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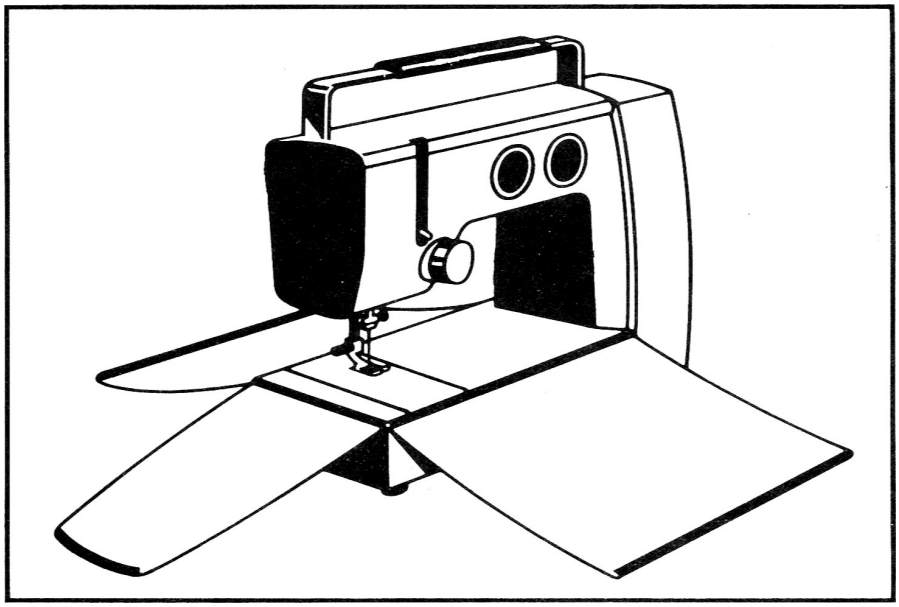
elna lotus

Service Manual

459882-1

Lotus ec cl. 15
Lotus zz cl. 25
Lotus sp cl. 35
Lotus tsp cl. 36

E3



Printed in Switzerland

INTRODUCTION TO THE SERVICE MANUAL FOR THE ELNA LOTUS/ELNA ELNITA

This service manual has been drawn up with a view to locating the defect and repairing our sewing machines rapidly. Therefore, we have selected a number of disorders, and summed up the corresponding adjustments in a logical sequence.

Any product that is produced in series is subject to tolerances because of economical and manufactering reasons. The adjustments given in this manual can be taken as ideal standards. In practice, one or the other adjustment may slightly differ from the theoretical setting.

1. SEWING DISORDERS

a. Skipped stitches

Check and, if necessary, adjust:

Check the needle - proper insertion - blunt, bent - correct system - Needle clearance No. 1 - Needle plate centering No. 2 - Hook timing No. 11 or 12 - Needle bar height No 13.

If the defect has still not been eliminated, check the following adjustments:

Feed timing No. 3 - Disc feeler No. 4 - Disc drive No. 5 or 6 - Upper/ lower tension No. 20/21 and the correct functioning of the check spring.

b. Skipped stitches in stretch and knitted fabrics, .etc.

After all the points under a. have been checked, recommend a stretch needle and the Teflon-coated foot. Moreover, in exceptional cases, the Needle bar height No. 13 can be set slightly lower.

c. The machine does not stitch at all

It is advisable to check first of all the synchronization between the upper and lower shafts.

Proceed as follows:

- place the needle bar at the lowest position.
- the feed dog must also be at the lowest position.
- point of hopk should be at the "4 o'clock" position, i.e. at the same level as the black fixation screw of the guard ring.

Should this not be the case, remove the driving belt from the lower pinion. Refer to adjustment No. 3 (feedtiming) and the correct position of the hook (hooktiming No. 11 or 12) when re-engaging the driving belt.

d. Thread breakage

Before checking the adjustments, make sure that the thread is of good quality, that the needle is in good condition and that the threading is correct, without forgetting that all the thread passages must be in perfect order. Very often, a damaged slot of the needle plate, a damaged darning plate or foot, is the reason for the thread-breakage. If all these points are in order, check the following adjustments:

Upper/lower tension No. 20/21 - Correct functioning of the check spring - Needle plate centering No. 2 - Needle clearance No. 1 - Needle should not touch the slot of the foot - Hook timing No. 11 or 12 - Needle bar height No. 13.

e. Needle breakage

Needle breakage can often be attributed to the following factors:

- the customer pulls the fabric
- needle is of a bad quality or bent.
- the stitch length is too short, particularly when ticknesses are being sewn.

However, it is wise to check the following adjustments:

Needle clearance No. 1 - Needle plate centering No. 2 - Feed timing No. 3 - Disc drive No. 5 or 6 - Needle bar swing No. 8 - Height and orientation of needle bar No. 13.

f. The stitch pattern does not correspond to that selected

Check the height of Disc feeler No. 4, and if the feeler is damaged, change it.

g. Buttonhole: The second bartack is displaced to the left

Sew a buttonhole with a new embroidery foot. If the result is not satisfactory, check Needle bar swing No. 8 and Needle centering No. 9. If these adjustments are correct, you may proceed as follows:

turn stitch width knob to the first buttonhole symbol (row). Place needle at its lowest and on the right side of the first row. Use adjustment No. 7, Engaging stitch widthiasa help. Turn eccentric ″a″ slightly to bring the needle to the centre of the needle plate. Check Needle centering No. 9 and readjust, if necessary. Sew a new buttonhole.

