GLOBAL

PW 2045

CSMP

instruction manual

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1.0 Safety

Instructions

- This machine has been produced in accordance with European Union directives mentioned on Compliance and Manufacturer's Declaration.
- Do not neglect to consider general laws and other rules in force – also in the country of operator – as well as law decrees and valid environment protection directives!
- Always observe valid provisions of local professional organizations and other inspection authorities.

1.1 General Safety Warnings

- Machine may only be used by related operation personnel and specialists trained accordingly!
- Safety rules and operating directions shall be read prior to operating the machine!
- Danger and safety warnings about machine shall be taken into consideration!
- Machine may only be operated in accordance with instruction and after taking protection measures with this regard; in addition, all safety rules shall be taken into consideration.
- While changing sewing tools (for example needle, sewing foot and spool), inserting thread and leaving the premises and during maintenance of machine, main switch of the machine shall be shut down and unplugged!
- Daily maintenance may only be performed by trained individuals!
- During maintenance and repair regarding pneumatic hardware, machine shall be disconnected from pneumatic power network! Exceptions are only valid for trained specialist staff during adjustment and function control works!
- Repair and special maintenance works may only be performed by specialist personnel or trained personnel.
- Works regarding electrical installations may only be performed by qualified specialists!
- No operation may be performed on parts and hardware under tension! Exceptions are according to directives regarding EN 50110.
- Modifying the form of machine or other changes shall be made in accordance with safety instructions.

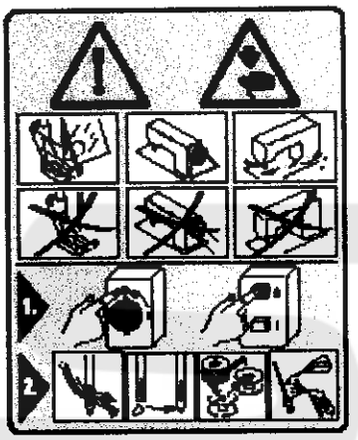
- Please use spare parts provided by our party for repair works! In case where spare parts and accessories other than provided ones are used, machine will not be controlled by our party. Installation and/or use of such products may affect the formal specifications of machine in some cases. No responsibility is accepted due to any damage arising from unoriginal parts.

1.2 Safety Symbols

Dangerous Part!
Points to especially pay attention!

Danger of injury for user or specialized personnel!

Dangerous part due to laser beam!



Warning! Do not put your hand under mechanism and do not operate without safety equipments. Switch off the main switch before inserting thread, changing reel, changing and cleaning needle and etc.

1.3 Points to be especially considered by administration owner:

- This handbook is an integral part of the machine and must be easily accessibly by user personnel.
- Handbook must be read before commissioning the machine for the first time.
- User staff members and specialized personnel shall be trained about protection equipments of machine and safe working methods.
- Administration owner shall only be obliged to completely operate the machine.
- Administration owner shall ensure that no safety equipment is taken away or made inoperative.
- Administration owner shall pay attention to employ only authorized individuals to work on the machine.
- Other detailed information is available at authorized dealer.

1.4 Maintenance Personnel and Specialized Personnel

- Maintenance personnel
- Maintenance personnel consists of individuals who are responsible from preparing the machine for use, operating and cleaning the machine as well as from seam output and eliminating the failures.
- Maintenance personnel is obliged to observe the following points:
- Safety measures in instructions manual shall be observed in all operations!
- All kinds of operation styles to damage safety of machine shall be avoided!
- Tight dresses shall be worn and no accessories such as necklace and ring shall be worn.
- Only authorized individuals shall be allowed to enter danger zone of machine!
- Any change that may damage the safety of machine shall immediately be informed to the administration!

1.5 Specialized Personnel

- Any individual professionally trained in Electrics/Electronics and Mechanics are considered as specialized personnel. Such individuals are responsible from lubricating, maintaining, repairing and adjusting the machine.
- Specialized personnel shall be obliged to observe the following points:
- He/shall observe safety measures in instructions manual for all operations!
- He/shall switch off the main switch prior to adjustment and repair and shall take all safety measures against switching on of the machine!
- Operation with parts and equipments under tension shall be prohibited!
- Exceptions are regulated by EN 50110 instructions.
- Protection cover shall closed after repair and maintenance works!

1.6 Proper Use

- The above are sewing machines used for pocket stitching production in garment industry.
- Any use unauthorized by manufacturer shall be deemed as improper use.
- Producer company is not responsible from any damage to arise from improper use!
  Proper use includes use, maintenance, adjustment and repair measures defined by the producer!

1.7 Technical Data

Number of Stitch:.....2100 minutes^{-1}
Length of Stitch:.....2,5 mm
Type of Stitch.....301
Needle System:.....134
Needle Power:.....80 – 110 Nm
Stitching Motor:.....See maintenance manual of motor
Electrical voltage .....230 V, 50 – 60 Hz alternate voltage
Power requirement:.....1,2 kW
Working air pressure:.....minimum 6 bar
Air consumption:.....about 5 3 /Time

Data on Noise:
Emission noise pressure level at 2000 minutes $^{-1}$ stitching number at plant:.....L_{pA} = 74 dB (A)
(noise measurements acc.to DIN 45 635-48-A-1, ISO 11204, ISO 3744, ISO 4871)

Dimensions of Machine:
Length:about 1300 mm
Width:about 1350 mm
Height:about 1300 mm
Table height: 850 mm

Net weight: 234 kg

▲ Technical modifications are reserved.
▬ K_{pA} = 2,5 dB

1.8 Actions to Take in Case of Scraping the Machine

- Actions to take in case of scraping the machine.
- Properly scraping the machine shall be borne by the customer.
- Materials used in production of machine consist of steel, aluminum, brass and various plastics.
- Electrical installation is of plastic and copper.
- Machine is scraped in accordance with provisions of regionally valid environment protection legislation and possibly by the help of a private company.
- Lubricated parts shall be removed in accordance with local environment protection instructions.

1.9 Transport, Packing and Storing

- **Delivery of Machine to Customer**

- Machines are delivered in unpacked form within the Republic of Turkey. Machines designated for export are packed.

- **Transport in delivery of machine to customer**

- Transport in delivery of machine to customer is not included in manufacturer's warranty.

- Please ensure that machine is only transported in straight form.

- **Disposal of Packing**
- Packing of machine consists of wooden crate, paper, cardboard and nylon.
- Customer is responsible from proper disposal.

Storing

- Machine may stored up to 6 months when not used. Machine shall be stored away from dirt and humidity.

1.10 Work Symbols

- Detailed operations or important information are emphasized with symbols herein. Symbols used herein shall have the following meanings:

- Warning, Information

- Cleaning, Maintenance

- Lubricating

- Maintenance, Repair, Adjustment,
  (to be performed only be specialized personnel)

2.0 Assembling and Preparing for First Operation

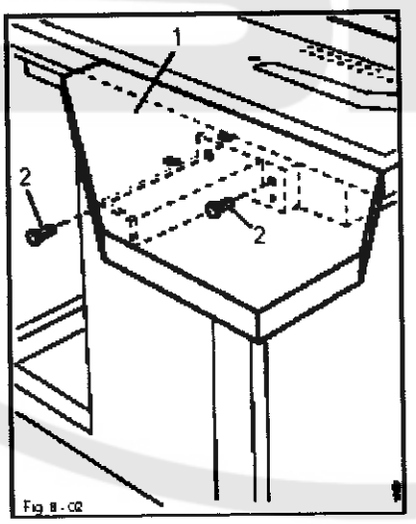
- After unpacking the machine, check if there is any damage due to transportation. Please notify transporter and ROBOTECH A.G. representative of any possible damage.
- ⚠ Machine must be assembled and operated by only qualified personnel! All relevant safety regulations specified herein shall be strictly observed!

2.1 Assembly

- Please ensure that convenient electricity and supply connections for compressed air are available at the assembly place of machine (please refer to Technical Data, Section 3).
- Machine is lifted through forklift machine from transport pallet.
- Machine shall be lifted horizontally on the ground and shall be placed on the place of assembly in a balanced manner on its four legs.

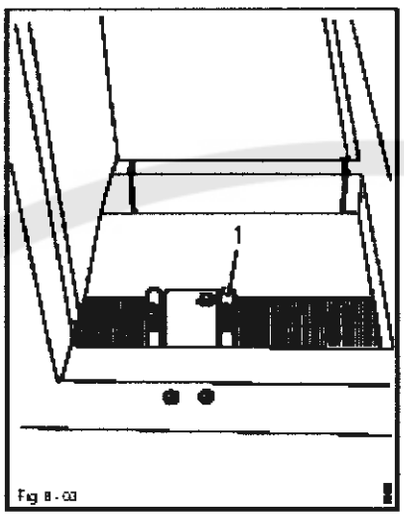
2.2 Installing Side Supporting Boards

- Side Supporting Plate is mounted.
- Side Supporting Plate is attached to sewing machine through screw nr. 2 as right and left ears.

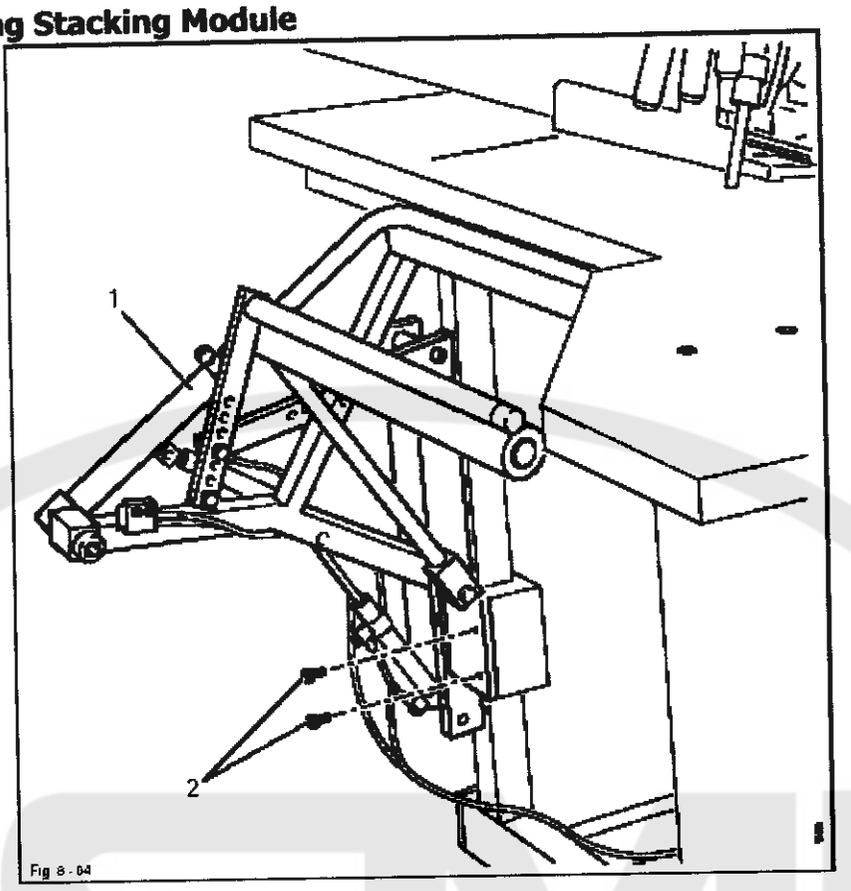


2.3 Installing Vacuum (absorption) connection

- Vacuum (absorption) connection;
- Is inserted into hose bearings supplied with absorption and is fixed with clamp nr.**1**.
- (This system is available in machines requiring vacuum installation).



2.4 Installing Stacking Module



- Stacking module is screwed to the installation log on the leg of loom through screw nr. 2 (four screws).
- Pneumatic hoses are connected according to connection scheme.

2.5 Installing sewing yarn path

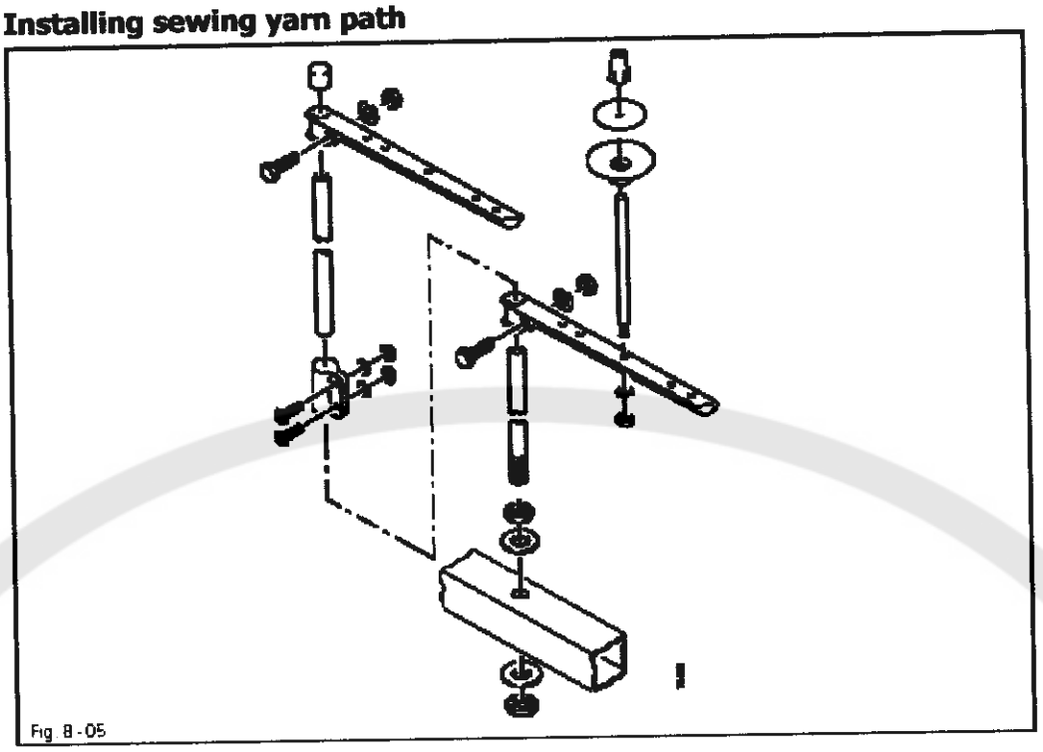


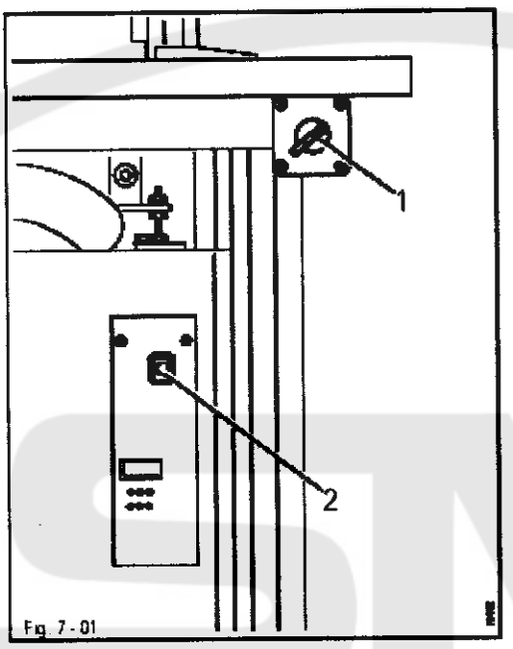
Fig. 8-05

- Rod of sewing yarn spool is installed as shown in the figure.
- Attach properly the yarn reels to sewing yarn spool.

3.0 First Commissioning

- **Turn the main switch nr.1 to switch on and off the machine.**

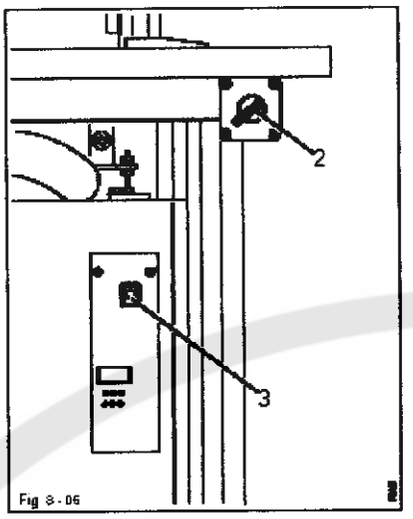
Motor switch shall always be at position nr.2

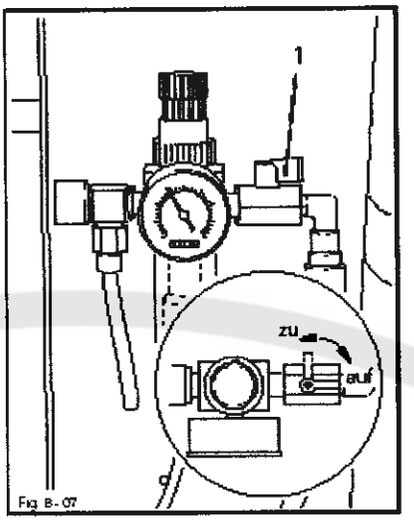


- Completely clean the machine and meanwhile check if there is any possible damage at electricity cables and pneumatic connection hoses.
- Check if available voltage is the same with connection voltage of machine (see Technical Data of Machine).
- In case of discrepancy, **do not** operate the machine!
- Allow only specialists connect the machine to electric network.
- Lubricate the machine or put lubricating oil in the machine. (See parts related to Maintenance and Cleaning in Section 1).
- Connect the machine to compressed air system.
- Nanometer on the machine shall read air of 6 bars.

If necessary, adjust this value (see section related to air pressure control/adjustment).

3.1 Switching On/Off the Machine





- Switch on main air inlet nr. 1
- Check and if necessary, adjust air pressure.
- Adjust air pressure to minimum 6 bars.
- Switch on the Main Electricity Switch of machine (figure nr. 2) to 'I' position.

- Motor switch shown in figure nr. .shall always be in open position (I position).
- Turn the main switch to '0' position (figure nr.2) to switch off the machine and main air inlet (figure nr.1) must be closed.

3.2 Checking Panel Connection

- If panel cable is not installed, socket nr.1 must be fixed in place and screwed as shown in the figure below.

  (One end of communication cable must be connected to COM2 socket and the other end to communication socket of PLC inside Electronic control box).

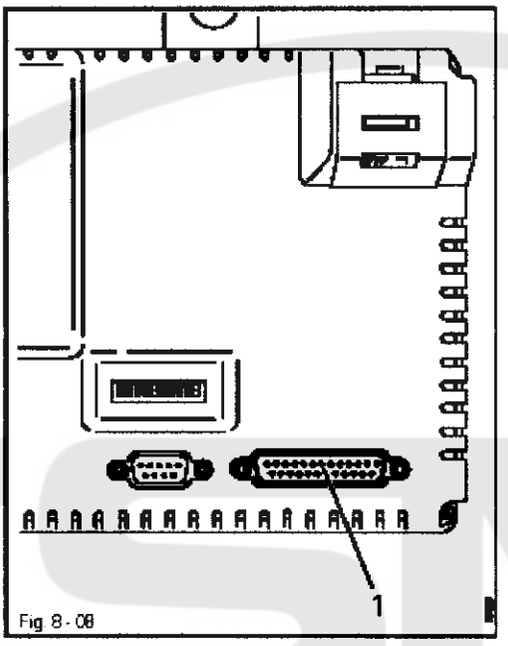


Fig 8 - 08

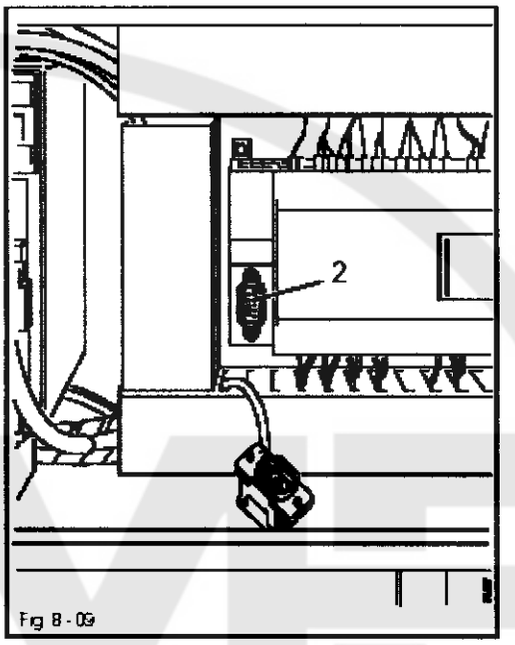
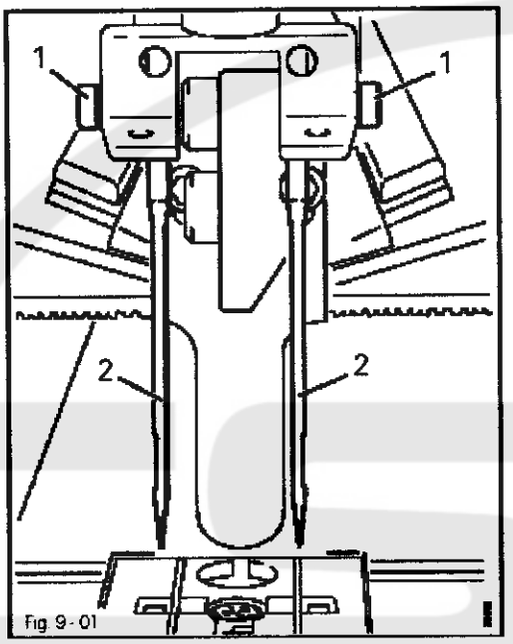


Fig 8 - 09

3.3 Preparing Machine for Sewing

All preparation works must only be performed by authorized personnel!

3.4 Attaching the Needle



- Shut down the machine! (Danger of injury in case of sudden operation of machine!)
- Only use 134 DP 5 system needles!
- Carrier Grammer Trolley must be placed at the back.
- Loosen screw nr. 1
- Mount the part nr. 2 (needle) until the lowest part in its housing.
- Lay race on side surface of needle must be installed to face shuttles.
- Properly tighten screws nr.1.

3.5 Winding (reels of) lower thread/ Tension adjustment of lower thread

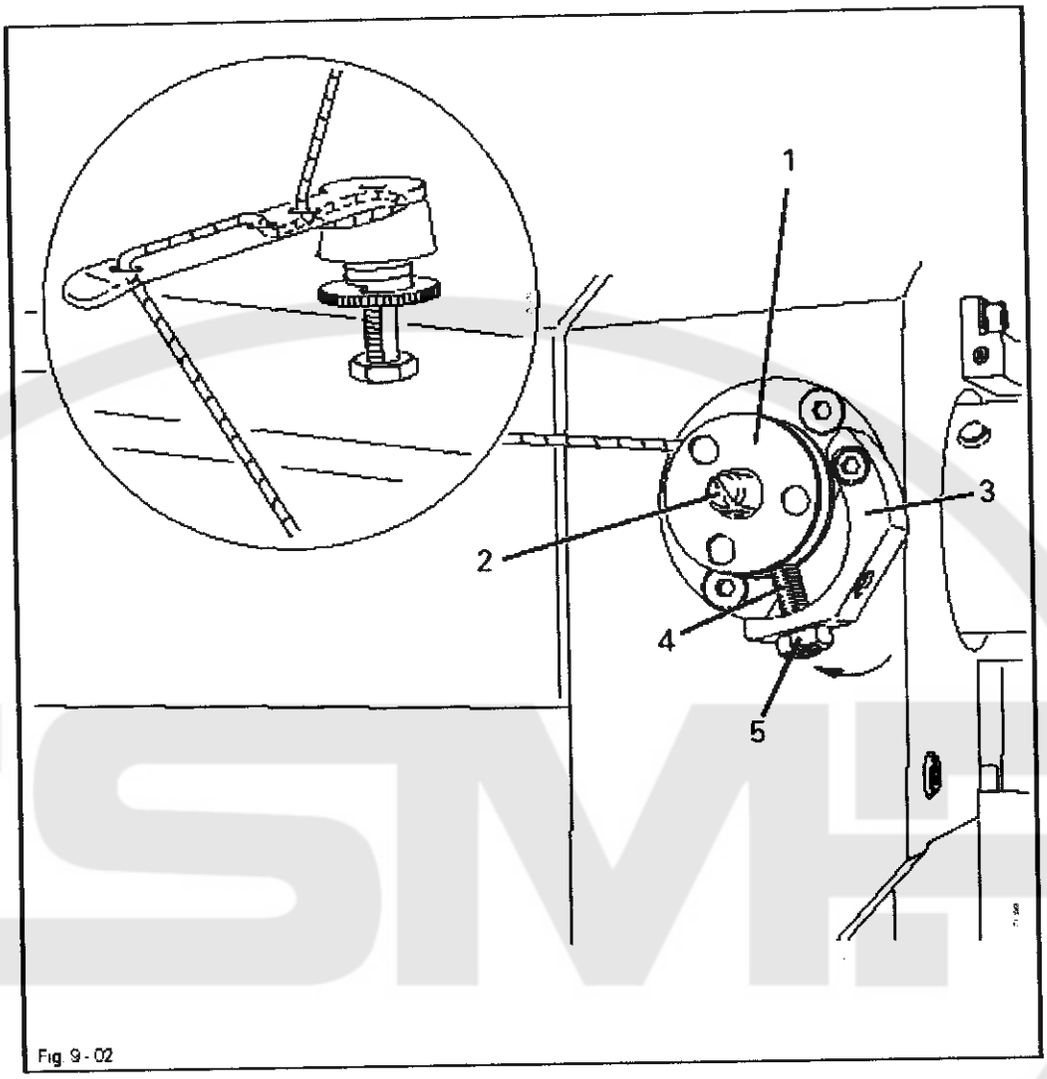


Fig 9 - 02

- Insert empty spools (part nr.1) into reel housing.
- Insert thread into thread path as shown in the magnified figure and wind clockwise for once on spool.
- Press arm (part nr.3) and operate the spool in the direction of arrow.
- Spool (part nr.1) is automatically filled during sewing.
- Once spool is sufficiently filled (part nr.1), it automatically stops.

- Filling quantity of spool may be changed according to the adjustment of screw (part nr.4) but the screw head (part nr.5) msut be loosened for this.

- After adjusting, screw head (part nr.5) must be tightened again.

3.6 Installing Shuttle & Tension Adjustment of Lower Thread

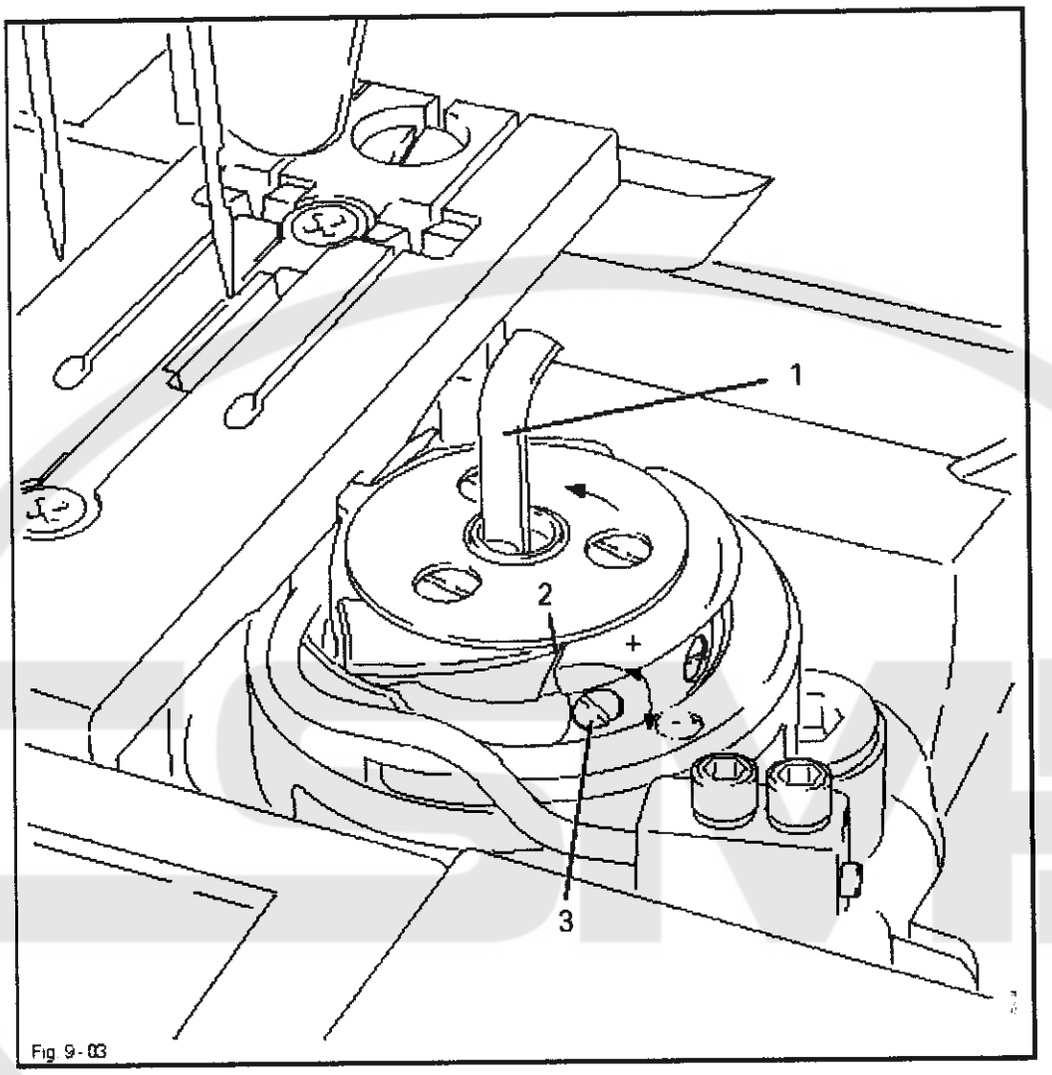
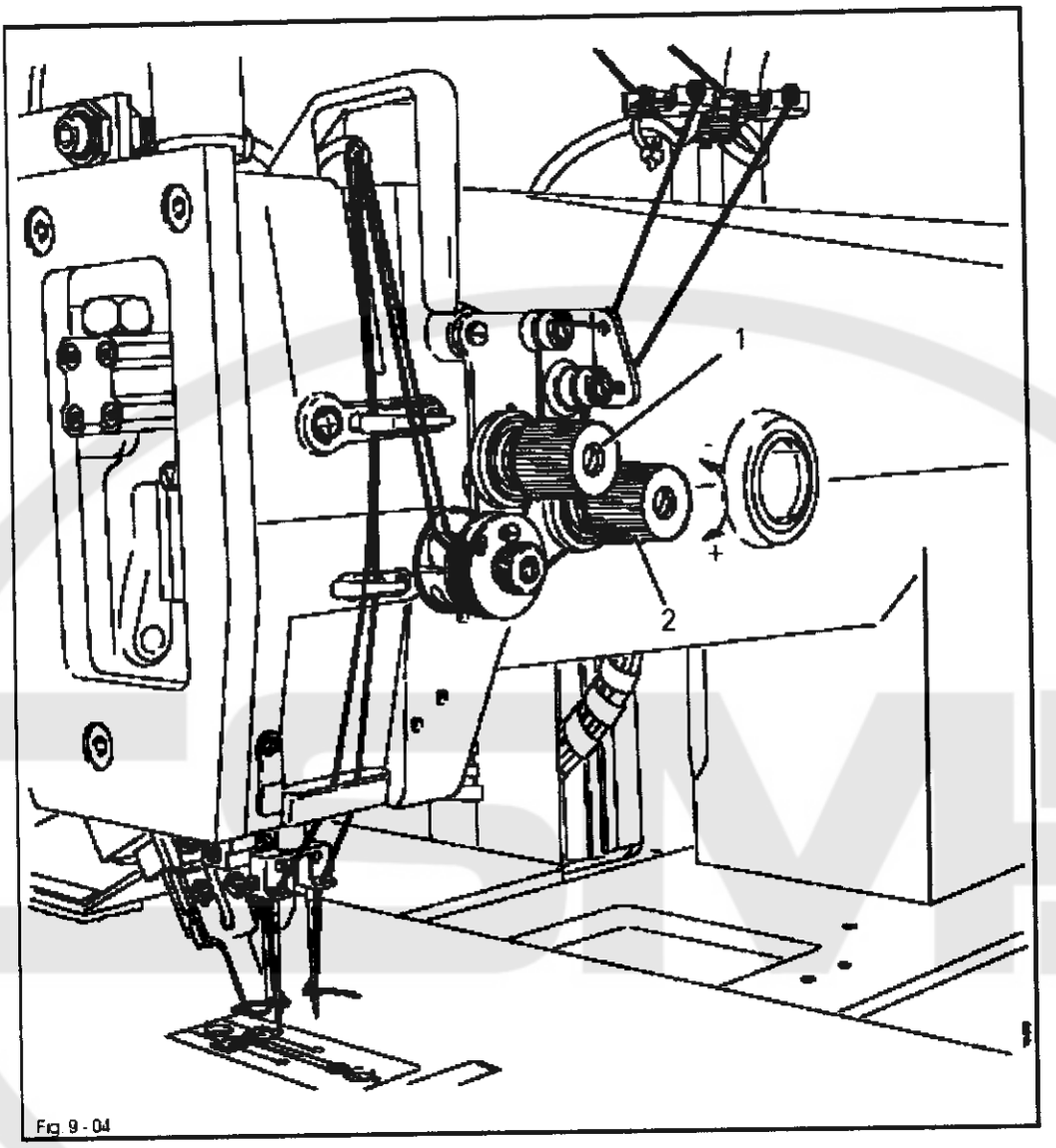


Fig 9-03

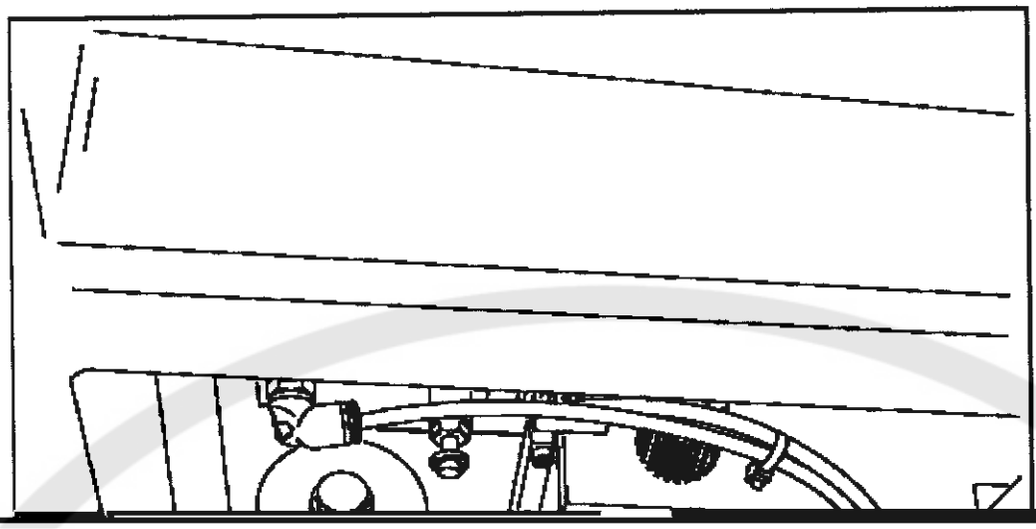
- Shut down the machine to check and replace the spool.
- Pull metal big tray sheet to left and you will see the shuttles under.
- Lift the arm (part nr. 1) upwards and take the empty spool.
- Attach filled spool to looper so that pull of thread is in the direction of arrow.
- Close the arm (part nr.1)
- Place the thread first to groove of spool capsule (place nr.2) and then underneath the yarn spring.
- Tension of lower thread is adjusted by turning the screw (screw nr.3).
- Pull (close) metal big tray sheet to left.

