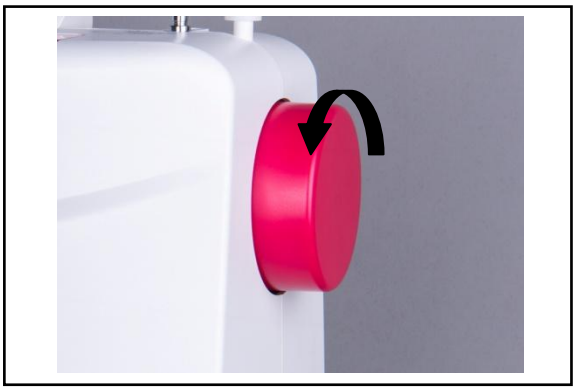
Follow 3-1-2 to pull the hand wheel outward and turn the hand wheel to move the needle to three different positions (highest, lowest, center). Then check if the play of the arm shaft is sufficient.

3-1-6

If the play of arm shaft is still too loose or too tight, follow the above procedures (3-1-1 ~ 3-1-5) to re-adjust.

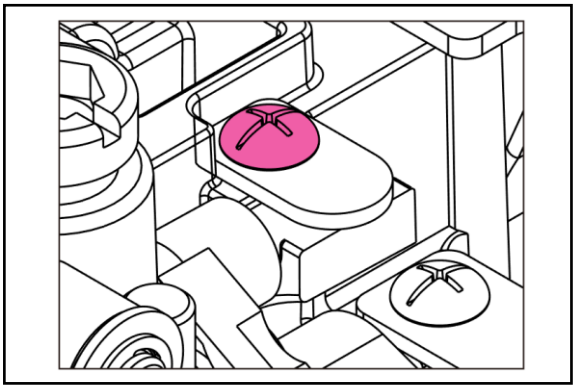
3-2. Thread take up lever adjustment

(※Please remove face plate, free arm cover, free arm base cover, bed cover, front cover and back cover in advance)



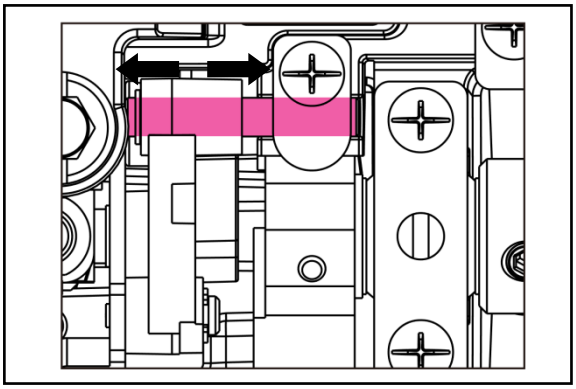
3-2-1

Turn the hand wheel to check the noise location



3-2-2

Loosen the screw M4X8A (as shown in area ③) . Check and adjust the tightness of thread take up lever supporter.



3-2-3

If it is set too tightly, the hand wheel will be difficult to turn.

3-2-4

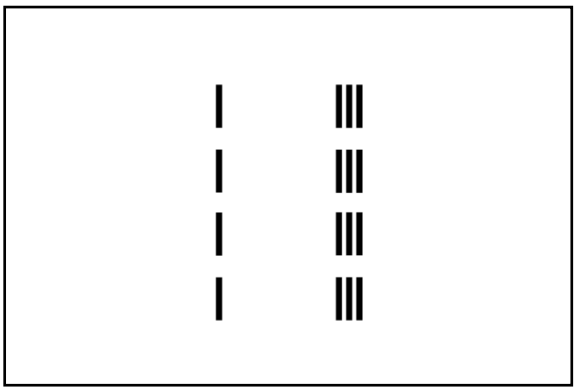
On the contrary, if it is set too loosely, abnormal noise may occur during operation.

3-3. Adjusting the needle drop position

(※Remove the face plate)

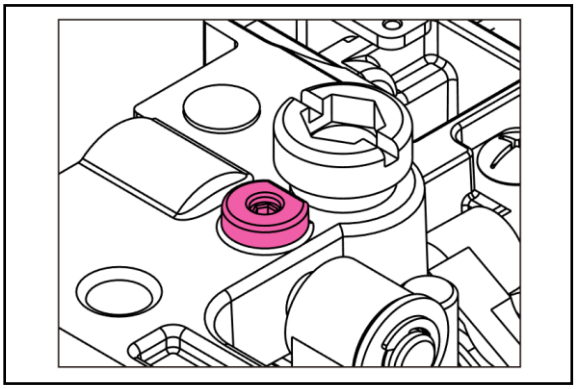
3-3-1

Select straight stitch pattern



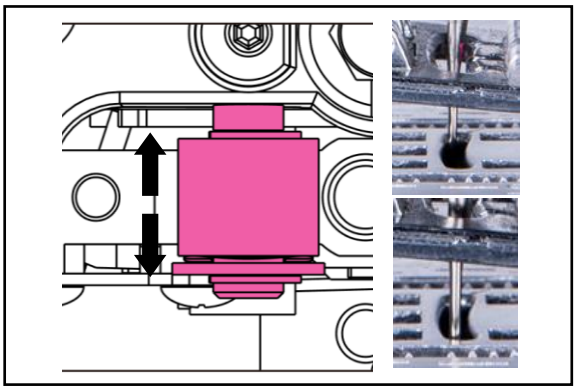
3-3-2

Loosen the 2.0mm hex socket setscrew. (as shown in area ④)



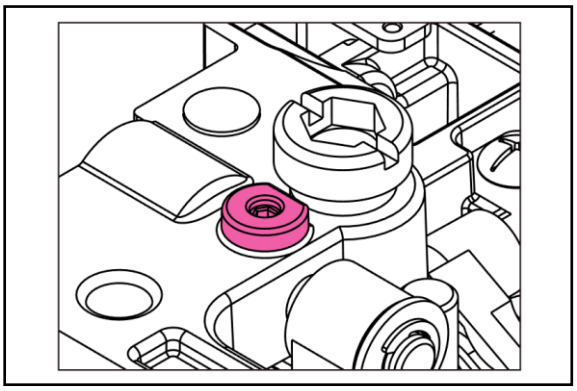
3-3-3

Pull the needle bar supporter backward to move the needle forward and vice versa. (as shown in area ④)



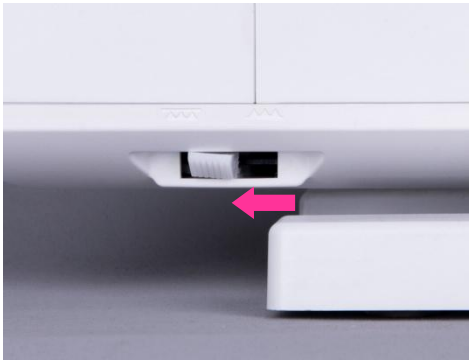
3-3-4

Adjust the needle position to the hole center of the needle plate then tighten the setscrew. (as shown in area ④)



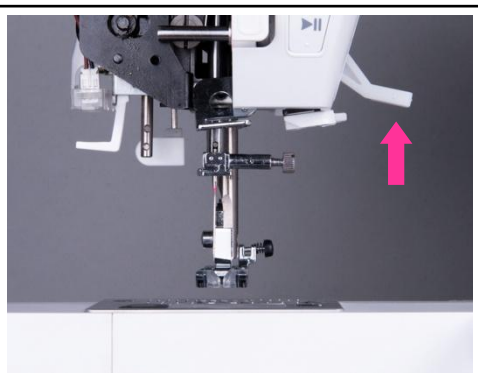
3-4. Adjust height of the presser foot

(※Remove the face plate)



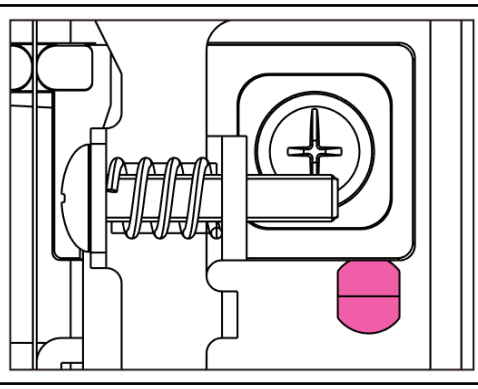
3-4-1

Drop down the feed dog



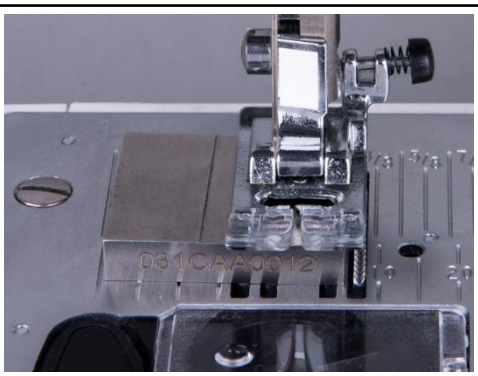
3-4-2

Raise the presser foot lifter



3-4-3

Use a 2.0mm hexagon screwdriver to loosen the setscrew. (as shown in area ⑥)



3-4-4

Put the gauge with the smaller side down below the presser foot.

3-4-5

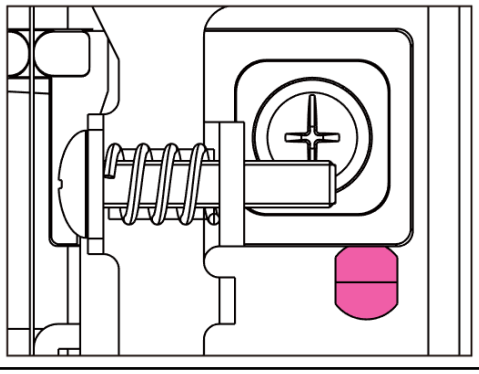
Adjust the presser bar position to make it fit against the gauge.

3-4-6

Drop down the feed dog

3-4-7

Slightly tighten the hex socket setscrew. (as shown in area ⑥)

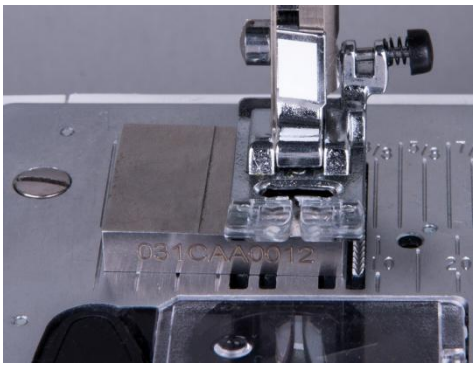


3-4-8

Use the gauge to check the height of the presser foot. By the smaller side, the gauge can be put beneath the presser foot

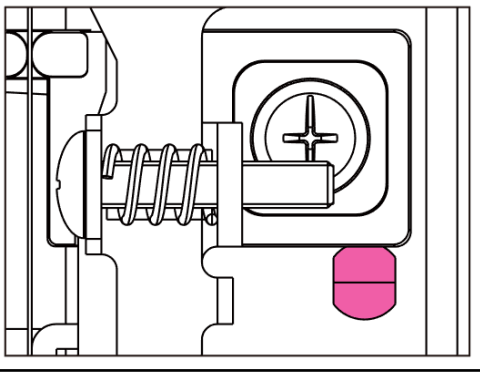
3-4-9

On the contrary, the taller side of the gauge cannot be put beneath presser bar



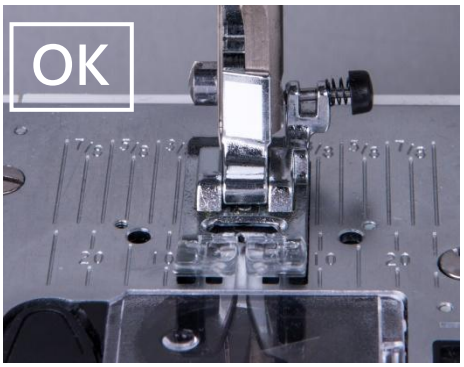
3-4-10

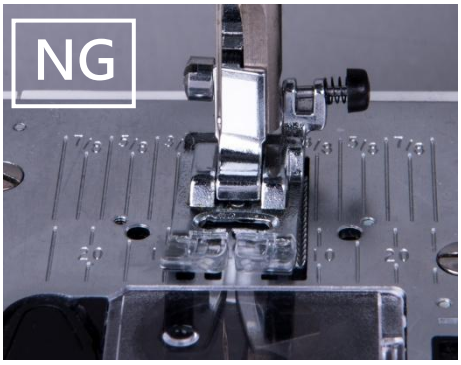
If the height of the presser foot fits the standard, tighten the hex socket setscrew firmly. (as shown in area ⑥)



Note:

The presser foot should be aligned with the feed dog hole of the needle plate without slanting.



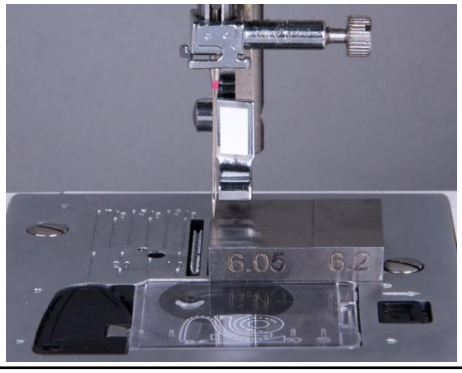


3-5. Adjust the zigzag movement of the needle

(※Remove the face plate, free arm cover, free arm base cover, bed cover and front cover)

3-5-1

Choose the stitch pattern “ ≷” ，and set the stitch width to 7mm



3-5-2

Set the needle position to its left lowest position.

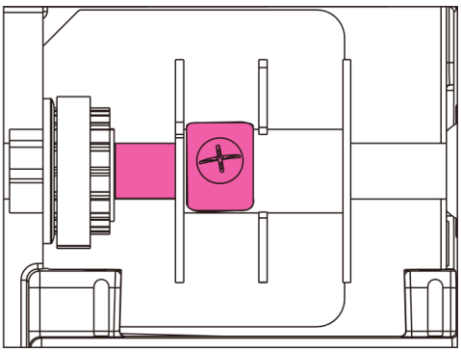
Then turn the hand wheel to raise the needle and stop at the point when it starts to move rightward.

At this point, the vertical distance between the needle tip and the needle plate should be between 6.0~6.5mm.

3-5-3

If the vertical distance is less than 6mm, loosen the screw M4*8A on the rotary sensor collar first. (as shown in area ②)

Then turn the rotary sensor collar backward.



3-5-4

If the vertical distance is higher than 6.5mm, adjust the rotary sensor collar position in reverse direction.

3-5-5

Re-check if the vertical distance fits to the standard.

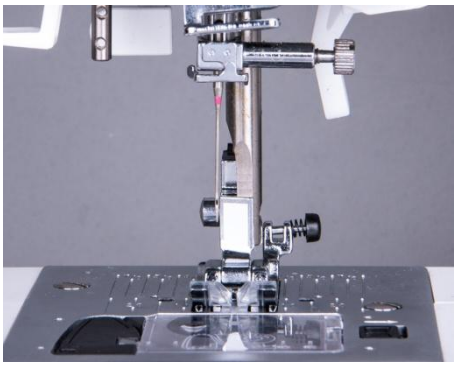
If yes, tighten the screw M4*8A firmly.

3-6. Adjust needle drop positions

(※Remove the face plate)

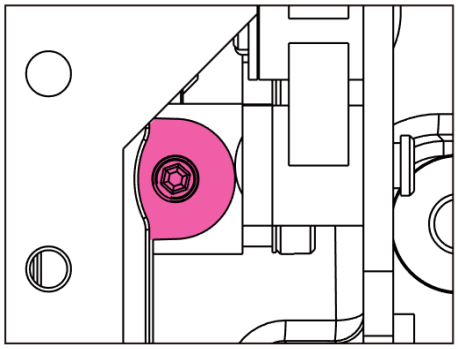
3-6-1

Choose the stitch pattern “ ≷” ，and set the stitch width to 7mm



3-6-2

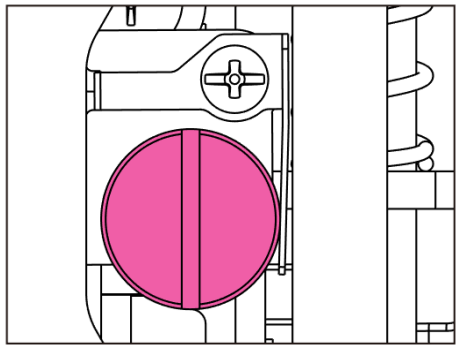
Use a 1.5mm Hex screwdriver to loosen the setscrew of the needle bar supporter. (as shown in area ⑦)



3-6-3

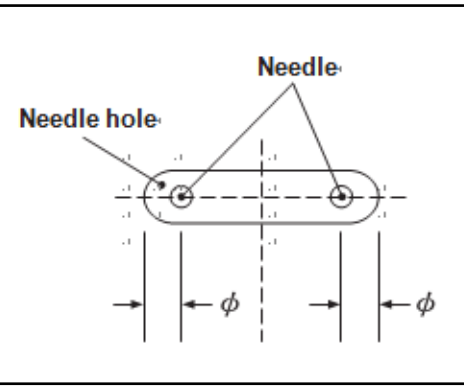
Turn setscrew (as the picture shown below) to adjust the needle bar position. (as shown in area ⑧)

Turn the setscrew in clockwise direction will make the needle position go left; Turn it in counterclockwise direction will go right.



3-6-4

Make sure needle drop on the left / right of needle hole with even distance to the edge of the needle hole then tighten the setscrew.

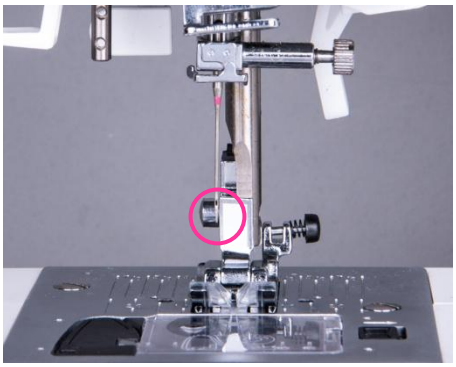


3-7. Adjust the automatic needle threader

(※Remove the face plate)

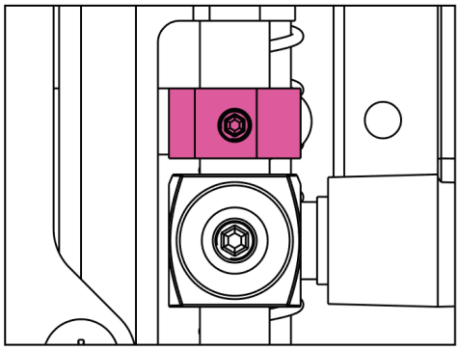
3-7-2

Turn the hand wheel and move the needle to its highest position.



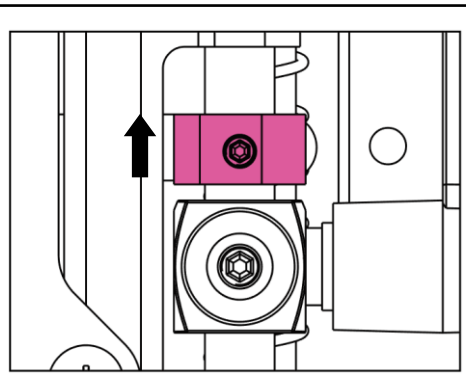
3-7-3

Use a 1.5mm hex screwdriver to loosen the setscrew of threader stopper.



