



SINGER®

Legacy™ SE300

Legacy™ SE340

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Service Manual

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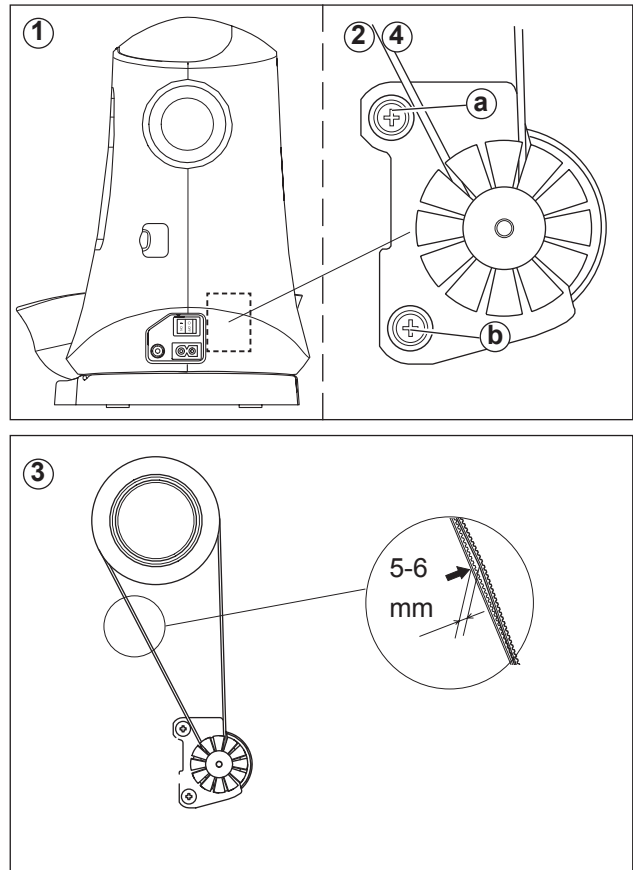
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1. MOTOR BELT TENSION

If the motor belt tension is too tight or too loose, machine will not run smoothly.

Adjustment

1. Remove the front and rear enclosure.
2. Loosen the 2 screws (a, b)
3. Move the motor up or downward and tentatively tighten the screws.
Check the belt tension as follows:
 - The belt does not touch to the casting or other parts.
 - The belt must have flexibility of 5-6 mm when average pressure is applied on its side.
4. When correct tension has been obtained, tighten the screws (a, b) securely.

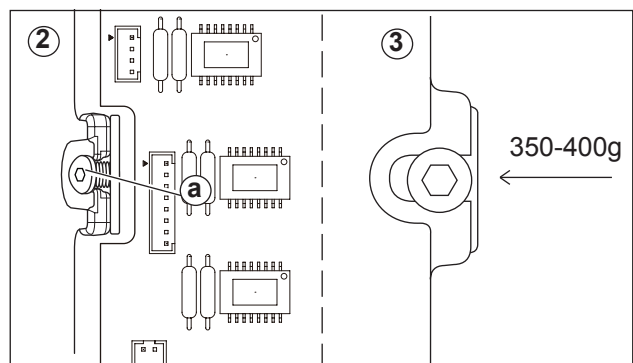


2. TIMING BELT TENSION

If the timing belt tension is too tight or too loose, the machine will run heavily or the timing of hook and feed motion will be changed incorrectly.

Adjustment

1. Remove the front enclosure.
2. Loosen the screw (a) tightening the tension pulley bracket.
3. Push the tension pulley bracket lightly (350-400g) and retighten the screw (a).
4. When you have adjusted the timing belt tension, re-check the timing of the upper and lower shaft (Sec. 6) and the timing of the hook (Sec. 3) again.

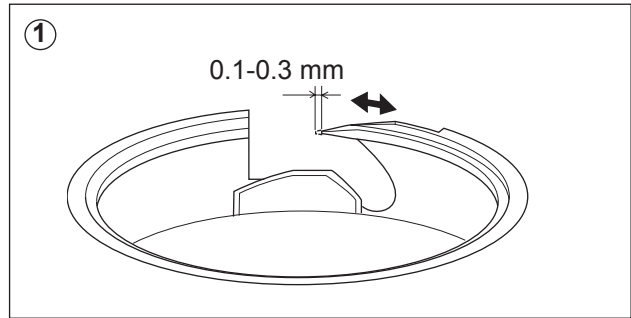


3. BACKLASH OF HOOK GEAR

If there is too much play on the hook gear on the turning direction, it may be the cause for machine not to sew properly and/or making excessive sewing noise.

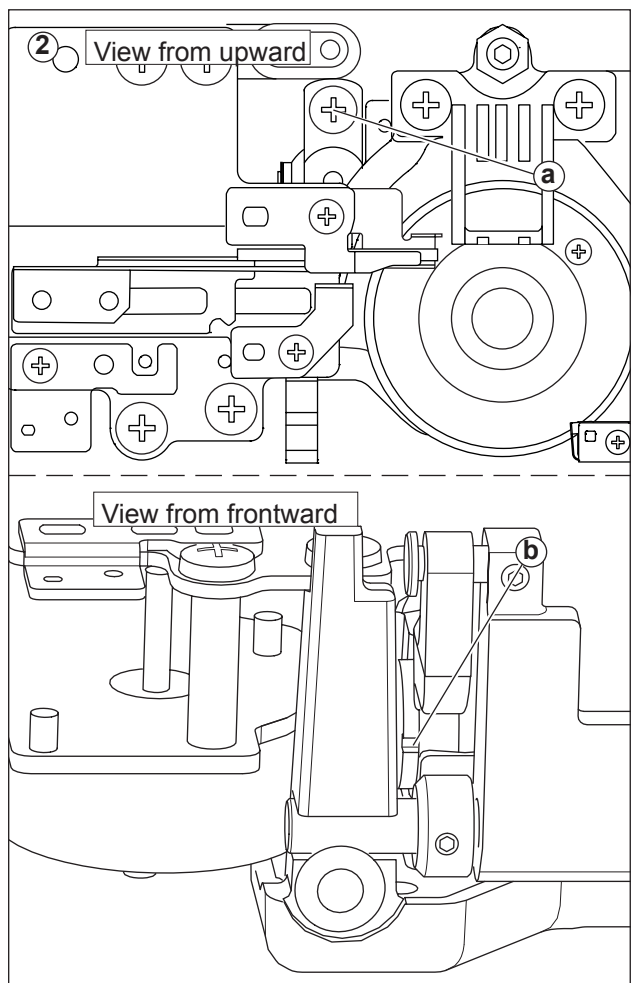
Check

- Free play at the tip of hook may be 0.1-0.3 mm.
Note: To do this check on least 3 different spots during the revolution of the hook by turning the handwheel.



Adjustment

- Remove the front enclosure.
- Loosen the screw (a) and turn the lower shaft eccentric ball bushing up or down by hooking the tip of (-) driver into the left side groove (b) of bushing.
 - Turn upward: The play will increase
 - Turn downward: The play will decrease.
- Re-tighten the screw (a) tentatively and check that the correct play has obtained.
- Tighten the screw (a) securely.
- When you have adjusted the backlash of hook gear, check the timing of the hook again. (Sec. 2)

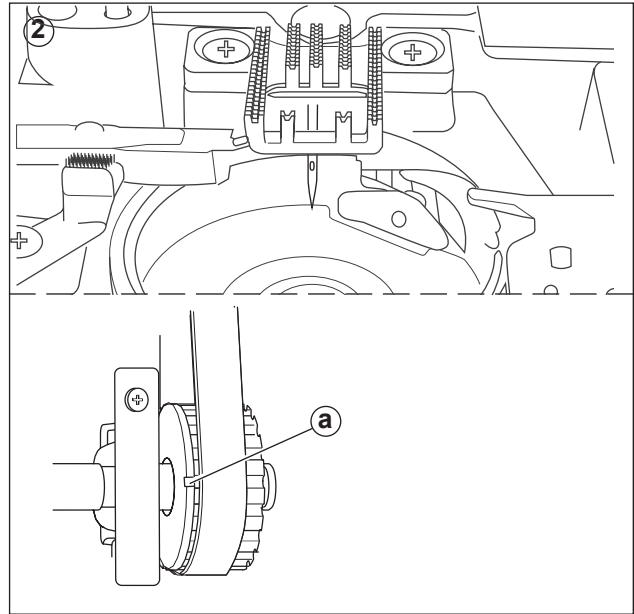


4. TIMING OF THE UPPER AND LOWER SHAFT

The upper and lower shaft must be positioned correctly as follows.

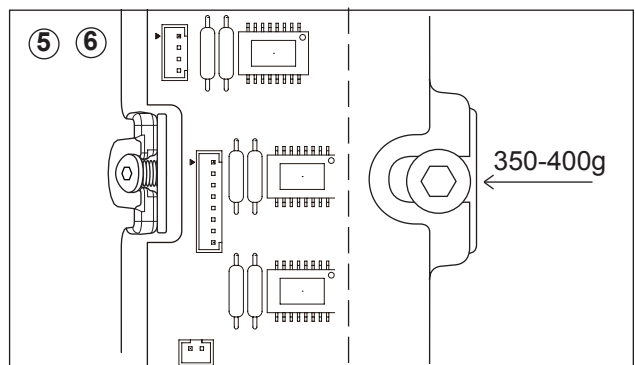
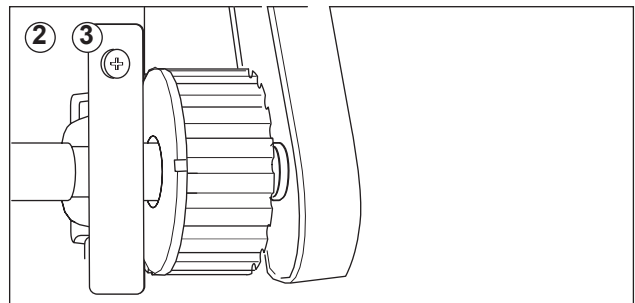
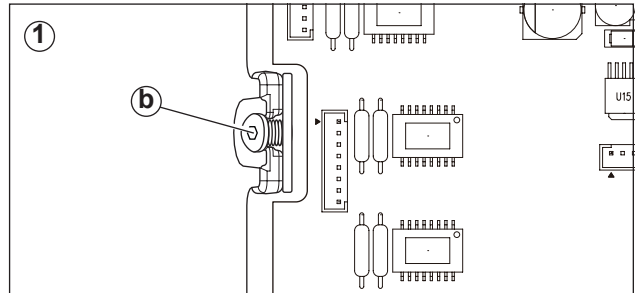
Check

1. Remove the front enclosure.
2. Turn the handwheel toward you until the needle is its lowest point.
At this time, the mark (a - very small molded line on edge) on the lower shaft timing pulley must be facing toward you.



Adjustment

1. Loosen the screw (b) tightening the tension pulley bracket.
2. Slip out the timing belt from lower shaft timing pulley.
3. Turn the lower shaft timing pulley so that the mark faces toward you.
4. Hook the timing belt on the pulley.
5. Push the tension pulley bracket lightly (350-400g).
6. Retighten the screw (b)
7. Check the timing again and replace the front enclosure.
8. When you have adjusted it, check the timing of the hook again. (Sec. 1)



5. GAP BETWEEN NEEDLE AND HOOK

If the needle hits against the hook, it may be the cause of needle and thread breakages. If the gap between needle and hook is too big, it will cause to skip stitches. Check and adjust as follows:

Prior to make this adjustment, check that the needle is not bent and the needle is inserted correctly.

Check

1. Insert a new needle size 90 universal in the machine. Remove the needle plate and bobbin holder.
2. Set the pattern at [Straight stitch No.10].
(Straight stitch on left needle position.)
3. Turn the handwheel toward you until the needle will cross over the hook.
4. Check the gap by pressing a small screw driver against the needle. The gap should be 0.1- 0.2 mm.

Note:

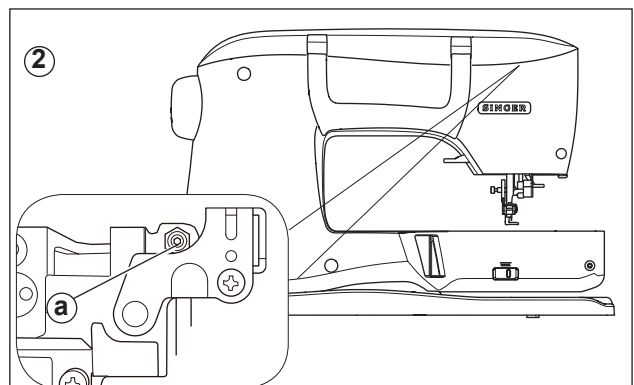
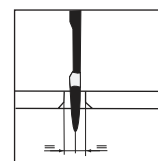
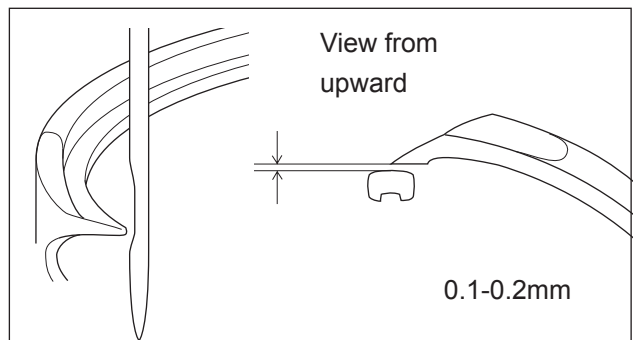
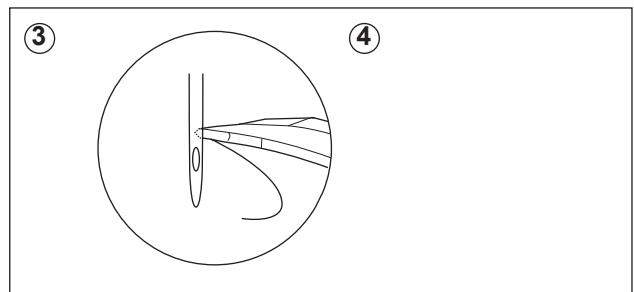
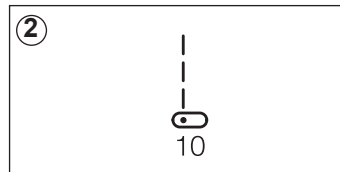
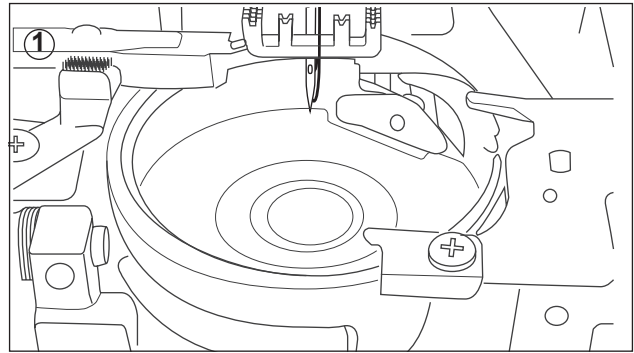
Also, the needle should descend into the middle of the needle hole of the needle plate in the feeding direction.

If the needle is hitting against the hook or if the gap is too much, adjust as follows:

Adjustment

1. Remove the light cover and unit cover.
2. Adjust the gap by turning the adjusting screw (a) with 2 mm hex. wrench.

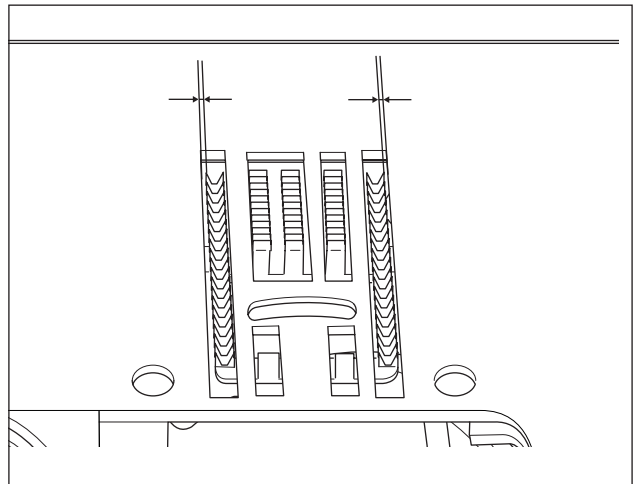
- If the gap is too big, turn the screw to the left with viewing from frontward.
 - If the needle is hitting the hook, turn the screw to the right with viewing from frontward.
3. Replace the bobbin holder and needle plate and light cover.



6. SETTING THE FEED DOG

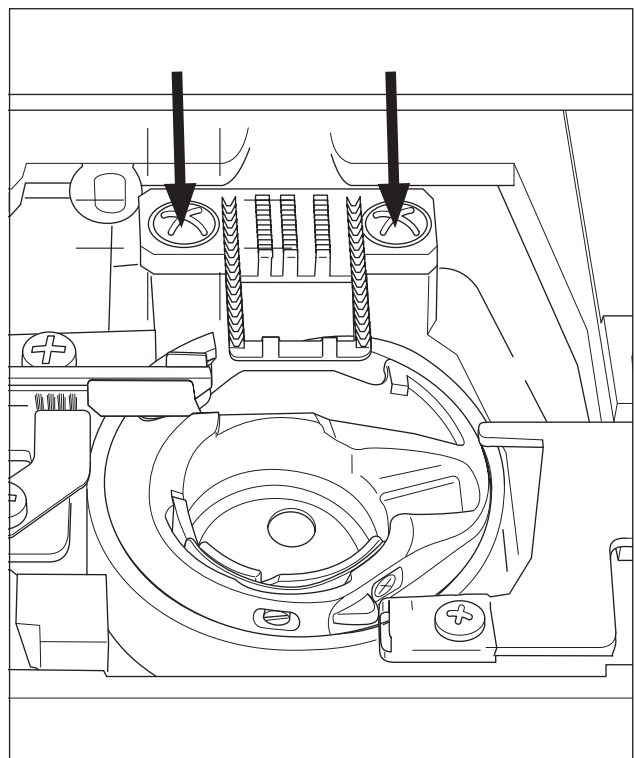
Check

1. Slideways the feed dog should be symmetrically set in relation to the needle plate slot.



Adjustment

1. Remove the presser foot and holder.
2. Remove the needle plate.
3. Loosen the 2 screws tightening the feed dog.
4. Adjust the feed dog so that the teeth is centered in the needle plate.
5. Retighten the screws.
6. Replace the needle plate and presser foot and holder.



