

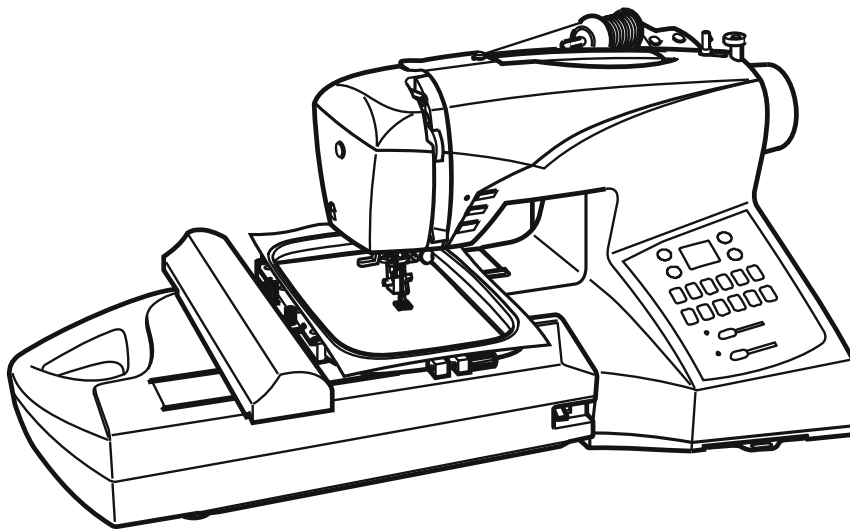


SINGER | Futura™

CE-150

CE-250

CE-350



Service Manual

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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.

Electrostatic charges are caused by:

- When a person is walking (influence) over synthetic tiled or carpeted floor
- When its friction between and separation of two insulating materials.

If this static electricity discharges through electronic components, these may be partially or irreparably damaged. Electrostatically charged persons represent the greatest danger for components. This can be dissipated by controlled electrostatic discharge.

Always use wrist band when servicing.



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.



Veillez 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.
- Innerhalb unserer Produktion werden alle gegossenen Teile mit dem Materialnamen bezeichnet, wenn es deren Größe erlaubt.
- Innerhalb unserer Produktion werden alle geformten Teile mit dem Materialnamen bezeichnet, wenn es deren Größe erlaubt.
- Toutes les pièces moulées (en métal) de nos produits sont marquées du nom du matériau utilisé, quand la taille de la pièce le permet.
- Toutes les pièces moulées (en plastique) de nos produits sont marquées du nom du matériau utilisé, quand la taille de la pièce le permet.

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. Screwdriver Philips 2PH
3. Screwdriver Philips 1PH
4. Gauge for the feed dog lift.
5. Gauge for the needle height - 28.50 mm
6. Distance gauge 0.05-1,00 mm
7. Wrench 7 mm
8. Allen Key (hex driver) : 2 mm
9. Allen Key (hex driver) : 2.5 mm
- 10 Allen Key (hex driver) : 1.5 mm

1. Needle bar height

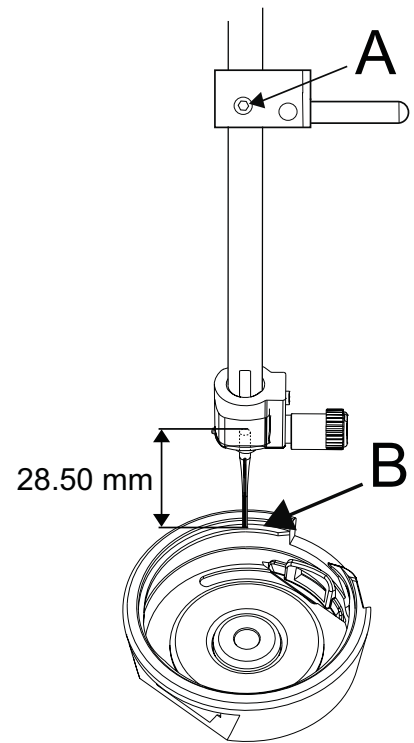
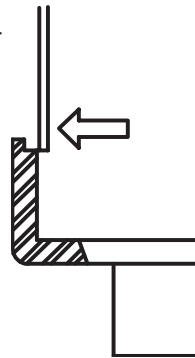
Check

Note: ALWAYS checking the Needle Height before checking the following settings "Needle timing to shuttle" and "Feed-dog timing (vertical motion) "

Check

1. Remove needle plate and bobbin case.
2. Select straight stitch (center needle position).
3. Replace needle with the special needle gauge.
4. Bring the needlebar into its lower turning position.
6. The distance between the upper end of the needle and the surface (B) of the hook ring should be 28.50 (+/- 0.05 mm).
5. Check this by push on the tip (B) of the Special needle gauge, and it should just touch the upper part of hook ring(C).

The check is executed with a gauge which is 28.50 mm long.



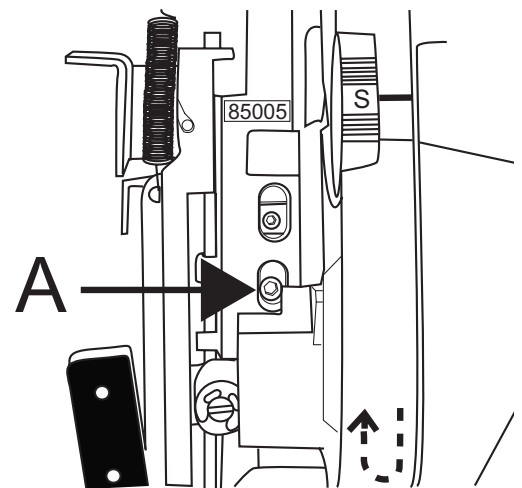
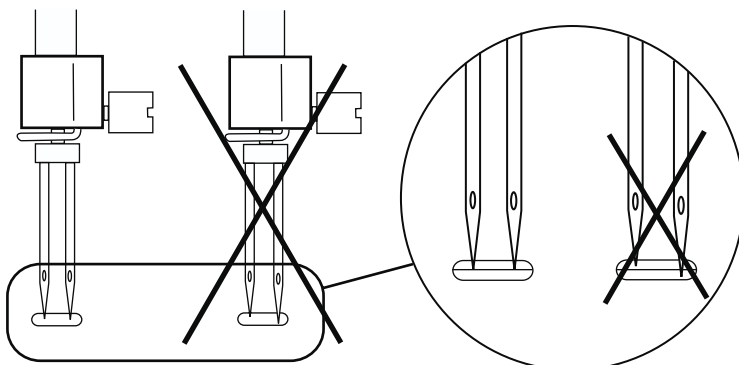
Adjustment

The setting is executed with a gauge which is 28.50 mm long.

1. Remove face cover
2. bring the needle bar to its highest position, from the front , loosen set screw (A) and retighten it lightelly.
2. Bring the needle bar to its lower turning position.
3. Move the needle bar until the correct distance is obtained, the tip of needle must be flush with hook ring.
4. Tighten set screw (A).
5. 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.
6. Check to see if needle threader operates correctly

NOTE! This setting affects:

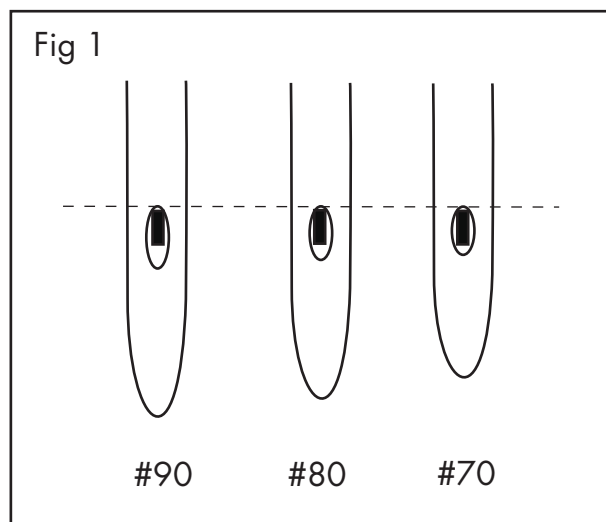
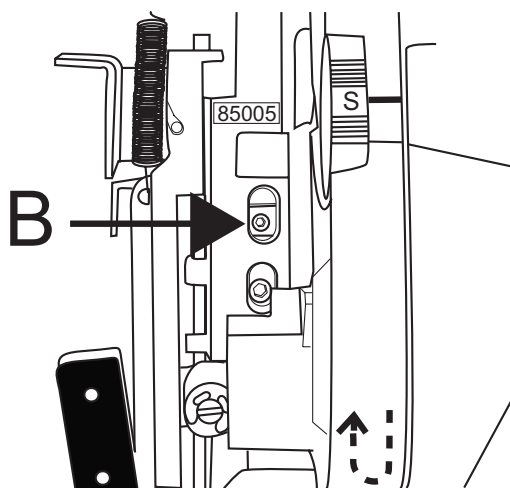
2. Needle threader height
5. Feed-dog timing (vertical movement)
12. Needle timing to shuttle



2. Needle threader height

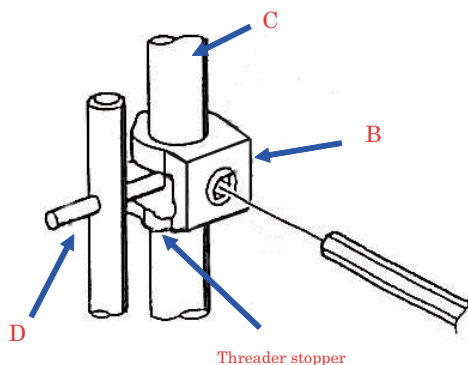
Check.

1. Insert a new # 70 needle.
2. Set the machine to straight stitching (center needle position).
3. Bring the needlebar to its highest turning position.
4. Go down with the threader hook into the needle eye, the threader hook shall go smoothly into the needle eye.



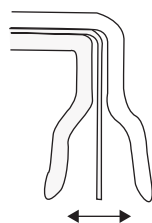
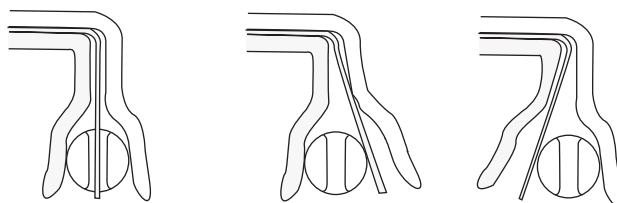
Adjustment of threader hook highways

1. Insert a new # 70 needle.
 2. Remove the face cover.
 3. Turning the hand wheel by hand to so the needle bar comes to its highest position.
 4. Loosen screw (B) of the threader stopper.
 5. Go down with the threader hook into the needle eye.
 5. Move the threader holder so that the threader hook is on the upper side of the needle eye. see Fig 1.
 6. Tighten the screw (B) . Make sure to attaching the threader stopper onto stopper pin (D).
- NOTE! The direction of threader stopper should be facing to the front so it does not hit the needle support bracket.



Adjustment of threader hook sideways

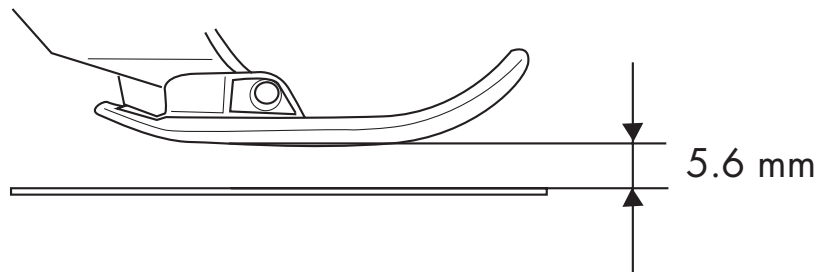
1. If the sideways position of the hook isn't correct, adjust the hook position with a small screw driver.
2. Recheck that the needle threader works correctly.



3. Presser foot height and parallelism to the needle plate

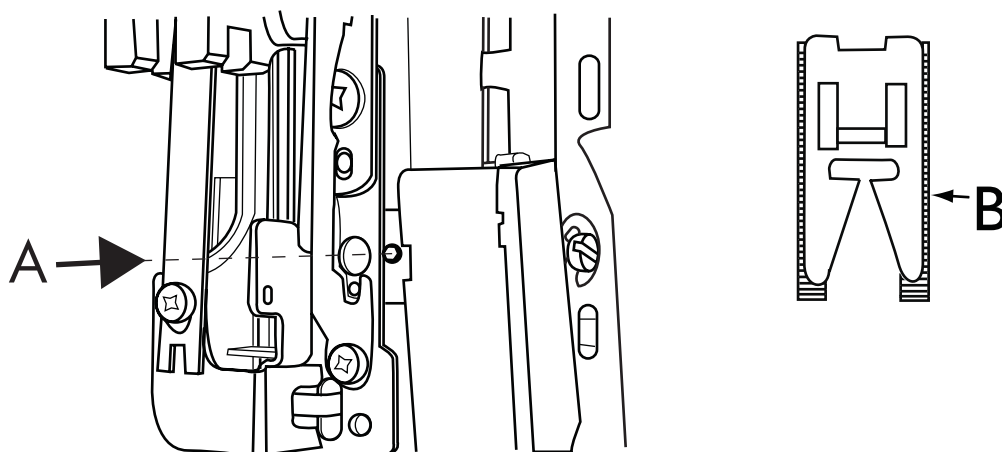
Check

1. Lower the feed dog, with the feed dog drop mechanism, so it is below the needle plate.
2. Raise the presser foot to its highest position.
3. The clearance between the needle plate and the presser foot should be 5.6 mm.
4. Lower the presser foot, it should be parallel to the needle plate slot (B).



