STOLL

THE RIGHT WAY TO KNIT

Operating instructions

	Type	Computer type	Component type
CMS 830 C	573	OKC	000 - 004
CMS 822	574	OKC	000 - 005
CMS 740	572	OKC	000 - 004
CMS 530	566	OKC	000 - 004
CMS 520 C	570	OKC	000 - 004
CMS 520	567	OKC	000 - 004
CMS 420 E	579	OKC	000 - 002
CMS 420 E multi gauge	577	OKC	000 - 001
CMS 420 E	575	OKC	000 - 001

CE

Ident.-Nr. 243 592

GB

Date: 2008-06-25
Software-Version: V_OKC_001.007.00x_STOLL
H. STOLL GmbH & Co. KG, Stollweg 1, D-72760 Reutlingen, Germany

End User Licence Contract (03/2001)

Licence terms in business transactions with entrepreneurs for the use of the STOLL software

Licenser: H. STOLL GmbH & Co. KG, Stollweg 1, D-72760 Reutlingen / Germany.

§ 1 Licensed object and scope of use

(1) The licenser grants the licensee a not exclusive right to use above-mentioned STOLL software according to the following terms and conditions. The licenser shall provide the licensee with a copy of the object code for the licensed programs. The licence material also includes a program description in printed form. In the following text, the licensed programs and the program description are altogether referred to as "licensed software".

(2) The licensed software is only intended to be used with the STOLL knitting machine with which the software was delivered and can only be run in connection with this knitting machine. Any other form of use of the licensed software is not permitted.

(3) The approved use covers the storing of the licensed programs in one data-processing machine, the execution of the programs, the processing of the data stock, as well as the production of copies of the programs to the extent that this is required for contractual use. All rights to the copies shall remain with licenser.

(4) Additional usufructuary and exploitation rights of the licensee do not exist. The creation of back-up copies, the testing and inspecting of the programs , the processing of the data stock as well as a decompiling are only permissible if this must be imperatively permitted due to legal regulations.

(5) Licence material handed over in printed form, in particular the program description is only allowed to be reproduced with the written consent of the licenser.

(6) After having informed the licenser previously in writing, the licensee is allowed to transfer his right of use together with the knitting machine mentioned in Par. (2) in the scope and with the limited conditions resulting from the Par. (1) to (5) entirely to a third party. These conditions must be expressly pointed out to the third party. The transfer within the framework of continuous obligation (e.g. rental, leasing) is not permissible. With the transfer, all the rights of use of the first licensee shall expire, including any rights to copies and adaptions. If these were not handed over to third parties, they must be destroyed.

(7) Neither the licensee nor the subsequent user has the right to use licensed software in whole or in part on more than one data-processing machine at the same time or distribute any reproduced sections of the licensed software in its original version or in altered adapted versions.

§ 2 Period of use

The granting of the usufruct mentioned under § 1 is provided for an indefinite period of time for the entire economic service life of the licensed software.

§ 3 Safeguarding of the licensed software

(1) The licensee must ensure that no form of improper use of the licensed software is carried out at his company and that the obligations in accordance with § 1 are also observed by his employees and personnel as well as by other persons working with the package.

(2) The licensee agrees not to change any protective annotations, such as copyright annotations or any other reservations of rights and agrees to transfer completely into specifically made copies of the licensed software. The licensee is only allowed to use the programs or program sections of other producers included in or related to the licensed software if the licensee accepts the licence terms applicable for such use.

§ 4 Warranty

(1) The contracting parties are in agreement that, based on the present state of technology, it is not possible to develop programs so that they run without any errors for all application conditions. For the licensed software, the licenser shall hand over to the licensee a program description based on the most recent status in each case that refers to the proper use and conditions of use for the programs. Specific characteristic features shall not be guaranteed unless an agreement to the contrary is reached in individual cases.

(2) The licenser guarantees that the licensed software is usable within the meaning of the program description issued by him and applicable at the time of delivery to the licensee; an irrelevant diminishment of the usability shall not be taken into account. The licenser also guarantees that the data carrier being used is free of material and manufacturing defects and that the data has been properly recorded on the data carrier. If the licensee operates the licensed software in connection with hardware and software products that do not come from STOLL, the licensee is obliged to furnish proof that a determined error has its cause in the licensed software.

(3) If the licensed software proves to be useless or defective within the meaning of Par. (2), the warranty is carried out by replacement delivery versus the return of the defective software. If the software delivered on a replacement basis also proves to be useless or defective and the licenser is not able to restore the usability or eliminate the error within a suitable time limit, the licensee can demand, according to his choice, a reduction of the licence fee or reimbursement of the licence fee versus the return of the licensed software.

(4) Any further warranty, in particular for guaranteeing that the data or the licensed software comply with the requirements and purposes of the licensee shall be excluded.

(5) The warranty period amounts to twelve months, starting with the date of delivery of the licensed software to the licensee.

