BERNINA

ADJUSTMENT OF BERNINA SEWING MACHINE MODEL 900 electronic

FRITZ GEGAUF LTD. BERNINA SEWING MACHINES
STECKBORN TG/Switzerland

Contents

Type 900 electronic Zig-zag and plain stitch sewing machine with 6 built-in cams and automatic buttonholer with 5 built-in cams.

Valid for model 900 electronic
from **machine no. 19 200 551**

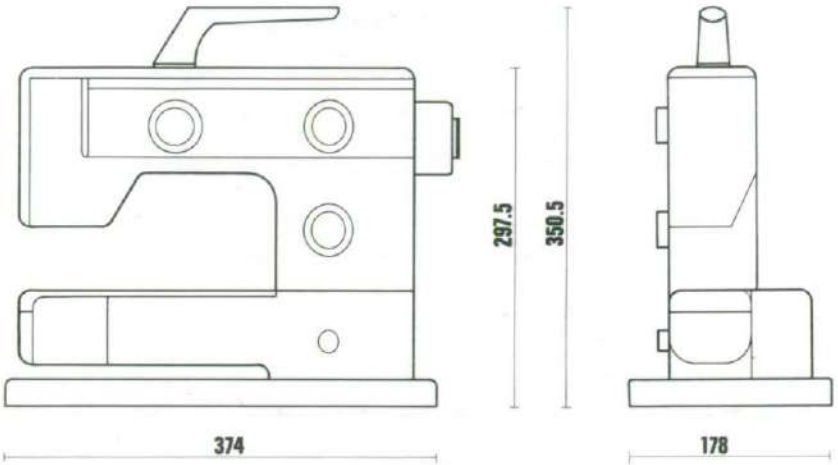


Fig. 1

Max. zig-zag width:	4.5 mm
Stitch distribution:	Left—Center—Right
Max. forward stitch length:	4 mm
Max. reverse stitch lengeh:	2 mm
Presser foot lift:	6.5 mm
Passage space:	105 x 200 mm
Base plate dimensions:	374 x 178 mm
Shuttle system:	Jam-free central bobbin shuttle
Bobbin capacity:	75 m cotton yarn
Needle system:	705 B
Needle movement:	Swinging needle bar
Thread feed:	Hinged take-up lever
Thread tension:	Upper thread tensioner in frame
Winder:	Built-in
Motor	Built-in
Sewing lamp (built-in):	Power: 90 W
Number of stitches:	Power: 15 W
Weight (complete):	Approx. 1100 stitches/min.
	10.5 kg

Setting needle:	= 705 B-80
Needle deflection:	
With lifting bar suspension:	= 2
Needle plate upper edge:	= 4.5
At shuttle tip:	= 4.63
Needle bar stroke:	= 33.73
Loop stroke: left	= 1.8
Shuttle travel:	= 220° 18' 30"
Rack travel:	= 34.6
Lift crank radius	= 17.3
Take-up lever travel:	= 61
Presser foot lift:	= 6.5
Darner stroke:	= 2.92
Speed:	
Motor:	= 7400 rpm
Cone pulley:	= 2372 rpm
Frame shaft:	= 1120 rpm
Gear ratio:	
Overall:	= 6.6 : 1
Motor: Cone pulley	= 3.12 : 1
Cone pulley: spindle	= 2.12 : 1
Base circumference:	= 245 mm
Machine dimensions:	
Overall length:	= 399 mm
Overall width:	= 178 mm
Overall height:	= 350.5 mm

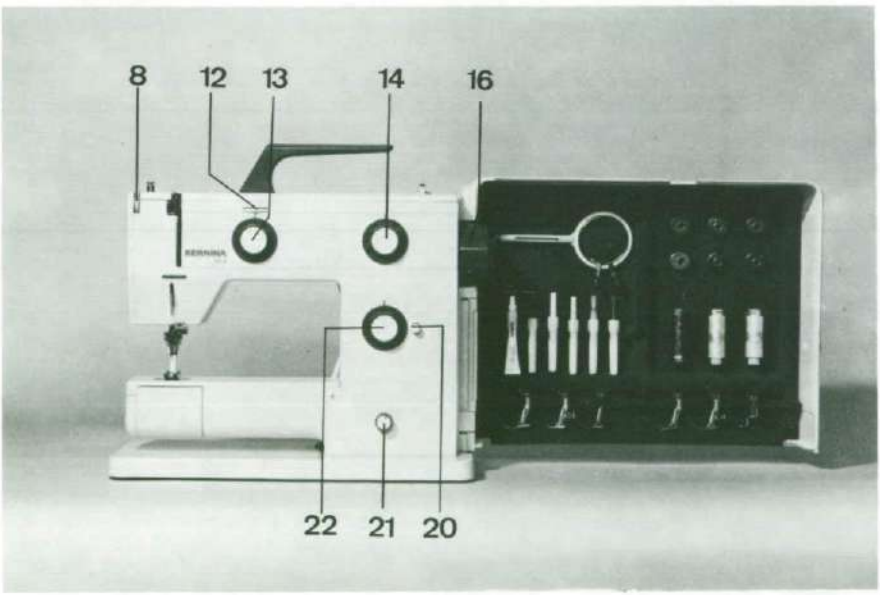


Fig. 2

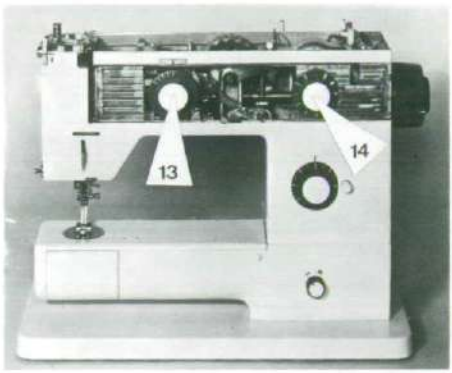


Fig. 3

Rotate zig-zag knob (13) to position (0). Unscrew mounting screw knob (13) and remove knob. Set stitch selection knob (14) to position (A)- - - - - -. Unscrew the associated mounting screw and remove knob and scale together with wheel.

Unscrew both Phillips screws (130) and remove cover plate (129). The screws are not visible until knobs (13) and (14) have been removed. Remove frame cover (128) and end cover (5). (Light switch has been switched «on»).

Temporarily reinsert zig-zag knob (13) and stitch selection knob (14) together with scale.

Adjustments can now be carried out.

After adjustments have been made, reinsert parts in reverse order.

IMPORTANT: The sewing machine can be completely adjusted and sewn off **prior** to mounting covers.

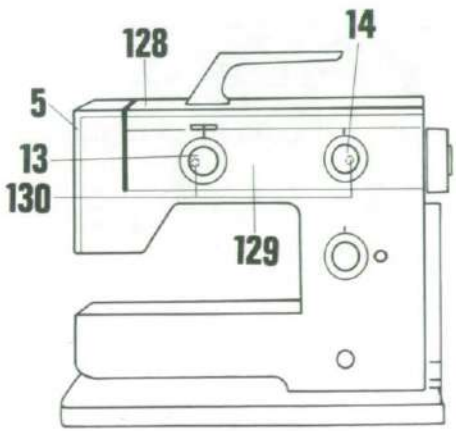


Fig. 4

Adjustment of the type 900 sewing machine

(and other models)

These adjustment instructions are designed to assist in minor repairs or adjustments of the BERNINA sewing machine type 900.

IMPORTANT: The sewing machine must be in **perfect mechanical condition** (running smoothly, properly oiled, etc.) so that individual adjustments can be carried out correctly.

If the sequence of adjustments is observed, impeccable operation of the machine will be ensured.

The needle

The needle is one of the most important elements of the sewing machine. It pierces the fabric and forms a loop which is caught by the shuttle and is joined with the lower thread. The loop is formed after the needle has pierced the fabric and has reached its lowest point. The needle lifts slightly during the so-called loop lift. The tightly drawn thread which lies in the long and short grooves on the front and rear side of the needle, respectively, is caught above the short groove between the needle stem and the material. When the needle moves upward, the thread feed is retarded due to the friction of the fabric and thereby a loop, comming from the needle eye, is formed on the rear side of the needle. This loop is caught by the shuttle tip, widened, and is guided around the lower thread supply. The important features of the sewing needle are:

a) **shank** for securing the needle in the needle bar
b) **stem** with a short and long groove
c) **needle eye**
d) **needle point**
e) **needle length**

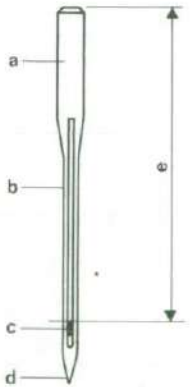


Fig. 5

BERNINA uses the «705 B» needle system without fluting (Singer designation: 15 x 1) on all domestic sewing machines with CB-shuttle hook.

The metric system has been in unse since 1947 for needle thickness designation. A needle thickness of 100 means that the needle stem is 1 mm thick.
(A No. 80 needle = 0.8 mm⌀).

The needle must be **firmly** secured by the knurled screw on the needle holder.

IMPORTANT: Always use a No. 80 needle for all adjustments unless otherwise stated. Check the needle prior to every adjustment of the sewing machine. It **must always be straight.**

Needle spacing in the stitch hole

The needle must penetrate the center of the stitch hole (as viewed from the direction of fabric feed) (needle thickness: No.100).

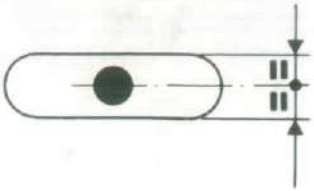


Fig. 7

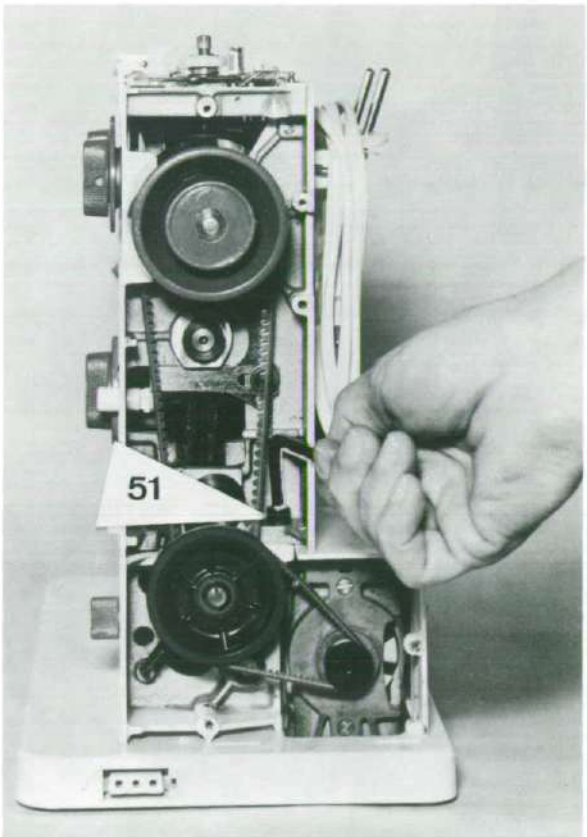


Fig. 6

In order to correct needle spacing, the belt drive cover on the handwheel side must be removed. Then, loosen two of the three frame mounting screws (Allen screws with an interior hexagon width of 5 mm) and move the machine frame until the needle penetrates the center of the stitch hole. Retighten Allen screws (51).