By moving the eccentric ″a″ (adjustment No. 7) slightly within the 9 to 12 o'clock position, the rows can be sewn wider or narrower, which changes also the gap between the two rows.

h. The machine runs too slowly

Before adjusting anything, check the following points:

Set the coupling knob between the symbols "sew" and "bobbin winding" and check whether the machine turns freely and without any hard point. If this is not in order, check the upper and the lower shafts. They should have an axial play of 0,05 mm; if not, adjust shaft stops. The thread take-up lever has to move freely without any play to either side. Also the thread take-up lever link axle should not be adjusted too tightly.

Dirty parts, and those lubricated with something else than sewing machine oil are to be cleaned. Remove remains of thread from the hook. Oil hook and needle bar.

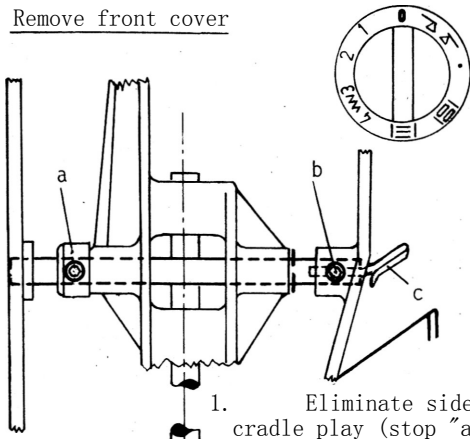
Check foot control: if the machine runs faster when the foot control cover is removed and the two terminals bridged over, clean the contact-blades with a fibreglass brush and, if necessary, align the blades.

Check Motor position adjustment No. 17. Make sure that the friction wheel is clean and the distance correct. Clean the commutator and check the carbon brushes. Finally, the Armature can also be tested with an ohm-meter and, if defective, be replaced.

The machine should be run at room temperature for at least 5 minutes, before testing the speed.

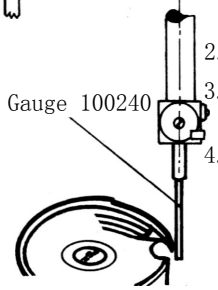
NEEDLE CLEARANCE

Remove front cover



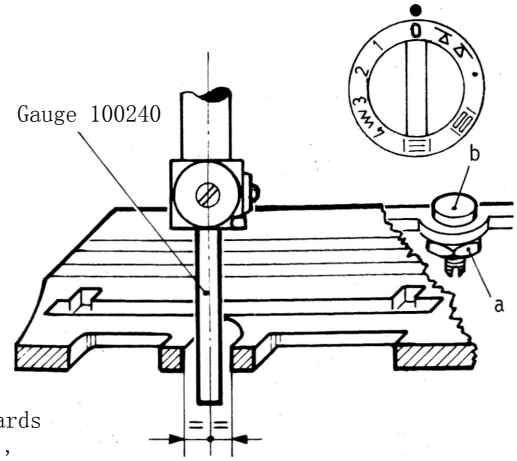
1. Eliminate sidewards cradle play (stop "a"),
2. Loosen screw "b".
3. Move cradle axle to adjust clearance.
4. Press thread guide "c" against casing and tighten "b".

Gauge 100240



Bending of gauge: 0,1mm

NEEDLE PLATE CENTERING



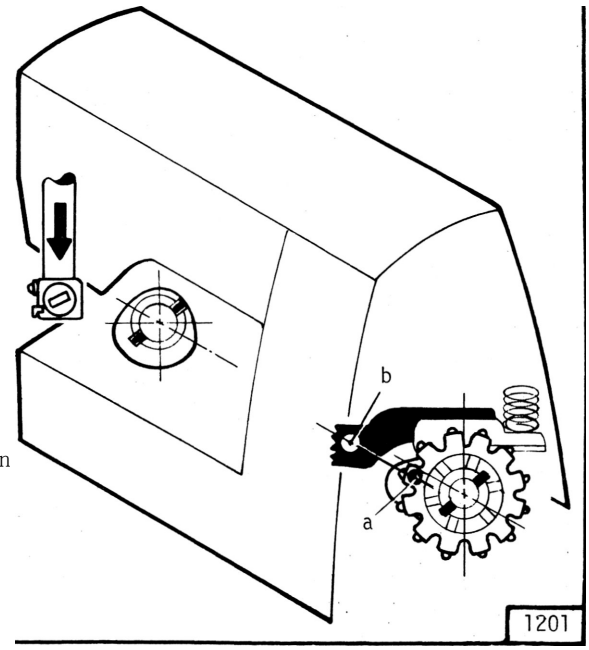
1. Slightly loosen the two nuts "a".
2. Move needle plate so as to centre slit in relation to gauge.
3. Tighten "a" whilst retaining "b".

FEED TIMING.

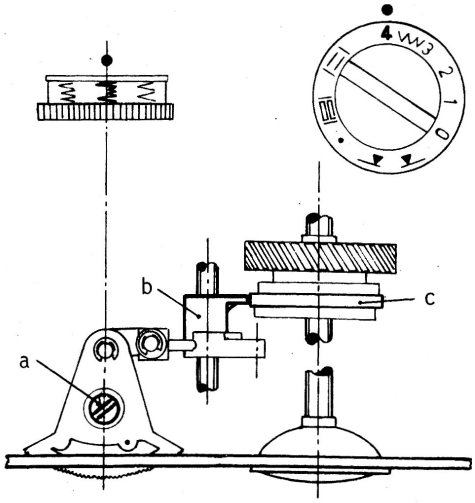
General rule: With stitch length on 4 forward, feed dog should advance about 1 mm further when thread take-up lever starts to descend from its highest position.

1. Remove rear and lower cover plates (rubber feet screws).
2. Slide off belt and position lower shaft as per sketch, so that guide hole "a" of pinion is opposite rivet "b".
3. Put needle bar in lowest position, then stretch belt and fit it over pinion, turning lower shaft in running direction.