3.7 Attaching Upper Thread / Tension Adjustment of Upper Thread

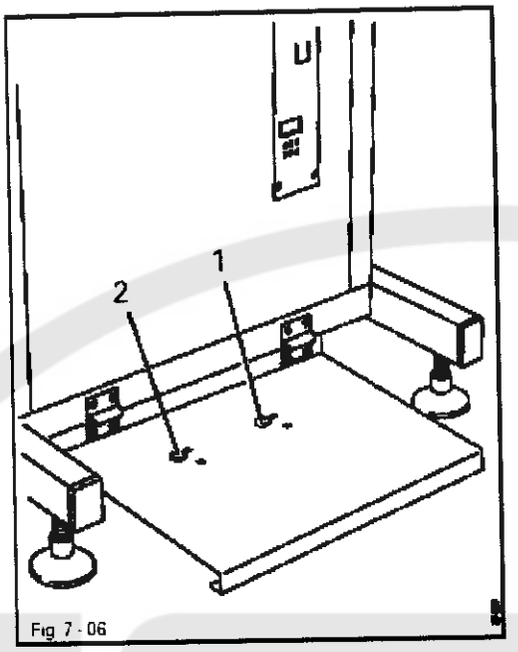


- Switch of the machine.
- Push big metal tray sheet to left.
- Insert completely both upper threads according to the graphic above.
- Tension of upper thread is adjusted by turning knurl screws (parts nr. 1 and 2).

3.8 Replacing tape fleece band



4.0 Pedal Buttons & Functions



4.1 Functions of foot switch:

Functions of foot switch nr. 1:

- If foot switch nr.1 is pressed when the machine is powered for the first time, Grammer carrier system will drive itself to (front) Home Sensor.
- It prepares the machine for sewing according to program and settings selected from machine panel.
- If Grammer trolley is at the back and foot switch nr.1 is pressed, trolley comes forward.

Functions of foot switch nr. 2:

- It gradually returns functions made with foot switch nr.1.
- If foot switch nr. 2 is pressed after starting to stitch, stitching machine is urgently stopped.

4.2 Standard Functions of Foot Switch Nr. 1.

1. **Printing Operation:** Fabric Tension rod or Vacuum Motor is operated according to the selected position on control display of machine.
2. **Printing Operation:** Grammer Trolley comes from backwards to forwards.
3. **Printing Operation:** Grammer goes down (according to the selected position of control display of machine: Grammers simultaneously or first to right and then to left or first to left and then to right)
4. **Printing Operation:** Front folding manual goes down and folding sheets operate.
5. **Printing Operation:** Cover holding arm operates (according to the selected position on control display of machine: cover arms simultaneously or first to right and then to left or first to left and then to right)
6. **Printing Operation:** Stitching is started.

5.0 Machine Panel

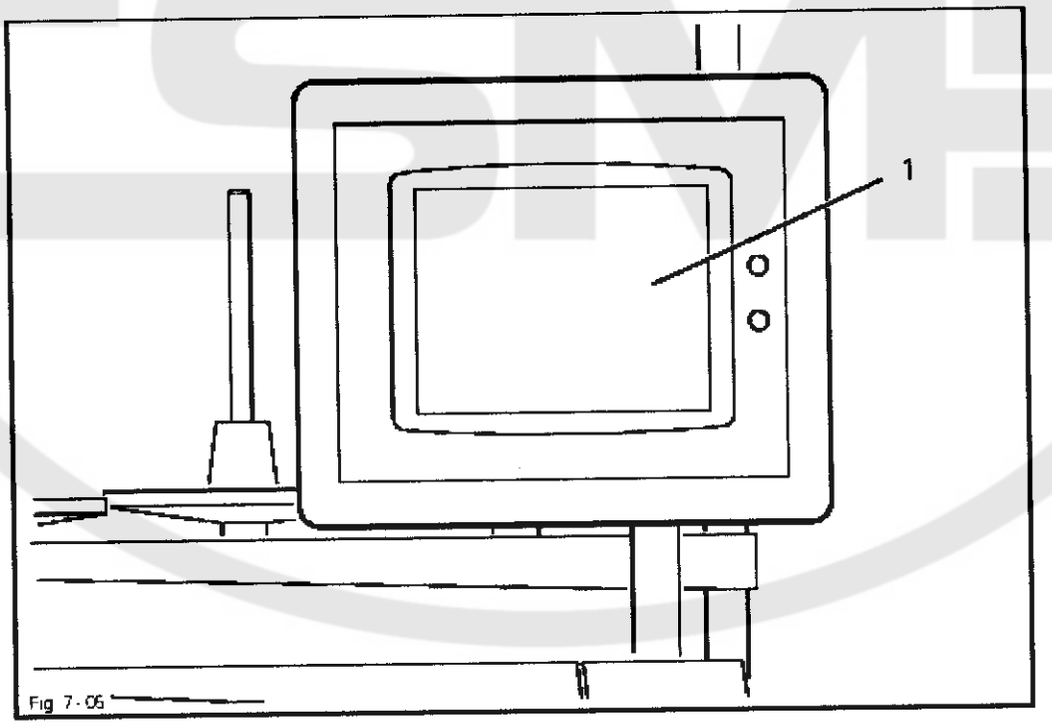


Fig 7-05

5.1 Control Panel

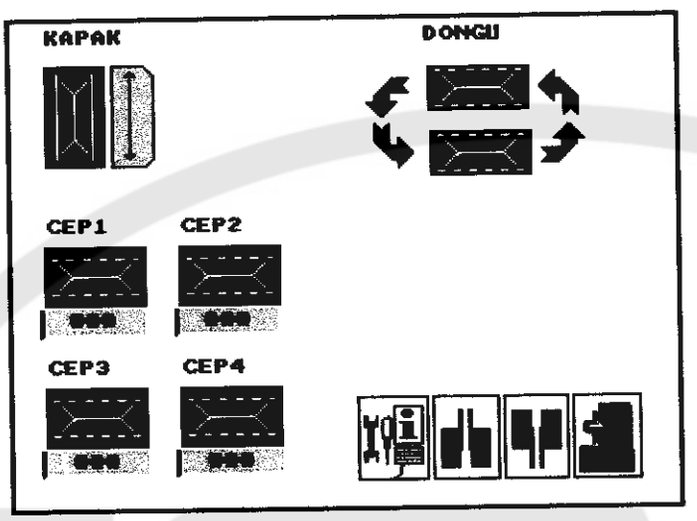
Control panel of machine consists of a Touchscreen-Monitor 1 that is able to operate by touch of a finger on related function button.

Icons on monitor are related to operation position of machine.
In addition to function symbols, zones that enable entering values by pressing with finger are also described (for example changing the lengths of snappers, entering sewing lengths).
Besides, icons for error notifications and symbols for description of operation status are also seen (for example amount of remaining thread).

When machine is powered, start display is shown on panel.
Upon touch of finger on monitor, main display is shown.
Functions on main display enable access to all control functions of machine.

5.2 Functions on Panel

Screen to Choose Main Functions



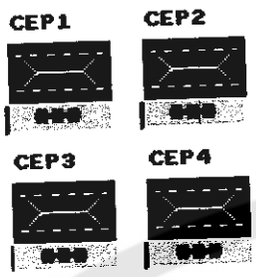
Explanation of symbols on main screen.

KAPAK

Cover Pocket:
Upon touch on symbol by finger, cover pocket sewing operation is displayed.

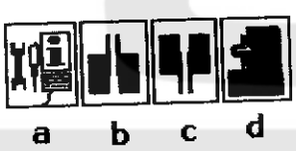
DONGU

Ordered Pocket Operation:
Upon touch on symbol by finger, ordered pocket operation is displayed.



Pocket 1, Pocket 2 , Pocket 3 , Pocket 4 :
Upon touch on any of these symbols, menu on operation of related pocket is displayed.
There are 4 different plain pocket programs without cover.
Numbers under buttons show the length of pocket.

5.3 Auxiliary Functions on Panel



a: Technical/ Service

Upon touch on this symbol by finger, service section related to settings and functions of panel is displayed. Bu sembole parmakla dokundurulduğunda panelin ayarlar ve fonksıyonlar ile ılgili servis kısmı açılır.

b: Carrier Grammer Trolley to Front:

Upon touch on this symbol by finger, carrier grammer trolley moves forward.

c: Carrier Grammer Trolley to Back:
Upon touch on this symbol by finger, carrier grammer trolley moves backwards.

5.4 Function Keys on User's Panel:

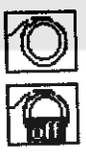
Functions of buttons used in Operated Pocket Programs are explained below. These functions are activated or deactivated in only selected program.

Upper thread and lower thread knife: On/Off

Threads are cut and compressed with this function.

Press once: Claw of upper thread is opened,
Press again: Thread claw is closed and all threads are cut,

Fleece Feeding System: on/off



With this function,
Inserting tape band is kept at either open position or closed position.
(Operates only in selected active pocket program)

Test button for tape knife:

With this function, tape band is pushed forward and cut.

Corner knives: **on/off**

Upon touching this symbol, function of corner shears is opened and closed. When center knife is closed, corner shears is automatically closed.
(Operates only in selected active pocket program)

Center Knife: **on/off**

Upon touching this symbol, function of center knife is turned on and off.
When center knife is off, corner knife is automatically turned off.
(Operates only in selected active pocket program)

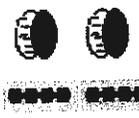
Yarn Tension: **on/off**

Upon touching this symbol, tension for yarn is either turned on or off.
It is used to test upper yarn tension.

Stacking machine: **on/off**

Upon touching this symbol, stacking machine is turned on and off.
(Operates only in selected active pocket program).

Amount of remaining yarns on reels (shuttle) and reel warning



This symbol shows the value of remaining yarn amount (in cm) on right and left shuttles of machine.

When defined length of yarn (right or left) is decreased, the above warning sign is displayed and machine skips to Stop Mode.
(you cannot operate some functions)

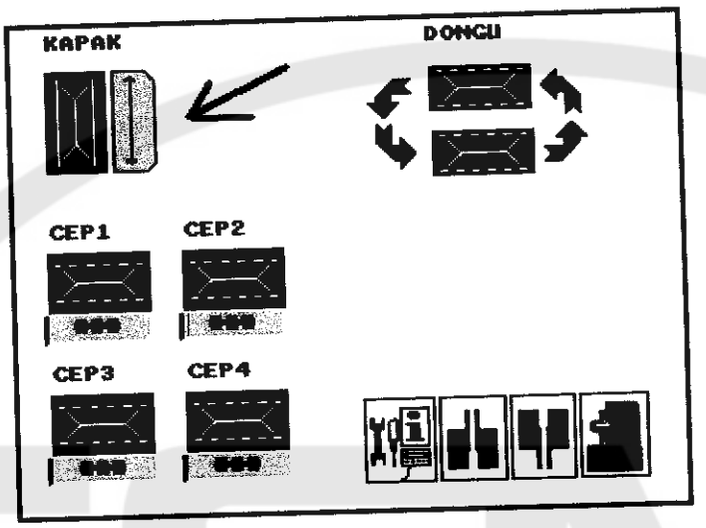
Replace the warned reel with full one and touch on the warning message you're your finger. Warning will be cancelled and machine will end Stop Mode.

Piece meter:

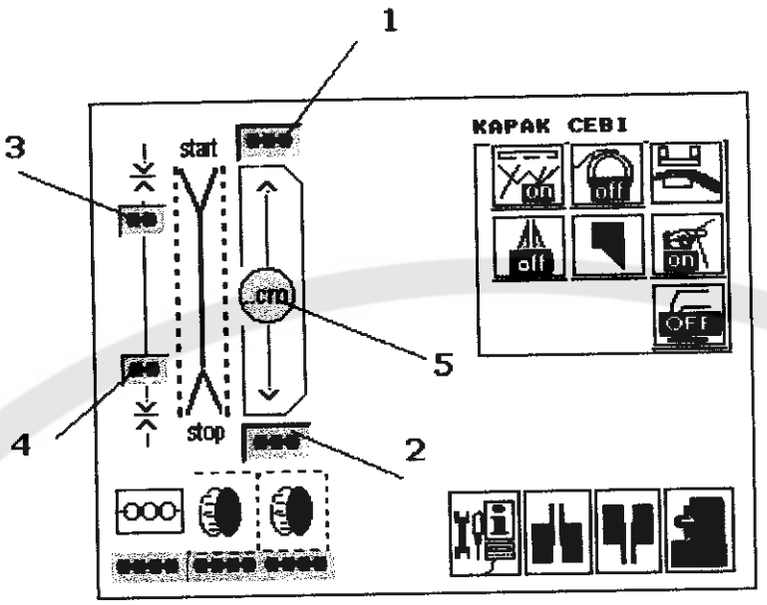
You will see the number of stitched pockets with this symbol.

5.5 Operation of Cover Pocket

1- Switch on the Machine.
2- Touch on the display with Robotech A.G Brand Logo.

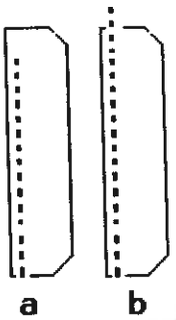


3- Touch on the button shown with arrow on the Main Display where pocket types are selected.



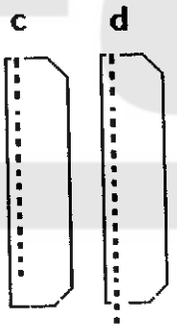
- You can make cover pocket operation only when this display is selected.
- As you may know, cover length is not entered by the user in this program.
- Machine automatically scans, measures and stitches cover length thanks to cover photocell.

4- Put the cover on trolley.
5- Press on the pedal in turn and start stitching.
6- Parameter zone nr.1 adjusts how much of stitching will pass start side of stitched cover.
7- If we decrease parameter nr.1, stitching ends inside cover on start side (figure a).
8- If we increase parameter nr.1, stitching ends outside cover on start side (figure b).



Parameter zone nr.2 adjusts how much the stitching will pass finish side of cover. If we decrease parameter nr.2, stitching will end inside cover on Finish side (figure c).

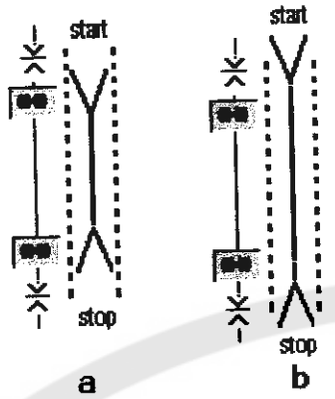
If we increase parameter nr.2, stitching will end outside cover on Finish side (figure d).



To adjust corner knives of stitched cover, we may change the values of zones nr. 3 and 4.

In order to properly adjust corner knives of cover at start and finish side, if we decrease the value in parameter zone, corner knife snapper will get inside cover stitching (figure a).

If we increase the value, corner knife snapper will get outside cover stitching (figure b).



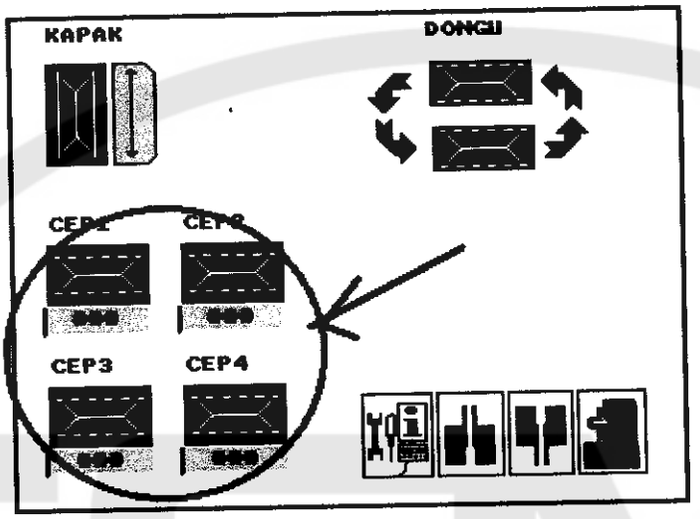
Functions of other buttons on Cover Pocket display are explained in other related pages.
Functions of above keys were explained in section nr. XXXX.

Functions of above key were explained in section nr. XXXX.

Functions of above key were explained in section nr. XXXX.

5.6 Normal Pocket Stitching

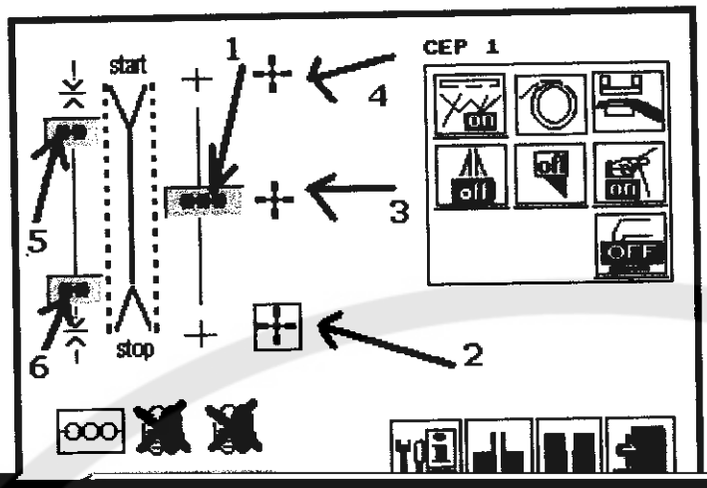
1- Switch on the machine.
2- Touch on screen displaying Robotech A.G Brand Logo.



There are 4 different pocket programs on main display where pocket types are selected.
Select the pocket to operate.

(You may operate normal pocket only when you activate one of these displays).

3- Prepare trolley for stitching.
4- You may activate on of arrows 2,3,4 by touching on plus sign to select from which laser sign the start side will commence.
The following example shows activated Laser nr.2


start
stop
1
2
3
4
5
6
CEP 1
on
off
off
on
OFF

Functions of other buttons on Normal Pocket Display are explained in other related pages.

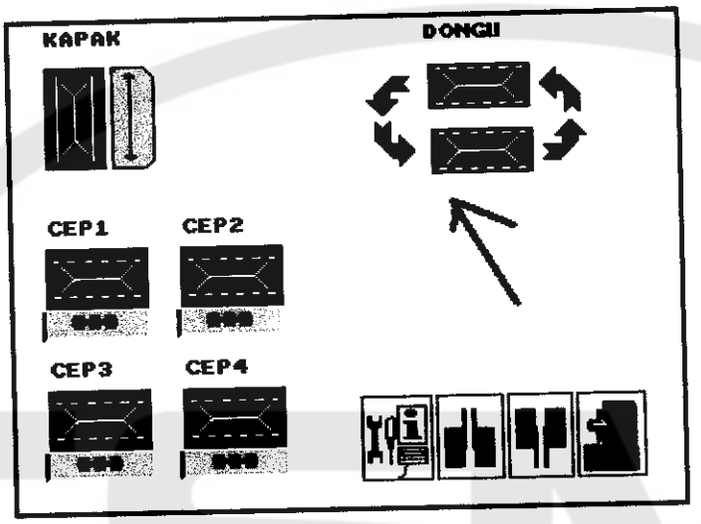
Functions of above keys were explained in section nr. XXXX.

Functions of above keys were explained in section nr. XXXX.

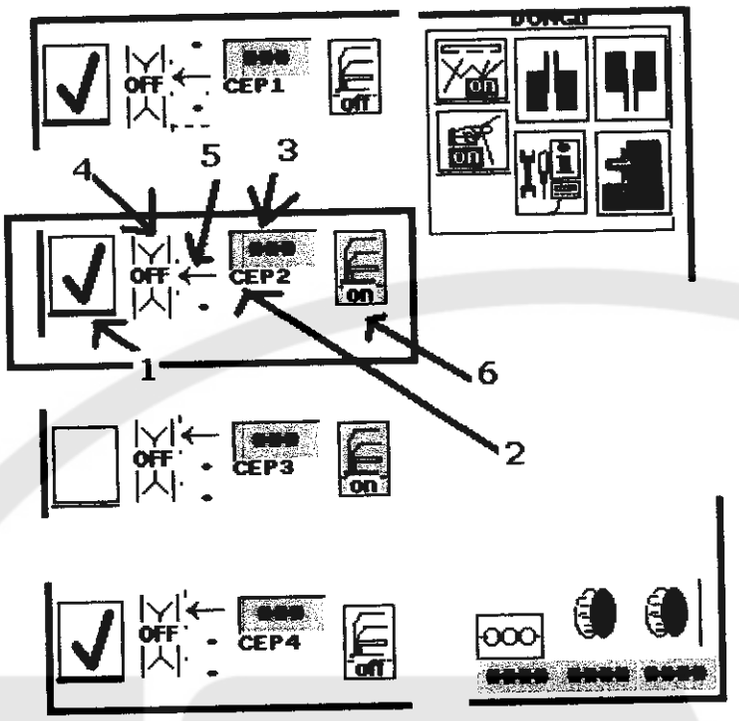
Functions of above keys were explained in section nr. XXXX.

5.7 ORDERED POCKET OPERATION

1- Switch on the machine.
2- Touch on screen displaying Robotech A.G Brand Logo.



3- If you select the pocket shown with arrow on the main display where pocket types are selected, you will enter Ordered Operation screen.



It will be made on this display of Ordered Pocket display as above.

You may activate 4 different pockets in ordered operation on this screen.

These pockets are defined as Pocket 1, Pocket 2, Pocket 3 and Pocket 4.

If you want to include one of these pockets into ordered program, you may activate and deactivate the zones shown with arrow nr.1 and order the pockets.

Tick in box of pocket zone you selected shows that pocket will be included in ordered operation.

You may see details and functions of named pocket on the place shown with arrow nr. 2.

You may see length of pocket named on the place shown with arrow nr.3 and enter new pocket length.

Arrow nr. 4 shows the turn of pocket while ordered pocket is operating from zone.

In addition, if you touch on a selected pocket, you may initiate the order from the pocket you selected.

Arrow nr. 5 shows from which laser pointer the pocket will start stitching.

You may define whether the stacking machine will work or not in that pocket with arrow nr. 6.

Other function keys in ordered pocket are explained in section 5.

5.8 Failure Signals

These signals are displayed during stitching or when stitching is started.

Big sheet plate is not in its place or opened to left for service (to insert lower thread).

Needle is not in stop position.
You may manually turn and adjust pulley of head.
(Pulley must be on sensor)

Warning for left upper thread is broken/finished

Warning for right upper thread is broken/ finished

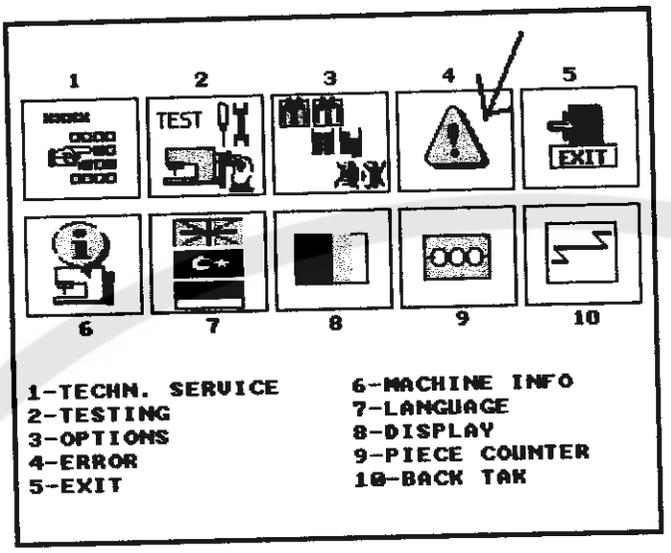
Warning for insufficient air for operation of machine

Warning for any possible work remained under stacking photocell (trolley does not come forward). .

Warning for front group is opened to left to insert thread or is not at its place.

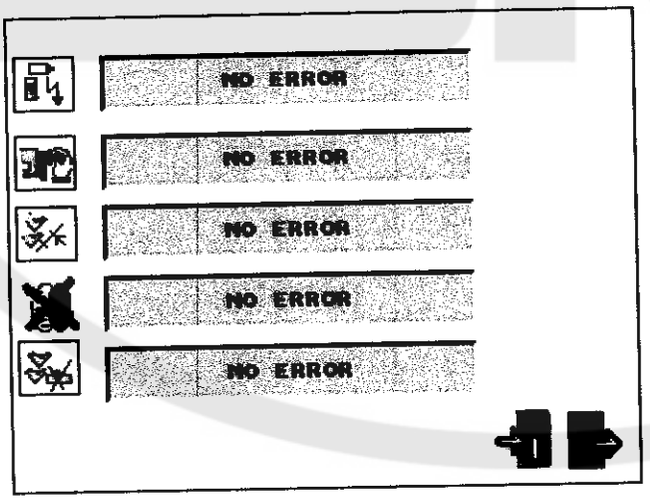
Warning for one of defective pedal switches.

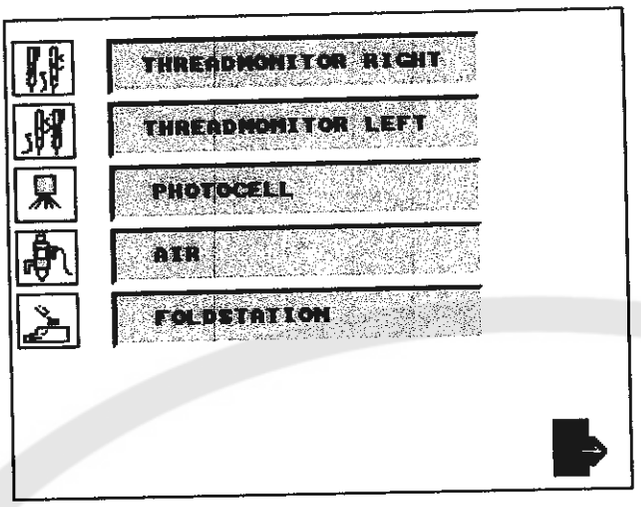
You may all aforementioned warnings on new display (error codes display) by simply pressing on the key nr. 4 on main service menu.



Error Codes Screen

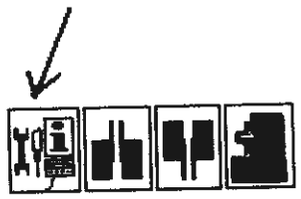
If there is an error and warning at the machine, you may see the reason of error on the block writing No Error.