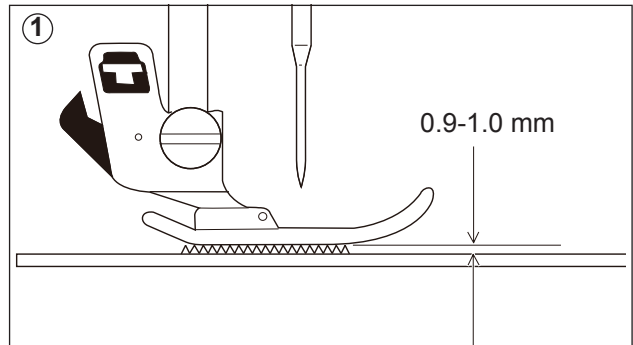
7. HEIGHT OF THE FEED DOG

If the feed dog does not come up over the needle plate enough, it will result in insufficient and/or uneven feed of fabrics.

Check

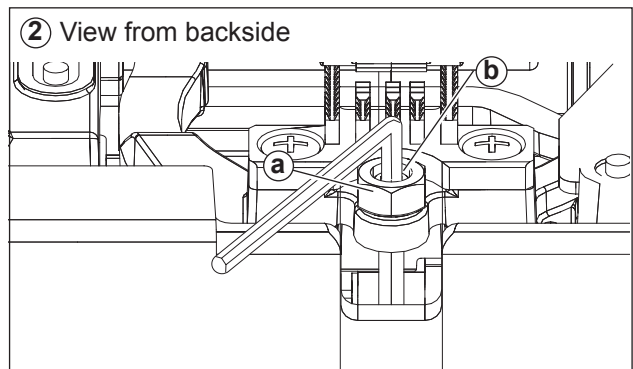
1. The feed dog should come up over the needle plate (0.9-1.0 mm) when its highest position.

If it does not come up enough, adjust as follows:



Adjustment

1. Remove the needle plate.
2. Loosen the nut (a) behind the feed dog.
 - If the feed dog is too low; Turn the adjusting screw (b) (2.5mm hex. wrench) clockwise.
 - If the feed dog is too high; Turn the screw (b) counterclockwise. Re-tighten the nut (a) so that the screw (b) will not move.
3. Re-check the height of feed dog.

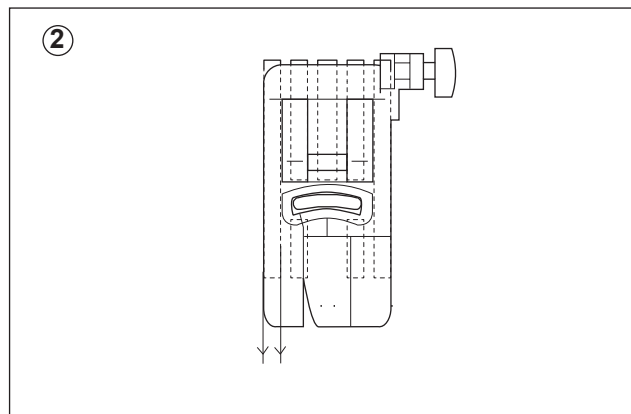
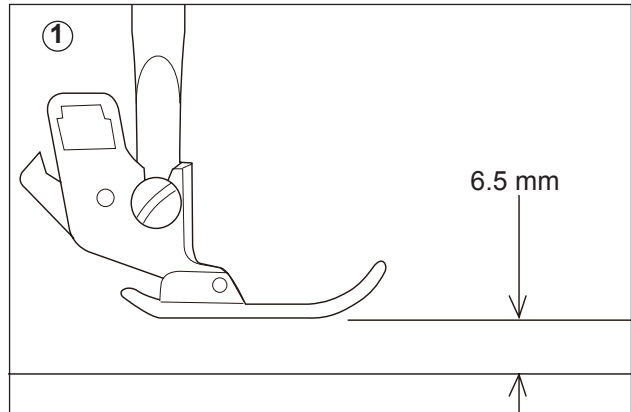


8. HEIGHT AND DIRECTION OF PRESSER FOOT

Check

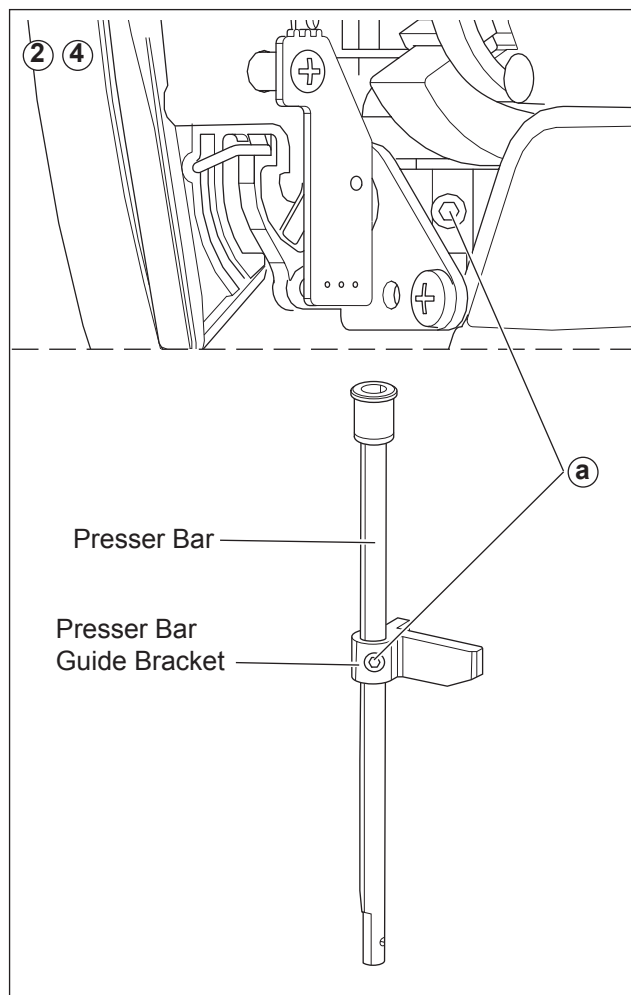
1. The height of the presser foot from the needle plate should be 6.5 mm when it is lifted up.
2. The presser foot should be facing forward (the edge of foot is parallel with the feed dog slot on needle plate).

If adjustment is needed, follow these procedures:



Adjustment

1. Remove the front enclosure.
2. See the machine from diagonally forward right, loosen the screw (a) in the front.
3. Adjust the height and direction of presser foot.
4. Retighten the screw (a).



9. NEEDLE PLATE AND NEEDLE POSITION

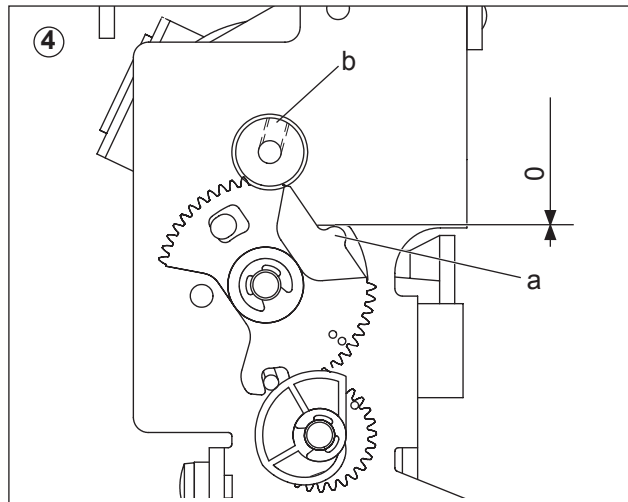
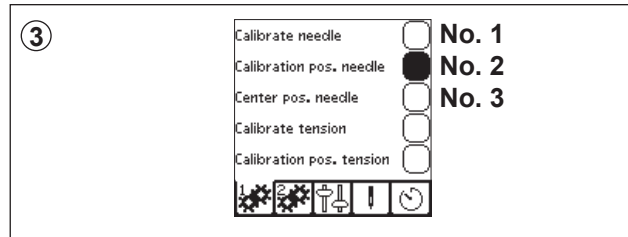
Calibration Point

Check

1. Remove the face plate.
2. Start the service program. (See page 22)
3. In menu 1, Press **Key No 2** (Step motor will move the calibration point.)
4. At this time, the gap between the projection (a) on the center gear and the bracket should be 0 (zero).

Adjust

1. Loosen the screw (b) on the step motor gear.
2. In menu 1, Press **Key No 2** (Step motor will move the calibration point.)
3. Pressing the lower side of center gear lightly so that the gap between project (a) and bracket is 0 and tighten the screw (b).
3. Press the **Key No. 3** (centre positon) and press the **Key No. 2** again, check the gap is 0.



Centre position

Check

1. In menu 1, Press **Key No 1** (Step motor will move to the calibration point and move to the centre point.)
2. At this time, the needle should fall into the centre of the needle plate hole.

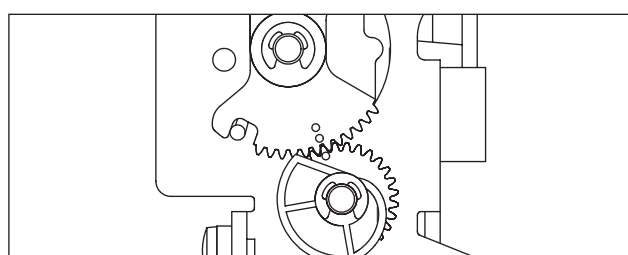
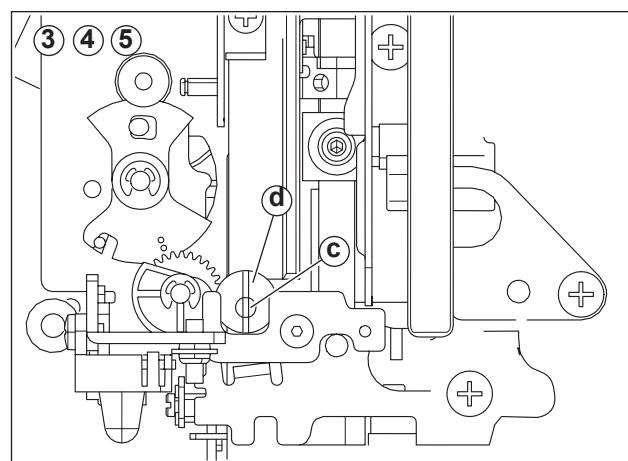
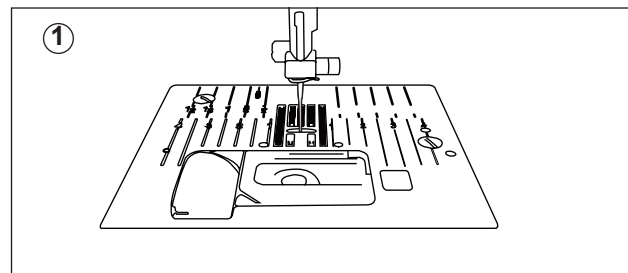
If it is not so, adjust as follows:

Adjustment

1. In menu 1, Press **Key No 1**.
2. Remove the presser foot and the light cover.
3. Loosen the center screw (c).
4. Turn the adjusting screw (d) left or right until the needle falls center position into the hole.
 - When you turn the screw to the right, needle will move to the left.
 - When you turn the screw to the left, needle will move to the right.
5. Retighten the screw (c) and re-check the position of needle.

NOTE

At assembling, the marks of center gear and zigzag cam should be aligned.

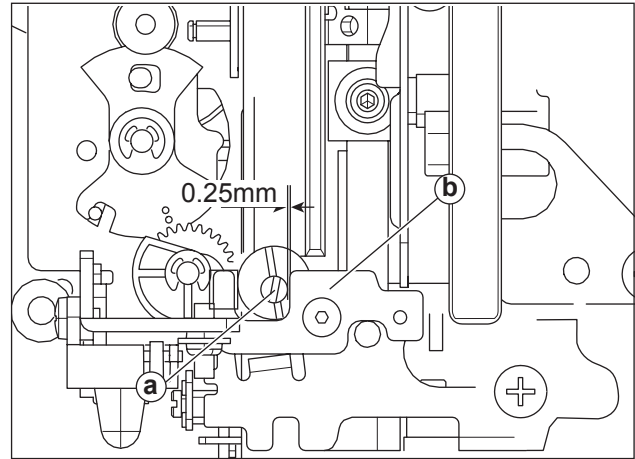


10. POSITION OF NEEDLE POINT LIMITING PLATE

The needle point limiting plate is protecting the needle hits the needle plate.
Check and adjust as follows.

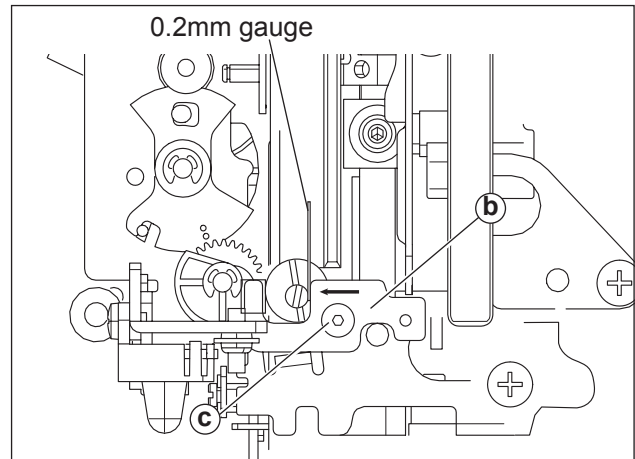
Check

1. Set the pattern to [Straight stitch No.0] and set the needle position to the extreme right (3.5).
2. Remove the presser foot and light cover.
3. Check the gap between the needle point limiting shaft (a) and limiting plate (b) should be 0.2-0.25mm.



Adjustment

1. Loosen the screw (c).
2. Insert the 0.2 mm gauge and slide the limiting plate (b) to the right.
3. Holding this position, tighten the screw (c).



11. HEIGHT OF NEEDLE BAR

Height of needle bar could be the cause for stitches to skip.

Check as the following procedures.

Check

1. Set the pattern to [Straight stitch No.0] which is straight stitch on center needle position.
2. Raise the needle bar to its highest point by turning the handwheel toward you. Remove the presser foot. Remove the needle plate. Lift up the bobbin holder and remove it.
3. Turn the handwheel toward you until the needle comes to its lowest point.
4. Then, the gap between the upper end of the needle and surface of the hook race should be 29 mm

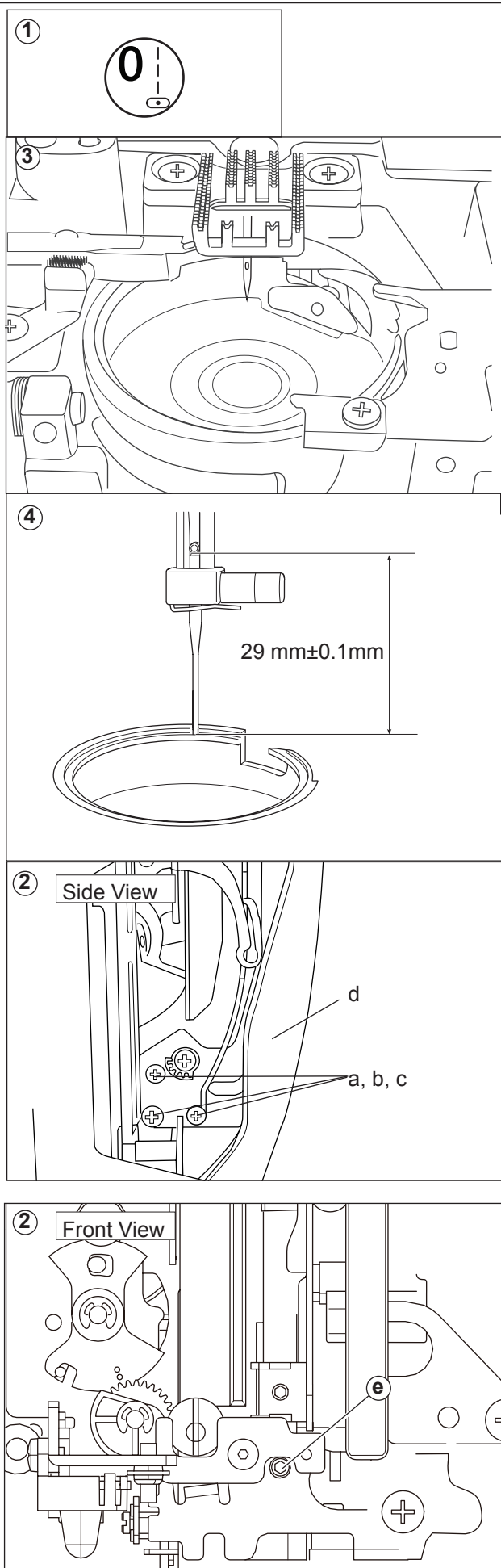
If this gap is not correct, adjust as follows.

Adjustment

1. Remove the light cover.
2. Remove the 3 screws (a, b, c) and remove the take up lever cover and bracket (d).
3. Loosen the screw (e) located inside of the bracket. Adjust the needle to obtain correct height. Retighten the screw (e) and check the height again.

CAUTION: Do not change the needle bar direction at this adjustment. The long groove of needle must be facing frontwards. Use the twin needle if you need check the needle bar direction.

