Änderungen Seite 83

PFAFF

1475 CD

Service Manual

1st edition February 1991

Service Manual

Foreword

This service- and repair manual is intended to assist you in carrying out all repairs to the machines quickly and correctly.

Adjustments should only be made if you find the actual settings deviating from the requirements described here.

When checking or adjusting a machine, always proceed in the sequence specified.

For easier reference, every workstep is marked with a dot.

Differing worksteps are marked with a circle or square.

The indications "right", "left", "top", "bottom", "front" or "rear" always refer to the upright machine with its controls facing the operator.

When assembling disassembled machines, make approximate adjustments right in the course of work. This facilitates subsequent exact adjustments.

If not described otherwise, the hand wheel must always be turned to the front.

Always pull out the mains plug before making repairs at live parts or in their vicinity.

An electrical safety test must be carried out after every repair, including mechanical ones. According to the law on safe machine operation of June 24, 1958, VDE regulations apply as official rules in electrical engineering and as such are basic to electrical safety tests of technical devices.

The required electrical tests for appliances are set forth in Para. 3 of the Regulations for Repair, Modification and Testing of Used Electrical Devices (VDE 0701, edition 9.71).

After every repair of electrical devices we manufacture, a test in accordance with VDE 0701 is obligatory.

Outside the Federal Republic of Germany, there are similar regulations in force which are largely identical with the requirements of VDE 0701.

Please also observe Pfaff instructions for Metratesters 2 and 3, No. 21532 Wi 0474 and No. 21941 Wi 0877, and sections 42 to 46, Electrical Safety Test.

For repairs of electrical devices, it is therefore by all means required to consult an expert.

For correct adjustment of the machines, the following gauges and tools are required:

Needle rise gauge	00870 136-01
Needle-rise clamp	00870 137-01
Adjustment gauge for bobbin case position finger	00880 133-01
Sewing foot gauge	63114 690-39
Pointer gauge	63114 690-23
Pin gauge	63114 690-09
Combination spanner (wrench), 5.5 mm	43111 010-04
Combination spanner (wrench), 6 mm	07433 007-50
Circlip fitting tool 3.2 kz	07437 003-30
Circlip fitting tool 4.0 kz	07437 003-40
Circlip fitting tool 5.2 kz	07437 003-50
Circlip fitting tool 6.0 kz	07437 003-60
Circlip fitting tool 10.0 kz	07437 003-86
Spring hook	07437 006-00
Motor extension cable	29924 800-84

Subject to alterations in design and dimensions

PFAFF HANDELSGESELLSCHAFT für Haushaltmaschinen mbH, Karlsruhe-Durlach, West Germany

Specifications of the PFAFF 1475 CD

- Electronic free-arm utility- and fancy-stitch machine
- Electronic stitch pattern storage
- Pattern sequence memory (M-memory) M0 to M15.
  There are 16 M-memories for 16 pattern sequences. In each of the pattern sequences a maximum of 63 3-digit or 84 2-digit patterns/programs can be input. In all 16 pattern-sequence memories a maximum of 484 patterns can be stored.
- Programm memory (P-memory)
  There are 16 P-memories for 16 freely programmable patterns (P0 to P15). A maximum of 999 stitches can be input in each of the 16 P-memories. A maximum of 3230 stitches can be programmed, distributed over all 16 P-memories.
- 8 Bit computer with 256 byte RAM and 4 Kbyte ROM.
- 8 Bit computer with 256 byte RAM and 2 external memories.
- Memory I with 128 Kbyte ROM
- Memory II with 8 Kbyte RAM with battery back-up
  Memory II retains its information when the machine is switched off.
- Zigzag stitch width = 0–9 mm with 27 full steps or 54 half steps.
- Stitch length = 0–6 mm forwards and 0–6 mm reverse with a total of 36 full steps or 72 half steps.
- A full step is 0.33 mm and a half step 0.166 mm.
- 19 different needle positions can be set.
- One 7.5° stepping motor for needle zigzag motion, 30 V. (Contact current switching controller.)
- One 7.5° stepping motor for feed motion, 30 V. (Contact current switching controller.)
- Transverse feed amount of 1 mm each to the right and left, with 30 full steps each.
- One full step has 0.033 mm.
- One 7.5° stepping motor for transverse feed motion 30 V. (Contact current switching controller.)
- 3-track synchronizer.
- Electronically controlled take-up lever "up" (needle "up" positioning) or needle "down" position with LED display.
- Key with LED indicator for half speed (540 U/min.).
- Key with LED indicator for tying off stitch patterns or for determining buttonhole lenghts.
- Key with LED indicator for continuous or, without indicator light, for brief reverse sewing.
- Bobbin thread monitor with LED indicator.
- Digital motor control with 950 r.p.m. max. speed.
- Several pattern-dependent reduced speeds in addition.
- Alpha numerical display (16-segment display).
- 3 operation displays
  1. For dual feed
  2. For needle-thread tension setting
  3. For type of sewing foot
- When machine is blocked, the motor is switched off automatically after 2 to 3 secs. by an anti-blocking device.
- High-ohm foot control (cold) with automatic-rewind cable.
- Motor fuse, 2 A/F.
- Automatic indication for battery change when machine is switched on.
- 2 batteries (2 Mignon cells, 1.5 V type L.R.6).
- FM radio-and TV-screened, approval marking: suppression degree B.
- Safety-class II with GS test marking.
- Main switch for motor, electronics and indicator lamp.
- Glare-free built-in sewing lamp (indicator lamp) 220 V or 110 V 15 W.
- Bobbin winding possible during sewing.
- Pendulum-type needle bar frame.
- Transmission of drive from arm shaft to lower shaft by toothed belt, transmission ratio 1:1.
- Automatic switchover to bobbin winding (computer-controlled).
- Power input rating: sewing at 950 U/min.: 90 W; stationary: 40 W.

- Lockstitch of types 301, 302, 303, 304, 305, 308 and all other variants obtainable by sideways needle movement or forwards- and reverse-control of the machine feed.
- PFAFF transverse double-rotating hook.
- Link take-up.
- Slide lever feed regulator for forwards and reverse stitch lengths.
- Dual feed.
- Disengageable feed dog.
- Drive from motor to hand wheel by flat toothed belt.
- 0–950 stitches per minute.
- Sintered metal bearings.
- Oil for sintered metal bearings: BP Energol HLP 46 or HLP 80, Nr. 28–036550–09.
- Oil for sewing hook: No. 91–129454–91.
- Clear workspace: 179, 113, 210 mm.
- Machine height: 271 mm.
- Baseplate dimensions: 380, 146 mm.
- Free-arm dimensions: 75, 49, 200 mm.
- Housing material: aluminium alloy.
- Weight of sewing head: 9 kg.
- Additional needle system classifications:

Twin needle	Suffix = Zwi
Wing needle	Suffix = Wing
Twin hem-stitching needle	Suffix = Zwi-Ho
Long needle eye	Suffix = N
Stretch needle	Suffix = PS
Jeans needle	Suffix = J

- Possible needle points

Small ball point	Suffix = SES
Medium ball point	Suffix = SUK
Large ball point	Suffix = SKF
Pointed cloth point	Suffix = J
Leather point, right-hand	Suffix = LR

Specifications and versions of the built-in motors for the PFAFF 1475 CD

Type	UUS 2107	220 V No. 902–1002–701 Suppression rating B	50 Hz 37 W Safety class II	6600/min
Type	UUS 2137	115 V No. 902–1002–703 Radioscreened	60 Hz 39 W Safety class II	6600/min
Type	UUS 2147	240 V No. 902–1002–704 Suppression rating B	50 Hz 37 W Safety class II	6600/min

Feeding system

1. Adjustment of toothed belt tension

Requirement:

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

Adjustment:

- Loosen screw 1 (see Fig. 1).
- Re-position tensioning roller 2 with a screwdriver accordingly.
- Tighten screw 1.

Check:

- Check this adjustment, see "Requirement".
- Press lightly against middle of the toothed belt (250 gram).
  The belt must move 1 to 3 mm inwards (Fig. 1).

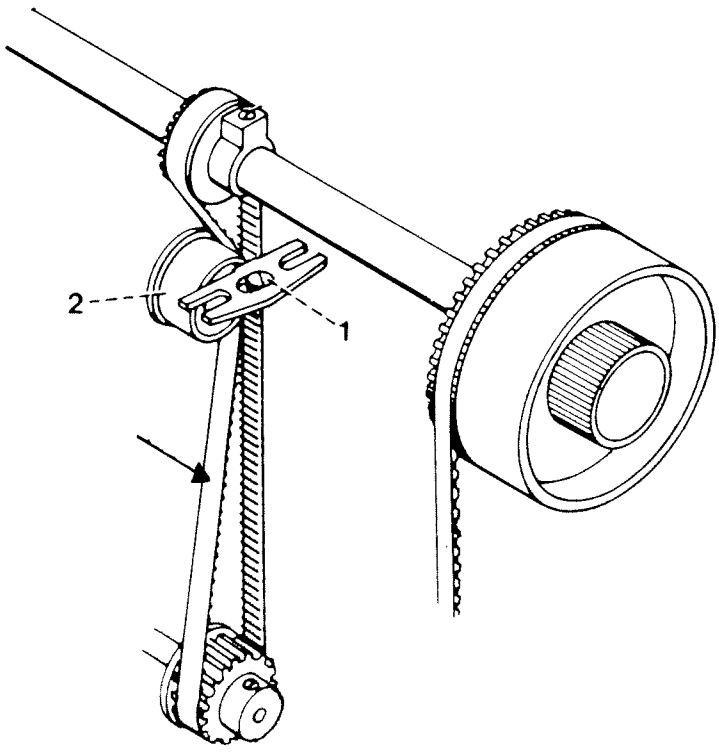


Fig. 1

2. Adjustment of feed-dog driving shaft in sideways direction

Requirement: The clearance between driving-shaft bush 4a and left housing edge 3a must be 3.0 mm (Fig. 2a).

Check: It must be possible to insert adjustment gauge 00-880 133-01 easily, but without play, between the feed-dog driving shaft and the left housing edge (Fig. 2a).

Note: This adjustment must only be carried out when compelling reasons exist.

Adjustment:

- Remove needle and sewing foot.
- Tilt the machine back.
- Remove base plate and bobbin thread monitor.
- Take the seven-lead flat cable 200 of the transverse-drive stepping motor out of the cable duct.
- Remove the transverse-drive stepping motor.
- Disconnect spring 14 (Fig. 2b).
- Screw out screw 18.
- Turn the hand wheel until the lobe of driving eccentric 20 faces rear.
- Fold cam lever 9 down and remove it with link 10 to the left, pulling them off the connecting bar pin.
- Remove slide block 12 with spring to the left.
- Loosen screw 5a (Fig. 2a).
- Pull out pin 5c to the right.
- Loosen the two screws 3 and 7.
- Re-position driving shaft 5 together with the two cylindrical pins 4 and 6 sideways without play until there is a clearance of 3.0 mm at the left side (Fig. 2a), as described in the requirement. Tighten screw 3.
- The pressure of the right cylindrical pin must be 1 kg.
- Tighten screw 7.
- Disconnect spring 8.
- Remove the needle plate.
- Pull the feed dog to the front and release it. The complete feed driving shaft 5 must slide slowly to the rear.
- Loosen screw 172 (Fig. 2c).
- Move the top feed lever assembly to the front and rear. The complete assembly must move easily and without binding.
- Re-position crank pin 173 with pull rod 171 sideways until the complete top- and bottom feed moves easily.
- ○ Tighten screw 172 and again check whether the feed system moves freely.
- Loosen screw 16 (Fig. 2b).
- Push slide lever shaft 15 complete with stepping motor 17 about 1 mm to the right.
- Push slide block 12 with spring onto the pin and install it in the slide way in the correct curve radius.
- ○ Check that the slide block moves freely in the slide way, without play or binding.
- Push slide lever shaft 15 with stepping motor 17 carefully to the left until there is a clearance of 0.05 mm between slide block 12 and connecting bar 11.
- ○ Tighten screw 16 and check whether slide block 12 moves freely and without play.
- Push link 10 with cam lever 9 to the right onto the connecting bar pin.
- Push cam lever 9 to the rear, and then over feed eccentric 20.
- Insert screw 18 in stud 19 and tighten it a little.
- Move stud 19 sideways until link 10 and connecting rod 11 have a slight play.
- Tighten screw 18.
- Fit the two springs 8 and 14 (Figs. 2a and 2b).
- Check that pull spring 199 of the transverse-drive stepping motor is engaged at the feed dog.
- Connect pull spring 199 to the transverse-drive stepping motor and fit the motor.
- Tighten the three Philips screws 201 a little (Fig. 2a).
- Place the seven-lead flat cable 200 in the cable duct.
- Fit the needle plate.
- Fit the bobbin thread monitor and the baseplate.

Note: The transverse-drive stepping motor must be adjusted according to section 4 of the service- and repair manual.

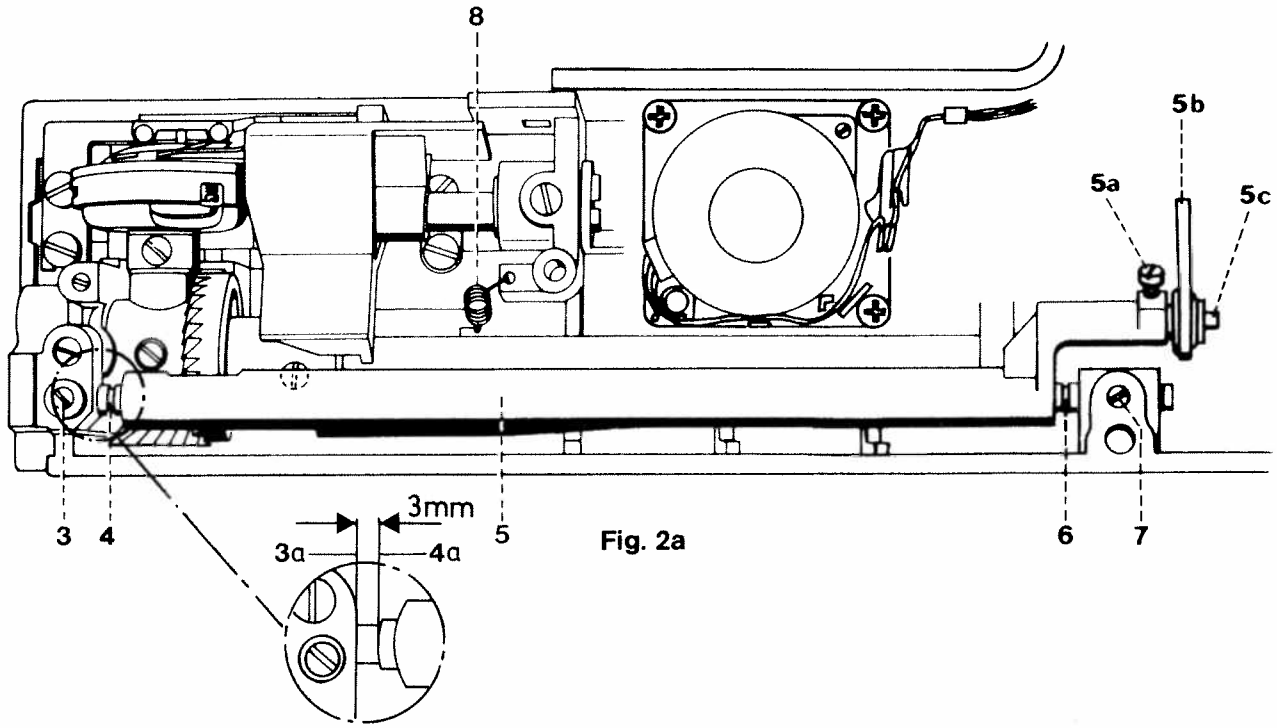


Fig. 2a

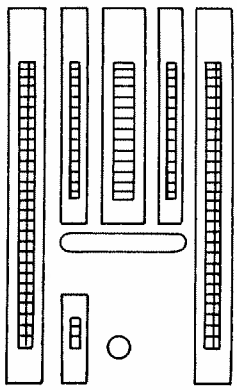


Fig. 2

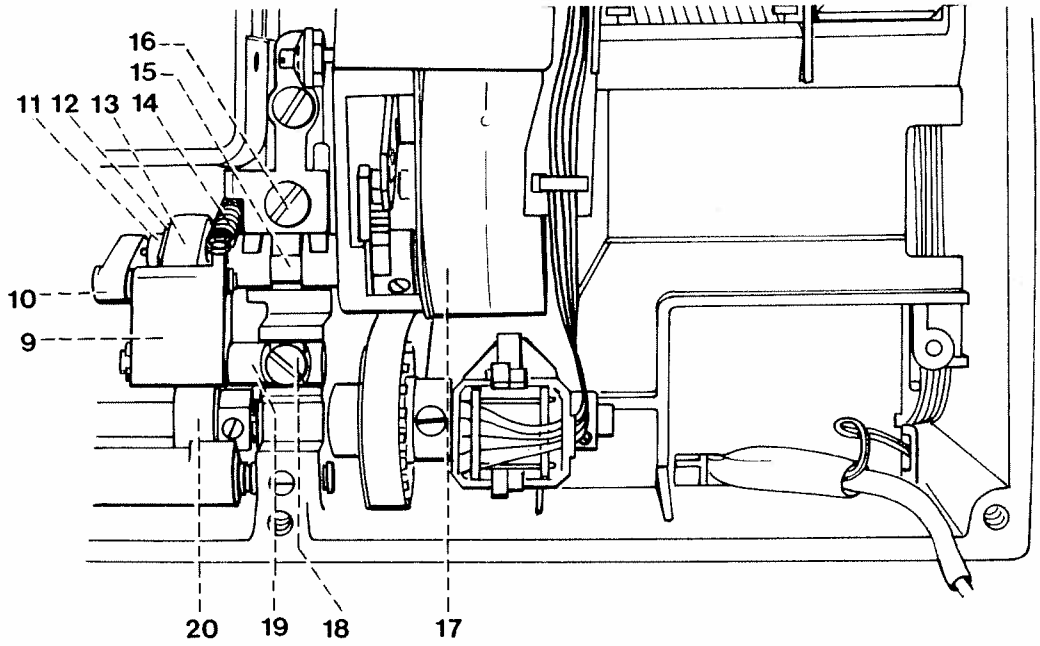


Fig. 2b

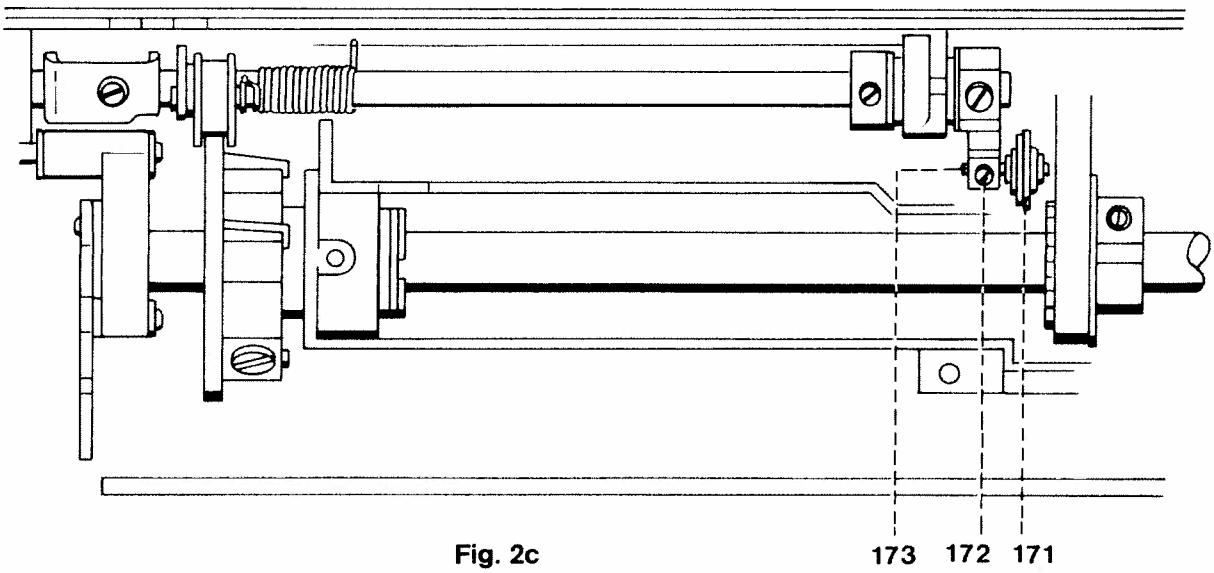


Fig. 2c

3. Timing of feed motion

Operating sequence:

When the rising needle has left the fabric, the feed dog moves up above the needle plate.

The risen feed dog pushes the fabric to the rear.

Shortly before the end of the feeding motion, the take-up lever is in its highest position (t.d.c.).

At a stitch length setting of 6 mm the feed dog now pushes 0.7 mm more to the rear (after-feed movement).

After completing the feeding movement, the feed dog moves down under the needle plate surface and the needle enters the fabric.

The feed dog moves back to its basic position under the needle plate.

Whenever the stepping motor changes the sewing direction from forward to reverse sewing, the feed dog must be positioned 0.3 mm below the needle plate surface on its way downwards.

Requirement:

When the needle bar has moved 2 mm up from its lowest position (b.d.c.), it must be possible to insert the two pins of pin gauge 63–114 690–09 simultaneously in the holes of the feeding eccentric and the stud (Fig. 3).

Check:

- Remove the needle.
- Set the needle bar at its lowest position by turning the hand wheel.
- Push the needle-rise clamp (870–13700) on the needle bar and tighten it lightly.
- Push the 2 mm feeler gauge (870–13600) with its cutout on the needle bar above the needle-rise clamp.
- Loosen the needle-rise clamp and push the 2 mm feeler gauge upwards against the needle bar frame.
- Tighten the milled screw of the needle-rise clamp (see Fig. 3a).
- Turn the hand wheel back and forth a little.
- If there is play at the feeler gauge, repeat this procedure.
- Remove the 2 mm feeler gauge.
- Turn the hand wheel in sewing direction until the needle-rise clamp is up against the needle bar frame (see Fig. 3b).
- Tilt the machine to the rear.
- Hold the hand wheel in this position and insert the pin gauge in the holes of feeding eccentric 20 and stud 22 (Fig. 3).

Timing:

- If the adjustment is not correct, remove the needle-rise clamp.
- Loosen the three screws 23 in the lower toothed-belt sprocket.
- Re-fit the needle-rise clamp and repeat the operation as described in "Check" until the needle bar has moved 2 mm upward and the clamp is against the needle bar frame (Fig. 3b).
- Turn the long drive shaft 21 in sewing direction until the pin gauge can be inserted in both holes (Fig. 3).
- Insert the pin gauge and tighten one of screws 23.

Re-check:

- Remove the pin gauge.
- Tighten all three screws 23 very firmly.
- Again check with the needle-rise gauge and the pin gauge as described under "Check".

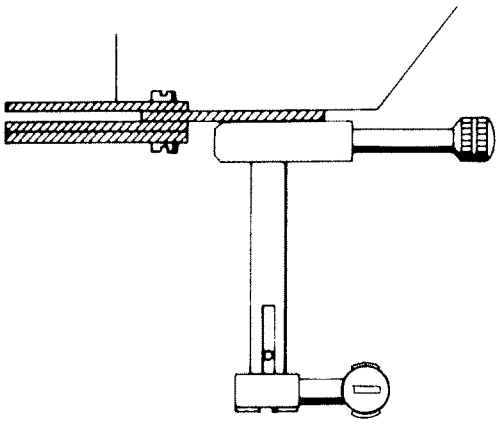


Fig. 3a

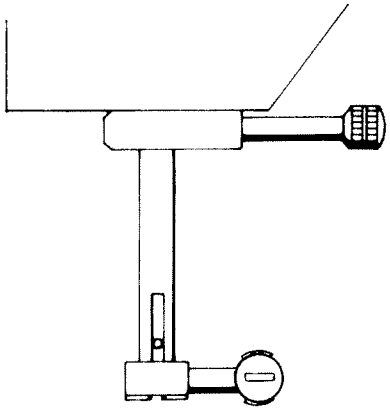


Fig. 3b

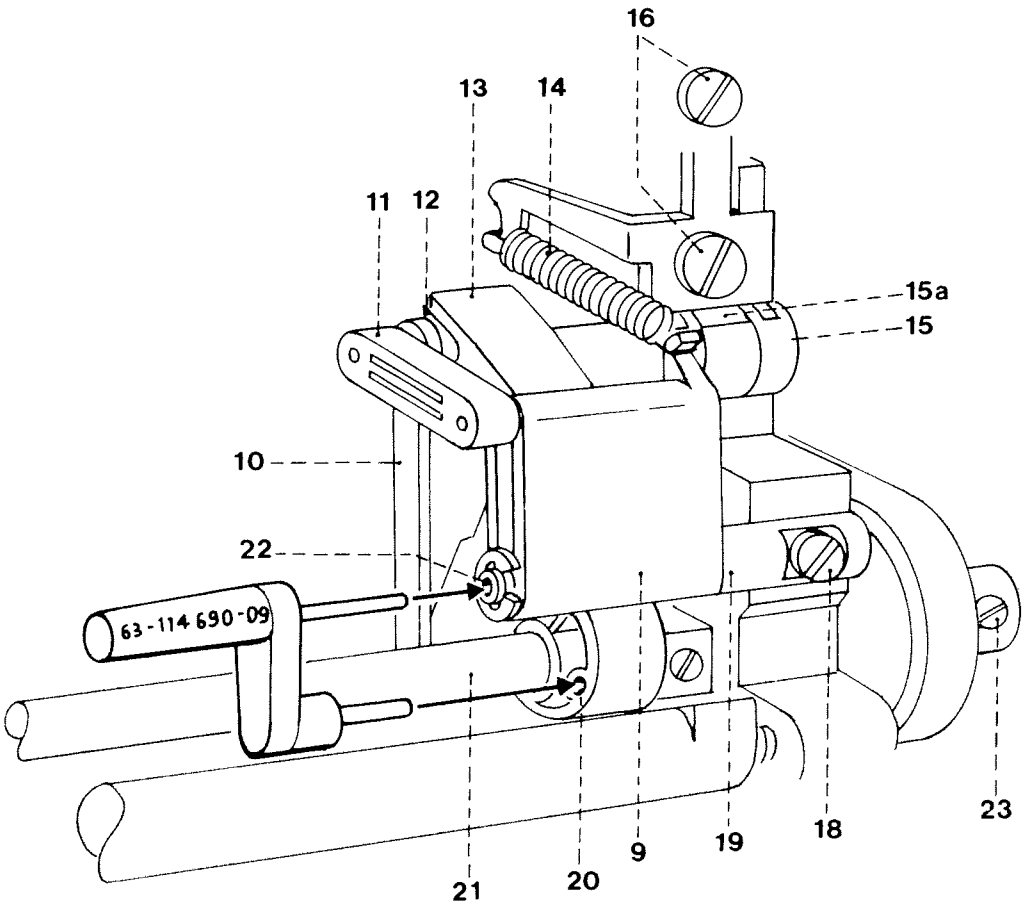


Fig. 3

4. Adjustment of feed dog in sideways direction

Requirement:

In stitch program "00", the distance of the feed dog to the right and left edges of the feed slot must be equal (Fig. 4).

Check:

In stitch program "00", make visual check of the feed dog position.

Note:

This adjustment must only be carried out when compelling reasons exist.

Adjustment:

- Remove needle and sewing foot.
- Unscrew baseplate and bobbin thread monitor, but do not disconnect.
- Switch on master switch.
- Set 6 mm stitch length in stitch program "00".
- Make one complete rotation at hand wheel.
- Loosen the three Philips screws 201 (Fig. 4a) and turn the transverse-drive stepping motor until the feed dog is centered in the feed slots (Fig. 4).
- Lightly tighten the three Philips screws 201 (Fig. 4a).

Re-check:

- Select staggered-stitch program "222".
- Turn hand wheel and check the distance of the feed dog to the left and right edges of the feed slot.
- If the adjustment is correct, tighten Philips screws 201 (Fig. 4a).
- Fit the bobbin thread monitor and the baseplate.

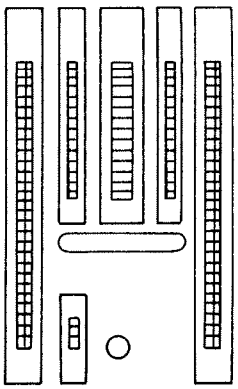


Fig. 4

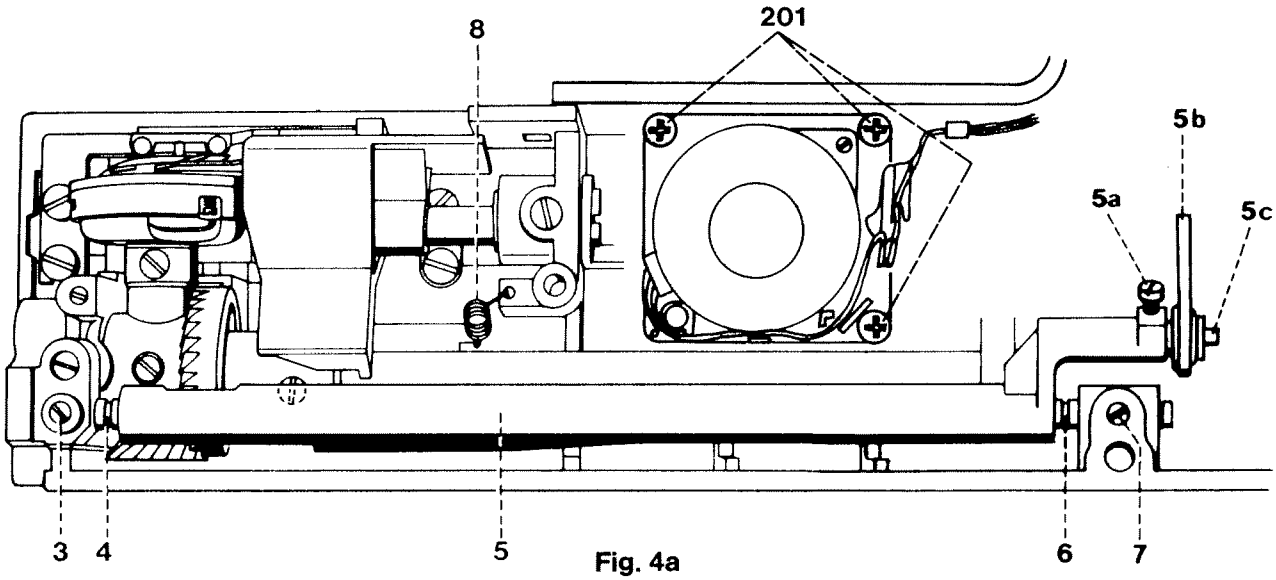


Fig. 4a

4a Feed dog height

Requirement:

In the highest position of the feed dog, the points of its teeth must protrude above the needle plate surface by 0.85 to 0.9 mm (Fig. 4). The tolerance must not remain under or exceed 0.85 to 0.9 mm.

Check:

- Remove the needle.
- Remove the sewing foot.
- Switch on the master switch.
- Set stitch pattern "00" and stitch length "4.0".
- Set pointer gauge 63-114 690-23 on the needle plate so that feeler lever 27 rests on the needle plate just right of the cutout (Fig. 4a).
- Turn the hexagon with a 6 mm spanner (wrench) slightly until pointer 26 is exactly at "0".
- Move the gauge a little to the left to rest feeler lever 27 on the feed dog (Fig. 4b).
- Turn the hand wheel until pointer 26 moves up to its highest position.
  At its highest position, the pointer must point exactly at the mark 0.9 (Fig. 4b).

Adjustment:

Leave the pointer gauge on the needle plate.

- Unscrew and remove the baseplate and the bobbin thread monitor, but leave all electrical connections in place.
- Turn the hand wheel until the feed dog is in its highest position.
- Loosen screw 24 only by ⅛ of a turn (Fig. 4c).
- Turn eccentric stud 25 until the eccentric is facing rear (basic position).
- Turn eccentric stud 25 counter-clockwise until pointer 26 points exactly at mark 0.9 (Fig. 4b).
- Tighten screw 24 (Fig. 4c).

Re-check:

- Turn the hand wheel until pointer 26 is again in its highest position.
  The pointer must now be exactly by at 0.9.
- Lower the feed dog and check the function.

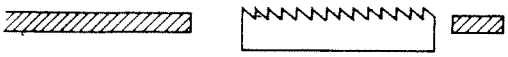


Fig. 4

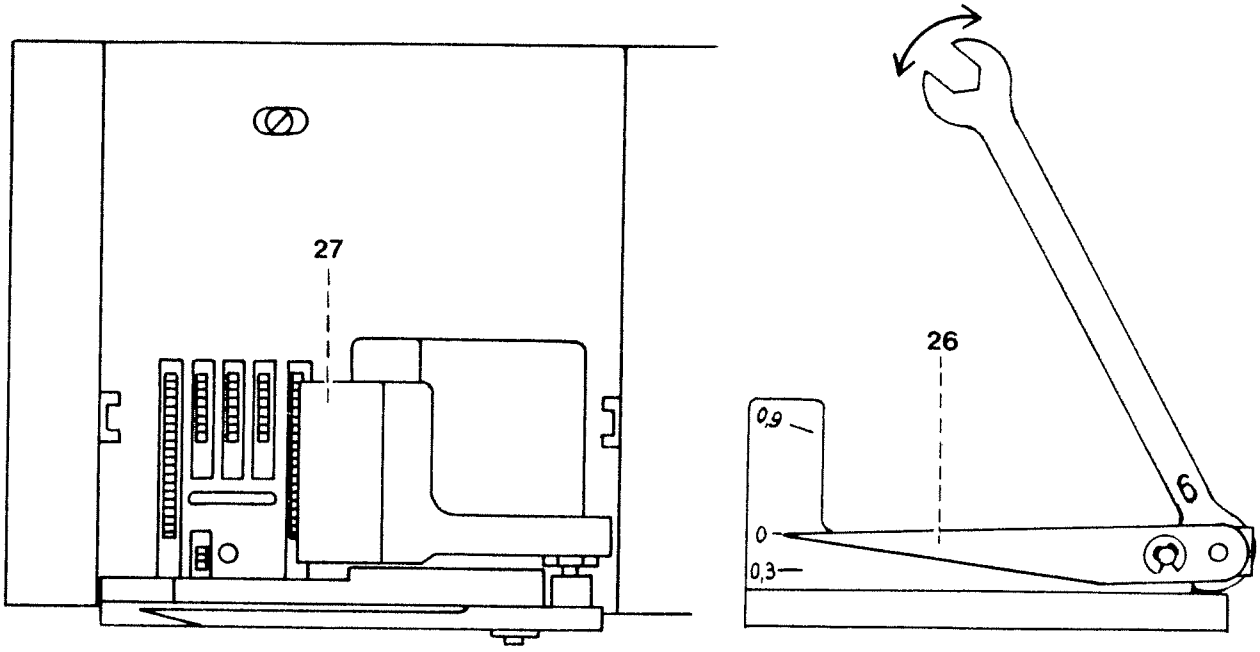


Fig. 4a

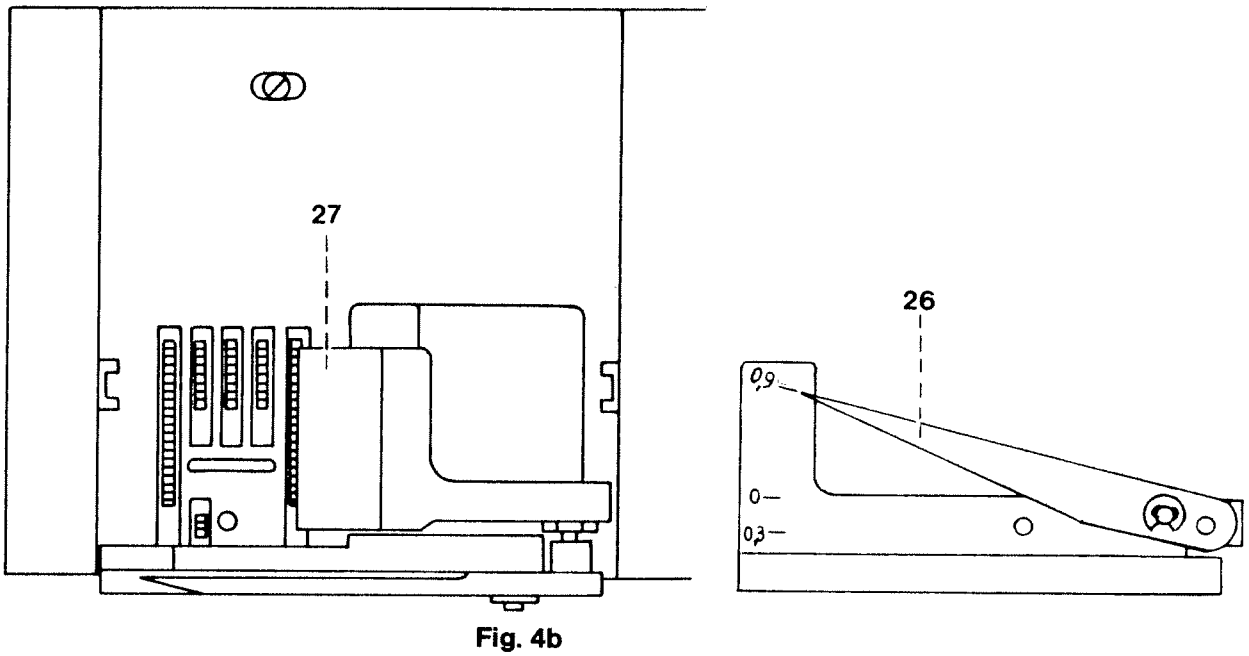


Fig. 4b

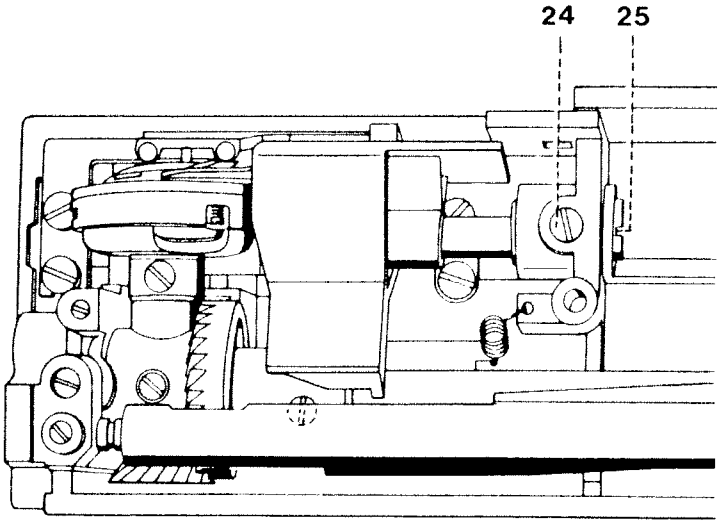


Fig. 4c

5. Adjustment of synchronizer

Note:

The following machine positions or functions are controlled by the synchronizer:

1. A change of feeding direction and change of stitch length.
2. Sideways needle bar movement.
3. Take-up lever/needle "up" positioning.
4. Needle "down" positioning.

This adjustment must only be made when compelling reasons exist. It must be carried out with maximum precision.

Requirement:

A change of feeding direction or change of stitch length must take place when the feed dog has moved below the needle plate surface by 0.3 ± 0.02 mm (Fig. 5).

Check:

- Remove the needle.
- Remove the sewing foot.
- Switch on the master switch.
- Set stitch pattern "00" and stitch length "0.5".
- Place pointer gauge 63–114 690–23 on the needle plate so that feeler lever 27 rests on the needle plate to the right of the feed slots (Fig. 5a).
- Turn the hexagon with a 6 mm spanner (wrench) slightly until pointer 27 is exactly at "0".
- Turn the hand wheel a full rotation forward, then turn further until the feed dog (needle bar) is in its highest position.
- Set the stitch length at "00".
- Place the pointer gauge with feeler lever 27 to the left on the feed dog (Fig. 5d).
- Turn the hand wheel very slowly forward until the pointer is at 0.3 (Fig. 5e).
  In this position the feed dog must make a visible and audible (switching) movement.

Fig. 5

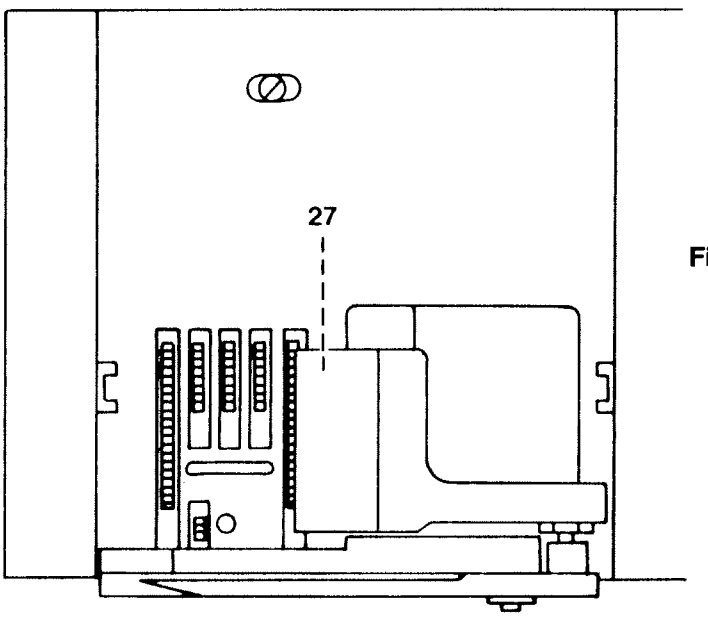


Fig. 5a

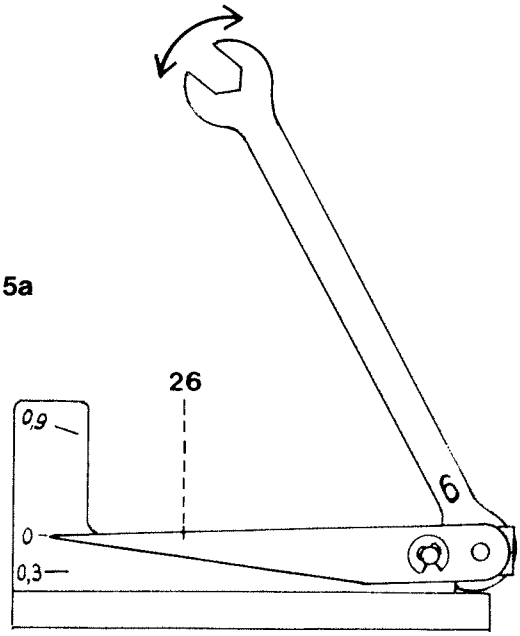
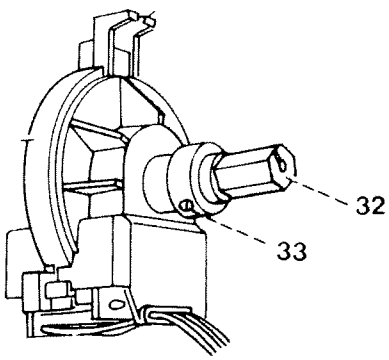


Fig. 5b



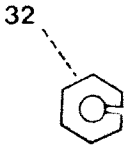


Fig. 5c

Adjustment:

Leave the pointer gauge on the needle plate.

- Unscrew the baseplate, but leave all electrical connections in place.
- Loosen fixing collar screw 33 by only ⅛ of a turn (Fig. 5b and 5f).
- Set the stitch length at "0.5".
- Turn the hand wheel a full rotation forward, then turn further until pointer 26 is at 0.3 (Fig. 5e).
- Turn short plastic shaft 32 in sewing direction with a 5.5 mm spanner (wrench) until the mark faces the machine reverse side (Fig. 5c).
- Set the stitch length at "00".
- Turn short plastic shaft 32 very slowly further until the feed dog (stepping motor) switches over.
- Tighten fixing collar screw 33 and remove the spanner (wrench).

Re-check:

- Set the stitch length at "0.5".
- Turn the hand wheel a full rotation forward, then turn further until the feed dog (needle bar) is in its highest position.
- Set the stitch length at "00".
- Turn the hand wheel very slowly forward until the pointer is at 0.3 (Fig. 5e).
  In this position, the feed dog must carry out a visible and audible movement (switching).
- Screw on the baseplate.

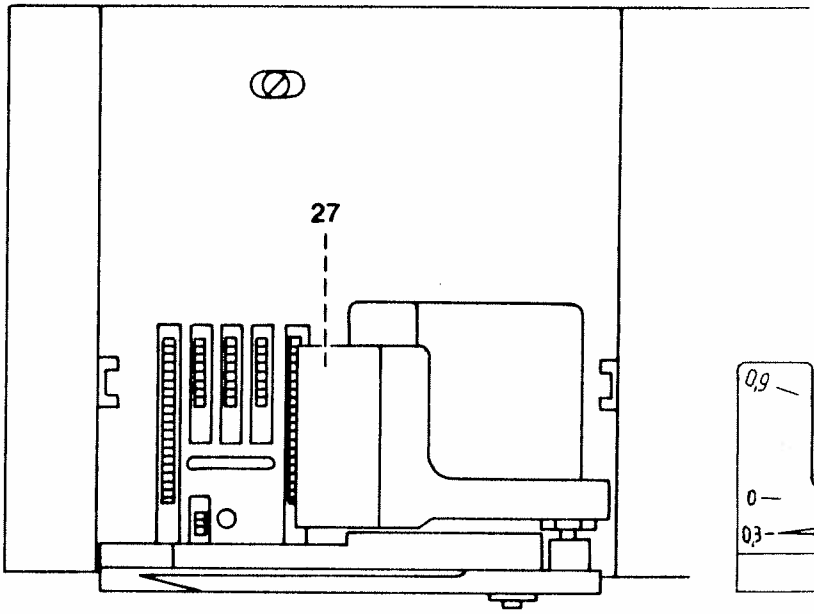


Fig. 5d

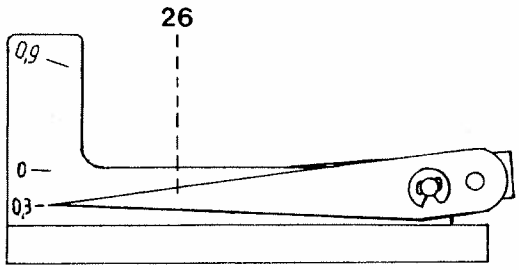


Fig. 5e

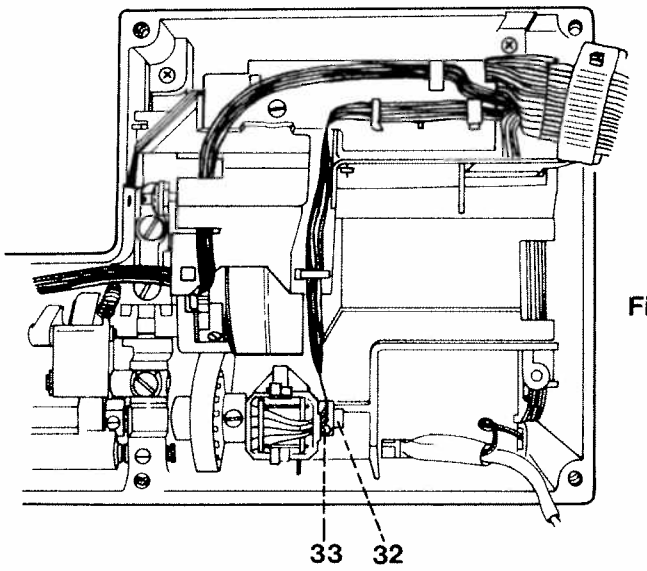


Fig. 5f

6. Adjusting the presser bar height

Requirement:

With the presser bar lifter raised there must be a clearance of 8 mm between the needle plate and the sole of the zigzag foot.

Check:

- Raise the presser bar lifter.
- Fit the zigzag sewing foot.
- Lower the feed dog.
- Fully raise the presser bar lifter and hold it there.
- Insert sewing foot gauge No. 631114 690–39 from behind under the zigzag foot and into the cutouts of the needle plate (Fig. 6).
- Lower the presser bar lifter to the normal position again.
  The zigzag foot must rest parallel and without play on the sewing foot gauge.
  The sewing foot gauge however must not lift the zigzag foot, and needle thread tension release 181 must be without play (Fig. 6a).

Adjustment:

- Loosen the three screws 183, 184 and 188 (Fig. 6a).
- Turn the zigzag foot with the presser bar lifter raised until it is parallel with the sides of the sewing foot gauge.
- Press presser bar guide 185 firmly downward with a screwdriver.
- Firmly tighten screw 184 at the same time.

Re-check:

- Press the presser bar lifter briefly upward from its raised position and release it again.
  The zigzag foot must rest parallel and without play on the sewing foot gauge.
  Needle thread tension release 181 must be without play.
  The presser bar lifter must be in its raised position.

Note:

- The two screws 183 and 188 are not tightened until later when the top feed height is set.

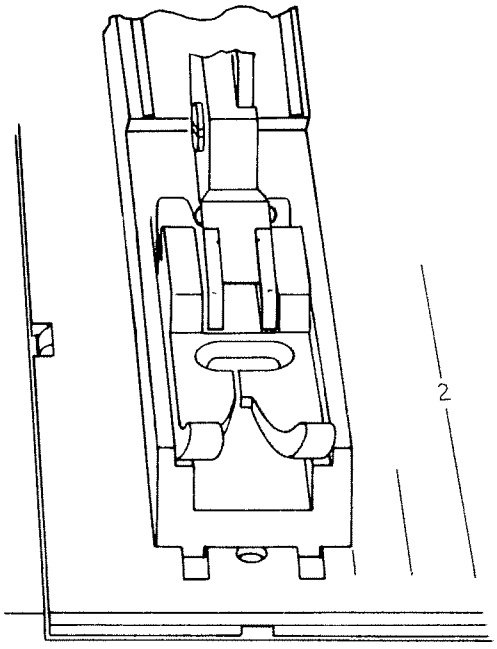


Fig. 6

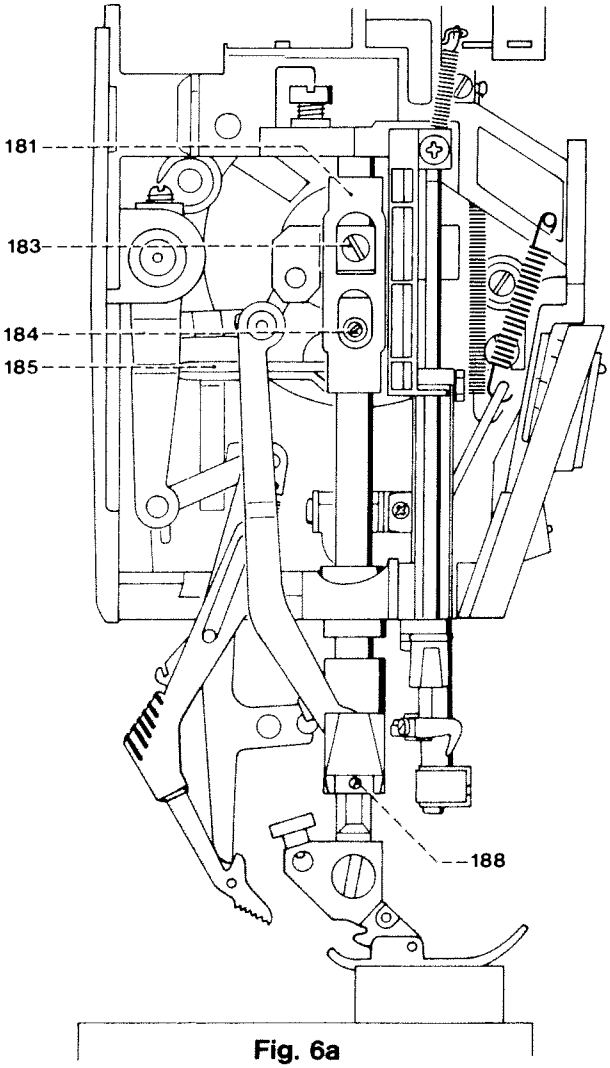


Fig. 6a

7. Adjustment of top feed foot in sewing direction

Requirement:

The front edge of the top feed foot must be between the first and second tooth point of the middle tooth rows of the feed dog (Fig. 7).

Check:

- Raise the presser bar lifter.
- Remove the sewing foot.
- Set the stitch length at "6".
- Engage the top feed foot.
- Turn the hand wheel until the rising feed dog is flush with the surface of the needle plate.
- Lower the presser bar lifter.
- Carry out a visual check (Fig. 7).

Adjustment:

- Loosen screw 176 (Fig. 7a).
- Position the presser bar lifter so that the top feed foot is just resting on top of the feed dog.
- At the same time push the top feed foot to the front or to the rear until the front edge is between the first and second tooth point of the middle tooth rows.
- Lower the presser bar lifter.
- Tighten screw 176, and make sure driving shaft 175 has no play.

Re-check:

- Re-check as described under "Check".

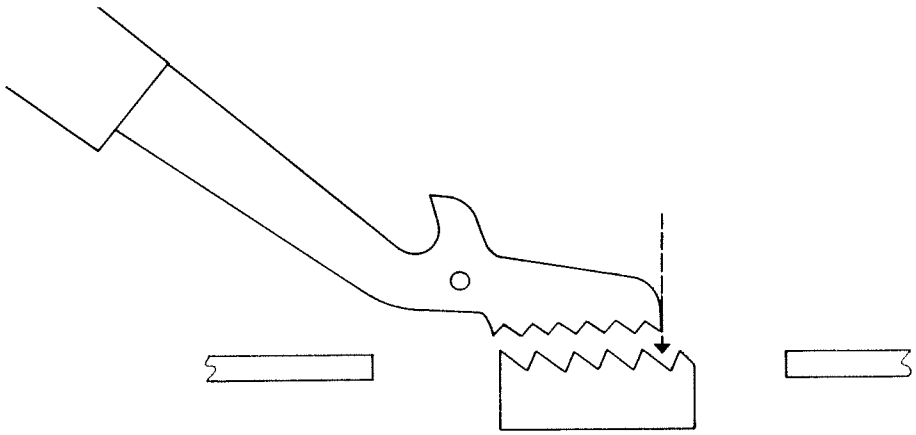


Fig. 7

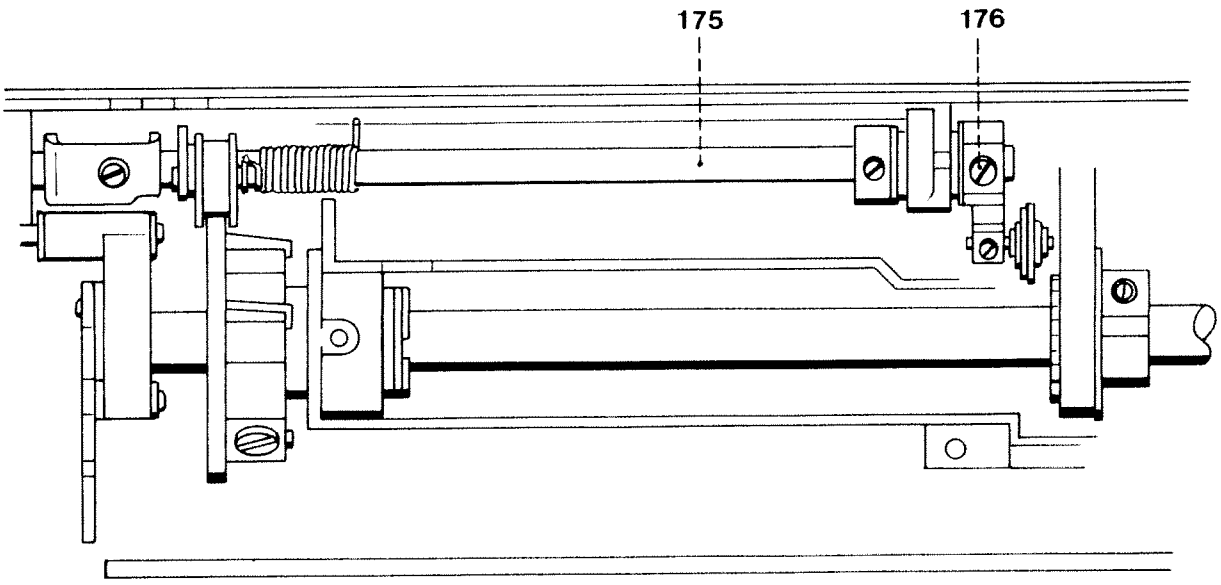


Fig. 7a

8. Adjustment of top feed foot height

Requirement:

In its highest working position the top feed foot must be 2 mm higher than the lower edge of the zigzag foot sole (Fig. 8).

Note:

This adjustment must only be carried out when the height of the presser bar is set correctly!

Check:

- Raise the presser bar lifter.
- Insert the zigzag foot sole.
- Engage the top feed foot.
- Turn the hand wheel until the needle bar is at its lowest position.

  Caution: The hand wheel must now no longer be turned!
- Lower the feed dog.
- Fully raise the presser bar lifter and hold it there.
- Insert sewing foot gauge No. 63114 690–35 from behind under the zigzag foot and into the cutouts of the needle plate.
- Let the presser bar lifter down again to its normal raised position.
- Press top feed foot 189 upward by about 2 mm against its spring pressure and then release it.
- Press the top feed foot lightly downward.
- Check that the top feed foot rests only lightly on the sewing foot gauge and has no play.

Adjustment:

- Loosen screws 183 and 188.
- Push counter bearing 182 lightly downward until top feed foot 189 rests lightly on the sewing foot gauge.
- Tighten screw 183 in this position.

Re-check:

- Check for light resting and freedom of play of the top feed foot on the sewing foot gauge as described under "Check".

Adjusting the guide piece:

- Fully raise the presser bar lifter and hold it there.
- Remove the sewing foot gauge.
- Let the presser bar lifter down again to its normal raised position.
- Turn the hand wheel to set needle bar 190 exactly at the highest position.
- Set guide piece 187 at a clearance of 0.2 mm from cross head 186 (Fig. 8a).
- Tighten screw 188.

Re-check:

- Turn the hand wheel and check the clearance of 0.2 mm.

