

Service Manual

Revised on
Mar.2014

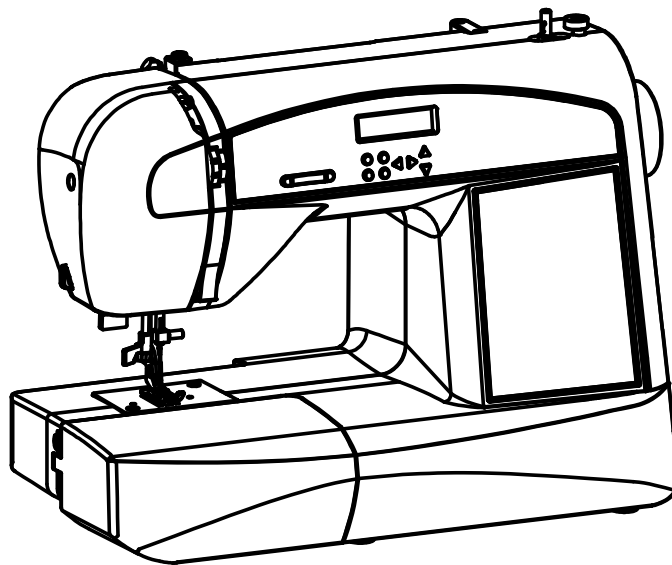
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Model:
590series



JAGUAR



MODEL 590 series;
590/592/594/596

Original issue: Mar.2014

Jaguar International Corporation

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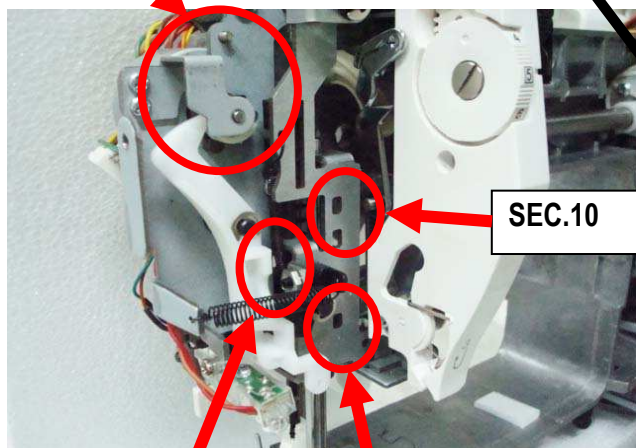
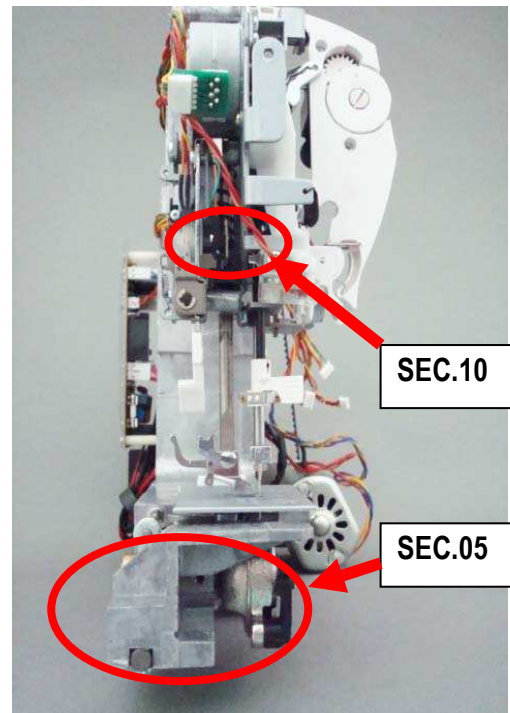
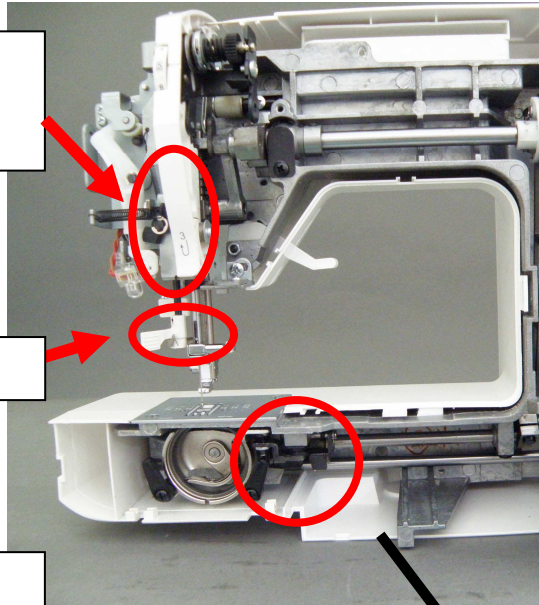
00 Location of adjustments

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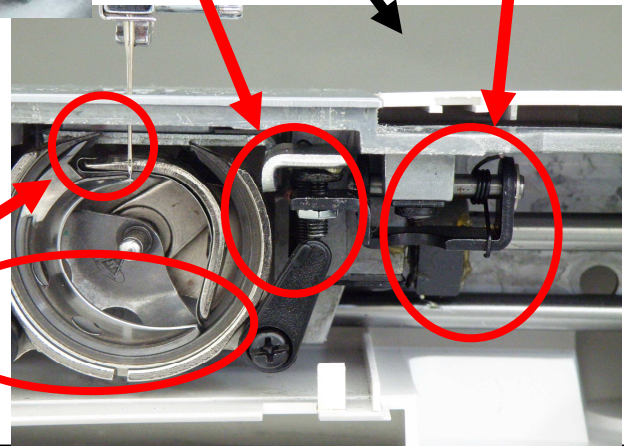
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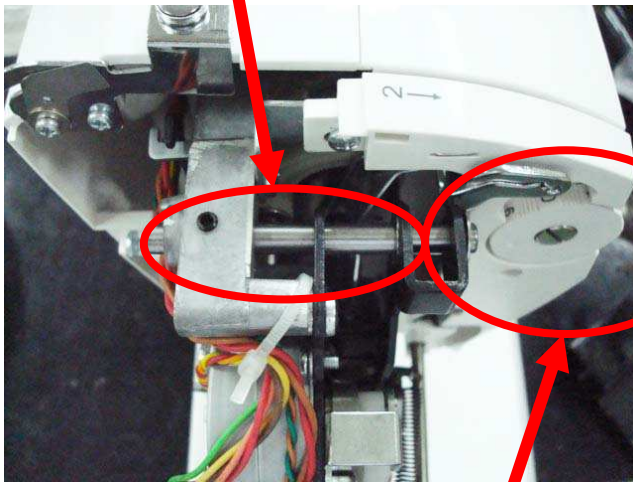
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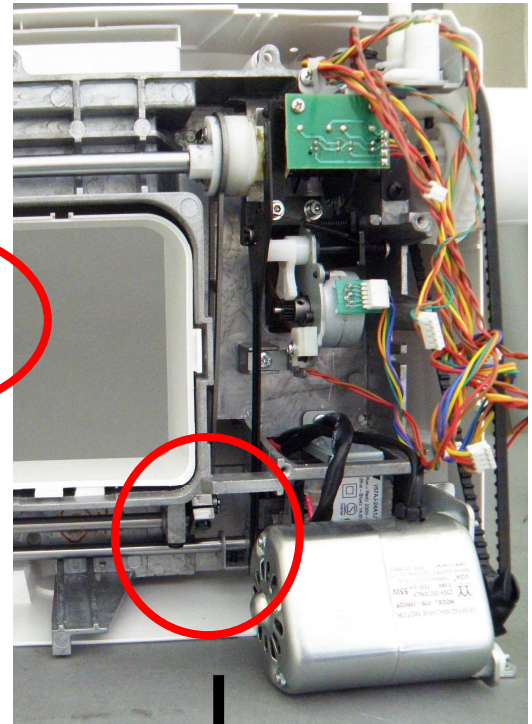
00 Location of adjustments -1