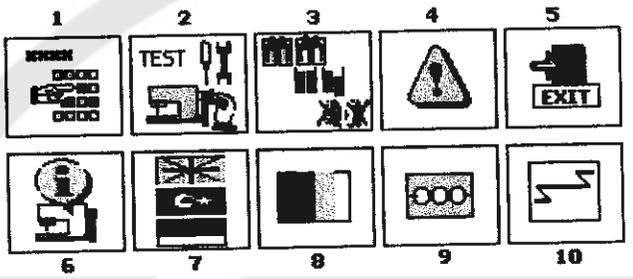

THREADMONITOR RIGHT
THREADMONITOR LEFT
PHOTOCELL
AIR
FOLDSTATION

6.0 Operating functions of machine on main service menu

6.1 Access to technical service display



Touch on technical service button shown with arrow on any screen.



1-TECHN. SERVICE
2-TESTING
3-OPTIONS
4-ERROR
5-EXIT
6-MACHINE INFO
7-LANGUAGE
8-DISPLAY
9-PIECE COUNTER
10-BACK TAK

You can select related setting button on the main service menu above.

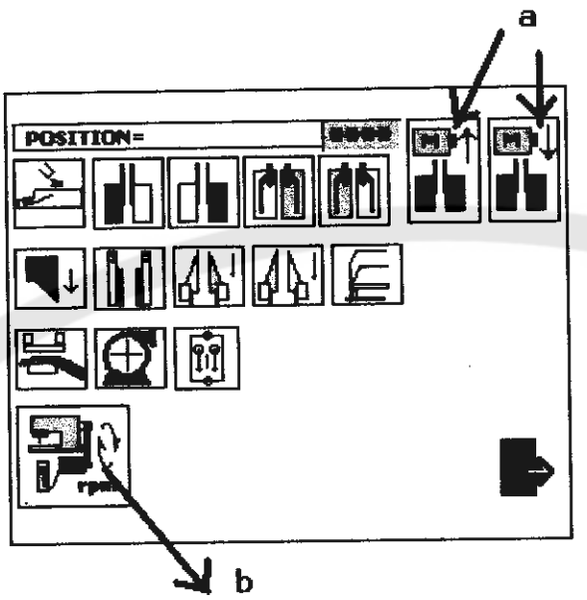
6.2 Functions of machine under encoded sections.

Press button nr. **1.**

You may find further information about this section in Section 9.0.

6.3 To Test All Functions of Machine (Button Nr. 2)

A display appears where you can test all functions of machine.



Examine all buttons here carefully and touch on the button you would like to operate.
You may test all units of machine here.

a: If you keep your hand pressed on the left of these buttons, you will see that Grammer trolley goes backwards.
In a like manner, when the trolley is at back, if you keep your hand pressed on right of these buttons, you will see that Grammer trolley manually comes forward.
Turn off some functions before using these two buttons.

These buttons are frequently used in adjusting cover photocell.

b: If you press this button, you will see a display where you can test stitching head of machine.

You may define a suitable test speed and operate the head of stitching machine here.
Please remove any yarn at the mouth of needle before this operation.

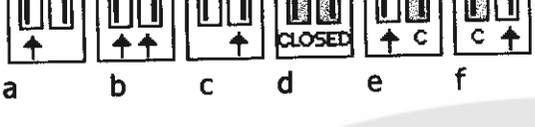
Press exit button to return to main service display from test display but buttons with open functions will be automatically cancelled.

6.4 Options of Machine

(Figure Nr.3)

6.4.1 Functions of Cover Pressing Arms:

Select options button (nr. 3) on main technical service menu.



a b c d e f

a: Left side operates (closes) before cover holding arm.
If pedal switch nr. 1 is pressed again, right side operates (closes).

b: Both of Cover Holding arms work together.

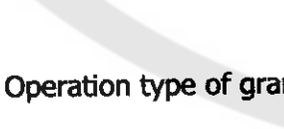
c: Right side operates (closes) before cover holding arm.
If pedal switch nr. 1. is pressed again, left side operates (closes).

d: Both arms remain in closed position and are unusable position.

e: Only left side of cover holding arm operates (closes)
Right side is not used because it is always closed.

f: Only right side of cover holding arm operates (closes)
Left side is not used because it is always closed.

6.4.2 Functions of Grammer Feet:



a b c

Operation type of grammer feet:

a: When Pedal button nr. 1 is pressed, both Grammer feet operate (go down) at the same time.

[redacted]

- When pedal button nr 1 is pressed, first left Grammer foot goes down and when Pedal

6.4.6 Lower thread reel (shuttle) function generally on/off:

a b

a: Shuttle measuring function of machine is on.
It measures remaining thread after reach pocket stitched on the left bottom side of screen.

b: Shuttle measuring function of machine is off.

6.4.7 Generally Defining lower thread reel length

Lower shuttle measurement of machine decreases and measures each stitched pocket from defined value. If you like, you may change these values indicating the total length of shuttle.

6.4.8 Upper thread function is generally on/off:

a b

a : Upper thread function is on:

When upper thread breaks or finishes, this sensor stops the machine at the beginning of or during stitching.

b: Upper thread function is off.

6.4.9 Upper thread sensor adjustment:

RIGHT THREAD SENSOR DENSITY: XXXX
LEFT THREAD SENSOR DENSITY: XXXX

If thread sensors behaves as thread has broken even it has not inside the seam and stops the machine, increase sensor density.

If thread sensor fails to perform its function and does not stop the machine although thread is broken, decrease sensor density.

6.5 Definition of error codes (button nr. 4)

You may find further information about this matter in Section 7.0 .

6.6 Exit from main service screen (button nr.5)

(exits to main menu)

6.7 About Machine (button nr. 6)

There are some explanatory information about machine on this screen.

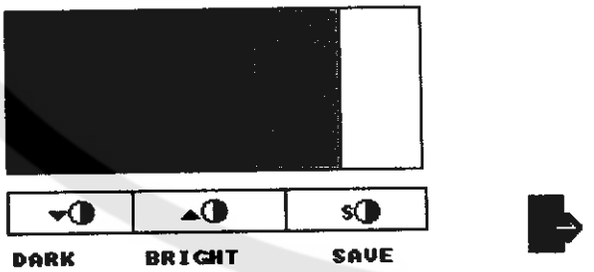
6.8 Selection of Language (button nr. 7)

You may see languages available on machine panel with flags of that country.

Selected language will be effective on general of machine.

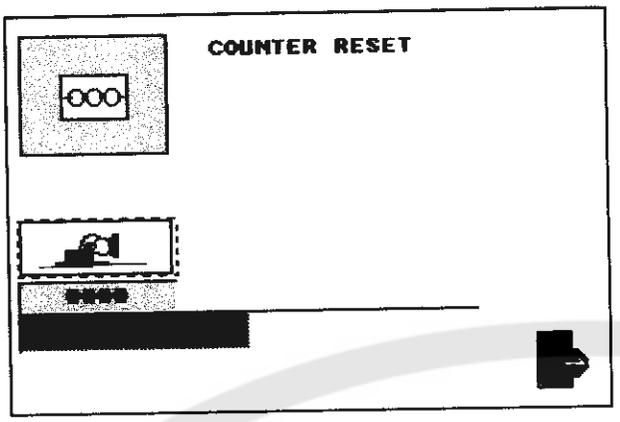
6.9 Color shading of machine (button nr.8)

When you touch this button, you may make color shading on the panel appearing on screen.



You must save any change and exit. Otherwise, operation is invalid.

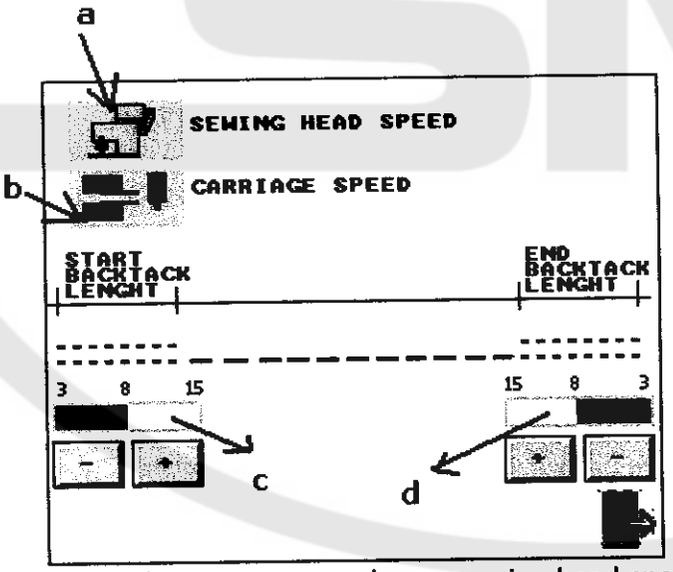
6.10 Part counter (button nr. 9)



You may see number of pockets stitched here.
If you want, you may reset the memory by touching on the hand sign.

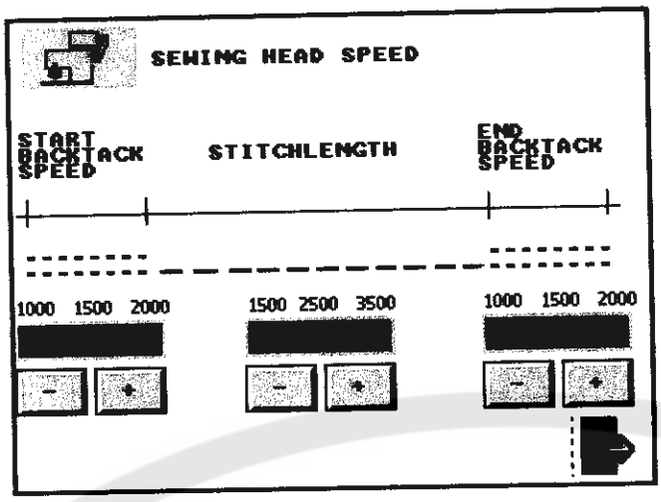
6.11 Zigzag settings (button nr. 10)

You may make settings such as zag length of seam, zigzag frequency, normal frequency here..

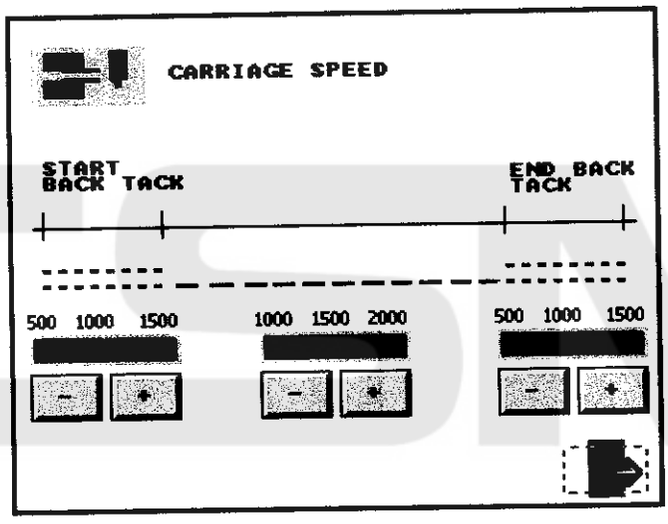


If you press button you may change sewing head speed on the new screen.

(Zigzag length of seam, zigzag frequency, normal frequency)

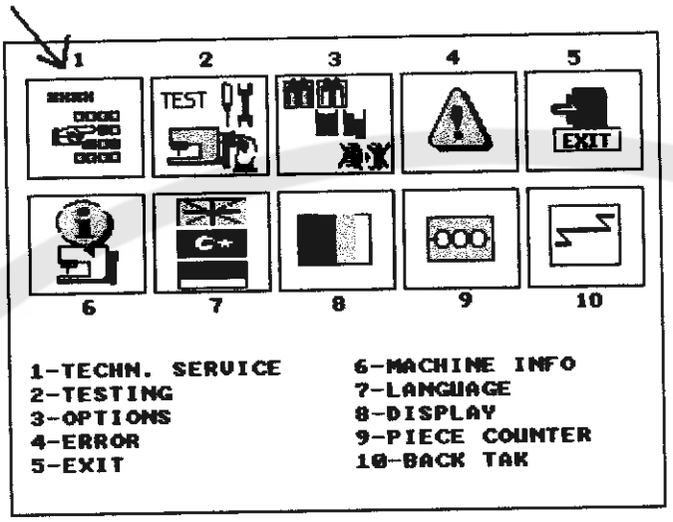


If you press button b , you may change speed of Grammer carriage within seam.
(changed speed effect the zigzag seam step and normal sewing step).

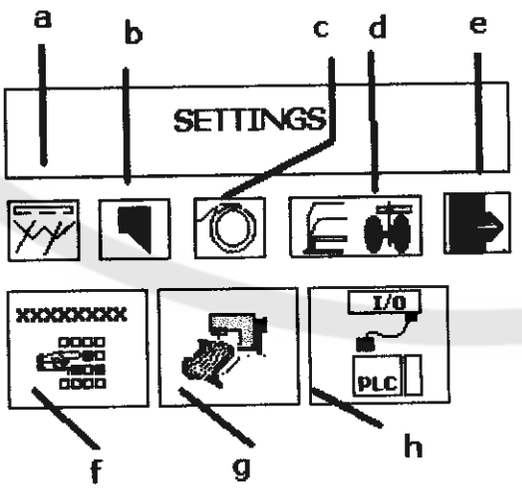


c: parameter zone to adjust the length of zigzag on start side.

7.0 Encoded technical section for technical settings of machine (Level 1)

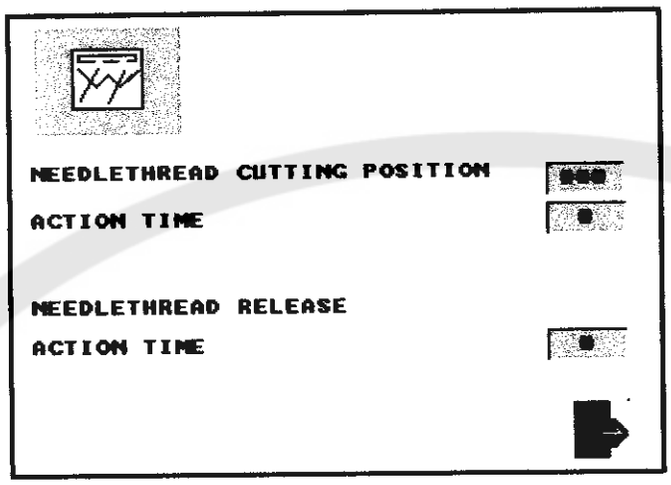


- Touch the button shown with arrow.
- Enter a code of 8 digits on the new display.
- If you entered the correct code, you will see the following display.



7.1 Functions of Upper Thread Cutting

If you press button shown with **a:**, a display is shown where you can change operation settings of upper thread cutting.

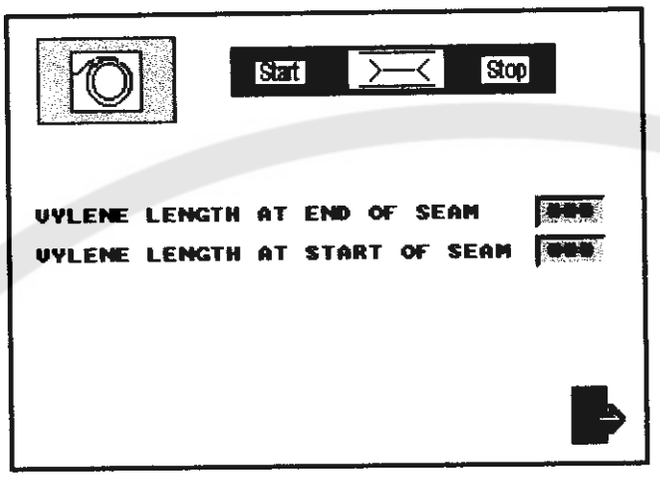


7.2 Center Knife Functions

If you press button **b:**, a display will be shown where you can change the settings of center knife.

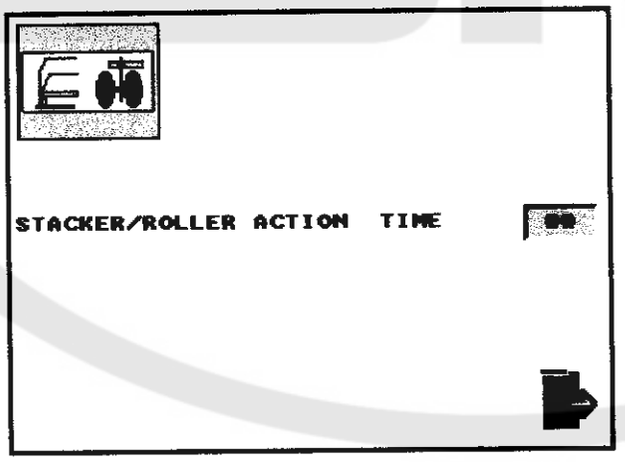
7.3 Fleece Functions

If you press button **c:**, a display will be shown where you can change length setting of fleece.



7.4 Stacking and & Ausrole Functions

If you press button **d:**, a display will be shown where you can change operation parameters of stacking and ausrole machine.



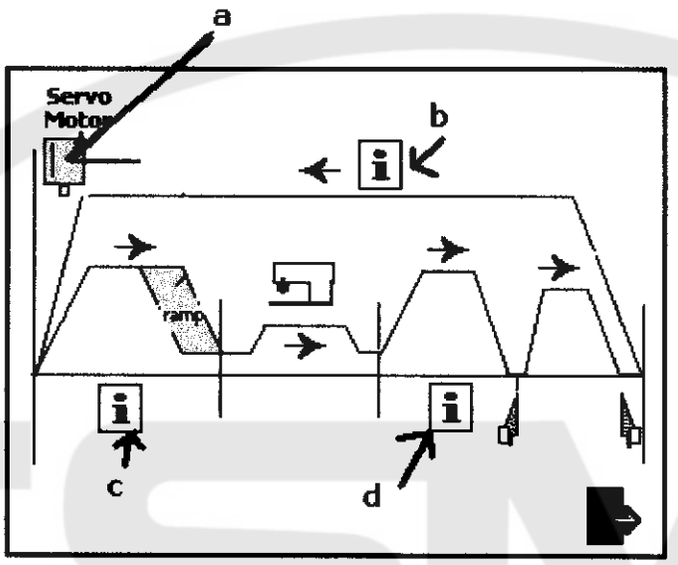
7.5 Exit Button

If you press button **e :**, you will exit to an upper menu (main service menu)from the display.

7.6 2. Coded Technical Zone

If you press button **f:,** a coded display will be shown where only top level technicians can access (Level 2).

- Enter a correct code of 8 digits.
- If code is correct, you will see the following display.

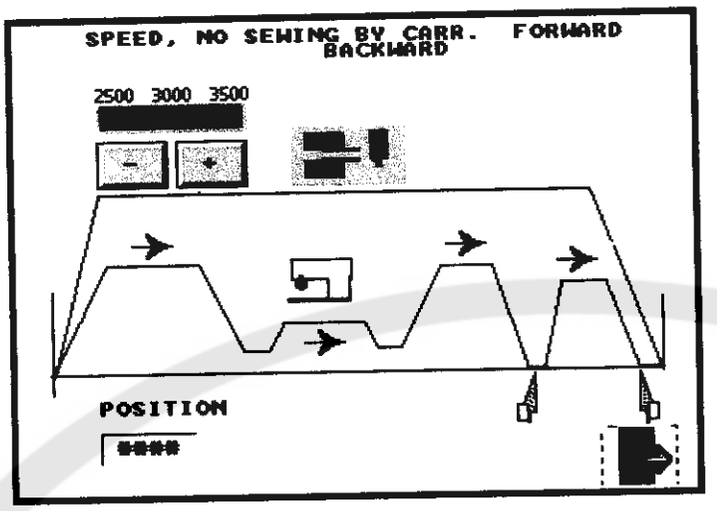


On this screen, you may change speed of Grammer trolley and Operation Positions.

If you press button **a:** , you may adjust pull of servo motor on the new screen.

If stitched pocket lengths are different than the one written on display in mm, then length of seam may be completely adjusted by changing the parameter (increasing or decreasing) here.

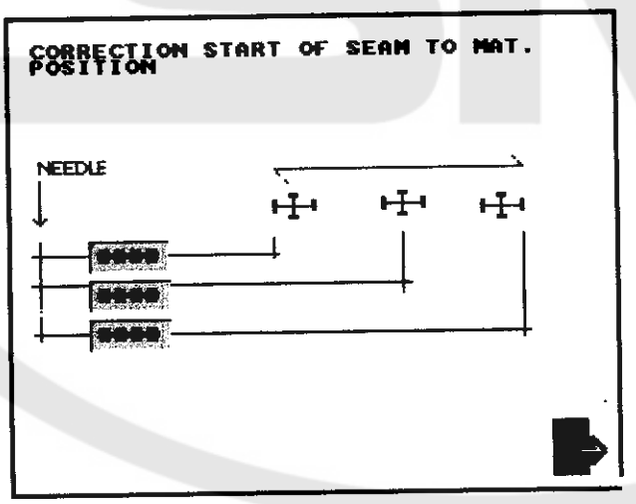
If you press button **b:** , the following display will appear.



on this screen;

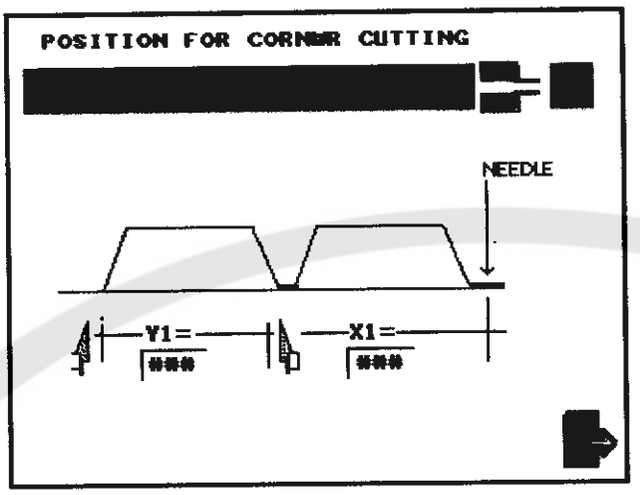
- you may adjust speed of grammer trolley for carrying forward and backward in idle status.
- You may adjust at which position grammer trolley will stop backward.

If you press button **c:**, the following screen will appear.



On this screen, distances between lasers and needles are adjusted (in parameter basis) in order to let Grammer trolley start at the correct point for stitching according to Lasers.

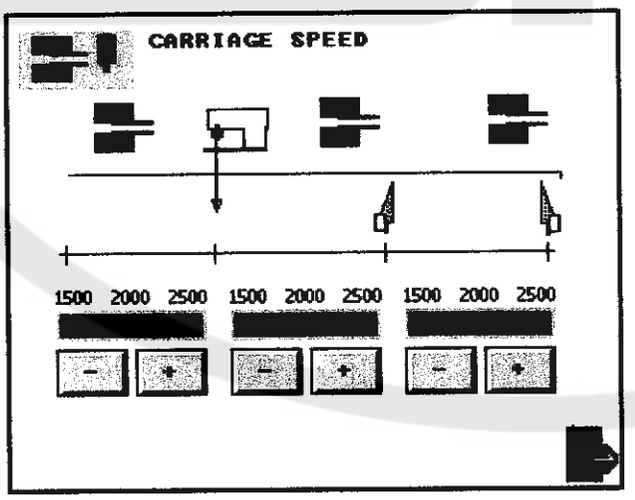
If you press button **d:** the following display will appear.



On this screen you may define
Interval between needle and the first corner knife
Interval between first corner knife and second corner knife in terms of parameters.
(Grammer trolley uses these intervals while going to corner knives).

7.7 Changing the speed of machine according to fabric

If you press button **g**: a display will appear where you can change operation speed of Grammer.



1.zone: speed of grammer trolley upon start to needle
2.bolge: speed of grammer trolley after stitching to first corner knife
3.bolge: speed of grammer trolley from first corner knife to second corner knife.
You may generally change all speeds of grammer trolley as described above.

7.8 Technical Connections of Machine

If you press button **h:**, you will find the pages where technical electronic connections and pneumatic connections are explained.

8.0 Cleaning and Lubricating Periods

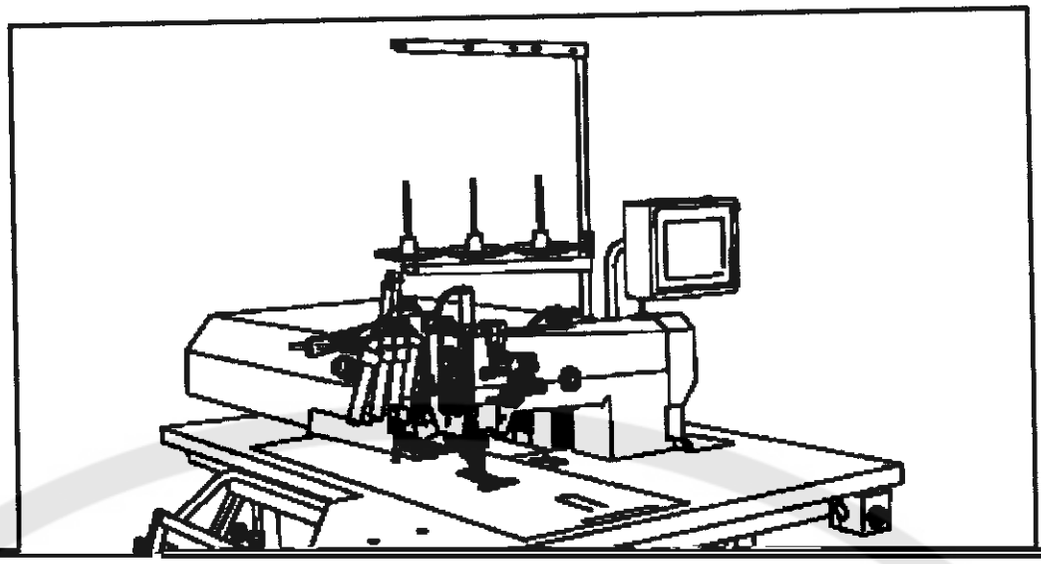
Cleaning entire machine	Weekly
Cleaning crab section	several times per day
Checking oil level	prior to operation everyday
Lubricating latch levers	once a month
Checking air pressure	prior to operation everyday
Cleaning maintenance unit air filter	whenever necessary

Time intervals for maintenance have been calculated according to average working time of machine at a single shift factory.
In case machine is operated for more, it is highly recommended to keep maintenance intervals more frequent.

8.1 Cleaning the machine

Time interval necessary for cleaning and lubricating the machine depends on the following factors:

- Single or multiple shift operation
- Possibility of sewn material to get dusty



8.2 Cleaning the Crab

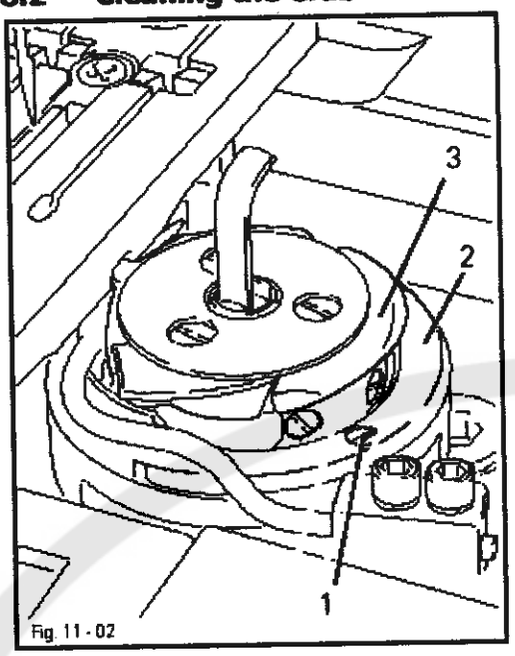
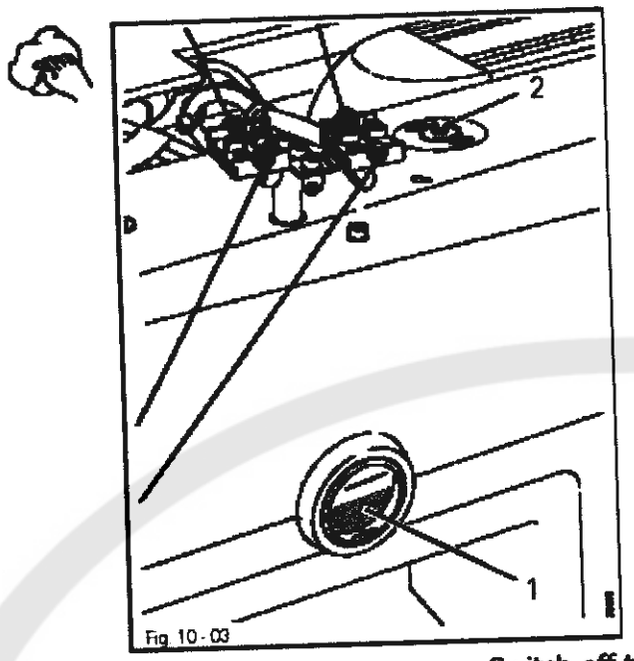


Fig. 11 - 02

Crab section and needle part must be cleaned for several times per day.

- Switch off the machine!
- Turn of air pressure!
- Remove screws nr.1
- Remove crab lever nr.2
- Turn hand pulley of head until spool capsule side stops horizontally at capsule ventilator.
- Remove spool capsule nr.3
- Clean crab bearing.
- And lubricate thoroughly.
- Insert spool capsule nr. 3.
- Remove crab lever nr. 3.

8.3 Checking oil level



- Switch off the machine!
- Check oil level from window (figure nr.1) prior to operation every day.
- If oil is at lower level, it must be refilled until 1 oil level reaches between upper and lower level on windows.

- ⚠ Use only 22,0 mm^2/s oil with medium center viscosity at 40°C and density of 0,865 g/cm^3 at 40°C!

8.4 Air pressure setting of machine and cleaning pressure tube

Air pressure setting of machine:

- Air pressure must be checked with manometer prior to each operation of machine.
- Manometer shall be adjusted according to air pressure of 6 bars. (Button nr.1 is pulled upwards and turned until manometer reads pressure of 6 bars and button nr.2 is pressed and fixed in place. Please see figure below).

