



ambition

1.0

1.5

essential

Service Manual

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Please note that on disposal, this product must be safely recycled in accordance with relevant National legislation relating to electrical/electronic products. If in doubt please contact your retailer for guidance.



Bitte beachten Sie, dass hinsichtlich der Entsorgung dieses Produkts, vorschriftsmäßig entsprechend der gültigen nationalen Gesetzgebung für elektrische/elektronische Produkte, recycelt werden muss. Bei Zweifel setzen Sie sich bitte mit Ihrem Fachhändler in Verbindung.



Veuillez noter qu'en cas de destruction, ce produit doit bénéficier d'un recyclage sécurisé, conforme à la législation nationale applicable aux produits électriques/électroniques. En cas de doute, veuillez contacter votre distributeur agréé.

- All casted parts within our products are marked with name of material if allowed by size.
- All molded plastic parts within our products are marked with name of material if allowed by size.

IMPORTANT SAFETY INSTRUCTIONS

When using an electrical appliance, basic safety precautions should always be followed, including the following:

Read all instructions before using this household Sewing machine.

DANGER – To reduce the risk of electric shock:

- A sewing machine should never be left unattended when plugged in. Always unplug this sewing machine from the electric outlet immediately after using and before cleaning.

WARNING – To reduce the risk of burns, fire, electric shock, or injury to person:

- Do not allow to be used as a toy. Close attention is necessary when this sewing machine is used by or near children or infirm persons.
- Use this sewing machine only for its intended use as described in this manual. Use only attachments recommended by the manufacturer as contained in this manual.
- Never operate this sewing machine if it has a damaged cord or plug, if it is not working properly, if it has been dropped or damaged, or dropped into water. Return the sewing machine to the nearest authorized dealer or service center for examination, repair, electrical or mechanical adjustment.
- Never operate the sewing machine with any air openings blocked. Keep ventilation openings of the sewing machine and foot controller free from the accumulation of lint, dust, and loose cloth.
- Keep fingers away from all moving parts. Special care is required around the sewing machine needle.
- Always use the proper needle plate. The wrong plate can cause the needle to break.
- Do not use bent needles.
- Do not pull or push fabric while stitching. It may deflect the needle causing it to break.
- Switch the sewing machine off ("0") when making any adjustment in the needle area, such as threading needle, changing needle, threading bobbin, or changing presser foot, etc.
- Always unplug sewing machine from the electrical outlet when removing covers, lubricating, or when making any other user servicing adjustments mentioned in the instruction manual.
- Never drop or insert any object into any opening.
- Do not use outdoors.
- Do not operate where aerosol (spray) products are being used or where oxygen is being administered.
- To disconnect, turn all controls to the off ("0") position, then remove plug from outlet.
- Do not unplug by pulling on cord. To unplug, grasp the plug, not the cord.
- Hold plug when rewinding into cord reel. Do not allow plug to whip when rewinding.
- This sewing machine is provided with double insulation. Use only identical replacement parts. See instructions for Servicing of Double-Insulated Appliances.

SAVE THESE INSTRUCTIONS

SERVICING OF DOUBLE INSULATED PRODUCTS

In a double-insulated product, two systems of insulation are provided instead of grounding. No ground means is provided on a double-insulated product, nor should a means for grounding be added to the product. Servicing of a double-insulated product requires extreme care and knowledge of the system, and should be done only by qualified service personnel. Replacement parts for a double-insulated product must be identical to those parts in the product. A double-insulated product is marked with the words 'DOUBLE INSULATION' or 'DOUBLE INSULATED'.

Directions for use

These service instructions are intended to be used by service workshop personnel, or by salesmen who carry out servicing in their own districts. They assume a thorough knowledge of the handling of precision appliances and accessibility to service tools.

The manual is divided into four sections and covers all service operations and checks which should be carried out when making a complete overhaul of a sewing machine.

The first section deals with the various settings which must be maintained to ensure that the machine functions satisfactorily. The second section covers the service program in the machine. The third section covers dismantling and mounting of the covers. The fourth section covers dismantling and mounting instructions.

The diagrams only give indication as to where the detail or mechanism is located in the machine. For more detailed information regarding the construction, etc., refer to the diagrams in the spare parts list.

ESD

ATTENTION!

It is of the utmost importance that precautions are being taken in order to avoid damage of the electronics by electro static discharges ESD (=Electro Static Discharge). To avoid that these errors arise it is important to handle loose circuit boards in a controlled way.

Always use wrist band 412 23 02-01 when servicing.



Service tools

A reasonable requirement in a domestic sewing machine is that it should be able to sew all types of fabrics used in the home. The settings made when assembling and sewing in the machines are those most suited to give the best results in the majority of fabrics and fabric combinations. In doing so, consideration has been given to the requirements of different markets. This does, however, mean that when sewing extreme fabrics, better results may be obtained in certain cases by altering the settings. It must be pointed out that these altered settings can cause poorer results on more normal fabrics. How the different standard ratings are set can be seen from the description under each setting instruction. The following list of setting gauges and service tools is intended as an instruction about the special service tools needed to servicing this machine.

1. On several different occasions the needle is used as a setting gauge. The setting ratings are adapted to needle 90. Make sure to use an undamaged needle.

2. Gauge for setting the timing of the hook in relation to the needle.

Ref. No 63-102600-18/000 Spacer

Ref. No 61-111600-02/000 Feeler gauge 2.3

Ref. No 413 10 22 - 01 Needle clamp

3. Gauge for the feed dog lift.

Ref. No 63-112 120 08/000

4. Gauge for the needle height.

Ref. No 412 35 29-03

5. Allen key 2.5 mm

Ref. No 411 86 01-01

6. Allen key 2 mm

Ref. No 411 86 00-01

7. Allen key 1.5 mm

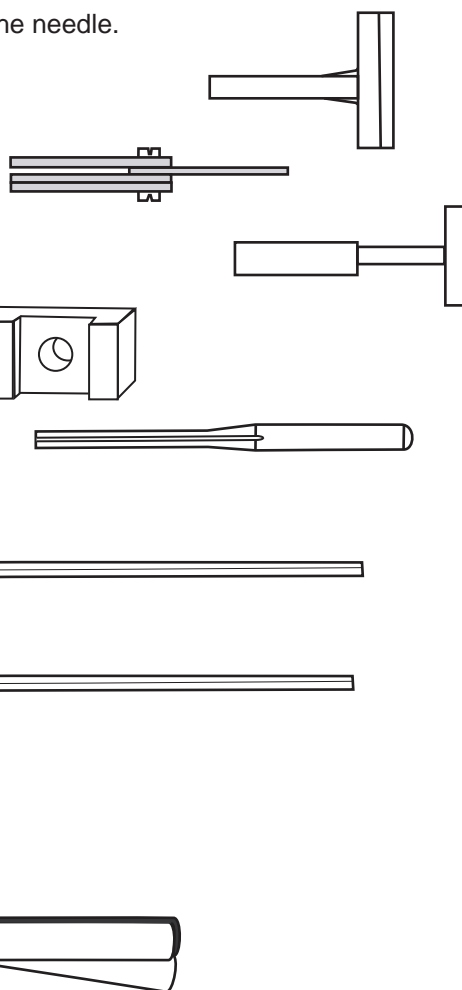
Ref. No 411 66 89-01

8. Allen key 4 mm

Ref. No 74-33006-27/000

8. Distance gauge 0.05-1.00 mm

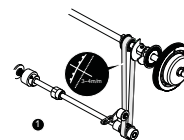
Ref: No. 412 38 85-01



Settings - Quick reference

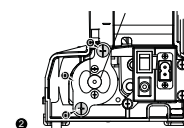
1. Belt tension, drive belt

The belt tension shall be adjusted by re-position tensioning roller by push it up or down until it is a firm belt tension.



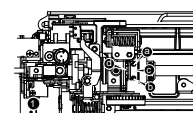
2. Belt tension, motor belt

Move the motor unit (b) until a correct belt tension is obtained.



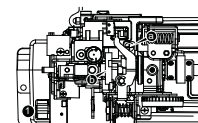
3. Upper shaft axial play

No lateral play between main shaft collar and bushing and main shaft should rotate smoothly. Screws (a, b) used for adjustment.



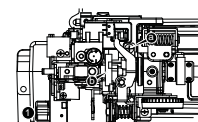
4. Take up lever

When turning the hand wheel no noise should appear in the thread take up lever.



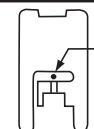
5. Timing of the Feeding in relation to the needle

When is in its needle lowest point. The feed lifting rock cam (a) and the screw (b) of feed rock cam (c) should now be parallel.



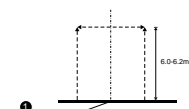
6. Setting the needle in centre position

The needle should always get to the centre position, when the main switch is turned.



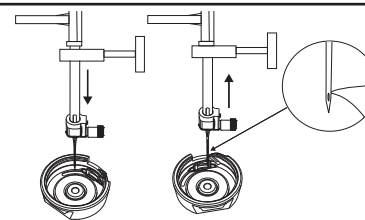
7. Zigzag movement of the needle adjustment

On Zig-zag 4x7 mm and while turn the hand wheel to move the needle bar upward. The vertical distance in which the needle point goes up until it swings over to the right side should be 6.0~6.2mm.



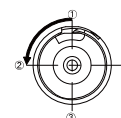
8. The timing of the hook in relation to the needle

When the needle is in its centre position and the needle is moving upwards, the tip of the hook should pass behind the centre of the needle, when the needle is 2.3 mm above its lower turning position.



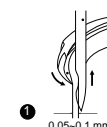
9. The play of the hook gear

It is impossible to obtain an equally large play in one rotation of the cog wheel, but it should be as small as possible at the tightest spot during the revolution.



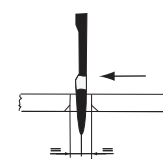
10. The gap between the needle and the hook

The gap should be as small as possible, but max 0.15 mm - Straight stitch 2.5 mm.

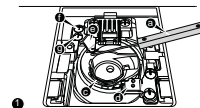


11. Setting the needle plate (the hook cover) in relation to the needle in the feeding direction.

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

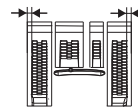


12. Setting the bobbin stop to the bobbin.



13. Setting the feed dog in relation to the needle plate

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



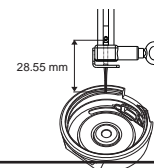
14. Feed dog height

When Feed dog teeth are in its highest position they should be 0.9-1.05 mm above the needle plate.



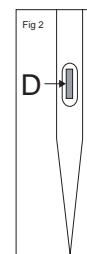
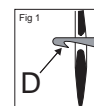
15. The needle bar height

When the needle bar is in its lower turning position the distance between the upper end of the needle and the surface (B) of the hook ring should be 28.55 (+ 0.2 mm).



16. Threading device

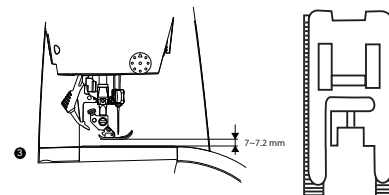
With a new # 70 needle the threader hook should go smoothly into the needle eye.



17. Presser foot height and parallelism to the needle plate

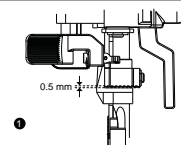
When the presser foot is in its highest lifting position it shall be approx. 7-7.2 mm above the needle plate.

The presser foot should be parallel to the feed dog.



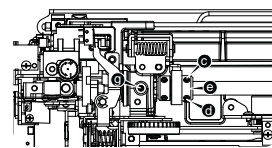
18. Height of presser bar's guide piece

The gap between presser bar and guide piece should be around 0.5 mm.

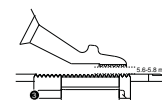


19. Setting the IDT excenter

Check position of feed cam marking (a) with marking on arm shaft and screw.

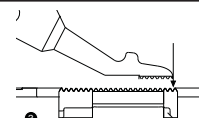


20. Adjustment of the IDT foot - height.



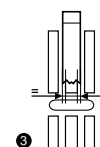
21. Adjustment of the IDT foot - feeding position

The front edge of the IDT foot must be between the first and second tooth of the centre row of the feed dog.



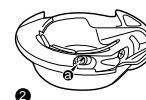
22. Setting IDT foot sideways

The front edge of the IDT foot must be in the middle of the center feed dog.



23. Lower thread tension (thread tension of the bobbin case)

The thread tension spring of the bobbin case shall give a resistance of 10-14 g when pulling the thread slowly, using normal polyester thread.



24. Upper thread tension

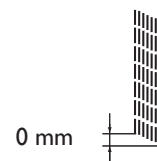
When the thread tension dial is set at 4 a correct take-up should be obtained at straight stitching and zig-zag using normal cotton fabrics and polyester thread.

But It should be around 70-80 Gram , if the bobbin tension is set correctly.

25 and 26. Stitch length balance

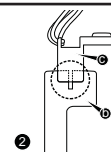
The darning stitch shall look according to illustration.

Use Service mending stitch in menu 4 key.



27. BH photo sensor position adjustment

The BH lever crank (b) and the photo sensor's (c) blocking movement should be set in the middle.



28. Adjustment of bobbin winding

When winding up the lower thread onto the bobbin the machine should wind even.

29. Adjustment of bobbin winder stop

When winding up the lower thread onto the bobbin the machine should stop when there is a min. of 1 mm between the edge of the bobbin and the thread.



1. Belt tension - drive belt

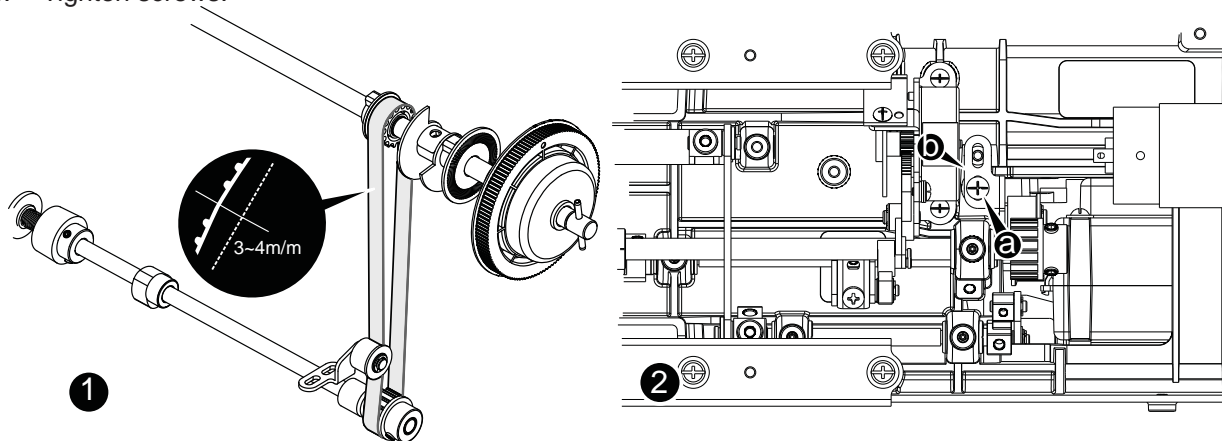
Check

The flat-toothed belt must be set so that the sewing hook has no play in its rotating direction, but it must be possible to turn the machine easily.

1. Press lightly against middle of flat-toothed belt.
2. The belt must move 3 to 4 mm.

Adjustment:

1. Remove the base plate
2. Loosen screws (A) and (B).
3. Re-position tensioning roller by push it up or down.
4. Tighten screws.



2. Motor Belt tension

Too tight or too loose motor belt tension can cause belt noise.

Too tight motor belt tension can make the machine to run slow and overload the motor.