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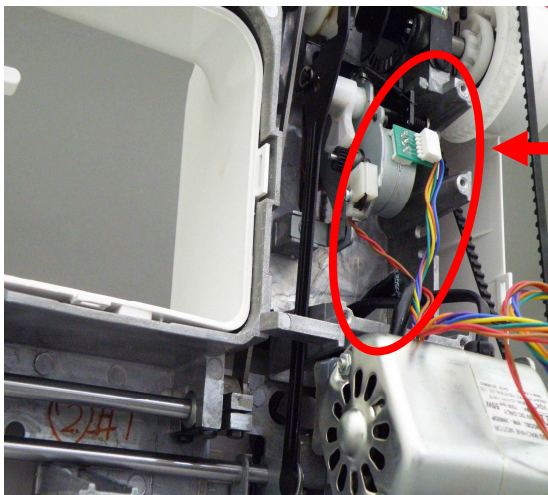
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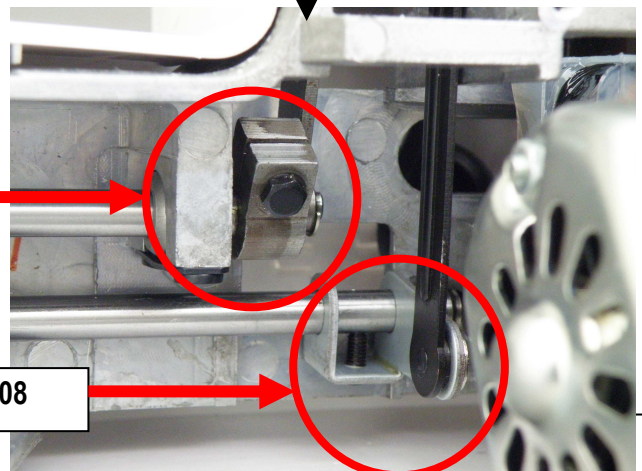
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01 Disassembling covers

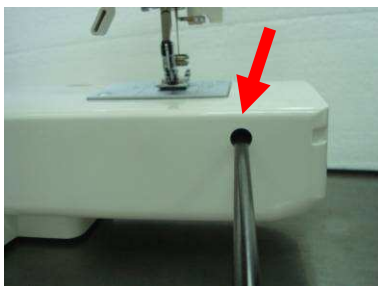
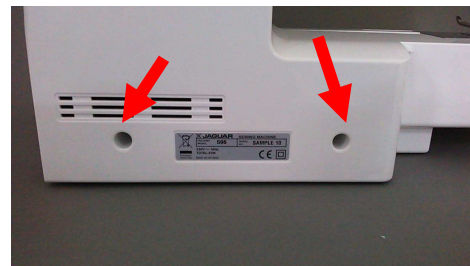
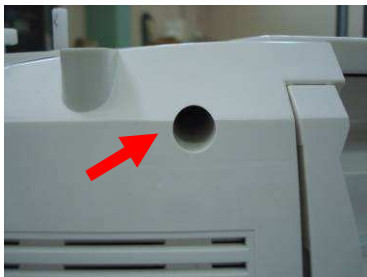
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Remove screw at the face cover shown in the picture below.



Remove front cover and rear cover

Remove screws at the rear cover shown in the picture below.



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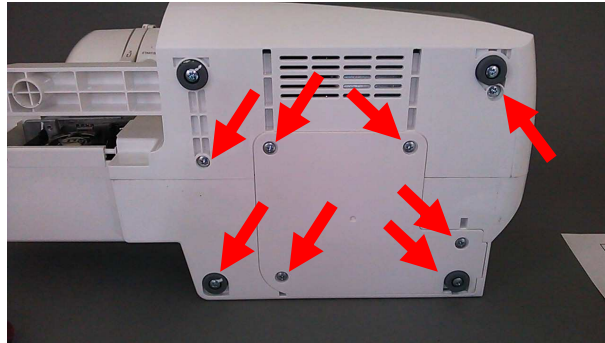
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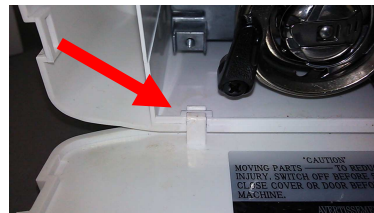
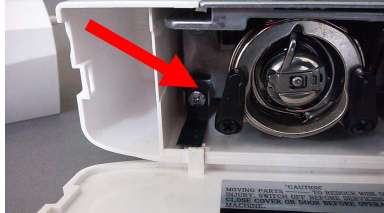
01 Disassembling covers -1

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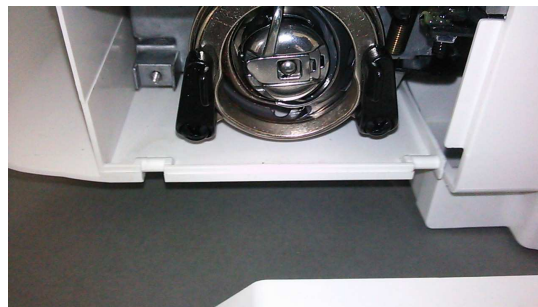
Remove screws at the bottom shown in the picture below.



Remove spring plate at the shuttle race cover.
Then remove shuttle race cover.



Current shape



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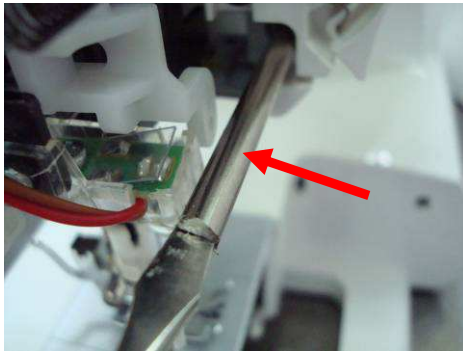
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01 Disassembling covers -2

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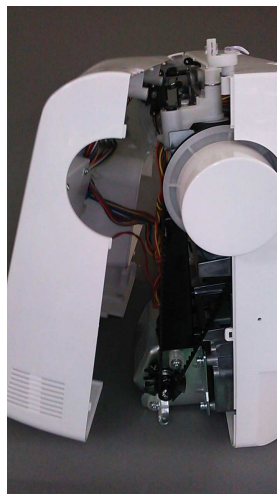
Remove thread guide pin.



Remove front cover by screwdriver as shown on picture below.



Machine with front cover removed



Then remove rear cover

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02 Needle height

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Procedure of how to check and adjust needle height is described in this section.

(Checking)

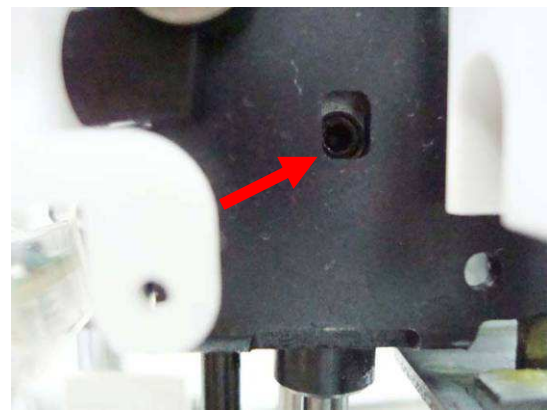
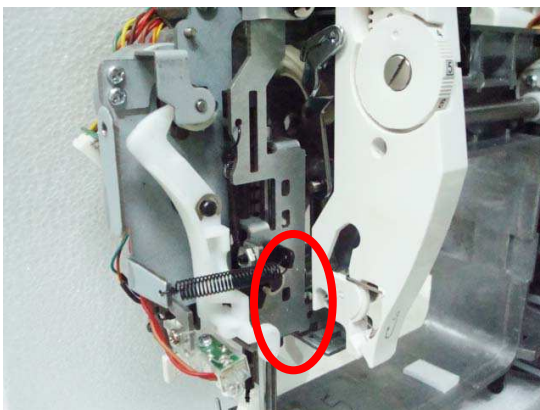
Distance between needle plate and tip of needle should be $14.5 \text{ mm} \pm 0.2 \text{ mm}$, when needle is at its highest position under specification of design. If it is unable to measure needle height, follow the simple method below.

Set needle to its lowest position, while it is set at center position. Check to see if the needle tip is located about 0.5 to 1.0 mm deeper than shuttle hook point as shown below.



(Adjustment)

Set needle bar to its lowest position and loosen screw at needle bar clamp through adjustment hole at needle bar support. Slide needle bar to adjust needle height. Tighten the screw after adjustment.



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03 Timing of needle and shuttle hook

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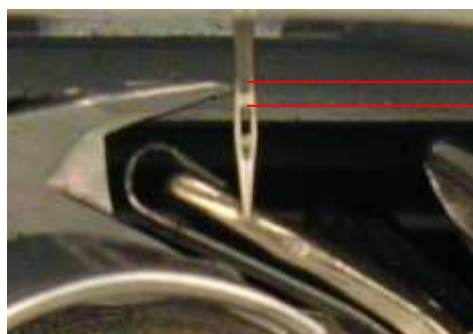
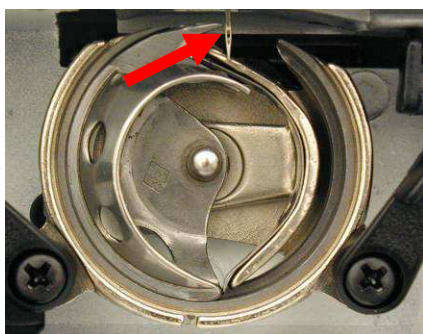
Procedure of how to check and adjust timing of needle and shuttle hook is described in this section. Check needle height beforehand.