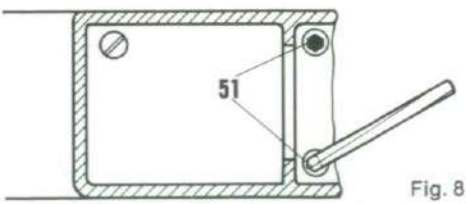


Fig. 8

Adjusting the scanner to the center of cam 5 (Running stitch) by displacing the adjusting drum

Set zig-zag knob (13) to position «4» and stitch selection knob (14) to cam (D).

Rotate handwheel until scanner (119) is at the highest point of cam (120). Loosen mounting screws (121) of the adjusting drum. Position the scanner precisely in the center of cam (5) by axially moving adjusting drum (122) and retighten mounting screw (121). Check also the front and rearmost cam.

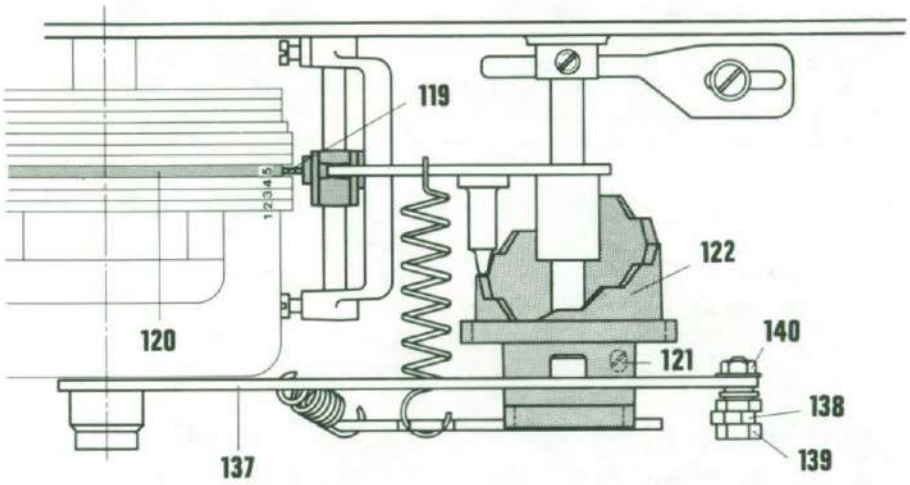


Fig. 9

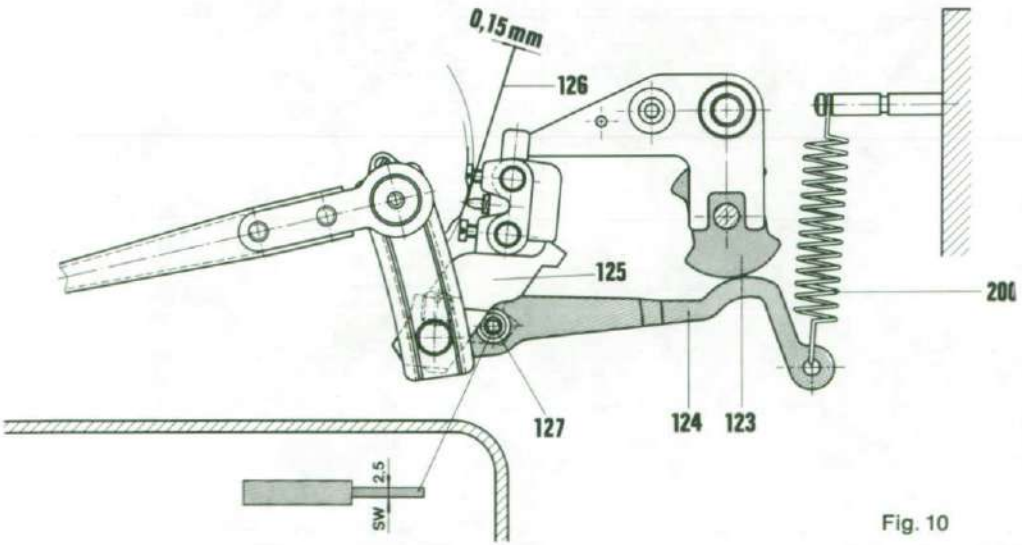


Fig. 10

Raising the scanner

The scanner (119) is raised by the lifting cam (123), which is fitted on the spindle below the adjusting drum, and lifting arm (124), which is adjustable and connected to the cam control lever (125).

The lifting arm (124) is adjusted as follows:

Set zigzag adjusting knob (13) to position «4» and scanner to highest point of zigzag cam. Place a 0.15 mm spacer (126) between scanner and cam. Set stitch selector knob (14) between zigzag and blindstitch. Loosen fixing screw (127) on lifting arm (124). This is drawn to the lifting cam (123) by the lifting arm tension spring (200). The fixing screw (127) is then retightened.

Position of lifting cam

When the scanner (119) is at the lowest point of the zigzag cam, there must be a little play between lifting arm (124) and lifting cam (123).

The play can be observed by turning the stitch selector knob (14) gently to-and-fro. During this check it is convenient to press the cam control lever (125) against the zigzag cam. If no play is apparent at the stitch selector knob (14), correction should be made as follows:

Loosen screw (162). The control spring (161) (see Fig. 11a) can then be displaced sideways until play can be observed at the stitch selector knob (14). Re-tighten screw (162).

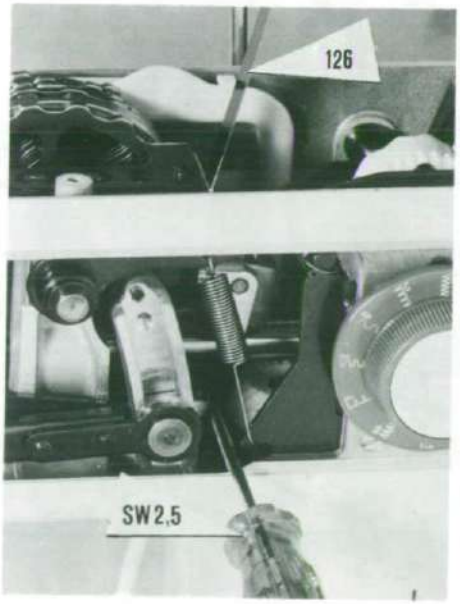


Fig. 11

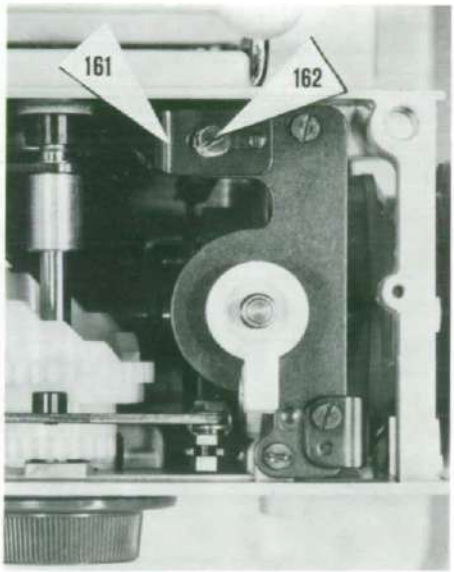


Fig. 11a

Setting the needle position selector L-C-R (Left-Centre-Right)

Centre LCR-adjusting disc with adjusting tool no. 398 058 03 in centre C-position through the hole in the adjusting disc and frame (Fig. 13). Loosen slightly the two fixing screws (205) of the LCR locking support plate (201). Move the support plate so that the pin (202) of the LCR locking lever (203) engages in the centre notch of the LCR adjusting disc (204). Re-tighten both fixing screws (205).

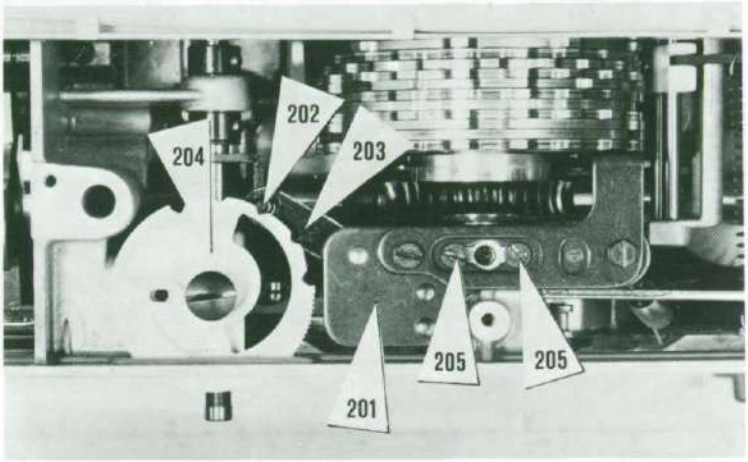


Fig. 12

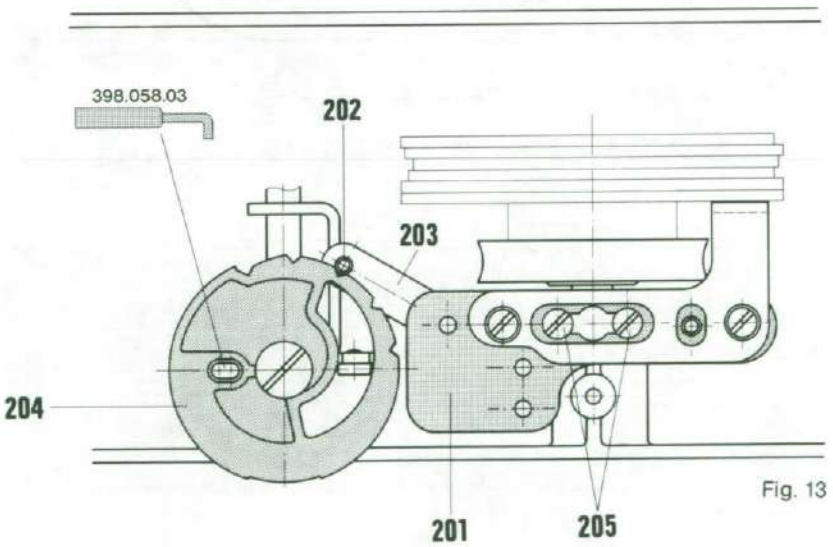


Fig. 13

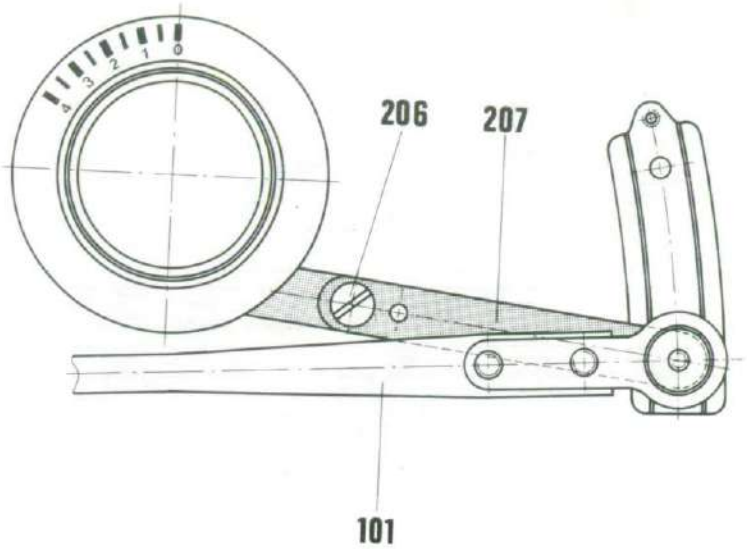


Fig. 14

Centering the zigzag connecting link on oscillating lever spindle

Move control bar (101) of swivel support (115) to the highest position of the zigzag connecting link.