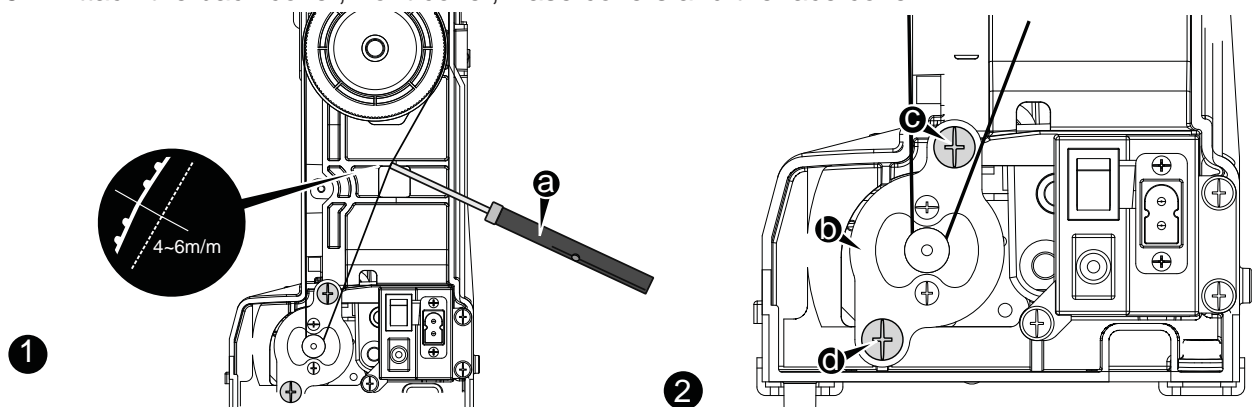
Too loose motor belt tension may cause jumping of the belt teeth on the motor pulley.

Check

When pushing the motor belt with 200 grams load the deflection of the motor belt should be 4~6 mm.

Adjustment

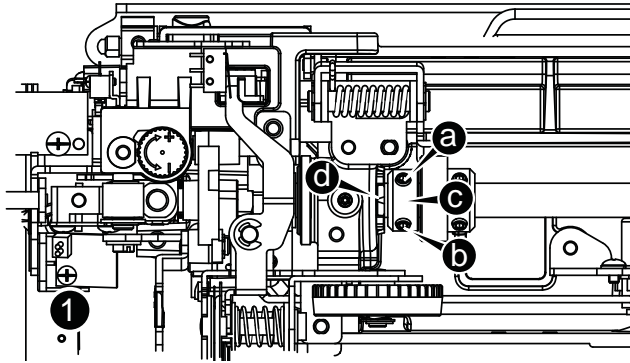
1. Remove the base cover, face cover, front cover and back cover.
2. Loosen the screws (c, d) of adjusting plate (b).
3. Move the motor
 - up, the belt will become loosen;
 - down, it will become more tighter.
4. Tighten the set screw (c).
5. Attach the back cover, front cover, Base covers and the face cover.



3. Upper shaft axial play

Check

The axial play of the arm shaft should not be larger than 0.05 mm.



Adjustment

1. Remove the face plate and top cover.
2. Loosen 2 screws (a, b) on main shaft collar (c).
3. Pull hand wheel to the right.
4. Push main shaft collar (c) to the left against main shaft bushing (d), and tighten screws (a, b) .
5. Make sure there is no lateral play between main shaft collar and bushing.
6. Make sure main shaft rotates smoothly after adjustment. No hard spot or bind allowed.
7. If rotation of shaft is too tight, loosen screws (a, b) and proceed as per above step 3-4.

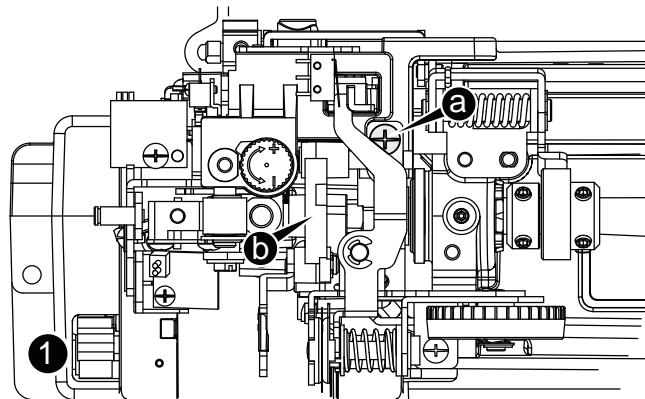
4. Take up lever

Check

When turning the hand wheel no noise should appear in the thread take up lever. If is too tight, it will be difficult to turn the hand wheel. If is too loose, it will make noise while turning the hand wheel.

Adjustment

1. Remove face plate and top cover.
2. Loosen the screw (a).
3. Adjust thread take up lever(b) by pushing lever support to the right to remove excess play and tighten the screw (a).
4. Turn handwheel in sewing direction to check for noise and movement.
5. If adjustment is too tight or too loose, proceed as per above step



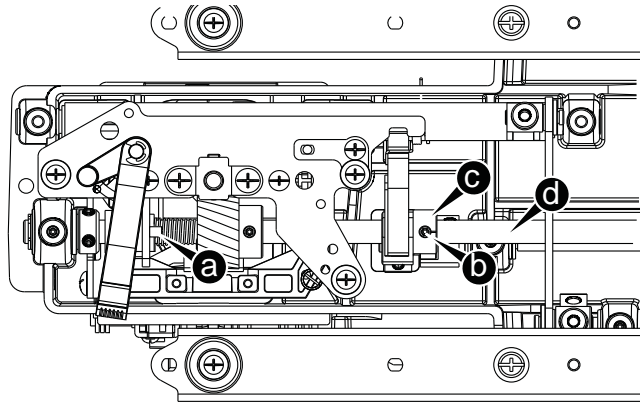
5. Timing of the Feeding in relation to the needle

Check

1. Remove all covers.
2. Turn the hand wheel so the needle comes to its lowest point.
3. The feed lifting rock cam (a) and the screw (b) of feed rock cam (c) should now be parallel.

Adjustment

1. Turn the hand wheel to make the needle comes to its lowest point.
2. Loosen the screw (b) of feed rock cam (c) adjust the screw position to move the eccentric until its parallel with the feed lifting rock cam (a).

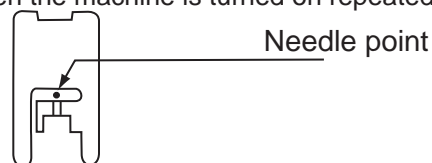


6. Setting the needle in centre position

NOTE! ONLY FOR AMBITION 1.0- 1.5

Check 1

1. Insert a new needle size 90 universal in the machine.
2. The needle should always go to the centre position, when the machine is turned on repeatedly.



Check 2 - using Service program

1. Go to the service program of the machine.
2. In Menu 1 Press Center needle pos.
 - The needle should always go to its centre position in the #OA presser foot

1. Needle left/Sensor position
2. Center pos needle
3. Needle right



Check 3 - Basic position of Zigzag sensor

1. Go to the service program of the machine.
2. In Menu Press Needle left/Sensor Position
 - The sensor wheel takes its setting position, the square should be black.

4. Feed max forward
5. Zero feed
6. Feed max backward
7. Feed sensor position



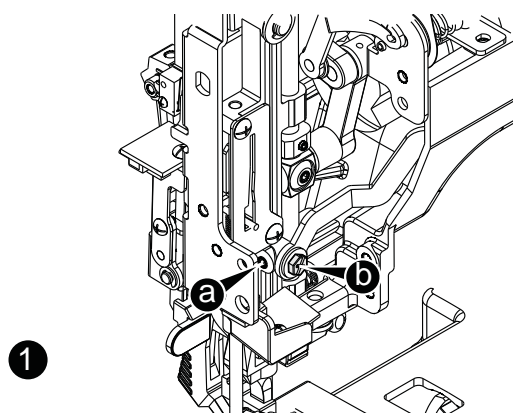
Adjustment - basic position of needle step motor

NOTE! To set the Basic position, the covers must be removed. The front cover should be used as a service panel and should stand on the side of the machine and the cables between the cover and pc board must be connected.

1. Go to the service program of the machine.
2. In Menu 1 Press Needle left/Sensor Position , step motor now goes to its electronic setting position for the needle step motor.
3. Loosen the Hexagon 1.5 screw (E) in the cog wheel (D) on the step motor shaft.
4. Use the screw driver and turn the cog wheel until the square turns to black and stays black.
5. Tighten the Hexagon 1.5 screw (E).
6. Check the setting in Menu 1 by pressing Center needle pos. Then press Needle left/Sensor Position again and the square should return to black.
7. If not re-do from point 3.

Adjustment - needle position on sewing head

1. Remove the face plate and the LED light at the sewing head.
2. Go to the service program of the machine.
3. In Menu1 - press Center needle pos.
4. Loosen screw (a) of needle bar driving rod pin (b). (1)
5. Adjust needle bar driving rod pin (b) position, clockwise needle will turn left, counter clockwise needle will turn right.



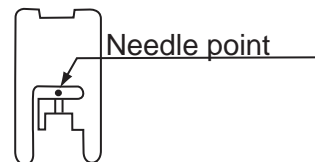
6. Setting the needle in centre position



NOTE! ONLY FOR AMBITION ESSENTIAL

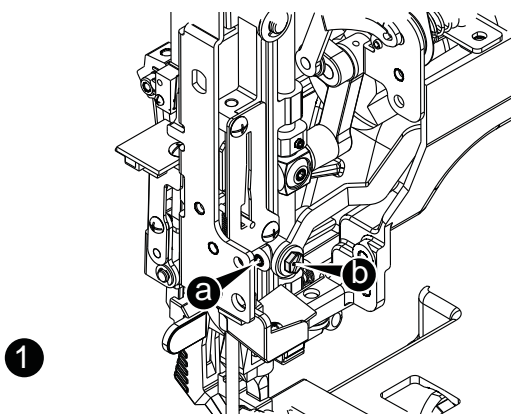
Check 1

1. Insert a new needle size 90 universal in the machine.
2. The needle should always go its to the centre position, when the machine is turned on repeatedly.

Adjustment - needle position



1. Press the "  " button to " **Direct** " mode on front cover.
2. Choose the pattern No 0 "  ".
3. Turn the handwheel until the needle is in the center of the needle hole.
4. Remove the face plate.
5. Loosen screw (a) of needle bar driving rod pin (b). (1)
6. Adjust needle bar position by turning screw (b) clockwise or counterclockwise to get proper setting. (1)
7. Make sure needle position is in center of needle plate hole. Tighten screw (a). (1, 2)

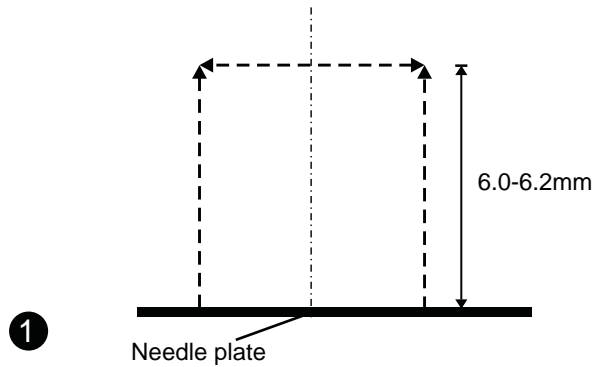


7. Zigzag movement of the needle adjustment

NOTE! ONLY FOR AMBITION 1.0- 1.5

Check

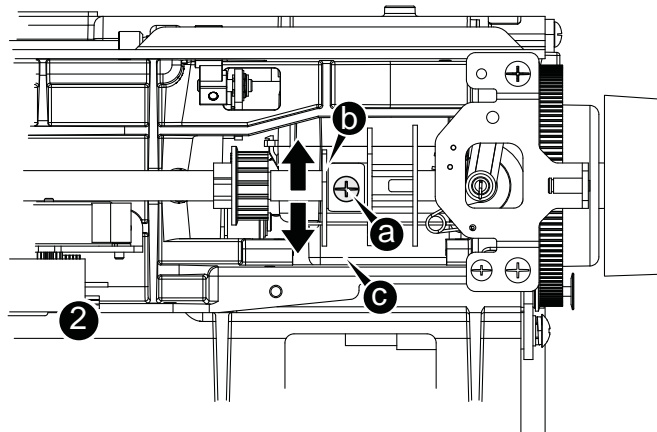
1. Go to service program , Menu 3 choose the No 4 Zig-zag 4x7 mm.
2. Set needle bar at its lowest point when it swings to left.
3. Turn the hand wheel to move the needle bar upward. The vertical distance in which the needle point goes up until it swings over to the right side should be 6.0~6.2mm. (1)



Adjustment

1. Remove the face plate and top cover.
2. Go to the service program of the machine.
3. Go to Menu 3 choose the No 4 Zig-zag 4x7 mm.
4. Set needle bar at its lowest point when it swings to left.
5. Turn the hand wheel to move the needle bar upward. The vertical distance in which the needle point goes up until it swings over to the right side should be 6.0~6.2mm. (1)
6. If needle flow is less than 6.0 mm, loosen the screw of rotary sensor collar (a), and turn rotary sensor collar (b) toward back. (2)

If needle flow is more than 6.2 mm, turn rotary sensor collar (b) toward front. (2). Tighten the screw (a) after making sure the needle flow is between 6.0 mm to 6.2 mm.





NOTE! Check that the rotary sensor collar (a) not is touching photo sensor's (c).

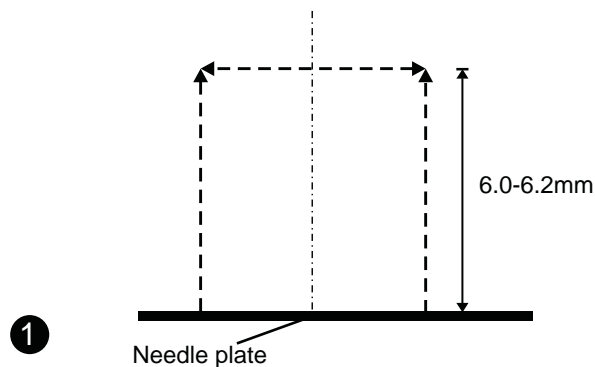
7. Zigzag movement of the needle adjustment

NOTE! ONLY FOR AMBITION ESSENTIAL



Check

1. Press the "  " button to "Direct" mode on front cover.
2. Choose the pattern No 2 "  " for zigzag stitch and width of 7 mm.
3. Set needle bar at its lowest point when it swings to left.
4. Turn the hand wheel to move the needle bar upward.

The vertical distance in which the needle point goes up until it swings over to the right side should be .0~6.2mm. (1)

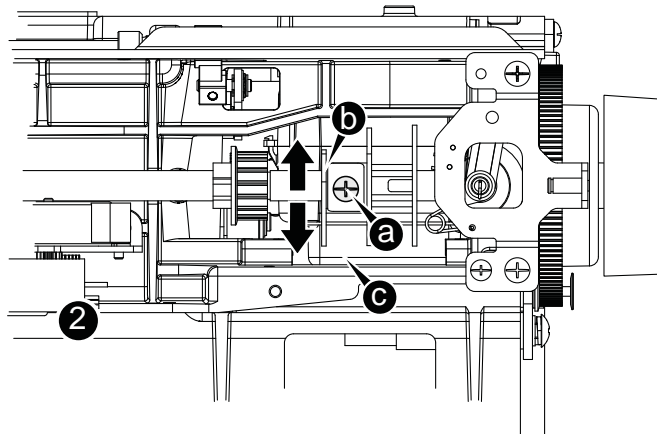


Adjustment

1. Remove the face plate and top cover.
2. Press the "  " button to "Direct" mode on front cover.
3. Choose the pattern No 2 "  " for zigzag stitch and width of 7 mm.
4. Turn the hand wheel to move the needle bar upward. The vertical distance in which the needle point goes up until it swings over to the right side should be 6.0~6.2mm. (1)
6. If needle flow is less than 6.0 mm, loosen the screw of rotary sensor collar (a), and turn rotary sensor collar (b) toward back. (2)

If needle flow is more than 6.2 mm, turn rotary sensor collar (b) toward front. (2)

Tighten the screw (a) after making sure the needle flow is between 6.0 mm to 6.2 mm.



NOTE! Check that the rotary sensor collar (a) not is touching photo sensor's (c).

8. The timing of the hook in relation to the needle

Check

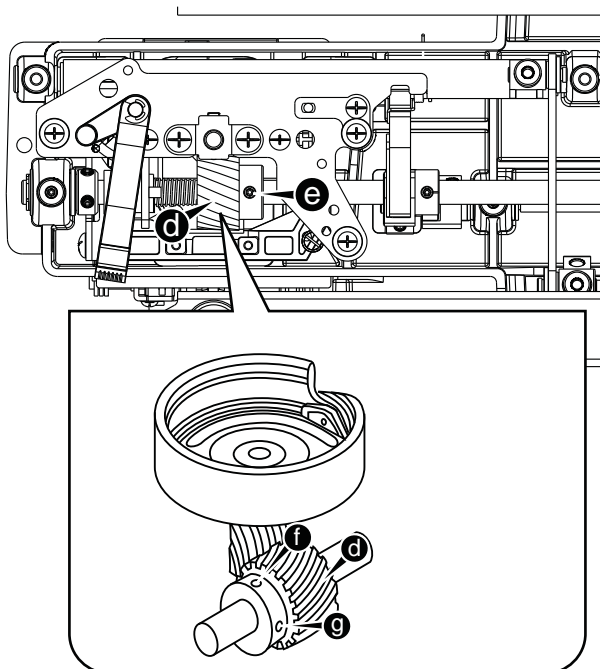
- Set a new needle size 90 universal into the machine.
- Remove the needle plate, bobbin case holder and the bobbin case.
- Set machine on straight stitching.
- As the needle is moving upwards, the tip of the hook should pass behind the centre of the needle, when the needle is 2.3 mm above its lower turning position.