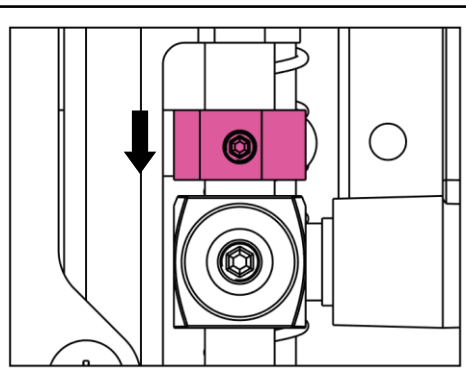
3-7-4

Move the threader stopper upward to make the threader hook go up.



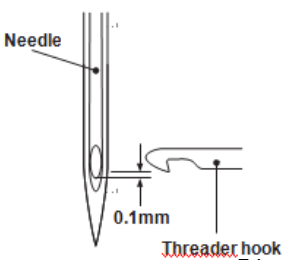
3-7-5

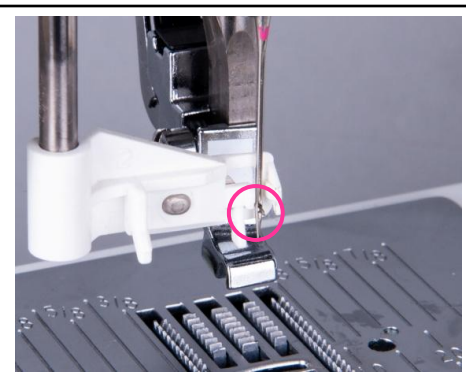
Move threader stopper in another direction to make the threader hook go down.



3-7-6

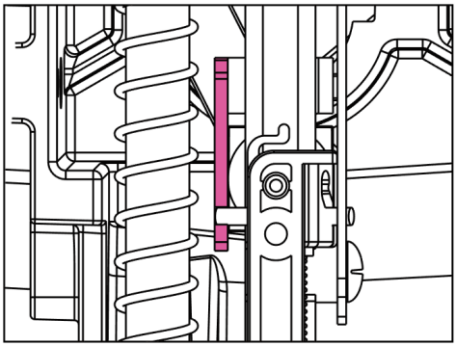
Adjust the threader stopper to the correct position so as to let the threader hook insert into the needle eye smoothly.





3-7-7

Tighten the threader stopper firmly and make sure the threader stopper is not skewed.



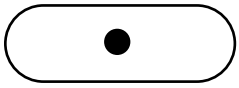
3-8. Adjust the needle bar height

3-8-1

Remove the face plate

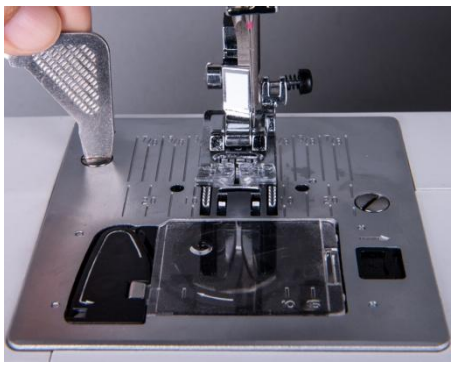
3-8-2

Move the needle to its center position



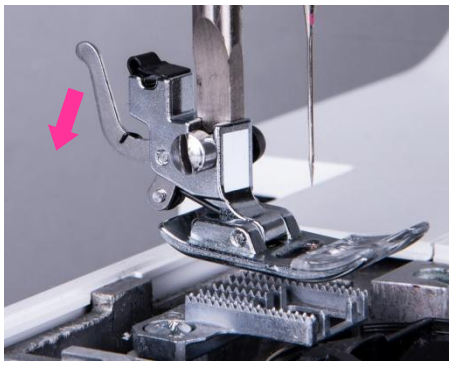
3-8-3

Use a flathead screwdriver to remove the needle plate.



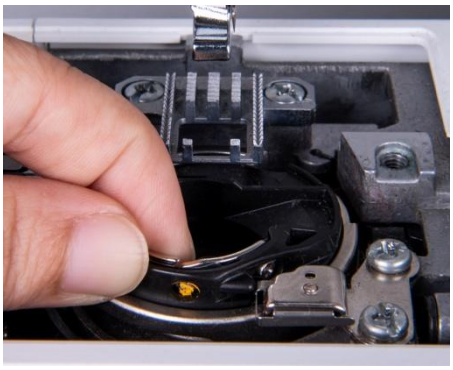
3-8-4

Press the shank complete lever to release the presser foot



3-8-5

Take out the shuttle hook

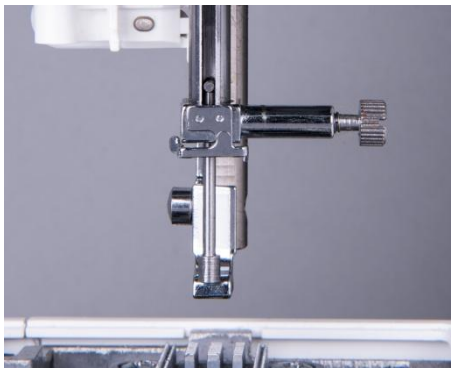


3-8-5

Use a flathead screwdriver to loosen the needle clamp and remove the needle.

3-8-6

Install the needle bar height gauge (29.05+/-0.05mm)

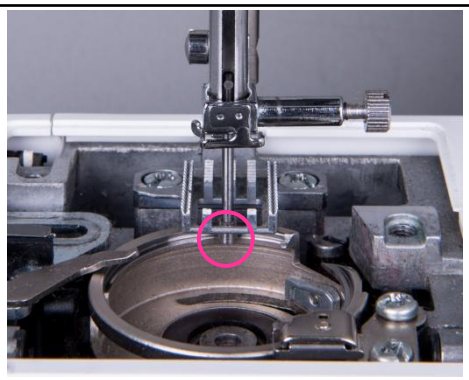


3-8-7

Turn the hand wheel to let needle go to its lowest position

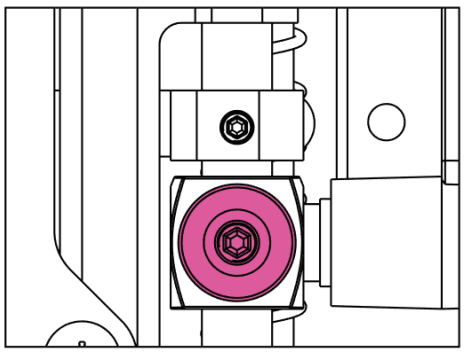
3-8-8

When the needle is at lowest position, the gauge will slightly touch the inner brink of the shuttle hook holder



3-8-8

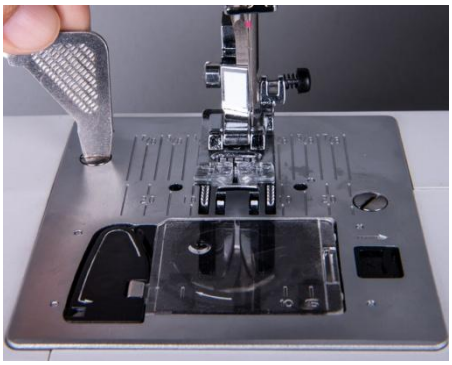
If the needle bar height is set too high or low, use a 2.0mm hex screw driver to loosen the setscrew for the needle bar bracket. Then raise or lower the needle bar for adjustment.



3-9. Adjust the hook timing

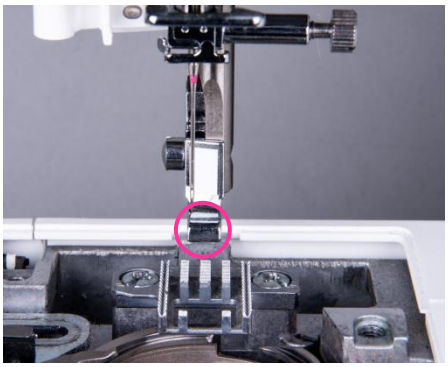
3-9-1

Use a flathead screwdriver to remove the needle plate



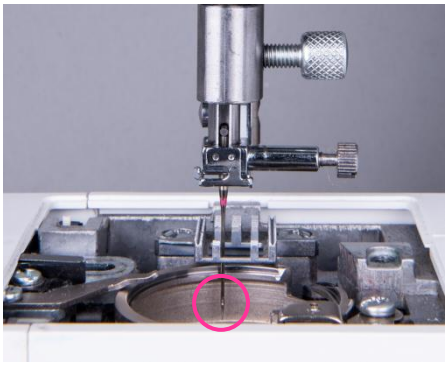
3-9-2

Choose the stitch pattern “ ” , and set the stitch width to 7mm



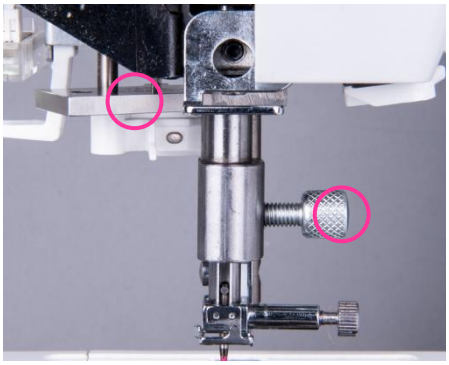
3-9-3

Turn the hand wheel to move the needle to the left side and down to its lowest location



3-9-4

Install the timing gauge (3.5mm) and its holder then tighten the setscrew.



3-9-5

Turn the hand wheel back and forth to make sure that the gauge does not shake up and down.

3-9-6

Take the gauge (3.5mm) out.

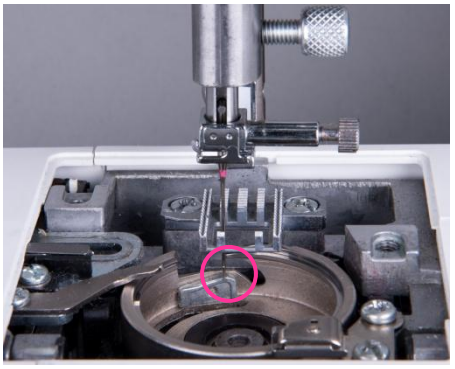
3-9-7

Turn the hand wheel to raise the needle bar and make the positioning plate touch the top side.

3-9-8

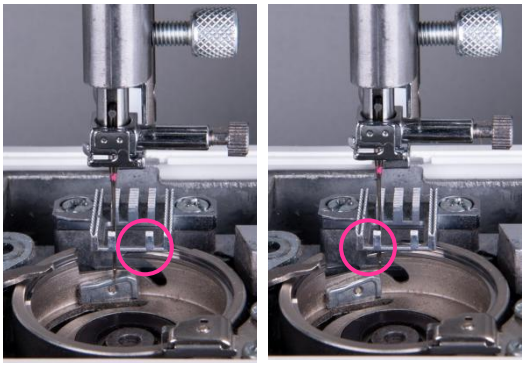
Turn the hand wheel to make the needle go down until the tip of shuttle hook holder meets the needle from the front view (but not physical touch).

At this point, the distance between the shuttle hook tip and the needle eye should be between 0.5~1.0mm.



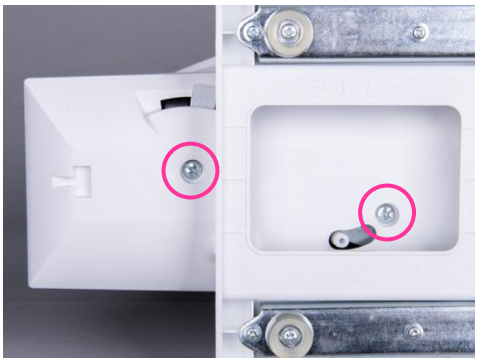
3-9-9

If the distance is out of the standard, the hook timing is set too fast or slow (as pictures below)



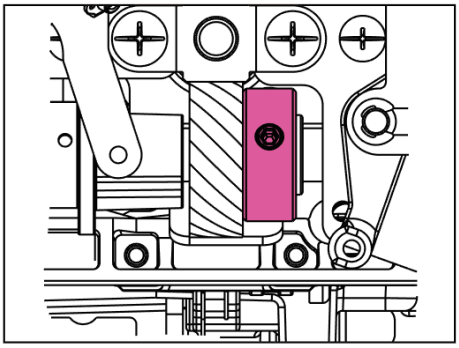
3-9-10

Use a flathead screwdriver to remove the free arm base cover.



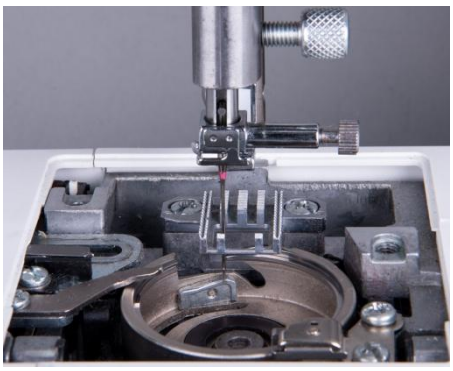
3-9-11

Use a 2.0mm hex screwdriver to loosen 2 setscrews on the lower shaft gear and adjust the hook position. Repeat step 3-9-3 to 3-9-8 for adjustment.



3-9-12

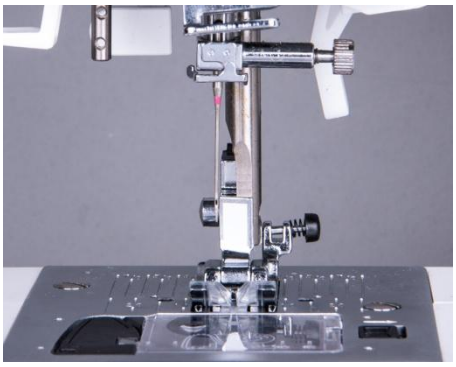
After adjusting to the right position, tighten the setscrews on the lower shaft gear.



3-10. Adjust the distance between needle and hook

3-10-1

Remove the face plate)

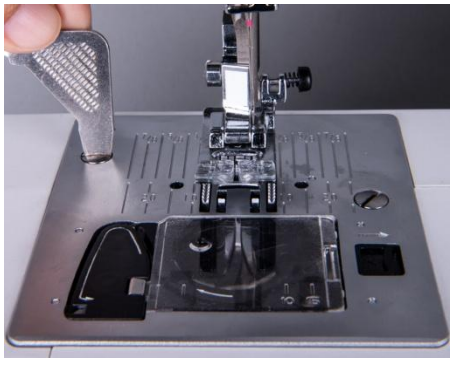


3-10-2

Choose the stitch pattern “ ≷ ” ，and set the stitch width to 7mm

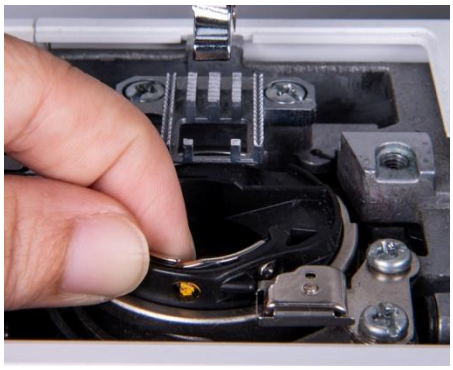
3-10-3

Use a flathead screwdriver to remove the needle plate.



3-10-4

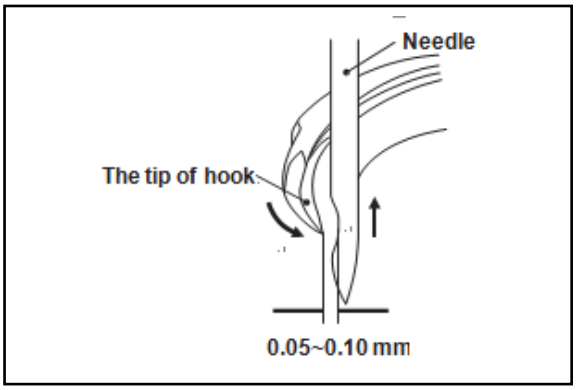
Take out the shuttle hook.



3-10-5

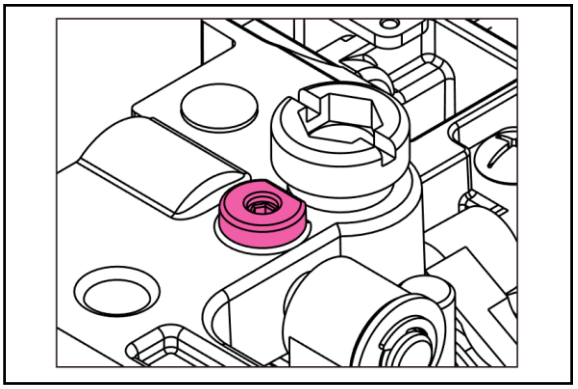
Firstly turn the hand wheel to move the needle to the left side and its lowest position. Then turn the hand wheel again to make the hook tip meet the needle.

At this point, the play should be between 0.05~0.1mm.



3-10-6

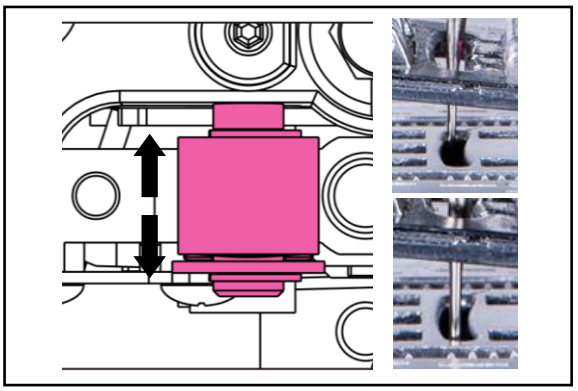
If the play does not fit the standard, use a 2.0mm hex screwdriver to loosen the hex socket screw for the needle bar supporter pin.



3-10-7

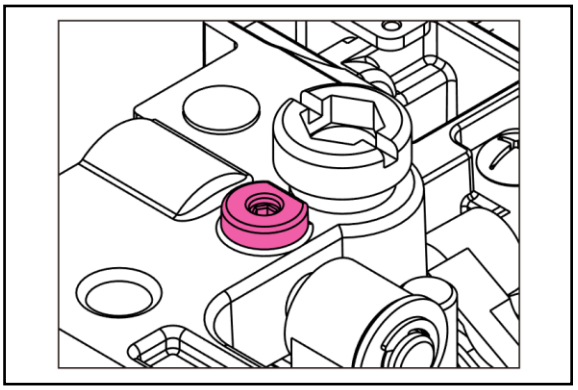
Push the needle bar supporter backward and the play will become larger.

Push it in another direction will make the play smaller.



3-10-8

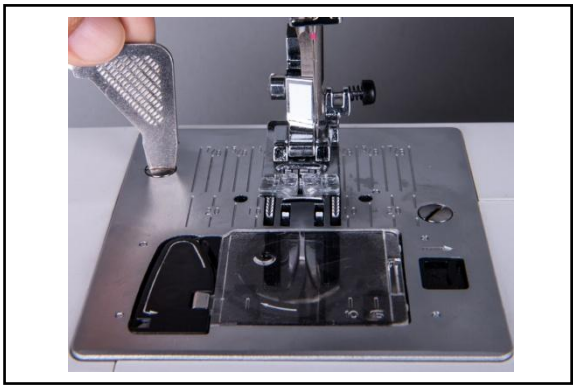
After adjusting to a correct play, tighten the hex socket set screw.