(Checking)

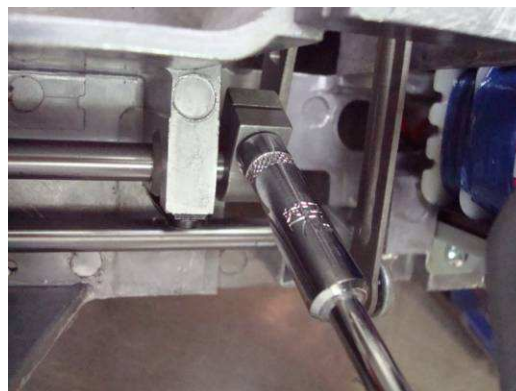
Select zigzag stitch and set stitch width at maximum.

Turning hand wheel slowly, bring up needle from its right hand and lowest point, until shuttle hook point comes to align with left side of needle. Check to see if hook point is 0.5mm to 1.0mm above the upper edge of needle eye as shown below. (This is simple checking method without gauge.)

0.5-1.0mm



(Adjustment)



Loosen screw A at the lower shaft rocker as shown above and turn hand wheel in either direction to adjust timing of shuttle hook and needle while holding shuttle hook as shown above.

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04 Needle clearance

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Procedure of how to check and adjust needle clearance is described in this section.

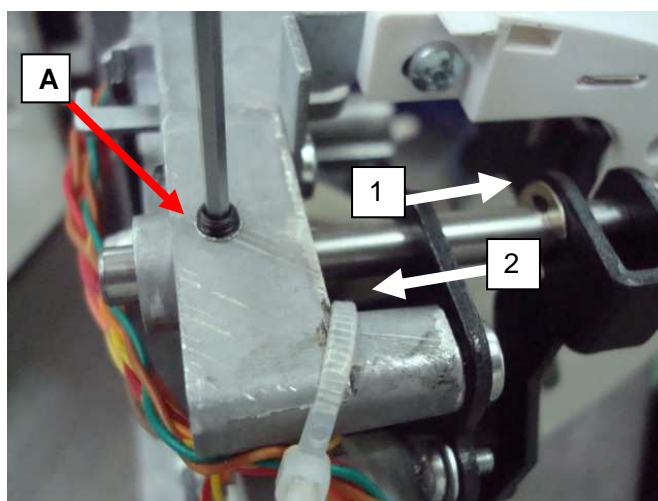
(Checking)

Check to see if the clearance between needle and shuttle hook point is 0 to 0.15 mm when needle and shuttle hook point are overlapped. Check the clearance by pushing needle tip by small screw driver.



(Adjustment)

Loosen screw A fixing shaft linked with support bracket



Slide needle bar support in either direction as shown above.

1. To decrease the clearance;

Slide needle bar support toward direction of arrow 1 as shown above.

2. To increase the clearance (if needle hits the shuttle hook);

Slide needle bar support toward direction of arrow 2 as shown above.

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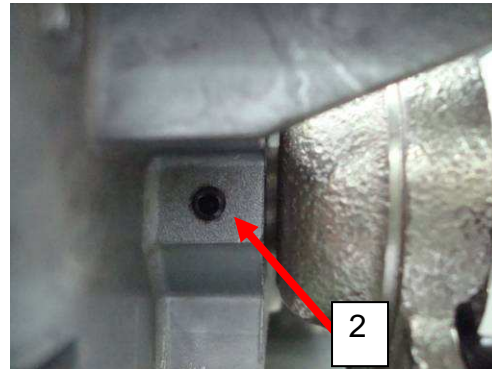
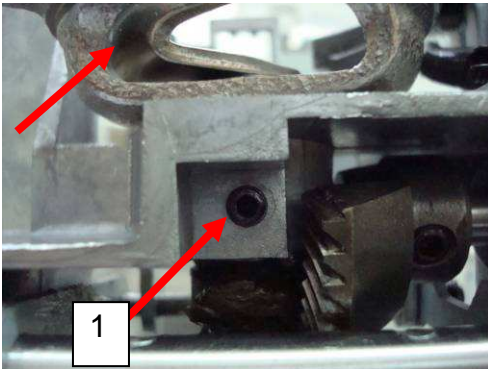
05 Adjustment of shuttle race position

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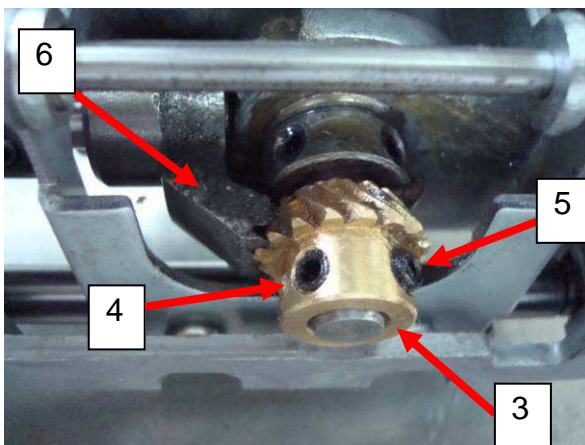
Procedure of how to check and adjust shuttle race position is described in this section.

(Adjustment)

Loosen screw (1) from the bottom of machine and screw (2) from the left.



Loosen screws (4) and (5) on the shuttle shaft gear (3).



After shuttle race position is adjusted, engagement of shuttle shaft gear (3) and lower shaft gear (6) must be securely adjusted.

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06 Needle side motion(Left-right position)

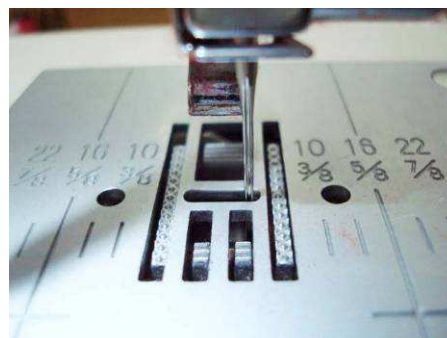
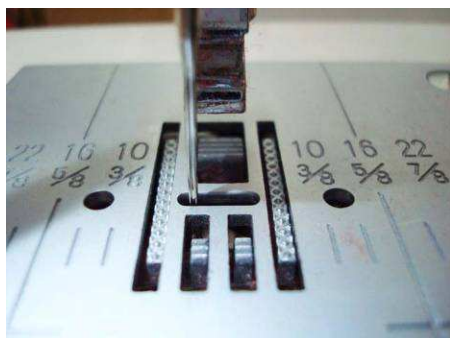
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Procedure of how to check and adjust needle position to the needle hole with maximum zigzag width is described in this section.

(Checking)

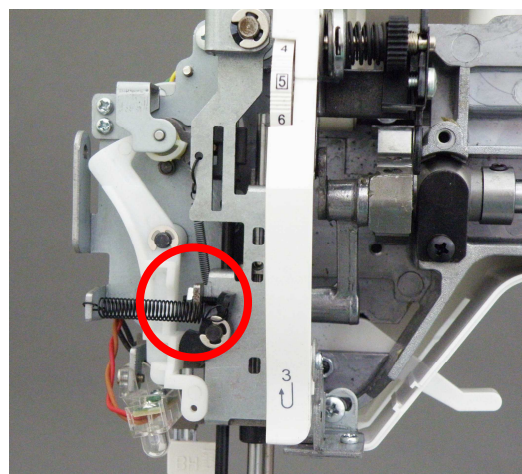
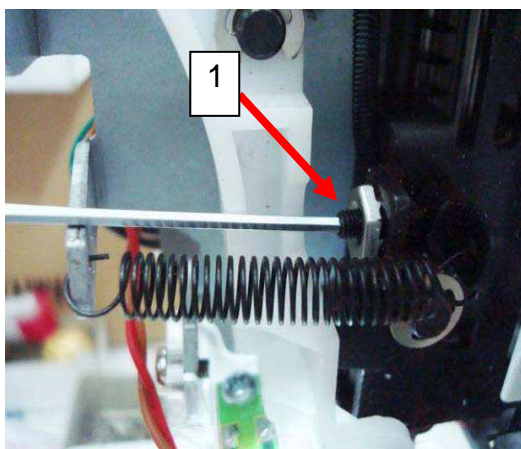
Select zigzag stitch at maximum width.

Drop needle at extreme left and right ends to check whether needle evenly drops to the needle plate.



(Adjustment)

Rotate needle position adjustment screw (1) at the needle bar support in either direction, until needle evenly drops to the needle plate.



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07 Timing of needle and feed-dog

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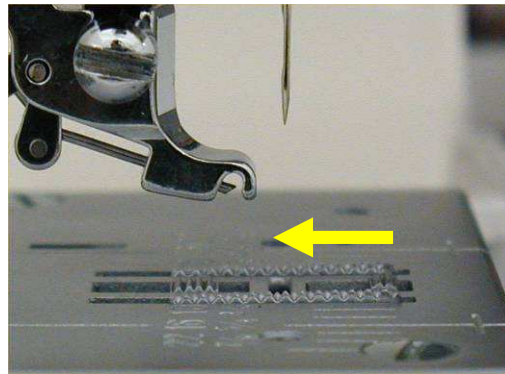
Procedure of how to check and adjust timing of needle and feed dog is described in this section.