NOTE! Before any adjustment is done check that the setting "4. Setting the hook in relation to the feeding eccentric" is correct.

Check with setting gauge,

Ref. No:	63-102600-18/000	Spacer,
Ref. No:	413 10 22-01	Needle clamp
Ref No:	61-111600-02/000	Feeler gauge 2.3 mm

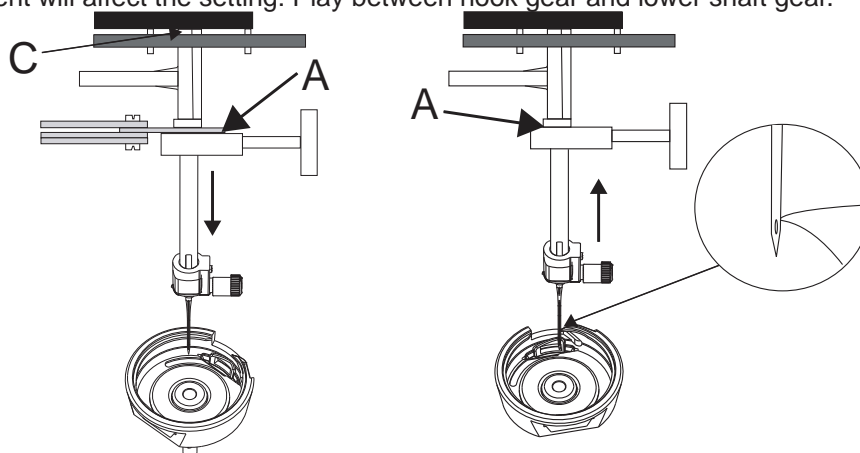
1. Set the machine so the needle is in its centre position against the #OA presserfoot.
2. Turn the hand wheel until the needle is at its lower turning position.
3. Put the spacer onto the needle bar and push it upwards against the needle bar frame (C).
4. Take then the timing clamp and put it on the needle bar and tighten its screw lightly.
5. Take the 2.3 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 2.3 mm feeler gauge.
9. Turn the hand wheel, in the sewing direction, until the timing clamp stops against the spacer (A).
10. The tip of the hook should now be behind the centre line of the needle.



Adjustment

1. Loosen up Screws (e,f,g) on the lower shaft (d).
2. Make sure that the feed dog is in its down stroke position.
3. Repeat checking points 1 to 9 with the setting gauges.
4. Hold the arm shaft and turn the hook until its tip arrives behind the centre line of the needle.
5. Hold the hook in position with the left hand and tighten one of the screws (e,f,g).
6. Check.
7. Tighten all the screws (e,f,g).

This adjustment will affect the setting: Play between hook gear and lower shaft gear.

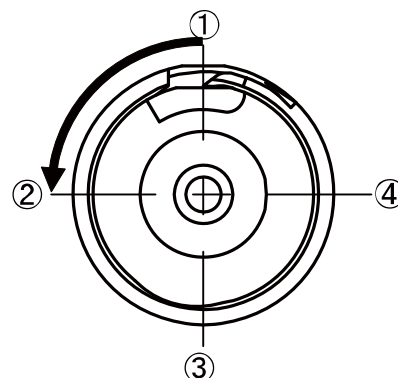


9. Play between Hook gear and lower shaft gear

It is impossible to obtain an equally large play in one rotation of the cog wheel, but it should be as small as possible at the tightest spot during the revolution.

Check

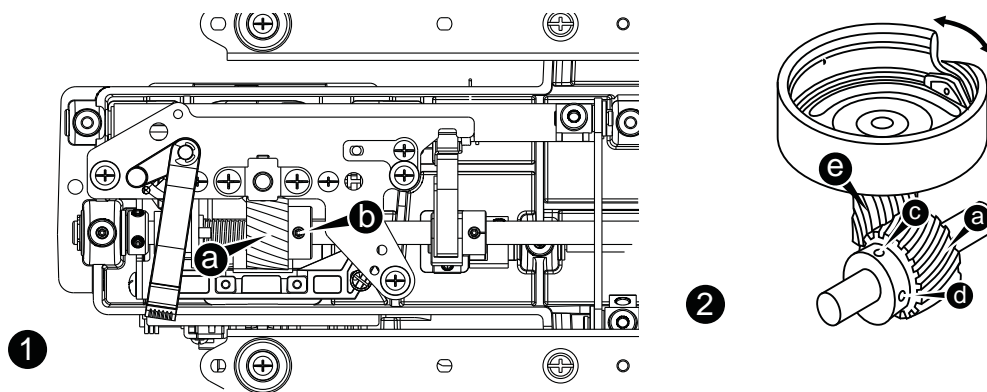
1. Move the cog wheel with the hand wheel and check play of the gears at 4 positions – at each 90 degree angle.
2. At each position - rotate the hook back and forth with the finger tip to check the play.
 - a play should be found in all different positions.
 - a small play (max 0.5) should be found on one position.



Adjust

1. Remove free arm cover and needle plate.
2. Remove the bobbincase.
3. Loosen the three screws (b,c,d) on the lower shaft gear (A),
4. Move the lower shaft gear (A) right or left to change the axial play.
4. The maximum axial play of the hook should be within 0.5 mm in one position.
5. When a good play is obtained, tighten the three screws(b,c,d)

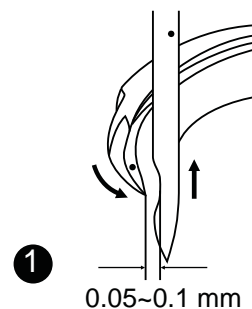
NOTE! This adjustment will affect the setting: Timing of needle and hook.



10. The gap between the needle and the hook

Check

1. Choose the pattern #1, straight stitch
2. Insert a new needle size 90 universal in the machine.
3. Remove the bobbin case.
4. Rotate hand wheel until the tip of the hook arrives behind the needle, see III 1
5. Check the gap by pressing a small screw driver against the needle.
The gap should be as small as possible, but max 0.1 mm.

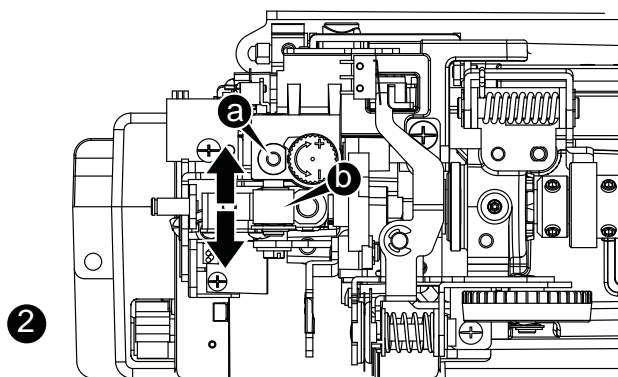


Adjustment

If the gap is incorrect:

1. Loosen the screw (a). Use an Allen key 1.5mm.
2. Push the needle bar supporter (b).
 - Backward, the space will become larger.
 - Frontward, the space will become smaller.
3. Tighten the screw (a).

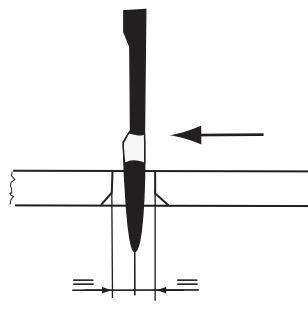
NOTE! This adjustment affects : Setting the needle plate in relation to the needle in the feeding direction.



11. Setting the needle plate in relation to the needle in the feeding direction.

Check

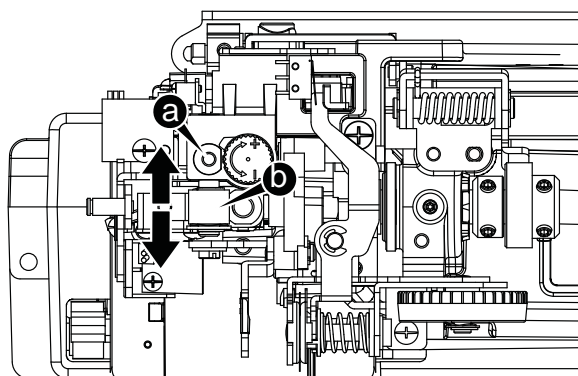
1. Insert a new needle size 90 universal in the machine.
2. Set the needle so the needle eye is just above the needle plate.
3. In the feeding direction the needle should descend right into the middle of the needle hole of the needle plate.



Adjustment

1. Remove the face plate and top cover.
2. Go to the service program of the machine.
3. In Menu 1 choose the No 2 Center pos needle.
4. Set the needle so the eye of the needle is just above the needle plate.
5. Loosen the 2 mm allen screw (a) of needle bar supporter (b).
6. Turn needle bar supporter (b) forward / backward to adjust needle.
Backward - to move needle forward.
Forward - to move needle backward.
7. Set the point of needle so it passes through the centre of the needle hole in the needle plate.
8. Tighten the 2 mm allen screw (a) of needle bar supporter (b).

NOTE! This Adjustment affects the "The gap between the needle and the hook".



12. Setting the bobbin stop to the bobbin

Remove the needle plate.

Back bobbin stop III 1:

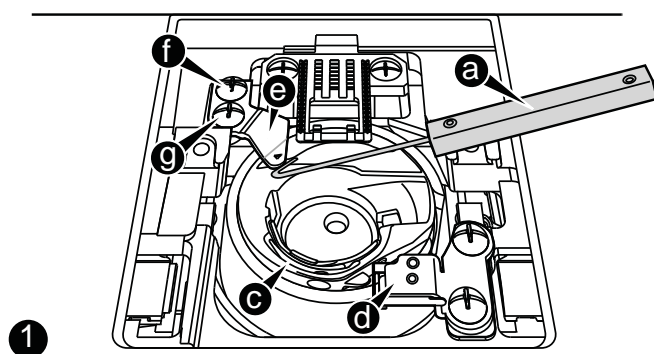
Check

1. Turn the hand wheel counter-clockwise, the shuttle hook (c) will move towards rotary hook plate (d), and generate a distance between the shuttle hook (c) and the rotary hook plate (e).
2. Using the distance gauge to test the play, the distance should be 0.3-0.5 mm.

Adjustment

If the play is incorrect, loosen 2 screws (f, g) and adjust the plate to the proper position.

Retighten the screws.



Front bobbin stop ill 2:

Check

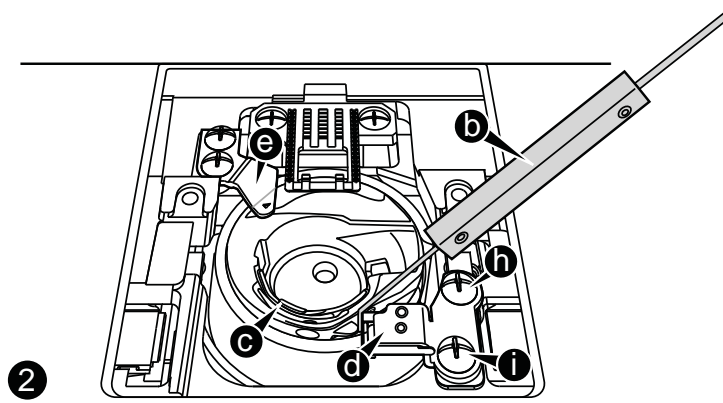
Turn the hand wheel clockwise, the shuttle hook (c) will move towards rotary hook plate (e), and generate the play between the shuttle hook and the rotary hook plate (d).

Use the distance gauge to check the play, the distance should be 0.6-1.0 mm.

Adjustment

If the play is incorrect, loosen the 2 screws (h, i) of rotary hook plate (d) and adjust the plate to the proper position.

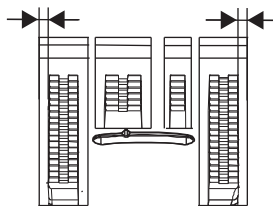
Re-tighten the screws (h,i).



13. Setting the feed dog in relation to the needle plate

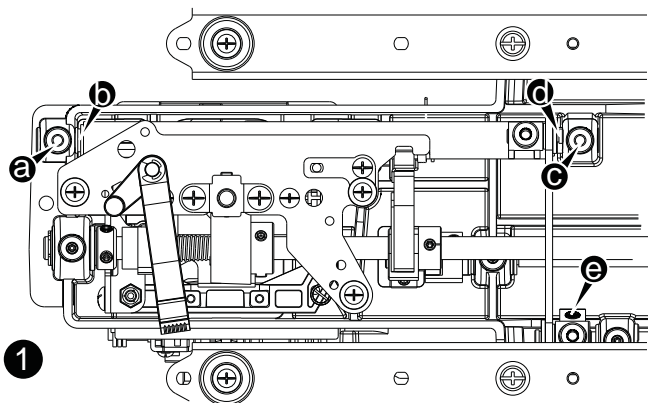
Check

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



Adjustment

1. Remove the free arm cover, base plate and extension cover.
2. Loosen the screw (a) of the feed crank shaft (b).
3. Loosen the screw (c) of the feed crank shaft (d).
4. Loosen up the screw (e) of the IDT link.
5. Move the feeding unit sideways until the feed dog teeth is centered in the needle plate slot.
6. Tighten screw (a) to fix the left side of feed crank shaft (b).
7. Push right side feed crank shaft (d) to left and fasten the screw (c).
8. Re check the position of feed-dog in relation to the needle plate (left to right)
9. Tighten screw (e) of the IDT link.

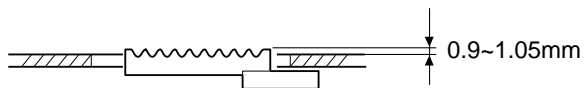


14. Feed dog height

Check

1. Bring the feed dog to its highest position.
2. The top of the feed dog should be 0.9-1.05 mm above the needle plate.

Check with setting gauge 63-112 120 08/000



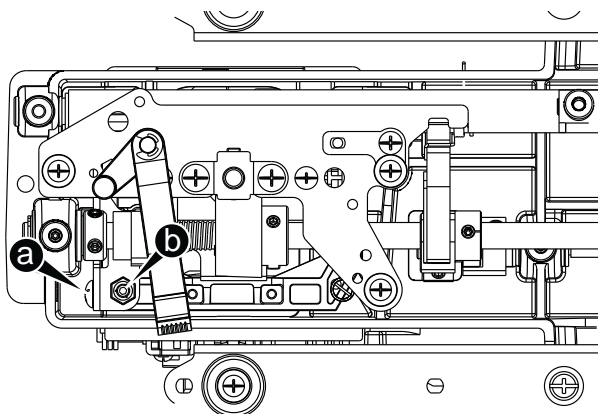
Adjustment

1. Bring the feed dog to its highest position.
2. Remove the lower free arm cover.
3. Loosen the nut (a).
4. Turn the adjusting screw (b) so that the feed dog becomes between 0,9 mm to 1.05 mm above the needle plate.

Turn clockwise = the feed dog will be raised.

Turn Counter-clockwise = the feed dog will be lowered.

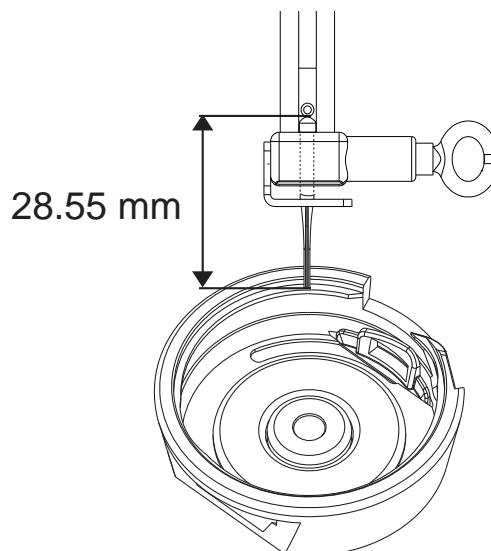
5. Tighten the nut (a).
6. Attach the lower free arm cover.