Loosen setscrew (206) of connecting strap (207).

Insert special tool no. 398.001.04 in the hollow oscillating lever spindle (116) and move the connecting link gently to-and-fro until the conical tip of the tool enters the hole in the link.

The link then swings in its normal position about the centre of the oscillating lever spindle.

In this position the scanning head (96) of the LCR adjusting lever (209) should lie on the cam of the LCR adjusting screw under the action of the adjusting lever tensioning spring (210).

Re-tighten setscrew (206).

Fig. 15

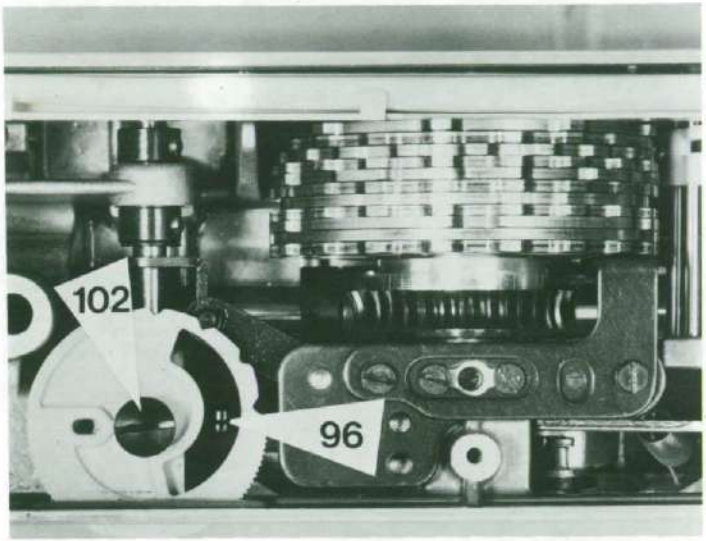


Fig. 15

Remove the two adjusting tool nos. 398 058 03 and 398 001 04.

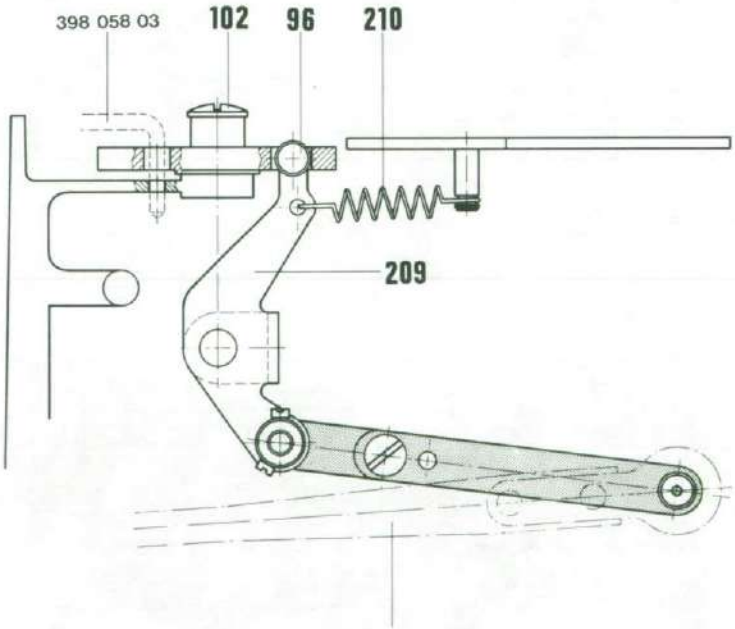


Fig. 16

Rest position of needle

Set stitch selector knob (14) to zigzag. Move control bar of swivel support to the lowest position (zero position) of zigzag connecting link.

Start the machine. The needle swivel support must not make any lateral movement. It must remain stationary.

If this is not the case, correction is made as follows:

the rest position of the needle can be set by moving the stop screw (212) SW 5.5 up or down on the zigzag adjusting lever (211), which is controlled by a pressure spring.

Lateral needle movement, transverse to direction of material.

Set zigzag adjusting knob (13) to «0».

The needle must pierce through the centre of the stitch hole when the LCR adjusting disc is centered in the C-notch.

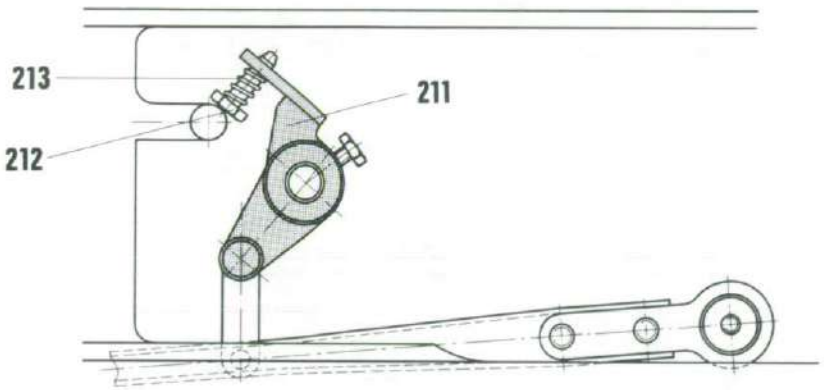


Fig. 17

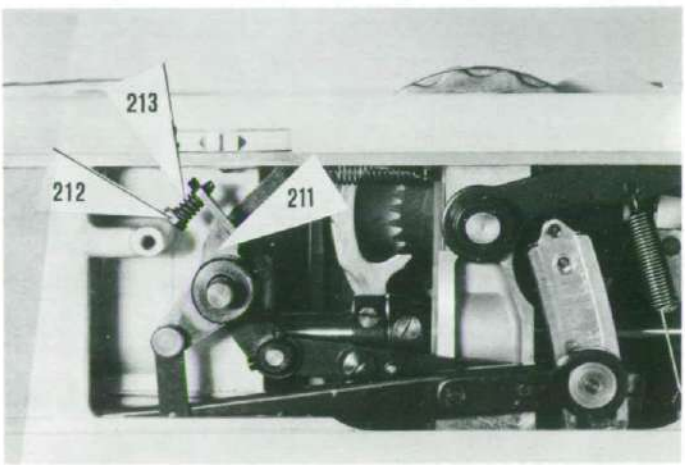


Fig. 18

Correct distribution of stitches can easily be found by observing the lateral needle position when the adjusting screw is turned. In both side positions the distance of the needle from the edge of the stitch hole must be the same.

Correction is made as follows:

Loosen screw (103) slightly. Place special fork wrench no. 398 063 03 on the knurled head (104) of the adjusting eccentric. By turning slightly to left or right the lateral needle position can be set correctly. Retighten screw (103) after correcting.

The notch on the knurled head (104) should be at the top.

IMPORTANT: Ensure that there is no play between swivel support (115) and control bar (101) when turning the eccentric.

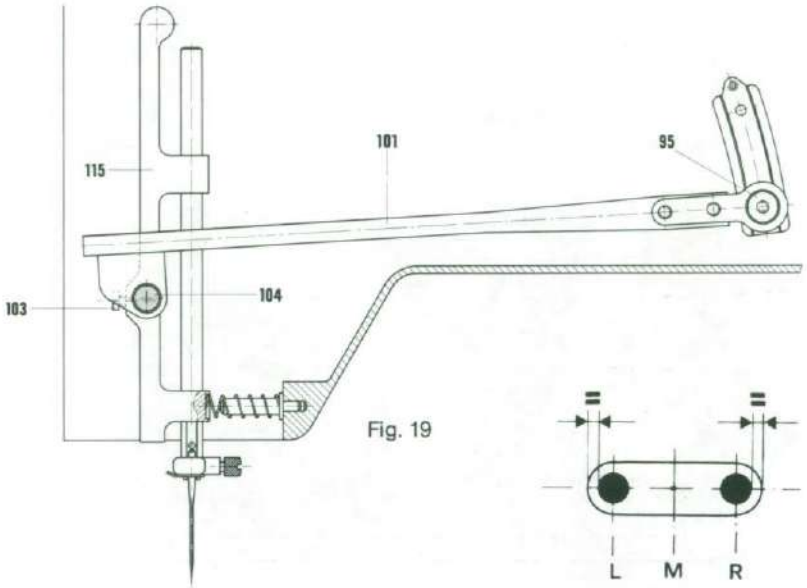


Fig. 19

Fig. 19a

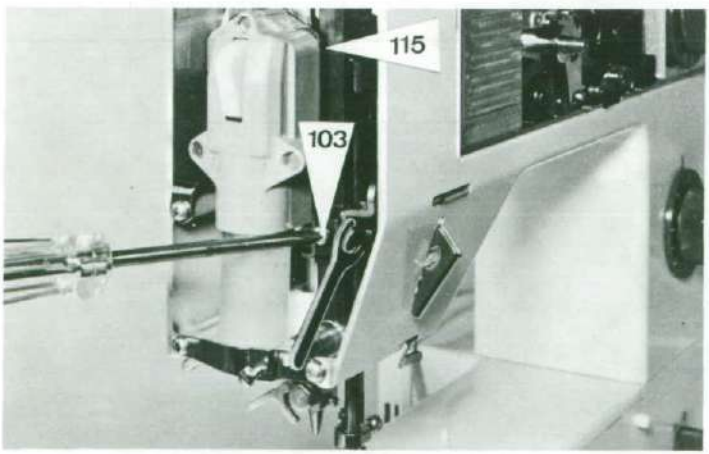


Fig. 20

Stitch position on zigzag.

In order to set the zigzag stitch position it is necessary for the sideways motion of the needle to be provisionally set.

If the zigzag adjusting knob (13) is set to position «4» and the stitch selector knob (14) is at /\/\/\ (B), it can be determined by turning the handwheel whether the left and right penetration of the needle are equidistant from the edge of the stitch hole.

If this is not the case, loosen setscrew (17) of the oscillating lever (18) to which the zigzag link is attached and move the needle to the correct position. Re-tighten screw (17).

IMPORTANT: Ensure that there is no play between bearing and oscillating lever when moving the oscillating lever (18).