Adjustment

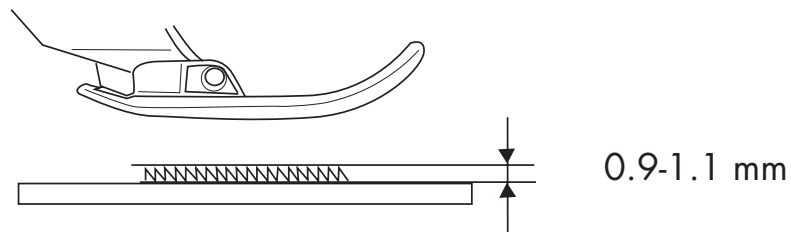
1. Remove the face cover,
2. Lower the feed dog, with the feed dog drop mechanism, so it is below the needle plate.
3. Raise the presser foot to its highest position.
4. Loosen the set screw (A) and adjust the presser foot height by moving the presser bar up or down.
5. Tighten the set screw (A) securely
6. Lower the presser foot and check so the presser foot is parallel with the needle plate slot (B).
if not
 - a. Lift up the presser foot
 - b. Loosen up set screw (A) and adjust the parallelity of the presser foot, by turn the Presser bar to the left or to the right.
7. Tighten the set screw (A) securely.
8. Re-check height and parallelity of the presser foot.



4. Feed-dog height

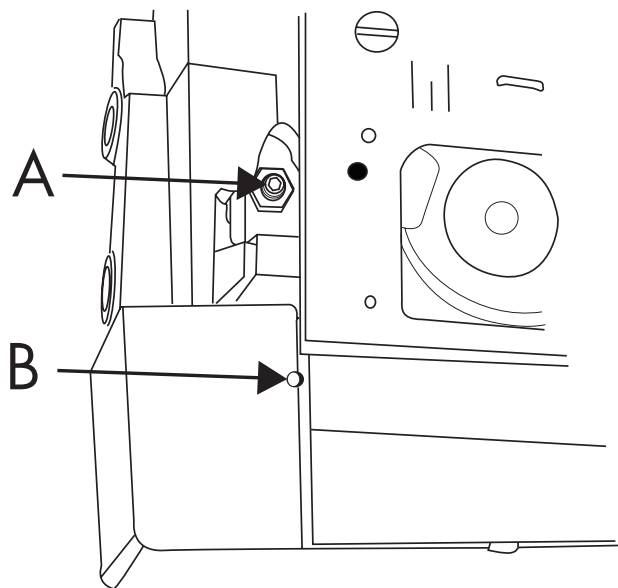
Check

1. Set machine into test mode and select mode 2.
2. Bring the feed dog to its highest position by turning hand wheel.
3. The top of the feed dog should now be 0.9 to 1.1 mm above the needle plate.



Adjustment

1. Bring the feed dog to its highest position.
2. Adjust by turning the Allen key screw (A) until a correct feed dog height (0.9-1.1 mm) is obtained.
Turn clockwise : It will be higher
Turn counter clockwise : It will be lower
This Adjustment can be done, without removing the covers, through the hole (B) on the front cover.
3. Re-check the feed dog height.

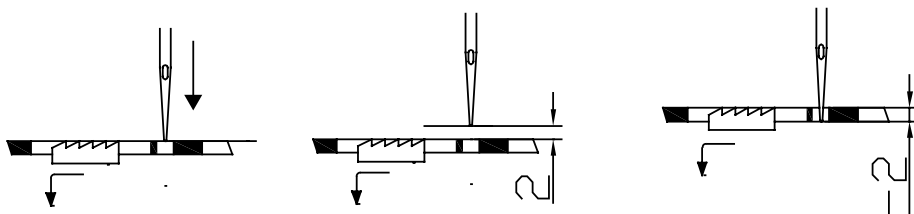


5. Feed-dog timing (vertical movement)

Check

Note: Always check "Needle bar height", "Feed-dog height" before any check is done on "Feed-dog Timing".

1. Set machine at function mode and select straight stitching and maximum stitch length.
2. Turn the hand wheel in the sewing direction and when the feed dog is going down set it so the top of the teeth is flush with the surface of needle plate.
3. At this point the needle tip should be flush with the surface of needle plate (+/- 2 mm) see illustrations below.

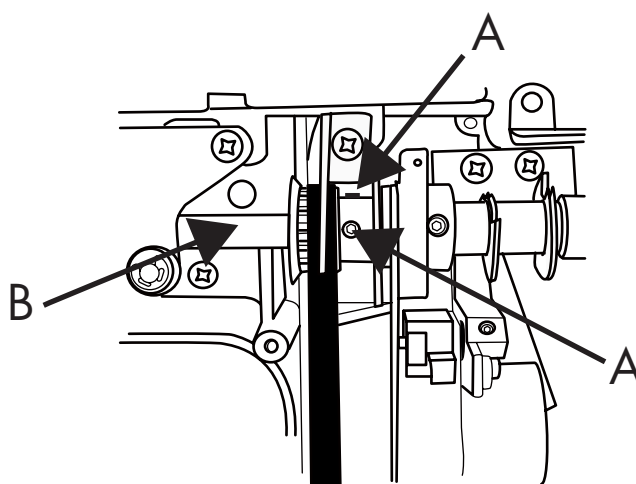


Adjustment

NOTE! Remove the covers, but the front cover must be connected to the pc board.

1. To adjust the Feed dog timing (vertical) loosen the 2 set screws (A) on the main shaft (B).
2. Insert a hex driver into one of the screws.
If feed-dog motion too early - Hold the hex screw in position and turn hand wheel towards you.
If feed-dog motion too late - Hold the hex screw in position and turn hand wheel away from you.
3. Tighten screw temporarily and check feed-dog timing (vertical), when the top of feed dog is flush with the surface of needle plate, the tip of needle must be flush with the surface of needle plate too (+/- 2 mm).
3. Tighten both screws firmly after the adjustment.

NOTE! After adjustment, be sure to check and/or adjust "Needle timing to shuttle"



6. Feed timing (horizontal movement)

Check

1. Set machine at function mode and select straight stitching and maximum stitch length.
2. Set needle to its upper turning position.
3. Turn the hand wheel, when the feed dog starts its movement backwards it should move 0.3 to 0.6 mm, before the needle start to travel down from its upper turning position.

Adjustment

NOTE! Remove the covers, but the front cover must be connected to the pc board.

1. Set machine at function mode and select straight stitching and maximum stitch length.
2. Brake loose the set screw (A) on the feed eccentric(B).
3. Turn the eccentric.

Turn it clockwise : it will be less movment of the feed dog.

Turn it counter clockwise : it will be more movment of the feed dog.

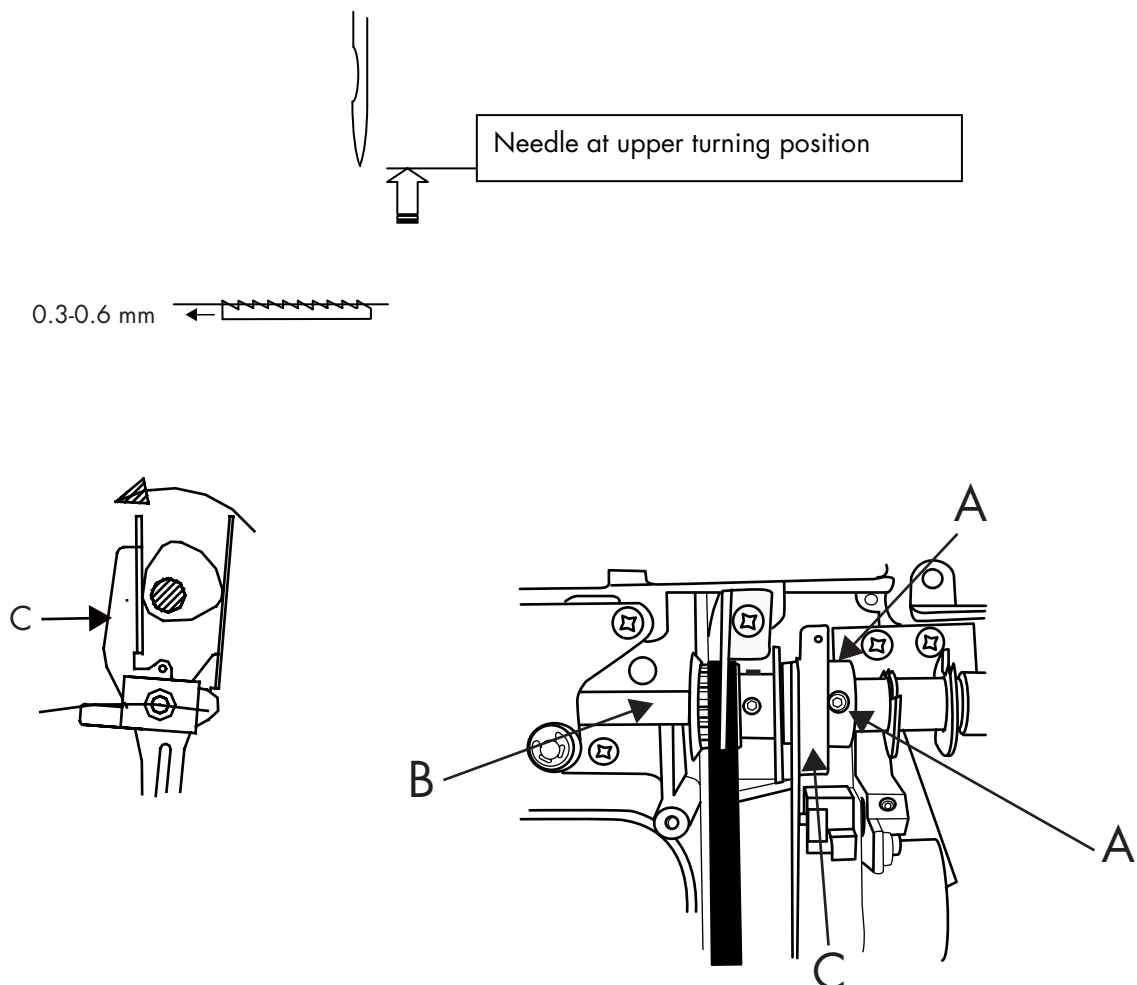
4. Tighten the set screw (A) on the main shaft (B)

5. Turning hand wheel and set the needle to its upper turning position and in the position just before it start to travel down.

7. Check so the feed dog movement is in the range of 0.3 to 0.6 mm, before the needle start to travel down from its upper turning position.

8. If wrong: Re-do from point 2.

9. If ok : Tighten the set screw (A) on the main shaft (B) firmly.



7. Positioning of pulse motor for feeding - basic point

This adjustment should normally only be carried out if the step motor has been replaced.

Origin point positioning for feed is that the motor pinion with cam touches with the stopper pin and the motor pinion turns from the position above at a designated angle in reverse direction, while feed regulator gear turns for the feed regulator to stop at the the angle of feed "0". (This adjustment has been made at the factory and is not needed for local maintenance/repair.)

Fine adjustment of feed amount: Adjustment is to be made by turning the screw on the motor bracket support plate below the feed generating unit as shown on the next page.

It is recommended to adjust feed pitch with stretch stitch patterns such as pattern #17.

Note: Feed pitch for all stitch patterns can be adjusted with the screw A only.

It is desirable to adjust feed pitch with most needed stitch pattern.

8. Feed Balance

*Pay much attention to this adjustment which is very important and critical.

Check of "Zero" feeding

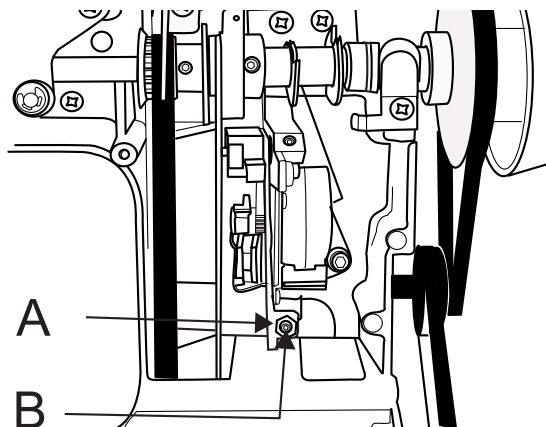
1. Enter Test mode and select stitch 1 to check "Zero" feed.
2. Place a piece of paper or fabrics under presser foot and run the machine, at this point there should not be any feeding.

Adjustment of "Zero" feeding

1. Set machine at function mode and select stitch pattern #22 for CE-150 or #10 for CE-250/350.
2. Place a piece of paper or fabrics under presser foot and run the machine and check to see the feeding direction
3. First loosen up the nut (A) with a 7 mm wrench.
4. Adjust by turning screw (B) in either way until correct
 - If the 2 mm Hex screw (B) is turned clockwise, it will feed in forward direction.
 - If the 2 mm Hex screw (B) is turned counter clockwise, it will feed in reverse direction.
5. Hold the 2 mm Hex screw (B) while tighten the nut (A).
6. Re-check.

Adjustment can be done without removing the front and the rear covers if control panel assy. is removed before adjustment zero feed.

See secection "Remove control panel".



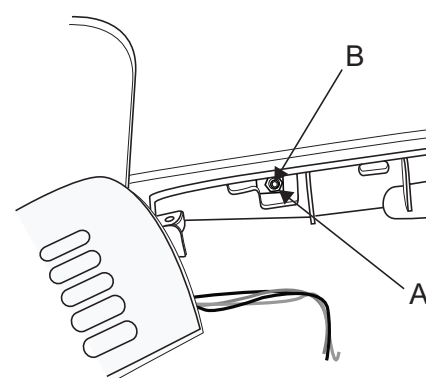
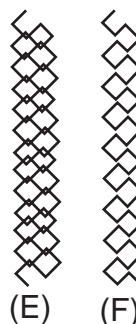
Check of stitch balance

After checking or setting the "Zero" feeding, the fine tuning of the stich balance has to be done.

1. Turn on the machine, select stitch #17 in normal sewing mode.
2. Thread up the machine.
3. The balance between forward and reverse feeding shall be such that the needle in the reverse feeding stitch goes down into the hole of the former stitch (D).