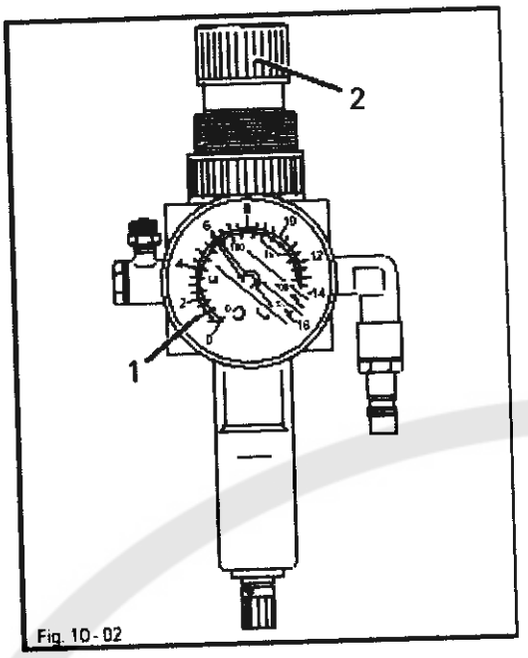


Fig. 10 - 02

8.5 Cleaning maintenance unit air filter

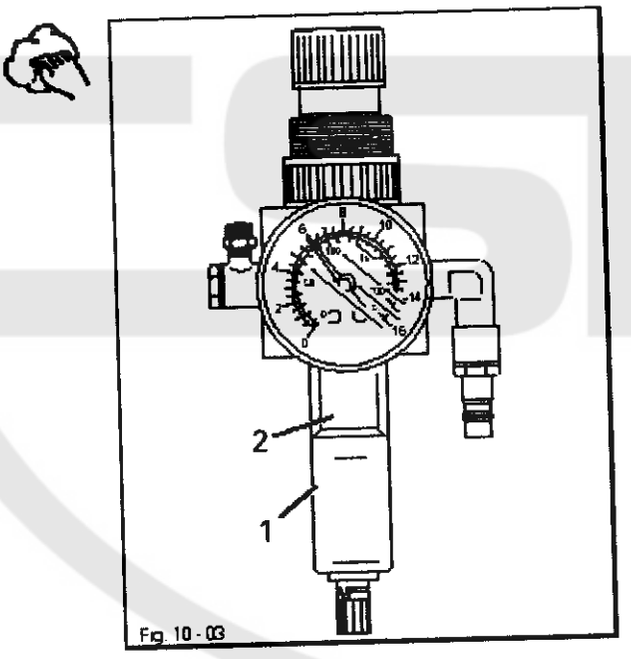


Fig. 10 - 03

- Switch off the machine!
- Remove compressed air pipe on maintenance unit.
- Water container (figure nr. 1) is discharged.
- Water container nr.1 is automatically discharged after removing maintenance unit compressed air pipe.

Cleaning Filter 2:

- Water container nr.1 is removed.
- Filter nr.2 is removed.
- Filter nr.2 is cleaned with compressed air or isopropyl alcohol.
- Filter nr.2 is turned and assembled and water container nr.1 is turned and assembled.

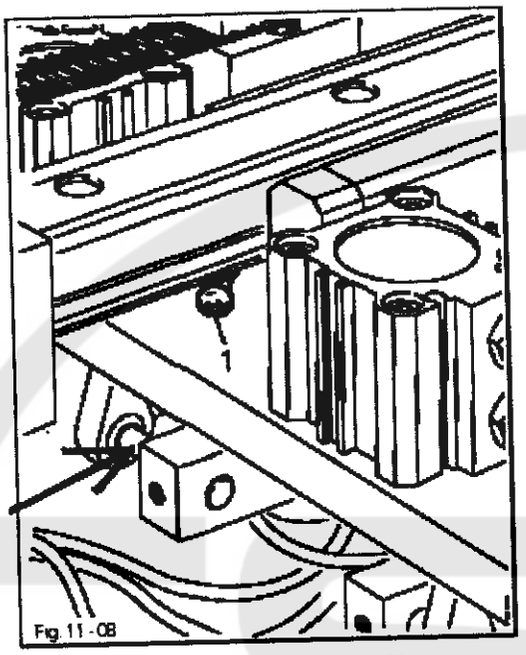


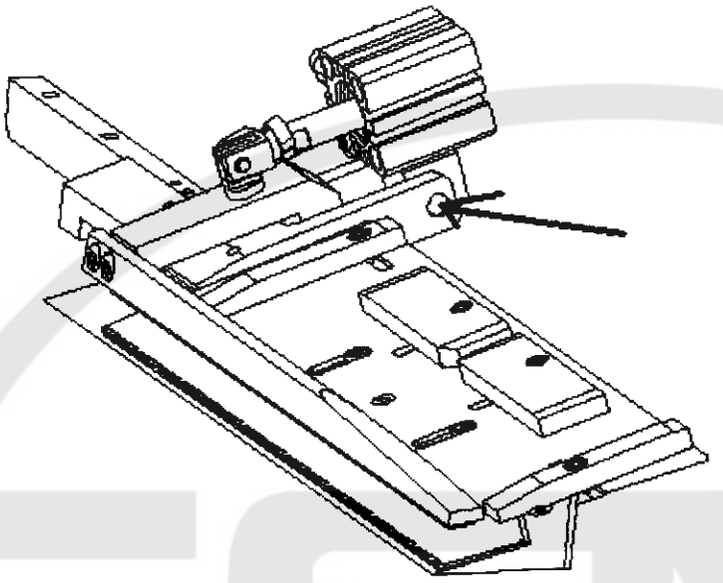
Fig.11-08

- Switch off the machine
- And prevent it from running again.
- Send Grammer trolley mechanism backwards.
- Zone indicated with arrow nr.1 must be lubricated with permanent grease pump.
- This lubrication shall be performed for once in two months for single shift operations and once in a month for two shift operations.

- After cleaning the zone indicated with arrow
- It must be lubricated with lubricating oil once a month.

8.6 Lubricating Grammer Feet:

Grammers must be cleaned with air everyday and the zone indicated must be lubricated with machine oil once a week.



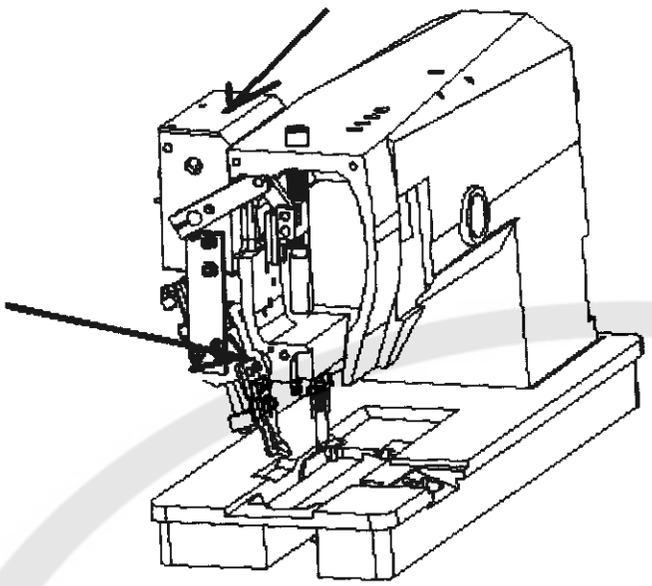
8.7 Lubricating and cleaning the mechanisms on sewing machine.

All lubricating holes on sewing machine and zones indicated with arrow must be properly wiped and cleaned each weekend and must be regularly lubricated.

Zones on sewing head must also be lubricated.

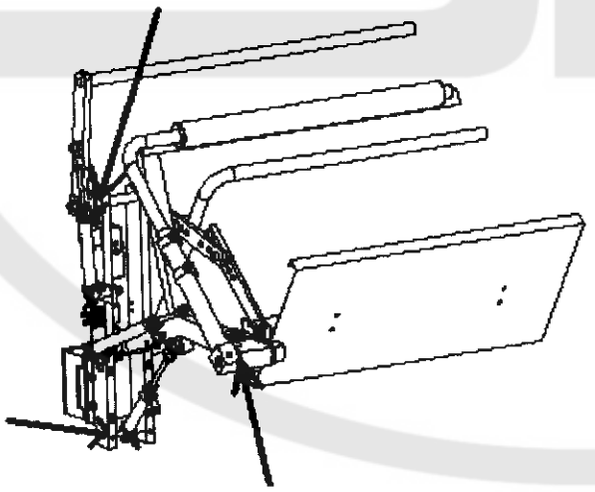
Upper thread cutting equipment must also be cleaned for several times per day.

Touch 'cut and hold thread' sign on pocket programs and clean waste thread parts accumulated at the mouth of upper thread cutting mechanism.



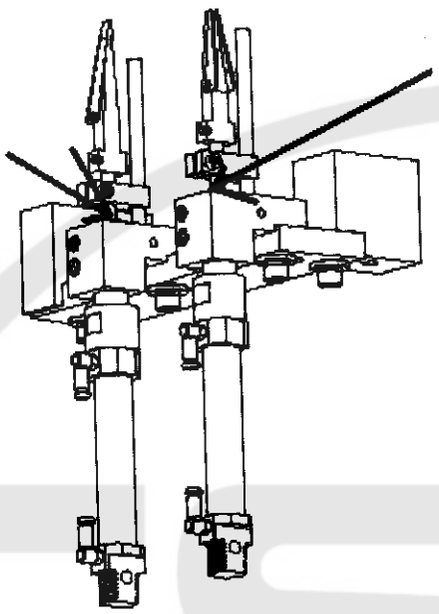
8.8 Lubricating all joints and moving parts on stacking machine:

All joints and moving parts on stacking machine must be properly cleaned with air everyday and lubricated with machine oil for once a week.



8.9 Lubricating corner knife mechanism:

Corner knife mechanism must be cleaned with air everyday and spindles and moving parts here must be lubricated with machine oil for once a week.



GLOBAL

PW 2045

Instruction manual

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1 Safety

1.01 Regulations

This machine is constructed in accordance with the European regulations indicated in the conformity and manufacturer's declarations.
In addition to this instruction manual, please also observe all generally accepted, statutory and other legal requirements, including those of the user's country, and the applicable pollution control regulations!
The valid regulations of the regional social insurance society for occupational accidents or other supervisory authorities are to be strictly adhered to!

1.02 General notes on safety

- The machine must only be operated by adequately trained operators and only when the instruction manual has been fully read and understood!
- All notices on safety and the instruction manual of the motor manufacturer are to be read before the machine is put into operation!
- All notes on the machine concerning danger and safety must be observed!
- The machine must be used for the purpose for which it is intended and must not be operated without its safety devices; all regulations relevant to safety must be adhered to.
- When part sets are changed (e.g. needle, presser foot, needle plate, feed dog or bob-bin), during threading, when the workplace is left unattended and during maintenance work, the machine must be isolated from the power supply by turning off the on/off switch or removing the plug from the mains!
- Daily maintenance work must only be carried out by appropriately trained persons!
- Repairs and special maintenance work must only be carried out by qualified technical staff or persons with appropriate training!
- During maintenance or repairs on the pneumatic system the machine must be isolated [illegible]

- Only spare parts which have been approved by us are to be used for repairs! We draw special attention to the fact that spare parts and accessories not supplied by us have not been subjected to testing nor approval by us. Fitting and/or use of any such parts may cause negative changes to the design characteristics of the machine. We shall not accept any liability for damage caused by the use of non-original parts.

1.03 1.03 Safety symbols

Danger!
Special points to observe.

Danger of injury to operating or technical staff!

Danger: Laser beam!

Caution
Do not operate without finger guard and safety devices.
Before threading, changing bobbin and needle, cleaning

1.05 Notes for operating and technical staff

1.05.01 Operating staff

Operating staff are the persons responsible for setting up, operating and cleaning the machine and for removing any disturbances in the sewing area.

The operating staff are obliged to observe the following points, and must:

- always observe the notes on safety in this instruction manual!
- avoid using any working methods which adversely effect the safety of the machine!
- avoid wearing loose-fitting clothing or jewelry such as necklaces or rings!
- also ensure that only authorized persons are allowed near the danger area of the machine!
- immediately report to the user any changes to the machine that may affect its safety!

1.05.02 Technical staff

Technical staff are persons who have been trained in electrical engineering, electronics, pneumatics and mechanical engineering. They are responsible for lubricating, servicing, repairing and adjusting the machine.

The technical staff are obliged to observe the following points, and must:

- always observe the notes on safety in this instruction manual!
- switch off the on/off switch before carrying out adjustment and repair work and ensure it cannot be switched on again unintentionally!
- never work on parts or equipment still connected to the power supply! Exceptions to this are only permissible according to regulations EN 50110;
- isolate the machine from the compressed air supply when carrying out maintenance or repair work on pneumatic equipment!
  Exceptions to this are only permissible for function checks;
- replace all safety covers after carrying out maintenance or repair work!

1.06 Danger warnings

A working area of 1 m must be kept free both in front of and behind the machine, so that easy access is possible at all times.

Never put your hands in the sewing area during sewing!
Danger of injury by the needle!

Do not leave any objects on the table during adjustment work!
Objects can be caught in the machine or flung out!
Danger of injury!

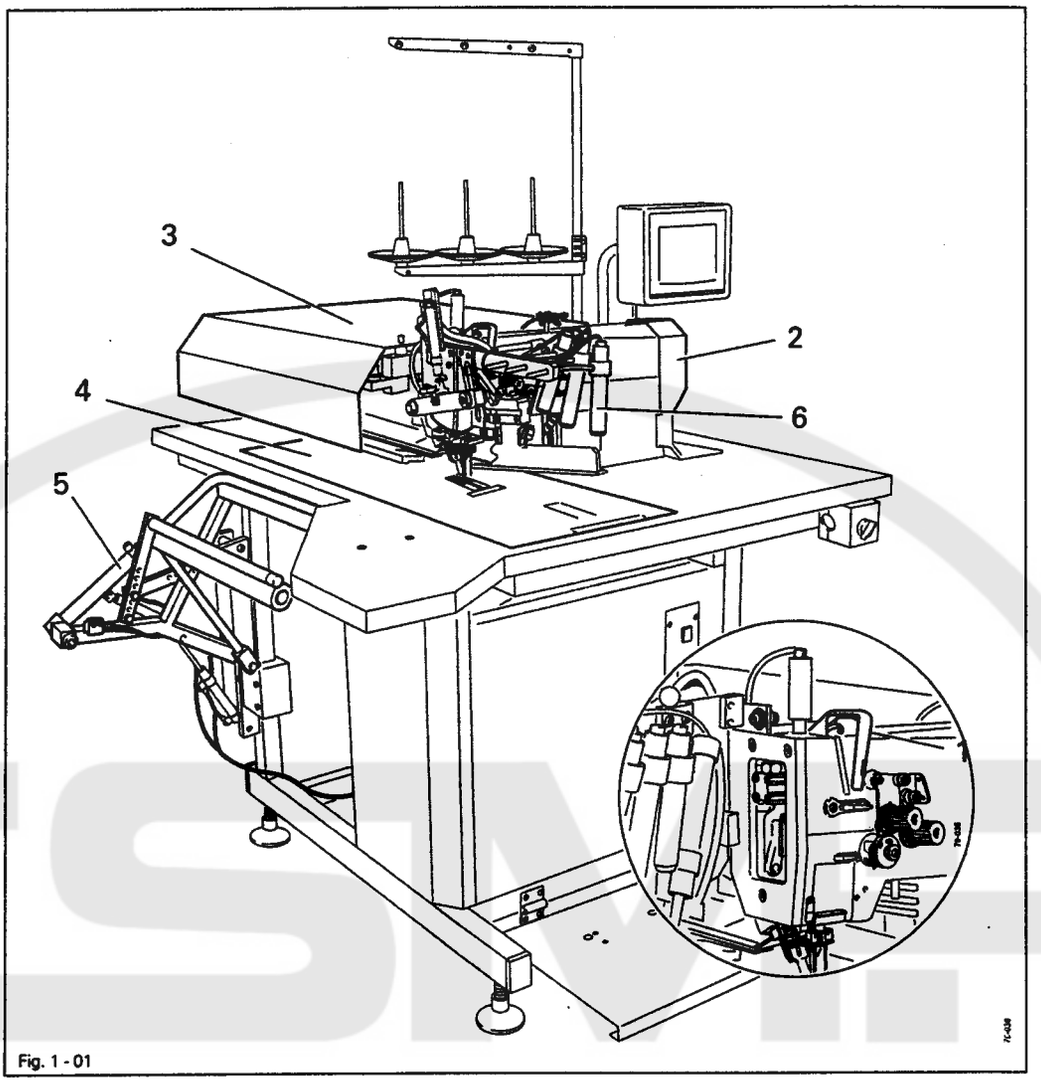

Fig. 1 - 01

Do not operate the machine without take-up lever guard **1**!
Danger of injury due to movement of the take-up lever!

Do not operate the machine without covers **2** and **3**!
Danger of injury from running drive belts!

Do **not** switch on the machine when cover plate **4** is retracted!
Danger of injury in hook area!

During operation do not place hands in the swing area of stacker **5**!
Danger of injury from the moving arms of the stacker.

During operation do not look into the positioning device **6** !
Danger of injury from laser beams!

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2 Proper use

The is a mechanised sewing unit for manufacturing plackets and pocket piping in the clothing industry

Any and all uses of this machine which have not been approved of by the manufacturer are considered to be inappropriate! The manufacturer cannot be held liable for any damage caused by the inappropriate use of the machine! The appropriate use of the machine means that all operational, adjustment, maintenance and repair measures required by the manufacturer are to be observed!

3 Specifications ▲

Specifications

Speed: ..... 2100 s.p.m.
Stitch length: ..... 2.5 mm
Stitch type: 301

Needle system: 134
Needle size: ..... 80 – 100 Nm

Sewing motor: ..... See Motor Service Manual
Connection voltage: ..... 230 V, 50 – 60 Hz A/C
Power requirement: ..... 1.2 kW

Working air pressure: ..... min. 6 bar
Air consumption: ..... approx. 5 l/work cycle

Noise data:
Emission sound level at the workplace at a speed of 2000 spm: ..... L_{pA} = 74 dB(A) ■
(Noise measurement in acc. with DIN 45 635-48-A-1, ISO 11204, ISO 3744, ISO 4871)

Machine dimensions:
Length: ..... approx. 1300 mm
Width: ..... approx. 1200 mm
Height: ..... approx. 1300 mm
Table height: ..... 850 mm

Net weight: ..... 234 kg

▲ Subject to technical alterations

■ K_{pA} = 2,5 dB , ΔL_i = 4 dB

4 Disposal of the machine

- The proper disposal of the machine is the responsibility of the customer.
- The materials used for the machine are steel, aluminium, brass and various plastics.

5 Transport, packaging and storage

5.01 Transport to the customer's premises

Within Germany, machines are delivered without packaging.
Machines for export are packaged.

5.02 Transport within the customer's premises

The manufacturer bears no liability for transport within the customer's premises or to the location of use.
The machine may only be transported in an upright position.

5.03 Disposal of the packaging

The packaging of these machines consists of paper, cardboard and VCE fiber.
The proper disposal of the packaging is the responsibility of the customer.

5.04 Storage

The machine can be stored for up to 6 months if not in use. During this time it should be protected from dust and moisture.
For longer storage the individual parts of the machine, especially the moving parts, should be protected against corrosion, e.g. by a film of oil.

6 Explanation of the symbols

In this Instruction Manual, tasks to be carried out and important information are drawn to your attention by symbols. The symbols have the following meanings:

Note, information

Cleaning, care

Lubrication

Servicing, repairing, adjustment, maintenance
(only to be carried out by specialist personnel)

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7 Controls

7.01 Main switch

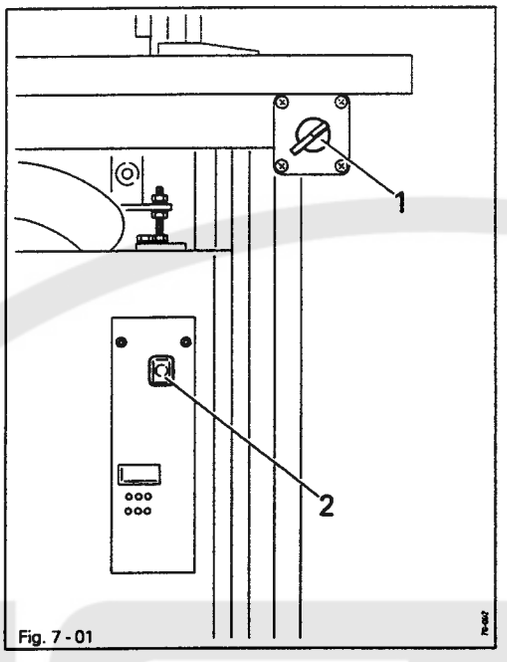
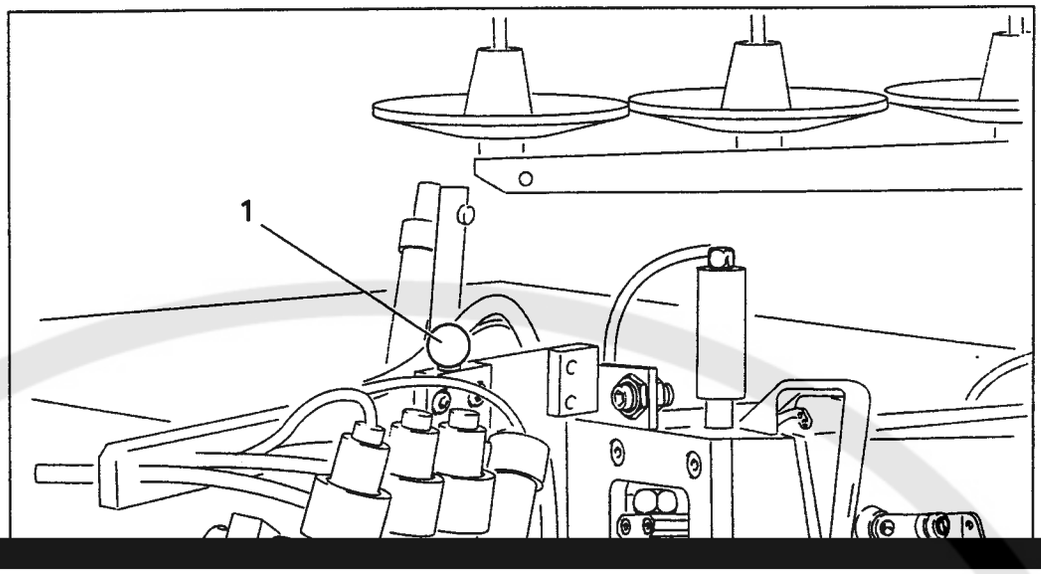


Fig. 7 - 01

- Switch the machine on or off by turning main switch 1.

The motor control switch 2 must always be switched on.

7.02 Catch of the folding unit



7.03 Balance wheel

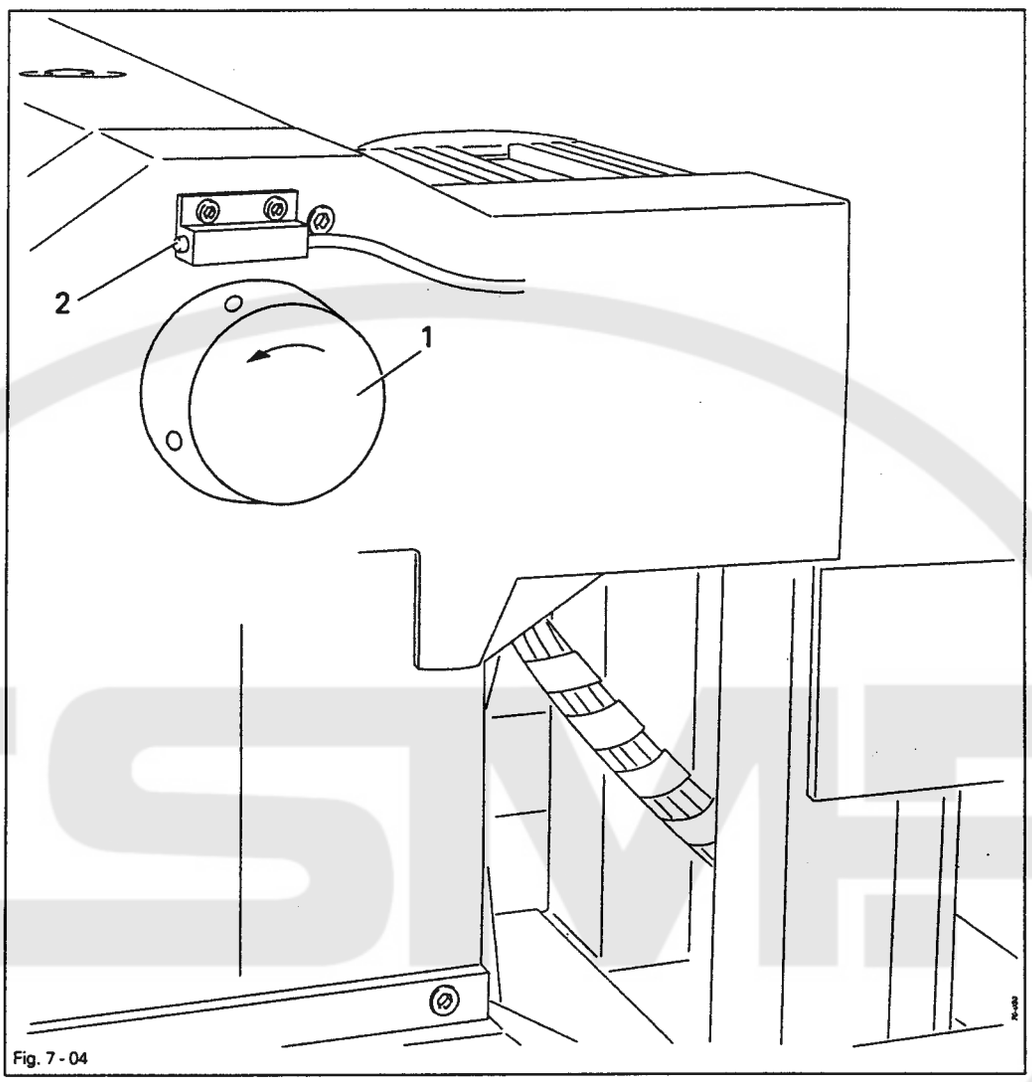


Fig. 7 - 04

- Balance wheel **1** is used to adjust the needle bar, e.g. when changing the needle.

When sewing begins, the needle bar must be positioned **1 mm after t.d.c.** If necessary, set the needle bar in the right position using balance wheel **1** (LED 2 must be on).

7.04 Control panel

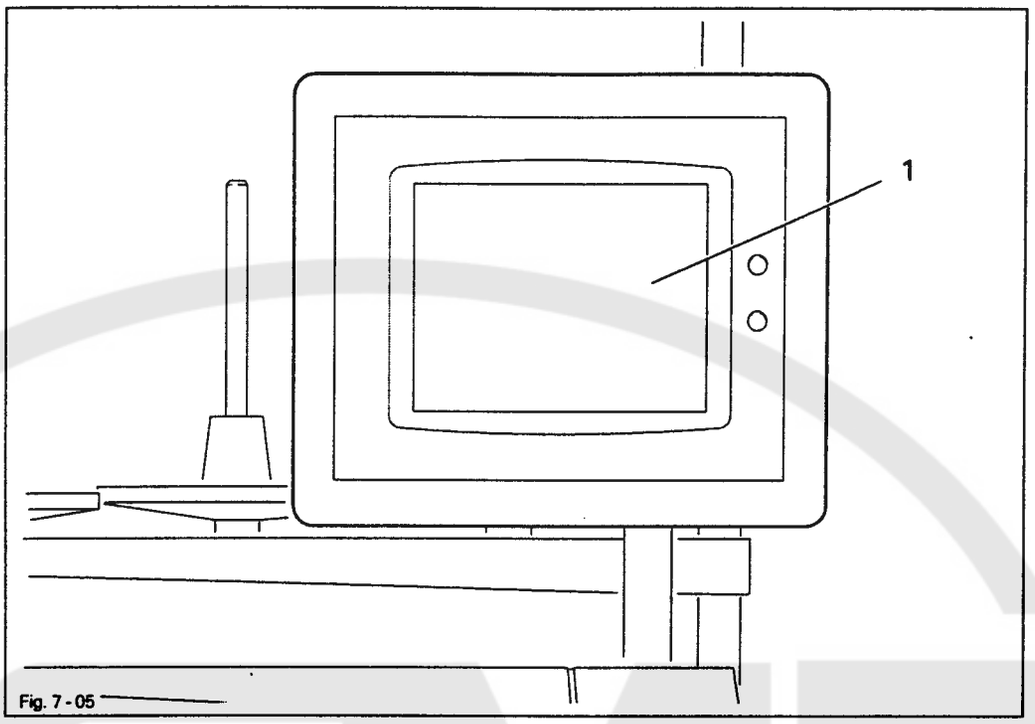
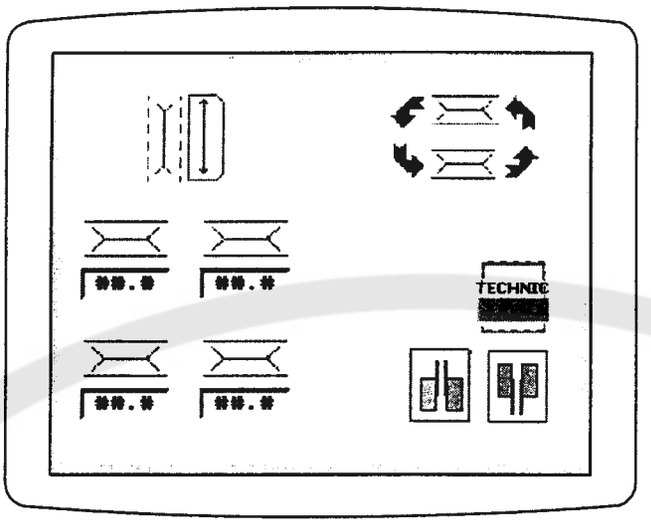


Fig. 7 - 05

The machine's control panel consists of a touch screen monitor **1** where the functions can be selected by touching the appropriate function symbol.
The display on the monitor is dependent on the operating condition of the machine. In addition to function symbols, fields are also displayed, where it is possible to enter a value (e.g. the length of the pocket) after touching the screen. Symbols for error signals and operating conditions (e.g. amount of remaining thread) are also displayed.

- When the machine is switched on the start display screen appears.
- When the monitor screen is touched, the basic display screen for controlling the machine appears. The functions on the basic display screen are used to enter further functions of the machine control.

Basic display screen



Explanation of the symbols

Flap
By touching this symbol a menu is opened for entering the required flap.
Further functions of this menu are explained in **Chapter 9.07 Entering flap values.**

Cycle
By touching this symbol a menu is opened for entering a work cycle.
Further functions of this menu are explained in **Chapter 9.09 Entering work cycle.**

Pocket (1-4)
By touching this symbol a menu is opened for entering the appropriate pocket.
4 different pockets can be entered. Further functions of this menu are explained in **Chapter 9.08 Entering pocket values.**

Main clamp forwards
By touching this symbol the main clamp is moved forwards.

Main clamp backwards
By touching this symbol the main clamp is moved backwards.

Technics/Service
By touching this symbol the service level of the control system is opened.

Explanation of further symbols:
Below further symbols are explained, which are displayed in different operating conditions.
The functions shown are the same in every operating condition.

Needle thread and bobbin thread knife
With this function the threads can be cut and trapped.

- Press once: Needle thread trap is opened, the bobbin thread is cut and the cutter closed.
- Press again: Thread trap is closed and the needle threads are cut. Bobbin thread cutter opens.

Feeding interface on/off
This function switches the interface tape feed on or off.

Interface knife
This function is used to feed and cut the interface tape.

Corner knife on/off
When this symbol is touched, the corner knife function is switched on or off.
When the centre knife is switched off, the corner knifes are automatically switched off too.

Centre knife on/off
When this symbol is touched, the centre knife function is switched on or off.
When the centre knife is switched off, the corner knifes are automatically switched off too.