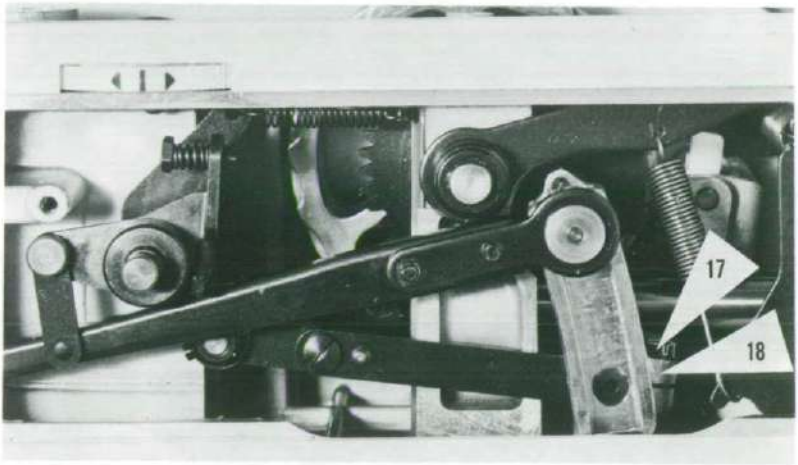


Fig. 21

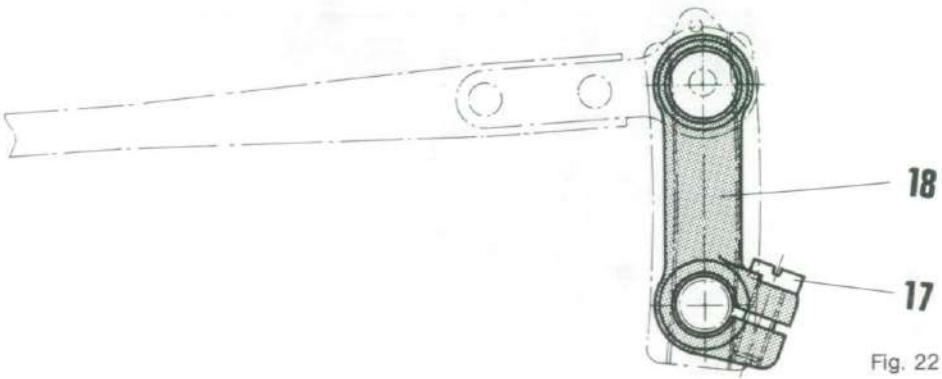


Fig. 22

Lateral motion of needle during zigzag and plain stitch sewing

The lateral motion of the needle (parabola) must be exactly matched to the up and down motion. It must only begin when the needle has left the work and must cease before the needle penetrates the work again. The zigzag motion is derived from a cam.

Check:

Set LCR adjusting disc to centre position. Move stitch selector knob (14) to cam B (zigzag). Set needle to uppermost position by turning handwheel.

If the zigzag knob (13) is then turned backwards and forwards between «0» and «4», **the needle must remain stationary!**

Correction is made as follows:
Loosen the two fixing screws (105) of worm (106). Hold the worm, which is now loose on the frame shaft, with the aid of a screwdriver and while pressing the worm against the setting ring (107) turn the handwheel until the correct setting is found.

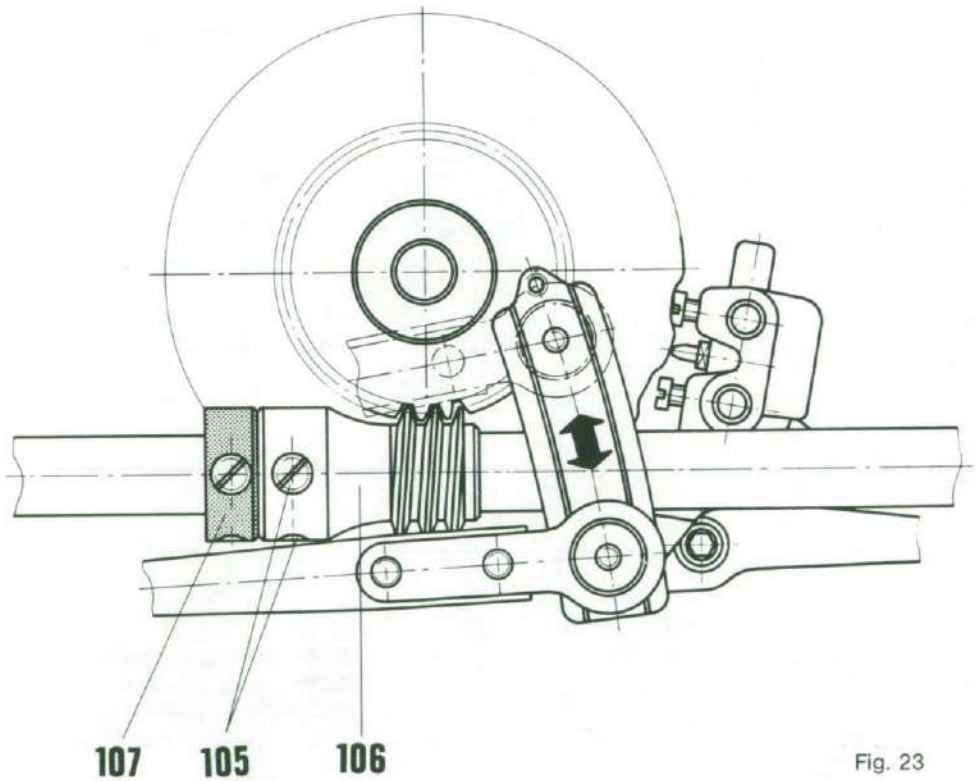


Fig. 23

Scanner support during backstitch sewing

Set stitch selector knob (14) to «backstitch» position. Turn LCR-adjusting disk (12) to «Center» position.

Check: If now the zig-zag adjusting knob (13) is turned from «0-4», the needle must remain stationary.

If this is not the case, correction is made as follows:

loosen the two fixing screws (214) on scanner piece (215) slightly and move the scanner support to the correct position with tool 398 091 03. Re-tighten screws (214).

If the needle moves to the left when the zig-zag adjusting knob is turned from «0-4», the scanner support (215) should be moved to the left, if the needle movement is to the right the scanner support must be moved to the right.

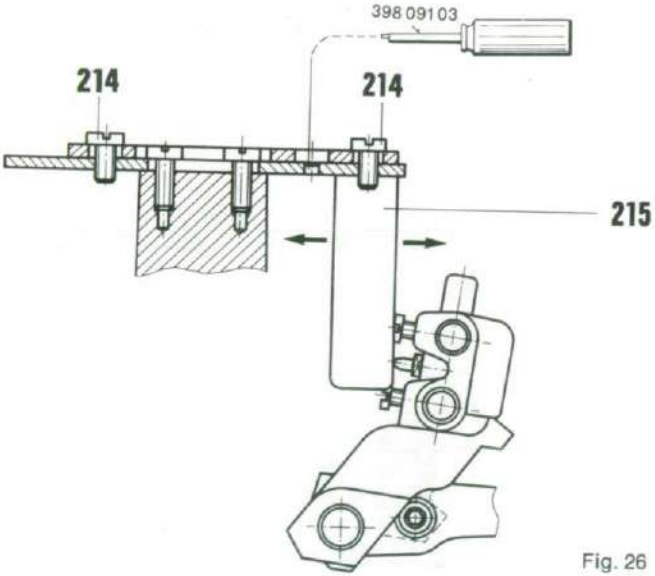


Fig. 26

Adjusting the zero position of the stitch length crank

Rotate stitch length knob (22) to the «0» position. It is properly set when the limit stop can be determined in the «0» position.

Use raw, 2-ply cotton-cretonne for sewing material, place it under the presser foot and start machine.

At full machine speed, the material must not move. If it does, correct as follows:

Loosen setting ring (133) (2 screws) which is mounted on adjusting shaft (131) and rests against the «backward» stitch setting cam (132) and also loosen the «backward» stitch setting cam (132) with the aid of Allen wrench (134). Then, loosen the «forward» stitch setting cam (135) which is also mounted on adjusting shaft (131) with the Allen wrench (screws make contact with the surface of the adjusting shaft).

Set the neutral position by moving the cam axially. If material feed no longer occurs, retighten the «forward» stitch setting cam.

Now, slide the «backward» stitch setting cam (132) up to the limit stop and tighten. Mounting screw (136) should rest on the same plane as the «forward» stitch setting cam. Finally, slide the setting ring to the cam and tighten.

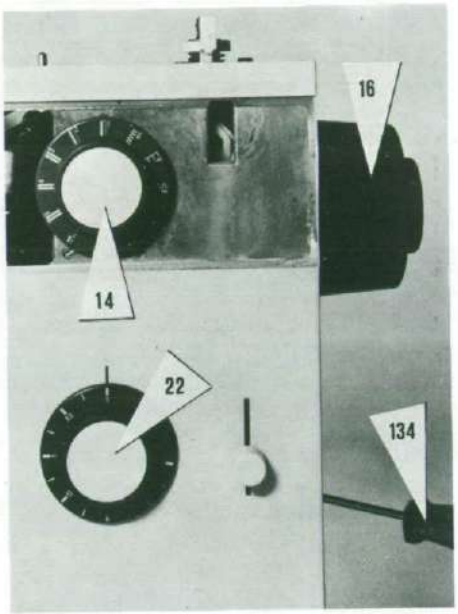


Fig. 27

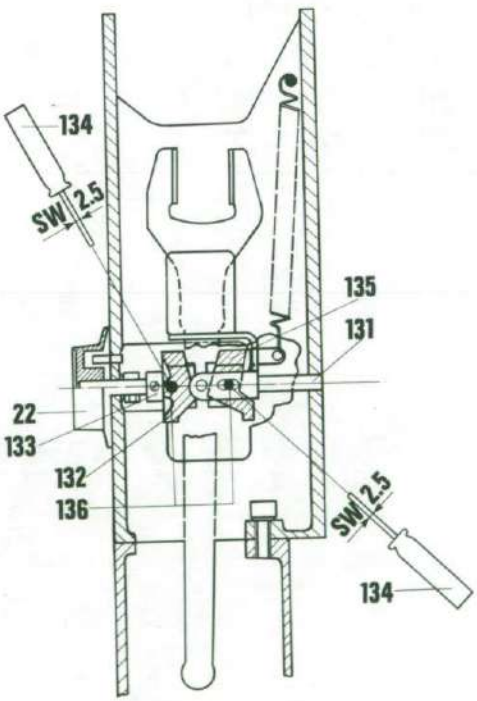


Fig. 28

Adjusting buttonhole without thread

CAUTION: The needle must not be blunt or bent. Check position of buttonhole foot.

The bead widths and bor tack widths are controlled by the built-in cams and therefore cannot be adjusted.

Set zig-zag knob to position «4». Set stitch selection knob (14) on the first bar tack and stitch length knob (22) between positions «0» and «0.5». Use raw, 2-ply cotton-cretonne for sewing material, place it under the buttonhole foot and start machine.

In this position, feed of the material must not occur. If it does, correct the adjustment in the following manner:

On forward feed loosen locknut (140) on eccentric screw (139) slightly and using a second fork wrench adjust upwards until the work is no longer fed.

If backward feed occurs, adjust cam screw (139) in the same manner but downwards.