1. Horizontal feed

(Checking)

Select straight stitch and set stitch length at maximum.

Turn hand wheel to set needle at its highest position. Check to see whether forwarding feed dog and lowering needle start at the same timing.



(Adjustment)

This timing cannot be adjusted in this machine, because eccentric cam for lower shaft gear and horizontal feed cam are integrated and it is fixed at the main shaft at specific position.



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07 Timing of needle and feed-dog -1

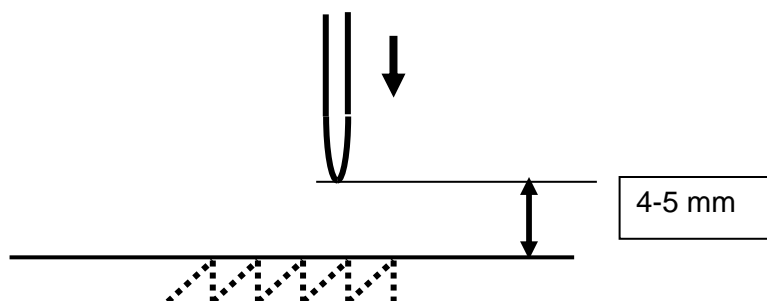
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2. Vertical feed

(Checking)

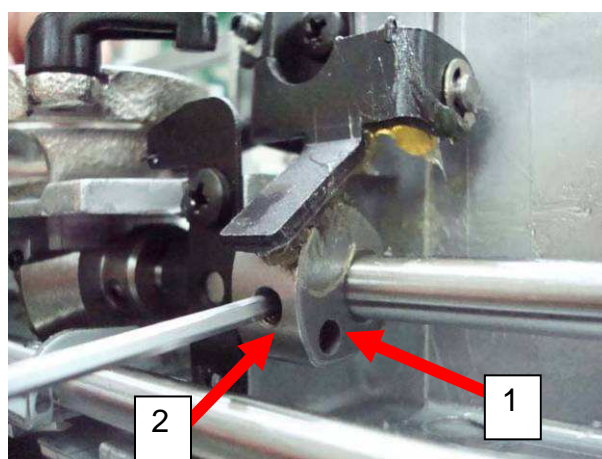
Select straight stitch and set stitch length at "0" .

Lowering need bar from its highest point, check to see whether top surface of feed dog is on a same level of the surface of needle plate, when needle bar approaches to 4-5mm above needle plate.



(Adjustment)

Loosen fixing screw (2) on vertical feed cam (1) under the arm bed as shown below. Turn hand wheel in either direction to adjust feed timing while inserting 2.5mm hexagonal driver into the screw.



After adjustment, tighten the screw (2) securely.

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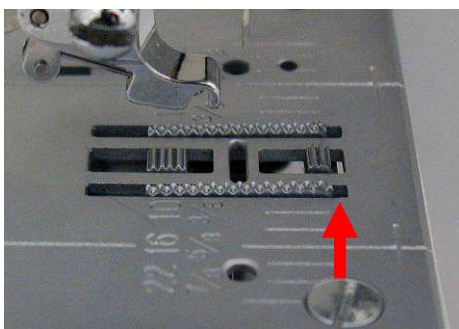
08 Feed-dog position

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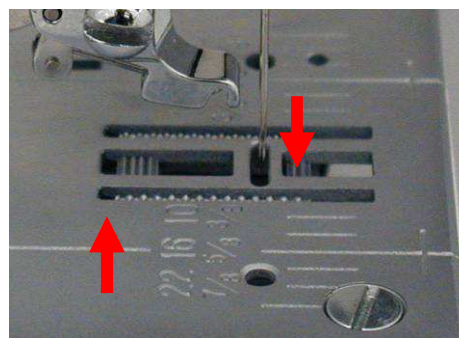
(Checking)

Select straight stitch and set stitch length at maximum. Turn hand wheel toward you to see whether feed dog is not hitting against needle plate at beginning and end of forward feeding of feed dog. (Clearance between needle plate and feed dog at front and rear ends must be the same.)

Check to see whether center feed is not hitting against needle plate as well



Beginning of forward feeding



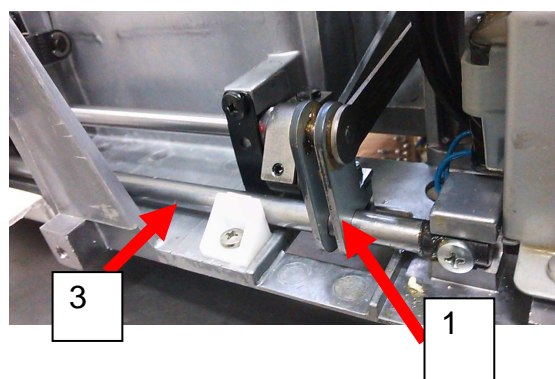
End of forward feeding

(Adjustment)

Set feed dog at end of forward feeding by turning handwheel .

Loosen screw (2) on feed locker arm (1) at this position.

Then adjust feed dog position with shaft (3) correctly while holding arm(1).



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09 Feed-dog height

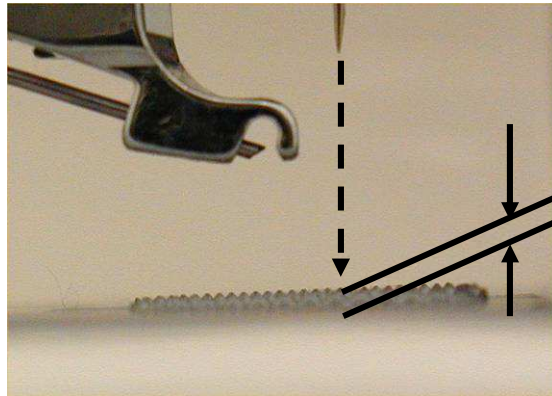
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Procedure of how to check and adjust feed dog height to needle plate is described in this section.

(Checking)

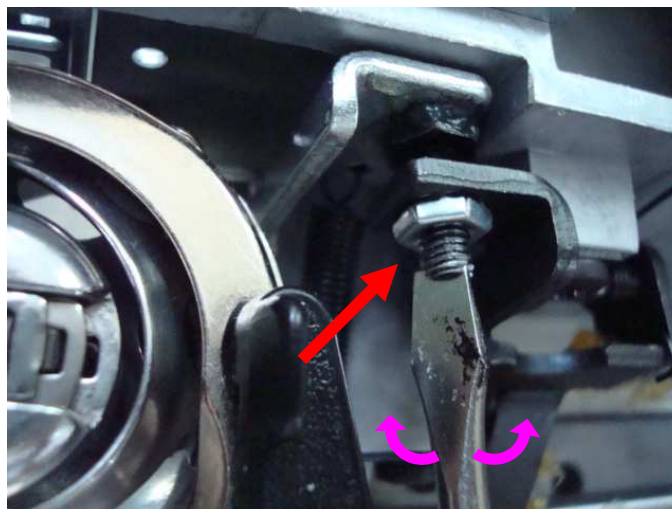
Move feed dog to its highest position by turning hand wheel.

Check to see if feed dog height is 0.9 mm to 1 mm as shown below at the position where needle is lowered.



(Adjustment)

Open bobbin access cover and insert a minus screw driver to the ditch at the vertical feed block as shown below and turn in either direction to adjust feed dog height.



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10 Needle threader height

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Procedure of how to check and adjust needle threader height is described in this section.

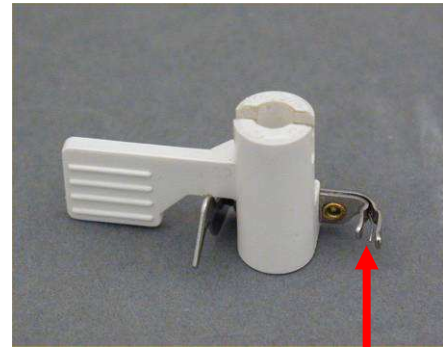
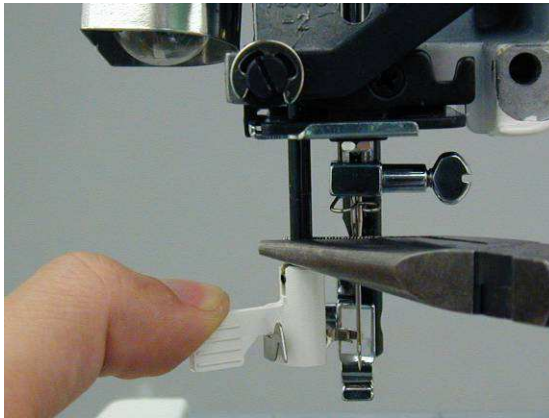
1. Horizontal direction

(Checking)

Check if the needle is attached properly.