Open/close thread tension
By touching this symbol, the thread tension unit is opened or closed.

Thread remaining
This symbol is used to display the amount of thread remaining.

Piece counter
This symbol is used to display the number of pockets sewn, or the number of work cycles.

7.05 Foot switch

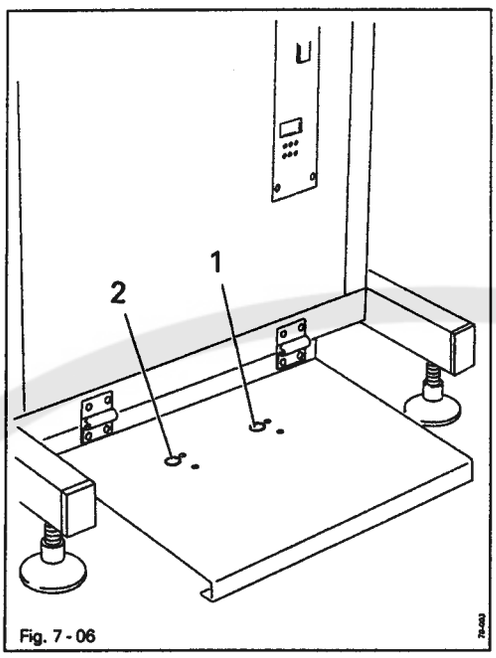


Fig. 7 - 06

- The function of the foot switch **1** depends on the setting in the machine configuration.
- With foot switch **2** the functions carried out with foot switch **1** are cancelled step by step.
- After sewing starts, a sewing stop is carried out by operating foot switch **2**.

Standard functions of foot switch **1**:

Number of operations/steps	Function
1	Move main clamps forwards
2	Lower both main clamps
3	Lower folding unit/engage folding slide
4	Close left flap clamp
5	Close right flap clamp
6	Sewing start

On the control panel the functions of foot switch 1 can be adapted to various requirements when placing the workpiece as follows.

- Switch on the machine.
- Select the basic screen display by touching the monitor screen.

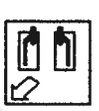
- Select the service level by touching the symbol technics/service.

- Select the menu for **machine configuration** by touching the appropriate symbol.

Using the symbols displayed on the screen, the functions of the foot switch can be altered as follows.

- Both flap clamps are closed at the same time.

Number of operations/steps	functions
1	Move main clamps forwards
2	Lower both main clamps
3	Lower folding unit/engage folding slide
4	Close both flap clamps
5	Sewing start



- First the left and then the right flap clamp is closed.

Number of operations/steps	functions
1	Move main clamps forwards
2	Lower both main clamps
3	Lower folding unit/engage folding slide
4	Close left flap clamp
5	Close right flap clamp
6	Sewing start

- First the right and then the left flap clamp is closed.

Number of operations/steps	functions
1	Move main clamps forwards
2	Lower both main clamps
3	Lower folding unit/engage folding slide
4	Close right flap clamp
5	Close left flap clamp
6	Sewing start

- Both main clamps are lowered at the same time.

Number of operations/steps	functions
1	Move main clamps forwards
2	Lower both main clamps
3	Lower folding unit/engage folding slide
4	Close left flap clamp
5	Close right flap clamp
6	Sewing start

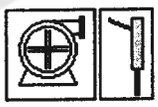
- The right main clamp is lowered after the left main clamp.

● With the function **More** a menu for selecting further functions is opened.

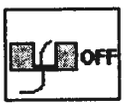
● The stacker function is generally switched off.
When the stacker function is switched off, the automatic material recognition function of the main clamp is also switched off.

● Switch on stacker function.

● Switch off vacuum and stamp.



● Switch on vacuum and stamp.
The vacuum is used to retain the workpiece on the cover plate.
When the vacuum is switched on, the functions of the foot switch are altered as follows.



● Switch off needle thread monitor.

● Switch on needle thread monitor.

Number of operations/steps	functions
1	Switch on suction (vacuum or stamp)
2	Move main clamps forwards
3	Switch off suction (vacuum or stamp)
4	Lower both main clamps
5	Lower folding unit/engage folding slide

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8 Installation and commissioning

After unpacking the machine, examine it for any transport damages. If there are any damages, inform the carrier and your local agency.

The machine must only be installed and commissioned by qualified personnel!
All relevant safety regulations must be strictly adhered to!

8.01 Installation

Suitable connections for electricity and compressed air must be available at the installation site (see Chapter 3 Specifications).

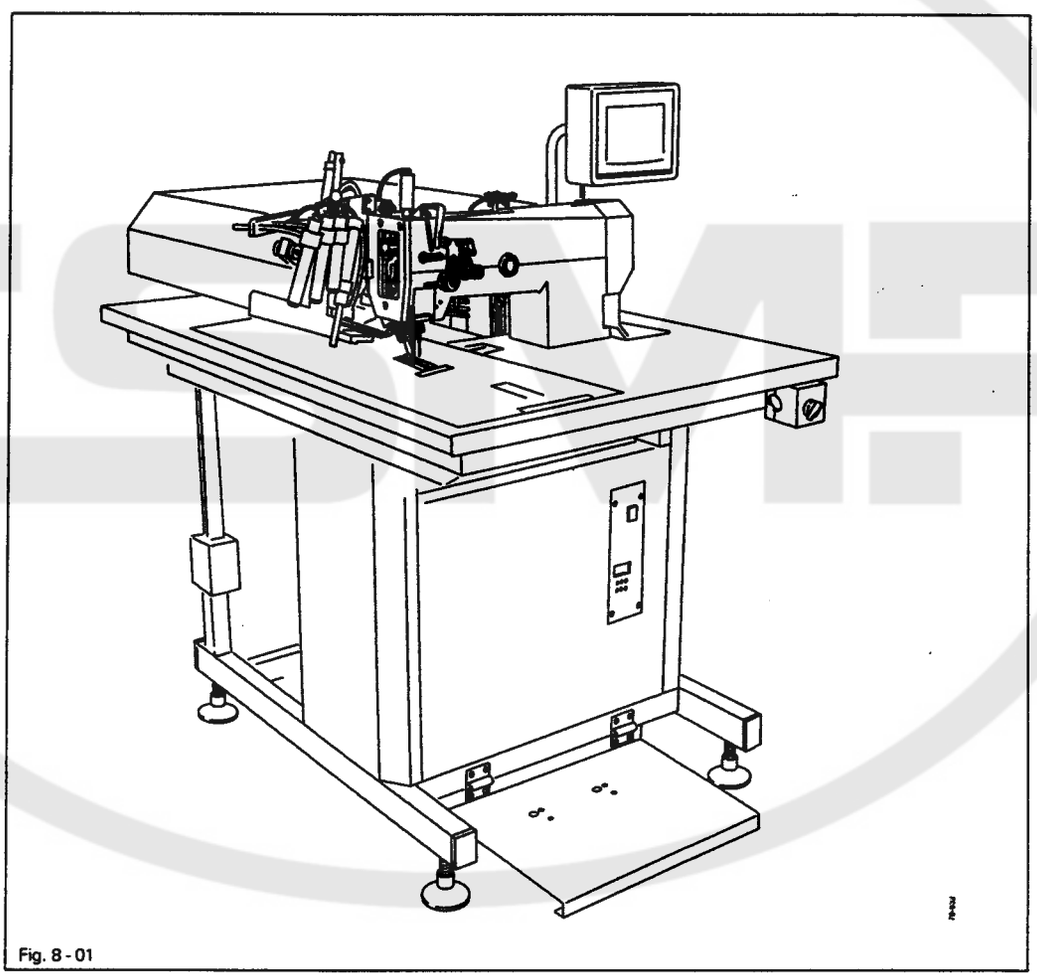


Fig. 8 - 01

- Lift the machine off the transport pallet with a fork-lift.
- Just above the floor, align the machine until it is level and adjust the four legs accordingly before setting the machine down onto the floor.

8.01.01 Mounting the bearing plate

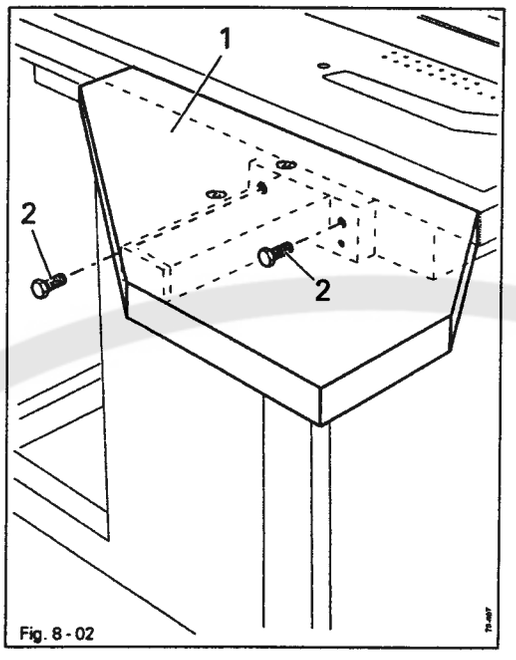


Fig. 8 - 02

- Attach the bearing plate **1** to the sewing table with screws **2.**

8.01.02 Connecting the vacuum system

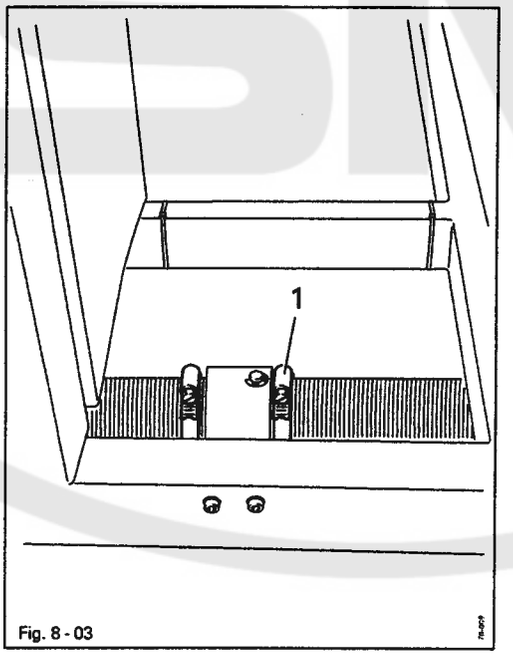


Fig. 8 - 03

- Place the tube delivered for the vacuum system on the connection piece and fasten it with clip **1.**

8.01.03 Mounting the stacker

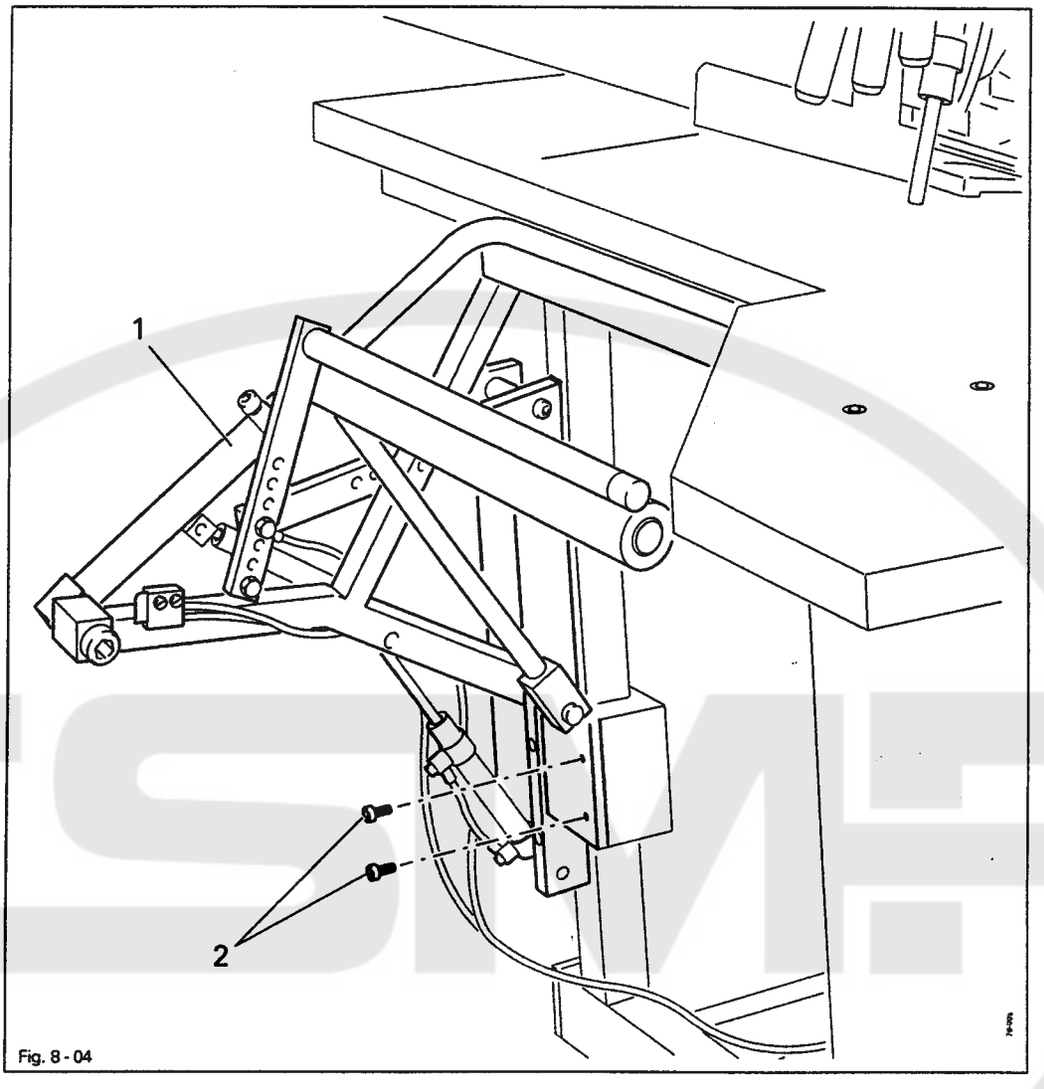


Fig. 8 - 04

- Attach the stacker **1** to the frame with screws **2** (four screws).
- Connect pneumatic tubes as shown in the circuit diagram.

8.01.04 Mounting the reel stand

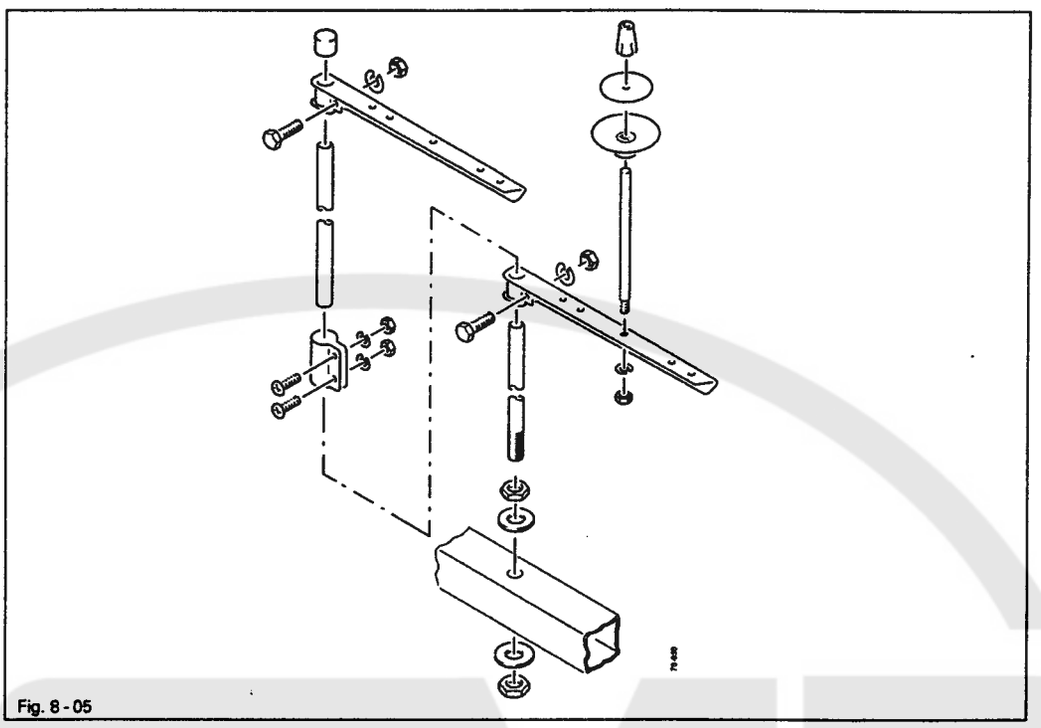


Fig. 8 - 05

- Mount the reel stand as shown in the above illustration.

8.02 Commissioning

- Clean the entire machine thoroughly, checking the electric leads and pneumatic connection tubes for any damage.
- Check whether the machine can be operated with the available electricity supply (see **Chapter 3 Specifications**). If there are any irregularities do not operate the machine **under any circumstances!**
- Have the machine connected to the mains by qualified staff.
- Oil the machine or pour in oil (see **Chapter 11 Care and Maintenance**).
- Connect the machine to the compressed air supply.
- The manometer on the air filter should show a pressure of **6 bar**. If necessary, adjust to this value (see **Chapter 11.04 Checking/adjusting the air pressure**).

8.03 Switching the machine on/off

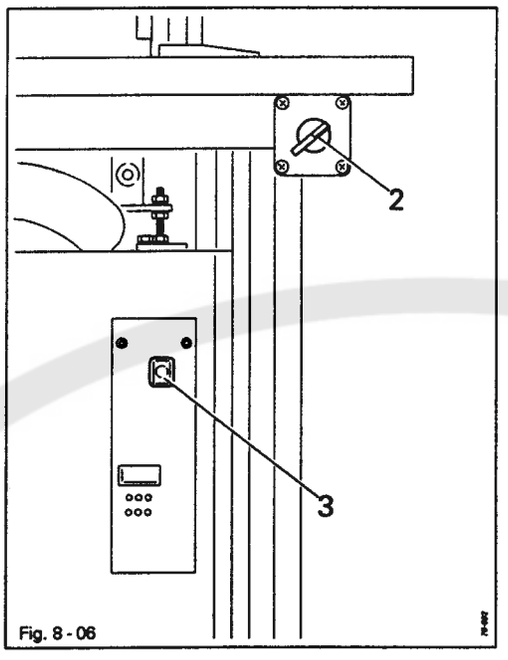


Fig. 8 - 06

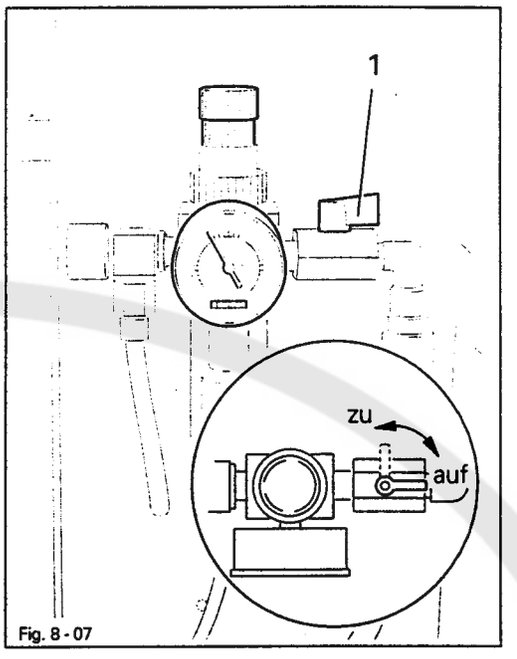


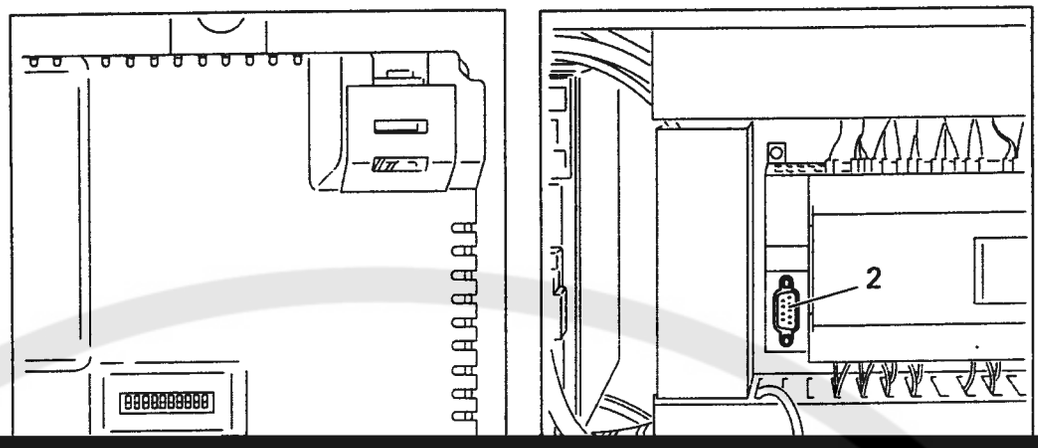
Fig. 8 - 07

- Open the main air supply **1**.
- Check the air pressure and adjust if necessary (see Chapter **11.04 Checking/adjusting the air pressure**).
- Turn main switch **2** to position "I".

Switch **3** of the motor control unit must always be switched on.

- To switch off the machine, turn main switch **2** to position "0" and close the main air supply **1**.

8.04 PC interfaces



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9.02	Winding the bobbin thread / adjusting the preliminary thread tension	9 - 2
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9 Setting up

All instructions and regulations in this instruction manual must be observed. Special attention must be given to all safety regulations!

All setting-up work must only be done by personnel with the necessary training.

9.01 Inserting the needles

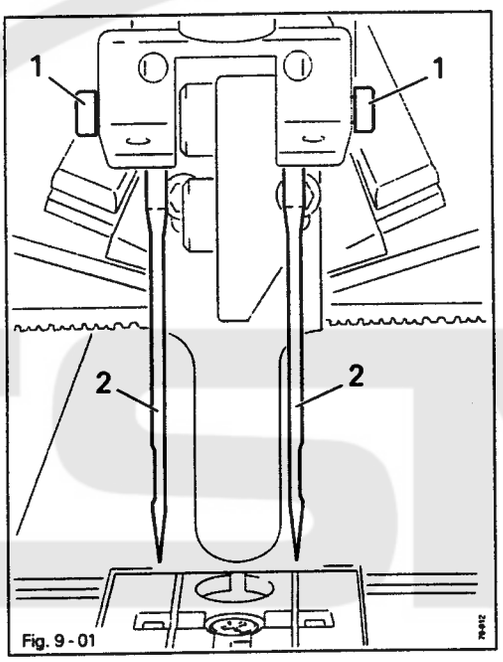


Fig. 9 - 01

Switch the machine off!
Danger of injury if the machine suddenly starts running!

Only use needles from System 134!

- Retract the folding unit.
- Loosen screws 1 and insert needles 2 as far as possible into the needle bar.
- Align needles 2 as shown in the adjacent illustration and tighten screws 1.
- Swing in the folding unit and let it snap into place.

9.02 Winding the bobbin thread / adjusting the preliminary thread tension

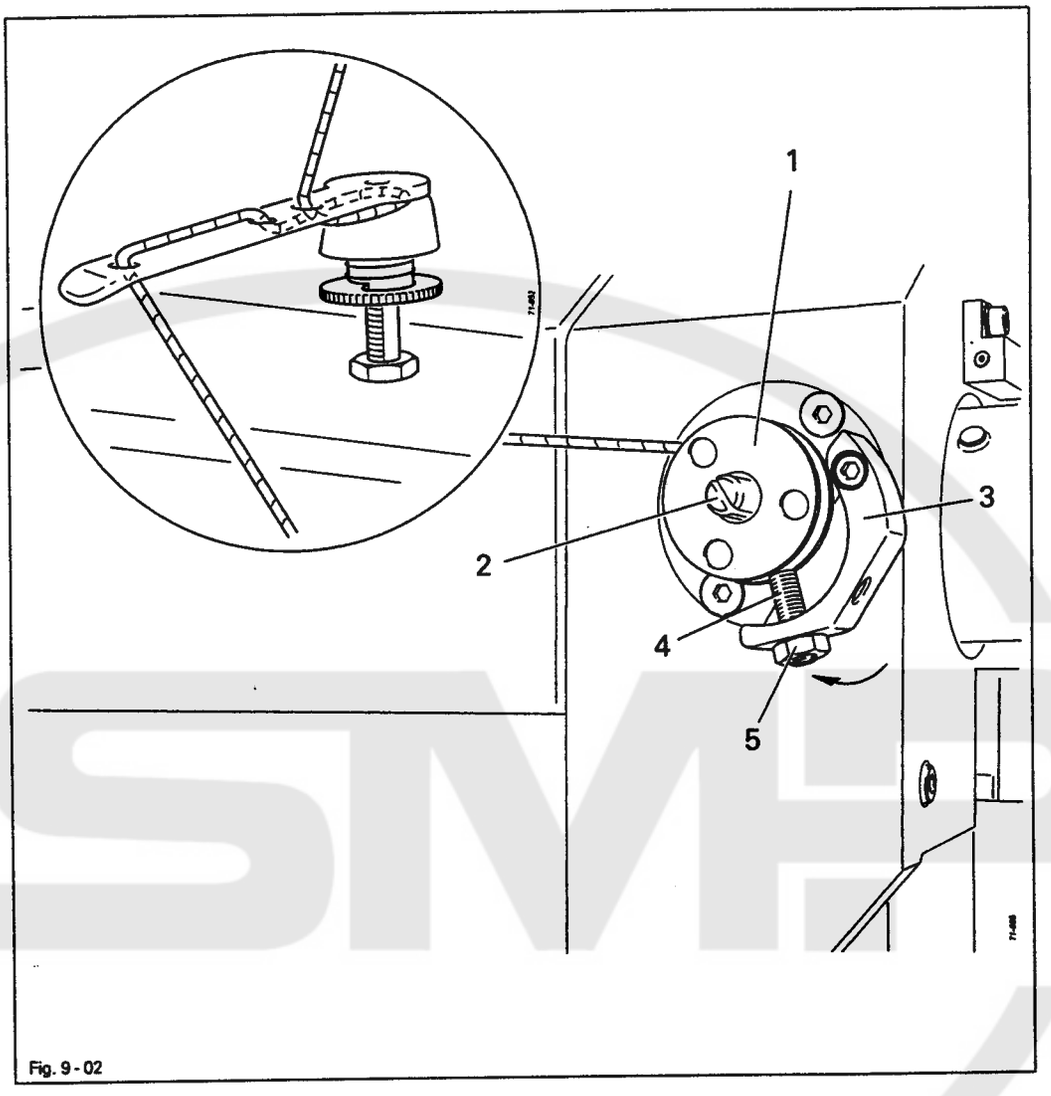


Fig. 9 - 02

- Place empty bobbin **1** on spindle **2**.
- Thread up as shown in **Fig. 9-02** and wind the thread around bobbin **1** a few times in a clockwise direction.
- Engage the bobbin winder by pressing lever **3** in the direction shown by the arrow.

Bobbin **1** is filled during sewing.

- The tension of the thread on bobbin **1** can be set on screw **4**.
- The bobbin winder will stop automatically, when there is enough thread on bobbin **1**.

The adjustment of the amount of thread is described in **Chapter 12 Adjustment.**

9.03 Changing the bobbin / adjusting the bobbin thread tension

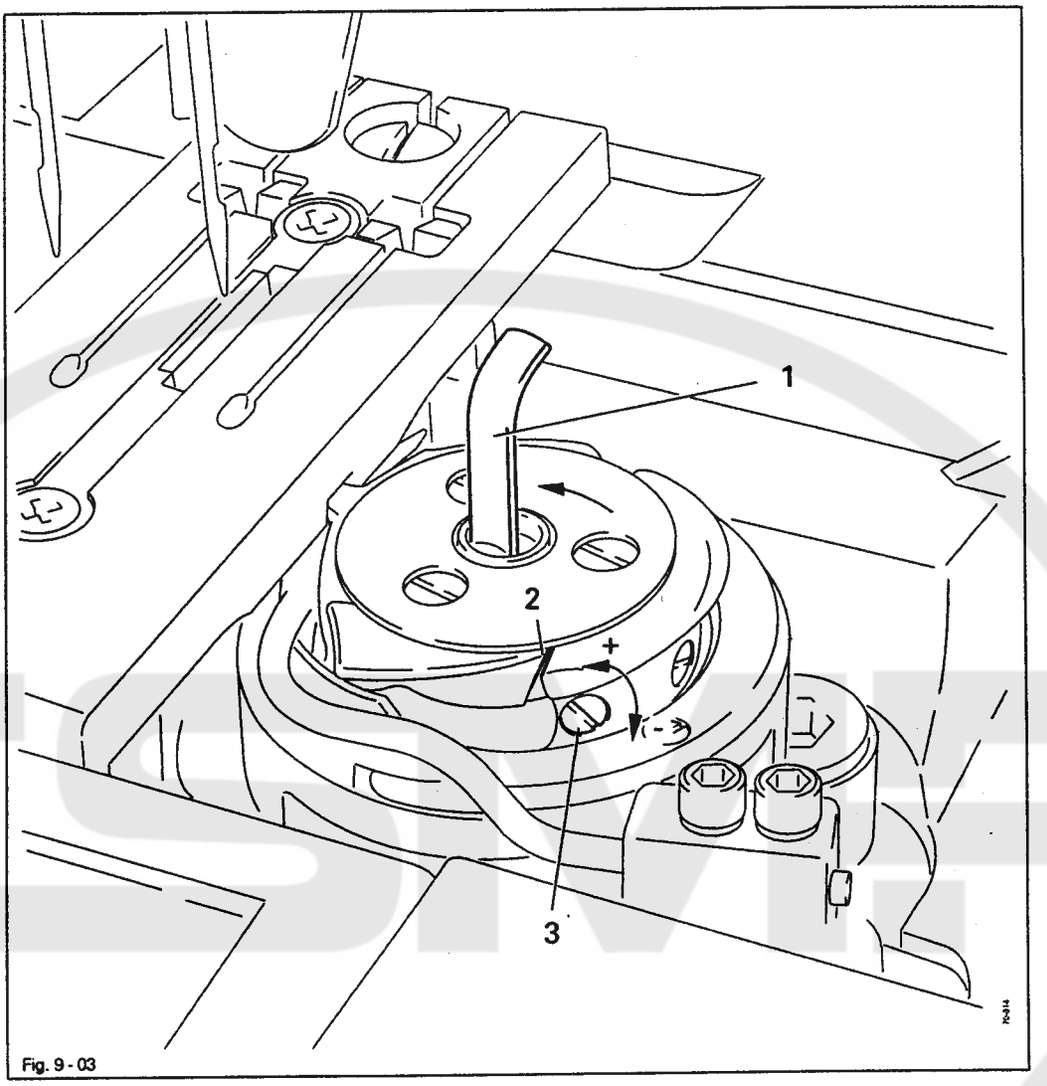


Fig. 9 - 03

- Once the number of stitches entered beforehand has been reached, the corresponding symbol appears on the screen and the sewing operation stops, see **Chapter 10.02 Error signals**.
- To change the bobbin, switch off the machine.
- Open the folding unit and cover plate.
- Pull up latch **1** and remove the empty bobbin.
- Place the filled bobbin in the hook, so that it moves in the direction of the arrow when the thread is pulled out.
- Close down latch **1**.
- First lead the thread through slot **2** and then around the finger of the bobbin case.
- Adjust the bobbin thread tension by turning screw **3**.
- Replace the folding unit and the cover plate.