Adjustment of stitch balance

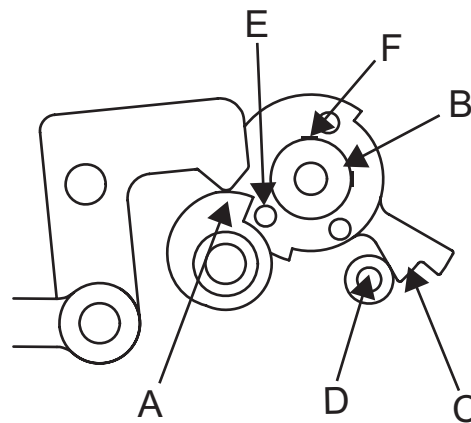
1. If feed pitch is not correct, adjust with the screw (B).
Adjustment can be done without removing the front and the rear covers. See secection "Remove control panel".
 2. Turn on the machine in function mode, select stitch #17.
 3. Loosen up the nut (A) with a 7 mm wrench.
 4. Adjust by moving the motor gear in either direction with 2 mm hex driver.
 - Turn the screw (B) clockwise to adjust reverse stitch (E).
 - Turn the screw (B) counter clockwise to adjust forward stitch (F).
- Repeat the process until desired feed balance is obtained.
4. Tighten the nut (A) with a 7 mm wrench.
 5. Re-check from point 1 in "check of stitch balance"



9. Basic positioning of zigzag step motor

Adjustment

1. Set the lifting cam (A) to its highest lifting position.
2. Set the step motor cogwheel (B) so its calibration wing (C) is against the calibration stop (D).
3. The circle mark (E) must at this point be in the position against the lifting cam (A).
4. Mount the Step motor into the cogwheel (B).
5. Tighten one of set the screws (F) on the Step motor cogwheel (B).
6. Connect the front cover.
7. Enter Test mode and select mode 2, needle should now be in its right position.
8. Loosen up the set screw (F) on the Step motor cogwheel (B).
9. Put a feeler gauge (0.4 mm) between the Step motor cogwheel (B) and the units casting.
10. Turn the Step motor cogwheel (B) so its calibration wing (C) is against the calibration stop (D).
11. Tighten the set screw (F) on the Step motor cogwheel (B).
12. Check so the circle mark (E) is in the position against the lifting cam (A).
13. Turn off the machine and tighten the seconded Set screw on the Step motor cogwheel (B).
14. Check the needle in centre position.
15. Check the



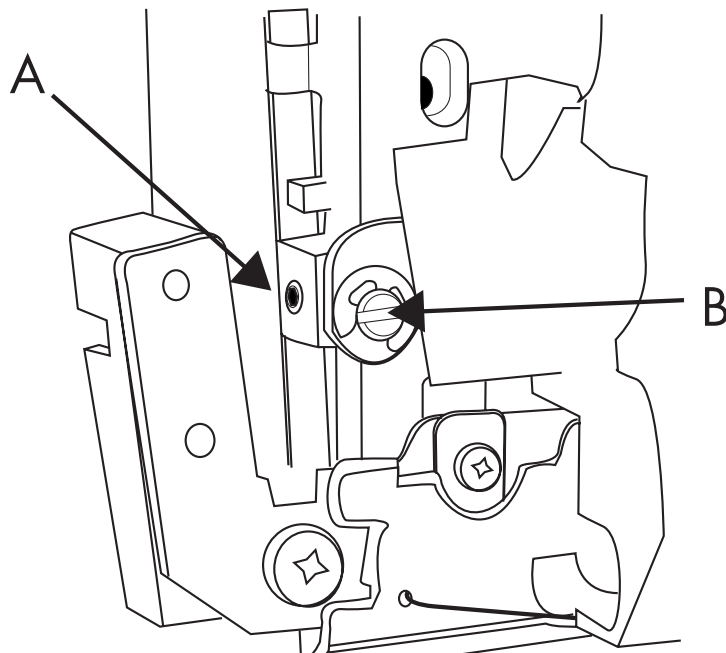
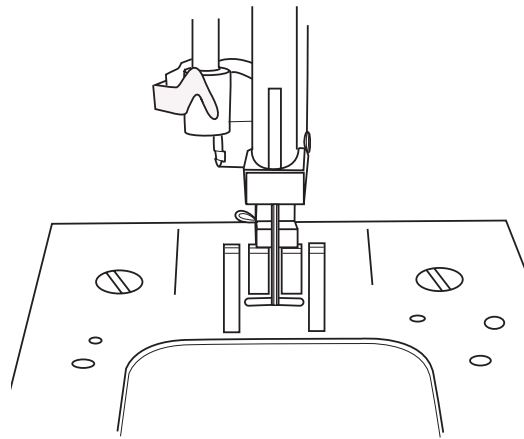
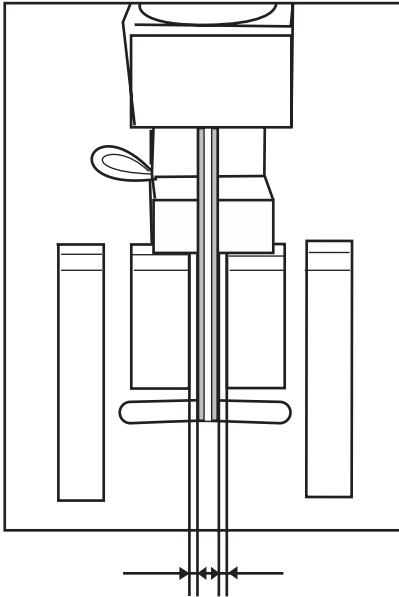
10. Adjustment of needle at center position

Check

1. Set the machine on straight stitching, center position.
2. Insert a new # 90 needle.
3. The needle position should now be in the centre of the middle slots of needle plate, see illustration 1.

Adjustment

1. Remove face cover.
2. Break loose the 2mm hex set screw (A).
3. Turn eccentric screw (B) on needle bar until the needle is in the centre of the middle slots of needle plate, see illustration 1
4. Tighten the 2 mm hex set screw (A).



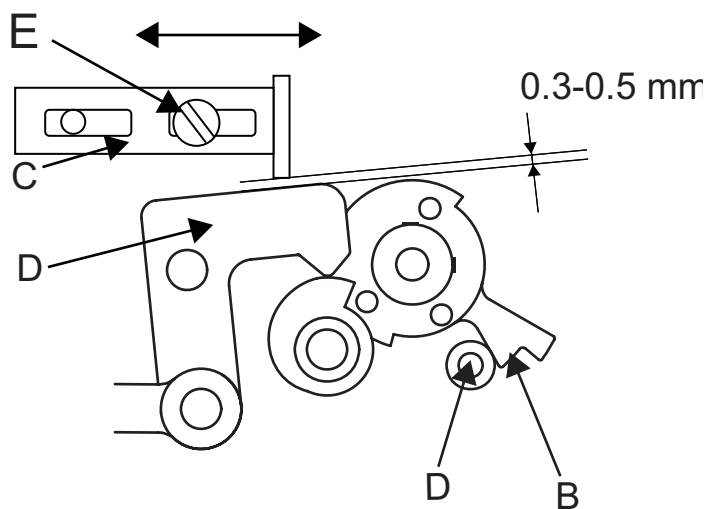
11. Positioning of stopper for needle at right position

Check

1. Front cover must be removed but still connected.
2. Enter Test mode and select mode 2 and the step motor calibration wing (A) should now be against the calibration stop (B).
3. The distance between stopper (C) and the cam follower (D) should be 0.3 and 0.5 mm.

Adjustment

1. Front cover must be removed but still connected.
2. Enter Test mode and select stitch 2. The needle should be in its most right position and the step motor calibration wing (A) should now be against the calibration stop (B).
3. Loosen up the screw (E) and move the stopper (C) until the distance is 0.3 and 0.5 mm between stopper (C) and the cam follower (D).
4. Tighten the screw



12. Tension of timing belt

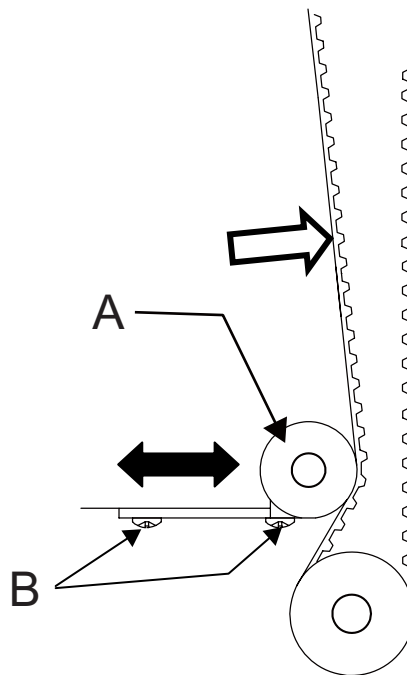
Check

This checking is needed before adjusting "Needle timing to shuttle".

1. Remove the covers
2. Push on the belt, it should not be too hard or too loose.
 - Too weak tension may result in slippage between shuttle gear and lower shaft gear due to thread jamming, bunching and fabric snagging.
 - Too strong tension may result in incorrect operation due to increased machine torque.

Adjustment

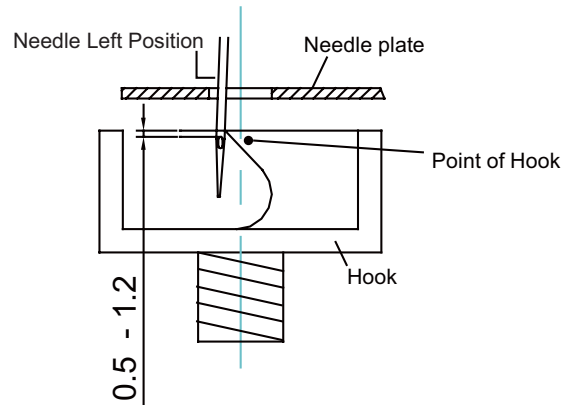
1. Loosen two screws (B) on support plate for idler pulley (A)
2. Move the position of idler pulley (A) until the correct belt tension is obtained.
3. Tighten the two screws (B).



13. Needle timing to shuttle

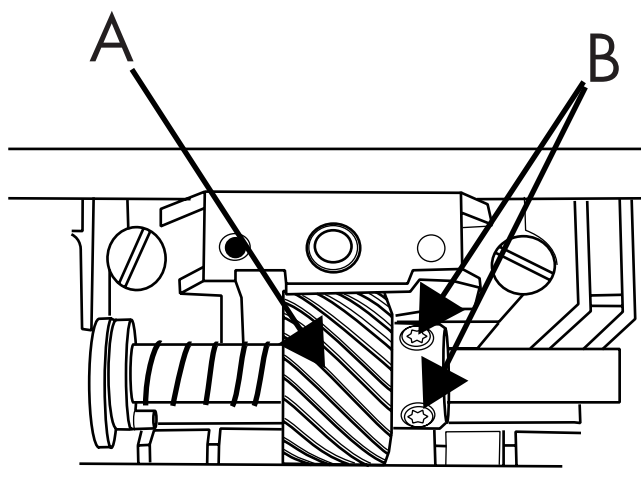
Check

1. Always check "Feed timing (vertical movement)", "Needle height" and "Tension of timing belt" before "Needle timing to shuttle" is checked.
2. Set machine at test mode and select mode 2.
3. Remove needle plate.
4. Insert a new #90 needle in the machine.
5. Set the needle to left position by turning hand wheel. Raise the needle from its lowest turning position slowly and set the point of the shuttle hook so it is align with the right side of needle.
6. The distance between point below the shuttle hook and the the upper side of the needle eye should now be in the range of 0.5-1.2 mm.



Adjustment

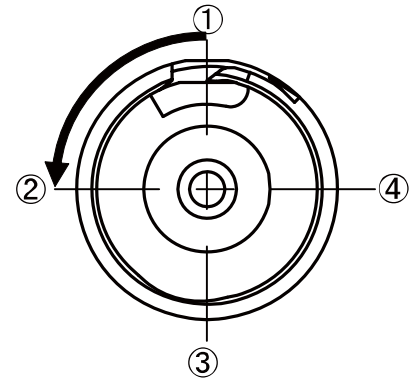
1. Always check "Feed timing (vertical movement)" and "Needle height" and "Tension of timing belt" before "Needle timing to hook" is adjusted.
2. Remove bottom cover.
3. Loosen two set screws (B) on lower shafts gear (A).
4. Adjust by moving the needle position with the hand wheel, and the hook position with a Allen key driver inserted into one of the screws of the lowers shafts gear.
5. Move the position of gear so the distance between point below the shuttle hook and the upper side of the needle eye is 0.5-1.2 mm.
5. Temporarily tightened one the set screws and check so the distance is 0.5-1.2 mm.
6. Before tighten the screw, check the mesh of hook gears



14. Mesh of shuttle gears

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 two or three different positions.
 - no play should be found on one position(max two positions).

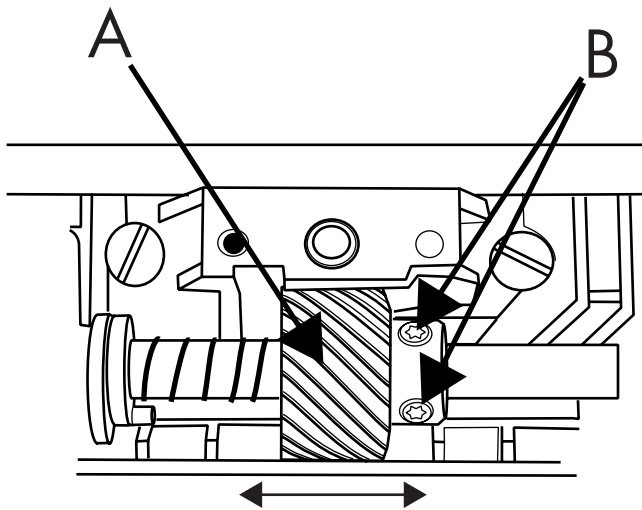


Adjustment

1. Loosen the set screw (B) on the lower shafts hook gear (A).
2. The play can now be adjusted by moving the lower shafts hook gear (A).
 - to the left, the play becomes smaller.
 - to the right, the play becomes bigger.