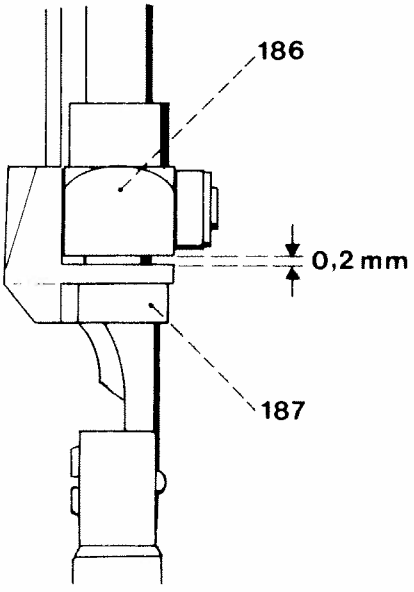


Fig. 8a

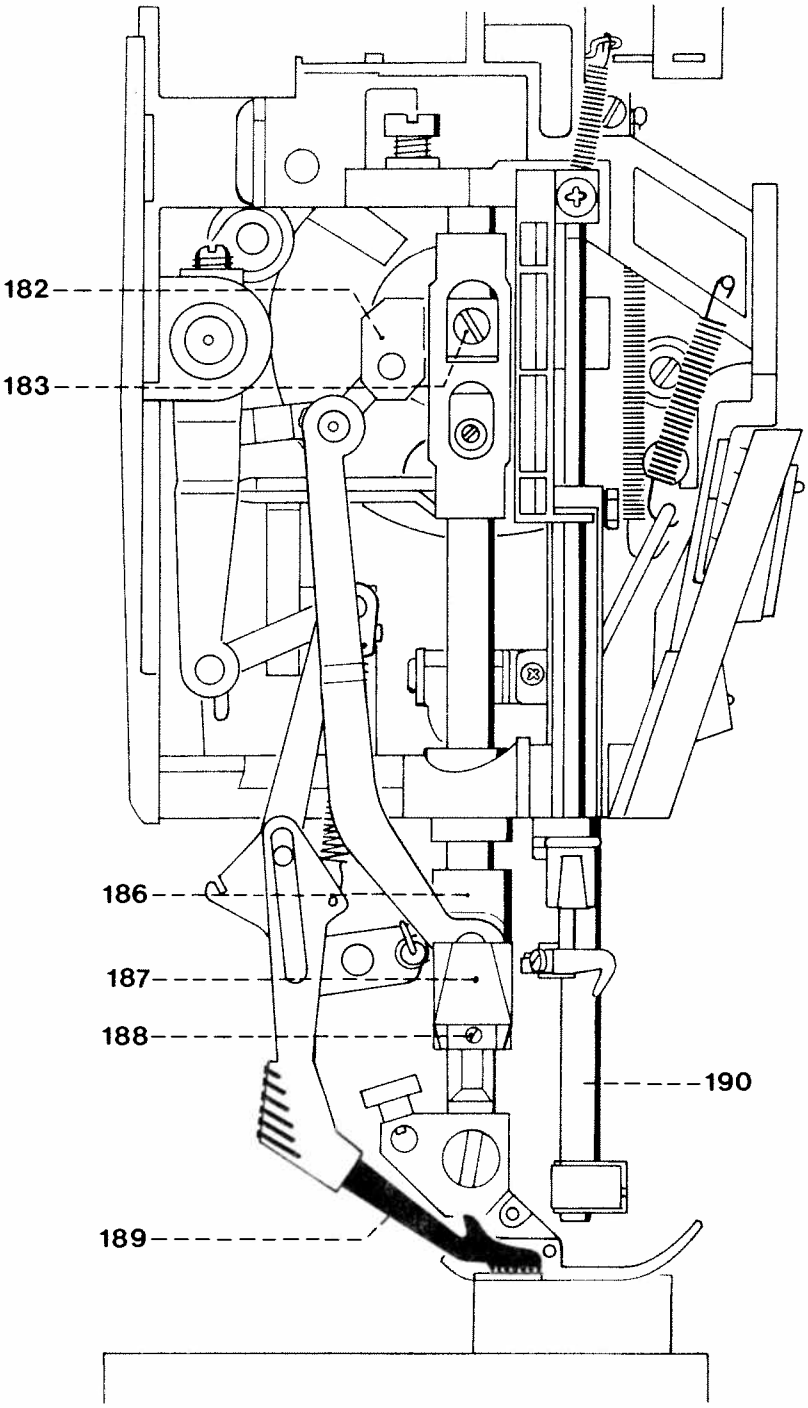


Fig. 8

Zigzag mechanism

9. Adjustment of needle in needle hole

Requirement:

At the straight stitch setting, the needle must be in the middle of the needle hole (Fig. 9).
The widest zigzag stitches must be the same distance from the left and right needle hole edges (Fig. 9a).

Check:

- Remove the sewing foot.
- Insert a new needle.
- Select stitch pattern "00" for straight stitch.
- Turn the hand wheel until the needle is in the needle hole.
- Make a visual check.
- Select adjusting program "178".
- Turn the hand wheel and check the left and right distance.

Adjustment:

- Select stitch pattern "00" for straight stitch.
- Loosen the two screws 39 just a little (Fig. 9b).
- Push the complete stepping motor 38 to the left or to the right until the needle is in the middle (Fig. 9).
- Tighten the two screws 39.

Re-check:

- Cancel stitch pattern "00" for straight stitch.
- Turn the hand wheel until the needle is fully up.
- Select stitch pattern "00".
- Turn the hand wheel until the needle is positioned down.
- Select adjusting program "178".
- Turn the hand wheel and check the left and right distance.

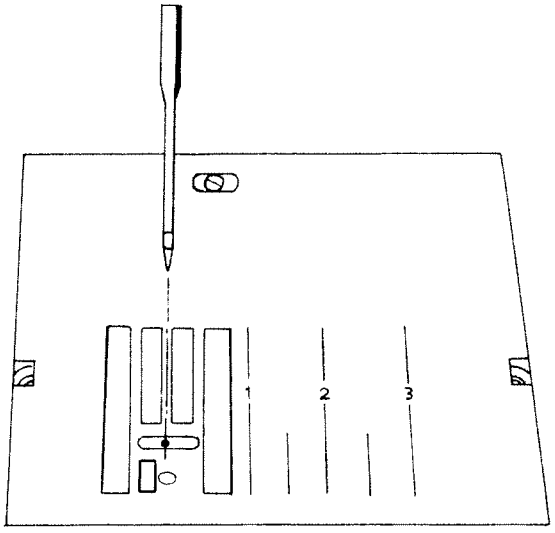


Fig. 9

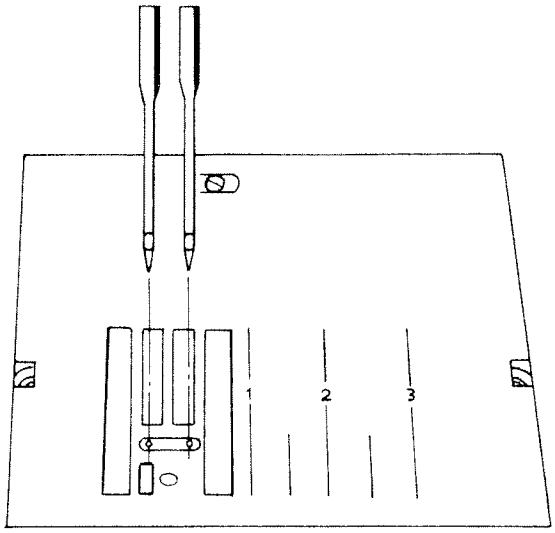


Fig. 9a

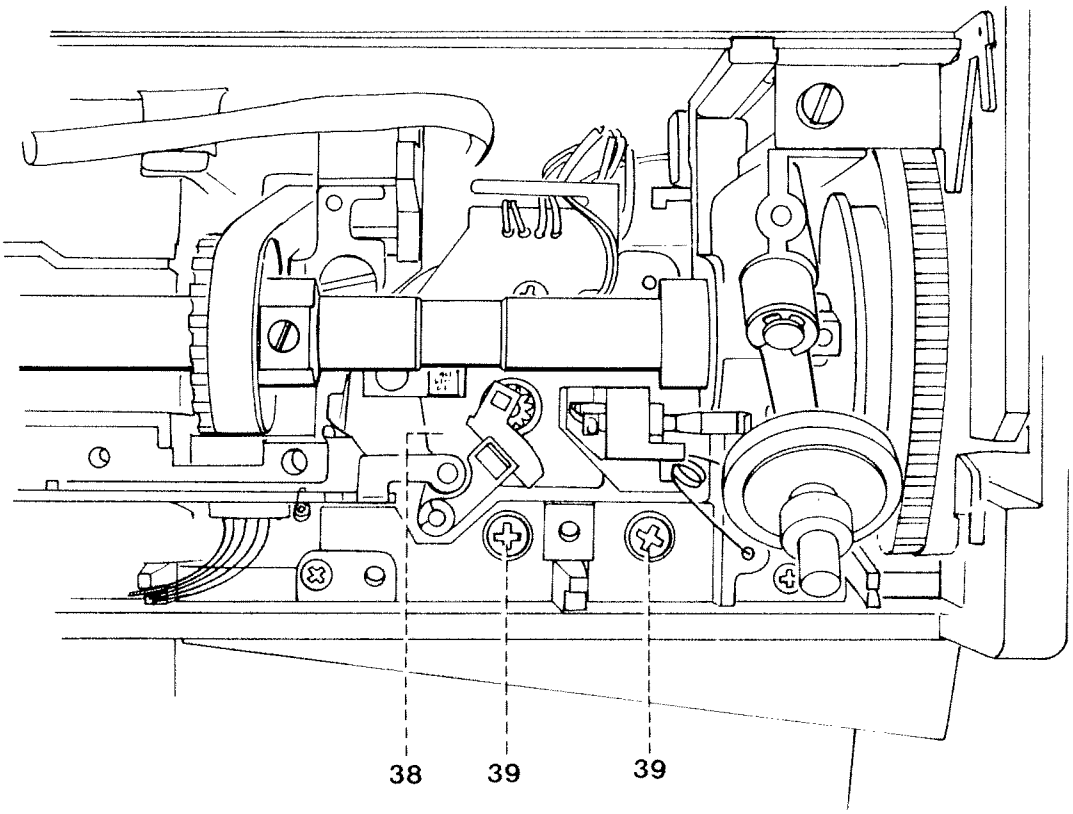


Fig. 9b

Stitch forming parts

Foreword:

The sewing hook adjustment consists basically of the three following adjustments:

Needle rise
Needle bar height
Hook-to-needle clearance.

Needle rise:

The needle rise is the movement by which the needle must rise from its lowest position until a thread loop has formed on the side of the needle on which the scarf is located.

When the needle rise is completed, the sewing hook point must be positioned exactly at the needle.

When the machine is turned further, the sewing hook point must enter the loop, widen it and pass it around the bobbin.

Needle bar height:

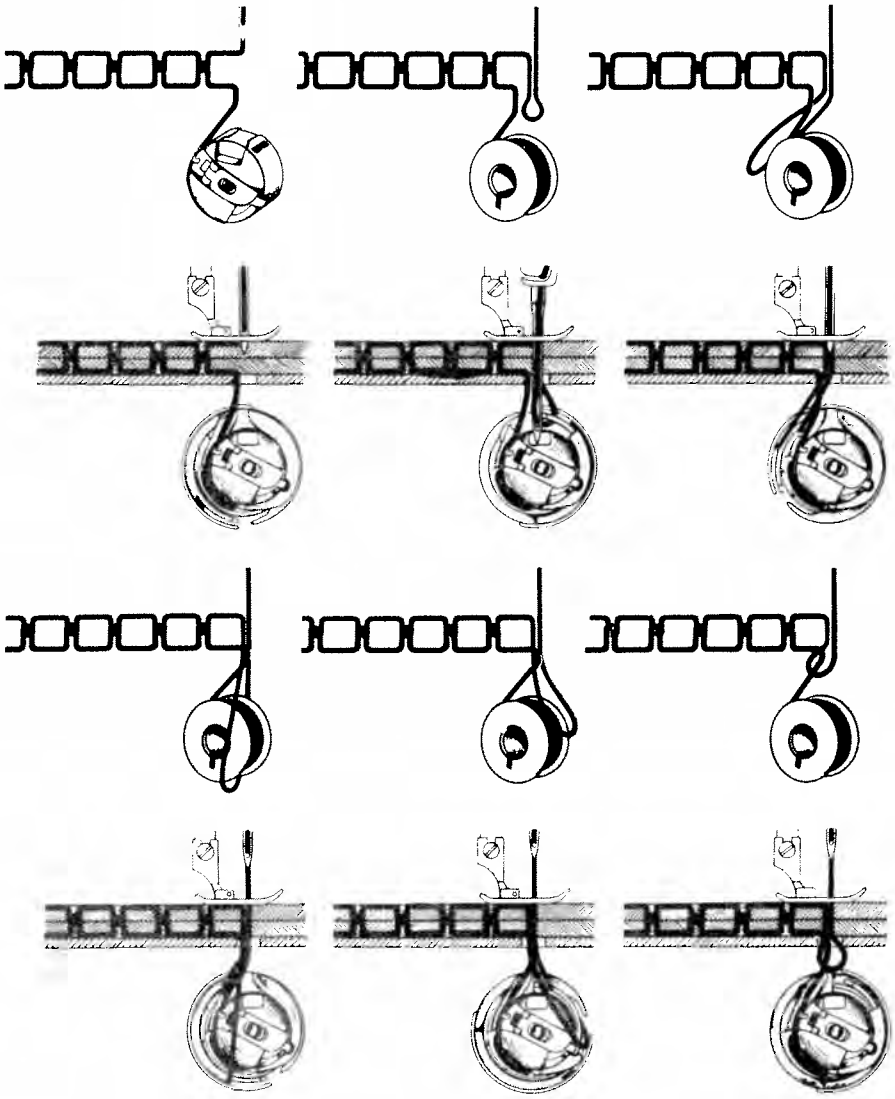
The needle bar height must be set in such a way that the sewing hook point can easily enter the thread loop above the needle eye at straight stitch and zigzag stitch settings.

Hook-to-needle clearance:

The distance of the sewing hook point from the needle must be as small as possible, so that the sewing hook point does not miss the thread loop.

The sequence of sewing hook adjustments is as follows:

1. Hook-to-needle clearance
2. Bevel gear setting
3. Needle rise
4. Needle bar height



10. Position of needle in needle hole in sewing direction

Requirement:

There must be a clearance of 0.2 mm between the back edge of the needle shank and the back edge of the needle hole in the needle plate (Fig. 10).

Note:

As system 130/705 H needles increase in size at the needle front side only, the point of an Nm. 100 needle is positioned exactly in the middle of the needle hole (as seen in feeding direction), while the point of an Nm. 80 needle is positioned slightly closer to the back edge of the hole.

Check:

- Insert a needle of system 130/705 H in size Nm 100.
- Select stitch pattern "00" for straight stitch.
- Engage the zigzag foot.
- Lower the zigzag foot.
- Turn the hand wheel until the needle is in its lowest position.

  The needle must now have the same distance to the front and rear edges of the needle holes in the foot and the needle plate.

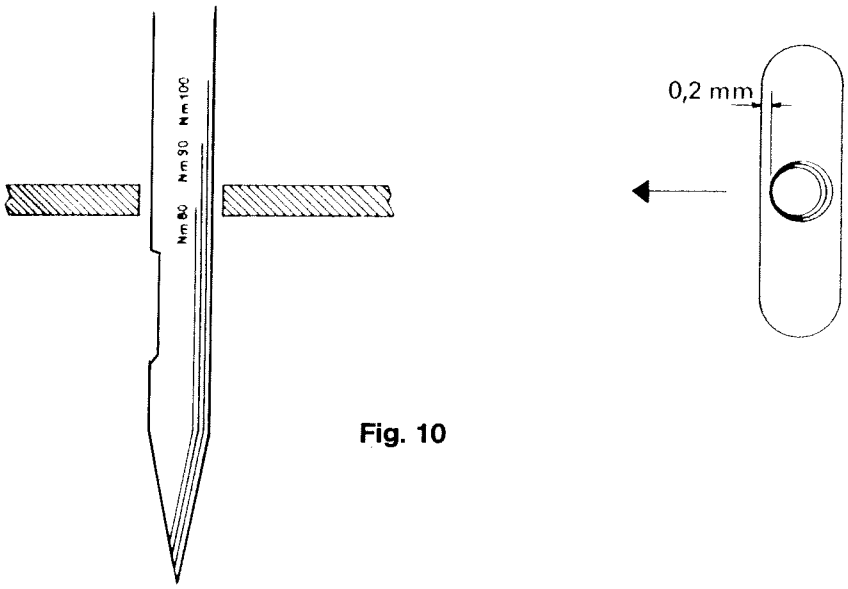


Fig. 10

Adjustment in relation to the sewing foot:

- Loosen screw 41 (Fig. 10b).
- Move pin 43 together with collar and needle bar frame 42 to the front or the rear until the needle is exactly in the middle of the needle hole in the sewing foot (see Fig. 10b).
- Tighten screw 41.

Check:

- Set the needle at its top position.
- Place paper under the sewing foot and lower the foot.
- Set the needle at its lowest position.
- Its distance from the front and rear edges of the needle hole in the foot must be equal.
- Disconnect spring 35 at the top with a spring hook and let it hang on the latter (Fig. 10a).
- Disconnect connecting rod 34 at pin 36 by lifting it up.
- Move the needle bar with the frame and the connecting rod to the left and right.

Important:

The needle bar frame must move easily and without binding.
If this is not the case, any binding must be removed.

- Re-insert pin 36 of connecting rod 34.
- Mount spring 35 on connecting rod 34.

Adjusting the needle plate:

- Set the needle at its top position.
- Remove the zigzag foot.
- Set the needle at its lowest position.
- Turn eccentric stud 44 until the distance from the front and rear edges of the needle hole is equal (Fig. 10c).

Re-check:

- Perform a visual check at straight stitch and zigzag stitch settings.

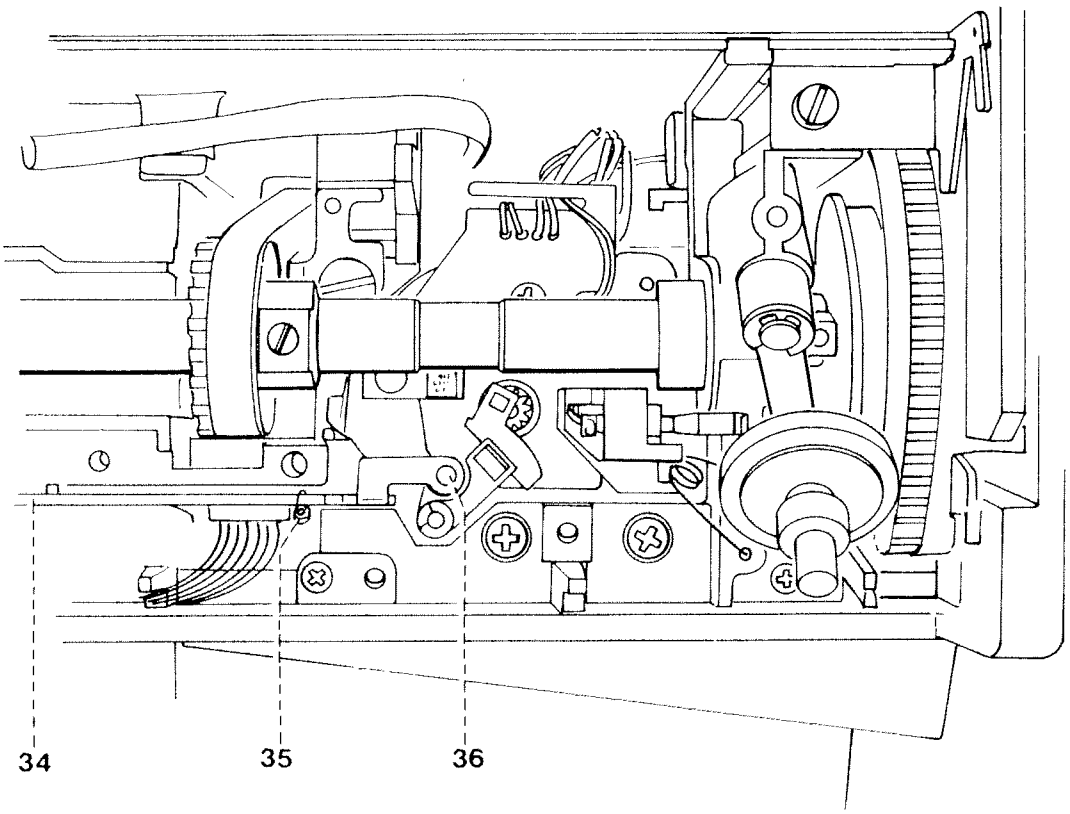


Fig. 10a

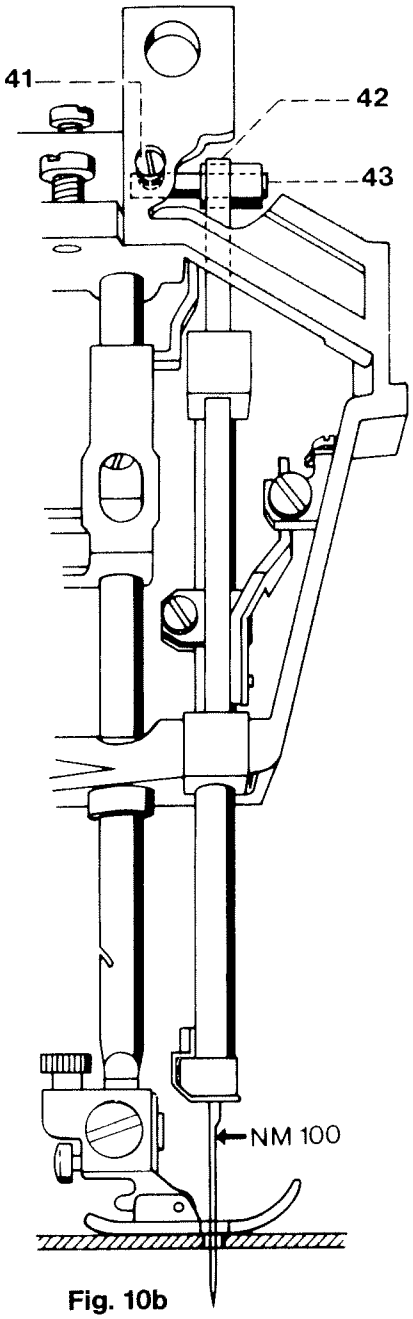


Fig. 10b

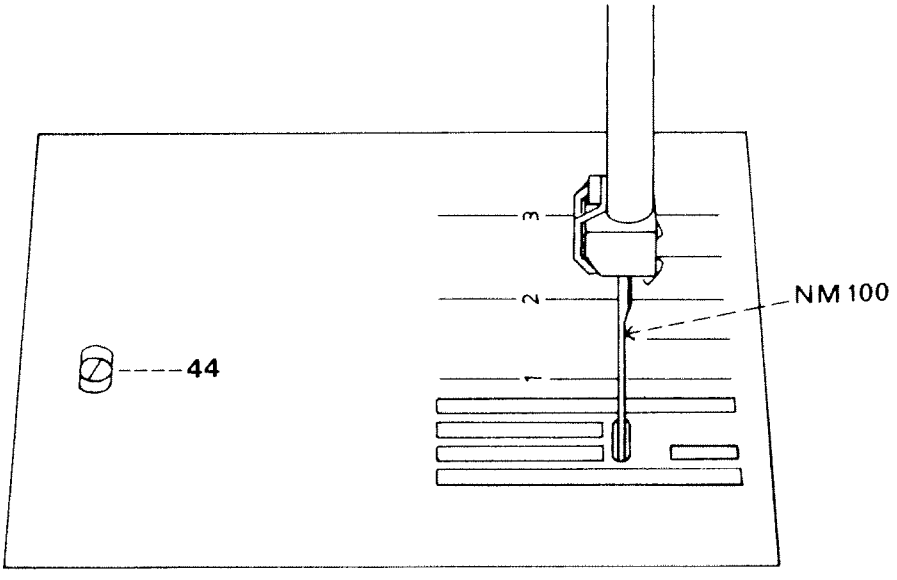


Fig. 10c

11. Adjustment of hook-to-needle clearance

Requirement:

At the straight stitch setting, the distance of the sewing hook point from the bottom of the scarf in the needle must be 0.05 mm (see Fig. 11).

In the widest left zigzag stitch position, the sewing hook point must almost touch the needle.

Check:

- Unscrew and remove the baseplate and the bobbin thread monitor, but leave all electrical connections in place.
- Take out the needle.
- Remove the sewing foot and the needle plate.
- Remove the bobbin case.
- Unscrew the bobbin case position finger.
- Remove the sewing hook gib with bobbin case base by unscrewing the three screws with springs.
- Insert a new needle of system 130/705 H in size Nm 80.
- Select stitch pattern "00" for straight stitch.
- Turn the hand wheel until the sewing hook point is at the center line of the needle.
- Check the distance between hook point and needle scarf.
- Check, by turning the hand wheel forwards and backwards a little, whether there is any axial play in the hook shaft.

Adjustment:

- ○ If the hook shaft has axial play, loosen the two hook retaining screws 49 (Fig. 9a).
- ○ Press bevel gear 46 with shaft to the front and sewing hook 50 to the rear.
- ○ Re-tighten the two screws 49.
- Loosen screw 45 in the lifting eccentric by 2–3 turns (Fig. 11a).
- Loosen screw 47 just a little.
- Turn the hand wheel and the sewing hook until the hook point is positioned opposite the middle of the needle scarf.
- Shift the sewing hook complete with hook shaft bush 48 until the distance of the sewing hook point to the bottom of the scarf in the needle is 0.05 mm.
- Firmly tighten screw 47 on the narrow flat.

Note:

The large flat of the hook shaft bush must face right.

Re-check:

- Check for free movement of the hook shaft.
- Again exactly check the clearance between the sewing hook point and the bottom of the needle scarf.
- Push the bevel gear with lifting eccentric to the left so that it is without play and moves easily.
- Tighten screw 45 on the flat of the drive shaft.
- Check that the machine is free of binding.

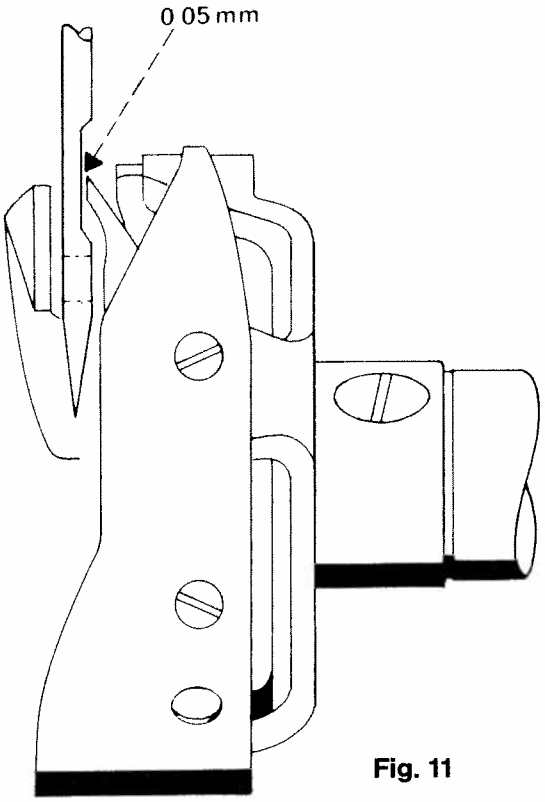


Fig. 11

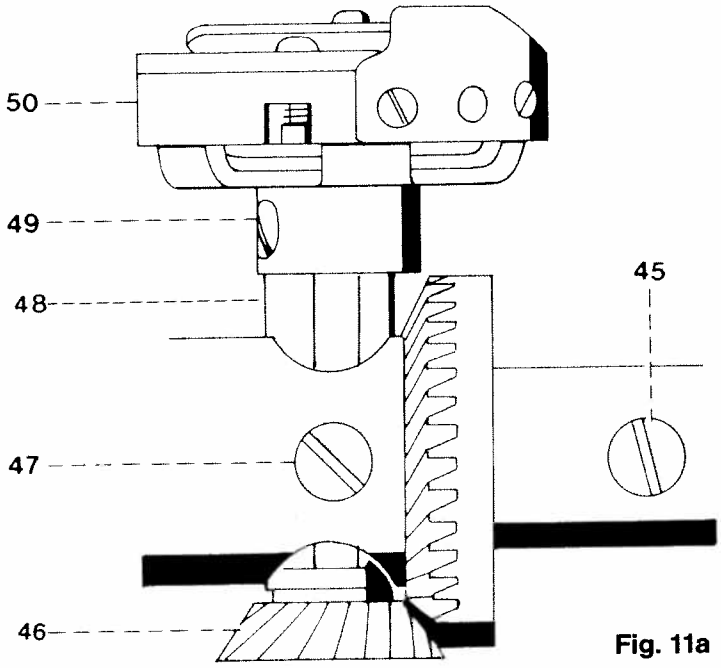


Fig. 11a

12. Sewing hook timing

Requirement:

When the needle bar has moved 2.2 mm upwards from its lowest position, with the machine set for straight stitch (and center needle position), the sewing hook point must be exactly at the center-line of the needle (Fig. 12a).

Check:

- Unscrew the baseplate and the bobbin thread monitor, but leave all electrical connections in place.
- Remove the sewing foot and the needle plate.
- Select stitch pattern "00" for straight stitch.
- Set the needle bar at its lowest position by turning the hand wheel.
- Push the needle-rise clamp (870–13700) on the needle bar and tighten it lightly (Fig. 12).
- Push the 2.2 mm feeler gauge (870–13600) with its cutout on the needle bar above the needle-rise clamp.
- Loosen the needle-rise clamp and push it upwards with the 2.2 mm feeler gauge against the needle bar frame.
- Tighten the milled screw of the needle-rise clamp.
- Turn the hand wheel backwards and forwards a little.
- If there is any play at the feeler gauge, repeat this procedure.
- Remove the 2.2 mm feeler gauge.
- Turn the hand wheel in sewing direction until the needle-rise clamp contacts the needle bar frame (Fig. 12a).

  By this means the needle has moved upwards to the needle rise position of 2.2 mm.

  The sewing hook point must now be exactly behind the needle at its center-line (see Fig. 12a).

Timing:

- If the setting is not correct, remove the needle-rise clamp.
- Loosen the two screws 49 (see Fig. 12b).
- ○ Replace the needle-rise clamp and repeat the operation until the needle is in the needle-rise position as indicated under "Check".
- Turn the sewing hook until the sewing hook point is positioned behind the middle of the needle (Fig. 12a).
- Press sewing hook 50 and bevel gear 46 together so there is no play between them, and tighten one screw 49.

Re-check:

- Turn the hand wheel backwards a little, then forwards until the needle-rise clamp is against the needle bar frame.

  The sewing hook point must now be exactly behind the middle of the needle.
- Remove the needle-rise clamp.
- Check the hook shaft for freedom of end play.
- Tighten the two screws 49 very firmly.

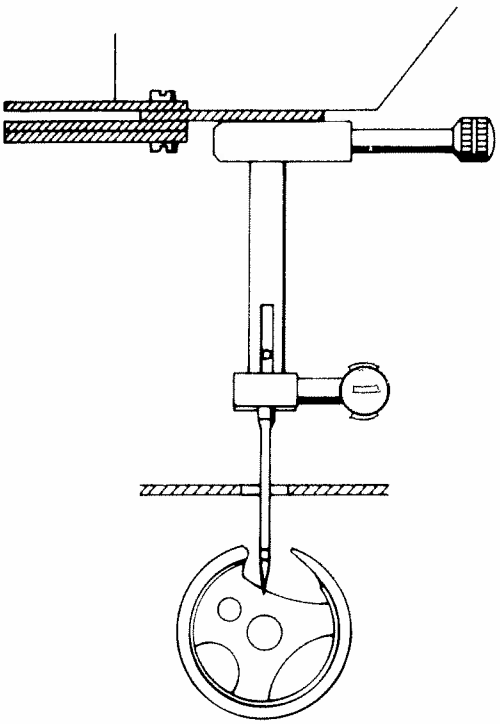


Fig. 12

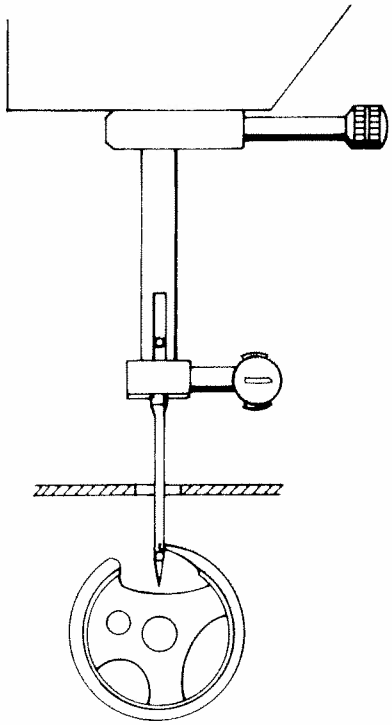


Fig. 12 a

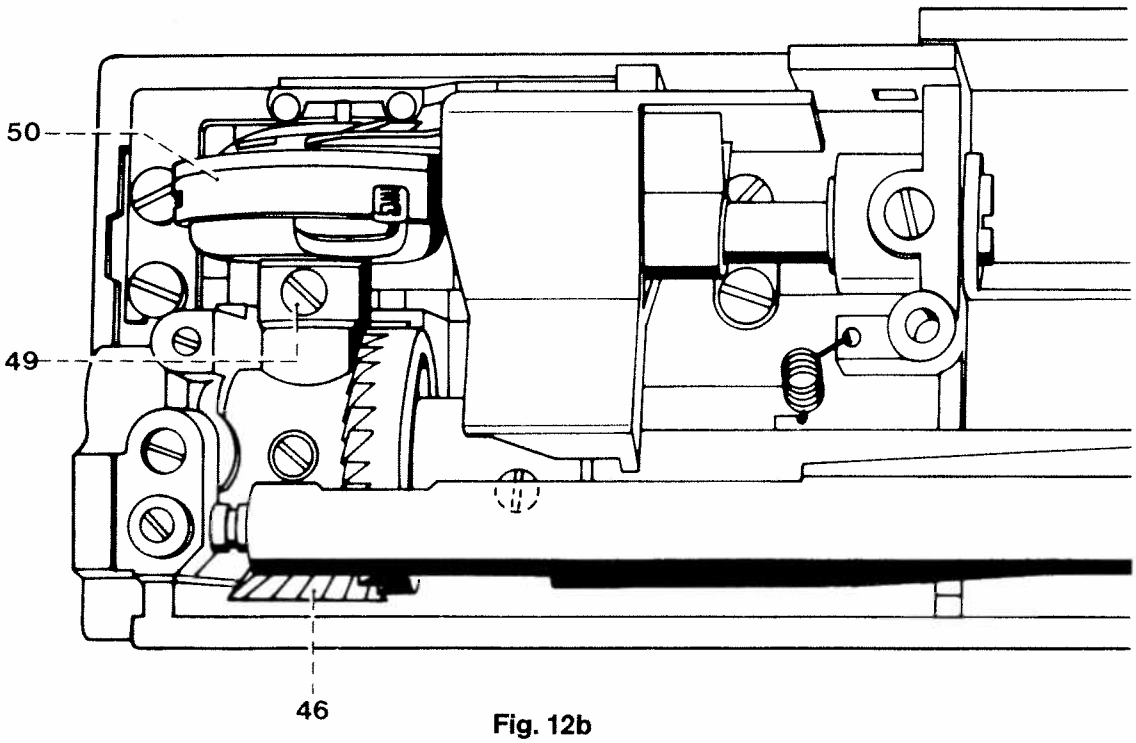


Fig. 12b

13. Adjustment of needle bar height

This machine has a transverse double-rotating hook.

On the right zigzag penetration, the sewing hook point reaches the needle a little earlier and at the left penetration a little later than at the middle penetration.

Consequently, the sewing hook point is positioned a little higher above the needle eye at the right zig-zag penetration than it does at the left penetration (see Fig. 13).

Requirement:

The distance between the top edge of the needle eye and the lower edge of the sewing hook point must be 0.5 mm at the widest left zigzag penetration (see Fig. 13a).

Check:

- Select adjusting program "178" with the widest zigzag stitch "9 mm".
- Turn the hand wheel until the needle goes upwards at the left zigzag stitch and the sewing hook point stops exactly behind the needle center.

  The clearance from the top edge of the needle eye to the lower edge of the sewing hook point must be 0.5 mm (see Fig. 13a).

Adjustment:

- Loosen screw 192 just a little (see Fig. 13b).
- Shift needle bar 190 in height, without twisting it, until the clearance of 0.5 mm is set.
- Tighten screw 192 securely.

Re-check:

- Check the clearance of 0.5 mm.
  The needle holder must face exactly square to the right.

Fig. 13

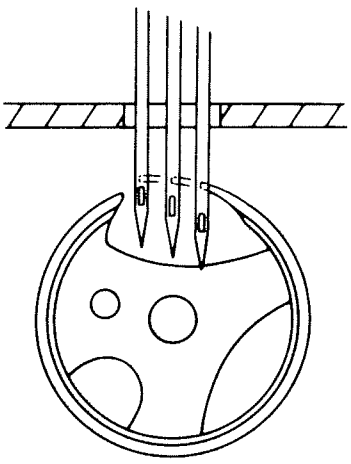


Fig. 13a

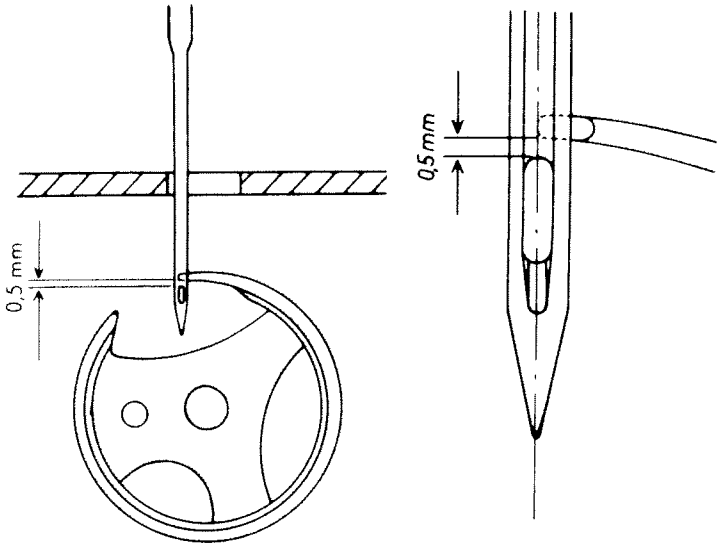
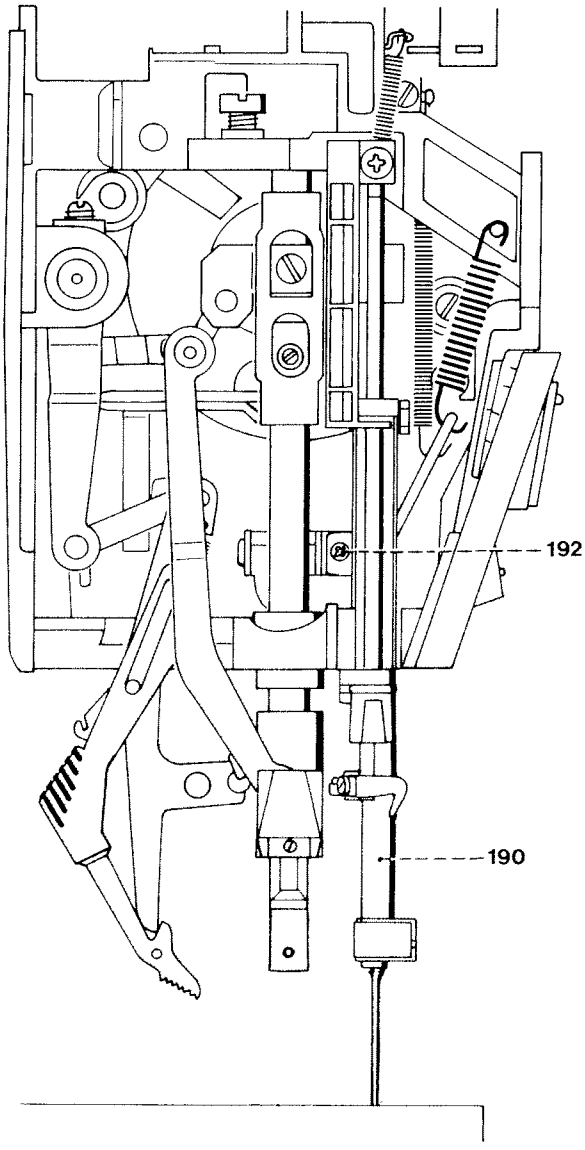


Fig. 13b



14. Adjustment of bobbin case position finger

Requirement:

The clearance between the position finger and the bottom of the groove in the bobbin case base must be 0.7 mm.

Check:

- It must be possible to insert the clearance gauge 00-880133-01 easily, but without play, between the position finger and the bottom of the groove in the bobbin case base (see Fig. 14).

Adjustment:

- Loosen the two screws 54.
- Insert the clearance gauge.
- Press position finger bracket 53 against the clearance gauge at an angle of 90 degrees.
- Tighten the two screws 54 very firmly.

Re-check:

- Same as "Check".

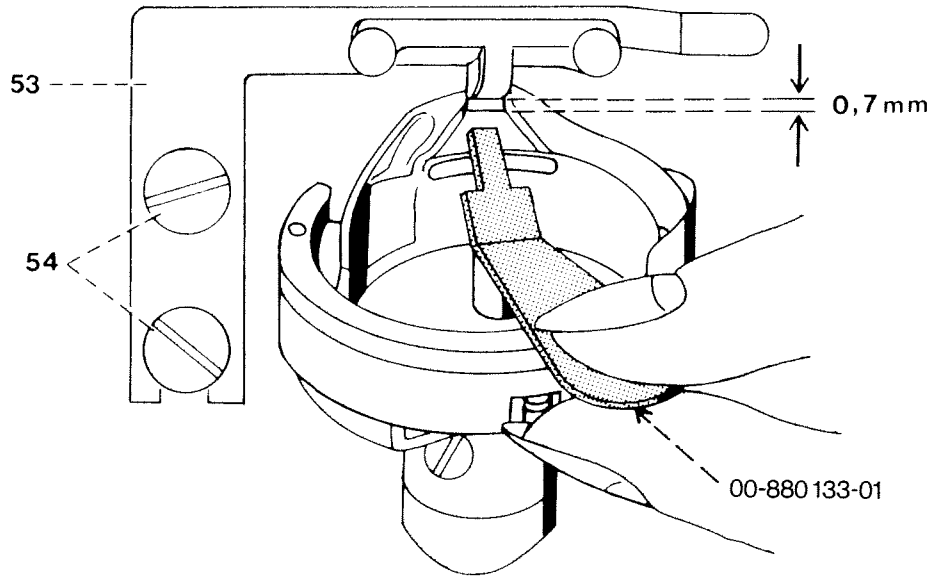


Fig. 14

15. Adjustment of needle threader

Requirement:

With the threader key pushed fully down, prong 194 must pass through in the middle between the top- and bottom edge of the needle eye with a needle of size Nm 70 (Fig. 15).

The prong must be the same distance from either side of the needle eye.

Check:

- Insert a new needle, system 130/705 H, size Nm 70.
- Set the machine at top needle position by briefly pressing the foot control.
- Push threader key 191 fully down and swing it to the front.
- Make a visual check.

Height adjustment:

- Loosen screw of face plate and remove face plate.
- Disconnect pull-spring 195 at the top (Fig. 15b).
- Press threader bar mounting 193 fully downward and hold it there.
- Loosen Philips screw 194 by only a ¼ turn.
- Push threader key 191 upward or downward until prong 194 is the same distance from the top- and bottom edge of the needle eye (Fig. 15).
- Tighten screw 194 in this position.

Re-check 1:

- Move the threader prong with the key to the rear and to the front again.
  Make a visual check of the prong height.

Lateral adjustment:

- Turn the threader prong to the front into the needle eye with key 191.
- Loosen screw 192 only ⅛ of a turn (Fig. 15a).
- Shift the prong bracket 193 laterally until prong 194 is exactly in the middle of the needle eye.
- Tighten screw 192.

Re-check 2:

- Move the threader prong with the key to the rear and to the front again.
  Make a visual check of the lateral position of the prong.
- Turn pull-spring 195 two full turns anti-clockwise and insert it into hook 196 (Fig. 15b).
  This ensures that the needle threader is swung automatically to the rear.
- Operate the threader key, make a visual- and function check.
- Screw on the face plate.

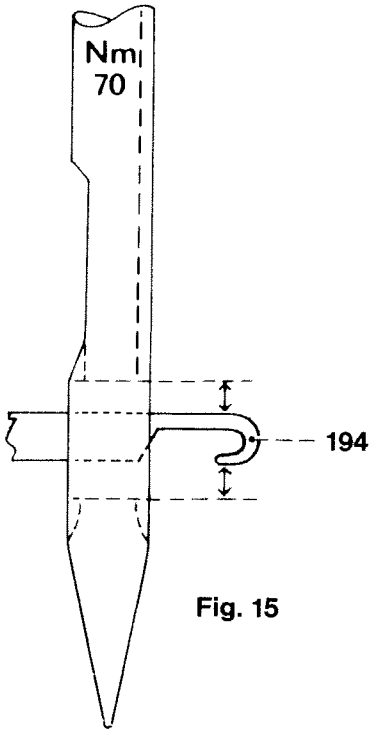


Fig. 15

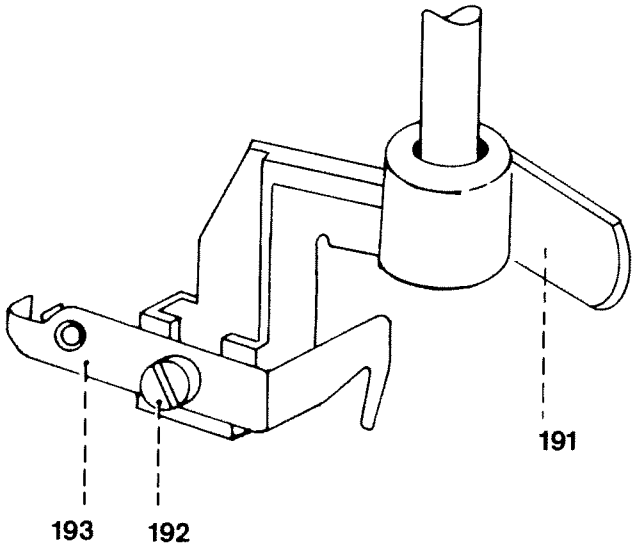


Fig. 15 a

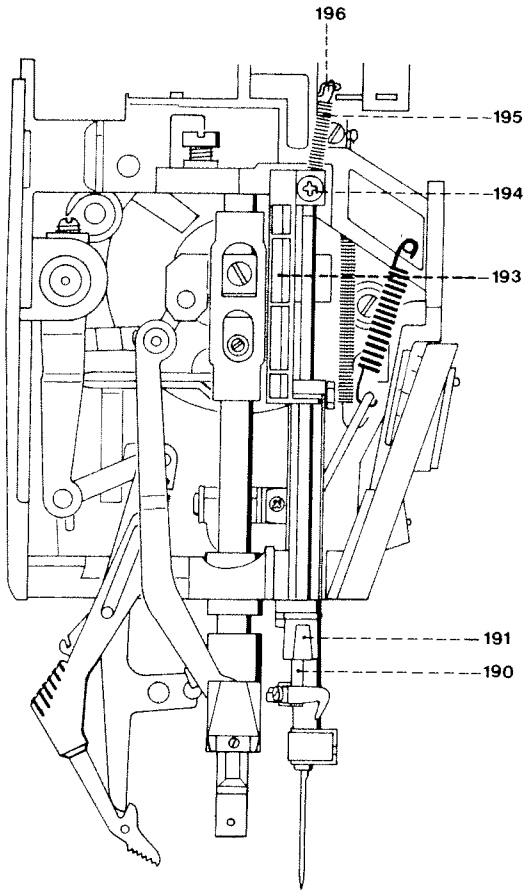


Fig. 15b

16. Adjustment of bobbin winder stop

Requirement:

The bobbin winder must stop when the thread has reached a point 1 mm below the bobbin rim.

Check:

- Wind a bobbin and check that the winder stops as required.

Adjustment:

- Loosen screw 55 (see Fig. 16).
- Position stop 56 to the left for less thread and to the right for more thread.
- Tighten screw 55.

Re-check:

- Wind a bobbin and check that the winder stops as required.

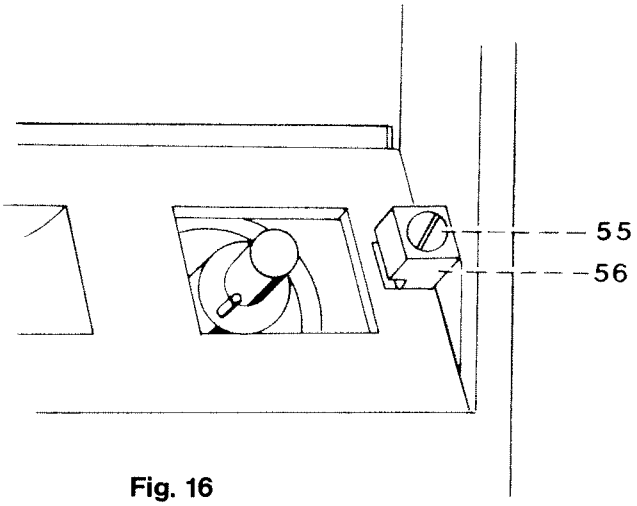


Fig. 16

17. Adjustment of bobbin thread tension

Requirement:

The force required for pulling cotton thread 50/3 or synthetic fibre thread 100/3 off the bobbin must be approximately 20–25 g.

Check:

- When a threaded bobbin case hangs on its thread, it must not slide downward by its own weight.
- Upon sharp upward movements of the hand, the thread must run off gradually (see Fig. 17).
- There must be no thread waste under the tension spring.
- The tension spring must rest evenly and parallel on the bobbin case.

Adjustment:

- Loosen the knurled screw a little and tighten it again until a tension is felt when the thread is pulled off.

Re-check:

- Carry out as described under "Check".

Note:

When the bobbin thread tension is correctly set, tension adjustments must be made only at the needle thread tension.

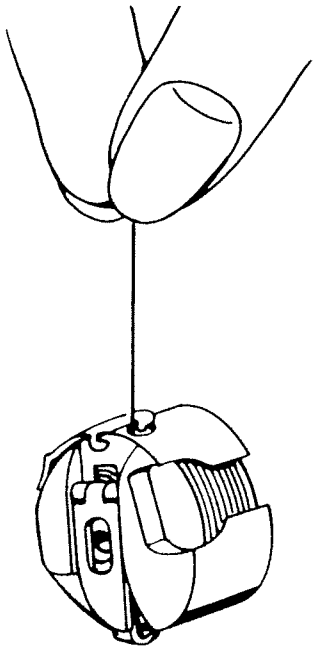


Fig. 17

18. Adjustment of needle thread tension

Requirement:

Within the adjusting range of 3–5, the interlacing of the needle- and bottom threads (cotton thread 50/3 or synthetic fibre thread 100/3) must take place approximately in the middle of the fabric in straight- and zigzag stitch setting (see Fig. 18 and Fig. 18c).

Check:

- Set the needle thread tension at "5".
- Set stitch pattern "10" for zigzag and the stitch width at "6.0".
- Set the stitch length at "2.0".
- Place a piece of fabric under the zigzag foot and sew.
- Select stitch pattern "00" for straight stitch and set the stitch length at 2.5.
- Sew with straight stitch.

Adjustment:

- First turn tension screw 57 counter-clockwise as far as it will go (see Fig. 18d).
- Set zigzag stitch "10", stitch width "6.0" and stitch length "2.0".
- Sew with zigzag stitch.
- Gradually turn the tension screw 57 clockwise until the threads are interlaced in the middle of the fabric (Fig. 18).

Re-check:

- Sew with straight stitch and zigzag stitch as described under "Check".

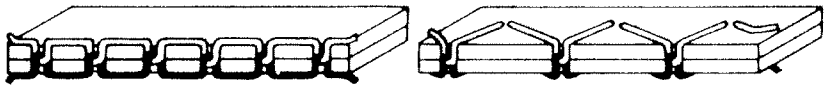


Fig. 18

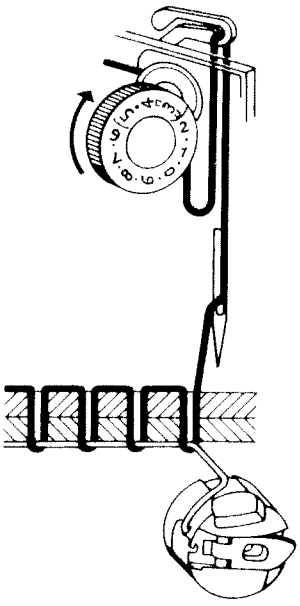


Fig. 18a

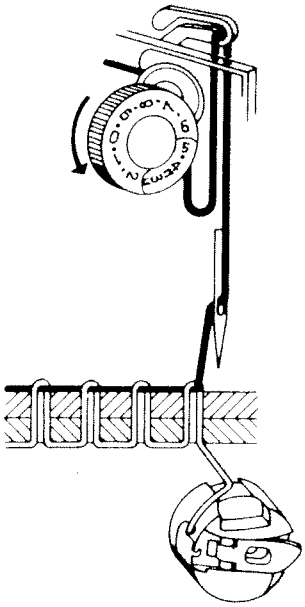


Fig. 18b

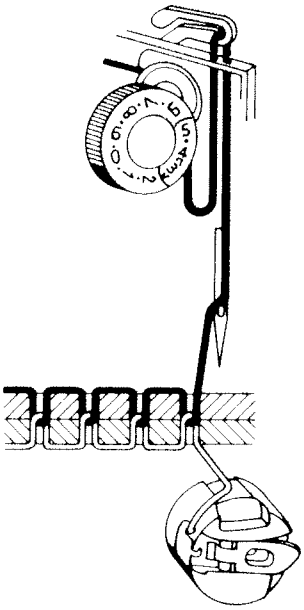


Fig. 18c

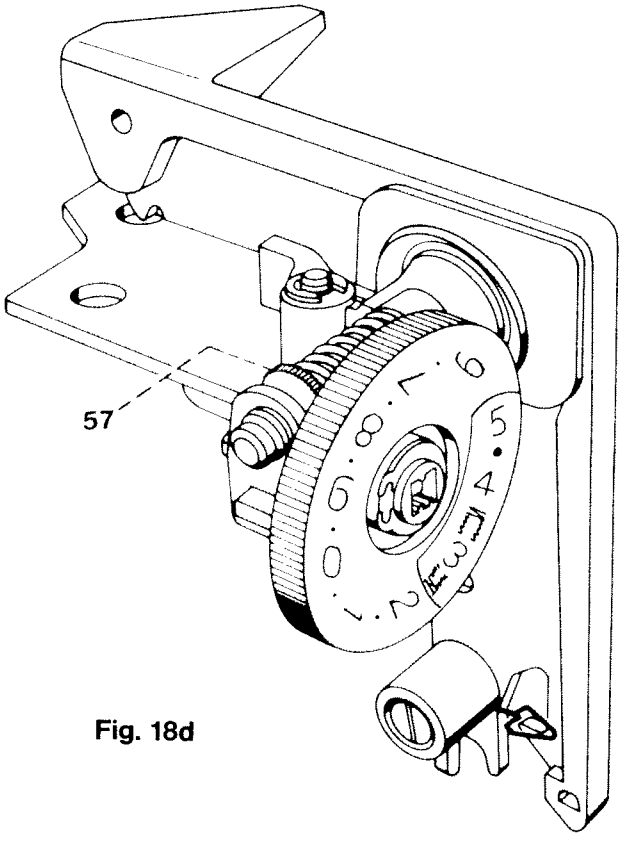


Fig. 18d

19. Adjustment of thread check spring stroke

The thread check spring prevents the descending needle from piercing the slack needle thread. The needle thread is slackened by the descending take-up lever.

Requirement:

Thread check spring 60 must keep the needle thread taut until the needle point enters the material (Fig. 19).

Check:

- Select stitch pattern "00" for straight stitch.
- Set the stitch length at "6".
- Place two plies of linen fabric under the sewing foot.
- Sew a few stitches.
- Turn the hand wheel and determine the end of the thread check spring stroke.
  Correct slackening of the needle thread takes place when it enters the needle eye not tautly but in a loose curve.

Adjustment:

- Loosen screw 58.
- Turn thread check spring stop sleeve 59 until thread check spring 60 is in the correct position.
- Tighten screw 58.

Re-check:

- Sew a few stitches and check as described under "Check".

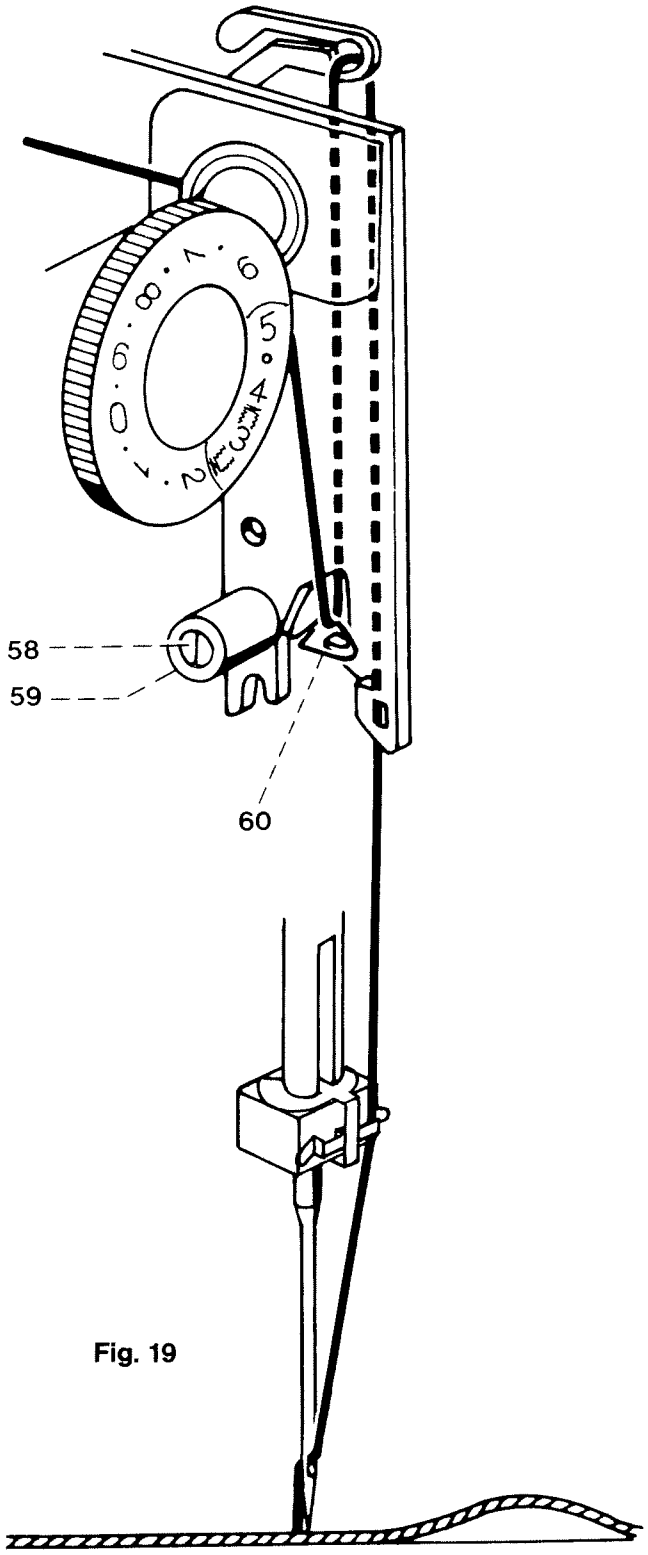


Fig. 19

20. Adjustment of equal forward and reverse stitch length

(For all forward and reverse controlled stitch patterns)

Requirement:

Adjusting program "180" must be an exact rectangle (Fig. 20), and not sewn by the machine as a rhombus (Fig. 20a or 20b).