4. Replace the thread take up lever cover and light cover.

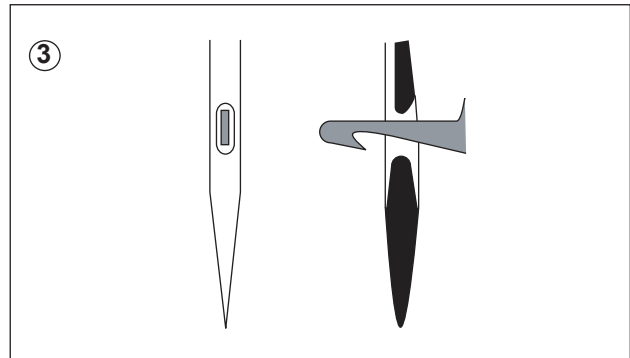


12. HEIGHT OF NEEDLE THREADER

If the height of needle threader is not correct, the hook on threader will not enter the needle eye. Check and adjust as follows:

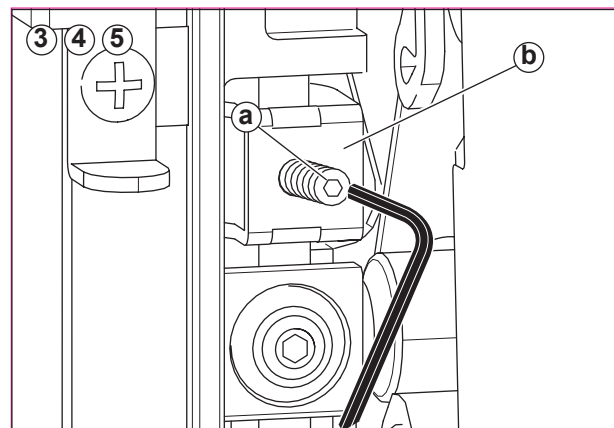
Check

1. Insert a new #70 needle.
2. Raise the needle to its highest point by turning the handwheel.
3. **The threader hook shall go smoothly into the needle eye.**



Adjustment

1. Remove the light cover.
2. Raise the needle to its highest point by turning the handwheel.
3. Loosen the screw (a) on the needle threader bar stopper (b) with a 1.5 mm hex. wrench.
4. Adjust the height of stopper (b) so that the hook does not touch the inside of the needle eye.
5. Tighten the screw (a) to obtain the correct direction of stopper (b). (screw is facing forward)



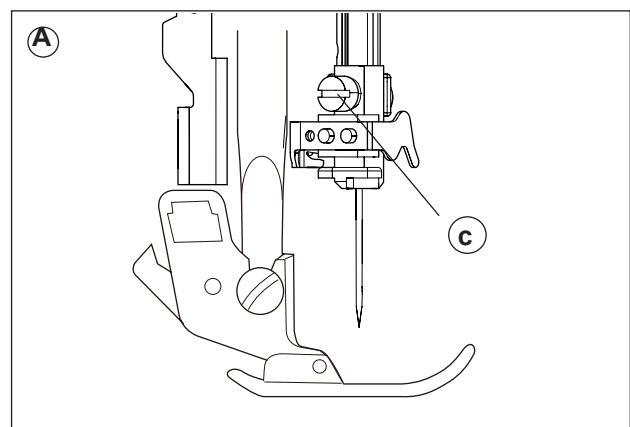
CAUTION:

Be careful with direction of stopper when tighten the screw.

If direction of stopper NOT right, machine makes noise and/or threader does NOT work smoothly.

6. Check the height of needle threader again.
7. Replace the light cover.

A. If the hook has bent, change the threader hook assembly. To remove the hook assembly, loosen the screw (c) then pull it downward.



13. TIMING OF THE HOOK

Check

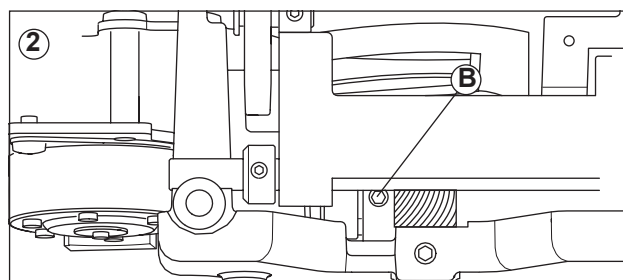
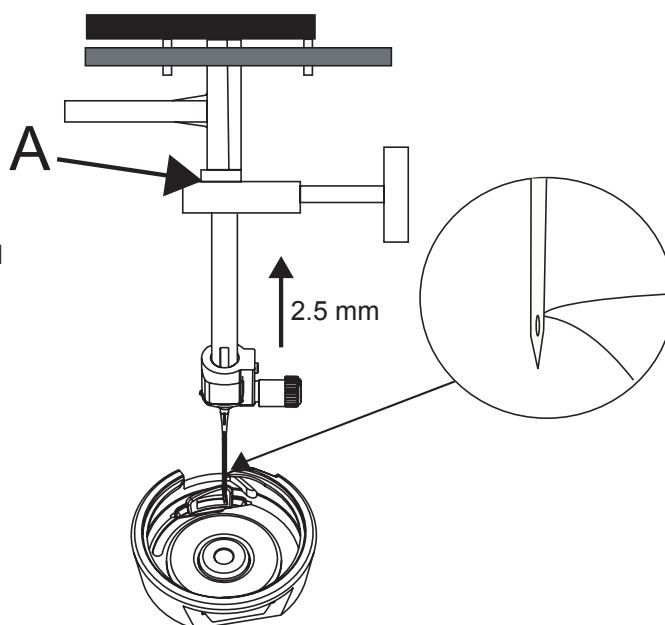
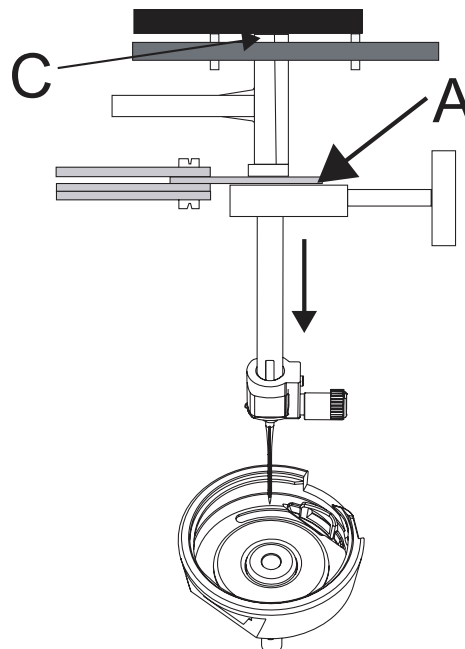
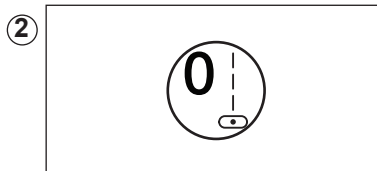
1. Set a new needle size 90 universal into the machine.
2. Remove the needle plate and bobbin holder.
3. Set the pattern at [Straight stitch No.0]
(Straight stitch on center needle position.)
4. As the needle is moving upwards, the tip of the hook should pass behind the center of the needle, when the needle is 2.5 mm above its lower turning position.

Check with setting gauge, Ref. No; 63-102600-18/000 Spacer, Ref. No: 61-111600-02/000 Feeler gauge 2.5, Ref. No; 413 10 22-01 Needle clamp

1. Set the machine so the needle is in its center position against the #A presser foot.
2. Turn the hand wheel until the needle is at its lower turning position.
3. Put the spacer onto the needle bar and push it upwards against the needle bar frame (C).
4. Take then the timing clamp and put it on the needle bar and tighten its screw lightly.
5. Take the 2.5 mm feeler gauge and put its cutout on the needle bar, above the clamp.
6. Loosen the clamp a little and push both feeler gauge and clamp upwards against the spacer.
7. Tighten the screw on the timing clamp.
8. Remove the 2.5 mm feeler gauge.
9. Turn the hand wheel, in the sewing direction, until the timing clamp stops against the spacer.
10. The tip of the hook should now be behind the centre line of the needle.

Adjustment

1. Remove the front enclosure.
2. Loosen the two 2 screws (B) on the lower shaft gear with a 2.5 mm hex. wrench.
3. Make sure that the feed dog is in its down stroke position.
4. Repeat checking points 1 to 9 with the setting gauges.
5. Hold the arm shaft and turn the hook until its tip arrives behind the centre line of the needle.
6. Hold the hook in position with the left hand and tighten one of the black screws.
7. Check.
8. Tighten all the screws.



14. ADJUSTING THE FEED REGULATOR

Check

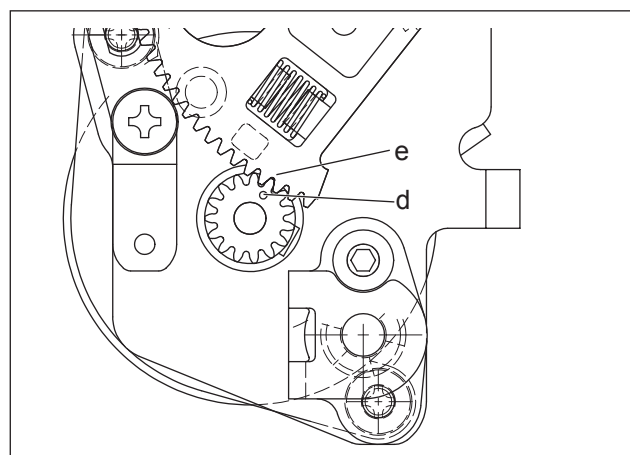
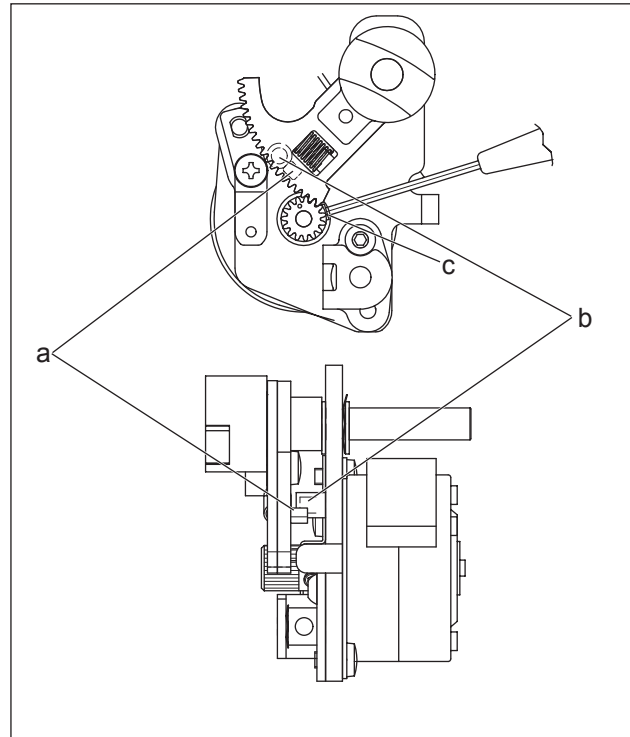
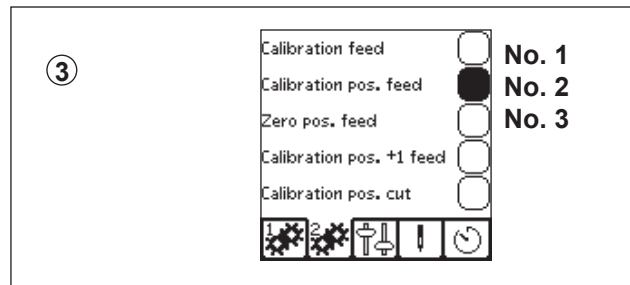
1. Remove the front cover.
2. Take the front cover and connected it. Lay it on top of the casting.
3. Go to the service program and in menu 2. Press the Key No. 2. (Feed step motor calibration position)
4. At this time, the stopper (a) on the feed regulator gear should touch to the cushion rubber (b).

Adjustment

1. Loosen the screw (c) on the step motor gear.
2. Go to the service program and in menu 2. Press the Key No. 2.
3. Pressing the stopper on the feed regulator gear to the cushion rubber lightly, tighten the screw.
4. Press the Key No. 3 (Feed 0 point) and press the Key No. 2 again, then check the gear and cushion rubber.

NOTE:

The mark of the motor gear (d) and the third concave portion (e) from the right end of the feed regulator gear should be aligned.



15. ADJUSTING THE FORWARD REVERSE STITCH

When stretch stitch sewing, the lengths of the forward and reverse stitches should be the same.

Check and adjust as follows.

- We recommend checking “Height of the Feed-dog (Sec. 4)” before you make this adjustment.

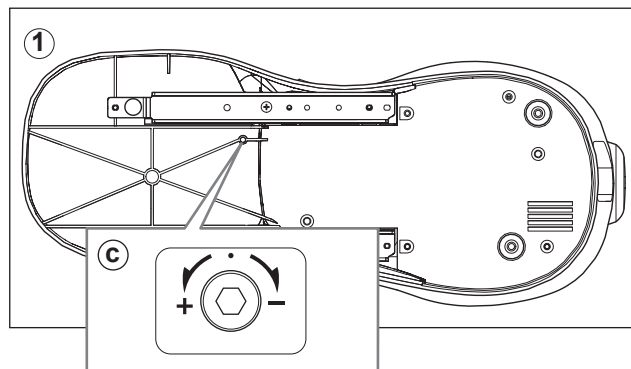
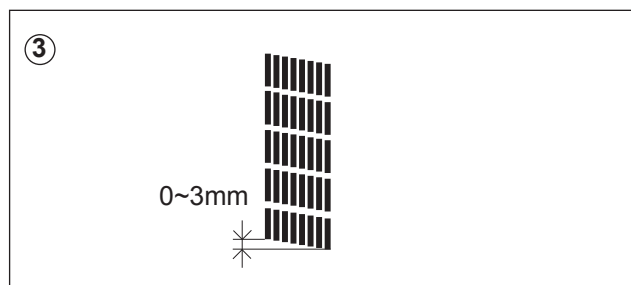
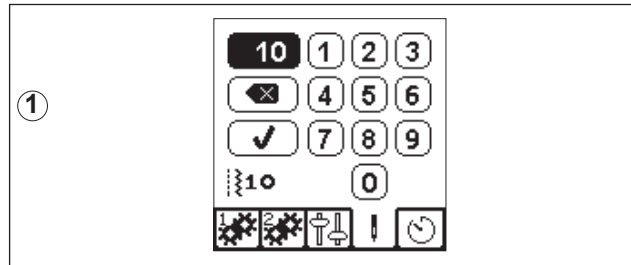
Check

1. According to service program menu 4, select the mending stitch No. 10 (See page 27).
2. Attach the satin stitch foot B and sew a mending stitch. (Machine will repeat sewing forward and backward and stop automatically.)
3. Difference of both ends of right and left should be 0~3mm.

If they are not so, adjust as follows.

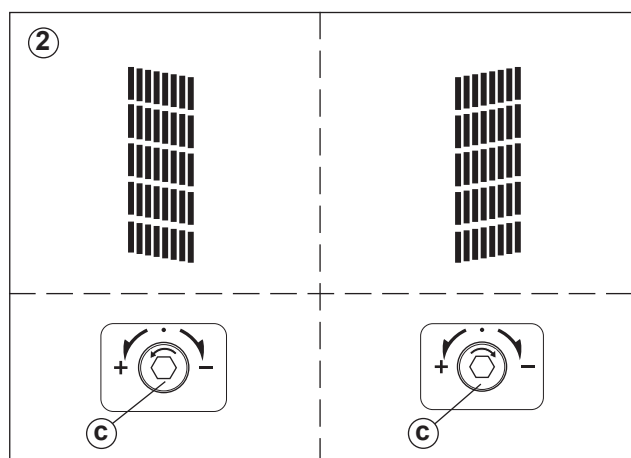
Adjustment

1. Tilt the machine backward.



2. The forward-reverse stitch length is adjusted by turning the screw (c).

- If the reverse stitch is coarser than the forward stitch, turn the screw to the right (+).
- If the reverse stitch is finer than the forward stitch, turn the screw to the left (-).



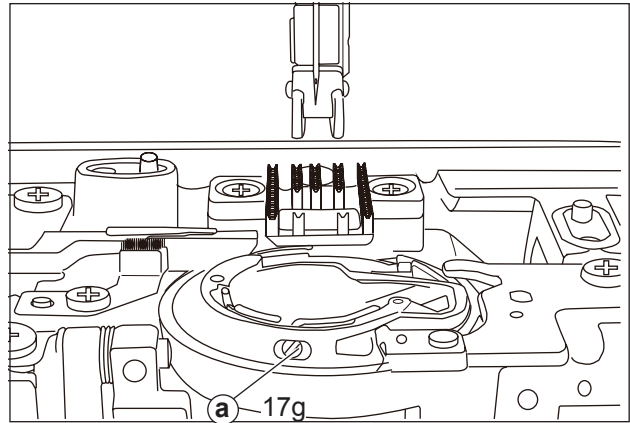
16. ADJUSTING THE LOWER THREAD TENSION

Check

1. Insert a full bobbin into the bobbin case, use normal polyester thread.
2. The thread tension spring of the bobbin case shall give a resistance of 17g (Polyester #50 White) when pulling the thread slowly. using normal polyester thread.

Adjustment

1. Insert a full bobbin into the bobbin case, use normal polyester thread.
2. Pull the thread slowly and turn screw (a) until the correct thread tension is obtained.



NOTE: Remove any loose pieces of thread or fluff from the thread tension discs before any adjustment is made.

17. UPPER THREAD TENSION

STEP 1

Check

1. Remove the thread tension cover.
2. In service program, Menu 1, press the Key No. 4.
3. At this time, the projection (a) should be touching the stopper (b) of the bracket.

Adjustment

1. Loosen the screw (c) on the step motor gear.
2. Press the Key No. 5 (Thread tension calibration point -power on)
3. Pressing the projection of the tension cam to the stopper lightly and tighten the screw.

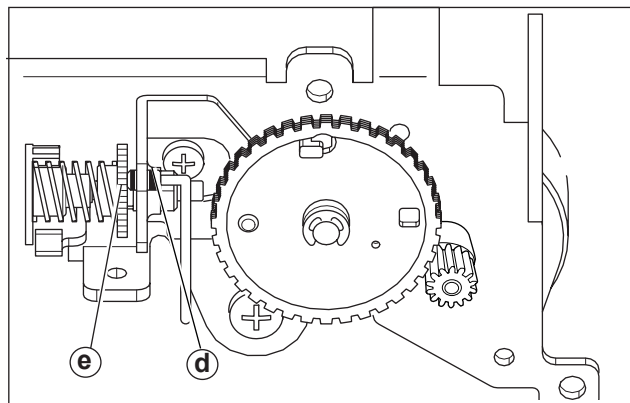
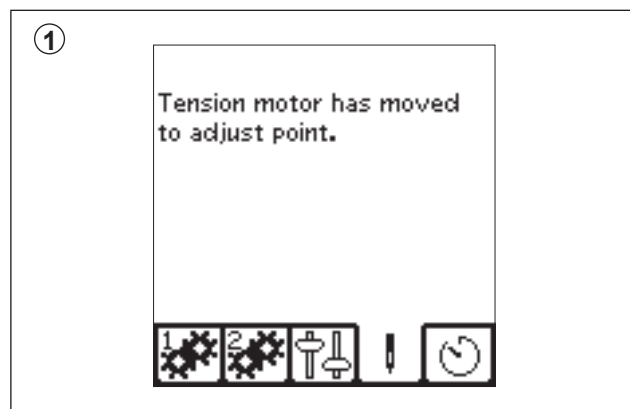
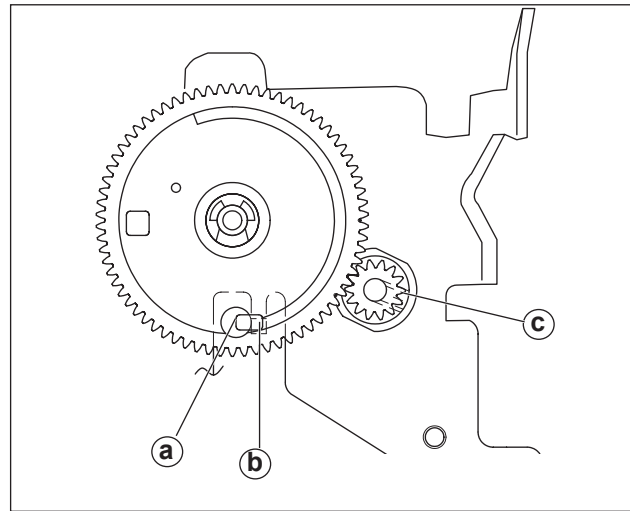
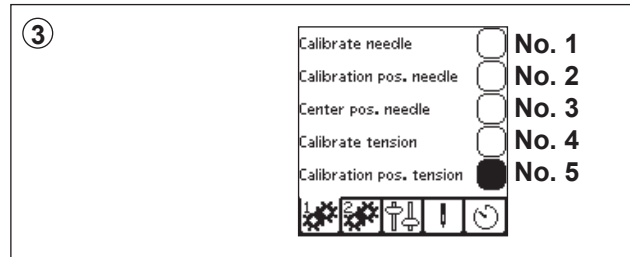
STEP 2

Check

1. In service program, Menu 4. Select No. 0. (Thread tension adjusting mode)
2. Thread the Polyester #60 thread using ordinary threading route until pass through the thread tension discs.
3. Lower the presser foot. (Tension discs will be closed)
4. Pull thread slowly. At this time the resistance should be 80g.