- Acknowledge the bobbin change by pressing the error signal.

9.04 Threading the needle thread / adjusting the needle thread tension

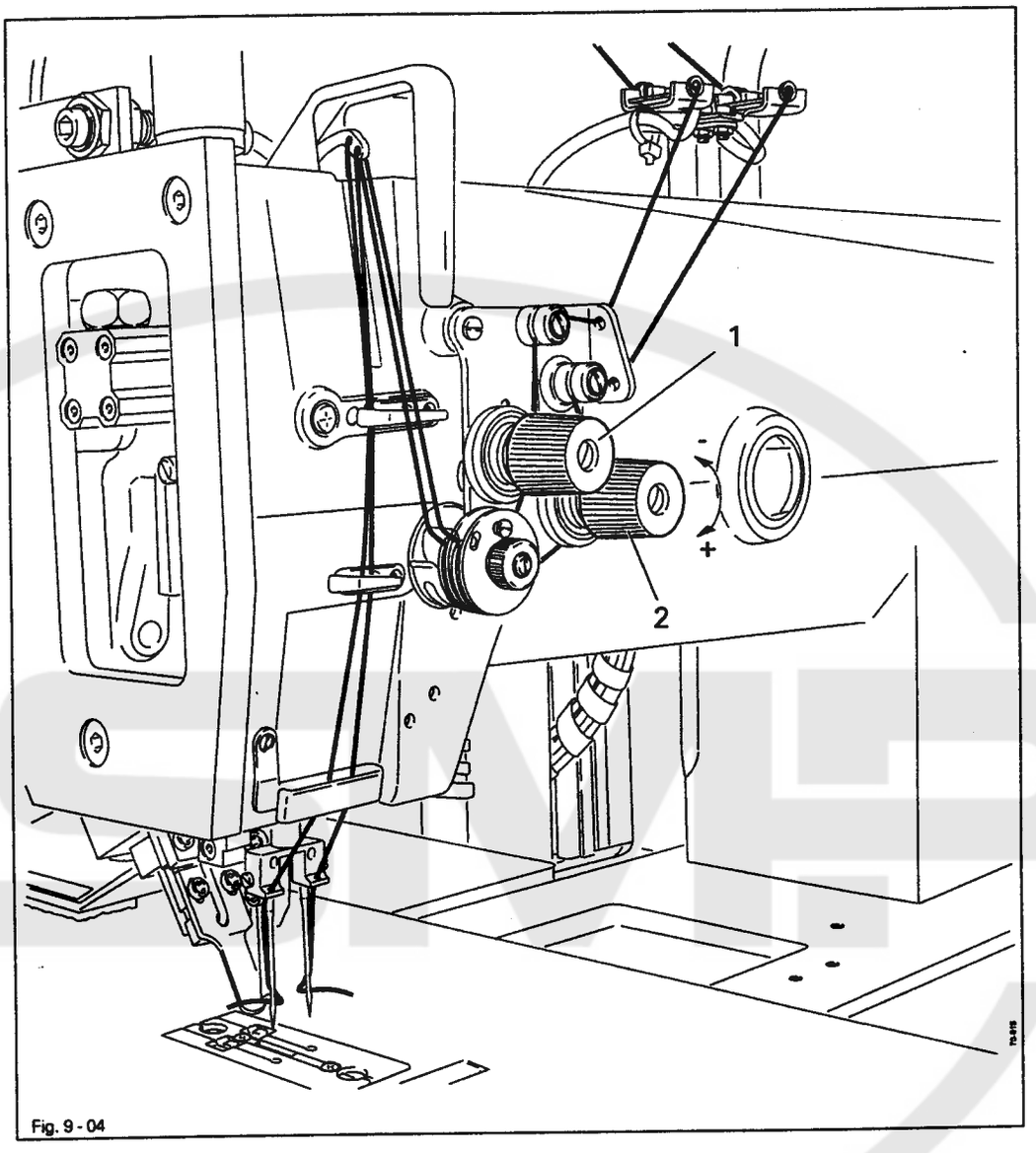


Fig. 9 - 04

- Switch off the machine.
- Retract the folding unit.
- Thread both needle threads as shown in the above illustration.
- Adjust the needle thread tension by turning knurled screws 1 and 2.

9.05 Changing the interfacing tape

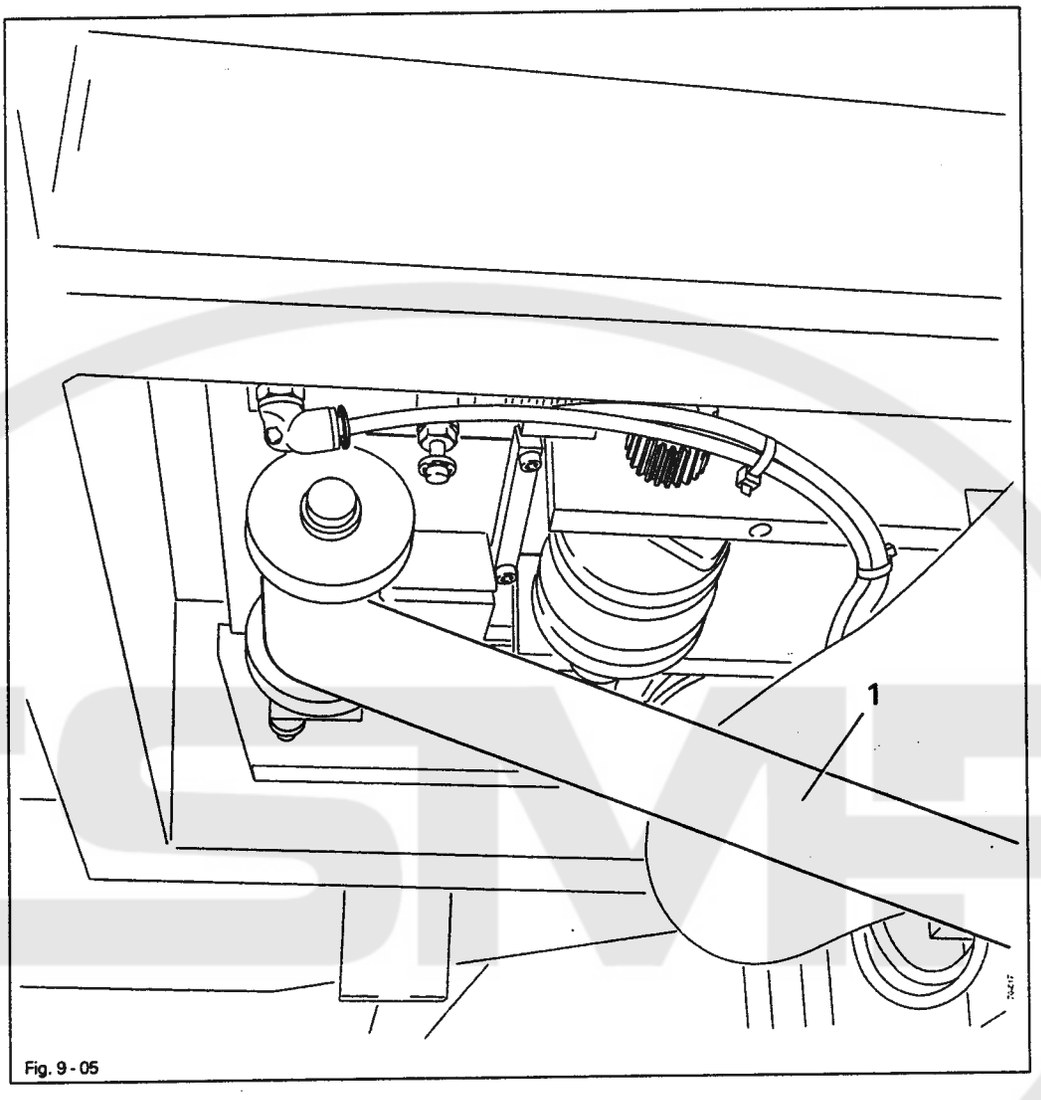
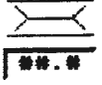


Fig. 9 - 05

- Insert the interfacing tape as shown in **Fig. 9-05**.
- Switch on the machine.
- Select the basic display by touching the screen.



- Select one of the **Pocket** functions by touching the appropriate symbol.
- Touch the feed/cut interface function.

- The interface is fed and cut.

- Move back to the basic display with the **Exit** function.

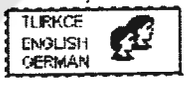
9.06 Display settings

9.06.01 Selecting the language

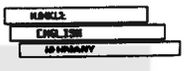
- Switch on the machine.
- Select the basic display by touching the screen.

- Select the **Technics/Service** function by touching the appropriate symbol.

- Select the **Display** function.



- Select the choice of languages by touching the appropriate symbol.



- Select the desired language by touching it.

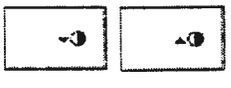
- Move back to the basic display with the **Exit** function.

9.06.02 Adjusting the contrast setting

- Switch on the machine.
- Select the basic display by touching the screen.

- Select the **Technics/Service** function by touching the appropriate symbol.

- Select the **Display** function.



- By touching the appropriate symbol, the screen setting can be made darker or brighter.

- The selected setting can be saved by touching the appropriate symbol.

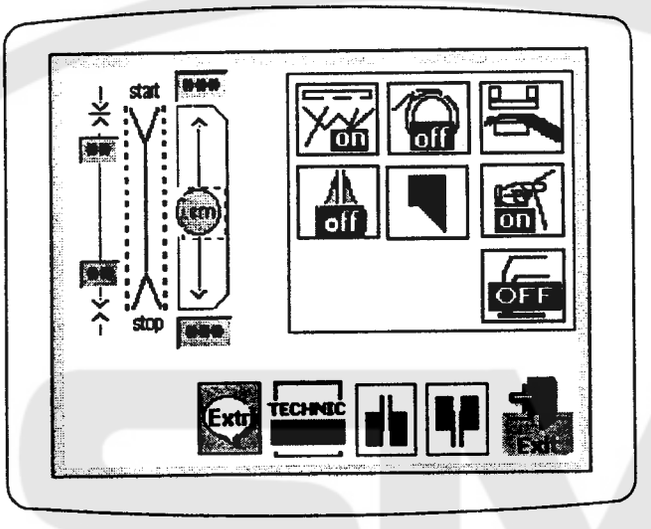
- Move back to the basic display with the **Exit** function.

9.07 Entering the flap values

- Switch on the machine.
- Select the basic display by touching the screen.

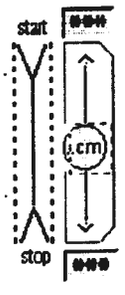
- Select the menu for entering the flap values by touching the appropriate symbol.

Basic display for entering flaps



For the fields described below, a number field can be selected by touching the appropriate field. The appropriate value can then be entered by touch. To conclude the entry, press Enter.

- Enter the required value for the distance of the corner knife from the beginning of the seam in the top field.
- Enter the required value for the distance of the corner knife from the end of the seam in the bottom field.

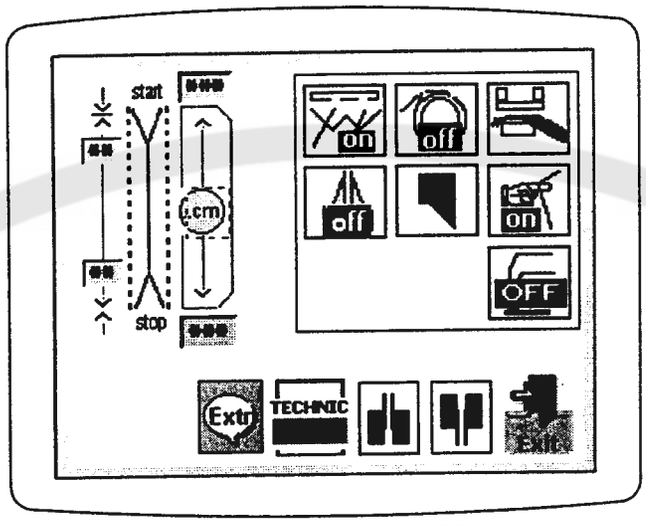


- Enter the required distance to the flap edge for the beginning of the seam in the top field. The flap will be recognized by the sensor.
- Enter the required distance to the flap edge for the end of the seam in the bottom field. The flap will be recognized by the sensor.

- After touching the symbol, a menu for entering the flap length appears. The flap length must be entered on the number field.

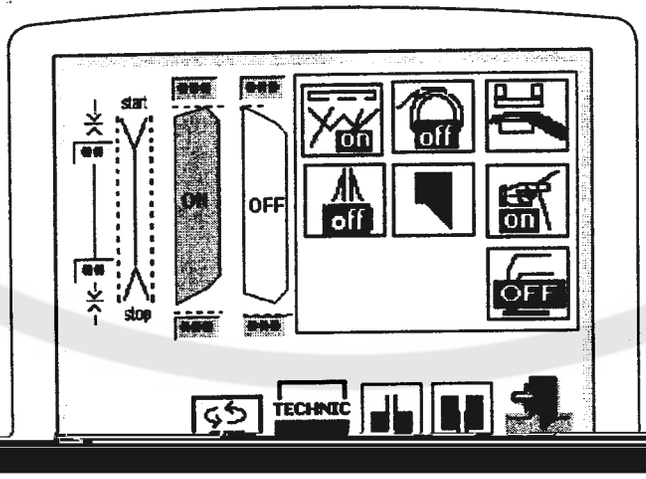
- After the flap length has been entered, an extended menu can be selected with the **Extra** function. Here the distance to the flap is set, at which the main clamp moves at a reduced speed until the flap has been sewn on.

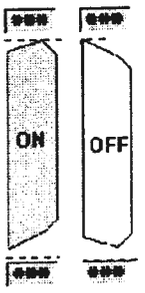
- To move back to the basic display for entering the flap, press the **Exit** function.



In the extended menu two different flaps (e.g. left and right flap) can be entered. The flaps can then be selected separately or processed alternately. In this case the flap to be processed first must be selected.

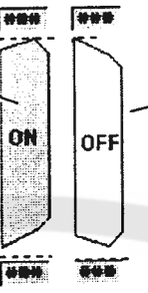
- Select the extended menu for entering the flap with the **Extra** function.





- By touching the appropriate flap symbol, select which flap is to be sewn (OFF), or which flap is to be sewn first when the flaps are sewn alternately (ON).

Right front jacket section, front positioning point (active)



Left front jacket section, back positioning point (inactive)

The functions of the other symbols are not dependent on the menu and are described in **Chapter 7.04 Control panel.**

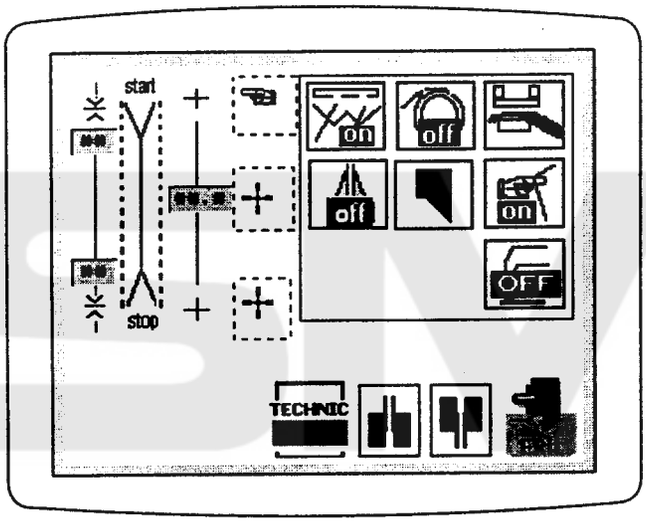
9.08 Entering pocket values

- Switch on the machine.
- Select the basic display by touching the screen.

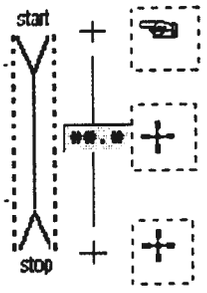
- Select the menu for entering the appropriate pocket value by touching one of the symbols.

4 pockets can be entered independent of each other. The entry described below is the same for all pockets.

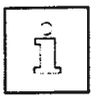
Basic display for entering pockets



For the fields described below, a number field can be selected by touching the appropriate field. The appropriate value can then be entered by touch. To conclude the entry, press Enter.



- By touching the appropriate field, set the positioning point for the pocket. The screen display corresponds to the projection of the positioning point on the cover plate of the machine. The selected positioning point is shown by the "finger".



The functions of the other symbols are not dependent on the menu and are described in **Chapter 7.04 Control panel.**

9.09 Entering the work cycle

If values have been set for at least 2 pockets, these can be combined in one work cycle, so that in one operation up to 4 different pockets can be sewn automatically one after the other.

- Switch on the machine.
- Select the basic display by touching the screen.

- By touching the appropriate symbol select the menu for entering the work cycle.

- By touching the appropriate field select the desired pocket.

- Switch the stacking function for the selected pockets on or off as required.

9.10 Changing the folding unit

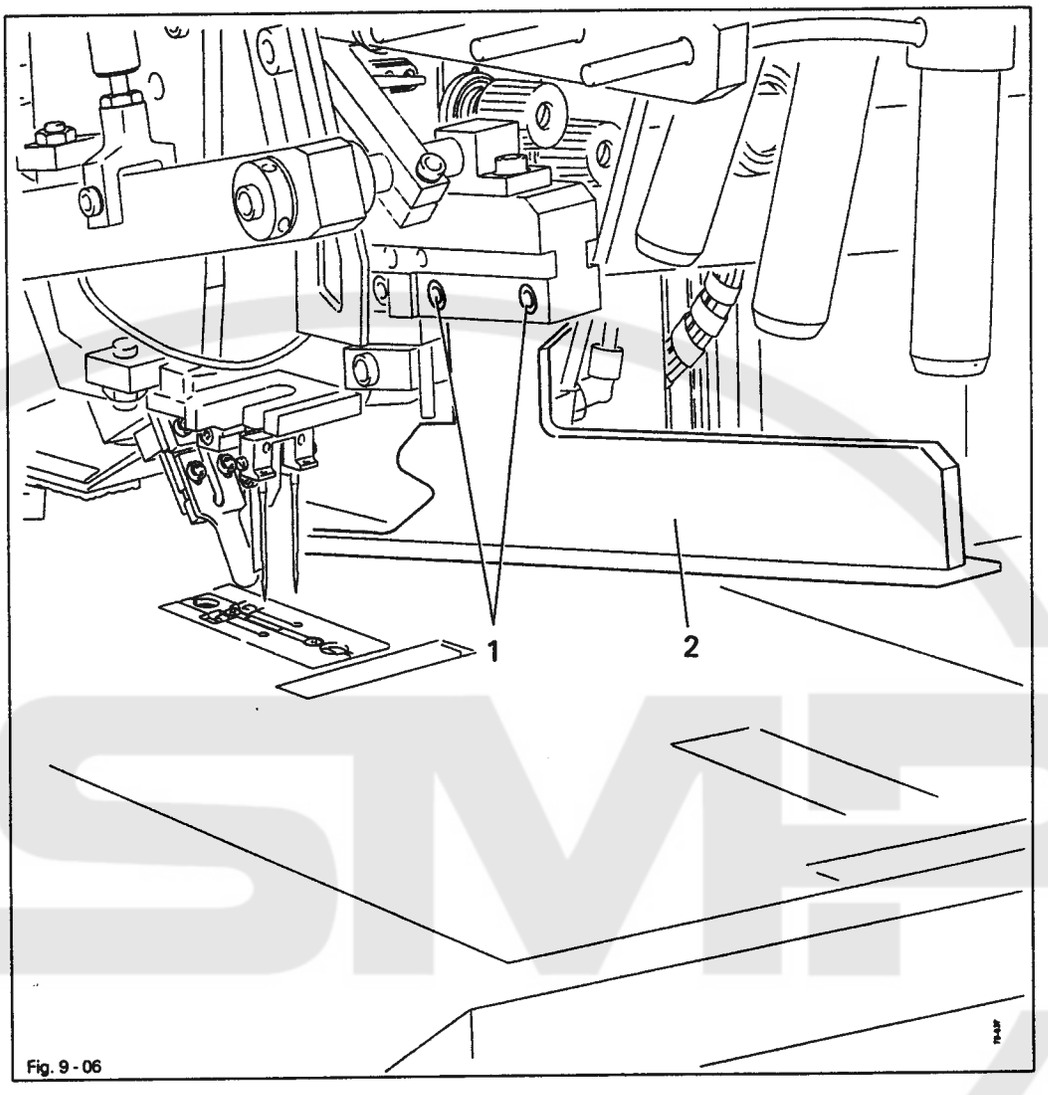


Fig. 9 - 06

- Switch off the machine.
- Loosen screws **1**.
- Pull the folding unit **2** out of its holder and insert the desired folding unit, e.g. folding unit for single piping.

The folding unit (single or double piping) is recognized automatically.

9.11 Switch on bobbin thread counter / enter bobbin thread length

- Switch on the machine.
- Select the basic display by touching the screen.

- By touching the appropriate symbol select the **Technics/Service** function.

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10.02	Error signals	10 - 2

10 Sewing

The machine must be installed and connected in accordance with **Chapter 8 Installation and Commissioning.**

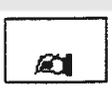
- Setting up the machine, see **Chapter 9 Setting up.**
- By operating the foot switch, insert the material step by step and trigger off the sewing start.

10.01 Re-setting the piece counter

- Switch on the machine.
- By touching the screen, select the basic display.

- By touching the appropriate symbol, select the **Technics/Service** function.

- Select the **piece counter** function.



- By touching the appropriate symbol, set the piece counter at zero.

- Use the **Exit** function to jump back to the basic display.

10.02 Error signals

The following symbols may appear on the screen during sewing. They indicate the corresponding errors.

Symbol	Error	Correction
	Flap seam switched on but no flap inserted.	Insert flap
	Thread error. Carry out sewing start.	Re-thread needle thread.
	Incorrect needle position.	Turn balance wheel until error signal goes off.
	Bobbin thread counter has run out.	Change the bobbin. Acknowledge correction by touching the symbol.
	Folding unit open.	Close folding unit.
	Machine stop with left foot switch.	Operate right foot switch. Return main clamp without sewing.

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11 Care and maintenance

Clean the entire machine	once a week
Clean the hook compartment	several times daily
Check the oil level	daily, before use
Grease the clamp guides	every 2 months
Check the air pressure	daily, before use
Clean the air filter of the air filter/lubricator	when required

These maintenance intervals are calculated for the average running time of a single shift operation. If the machine is operated more than this, shorter intervals are recommended.

11.01 Cleaning the machine

The required cleaning intervals for the machine depend on the following factors:

- Single or multi-shift operation
- Amount of dust caused by the workpiece

Optimum cleaning instructions can therefore only be given for each case individually.

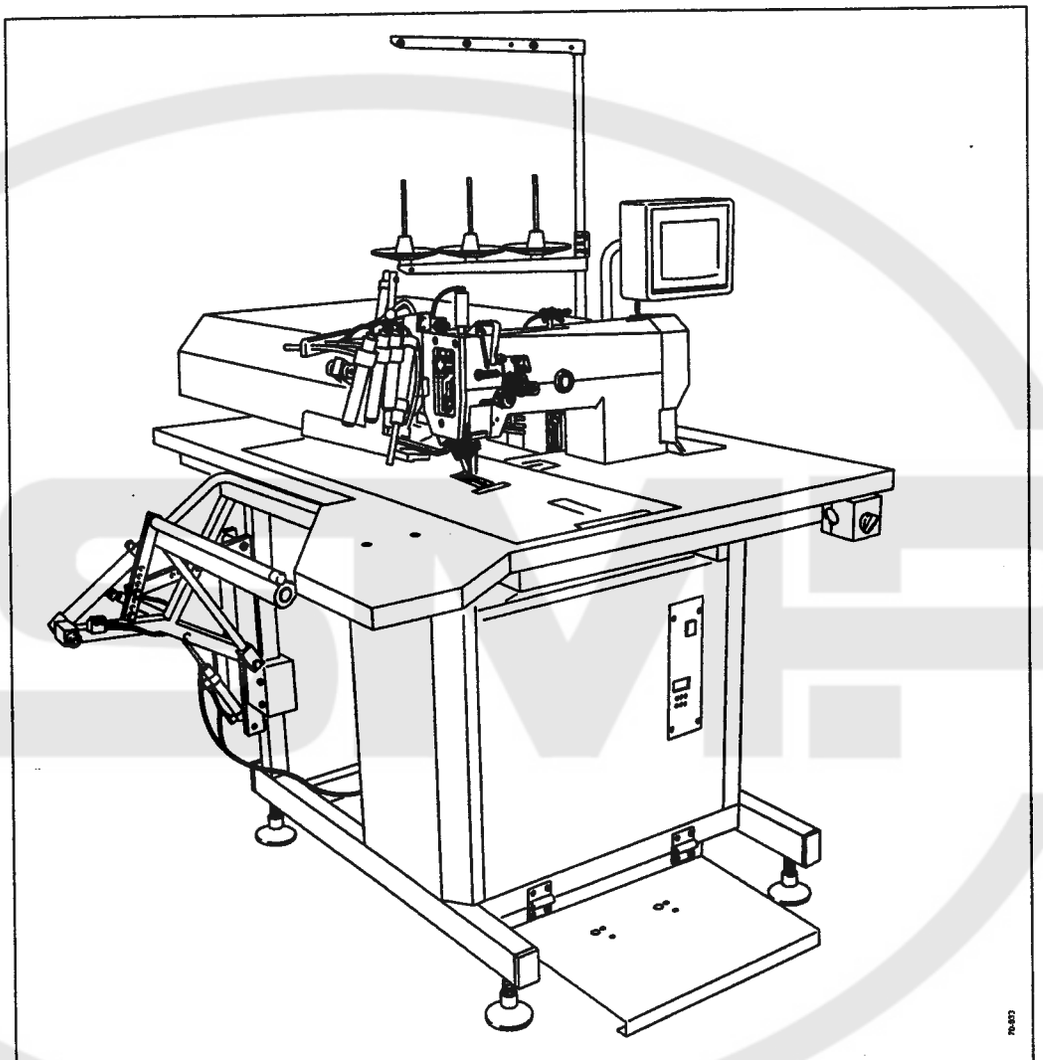


Fig. 11 - 01

To avoid interruptions following cleaning work is recommended for single-shift operation:

- Clean the hook compartment and needle area of the sewing head several times daily.
- Clean the entire machine at least once a week.

Switch off the machine.
Turn off the compressed air.

11.02 Cleaning the hook

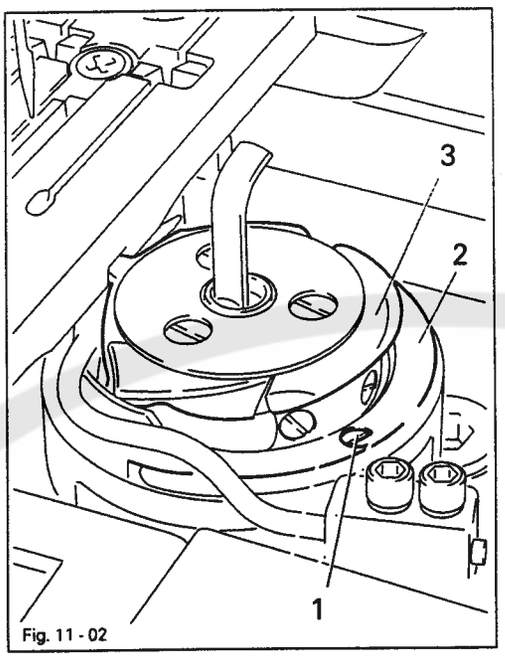


Fig. 11 - 02

- Remove screws **1**.
- Remove hook gib **2**.
- Turn the balance wheel until the edge of the bobbin case is positioned vertically below the bobbin opener.
- Remove bobbin case **3**.
- Clean the hook race.
- Insert the bobbin case **3**.
- Screw on hook gib **2**.

11.03 Checking the oil level

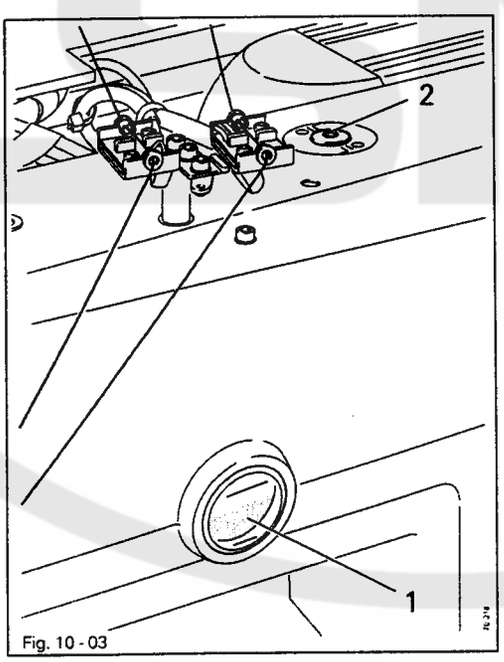


Fig. 10 - 03

Switch off the machine!

- Check the oil level through the inspection glass **1** daily before use.
- If the oil level is below the marking, oil must be poured in through hole **2**, until the oil level rises again between the top and bottom marking on inspection glass **1**.

Only use oil with a mean viscosity of 22.0 mm²/s at 40ºC and a density of 0.865 g/cm³ at 15º C!

We recommend sewing machine oil

11.04 Checking/adjusting the air pressure

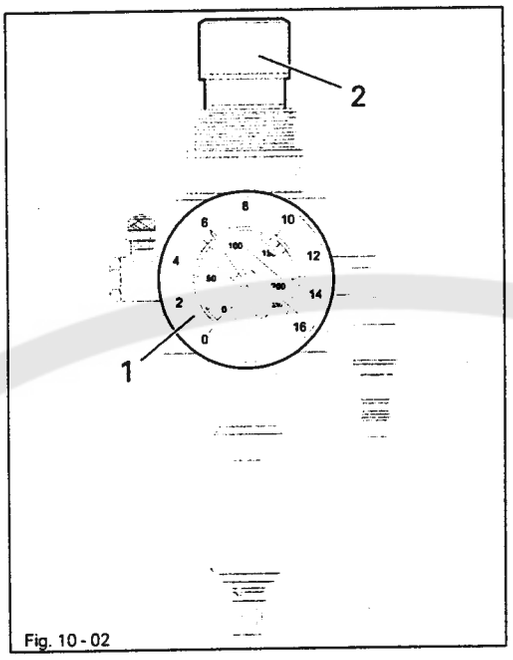


Fig. 10 - 02

- Before operating the machine, always check the air pressure on gauge1.
- Gauge 1 must show a pressure of 6 bar.
- If necessary adjust to this reading.
- To do so, pull knob 2 upwards and turn it so that the gauge shows a pressure of 6 bar.