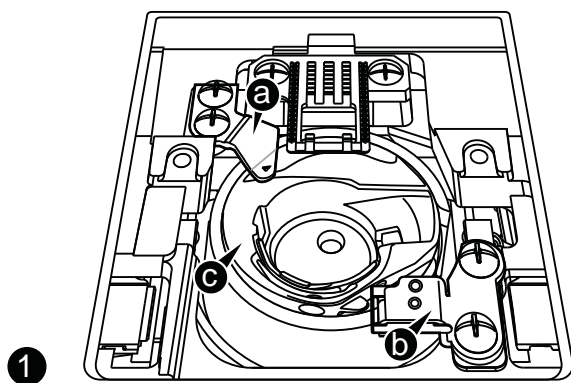
15. The needle bar height

Check

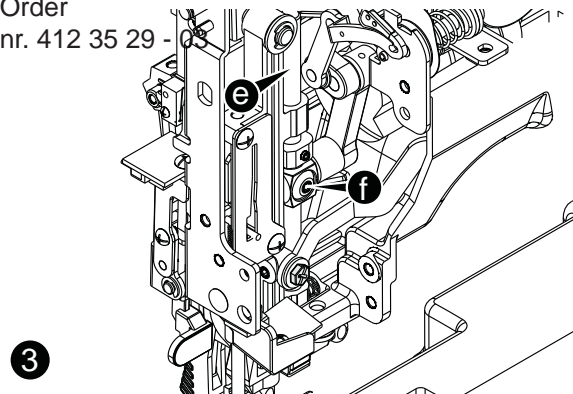
1. Remove face plate, needle plate and bobbin case.
2. Put in the setting needle (412 35 29 - 03).
3. The needle shall be in its centre position, straight stitching.
4. Remove the screws of rotary hook plate (a, b) and rotary hook plate.
5. Remove the bobbin case (c).
6. Bring the needle bar to its lower turning position.
7. The gap between the upper end of the needle and the surface (B) of the hook ring should be 28.55 (+ 0.2 mm).



The check is executed with needle bar height gauge which is 28.55 mm long.

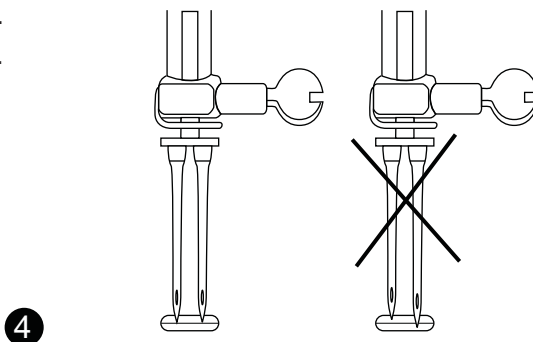


Order
nr. 412 35 29 - 03



Adjustment

1. Remove face plate, needle plate and bobbin case.
2. Put in the setting needle (412 35 29 - 03)
3. The needle shall be in its centre position, straight stitching.
4. Remove the screws of rotary hook plate (a, b) and rotary hook plate,
5. Remove the bobbin case (c).
6. Bring the needle bar to its lower turning position.
7. Loosen the screw (f) and move the needle bar (e) until the correct measure is obtained.
8. Tighten the screw (f).
9. Re check the setting.



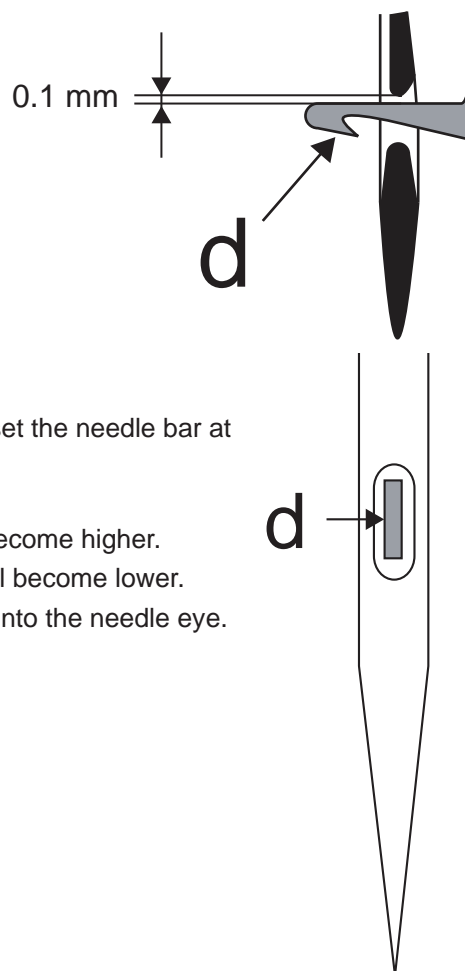
NOTE! Check by means of a twin needle that the needle bar is not twisted, it may cause jump stitches when sewing with a twin needle.

16. Threading device

Check

1. Insert a new # 70 needle.
2. Bring the needle bar to its highest turning position.
3. The threader hook (d) shall go smoothly into the needle eye.

See illustrations.

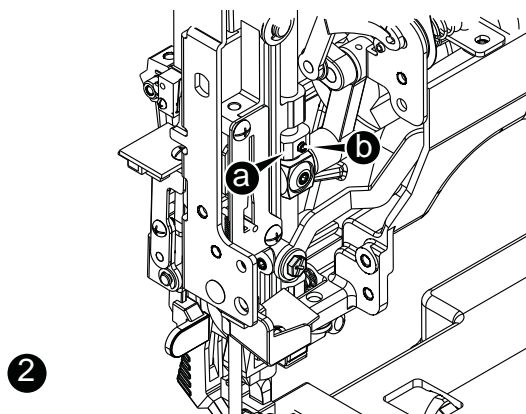


Adjustment height - stop

1. Remove the face plate
2. Turn on machine and press the Needle up/down button to set the needle bar at its highest position.
3. Loosen screw (b) of the threader stopper (a).
 - Move the stopper (a) upward and the threader hook will become higher.
 - Move the stopper (a) downward and the threader hook will become lower.

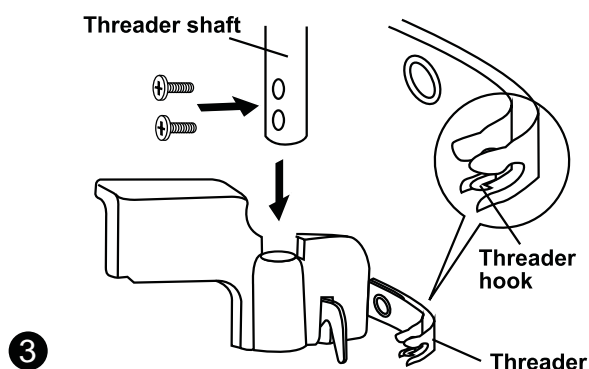
Adjust the stopper so the threader hook (d) goes smoothly into the needle eye.

Fasten the screw (b).



Needle threader hook replacement.

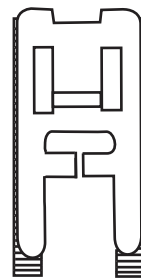
Remove both screws on back of the unit and replace device. (3).



17. Presser foot height and parallelism to the needle plate

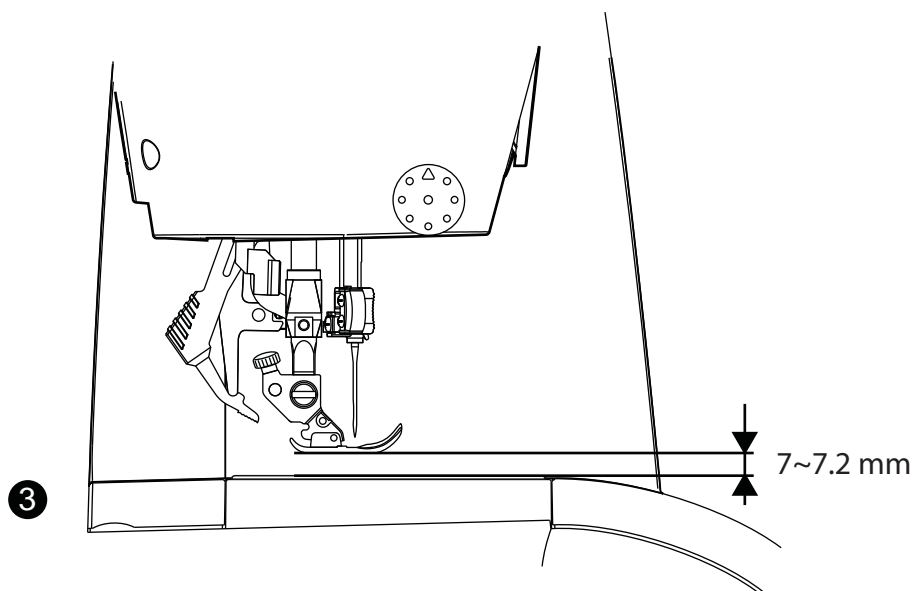
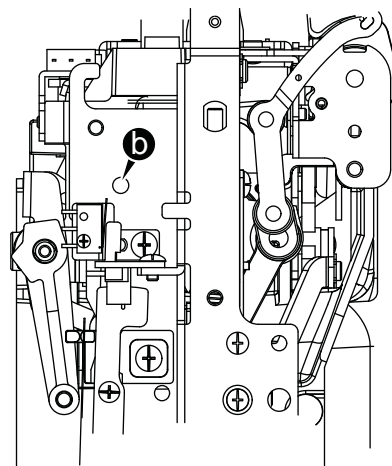
Check

When the presser foot is in its highest lifting position it shall be approx. 7~7.2 mm above the needle plate and in its down position the presser foot should be parallel to the feed dog.



Adjustment

1. Put on a presser foot.
2. Lower the feed dog.
3. Set the presser bar in its highest lifting position.
4. Loosen screw (b). Push the presser bar up or down until the measurement is correct.
5. Tighten the screw (b).
6. Lower the presser bar and check position the presser foot so its parallel to the feed dog.
7. If incorrect parallelism. Loosen up the screw (b) and turn presser foot so it's parallel to the feed dog.

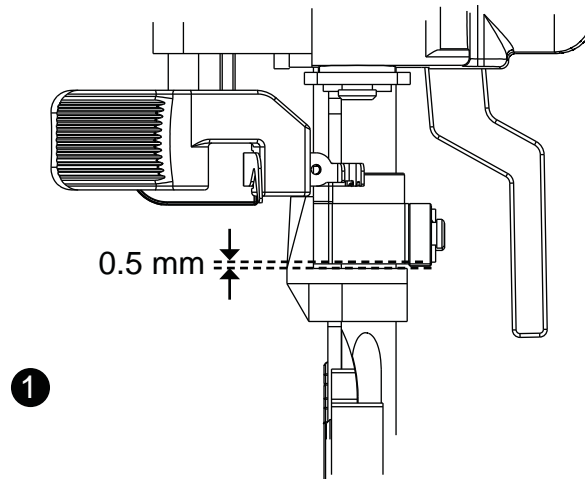


18. Height of presser bar's guide piece

Check:

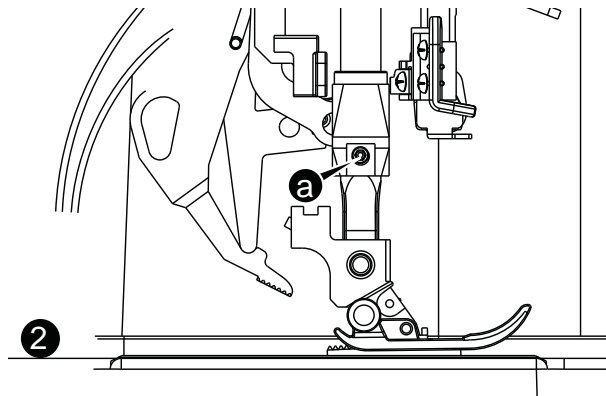
1. Raise the presser foot to second position.
2. Set the needle at the highest position.

The gap between presser bar and press bar ring should be around 0.5 mm. (1)



Adjustment:

1. Loosen up the screw (a)
2. Set the Guide piece so its 0.5 mm between presser bar ring and guide piece
3. Tighten screw (a).



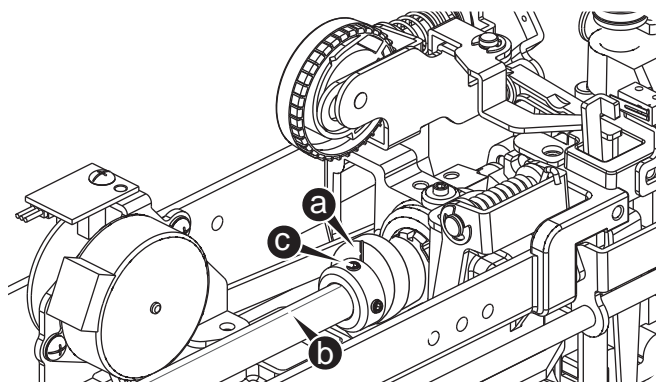
19. Setting the IDT excenter

Check

1. Remove face plate and top cover.
2. Bring the needle bar to its lowest position.
3. Check position of feed cam marking (a) with marking on arm shaft (b) .

Adjustment

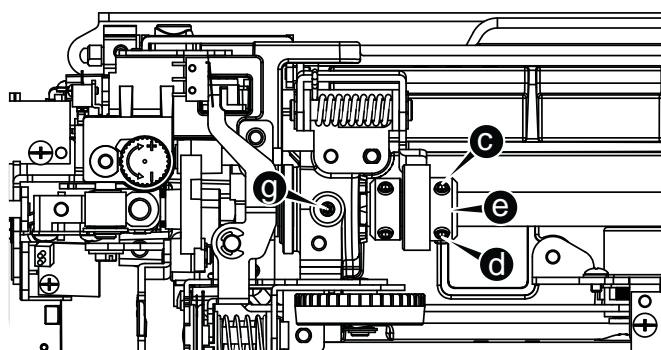
1. Remove face plate and top cover.
2. Check position of feed cam marking (a) with marking on arm shaft (b).
3. Loosen 2 screws (c, d) and align marking on cam (a) with marking on arm shaft (b).
4. Tighten 2 screws (c, d).
5. Recheck IDT adjustment.



Alt Adjustment

If the marking (b) on arm shaft is hard to see follow the below alt. adjustment.

1. Remove face plate and top cover.
2. Bring the needle bar to its lowest position.
3. Loosen 2 screws (c, d)
4. Align position (e) = precisely between 2 screws (c, d). with screw (g).
5. Tighten 2 screws (c, d).
6. Recheck IDT adjustment.

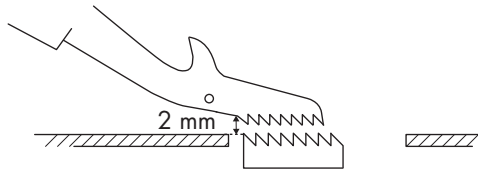


20. Adjustment of the IDT foot - height

Check

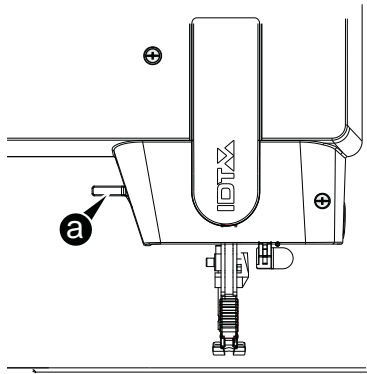
1. Put on the presser foot #0A.
2. Engage the IDT.
3. Turn on the machine and set it to maximum stitch length. Turn the hand wheel one full turn to calibrate the step motor.
4. Lower the presser bar.
5. Turn the hand wheel until the IDT foot is in its highest position.
6. The height distance between needle plate and IDT should be minimum 2mm (see illustration).
Use e.g. a 2mm Allen key as a gauge.

NOTE! The distance should be measured behind the teeth, according to the illustration.