3-11. Adjusting the play between the lower shaft gear and the shuttle hook holder gear

3-11-1

Remove the face plate)

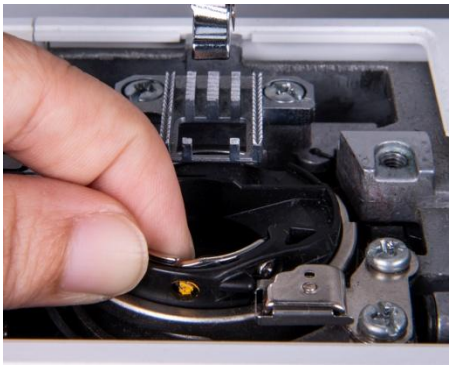


3-11-2

Use a flathead screwdriver to remove the needle plate

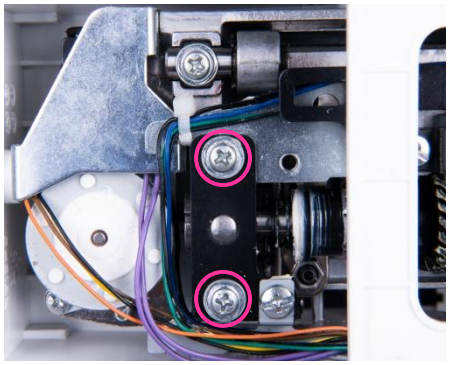
3-11-3

Take out the shuttle hook



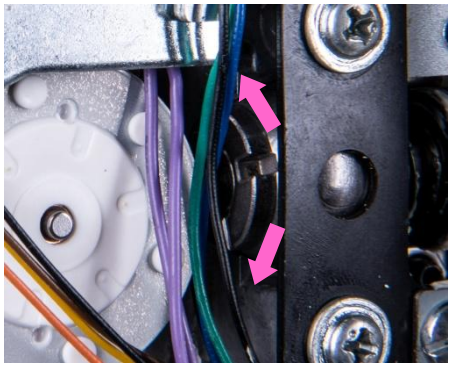
3-11-4

Loosen 2 setscrews (M4*8) on the bias bushing presser plate.



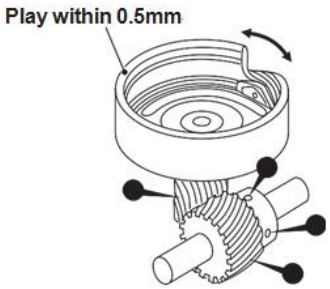
3-11-5

Move the lower shaft bias bushing up will increase the play and move it down will reduce the play.



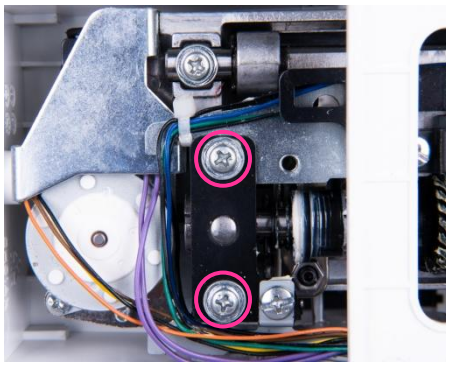
3-11-6

While adjusting the correct play, please notice that the movable distance for the shuttle hook holder should be within 0.5mm.



3-11-7

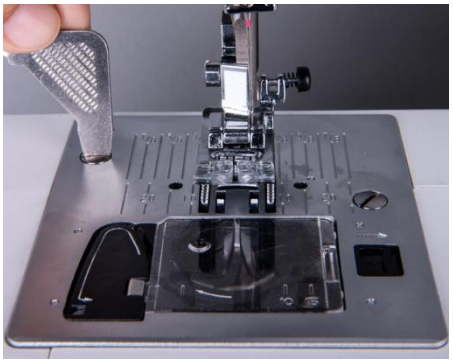
After adjusting, tighten 2 setscrews (M4*8) back and re-check if the hook timing is correct.



3-12. Adjust the play for the rotary hook plates.

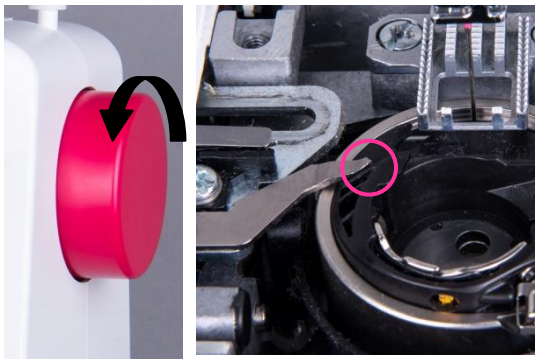
3-12-1

Use a flathead screwdriver to remove the needle plate.



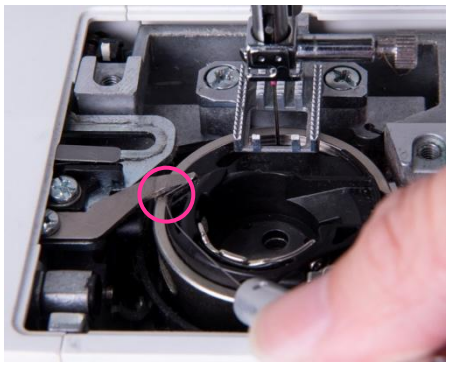
3-12-2

Turn the hand wheel in counterclockwise direction to let the bobbin case touch the rotary hook holder plate(2) and form a gap between the rotary hook holder plate(1).



3-12-3

The side with 0.3mm can pass the gap but another side (0.5mm) cannot pass.



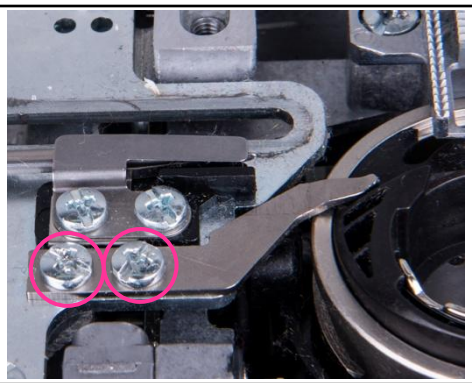
3-12-4

Remove the free arm cover if the play does not meet the standard.

3-12-5

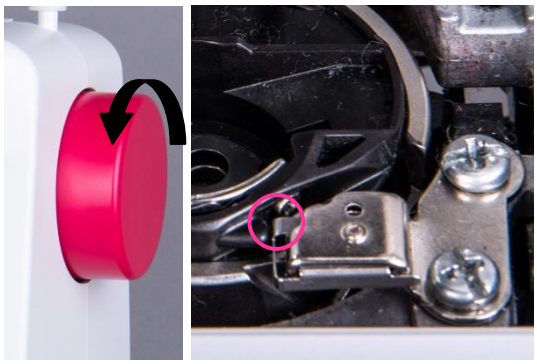
Loosen 2 setscrews for the rotary hook holder plate(1) and adjust its location.

After adjusting to a correct play, tighten the setscrews.



3-12-6

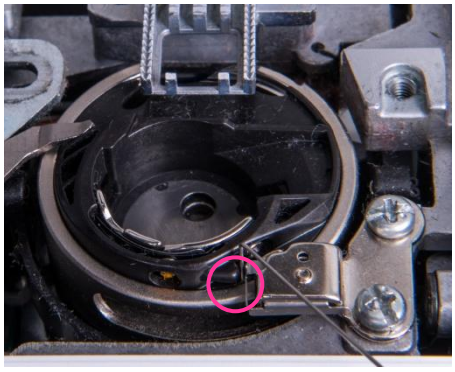
Turn the hand wheel in clockwise direction to make the bobbin case touch the rotary hook holder plate(1) and form a gap between the rotary hook holder plate(2).



3-12-7

Use the gauge to measure the play of the hook holder plate(2).

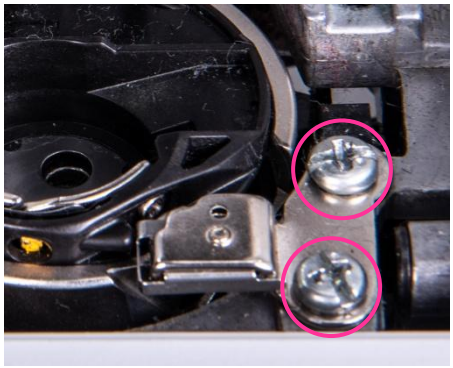
The side with 0.6mm can pass the gap but another side (1.0mm) cannot pass.



3-12-8

play is out of the standard, loosen 2 setscrews for the rotary hook holder plate(2) and adjust its location.

After adjusting to a correct play, re-tighten the setscrews.



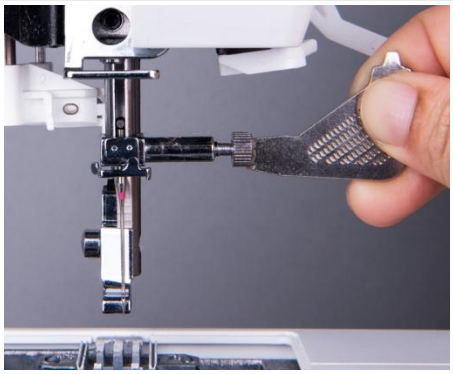
3-13. Adjust the height of the feed dog

3-13-1

Remove the free arm base cover and the free arm cover.

3-13-2

Loosen the needle clamp screw and remove the needle.



3-13-3

Attach the power cable and start the machine.

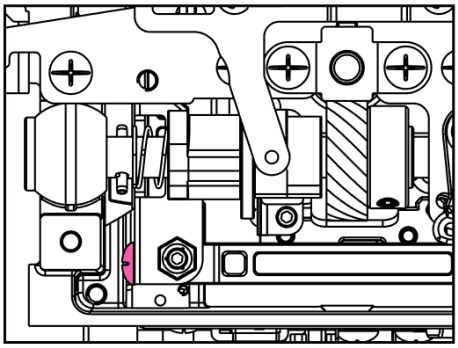
Select the straight stitch pattern and set the stitch length to 5.0mm.

3-13-4

Lay down the sewing machine.

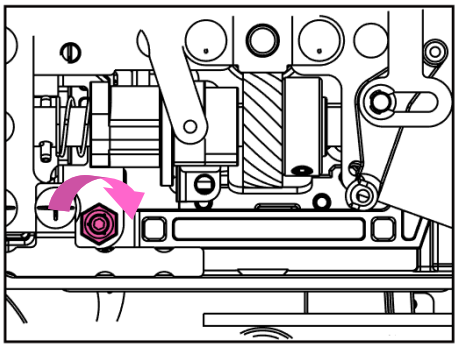
3-13-5

Turn the hand wheel to make sure the Phillips screw driver can reach the screw (M4*8A, as shown below) and loosen it.



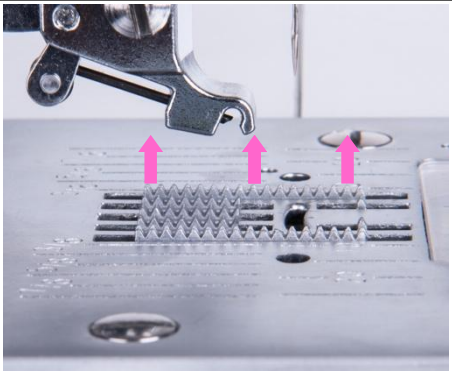
3-13-6

Adjust M4 hex socket screw in clockwise direction.



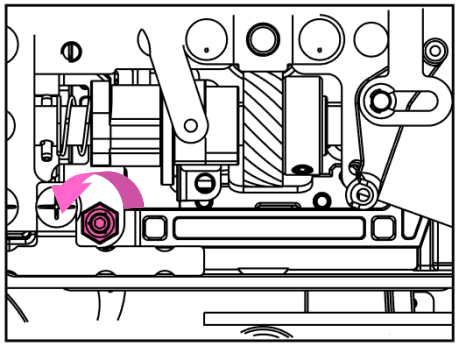
3-13-7

It will raise the height of the feed dog.



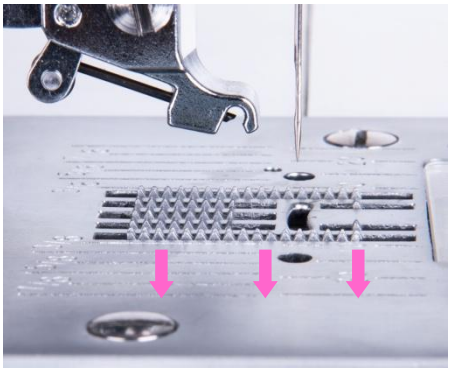
3-13-8

Adjust M4 hex socket screw in counterclockwise direction.



3-13-9

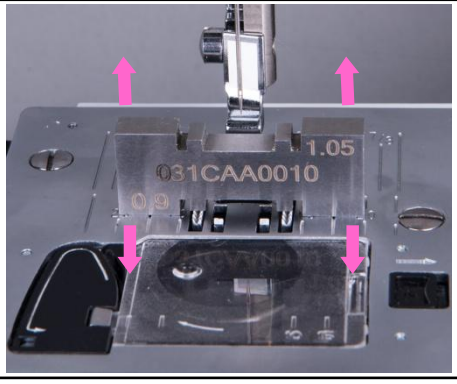
It will lower the height of the feed dog.



3-13-11

Place the gauge on the needle plate with the side marked 0.9mm down then turn the hand wheel to make the feed dog move.

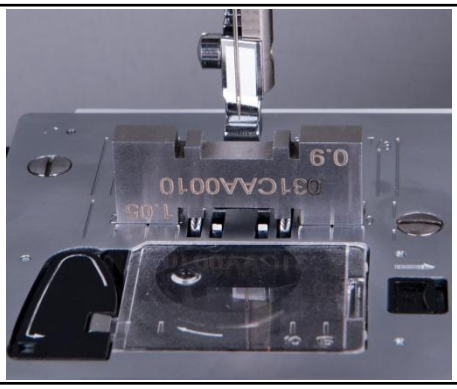
Feed dog should not pass the gauge gap during the movement.



3-13-12

Place by the other side(1.05mm) of the gauge on the needle plate and turn hand wheel to move the feed dog.

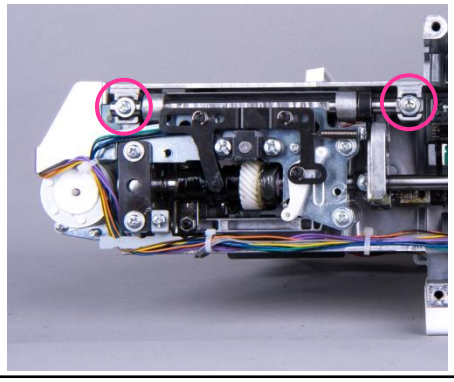
Feed dog should not touch the gauge during the movement.



3-14. Adjust the feed dog position

3-14-1

Remove the free arm base cover and the free arm cover.

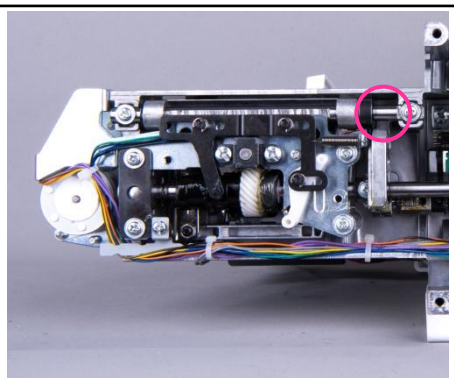


3-14-2

Loosen 2 setscrews with washers (M4*12).

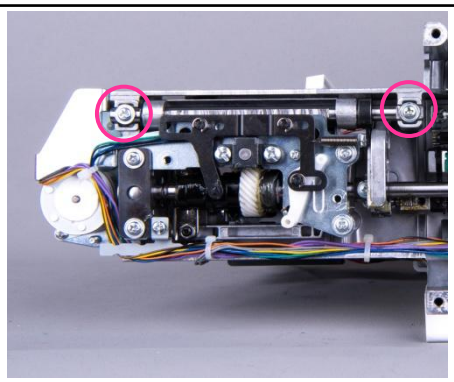
3-14-3

Adjust the feed rock support shaft position to make sure that the feed dog is set to the center of the needle plate hole.



3-14-4

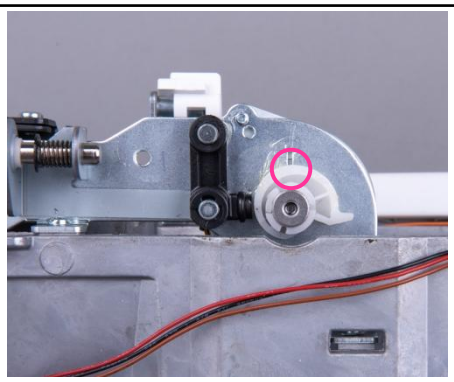
Tighten 2 setscrews back.



3-15. Adjust the upper thread tension

3-15-1

Remove the face plate, free arm cover, free arm base cover, bed cover and front cover.

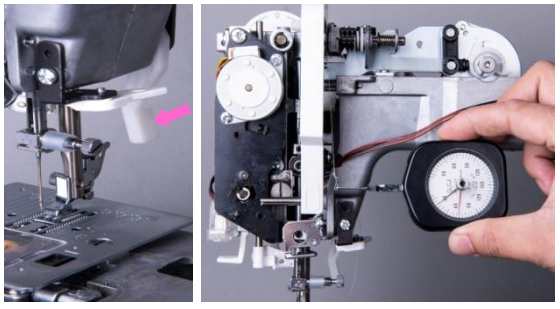


3-15-2

Turn on the machine to set the dial tension adjustable cam to its default value.

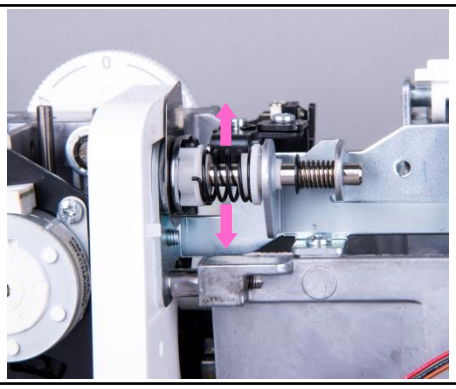
3-15-3

Pull down the presser foot lifter lever first. Place a thread between the tension discs and use a tension meter (150gf) to pull the thread down to measure the tension strength. The standard should be between 60~70gf.



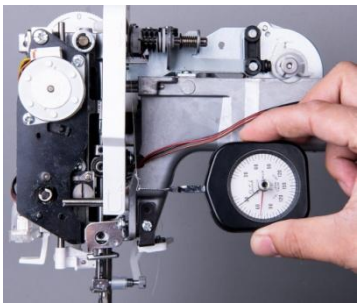
3-15-4

If it is out of the standard, adjust dial tension regulator. Push forward to get a weaker tension and do it in reverse way to get a heavier tension.



3-15-5

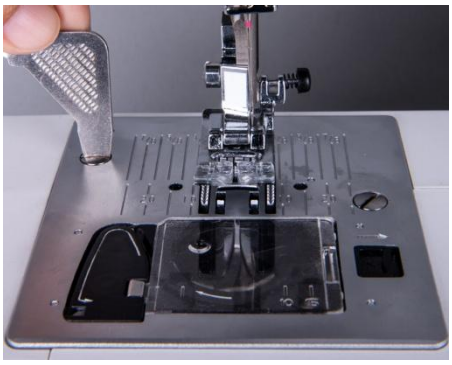
Use the gauge to re-check the tension strength to see if it fits the standard (60~70gf).



3-16. Adjust the bobbin case tension

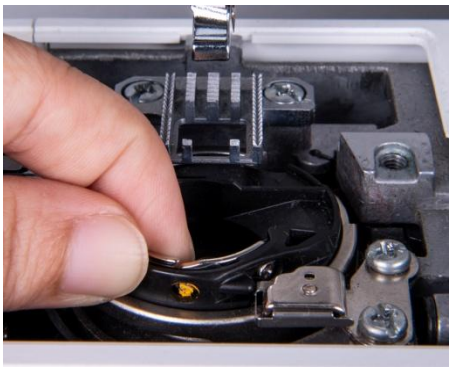
3-16-1

Use a flathead screwdriver to remove the needle plate.