Raise needle to its highest position by rotating hand wheel toward you.

And then check and see if the hook is inserted into the needle hole securely.



Hook of needle threader

(Adjustment)

Use pliers to catch needle threader bar and lower it to push out the needle hook. Then correct hook of needle threader by bending it in either direction with small screw driver. After adjustment re-attach needle hook securely and operate it to check whether adjustment is correctly taken.

2. Vertical direction

(Checking)

Raise needle to its highest position and check to see whether hook of needle threader is inserted at upper part of needle hole.



Length from needle clamp to upper part of the hole of needle is same in #11 and #14, but the size of hole will be different. Upper part of the hole must be used for standard of this adjustment.

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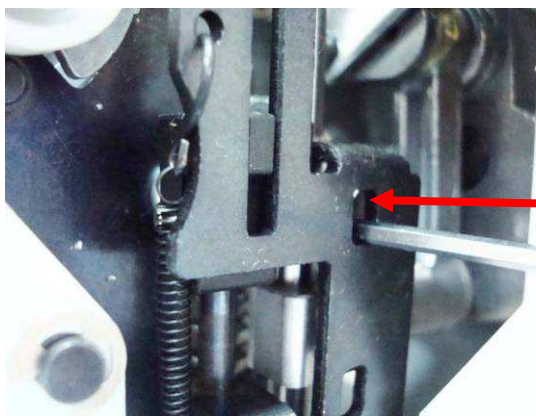
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10 Needle threader height -1

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(Adjustment)

Set needle bar at its highest position and loosen screw (1) of needle threader stopper at needle bar crank inside the bracket as shown below with 2mm hexagonal screw driver.



Screw (1)
It is behind the bracket.

Lift up the stopper with a tool as shown above while lowering needle threading lever. At this position, a pin of guide bar is hitting against the shelf of stopper. Under the above situation, adjust hook of needle threader is inserted correctly into the upper part of hole of needle.

After adjustment, tighten the screw of stopper temporarily.



Operate needle threader and check whether hook of needle threader is inserted correctly and tighten the screw at stopper securely.

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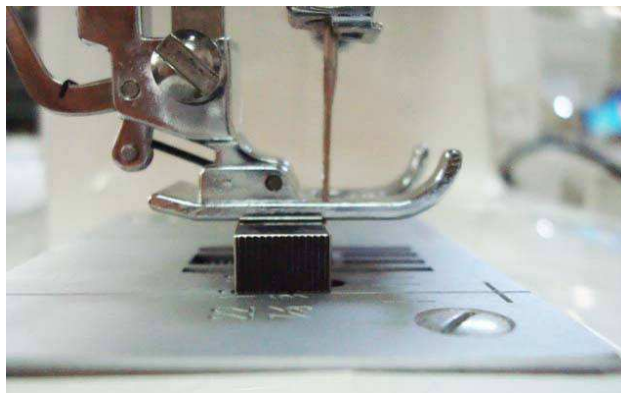
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11 Presser foot height

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(Checking)

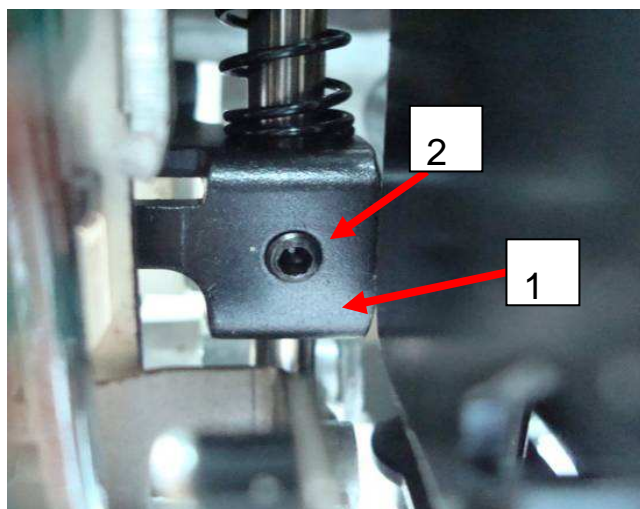
Check if presser foot is parallel to feed dog and holes of needle plate properly. Check and see if the clearance between needle plate and presser foot is about 5.5 mm.



(Adjustment)

Remove face cover and lift up presser foot. Loosen screw (2) at presser bar bracket (1), then press presser bar down and tighten screw (2) securely while presser foot lever is being standstill.

Check to see presser foot is aligned with holes of needle plate after adjustment.



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12 Adjustment of thread tension

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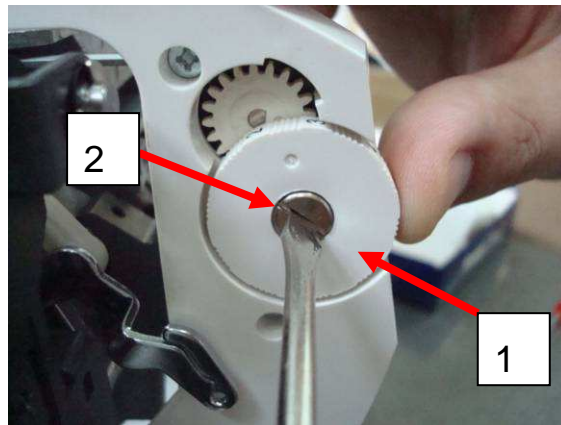
(Checking)

Set thread tension dial at "5", and pull thread between tension discs and check.
Thread tension value with non-elastic cotton thread #60.
Measured value should be 50 – 60 g.

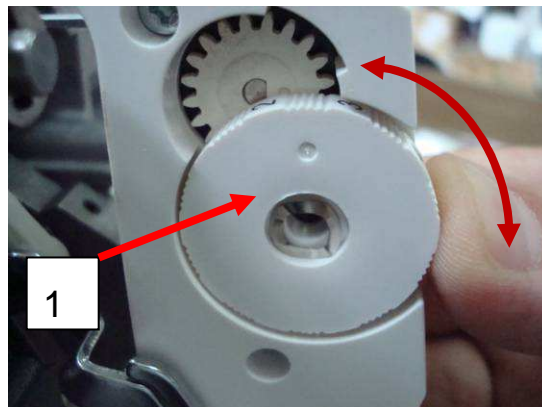
(Adjustment) when front cover is not removed:

Remove front cover.

Remove screw (2) and the dial (1) with thread tension set at "5".



Re-fit the dial (1) and turn it in either direction until desired thread tension at "5" is obtained while measuring thread tension.



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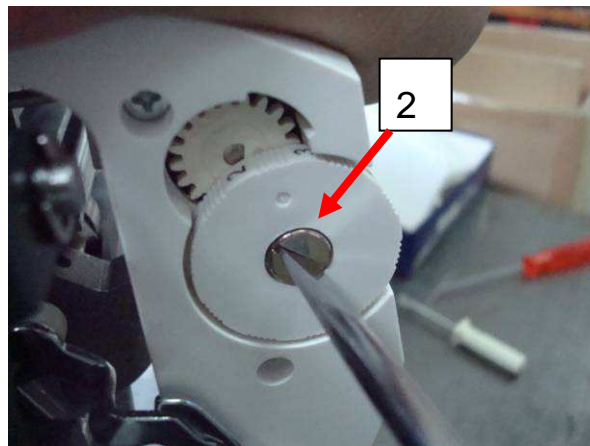
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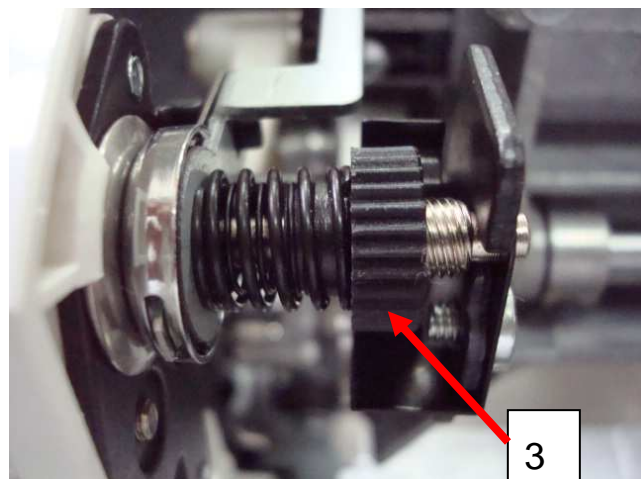
12 Adjustment of thread tension -1

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After desired tension is obtained, re-fit the dial at the position where indicator of thread guide plate and dial scale of "5" meets and also it can be engaged with pinion. Then tighten screw securely.



(Adjustment) When front cover is removed:.



Adjust by turning spring pressure adjustment screw (3) in either direction with the dial (1) set at "5".