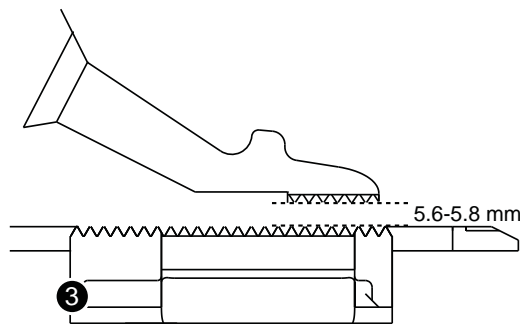
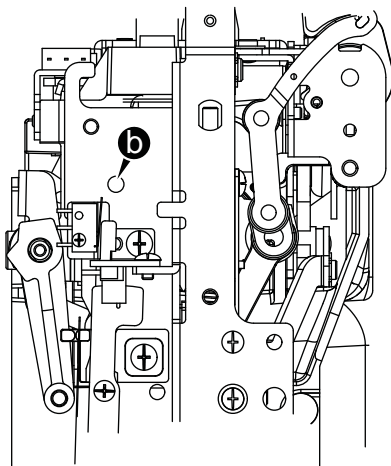


Adjustment

1. Raise the presser foot lever (a) and engage IDT. (1)



2. Remove the presser foot and face plate.

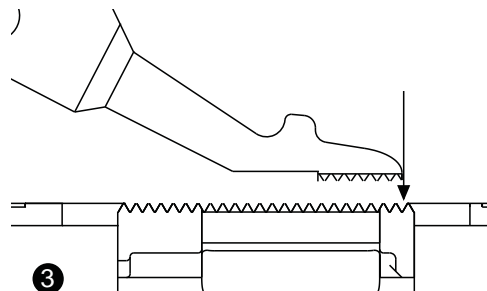


3. Turn the handwheel in sewing direction until the rising feed dog teeth is flush with the needle plate surface.
4. Loosen the screw (b)
5. Set the IDT height so the distance from the lower edge of IDT to the surface of the needle plate so it becomes 5.6-5.8 mm.
6. Tighten the screw (b).
7. Re-check

21. Adjustment of the IDT foot - feeding position

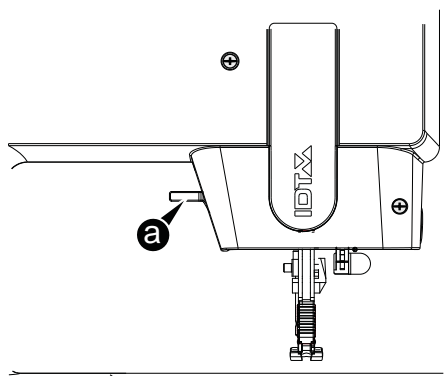
Check of feeding direction

1. Turn on the machine and set it to maximum stitch lengths.)
Turn the hand wheel one full turn
2. Turn the handwheel in sewing direction until the rising feed dog teeth is flush with the needle plate surface.
3. Remove the presser foot and presser foot holder.
4. Lower the presser bar.
5. The front edge of the IDT foot must be between the first and second tooth of the centre row of the feed dog.

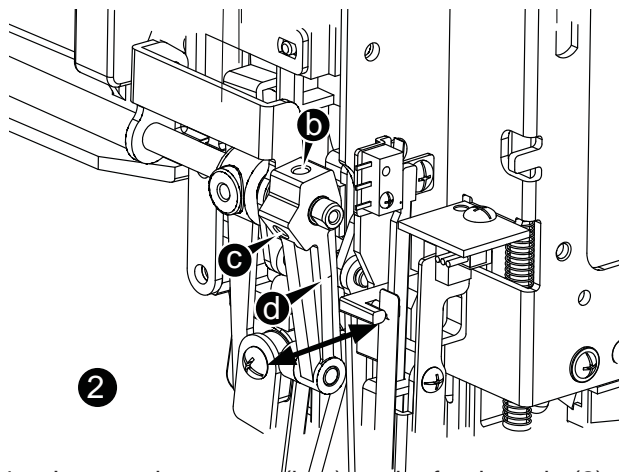


Adjustment:

1. Raise the presser foot lever (a) and engage IDT. (1)



2. Remove the presser foot and face plate.
3. Set the feed dog flush with top surface of the needle plate.

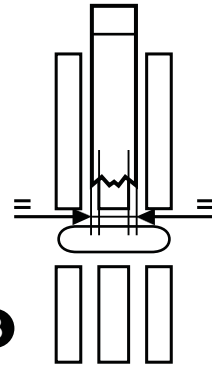


4. Loosen the screws (b, c) on the feed crank. (2)
5. Move feed crank (d) to the front or back until the IDT front edge is between the first and second tooth point of the center tooth row of the feed dog. (3)
6. Tighten the screws (b, c).

22. Setting IDT foot sideways

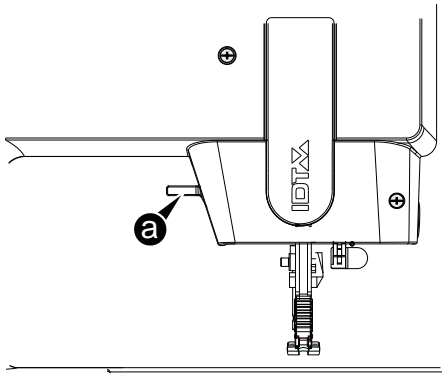
Check:

The front edge of the IDT foot must be in the middle of the center feed dog. (3)

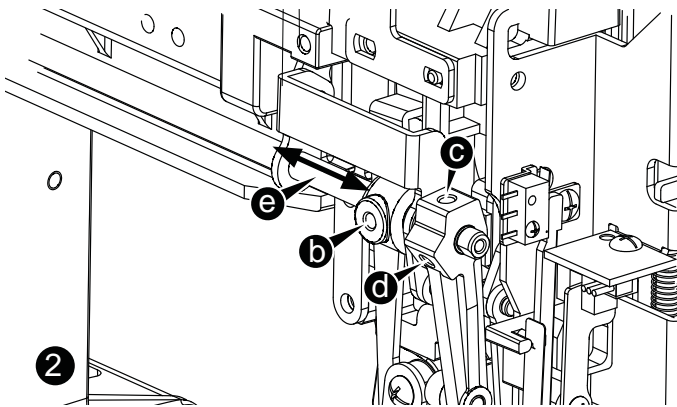


Adjustment:

1. Raise the presser foot lever (a) and engage IDT.
2. Remove the presser foot and face plate.



3. Set the feed dog flush with top surface of the needle plate.
4. Loosen the screws (b, c, d) on the feed crank.

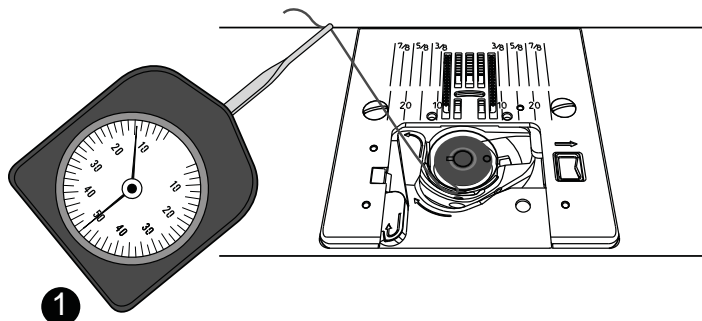


5. Move feed shaft (e) to the left or right until the IDT front edge is in the middle of the center feed dog.
6. Tighten the screws (b, c, d).

23. Lower thread tension (thread tension of the bobbin case)

Check

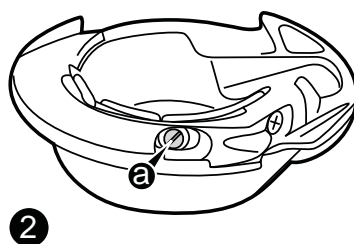
1. Insert a full bobbin into the bobbin case.
2. The thread tension spring of the bobbin case shall give a resistance of 10 - 14 g when pulling the thread slowly, using normal polyester thread.



Adjustment

1. Turn screw (a) until the correct thread tension is obtained. Please use a 12-14 g lead weight or a tension gauge as a setting gauge.

NOTE! Before any adjustment is made remove any loose pieces of thread or fluff from the thread tension discs.



24.Upper thread tension

Check

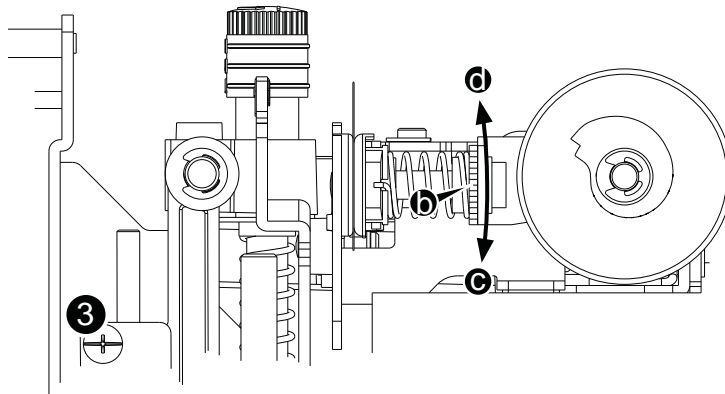
A correct interlacing of the upper thread and the bobbin thread (cotton thread 50/2 or synthetic fiber thread 100/35) must take place approximately in the middle of the fabric at straight and zigzag stitch setting with the tension dial at "4".

Alt. Check

The standard upper thread tension should be between 70~80 grams when pulling a cotton thread 50/2 or synthetic fiber thread 100/35 with the tension dial at "4". The presser foot should be lowered when checking the upper thread tension.

Adjustment

1. Set the dial tension at "4".
2. Use a lead weight or a tension gauge as a setting gauge to take the measurement.
3. Put dial tension thread into gauge's hook and pull, the standard range should be 70~80g.
4. Remove the face cover and the front cover.
5. Turn the plastic screw (b) in the direction of (c) when the upper thread tension is too tight. (ill 3).
Turn the plastic screw (b) in the direction of (d) when the upper thread tension is too loose. (ill 3)



25. Stitch length balance basic setting

Check 1

The feed dog should after turning the machine on and off several times always reach such a position that 2.5 mm straight stitching will be obtained.

Check 2 Ambition 1.0 and 1.5

1. Go to the service program of the machine.
2. In Menu 1 Press Feed Sensor Position , step motor now goes to its electronic setting position for the feed step motor.
3. The square after Feed Sensor Position should turn to black.

1. Needle left/Sensor position
2. Center pos needle
3. Needle right
4. Feed max forward
5. Zero feed
6. Feed max backward
7. Feed sensor position



Adjustment Ambition 1.0 and 1.5

1. Remove base covers.
2. Go to the service program of the machine.
3. In Menu 1 Press Feed Sensor Position , step motor now goes to its electronic setting position for the feed step motor.
4. Loosen the Hexagon 1.5 screwcrew (E) in the cog wheel (D) on the step motor shaft.
5. Use the screw driver and turn the cog wheel until the square turns to black and stays black.
6. Tighten the Hexagon 1.5 screw (E).
7. Check the setting by In Menu 1 press Zero feed, turn the handwheel so the machine is calibrated,
8. Press Feed Sensor Position again then should the return and the square should be black .
9. In not re-do from point 3.





NOTE! Ambition Essential has NOT this electronic setting.

26. Stitch length balance

Check



- Both columns of the buttonhole shall be of the same density.
- The mending stitch shall look according to illustration.

On AMBITION 1.0-1.5 Use service program menu 4 press key nr. 1 and presser foot #2A.

On AMBITION ESSENTIAL Press  button to come to **Patterns** mode and use pattern No 15 



- The Decorative stitch shall look according to illustration.

On AMBITION 1.0-1.5 Use service program menu 4 nr 3 and Presser foot #1A.

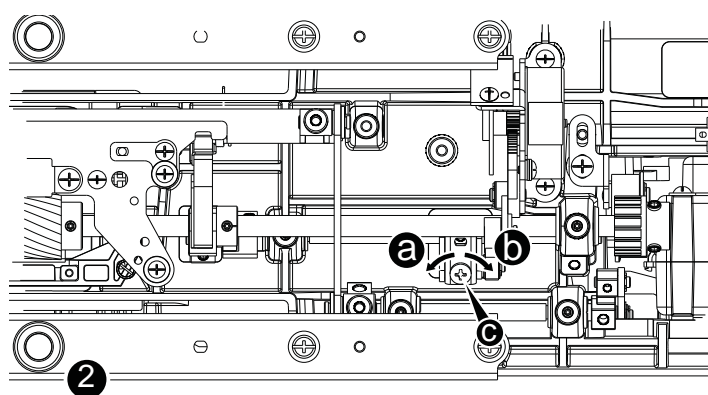
On AMBITION ESSENTIAL Press  button to come to **Direct** mode and use pattern No 7 

Fine adjustment

- On AMBITION 1.0-1.5 In service program menu 4 press key nr. 1 - Mending stitch.

On AMBITION ESSENTIAL Press  button to come to **Patterns** mode and use pattern No 15 

- Turn screw (c) until the machine sews mending stitch according to illustration.
 - To adjust the mending stitch in the b- direction, turn the screw (c) to the right (b).
 - To adjust the mending stitch in the a- direction, turn the screw (c) to the left (a).
- To do this adjustment the free arm cover needs to be removed!

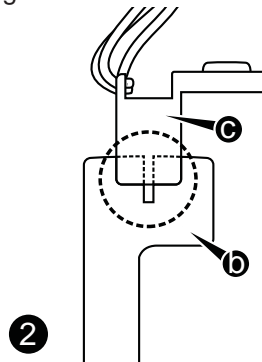


27. BH photo sensor position adjustment

NOTE! Check and adjustment is done without the buttonhole foot. on the machine.

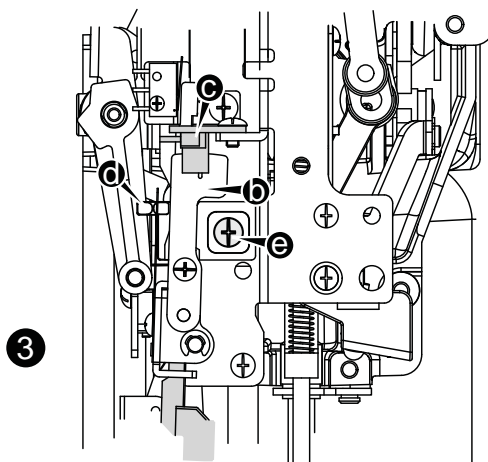
Check

1. Remove the face plate and back cover.
2. Pull the BH lever down.
3. The BH lever crank (b) and the photo sensor's (c) blocking movement should be set in the middle. (2)



Adjustment

1. Loosen screw (e) of BH movement crank (d). (3)
2. Adjust the BH movement crank (d) to the right, and the lever crank (b) will follow.
3. Adjust the BH movement crank (d) to left, and the lever crank (b) will also follow it. (3)
4. Set the BH lever crank (b) top in back of the middle of photo sensor (c), and then re-tighten the screw (e).



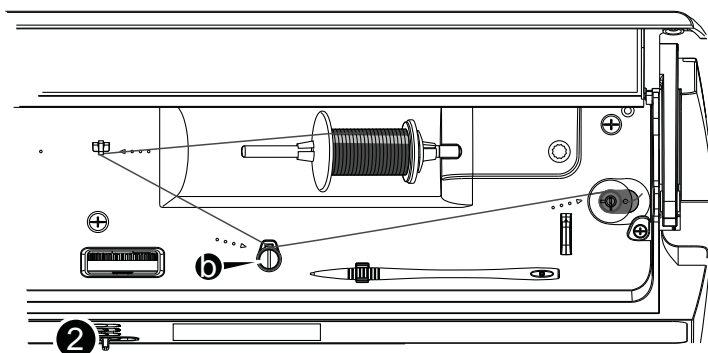
28. Adjustment of bobbin winding

Check

When winding up the lower thread onto the bobbin the machine should wind even.

Adjustment

1. Place empty bobbin on spindle.
2. While winding , observe the shape of bobbin winding:
 - When the lower part of bobbin winding has more thread turn the screw (b) of threader guide counterclockwise.
 - When the upper part of bobbin has more thread, turn the screw (a) of threader guide clockwise.