3-16-2

Take out the bobbin case

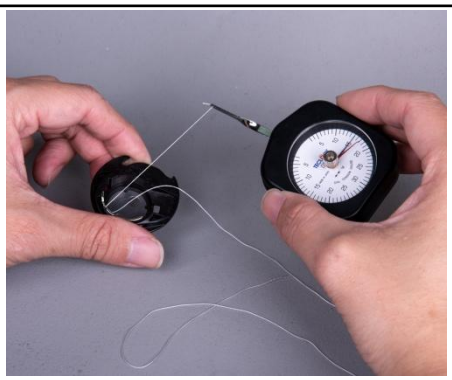


3-16-3

Put a thread into the tension meter (50gf) and place the thread in between the bobbin case spring.

Pull the thread up to measure the tension strength.

The standard should be within 13~17gf.



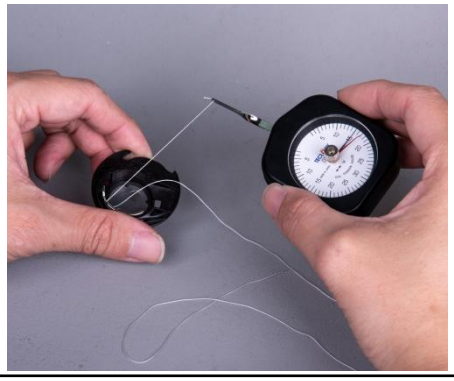
3-16-4

If it is out of the standard, turn the bobbin case screw for adjustment.

Turn it in clockwise direction to get a stronger tension and do it in reverse if the tension is too strong.

3-16-5

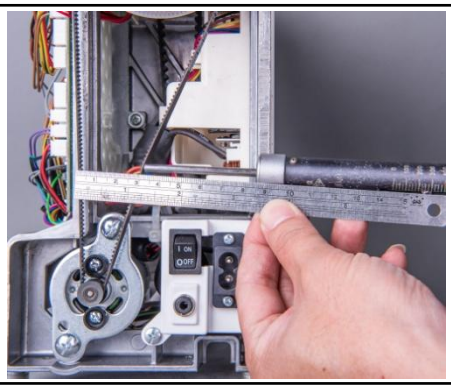
Use the tension meter to check the tension strength fits to the standard (13~17gf).



3-17. Adjust motor belt

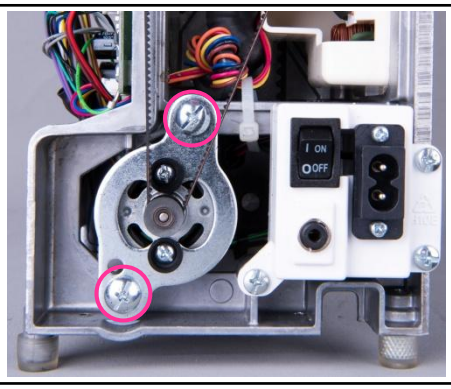
3-17-1

Use a belt tension gauge to check the belt tension. When press down on the belt for 4-6mm, the tension strength should be 200g.



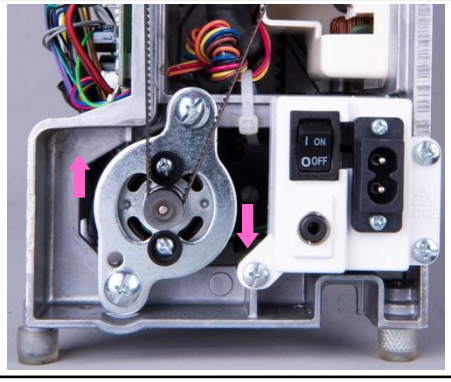
3-17-2

If the motor belt is too loose or too tight, loosen 2 M5 setscrews for further adjustment.



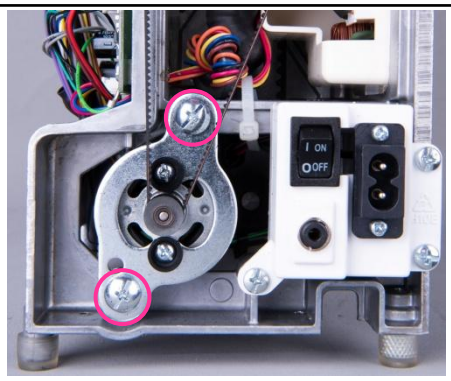
3-17-3

Loosen screws in order to move the motor bracket. Move down to tighten the belt and move up to release it.



3-17-4

When the belt tension fits to the standard, tighten the setscrews.



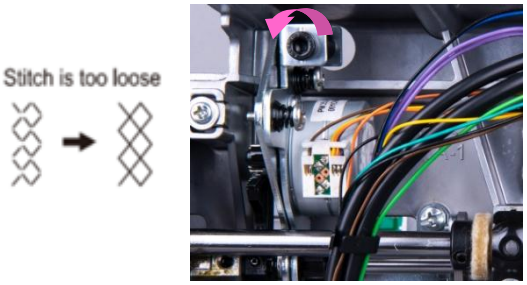
3-18. Super Adjust stitch balance

3-18-1

Choose the stitch pattern “ ” “and sew one complete pattern.

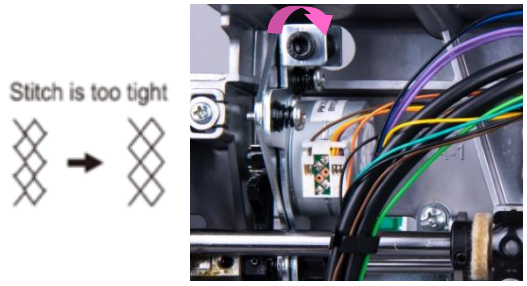
3-18-2

If the sewing stitch forms poorly as below picture, adjust 4.0mm hex socket screw in counterclockwise direction



3-18-3

If the sewing stitch forms poorly as below picture, adjust 4.0mm hex socket screw in clockwise direction.



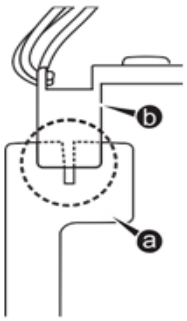
3-19. BH BH adjustment

3-19-1

Use a Phillips screwdriver to remove the face cover.

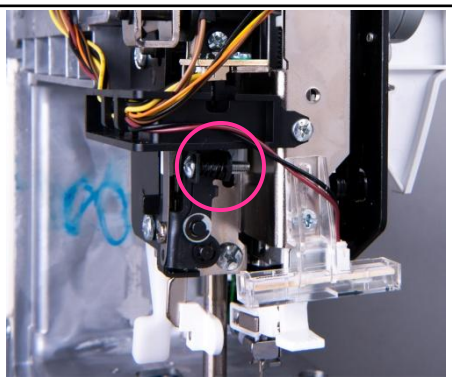
3-19-2

Check if the occlusion part is set in the center location for both BH photo plate and photo sensor complete.



3-19-3

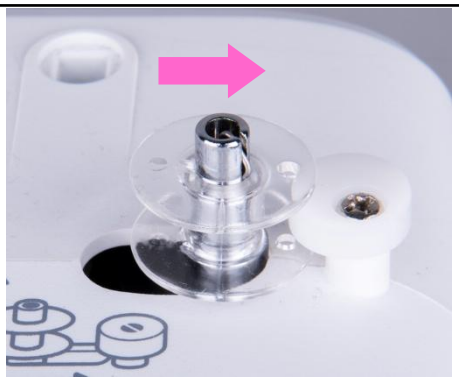
If not, use a Phillips screwdriver to turn the M3 screw to adjust the position of the BH photo plate. Turn the screw in clockwise direction to make it go right or do it in reverse way to make it go left.



3-20. Bobbin winder adjustment

3-20-1

Put one empty bobbin in bobbin winder shaft and push to right position.

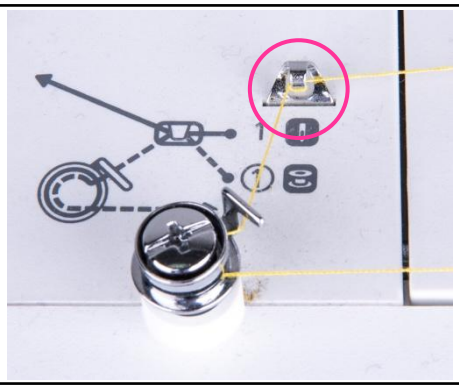


3-20-2

Place a spool of sewing thread in the spool holder

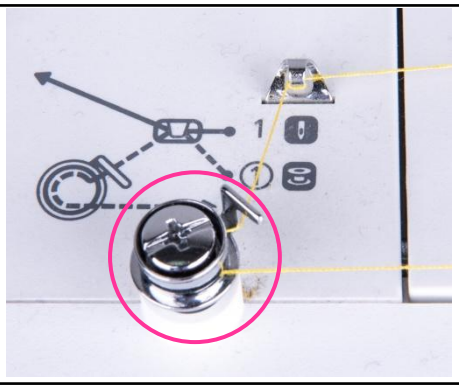
3-20-3

Follow the instruction to guide the thread through the thread guide.



3-20-4

Follow the instruction to further guide the thread through the bobbin winder thread guide.



3-20-5

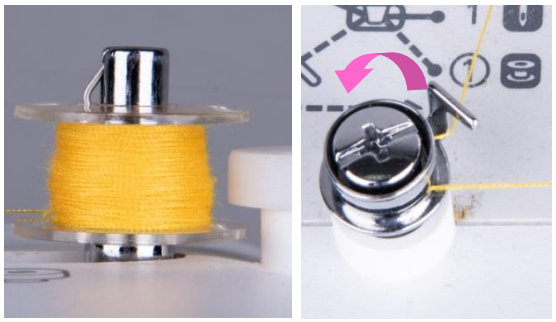
Wind the thread to the bobbin in clockwise direction.

3-20-6

Turn the switch on and push the start button to start winding the bobbin thread.

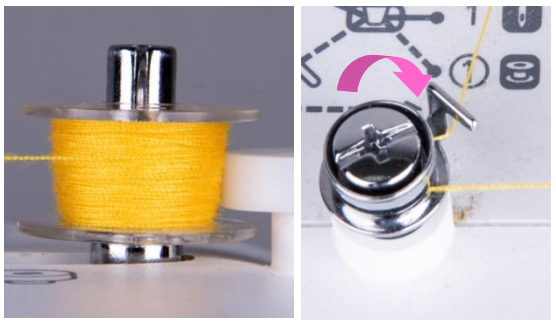
3-20-7

Check the winding result. If the lower part of bobbin thread is winding much thicker (as the picture shows), turn the screw of the bobbin winder thread guide in counter-clockwise direction.



3-20-8

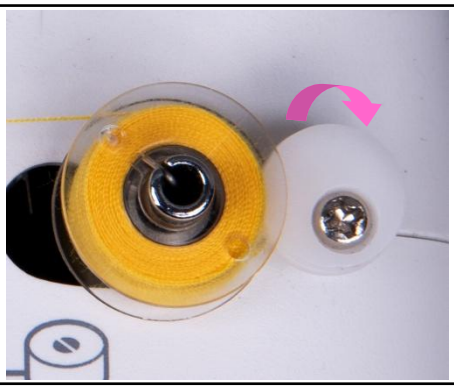
On the contrary, if the upper part of bobbin thread is winder thicker (as the picture shows), turn the screw in clockwise direction.



3-20-9

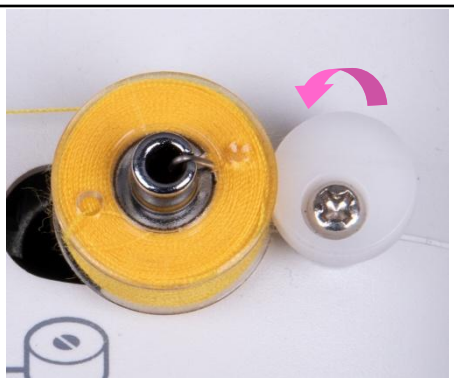
Check the volume for the bobbin thread.

If it is below 80% after winding, turn the screw in bobbin winder stopper in clockwise direction.



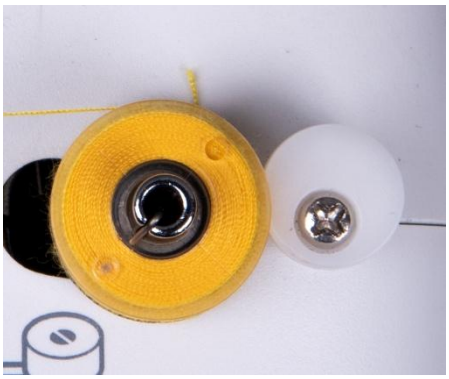
3-20-10

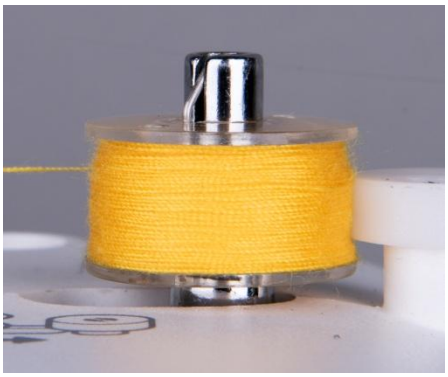
If it’s too full (over 80%), turn the screw in bobbin winder stopper in counterclockwise direction.



3-20-11

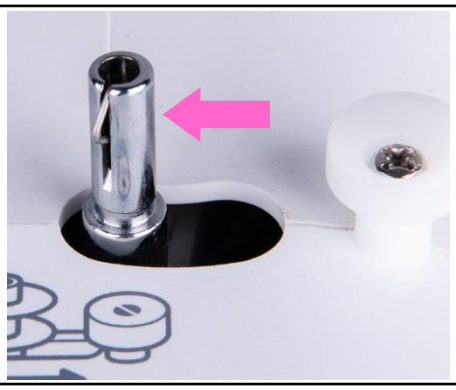
After adjusting, winding the bobbin thread again and check if it fits to the standard (80% full and equally wound)



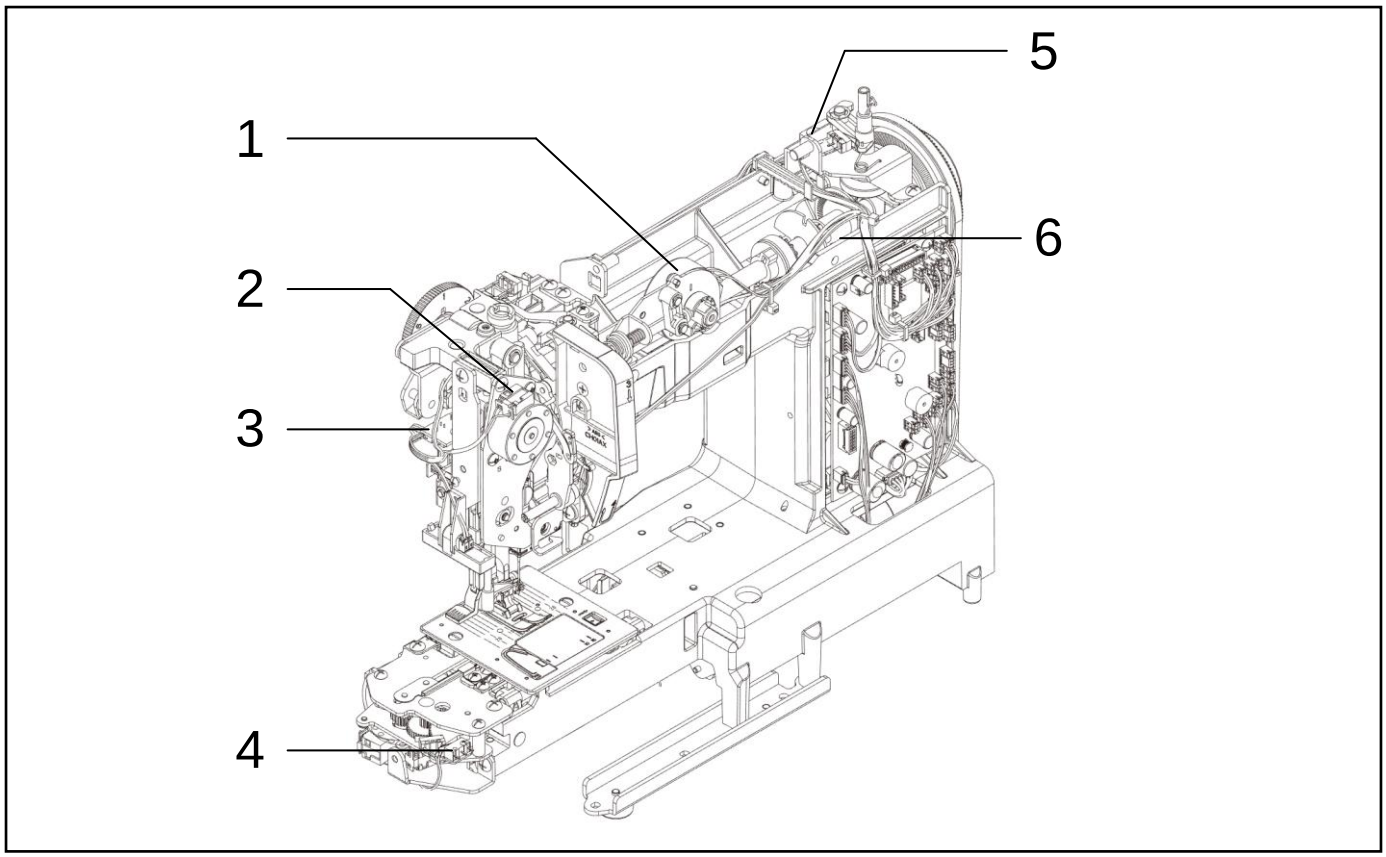


3-20-12

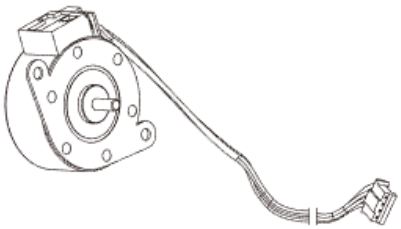
Note: After winding the bobbin thread, please push the bobbin winder shaft to the left for normal sewing.