Letters B, D, G, H sewn in succession must measure 34.5 ± 1.5 mm and must not be distorted (Fig. 20c).

To this end the machine must be at operating temperature, switch-on time 10 to 15 minutes.

Check:

- Switch off the machine.
- Press key mem + and the master switch simultaneously (machine switched on).
- The display shows adjusting program "178".
- Select adjusting program "180".
- Place a piece of fabric under fancy stitch foot "2A".
- Sew adjusting program "180" (Fig. 20).

Preliminary adjustment:

○ If a rhombus is sewn according to Fig. 20a, turn the adjusting screw 2–4 degrees only with a screwdriver according to Fig. 20f in direction "A".

□ If a rhombus is sewn according to Fig. 20b, turn the adjusting screw 2–4 degrees only with a screwdriver according to Fig. 20f in direction "B".

Re-check:

- Sew adjusting program "180" and carry out a check.
- Select adjusting program "181", reduce the stitch width to 6 mm, and sew (Fig. 20c).
- Check the dimension 34.5 ± 1.5 mm.

Final adjustment:

○ If the letters are distorted and longer than 36 mm, turn the adjusting screw with a screwdriver only one degree in direction "B" according to Fig. 20f.

□ If the letters are distorted and shorter than 33 mm, turn the adjusting screw with a screwdriver only one degree in direction "A" according to Fig. 20f.

Re-check:

- Select stitch pattern "154a".
- Place a piece of fabric under buttonhole foot "5A".
- Sew stitch pattern "154a".
  The wedge tack of the eyelet buttonhole must be sewn evenly (Fig. 20d).

Note:

If very different sewing threads or difficult fabrics are used, buttonholes, utility stitches or fancy stitches may be sewn with shifts in the pattern design.

To correct this, the customer can adjust the balance from +7 to −7.

Only the reverse stitch length is corrected.

Fig. 20 Fig. 20a Fig. 20b

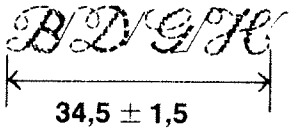


Fig. 20c

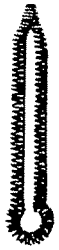


Fig. 20d

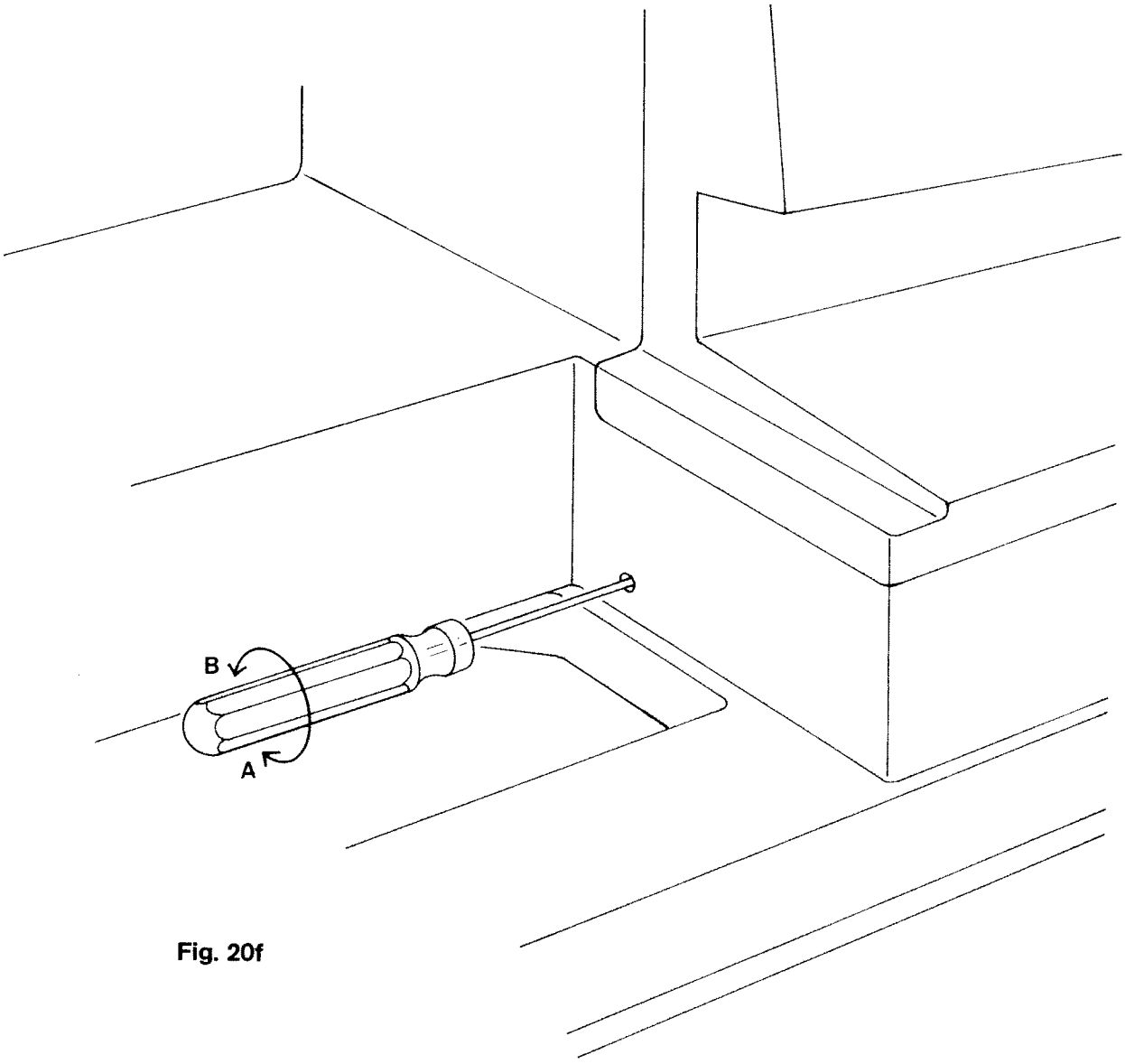


Fig. 20f

21. Making up a sewing sample

When all sewing checks are completed and the machine sews perfectly, a sewing sample is to be made.

This sewing sample should contain the most important stitch patterns which can be sewn on the repaired machine (see Fig. 21).

If the customer has special requirements, these should appear on a separate sewing sample.

The following is a sewing sample made on the PFAFF 1475 CD

Stitch pattern	No.	Stitch width	Stitch length or pattern-length	Balance	Sewing foot No.
1 Straight stitch	00		2.5		Zigzag foot "0 A"
2 Zigzag stitch	10	6.0	2.0		Zigzag foot "0 A"
3 Darning stitch	159	9.0	1.5	0	Fancy stitch foot "2 A"
4 Honeycomb stitch	24	6.0	2.0	0	Zigzag foot "0 A"
5 Lingerie buttonhole	150	4.5 or 5.5	22	0	Buttonhole foot "5 A"
6 Eyelet buttonhole	154a	6.0	26	0	Buttonhole foot "5 A"
7 Fancy stitch	67	9.0	0.35	12	Fancy stitch foot "2 A"
8 Border embroidery	209	27.0	18.0	0	Embroidery foot "8"

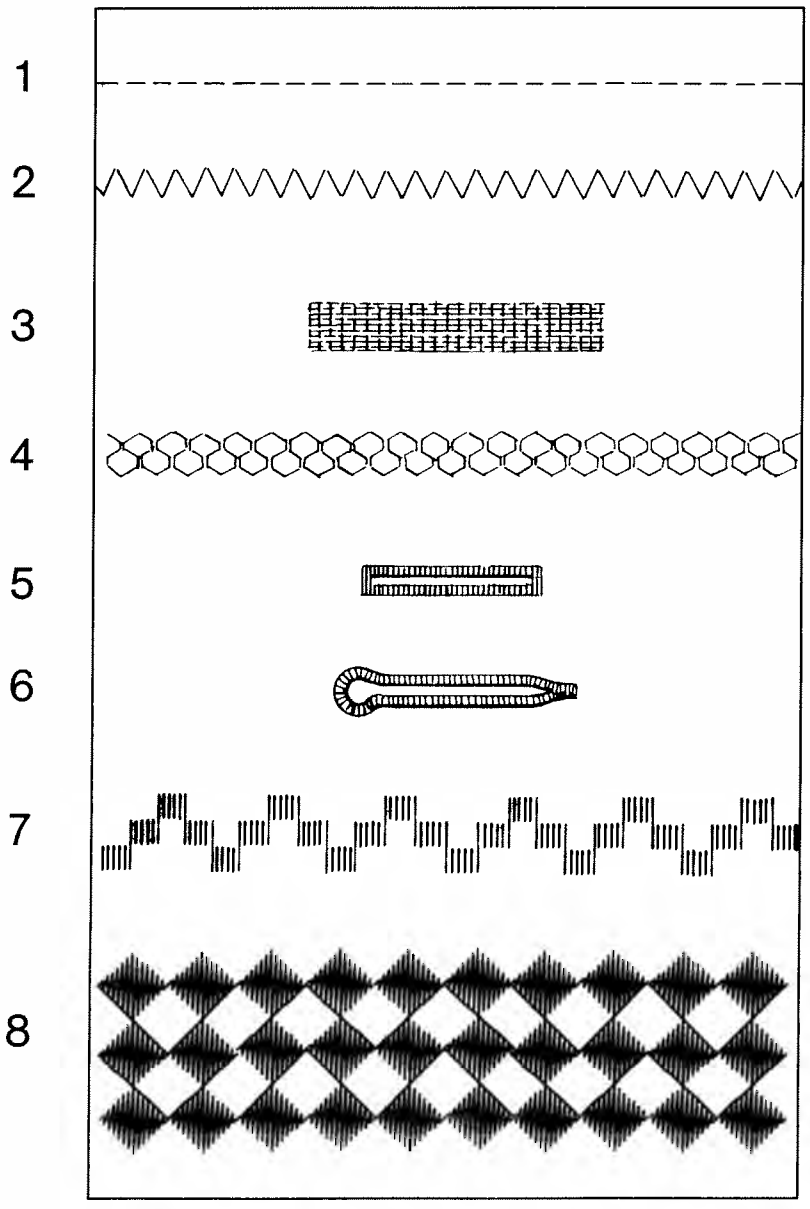


Fig. 21

22. Dismantling and assembling the needle thread tension

(Working time 15 to 20 minutes)

Removal:

- Remove the needle thread tension.
- Remove circlip 86 (see Fig. 22).
- Remove spring washer 87 and tension dial 88.
- Unscrew adjusting screw 92 from guide 93.
- Remove guide 93.
- Pull off the adjusting screw and pressure spring 91.
- Pull out or knock out cemented stud 97 complete with pressure piece 90 and the tension discs 94, 95 and 96.

Fitting:

- Insert tension stud 97 with the three tension discs and the pressure piece.
- Cement tension stud 97 into the mounting plate with Omnivit-Rapid.
- Push pressure-spring 91 and adjusting screw 92 onto tension stud 97.
- Insert guide 93 with its right side and fully screw in screw 92 at the left.
- Push on tension dial 88 and make sure the guide pin engages with the worm.
- Insert spring washer 87.
- Push on circlip 86.
- Install the needle thread tension.
- ■ Set the needle thread tension according to section 18.

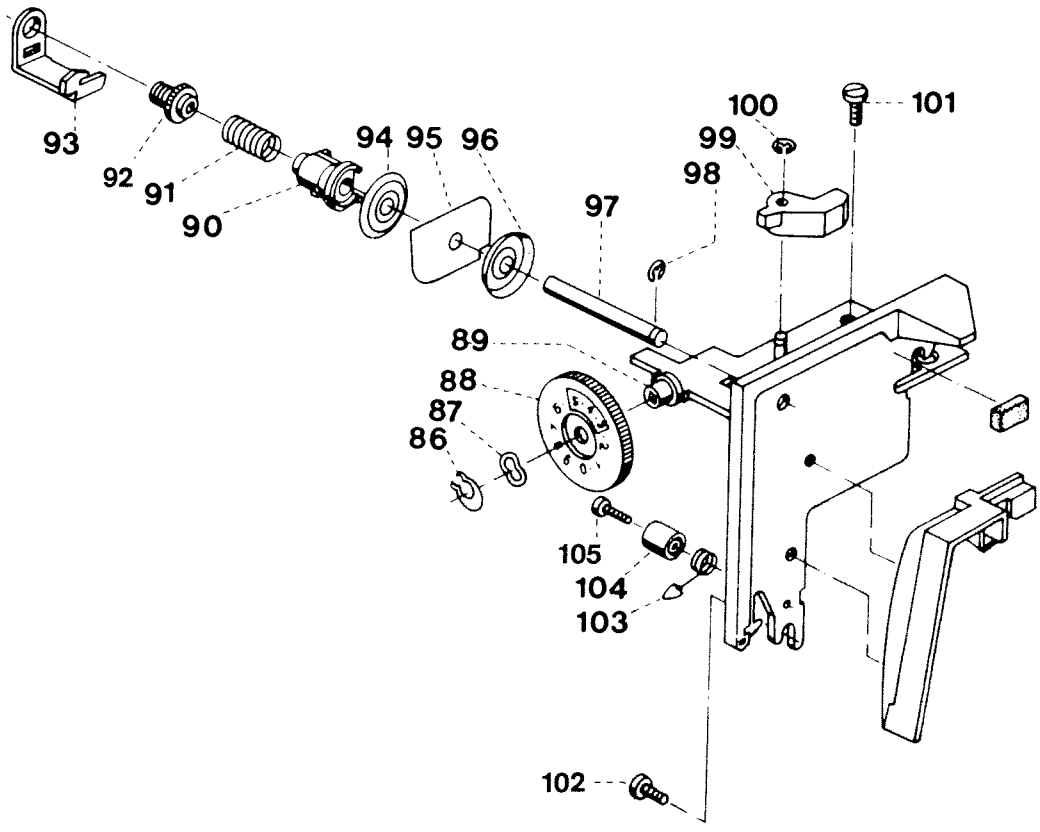


Fig. 22

23. Changing the pressure spring in the hand-wheel release

(Working time approximately 5 minutes)

Removing the release disk

- Remove plastic cap 119 with clearance gauge, part No.: 00-880133-01.
- Remove screw 117.
- Pull out release disk 110 and pawl 111 and take out clutch piece 113 and pressure spring 114.

Fitting the release disk

- Turn hand wheel 115 and clutch disc 116 until the square hole and cutout 117 are facing down (Fig. 23a).
- Place pressure spring 114 (Fig. 23b) onto the hand-wheel boss so that its rear side fits into the guide groove.
- First place clutch piece 113 (Fig. 23c) over the boss of the hand wheel, then press it towards the back. The pressure spring is thus placed vertical and the clutch piece is positioned as shown in Fig. 23c.
- Push the pin of pawl 111 (Fig. 23d) into the hole in such way that it is positioned as shown in Fig. 23d.
- Push release disk 110 into the hand wheel with its square mark 118 facing up (Fig. 23e).
- Release disk 110 must be turned about 5 mm back and forth in order to snap in properly.
- Fit screw 107 with washer 108.
- Hold hand wheel 115 firmly and turn release disk 110 in sewing direction until you hear it snap in place.
- Push the two prongs of the plastic cap into their two holes (Fig. 23e).
- Check the hand wheel release by engaging and disengaging it.

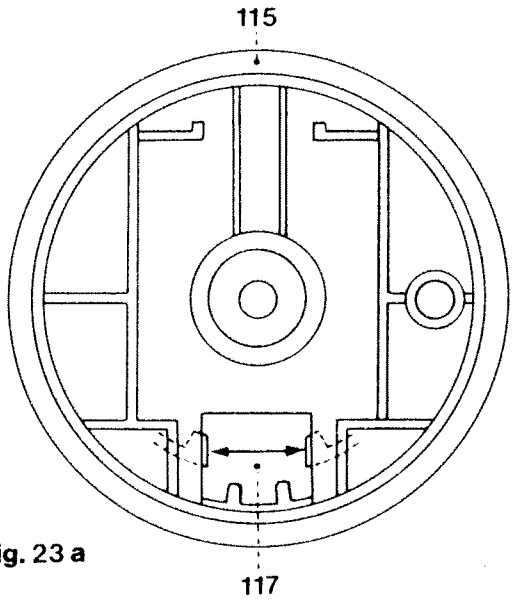


Fig. 23 a

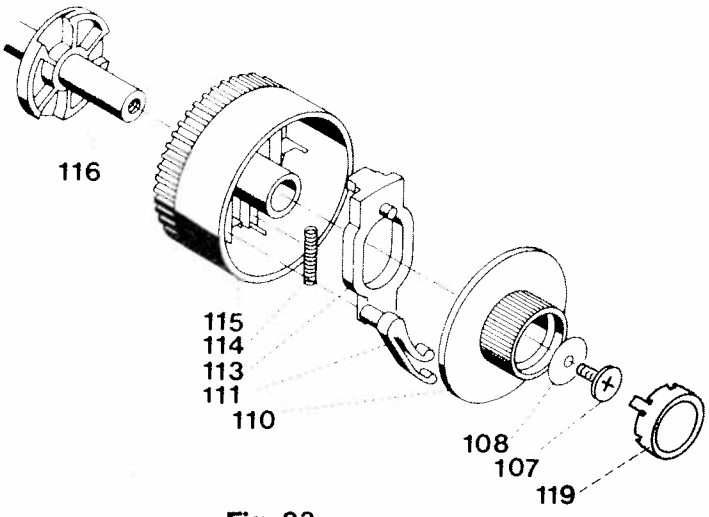


Fig. 23

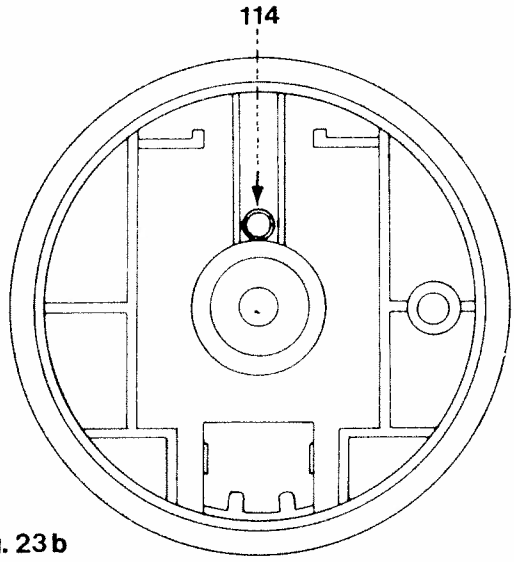


Fig. 23 b

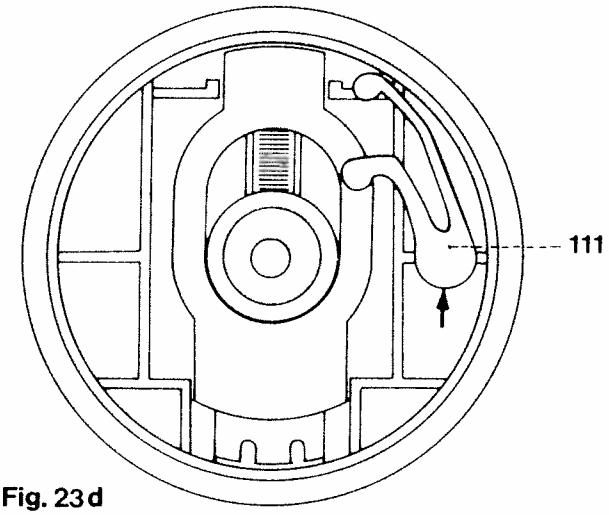


Fig. 23 d

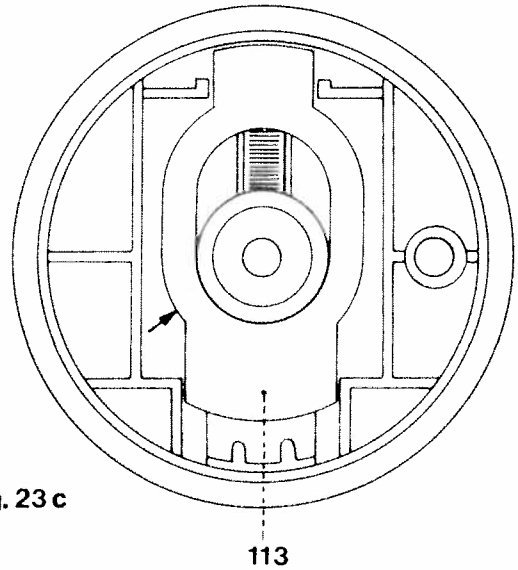


Fig. 23 c

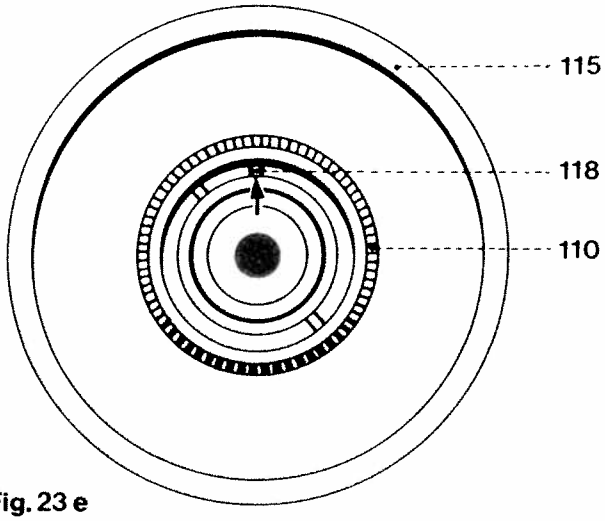


Fig. 23 e

24. Dismantling and assembling the sewing hook

(Working time 5 to 10 minutes)

Removal:

- Remove the needle.
- Unscrew the sewing foot.
- Remove the bobbin case.
- Unscrew the free-arm cover.
- Unscrew the bobbin case position finger.
- Take out the three screws with springs from behind (see Fig. 24).
- Remove the bobbin case base with sewing hook gib (see Fig. 24a).
- Turn the sewing hook gib to the left or to the right out of the bobbin case-base (see Fig. 24b).
- Clean the sewing hook, bobbin case base and hook gib.

Fitting:

- Turn hand wheel until opening of sewing hook faces left (see Fig. 24c).
- Turn the sewing hook gib to the left into the bobbin case base (see Fig. 24d).
- Insert the bobbin case base complete with sewing hook gib into the sewing hook (see Fig. 24e).
- Fasten the sewing hook gib from behind with three screws with springs (see Fig. 24).
- Screw on and adjust the bobbin case position finger (see section 14).
- Lubricate the sewing hook.
- Re-fit all further parts.

25. Cleaning and oiling the machine

Note:

The machine is equipped with sintered bearings and parts and is therefore maintenance-free for the user.

Only the sewing hook should be lubricated from time to time with normal sewing machine oil.

After repairs the mechanic should lubricate the machine with BP Energol HLP 46 or HLP 80 and the sewing hook with normal sewing machine oil.

Sintered bearings or parts must not be cleaned with gasoline, petroleum, kerosene, thinners or trichlorethylene.

Dirty or clogged sinter bearings or parts may only be cleaned mechanically by brushing them off.

They are then oiled with BP Energol HLP 46 or HLP 80.

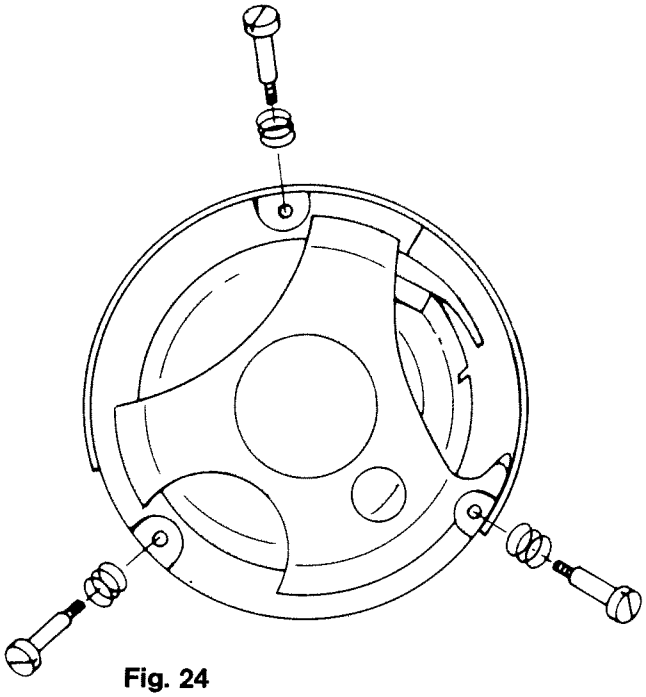


Fig. 24

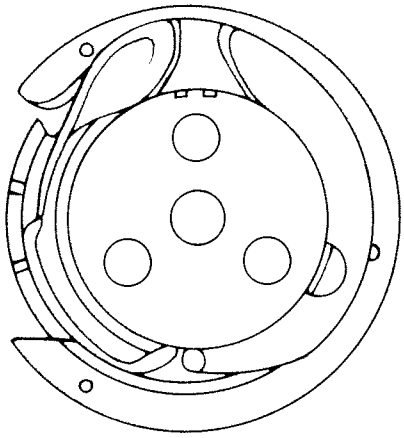


Fig. 24a

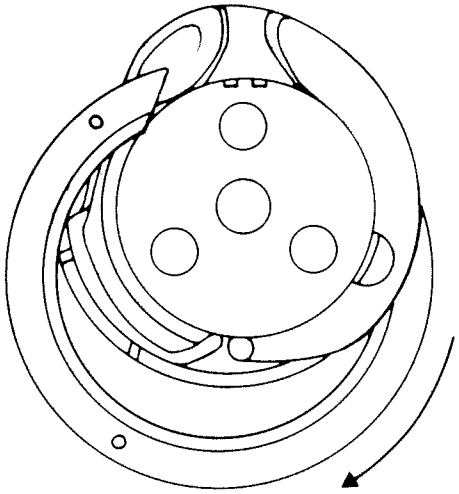


Fig. 24b

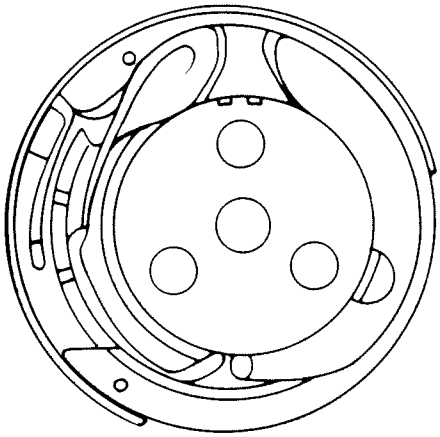


Fig. 24c

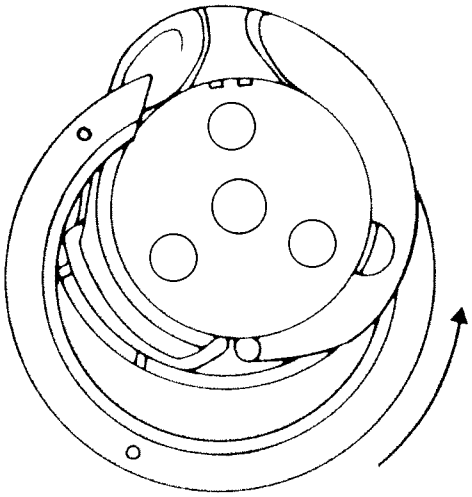


Fig. 24d

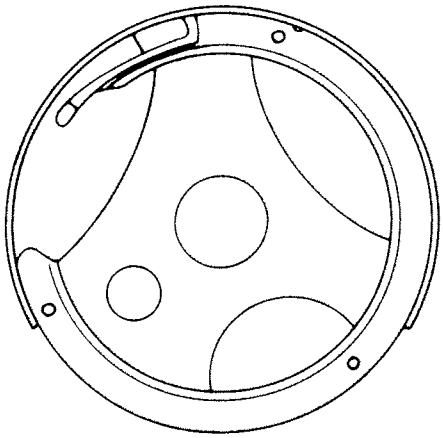


Fig. 24e

26. Changing the toothed belt on the PFAFF 1475 CD

(Working time 70 to 100 minutes)

Removal:

- Remove the needle, the sewing foot and the needle plate.
- Remove the arm cover, face cover and the housing insert.
- Place the machine on its back.
- Unscrew the four screws of the baseplate.
- Turn the baseplate around.
- Lift catches 122 by 1–2 mm and remove the plug of the seven-wire cable from the printed circuit board (Fig. 26).
- Press both catches 117 of motor plug 116 together and remove the motor plug upward.
- Place the complete baseplate aside.
- Open both cable clips 119 at catch 120 and remove the wire cords from the clips.
- Loosen fixing collar screw 33 of synchronizer 34 (Fig. 26b).
- Remove the synchronizer to the right from the shaft.
- Unscrew the free-arm cover.
- Loosen screw 130 in the arm shaft crank 131 (Fig. 26a).
- Loosen screw 1 of tensioning roll 137.
- Screw out screw 134.
- Remove circlip 132 on the arm shaft.
- Pull arm shaft 133 to the right and release toothed belts 136 and 135.
- Take toothed belt 136 out of the machine.

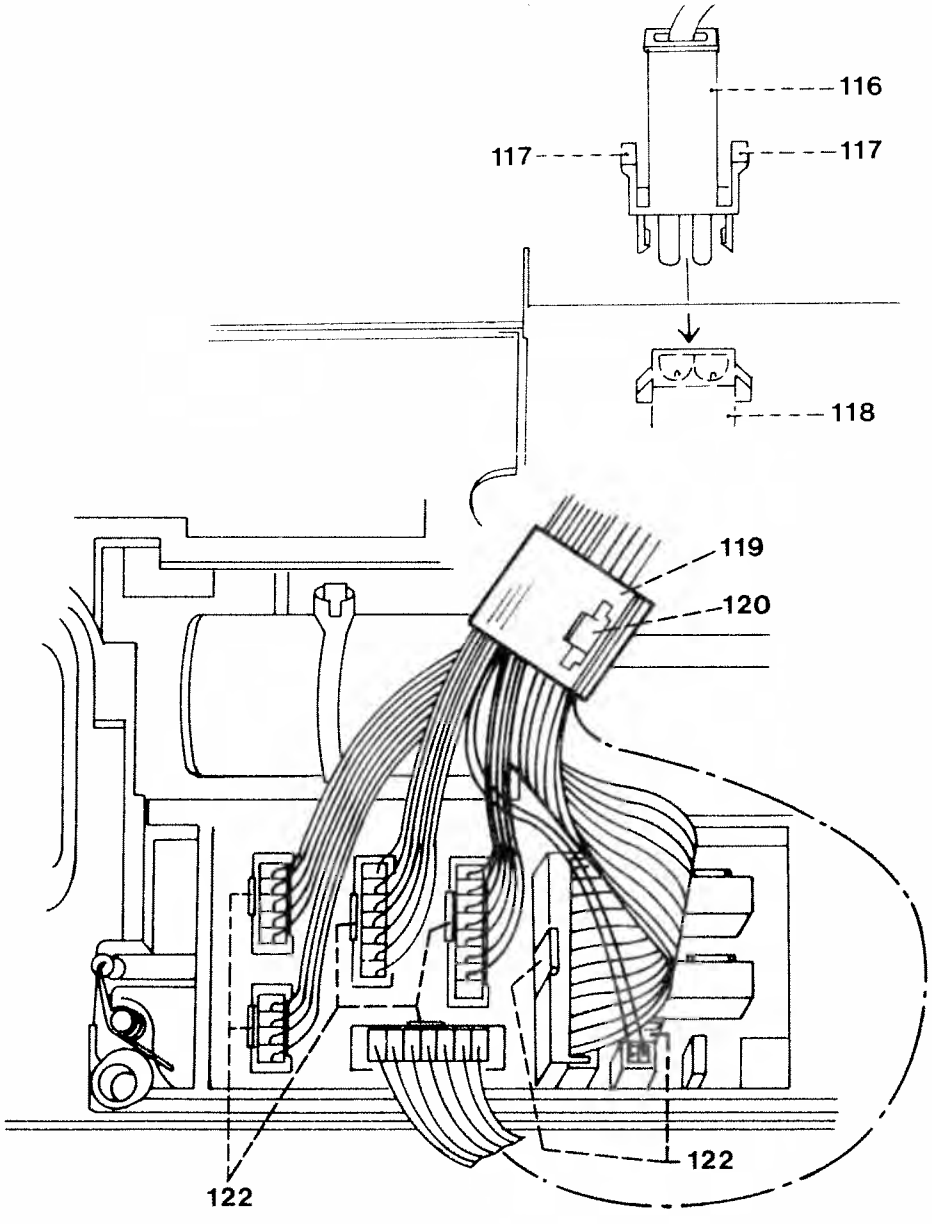


Fig. 26

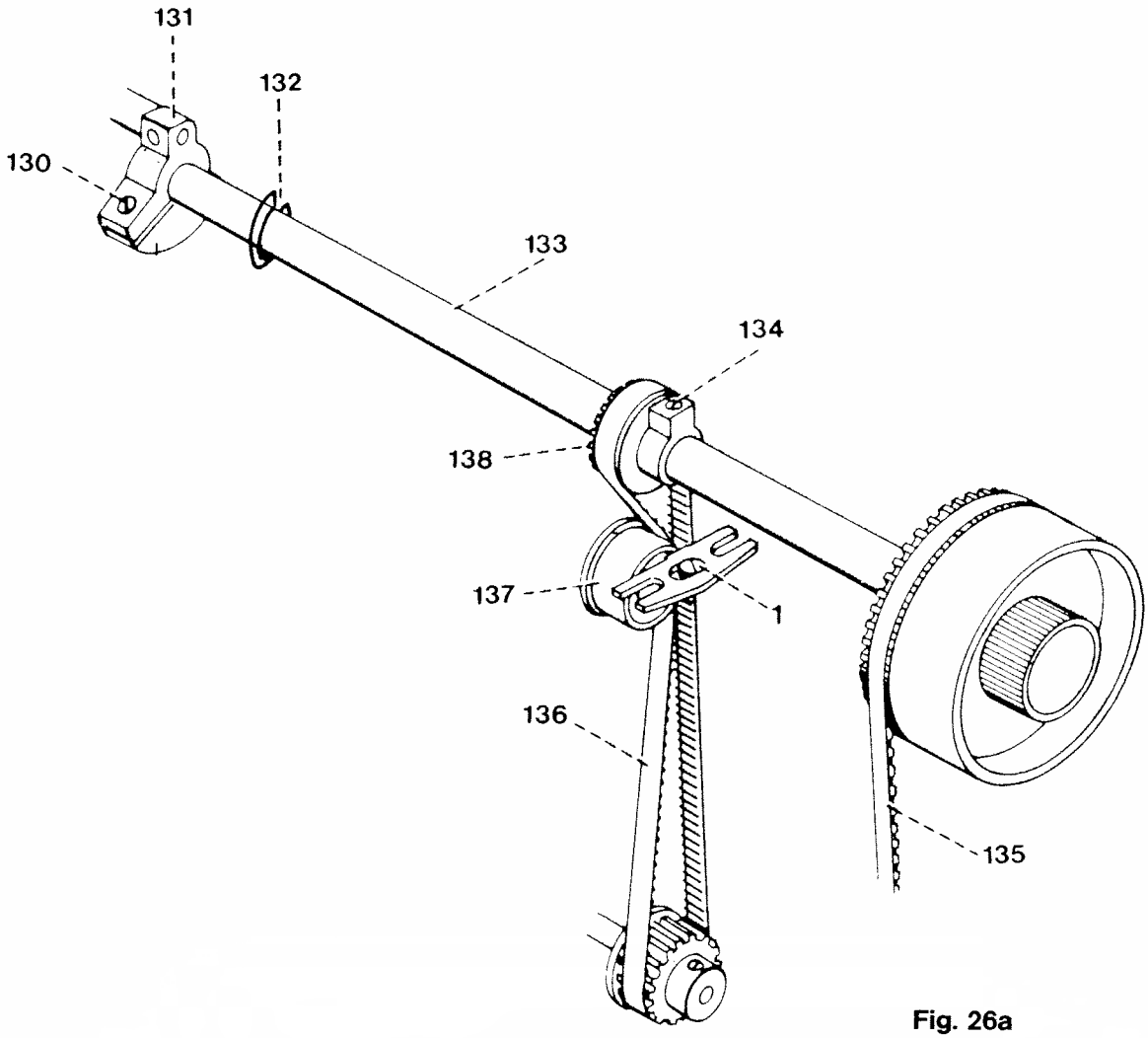


Fig. 26a

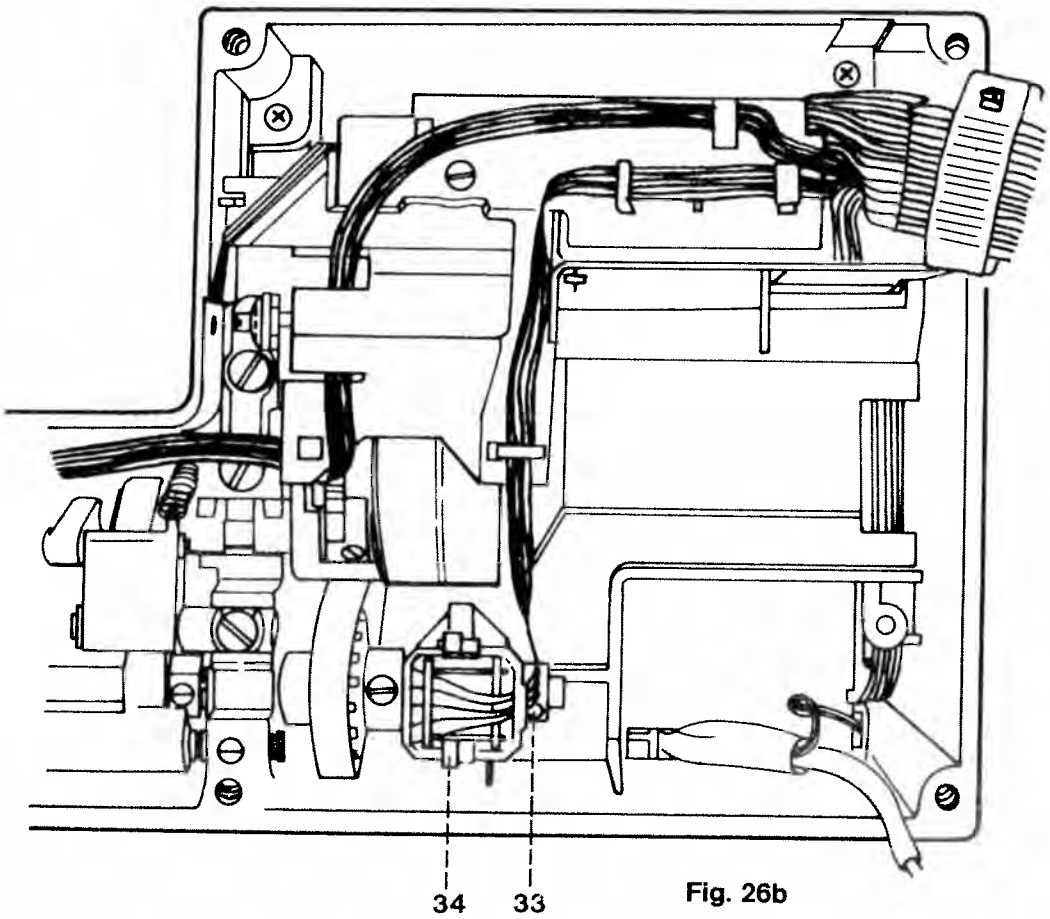


Fig. 26b

Fitting:

- Insert new toothed belt 136 and pull it upward (Fig. 26c).
- Push arm shaft 133 to the left through toothed belt 136 into the left bearing and into arm shaft crank 131.
- Fit circlip 132 on the arm shaft.
- Remove lengthwise play in the arm shaft and tighten screw 130 in the arm shaft crank.
- Push toothed belt 136 onto upper sprocket 138.
- Insert and tighten screw 134 in the upper sprocket.
- Set the tensioning roller 137 according to section 1.
- Place motor belt 135 on the hand wheel.
- Push synchronizer 34 onto the shaft (Fig. 26d).
  Check that the housing rib is between both guide clamps.
- Place five-wire cable 127 in cable clip 119 (Fig. 26e).
- Place seven-wire cable 200 in the cable clip (Fig. 26d).
- Place the complete baseplate on the machine.
  Now the flat cables are connected to the printed circuit board as follows (Fig. 26e):
- Insert motor plug 116 in motor socket 118 (both catches 117 must engage).
- The five-connection plug 127 to the five-pin base.
- The seven-connection plug 125 to the seven-pin base.
- The red seven-connection plug 200 to the red seven-pin base (Fig. 26e).
- The eight-connection plug 123 to the eight-pin base.
- The wide flat cable with the twelve-connection plug 121 to the twelve-pin base.
- ○ Insert the mains lead in the machine socket and connect it with the mains.

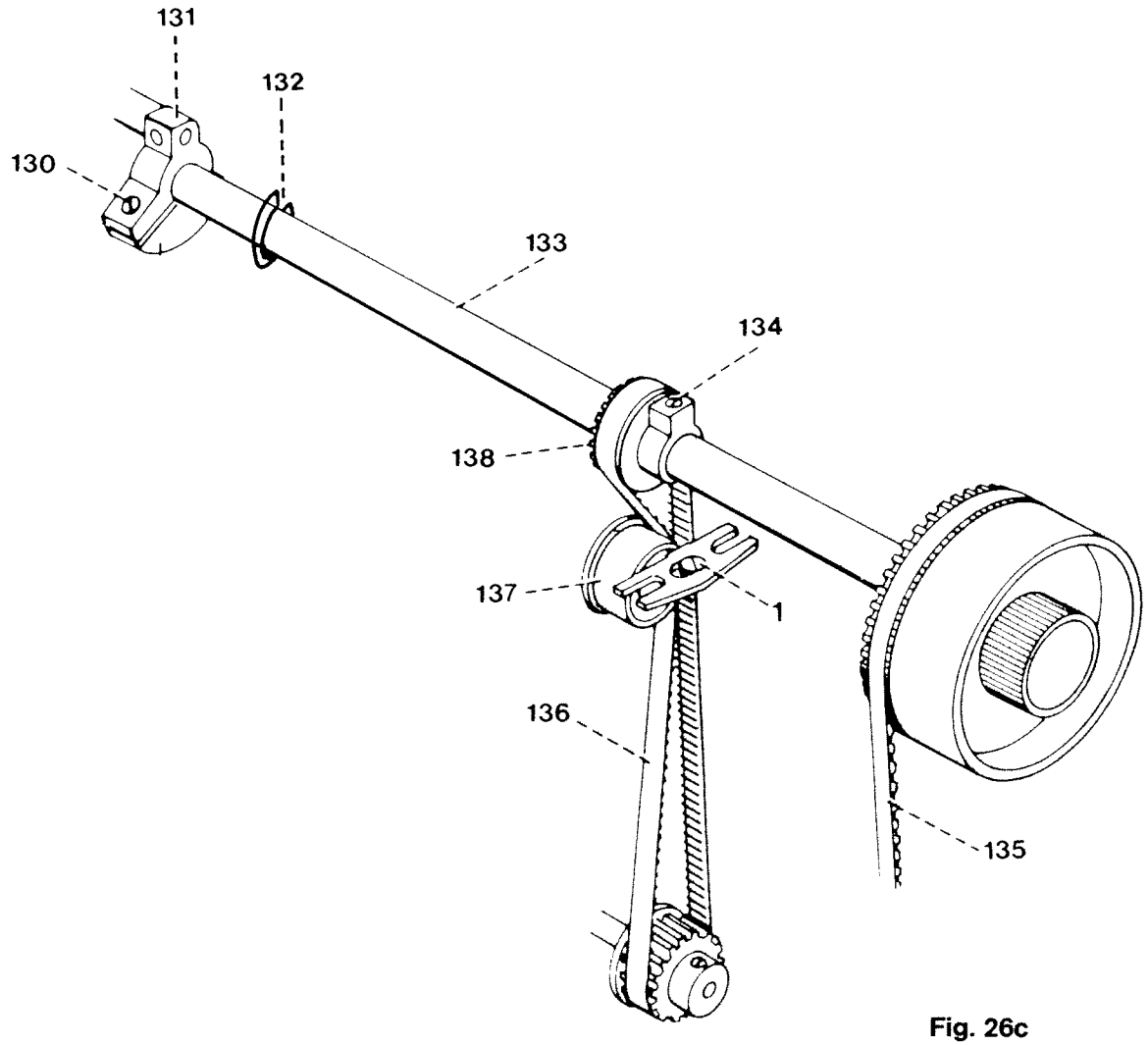


Fig. 26c

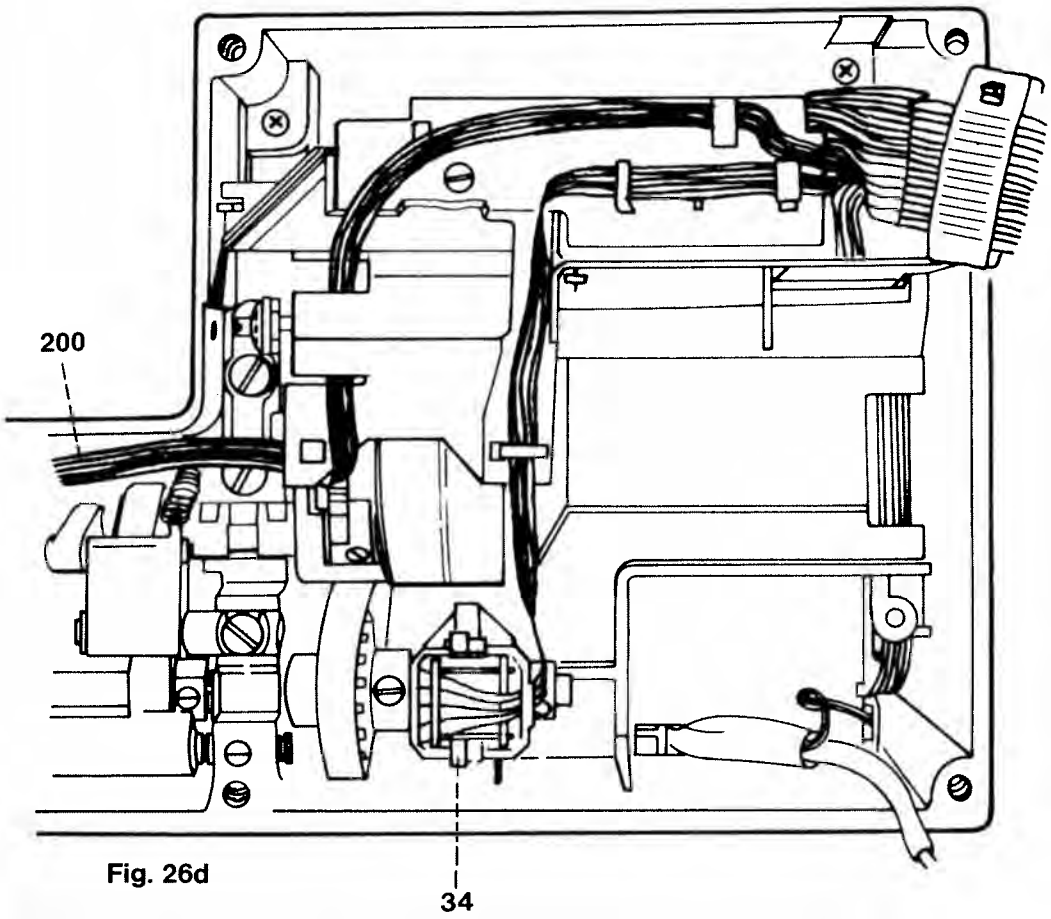


Fig. 26d

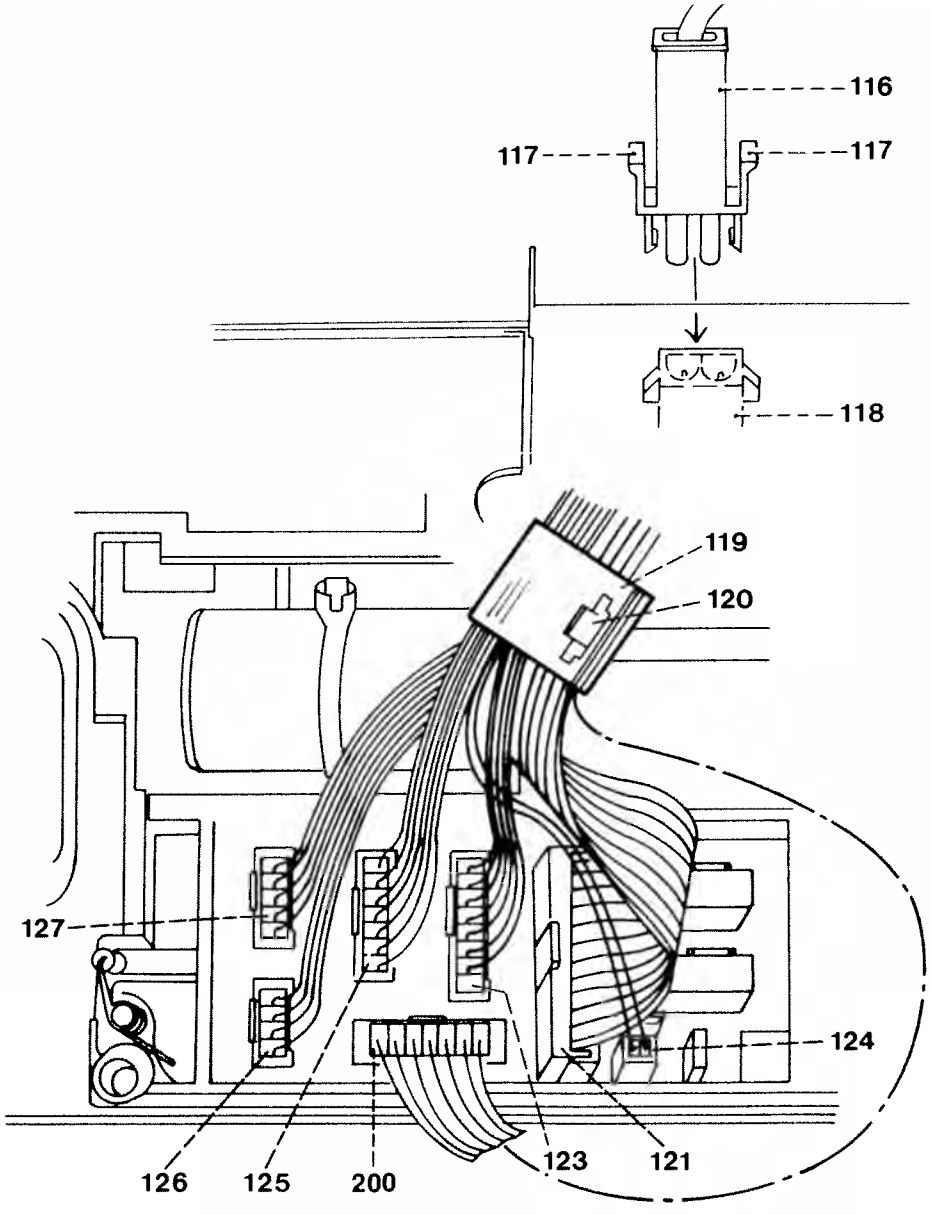


Fig. 26e

Adjusting the arm shaft crank

- Set stitch pattern "00" for straight stitch.
- Loosen screw 130 in arm shaft crank 131 just enough to allow the arm shaft crank to be turned on its shaft (Fig. 26h).
- Raise the needle bar and insert the needle.
- Hold arm shaft crank 131 with your left hand.
- Turn the hand wheel with your right hand until the feed dog stops at the bottom and the sewing hook point is in the middle between the feed dog rows.
- Now hold the hand wheel and turn arm shaft crank 131 simultaneously until the needle bar is in its lowest position.
- Push the needle-rise clamp (870-13701) on the needle bar (Fig. 26f) and tighten it just a little.
- Push the 2.2 mm feeler gauge (870-13601) with its cutout on the needle bar above the needle-rise clamp.
- Push the needle-rise clamp and the 2.2 mm feeler gauge upward against the needle bar frame.
- Tighten the milled screw of the needle-rise clamp.

□ If there is play at the feeler gauge, repeat this procedure.

- Remove the 2.2 mm feeler gauge.
- Hold the hand wheel and turn arm shaft crank 131 in sewing direction until the needle-rise clamp is against the needle bar frame.

  The sewing hook point must now be exactly at the center-line of the needle (Fig. 26g).
- If this is not the case, turn the hand wheel and arm shaft crank 131 until the sewing hook point is exactly at the center-line of the needle with the needle-rise clamp resting against the needle bar frame.
- Remove the needle-rise clamp.
- Tighten screw 130 in arm shaft crank 131 in such a way that the latter has no play and the needle rise is correct.

○ Re-attach the needle-rise clamp and check.

■ The synchronizer now has to be set according to section 5.

- Fasten the free-arm cover with the two screws.
- Place four-wire cable 126 in the cable guides (Fig. 26i).
- Install all flat cables according to Fig. 26i and fit both cable-clips 119.
- Fit the four-connection plug 126 and the two-connection plug 124 to the corresponding pin bases (Fig. 26j).
- Fold the baseplate against the machine and secure it with the four screws.
- The following items must then be checked and set:

■ Adjustment of bobbin thread tension, section 17.

■ Adjustment of needle thread tension, section 18.

■ Adjustment of thread check spring, section 19.

■ Adjustment of equal forward and reverse stitch length, section 20.

□ Perform an electrical safety test with the Metratester 2 or 3 testing appliance according to VDE 0701.

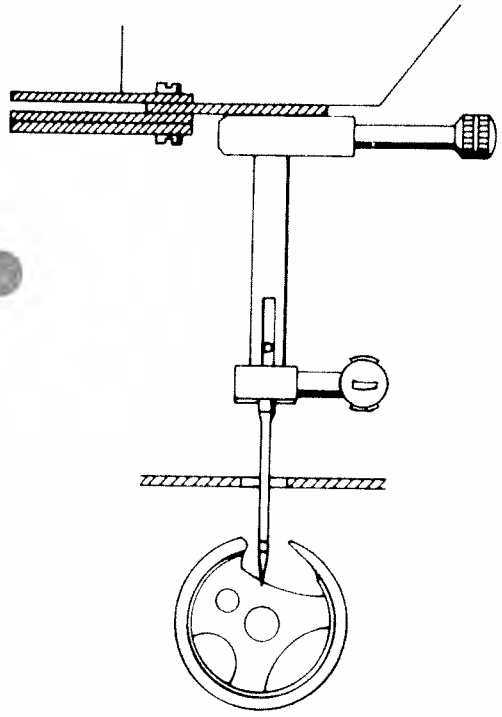


Fig. 26f

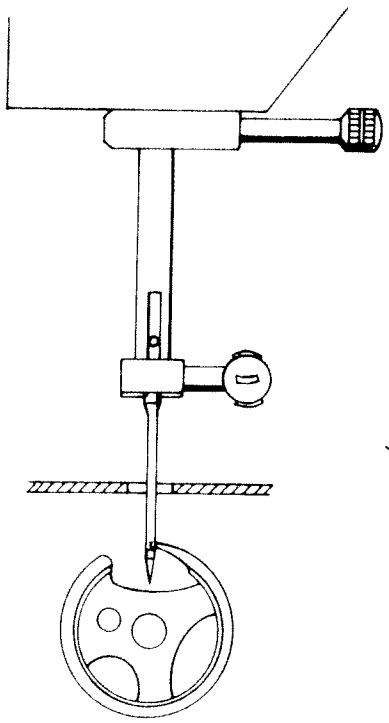


Fig. 26g

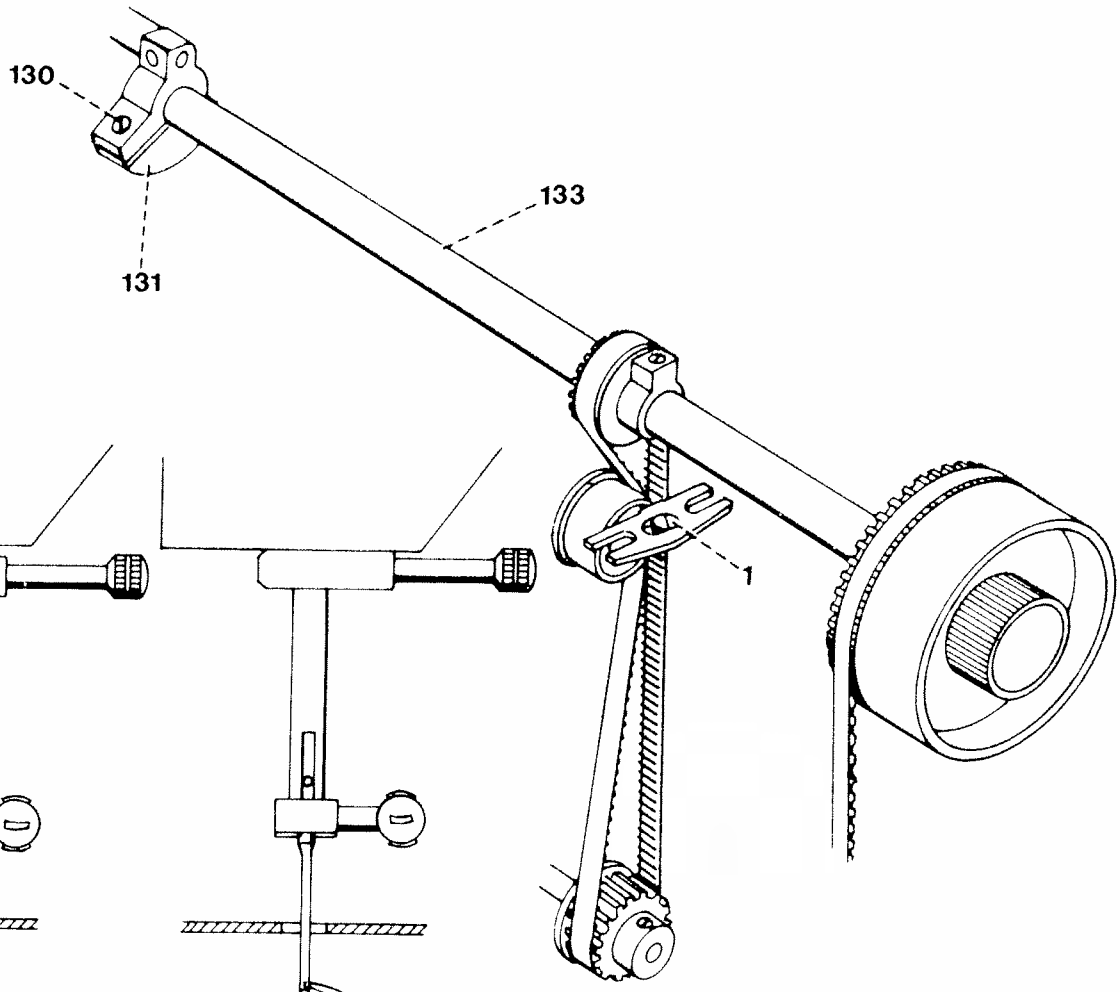


Fig. 26h

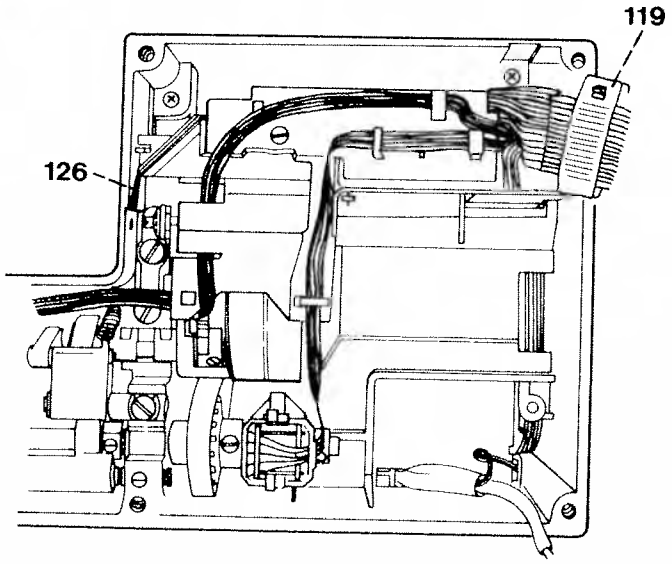


Fig. 26i

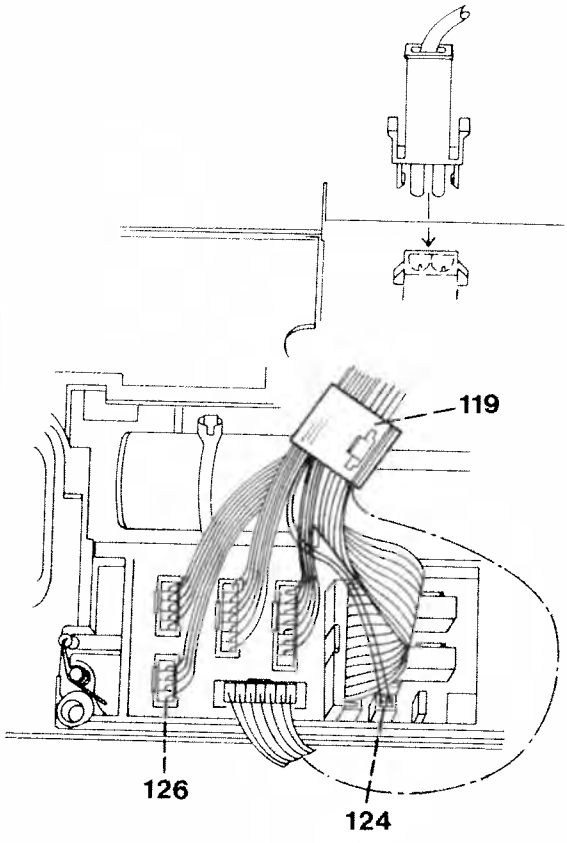


Fig. 26j

27. Changing the bevel gears

(Working time 110 to 140 minutes)

Note:

Always change bevel gears in pairs.