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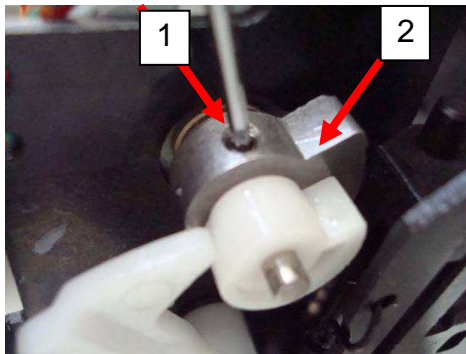
SEC.

13 Origin point positioning of motor

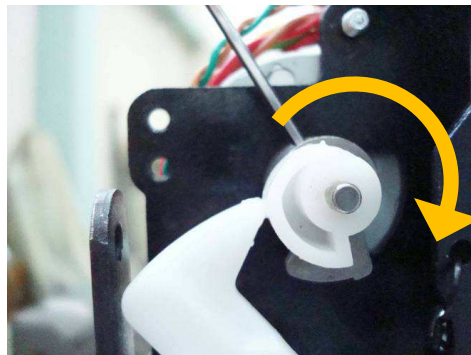
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1. Zigzag bight (No switch is available)

Loosen two screws (1&3) at pinion gear.



Rotate pinion gear with cam clockwise until it touches the pin and while holding this situation. Tighten one of the two screws securely.



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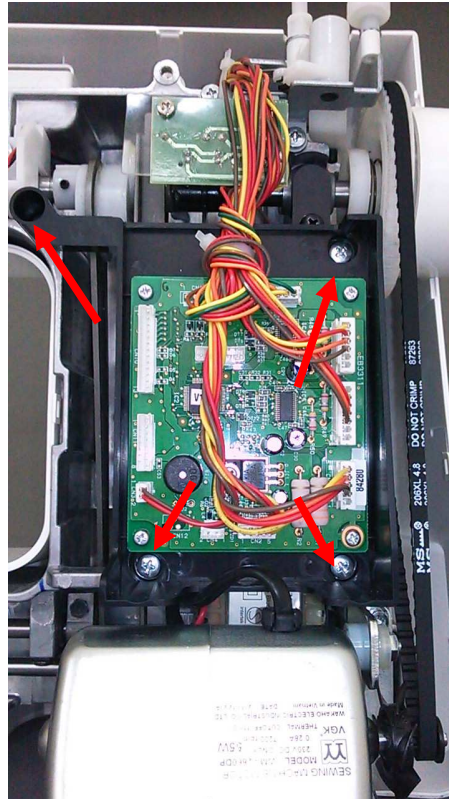
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13 Origin point positioning of motor -1

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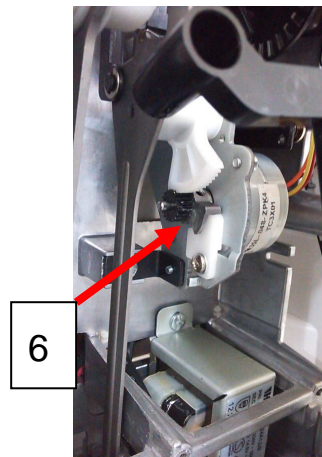
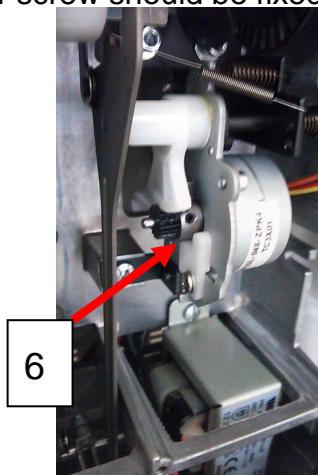
Put the bracket of pinion gear (1) on its original position properly.

*Reconfirm if the needle location is proper according to SEC. 06 after adjustment.



2. Stitch length (Switch is available)

Loosen one of two screws (6) at the pinion gear of stitch length with power off. Another screw should be fixed.



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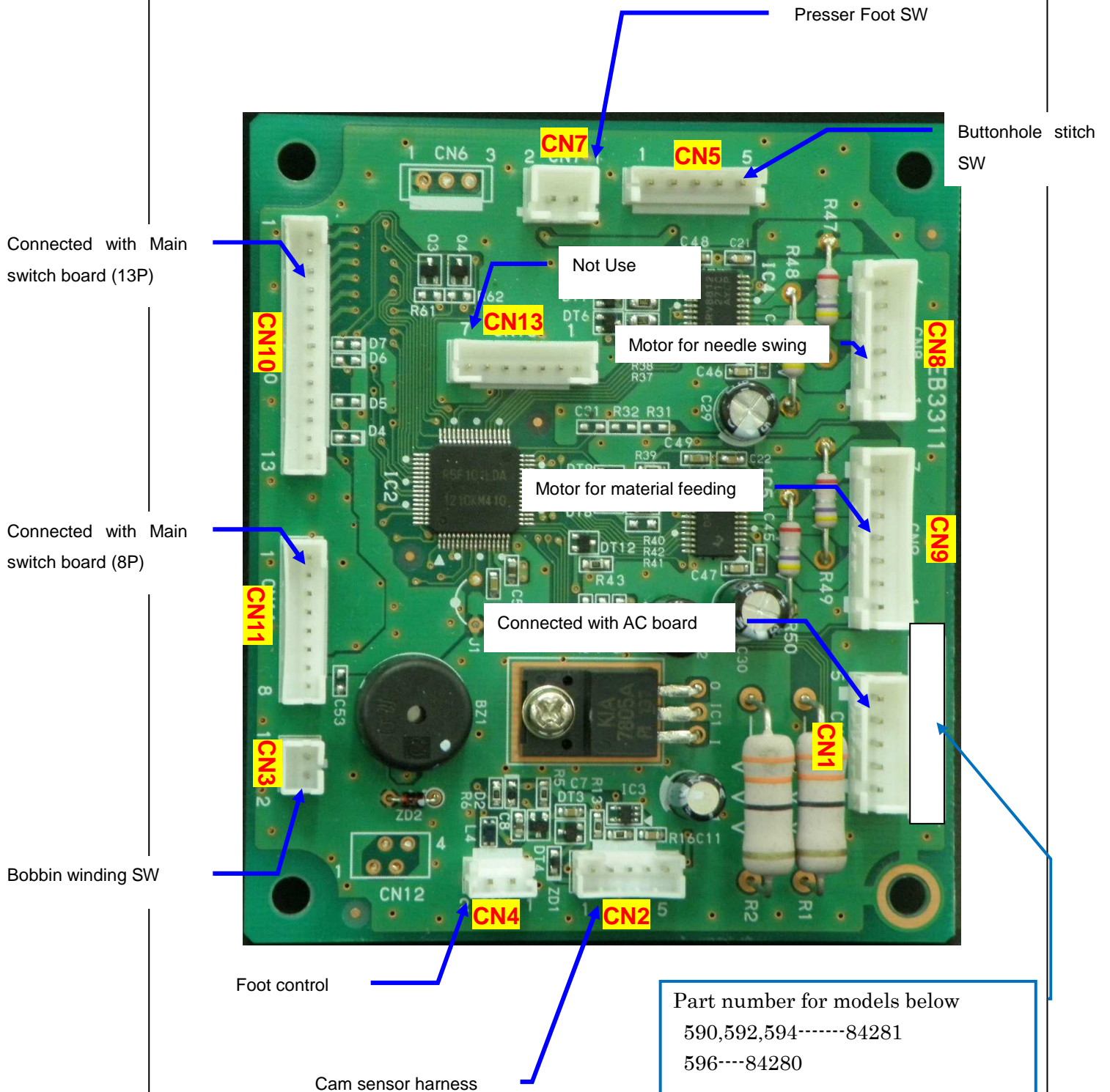
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SEC. 14 Circuit board