29. Adjustment of bobbin winder stop

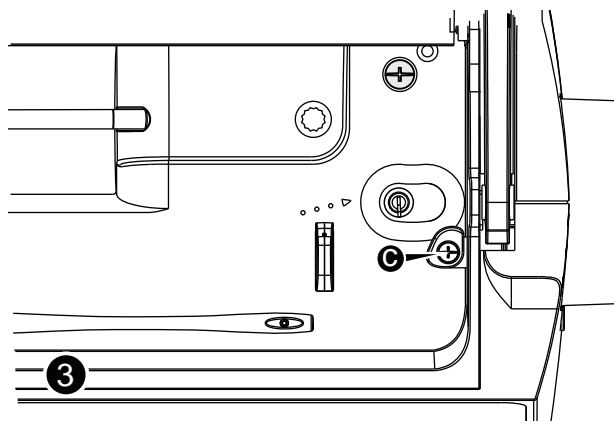
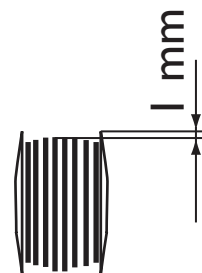
Check

When winding up the lower thread onto the bobbin the machine should stop when there is a min. of 1 mm between the edge of the bobbin and the thread.

Adjustment

When winding up the lower thread onto the bobbin the machine should stop when there is a min. of 1 mm between the edge of the bobbin and the thread. (3)

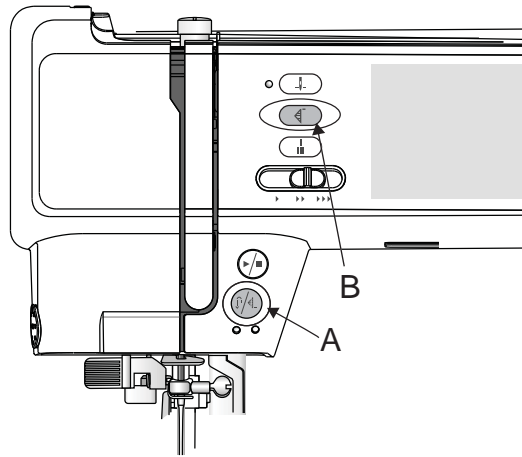
If bobbin is over 0 mm between the edge of the bobbin and the thread, adjust by turning the screw (c) of bobbin winder bracket shaft counter-clockwise.



Service program Ambition 1.0 and 1.5

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

NOTE ! THIS IS ONLY FOR AMBITION 1.0 AND 1.5.



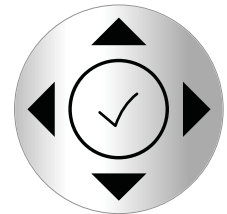
Service Program

Handling

Enter the service program by pressing the Reverse button (A) and pattern restart button (B) simultaneously while switching on the machine. The display now shows the Expression service program.

There are 5 different service menus and to use Ambition 1.0 service program, use menu maneuvering by pressing the left or right arrow buttons in order to switch between the different menus in the display, and to activate position use the ok button in the middle.

There are 5 different service menus and to use Ambition 1.5 service program. Use the stylus to toggle between different menus in the display, and in a menu, activate a position by click on it.



Menu 1

Step motors and pivot position settings/ adjustments.

Menu 2

Display test, Sensors test and Sensor reset functions.

Menu 3

Test pattern.

Menu 4

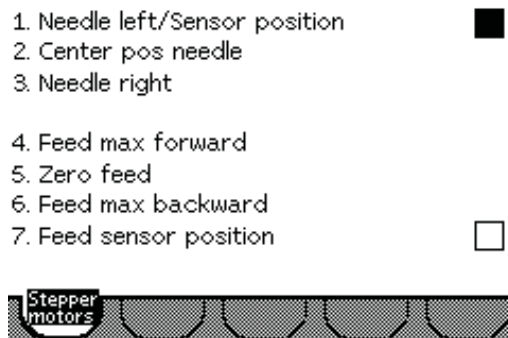
Info menu and test seems for checking the balance.

Menu 5

Keyboard test.

Functions of the service menu 1 - Stepper motors

Pressing the up or down arrow buttons to select (ambition 1.0).



Pos 1. Needle left/Sensor Position

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

Pos 2. Center pos needle

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

Pos 3. Needle right

The needle takes its most right position.

Pos 4. Feed max forward

Feed dog theath should not touch the front of the needle plate. To activate turn the hand wheel.

Pos 5. Zero feed

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

Pos 6. Feed max backward

Feed dog theath should not touch the back of the needle plate. To activate turn the hand wheel.

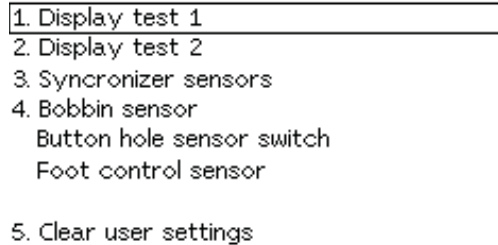
Pos 7 Feed Sensor Position

Is used to set the position of sensor wheel to the sensor of the feed step motor.

Functions of the service menu 2 - Display and Sensor

Entering service menu 2.

1. Ambition 1.0 - Press button "Menu Maneuvering - Left or Right" to toggle between the menus.
Ambition 1.5 - Touch with the stylus on "Display sensor page" in the display to toggle between the menus
2. The display shows the Ambition service menu 2 according to below picture.

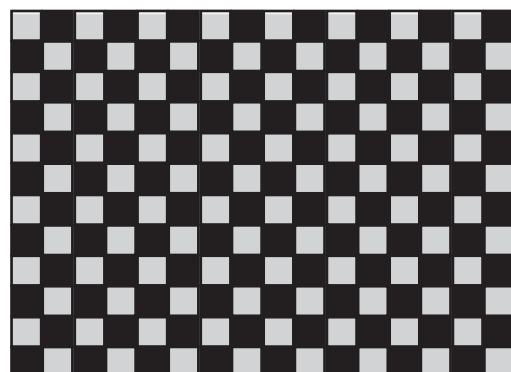
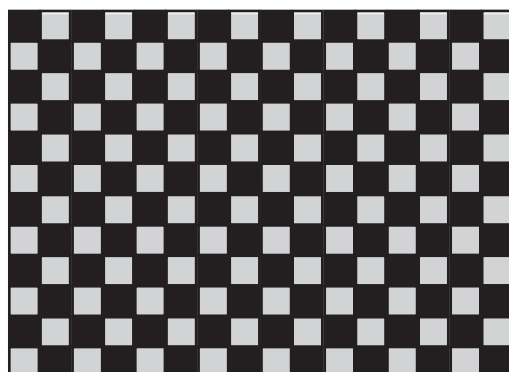
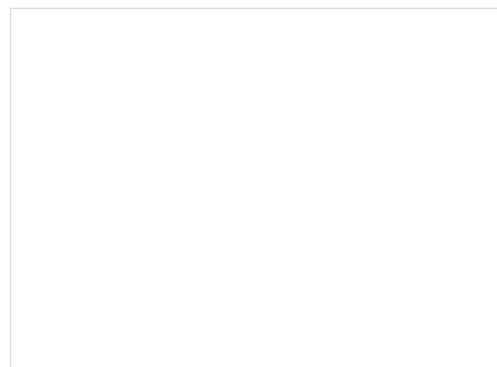


Pos No 1 Display test



Ambition 1.0 - Press button "Menu Maneuvering - UP" until the 1 Display test is squared in and push the center on the menu maneuvering to activate it.

Ambition 1.5 - by Display test (checking for dead pixels). The Display shall change between 4 different patterns, 1st. Black 2nd. white 3rd. Squared 4th. Squared. The machine goes back to the default view of service menu 2 when the check has been performed.



Pos No 2 Display test 2

Display contrast of the machine.

Is used to set the default contrast of the machine. To change the contrast use the Stitch width + and - buttons on the foil key board.

The setting interval is between -10 to +10 in steps of 1 and the value is shown above the contrast icon according to the picture.



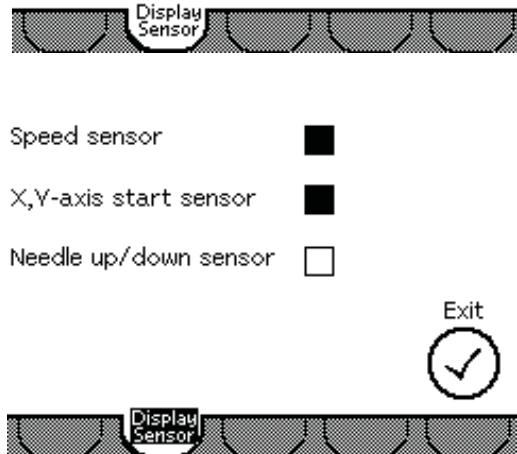
Pos No 3

Checks the sensors of the synchronizer.

The function is correct if three squares

- Speed Sensor
- X,Y - axis start sensor
- Needle up/down sensor

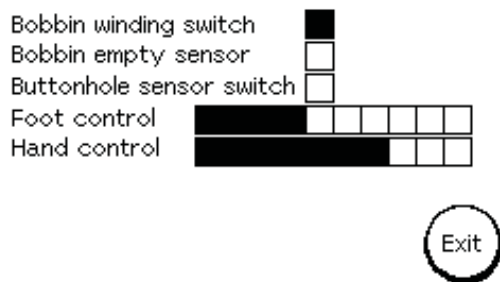
in the display are changing from black to white while the hand wheel slowly is turned around in the direction of sewing.



Pos No 4

Check of the bobbin winding switch sensor.

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



Check bobbin empty sensor.

When the bobbin or bobbin holder is empty the square turns black.

Check of the button hole switch sensor.

When the one step button hole lever is engaged and its moved back and forth, the square is shown in the right side of the display should change between black and white, the function is correct.

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 1/10 parts.

Check of the Hand (speed) control sensor - located on the front cover.

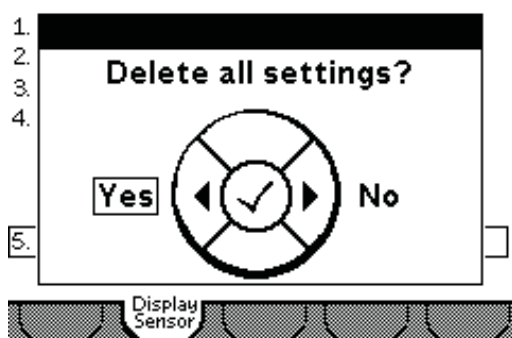
When the Hand (Speed) control is connected to the machine and is pressed, the progress bar shows the measured level divided into 1/10 parts.

Pos No 5

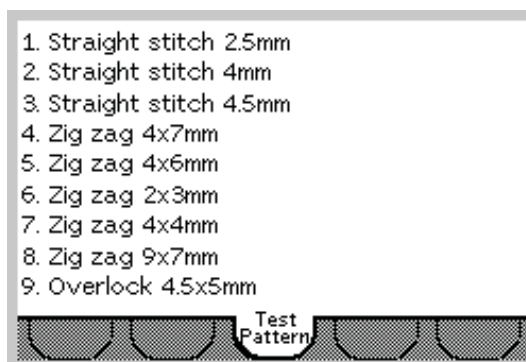
Clear User settings.

Erases all saved user settings done in the "Set Menu".

NOTE! When erased, the display goes back to the default view for the First service view.



Functions of the service menu - Test Patterns



NOTE! The functions in this menu are on Ambition 1.0 also reached by pressing the buttons 0-9.

Key No 1

The machine sews Straight stitch 2,5 mm.

Key No 2

The machine sews Straight stitch 4 mm.

Key No 3

The machine sews Straight stitch 4.5 mm.

Key No 4

The machine sews Zig-zag 4x7 mm.

Key No 5

The machine sews Zig-zag 4x6 mm.

Key No 6

The machine sews Zig-zag 2x3 mm

Key No 7

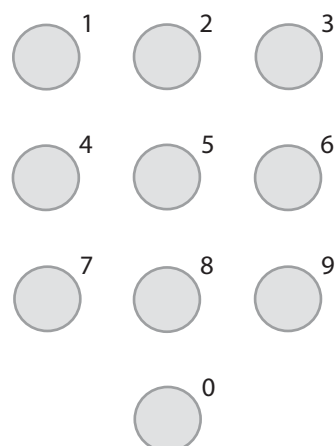
The machine sews Zig-zag 4x4 mm.

Key No 8

The machine sews Zig-zag 0x7 mm.

Key No 9

The machine sews G - Claw stitch if used for checking the stitch length balance.



Functions of the service menu 6 - Functions of the service menu - Info / Test Patterns

Total on time: xxxh yym
 Total sewing time: xxxh yym
 Sw ver. lcd: bbbb yyymmdd
 Sw ver. motor: bbbb yyymmdd
 1. Darning stitch, length balance
 2. "BPRS"
 3. Decorative motif, length balance
 4. Select stitch



Key No 1

Sewing a preprogrammed Darning stitch (Mending stitch) is used to set and check the stitch balance of the machine.

Key No 2

Sewing a preprogrammed letter combination "B-P-R-S". Is used to check the stitch balance of the machine

Key No 3

Sewing a preprogrammed Decorative motif (overlock stitch). Is used to set and check the stitch balance of the machine.

Key No 4

Select any stich from the regular sewing stitches.

Total on time: xxxh yym
 Total sewing time: xxxh yym
 Software version: bbbb yyymmdd

1. Darning stitch, length balance
 2. **Stitch no.**
 3. **33** length balance
 4.



Functions of the service menu - Key Board Test

Entering service menu 5.

1. Press button "keyboard test".
2. The display shows the ambition service menu 5

The display will now show the ambition service menu 5.

Key Board test

To verify the functionality of the keyboard, the keys that is indicated in the display shall be pressed one at a time.

Keyboard test.

<input checked="" type="checkbox"/>	Needle up/down (LED)	<input checked="" type="checkbox"/>	1
<input checked="" type="checkbox"/>	Pattern restart	<input type="checkbox"/>	5
<input checked="" type="checkbox"/>	Immediate tie off	<input type="checkbox"/>	9
<input checked="" type="checkbox"/>	Start/Stop (LED)	<input type="checkbox"/>	Down
<input checked="" type="checkbox"/>	Reverse (LED)	<input type="checkbox"/>	Load
		<input type="checkbox"/>	Width-
		<input type="checkbox"/>	Length+



When a key is pressed and recognized by the electronics, the corresponding square shall be filled in the display.

If all squares are filled by pressing all the advised keys, the keyboard is OK.

It is possible to abort the test at anytime without performing the total key board test by pressing any of the "menu" buttons and it will enter the chosen menu.

Needle up down (LED)	: Needle up down button
Pattern restart	: Pattern restart button
Immediate tie Off	: Immediate tie off button
Start/stop (LED)	: Start/stop Button
Reverse	: Reverse button
1	: No 1 button , if this has function also 2 and 3 is OK - ONLY AMBITION 1.0
5	: No 5 button , if this has function also 4 and 6 is OK - ONLY AMBITION 1.0
9	: No 9 button , if this has function also 7 and 8 is OK - ONLY AMBITION 1.0
Down	: Down button - ONLY AMBITION 1.0
Load	: Load button - ONLY AMBITION 1.0
Width -	: Stich width - button - ONLY AMBITION 1.0
Lengths +	: Stich length + button - ONLY AMBITION 1.0

Removing the covers

NOTE:

Before adjusting or repairing the machine, make sure to:

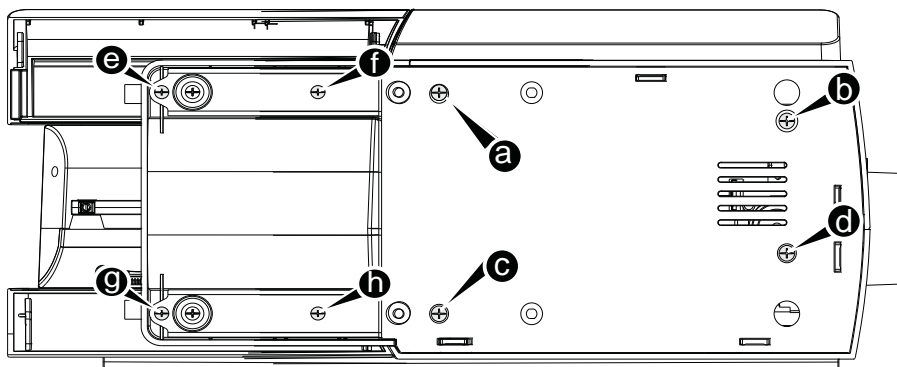
Disconnect the machine's main plug.

Remove needle and presser foot.

Remove detachable work support.