Removal:

- Remove the mains plug and the electrical outlet at the machine.
- Remove the needle and the sewing foot sole.
- Place the machine on its back.
- Unscrew the four screws of the baseplate.
- Turn the baseplate around.
- Lift catches 122 by 1–2 mm and remove the plug of the seven-wire cable from the printed circuit board (Fig. 27).
- Press both catches 117 of motor plug 116 together and remove the motor plug upwards.
- Place the complete baseplate aside.
- Open both cable clips 119 at catch 120 and remove the flat cables from the clips.
- Unscrew the two screws of the free-arm cover.
- Remove the free-arm cover.
- Loosen fixing collar screw 33 of synchronizer 34 (Fig. 27a).
- Remove synchronizer 34 to the right from the shaft.
- Disconnect pull-spring 14.
- Screw out screw 18.
- Turn the hand wheel until feeding eccentric 20 faces to the rear of the machine.
- Fold cam lever 9 downward and remove it with link 10 to the left from the slide block pin.
- Remove slide block 12 with the spring to the right.

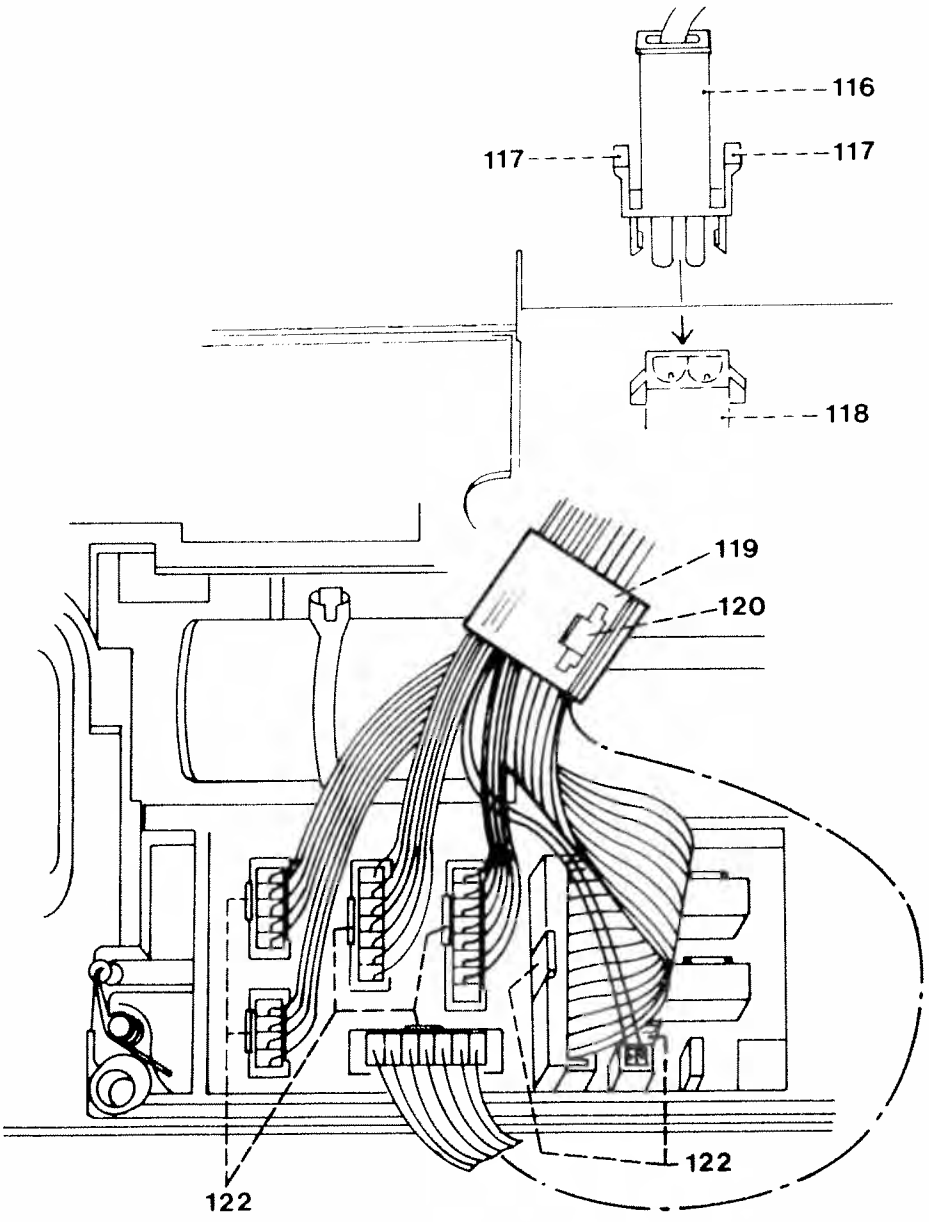


Fig. 27

- Disconnect pull-spring 63 (Fig. 27b).
- Loosen screw 64.
- Remove transverse-drive stepping motor according to section 39a.
- Remove feed dog lowering mechanism 65.
- Unscrew both screws 54 of the bobbin case position finger.
- Place bobbin case position finger 53 and the leaf spring aside.
- Loosen both screws 49 at the sewing hook.
- Remove the complete sewing hook 50 towards the top.
- Unscrew dog-point screw 19a of feeding eccentric 20 (Fig. 27a).
- Push the feeding eccentric to the right as far as it will go.
- Remove the circlip with a screwdriver.
- Push the plastic washer a little to the left.
- Loosen screw 45 of the lifting eccentric by approx. 3 turns (Fig. 27b).
- Loosen the 3 screws 35 of lower belt sprocket 36 (Fig. 27a).
- Push the hook driving shaft fully to the right.
- Remove lifting eccentric 62 from the hook driving shaft (Fig. 27b).
- Remove the needle plate upwards.
- Loosen screw 5a (Fig. 27c).
- Pull out pin 5c to the right.
- Loosen screws 3 and 7.
- Remove cylindrical pins 4 and 6.
- Remove the connecting bar.
- Remove complete feed dog driving shaft 5.
- Remove screw 61 at the sewing hook bearing.
- Remove complete sewing hook bearing 60 to the right.

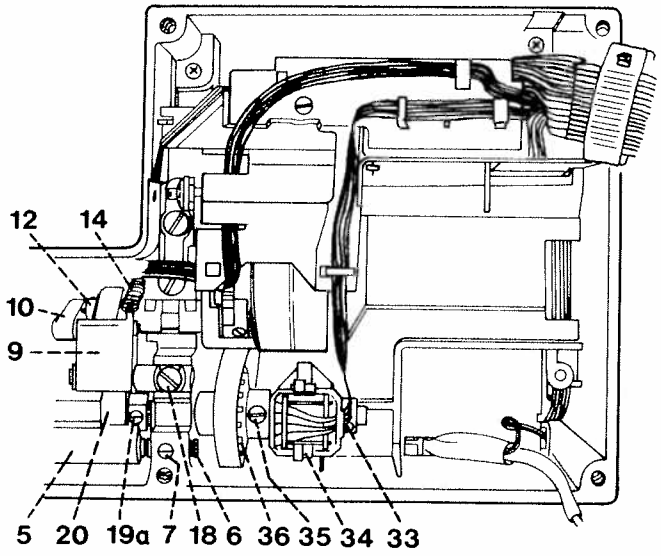


Fig. 27a

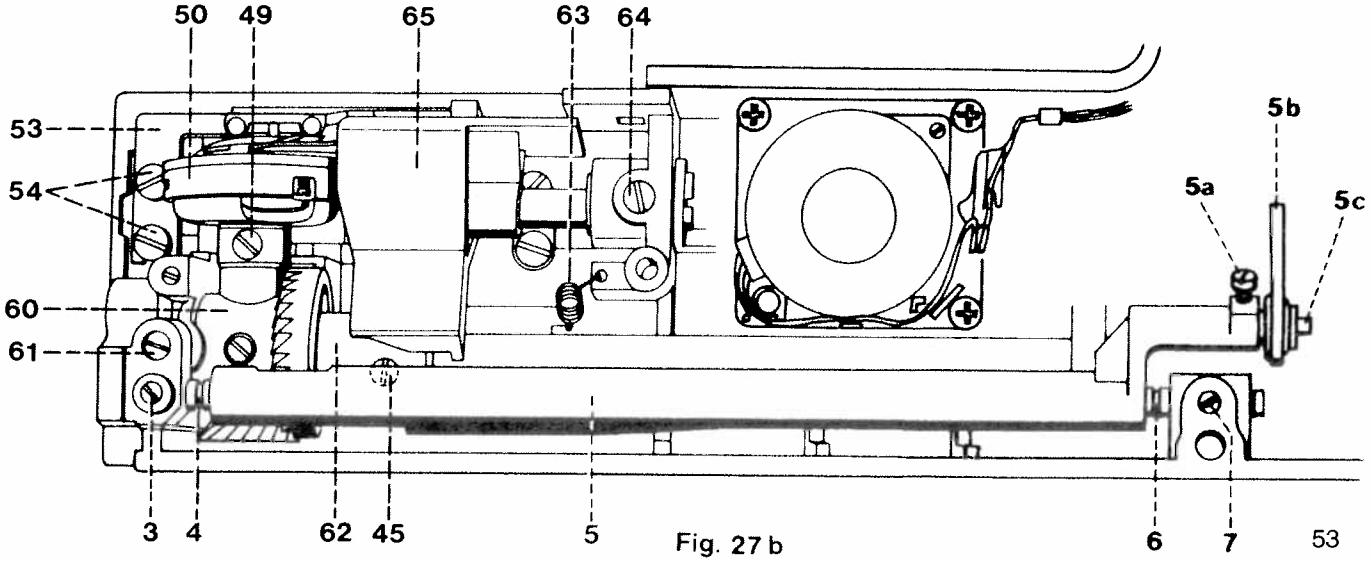


Fig. 27 b

Fitting:

- Insert the new bevel gear complete with sewing hook bearing 60 in the machine (Fig. 27c).
- Tighten screw 61 to fasten the sewing hook bearing.
- Insert feed driving shaft 5.
- Insert the connecting bar in the feed driving shaft.
- Adjust feed driving shaft according to section 2.
- Pull the feed dog to the front with your finger and release it.

  Important: The complete feed driving shaft must slide slowly to the rear.
- Push pin 5c without any play to the left into pull rod 5b and feed driving shaft 5.
- Tighten screw 5a.
  Pull the feed dog to the front with your finger.

  Important: The complete feed driving shaft with top feed must slide slowly to the rear.
- Push lifting eccentric 62 with its hole to the right onto the hook driving shaft.
- Push the hook driving shaft to the left.
- Tighten screw 45 in the bevel gear on the flat of the hook driving shaft.
- Attach the circlip, making sure that the plastic washer is between the bearing and the circlip.
- Pull the hook driving shaft to the far right and set the shaft without any play, using one of screws 35 of the toothed-belt sprocket (Fig. 27d).
- Screw dog-point screw 19a in feed eccentric 20 and in the hook driving shaft.

  Note: Dog-point screw 19a must always protrude from feed eccentric 20 on the opposite side of screw 45 in lifting eccentric 62.
- Install the feed lowering mechanism.
- Fit slide block 12 with the spring on the pin and insert into the slide way in the correct curve radius.

  Check that the slide block can be moved without play or binding in the slide way.
- Push link 10 complete with cam lever 9 to the right onto the connecting bar pin.
- Turn cam lever 9 to the rear and over feed eccentric 20 from the top.
- Insert screw 18 into stud 19 and tighten it a little.
- Shift stud 19 laterally until link 10 and the connecting bar have only a slight play and are freely movable.
- Tighten screw 18.
- Attach the two springs 14 and 63 (Fig. 27c and 27d).
- Install transverse-drive stepping motor according to section 39a.
- Push synchronizer 34 onto the shaft.

  When doing so, make sure that the housing rib is between both guide clamps.

  The cables are to be connected to the printed circuit board as follows:
- The five-connection plug 127 to the five-pin base (Fig. 27e).
- The four-connection plug 126 to the four-pin base.
- The seven-connection plug 125 to the seven-pin base.
- The red seven-connection plug 200 to the red seven-pin base.
- The two-connection plug 124 to the two-pin base.
- The eight-connection plug 123 to the eight-pin base.
- The wide cable 121 with the twelve-connection plug to the twelve-pin base.
- Insert motor plug 116 into motor socket 118. (Both catches must engage).
- Install all cables in the housing according to Fig. 27d.

  The following adjustments must now be made:

■ Timing of feed motion, section 3.
■ Adjustment of feed dog in sideways direction, section 4.
■ Adjustment of synchronizer, section 5.
■ Hook-to-needle clearance, section 11.
■ Sewing hook timing, section 12.
■ Needle bar height, section 13.
■ Adjustment of bobbin case position finger, section 14.
■ Adjustment of bobbin thread tension, section 17.
■ Adjustment of needle thread tension, section 18.
■ Adjustment of equal forward and reverse stitch length, section 20.
■ Making up a sewing sample, section 21.
□ Perform an electrical safety test with the Metratester 2 or 3 according to VDE 0701.

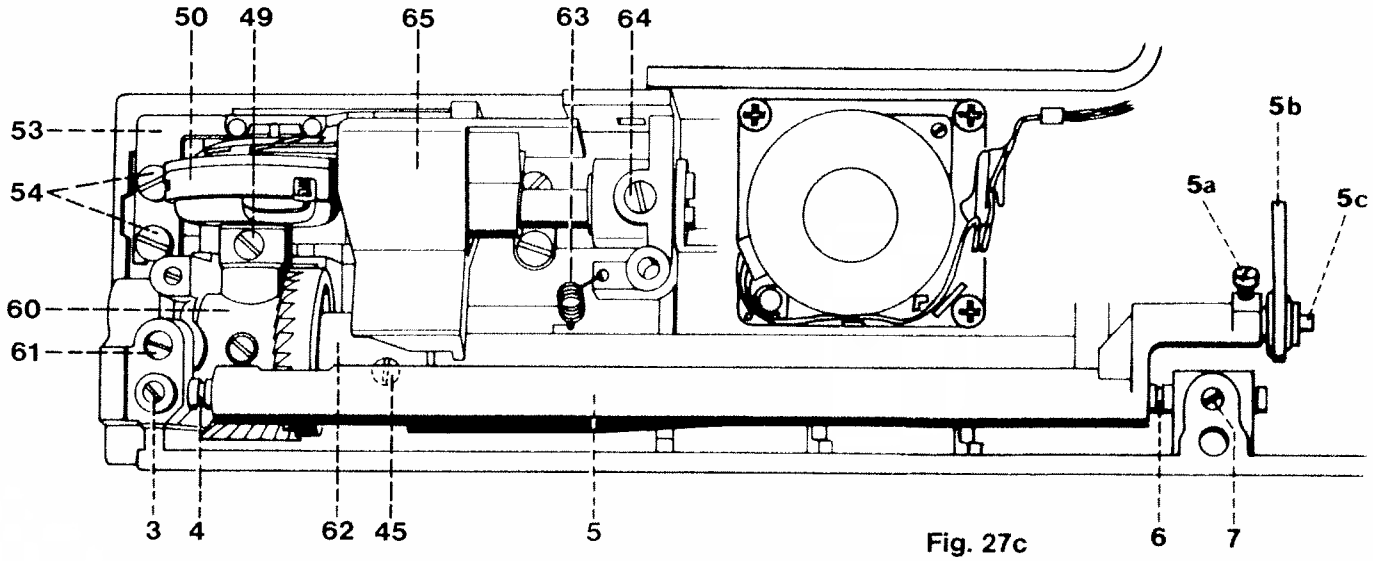


Fig. 27c

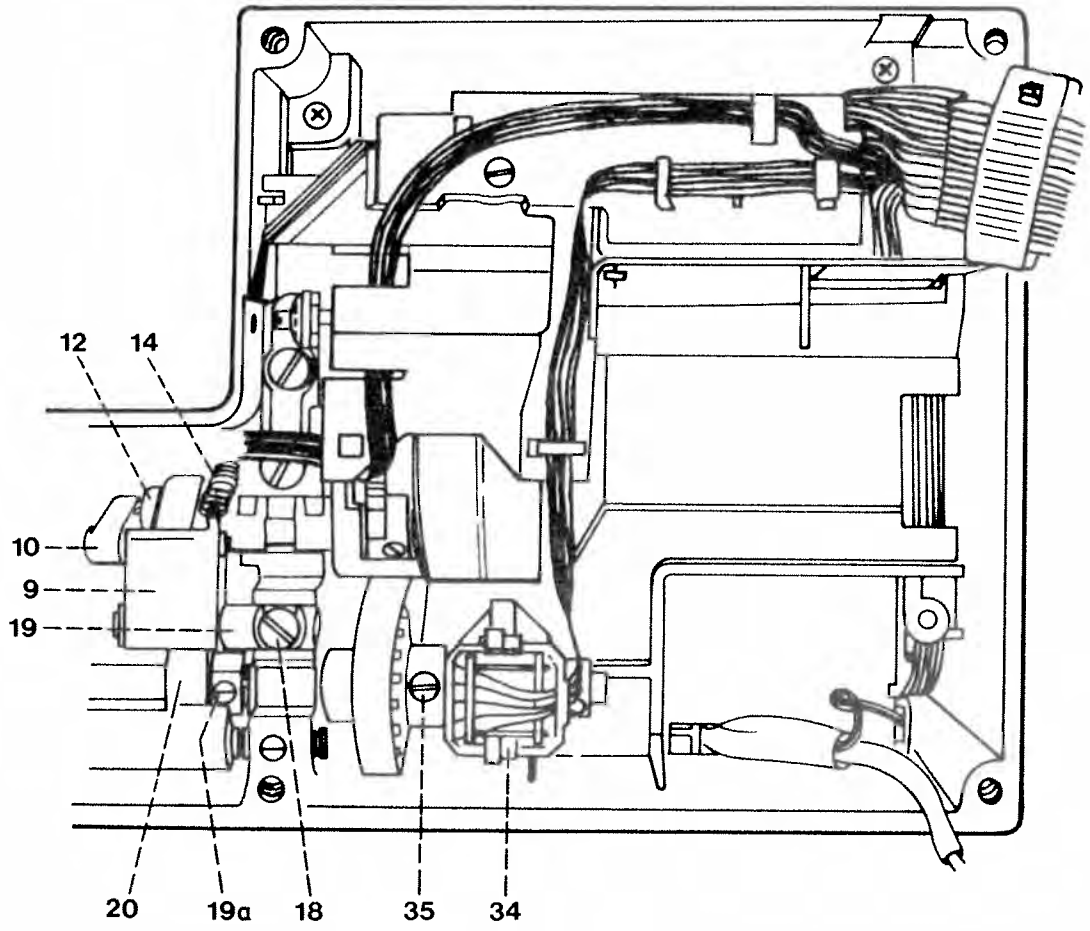


Fig. 27d

28. Changing the control circuit board on the PFAFF 1475 CD

(Working time 10 to 15 minutes)

Note:

The control circuit board is only exchanged as a complete unit.

Removal:

- Remove mains lead from mains socket and machine.
- Unscrew the four screws in the baseplate.
- Turn the baseplate around.
- Lift catches 122 by 1 to 2 mm and remove the seven flat cables with the plugs from the control circuit board (Fig. 28).
- Press both catches 117 of motor plug 116 together and remove the motor plug upward.

Fitting:

The cables are attached to the new control circuit board as follows:

- Insert motor plug 116 into motor socket 118 (Fig. 28).
  (Both catches 117 must engage.)
- The five-connection plug 127 to the five-pin base.
- The four-connection plug 126 to the four-pin base.
- The seven-connection plug 125 to the seven-pin base.
- The red seven-connection plug 200 to the red seven-pin base.
- The two-connection plug 124 to the two-pin base.
- The eight-connection plug 123 to the eight-pin base.
- The wide cable with the twelve-connection plug 121 to the twelve-pin base.
- Install all cables in the housing according to Fig. 28a.
- Close baseplate of the machine and secure it in place with the four screws.

☐ Perform an electrical safety test with the Metratester 2 or 3 testing appliance according to VDE 0701.

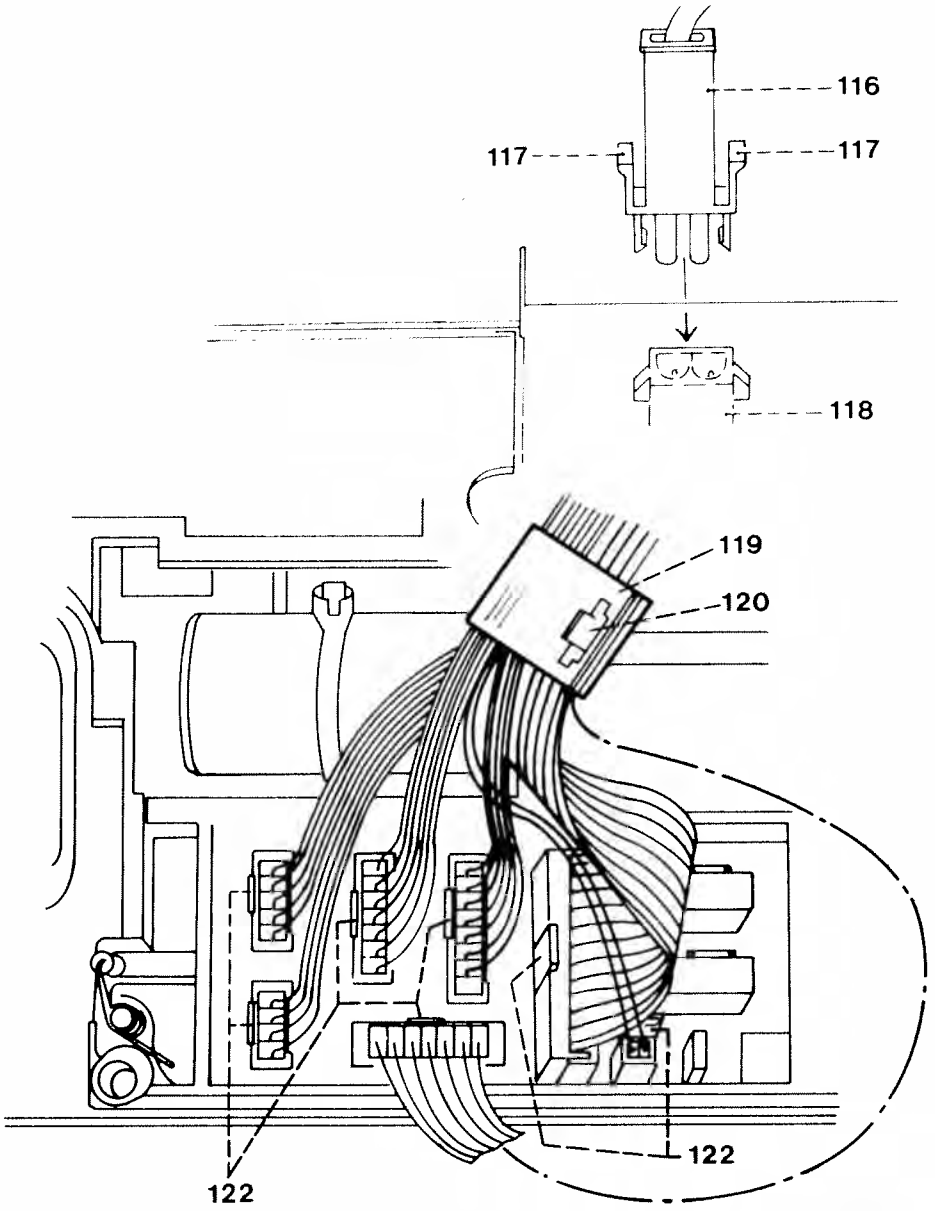


Fig. 28

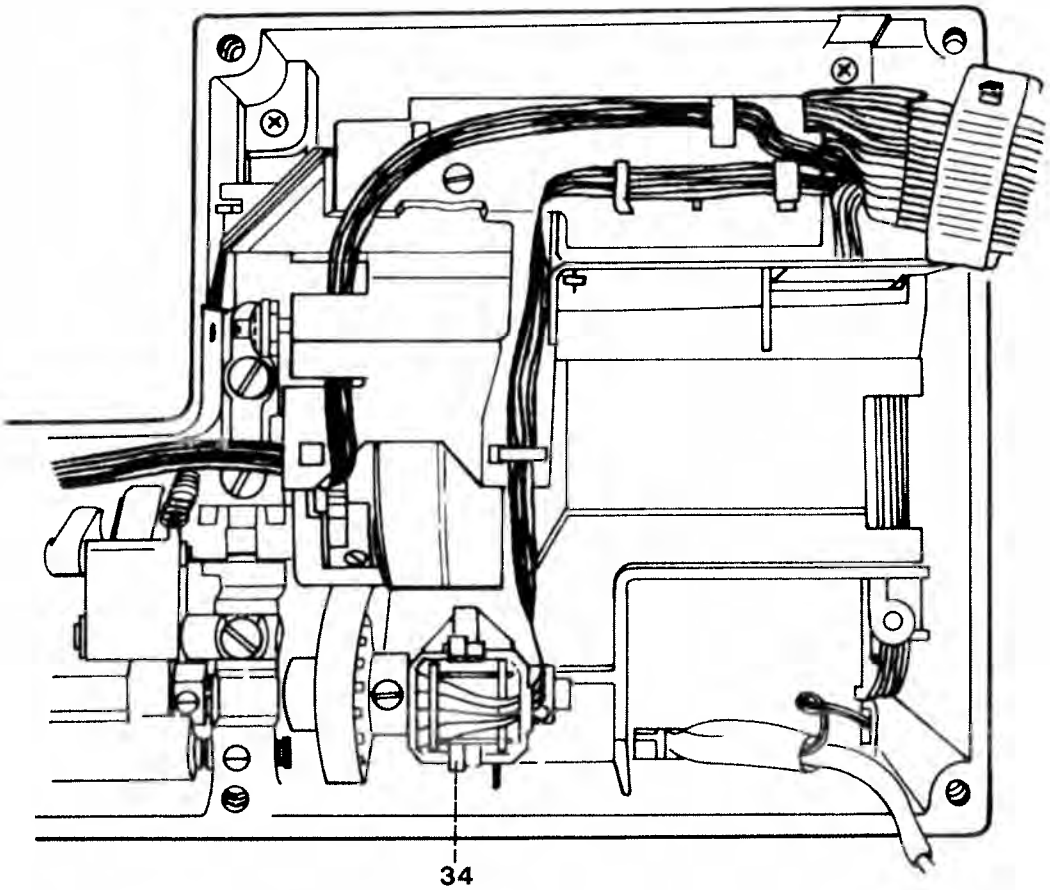


Fig. 28a

29. Changing the thread monitor with free-arm cover on the PFAFF 1475 CD

(Working time 10 to 15 minutes)

Note:

The thread monitor is only exchanged complete with free-arm cover.

Removal:

- Remove mains lead from mains socket and machine.
- Place the machine on its back.
- Remove the four screws of the baseplate.
- Turn the baseplate around.
- Lift catch 122 by 1 to 2 mm (Fig. 29a).
- Disconnect four-wire cable 126 with plug.
- Open both cable clips 119 at catch 120 and remove the four-wire cable from the cable guides (Figs. 29 and 29a).
- Unscrew the two screws 153 of the free-arm cover (Fig. 29b).
- Remove free-arm cover 154.

Fitting:

- Fasten the new free-arm cover 154 with two screws.
- Place the four-wire cable 126 in the cable guides (Fig. 29).
- Install all flat cables according to Fig. 29 and fit both cable clips.
- Insert the four-connection plug 126 in the four-pin base (Fig. 29a).
- Close the baseplate of the machine and secure it with the four screws.

Check:

- ● Insert the mains plug.
- ○ Perform a check with the test computer.
- ● Perform a check of the thread monitor function with the bobbin full and empty.
- □ Perform an electrical safety test with the Metratester 2 or 3 testing device according to VDE 0701.

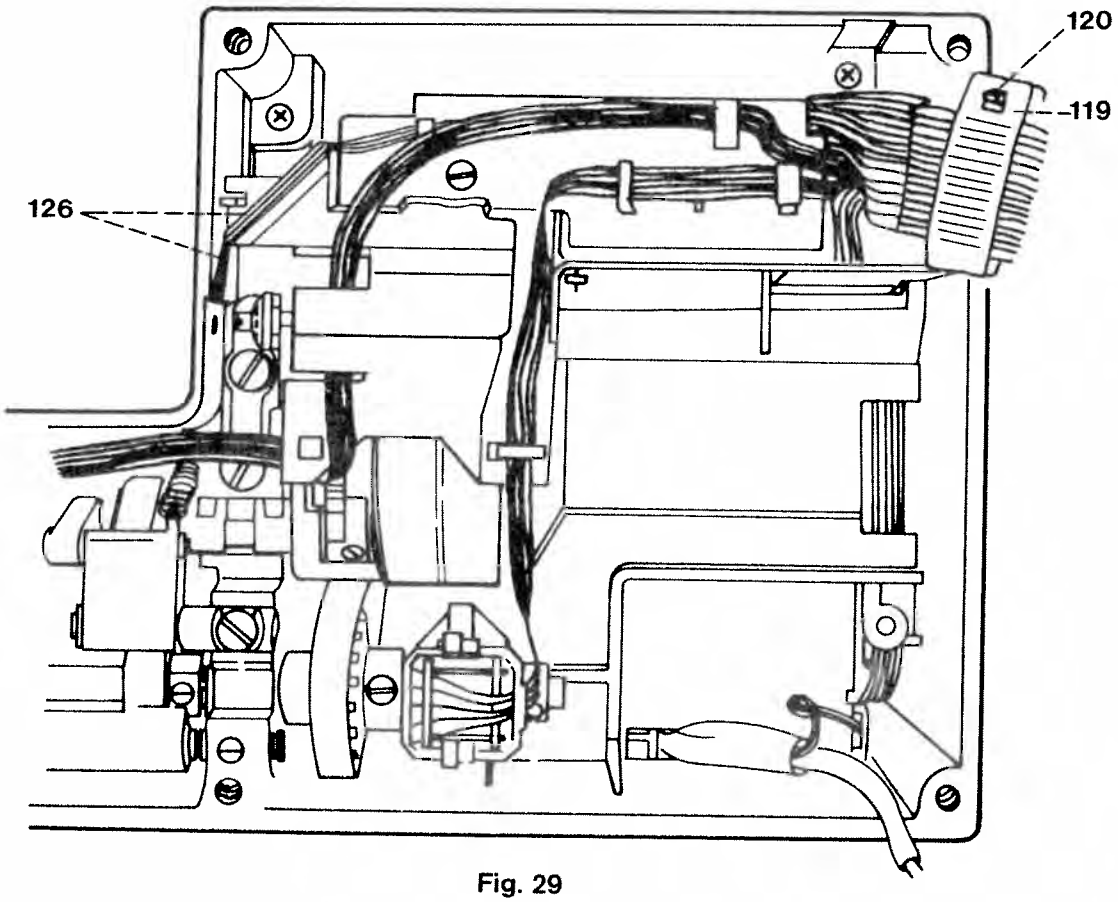


Fig. 29

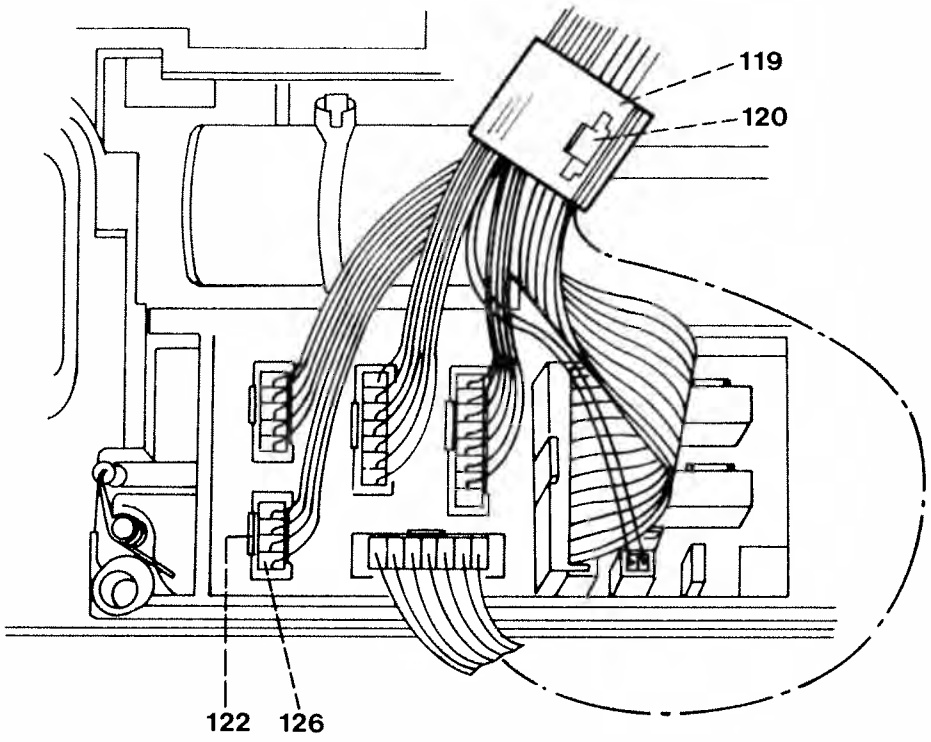


Fig. 29a

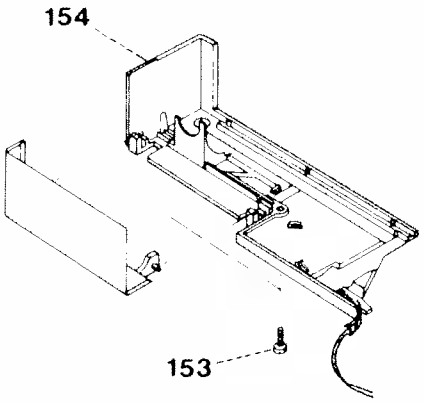


Fig. 29b

30. Changing the programming panel of the PFAFF 1475 CD

(Working time 10 to 15 minutes)

Note:

The programming panel is only exchanged complete.

Removal:

- Remove mains lead from mains socket and machine.
- Remove the arm cover.
- Loosen the face plate screw.
- Remove the face plate.
- Screw out the two screws of the housing insert.
- Remove the housing insert.
- Unscrew the two screws 40 (Fig. 30).
- Place the machine on its back.
- Unscrew the four screws of the baseplate.
- Turn the baseplate over.
- Unscrew the two screws 68 (Fig. 30a).
- Fold the programming panel over to the right.
- Push lock 122 a little to the side (Fig. 30b).
- Disconnect the ten-connection plug 128.
- Lift catch 122 by 1 to 2 mm (Fig. 30c).
- Remove the twelve-connection plug 121 with wide flat cable from the circuit board.
- Open both cable clips 119 at catch 120 (Figs. 30a and 30c).
- Remove the programming panel.

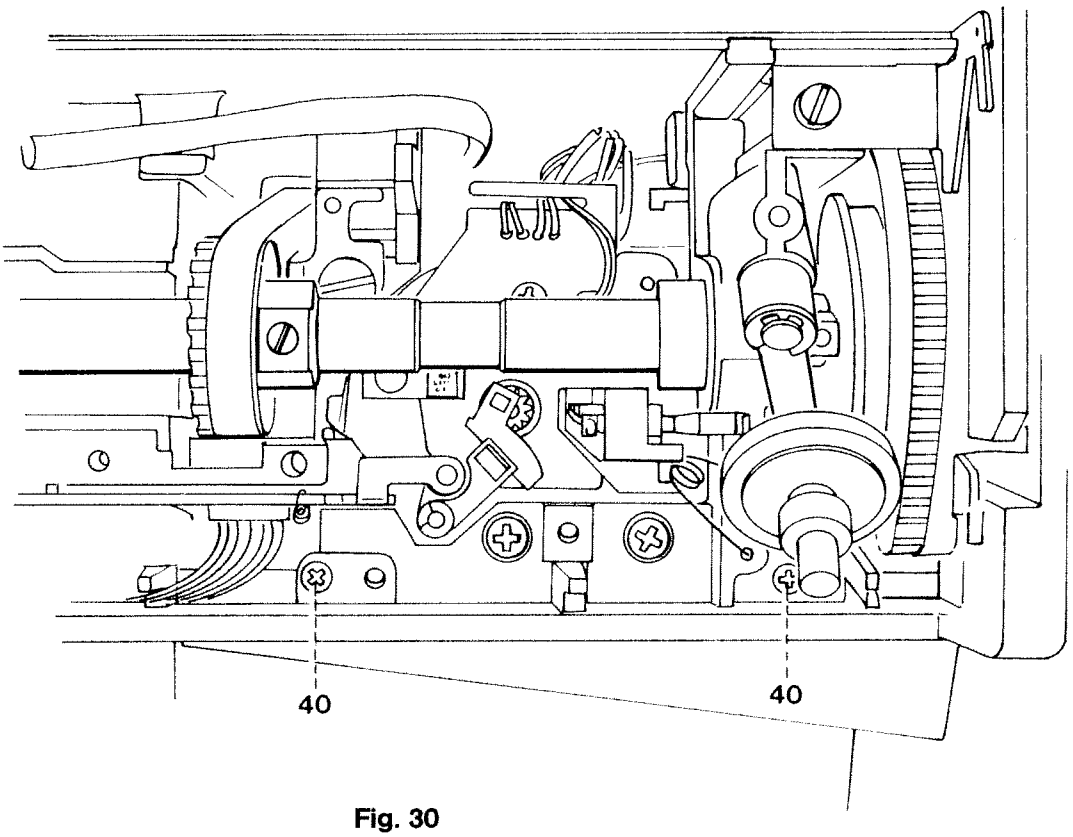


Fig. 30

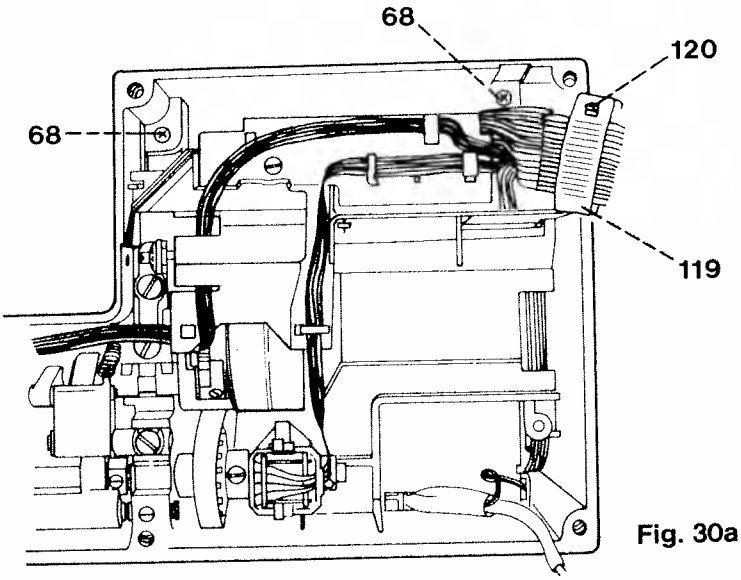


Fig. 30a

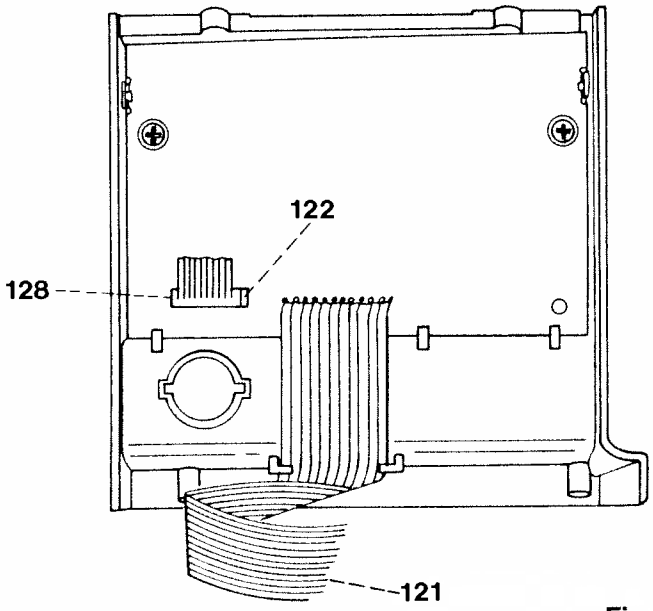


Fig. 30b

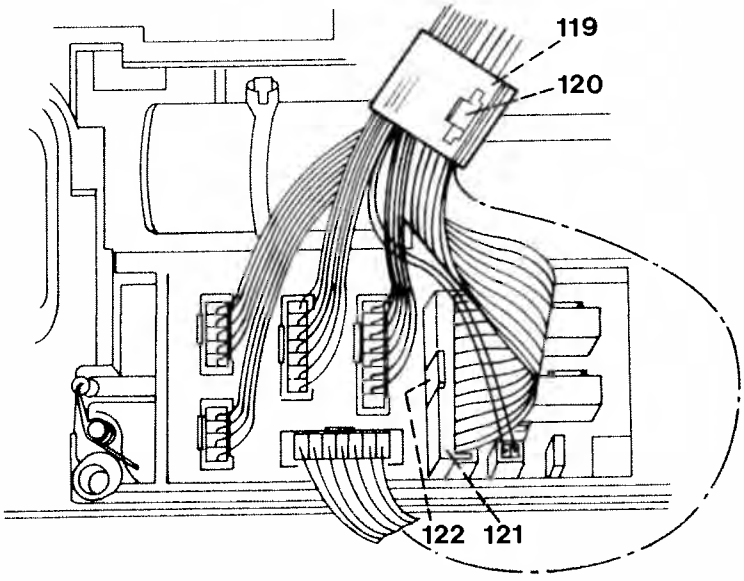


Fig. 30c

Fitting:

- ● Insert twelve-connection plug 121 with wide flat cable downwards into the machine.
- ● Insert ten-connection plug 128 in the ten-pin base (Fig. 30b).
- ● Place the programming panel correctly on the machine.
- ● Insert the two screws 68, press the programming panel against the machine and tighten the screws (Fig. 30a).
- ● Install all flat cables according to Fig. 30a and fit both cable clips.
- ● Fit the twelve-connection plug 121 in the twelve-pin base on the circuit board (Fig. 30c).
- ● Fold the baseplate against the machine and secure it with the four screws.
- ● Set the machine in normal position.
- ● Insert the two screws 40, press the programming panel against the machine and tighten the screws (Fig. 30).
- ● Fit the housing insert and fasten with two screws.
- ● Attach and screw on the face plate.
- ● Fit the arm cover.
- ○ Insert the mains plug and make a few program inputs for testing purposes.
- □ Perform an electrical safety test with the Metratester 2 or 3 testing appliance according to VDE 0701.

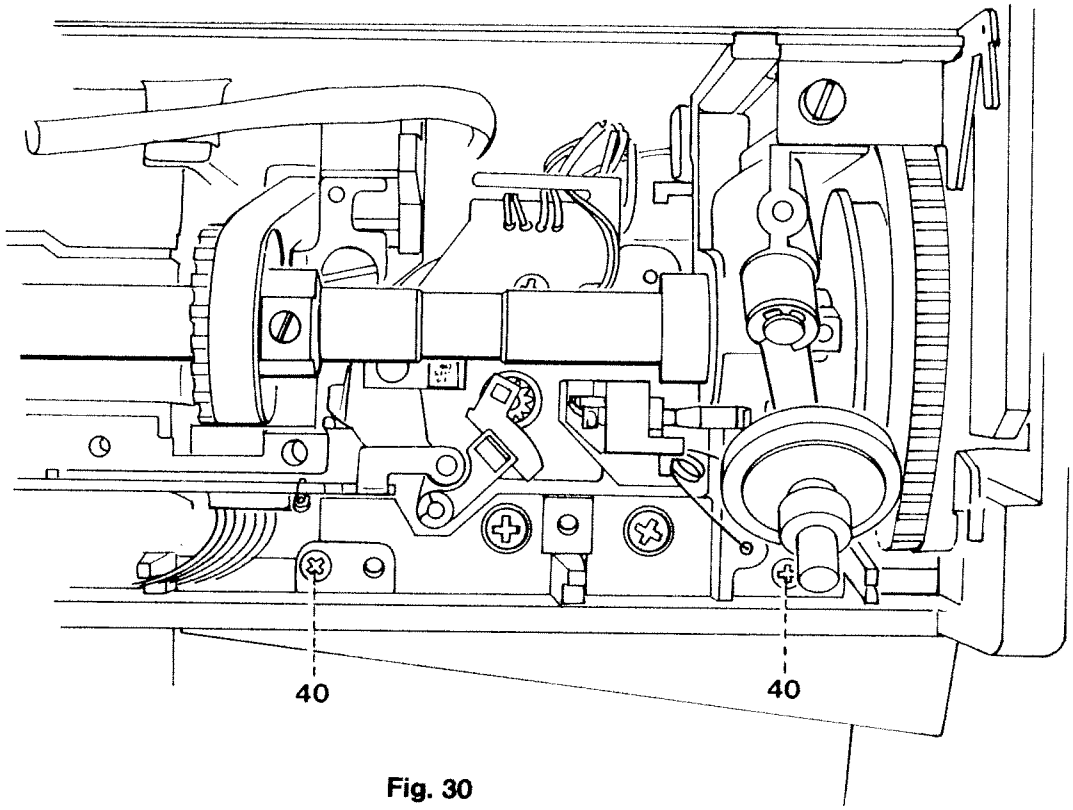


Fig. 30

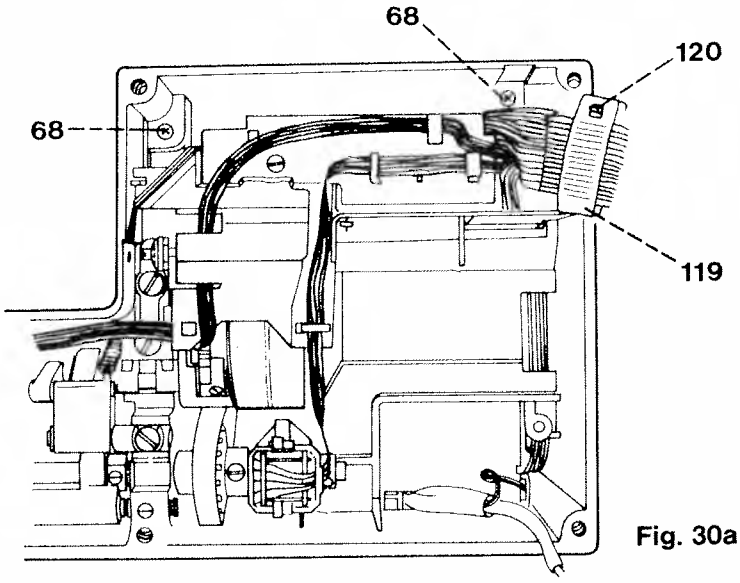


Fig. 30a

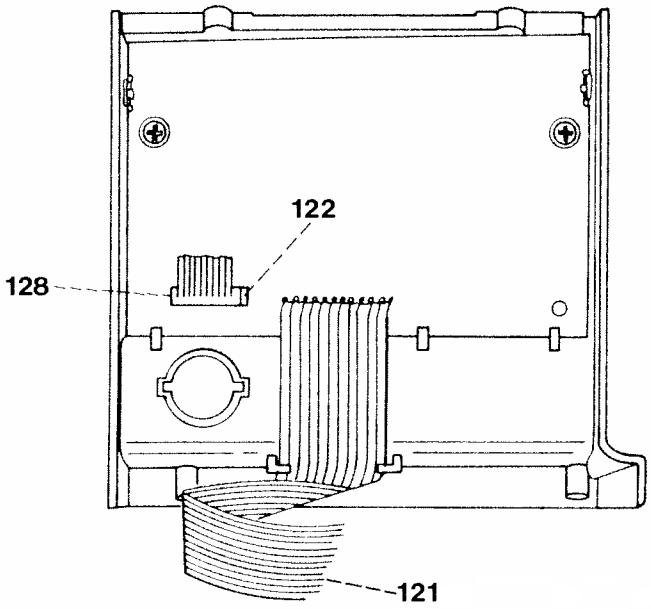


Fig. 30b

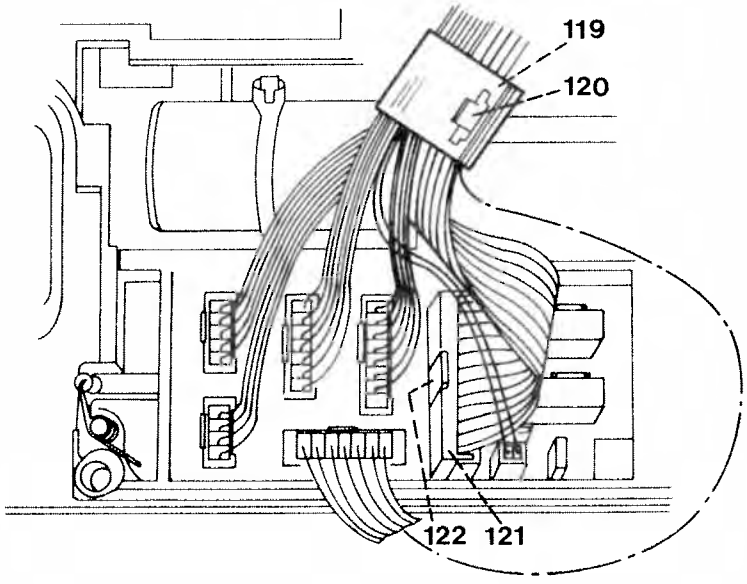


Fig. 30c

31. Changing the synchronizer on the PFAFF 1475 CD

(Working time 15 to 20 minutes)

Note:

The synchronizer is only exchanged complete.

Removal:

- Remove mains lead from mains socket and machine.
- Place the machine on its back.
- Unscrew the four screws of the baseplate.
- Turn the baseplate around.
- Lift catch 122 by 1 to 2 mm (Fig. 31).
- Disconnect the five-wire cable 127 with plug.
- Open both cable clips 119 at catch 120 and remove the five-wire cable from the cable guides (see Figs. 31 and 31a).
- Loosen fixing collar screw 33 of synchronizer 34 (Fig. 31a).
- Remove synchronizer 34 to the right from the shaft.

Fitting:

- Push new synchronizer 34 onto the shaft (Fig. 31a).
  Make sure the housing rib is between both guide clamps.
- Place the five-wire cable 127 in the cable guides.
- Install all flat cables according to Fig. 29a and fit both cable clips 119.
- Fit five-connection plug 127 in the five-pin base (Fig. 31).
- Replace the mains plug.
- ■ Adjust the synchronizer according to section 5.
- Fold the baseplate against the machine and secure it with the four screws.
- □ Perform an electrical safety test with the Metratester 2 or 3 testing appliance according to VDE 0701.

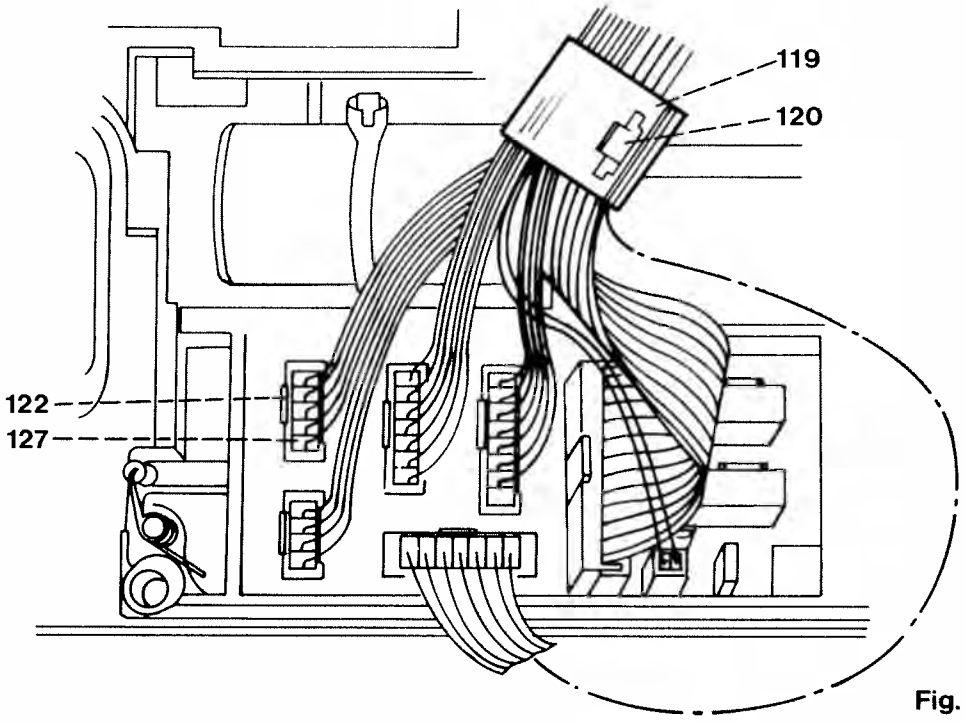


Fig. 31

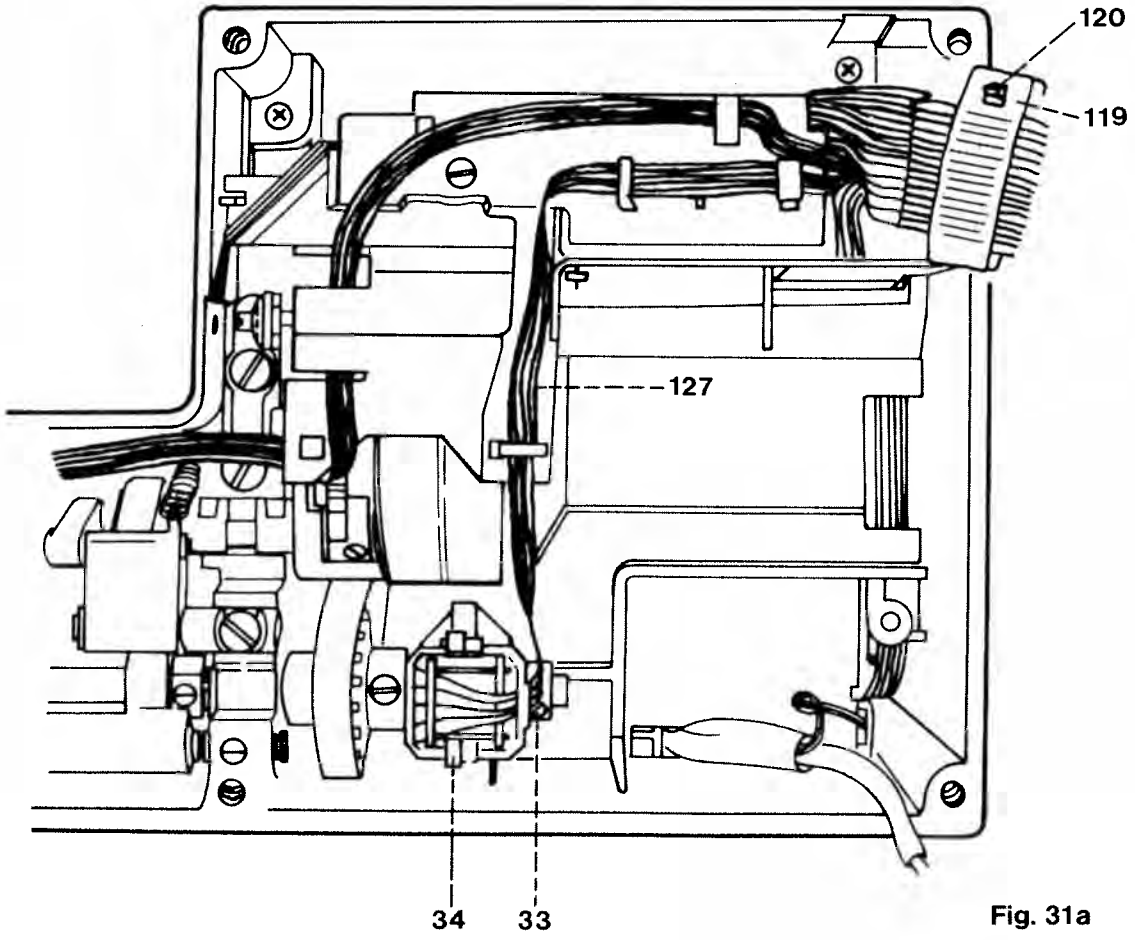


Fig. 31a

32. Changing the control panel on the needle head of the PFAFF 1475 CD

(Working time 10 to 15 minutes)

Note:

The control panel is only exchanged complete.