11.05 Cleaning the air filter of the air-filter/lubricator

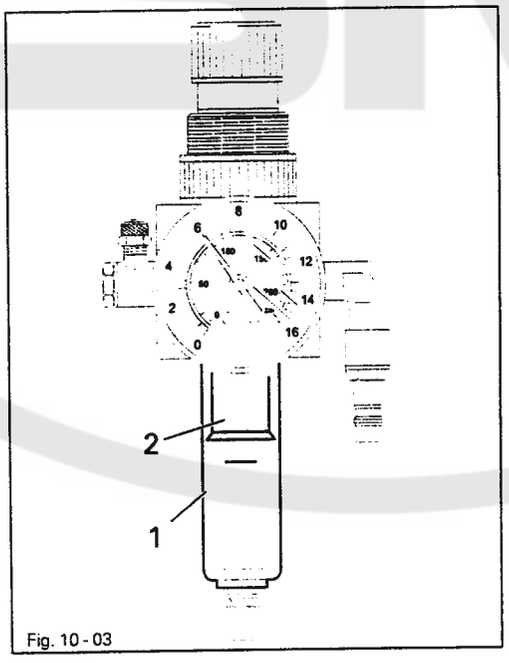


Fig. 10 - 03

Switch the machine off!
Disconnect the air hose at the air-filter/lubricator.

To drain water bowl 1:

- Water bowl 1 drains itself automatically when the compressed-air hose is disconnected from the air-filter/lubricator.

Cleaning filter 2:

- Unscrew water bowl 1.
- Take out filter 2.
- Clean filter 2 with compressed air or isopropyl alcohol
- Screw in filter 2 and screw on water bowl 1.

11.06 Greasing the clamp guide

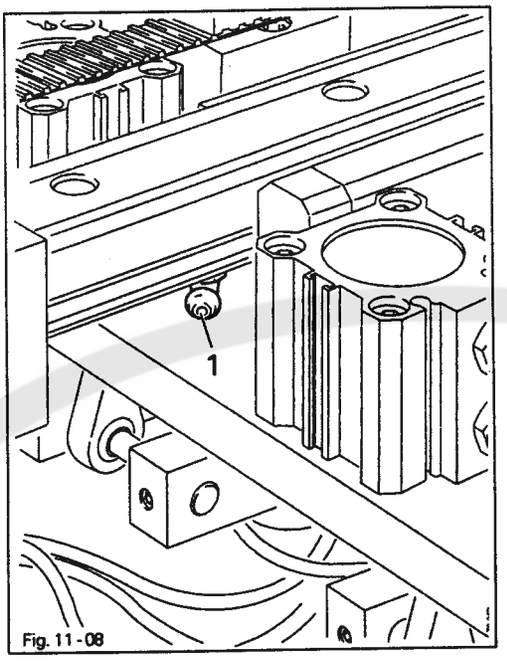


Fig. 11 - 08

Switch off the machine and take precautions to prevent it being switched on again!

Only use Isoflex Topas L32 heavy-duty grease,

- Grease the guides with a grease nipple using a grease gun every 2 months for single-shift operation and once a month for two-shift operation.

There are more grease nipples on the machine, which ought to be greased with a grease gun at regular intervals.

12 Adjustment

12.01 Notes on adjustment

All following adjustments are based on a fully assembled machine and may only be carried out by expert staff trained for this purpose.
Machine covers, which have to be removed and replaced to carry out checks and adjustments, are not mentioned in the text.
The order of the following chapters corresponds to the most logical work sequence for machines which have to be completely adjusted. If only specific individual work steps are carried out, both the preceding and following chapters must be observed.
Screws and nuts indicated in brackets ( ) are fastenings for machine parts, which must be loosened before adjustment and tightened again afterwards.

12.03 Abbreviations

t.d.c. = top dead centre
b.d.c. = bottom dead centre

12.04 Opening up the sewing head

Turn off the compressed air supply!
Switch off the machine and take measures to prevent it being switched on again!

The opened sewing head must be prevented from falling back down with support 6!
If the sewing head falls down suddenly there is a danger of being crushed between the sewing head and table top!

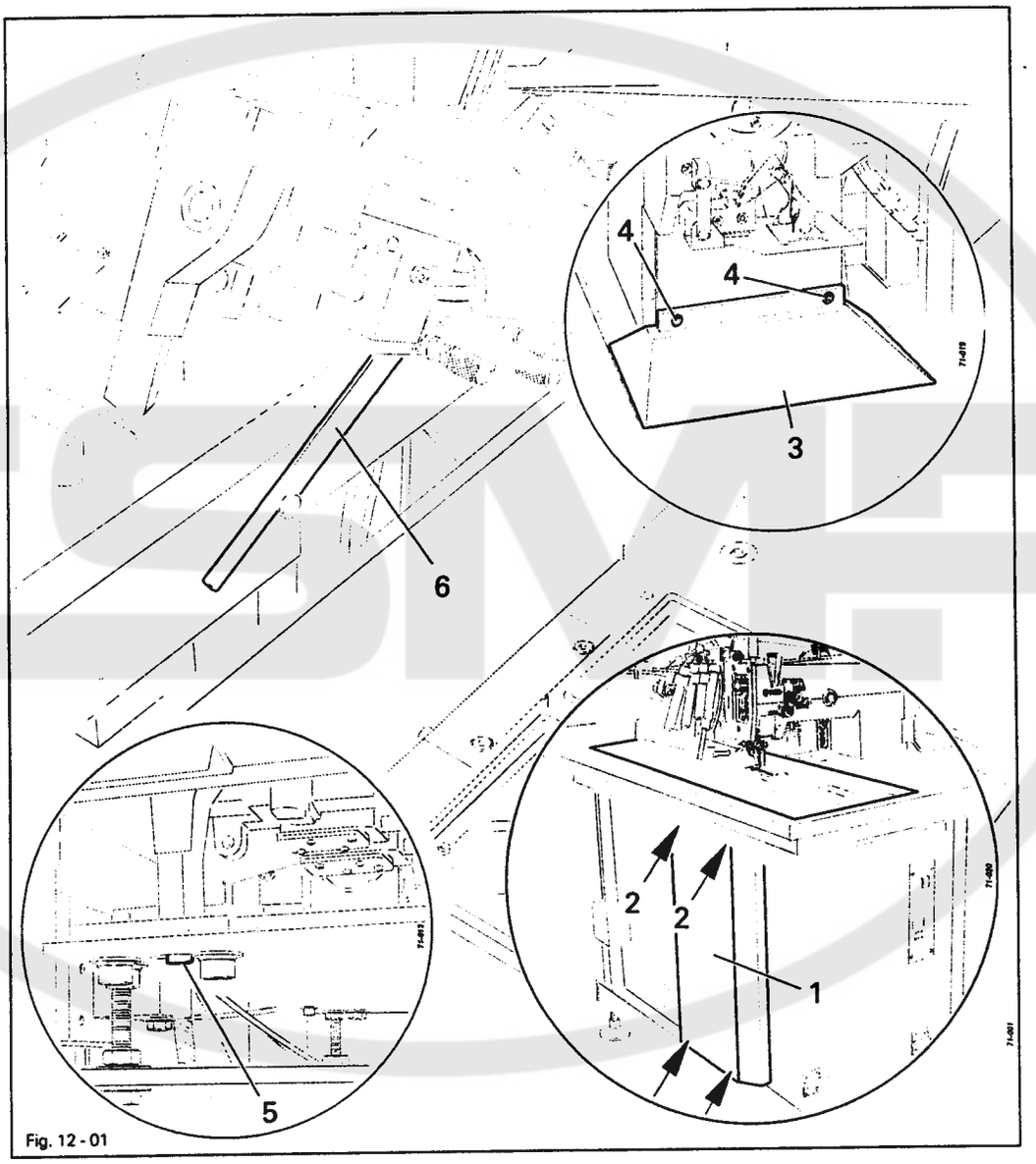


Fig. 12 - 01

- Remove cover 1 (screws 2, 4 ea).
- Remove cover 3 (screws 4).
- Unscrew screw 5 and swing out the cover plate.
- Swing the control panel aside. If necessary loosen the terminal screws.
- Open up the sewing head and protect it from falling back down with support 6.
- To replace the sewing head repeat the steps in reverse order.

12.05.01 Preliminary adjustment of the needle height

Requirement
When the needle bar is at t.d.c. there should be a distance of approx. **15 mm** between the needle points and the needle plate.

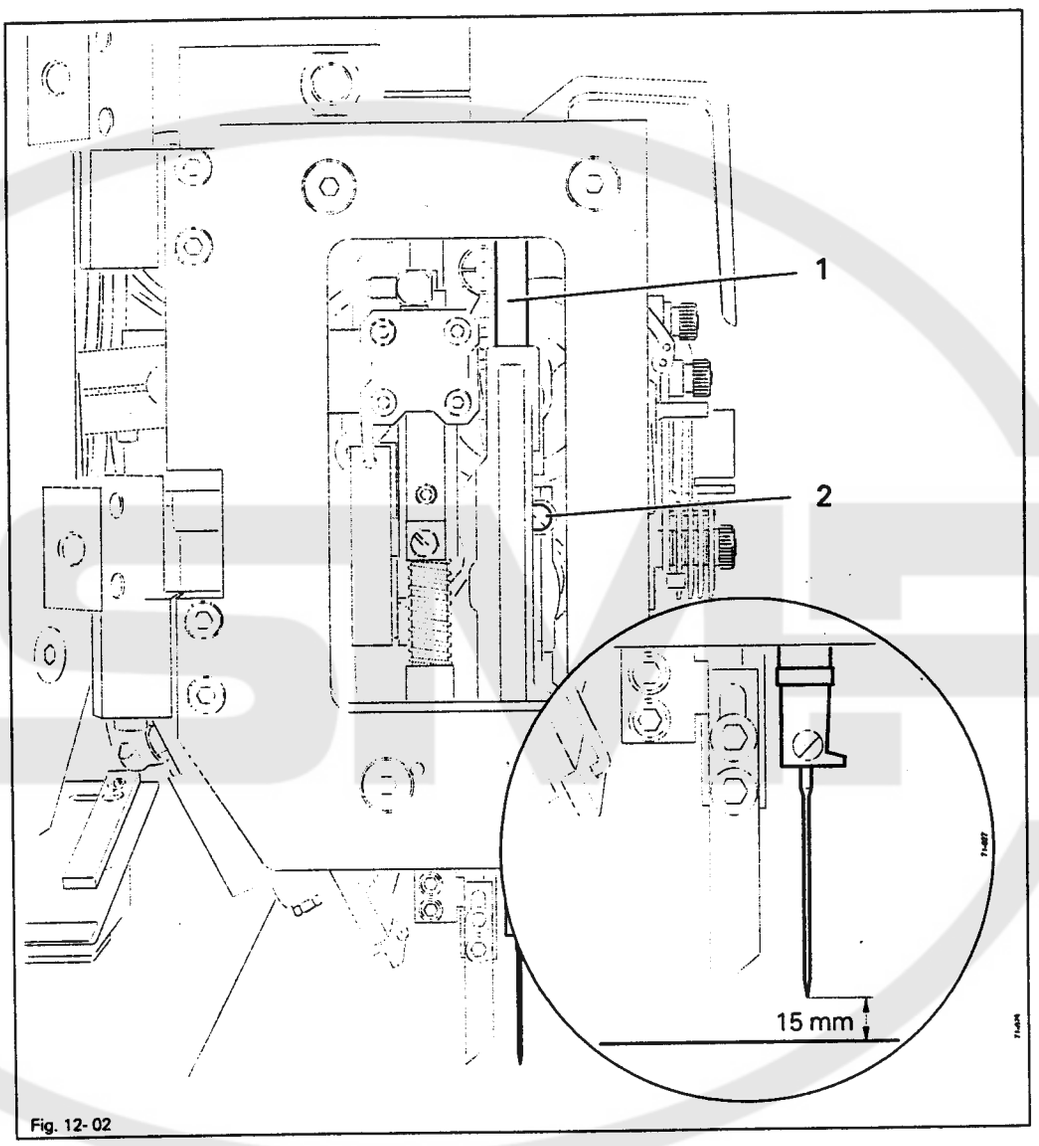
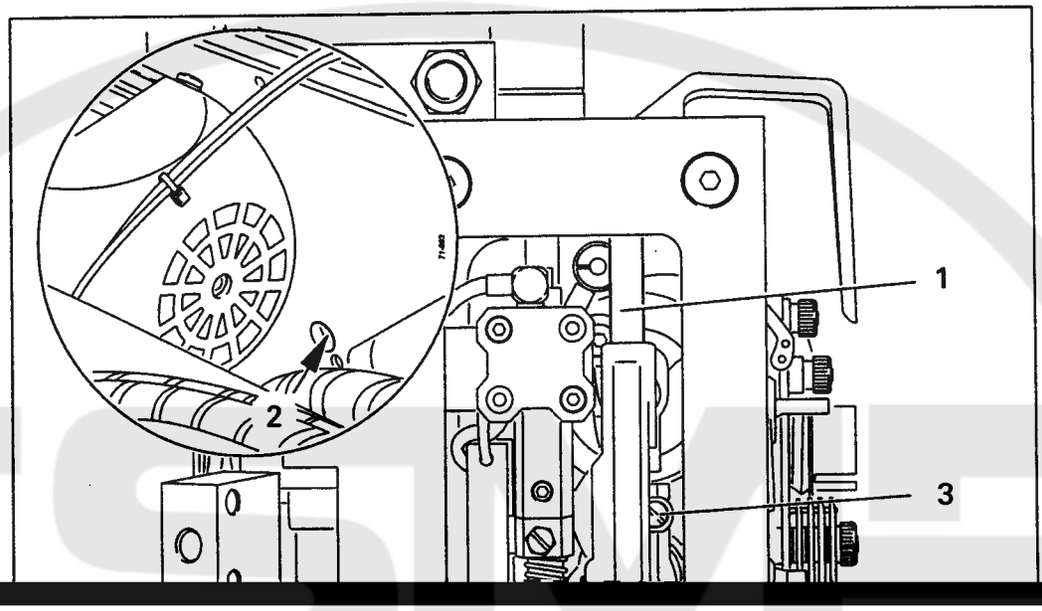


Fig. 12- 02

- Without twisting it, adjust needle bar **1** (screw **2**) in accordance with the **requirement**.

12.05.02 Position of the needles to the needle hole

Requirement
Both needles should enter the respective needle holes in the centre.

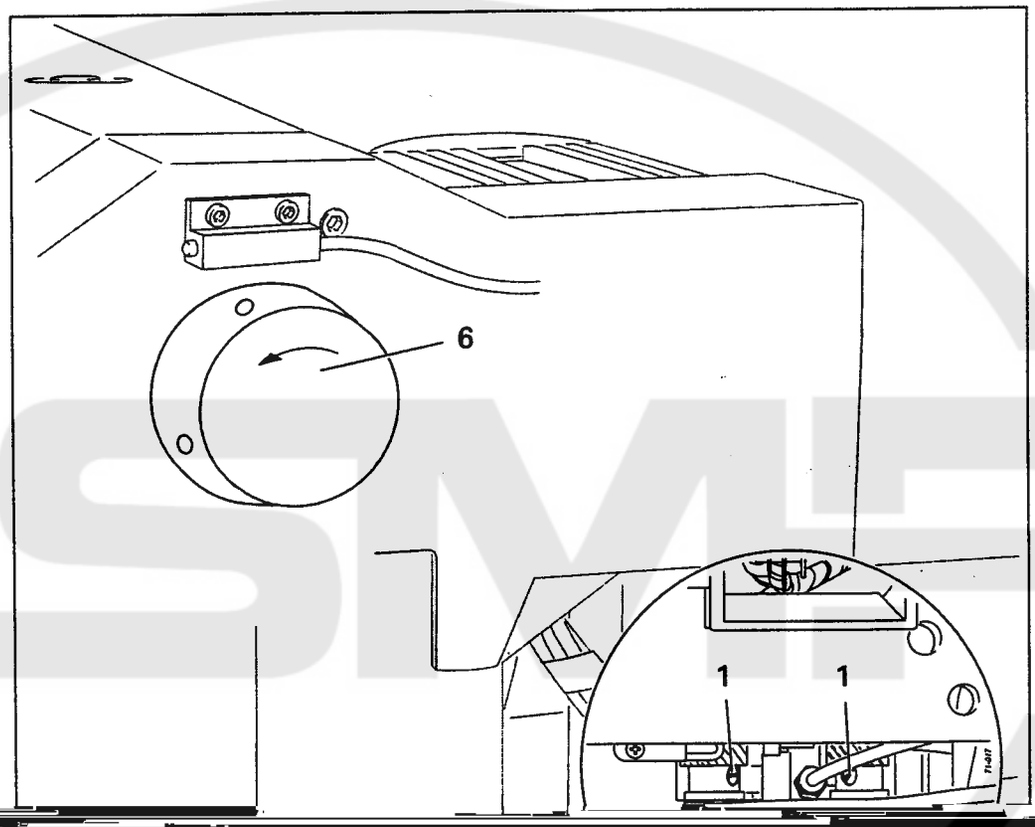


12.05.03 Needle bar rise, needle height, hook-to-needle clearance and needle guard

Requirement

When the needle bar is positioned 2.2 after b.d.c. (needle bar rise)

1. The top edge of the needle eye should be **1.0 mm** below the hook point
2. The hook point, at a distance of **0.05 – 0.10 mm** from the needle, should be positioned at **needle centre**
3. Needle guard **5** should be touching the needle lightly.



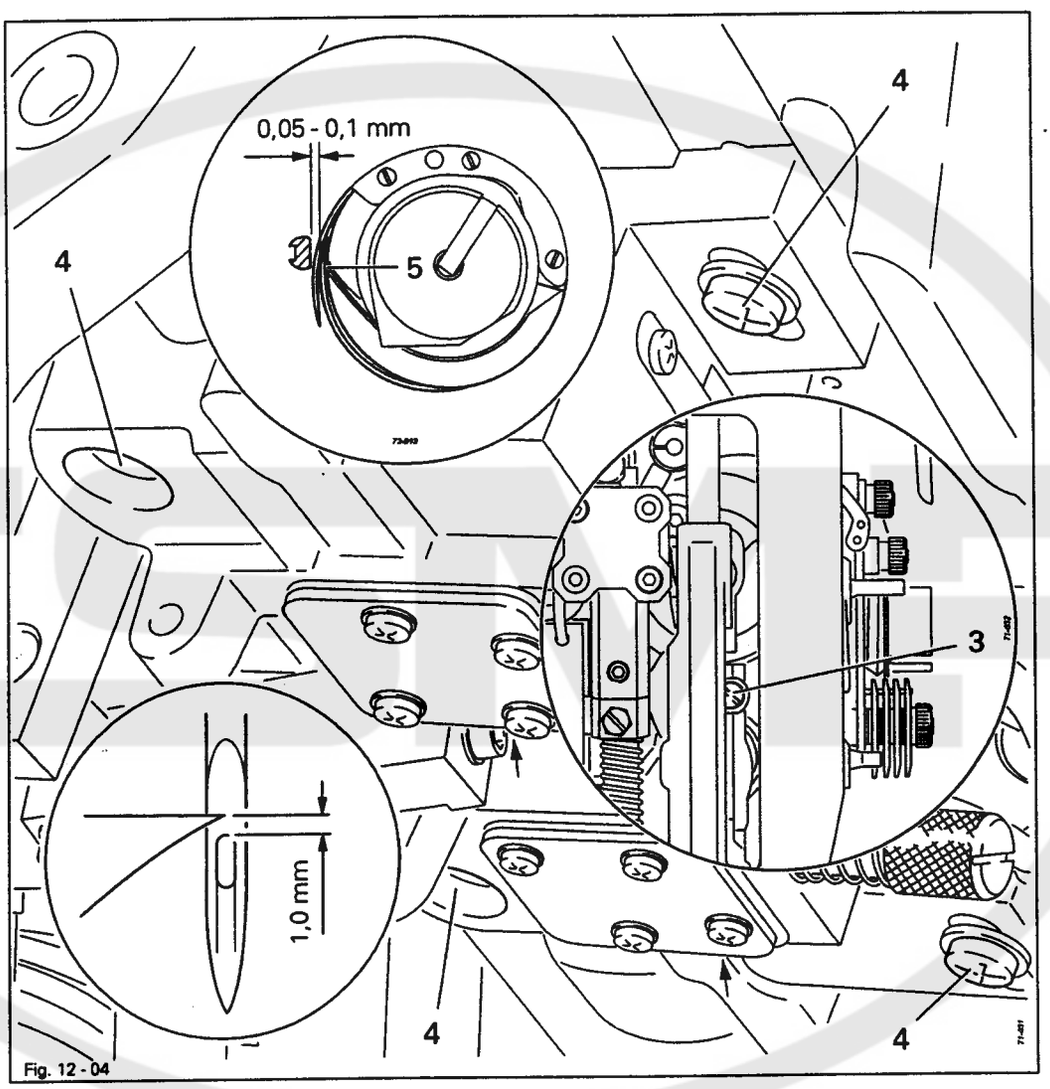


Fig. 12 - 04

Needle height

- Without twisting it, adjust the needle bar (screw 3) in accordance with the **requirement 1**.

Hook to needle clearance

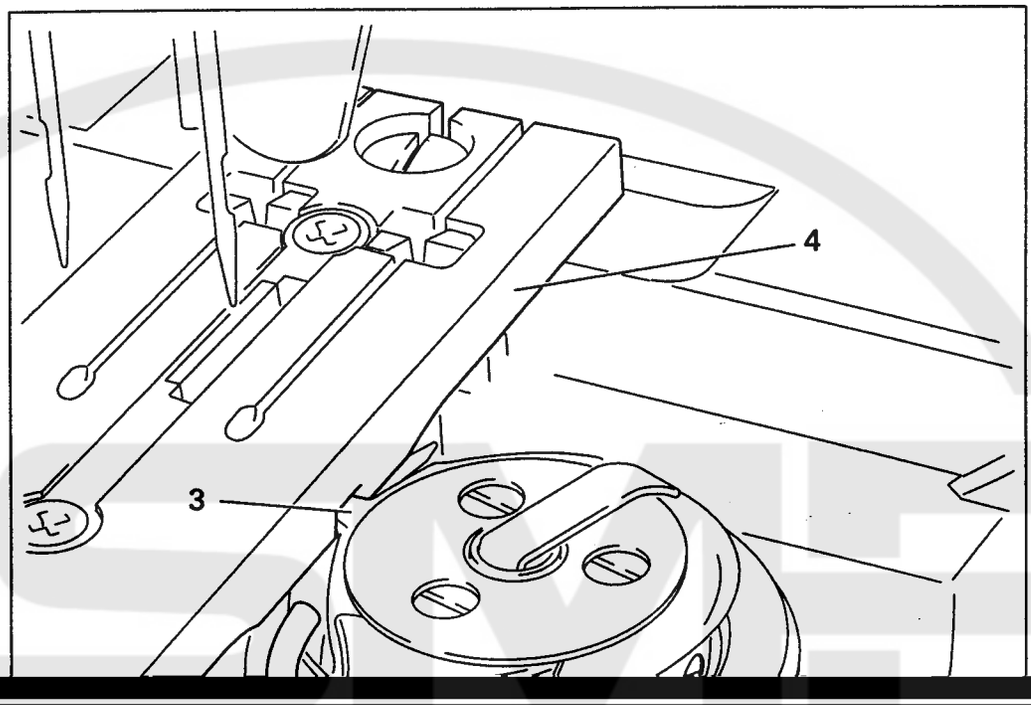
- Loosen the screws of the hook gear drive through the installation holes (arrows).
- Adjust the hook bearing (screws 4) in accordance with **requirement 2**, taking care that the needle is not deflected by needle guard 5.
- Control the movement of the lifting eccentric.

Needle guard

- Bring the needle bar into the needle rise position by turning the balance wheel.
- Align needle guard 5 in accordance with **requirement 3**.

12.05.04 Bobbin case opener stroke

Requirement
At the end of the back stroke of the bobbin opener, the catch **3** of the bobbin case should be at such a distance from the edge of the recess of the needle plate **4** that the thread can pass through unhindered.



12.05.05 Position of the bobbin thread cutter

Requirement

Bobbin thread cutter 1 should

1. Be positioned in the centre of the needle plate cutout and
2. Must not jut out above the edge of the table top.

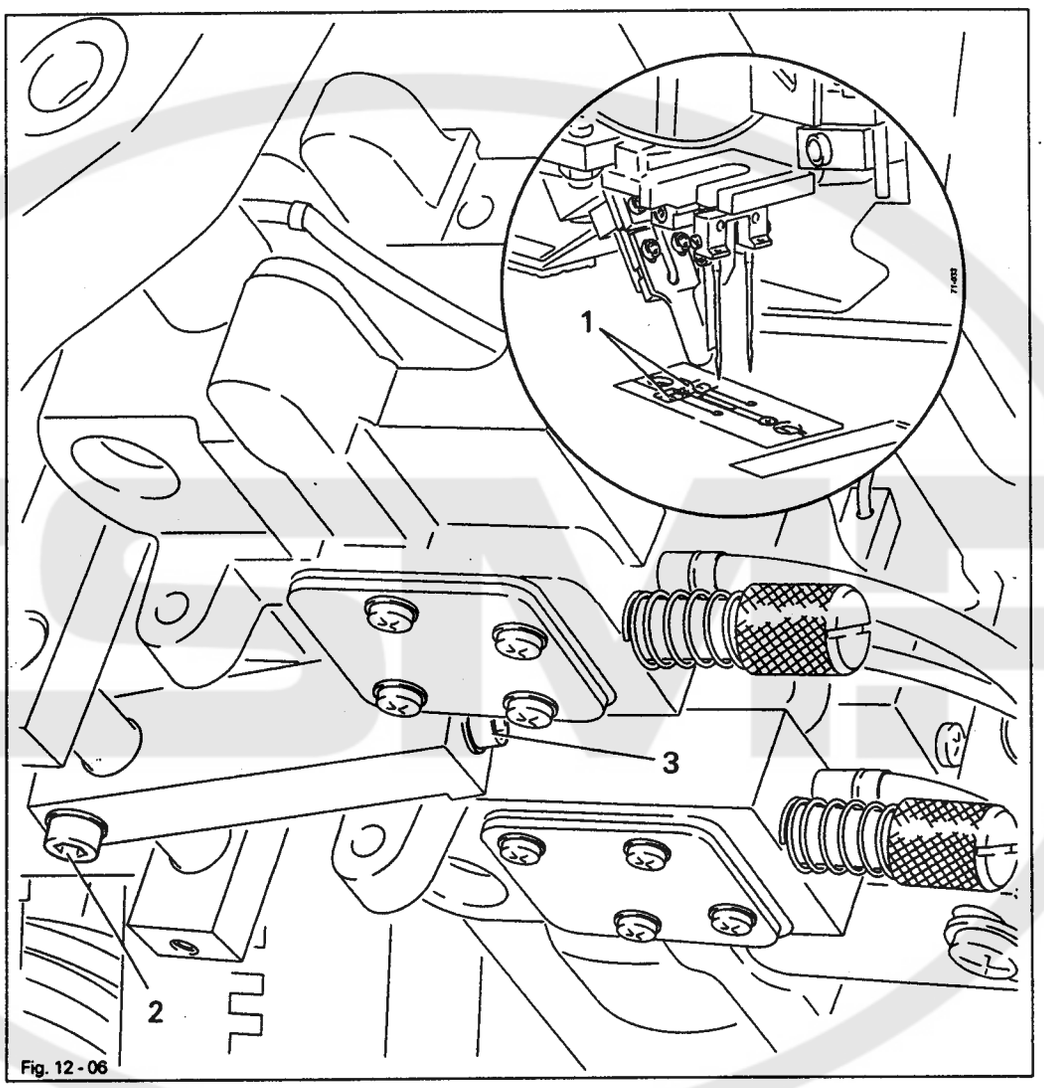


Fig. 12 - 06

- Adjust bobbin thread cutter 1 (screw 2) in accordance with **requirement 1.**
- Adjust bobbin thread cutter 1 (screw 3) in accordance with **requirement 2.**

12.05.06 Position of the needle thread cutter

Requirement
The needle thread cutter should be positioned in the centre between the needles at a distance of **3 mm** from the needle plate (extended thread catcher **3**) and catch the thread reliably.

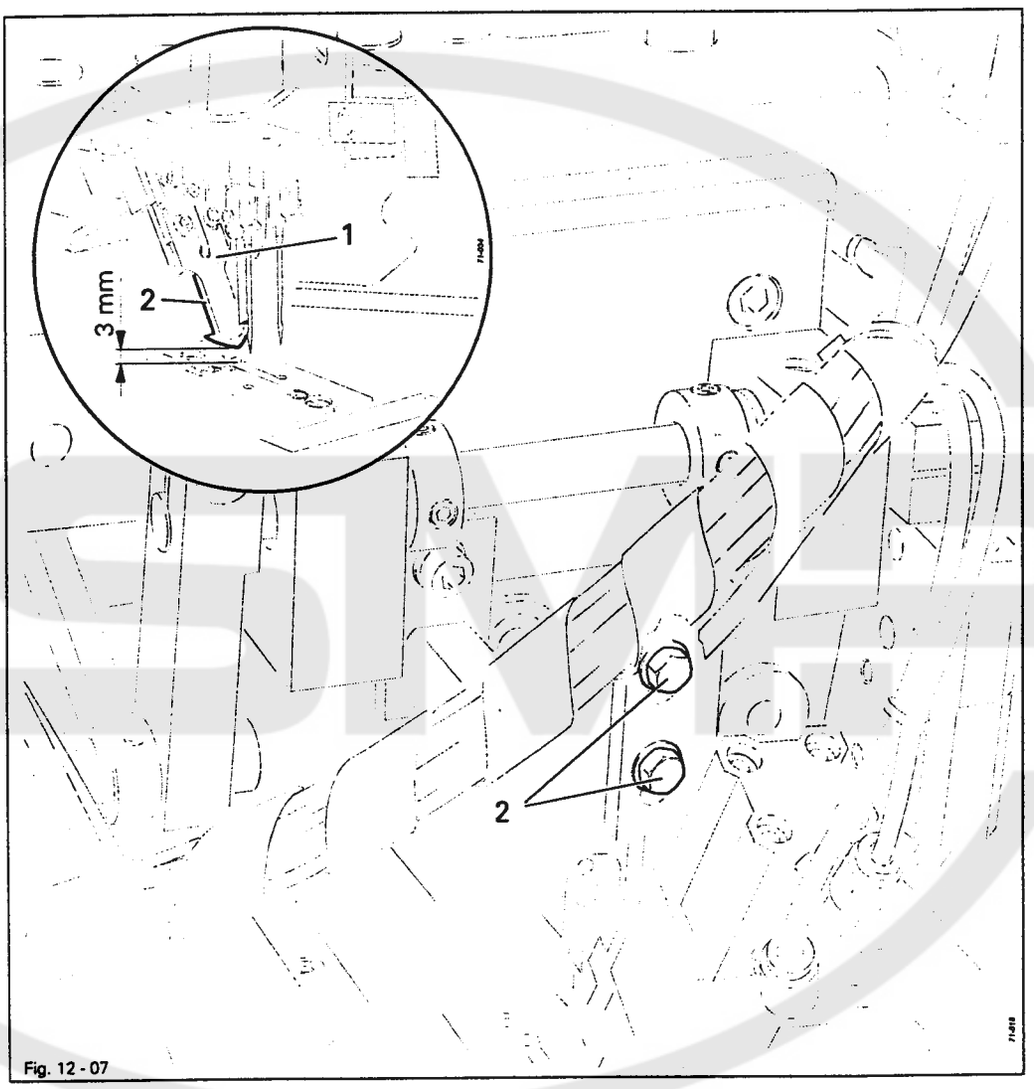


Fig. 12 - 07

- Adjust needle thread cutter **1** (screws **2**) in accordance with the **requirement.**

12.05.07 Cutting device of the interfacing feed unit

Requirement

1. The interfacing should be cut smoothly with the lowest possible cutting pressure.
2. The roller lever should be activated when the bottom knife is lowered.