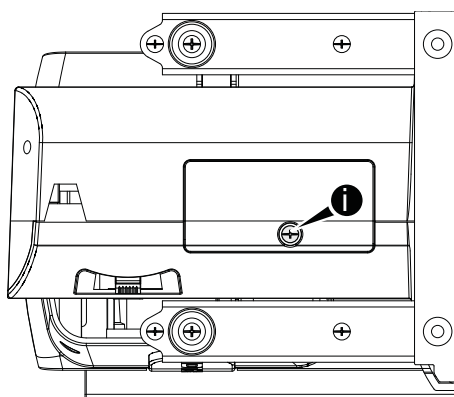
Base cover

1. Lay down machine.
2. Remove 4 screws (a, b, c, d).
3. Remove base cover.



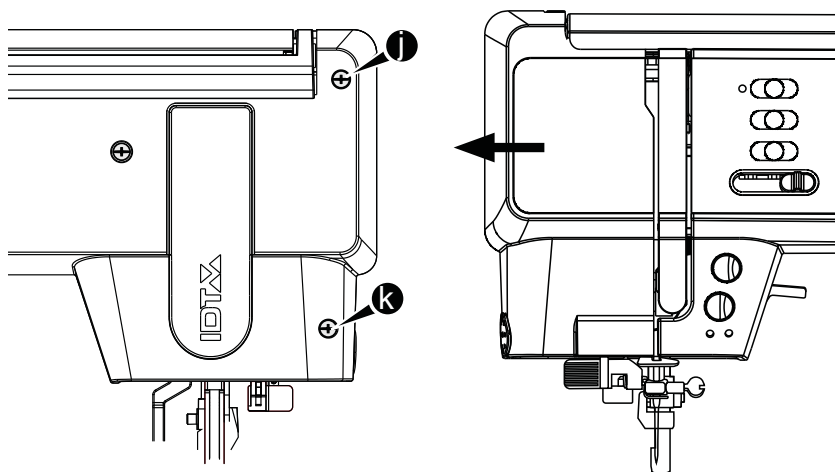
Base plate extension cover

1. Remove 4 screws (e, f, g, h).
2. Remove the base plate extension cover.



Free arm cover

1. Remove the screw (i)
2. Remove the free arm cover.

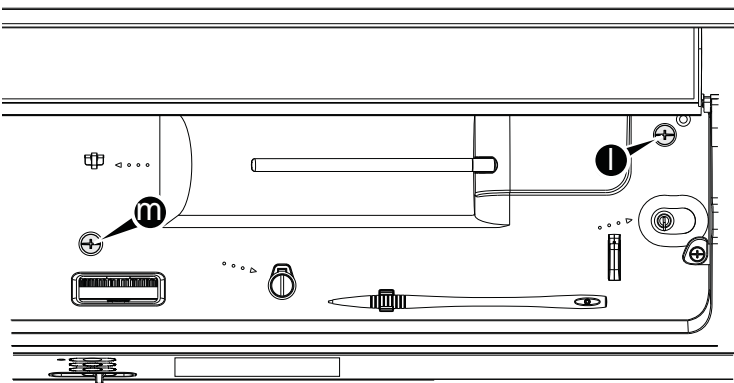


Face plate

1. Stand up the machine
2. From the back remove 2 screws (j, k).
3. From the front remove the face plate.

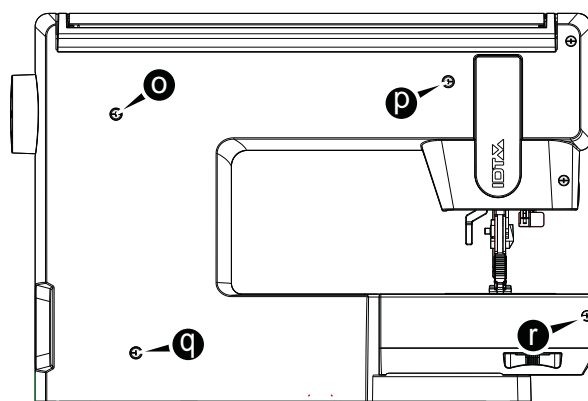
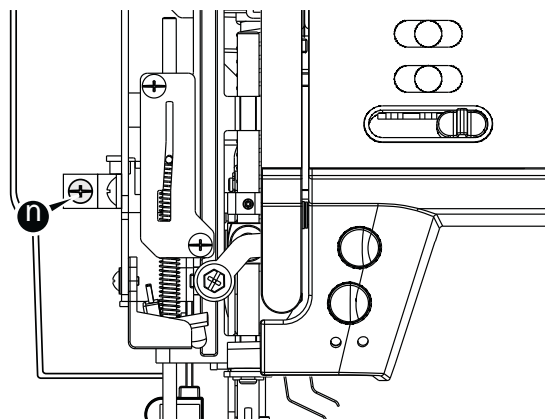
Top cover

1. Remove 2 screws (l, m)
2. To remove the top cover lift it upwards.

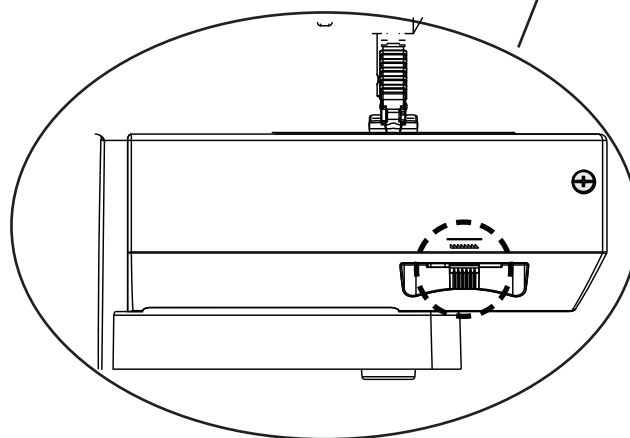


Rear cover

1. Remove the screw (n).
Located on the inside of the rear cover.
2. Turn the machine and Remove 4 screws (o, p, q, r).

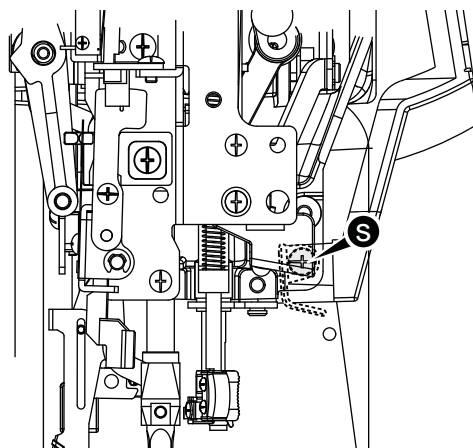


3. Move the feed dog lowering button to the middle for easier removal of rear cover.
4. Remove the back cover.

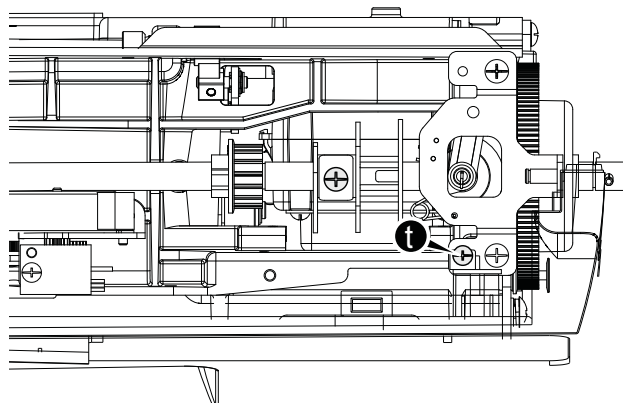


Front cover

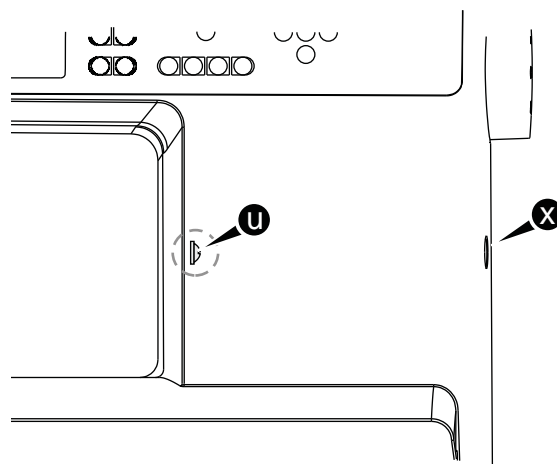
1. From the left side of the machine loosen the screw (s).



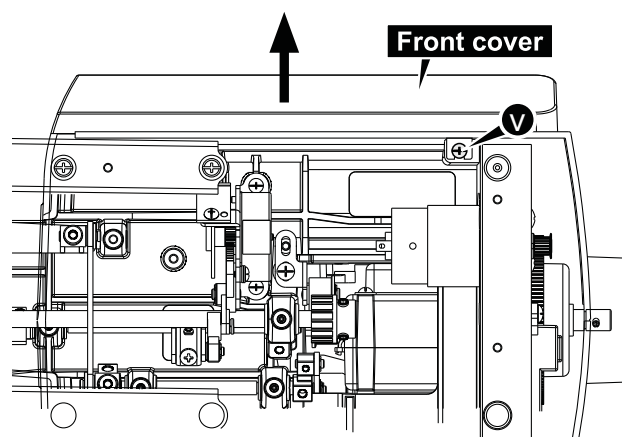
2. From the top, loosen up the screw (t).



3. Remove screw cap (x)
4. To locate the screw (u) use an electric torch (flash light) since its positioned inside the machine.
5. Loosen the screw (u).



6. Lay the machine down
7. Loosen the screw (v) from on the bottom.
8. Remove front cover by pulling it towards you.
9. Remove the front cover carefully, then disconnect cable between main PC board and the front cover.

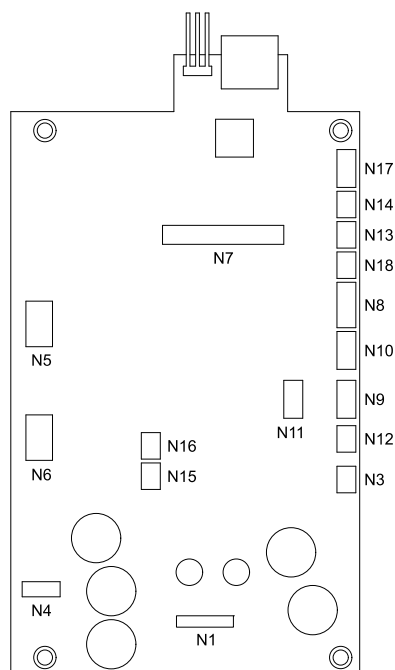


Main Circuit board - Circuit diagram Ambition 1.0 and 1.5

FOR SAFETY REASONS ALWAYS DISCONNECT THE POWER CORD FROM THE MACHINE BEFORE REMOVING THE CIRCUIT BOARD AND MAKE SURE TO USE WRIST BAND AND ESD MAT.

ATTENTION!

It is of the utmost importance that precautions are being taken in order to avoid damage of the electronics by electro static discharges (ESD). To avoid these errors it is important to handle circuit boards in a controlled way.



Dismantling

1. Remove rear covers.
2. Remove front cover.
3. Disconnect the cables from the circuit board according to below:

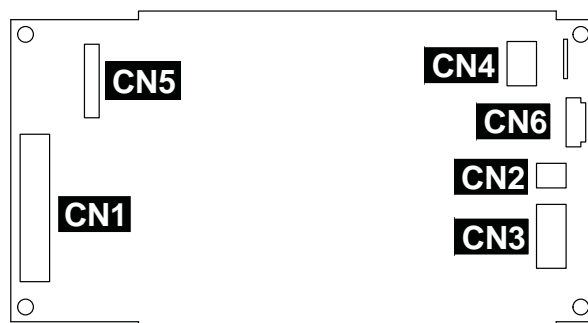
- | | |
|--|--|
| N1. Transformer | N10. Photo sensor board (B/H) |
| N3. LED lamp | N11. Photo sensor board (feed) |
| N4. DC motor | N12. Foot controller receptacle |
| N5. Step motor complete (zigzag) | N13. Micro switch (presser foot) |
| N6. Step motor complete (feed) | N14. Micro switch (bobbin winder) |
| N7. Flat cable | N15. IR. Thread detect launcher |
| N8. Photo sensor complete (needle flow, Needle bar up/down, speed) | N16. Ace. Thread detect receiver Interface bus |
| N9. Photo sensor board (zigzag) | N17. Photo sensor complete (thread break) |
| 4. Remove the 3 screws (A) holding the circuit board. | N18. Micro switch (B/H) |
| 5. Lift away the PC-board from the machine, and ALWAYS hold the PC board by the edges. | |
| 6. Place the PC-board in a ESD Bag. | |

LCD Circuit board - Circuit diagram

FOR SAFETY REASONS ALWAYS DISCONNECT THE POWER CORD FROM THE MACHINE BEFORE REMOVING THE CIRCUIT BOARD AND MAKE SURE TO USE WRIST BAND AND ESD MAT.

ATTENTION!

It is of the utmost importance that precautions are being taken in order to avoid damage of the electronics by electro static discharges (ESD). To avoid these errors it is important to handle circuit boards in a controlled way.



Dismantling

1. Remove rear covers.
2. Remove front cover.
3. Disconnect the cables from the circuit board according to below:

- CN1. LCD Touch panel
- CN2 Speed sensor
- CN3. Start/stop button, reverse/ autolock, LED lamp
- CN4. Functions buttons (ambition 1.5)
- CN5. Functions buttons (ambition 1.0)
- CN6. Functions buttons (ambition 1.0 and 1.5)

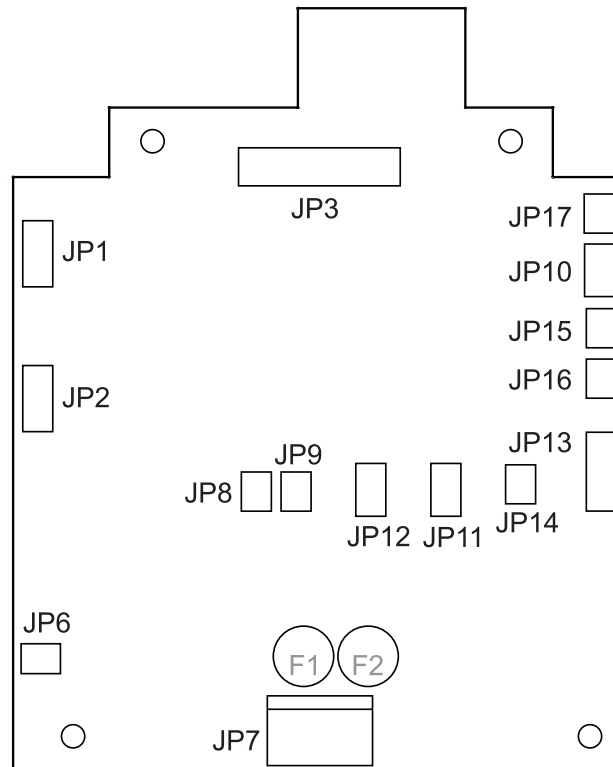
4. Remove the 4 screws (A) holding the circuit board.
5. Lift away the board from the front cover, and ALWAYS hold the PC board by the edges.
6. Place the board in a ESD Bag.

Main Circuit board - Circuit diagram Ambition essential

FOR SAFETY REASONS ALWAYS DISCONNECT THE POWER CORD FROM THE MACHINE BEFORE REMOVING THE CIRCUIT BOARD AND MAKE SURE TO USE WRIST BAND AND ESD MAT.

ATTENTION!

It is of the utmost importance that precautions are being taken in order to avoid damage of the electronics by electro static discharges (ESD). To avoid these errors it is important to handle circuit boards in a controlled way.



Dismantling

1. Remove rear covers.
2. Remove front cover.
3. Disconnect the cables from the circuit board according to below:

JP1. Step motor complete (zigzag)	JP11. Photo sensor board (Feed)
JP2. Step motor complete (Feed)	JP12. Photo sensor board (zigzag)
JP3. LCD	JP13. Photo sensor complete (Needle flow, Needle bar Up/down, speed)
JP6. DC motor	JP14. Micro switch (Presser foot)
JP7. Transformer	JP15. Micro switch (B/H)
JP8. LED lamp 2	JP16. Foot controller receptacle
JP9. LED lamp 1	JP17. Micro switch (Bobbin winder)
JP10. Photo sensor board (B/H)	

4. Remove the 4 screws (A) holding the circuit board.
5. Lift away the PC-board from the machine, and ALWAYS hold the PC board by the edges.
6. Place the PC-board in a ESD Bag.