   Check: Place needle bar in lowest position and recheck adjustment.
4. Without altering position refit rear cover plate, placing flywheel locking groove on side of bobbin winder.



DISC FEELER 35 A

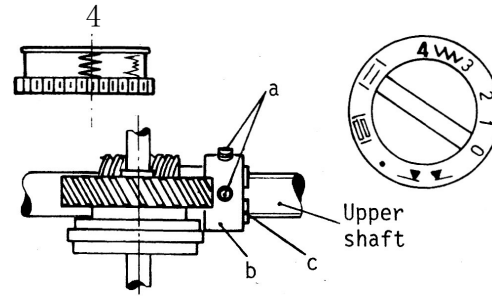


1-. Slightly loosen screw "a".

2. Adjust feeler "b" in the middle of cam "c".

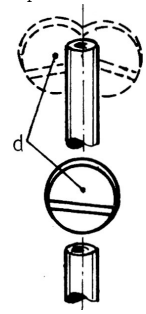
3. Tighten "a".

DISC DRIVE 35 5



1. Loosen both screws "a".

2, With one screw "a" hold worm "b" against lock spring "c" whilst turning upper shaft to a different position.



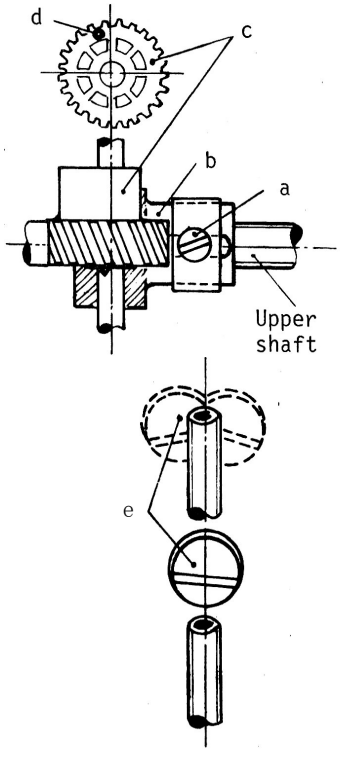
3. Tighten screw and check:

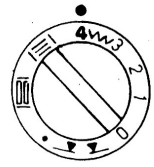
Cradle should swing when needle bar is opposite eccentric "d".

Cradle should not move when needle bar is below "d".

4. Tighten both screws "a".

DISC DRIVE 25 6





1. Remove screw "a" and free pinion "b" to the right.

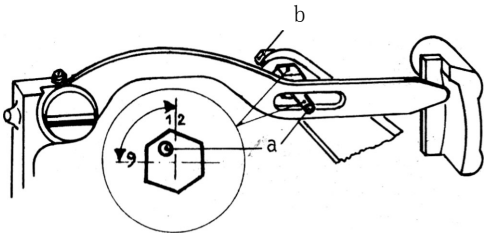
2. PI ace needle bar in lowest position. Hold pinion "c" with guide mark "d" slightly to the left of 12 o'clock, then fit pinion "b" so that its slit is opposite fixation hole.

3. Put back clamping ring, tighten screw "a" and check:

Cradle should swing when needle bar is opposite eccentric "e".

Cradle should not move when needle bar is below "e".

ENGAGING STITCH WIDTH 35 25 — 7



1. Position eccentric "a" between 9 and 12 o'clock.

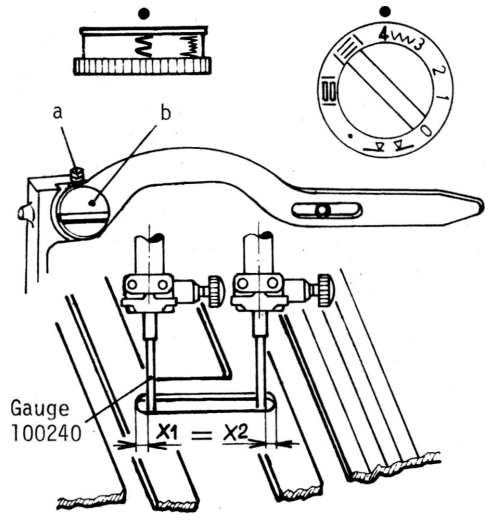
   Check: When turning stitch width knob slowly from 0 to 1, slide rail/feeler should interlock between f and 1. On 0 it must not move (turn flywheel).

   To advance the interlocking, turn "a" towards 9 o'clock.

   To retard the interlocking, turn "a" towards 12 o'clock.

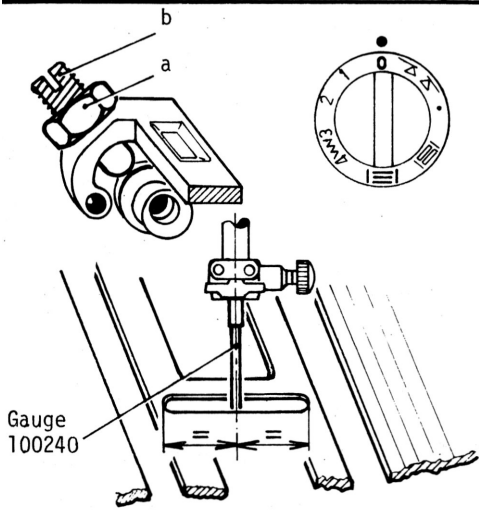
2. Hold "a" in place and tighten nut "b".