Adjustment

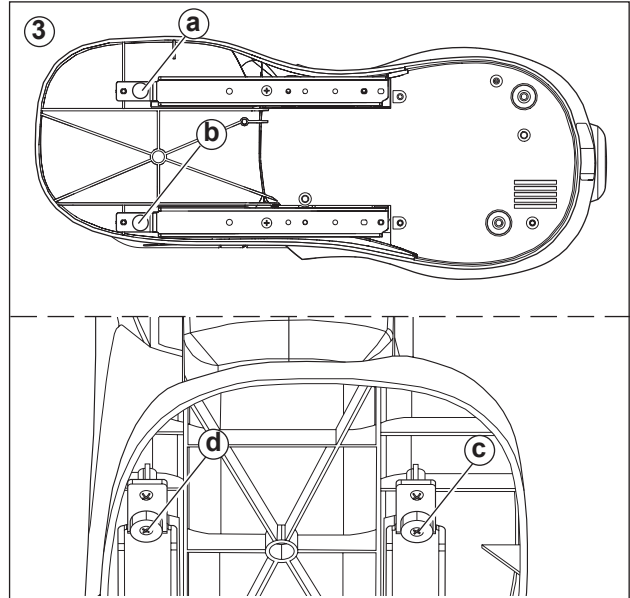
1. Loosen the lock screw (d).
2. Adjust the tension by turning the tension regulator screw(e) either to the front or back.
For stronger, turn the screw backward.
For weaker, turn the screw frontward.
3. Retighten the lock screw (d).



18. FLATNESS OF THE BASE

Adjustment

1. Remove the Embroidery unit.
2. Place the machine on flat stable table.
3. Adjust the height of the rubber feet (a, b) by turning the adjusting center screws (a, b) so that the base will be stabilized.



19. ADJUSTMENTS FOR BUTTONHOLE LEVER POSITION

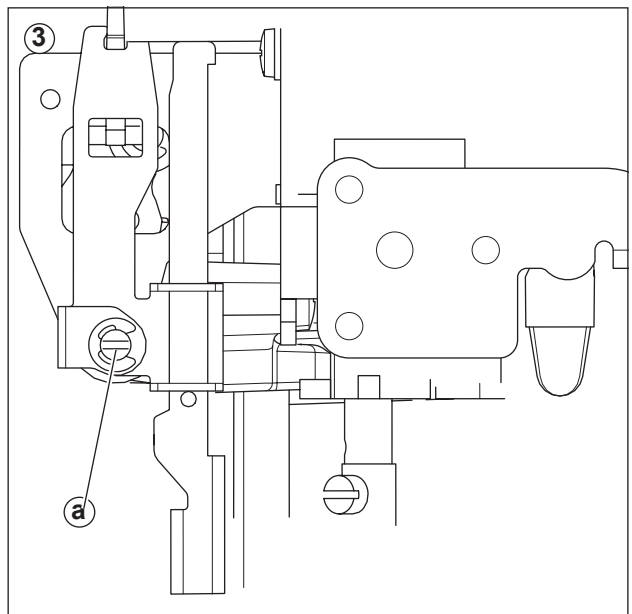
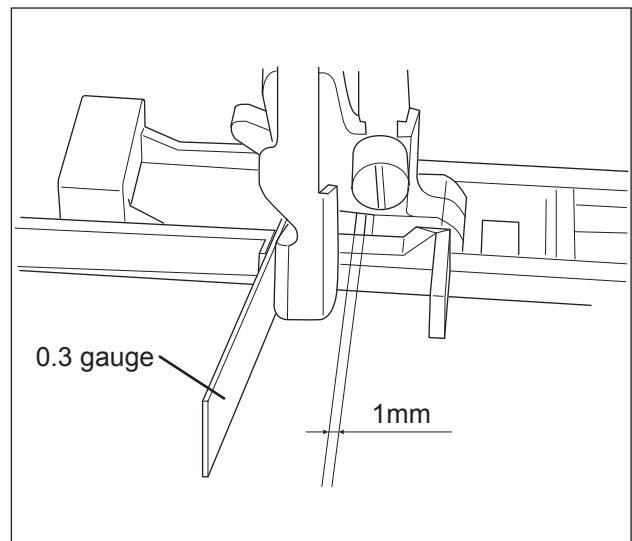
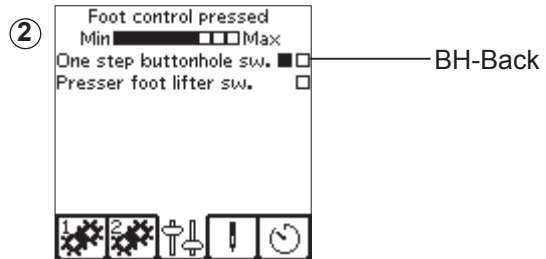
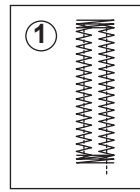
Check

1. If the machine does not sew even with the buttonhole lever all the way down, it means that the buttonhole lever is not positioned properly. Also, if the buttonhole lever is not positioned properly, the machine will sew buttonhole as shown or incorrectly.
2. Set the machine to service program menu 3, Item 4 (Sensor test 2).
3. Attach the one step buttonhole foot.
4. Lower the presser foot and the buttonhole lever.
5. Push the presser foot frame backward about 1cm while lifting the presser foot lever slightly. Insert 0.3 gauge between the buttonhole lever and buttonhole foot. Then slowly move the frame forward. Lower the lever when sensor program "BH-Back" changes to black from white.
6. At this time, the presser foot frame should be about 1mm backward from the extreme end.

If it is not in correct position, adjust as follows:

Adjustment

1. Pull the presser foot frame 1mm backward from the extreme end, and lower the presser foot.
2. Remove the light cover.
3. See the machine from the right side. Insert the 0.3 mm gauge between the buttonhole lever and buttonhole. Turn the eccentric pin (a) left or right so that the sensor program "BH-Back" just changes to black from white. Then remove the gauge, the box should turn to white.
4. Re-check the buttonhole lever position when adjustments have been completed.

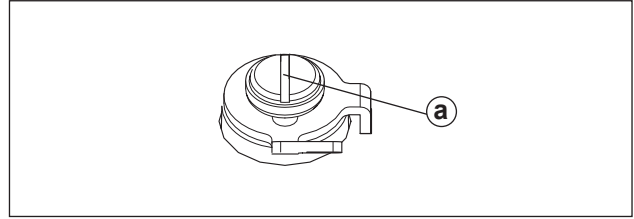


20. BOBBIN WINDER

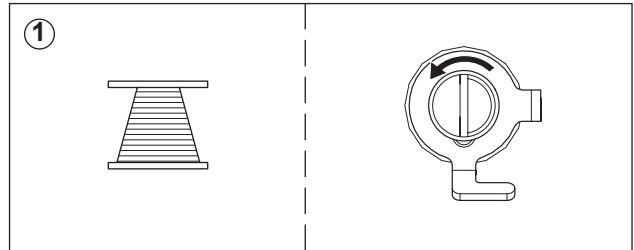
BOBBIN WINDS

Adjustment

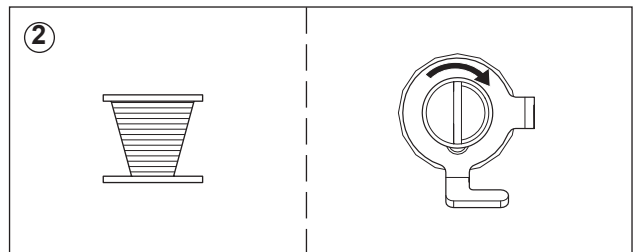
If bobbin winds unevenly, adjust as follows:



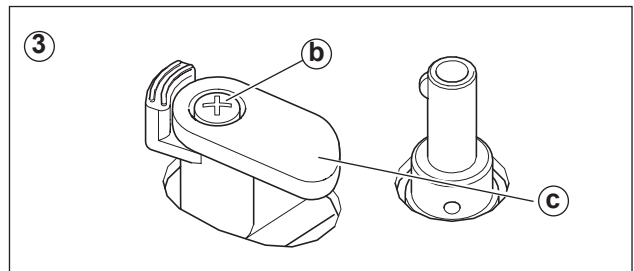
1. If bobbin winds as shown, turn the screw (a) to the left (-).



2. If bobbin winds as shown, turn the screw (a) to the right (+).



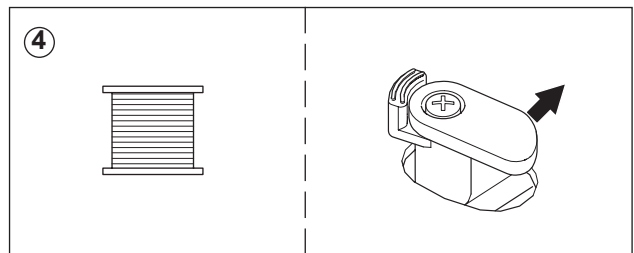
3. If the bobbin thread is wound too little or too much, loosen the screw (b) on bobbin wind stopper and adjust as follows.



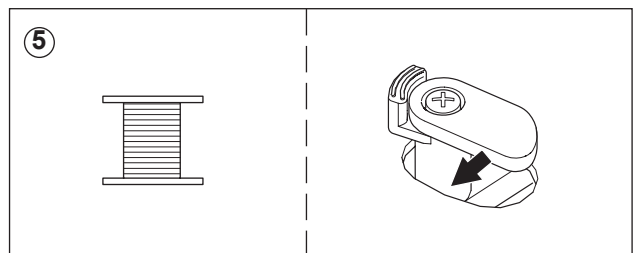
BOBBIN THREAD

Adjustment

4. If the bobbin thread is wound too much, loosen the screw (b) and turn the bobbin winder stop (c) counter clockwise.



5. If the bobbin thread is wound too little, loosen the screw (b) and slide the bobbin winder stop (c) clockwise.

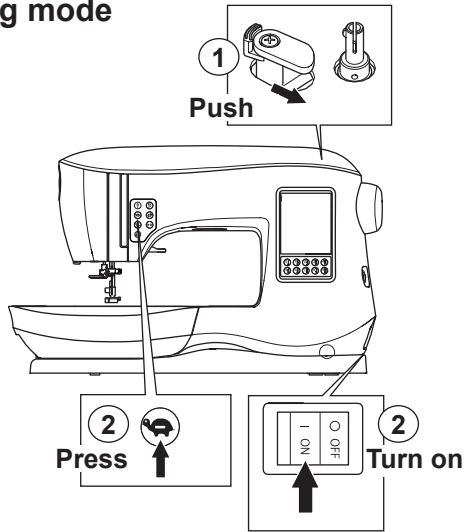


6. Retighten the screw (b) and check.

Service program

In order to facilitate the checking and setting of the different functions of the machine, there is a service program.

Sewing mode

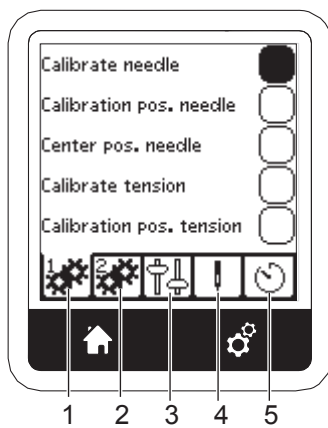


Handling

Enter the service program by:

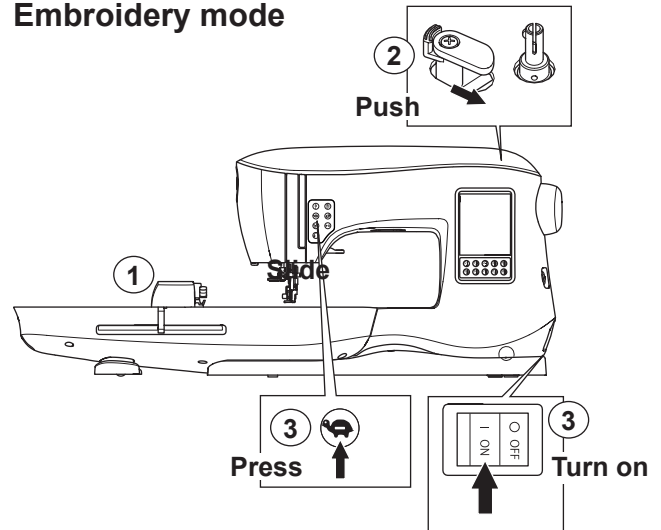
1. Push the bobbin stopper to the right.
2. Pressing the “ - ” button simultaneously while switching on the machine.

The display now shows the Expression service program.



1. Service Menu 1 - Step Motors 1
Step motors settings/adjustments.
2. Service Menu 2 - Step Motors 2
Step motors settings/adjustments.
3. Service Menu 3 - Display Test
Display and sensor test, check of all buttons etc.
4. Service Menu 4 - Test Pattern
Test pattern menu.
5. Service Menu 5 - Timers
Timers setting.

Embroidery mode

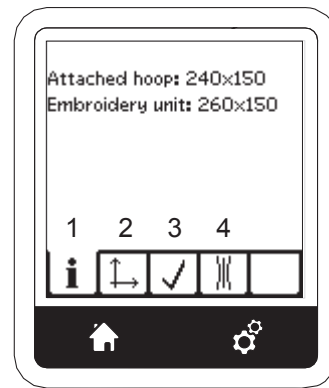


Handling

Enter the service program by:

1. Attach the embroidery unit.
2. Push the bobbin stopper to the right.
3. Pressing the “ - ” button simultaneously while switching on the machine.

The display now shows the Expression service program.

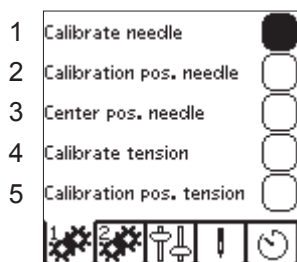


1. Embroidery Service Menu 1 - Info
Show the user the embroidery unit and current attached hoop.
2. Embroidery Service Menu 2 - Unit Test
Belt tension test, full calibration, test position and park position.
3. Embroidery Service Menu 3 - Test Design
Test embroidery reload, select position of the test embroidery.
4. Embroidery Service Menu 4 - Thread Tension
Adjust the default tension for embroidering.

Service menu 1

- Step Motors 1

1. Enter the service program by pushing bobbin stopper to the right and pressing the “ - “ button simultaneously while switching on the machine.
2. The display shows the service menu 1.



Key No 1 - Cal needle

Is used for checking the movement of the needle step motor and center position of the needle in straight stitching. Needle step motor calibrates and takes its Centre position.

Key No 2 - Cal Pos Needle

Is used to set the calibration stop of the needles step motor.
Needle step motor takes its calibration position - Needle to the Left.

Key No 3 - Centre Pos Needle

Is used to set the center position of the needle in straight stitching.
Needle step motor takes its electronic center position.

Key No 4 - Cal Tension

Is used to check the calibration stop of the tension step motor.
Tension step motor takes its calibration position.


Key No 5 - Cal.Pos.Tension

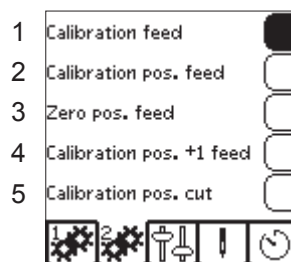
Is used to set the calibration stop of the tension step motor.
The step motor will try to take to the calibration stop - If correct it the motor gear should NOT move.

Service menu 2

- Step Motors 2

Entering service menu 2.

1. Press button “  ”.
2. The display shows the service menu 2 according to below picture.



Key No 1- Cal feed

Is used to check the movement of the feed step motor.
Feed step motor calibrates and takes its zero position.

Key No 2 - Cal Pos Feed

Is used to set the feed step motor. The step motor takes its calibration position.

Key No 3 - Zero Feed

Is used to check the stitch length balance. The feed dog should now stand still (0-feeding).

Key No 4 - Cal Pos + 1 feed

Is used to check the calibration stop setting.
Cog segment now takes one step away from the calibration stop - If correct should the feed dog move one small step to the back.


Key No 5 - Cal Pos.Cut

Is used to check the calibration stop setting of the thread cutter.

Service menu 3

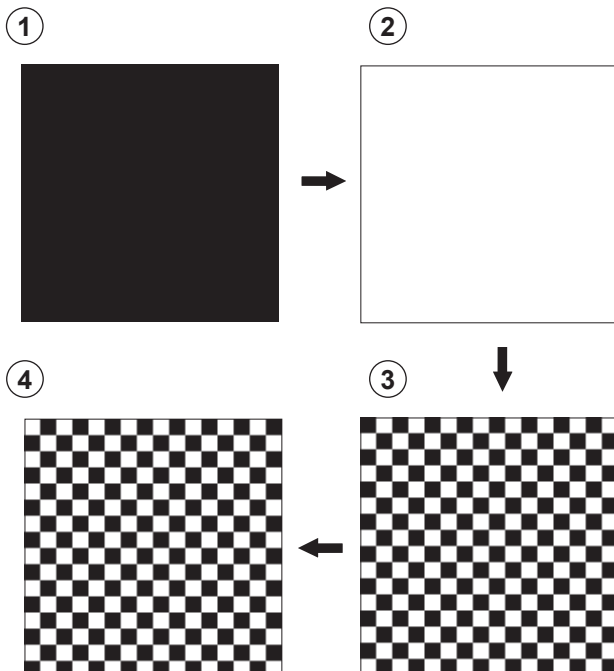
- Display test, Sensor test, Hardkey test

Entering service menu 3.