NOTE! When moving the lower shafts hook gear in any direction, the "Needle timing to shuttle" will change.

3. Temporarily tightened one of the set screws and re-check "Needle timing to hook".
4. When both settings are correct, tighten the two set screws (B) firmly.

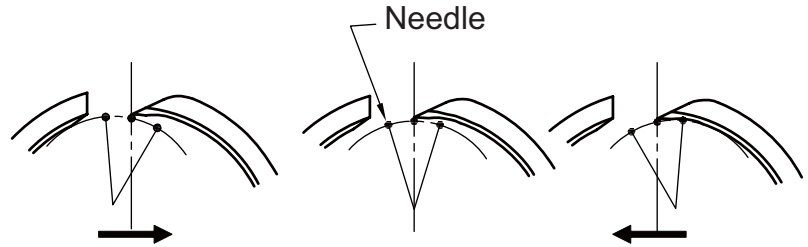


15.Parallellity of needle bar swing

Check

1. Set machine at test mode and select mode 2 - needle at L/C/R positions.
2. Remove needle plate and bobbin case.
3. Turn the hand wheel and check that the needle clearance to shuttle at both left and right sides of needle positions is even. See Illustration.

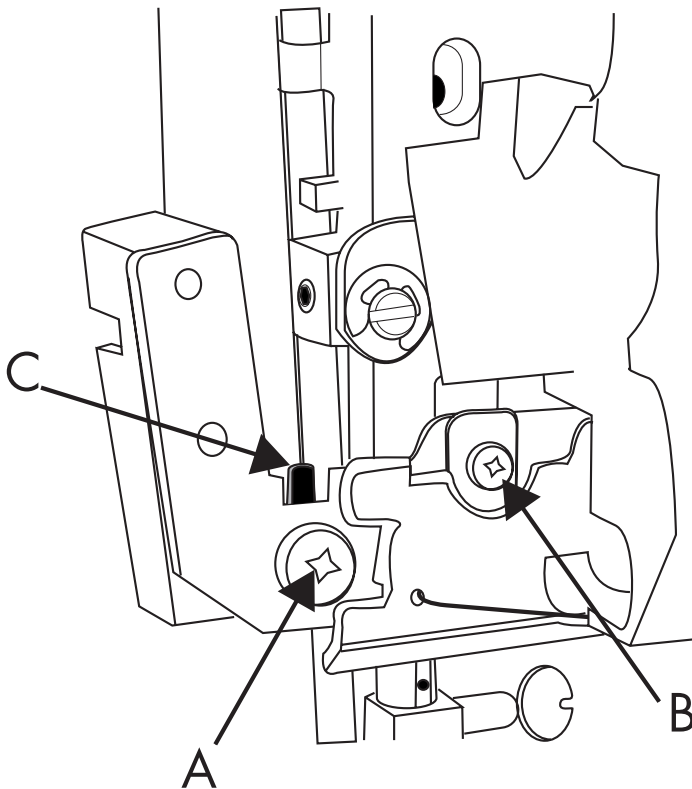
NOTE! If distance left and right sides of needle positions are even, but the distance between needle and hook is to close or to wide, re-set "16. Needle clearance to shuttle".



Adjustment

1. Remove needle plate, bobbin case and face cover.
2. Set machine at test mode and select mode 2 for needle at L/C/R positions.
3. Loosen the set screw (A) and (B) on the needle bar unit, see illustrated below.
4. Adjust by moving shifting bracket (C).
- If needle touches the shuttle at left side, move the shifting bracket (C) to the right.
- If needle touches the shuttles at right side, move the shifting bracket (C) to the left.
5. Tighten the set screw (A) and (B) firmly
6. Turn the hand wheel and check needle clearance to shuttle at both left and right sides of needle positions is even.

NOTE! This setting influences "16. Needle clearance to shuttle"



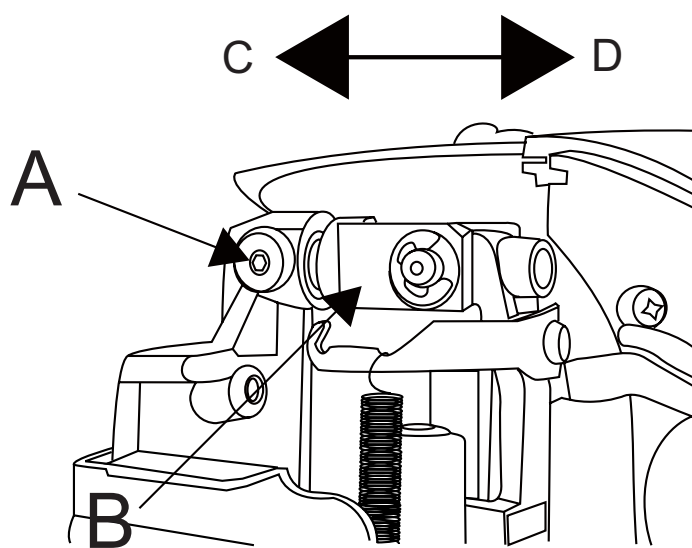
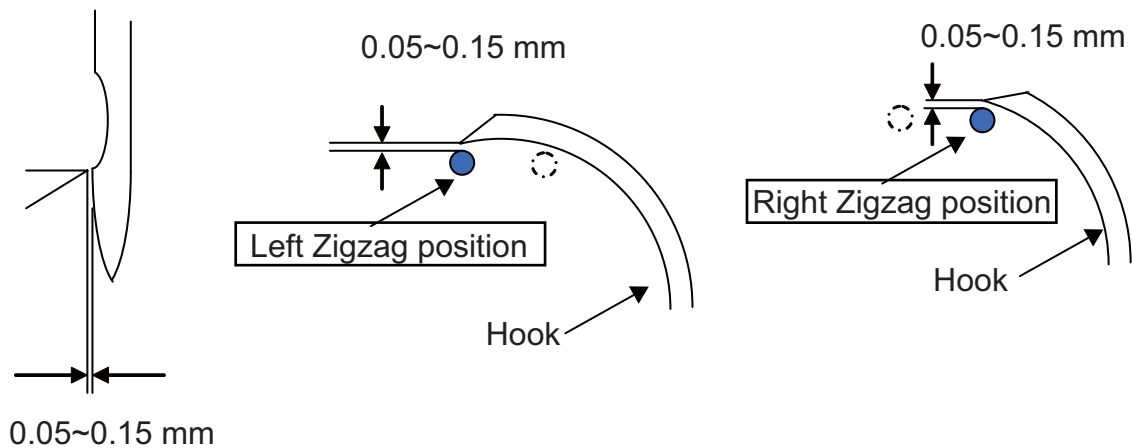
16. Needle clearance to shuttle

Check

1. Always check "14. Parallelity of needle bar swing" before any check of "Needle clearance to shuttle" is done.
2. Remove needle plate and bobbin case.
3. Turn the hand wheel and check so the needle clearance to shuttle at both left and right side of needle positions are within 0.05 to 0.15 mm.

Adjustment

1. Always check "14. Parallelity of needle bar swing" before any adjustment is done.
2. Remove needle plate, bobbin case and face cover.
3. Set machine at test mode and select mode 2 - needle at L/C/R positions.
4. Break loose the set screw (A) on the support shaft.
5. Move the needle bar unit, back or to the front, until the correct needle clearance is obtained.
 - To decrease clearance, move the needle bar unit (B) to the front (D - direction).
 - To increase clearance, move the needle bar unit to the back (C - direction).
6. Tighten the set screw (A).
7. Re-check to see so the needle clearance to shuttle is within 0.05 to 0.15 mm.



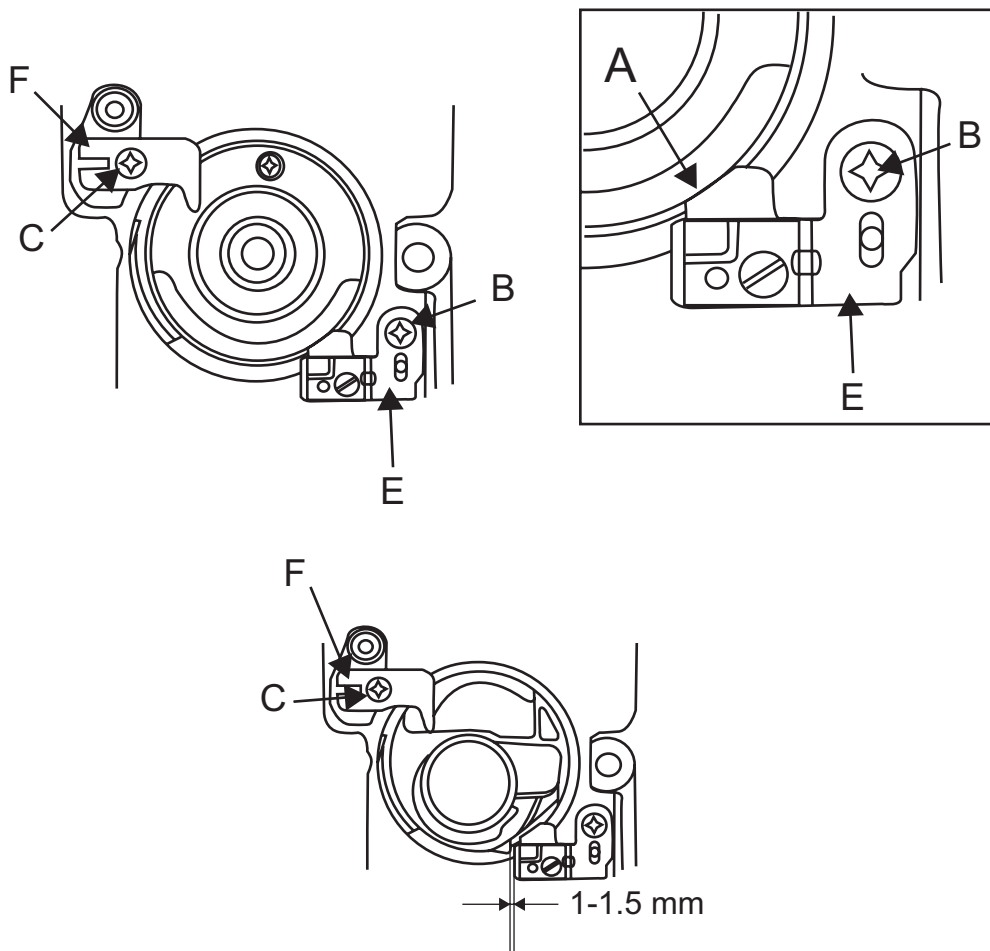
17. Retaining bracket for bobbin case

Check

1. Remove needle plate and bobbin case.
2. Check so the corner of plate spring aligns with inside of wall (A) of shuttle race .
3. Insert the bobbin case.
4. Turn the bobbin case clockwise until it hits the reverse rotation stopper.
5. It should now be a distance of 1 to 1.5 mm between the projection of the bobbin case and plate spring.

Adjustment

1. Loosen screw (B).
2. Move the retaining bracket (E) so the corner of plate spring aligns with inside of wall (A) of shuttle race.
3. Tighten the screw (B).
4. Insert the bobbin case.
5. Loosen screw (C) and adjust the position of reverse rotation stopper (F) so that there is a clearance of 1 to 1.5 mm between the projection and plate spring while turning the bobbin case back and forth.
6. Tighten the screw (C) securely.



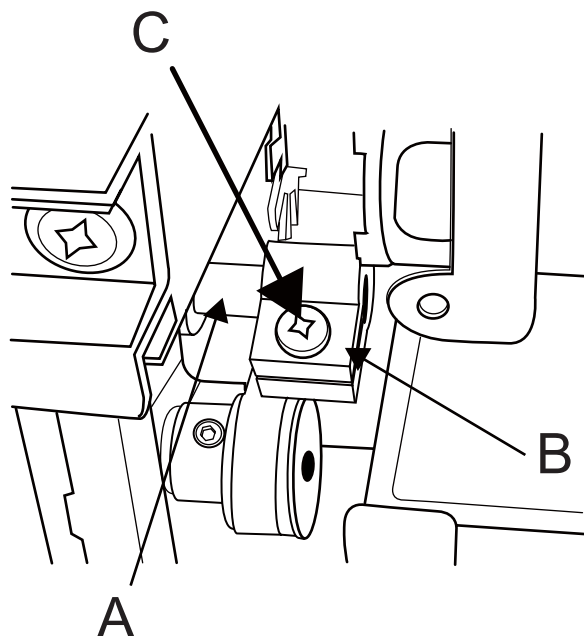
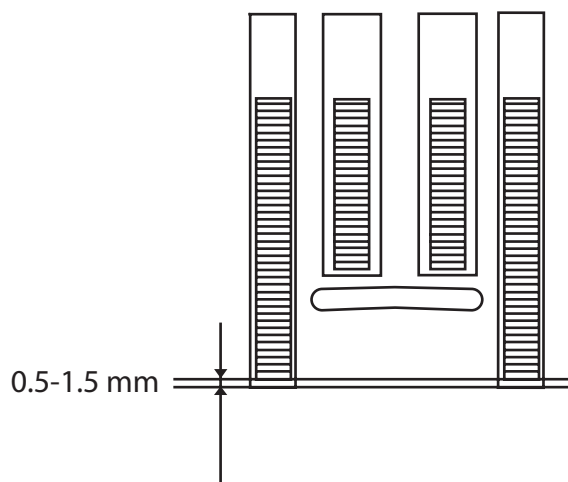
18. The lengthwise movement of the feed dog

Check

1. Turn on the machine and select straight stitch and set the machine to maximum feed lengths.
2. Remove presser foot.
3. Turn hand wheel at least one full turn in the sewing direction.
4. The clearance between needle plate and feed dog, when it's in it's most front position, should be between 0.5 to 1.5 mm.