CAUTION: Retighten check nut (140) without rotating cam screw. Check second bar tack. If feed of the material still

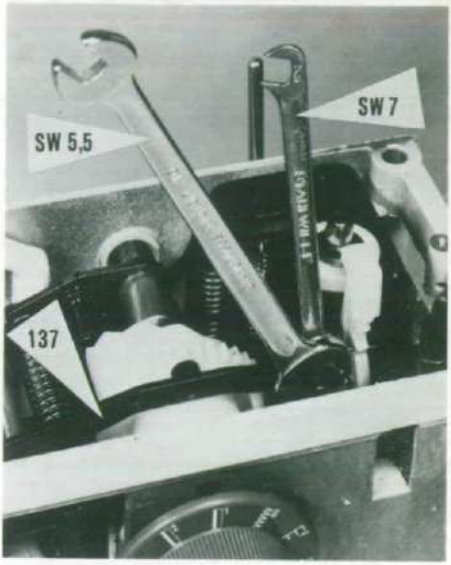


Fig. 29

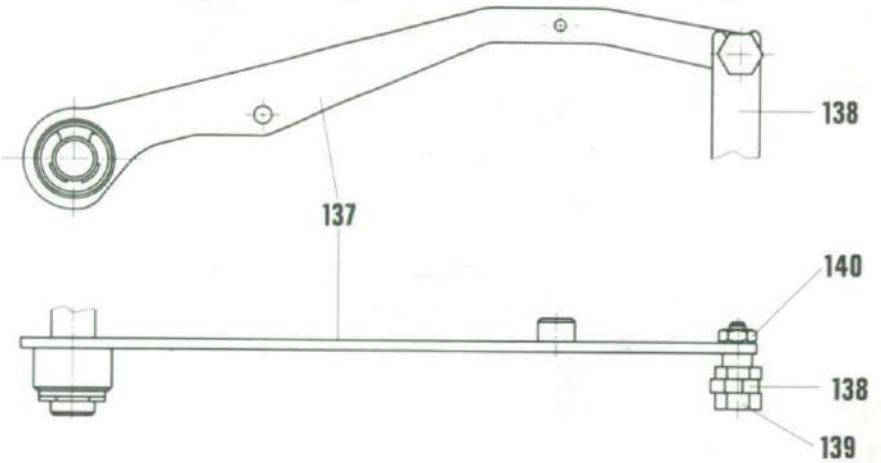


Fig. 30

occurs at the second bar tack, adjust according to the above-mentioned. procedures.

Setting the forward and reserve bead

Turn stitch selector knob (14) to position «1» (first bead).

Set stitch length adjustment knob (22) to approximately 0.25. Start machine until the securing screw of the cam package is positioned upwards.

Sewing material: raw, 2-ply cotton-cretonne. Place under presser foot.

Start machine until the cam package has completed two full revolutions.

Set stich selection knob (14) to position «3». Now let the m/c run a further 2 full rotations.

Compare the difference in length between and forward and reverse bead. The reverse bead should be approximately 1 mm shorter than the forward bead.

If the reverse bead is too short, loosen mounting screw (136) of the reverse stitch setting cam (132) with Allen wrench (134) and rotate the cam downward.

If the reverse bead is too long, rotate the cam upward. Retighten screw after adjustment.

Stitch length adjustment knob (22) must remain in the «0» position during the adjustment procedure.

CAUTION: When rotating the reverse cam, it must be pressed against the setting ring with the allen wrench.

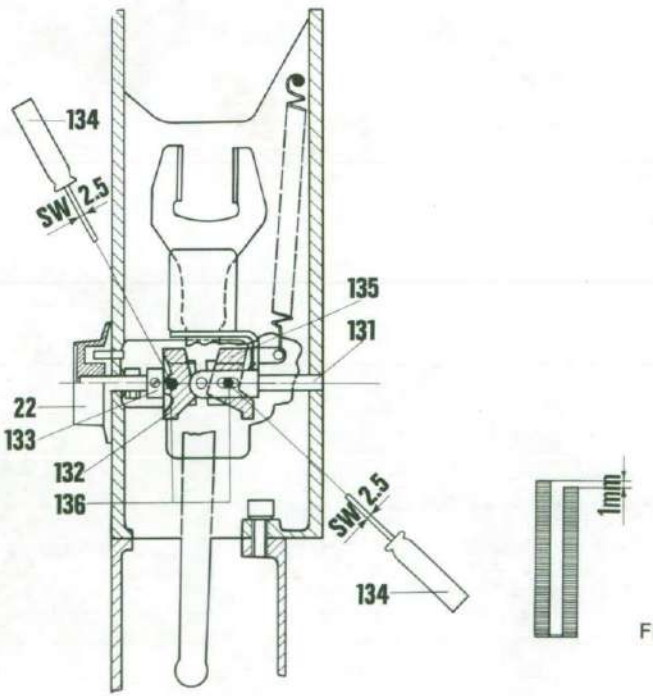


Fig. 31

Adjusting the CB shuttle

(CB = central bobbin)

A straight needle must be used for shuttle adjustment.

1. Thread passage

The thread passage play between shuttle (53) and shuttle drive (54) must be 0.3 mm. Check with gauge No. 398 022 02. If the gap is too large or too small, slightly adjust the short shank of the shuttle drive inward or outward with adjusting tool No. 398 020 03.

If correction is required, the bearing bush of the shuttle race must be axially shifted. Unscrew screw (58) on the rear side of the free arm and remove shuttle drive together with pinion.

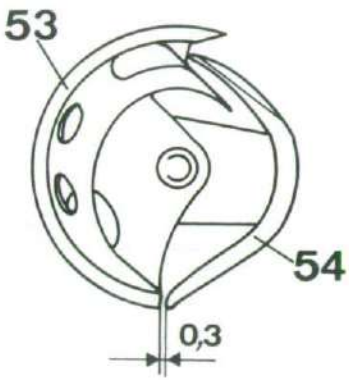


Fig. 32

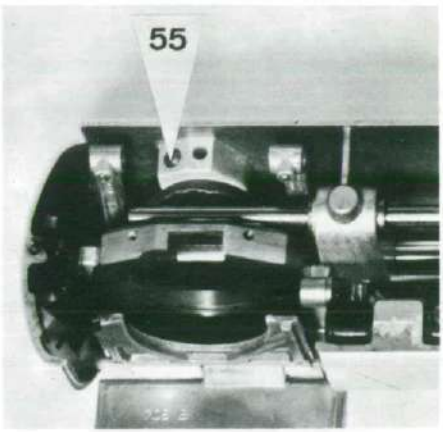


Fig. 33

2. Lateral setting of the driver

The shuttle drive must not protrude beyond the shuttle race under any circumstances. On the other side, however, it must lie no more than 0.1 mm behind the upper edge of the shuttle race.

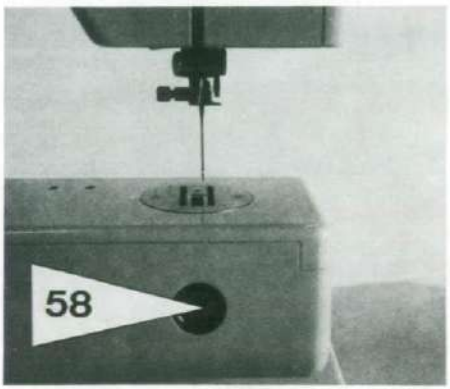


Fig. 34

slide tool No. 398 049 04 from the rear of the free arm through the shuttle race bore and place on pin (59). Rotate the thrust nut of the tool against the hub of the shuttle race until it makes contact.

The bearing bush can be mowed to the rear by rotating the handle clockwise. If a forward correction must be made, the tool must be inserted from the hinged cover side (i. e. from the front).

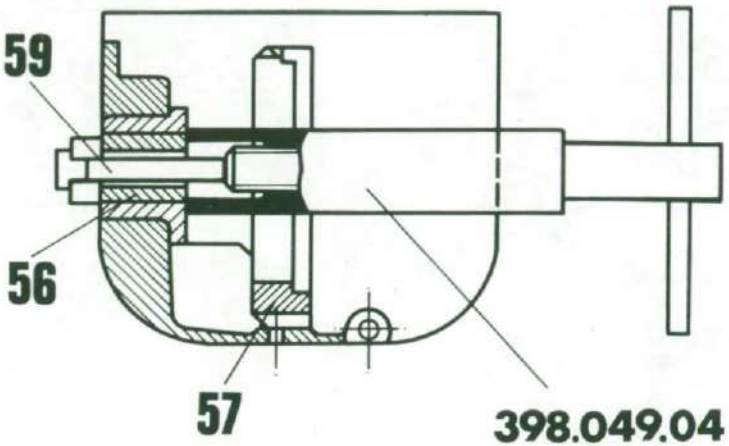


Fig. 35

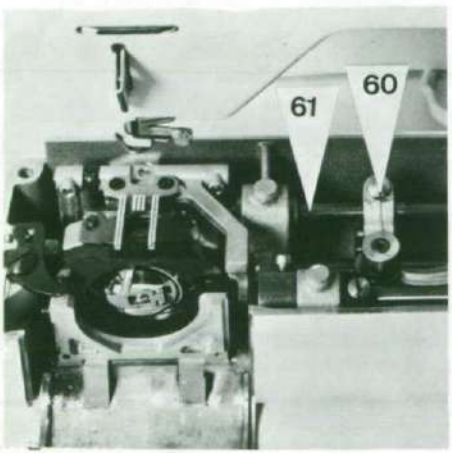


Fig. 36

3. Adjusting the return motion Correction due to inaccurate adjustment

For adjustment, use a flawless needle, system 705 B, No. 80. Set needle deflection to left-hand stitch (set zig-zag to «0»).

Set rack in forward dead center and loosen screw (60) from rack follower.

Axial displacement of rack (61) to the left = longer return motion; to the right = shorter return motion.

The distance is correctly set when the distance between the shuttle tip and left hand needle edge is 2.8—3 mm. Tighten rack follower and check driver for smooth operation.

Unscrew flat head screw (58) on the driver shaft and slide driver shaft backwards and forewards in the bushing.

If the shaft jams, this can be corrected by rotating rack (61) radially. Reinsert screw (58) and retighten. For security recheck the return motion.

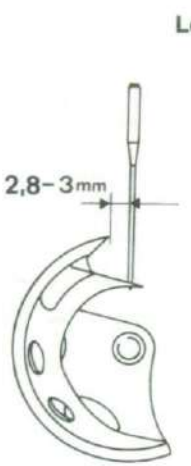


Fig. 37

Fig. 38

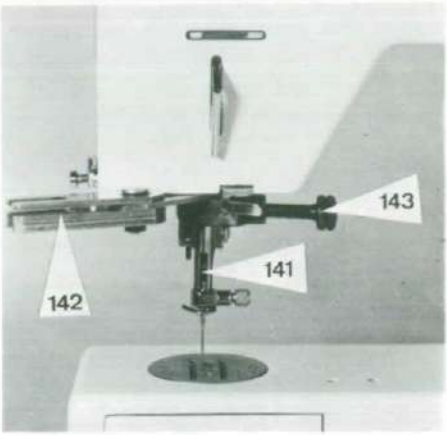


Fig. 39

4. Loop lift

The loop lift is the path covered by the needle from its lowest point up to the moment when shuttle tip enters the thread loop.