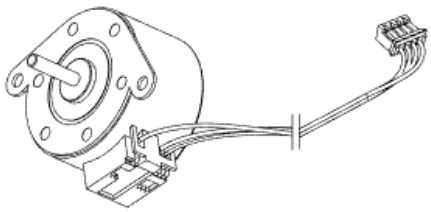
4. Electronic Components



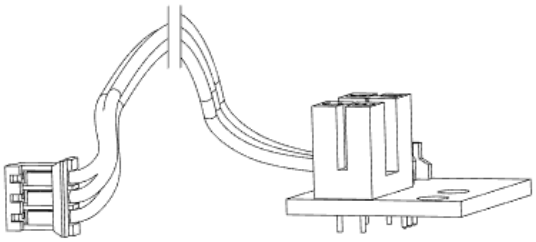
1.Stepping motor
(upper thread tension)



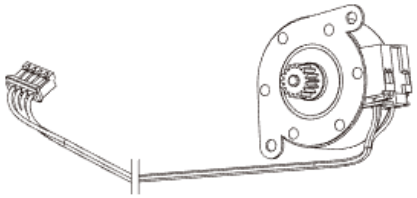
2. Stepping motor
(zigzag)



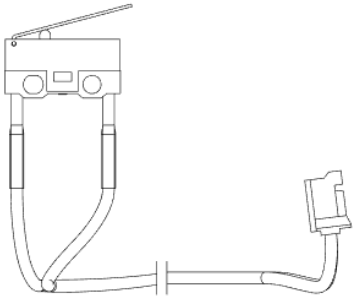
3. BH photo sensor complete



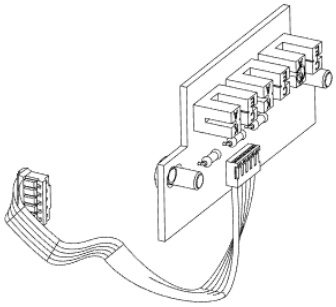
4. Stepping motor
(trimming)

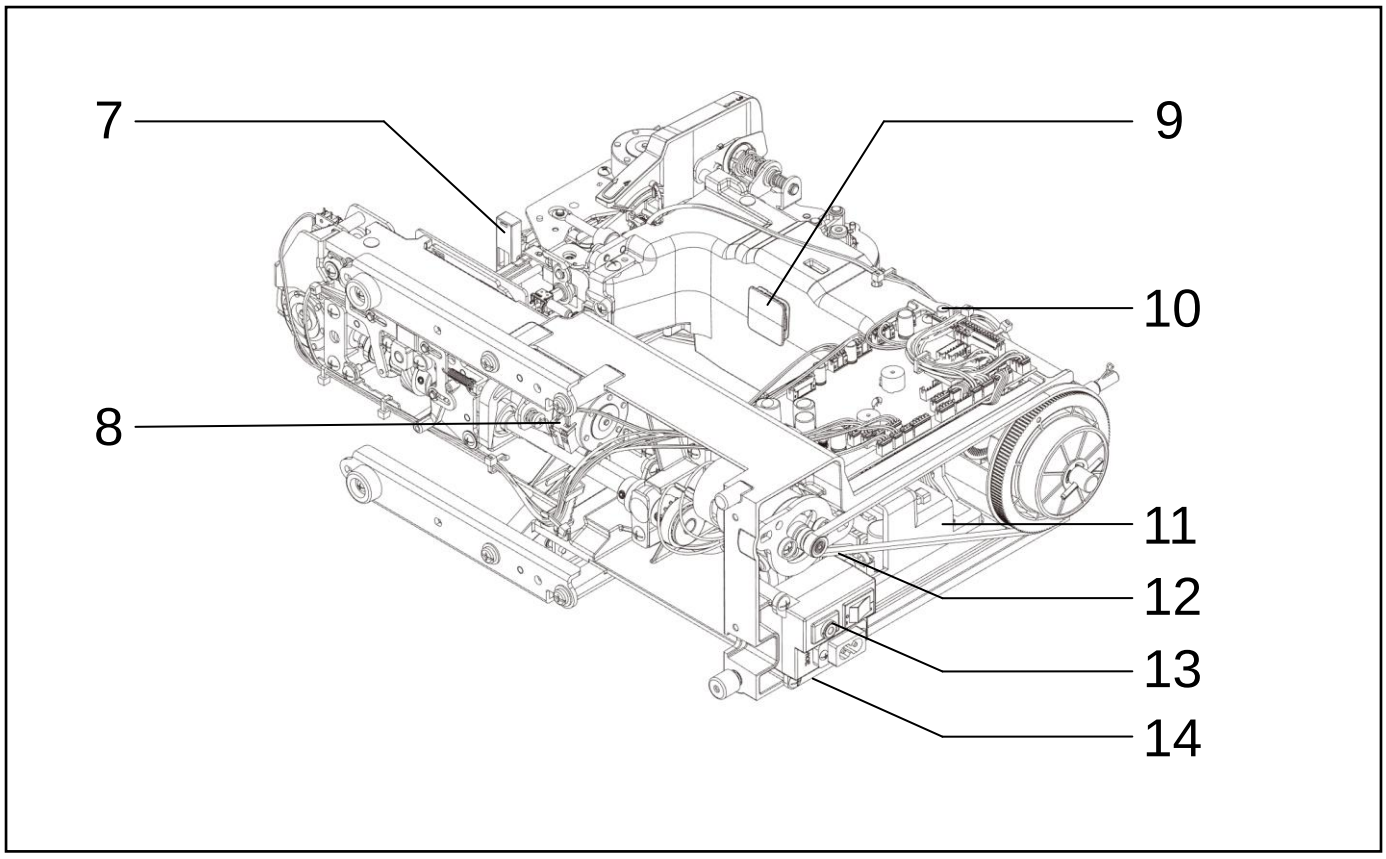


5. Micro switch
(bobbin thread winding)

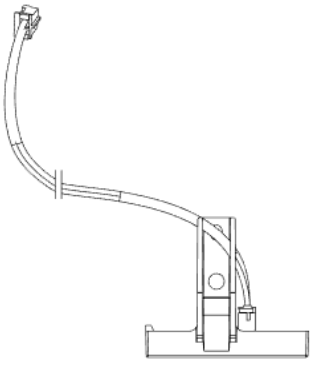


6. Photo sensor plate complete

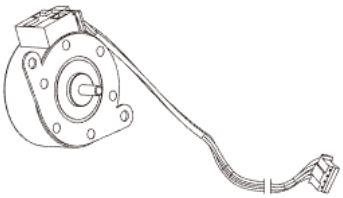




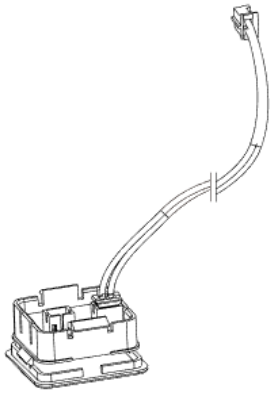
7. LED Light (panel)



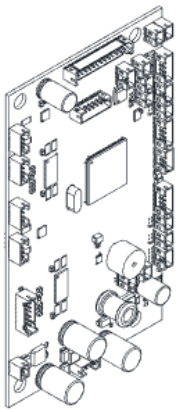
8. Stepping motor (stitch length)



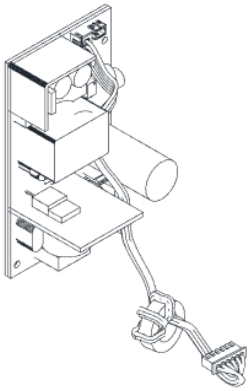
9. LED Light (center)



10. Main board

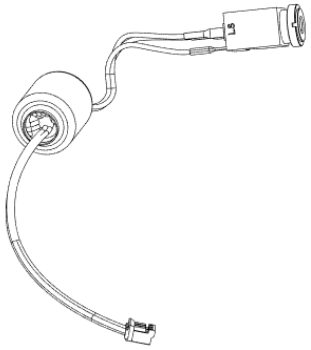


11. HF transformer board

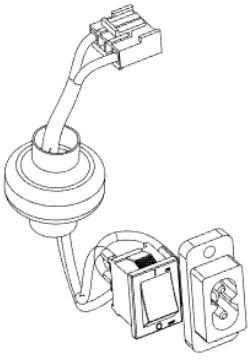


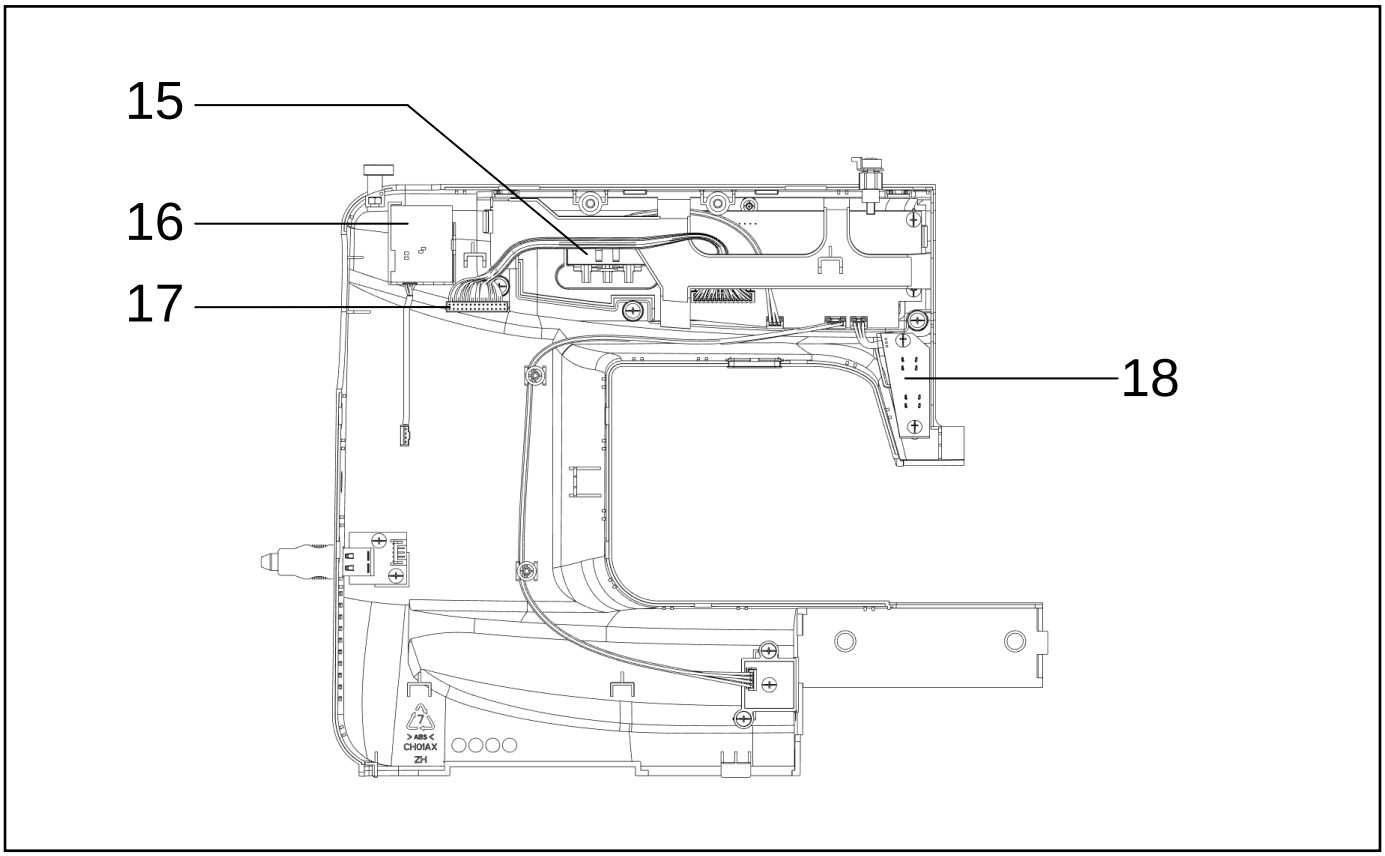
12. DC motor

13. DC jack socket (foot controller)

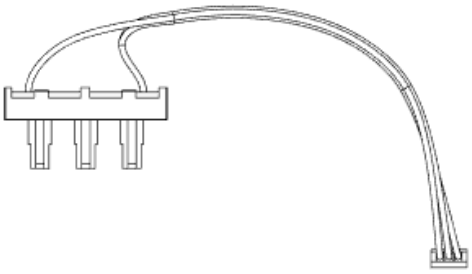


14. Receptacle assembly

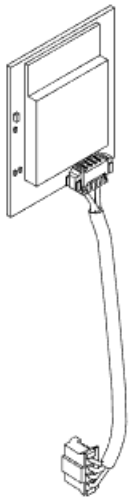




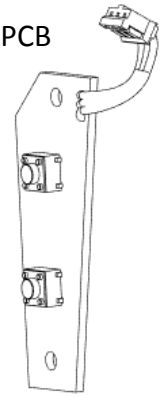
15. Speed slider



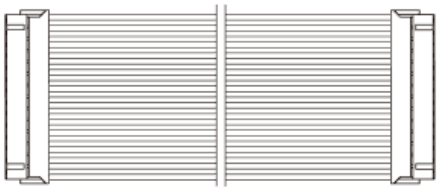
16. Wi-Fi module (CH04AX)



18. Operation keys PCB

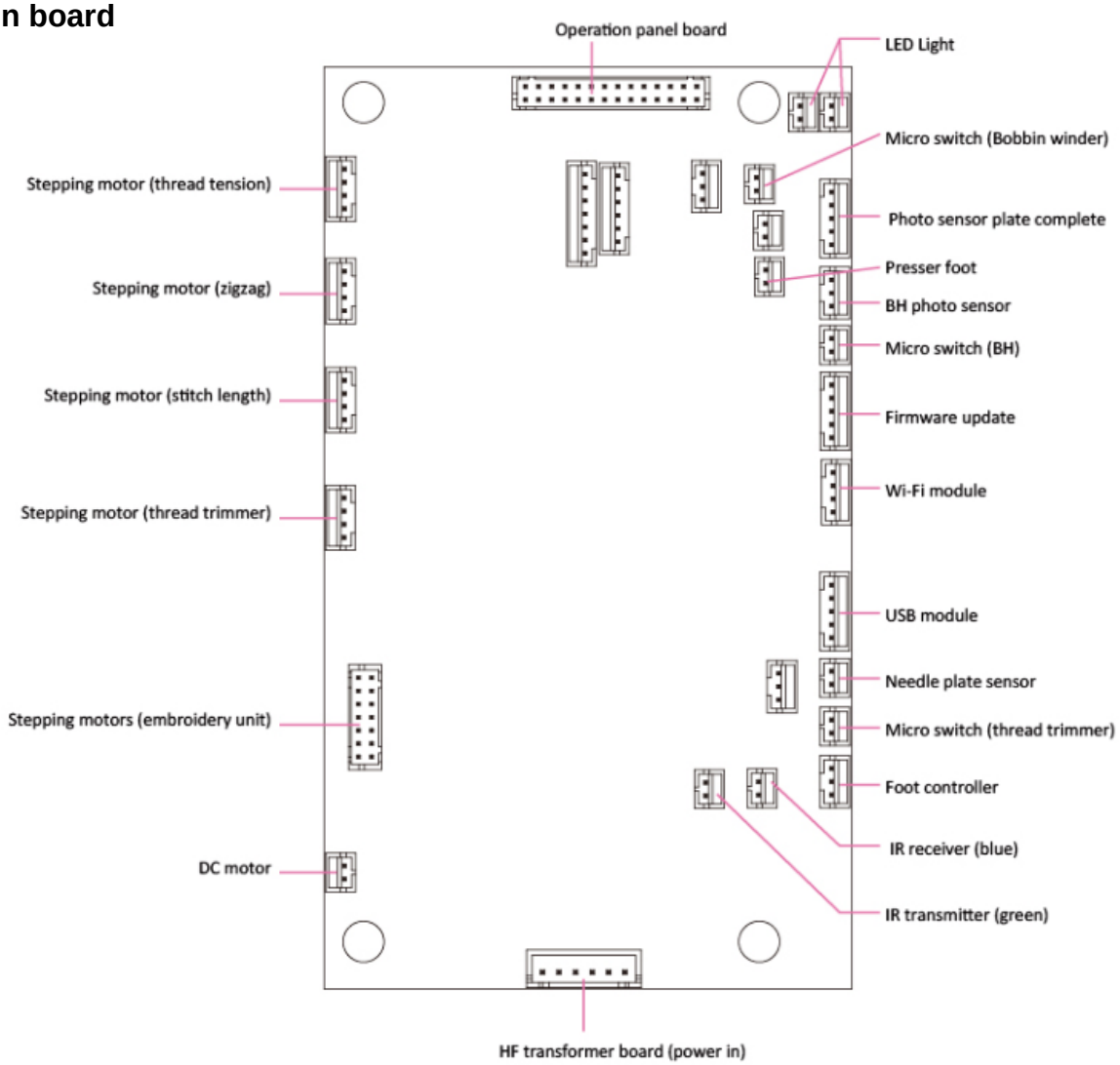


17. Harness

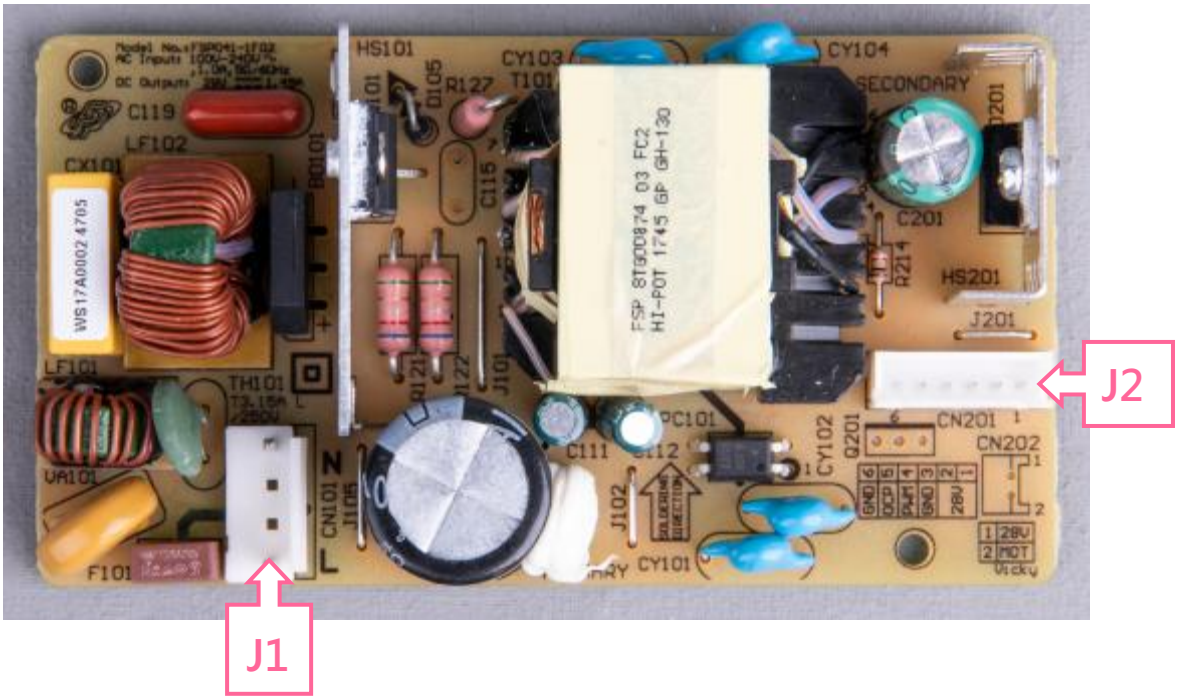


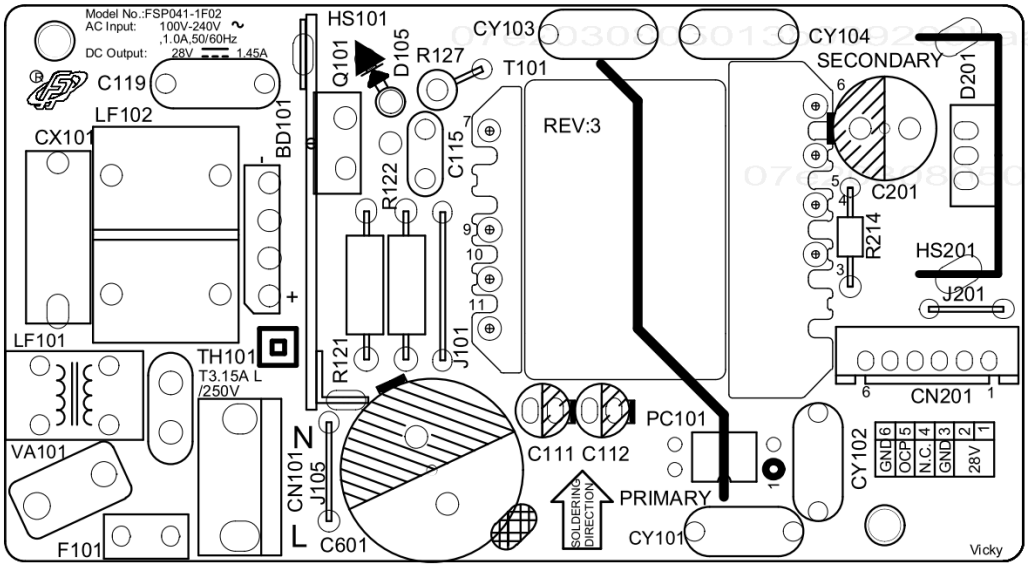
5. Printed Circuit Board

5-1. Main board



5-2. HF transformer board ...