Removal:

- Remove the mains plug from the mains socket.
- Remove the arm cover.
- Raise the carrying handle.
- Loosen the face plate screw.
- Remove the face plate.
- Unscrew the two screws of the housing insert.
- Engage the bobbin winder and set the take-up lever down.
- Remove the housing insert.
- Disconnect plug 128 from the ten-pin base upwards (Fig. 32).
- Unscrew Philips screw 175 at the control panel (Fig. 32a).
- Remove the control panel downwards.
  If the ten-wire cable 128 is defective, it must be exchanged according to section 33.

Fitting:

- Insert the new control panel upwards (Fig. 32a).
- Fasten the control panel on the housing with Philips screw 175.
- Connect plug 128 of the connection cable to the control board (Fig. 32).
- Fit the housing insert.
- Fasten the housing insert with both screws.
- Fit the face plate.
- Fit the arm cover.
- Disengage the bobbin winder.

Check:

- Insert the mains plug.
- ○ Check all functions of the control panel.
- □ Perform an electrical safety test with the Metratester 2 or 3 testing appliance according to VDE 0701.

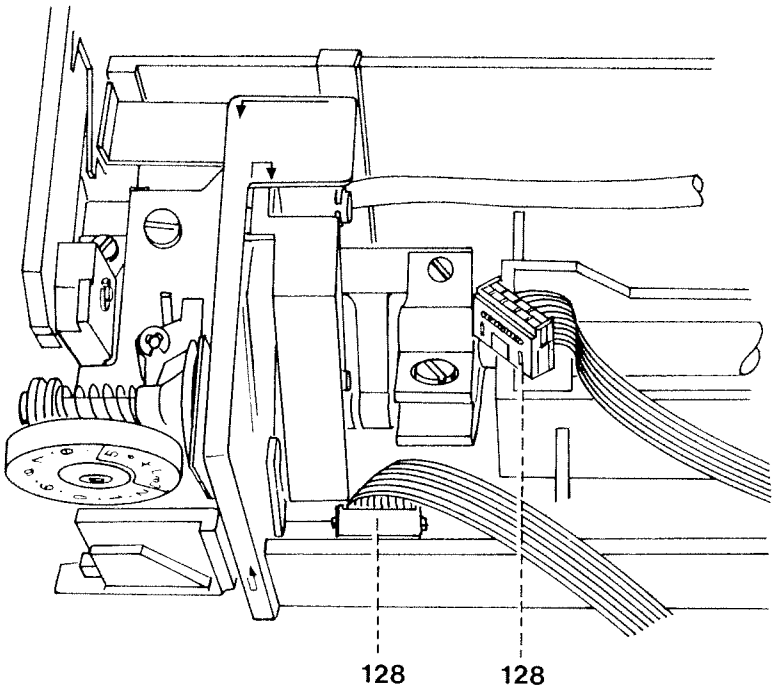


Fig. 32

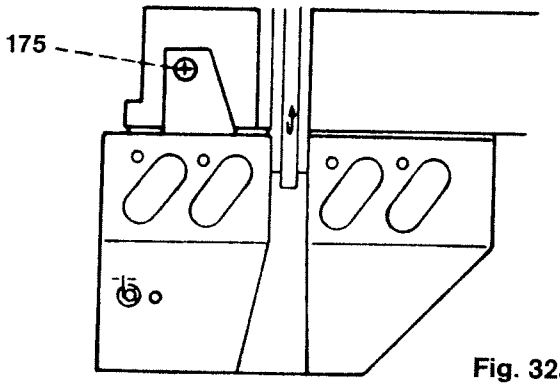


Fig. 32a

33. Changing the ten-wire cable on the PFAFF 1475 CD

(Working time 15 to 20 minutes)

Removal:

- Remove the mains plug from the mains socket.
- Remove the arm cover.
- Raise the carrying handle.
- Loosen the face plate screw.
- Remove the face plate.
- Unscrew the two screws of the housing insert.
- Engage the bobbin winder and set the take-up lever down.
- Remove the housing insert.
- Disconnect plug 128 of the ten-wire cable upwards (Fig. 33).
- Unscrew the two screws 40 (Fig. 33a).
- Tilt the machine over to the rear.
- Unscrew the four screws of the baseplate.
- Fold the baseplate downwards.
- Screw out the two screws 68 (Fig. 33b).
- Fold the complete programming panel to the right (Fig. 33c).
- Push lock 122 a little to the side (Fig. 33c).
- Disconnect the ten-connection plug 128.
- Remove the ten-wire cable 128 downwards and out of the cable guides (Fig. 33d).

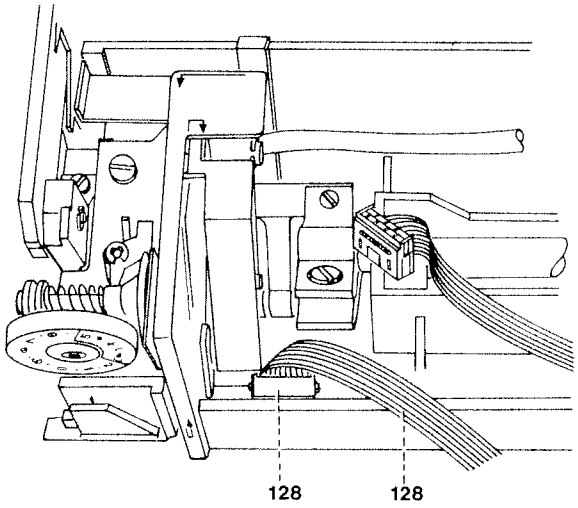


Fig. 33

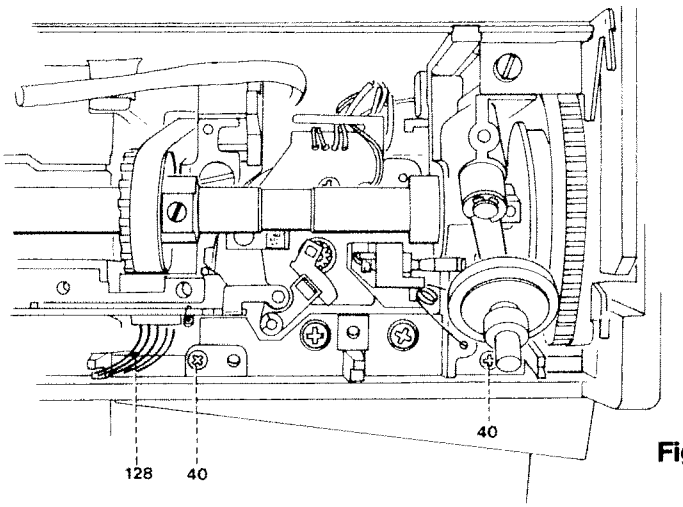


Fig. 33a

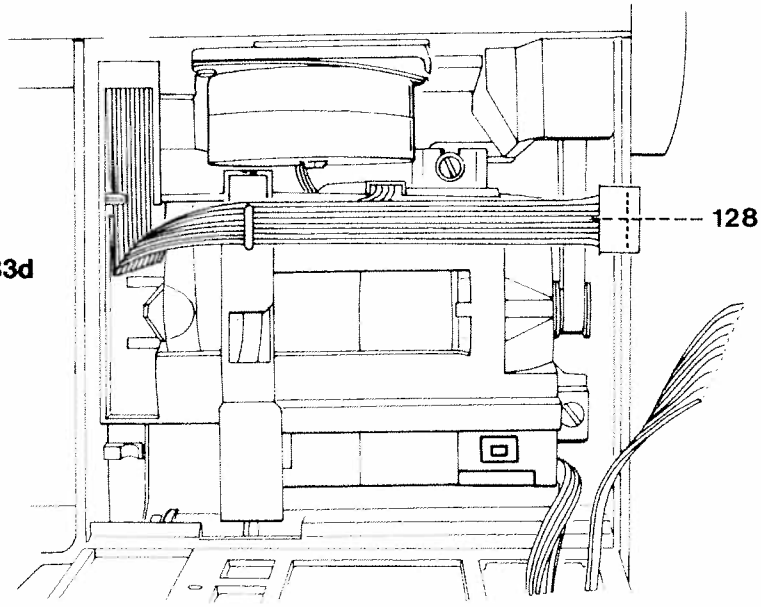


Fig. 33d

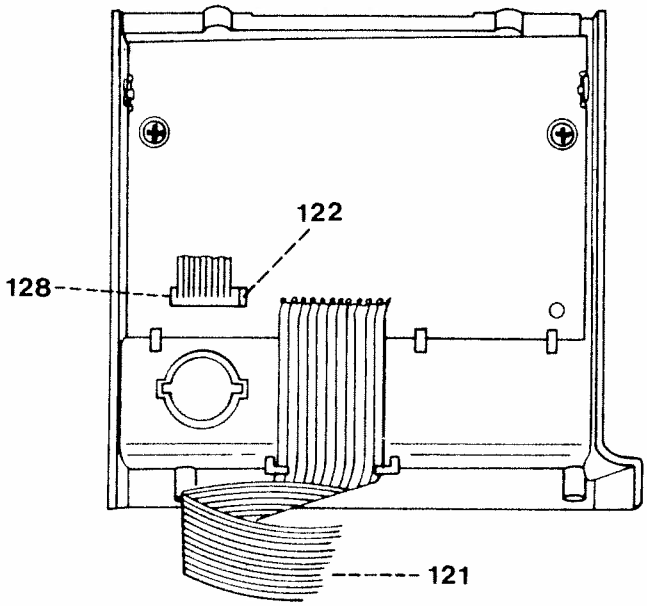


Fig. 33c

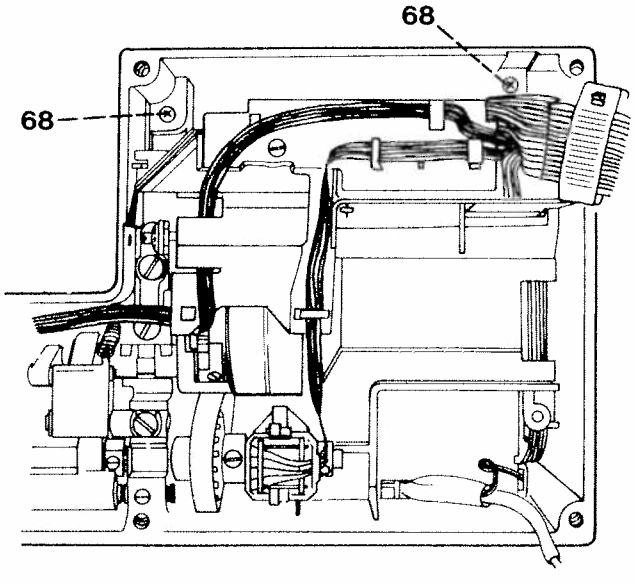


Fig. 33b

Fitting:

- ● Insert the ten-connection plug 128 of the new flat cable in the ten-pin base (Fig. 33c).
- ● Remove ten-wire cable 128 upward through the machine housing, pass it through the hooks and install according to Fig. 33d.
- ● Place the programming panel correctly on the machine.
- ● Insert the two screws 68, press the programming panel against the machine and tighten the screws (Fig. 33b).
- ● Fold the baseplate against the machine and secure it with the four screws.
- ● Set the machine in its normal position.
- ● Fit ten-connection plug 128 on the ten-pin base of the control panel and lay ten-wire cable 128 behind the three pins (Fig. 33).
- ● Insert the two screws 40, press the programming panel against the machine and tighten the screws (Fig. 33a).
- ● Fit the housing insert and fasten it with the two screws.
- ● Attach and screw on the face plate.
- ● Fit the arm cover.
- ○ Insert the mains plug and try the functions of the four keys.
- □ Perform an electrical safety test with the Metratester 2 or 3 testing appliance according to VDE 0701.

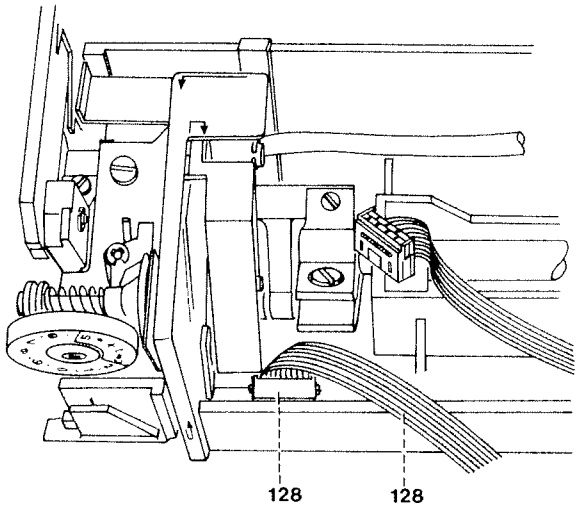


Fig. 33

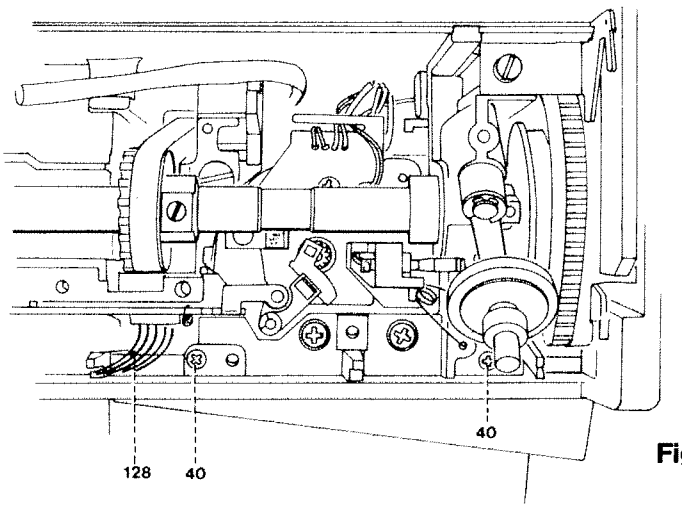


Fig. 33a

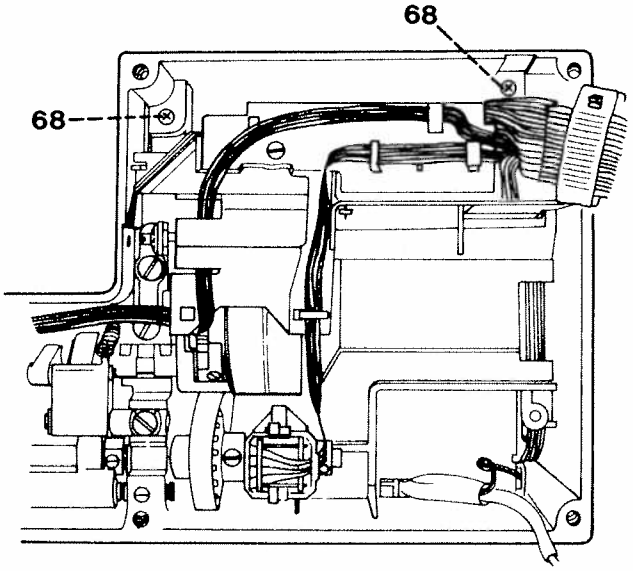


Fig. 33b

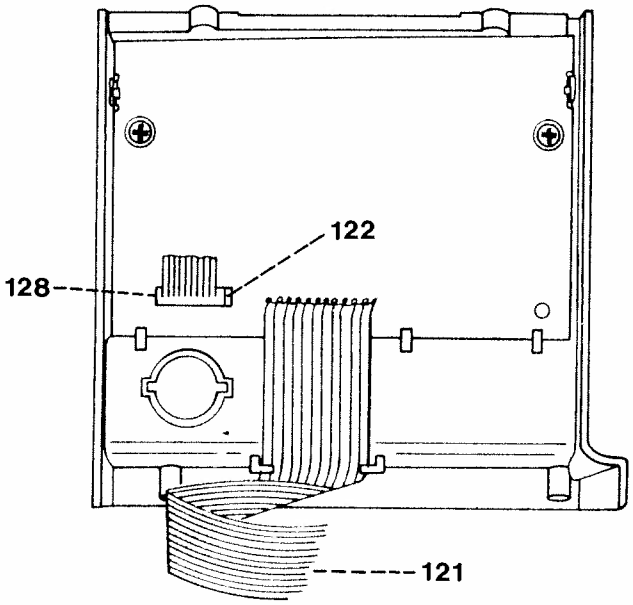


Fig. 33c

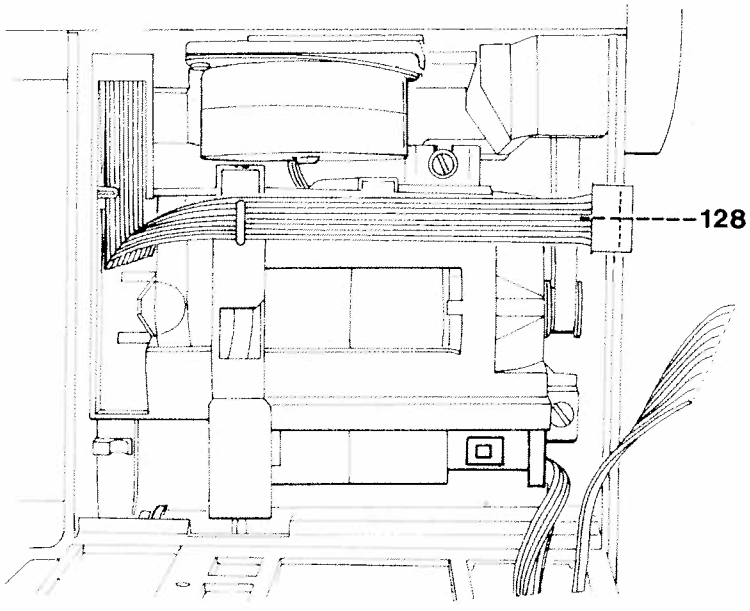


Fig. 33d

34. Changing the motor on the PFAFF 1475 CD

(Working time 30 to 40 minutes)

Note:

The motor is only exchanged complete.

Remove:

- Remove mains lead from mains socket and machine.
- Remove the arm cover.
- Loosen screw of face plate.
- Remove the face plate.
- Unscrew the two screws of the housing insert.
- Engage the bobbin winder and set the take-up lever down.
- Remove the housing insert.
- Unscrew the two screws 40 (Fig. 34).
- Place the machine on its back.
- Unscrew the four screws of the baseplate.
- Turn the baseplate around.
- Lift catches 122 by 1–2 mm and remove the seven flat cables with the connection plugs from the circuit board (Fig. 34a).
- Press both catches 117 of motor-plug 116 together and remove the motor plug upwards.
- Place the complete baseplate aside.
- Open both cable-clips 119 at catch 120 and remove the cables from the cable holder.

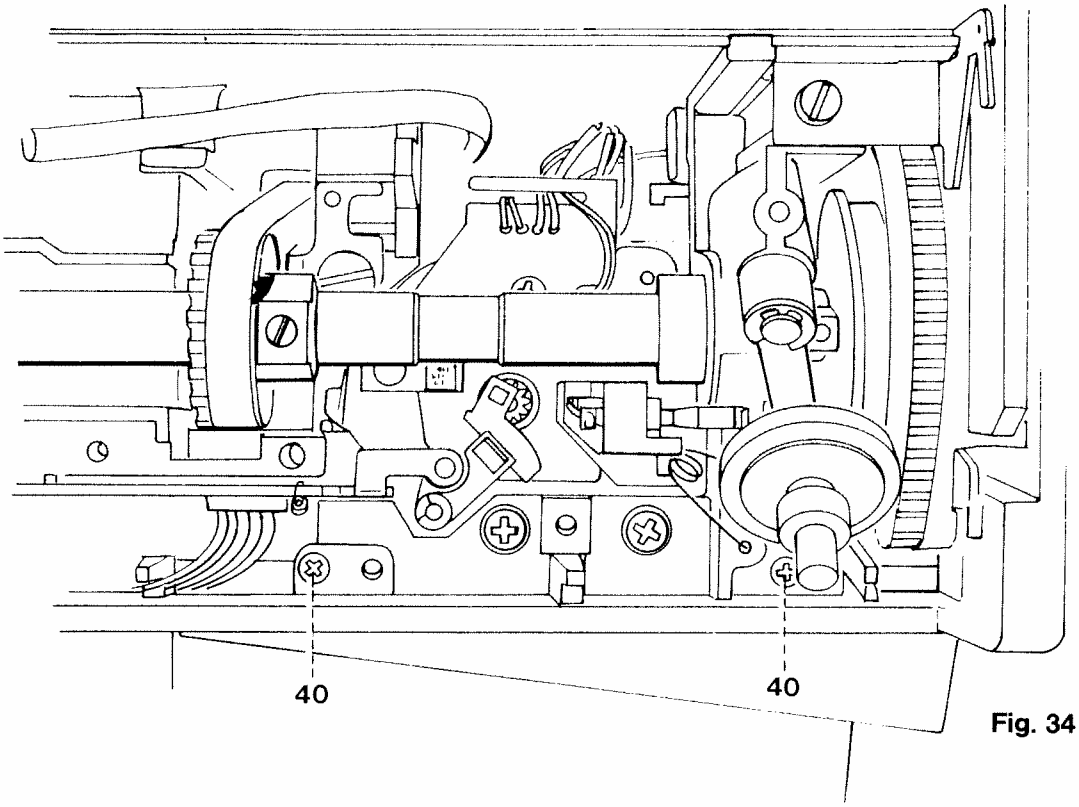


Fig. 34

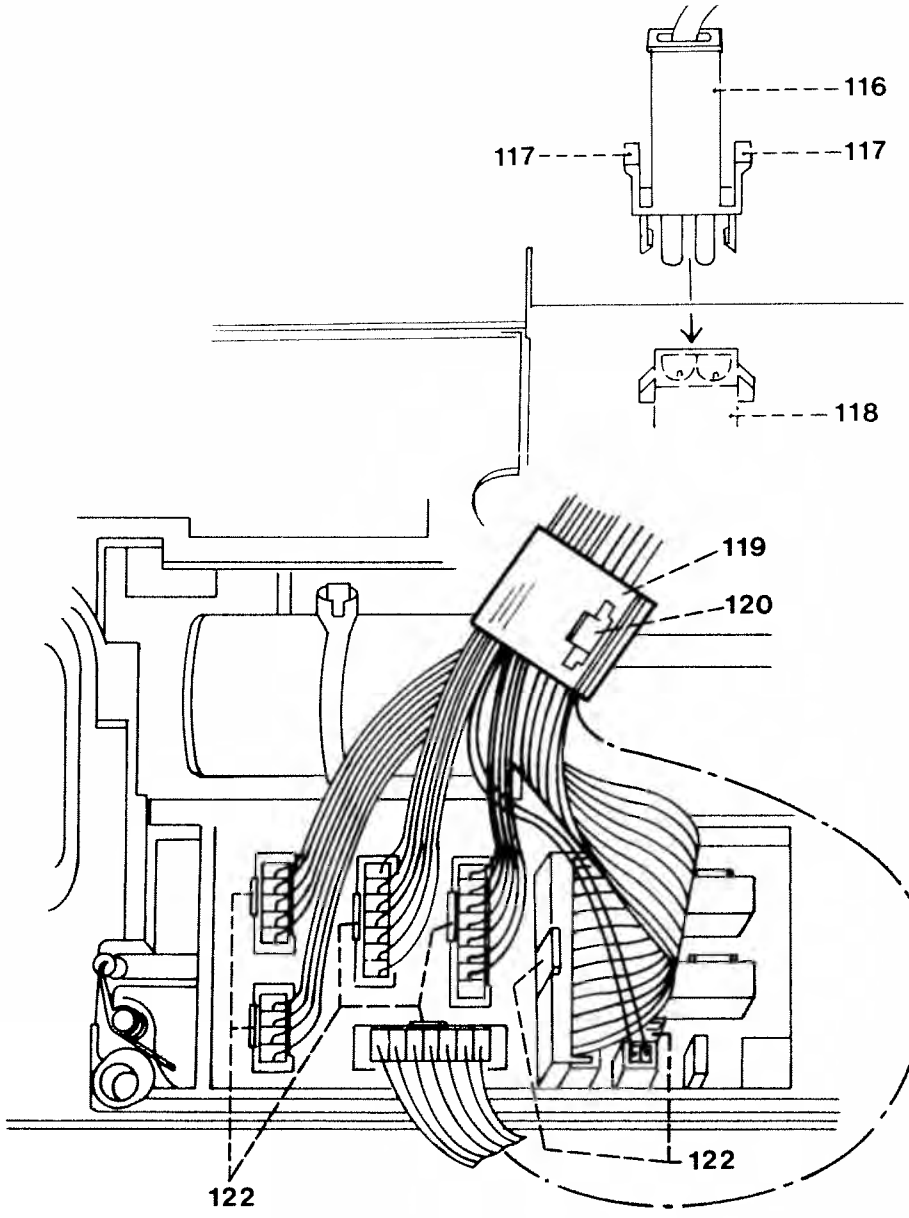


Fig. 34a

- Unscrew both screws 68 (Fig. 34b).
- Fold the programming panel to the right out of the housing.
- Push lock 122 a little to the side (Fig. 34c).
- Disconnect ten-connection plug 128.
- Remove the programming panel.
- Unscrew the right motor retaining screw 144 (Fig. 34d).
- Lift motor cover 143 a little at the right with a screwdriver and remove it.
- Disconnect light plug 146.
- Unscrew the second motor retaining screw 140.
- Lift motor sprocket 142 out of toothed belt 141 and remove the motor to the front.

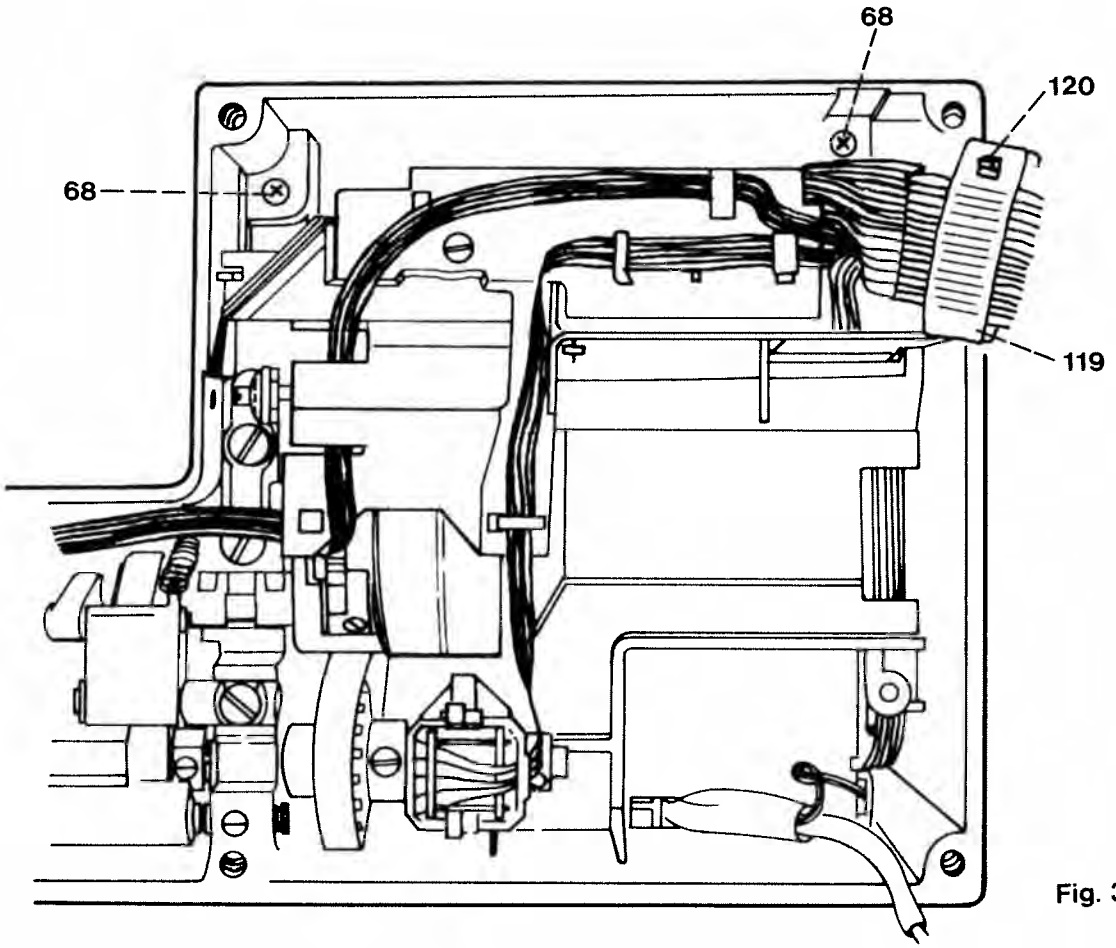


Fig. 34b

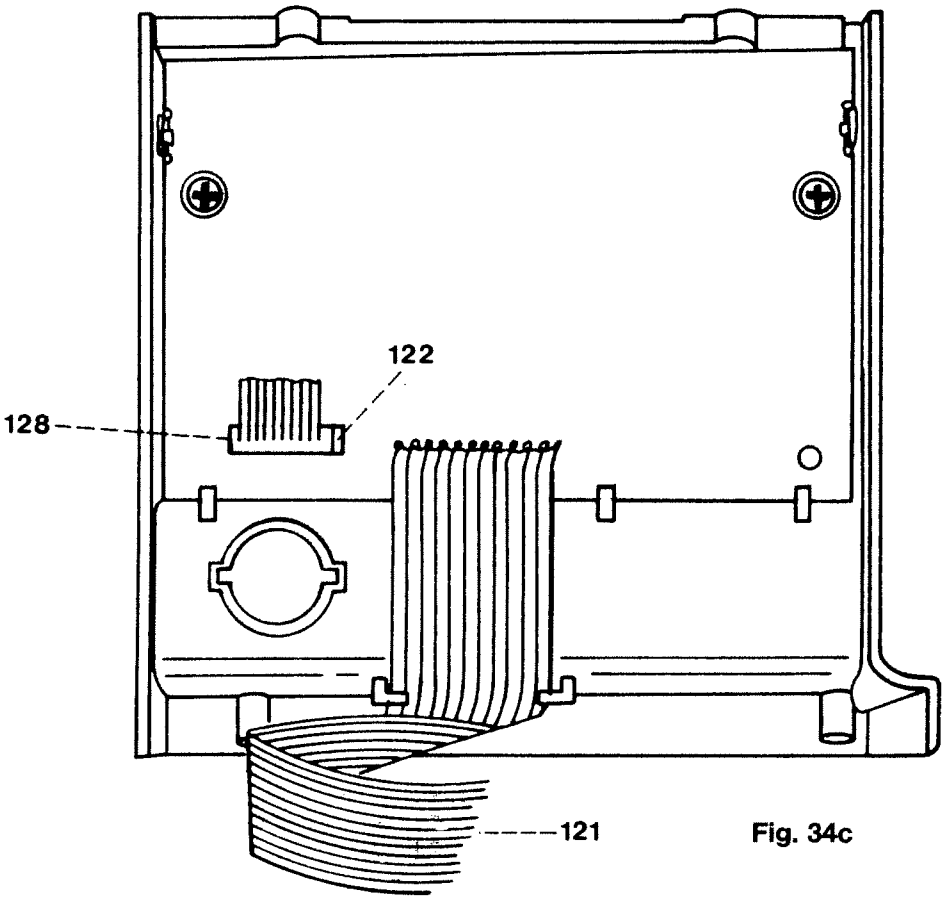


Fig. 34c

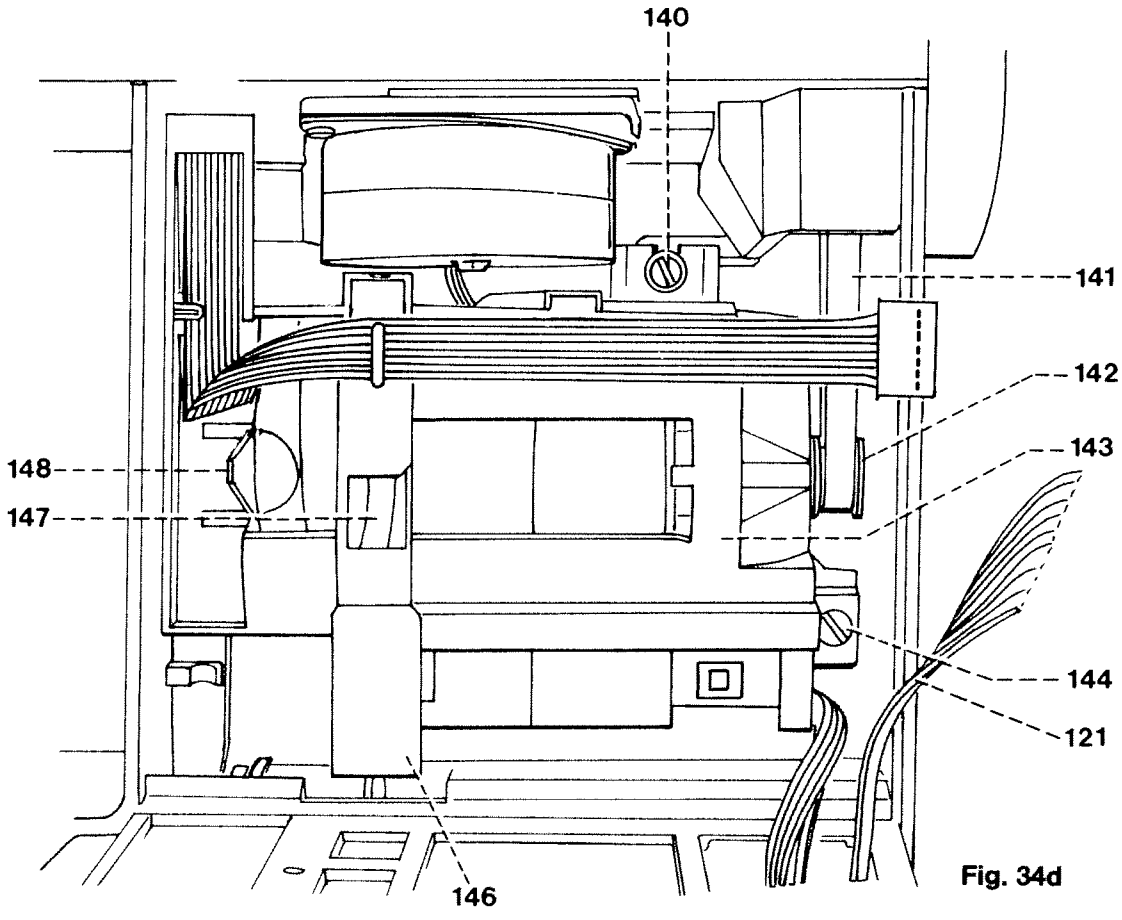


Fig. 34d

Fitting:

- Before refitting the motor, the leakage current must be measured (see section 50 of the repair instructions).
- Insert the motor and place motor sprocket 142 in toothed belt 141 (Fig. 34d).
- Place the two-connection plug down.
- Install sewing lamp wire 147 at the motor and attach plug 146.
- Insert and slightly tighten top motor retaining screw 140.
- Fit motor cover 143.
- Insert and slightly tighten right motor retaining screw 144.
- Tauten toothed belt 141 and tighten both motor retaining screws.
- Lay the ten-wire cable in the motor cover in accordance with Fig. 34d.
- Insert the twelve-connection plug with flat cable 121 downwards into the housing.
- Fit ten-connection plug 128 on the ten-pin base of the programming panel.
- Pull the twelve-wire cable lightly downwards and place the programming panel correctly on the housing.
- Insert both screws 68 and fasten the programming panel with both screws at the bottom (Fig. 34b).
- Lay the flat cables in the cable guides in accordance with Fig. 34b.
- Hold the flat cables together in accordance with Fig. 34b and fit a cable clip 119.

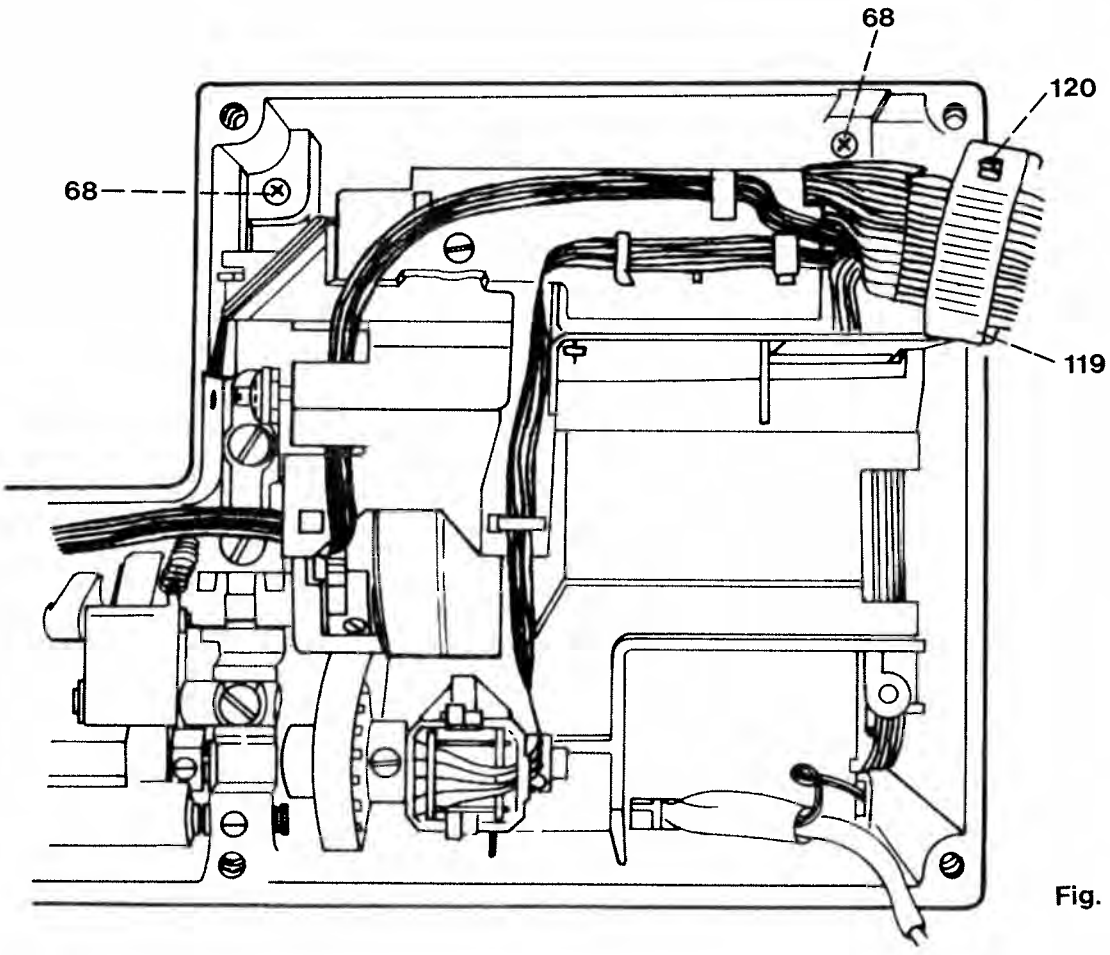


Fig. 34b

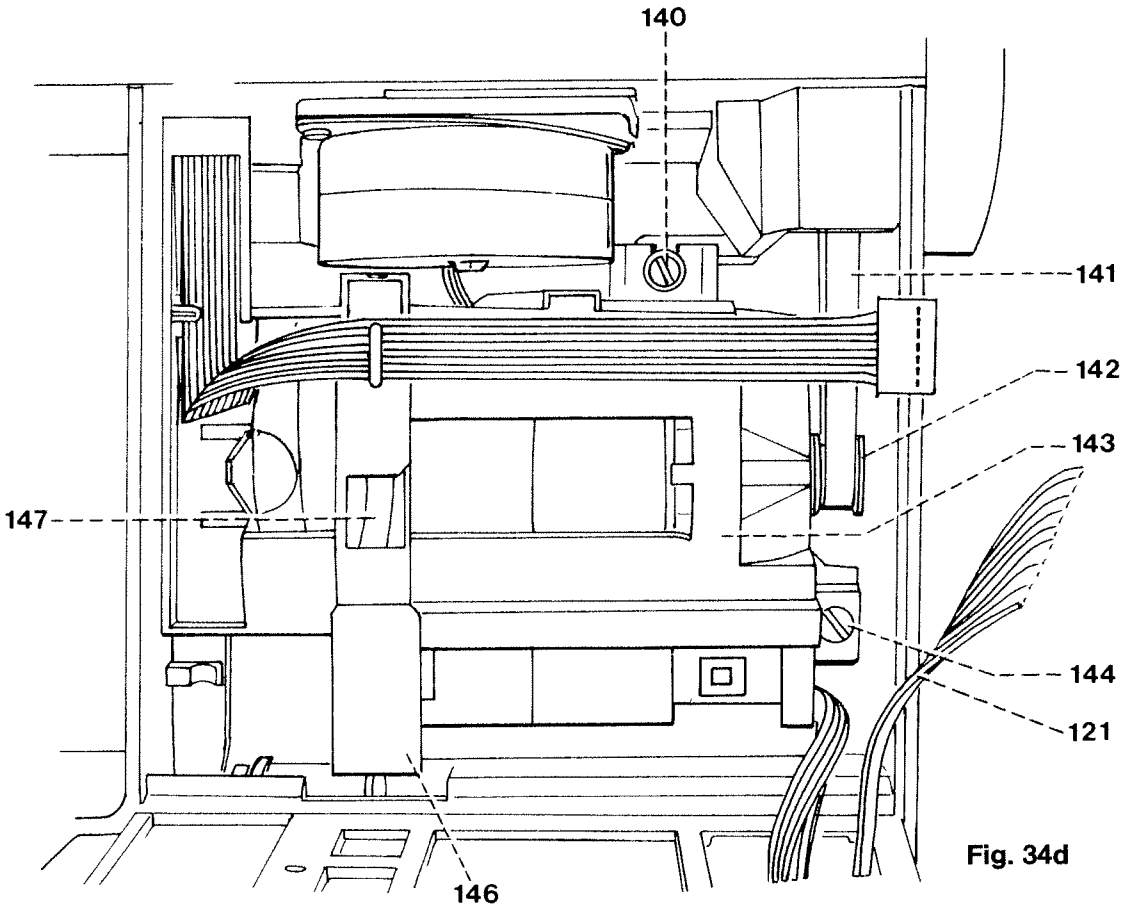


Fig. 34d

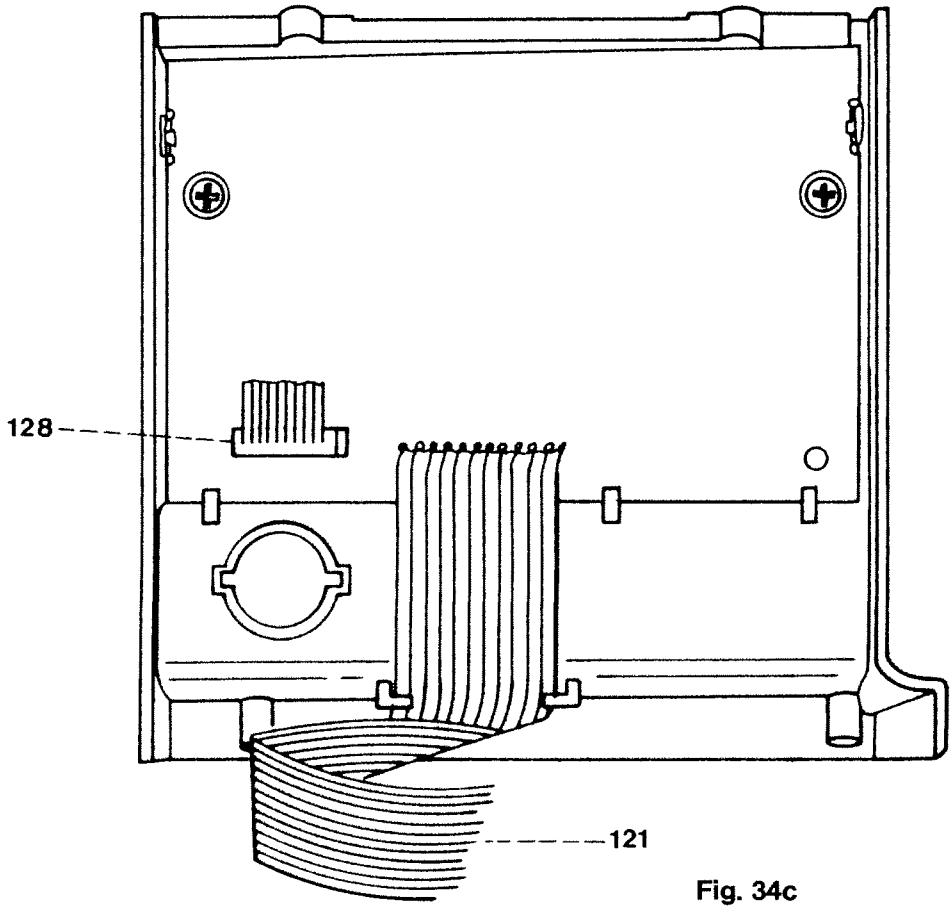


Fig. 34c

- ● Place the baseplate on the machine.
  Now all flat cables must be connected to the circuit board as follows (Fig. 34a).
- ● Insert motor plug 116 in motor socket 118 (both catches 117 must engage).
- ● The five-connection plug 127 to the five-pin base.
- ● The four-connection plug 126 to the four-pin base.
- ● The seven-connection plug 125 to the seven-pin base.
- ● The red seven-connection plug 200 to the red seven-pin base.
- ● The two-connection plug 124 to the two-pin base.
- ● The eight-connection plug 123 to the eight-pin base.
- ● The twelve-connection plug 121 to the twelve-pin base.
- ● Fit the second cable clip 119 according to Fig. 34a.
- ● Fold the baseplate against the machine and install all cables in the housing.
- ● Fasten the baseplate with the four screws.
- ● Set the machine in its normal working position.
- ● Insert both screws 40 and fasten the programming panel at the top (Fig. 34).
- ● Fit the housing insert.
- ● Fasten the housing insert with both screws.
- ● Disengage the bobbin winder.
- ● Fit the face plate.
- ● Fasten the face plate with the screw.
- ● Fit the arm cover.
- ○ Insert the mains plug and test-run the machine.
- □ Perform an electrical safety test with the Metratester 2 or 3 testing appliance according to VDE 0701.

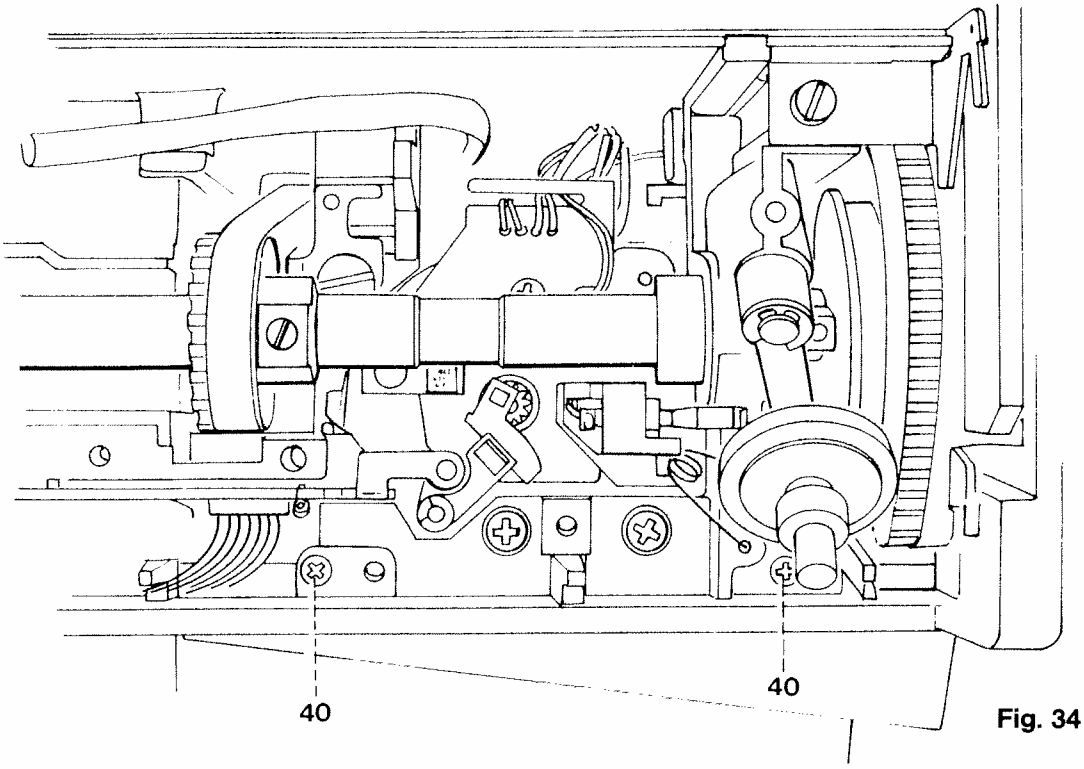


Fig. 34

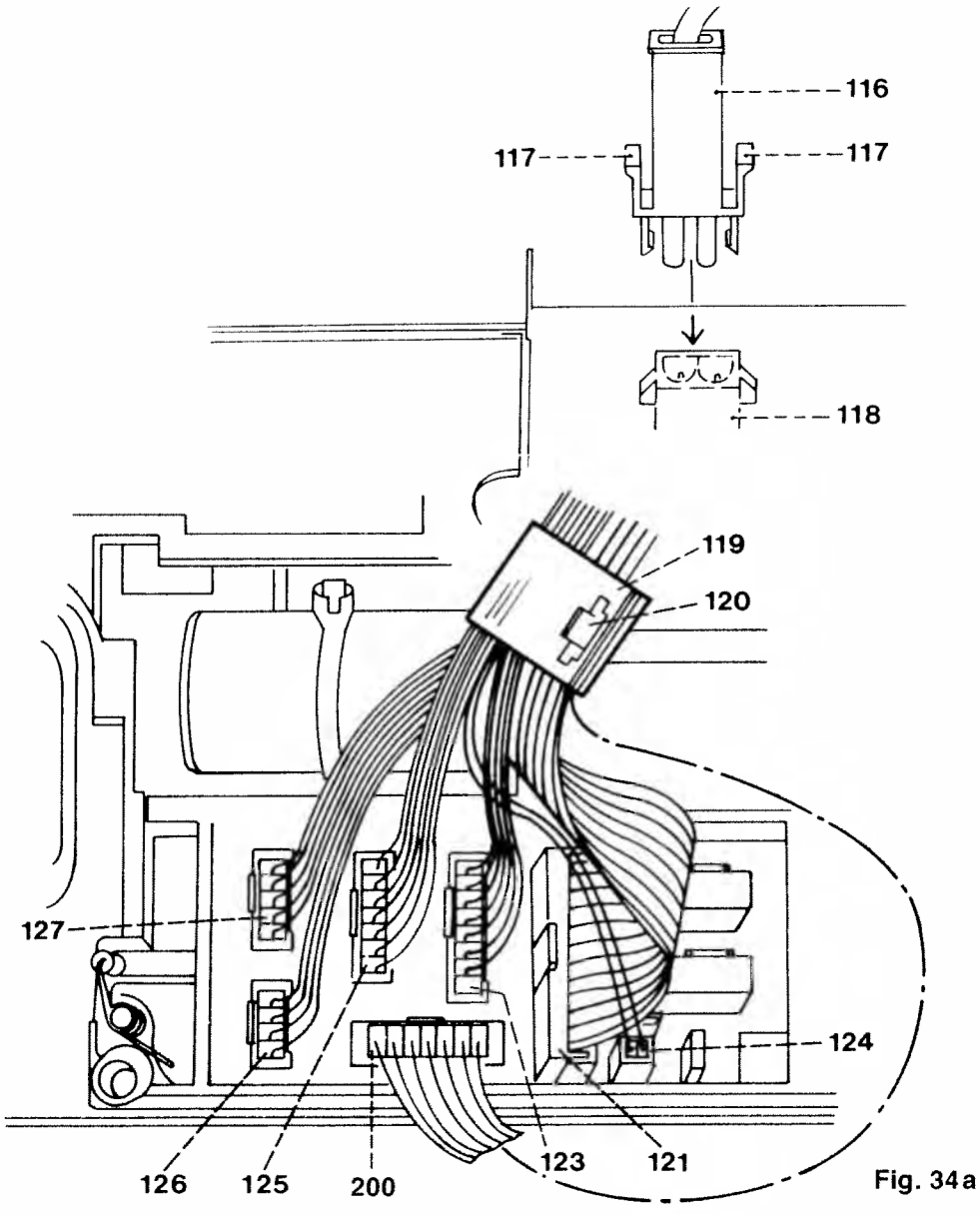


Fig. 34a

35. Changing the motor circuit board on the motor of the PFAFF 1475 CD

(Working time without motor removal: 20 to 25 minutes)

Note:

The printed circuit board is exchanged complete.

Removal:

- ■ Remove the motor (see section 34).
- ● Raise the two locking tabs 155 only a little and remove cover 156 (Fig. 35).
- ● Unscrew the two groove nuts 157.
- ● Pull the motor apart and remove end shield 158.
- ● Unsolder the four cables 159.
- ● Raise the plastic guide of contact pins 161 by about 3 mm.
- ● Raise printed circuit board 160 at the side of the master switch and remove it.

Fitting:

- ● First insert new printed circuit board 160 with fuse housing and contact pins 161, then install it at the side of the master switch.
- ● Solder the four cables at points 159.
- ● Push on end shield 158 and secure it with the two groove nuts 157.
- ● Push cover 156 onto the one side and allow it to engage on the other.
- ■ Measure the leakage current according to section 50.
- ■ Install the motor according to section 34.
- □ Perform an electrical safety test with the Metratester 2 or 3 testing appliance in accordance with VDE 0701.

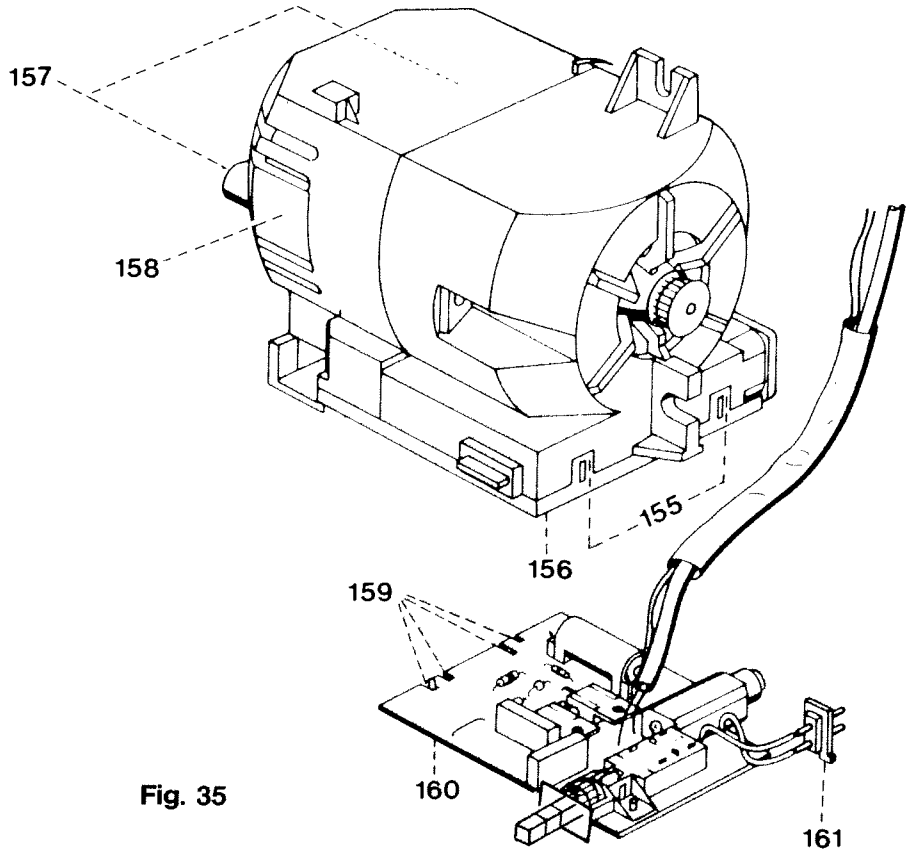


Fig. 35

36. Changing the motor pinion

(Working time 10 to 15 minutes)

Note:

The motor pinion is only removed when an armature is exchanged.

Removal:

- ■ First remove the motor (see section 34).
- ● Insert two equally-wide screwdrivers between pinion 142 and the motor bearing (Fig. 36).
- ● Turn the screwdrivers in opposite directions, thus prizing pinion 142 off its shaft.

Note:

The old pinion is no longer usable.

Fitting:

- ● Support the armature shaft at the opposite end and push on the new motor pinion.
- ■ Before the motor is installed, the leakage current must be measured (see section 50).
- ● Cement on outer disc 162.
- ■ Install the motor (see section 34).
- □ Perform an electrical safety test with the Metratester 2 or 3 testing appliance according to VDE 0701.

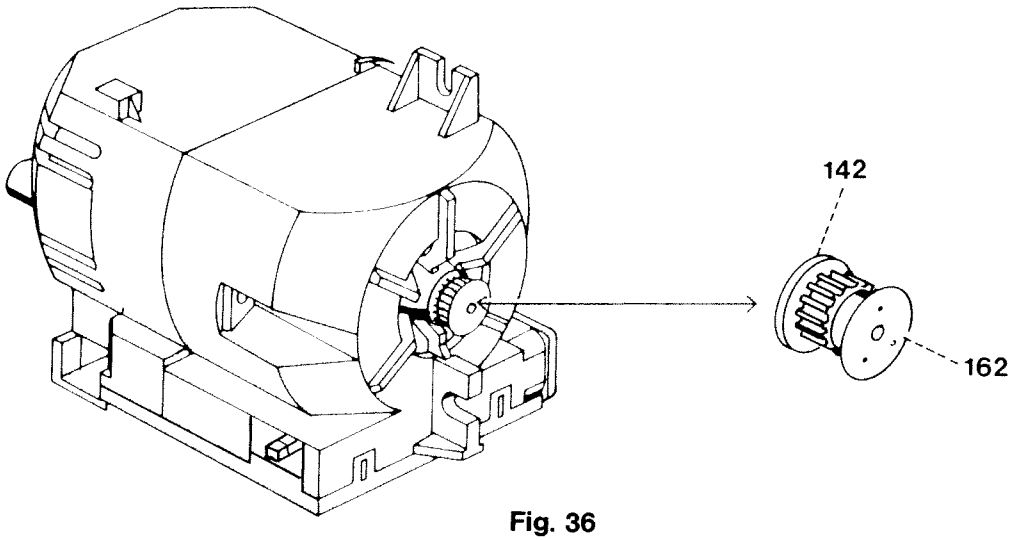


Fig. 36

37. Changing the cable reel in the foot control

(Working time 15 to 20 minutes)

Removal of the cable reel:

- Raise rubber strip 167 and pull it out with its three feet (Fig. 37).
- Pull out the two plugs 165 (Fig. 37).
- Unscrew the four Philips screws 168 and remove them with the spring washers.
- Remove housing cover 166.
- Remove the rectangular pedal 169 with guide 170 and take out contact spring 179 (Fig. 37).
- Disconnect the right pressure spring 178.
- Disconnect the right cable 177 with the contact eyelet.
- Press out or pull out cemented resistor track 172 (20 kΩ potentiometer) upwards with a screwdriver or pliers.
- Remove cable reel 176.