Type 900 and models:

Loop lift 1.8 mm (return motion: 2.8 to 3 mm).

The loop lift is adjusted in the left-hand stitch position with loop lift gauge No. 398 008 04 (142).

Left-hand stitch

Set the needle in the left-hand stitch to its lowest point. Now, place clamp (143) 398 005 043 on the needle bar (141), insert gauge (142) 1.8 mm between clamp (143) and the lower end of swivel support (115) and tighten the clamp by pressing the gauge against needle bar (141). After withdrawing the gauge, lift needle bar by rotating the handwheel in the operating diection until the clamp rests against the needle bar support. When the needle bar is in this position, the shuttle tip must right hand needle edge be in line with the. To correct, loosen both screws (66) and (67) on lift crank (68). By rotating the lift crank, adjust the shuttle with the shuttle drive in such a manner that the shuttle tip becomes flush with the right-hand needle edge.

Tighten the screw and check setting again. Remove clamp and rotate the lift crank until screw (67) is accessible.

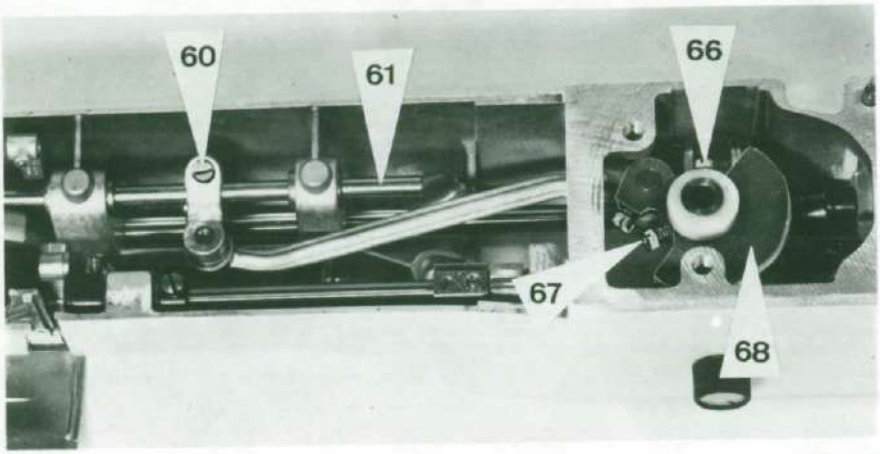


Fig. 40

Screw (67) is pointed and therefore should not be tightened until the required setting is obtained. When tightening screws (66) and (67), make sure that the lift crank (68) is not axially displaced so that play between the lift crank and vertical shaft bearing will not occur.

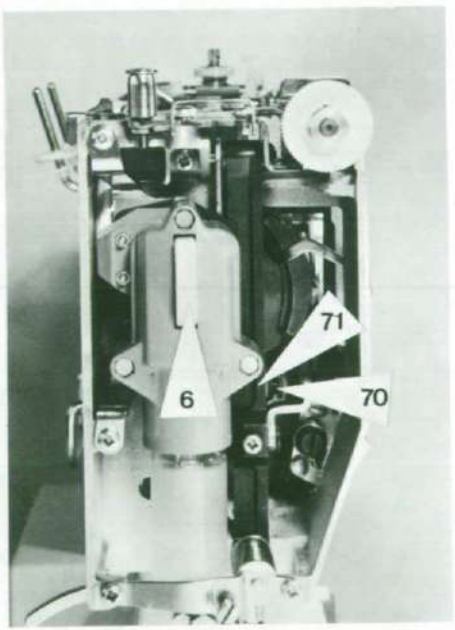


Fig. 41

5. Needle height

(Adjusting the needle bar)

The final needle height is set after adjusting the loop lift.

The needle must be in the right hand position.

After the loop lift is completed, the lower edge of the shuttle tip should be flush with the upper edge of the needle eye.

If correction is necessary, loosen set screw (70) of the needle bar dog and set the needle and needle bar in the specified position.

CAUTION: The needle bar must not twist.

Check with a double needle if necessary. Retighten screw (70).

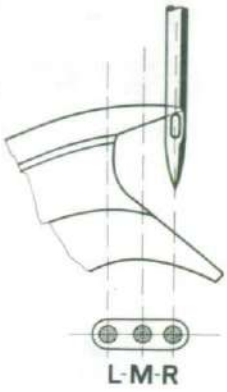


Fig. 42

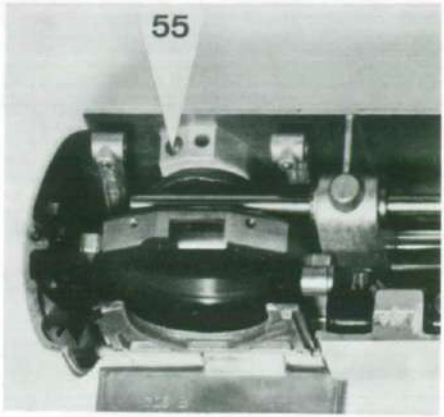


Fig. 44

6. Lateral shuttle adjustment

The lateral distance between the needle and shuttle should be 0.05 mm. If this distance is larger, faulty stitching may result, and if it is too small, the shuttle tip may be damaged. Move the shuttle race axially to correct. To carry out this operation, loosen screw (55) and move the shuttle race forward or backward until the distance is correct. Retighten screw after adjustment.

Fig. 43

7. Thread guide plate

The thread guide plate is located above the shuttle race. The lateral needle interval from the thread guide plate opening should be approximately 0.3 to 0.5 mm on the right-hand side for maximum zigzag deflection.

If incorrect, loosen both screws (52) and set thread guide plate in the proper position according to the illustration.

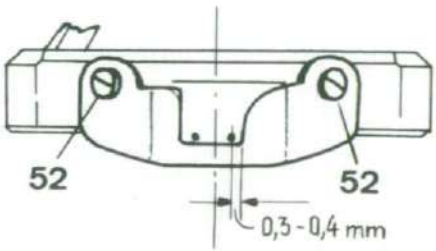


Fig. 45

Material feed

(Feed dog position in the needle plate)

Feed dog (72) (toothed segment) must be able to move in the slots of the needle plate without any jamming.

Even for the maximum stitch length, there must be sufficient play at the front and rear between the toothed rows of the feed dog and the slot edges.

Loosen both screws (73) to adjust feed dog (72).

The feed dog can now be moved in the longitudinal direction and laterally. Retighten screws (73).

Check feed dog with feed dog lowering knob (21) to see whether it can be raised and lowered without jamming.

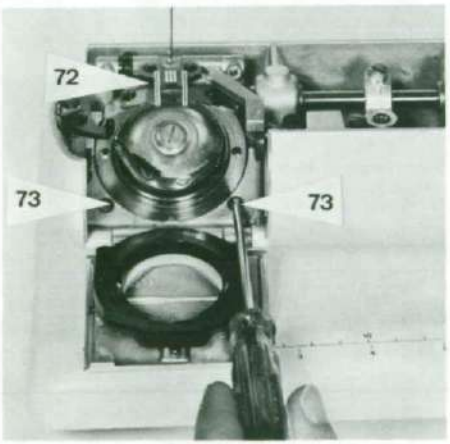


Fig. 46

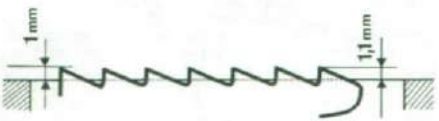


Fig. 47

Feed dog hight

The tips of the teeth of the feed dog should protrude 1.0 to 1.1 mm over the upper edge of the needle plate at maximum height.

Check for proper setting with gauge No. 398 027 03. Rotate feed dog lowering knob (21) to the «Sewing» position.

Place notch of adjusting gauge on needle plate (front and rear measurements: 1.1 and 1.0 mm, respectively). Set to the longest stitch and check feed dog height.

If correction is necessary, loosen both screws (75) of coupling half (74). Rotate the coupling half toward the base wall so that the feed dog lifts into the uppermost position. Insert cover plate. Set feed dog to the highest position by rotating the handwheel in the operating direction. Position gauge (1.1 mm at the front).

Press feed dog carrier (72) downward with a screwdriver until the gauge makes contact with the needle plate.

Remove cover plate and tighten both screws (75). Recheck feed dog height with the gauge.

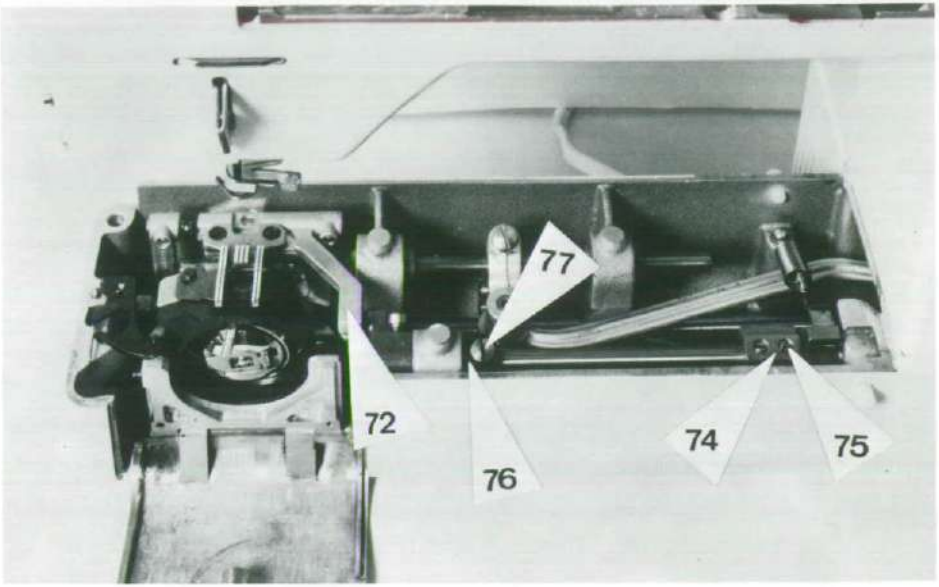


Fig. 48

Depth limit stop for drop feed

Setting coller (76) acts as a limit stop for the feed dog at its lowest position.

The lowest point of the feed dog should be limited in such a manner that it will not touch the thread guide plate under any circumstances. Set feet dog lowering knob (21) to the «Sewing» position (engage). Set feed dog to its lowest position by rotating handwheel.

Disengage feed dog, i. e. set the feed dog lowering knob to the «Darning» position. Then, there should still be approximately 0.2 mm play until setting ring (76) with stop limits the downward motion of the feed dog.

If necessary, loosen screw (77) and fix setting ring (76) with stop in the specified position. When resetting, make sure that axial play does not exist.

Feed dog movement (Vertical)

Raising and lowering of the feed dog must properly synchronize with needle motion. If the loop lift stroke, return motion, and needle bar height are preperly adjusted, the lowering phase of the feed dog must automatically occur at the right time. There are no other possibilities for correction.