Adjustment

1. Remove bottom cover before adjustment.
2. Loosen set screw (C) of feed regulating arm (B) on horizontal feed shaft (A) which operates feed dog.
3. Adjust the position by moving the feed dog theeth in either way.
4. Hold feed dog theeth in position with one finger then tighten the set screw (C) firmly.



19. Bobbin case thread tension

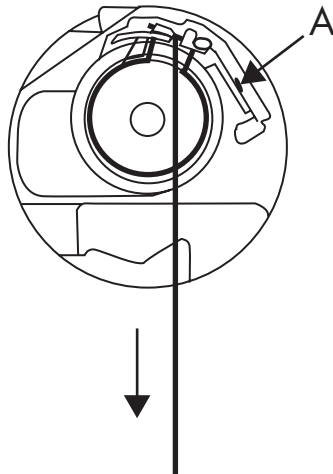
Check

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 14 - 18 g 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 done.



20. Upper thread tension unit

Check

1. Always check so the bobbin thread tension is correct before the upper thread tension is checked.
2. When the thread tension dial is set at "S", a correct take-up should be obtained at straight stitching and zig-zag using normal cotton fabrics and polyester thread.

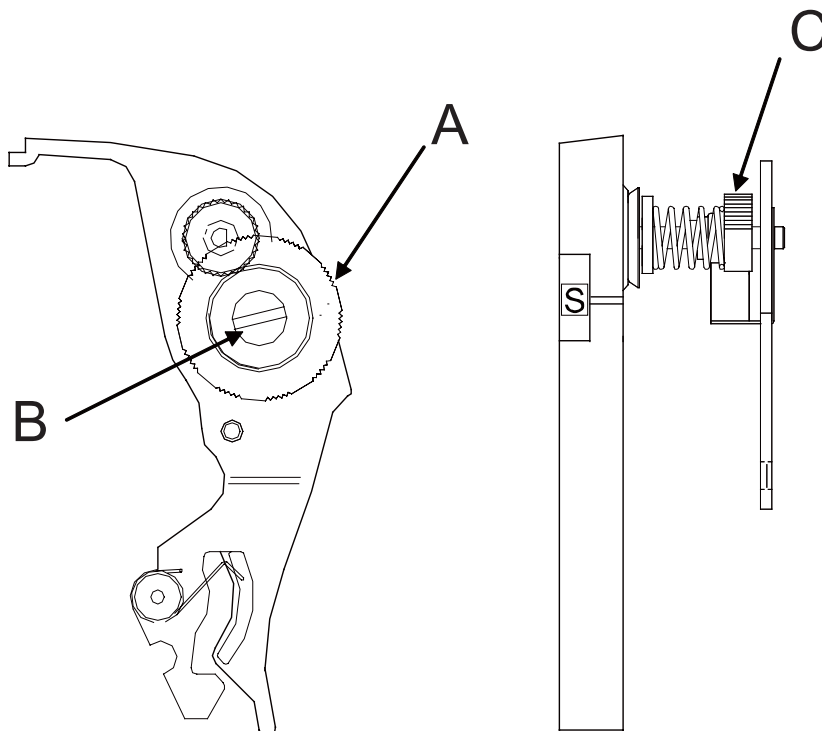
Adjustment 1 - When face cover only is removed

1. Always check so the bobbin thread tension is correct before the upper thread tension is adjusted.
2. Thread up the machine and sew the machine and turn the thread tension dial (A) until a correct take-up is obtained (40-50 g).
3. Remove the cap screw (B) on thread tension house
4. Remove Thread tension dial (A) and re-set it so "S" is in front of the index on the front cover.
5. Tighten cap screw (B).

Adjustment 2 - When Front cover is removed

1. Always check so the bobbin thread tension is correct before the upper thread tension is adjusted.
2. Thread up the machine and sew the machine and turn dial knob (C) until a correct take-up is obtained (40-50 g).
3. Remove the cap screw (B) on thread tension house
4. Remove Thread tension dial (A) and re-set it so "S" is in front of the index on the front cover.
5. Tighten cap screw (B).

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



21. Position of buttonhole sensor lever

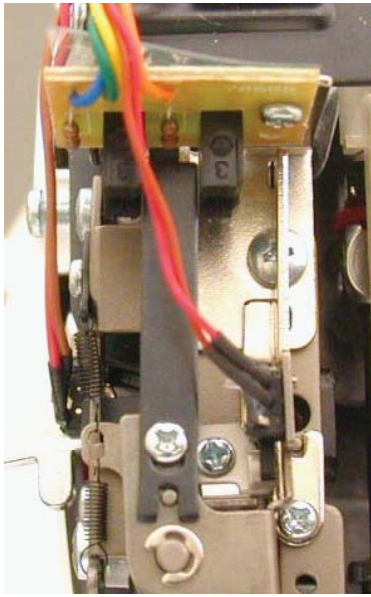
Detecting method for buttonhole bartack position is that two photo sensors are provided for top and bottom bartacks and the tip of buttonhole lever swung by the projection of presser foot passes through the slots of sensors. Signals generated by closing and opening the sensors execute each step of buttonhole.

Check

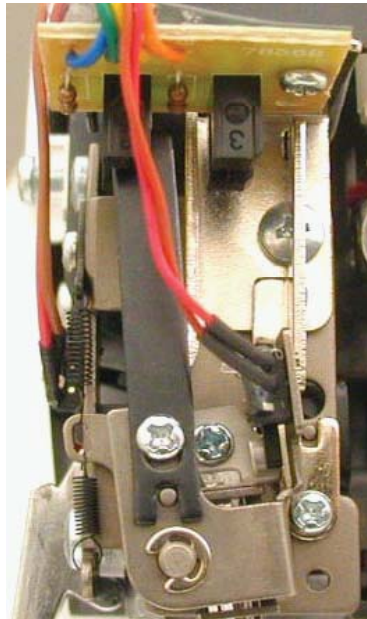
When sewing a one-step buttonhole with the buttonhole foot, it should sew it with out any interruption.

Adjustment

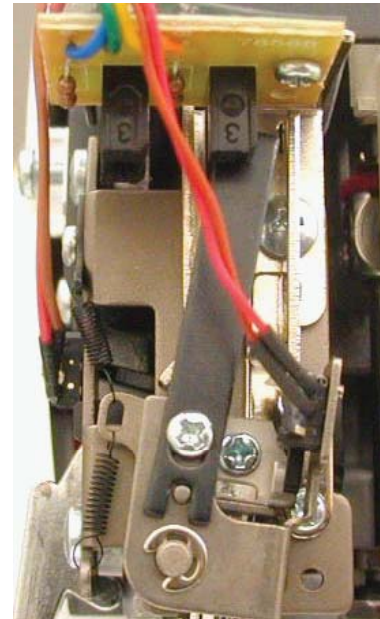
1. Loosen the screw (A) on the cantilever (B).
2. Move the cantilever (B) to change the closing timing in either way.
- 3 Tighten screw (A).



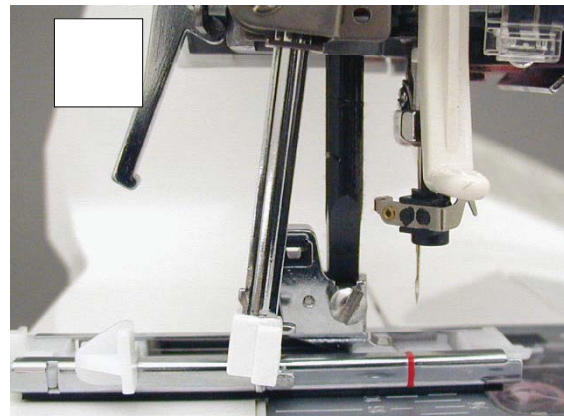
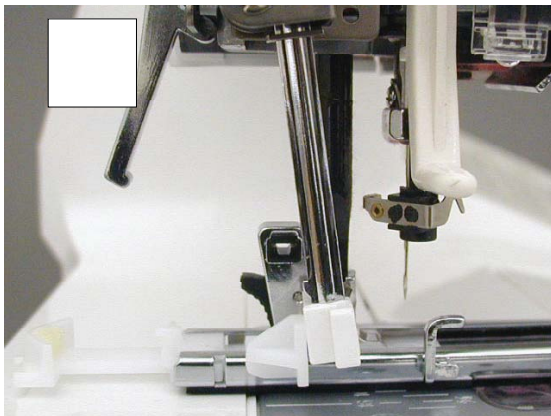
Buttonhole lever is at free position.



Buttonhole lever is at position of A below



Buttonhole lever is at position of B below



22. Tension of motor and pulley belt

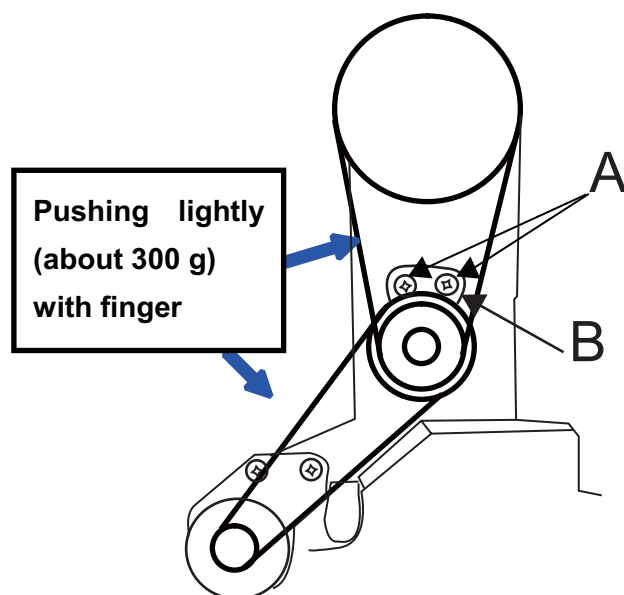
Check

1. Remove the covers.
- 2 Check tension of pulley belt by pushing it lightly (about 300 g) with your finger.

Adjustment

1. Remove the covers.
2. Loosen lightly the two set screws (A).
3. Move the belt tension unit (B) until the correct belt tension is obtained.
Move vertically - belt tension for the pulley belt
Move horizontal - the belt tension for the motor
4. Tighten the two set screws (A).

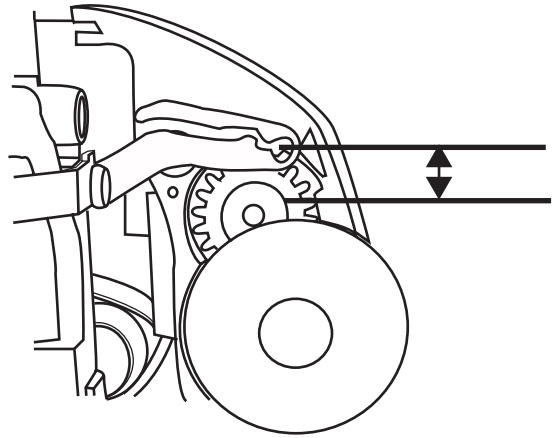
NOTE! Too tight tension may result in abnormal rotation due to more burden on motor and more machine torque. On the contrary, too weak tension may result in noise from belt and slipping of belt.



23. The needle stop position

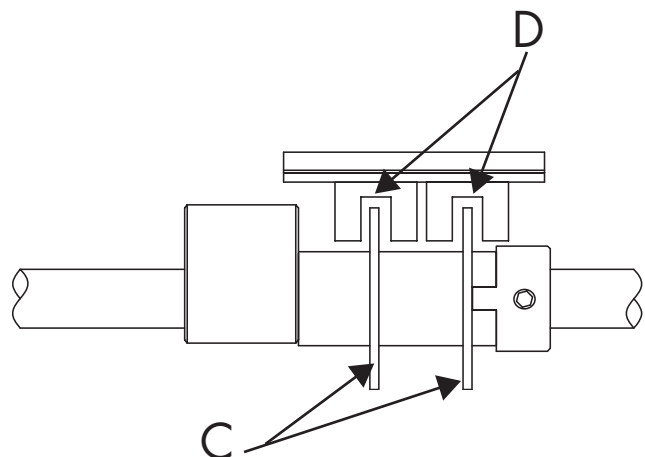
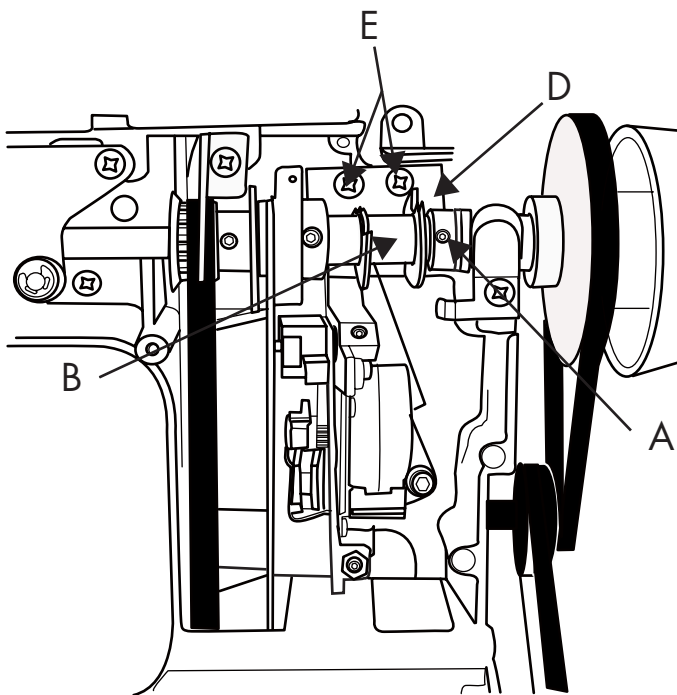
Check

1. Set machine at function mode and select straight stitching.
2. Connect the foot control and run the machine.
3. Release the foot control, machine should stop, and the tip of take-up lever should be located within a range on thread guide plate, see illustration.