NEEDLE BAR SWING 35 25 — 8



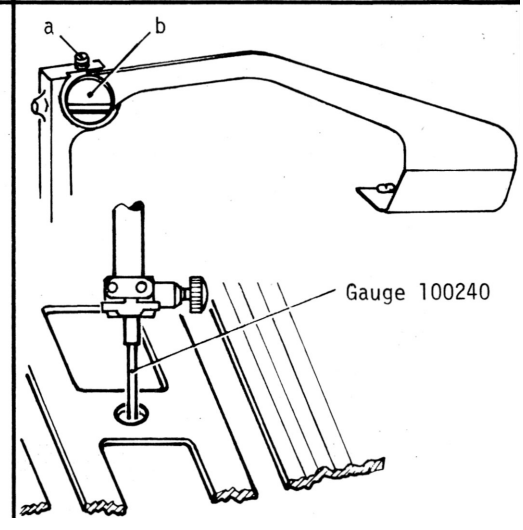
1. Slightly loosen screw "a".
2. Turn eccentric "b" (slit downwards) to obtain the swing XI = X2.
3. Tighten "a" whilst pressing lighty on "b".

NEEDLE CENTERING 35 25 — 9



1. Slightly loosen nut "a".
2. Turn screw "b" to centre gauge in needle plate slit.
3. Tighten "a" whilst holding " b".

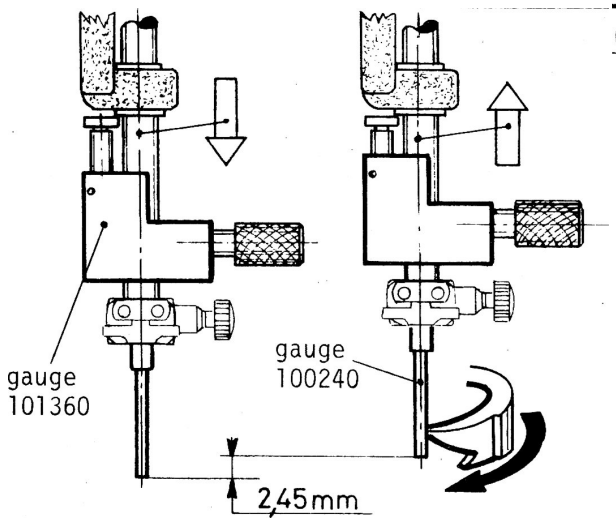
NEEDLE CENTERING 15 — 10

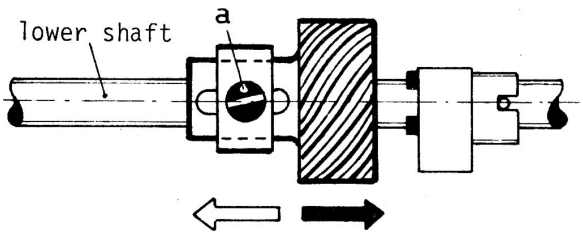


1. Slightly loosen screw "a".
2. Turn eccentric "b" to centre gauge in needle plate hole.
3. Tighten "a" whilst pressing on "b".

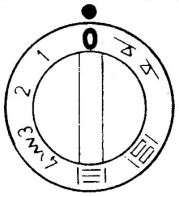
HOOK TIMING (former type pinion)

11





Check adjustment No. 3

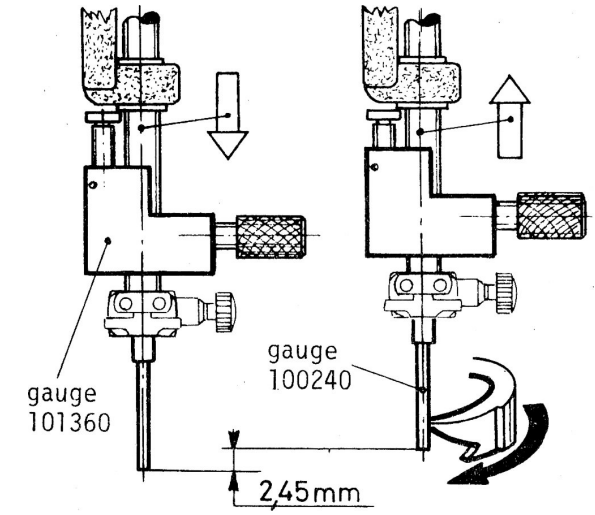


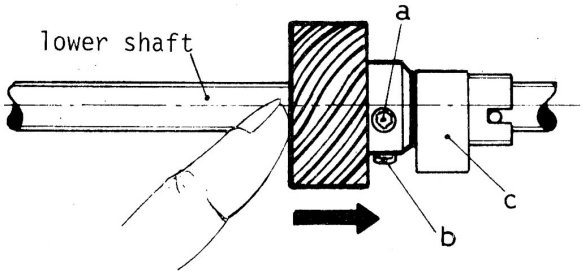
1. Slightly loosen screw "a".
2. Place needle bar in lowest position
3. Fit gauge 101360 against cradle without forcing and tighten it.
4. Turn flywheel gently towards you until it is stoped by the gauge.
5. Push pinion towards the left ⟵1 and then back to the rightB^- until point of hook is in line with gauge 100240.
6. Tighten screw "a" and remove gauge 101360.

Check: Turn flywheel several times and reckeck hook timing.