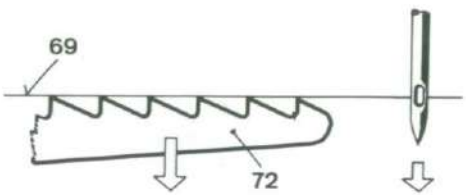


Fig. 49

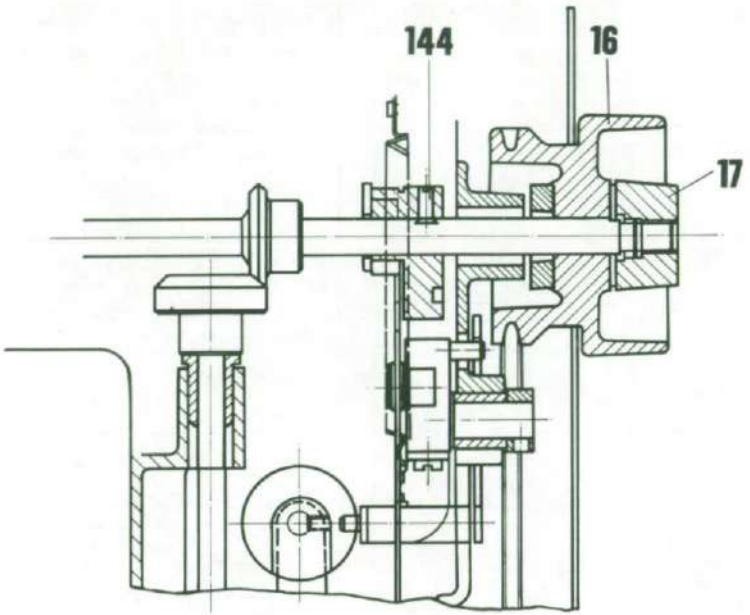


Fig. 50

Feed dog movement (Horizontal)

The horizontal movement must also be properly synchronized with the needle motion — the same as for the raising and lowering of the feed dog.

The feed dog is properly set when mounting screw (144) of the horizontal movement excentre makes contact with the milled flat on the shaft.

Presser foot bar

a) Adjusting the clamp for the foot mounting

The height of clamp (80) must be adjusted in such a manner that tension cam (81) of the foot is approximately in the center of the bearing surface of lever (82).

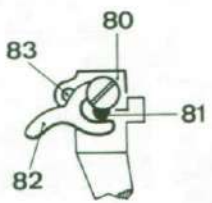


Fig. 51

To adjust, loosen screw (83) and set clamp in the corresponding position.

CAUTION: Do not twist clamp.

b) Adjusting foot lift

Lower feed dog, raise lifting lever (35) and attach foot No. 000. Place feeler gauge (height: 6.5 mm) (145) on the needle plate below the foot. In this position (height: 6.5 mm), the presser foot bar guide (84) must rest on lifting lever (35). If correction is necessary, loosen screw (85) and set the presser foot bar guide in the required position. Finally, check whether foot sole runs parallel to the needle plate slot.

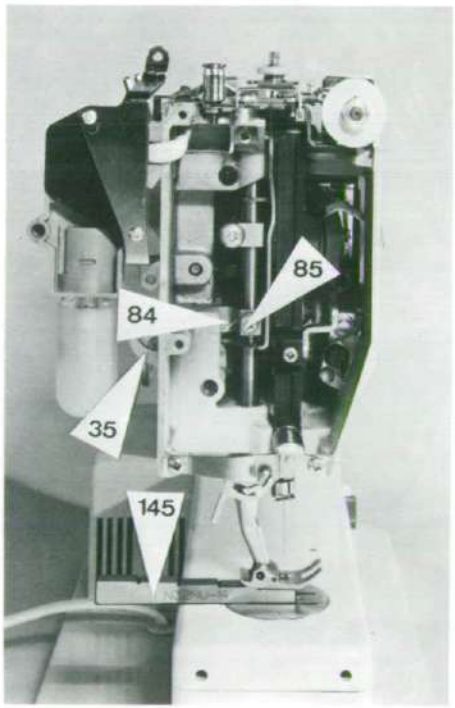


Fig. 52

c) Adjusting the darning device

Remove foot No. 000 and attach darning foot No. 285. Lower feed dog. Place spacer block (10 mm) under the darning foot and lower the presser foot bar. Rotate handwheel and position swivel piece (88) in such a manner that screw (89) is vertically upward.

Disconnect cam (90) which is located above the presser foot bar guide and move downward until it rests on the darning lever. Tighten screw (91) and make sure that the cam does not twist.

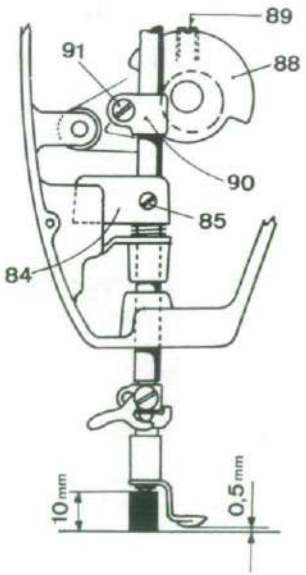


Fig. 53

If correctly adjusted, the distance between the darning foot sole and the needle plate is 0.5 mm.

Upper thread tension

Check and adjust the upper thread tension with setting weight No. 398 080 04.

The thread contained in the bobbin case of a new machine should be used for testing. Place the bobbin with 3-ply, white, left-twist No. 60 sewing thread on the front reel pin and thread as far as the take-up lever which is in its hig hest position.

IMPORTANT: Place thread into tensioner on right-hand side of the intermediate disk.

Withdraw approximately 30 cm of thread from the bobbin so that the thread hangs loosely between reel pin (33) and guide eye (34) when checking the take-off speed.

Suspend weight on thread and observe the take-off speed. Thread tension is properly adjusted when the weight pulls the thread down very slowly. The permissible take-off speed is 30 sec. ± 10 sec. for a length of 55 mm (= length of thread lever slot in frame).

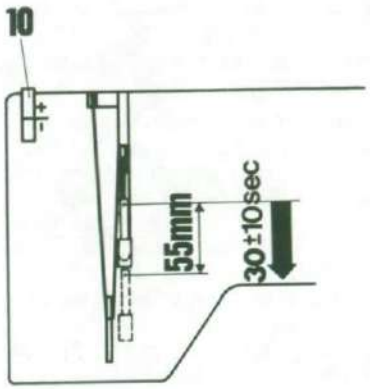


Fig. 54

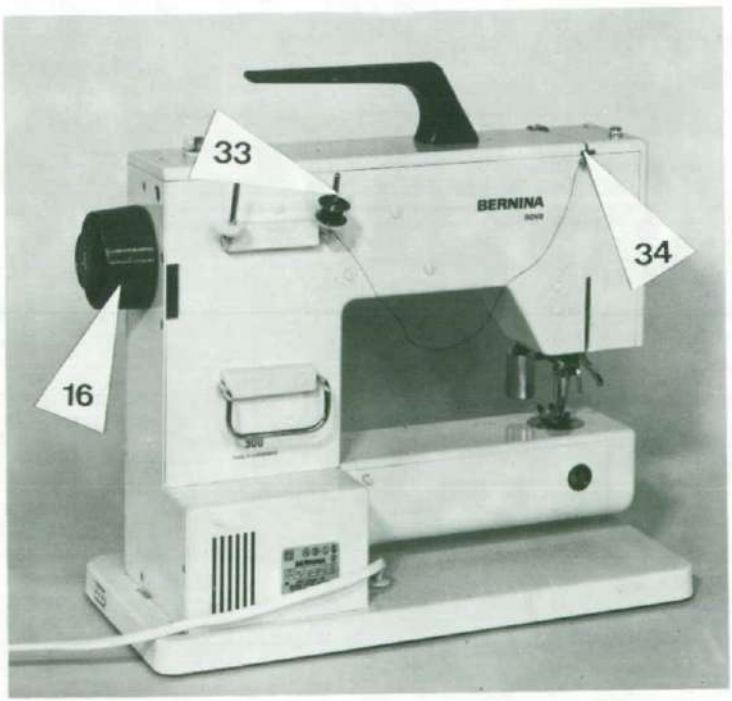


Fig. 55

Correction of thread tension:

1. Rotate the thread tension nut downwards (tension reduction) until the weight moves easily. The thread between the reel pin and the guide eye must be slack.
2. Rotate the thread tension nut upward until take-off speed attains the specified value of 55 mm in 30 ± 10 sec.
3. Adjust the thread tension nut to the mark on the frame cover.

If the mark on the thread tension nut does not correspond with that on the frame cover, loosen mounting screw (146) of thread tension nut (10) and rotate it until the marks match. Now, press thread tension nut and shaft against each other so that curved spring washer (148), which is situated between the thread tension nut and the tension support, is tightened. This produces a braking effect. Tighten screw (146).

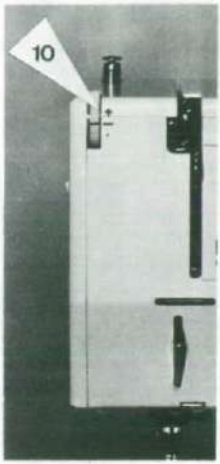


Fig. 56

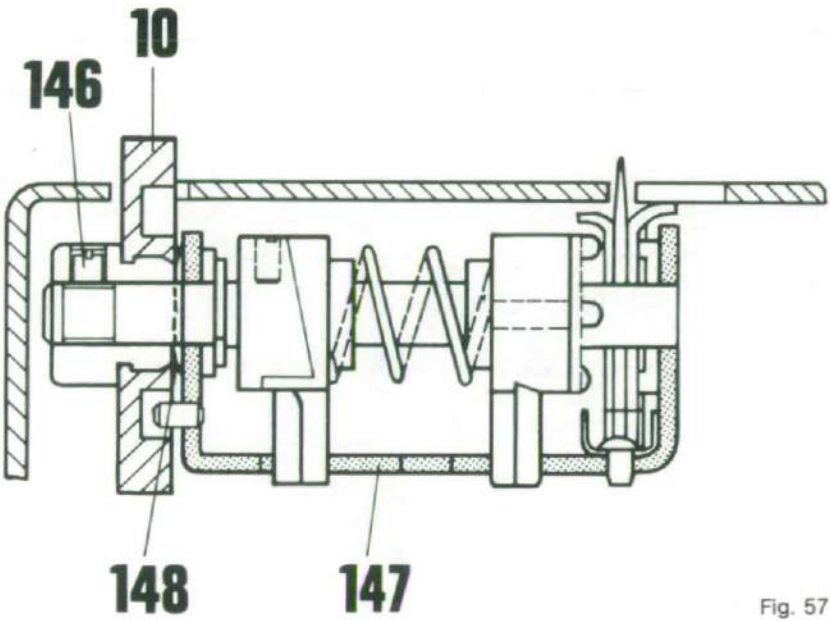


Fig. 57

Check of lower thread tension

Metrosene:	mercerised thread 100/3 (Ne 60/3) or
Darning thread:	mercerised thread 120/2 (Ne 70/2) or mercerised thread 100/2 (Ne 60/2)

Regularity check

Check whether the thread can be moved to-and-fro perfectly freely as it leaves below the bobbin case spring.