Adjustment

1. Remove the front cover, see covers section
 2. Loosen the two (2 mm hex) screws (A) on the control cam (B)
 3. Turning the control cam in either way.
 - Turn it up, the tip of take-up lever takes a higher position
 - Turn it down, the tip of take-up lever takes a lower position.
 4. Push on the controller cam holder ring to the left and tighten one of the set screws.
 4. Recheck so the needle stops at the right position, by run the machine.
- When the foot control is released, machine should stop, and the tip of take-up lever should be located within a range on thread guide plate, see illustration.
5. Check so the controller arm discs (C) are not hitting the controller board sensors (D).
re-adjust the controller board by loosen up the two screws (E) and move the the controller board sensors (D) until the controller discs aren't hitting the sensor.
 6. Tighten the two (2 mm hex) screws (E).
 7. Re check setting and tighten the two screw (A) firmly.



Function mode of sewing machine

- thread sensor deactivated.

Apply to model CE-150, CE-200E, CE-250 and CE-350

In order to check or set of the different functions on the machine without having it threaded there is a Function mode.

After entering the function mode all the different sensors of the machine is de-activated and the machine will run without thread.

Handling

Go to the Function mode of the machine by pressing buttons (1) and (2) Arrow up and (3) while the main switch (A) is switched on. See illustration below

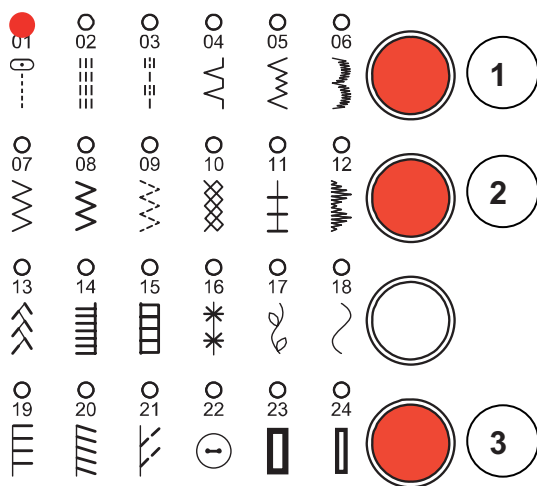
Sewing function mode

In Function mode all stitches are the same as in Normal sewing mode.

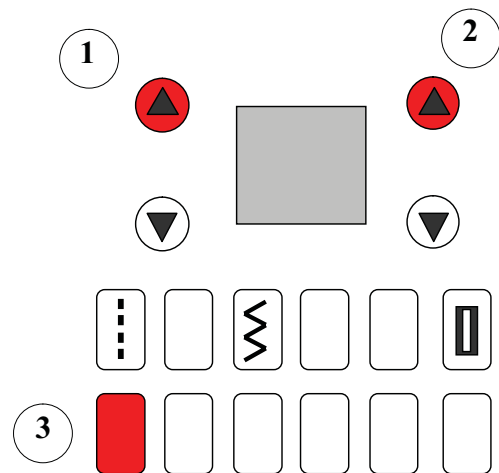
Embroidery function mode

In Functions mode when operating the embroidery mode of machine, it must be connect to a PC through a USB cable.

To run the machine use start/stop switch after the embroidery data is transfered to machine from PC.



CE-150



CE-250 and CE-350



Test mode of sewing machine

Apply to model CE-200E, CE-250/350

In order to check or set the step motor or sensor functions of the machine there is a Test mode.

Handling

Go to the Test mode of the machine by...

1. Move bobbin winder shaft to the right (A) for bobbin winding.
See illustration

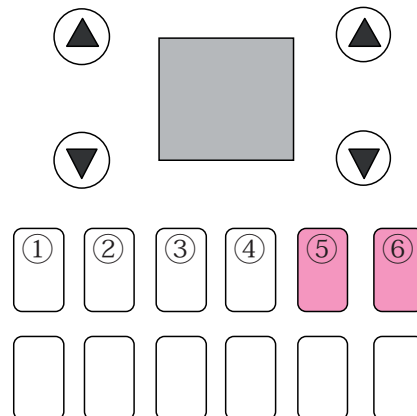
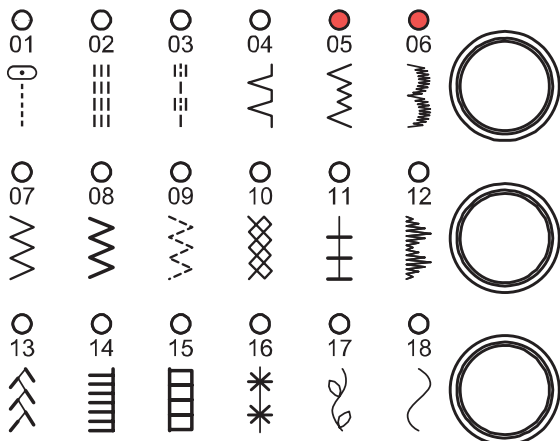
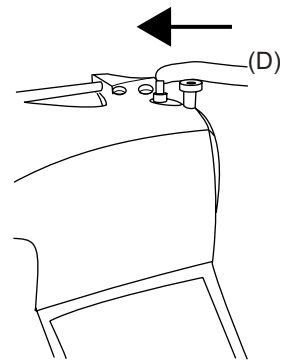
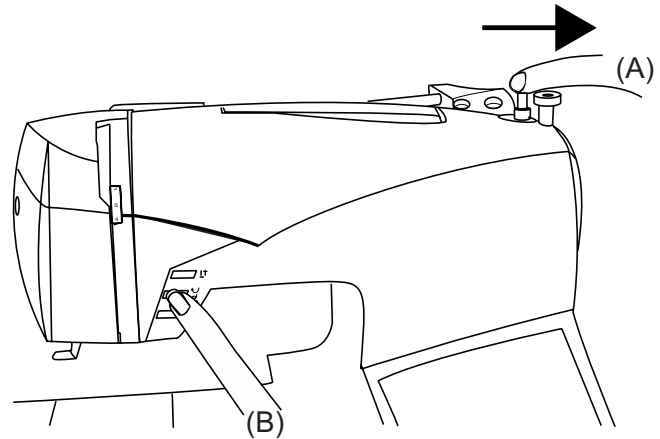
2. Press the reverse stitch switch (B) located at the center position. See illustration

3. Turn on power switch (C) . See illustration below

4. Move bobbin winder shaft to the left (D) within 5 seconds to release it from bobbin winding position.

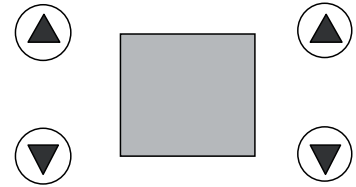
5. Release the reverse button and now should button Nr 1 blink.

In case of embroidery sewing, enter the Embroidery unit before enter the test menu.



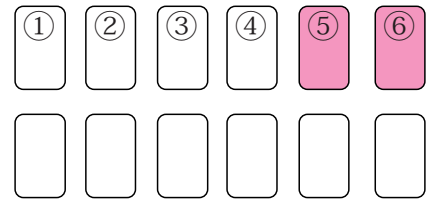
Test mode for sewing machine

- Apply to model CE-200E, CE-250/350



Operation

Enter Test program.



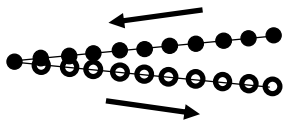
Test mode 1: Needle position at center without feed

Is used for checking the movement of the zig-zag step motor and centre position of the needle in straight stitching. The zig-zag stepmotor calibrates and takes its Centre position.



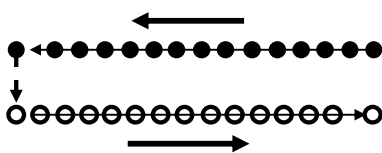
Test mode 2: Needle position at Left/Centre/Right without feed.

After entering the test mode 2 all the different sensors of the machine is de-activated (Machine will run without thread).



Test Mode 3: Balance check

Machine will feed 2 mm, at center position, stitch 11 needles forward and backward. Needle must always stop at the starting stitch



Mode 4: Balance check

feed 2 mm, at two needle positions, stitch 31 needles forward and backward. Needle must always stop at the starting stitch

Test mode 5: Upper thread brake sensor

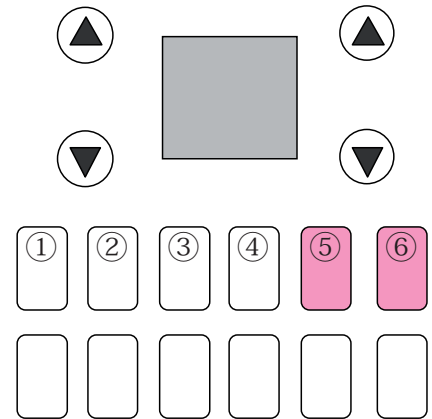
After entering mode 5 the upper rotary Thread break sensor is activated after 8 stitches and machine will stop

Mode 6: Check spring sensor

Machines should stop at 3 times by check-spring sensor activated while machines starts without thread.

Test mode for sewing machine with embroidery unit

To run the machine use start/stop button
 NOTE! For safety remove the needle from the machine



Test mode 1

The machine will make a square clockwise.

Test mode 2

The machine will make a square counter-clockwise.

Test mode 3

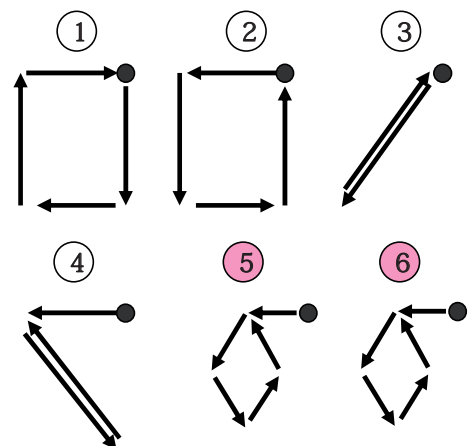
The machine will make a diagonally from right top to left bottom.

Test mode 4

The machine will from origin point make a diagonally from left top to right bottom

Test mode 5

The machine will make a diamond shape continuously at 400 rpm.
 The machine runs continuously under the test mode 5.
 Push the start/stop switch again and the machine will stop.



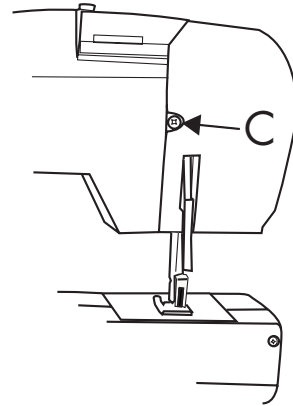
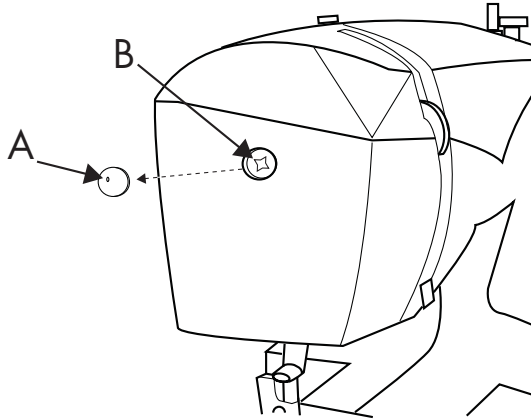
Test mode 6

The machine will make a diamond shape continuously at 600 rpm.
 The machine runs continuously under the test mode 6.
 Push the start/stop switch again and the machine will stop.

Note! Circle mark is starting point in the picture.

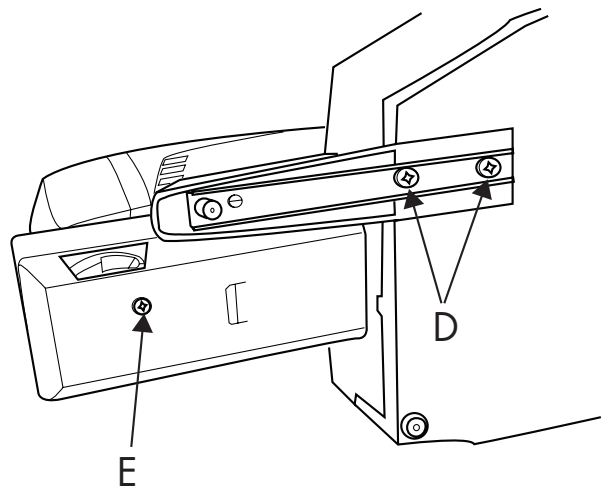
Removing face, bottom and base covers

1. Pull out cap (A) in the center of the face cover and remove screw (B) inside.



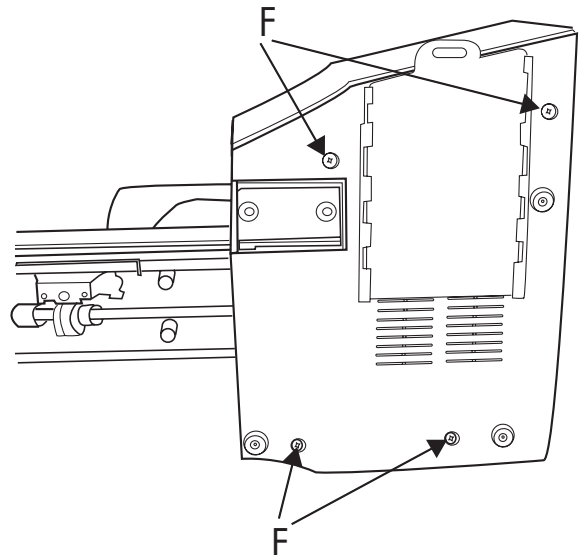
2. Turn the machine around and remove the screw (C) that holds face and back cover together and remove the face cover

3. Remove the two screws (D) holding the support leg. Then remove the Support leg



3. Remove the screw (E), then remove the bottom cover

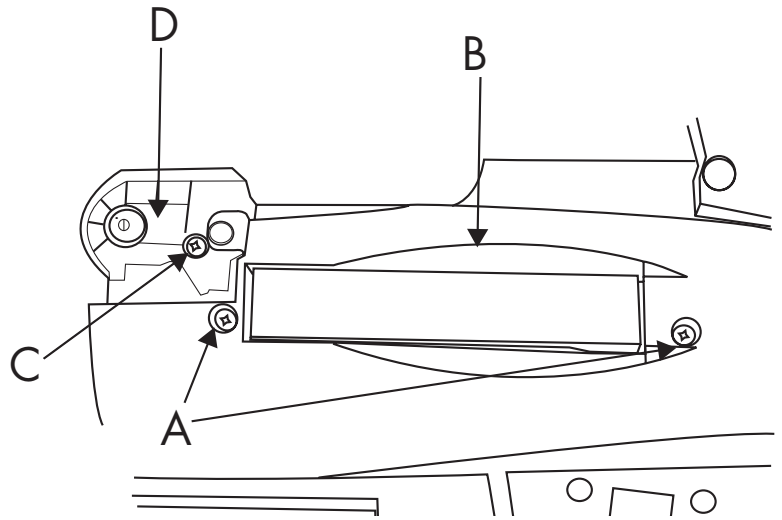
4. Remove four screws (F) on base cover. and then remove base cover.