1. Press button “

1. Display Test

Checking for dead pixels. This test for the display has 4 states and shall go from state 1 through 4 automatically with 1 second pause between each state. After the fourth state the display shall go back to the default view for the second service view.

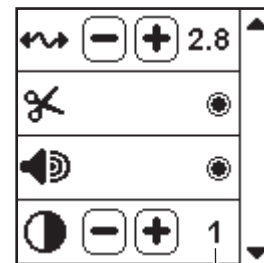
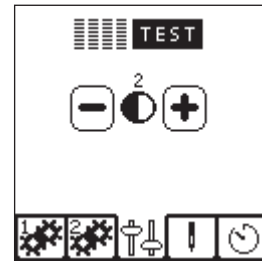


2. Contrast adjustment

Set the default contrast of the machine.

The setting interval is between -4 to 4 in steps of 1 and the value is shown above the contrast icon. The value shall be adjusted by pressing the – and + buttons.

Contrast adjusted here is value “1” in machine setting view in normal mode.

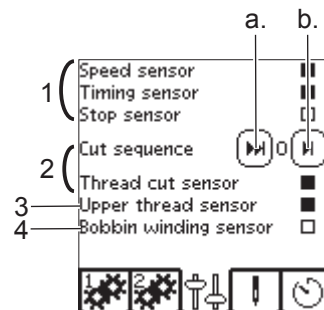


default value

Machine setting view

If you adjust value in service menu 3's view, default contrast value (=1) in Machine setting view never change.

3. Sensors Test1



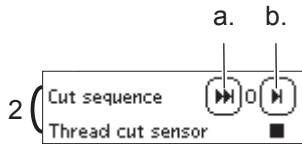
1. Speed sensor, Timing sensor, Stop sensor

The 3 squares of the synchronizer are changing from black to white while the hand wheel slowly is turned around in the direction of sewing. The squares shall be filled when a sensor is active and open when a sensor is inactive.

2. Cut sequence, Thread cut sensor

When these buttons are used, it shall be possible to run the cut sequence in steps. Step 0 shall be the resting position. A square of the thread cut sensor is filled at step 0 and 1.

- One complete sequence are performed.
- One step of sequence is performed.



3. Upper thread sensor

A square of the upper thread sensor filled when you performed the following operation:

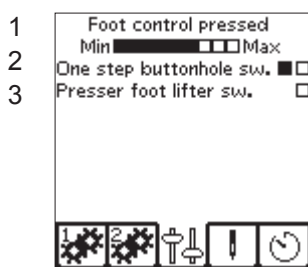
- Thread the upper thread normal way until needle bar thread guide.
- Lower the presser foot lift.
- Pull and release upper thread lightly so that the thread check spring is pulled up and down. At this time, the square of upper thread sensor should change to white and black.

note! - After 1~3 operation, the thread check spring rise then a square should change black.

4. Bobbin winding sensor

If moving the bobbin winding between it's 2 different positions on or off, a square should change between white and black, the function is correct.

4. Sensors Test2



1. Foot control pressed

Check of the Foot control Sensor located inside the foot control.

When the foot control is connected to the machine and is pressed, the progress bar shows the measured level divided into 1/9 parts.

2. One step buttonhole sw.

This view shall show the current status for the one step buttonhole switch.

Buttonhole switch is comprised of 2 switch: BH-FORE, BH-BACK.

The box shall be filled when the switch is activated, and not filled when the switch is idle.

Lower the buttonhole lever, push or pull.

3. Presser foot lifter sw

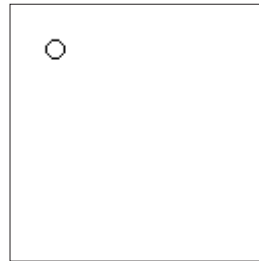
If presser foot is raised, the square shall be filled.

5. Touch screen calibration

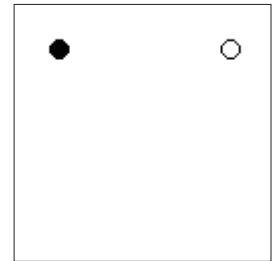
Press the each "O" mark indicated on the screen 5 positions. (4 corners and center)

When calibration is completed, service menu 3's screen will appear again.

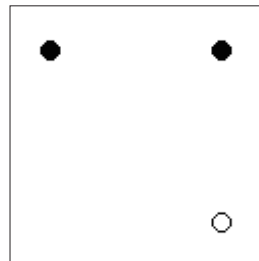
①



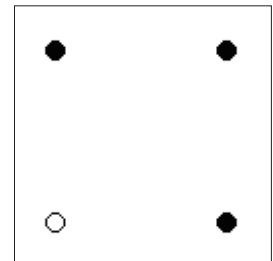
②



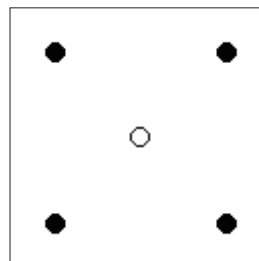
③



④

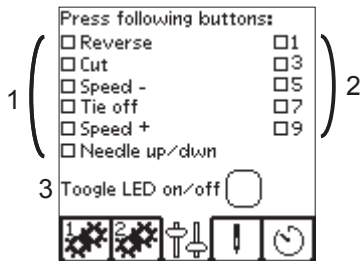


⑤



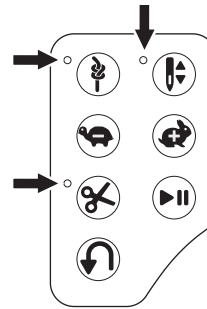
6. Hardkey test

When the keyboard test is active, the keys listed in the display shall be pressed one at a time. When a key is pressed and recognized by the electronics, the corresponding square shall be filled. If all squares can be filled by pressing all the advised keys, the keyboard is ok.



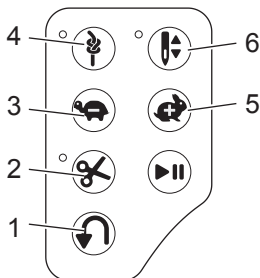
3. Toggle LED on/off

All of the LEDs on the left keypad (sewing head keypad) light up.

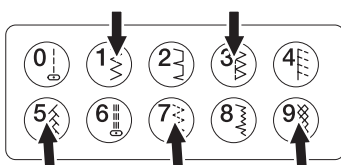


1. Sewing head keypad

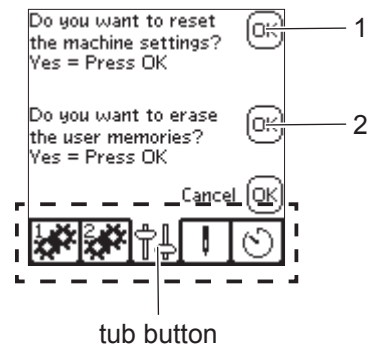
- Reverse :Reverse Stitch Button...1
- Cut :Thread Cutter Button...2
- Speed - :Speed Slow Button...3
- Tie off :Tack Button...4
- Speed + :Speed Fast Button...5
- Needle up/down :Needle Position up/down Button...6



2. Ten-key Buttons



7. Reset settings



1. Reset settings

Reset the machine settings.

Make all machine settings in sewing mode return to default.

When reset, return to the service menu 3 view.

If you don't want to reset, press the "OK" being next to cancel or tub buttons.

2. Clear memory

Clear User memory.

Erases all saved user memory (personal stitch or sequence) in the "Sewing Menu".


When erased, return to the service menu 3 view.

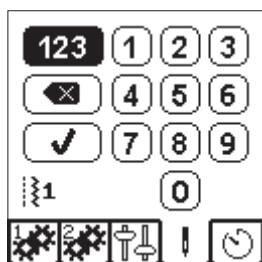
If you don't want to erase, press the "OK" being next to cancel or tub buttons.

Service menu 4

- Tension, Test Pattern

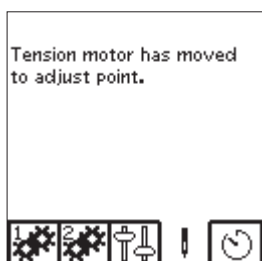
Entering service menu 4.

1. Press button “”.
2. The display shows the service menu 4 according to below picture.
3. Select number and press the “✓” button.



No. 0

Is used to setting the upper thread tension. Tension step motor will be moved to adjust point when this key is pressed. In this point, adjust the tension correctly (80 g). See no 17 UPPER THRED TENSION.



No. 1

Test pattern # 1 :The machine sews Straight stitch 2,5 mm.

No. 2

Test pattern # 2 : The machine sews Straight stitch 4 mm.

No. 3

Test pattern # 3 : The machine sews Straight stitch 5 mm.

No. 4

Test pattern # 4 : The machine sews Zig-zag 4x7 mm.

No. 5

Test pattern # 5 : The machine sews Zig-zag 4x6 mm.

No. 6

Test pattern # 6
The machine sews Zig-zag 2x3mm.

No. 7

Test pattern # 7
The machine sews Zig-zag 4x4 mm.

No. 8

Test pattern # 8
The machine sews Zig-zag 10x7 mm.

No. 9

Test pattern # 9
The machine sews Flat-lock 6x5.

No. 10

Test pattern # 10 : Mending
Note:This pattern is used for adjusting sewing machine balance.

No. 11

Test pattern # 11 : Satin 0.8x7 mm Density:0.4.

No. 12

Test pattern # 12 : Buttonhole

No. 13

Test pattern #13 : Banana (7.0 mm)

No. 14

Test pattern #14 : G-cleaf

No. 15

Test pattern #15 : Honeycomb

No. 16

Test pattern #16 : Satin 0.8x7.0 mm Density : 0.4


No. 17

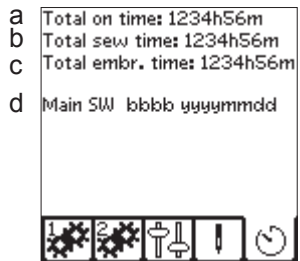
Test pattern #17 : Dala

Service menu 5

- Timers

Entering service menu 5.

1. Press button “”.
2. The display shows the service menu 5 according to below picture.



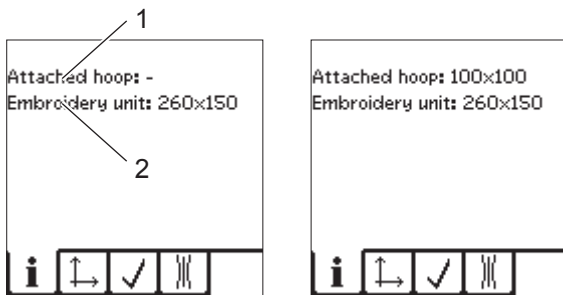
- a. Total on time = Indicates how many hours and minutes the machine has been switched on.
- b. Total sew time = indicates how many hours and minutes the machine has been sewed on.
3. Total embr. time = indicates how many hours and minutes the machine has been embroidered on.
4. Main SW = Main Software version, bbbb= build version, yyyyymmdd= year month day.

Embroidery Service menu 1

- Info


1. Attach the embroidery unit.
2. Enter the embroidery service program by pushing bobbin stopper to the right and pressing the “-” button simultaneously while switching on the machine.
2. The display shows the embroidery service menu 1.

This view shall show the current attached embroidery unit type (size) and the size of current attached hoop.



1. Attached hoop

Show the current attached hoop if no hoop is attached the value shall be “-”.

If press the “” button, the Y carrier moves to check whether a hoop is attached and what kind of frames is attached.


2. Embroidery unit

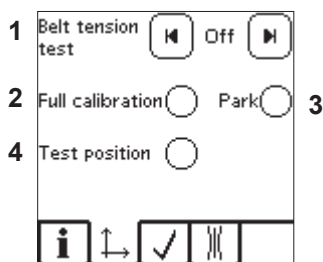
Show the user current attached embroidery unit type (size).

Embroidery Service menu 2

- Unit test



Entering embroidery service menu 2.

1. Press the button “”.
2. The display shows the embroidery service menu 2 according to below picture.






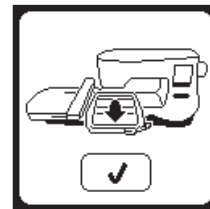
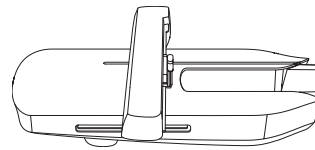
1. Belt tension test : Test the belt tension for booth x- and y-motor


Is used to test the belt tension for booth x- y-motor.

By pressing the  or , switches to 3 functions: off (idle mode), belt -x, belt -y. Each motor moves quickly from side to side or back and forward.




2. Full calibration : Full calibration test

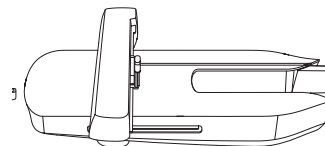
When the “Full calibration ” button is pressed a full calibration of the embroidery unit shall be performed. While being performed,  changes to . After calibration the unit shall go to center position.






If this message appears, remove the hoop (if attached), clear the embroidery area and press the “” button.

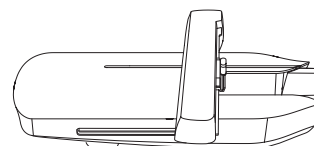
3. Park : Park position test

When “Park ” is pressed, the embroidery unit shall go to the park position. While being in the park position,  changes to .



4. Test position : Test position test

When the “Test position ” button is pressed, the embroidery unit shall go to the test position. While being in the test position,  changes to .



Embroidery Service menu 3

- Test embroidery

Entering embroidery service menu 3.

1. Press the button "✓".
2. The display shows the service menu 3 according to below picture.

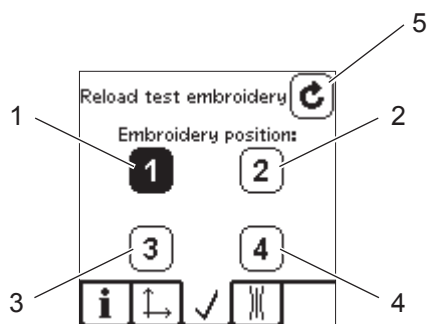
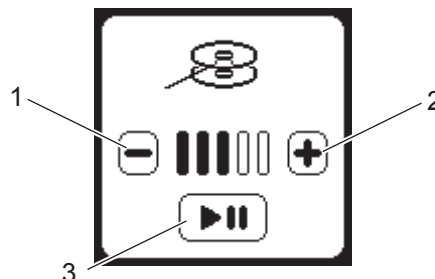
Test embroidery

The test embroidery will start when select the embroidering position by pressing ① ~ ④ and attach 260x150 hoop and press start/stop button.

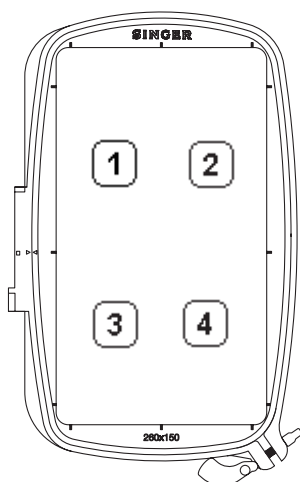
NOTE: In this view, usable hoop is only 260x150 hoop.

Bobbin winder

When the bobbin winder switch is the state of bobbin winder mode by pushing bobbin stopper to the right, LCD will indicate the bobbin winder mode. Press the Start/Stop button on the LCD to start winding. You can wind the bobbin during embroidering too.



1. Adjust winding speed one step slower.
2. Adjust winding speed one step faster.
3. Start/ Stop winding.




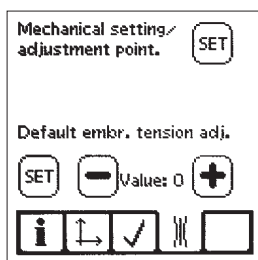
1. Set the embroidery position on the upper left.
2. Set the embroidery position on the upper right.
3. Set the embroidery position on the lower left.
4. Set the embroidery position on the lower right.
5. Embroider from the beginning of the test data.

Embroidery Service menu 4

- Thread tension

Entering embroidery service menu 4.

1. Press the button “”.
2. The display shows the service menu 4 according to below picture.

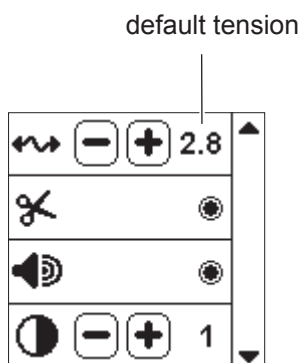


Step 1

By pressing the Mechanical setting/ adjustment point SET button, machine thread tension will go to mechanical adjustment point. See page 18 “Upper Thread Tension” and adjust mechanical thread tension.