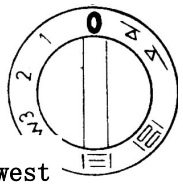
HOOK TIMING (new type pinion)

12





Check adjustment No. 3



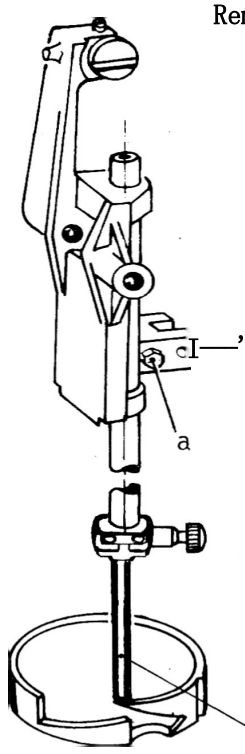
1. Loosen screws "a" and "b", free pinion to the left,
2. Place needle bar in lowest position.
3. Fit gauge 101360 against cradle without forcing and tighten it.
4. Turn flywheel gently towards you until it is stoped by the gauge.
5. Bring point of hook in line with gauge 100240. Keep hook in this position, push pinion until it meets cam "c" and tighten "a".
6. Remove gauge 101360 and tighten "b".

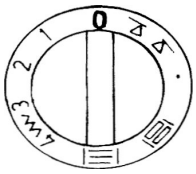
Check: Turn flywheel several times and recheck hook timing.

Note: Feed dog should be in its lowest position at the same time as needle bar (see position cam "c").

HEIGHT AND POSITION OF NEEDLE BAR 13

Remove front cover

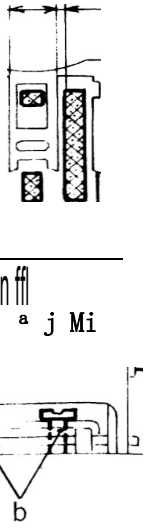




1. Move point of hook to 6 o'clock.
2. Loosen screw "a".
3. Bring gauge (needle bar) to point of hook then position needle clamp in line with machine.
4. Tighten "a".

Gauge 100230

POSITION AND HEIGHT OF FEED DOG 14



Gauge 100630

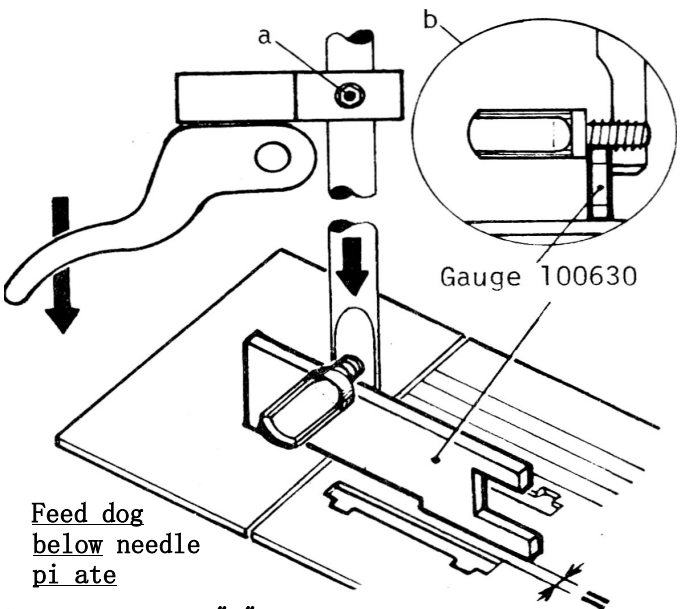
1. Slightly tighten both screws "a" and position feed dog in relation to needle plate.

   Feed dog should not touch needle plate on 4 forwards and 4 reverse.

   If necessary, pre-adjust by means of screws "b".
2. Tighten both screws
3. Loosen screw "c" and place gauge above needle plate **slit**.

   Turn "d" to adjust height (feed dog should barely touch gauge).
4. Tighten "c".

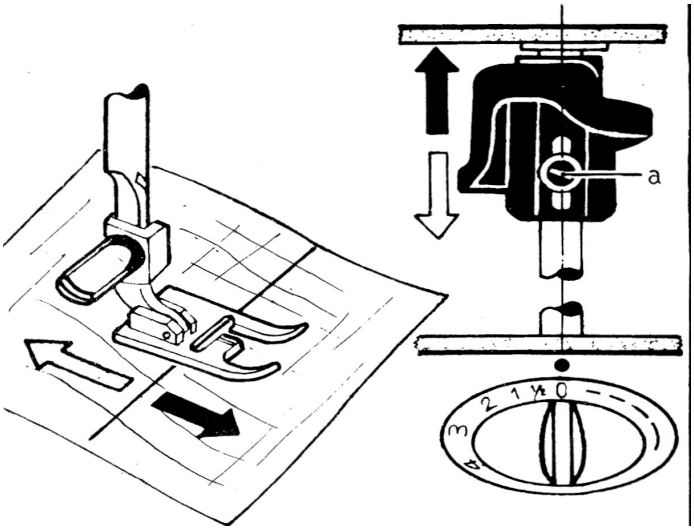
HEIGHT AND POSITION OF PRESSER BAR 15



Feed dog below needle plate

1. Loosen screw "a".
2. Press clamping screw against gauge (see sketch "b").
3. Tighten gauge and position it in relation to needle plate.
4. Tighten "a".

STITCH LENGTH 16



1. Slightly loosen screw "a".
2. Move feed control cam until fabric is no longer fed at 0 (machine running at high speed).
3. Tighten "a".