Removing top cover and thread sensor cover

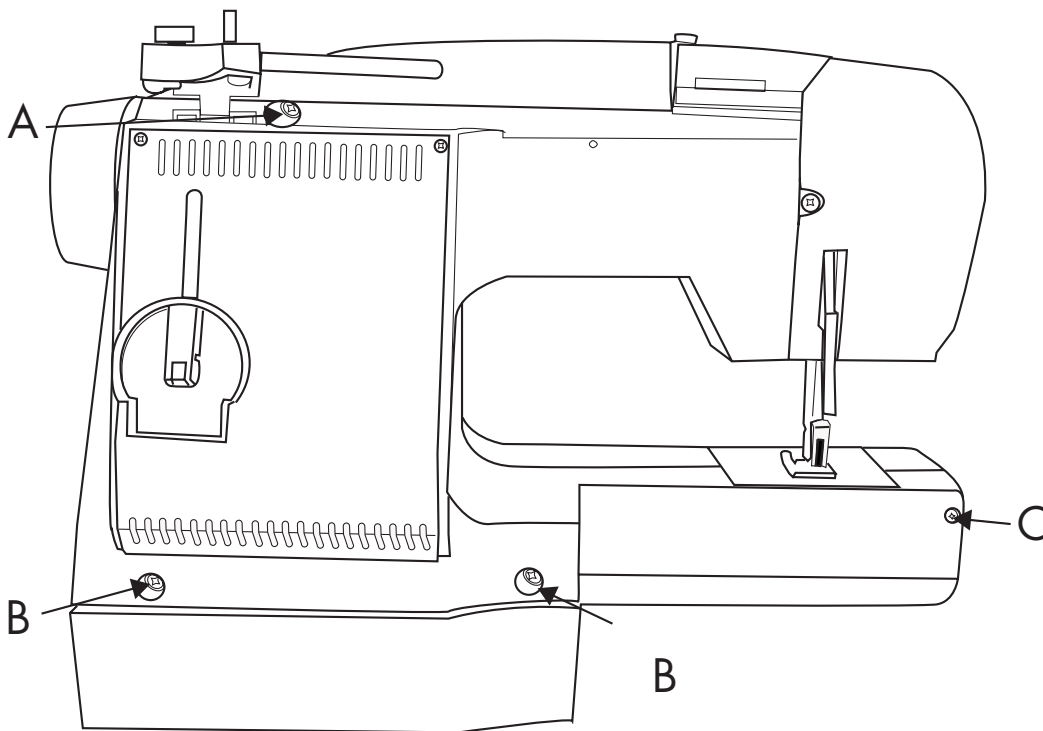
1. Remove two screws (A) and then remove the top cover (B).

2. Remove screw (C) and then remove the thread sensor cover (D).



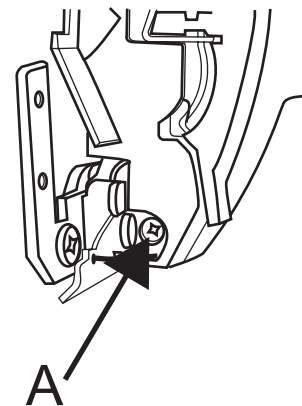
Removing rear cover

1. The top, face, bottom and base covers must be removed first.
2. Remove four screws (A,B and C).
3. For the free arms cover remove screw (C), use thin Phillips screw driver.

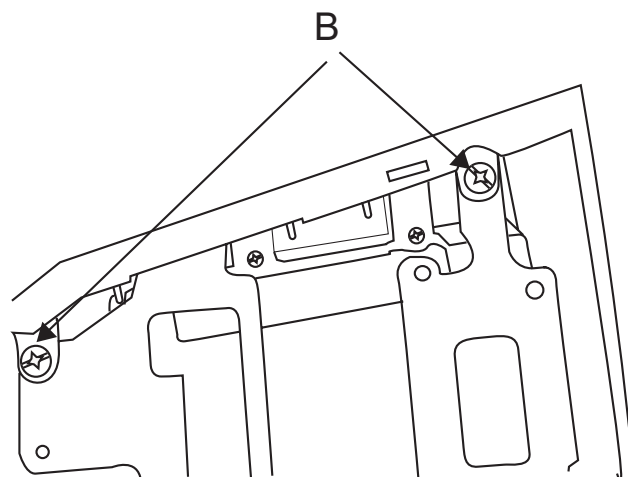


Removing front cover

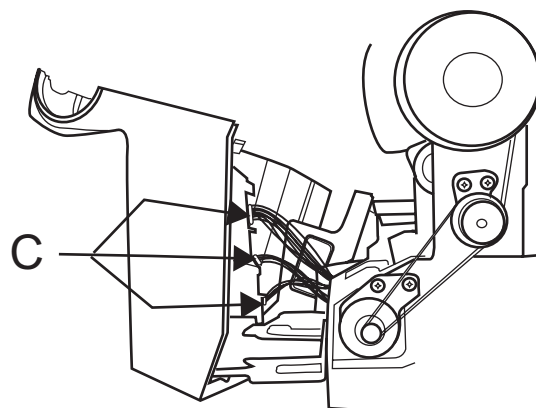
1. The top, face, bottom ,base and rear covers must be removed first.
2. Loosen a screw (A) on the bottom of thread guide plate, looking from the front



3. Lay the machine on its back and remove two screws (B) from the bottom.

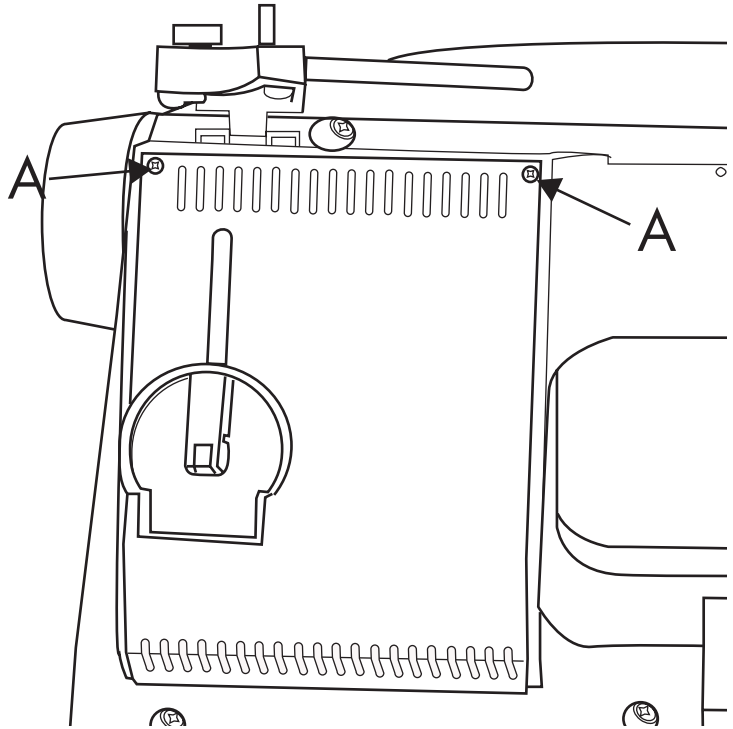


4. Pull out the front cover and disconnect the three cables (C) that connects the front cover to the main PC Board.

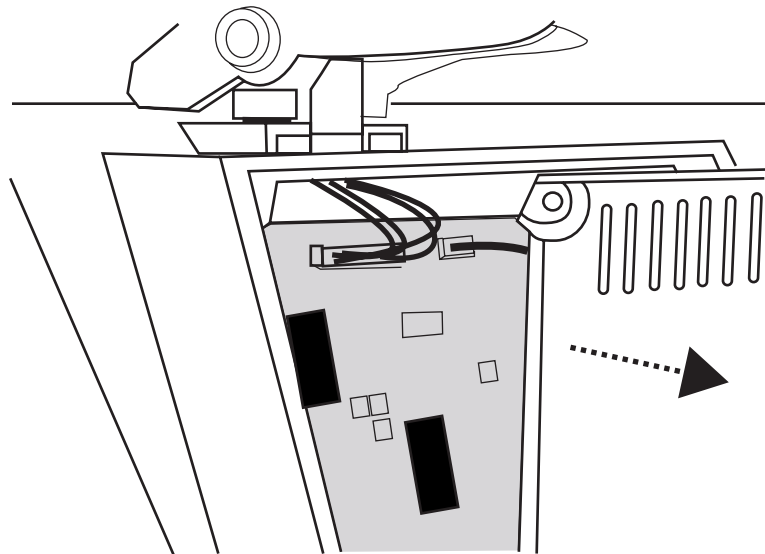


Removing the circuit board cover

1. Remove two screws (A).



2. Pull the Circuit board cover straight out.
The Circuit board is located inside of rear cover.

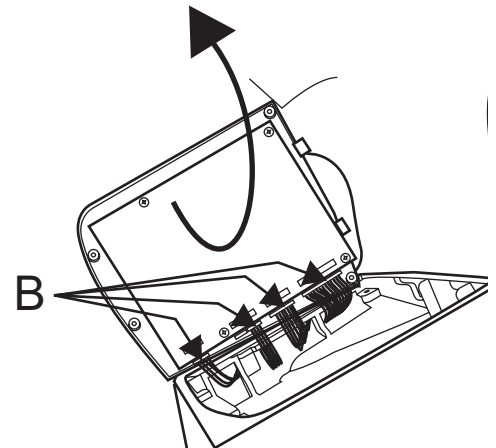
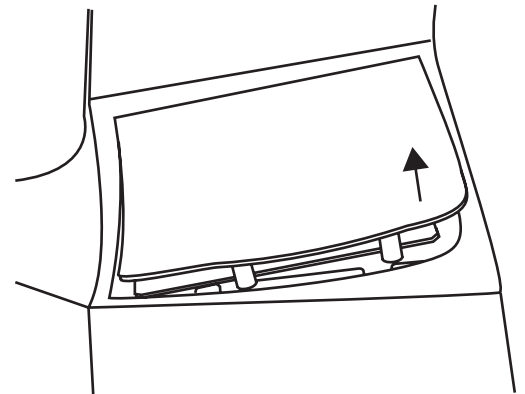
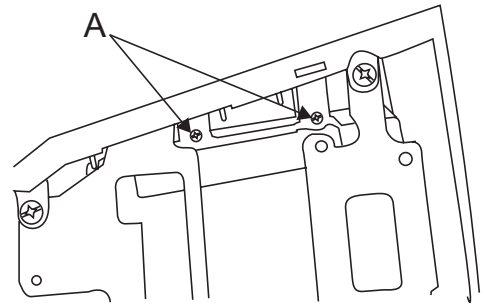


Removing control panel assembly

Note! The rear and front covers need not be removed.