Fitting:

- Pull out the cable by approximately 10 cm and insert cable reel 176 in the housing (Fig. 37a).
- Insert the soldered resistor track 172 (20 kΩ potentiometer) fully downwards into the guide and secure it with adhesive.
- Push the soldered contect eyelet 177 onto the right guide pin.
- Place both cables in the respective guide grooves.
- Place contact spring 179 on the guide pin in the larger right section of pedal 169.
- Push pressure spring 178 on the same guide pin.
- Turn pedal 169 and push the right spring 178 on the right guide pin of the housing and the left spring 171 on the guide pin in pedal 169.
- First press the pedal a little to the right and then downwards in such a way that contact spring 179 is on the right side of resistor track 172 and is not bent.
- Press the pedal further down, as far as it will go, and insert guide 170 in its two open bearings.
- Hold pedal 169 fast in this position; at the same time replace housing cover 166 and press it firmly on the housing (Fig. 37).
- Insert and tighten the four Philips screws 168 with the spring washers.
- Insert rubber strip 167 and the two plugs 165.

☐ Perform an electrical safety test with the Metratester 2 or 3 testing appliance according to VDE 0701.

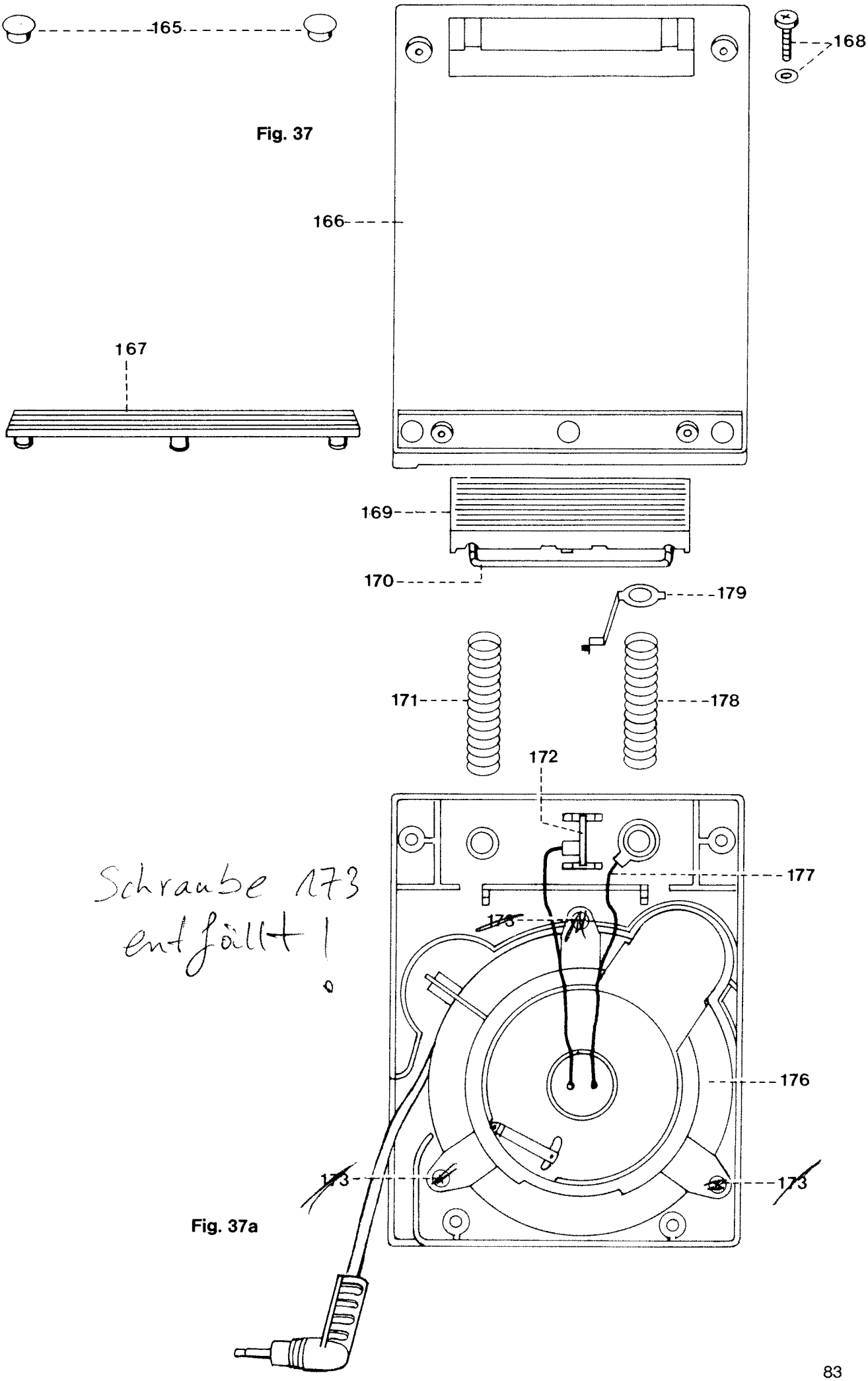


Fig. 37

Schraube 173 entfällt!

Fig. 37a

38. Changing the upper stepping motor for sideways needle bar movement on the PFAFF 1475 CD

(Working time 60 to 80 minutes)

Note:

The stepping motor for sideways needle bar movement is only exchanged complete.

Removal:

- Remove mains lead from mains socket and machine.
- Remove the arm cover.
- Loosen the face plate screw.
- Remove the face plate.
- Unscrew the two screws of the housing insert.
- Engage the bobbin winder and set the take-up lever down.
- Remove the housing insert.
- Unscrew the two screws 40 (Fig. 38).
- Place the machine on its back.
- Unscrew the four screws of the baseplate.
- Turn the baseplate around.
- Lift catches 122 by 1–2 mm and remove the plugs of the seven flat cables from the circuit board (Fig. 38a).
- Press both catches 117 of the motor plug together and remove motor plug 116 upward.
- Place the complete baseplate aside.
- Open both cable clips 119 at catch 120 and remove the cables from the cable clips.

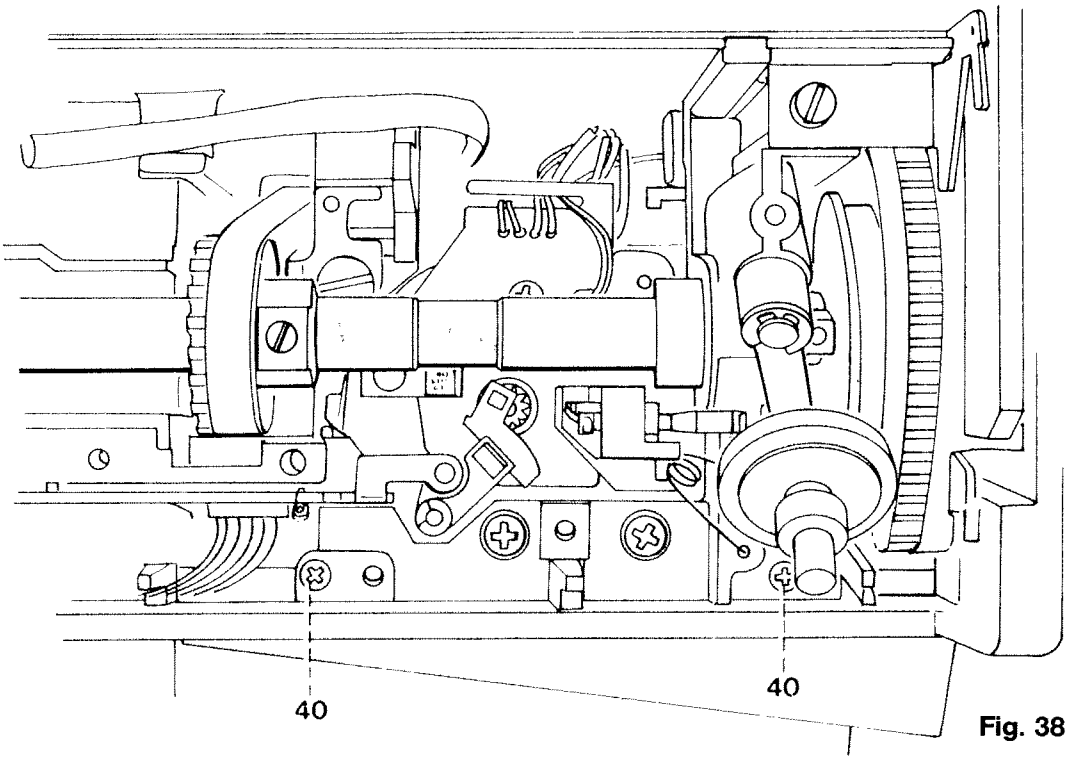


Fig. 38

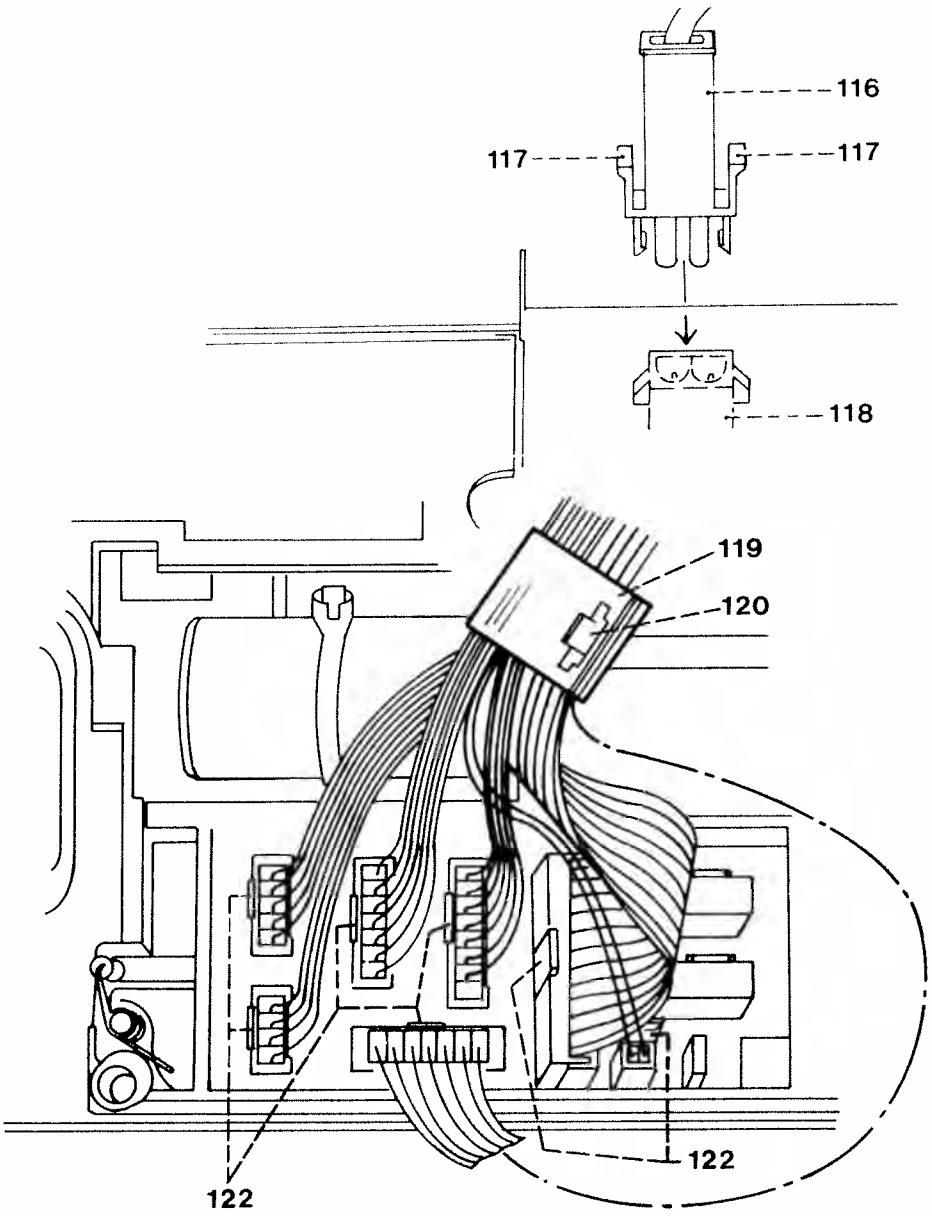


Fig. 38a

- Unscrew both screws 68 (Fig. 38b).
- Fold the programming panel to the right.
- Push lock 122 a little to the side (Fig. 38c).
- Disconnect ten-connection plug 128.
- Remove the programming panel.

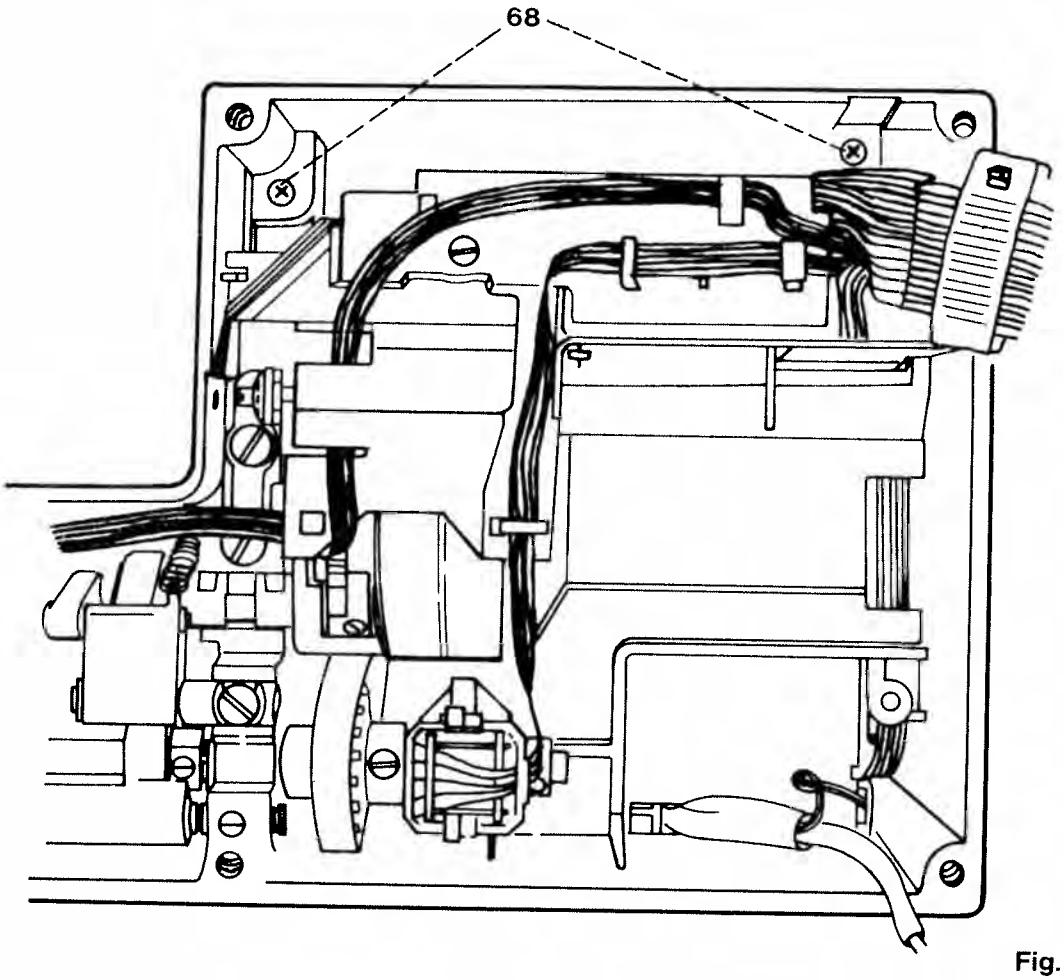


Fig. 38b

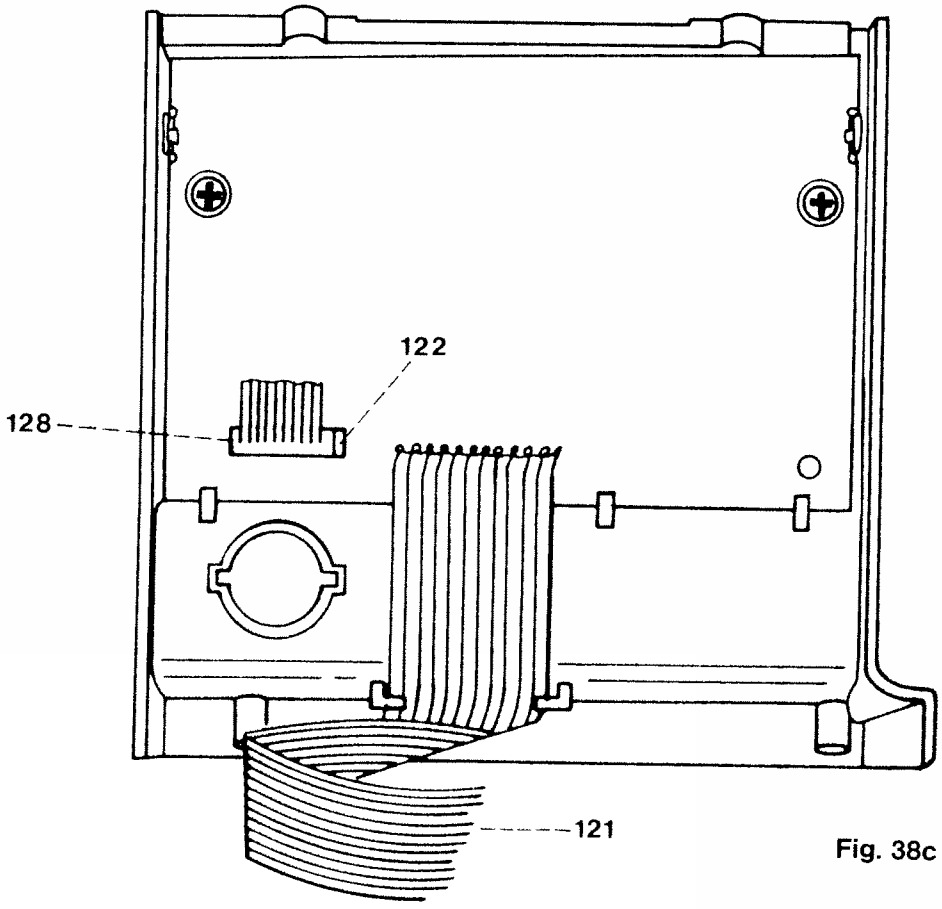


Fig. 38c

- Unscrew right motor retaining screw 144 (Fig. 38d).
- Lift motor cover 143 a little on the right with a screwdriver and remove it.
- Disconnect light plug 146.
- Unscrew the second motor retaining screw 140.
- Lift motor spocket 142 out of toothed belt 141 and remove the motor to the front.
- Remove the eight-connection plug 123 with the flat cable upwards.
- Set the machine in its normal position.
- Unscrew both stepping motor screws 39 (Fig. 38e).
- Remove the complete stepping motor.

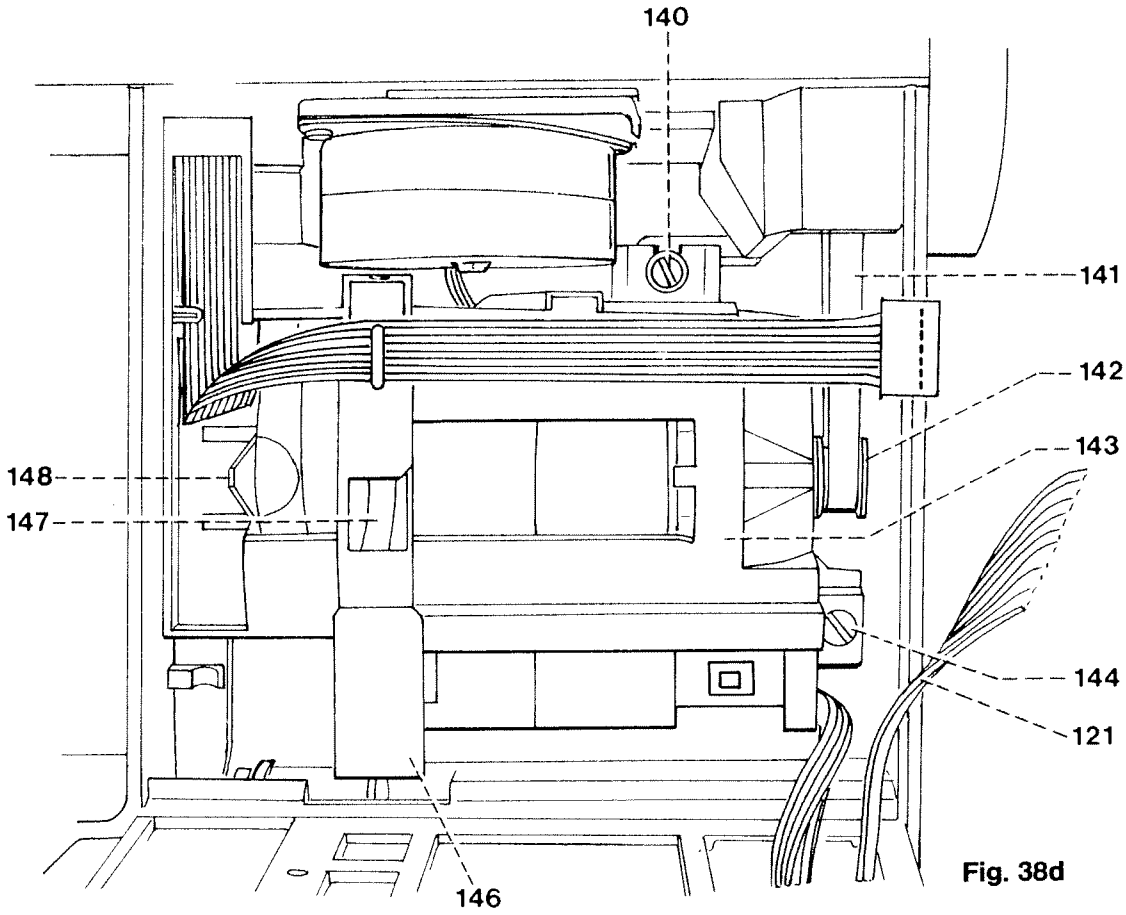


Fig. 38d

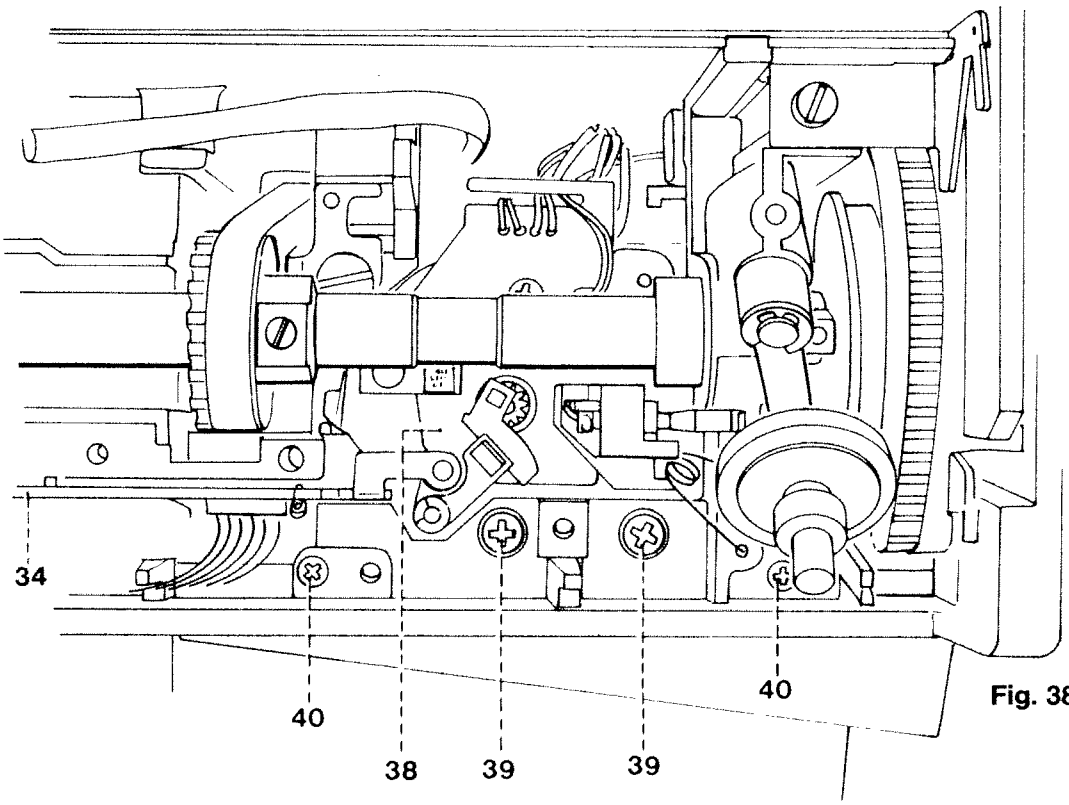


Fig. 38e

Fitting:

- Install the new stepping motor (Fig. 38c).
  Make sure that bolt 36 of connecting rod 34 enters the hole of the tooth segment.
- Insert and tighten both screws 39 just a little.
- Place the machine on its back.
- Insert the eight-connection plug 123 downward and install the cable at the right side in the corner of the housing (Fig. 38e).
- Insert the motor and place motor sprocket 142 in toothed belt 141.
- Insert the two-connection plug downward.
- Mount sewing lamp cable 147 at the motor and attach plug 146.
- Insert and lightly tighten upper motor retaining screw 140.
- Insert motor cover 143.
- Insert and lightly tighten the right motor retaining screw 144.
- Tauten toothed belt 141 and tighten both motor retaining screws.
- Insert twelve-connection plug 121 with cable downwards in the housing (Fig. 38g).
- Fit ten-connection plug 128 on the ten-pin base of the programming panel.
- Pull flat cable 121 lightly downwards and place the programming panel correctly on the housing.
- Insert both screws 68 and fasten the programming panel at the bottom (Fig. 38h).
- Install all flat cables in the cable guides according to Fig. 38h.

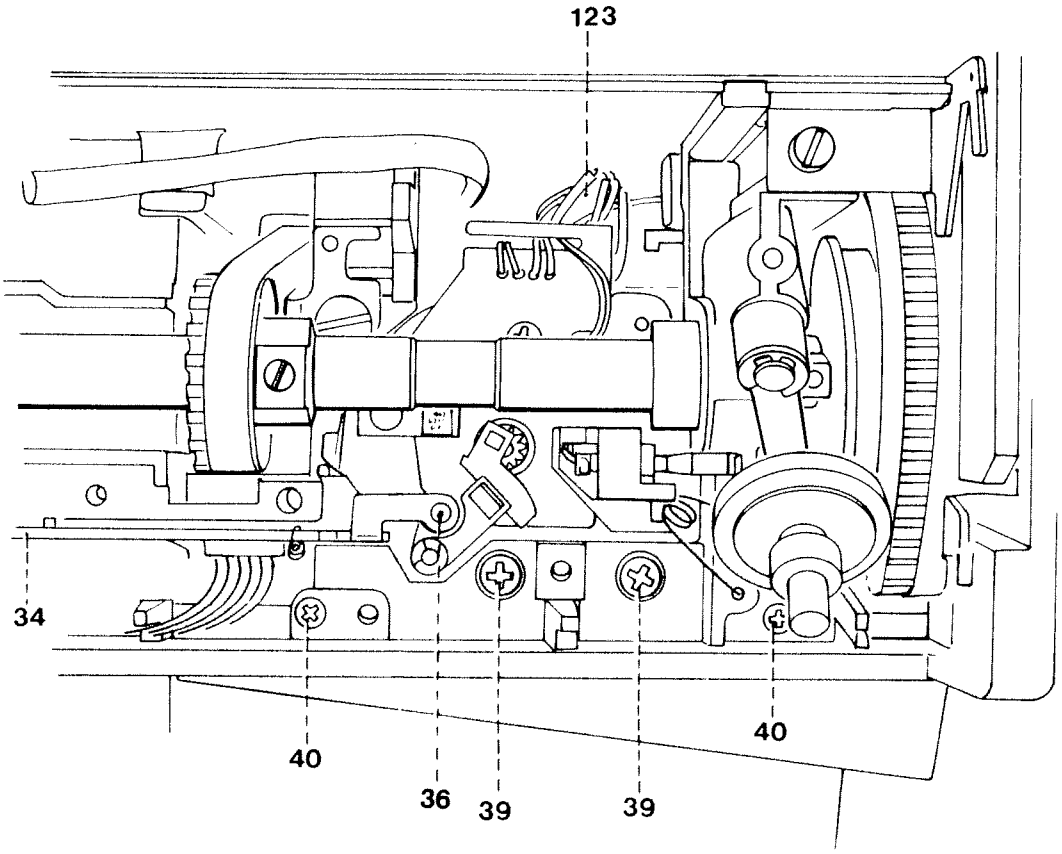


Fig. 38e

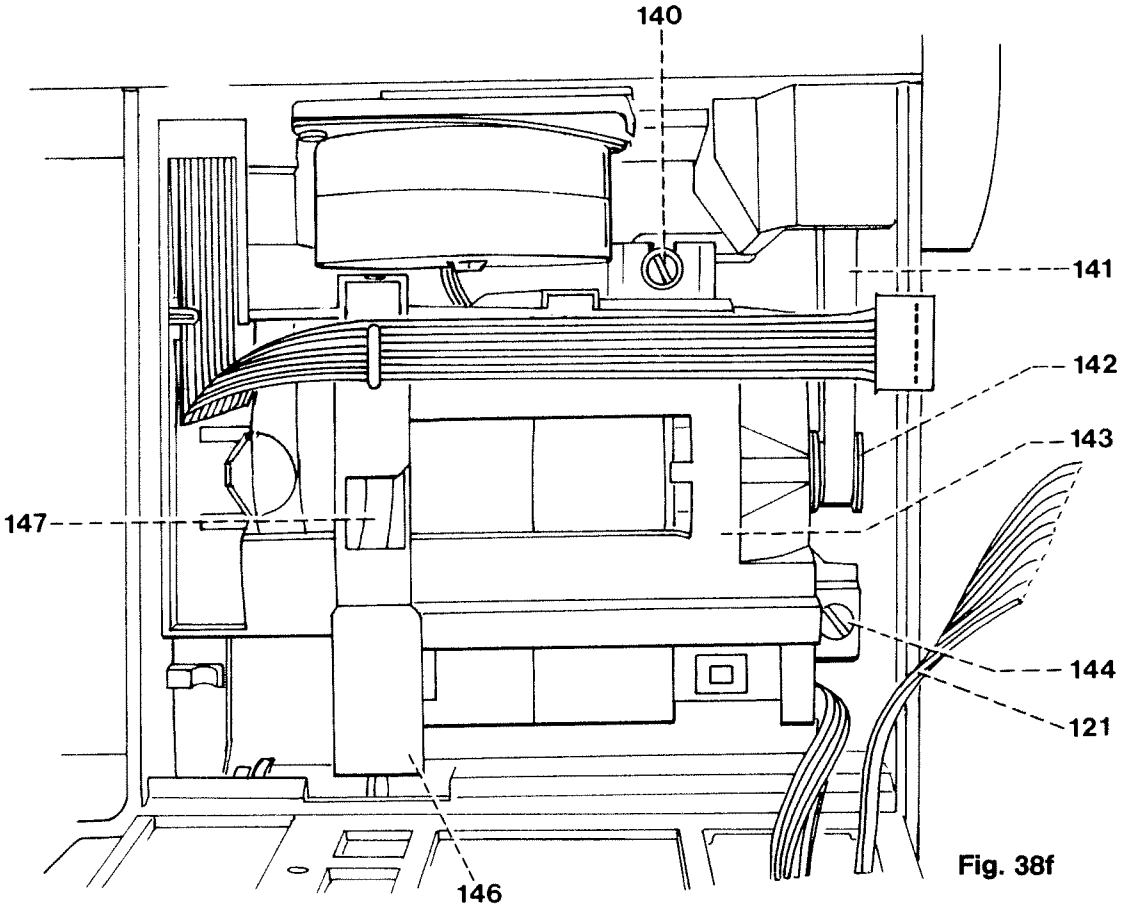


Fig. 38f

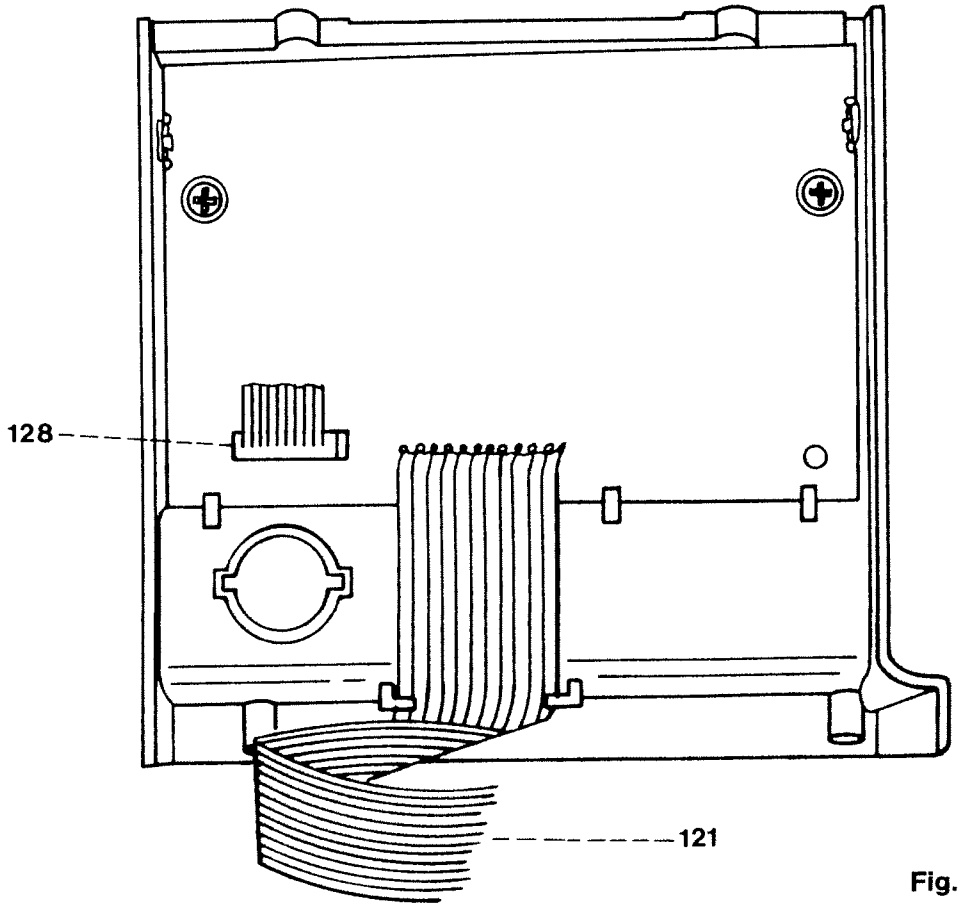


Fig. 38g

- Hold the cables together as shown in Fig. 38h and fit a cable clip 119.
- Place the baseplate against the machine.
- ○ Now attach all cables to the circuit board as follows (Fig. 38i).
- Insert motor plug 116 in motor socket 118 (both catches 117 must engage).
- The five-connection plug 127 to the five-pin base.
- The four-connection plug 126 to the four-pin base.
- The seven-connection plug 125 to the seven-pin base.
- The red seven-connection plug 200 to the red seven-pin base.
- The two-connection plug 124 to the two-pin base.
- The eight-connection plug 123 to the eight-pin base.
- The twelve-connection plug 121 to the twelve-pin base.
- Fit the second cable clip 119 according to Fig. 38i.
- Fold the baseplate against the machine and install all cables in the housing.
- Fasten the baseplate with the four screws.
- Set the machine in its normal working position.
- Insert both screws 40 and fasten the programming panel at the top (Fig. 38j).

Note:

- ■ After changing the stepping motor for sideways needle movement, adjustment of the needle in the needle hole, section 9, must be repeated.
- Fit the housing insert.
- Fasten the housing insert with both screws.
- Disengage the bobbin winder.
- Fit the face plate.
- Fasten the face plate with the screw.
- Fit the arm cover.
- ○ Check all functions.
- □ Perform an electrical safety test with the Metratester 2 or 3 testing appliance according to VDE 0701.

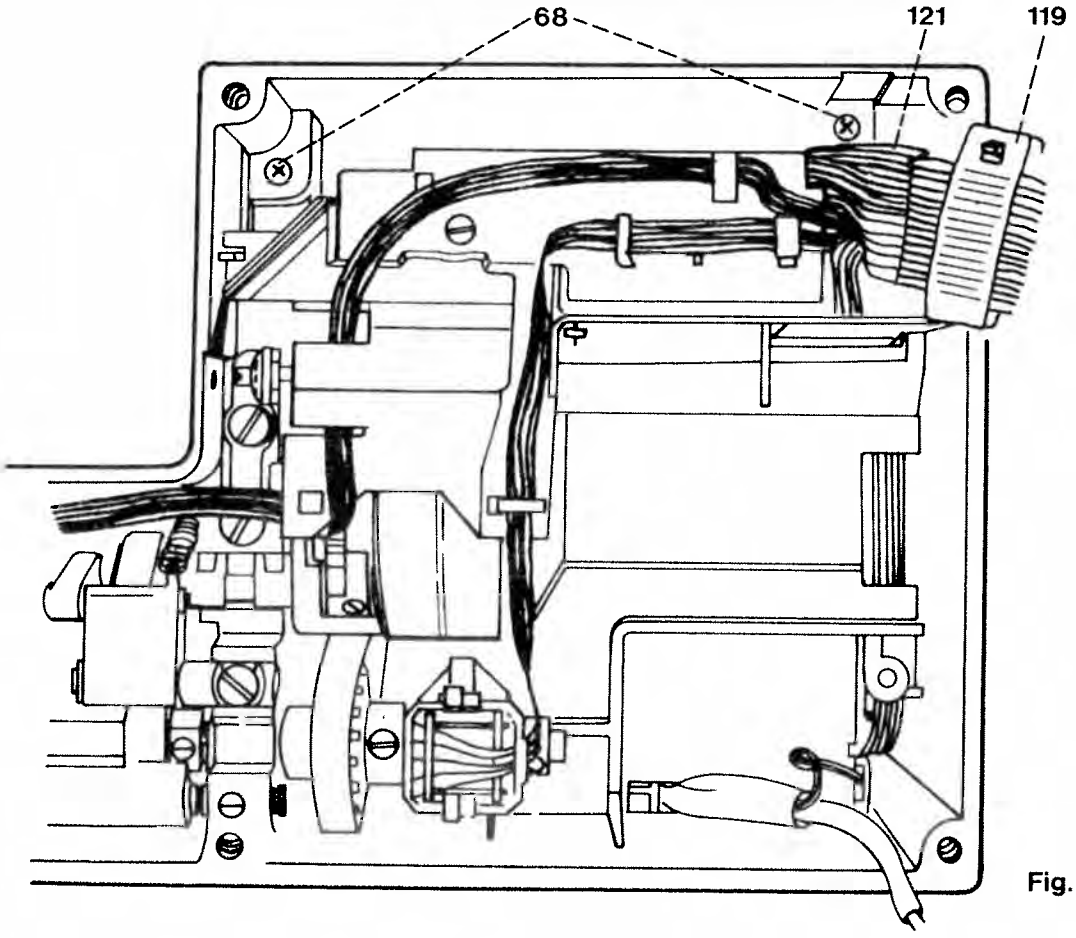


Fig. 38h

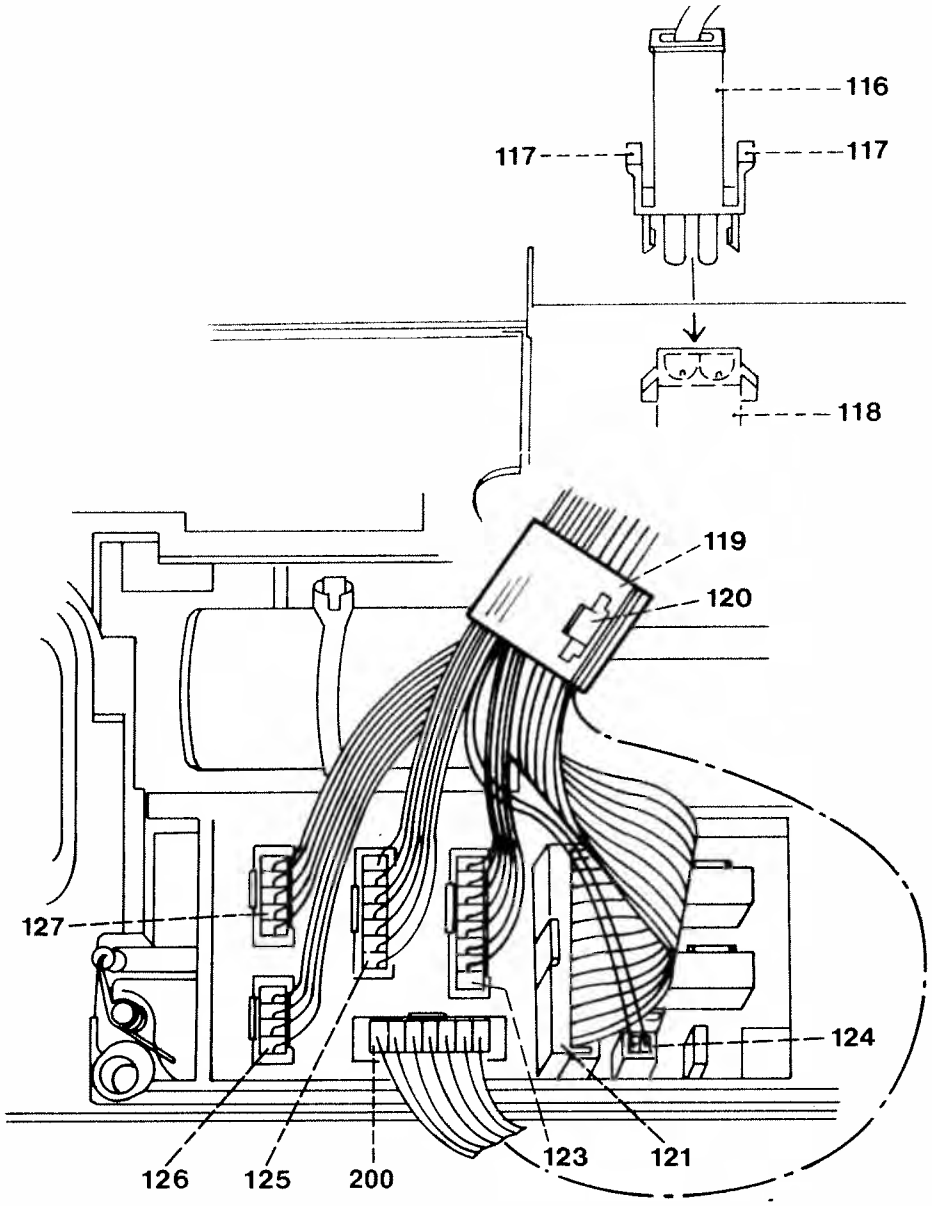


Fig. 38i

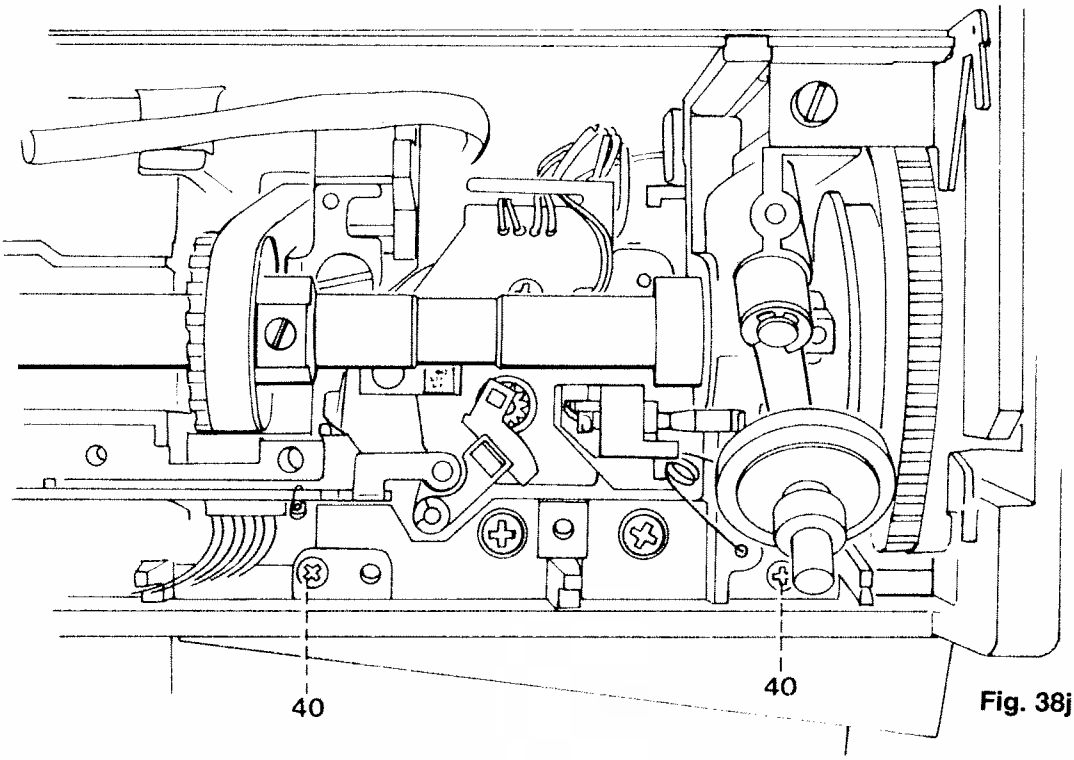


Fig. 38j

39. Changing the lower stepping motor for the feed on the PFAFF 1475 CD

(Working time 40 to 50 minutes)

Note:

The feed stepping motor is only exchanged complete.

Removal:

- Remove mains lead from mains socket and machine.
- Unscrew the four screws of the baseplate.
- Turn the baseplate around.
- Lift catches 122 by 1–2 mm and remove the seven flat cables with plugs from the circuit board (Fig. 39).
- Press both catches 117 of motor-plug 116 together and remove the motor plug upwards.
- Place the complete baseplate aside.
- Open both cable-clips 119 at catch 120 and remove the cables from the cable clips.
- Unscrew both screws 153 of bobbin thread monitor 154 (Fig. 39b).
- Remove the bobbin thread monitor.
- Remove screw 181 of cable guide 180 (Fig. 39a).
- Remove cable guide 180 to the front.
- Disconnect pull-spring 14 (Fig. 39c).
- Remove screw 18.
- Turn the hand wheel until feeding eccentric 20 faces the back of the machine.
- Remove cam lever 9, folding it downwards, and pull it to the left off the slide block pin together with link 10.
- Remove slide block 12 with the spring to the right.
- Unscrew both screws 16 of the feed stepping motor.
- Remove the feed stepping motor.

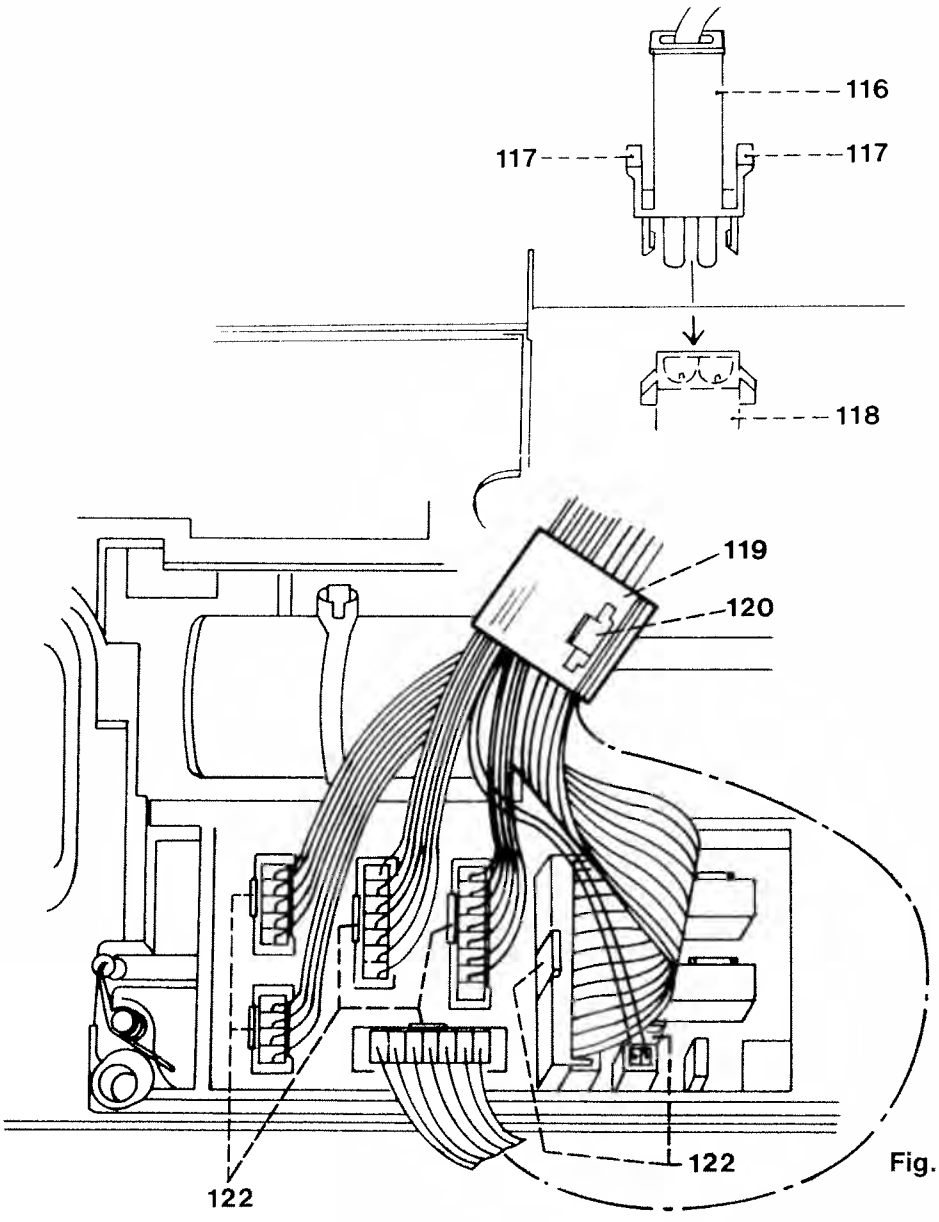


Fig. 39

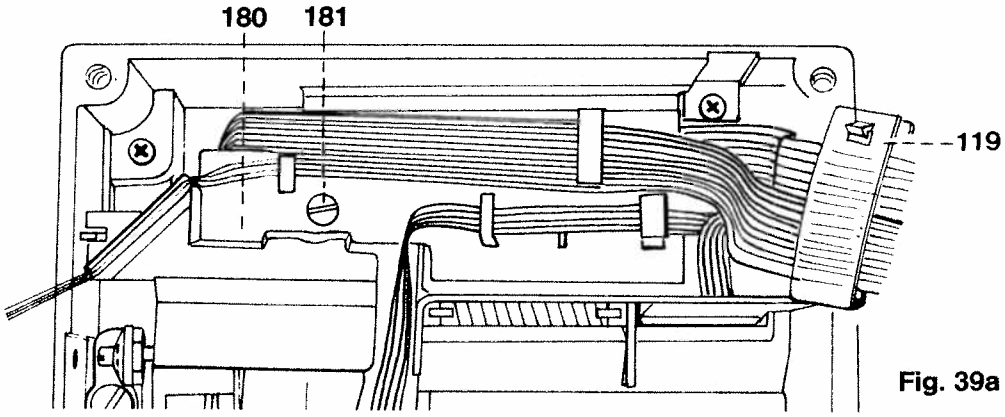


Fig. 39a

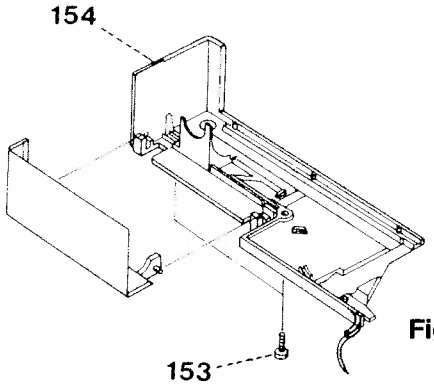


Fig. 39b

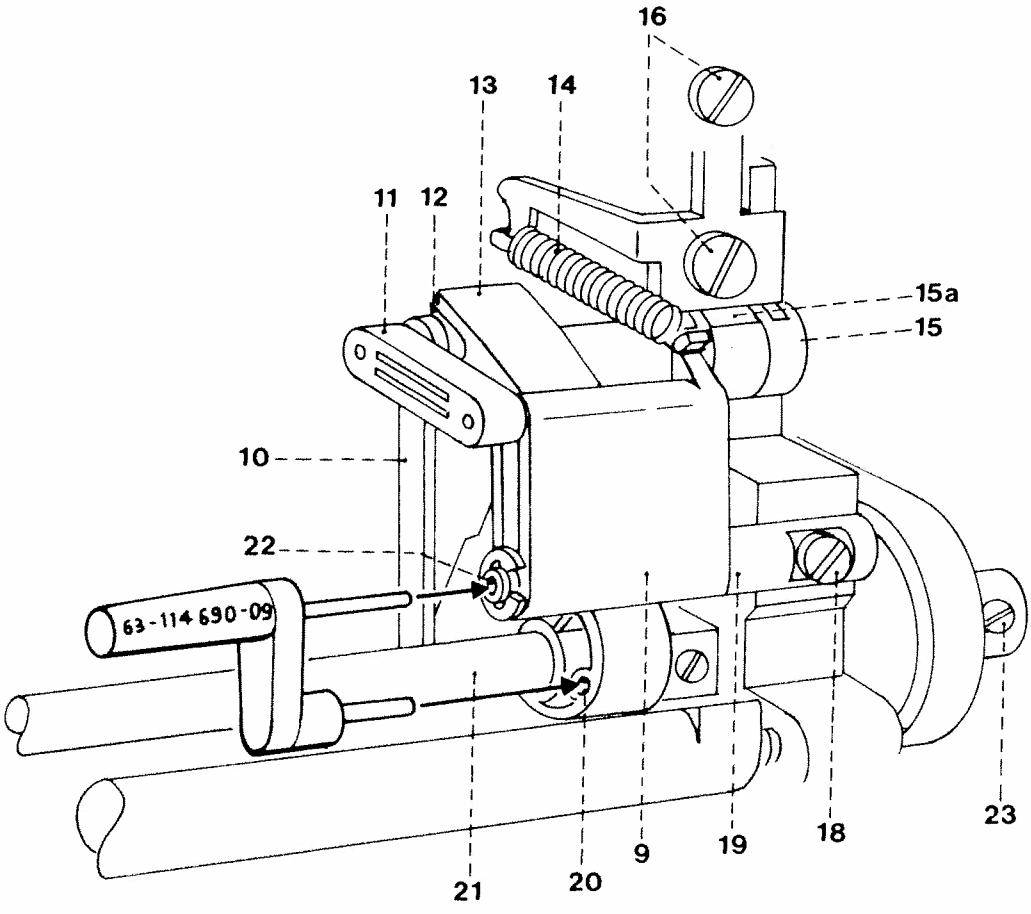
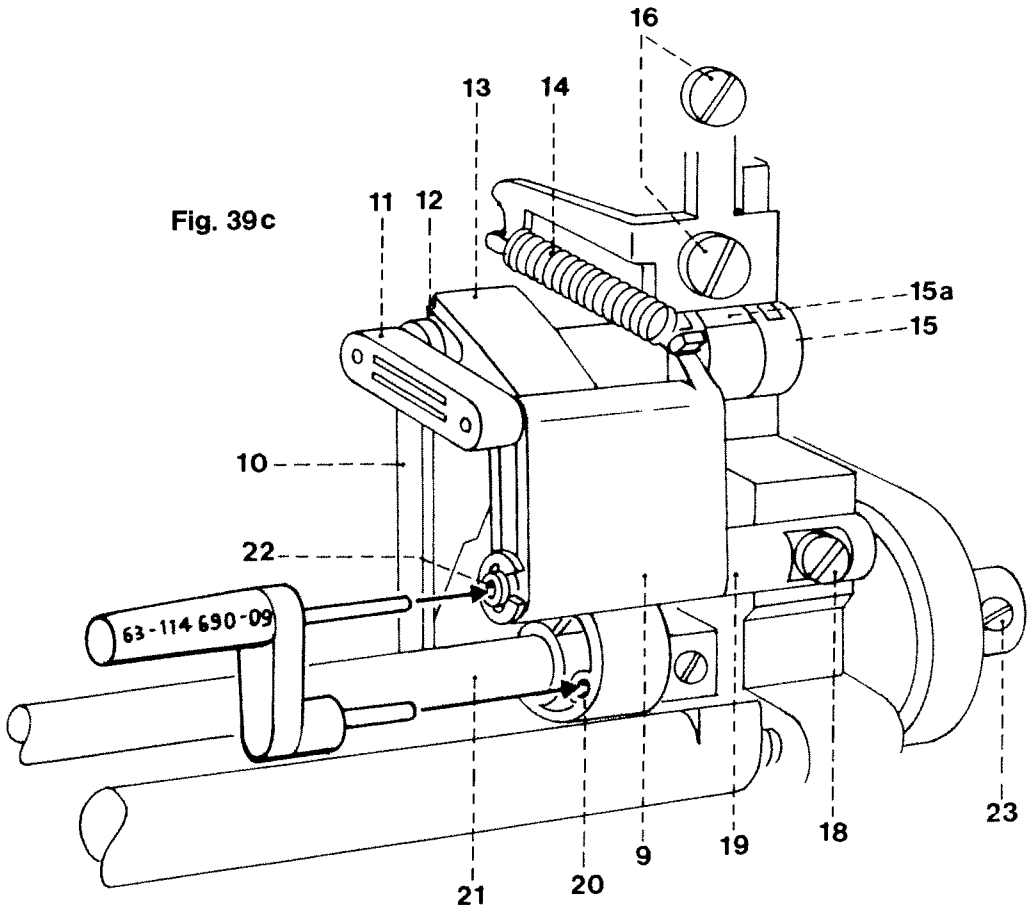


Fig. 39c

Fitting:

- ● Insert the new feed stepping motor complete with bracket (Fig. 39c).
- ● Insert and lightly tighten the upper screw 16.
- ● Insert and lightly tighten clamp spring 15a with screw 16.
- ● Push slide block 12 with spring onto the bolt and set it in the guide slot in the correct curve radius.
- ○ Check that the slide block moves freely, without play or binding, in the guide slot.
- ● Push guide lever 15 with the stepping motor carefully to the left, until there is a clearance of 0.05 mm between the slide block and the connecting bar.
- ● Tighten screw 16 and check that the slide block moves freely, but without play.
- ● Push link 10 complete with cam lever 9 to the right onto the connecting bar pin.
- ● Lift cam lever 9 over feeding eccentric 20 from the rear.
- ● Insert and lightly tighten screw 18 in fulcrum stud 19.
- ● Position fulcrum stud 19 so that link 10 and the cam lever still have a slight play and can move freely.
- ● Tighten screw 18.
- ● Connect pull-spring 14.
- ● Insert cable guide 180 and fasten with screw 181 (Fig. 39b).
- ● Fit bobbin thread monitor 154 and fasten with screws 153 (Fig. 39a).
- ● Lay the cables in the cable guides according to Fig. 39b.
- ● Hold the cables together according to Fig. 39b and fit a cable clip 119.
- ● Place the baseplate against the machine.
  Now attach all cables to the printed circuit board as follows (Fig. 39).
- ● Insert motor plug 116 in motor socket 118 (both catches must engage).
- ● The five-connection plug 127 to the five-pin base.
- ● The four-connection plug 126 to the four-pin base.
- ● The seven-connection plug 125 to the seven-pin base.
- ● The red seven-connection plug 200 to the red seven-pin base.
- ● The two-connection plug 124 to the two-pin base.
- ● The eight-connection plug 123 to the eight-pin base.
- ● The twelve-connection plug 121 to the twelve-pin base.
- ● Fit the second cable clip according to Fig. 39.
- ● Fold the baseplate against the machine and install all cables in the housing.
- ● Fasten the baseplate with the four screws.
- □ Perform an electrical safety test with the Metratester 2 or 3 testing appliance according to VDE 0701.