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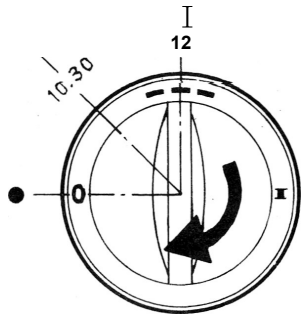
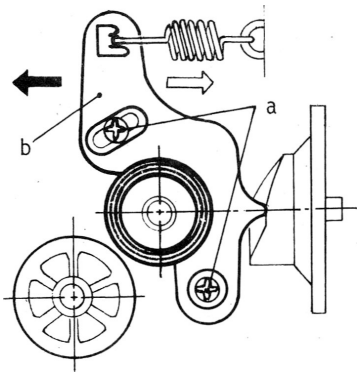
Adjustments





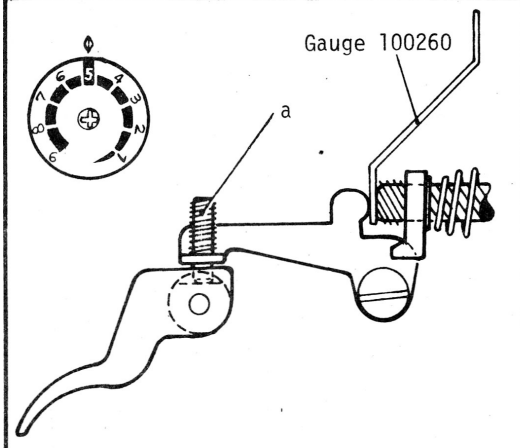
1. Set 0 of coupling knob opposite guide mark •.
2. With running motor, turn knob slowly in direction of arrow until bobbin winder starts to turn.

   Check: Bobbin winder should start to turn when **0** is between 10.30 and 12 o'clock.

   Should this not be the case, remove rear cover plate and slightly loosen both screws "a" to adjust insulator "b":

   To retard drive of bobbin winder
   To advance drive of bobbin winder.
3. Strongly tighten both screws "a".
4. Set needle bar in lowest position and fit rear cover plate, placing flywheel locking groove on side of bobbin winder.
5. Screw up flywheel and then the 4 rear cover screws.
6. Check bobbin winder and machine drive as well as locking of flywheel.

UPPER TENSION RELEASE 18

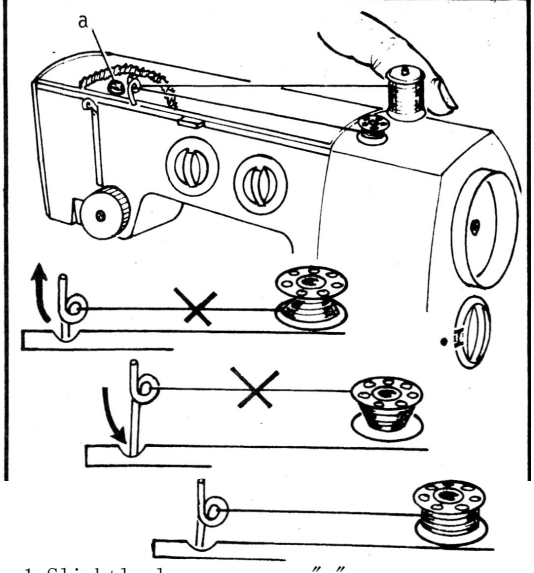


1. Place needle bar in lowest position.
2. Lower presser bar lever.
3. Adjust screw "a" (slight pressure on screwdriver) so that the 0,4 mm side of gauge passes through easily.

   Check:

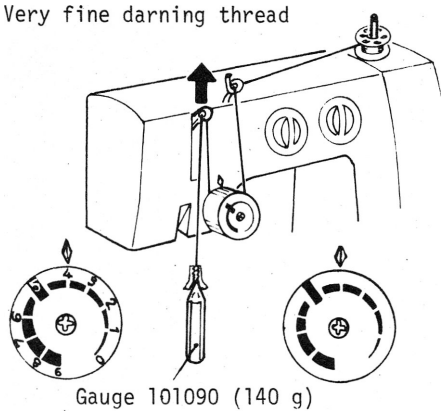
   Lever lowered: tension engaged
   Lever raised: tension released.

BOBBIN WINDING 19



1. Slightly loosen screw "a".
2. Adjust thread guide to obtain parralel bobbin winding.
3. Tighten "a" without employing too much force.

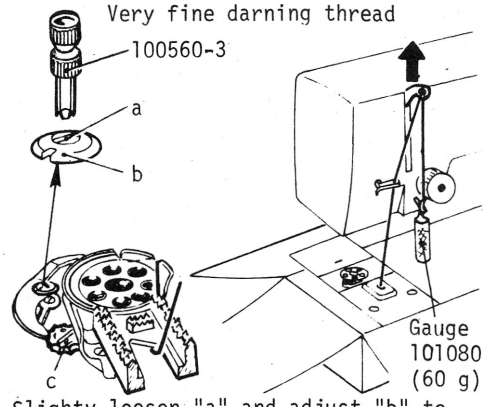
UPPER TENSION 20



1. Turn tension knob until weight falls slowly.
2. Remove knob, being careful not to turn it.
3. Put knob back so that position 4 is opposite guide mark.

   Check: Tension at 4: slow fall
   Tension at 4|: stop.
4. Put back screw.