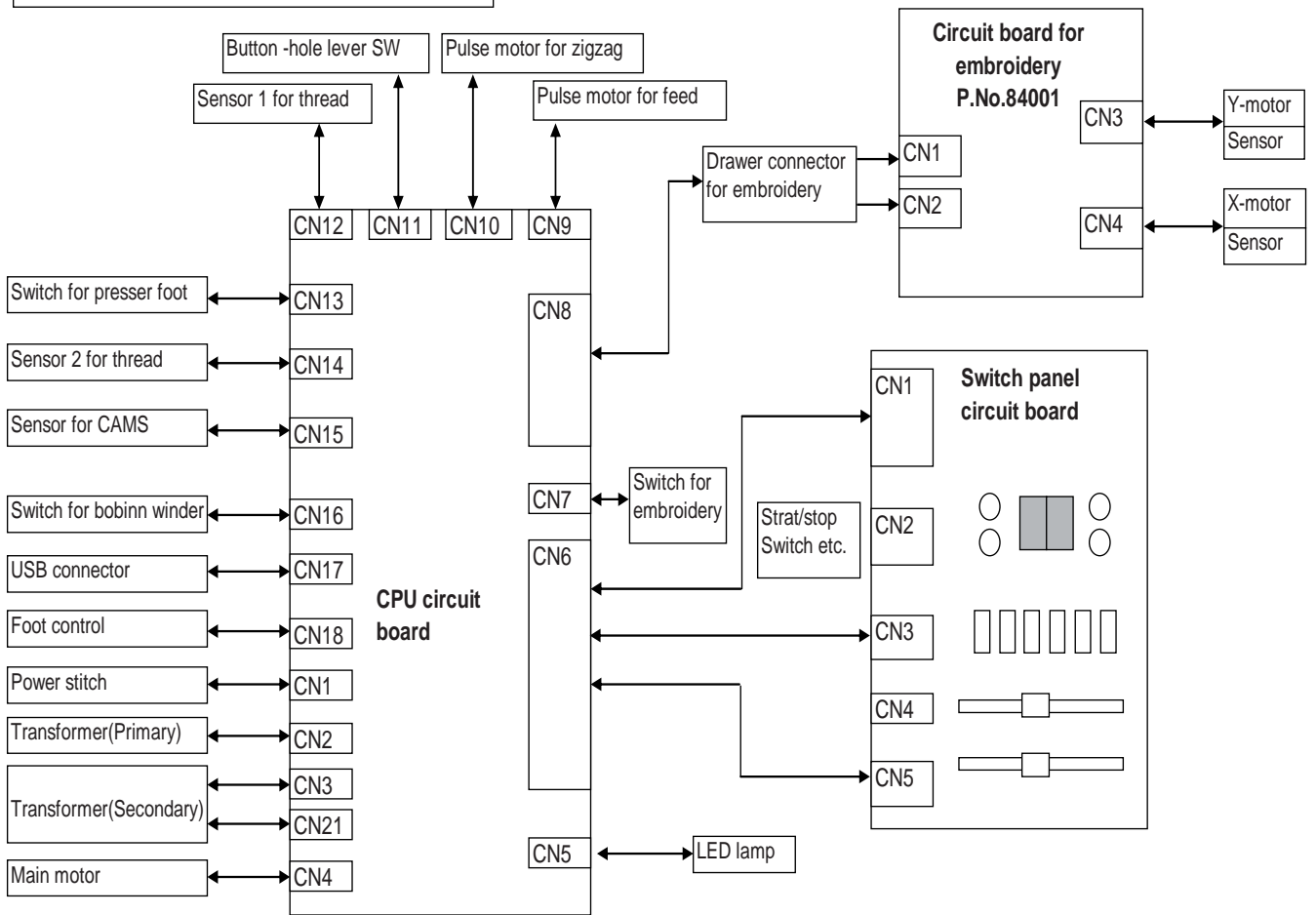
The Circuit board of control panel assy. is mounted on the front cover under the control panel with two screws

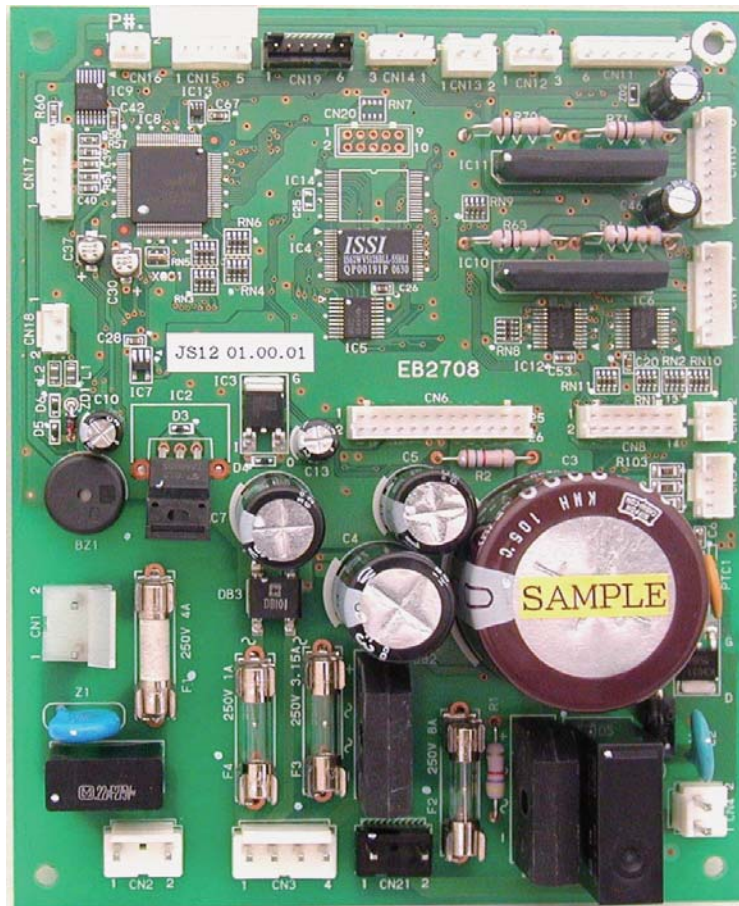
1. Remove support leg and base cover.
2. Lay the machine on its back and remove two screws (A) by tuning them through the hole of bracket.
3. Push up the control panel from the bottom of machine.
4. Pull out the control panel from the front cover. Disconnect the 4 cables (B) from the control panel. Then remove the control panel.



Note: When adjusting the machine with the front cover removed, connect the control panel assy. with the machine.

Wiring diagram for model





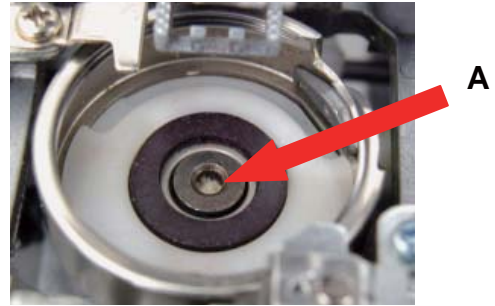
CN 1 = Power supply
 CN 2 = Transformer (primary)
 CN3 = Transformer (secondary)
 CN4
 CN5
 CN6
 CN7 = 23P connect cable.Connected with Switch Board
 CN8 = Drawer for Embroidery
 CN9 = Motor for material feeding
 CN10 = Motor for needle position
 CN11 = Buttonhole Stitch SW
 CN12 = Thread breakage sensor
 CN13 = Presser foot

CN14 = Check spring sensor
 CN15 = Cam sensor harness
 CN16 = Bobbin winding switch
 CN17 = USB Connector
 CN18 = Foot Control
 CN19
 CN21 = Transformer (secondary)

Oiling in Shuttle area and Needle bar

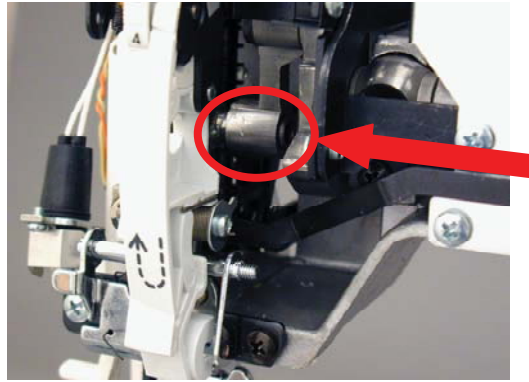
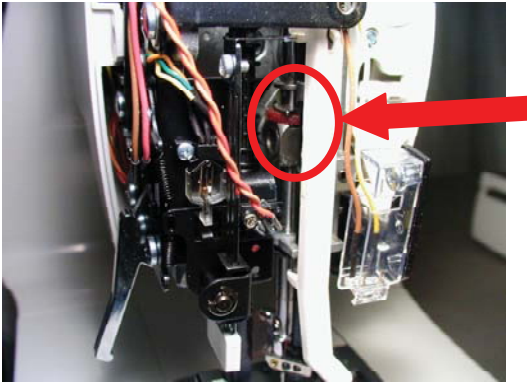
Oiling in Shuttle area

1. Remove Bobbin cover and Needle plate.
2. Remove Bobbin case by **lifting** out from the left side.
3. Using the brush provided, clean around the whole exposed area, and then apply a little oil in the place (A).



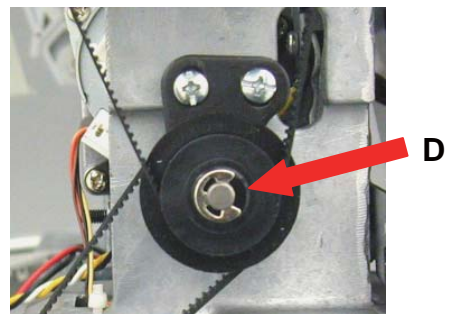
Oiling in Needle bar

1. Remove face cover and then place one or two drops oil at Needle bar clamp (B) & (C).



Oiling in Idler pulley

1. Put one drop oil to center shaft of Idler pulley, when removing rear cover.



Remove the Hoop carrier cover.

1. Remove screw (A) on the hoop carriage
2. Push the cover up and then to the back

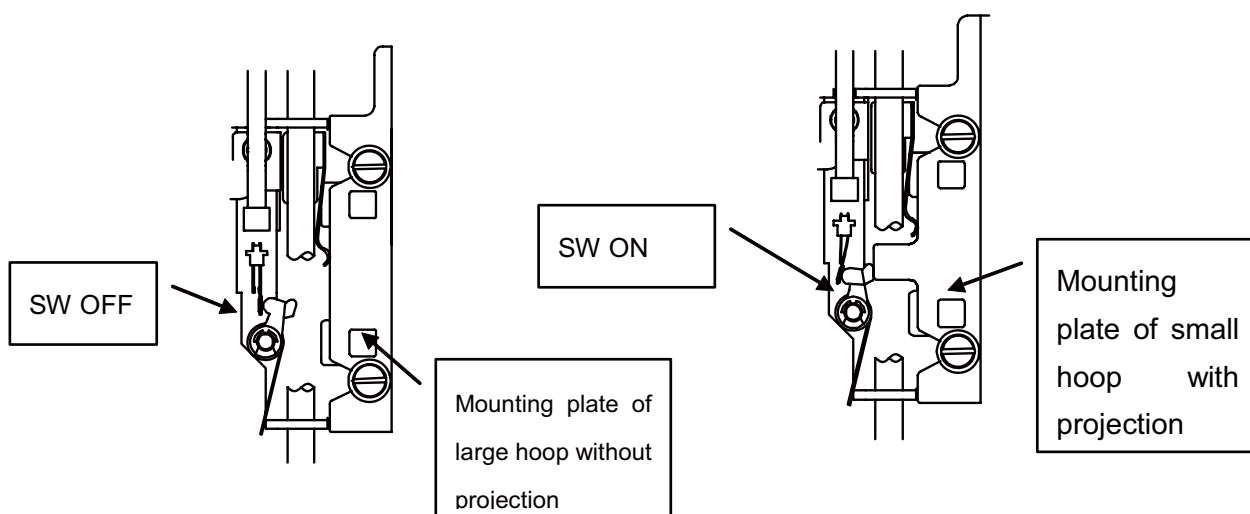


Recognizing hoop size

There is no adjustment on Hoop recognizing.

Hoop size is recognized with the switch turned on or off at the hoop carriage.

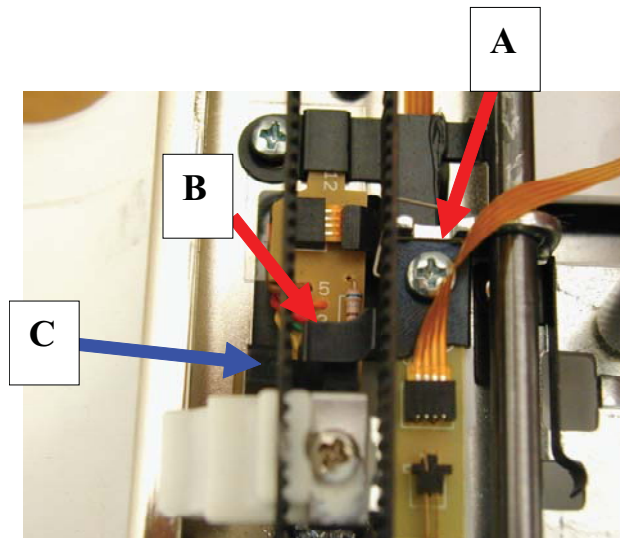
When large hoop is attached or no hoop is not attached; Switch is turned off as shown in the left photo. When small hoop is attached; Projection of small hoop pushes the spring to turn on the switch.



Adjustment origin position of embroidery foot along X & Y axis

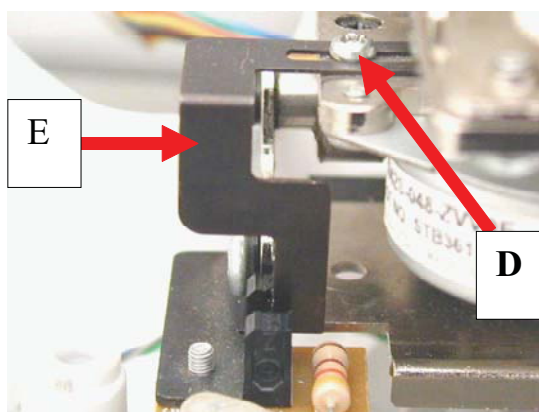
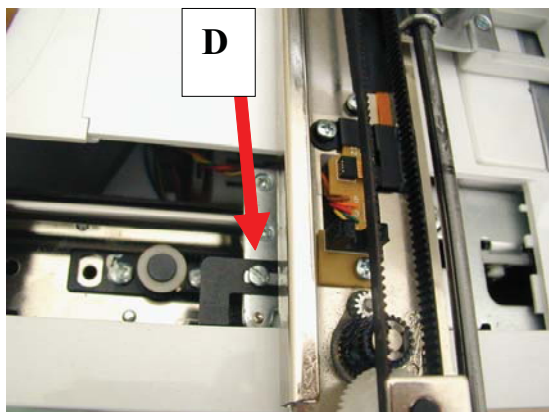
When adjusting position of embroidery foot along Y axis

Loosen screw (A) below flat cable and move sensor plate (B) back and forth to change relation with sensor (C).



When adjusting position of embroidery foot along X axis

Loosen screw (D) and move sensor plate (E) fixed on carriage of X axis unit to the right or left for adjustment.



If it is shifted to the left, hoop stops early since sensor light is blocked early.

If it is shifted to the right, hoop may shift excessively, since sensor light is blocked late,