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1. CPU board



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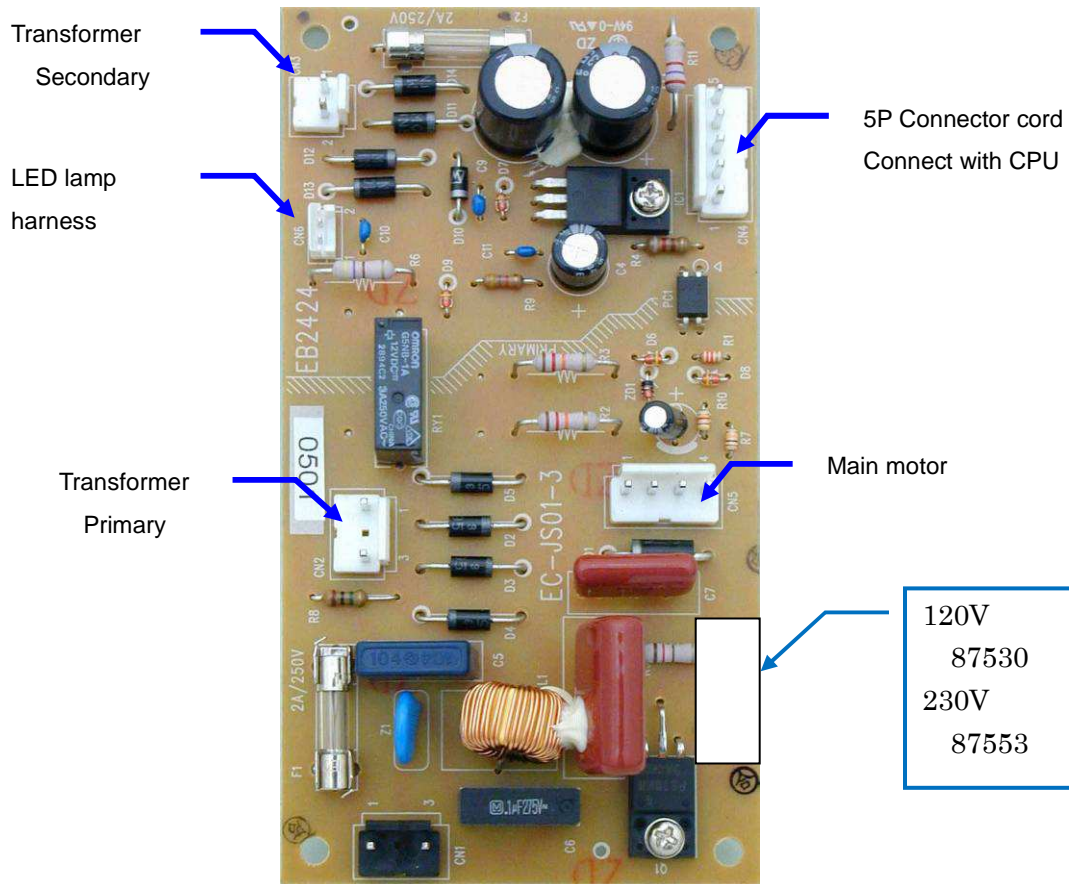
14 Circuit board -1

Model:
590series

2. LCD Unit P/no. 84276



3. AC Power Board 87530 / 87553



14 Circuit board -2

Service Manual

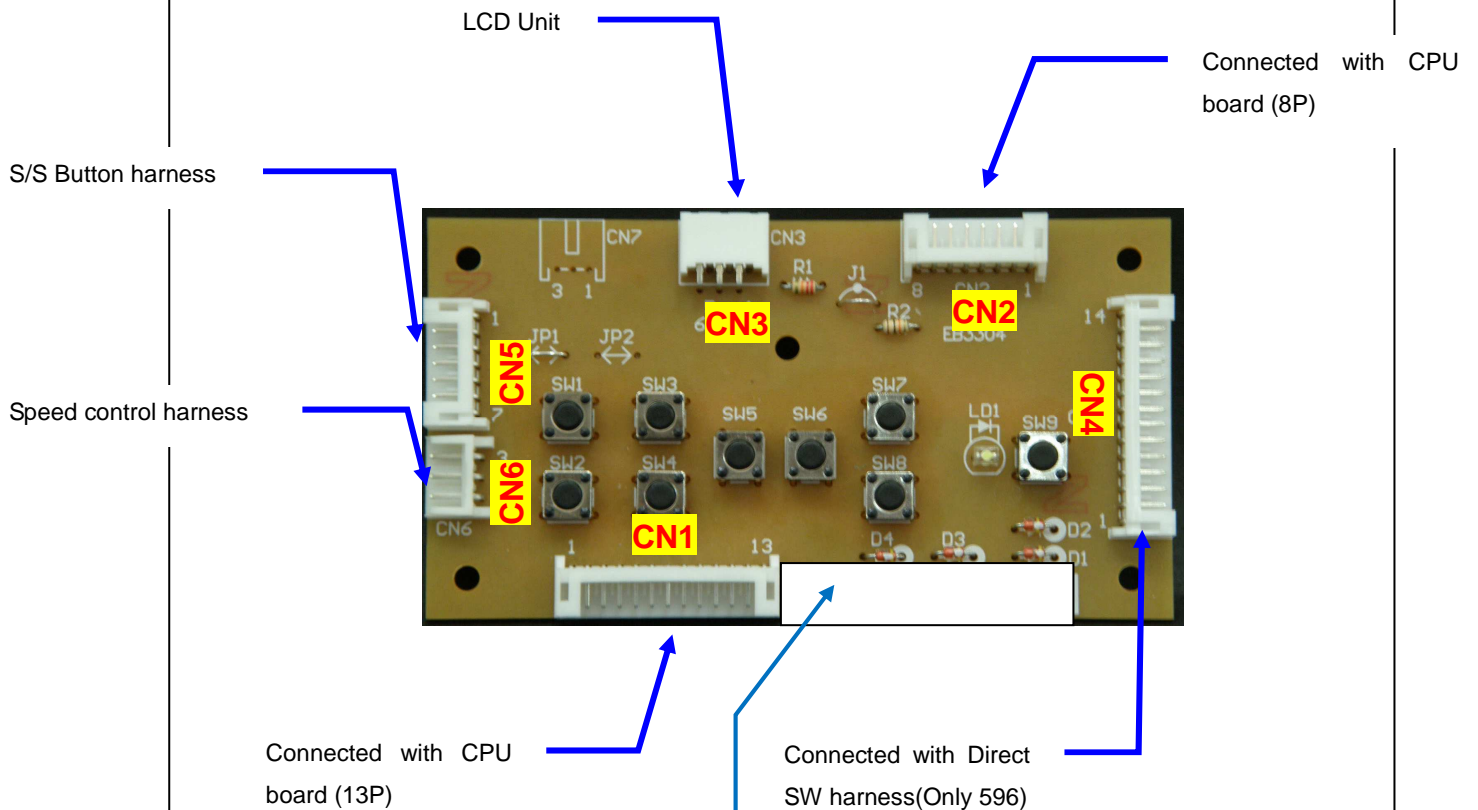
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Model:
590series

4.Main SW Board #84463,84464,84465,84466



Part number for models below

590-----84464

592-----84463

594-----84466

596-----84465

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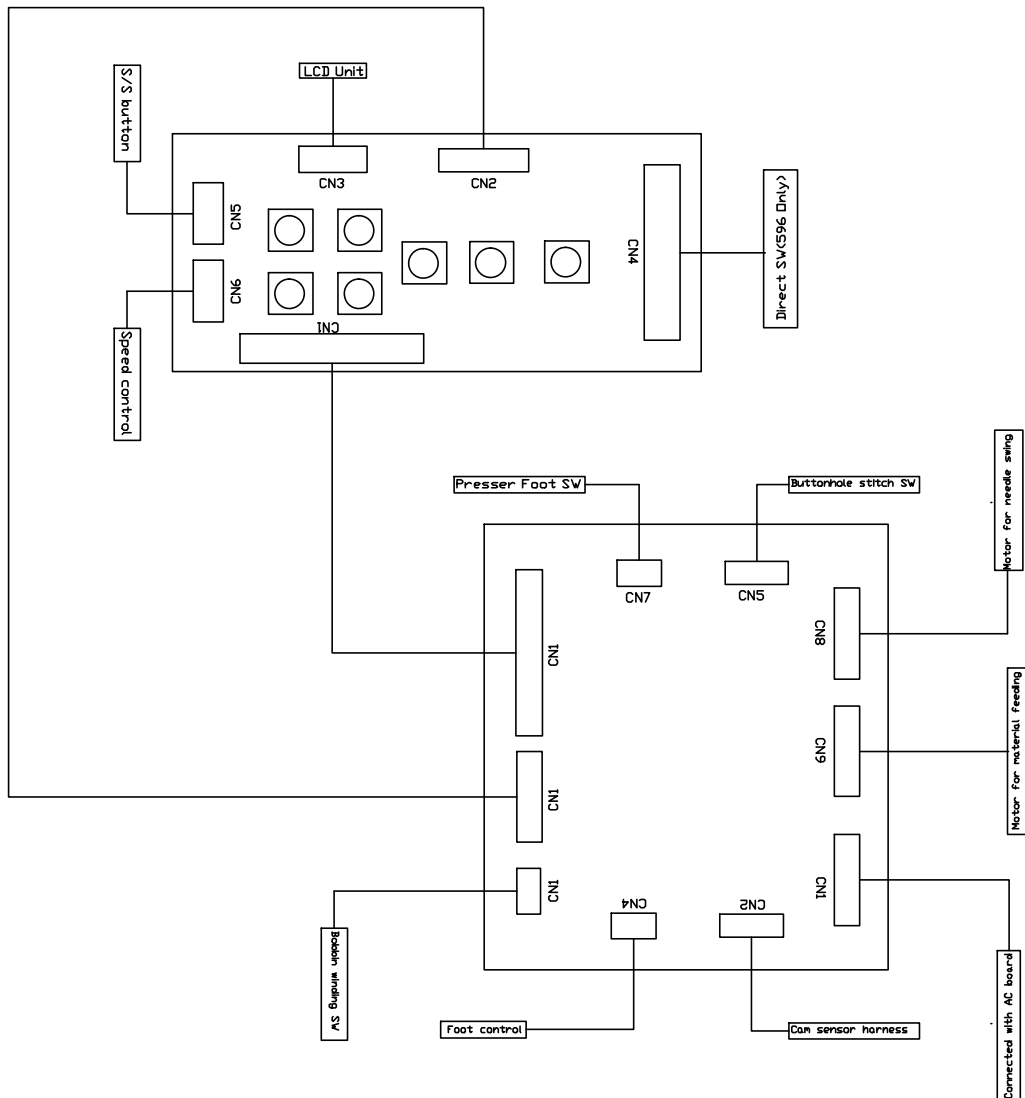
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15 Wiring diagram

Model:
590series

MODEL:CV-C

MODEL:590,592,594,596



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Model:
590series

Note: This test mode on 6100 series will be applied on the final checking at factory.