§ 5 Liability limitations

(1) The licenser shall be liable for damages that were caused by a culpable infringement of an essential contractual obligation, for which the licenser is responsible, in a manner endangering the achievement of the contractual purpose. The liability is limited to the contract-typical damage the occurrence of which the licenser had to expect based on the circumstances known to the licenser upon the conclusion of the contract. In any case, the liability is limited to two times the amount of the licence fee paid by the licensee.

(2) In case of virus contamination, the licensee is responsible for providing proof that the licensed software was contaminated with the virus.

(3) The licenser shall not be liable for insufficient economic success, lost profits, remote damages and consequential damages and for damages from the claims of third parties with the exception of claims resulting from the infringement of protective rights of third parties.

(4) For the recovery of data, licenser shall only be liable within the framework of Par. (1) and only if the licensee stored this data in machine-readable form on a daily basis, the corresponding data carrier is available and the data can be reproduced at reasonable expense.

(5) The aforementioned liability limitations do not apply to damages that have been proved to be based on premeditation or gross negligence on the part of licenser or on the lack of guaranteed characteristics, as well as to any claims based on the product liability law.

§ 6 Final provisions

(1) Alterations and supplements of this contract require the written form for their legal validity.

(2) Should any individual provisions of this licence terms be void or become void, the validity of the other provisions shall remain unaffected. The void provision must be replaced by a lawful provision that comes as close as possible to the economic purpose it is being used to pursue.

(3) This terms and the legal relations between the licenser and the licensee are subject to German law exclusively.

(4) Place of fulfilment and jurisdiction in business transactions with businessmen is D-Reutlingen / Germany.

Installation of the programs

The exact installation instructions for the software are contained in the manual.

Software license for Windows XP

The license number is located on the left or on the right control cabinet.

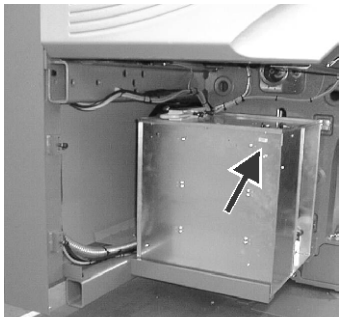


Fig. 1 Software license for Windows XP on the left control cabinet

Survey

Content

1 About this document

This chapter contains information on:

1.1 Function of this document

This document explains how to operate your knitting machine.

It contains information on:

- Operation
- Maintenance in normal operation
- Elimination of malfunctions
- Maintenance
- Troubleshooting

1.2 Target groups of this document

The individual chapters of this document are directed at persons with different tasks and qualifications:

Target groups and qualifications	Chapter
All persons: Knowledge on the applicable safety guidelines for the workplace	1 About this document 2 Description of knitting machine
Operators: Knowledge of the basic principles of flat knitting	All of the above chapters 3 Producing with the knitting machine 4 Adjust the knitting machine 5 Maintenance of the knitting machine 6 Repairing the knitting machine
Technicians: Knowledge of the current electrotechnical safety guidelines and completed professional training in the field of textile mechanics	All chapters

Tab. 1-1 Allocation of target groups and chapters

1.3 Information in this document

This document contains all information on assembly, operation, servicing and maintenance of the knitting machine.

Additional information is provided by the following separate documents:

Document	Information contained
Spare Parts Catalog	Illustration of all spare parts with their order numbers
Manual for the STOLL pattern preparation unit	Using the STOLL pattern preparation unit
Programming manual	Writing knitting programs with SINTRAL
STIXX Instructions	Special equipment for measuring and controlling the stitch length
Stoll-knit report 2 (SKR2)	Software for operating and machine data acquisition
Order Management Software (OMS)	Software for the distribution, control and management of knitting orders

Tab. 1-2 Overview of the documents for the knitting machine and STOLL pattern preparation unit

Additional information is provided by:

- The STOLL branch office or STOLL dealer in your country
- The STOLL helpline:
  - Tel: +49-(0)7121-313-450
  - Fax: +49-(0)7121-313-455
- E-mail: helpline@stoll.com
- Internet: http: //www.stoll.com
- Training courses at the STOLL training centers

Type plate

Some information and descriptions depend on the component and computer type. There may be differences in the design depending on the date of manufacture of the machine. The type plate and the table which is located on the title page of these instructions indicate which machine model is concerned.

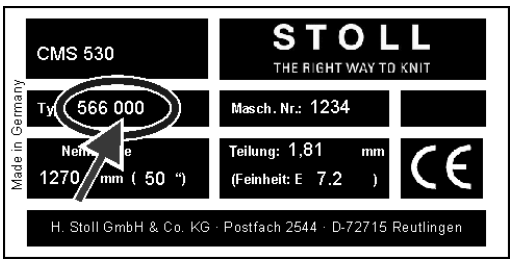


Fig. 1-1 Machine type plate

The second column of numbers in the "Typ" field indicates the component type. In the above example the machine concerned is the component type "000".

1.4 Symbols in this document

Some information in this document are marked with special symbols to make it easier to access this information quickly.

* The additional equipment of your machine can deviate from this description depending on the machine type (type of machine, scope of supply, special equipment).

Background information is provided here.

Tips for optimal procedure are provided here.