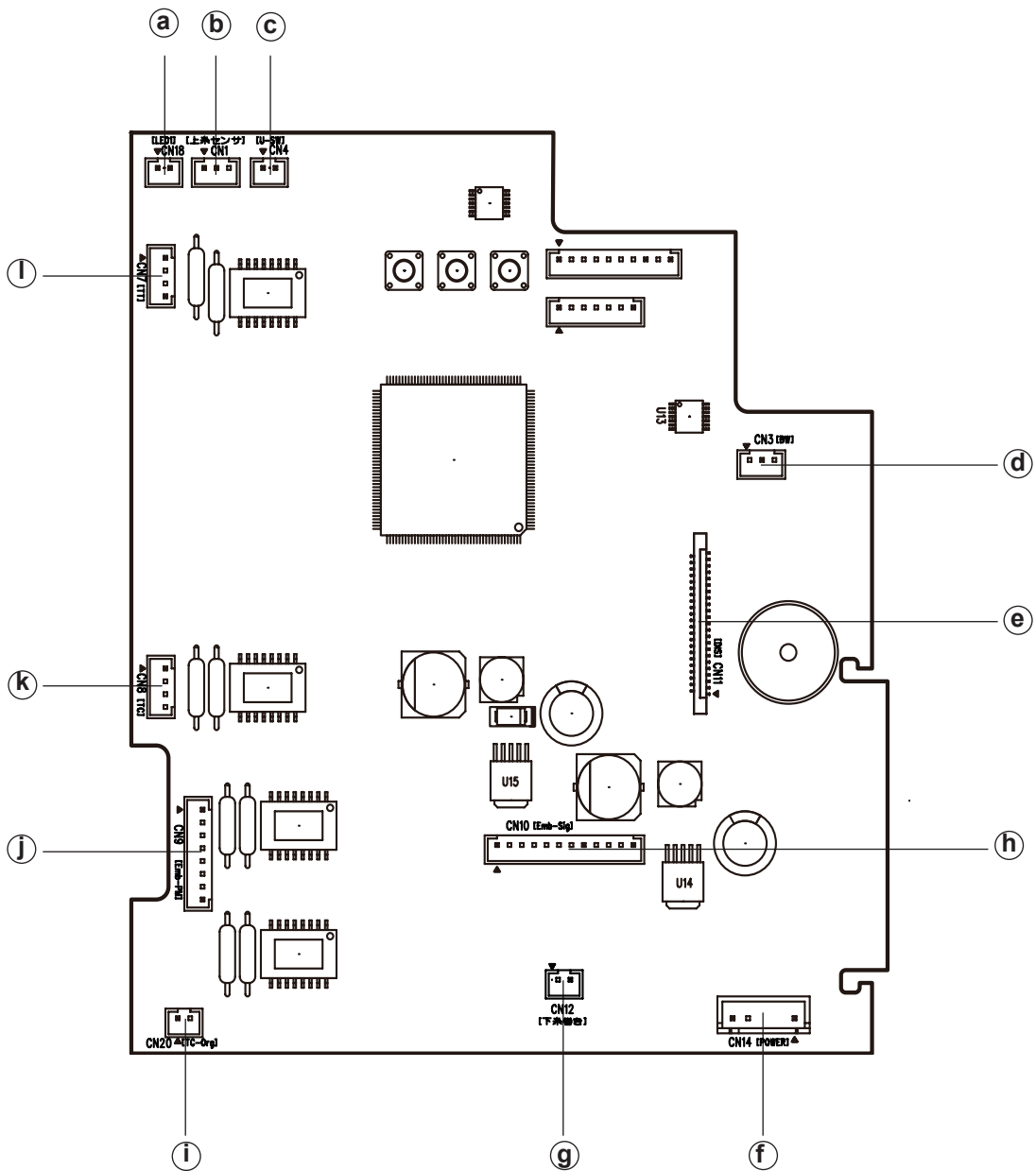
Step 2

Press the Default embr. tension adj. SET button. Machine will go to embroidery default tension value (=2.8) point. You can adjust this point by pressing + or - button.



Electrical Parts Connection

- a. LED Board Assy.(CN18)
- b. Thread Check Spring Cord(CN1)
- c. Presser Foot Switch Assy.(CN4)
- d. Bobbin Winder Switch Assy.(CN3)
- e. Display Board Assy.(CN11)
- f. Power Circuit Unit(CN14)
- g. Bobbin Winder Moter Assy.(CN13)
- h. Embroidery Unit Connect Assy.(CN10)
- i. Thread Cutter Switch Assy.(CN20)
- j. Embroidery Unit Connector Assy.(CN9)
- k. Thread Cutter Assy.(CN8)
- l. Tension Release Pulse Motor(CN7)



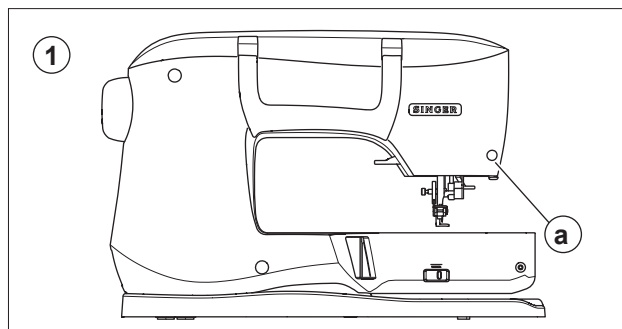
REMOVING THE EXTERIOR PARTS

Remove the embroidery unit at first.

To remove the exterior parts, remove from A to H.

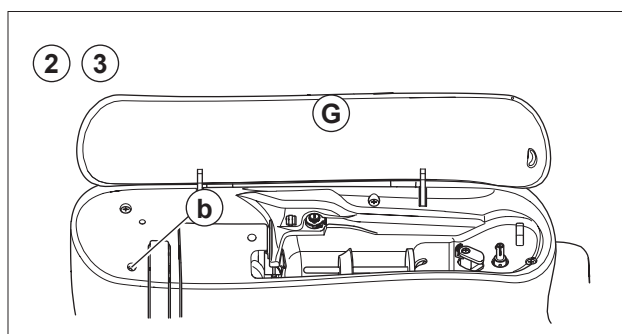
A. Light Cover

1. Remove the screw cap (a) and screw.

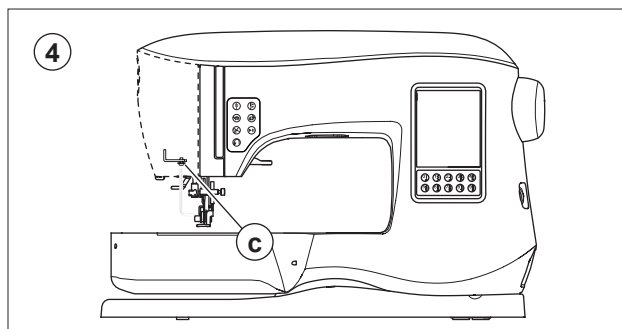


2. Open the top cover (G).

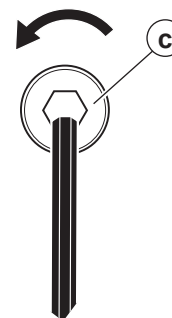
3. Remove the screw (b).



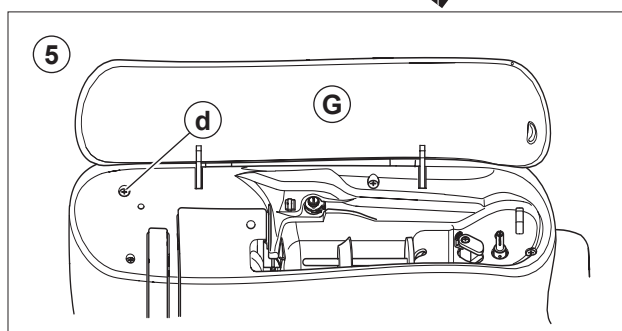
4. Loosen the screw (c) with 2.5 mm hex. wrench located inside of light cover.



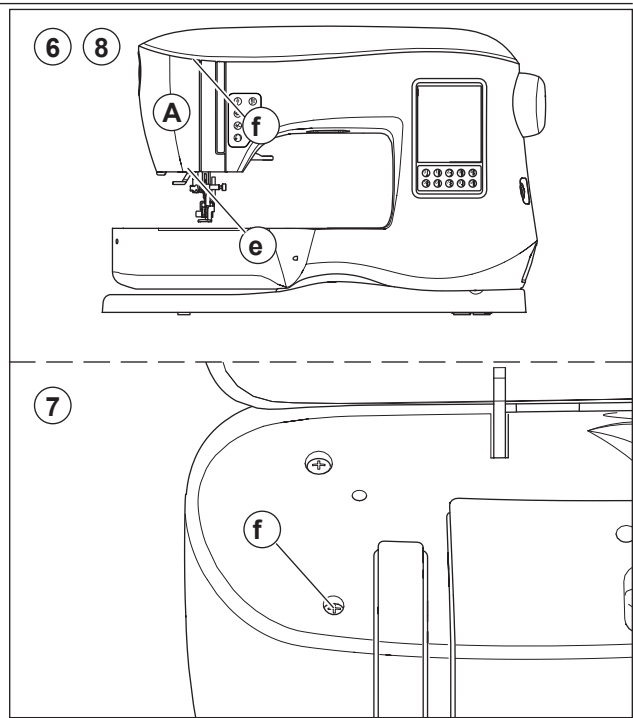
View from downward



5. Loosen the screw (d).

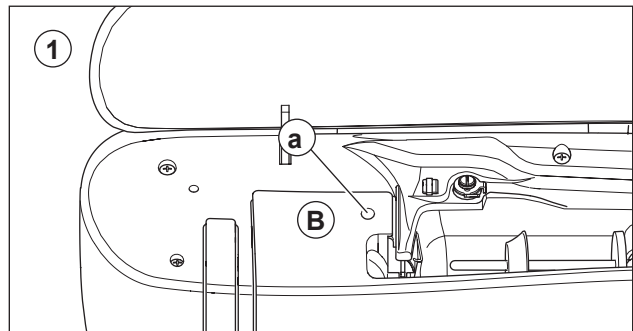


6. Put your finger on the e and pull it toward you.
7. Release the hook-f.
8. Remove the light cover.



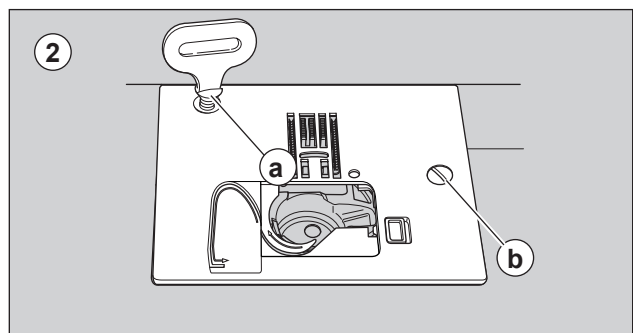
B. Thread Tension Cover

1. Remove the screw cap (a) and screw.
2. Remove the thread tension cover.

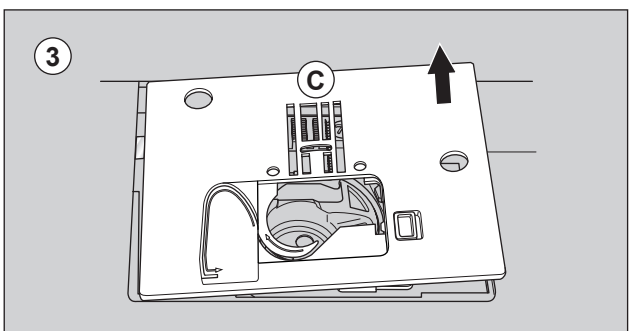


C. Needle Plate

1. Raise the presser foot and remove it.
2. Remove the 2 screws (a, b) holding the needle plate.



3. Lift up the right side of needle plate and remove it.



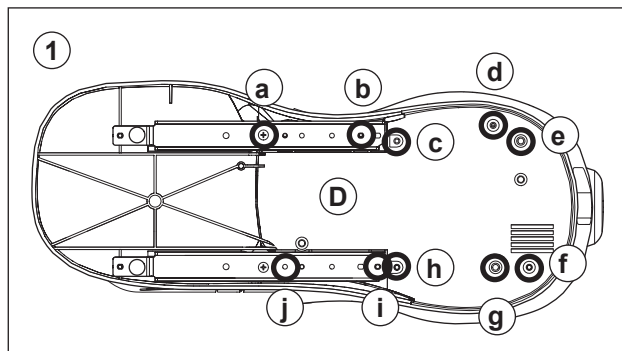
D. Base

1. Tilt the machine backward and remove the 10 set screws (a-j).

NOTE:

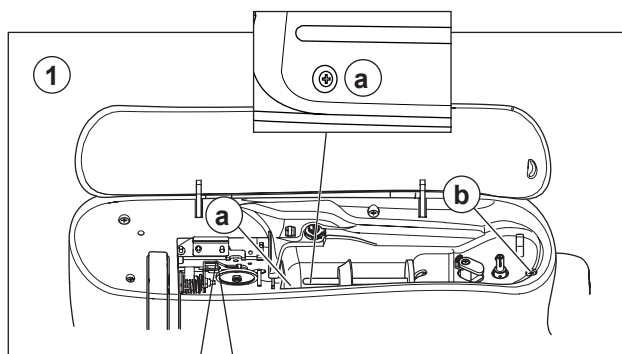
Note the screw type and position.

2. Remove the base.

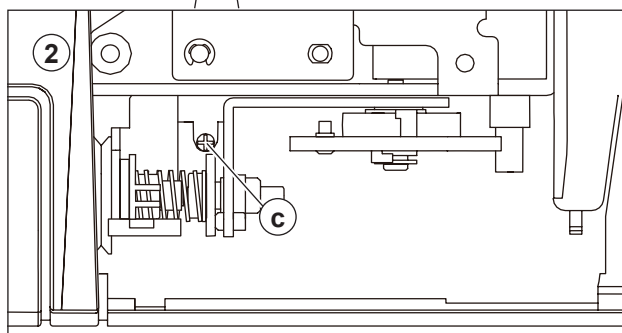


E. Front Enclosure

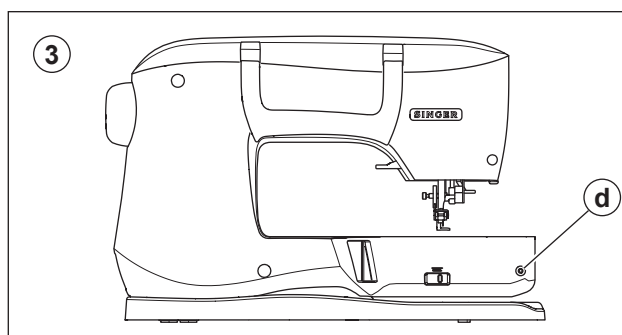
1. Remove the 2 screws (a, b).



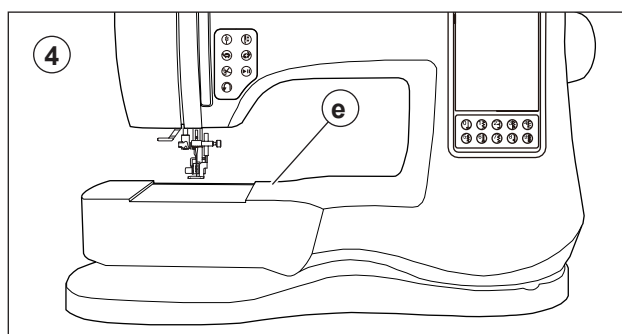
2. Loosen the screw (c).



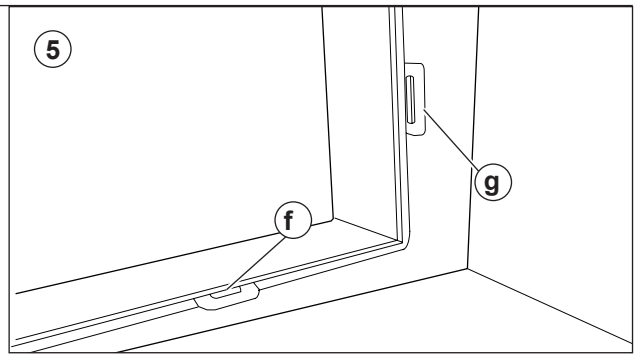
3. Remove the screw (d).



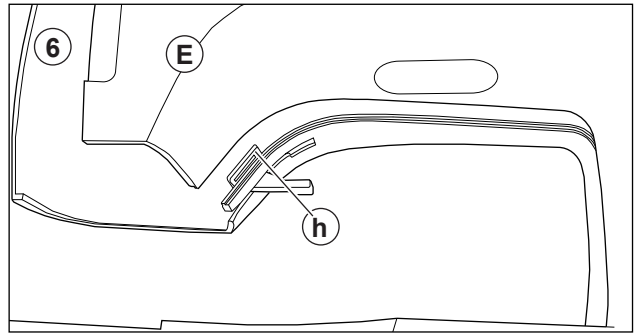
4. Pull the front enclosure from the rear enclosure. (hook-e will come off).



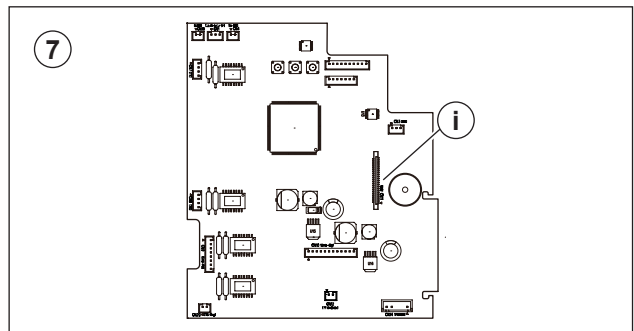
5. Pull up the front enclosure to come off the hook-f.
Pull the enclosure to the left and come off the hook-g.



6. Pull the enclosure toward you and come off the hook-h.

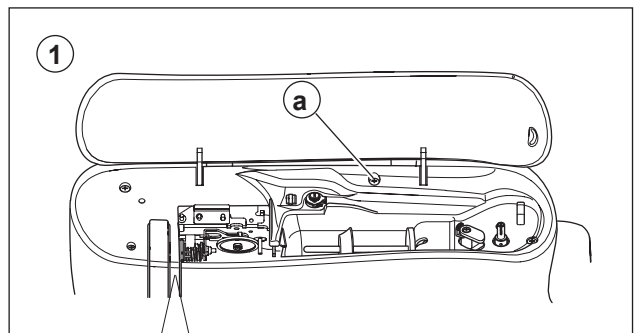


7. Pull up the both black parts located on the connector (i) and pull off the cable.

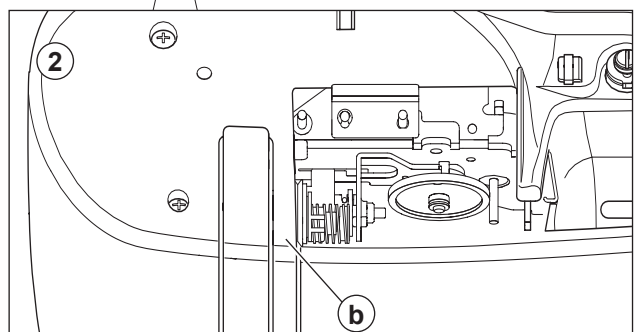


F. Unit Cover

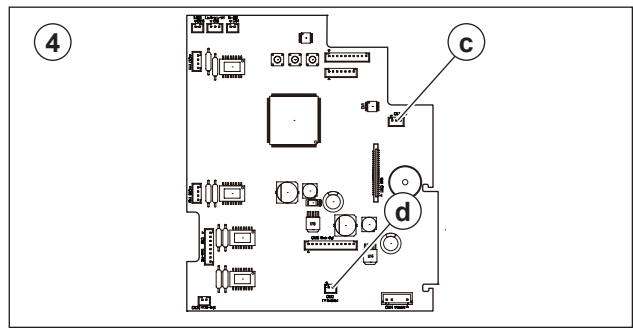
1. Remove the screw (a).