LOWER TENSION 21



1. Slighty loosen "a" and adjust "b" to increase or decrease tension.

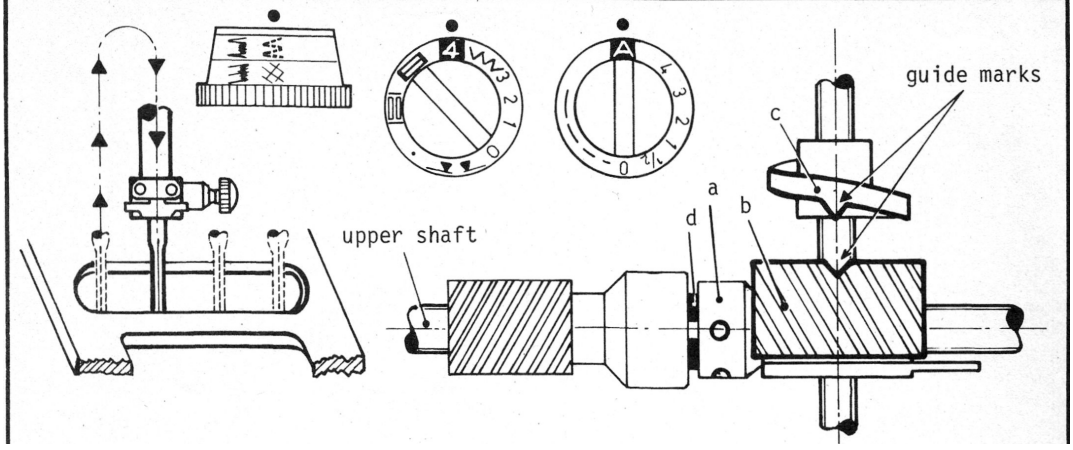
   Increase

   Decrease

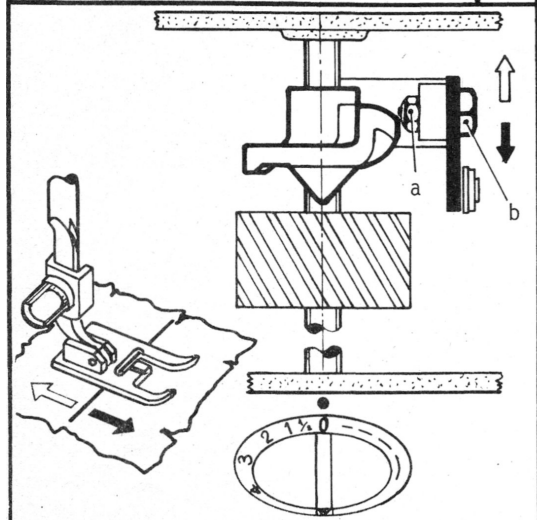
   Check:
   Tension at 1: slow fall
   Tension at 1|: stop.
2. Tighten "a" whilst holding "b".
3. Move graduated screw "c" several times between 0 and 2 and recheck adjustment.

POSITION OF CAM WHEEL 36



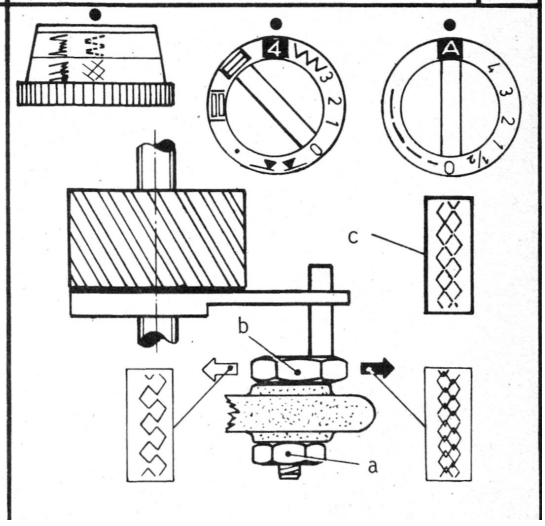
1. Loosen both screws of pinion "a".
2. Bring needle bar from left to right (according to sketch) in lowest position.
3. Turn wheel "b" clockwise until its guide mark is in line with that of cam "c".
   Attention: Pinion "a" must be pushed against lock spring "d".
4. Tighten both screws of pinion "a".