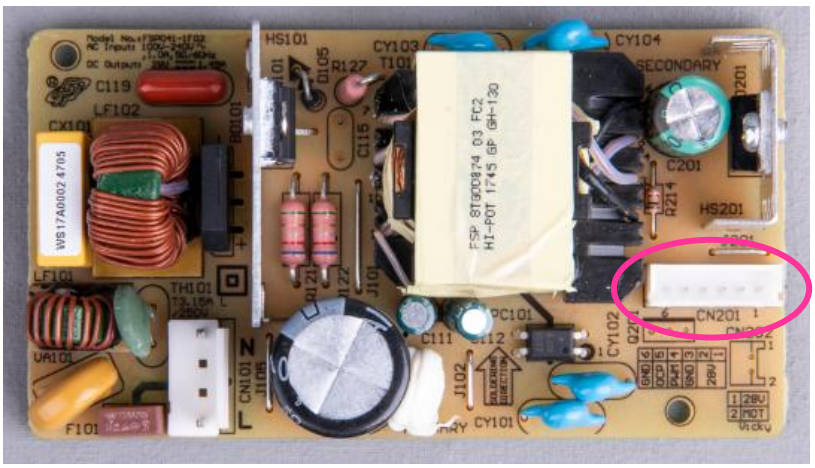
J1：AC power input

J2：Main Board

6. Trouble shooting – Electronic parts

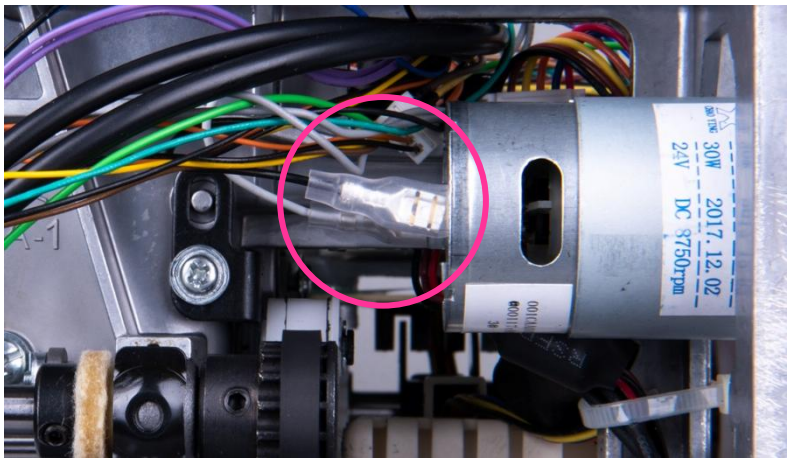
6-1. Trouble shooting – Main power

Check if the cable is connected with both main board and HF transformer board correctly.



6-2. DC Trouble shooting - Motor

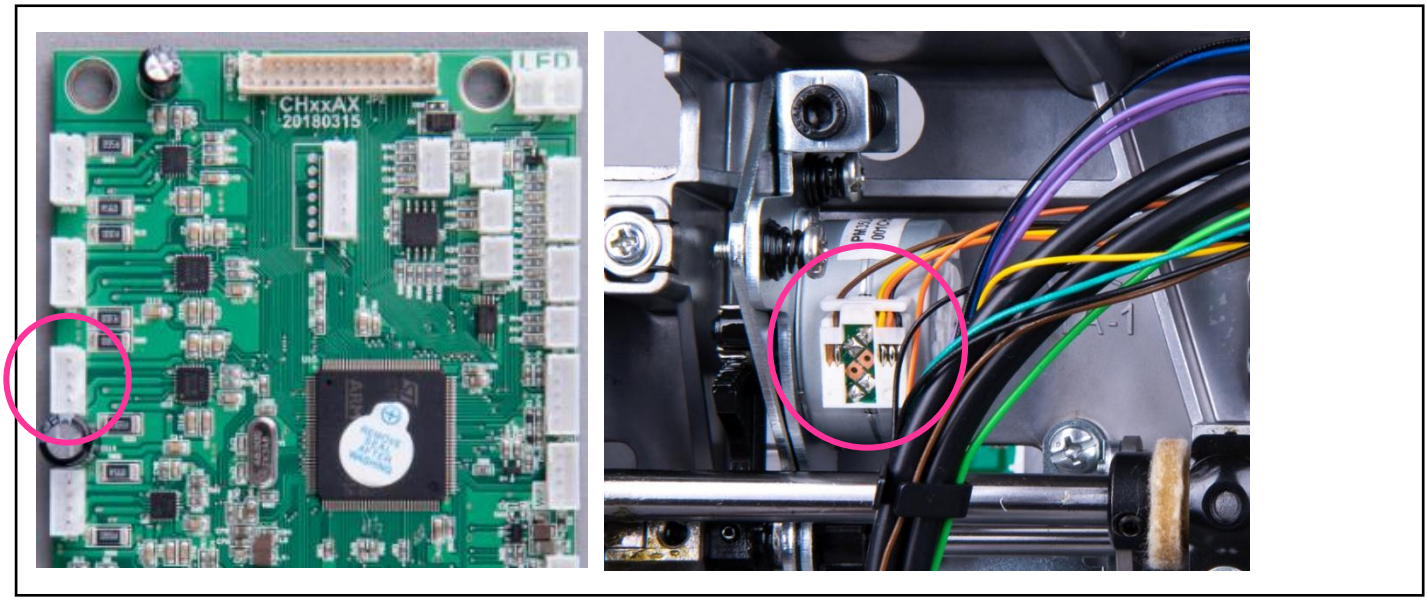
6-2-1 Check if the cable is connected with both main board and HF transformer board correctly.



6-2-2 If the problem still exists, please replace another DC motor or a new DC motor cable.

6-3. Trouble shooting – Stepping motor(stitch length)

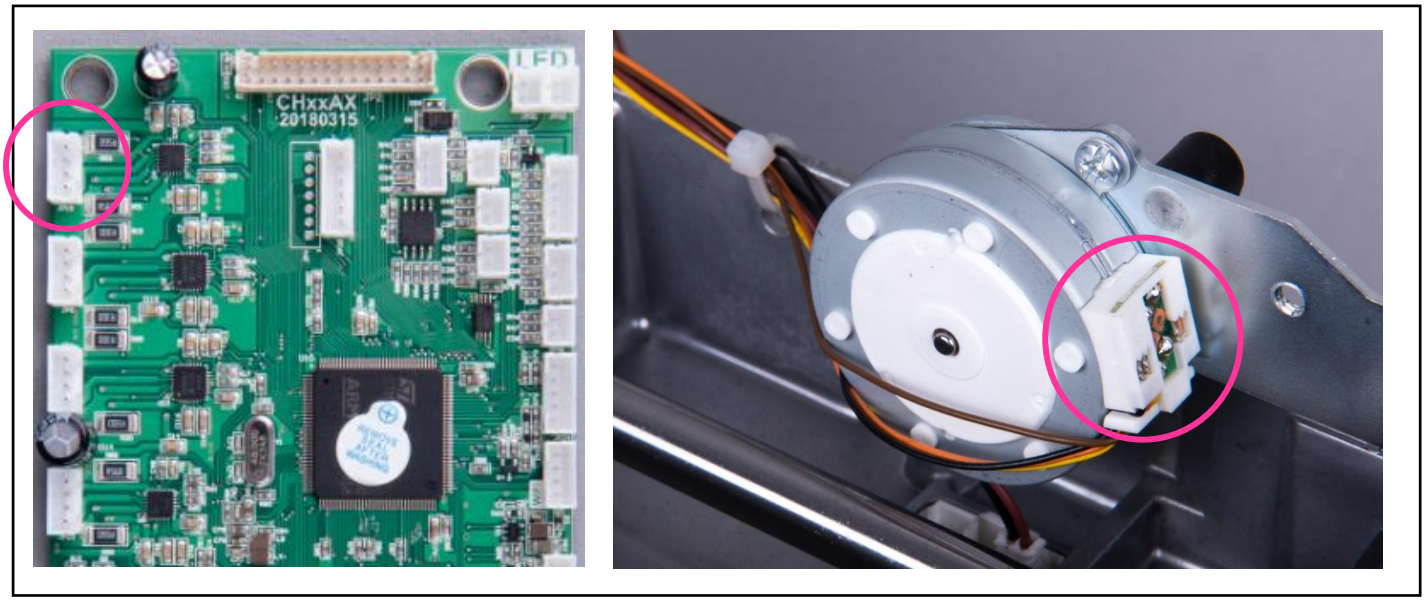
6-3-1 Check if the cable of the stepping motor is connected to the correct connector on the main board.



6-3-2 If the problem still exists, please replace a new stepping motor.

6-4. Trouble shooting – Stepping motor(upper tension)

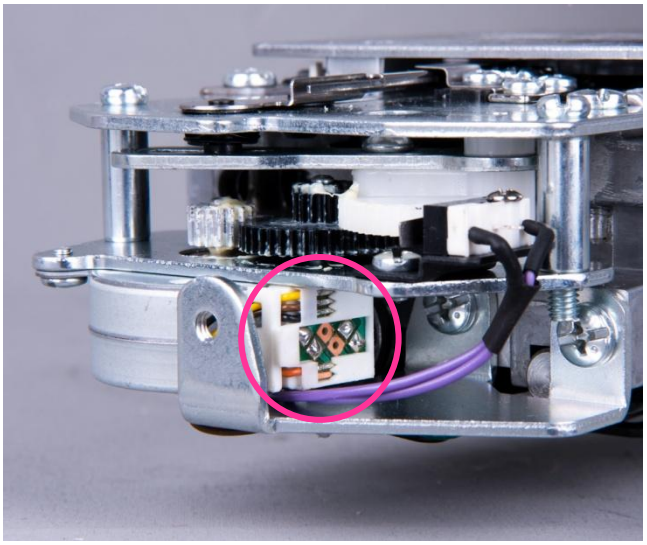
6-4-1 Check if the cable of the stepping motor is connected to the correct connector on the main board.



6-4-2 If the problem still exists, please replace a new stepping motor.

6-5. Trouble shooting – Stepping motor(thread trimmer)

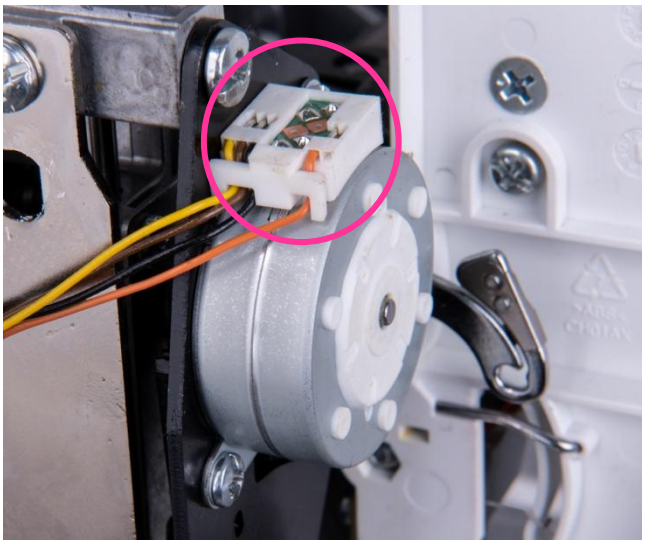
6-5-1 Check if the cable of the stepping motor is connected to the correct connector on the main board.



6-5-2 If the problem still exists, please replace a new stepping motor.

6-6. Trouble shooting – Stepping motor(zigzag)

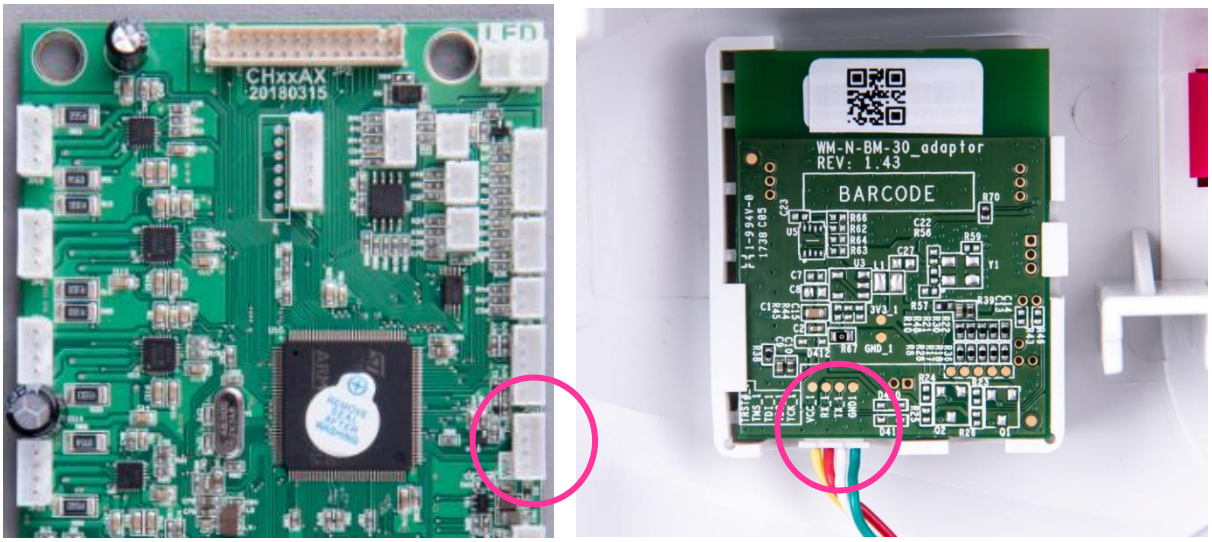
6-6-1 Check if the cable of the stepping motor is connected to the correct connector on the main board.



6-6-2 If the problem still exists, please replace a new stepping motor.

6-7. Trouble shooting –Wi-Fi module (CH03AX)

6-7-1 Check if the harness is connected with the Wi-Fi module and the main board properly.

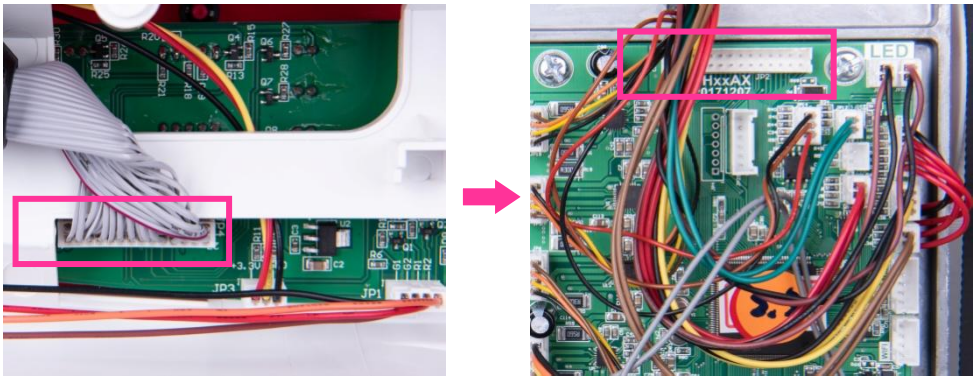


6-7-2 If the problem still exists, please replace another Wi-Fi module or a new harness for connection.

6-8. Operation Panel Malfunction

6-8-1 Check if all buttons / speed slider work properly.

6-8-2 Please check if the operation panel board connects with the main board correctly.

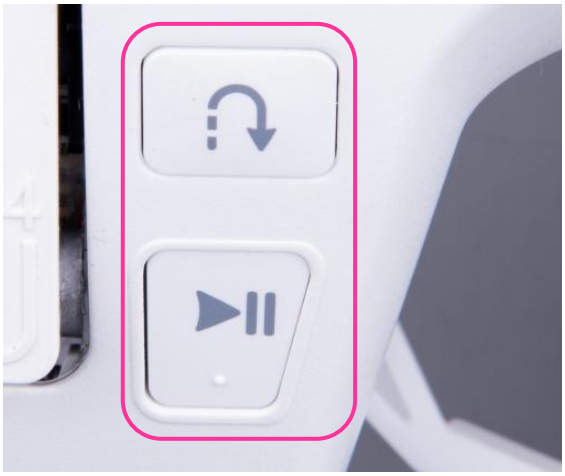


6-8-3 If above items are working properly, please change the main board or operation panel board to fix the problem.

6-9. Start/Stop button & Reverse button malfunction

6-9-1

Please check if all buttons function well with problem

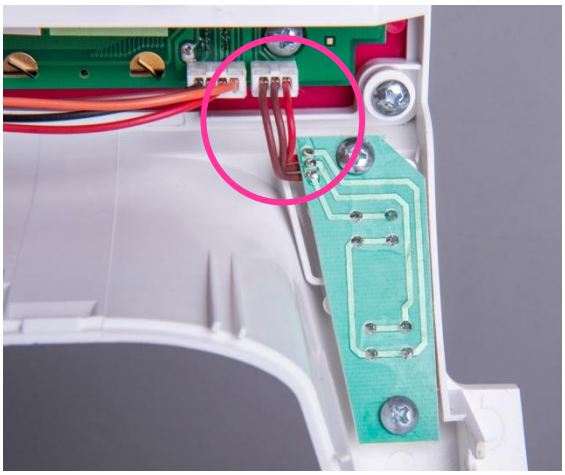


6-9-2

Please check if the button PCB connects to the operational panel board correctly

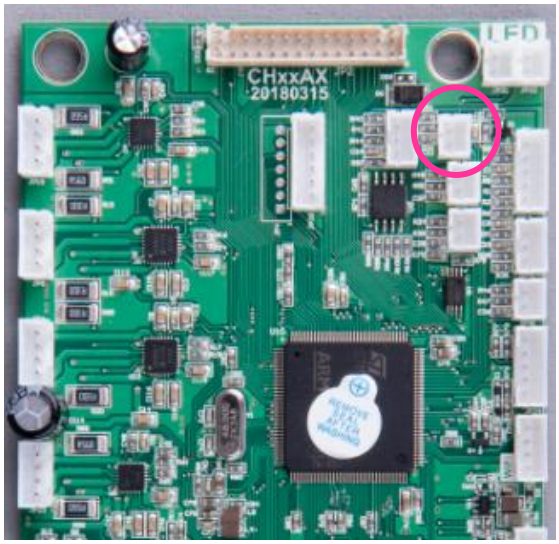
6-9-3

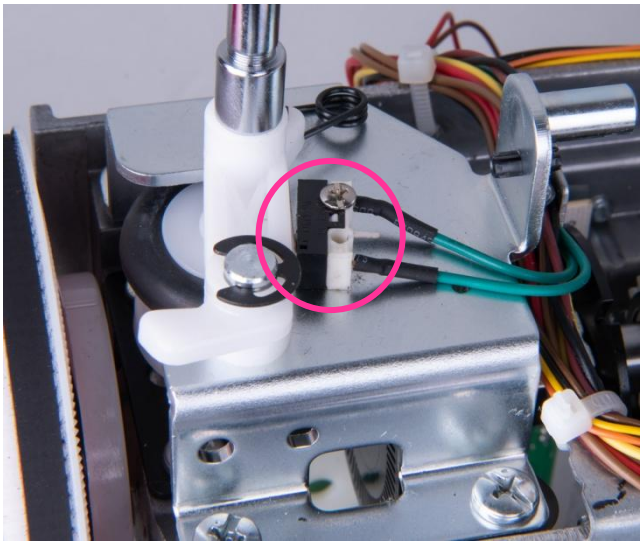
If the above are checked and found no problems, please replace main board or operation panel board or button PCB and check if the problem is solved.