Fig. 39c



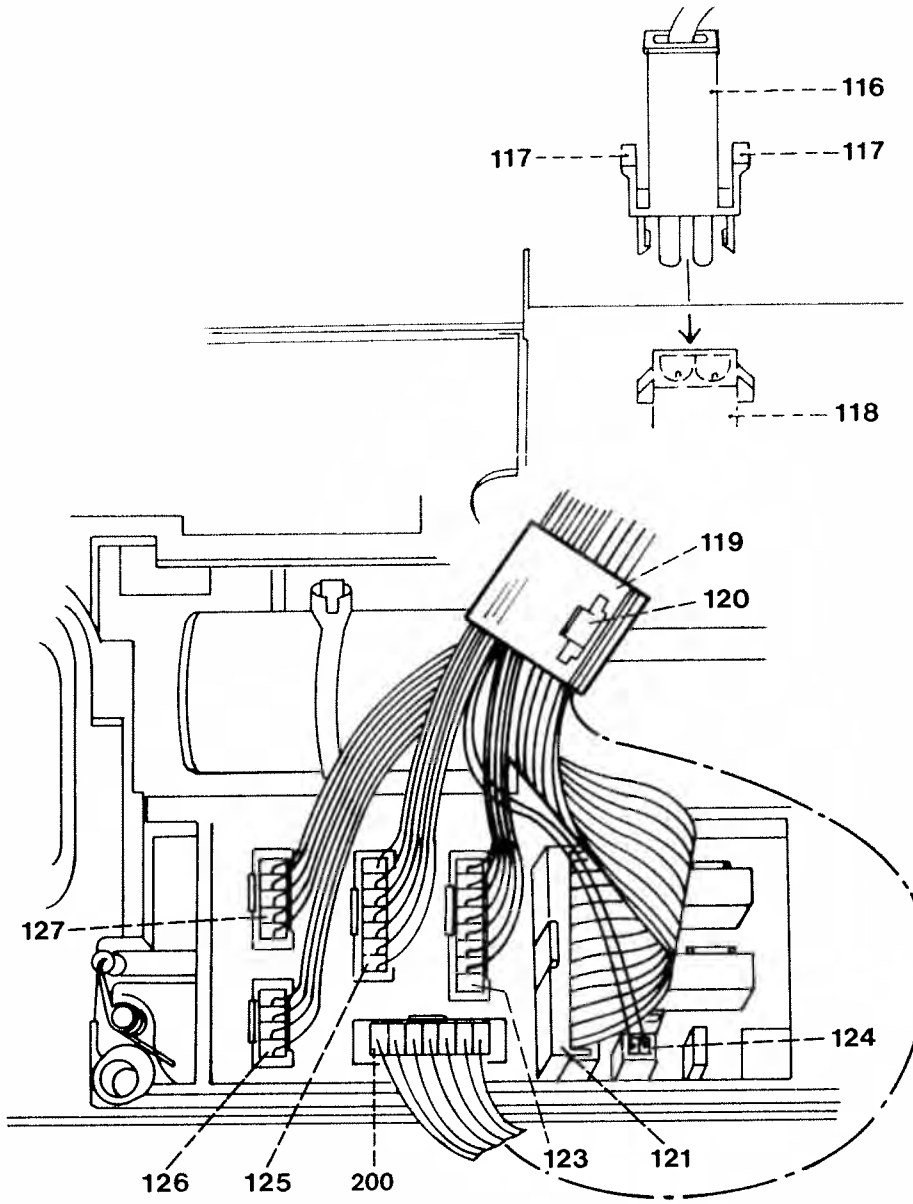


Fig. 39a

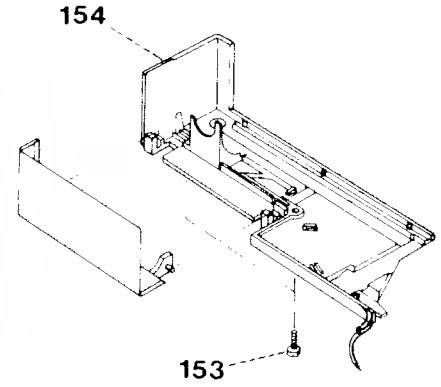


Fig. 39b

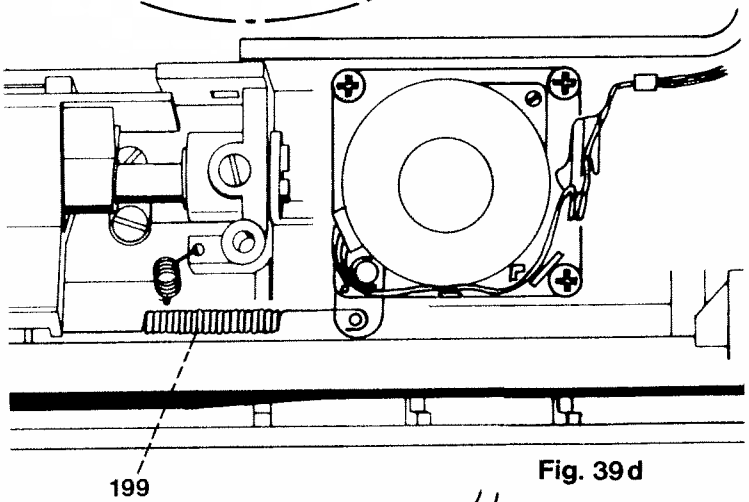


Fig. 39d

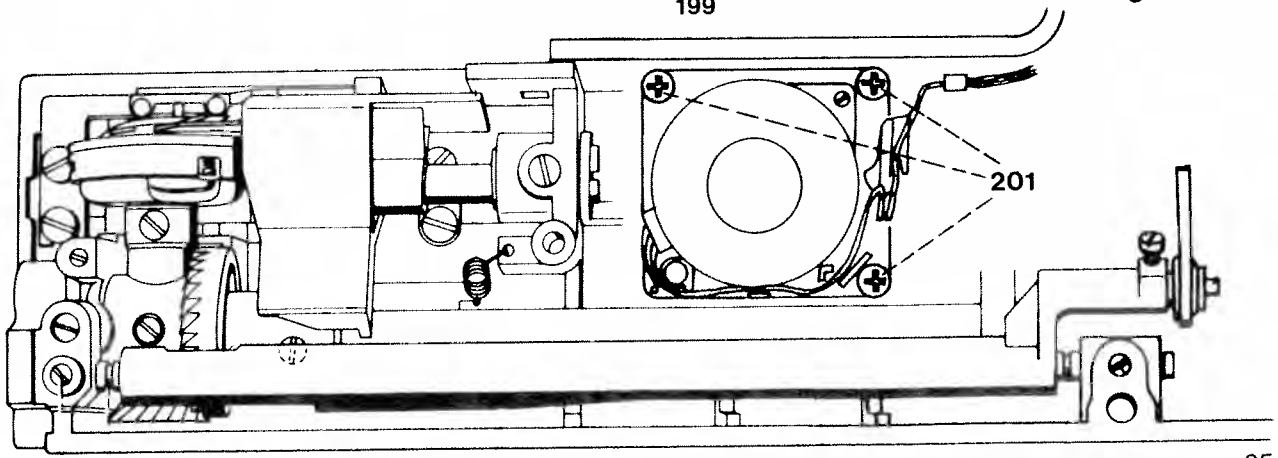


Fig. 39c

39a Changing the stepping motor for transverse drive

Note:

The transverse-drive stepping motor is only exchanged complete.

Removal:

- Remove mains lead from mains socket and machine.
- Unscrew the four screws in the base plate.
- Turn the baseplate around.
- Lift catches 122 by 1 to 2 mm and disconnect the plugs of the seven flat cables at the circuit board (Fig. 39a).
- Press catches 117 of motor plug 116 together and disconnect the motor plug by pulling it up.
- Put the baseplate aside.
- Open the two cable clips 119 at catch 120 and take the cables out of the cable holder.
- Screw out screws 153 of bobbin thread monitor 154 (Fig. 39b).
- Take out the bobbin thread monitor.
- Take seven-lead flat cable 200 of the transverse-drive stepping motor out of the cable duct.
- Screw out the three Philips screws 201 (Fig. 39c).
- Disconnect pull-spring 199 at the transverse-drive stepping motor (Fig. 39d).
- Take out the transverse-drive stepping motor.

Fitting:

Note:

Check whether pull-spring 199 of the transverse-drive stepping motor is fitted to the feed dog (Fig. 39d), and fit it there if it is not.

- Hook pull-spring 199 on at the transverse-drive stepping motor and put the motor in place.
- Lightly tighten the three Philips screws 201 (Fig. 39c).
- Place seven-lead flat cable 200 in the cable duct (Fig. 39a).
- ○ Adjust the feed dog in sideways direction according to section 4.
- Replace bobbin thread monitor 154 and fix it with screws 153 (Fig. 39b).
- Lay the flat cables in the cable ducts according to Fig. 39a.
- Hold the cables together and fit a cable clip 119.
- Place baseplate at the machine.
- Connect all flat cables to the printed circuit board as follows.
- Motor plug 116 to motor socket 118 (both catches must engage).
- Five-connection plug 127 to the five-pin base.
- Four-connection plug 126 to the four-pin base.
- Seven-connection plug 125 to the seven-pin base.
- The red seven-connection plug 200 to the red seven-pin base.
- Two-connection plug 124 to the two-pin base.
- Eight-connection plug 123 to the eight-pin base.
- Flat cable 121 with twelve-connection plug to the twelve-pin base.
- Fit the second cable clip.
- Fold baseplate against machine and place all cables in their guides in the housing.
- Fix the baseplate with the four screws.
- □ Carry out an electrical safety test with Metratester 2 or 3 according to VDE 0701.

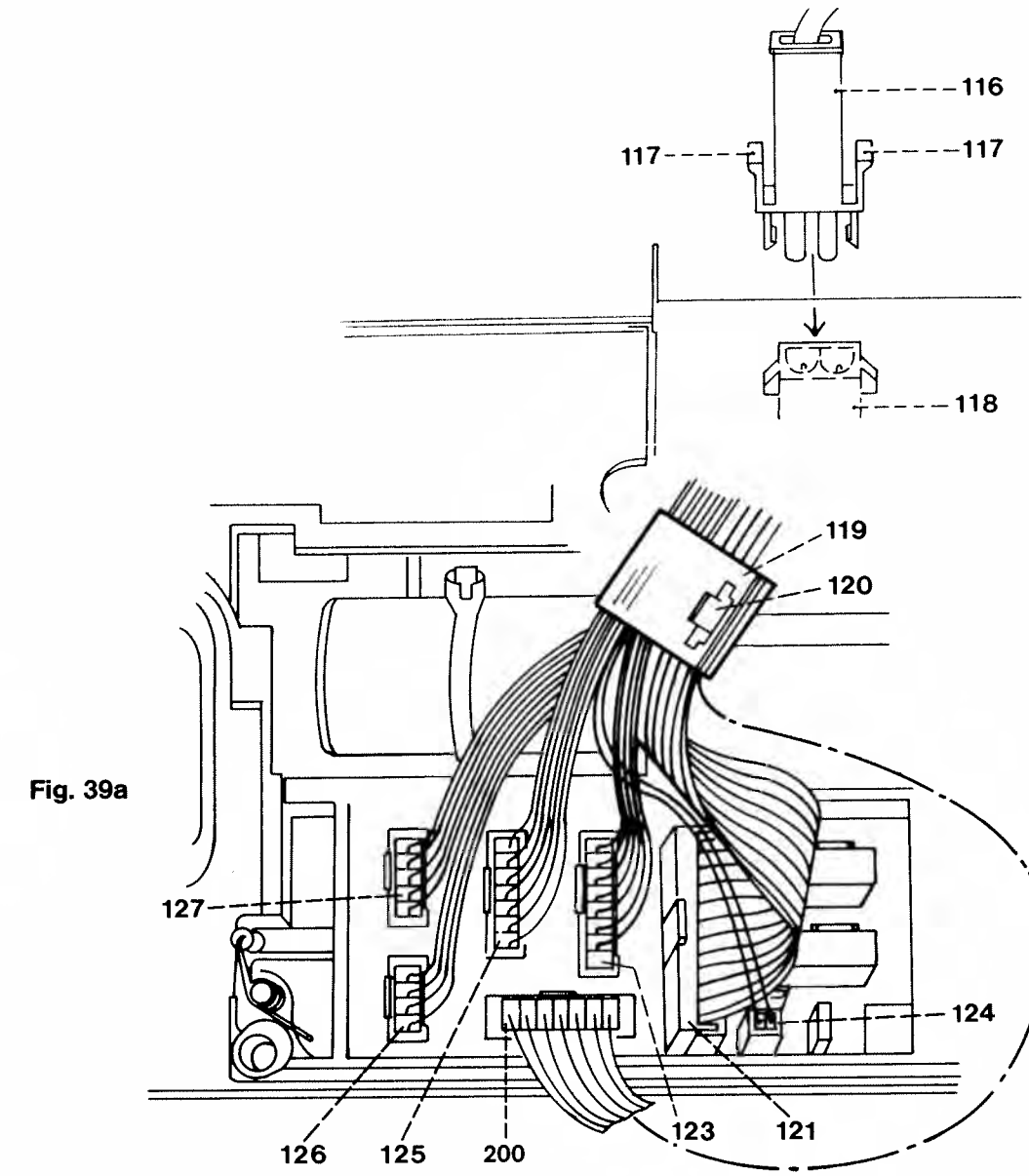


Fig. 39a

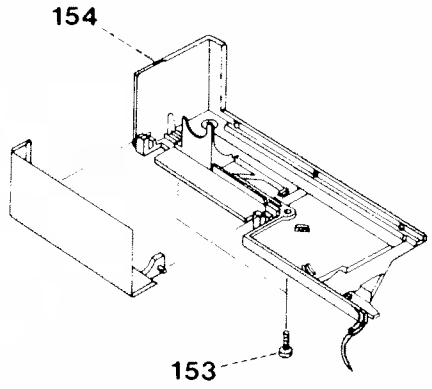


Fig. 39b

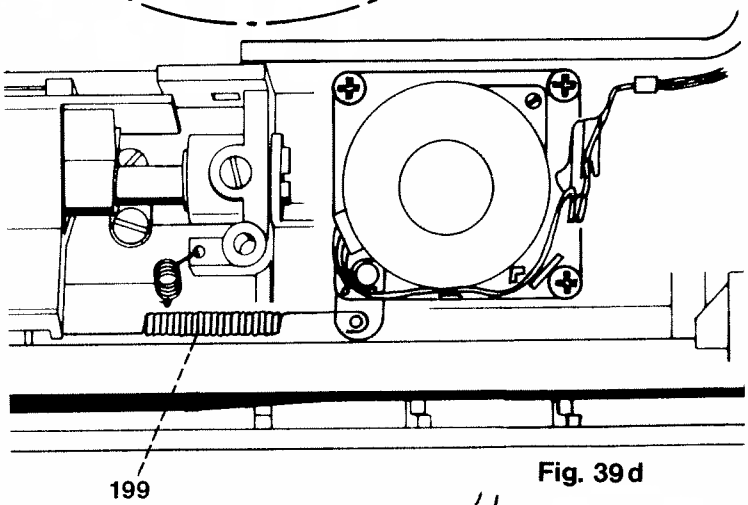


Fig. 39d

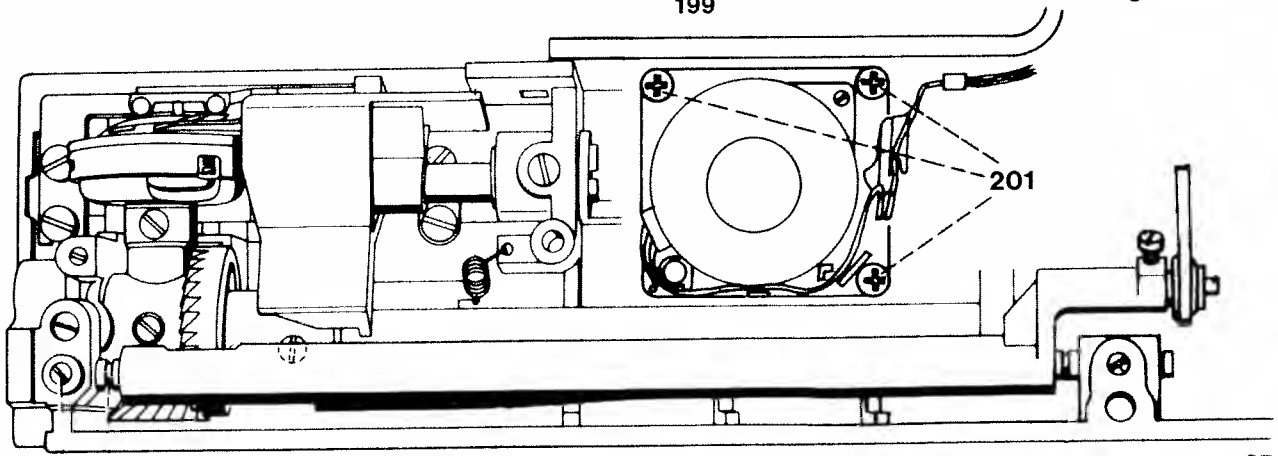


Fig. 39c

39b Foreword to the self-test

The built-in self-test program has a narrower test scope than the test computer.

However, the self-test function offers the mechanic a possibility for simple and quick machine testing.

Sequential faults are not detected.

Faults are only detected when the machine is mechanically in order.

The self-test is carried out sequentially; changing the test sequence is not possible.

However, the program can be stopped any time by switching the machine off.

If a fault occurs, the test is interrupted.

Generally, in case of an error the number of the replacement list (RL) is indicated. In some test steps, an additional visual check must be carried out.

In some cases the operator has to carry out actions at the machine within a certain time span (see column "remarks"), as otherwise the test program will consider a fault. In these cases, a dot is displayed behind the test number. If then a fault is detected, the dot will also be displayed (e.g. "RL.3"). For reasons of reliability, the test should then be repeated.

To proceed further, please refer to the replacement list. If a fault can not be removed, the test computer has to be used. If no fault occurs during the test, "test end" will be displayed and the machine switches over to test pattern 178.

Ascertainment of the input code (protection against theft and unauthorized use)

Note:

The input code must only be found out if the customer forgot it, or if the mechanic has to repair the machine without having been told the code.

Ascertaining the code:

Press key "needle down" and hold it.

Switch on the master switch.

Release "needle down"-key.

The display shows "test program" for about 5 seconds.

During this time, press key "display" and hold it.

Also press the "memory"-key.

The input code will be displayed after a few seconds.

After this, the 1475 CD automatically switches over to test pattern 178.

Test table Pfaff 1475

Step No.	Machine display/ test number	Visual check/ action at machine	Nominal machine display	Remarks
1		Machine without needle Master switch off 1. Take out bobbin case 2. Engage feed dog 3. Close free-arm cover 4. Engage arm shaft Needle bar up		
2 2		Actuate "needle down" key and master switch simultaneously To start **English** version, actuate "sew slow"-key and master switch simultaneously	TEST PROGRAM TEST PROGRAM	If no display, use test computer or fault finding chart
3	TEST PROGRAM	Visual check: all indicator elements must flash three times	All indicator elements flash 00.NEEDLE DOWN	Visual check negative, exchange respective subassembly
4	 00.NEEDLE DOWN 01.SEW SLOW 02.TIE OFF 03.REVERSE 04.+DECIMAL DIG 05.–DECIMAL DIG	Press specified key	 Indication of next key in sequence 06.SINGLE DIG	Important: If one of the keys is not pressed, the test program considers a fault after about 10 sec.

Test table Pfaff 1475

Step No.	Machine display/ test number	Visual check/ action at machine	Nominal machine display	Remarks
	06. +SINGLE DIG 07. −SINGLE DIG 08. + WIDTH 09. − WIDTH 10. + LENGTH 11. − LENGTH 12. + CORRECTION 13. − CORRECTION 14. DISPLAY 15. MEM+ 16. MEM− 17. MEMORY 18. DOUBLE NEEDLE 19. PAT.MIRR. 20. SINGLE PAT. 21. START PATTERN		22. FOOT CONTROL	If a wrong key is pressed, "WRONG KEY" is displayed and, after a while, another request to press the key required
5	22. FOOT CONTROL 23. FOOT CONTROL	Press pedal and release again Press pedal and release again	24. SYNCHRONIZER	Important: in case of test numbers with (dot) the test program considers a fault after about 10 seconds!
6	24. SYNCHRONIZER 25 FOOT CONTROL? 26. SYNCHRONIZER	Turn hand wheel slowly and evenly (approx. 2 sec/turn) 2 turns by hand Actuate pedal: Display changes **Do not** release pedal Turn hand wheel 1/2 turn (do not release pedal) and wait until display changes Release pedal	27 MOTOR TEST	
7	27 MOTOR TEST	Press pedal down fast as far as it will go, then wait until motor stands still again. Release pedal	28 NEEDLE DOWN	

Test table Pfaff 1475

Step No.	Machine display/ test number	Visual check/ action at machine	Nominal machine display	Remarks
8	28 NEEDLE DOWN 29 NEEDLE UP	Actuate pedal, wait until motor stands still Release pedal	 29 NEEDLE UP 30 BOBBIN # #	If machine does not stop in up- or down position: RL 9
9	30 BOBBIN # # # # 30 BOBBIN ( )	Insert full bobbin, actuate pedal until motor stands still. Release pedal! Insert bobbin case w/o bobbin (or cylinder gauge of test computer, 9.6 mm), close free-arm cover, actuate pedal until motor stands still. Release pedal!	 30 BOBBIN ( ) 31 STEP. MOTOR	# # means bobbin full ( ) means bobbin empty
10	31 STEP. MOTOR	Visual check: all stepping motors must run	 TEST END	If not: RL 3
11	TEST END	The test was successful		
12	178 9.0 2.5	Switch-over to test patterns		

40. Foreword to the test computer

The test computer always indicates the defective subassembly (see Fig. 40) which must then be exchanged.

There are always 2 possible sequences

1. During the test routine, display "F" appears and one or several red lamps light up simultaneously.
   The test is discontinued and the defective subassembly must be exchanged.
   This exchange is required, because a defective subassembly would prevent further testing. The test must be repeated and further indicated subassemblies are to be exchanged also.
2. The test sequence is performed to the end, display "E" appears and possibly one or several red lamps light up.
   If a display is made, the indicated subassembly must be exchanged.
   The test is carried out to the end with display "E" and no error is displayed, although the machine has a defect. Then the control circuit board must be exchanged.
   Afterwards the test is to be repeated.
3. If "E" appears without an error message although the machine has an error, the additional function test must be carried out.

Important! The test voltage of 250 V must not be exceeded.

In order to avoid damage to the test computer, check all connections against the text once more before inserting the mains lead.

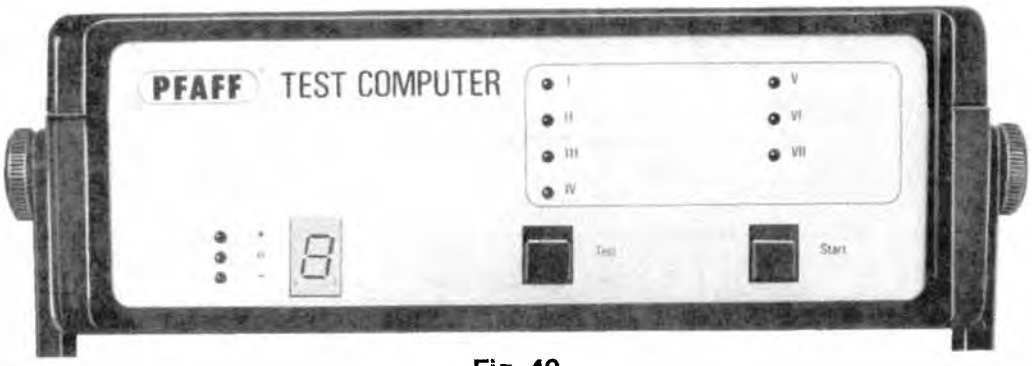


Fig. 40

With the help of the test computer, the following components which may have a defect can be traced:

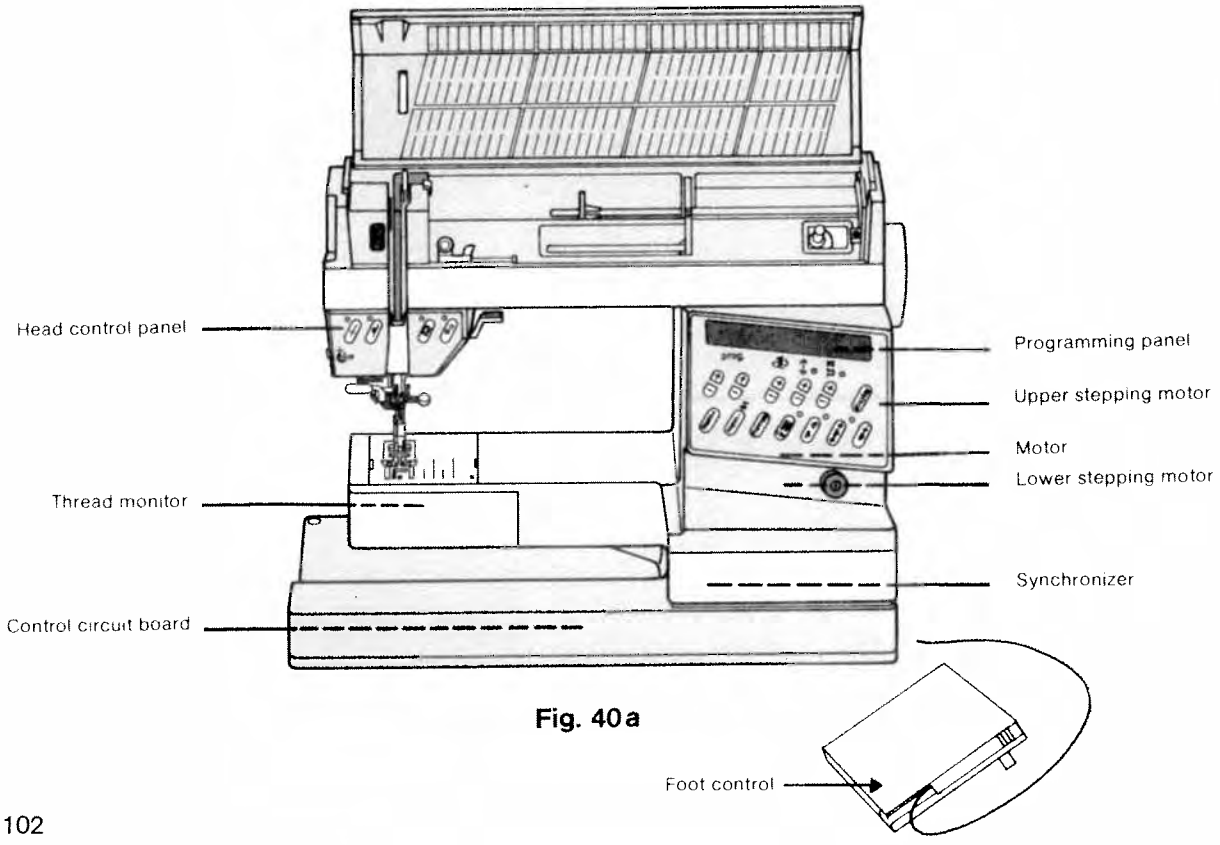


Fig. 40a

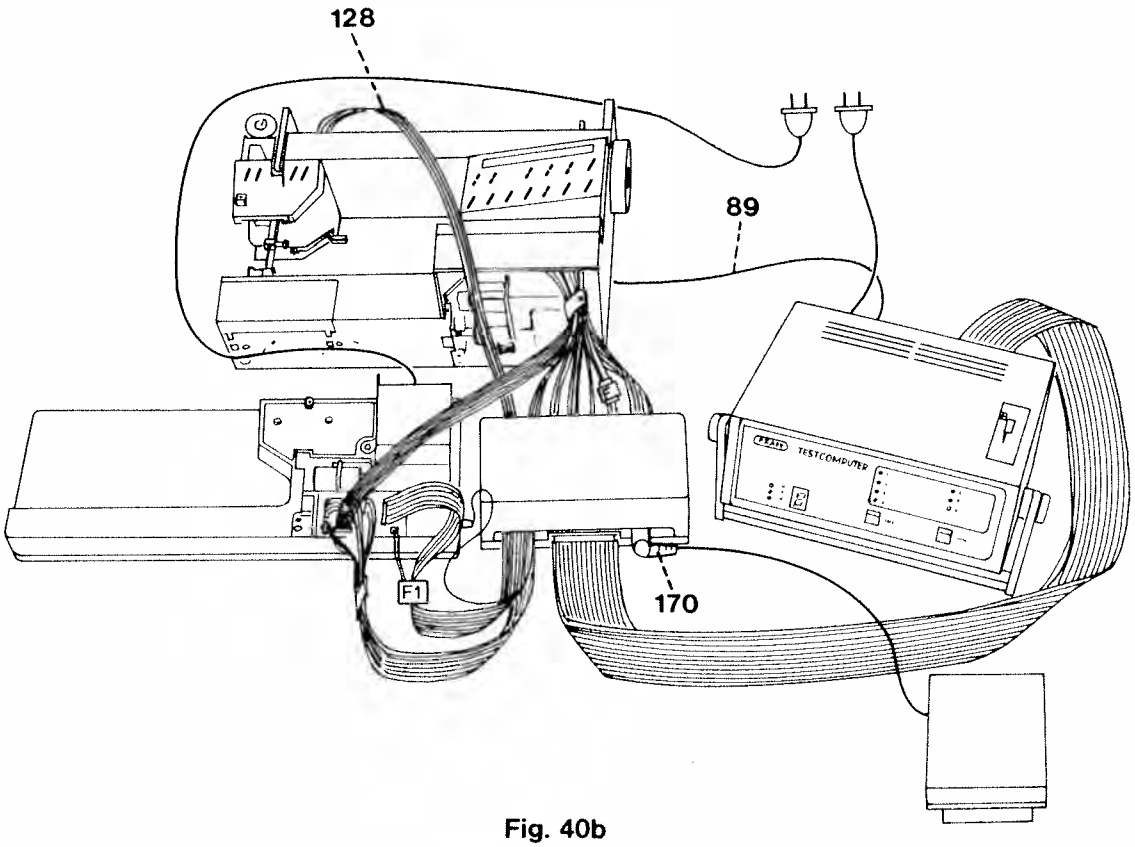


Fig. 40b

41. Test computer connection (Fig. 40b)

- Remove the needle and the sewing foot sole.
- Pull out the mains plug.
- Remove the arm cover.
- Loosen the face plate screw.
- Remove the face plate.
- Unscrew the two screws of the housing insert.
- Engage the bobbin winder and set the take-up lever down.
- Remove the housing insert.
- Place the machine on its back.
- Unscrew the four screws of the baseplate.
- Turn the baseplate around.
- Lift catches 122 by 1–2 mm and remove the plugs of the six flat cables of the following components from the control circuit board (Fig. 41):
  a) The five-connection plug of the synchronizer.
  b) The four-connection plug of the thread monitor.
  c) The seven-connection plug of the feed stepping motor.
  d) The eight-connection plug of the zigzag stepping motor.
  e) The two-connection plug of the motor.
  f) The twelve-connection plug of the programming panel.
- The red seven-connection plug of the transverse-drive stepping motor must be left connected to the circuit board.
- Remove the two cable clips.
- Take the seven-connection plug of the transverse-drive stepping motor out of the cable duct and keep it separate from the others.
- Press both catches 117 of motor-plug 116 together and remove the motor-plug upward.

Connect the testing lead of test box "E" as follows:
Control panel at needle head (Fig. 41a).

- Remove the two-connection plug 129 from the control-panel circuit board.
- Push the long cable with two-row testing plug 128 onto the pins of the circuit board.

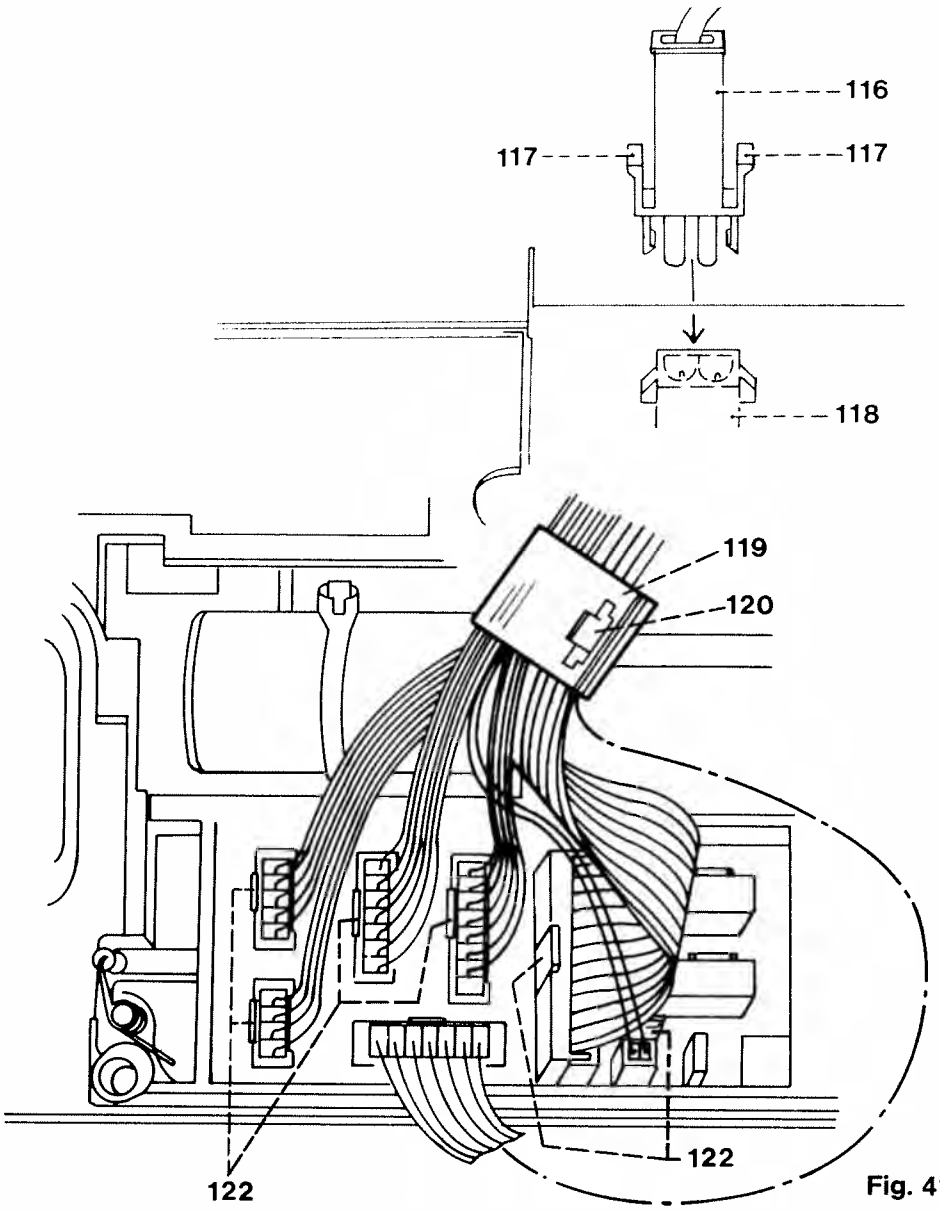


Fig. 41

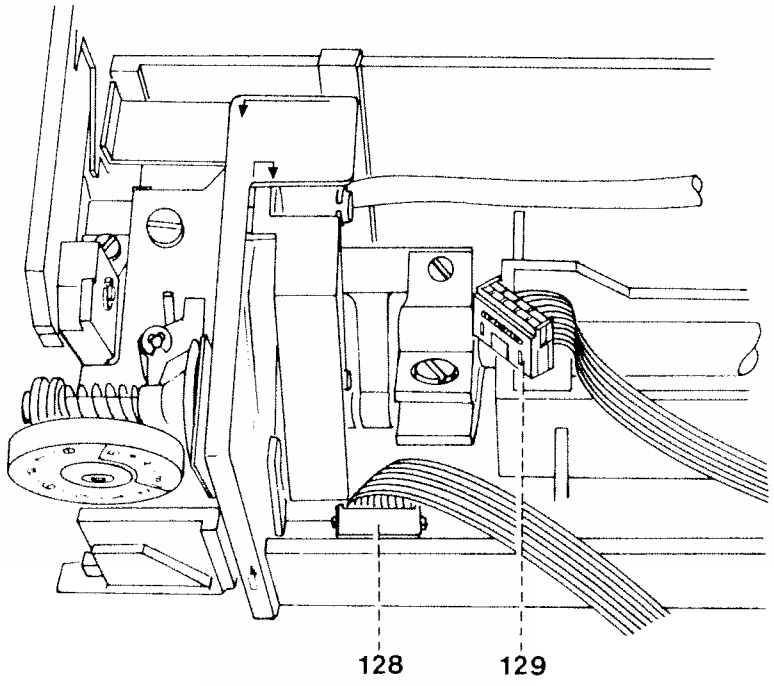


Fig. 41a

Connection of the electronic control board

The test leads coming from test box "E" are connected as follows (Fig. 41c):

- Five-lead plug 127a to five-pin base.
- Four-lead plug 126a to four-pin base.
- Seven-lead plug 125a to seven-pin base.
- Six-lead plug 123a to eight-pin base, so that the two front pins are unconnected.
- Two-lead plug 124a to two-pin base of adapter "F1".
- Two-lead plug of two-pin adapter "F1" to two-pin base.
- Flat cable with 12-lead plug 121a to twelve-pin base of adapter "F1".
- Twelve-lead plug of adapter "F1" to the twelve-pin base.
- Two-lead flat cable with round plug 182 to control board.

The cables of the sewing machine are connected to test box "E" as follows:

- The five-connection plug 127 to the five-pin base.
- The four-connection plug 126 to the four-pin base.
- The seven-connection plug 125 to the seven-pin base.
- The two-connection plug 124 to the two-pin base.
- The eight-connection plug 123 to the eight-pin base of plug adapter "F".
- The six-connection plug of plug adapter "F" to the six-pin base 123b.
- The twelve-connection plug 121 to the twelve-pin base.
- Insert multi-connector plug 83 with the groove upward in the socket of test box "E" and engage the locking levers.
- Insert the second multi-connector plug 83 with the groove upward in socket 78 at the back of the test computer and engage the locking levers (Fig. 41d).
- Insert connection cable 89 in the test computer and the machine (Fig. 40c and 40d).
- Insert the storage-module "F1" (Fig. 41b).
- Insert the control circuit board connection cable 183 into motor socket 118 and in the mains power outlet (Fig. 41c).
- Pull the cable out of the foot control and insert angular plug 170 in test box "E".
- Insert machine mains lead 80 in the test computer and the mains socket (Fig. 41d).
- Switch on the master switch.
- Immediately take out the lighted bulb.

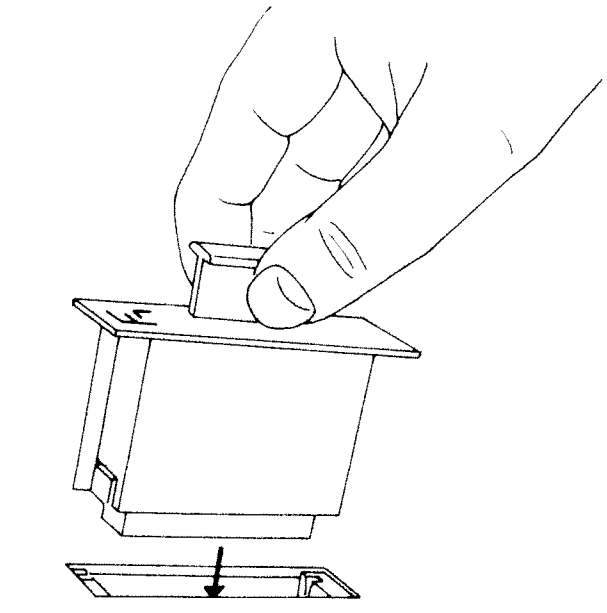


Fig. 41b

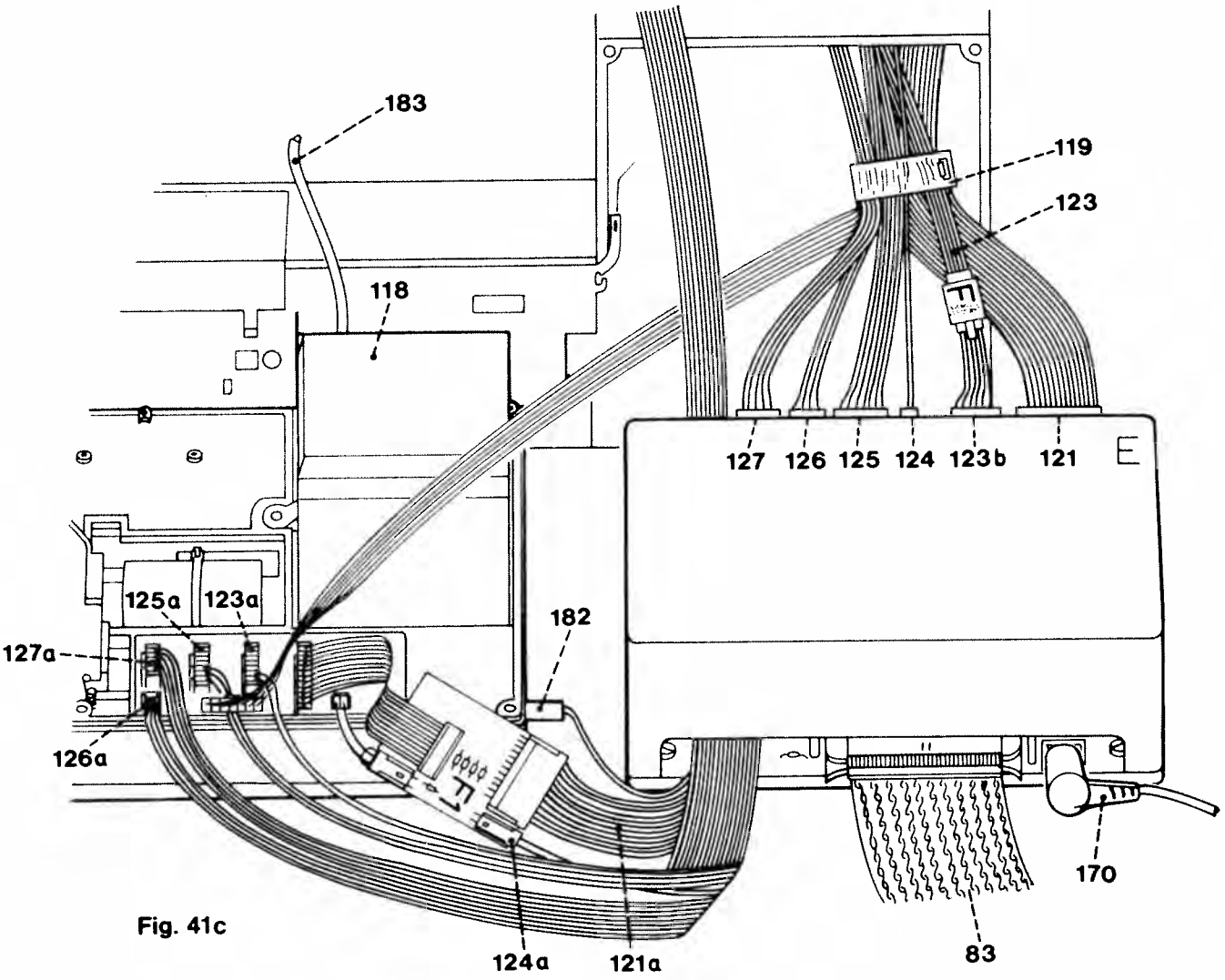


Fig. 41c

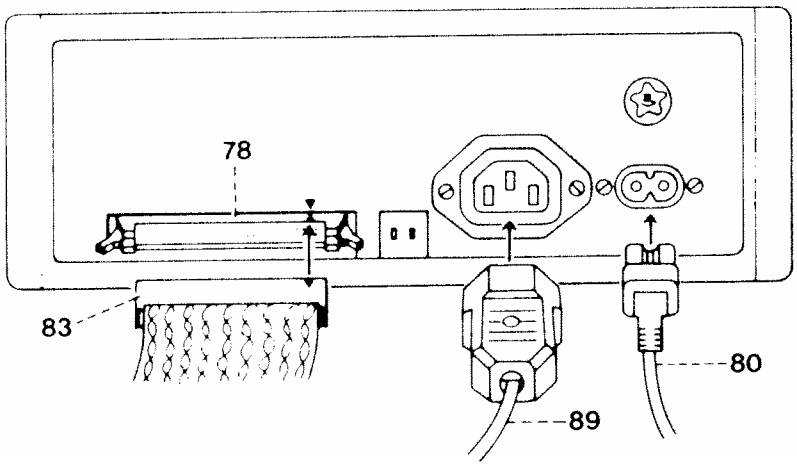
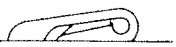
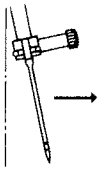
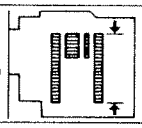
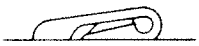
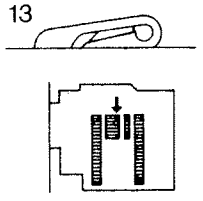
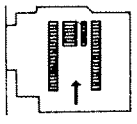
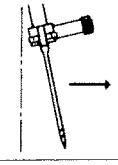
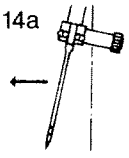


Fig. 41d

42. Test table PFAFF 1475 CD storage-module F1

Step No.	Test computer display		Test Computer Operation	Operation or visual check of the sewing machine	Nominal display test computer	Remarks and Fig. No.
	LED'S	7-segment-disp.				
1				Machine without light bulb, without needle, main switch on. 1. Disengage bobbin winder 2. Insert full bobbin with bobbin case 3. Engage feed dog 4. Close free-arm cover 5. Engage arm shaft 6. Adjust descending take-up lever according to Fig. 6 7. Press needle bar against right stop (Fig. 7) 8. Remove sewing foot holder 9. Remove needle plate 10. Push feed dog very accurately to the middle of the free-arm opening (Fig. 10)		One of the 3 tachometer adjustment bulbs must be lighted 6  7  10 
2			Press "START"	Of the 3 tachometer adjustment lamps the red one must be lighted (see step No. 1, item 6)	8 flashing	d = Memory module not plugged in.
3	I to VII flashing	8 flashing	Operate "TEST"		–	If display does not change, please check connections
3a	Off	+ 0 – –	Release "TEST"		1	After a few seconds a code will appear on the test computer – please wait.
4		1	see remarks	1. Visual check at needle-head control panel: All 5 lamps must be continuously on.	1	If visual check is negative, please push **"TEST"** If O.K., see step 4a.
4a		1	*	2. Press control panel key "needle down" for one second.	2	
5		2	*	Press control panel key "slow sewing" for one second.	3	* If no display is made after the machine is operated correctly for 2 to 3 secs., press "TEST" key for one second
6		3	*	Press control panel key "tie off" for one second.	4	
7		4	*	Press control panel key "reverse" for one second.	5	

42. Test table PFAFF 1475 CD

Step No.	Test computer display		Test Computer Operation	Operation or visual check of the sewing machine	Nominal display test computer	Remarks and Fig. No.
	LED'S	7-segment-disp.				
8		5	*	Fully depress foot control, then release again very slowly.	6	
9		6	*	Turn hand wheel two full turns. Check at take-up lever.	7	From t.d.c. to t.d.c. 
10		7	*	1. Insert cylindr. gauge for empty bobbin with bobbin case. 2. Close free arm cover. 3. Turn hand wheel one full turn.	8	
11		8	Push "TEST"	Hold sewing machine.	9 I	Caution: Sewing machine will turn at higher speed (roughly 1,200 r.p.m.) for a few seconds.
12	I	9		Turn hand wheel manually in sewing direction, operate "TEST" during turning. Release hand wheel after machine has started to run.	9 I	
12a	I	9	Operate "TEST" (1 sec.)	Machine runs at low speed and then stops.	9 II	60 r.p.m. 9 I 950 r.p.m. 9 II Stop (top) 9 III
12b	II	9	Operate "TEST"	Machine runs at max. speed and stops at top.	9 III A	
13		A		Set descending take-up lever according to Fig. 13 Push feed dog towards front (Fig. 13).	A	13 
13a		A	*	Push feed dog towards rear (Fig. 13a).	b	13a 
14		b		Needle bar must be at right (Fig. 14).	b	14 
14a		b	*	Push needle bar against left stop (Fig. 14a).	C I	14a 

42. Test table PFAFF 1475 CD

Step No.	Test computer display		Test Computer Operation	Operation or visual check of the sewing machine	Nominal display test computer	Remarks and Fig. No.
	LED'S	7-segment-disp.				
15	I	C	see remark	Programming panel 1. **Visual check:** Nominal display: 00 2,5 or when battery empty: 00 BATTERIE	C I	**Visual check: If negative, please press "TEST" for one second.**
15a	I	C	*	2. Press "mem–" key for one second	C II	
16	II	C	see remark	Programming panel 1. **Visual check:** 1.1 all LED's must be off 1.2 Nominal display 00 2,5	C II	**Visual check: If negative, please press "TEST" for one second**
16a	II	C	*	2. Press key "double needle" for one second.	C III	
17	III	C	see remark	1. **Visual check:** LED "double needle" must light up (all others OFF)	C III	**Visual check: If negative, please press "TEST" for one second.**
17a	III	C	*	2. Press "single-pattern" key for one second. → ' ' ←	C IV	
18	IV	C	see remark	1. **Visual check:** LED "single pattern" must light up	C IV	**Visual check: If negative, please press "TEST" for one second.**
18a	IV	C	*	2. Press "pattern mirror" key for one second ' '	C V	
19	V	C	see remark	1. **Visual check:** LED "pattern mirror" must light up	C V	Visual check: If negative, please press "TEST".
19a	V	C	*	Program 2. Press key "display" for one second.	E	

42. Test table PFAFF 1475 CD

Step No.	Test computer display		Test Computer Operation	Operation or visual check of the sewing machine	Nominal display test computer	Remarks and Fig. No.
	LED'S	7-segment-disp.				
20	Fault-signals E or F	E		-		If ended without fault, see table "E".
		F		-		Interruption of test with fault see table "F"
20a	Fault-signals F	F (flashing)		-		Same as F, but faults still exist in table "E"
		F (flashing)	Press "TEST" until display changes.	-	E (flashing)	When "TEST" is pressed, table "E" is displayed
20b	Fault-signals E	E (flashing)		-		When "TEST" is pressed, table "E" is displayed

When "F" or "F flashing" is displayed, this does not necessarily mean that all components to be exchanged (in "F" or "E") light up. After replacement of the indicated components, test again and replace further components until "E" is displayed without fault indication.

43. Replacement table E

(E – flashing = faults also exist in table F)

Fault LED	Tested assembly	1st replacement part	2nd replacement part	Remarks
I	Head control panel	Head control panel	–	Flat test lead properly connected?
II	Foot control	Foot control	–	–
III	Thread monitor	Clean hook area and hook mirror	Thread monitor with free-arm cover	–
IV	Programming panel	Programming panel	Control circuit board	–
V	Feed driving stepping motor assembly – Hall switch	Feed driving stepping motor assembly	–	–
VI	Feed driving stepping motor assembly – Stepping motor	Feed driving stepping motor assembly	–	–
VII				

– E without fault ind. = Test completed. After re-assembly see additional function test for test computer.

43. Replacement table F

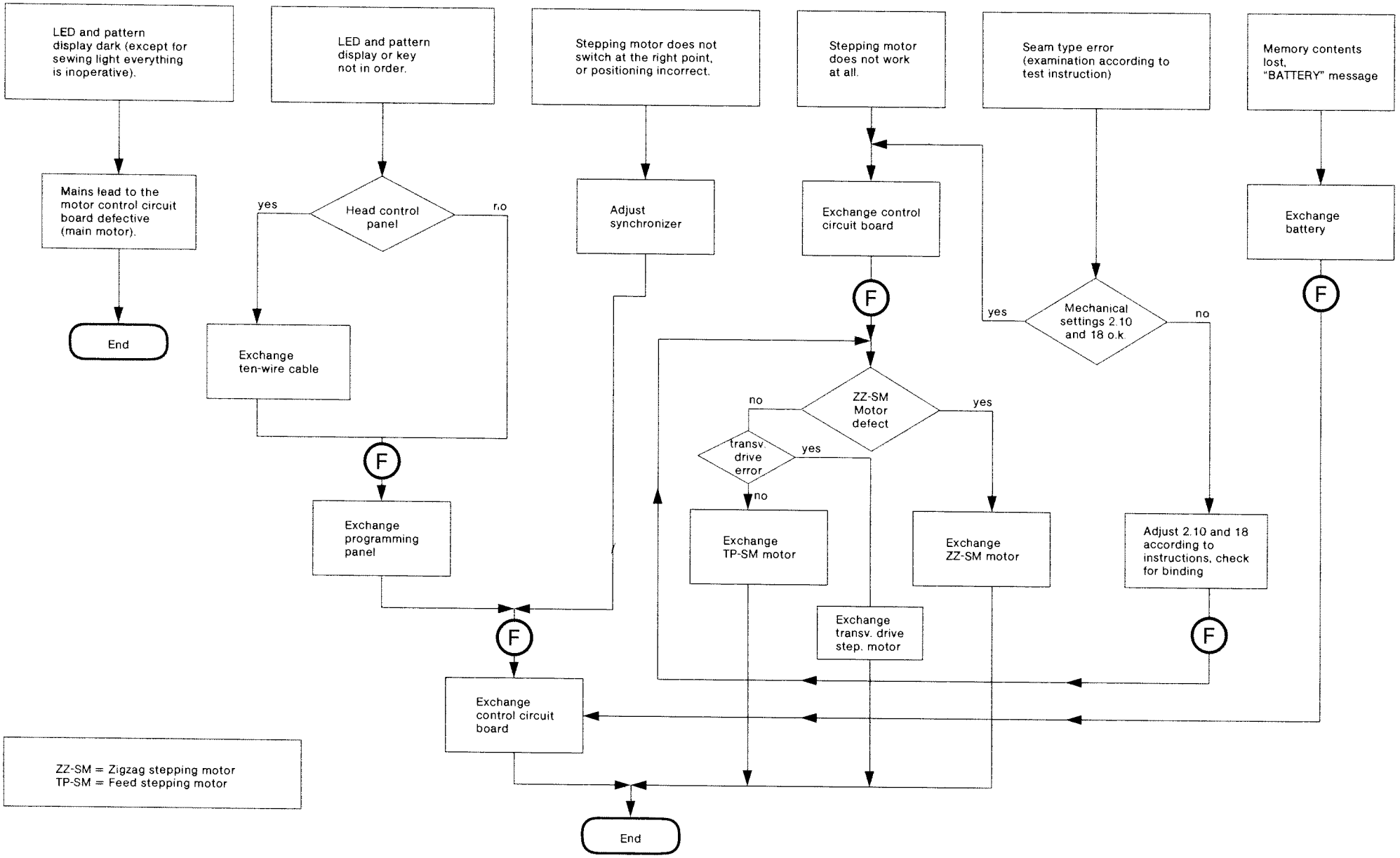
(F – flashing = faults also exist in table E)

Fault LED	Tested assembly	1st Replacement part	2nd Replacement part	Remark
No LED	Connection fault	Check connections	–	–
I	Synchronizer	Synchronizer	–	–
II	Main motor	Main switch off?	Main fuse defective? (no fuse on machines with 115 V)	Motor
III	Main motor	a) Mains test lead for control circuit board is not connected. b) Sewing lamp still in place	Machine binds (should be about 25 N/cm) e.g. very cold*	Motor
IV	Main motor	Machine binds	Motor	–
V	Needle motion stepping motor – Hall switch	Needle motion stepping motor assembly	–	–
VI	Needle motion stepping motor – Stepping motor	Needle motion stepping motor assembly	–	
VII	Control circuit board	Mains testing lead not connected or machine binds	Control circuit board	Transverse-drive stepping motor assembly

*Run machine warm with foot control

44. Additional function test for test computers

Only if the machine still has a defect after a faultless test (E without error message).



45. Disconnecting the test computer

- ● Pull the machine mains lead out of the mains socket.
- ● Remove the mains plug of the connection cable from the mains socket.
- ● Pull the round plug of the foot control out of the test box.
- ● Press the catches of connection cable 183 together and pull cable out of motor socket.
- □ Remove the flat sewing machine cables from the test box.
- ● Pull the eight-connection plug out of adapter "F".
- ○ Remove the testing leads of the text box from the control circuit board.
- ● Remove two-row testing plug 128 from the needle-head control panel (Fig. 45b).
- ● Plug two-row plug 129 onto the pins of the needle-head control panel.
- ● Pull connection cable 89 out of the machine (Fig. 45).
- ● Place the baseplate at the machine.
- □ Now all cables are connected to the circuit board as follows (Fig. 45a).
- ● Insert motor plug 116 in motor socket 118 (both catches must engage).
- ● The five-connection plug 127 to the five-pin base.
- ● The four-connection plug 126 to the four-pin base.
- ● The seven-connection plug 125 to the seven-pin base.
- ● The two-connection plug 124 to the two-pin base.
- ● The eight-connection plug 123 to the eight-pin base.
- ● The twelve-connection plug 121 to the twelve-pin base.
- ● Fit the second cable clip 119 according to Fig. 45a.
- ● Fold the baseplate in place on the machine and install all cables in the housing.
- ● Fasten the baseplate with the four screws.
- ● Set the machine in its normal working position.
- ● Fit the housing insert.
- ● Fasten the housing insert with both screws.
- ● Disengage the bobbin winder.