Power supply

FOR SAFTEY REASONS ALWAYS DISCONNECT THE MAIN POWER CORD FROM THE MACHINE BEFORE REMOVING THE POWER SUPPLY.

Dismantling

1. When removing the Power Supply; please remove all the covers first.
2. Remove the Main PC board.
3. Disconnect the cable.
4. Remove the four screws that holds the Power supply in position.
5. Remove the power supply.

Mounting

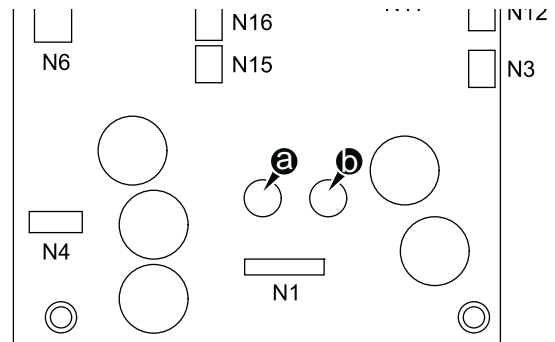
In Reverse order.

Fault finding Ambition 1.0 - 1.5

No operation of the machine

1. Remove the front cover.
2. See the arrow point 2 fuses (a, b) on the main Board.
3. Replace the main board if the fuse is blown.

1



No operation sewing machine.

1. Check if transformer plug N1 in main board is properly connected.
2. Replace motor.
3. Replace main board.

LCD (Touch panel) no display

Check if LCD(Touch panel) control board and the main board N7 cable are properly connected.

Replace LCD control board.

Replace the main board .

No operation/function of the pushbutton

Check - using Service program

1. Go to the service program of the machine.
2. In Menu 5 test the No 1~3.
3. Check if the keyboard switch seems to be damaged.

ambition 1.0

Check that the flexible flat cable is properly connected to the LCD board-CN5, CN6.

ambition 1.5

Check that the flexible flat cable is properly connected to the LCD board CN4, CN6.

Replace the LCD board.

Replace the Pushbutton board.

Replace the main board.

No operation DC motor

Check if plug N4 in main board is properly connected.

Replace the main motor or the Main Board if the problem continues.

No operation Start/ Stop, Reverse/ Autolock, LED light

Check - using Service program

1. Go to the service program of the machine and Menu 5 test the No 1~3.
2. Check if the function buttons seems to be damaged.
3. Check if the cable from start/stop, reverse/ autolock, LED light is properly connected to the LCD board CN3.

Replace the start/stop board.

Replace the LCD board.

Replace the main board.

Speed adjustment no operation

Check if the connector from the speed adjustment is properly connected to the LCD board CN2.

Replace the Speed slide resistor.

Replace the LCD board.

No operation of the Zig-zag step motor

Check - using Service program

1. Go to the service program of the machine.
 2. In Menu 1 test the No 1~3.
 3. Check if the connectors N5 and N9 are properly connected to the main board.
If the problem still remains.
Replace the ZigZag Photo sensor board .
Replace the ZigZag step motor.
Replace the main board.
-

No operation of feed stepper motor

Check - using Service program

1. Go to the service program of the machine.
 2. In Menu 1 test the No 4~6.
 3. Check if the connectors N6 and N11 are properly connected to the main board. If the problem still remains:
Replace the feed photo-sensor board.
Replace the feed stepping motor.
Replace the main board.
-

The bobbin winder spindle is in "off" position,

Check - using Service program

1. Go to the service program of the machine.
2. In Menu 2 choose the No 4 Bobbin sensor.
3. Check if the connector N14 is properly connected to the main board.
Check if the bobbin winder spindle and microswitch are making proper contact.

Adjustment :

Loosen the two screws that holds the microswitch in place, reposition the micro-switch until it is positioned in such a way that the bobbin spindle is pressing fully against the switch, tighten the two screws.

If the problem still remains:

Replace the bobbin winder micro-switch.

Replace the main board.

No operation of BH

Check - using Service program

1. Go to the service program of the machine.
2. In Menu 2 choose the No 4 Button hole sensor switch.
3. Check if the connector N18 is properly connected to the main board.
4. Check if the indentation on the top of the BH arm is positioned in the center of photosensor switch.

Adjustment :

See adjustment : Button hole sensor position.

If the problem still remains.

Replace the sensor board.

Replace the main board.

No operation of Foot controller

Check - using Service program

1. Go to the service program of the machine.
2. In Menu 2 choose the No 4 Foot control sensor.
3. Check if the connector N12 is properly connected to the main board.
4. Check if the connector from the socket is properly connected to the main board.
5. Check if the foot control cable is properly connected to the socket and that there is no big play in-between the foot control cable and socket .

If there is a big play.

- Check with another foot control.
- Replace the socket.

If there is still no function.

- Replace the main board.
-

No function of LED lamp

Check if connector N3 is properly connected to the main board and that there is no damage to the lamp socket.

If there is still no function.

- Replace the connection board for the LED lamp - located on top of the armshaft.
- Check if LCD cables are properly connected to the connection board for the LCD lamp.

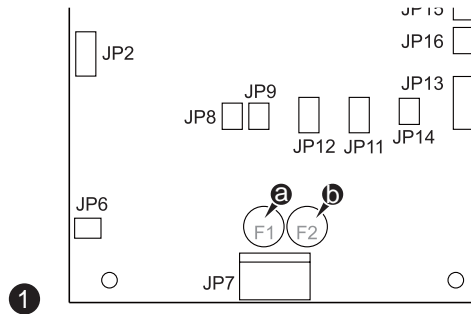
If there is still no function.

- Replace the lamp socket

Fault finding Ambition essential

No operation of the machine

1. Remove the front cover.
2. See the arrow point 2 fuses (a, b) on the main Board.
3. Replace the main board if the fuse is blown.



No operation sewing machine.

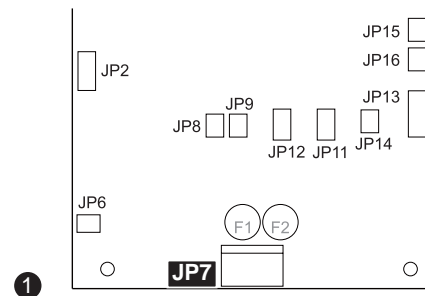
1. Check if transformer plug JP7 in main board is properly connected.
2. Replace motor.
3. Replace main board.

LCD no display

Check if LCD control board CN1 and the main board JP3 cable are properly connected.

Replace LCD control board.

Replace the main board .



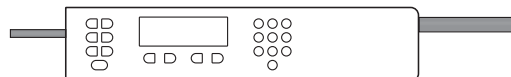
No operation/function of the pushbutton

1. Check that the fkey board switch isnt damaged.
2. Check so the flexible flat cable is properly connected to the LCD board CN2

Replace the LCD board.(#2)

Replace the Pushbutton board. (#1)

Replace the main board.



1

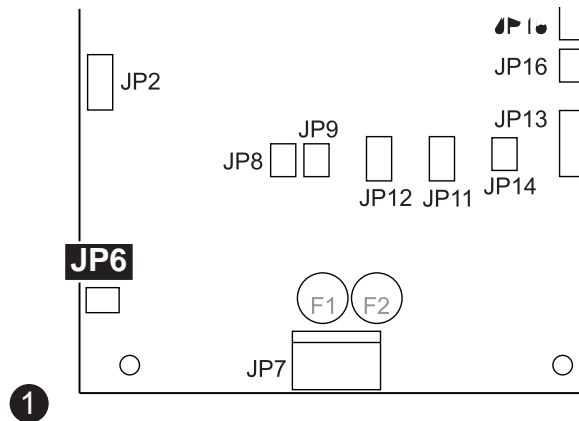


2

No operation DC motor

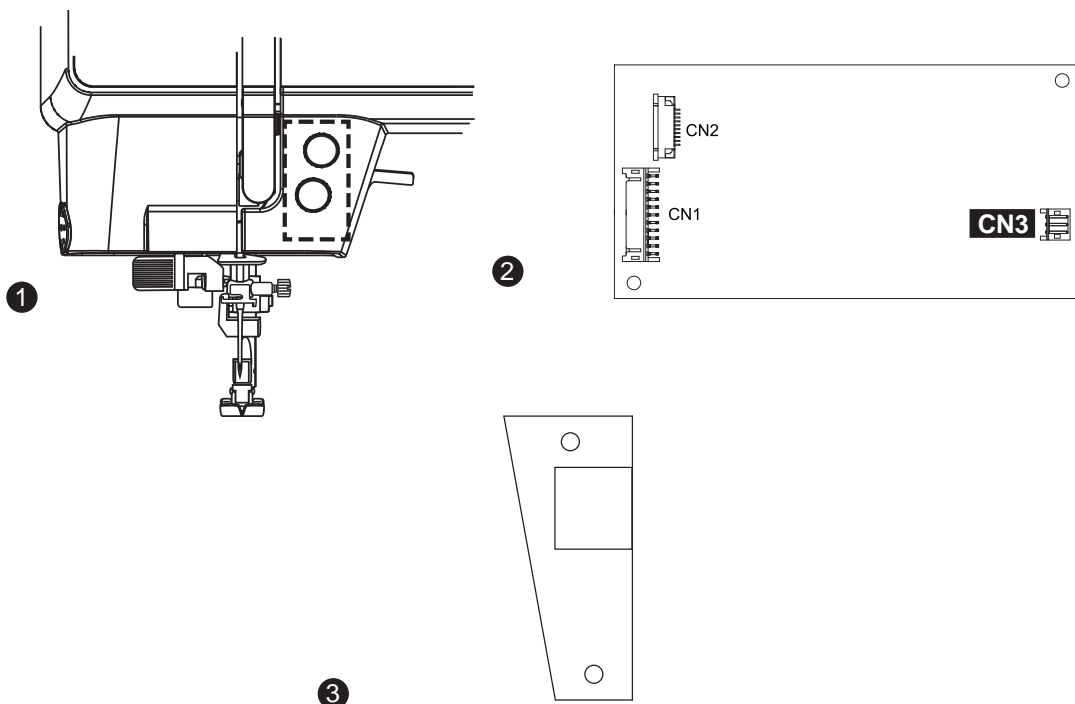
Check if plug JP6 in main board is properly connected.

Replace the main motor or the Main Board if the problem continues.



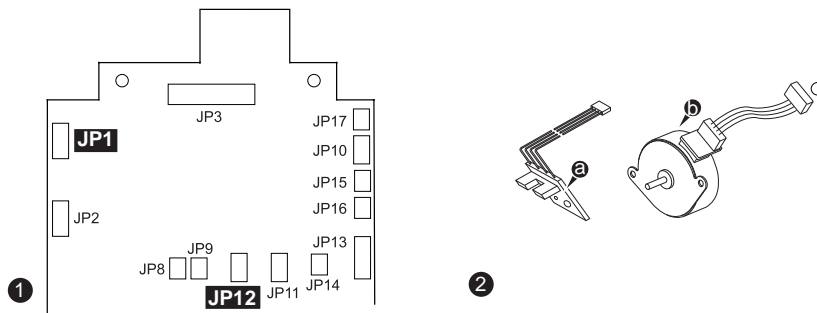
No operation Needle position, reverse

1. Check if the function buttons seems to be damaged.(#1)
2. Check if the cable from needle position / reverse is properly connected to the LCD board CN3 (#2)
 Replace the needle position/ reverse board (#3).
 Replace the LCD board (#2)
 Replace the main board.



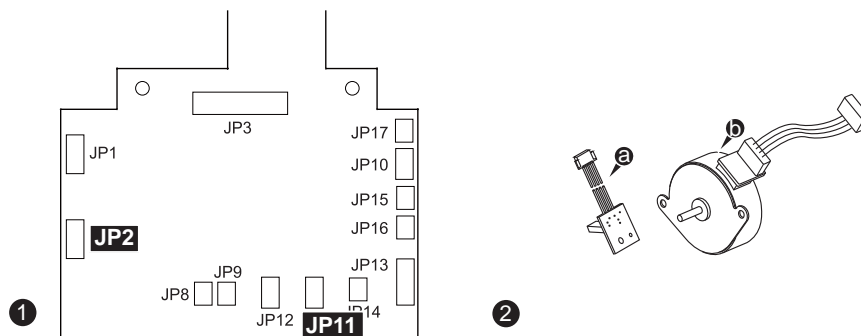
No operation of the Zig-zag step motor

- Check if the connectors JP1 and JP12 are properly connected to the main board (#1).
If the problem still remains.
Replace the ZigZag Photo sensor board (#2a).
Replace the ZigZag step motor (#2b).
Replace the main board.



No operation of feed stepper motor

- Check if the connectors JP1 and JP11 are properly connected to the main board (#1)
If the problem still remains:
Replace the feed photo-sensor board (#2a).
Replace the feed stepping motor (#2b)
Replace the main board.



The bobbin winder spindle is in "off" position,

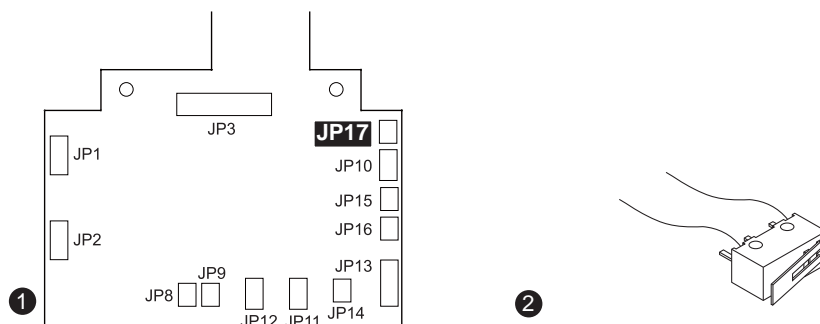
- Check if the connector JP17 is properly connected to the main board.(#1)
- Check if the bobbin winder spindle and microswitch are making proper contact (#2).

Adjustment :

Loosen the two screws that holds the microswitch in place, reposition the micro-switch until it is positioned in such a way that the bobbin spindle is pressing fully against the switch, tighten the two screws.

If the problem still remains:

- Replace the bobbin winder micro-switch (#2)
- Replace the main board (#1)



No operation of BH

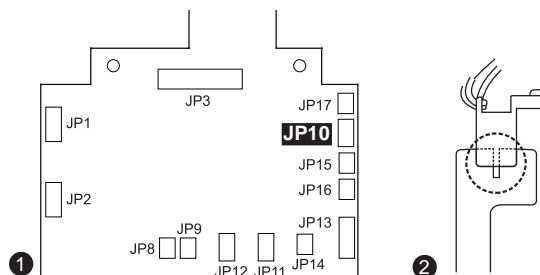
1. Check if the connector JP10 is properly connected to the main board(#1)
2. Check if the indentation on the top of the BH arm is positioned in the center of photosensor switch (#2)

Adjustment :

See adjustment : Button hole sensor position.

If the problem still remains.

Replace the sensor board(#1).



No operation of Foot controller

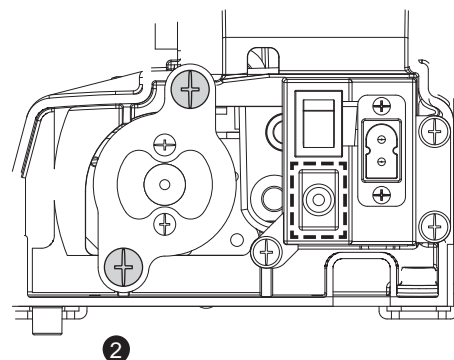
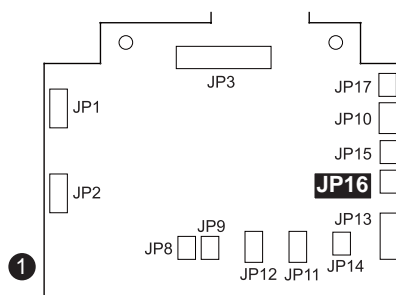
1. Check if the connector JP16 is properly connected to the main board.(#1)
2. Check if the connector from the socket is properly connected to the main board(#2)
5. Check if the foot control cable is properly connected to the socket and that there is no big play in-between the foot control cable and socket .

If there is a big play.

- Check with another foot control.
- Replace the socket. (#2)

If there is still no function.

- Replace the main board.(#1)



No function of LED lamp

Check if connectors JP8 and JP9 are properly connected to the main board and that there is no damage to the LED socket (#1).

If there is still no function.

- Replace the lamp board (a) or (b) (#3)