<How to obtain test mode>

1. Push bobbin winder shaft to the right for operation mode.



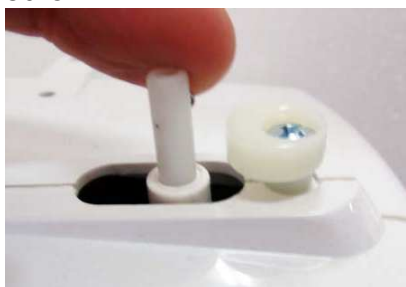
2. Push and hold reverse switch in place.



3. Turn on power switch.



4. Release bobbin winder shaft to the left while pushing reverse switch, just after power switch is turned on.



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Model:
590series

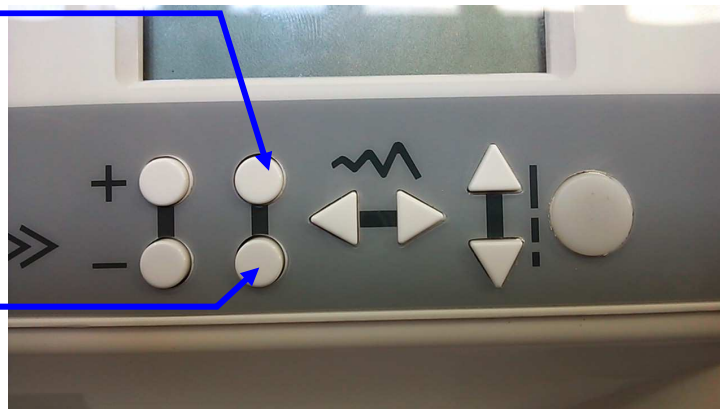
5. After obtaining test mode, LCD display shows "01" as below.



<Contents of test mode>

Test Mode number up

Test Mode number down



- *Test mode 1 : Three needle positions "Right - Left – Center"
"Zero" feed
Use foot control for running the machine.
 - *Test mode 2 : "Center" needle position
"Zero" feed
Use foot control for running the machine.
 - *Test mode 3 : "Center" needle position
2mm feed, sews 11 stitches forward and backward
Use foot control for running the machine.
 - *Test mode 4 : 1 mm feed, sews 30 stitches forward at 4.5mm needle position
from right and moves needle to 2.5mm position with zero feed
and then sews 30 stitches backward.
Use foot control for running the machine.
 - *Test mode 5 : Display the number of revolutions per minute (rpm).
 - *Test mode 6 : Run and stop for 7.5 seconds repeatedly.
 - *Test mode 7 : Rotate at the regular speed.
- (Test mode 5,6, and 7 - Push the back stitch button to start.)

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***Appendix 2: Adjustment of stitch balance -1

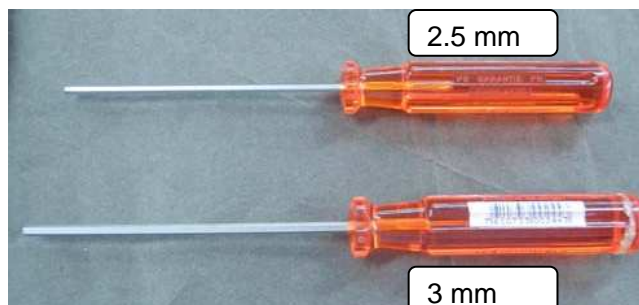
Model:
590series

When stitch balance is not satisfied at stitch pattern you selected, adjustment of balance between forward and backward feed pitches is required.

Adjustment with or without outer covers removed:

1. Prepare two hexagonal screwdriver.

One is 2.5mm dia. and more than 90 mm long , the other is 3mm dia. and more than 100 mm long.



2. Insert 2.5mm hexagonal screwdriver through hole on side wall of back cover. When 2.5 mm screwdriver touches 2.5 mm socket screw secured on motor bracket , loosen the socket screw by tuning the screwdriver.



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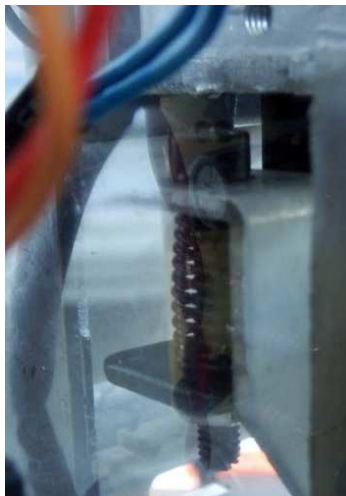
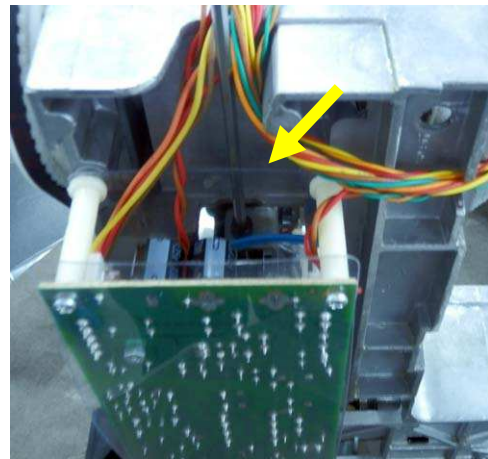
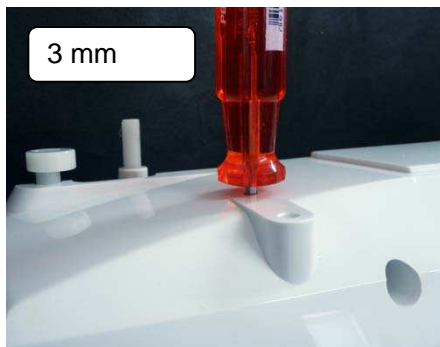
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***Appendix 2: Adjustment of stitch balance -2

Model:
590series

3. Insert 3mm hexagonal screw driver through hole on top of back cover. When 3 mm screwdriver touches 3 mm socket screw for fine adjustment of motor, loosen the socket screw by turning the screwdriver.



4. Under this condition, turn 3mm socket screw in either direction until correct stitch balance is obtained.
5. After correct stitch balance is obtained, tighten 2.5 mm socket screw securely.

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16. Helpful messages

Model:
590series

1. Helpful messages for user

If an incorrect operation is made, a helpful message will be display. When a helpful Message is displayed; fix the problem following the instructions below.

[1]

Bobbin winder is moved to right (operating mode) during sewing.
*Check bobbin winder and move it to left.

[2]

Buttonhole lever is not lowered or raised.
*Lower buttonhole lever when sewing buttonholes.
*Raise buttonhole lever when sewing stitch patterns.

[3]

Foot control plug is pulled out, while operating foot control.
*Push in foot control plug.

[4]

Machine locked up due to thread entangled with bobbin case or rotation interrupted forcibly.
*Turn off power switch and eliminate the problem that caused the machine to stop.

[5]

Reverse/tacking stitch button is pushed, while buttonhole stitch is selected.
*Tacking stitch is made automatically after button hole stitch is completed. It is not necessary to push the reverse/ tacking stitch button.

[7]

Presser bar lifter is still lifted.
Check its position.

[C]

Bobbin winder is in operation.
*Move bobbin winder to left when it is not used.

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16. Helpful messages---continued-----

Model:
590series

2. Helpful messages for system errors

If the machine judges there are a system error in operation, it stops operation beeping for 5 seconds and continues to display detected error, until it is turned off.

E1

Error in main shaft motor

When defect in motor is detected.

E2

Error in bobbin winder shaft

When rotation of main shaft is detected during bobbin winding.

E6

Error in signal of cam sensor (fixed on main shaft)

When sensors for up/down stop position cam 1 and length/width movement direction cam 2 don't detect alternatively.

E7

Error in start/stop switch which returns to OFF position while machine is turned on

When start/stop switch don't return to OFF position with the switch stopped at ON position.