The bobbin case spring screw must be at the top without fail.

Fig. 58

Bobbin case spring screw must be on top

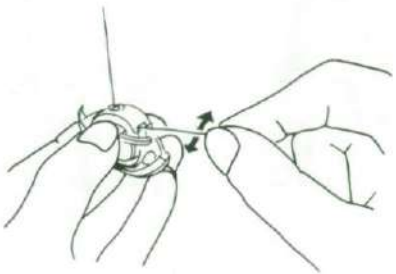


Fig. 58

Tension check

The shuttle must be used as a weight to check the tension.

As illustrated, the shuttle with bobbin case is suspended from the lower thread to check the tension.

When the hand is lightly jerked, the shuttle and bobbin case should move slowly downwards.

They must stop moving immediately, however, when the movement of the hand ceases.

Regulation

Regulation is performed on the bobbin case spring screw with the aid of a small screwdriver.

turning to left = weaker
turning to right = stronger

Upper thread tension

Adapt the upper thread tension to that of the lower thread set as described above.

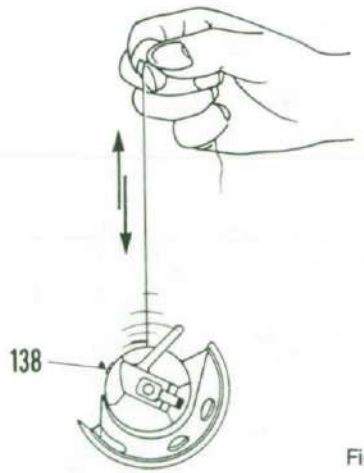
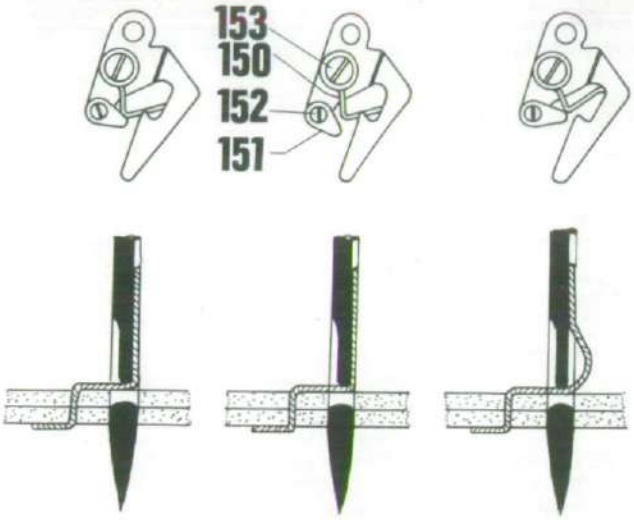


Fig. 59



A) correct

B) wrong
stop (151) too low

C) wrong
stop (151) too high

Fig. 60

Setting the thread regulator

The thread regulating spring (150) should lie on the stop (151) when the eye of the needle enters the work.

Set stop (151) to the correct position by turning screw (152).

The tension of the regulating spring (150) is also important. This spring must neither be too loosely nor too tightly tensioned. The correct setting is reached when the spring takes off the thread with the necessary «liveliness».

The tension can be raised or lowered if necessary by turning screw (153) to left or right.

Regulation of foot pressure

If necessary, the presser foot pressure on the work can be regulated with screw (154).

Factory setting = 1200 grams.

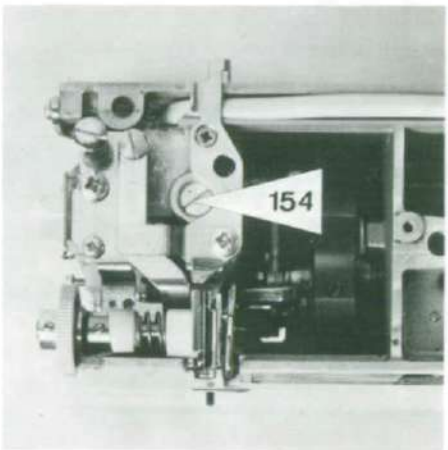


Fig. 61

Winder

The winder must be adjusted in the following manner so that the thread is wound evenly and the bobbin is properly filled:

Uniform winding: If the thread rises too high in the bobbin during winding, loosen lock nut (156) of the vertically adjustable winder prestressing device (9) and screw to lower position. If the thread is too low in the bobbin, screw prestressing device to higher position.

After completing adjustment, retighten lock nut (156).

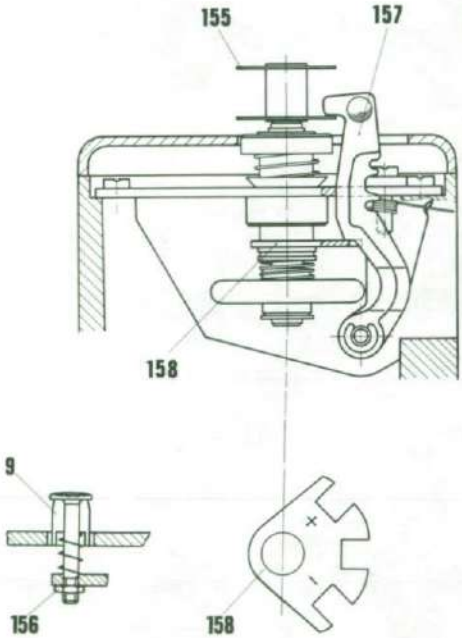


Fig. 62

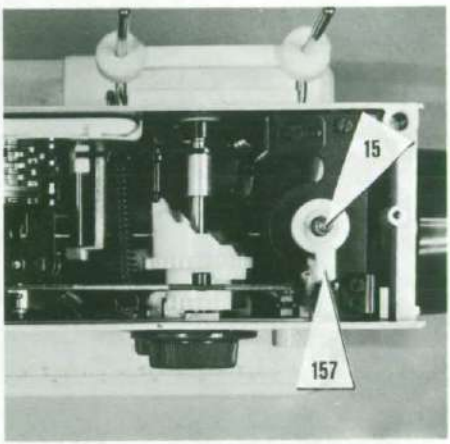


Fig. 63

Proper filling of the bobbin:

If the bobbin is insufficiently filled, retract release lever and rotate adjusting disk (158) which is provided with three notches of different depths for release lever (157) clockwise until the release lever engages in the next notch. If the bobbin is filled too much, rotate the adjusting disk counter-clockwise.

Retightening the drive belt

Remove belt cover. Slightly loosen screw (159) with Allen key. Rotate handwheel back and forth. Retighten screw (159).

Spring (160) pulls the gearing into the proper position thus obtaining the specified belt tension.

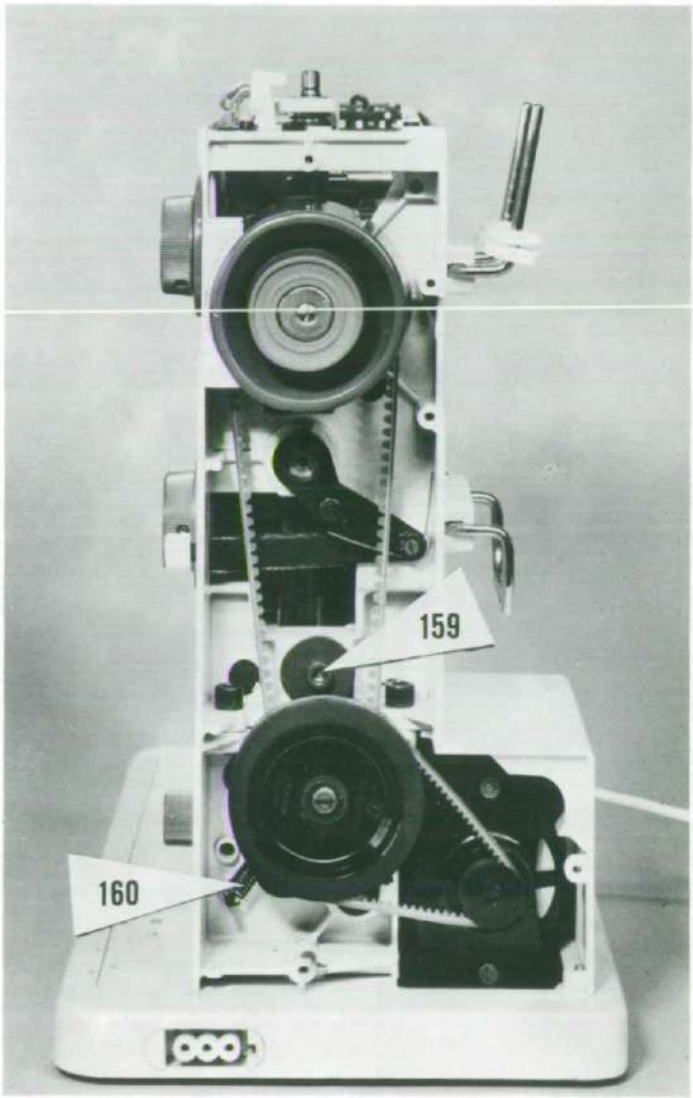
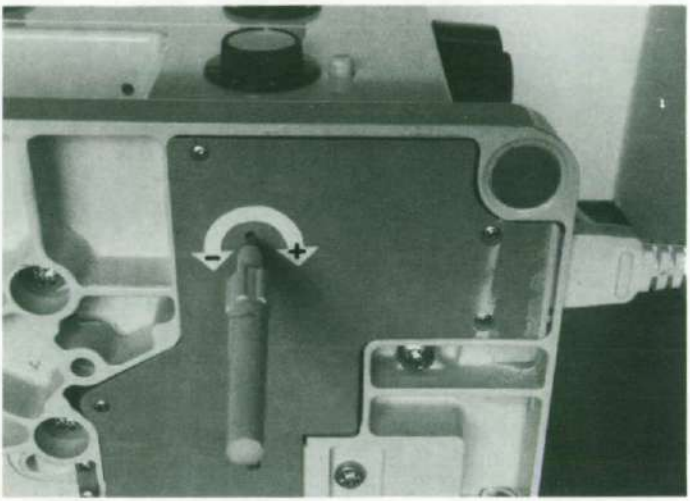


Fig. 64

Electrical section

Motor output, type 900: 90 W (220 V)
Sewing light: 15 W

All type 900 electronic sewing machines (and models) are provided with an electronic sewing speed regulator. The control electronics system in incorporated in the base plate.



Adjusting motor speed

Connect machine to power supply. Plug in foot pedal cable and actuate pedal until motor starts. If the speed is too high or too low, correct in the following manner:

Tilt machine until the electronics system housing under the base plate is accessible. The trimmer situated in the housing can be adjusted with a small screwdriver (narrow blade).

Rotation to the right (clockwise):
Motor speed increases.

Rotation to the left (counterclockwise):
Motor speed decreases.

Subject to changes in design from those shown in text and illustrations.

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