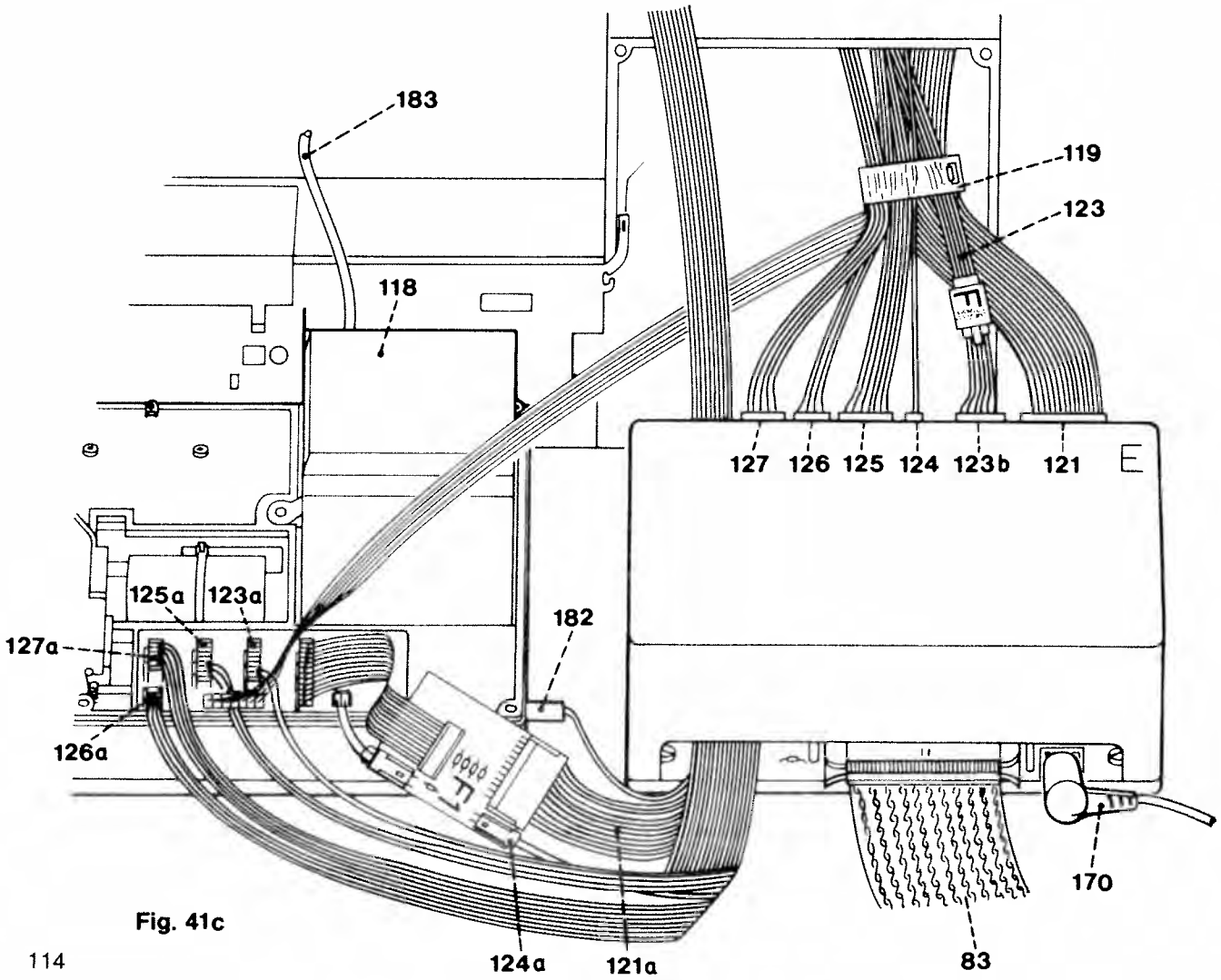


Fig. 41c

- ● Insert the light bulb.
- ● Fit the face plate.
- ● Fasten the face plate with screw.
- ● Fit the arm cover.
- ● Insert the needle plate.
- ● Screw on the sewing foot holder.
- ● Attach the sewing foot sole.
- ○ Perform a check of all functions.
- □ Perform an electrical safety test with the Metratester 2 or 3 testing appliance according to VDE 0701.

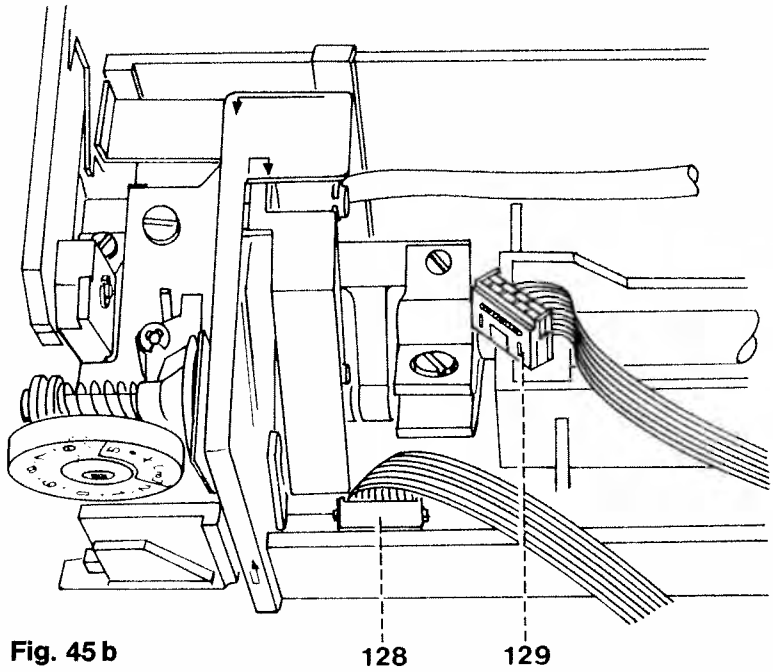


Fig. 45 b

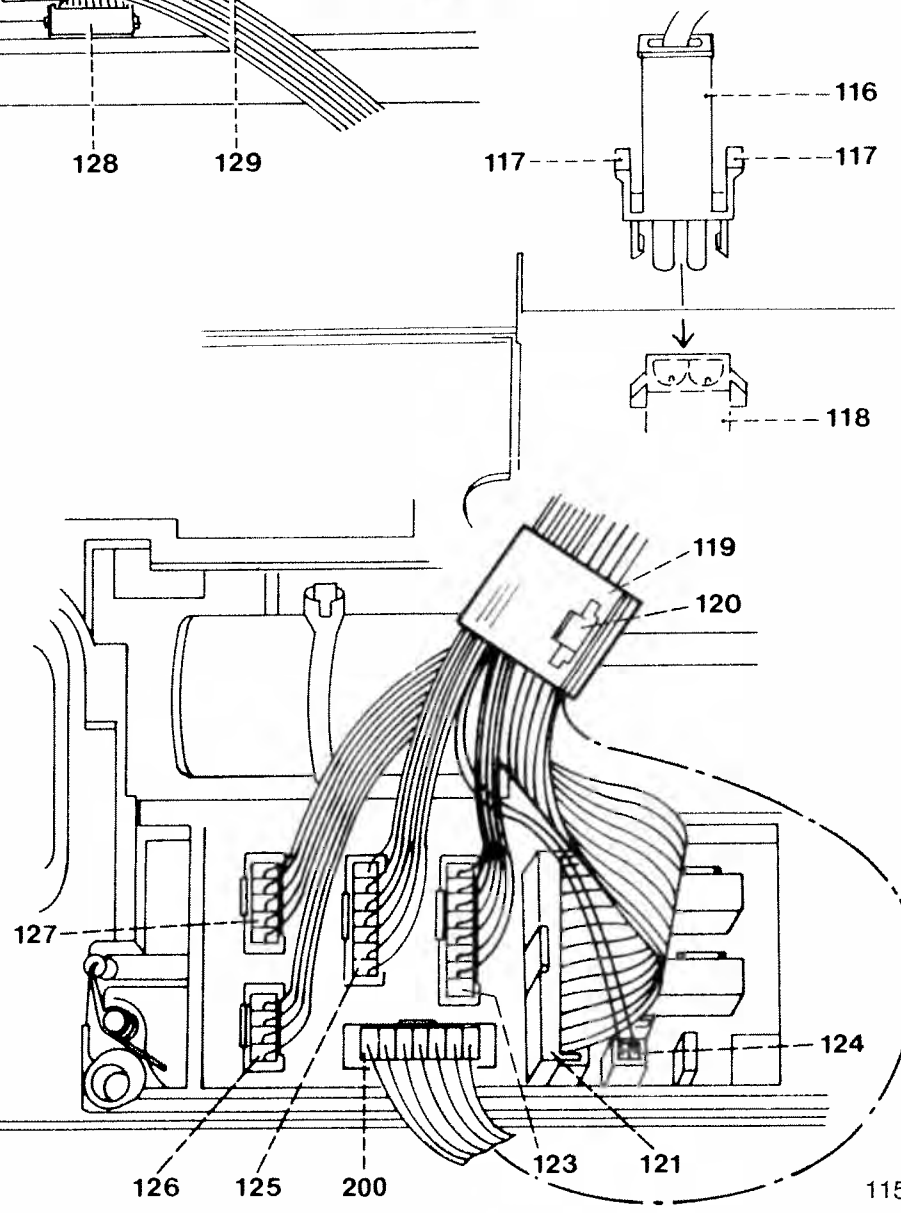


Fig. 45a

46. Fault chart for electrical parts

Fault:	1st Replacement pt.	2nd Replacement pt.	3rd Replacement pt.	4th Replacement pt.	5th Replacement pt.
Machine is switched on but does not run when foot control is operated	Fuse FF2A Mains lead	Foot control	Control circuit board	Main switch with motor circuit board, motor	Programming panel
Machine runs continuously on its own after a brief switch-on time	Foot control	Control circuit board			
Figures or letters in display do not light up, or flutter	Programming panel	Control circuit board	Head control panel, ten-wire cable	Zigzag stepping motor	Motor circuit board Motor
LED display on programming panel does not light up	Programming panel	Control circuit board	Head control panel		
LED display on head control panel does not light up	Head control panel Ten wire cable	Programming panel	Control circuit board		
Zigzag stepping motor works continuously or needle bar moves continuously from side to side	Control circuit board	Zigzag stepping motor			
Feed stepping motor works continuously or feed dog moves continuously backwards and forwards	Control circuit board	Feed stepping motor			
Machine starts at top speed, then stops again	Replace synchronizer and adjust it	Control circuit board			
Transverse drive stepping motor runs continuously or feed dog moves continuously	Control circuit board	Transverse-drive stepping motor			

46. Fault chart for electrical parts

Fault:	1st Replacement pt.	2nd Replacement pt.	3rd Replacement pt.	4th Replacement pt.	5th Replacement pt.
Thread monitor makes no indication	Clean sewing hook area, hook mirror, bobbin and two sensors	Thread monitor assembly	Control circuit board	Head control panel ten wire cable	Programming panel
Feed out of step straight stitch sewn with wrong stitch lengths forward or reverse	Check: Top feed or bottom feed is loose or binding	Slide block jams or has too much play	Feed stepping motor	Control circuit board	
Zigzag needle movement out of step pattern shifted sideways, or needle strikes plate	Needle bar frame jams or is loose	Zigzag stepping motor	Control circuit board		
Take-up lever top position and needle down position	Adjust synchronizer	Replace synchronizer	Control circuit board		
Speed control (faster or slower)	Foot control	Control circuit board	Synchronizer		
Half or full speed at key "slow sewing"	Head control panel ten-wire cable	Control circuit board	Programming panel		
Battery indicator	Change battery	Control circuit board			
Transverse drive out of step (strikes needle plate or pattern only 9 mm wide)	Transverse drive mechanism binds or is loose	Transverse drive stepping motor	Circuit board		

46a Test table for CREATIVE DESIGNER

Test arrangement: Machine Cl. 1475 CD in functioning order
Test adapter type F
and Creative Designer to be tested

Step No.	Operation/visual check sewing machine Cl. 1475 CD	Operation Creative Designer	Visual check test adapter F	Remarks
1	Connect sewing machine to mains network, switch off; plug cable of test adapter into 5-pole DIN-socket at left side of machine baseplate, and plug cable of Creative Designer into test-module socket. Switch the machine on.	–	LED is lit	If LED not lit: sewing machine defective
2	Select empty P-pattern (only the P-number is displayed), then press key "mem–". Machine displays: Pxx B00 L00 .1	Move coordinates slide slowly to the left bottom corner (coordinates 0.0)	–	
3	Display remains the same	Move coordinates slide slowly to the top edge		
4	Display shows: Pxx B54 L00 .1	Operate key "mem+"	–	Display does not show final value: Creative Designer defective
5	Display counts until: Pxx B54 L00 .2	Move coordinates slide slowly to the right edge	–	Display does not show final value: Creative Designer defective

6	Display shows: Pxx B54 L198 .2	Operate key "mem+"	–	Display does not show final value: Creative Designer defective
7	Display shows: Pxx B54 L198 .3	Move coordinates slide slowly to the bottom edge	–	Display does not show final value: Creative Designer defective
8	Display shows: Pxx B00 L198 .3	Operate key "memory"	–	Display does not show final value: Creative Designer defective
9	Display shows: Pxx B00 L198 --		–	Display does not show final value: Creative Designer defective

Note: When the test is finished, erase the "P"-memory used

47. Electrical safety test

(Working time 5 to 10 minutes)

Testing of repaired or used sewing machines and motors in accordance with VDE-regulation 0701 with the Metratester 2 or 3 testing appliance. According to the law for safe machine operation of 24–6–68, the VDE-regulations are regarded as the offical rules in electronics and are the basis for the regulations for testing electrical safety of technical devices.

The required electrical tests are established in the regulations for repair, modification and testing of used electrical appliances (VDE 0701 issue 9.71) par. 3.

It is obligatory to perform a test in accordance with VDE 0701 on every electrical appliance after repair.

In European foreign countries, there are similar regulations in force which are largely identical with the requirements of the 0701.

Therefore, a test according to VDE 0701 must always be carried out.

Please also see the additional PFAFF instructions for the Metratester No. 21532 Wi 0474.

48. Electrical safety test with Metratester 2

I. **Mains voltage test:** Volts = V

- For all following tests insert plug of Metratester in the grounded mains socket (turn until green lamp lights up).
- Insert plug of sewing machine into the left socket of the Metratester (Fig. 48).
- Set switch at V Netz (V mains, scale V).
- Run the machine.
- Meter reading: 220 V ± 10 %
- ○ or with 110 V = 110 ± 10 %.

II. **Appliance current test:** Amperes = A

- Plug of sewing machine remains in left socket.
- Set switch at A x 1 (scale IV).
- Run the machine.
- Meter reading: 0.5 A maximum (see Fig. 48a)
- ○ or with 110 V = 1 A maximum.

III. **Insulation resistance:** Ohms = Ω

- Plug of sewing machine remains in right socket.
- Attach leads of the Metratester to needle bar (see Fig. 48b).
- Set switch at M Ω (scale III).
- Meter reading: 5 M Ω minimum for safety class II.

IV. **Leakage current:** Amperes = A

- Plug of sewing machine remains in right socket.
- Attach leads of the Metratester to needle bar (see Fig. 48c).
- Set switch at mA (scale II).
- Meter reading: 0.50 mA for safety class II.
- Cover foot control with metal foil and measure.

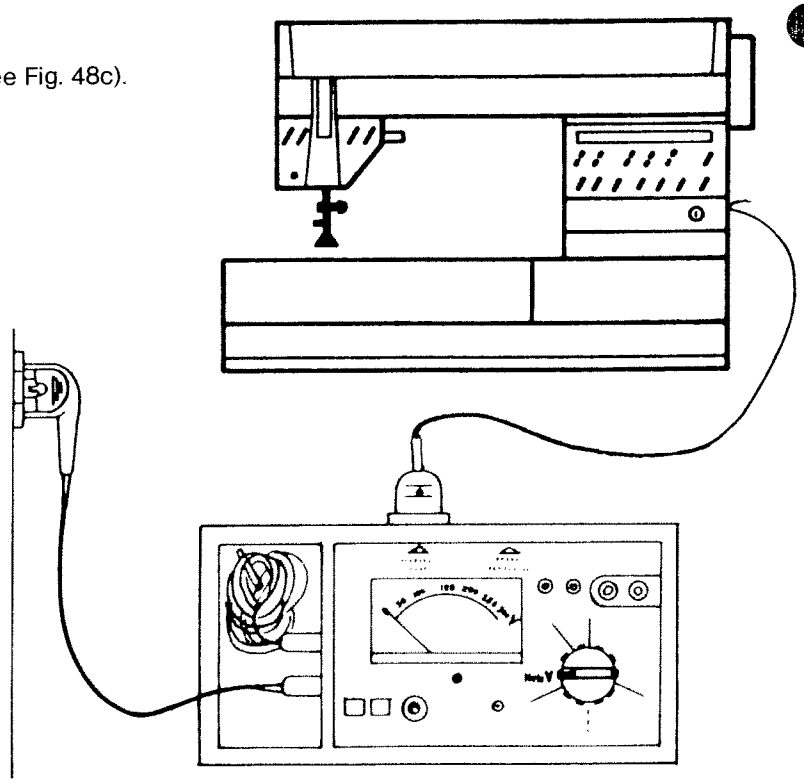


Fig. 48

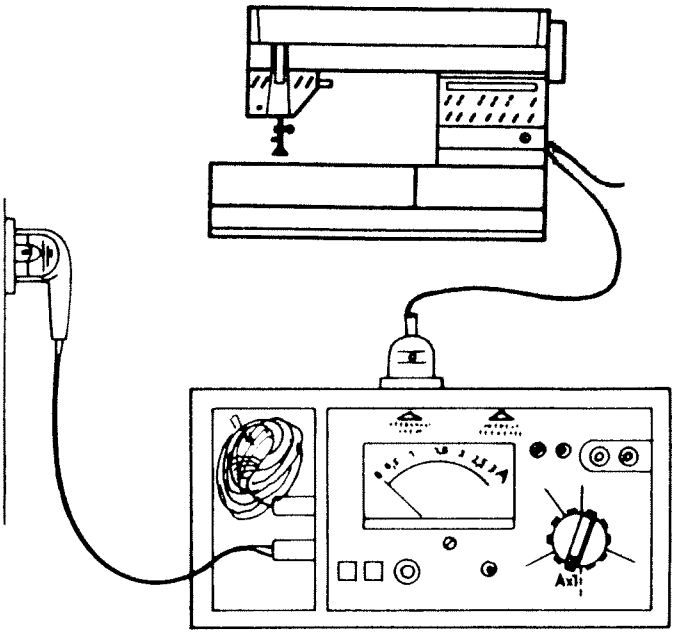


Fig. 48a

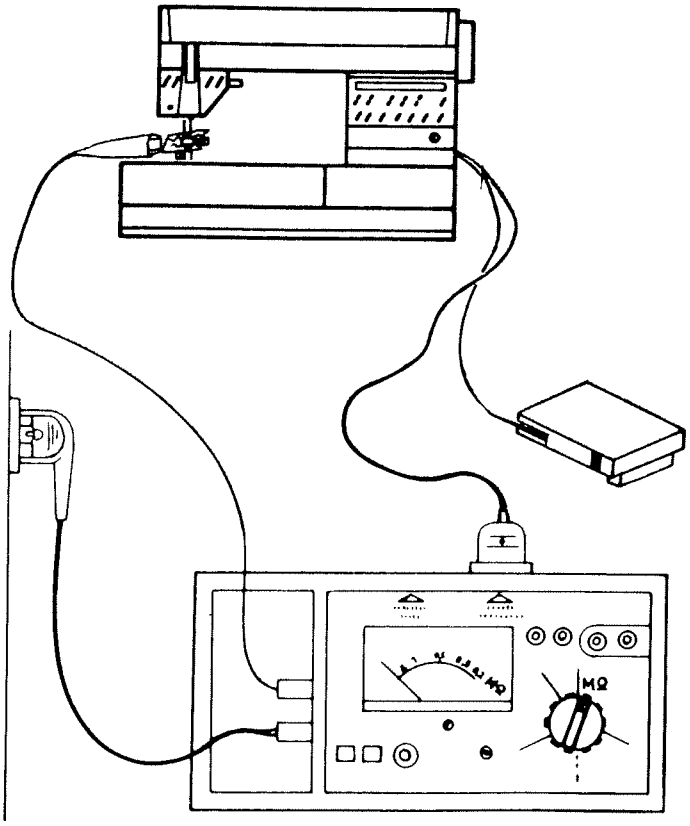


Fig. 48b

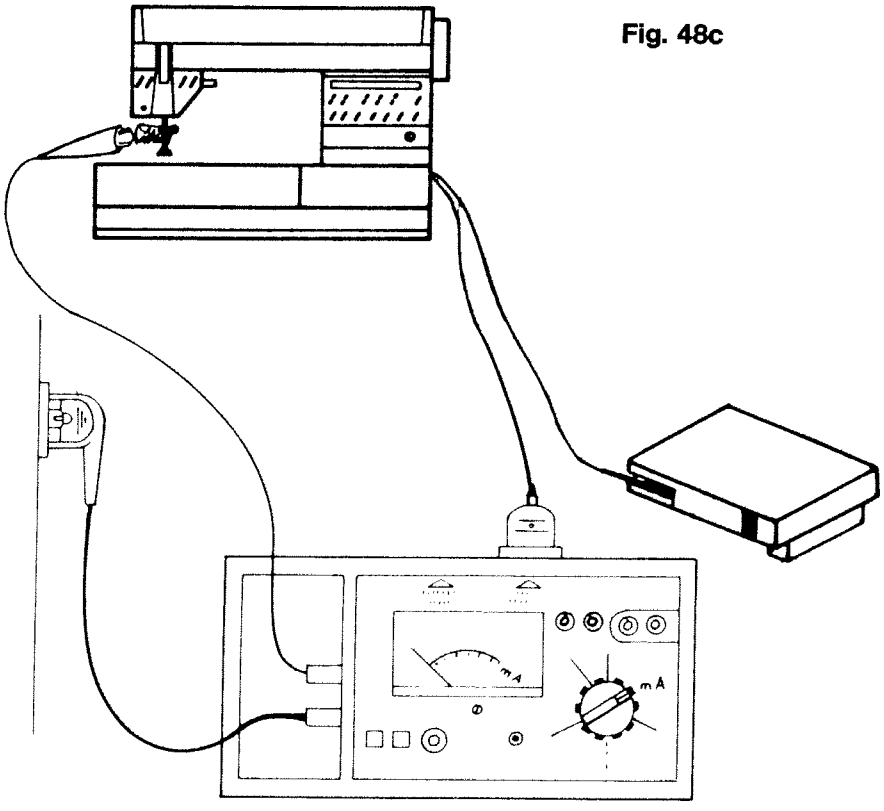


Fig. 48c

49. Electrical safety test with Metratester 3

I. **Mains voltage test:** Volts = V

- For all following tests insert plug of Metratester in the grounded mains socket (see Fig. 49), the left lamp for mains current must then be continuously lit.
- Press the right grey button. The right lamp for the ground wire must then light up.
- Now touch the left metal finger-contact button. The right lamp for the ground wire must **not** light up.
- Insert plug of the sewing machine in the left socket of the Metratester.
- Set switch at 250 V Netz (V mains, scale I).
- Run the machine.
- Meter reading: 220 V ± 10 %
- ○ or with 110 V = 110 V ± 10 %.

II. **Appliance current test:** Amperes = A

- Plug of sewing machine remains in left socket.
- Set switch at 5 A (scale I) (see Fig. 49a).
- Run the machine.
- Meter reading: 0.5 A maximum
- ○ or with 110 V = 1 A maximum.

III. **Insulation resistance:** Ohms = Ω

- Plug of sewing machine remains in right socket.
- Set switch at M Ω (scale II) (see Fig. 49b).
- Meter reading: 5 M Ω minimum for safety class II.

IV. **Leakage current:** Amperes = A

- Plug of sewing machine remains in right socket.
- Set switch at mA (scale III) (see Fig. 49c).
- Meter reading: 0.5 mA for safety class II.

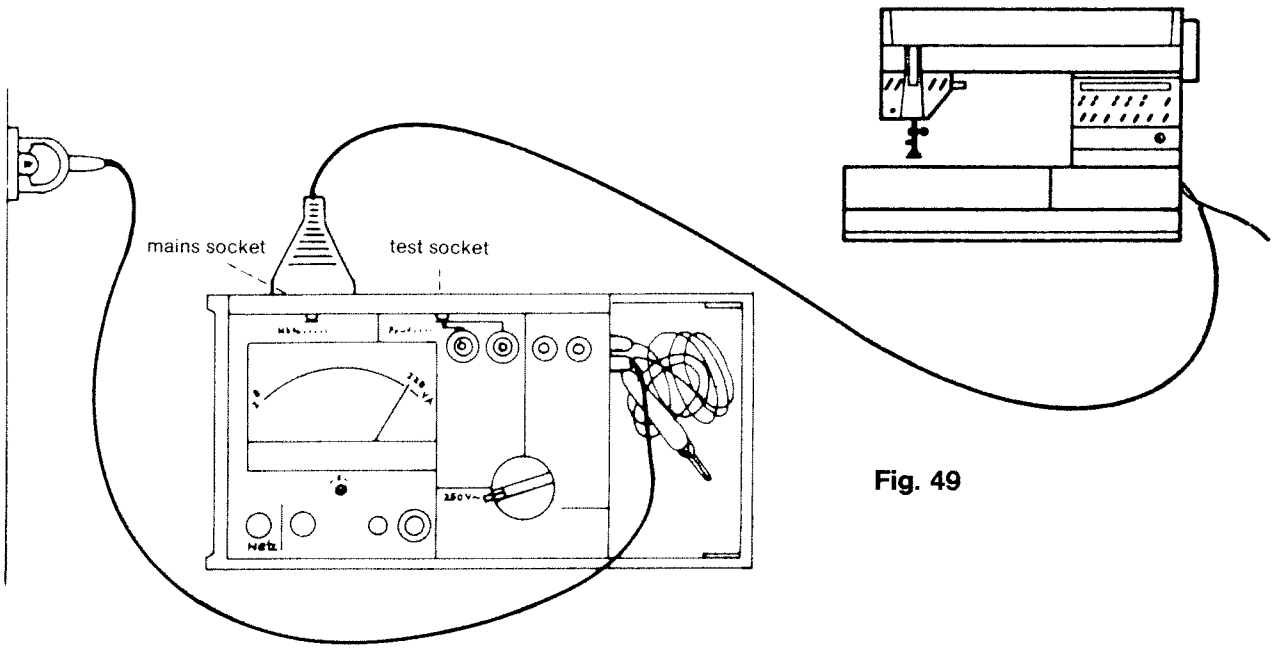


Fig. 49

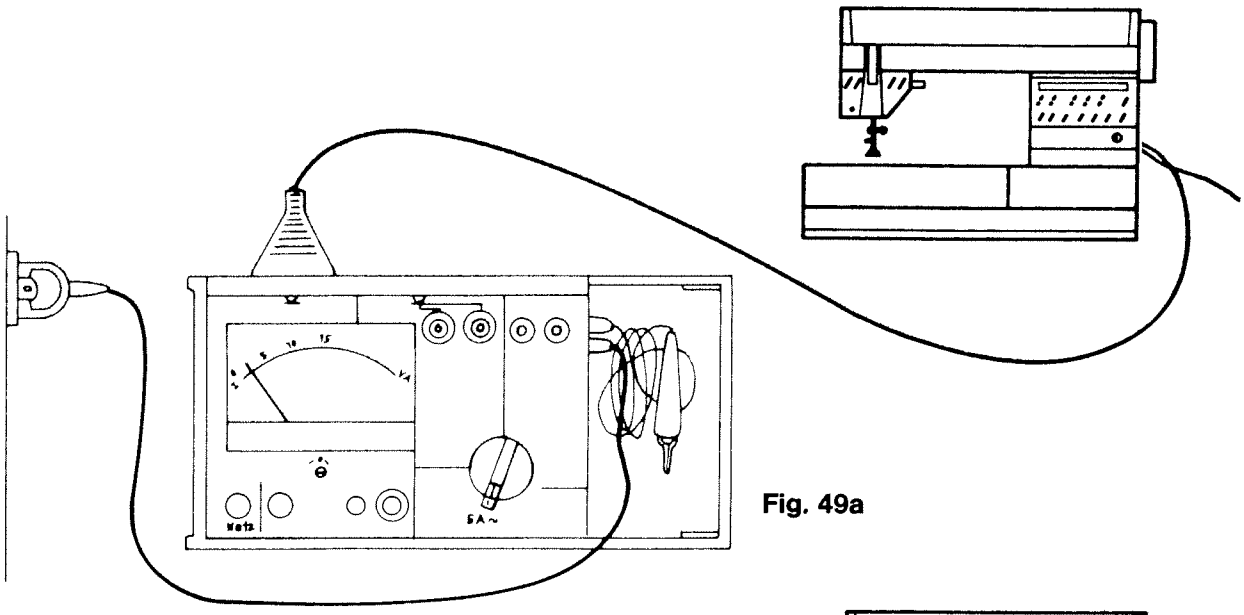


Fig. 49a

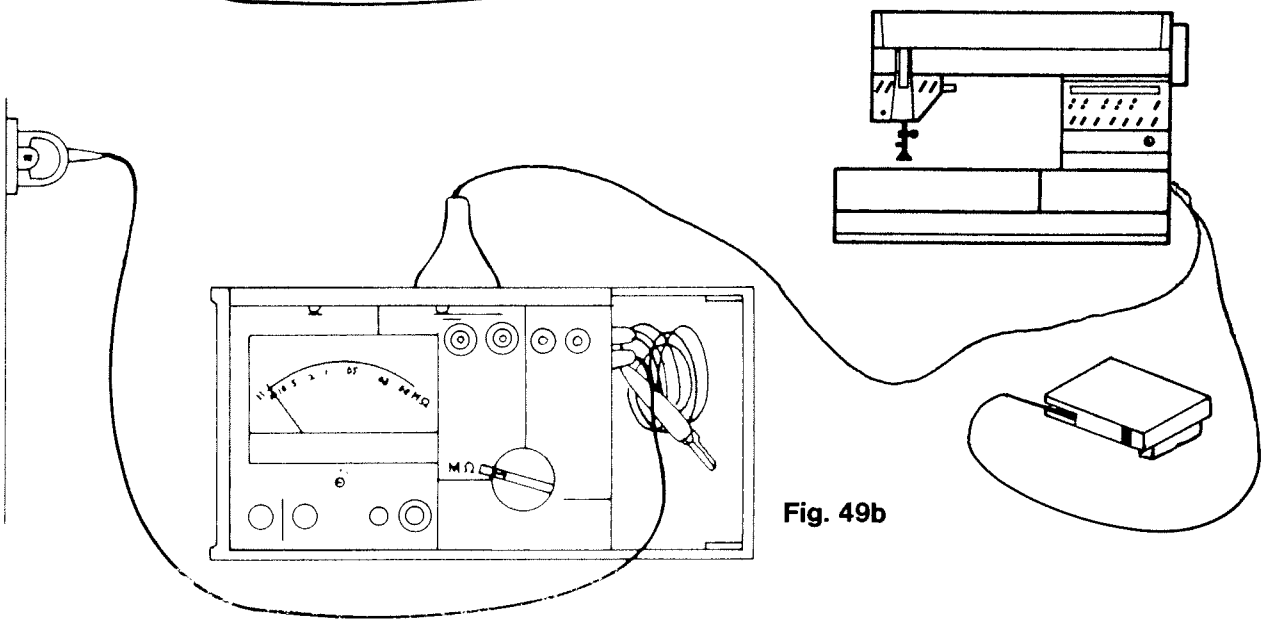


Fig. 49b

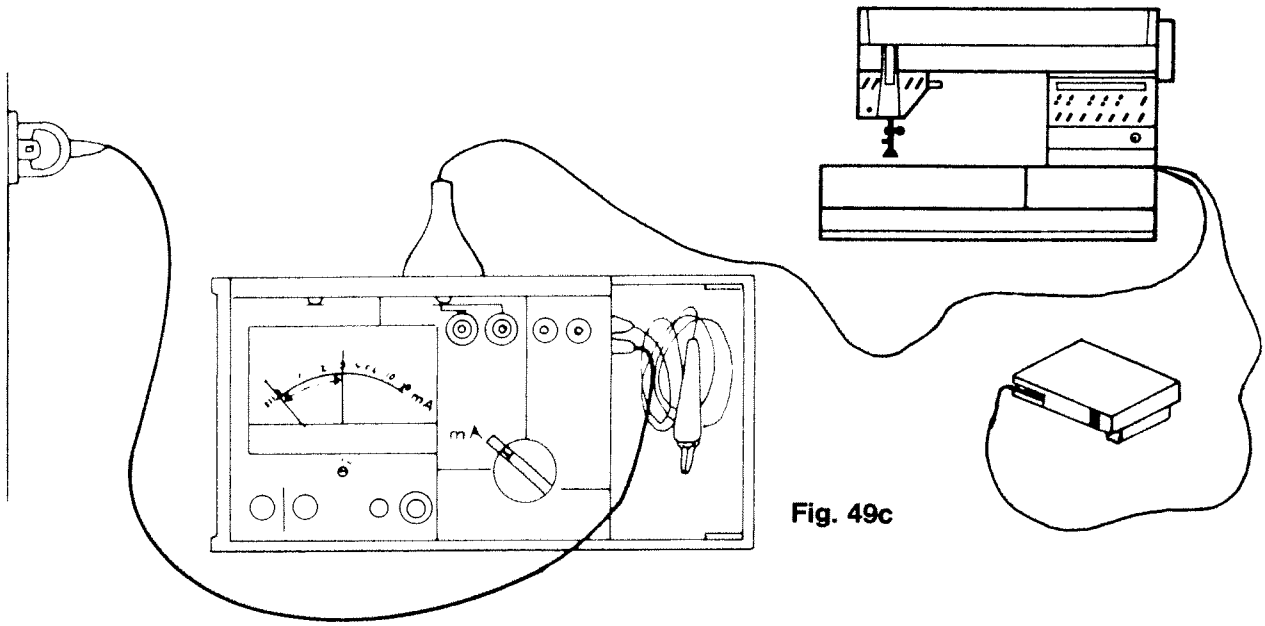


Fig. 49c

50. Leakage current test of complete motors

(Working time 5 minutes)

V. When exchanging complete motors or motor parts (windings, armatures or capacitors), the complete motor must be measured for leakage current before fitting in the machine.

- ● Set switch at mA (III) (see Fig. 50 and 50a).
- ● Plug two leads in Metratester at left side.
- □ Screw on nut (part No. 92320068-05) at the motor.
- □ Plug pin base 92-324 835-91 on the motor-plug.
- ● Attach the two leads as shown in Figs. 50 and 50a.
- ● Meter reading: 0.75 mA maximum.

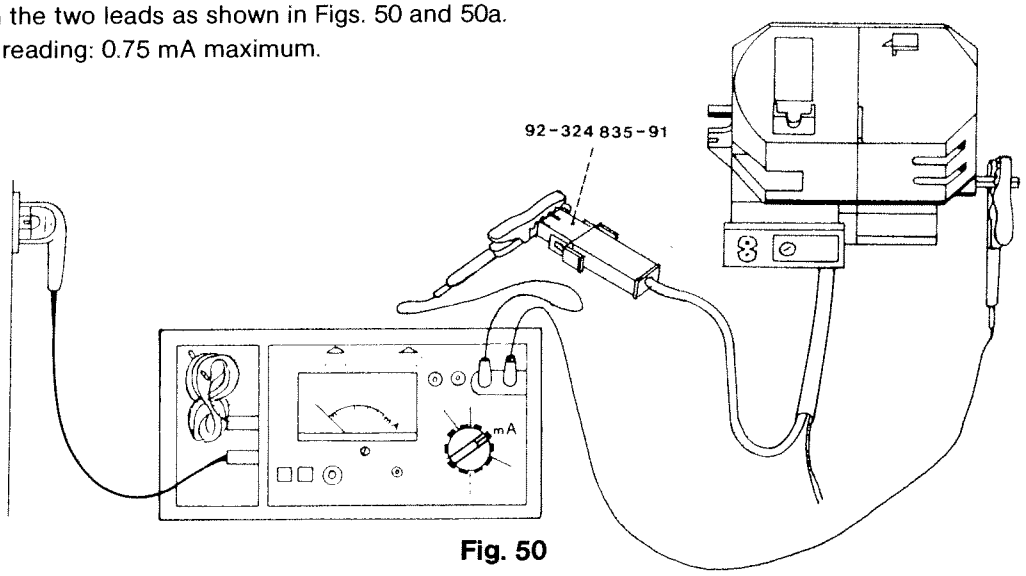


Fig. 50

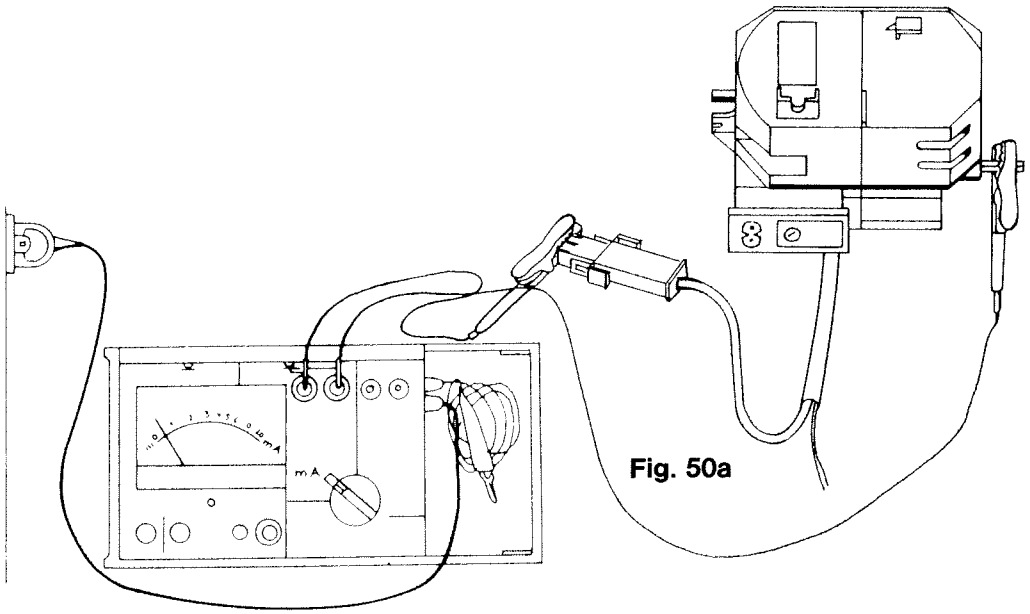


Fig. 50a

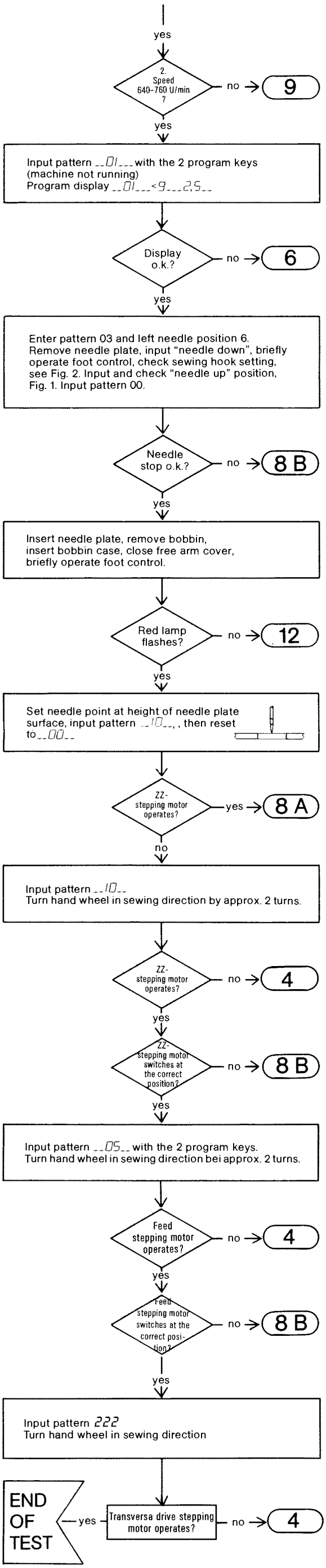
51. Measures required in case of inadmissible test-values

As to I	If one of the 4 test functions is a failure, the grounded mains socket is defective. Inform the apartment owner.
As to II	If the current consumption deviates considerably from the indicated value, although the machine does not bind, the motor is defective and must be exchanged or repaired.
As to III	If the insulation resistance drops below the required value, the defective components must be found by systematic checking and must be repaired.
As to IV	Here, the components with inadmissibly high leakage current must also be found by systematic checking and must be repaired.
As to V	Send the motor to the factory.

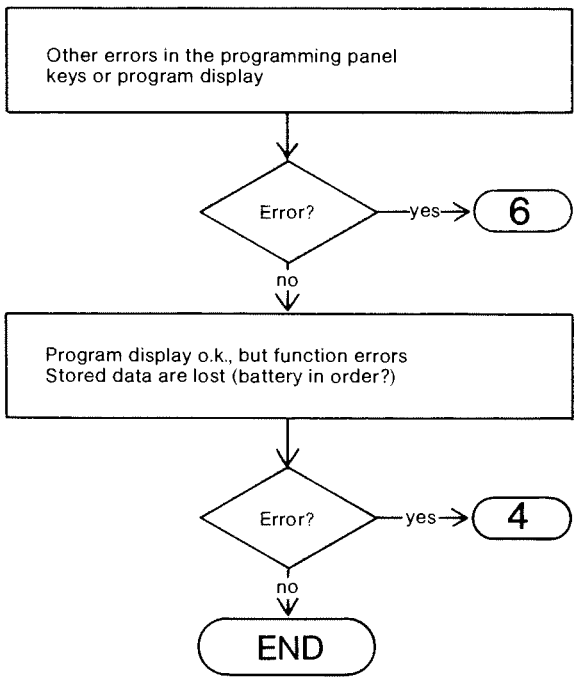
PH/HTS Feb. 1991

Fault-finding chart for the electronics of the Pfaff Creative 1475 CD

(Sheet 2)



If the test is performed in correct sequence until end of test and the error still exists, then carry out this small testing program.



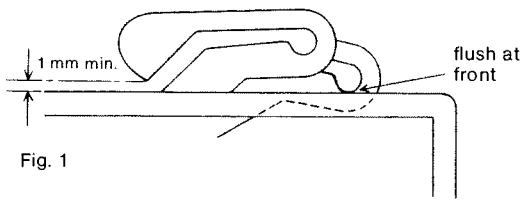


Fig. 1

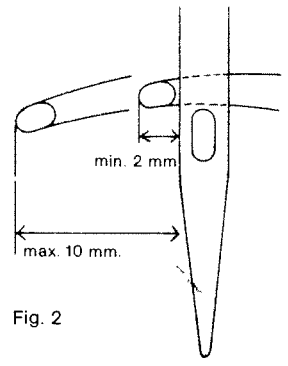


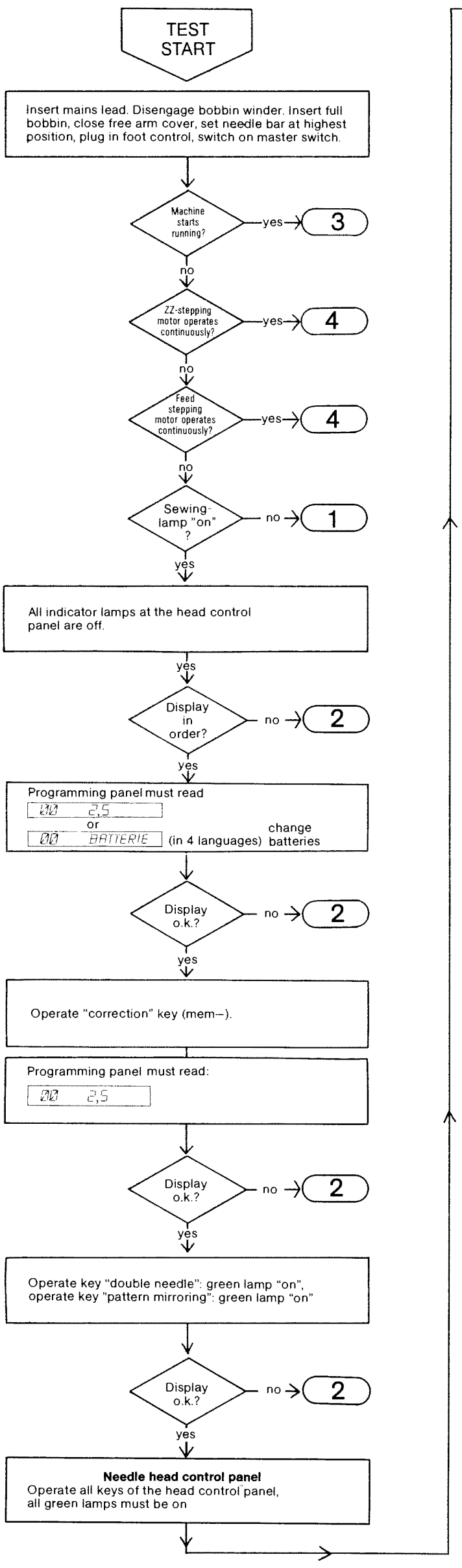
Fig. 2

- Perform test in correct sequence.
- If error occurs, search corresponding error number in the replacement chart and eliminate errors by systematic exchange in specified sequence.

- Repeat test and carry out until End of Test.
- Eliminate possible further errors as above and repeat test until all faults are removed.

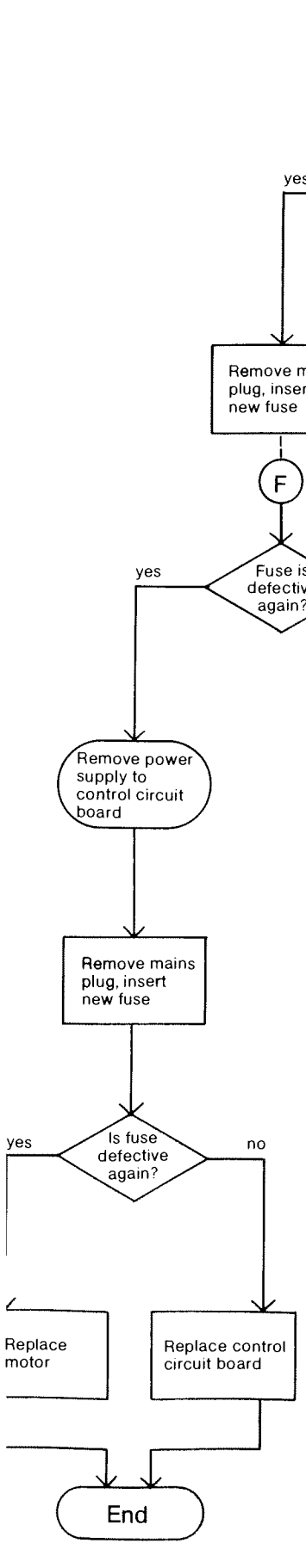
Fault-finding chart for the electronics of the Pfaff Creative 1475 CD

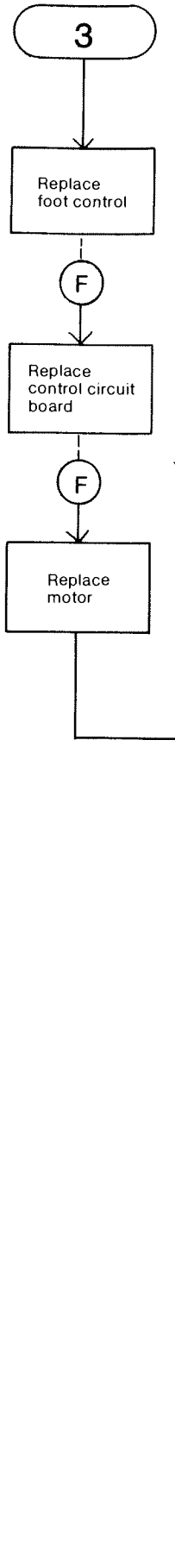
(Sheet 1)

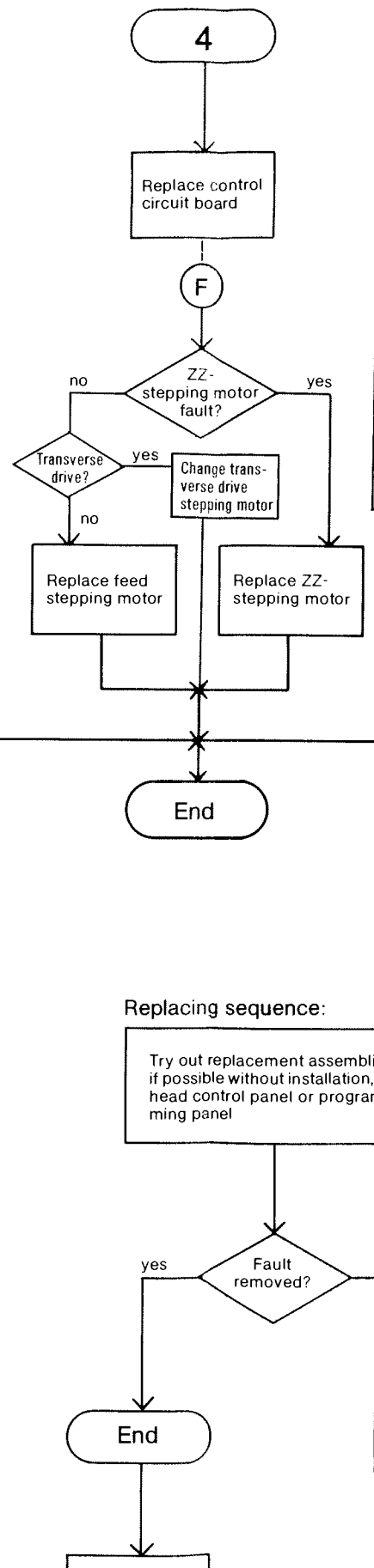


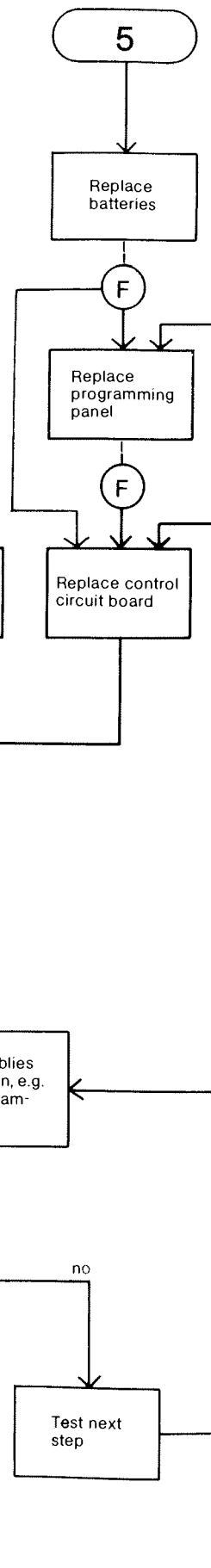
see next sheet

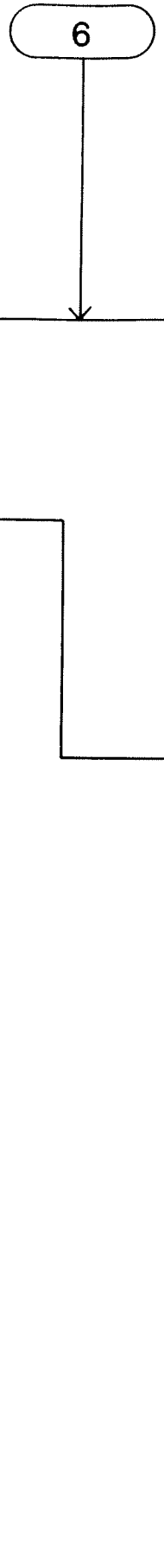
Replacement list for fault-finding chart, 1475 CD

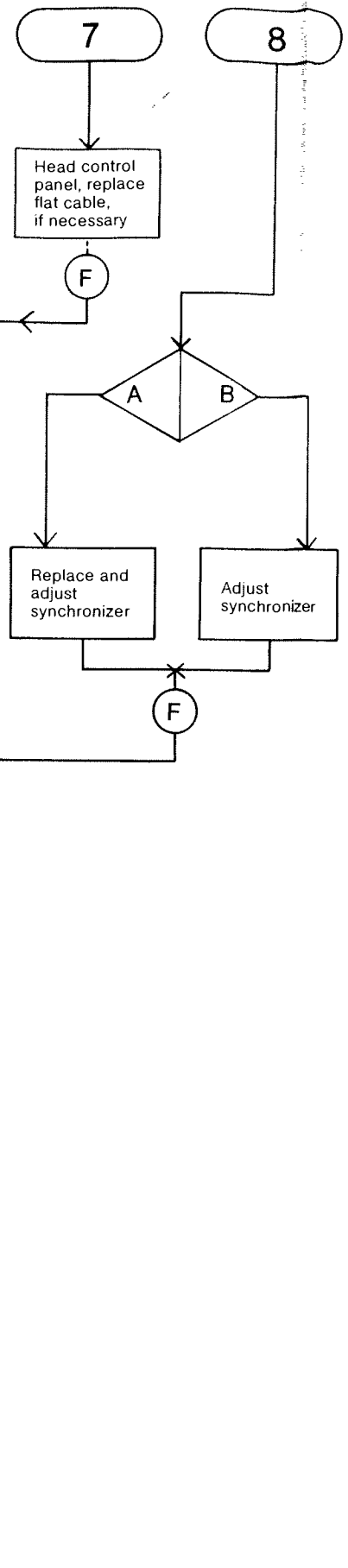


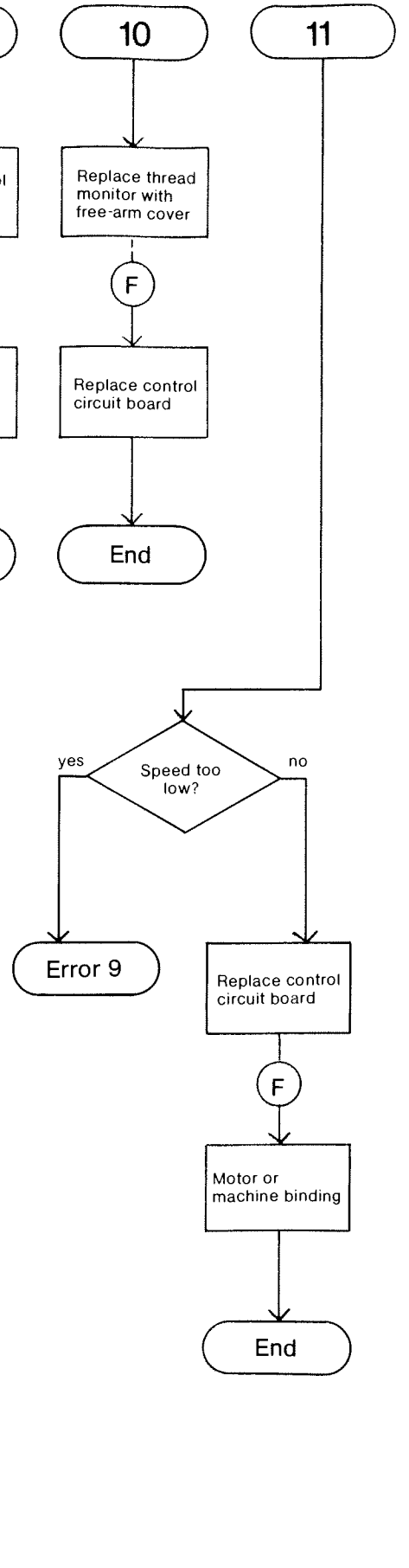


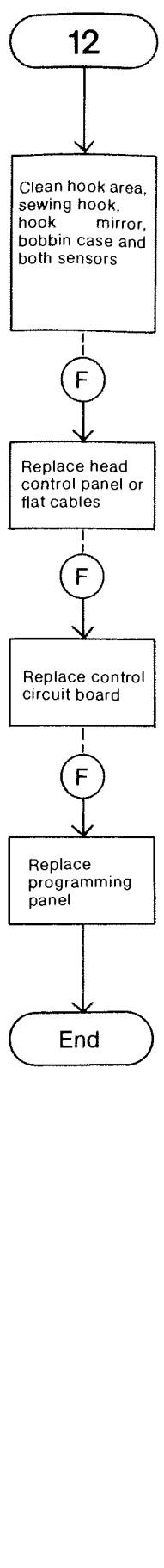




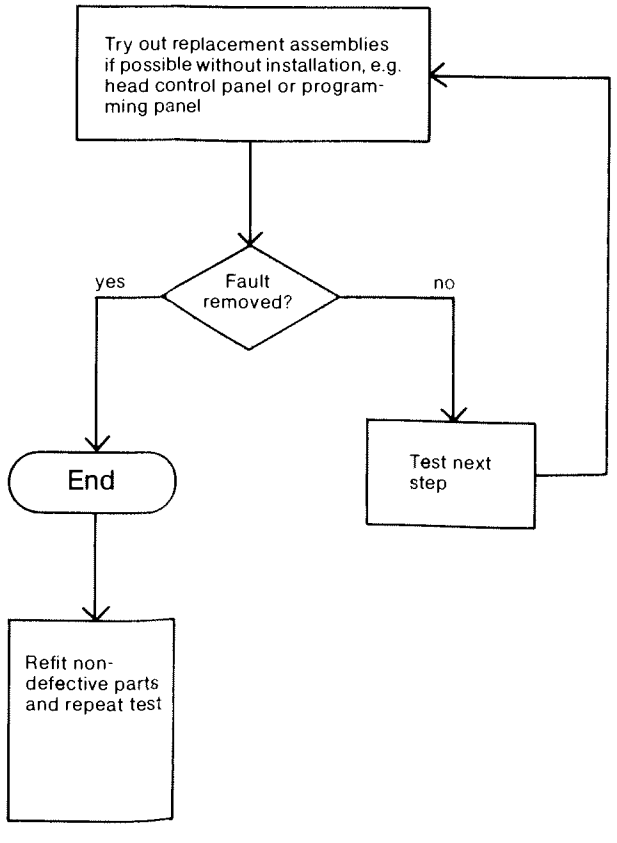








Replacing sequence:



(F) = fault not removed yet