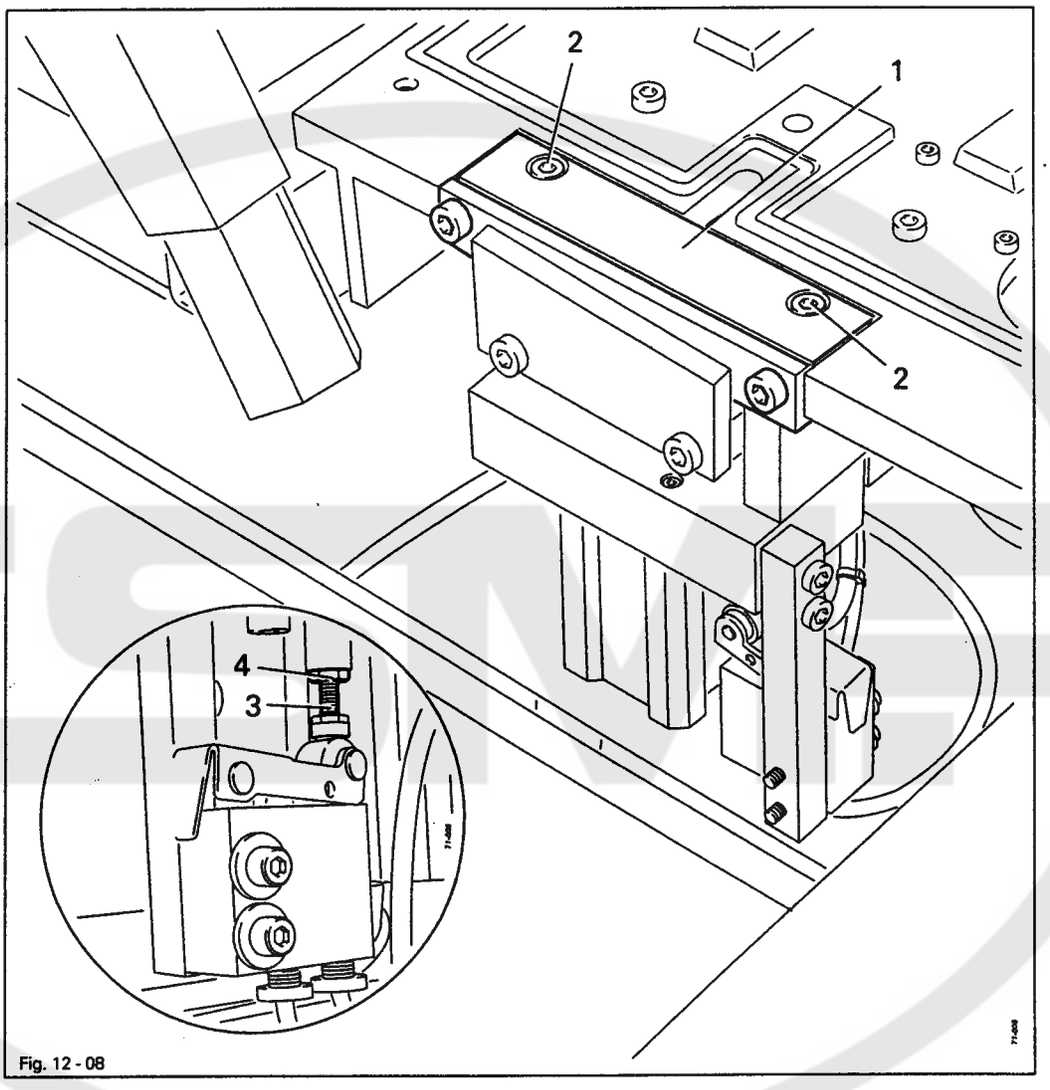


Fig. 12 - 08

- Adjust knife holder **1** (screws **2**) in accordance with **requirement 1**.
- Adjust screw **3** (nut **4**) in accordance with **requirement 2**.

12.05.08 Basic position of the middle knife

Requirement
The top edge of the cylinder **1** should be approx. **70 mm** above the top edge of the machine.

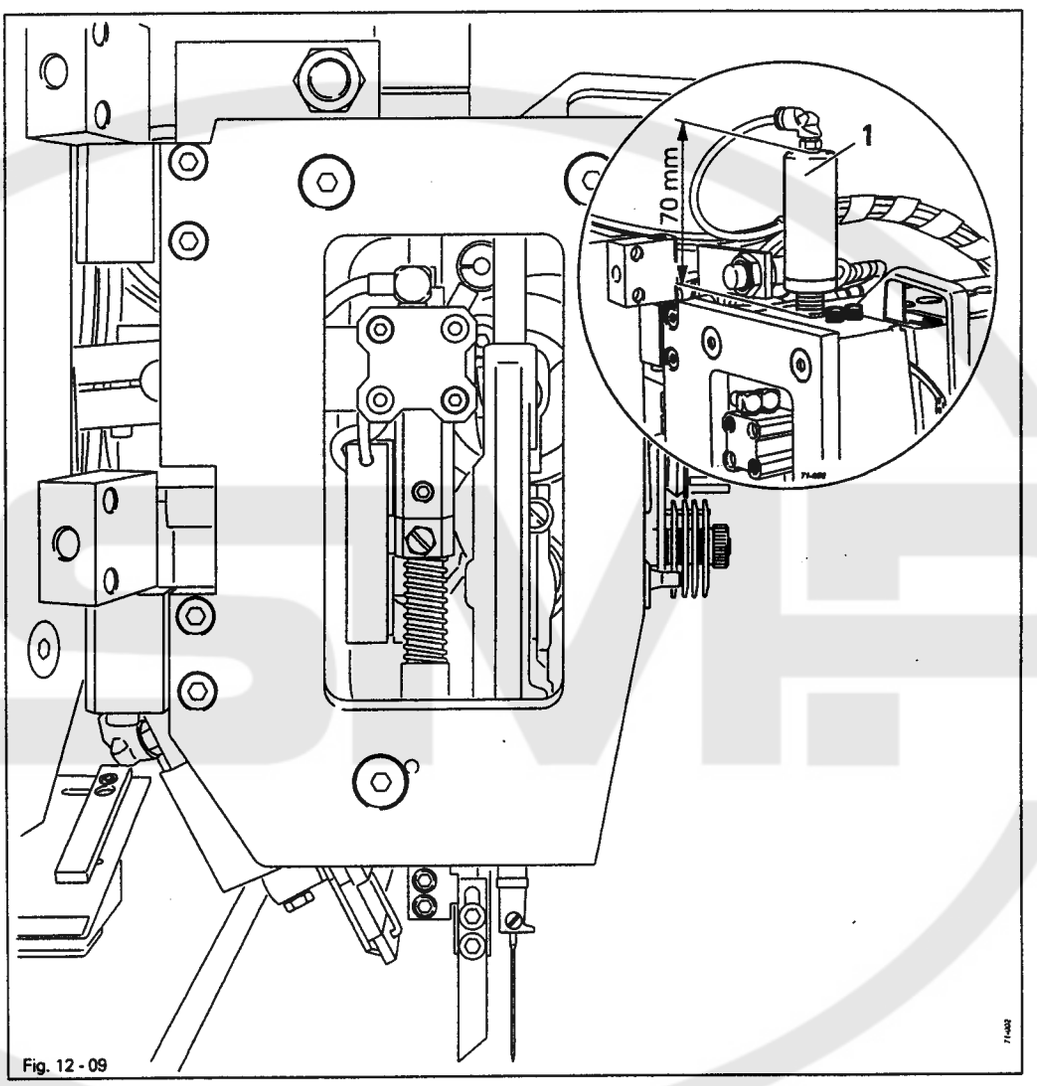


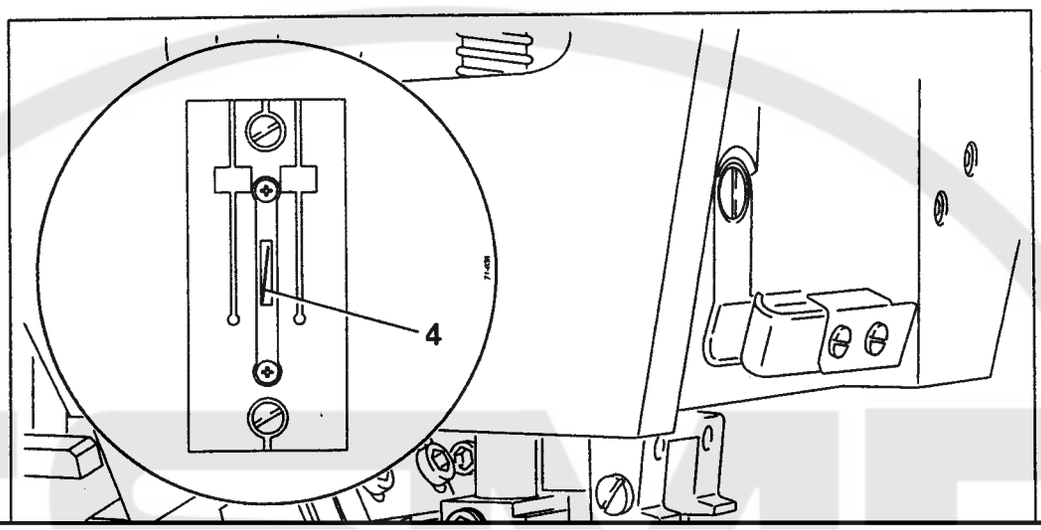
Fig. 12 - 09

- Adjust cylinder **1** in accordance with the **requirement.**

12.05.09 Knife pressure and angle of the middle knife blade

Requirement

1. Middle knife **4** should cut smoothly with the lowest possible knife pressure.
2. Middle knife **4** should be at a slight angle to the counter knife.



12.05.10 Height of the middle knife

12.05.11 Middle knife motion

Requirement
When the needle bar is at b.d.c., the middle knife 3 should be at the bottom of its stroke.

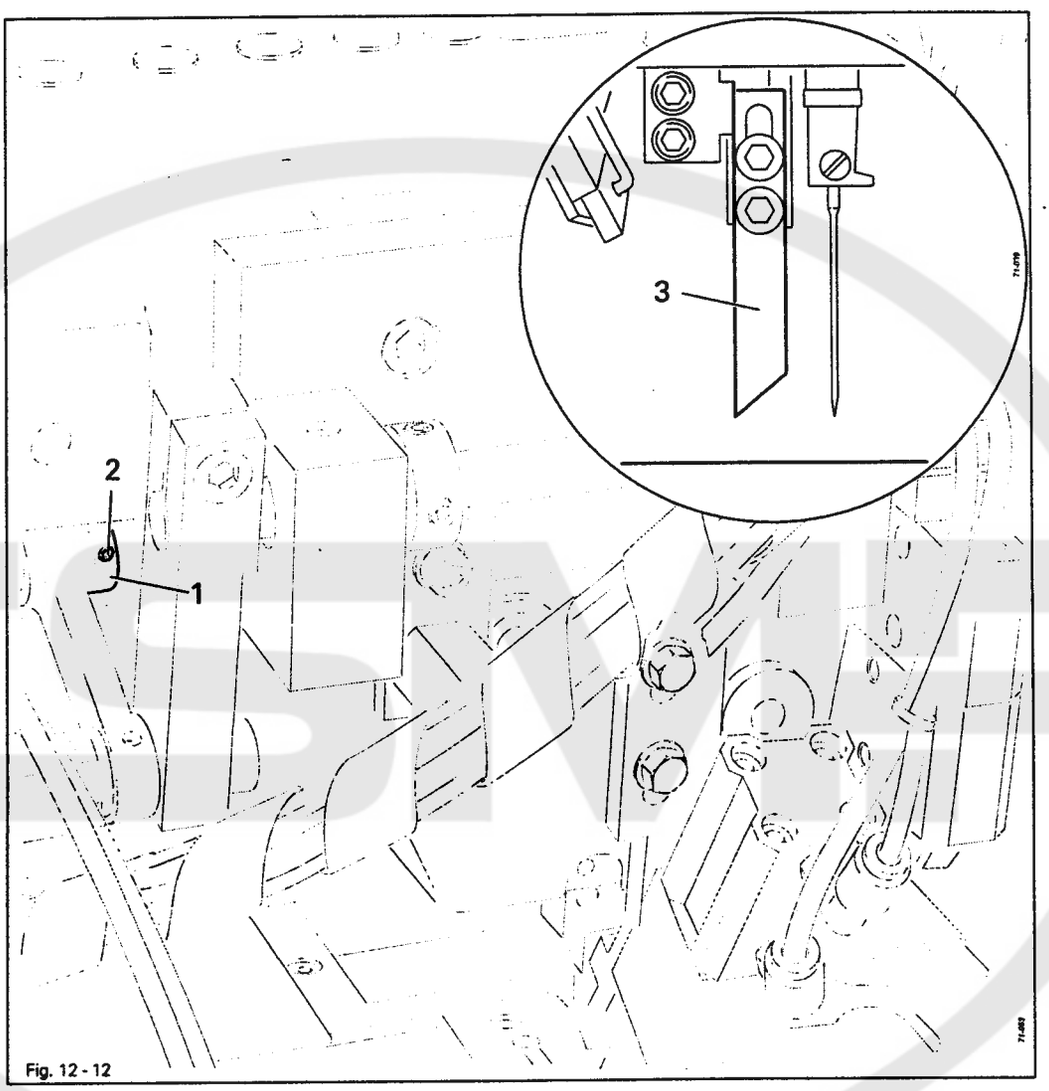


Fig. 12 - 12

- Adjust eccentric 1 (screws 2) in accordance with the **requirement.**

12.05.12 Needle thread tension release

Requirement
Tension disks **3** should be **0.5 mm** apart when the thread tension is released.

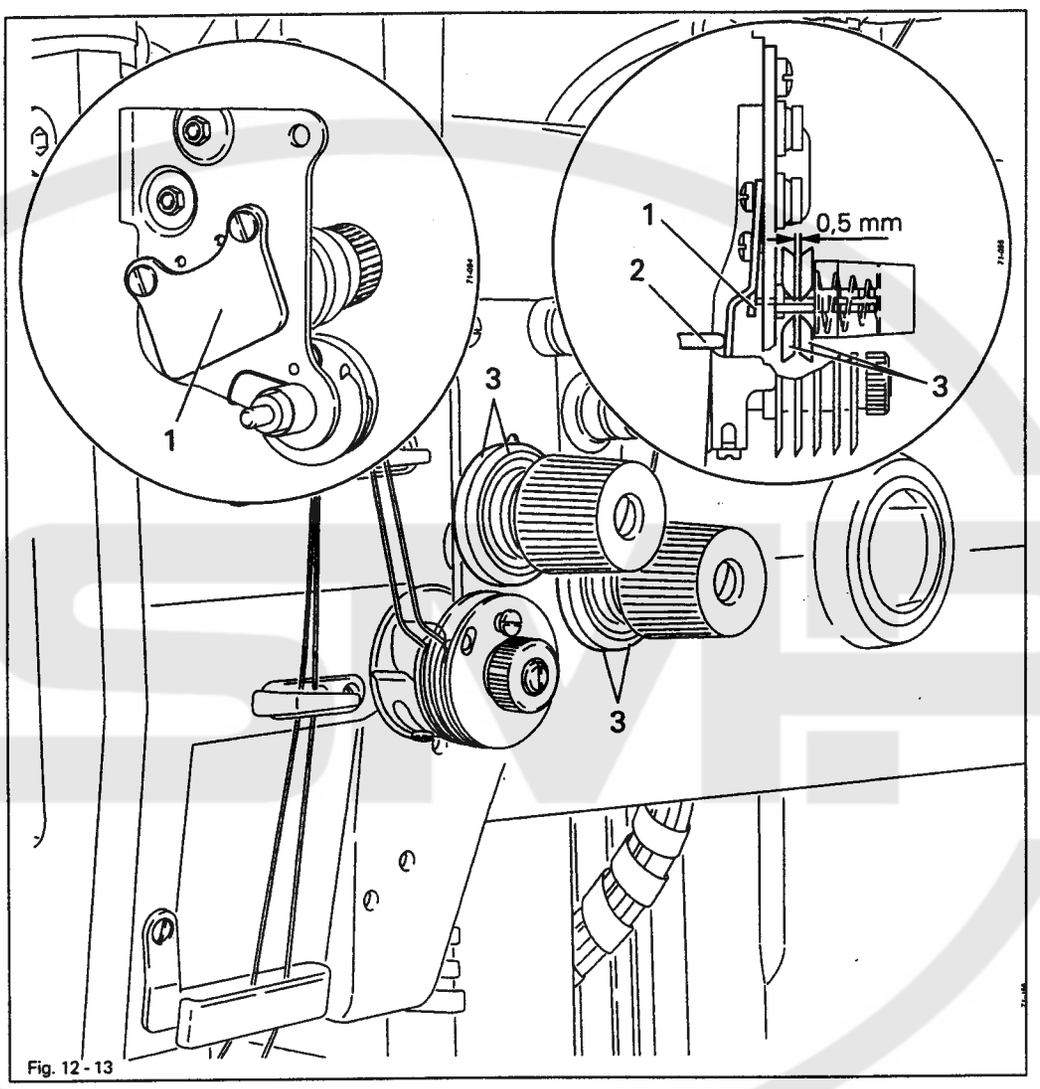


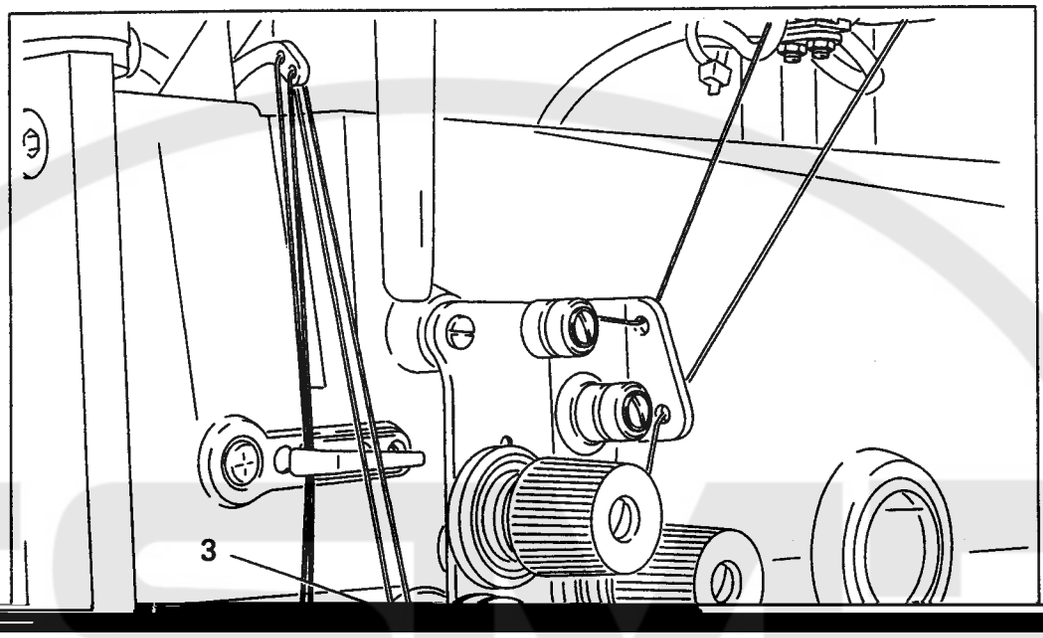
Fig. 12 - 13

- Align pressure plate **1** in accordance with the **requirement.**

The distance of **0.5 mm** is a minimum distance and can be over **1 mm** when thick threads are used. If the thread tension is effective, the release pin **3** should not be under stress

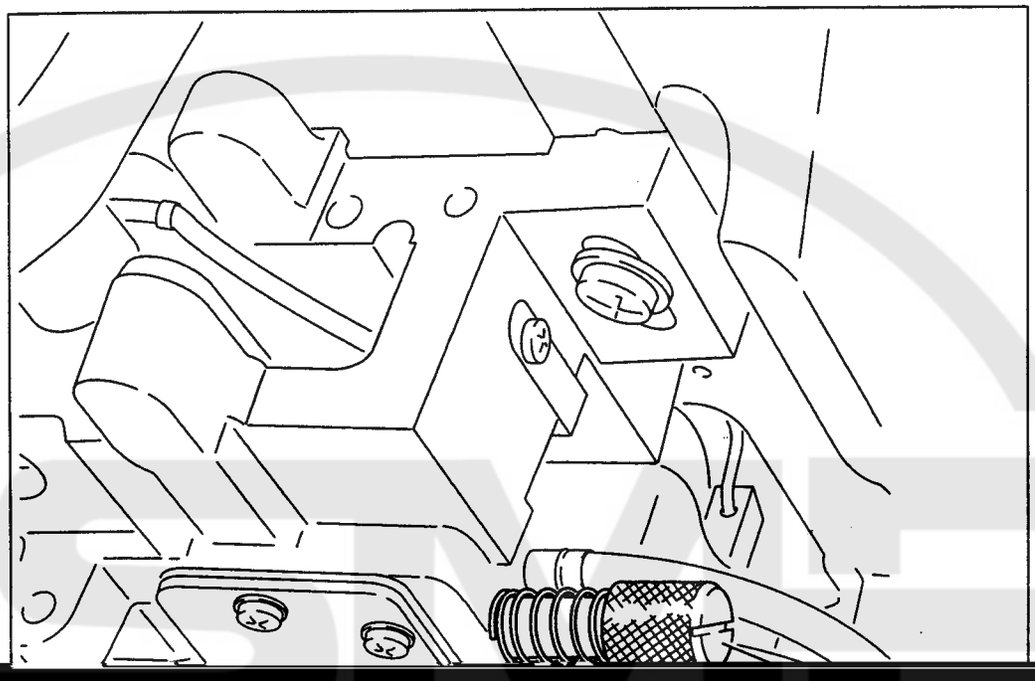
12.05.13 Thread check spring

Requirement
The movement of the thread check spring 3 should have come to an end when the needle point penetrates the material (spring stroke approx. 7 mm).



12.05.14 Hook lubrication

Requirement
After a running time of 10 seconds, a fine oil film should be visible on a paper strip held next to the hook.



12.05.15 Setting the reference point

Requirement
When the needle bar is positioned 1 mm after t.d.c., LED 2 should be on.

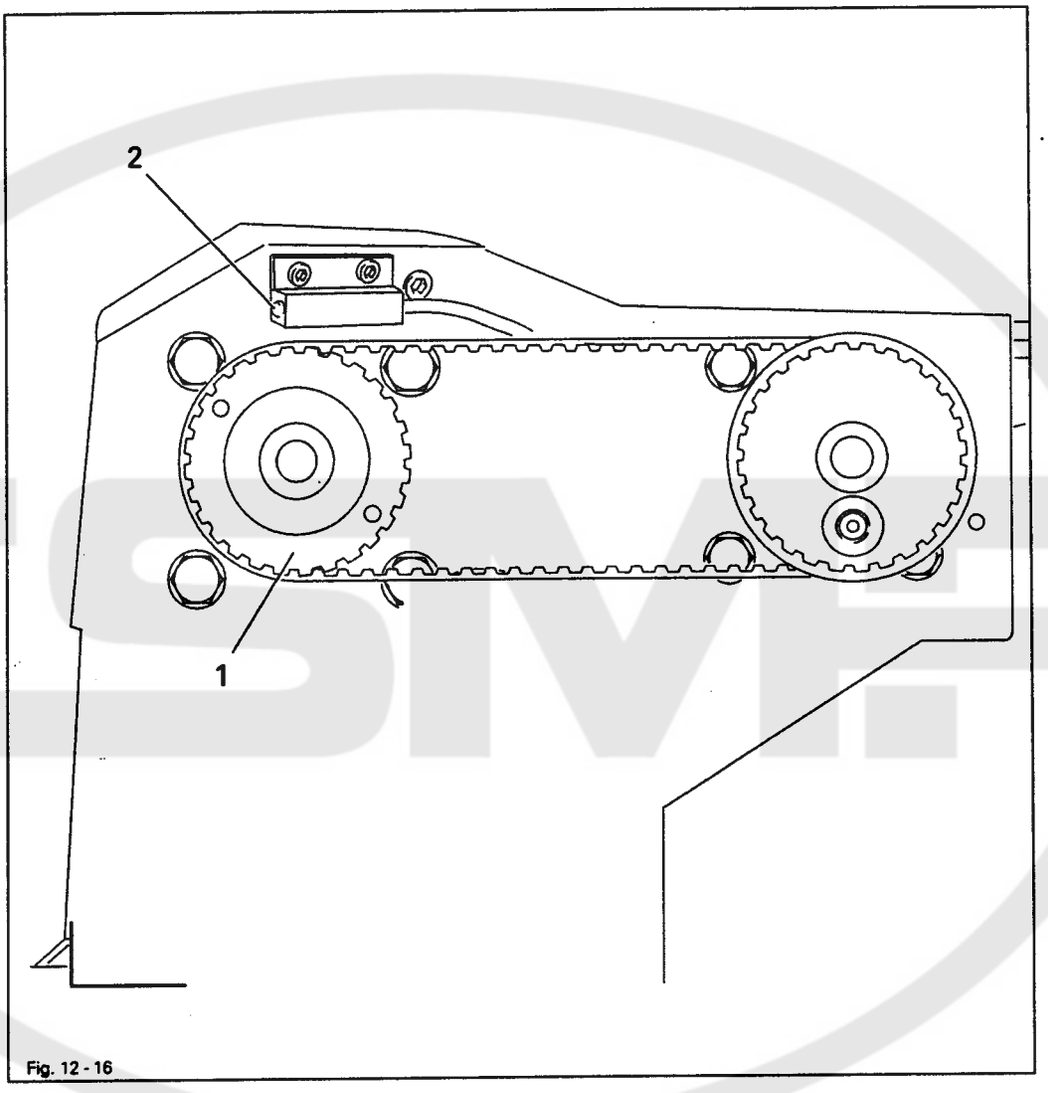


Fig. 12 - 16

- Bring toothed belt wheel **1** into the position in accordance with the **requirement** and fit the toothed belt.

12.05.16 Adjusting the laser points

Requirement

1. The distance from the needle centre to the front edge of the first laser cross should be **110 mm**.
2. The distance from the centre of the middle laser cross to the outer edges of each of the outer laser crosses should be **90 mm**.
3. All three laser crosses should be in alignment with the centre of the middle knife.

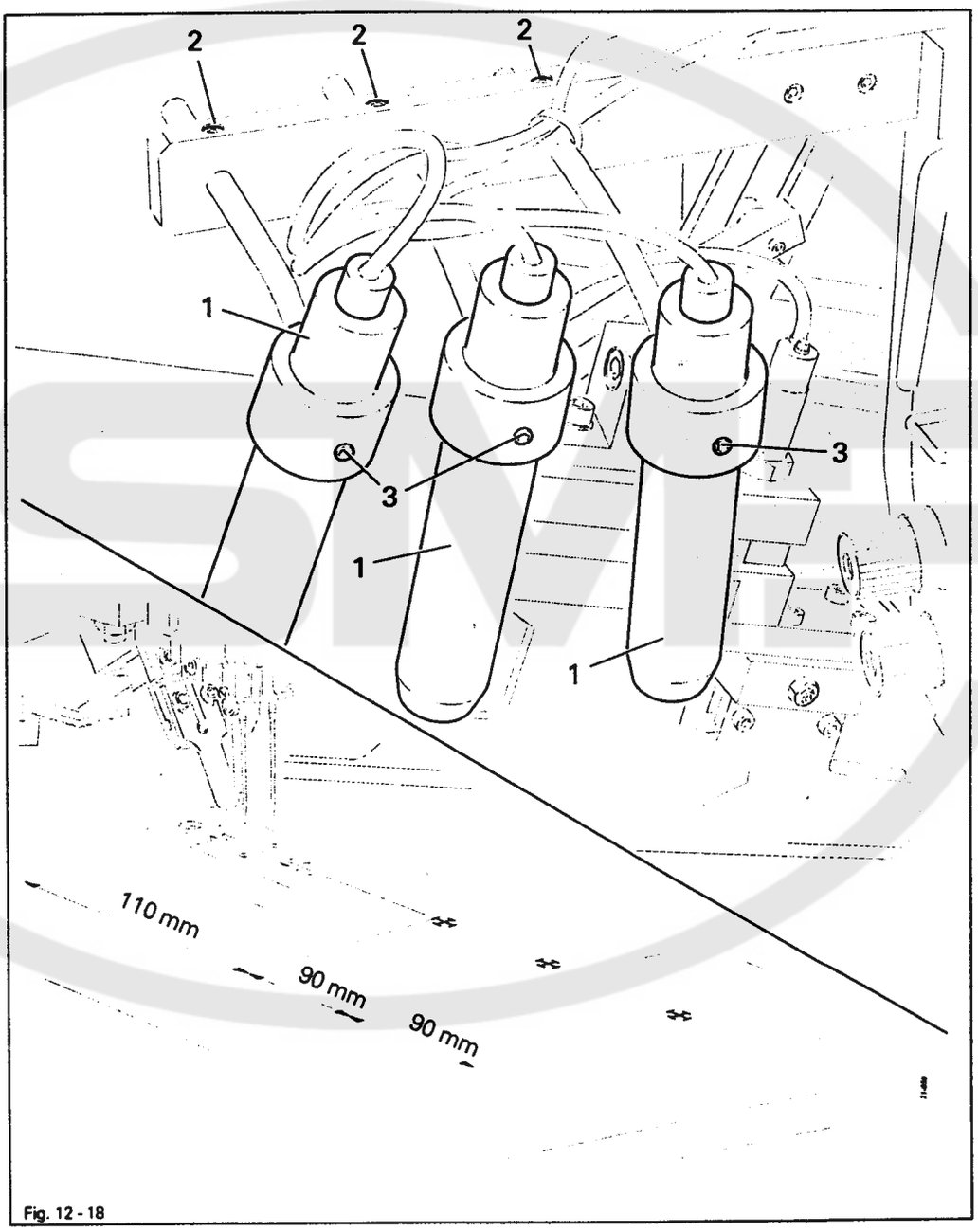


Fig. 12 - 18

● Adjust the positioning aids **1** (screws **2** and **3**) in accordance with the **requirements**.

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