6-10. Bobbin winder cannot stop

6-10-1 Please check if the micro switch of the bobbin winder connects with the main board correctly





6-10-2 Please make sure if there is proper space between the micro switch and bobbin winder crank.

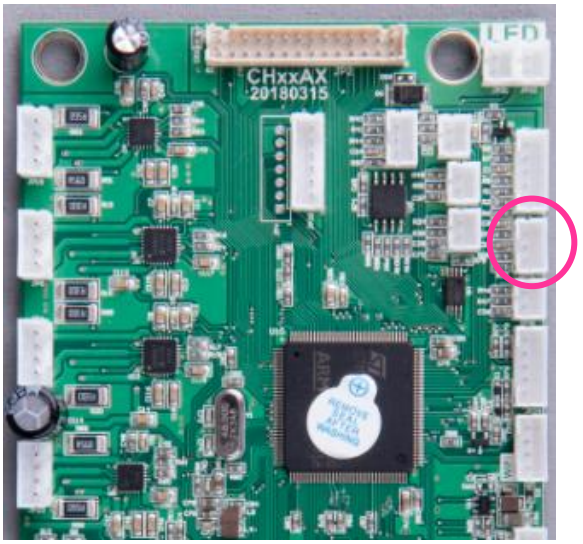
6-10-3 If no issues can be found in the first step, please change the micro switch or the main board to see if the problem can be solved.

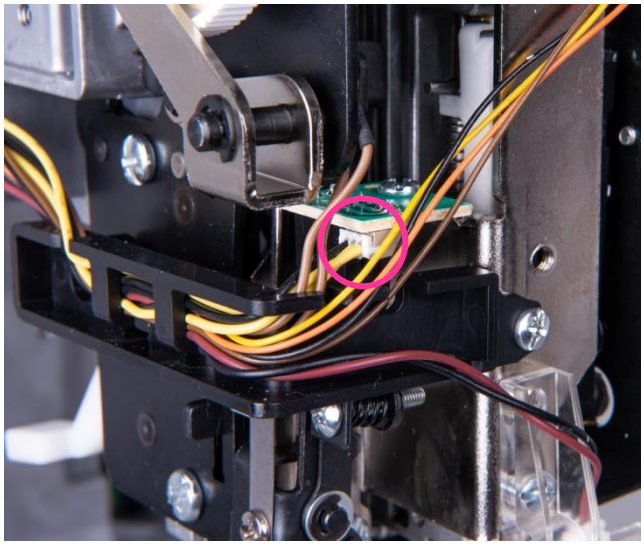
6-10-4 Please change the micro switch if it performs improperly.

6-10-5 Please change the main board if no issues can be found in the step 6-11-2.

6-11. Buttonhole Sewing Failure.

6-11-1 that the BH sensor board is connected to the main board correctly. Then refer to “BH adjustment” chapter to adjust the BH sensor position.

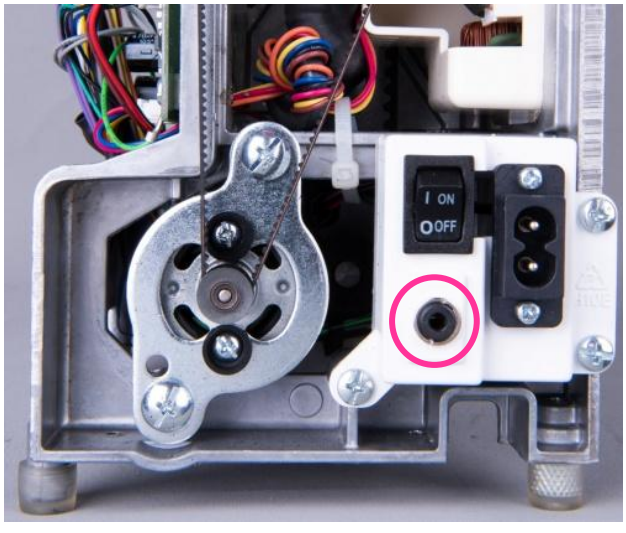




6-11-2 If the above item has been checked and found no issues, please change the BH sensor board or the main board to fix the problem.

6-12. Foot Controller Failure

6-12-1 Please check if the power socket cables connect with the main board correctly.

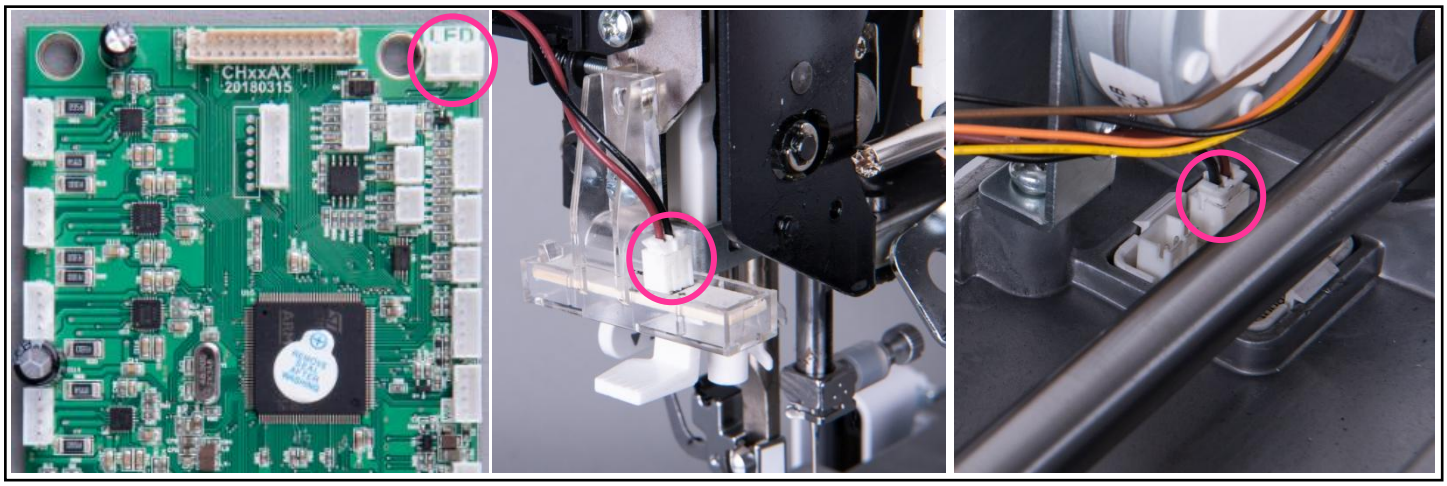


6-12-2 Please check if the foot controller cable is inserted into the DC jack socket properly.

6-12-3 If the above items are checked without finding problems, please change the jack socket or the main board to fix the problem.

6-13. LED Light Failure

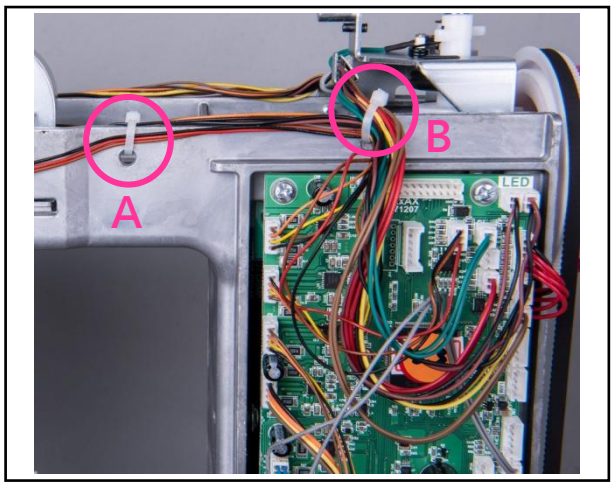
6-13-1 Please check if the LED light wire has been connected to the main board properly.



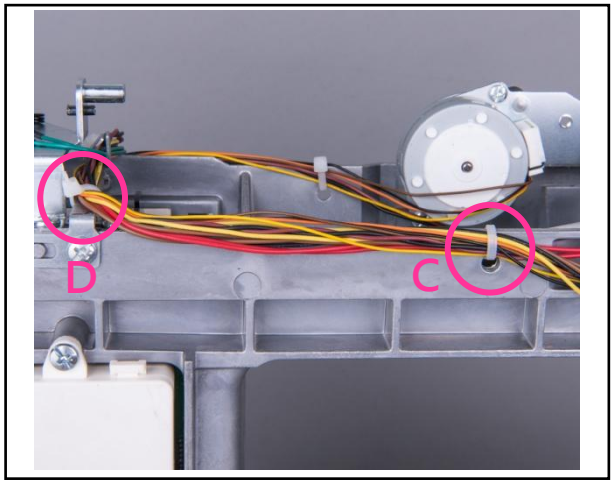
6-13-2 Please replace LED light module or main board if no problems can be found on the item above.

6-14. Organize the cables

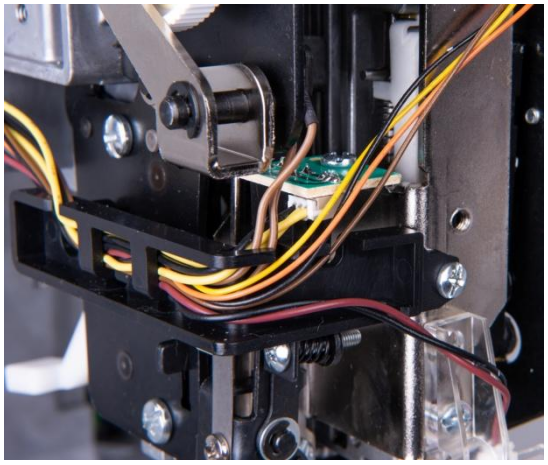
6-14-1
Keep the wires in A part flat and close to the body frame. Use a cable tie to organize the wires in B part and keep the cable tie head facing to the inside to prevent interfering with the front cover.



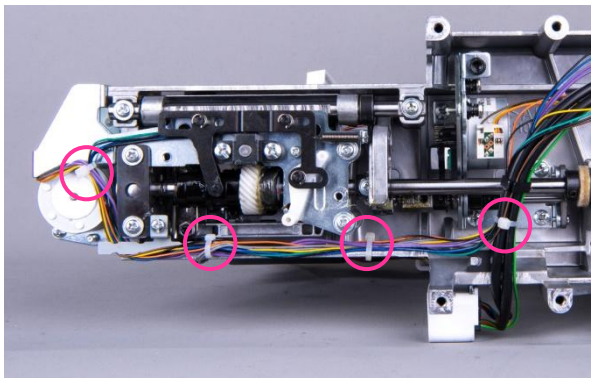
6-14-2
Use the same technique to organize the wires in C part. Be sure to keep the cable tie head facing inside and lace the wires in D part in vertical direction to prevent interfering with the back cover.



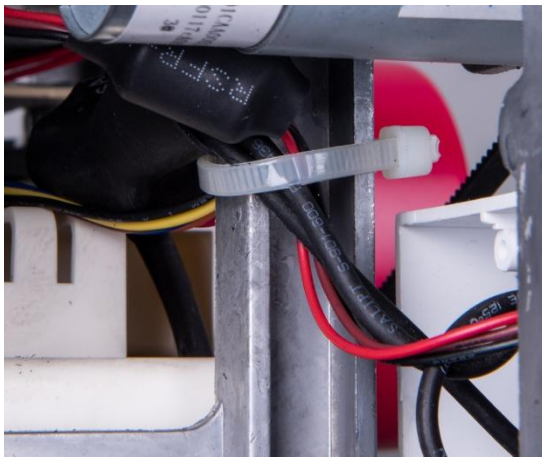
6-14-3
Organize the wires and place them into the wire fixing bracket.



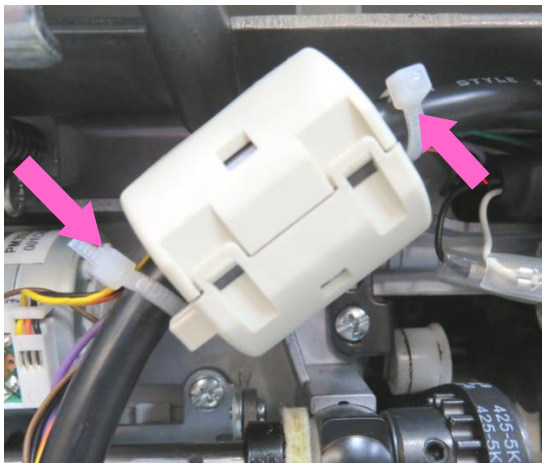
6-14-4
Use the cable tie to organize the wires as shown in the red circle.
Keep the cable tie head inside to prevent interfering with outlook covers.



6-14-5 Use the cable tie to fix the wires for switch receptacle assembly.

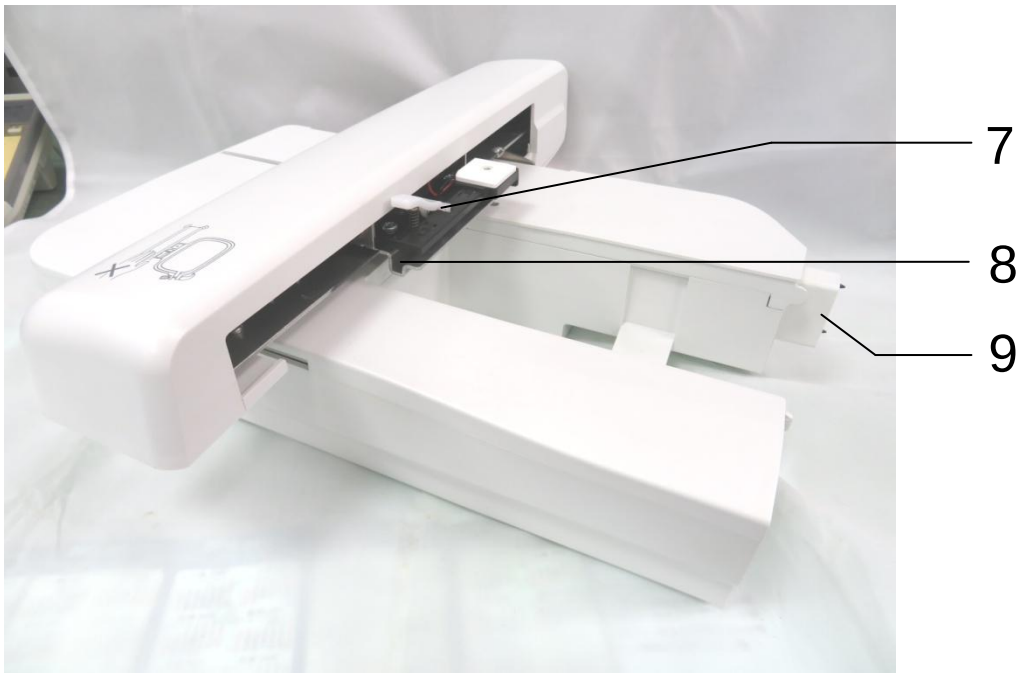


6-14-6
For CH03AX model, a ferrite core is needed for D-type connector cable.
Fix the ferrite core and use the cable tie to fix its position as shown below.



7. Embroidery Unit

7-1. Main parts of the embroidery unit



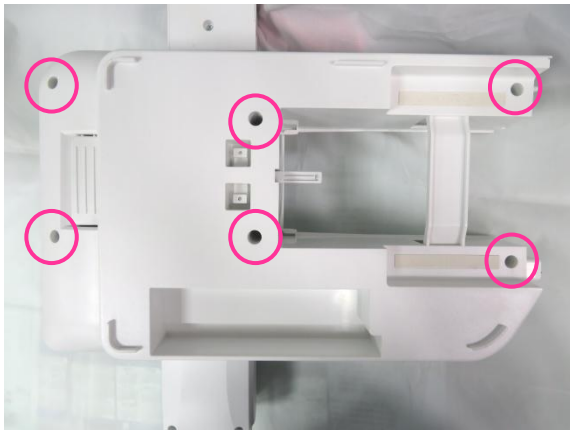
1. Handle grip
2. Top cover
3. Vertical shaft under cover (1)
4. Vertical shaft cover
5. Body cover
6. Vertical shaft under cover (2)
7. Frame fixed position button
8. Y-axis slide plate
9. D-type connector

7-2. Dissemble the embroidery unit

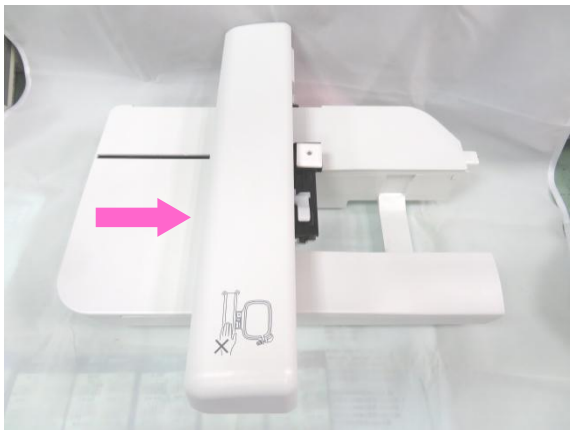
7-2-1

Remove the top cover

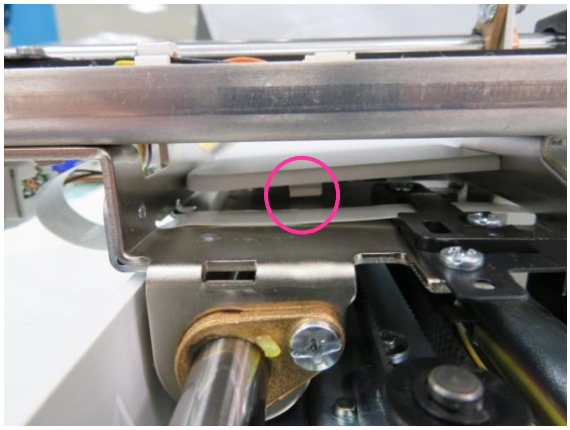
Use a Philips screw driver to remove the setscrews of the top cover.



Push the top cover to the right (arrow direction) to remove it.



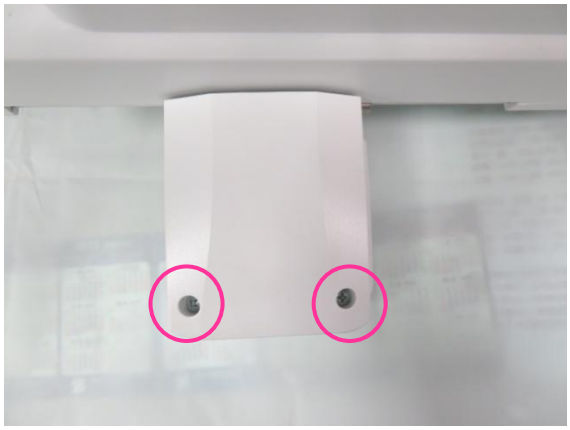
Be sure not to break the harness while removing the top cover.