STITCH LENGTH 36

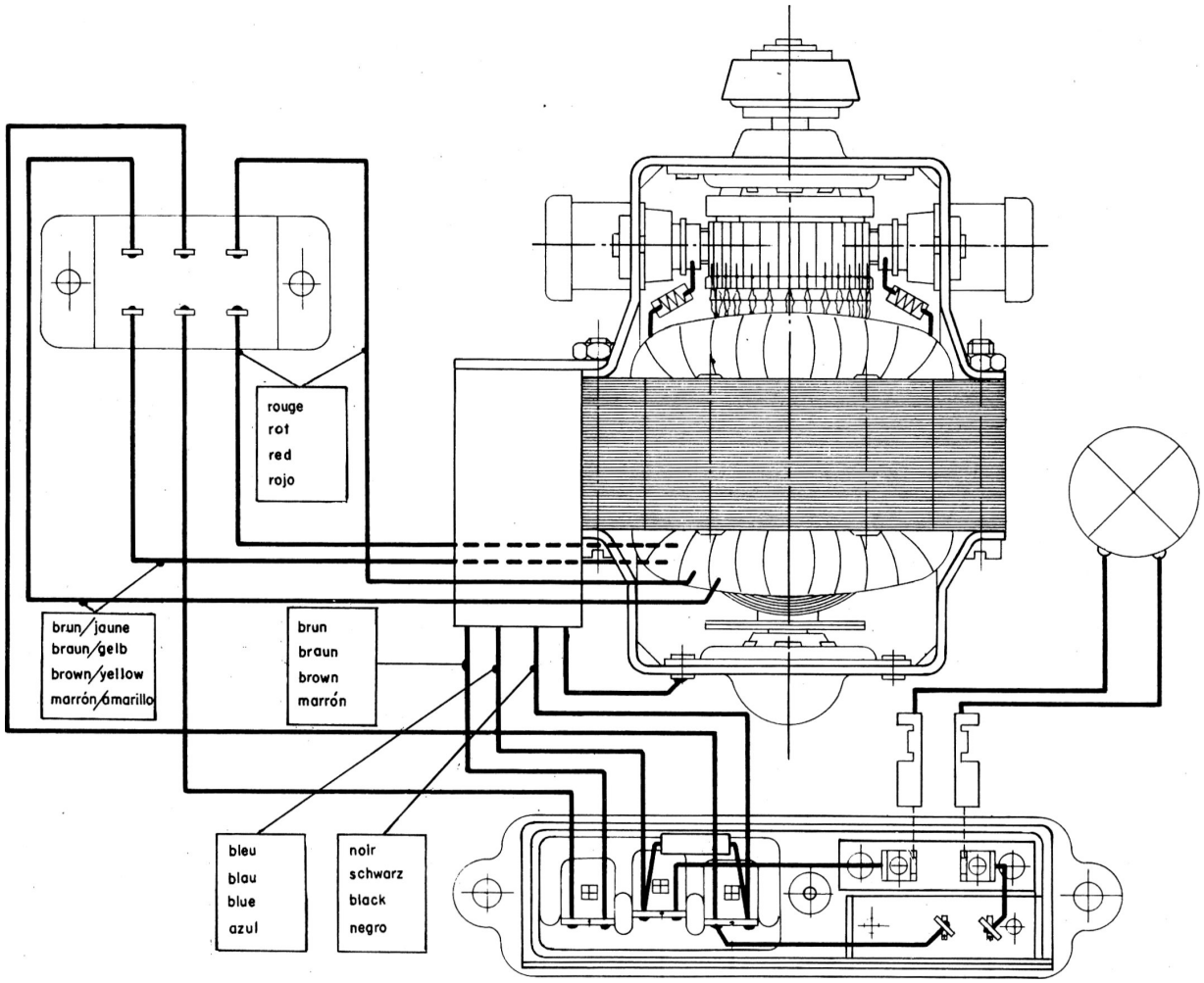


1. Slightly loosen nut "a".
2. Adjust eccentric "b" until cloth is no longer fed at 0 (machine runring at full speed).
3. Tighten "a" whilst retaining "b".

AUTOMATIC FEED 36



1. Sew a sample with presser foot.
2. Slightly loosen nut "a" and adjust eccentric "b" to obtain a feed that corresponds to sketch "c".
3. Tighten "a" whilst retaining "b".

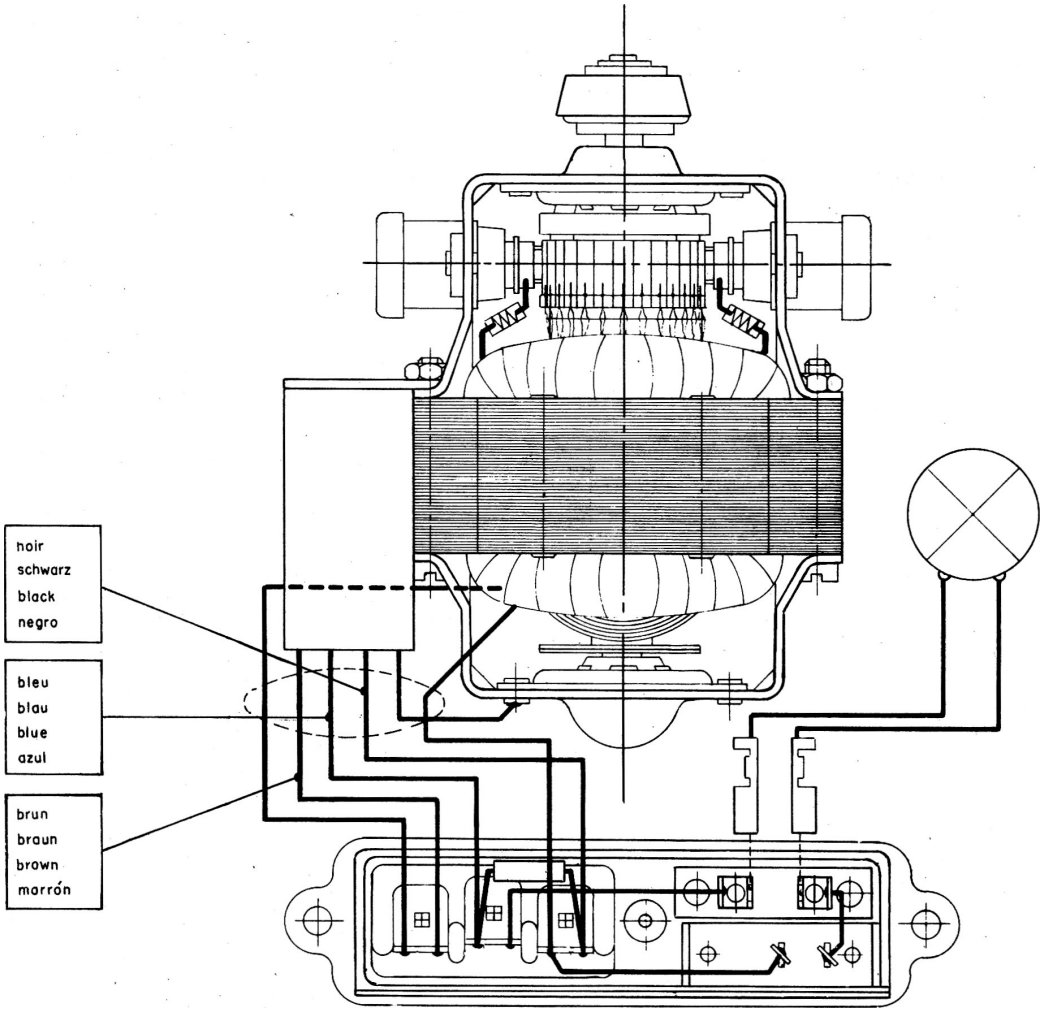


Pour moteurs bi-voltage

Fur Zweispannungsmotoren

For dual-voltage motors

Para motores bi-voltaje



Pour moteurs mono-voltage

Fur Einspannungsmotoren

For mono-voltage motors

Para motores mono-voltaje