2. Release the hook-b.
3. Pull the unit cover.

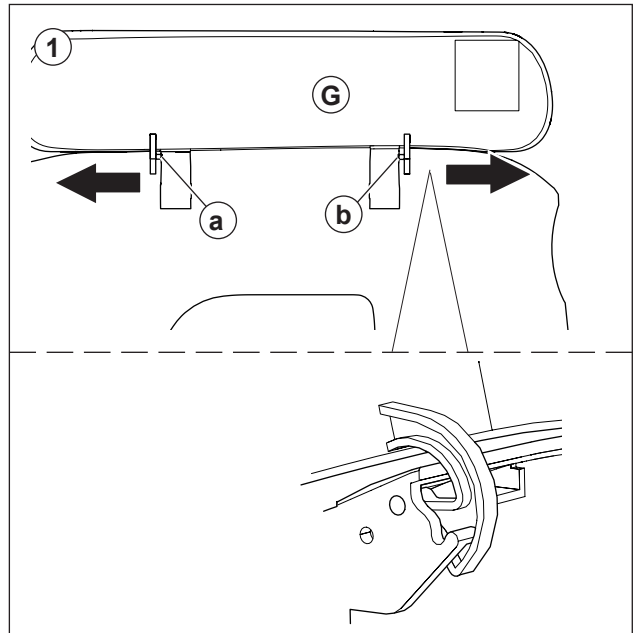


4. Remove 2 connectors (c, d).



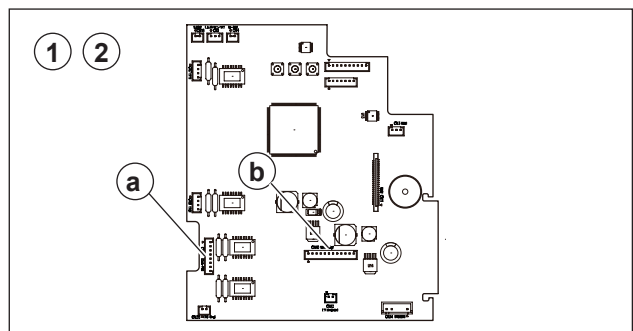
G. Top cover

1. Pull the top cover to both right and left side hinges toward outside, remove the top cover.

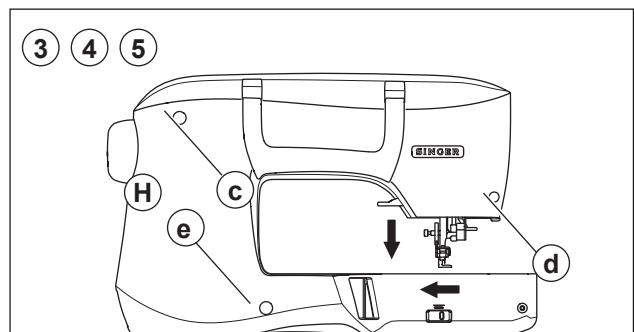


H. Rear Enclosure

1. Disconnected the 2 connectors (a, b) from the machine.
2. To remove 2 connectors (a, b), cut the cable tie as necessary.



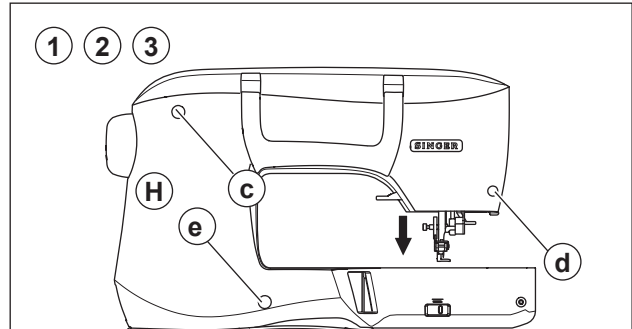
3. Remove the 3 screw cap (c, d, e), loosen the screw.
4. Lower the presser foot lifter and lower the drop feed.
5. Pull the rear enclosure backward and remove it.



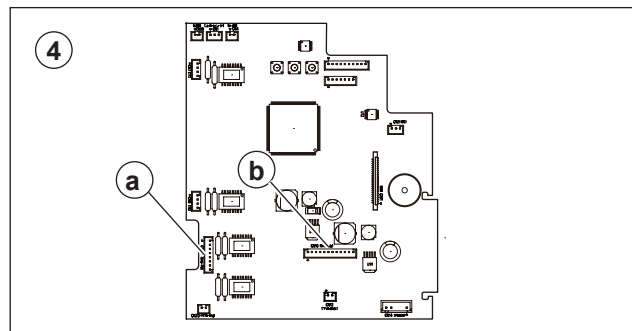
REPLACING THE EXTERIOR PARTS

H. Rear Enclosure

1. Lower the presser foot lifter.
2. Replace the rear enclosure.
3. Replace the 3 screws (c, d, e), Replace the cap.

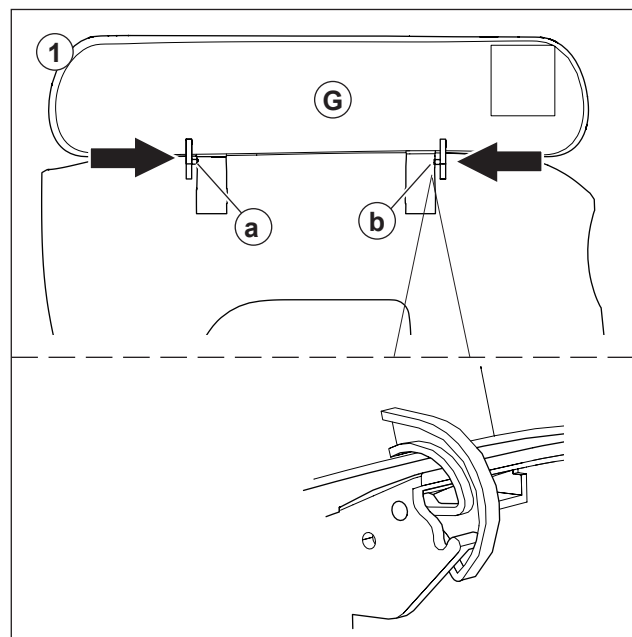


4. Connect the connector so that the hook (a, b) will fit into place.



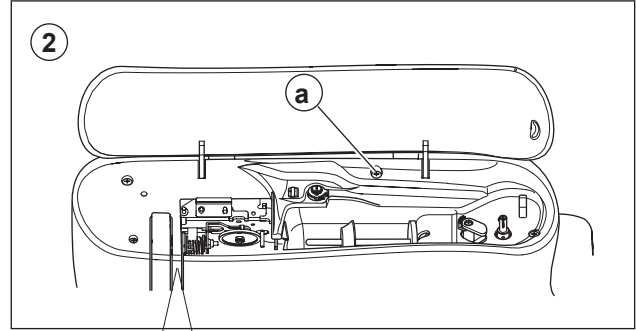
G. Top cover

1. Replace the top cover.

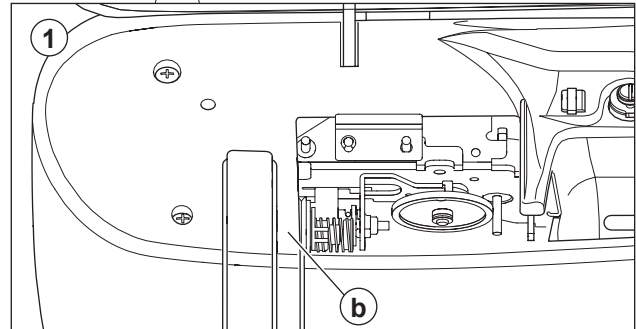


F. Unit Cover

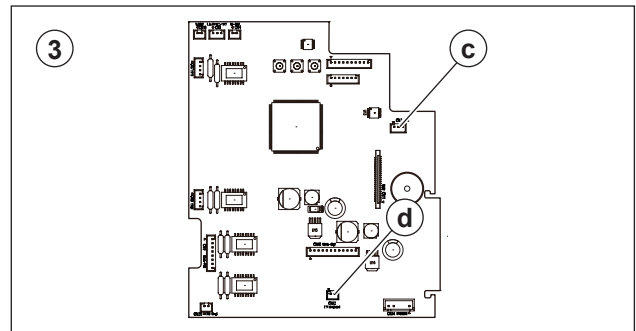
1. Replace the unit cover so that the hook-b will fit into place.



2. Replace the screw (a).

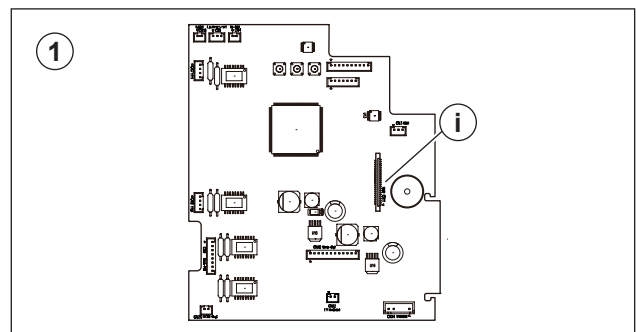


3. Replace 2 connectors (c, d).

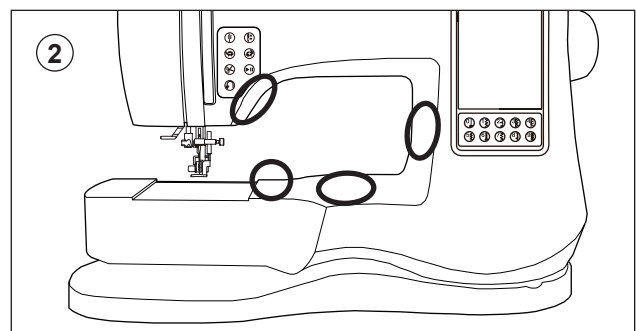


E. Front Enclosure

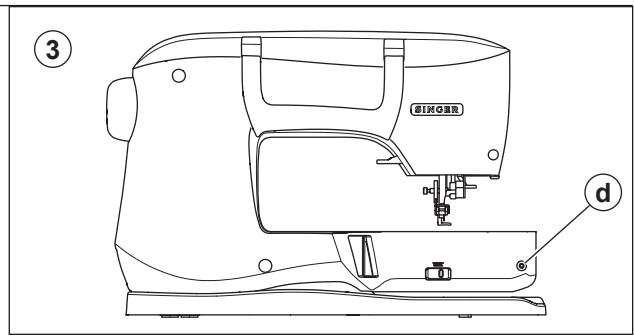
1. Connect the cable to the connector (i) as follows. Pull up the both black parts located on the connector (i) lightly. Insert the cable so that the blue line of cable faces to the left. Push the black parts evenly to lock the cable.



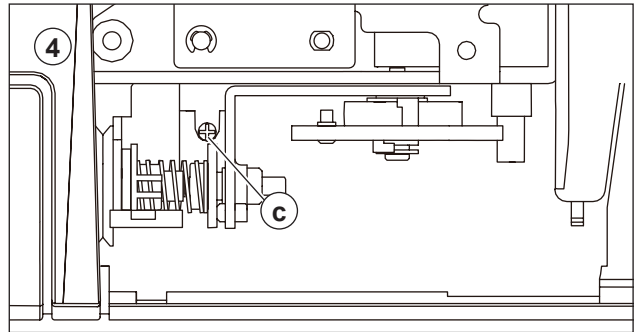
2. Replace the front enclosure so that the 4 hooks will fit into place.



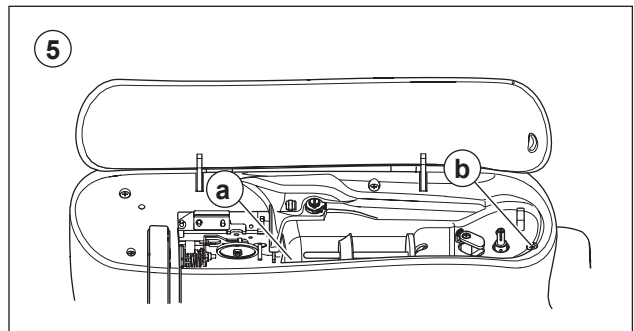
3. Replace the screw (d).



4. Replace the screw (c).



5. Replace the screw (a, b).

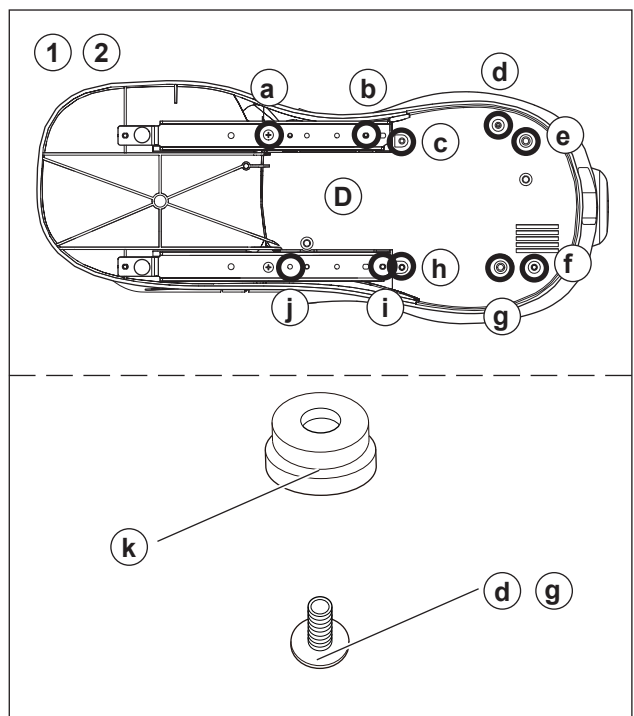


D. Base

1. Tilt the machine backward.
2. Replace the base and retighten the 10 base set screws (a-j).

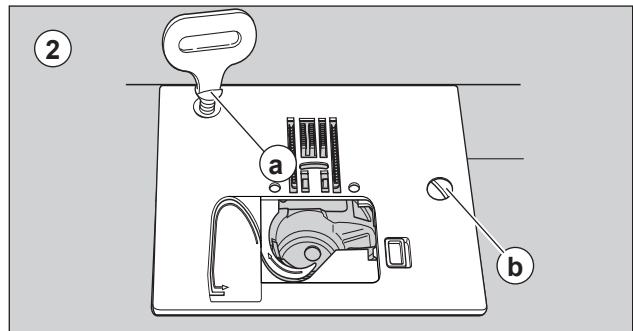
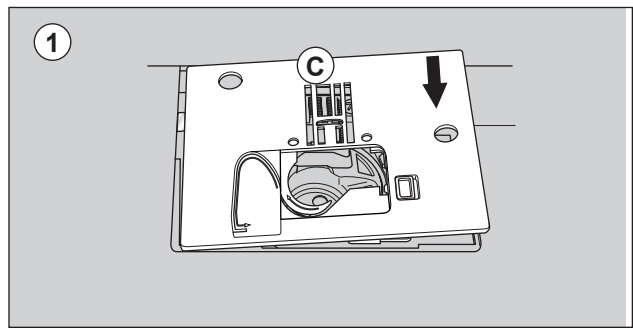
NOTE:

The 2 screws (d, g) have the rubber foot (k).



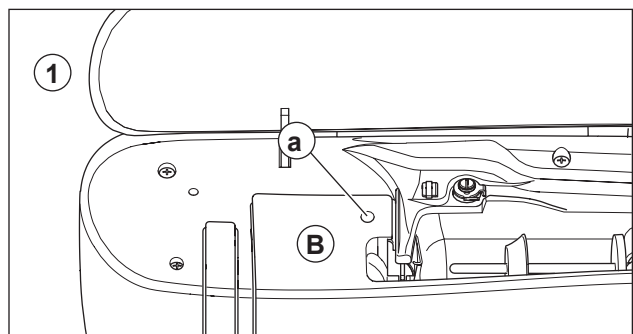
C. Needle Plate

1. Insert the hook of needle plate to the machine.
2. Retighten the screws (a, b).



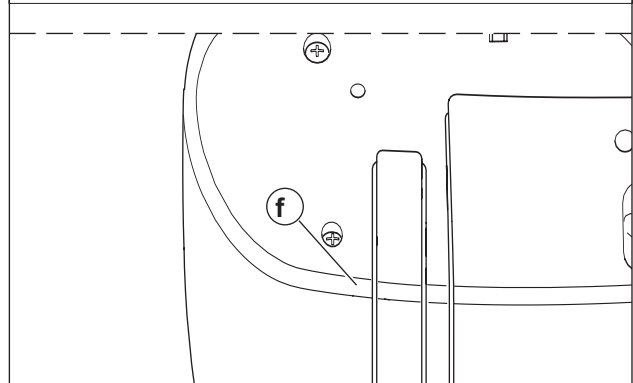
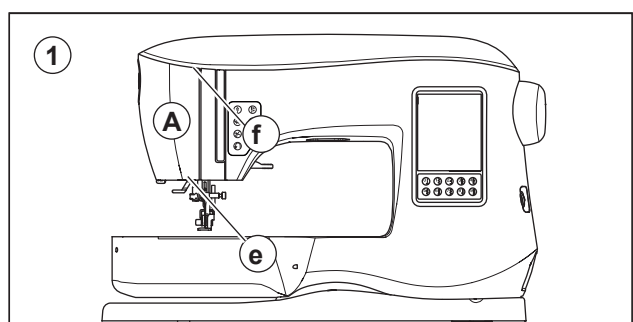
B. Thread Tension Cover

1. Remove the screw cap (a), remove the screw.
2. Remove the thread tension cover.

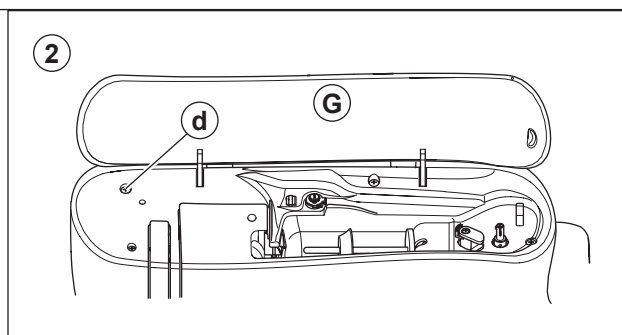


A. Light Cover

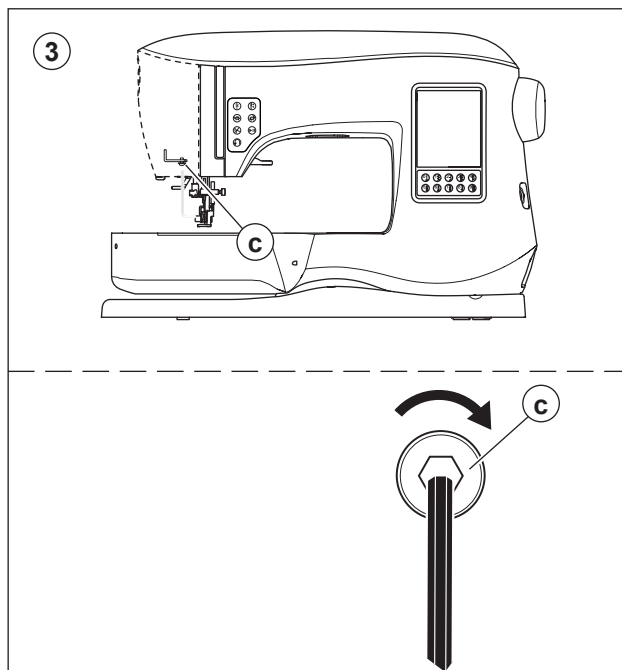
1. Replace the light cover so that the hook (f, e) will fit into place.