7-2-2

Remove the vertical shaft under cover (1).

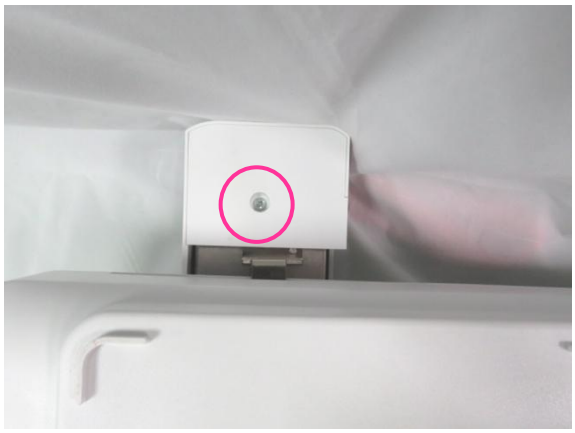
Use a Philips screw driver to remove the setscrews of the vertical shaft under cover (1).



7-2-3

Remove the vertical shaft under cover (2).

Use a Philips screw driver to remove the setscrews of the vertical shaft under cover (2).



7-2-4

Remove the vertical shaft cover.

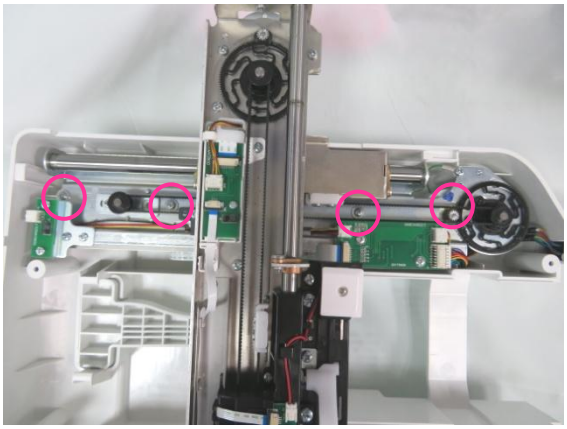
Use a Philips screw driver to remove the setscrew.

Use a Philips screw driver to remove the setscrew.

7-2-5

Remove the body cover of the embroider unit

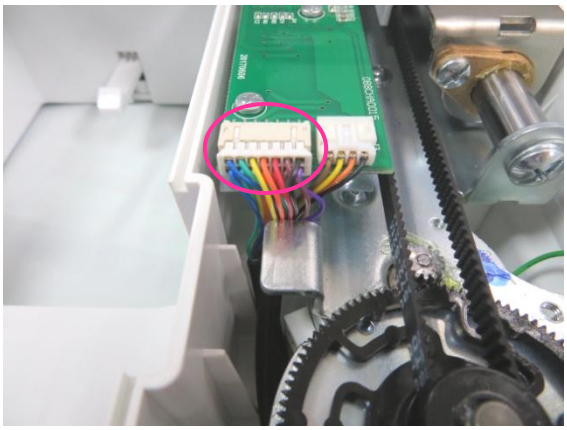
Use the screw driver to remove the setscrews



Unplug the D-type connector wire.

NOTE:

When attach the embroidery unit to the body cover, please calibrate the center position again (please refer to user manual for detailed instructions)

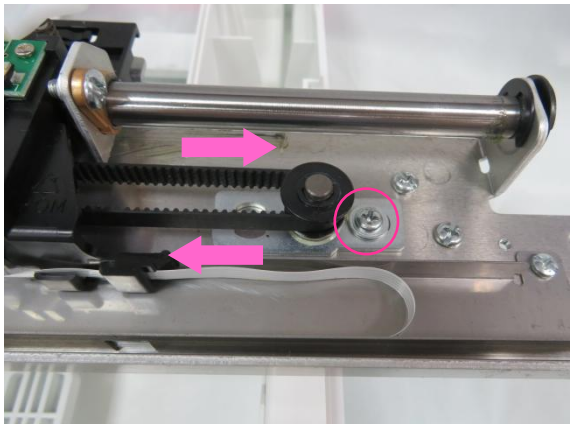


7-3. Mechanical adjustment for the embroidery unit.

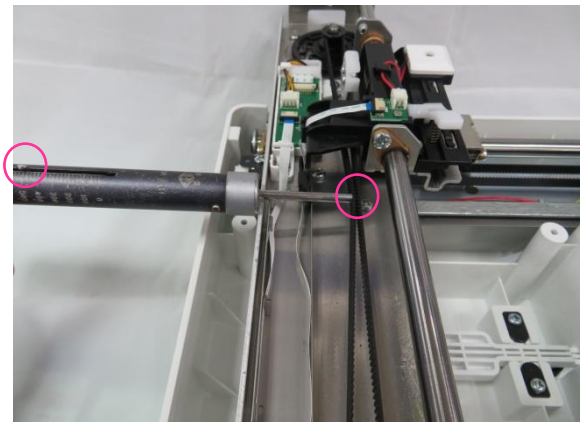
7-3-1

Y-axis belt tension adjustment

Use the screw driver to loosen the setscrew, push the plate to the right to tighten the belt or push it to the left side to loosen it.



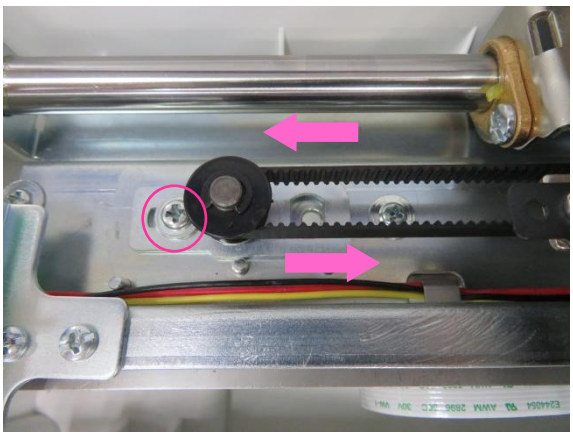
Use the tension gauge to measure the tension strength. Push one side of the belt until it touches the other side. Belt tension should be set to 500gf (contactless sound wave type: 21±4N)



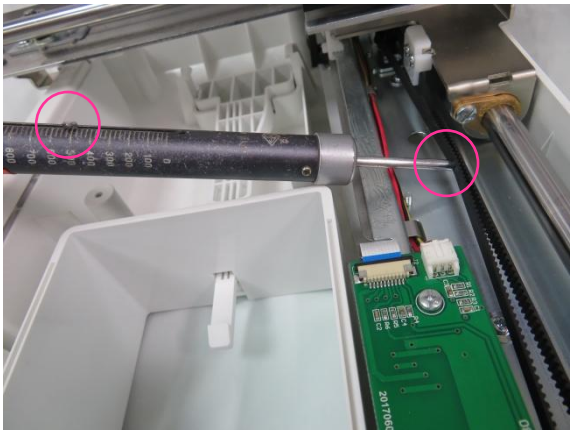
7-3-2

X-axis belt tension adjustment

Use the screw driver to loosen the setscrew, push the plate to the right to tighten the belt or push it to the left side to loosen it.



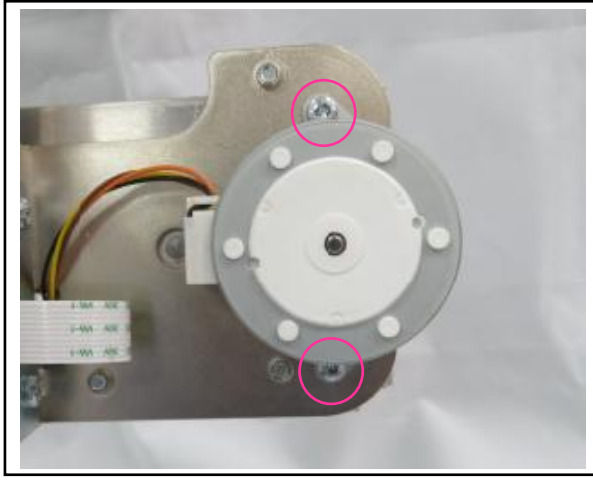
Use the tension gauge to measure the tension strength. Push one side of the belt until it touches the other side. Belt tension should be set to 500gf (contactless sound wave type: 21±4N)



7-3-3

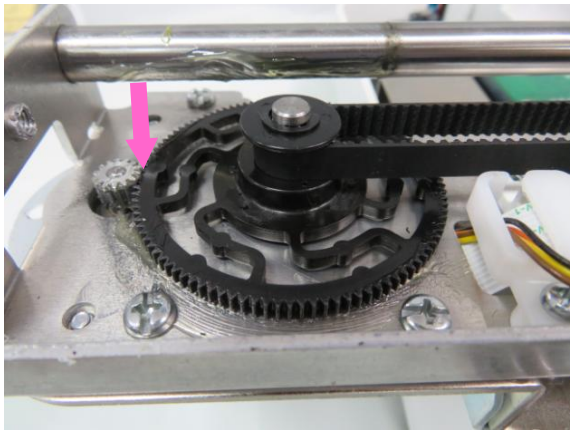
Adjusting the distance of the Y-axis belt gear

Use the screw driver to loosen the two setscrews



Push the stepping motor toward the 105-teeth gear to make the gap smaller.

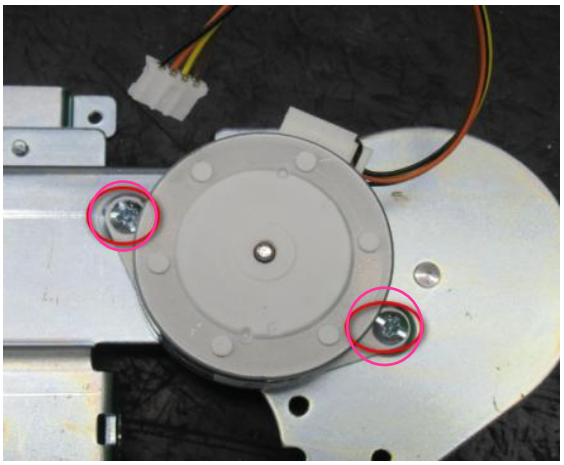
Push to another side to enlarge the gap.



Make sure the two gears gently fit together then re-tighten the two setscrews.

7-3-4 Adjusting the distance of the X-axis belt gear

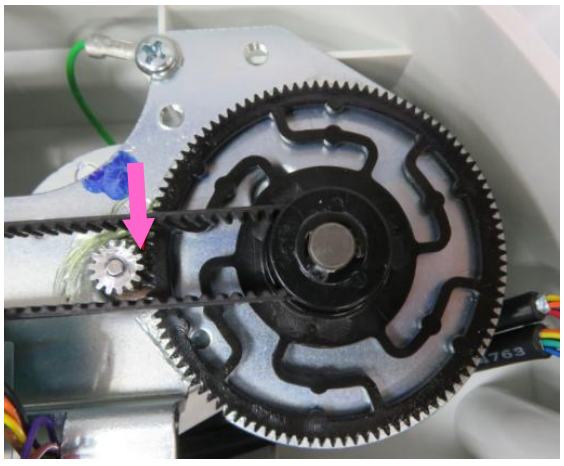
Use the screw driver to loosen the two setscrews



Push the stepping motor toward the 105-teeth gear to make the gap smaller.

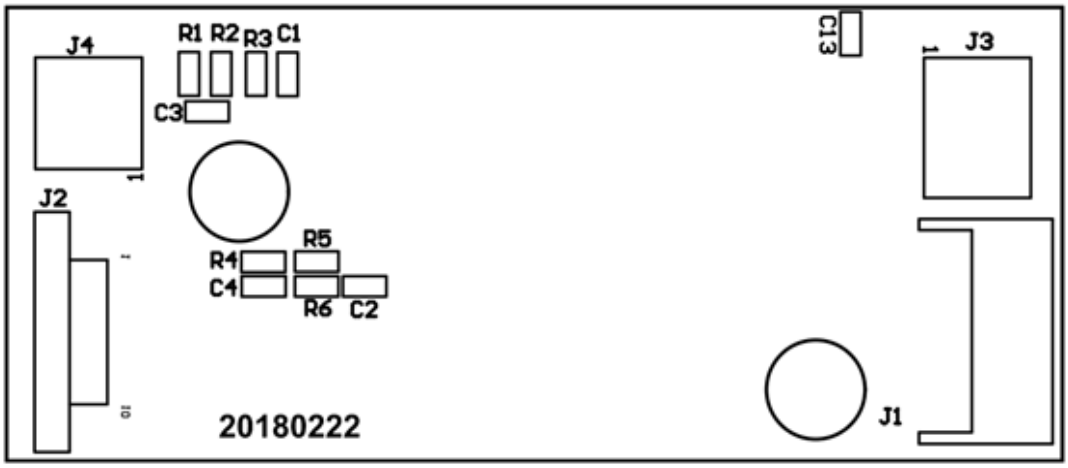
Push to another side to enlarge the gap.

Make sure the two gears gently fit together then re-tighten the two setscrews.



7-4. PCB Layout for the embroidery unit

Converter Board



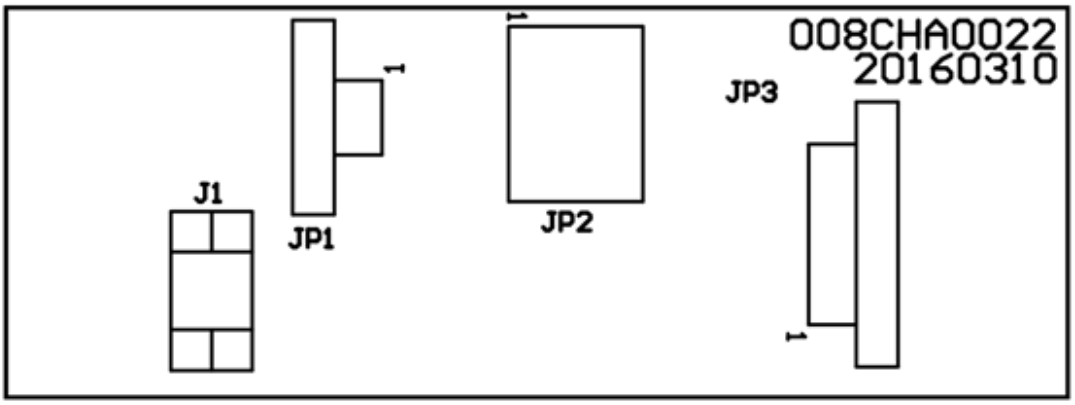
J1: D-type connector

J2: Harness (10P)

J3: X-axis stepping motor connector

J4: X-axis photo sensor connector

Photo sensor complete (Y-axis home position)



J1: Y-axis photo sensor

JP1: Converter board connector

JP2: Y-axis stepping motor connector

JP3: Harness (10P)

8. Quick Repair Reference

	Problem	Primary factors and causes	Repair Method	Items for Inspection	Inspection Methods and Standards
1	Stitch skipping Thread abrasion Thread breakage Seam unevenness Needle breaks	1. Incorrect hook timing adjustment 2. Incorrect tension adjustment 3. Bended needle or damaged needle tip 4. Incorrect distance between needle & hook	Refer to page 16, 18, 25, 26 for adjustment	Needle quality	Place the needle on level block and check there is no curvature and no damaged tip.
				Hook timing Tension setting Needle/hook distance	Refer to page 16, 18, 25, 26.
2	Power supply does not enter	The cable is not connected well between main board and HF transformer board	Refer to page 35.	Turn on the power	Turn on the power to check if the machine can be started. Check if LCD/LED displays normally and LED light is on without any problem
		Either Main board or HF transformer board is damaged.	Change the main board or HF transformer board.		
	Sewing machine lamp (LED lamp) does not light (machine operation normal)	1. The LED cable wire is not connected well.	Refer to page 48	Turn on the power	Turn on the power to check if the machine can be started. Check if LCD/LED displays normally and LED light is on without any problem.
		2. The LED light module is damged.	Replace a new module.		
3	Even when the presser is raised with a straight line pattern, the sewing machine will not turn	The micro switch is damaged or malfunctions.	Check if the wire is connected to the main board properly or get damaged.	Check if the micro switch functions well.	Lower the presser foot and press the start/stop button to make sure the machine functions properly.
			Replace a new micro switch.		

4	Does not turn (Electronic sounds and operating display lamps normal at startup)	BH lever does not restore to the original position	push upward the BH lever to the set position	Check if the BH lever is in the set position	Check if the BH lever is in the set position.
	Does not turn (No electronic sounds / operating display lamps normal at startup)	Main board is damaged	Replace the main board. Refer to page 33 for wire connection.	Replace the main board.	Please follow the instructions for adjustment.
5	Irregular rotation (rotation slow / fast / unstable)	1. Abnormal torque on the arm shaft 2. Improper play distance for arm shaft 3. Main board is damaged	Refer to page 6, 7,33 for adjustment	arm shaft torque Arm shaft distance Main board	Refer to page 6, 7,33 for adjustment
6	Even if the drop knob is returned to the left, the feed dog stays down and does not return(no material feed)	1. Wrong assembly for free arm cover 2. Drop feed lever is not properly installed	Remove the free arm cover, push the drop feed lever to the right side and attach the free arm cover back.	Push the drop feed lever to the left/right side and check if the feed dog can be lowered down/lifted up.	1. Make sure the drop feed lever is properly installed. 2. Make sure the drop feed lever is pushed to the left side before the free arm cover is attached.
7	Bad pattern shape	Improper stitch balance adjustment	Refer to page 28 for adjustment	Please follow the instructions for adjustment.	Please follow the instructions for adjustment.
8	Sewing sounds Inappropriate Sounds -Thread take-up noise -Outer rotary hook vertical rattle noise -Motor noise -Needle contact noise	1.Improper arm shaft distance. 2.Improper arm shaft distance 3.Improper backlash adjustment 4.Motor belt is not well installed. 5.Improper distance between needle and hook	Refer to page 6, 7, 19, 27, 18 for adjustment.	arm shaft distance Arm shaft distance Backlash distance Motor belt Needle/hook distance	Refer to page 6, 7, 19, 27, 18 for adjustment.

9	Threading not possible.	Bad auto threader	Refer to page 13 for adjustment	Please follow the instructions for adjustment.	Please follow the instructions for adjustment.
	When the threader lever returns, it stops part way through.	Improper auto threader installment.	Refer to page 13 for adjustment.	Please follow the instructions for adjustment.	Please follow the instructions for adjustment.
10	Either upper thread tension or lower thread tension	The upper thread tension disk is bad or improperly adjusted. The inner rotary hook screw locks too tight or too loose	Refer to page 25, 26.	Upper thread tension strength Lower thread tension strength	Refer to page 25, 26 for adjustment.
11	Cannot sew BH• BH is blocked • BH cannot switch • BH switches part way through	Improper installment or adjustment for BH assembly.	Refer to page 28 for adjustment	Check the pattern completeness of Buttonhole	Refer to page 28 for adjustment.
12	Bobbin winder shaft not turning	Bad micro switch of bobbin winder	Refer to page 45 for adjustment	Please follow the instructions for adjustment.	Please follow the instructions for adjustment.
	Bobbin winding amount unsuitable	Improper installment of bobbin winder stopper	Refer to page 29 for adjustment	Please follow the instructions for adjustment.	Please follow the instructions for adjustment.
	Bobbin winder winds unevenly	Improper bobbin thread guide assembly	Refer to page 29 for adjustment	Please follow the instructions for adjustment.	Please follow the instructions for adjustment.
13	Foot controller not effective	The DC jack wire of the foot controller is not connected to the main board correctly	page 47 for adjustment.	Please check if the foot controller plug has been fully inserted into the DC jack socket.	Please check if the foot controller plug has been fully inserted into the DC jack socket.