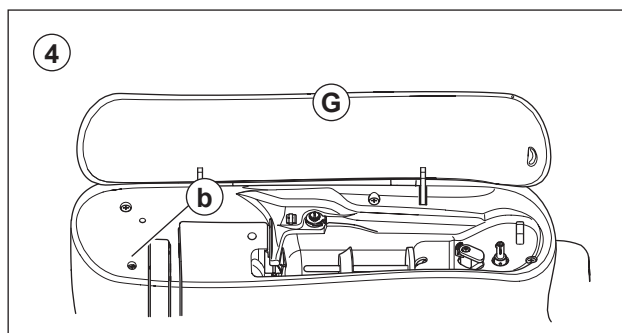
2. Retighten the screw (d).



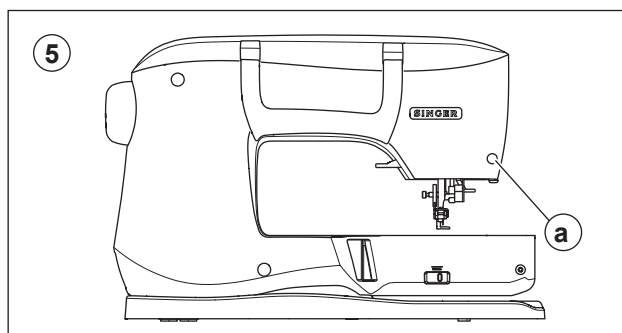
3. Retighten the screw (c).



4. Replace the screw (b).



5. Replace the screw (a).



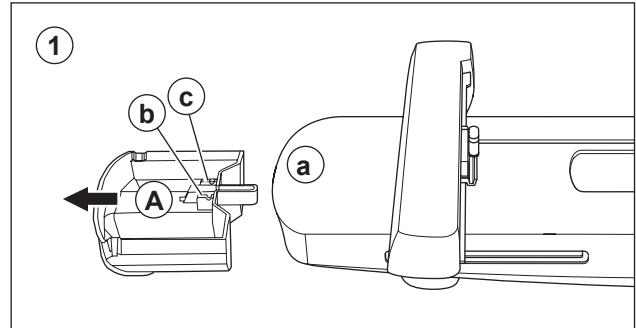
EMBROIDERY UNIT

REMOVING THE EXTERIOR PARTS

To remove the exterior parts, remove from A to D.

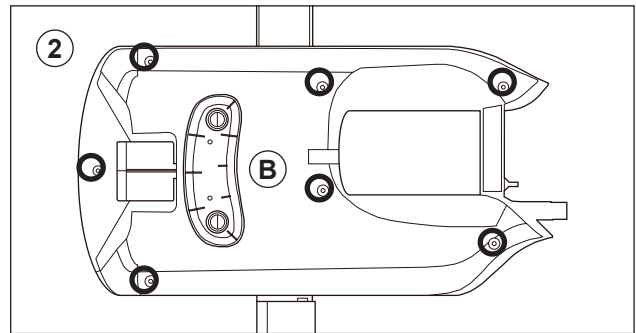
A. Drawer

1. Until stopping, pull the drawer and go to the order 2.
2. While pulling up upper side (a), pull the drawer to come off the hook-b,c. Remove the drawer.

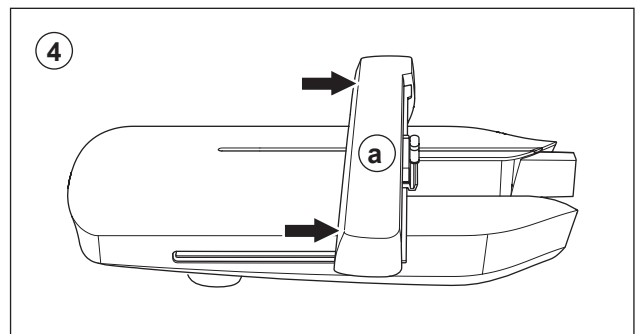


B. X top cover

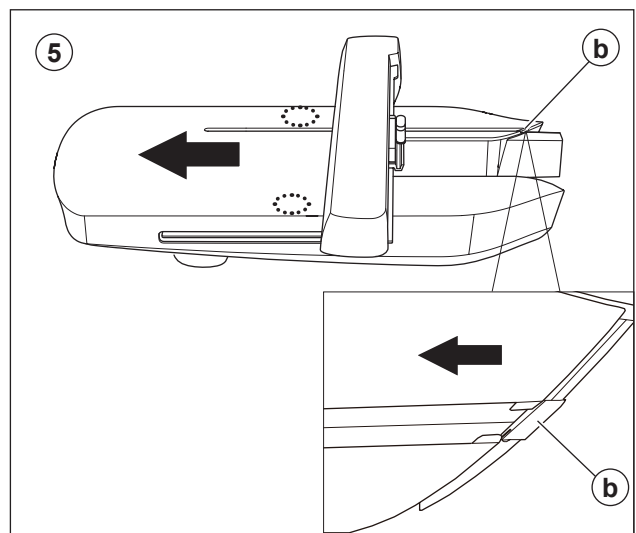
1. Turn the embroidery unit over. (reverse)
2. Remove the 7 screws.



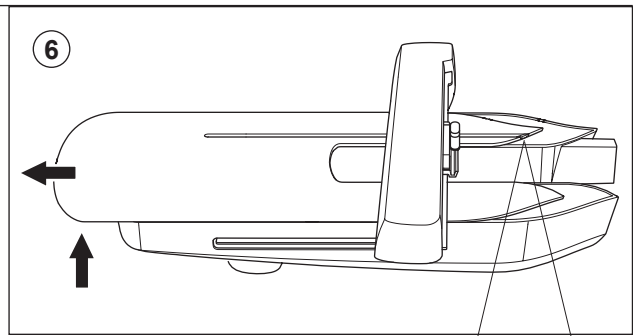
3. Turn the embroidery unit over. (obverse)
4. Push the carriage (a) all the way to the right.



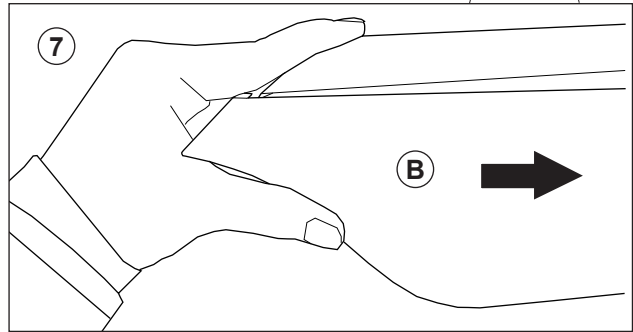
5. Slide the X top cover by pushing the marked position and come off the hook-b.



- Pull up the cover and slide it and pull it until stopping.

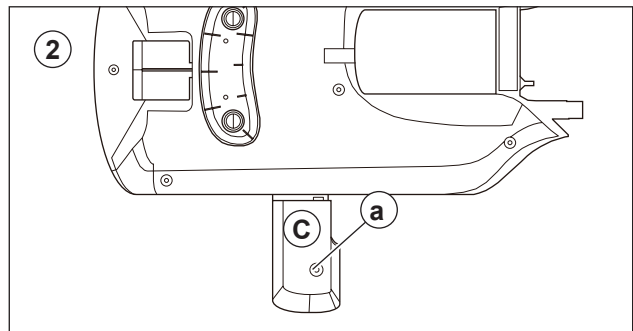


- Pick up with the fingers the edge of the cover, slide it, remove it.



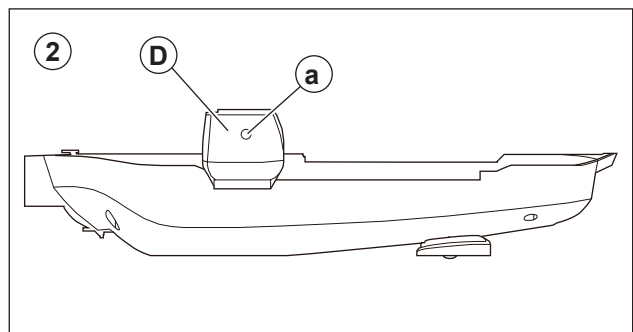
C. Y carriage cover B

- Turn the embroidery unit over. (reverse)
- Remove the screw (a).
- Remove the X carriage cover B.



D. Y carriage cover A

- Turn the embroidery unit over. (obverse)
- Loosen the screw (a).
- Pull up the front part of it (D).

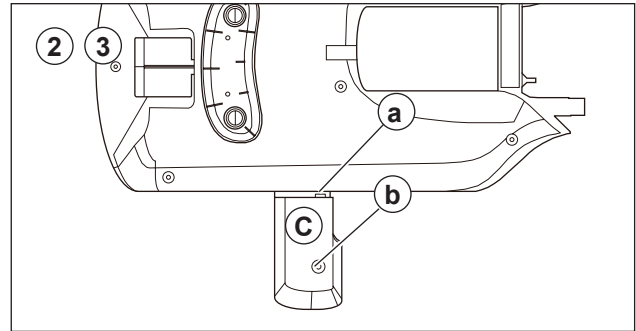


EMBROIDERY UNIT

REPLACING THE EXTERIOR PARTS

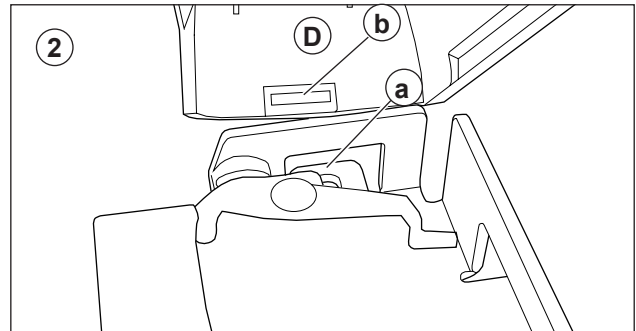
C. Y carriage cover B

1. Turn the embroidery unit over. (reverse)
2. The hook (a) will fit into place.
3. Tentatively tighten the screw (b).

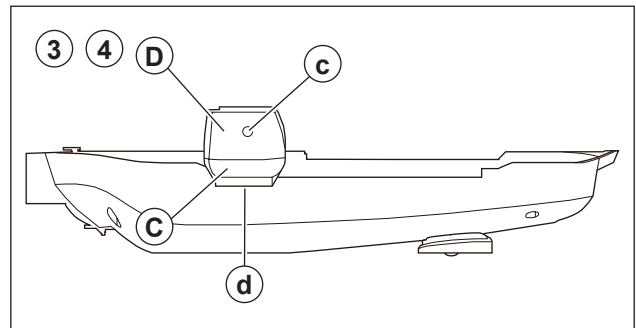


D. Y carriage cover A

1. Turn the embroidery unit over. (obverse)
2. The hook (a) will fit into place.

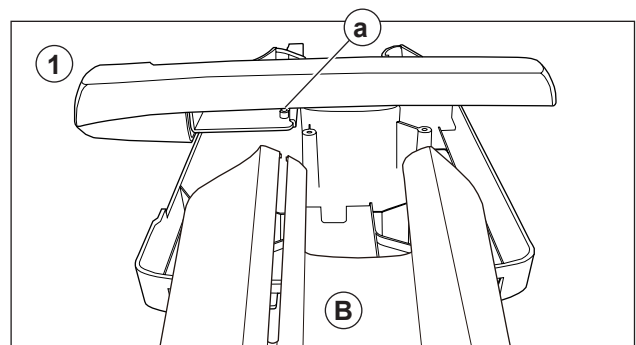


3. Replace the Y carriage cover A and replace the screw (c).
4. Retighten the screw (d) of Y carriage cover B.

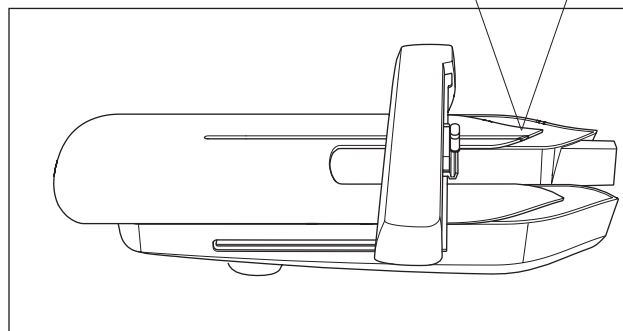
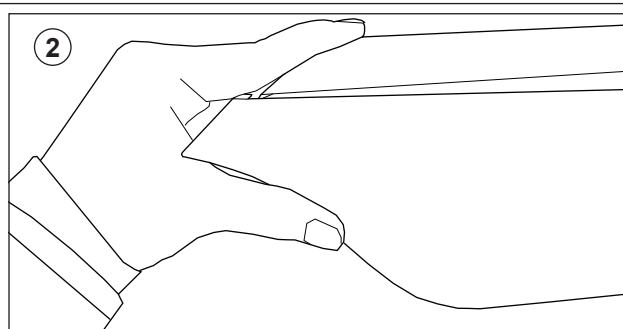


B. X top cover

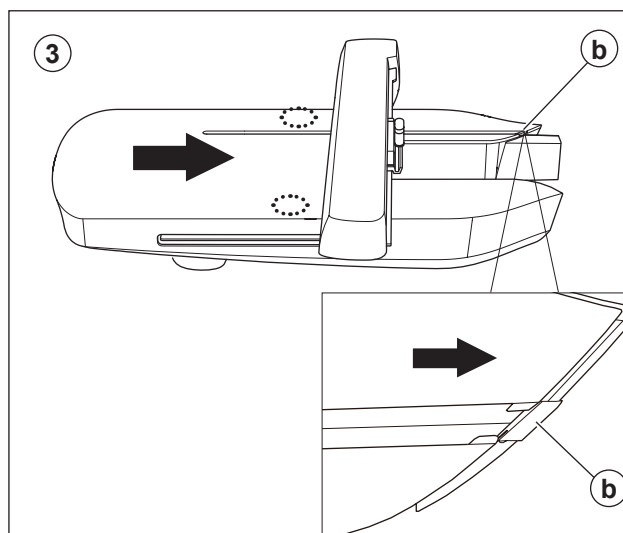
1. Insert X top cover in the depths under the carriage so that 2 black screws (a) go along the ditch of the X top cover until stopping.



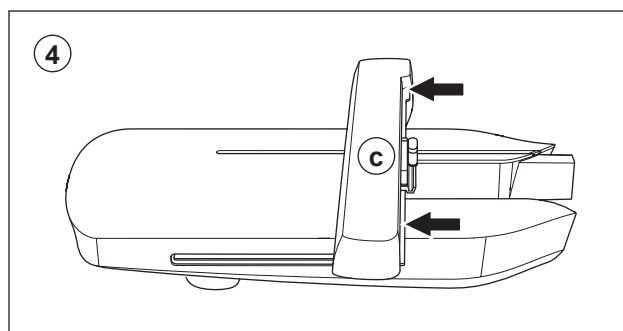
2. Pick up with the fingers the edge of the cover, slide it until stopping.



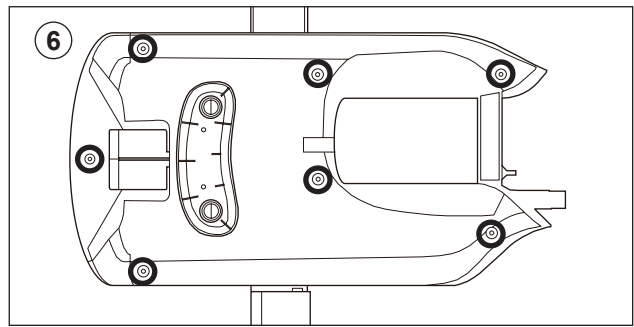
3. Slide the cover by pushing the position of the mark and The hook (b) will fit into place.



4. Push the carriage (c) to return the origin position.

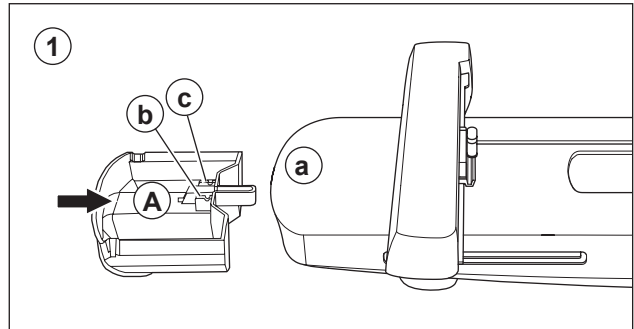


5. Turn the embroidery unit over. (reverse)
6. Replace the 7 screws.



A. Drawer

1. The hook (a,b) will fit into place by pulling upper side (a) and replace it.



Belt Tension of X, Y Carriage

If the belt tension of X, Y carriage is too loose, the step motor gear may spin out.

The belt is too tight, the carriage moves difficulty.

Check

1. Attach the embroidery unit to the machine and start the embroidery service program, Menu 2. (Page 29)
2. Test the belt. At this time each belt do not spin out and move smoothly.

If they are not good, adjust as follows.

Adjustment

1. Remove the covers.
2. Loosen the screw (a or b) on the tension pulley bracket.
3. Pulling the tension pulley bracket by 1.9-2.1kgf and tighten the screw.
4. Attach the covers.