DANGER

A warning is given here!
A warning protects you from death or injury and the knitting machine from serious damage.

➜ Always read warnings carefully and observe them exactly.

1. Carry out first action.
2. Carry out second action.
3. Carry out third action.

- or -

➜ Carry out one-step action.

If something fails to function properly:

Information on the possible causes is provided here.

➜ To solve the problem, carry out the action described here.

Notes

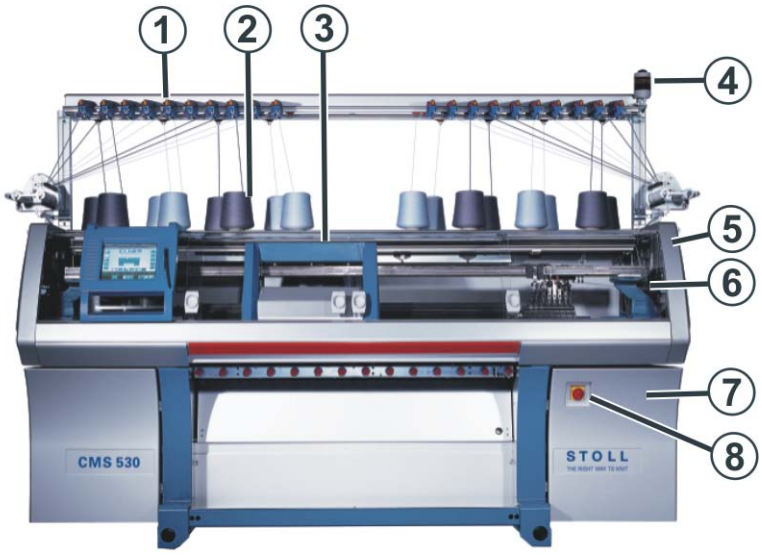
2 Description of knitting machine

This chapter contains information on:

2.1 Components of the knitting machine

2.1.1 Front side (CMS 530, CMS 520, CMS 520 C, CMS 420 E) *

Valid for:			
Component type 002	CMS 530	CMS 520	CMS 520 C
Component type 000	CMS 420 E (type 579)		



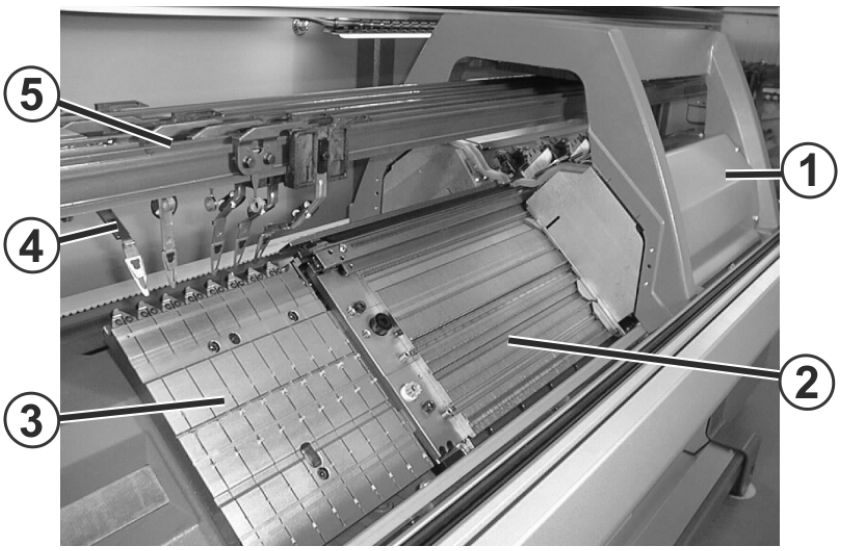
	Designation	Explanation
1	Yarn control device	Tensions and monitors the thread.
2	Bobbin board	The yarn bobbins are stopped on it.
3	Carriage	It moves over the needle beds. It controls the work positions of each yarn carrier and each and every needle in the needle bed.
4	Signal light	It displays the operating state of the knitting machine
5	Protective hood (left, right)	The reversing point of the carriage is secured with the safety cover.
6	Cover hoods	The entire stroke of the carriage is secured with a safety cover. You have to forbid everyone from reaching out into the running machine.
7	Control unit	It controls the knitting sequence It saves the data of the knitting program. It controls the needle selection and the motors in the carriage.
8	Main switch	Switching on and off of the machine. Emergency stop switch.

Tab. 2-1 Overview Machine element 1

	Designation	Explanation
9	Engaging rod	It activates and stops the carraige run.
10	Fabric take-down (main take-down, auxiliary take-down, comb take-down)	Main take-down: Pulls the stitches away from the needle downwards in the fabric tray. Auxiliary take-down: Grasps the fabric directly under the needle bed. Take-down comb: With the comb take-down fabrics are automatically started and press off after completion.
11	Fabric collection chamber	The take-down roller guides the finished fabric into the fabric collection chamber. There the fabric is protected from soiling.
12	Touch screen	The touch screen enables communication with the machine control
13	USB connection	Connection for a removable data carrier, containing knitting programs, operating systems and machine data. Recommendations: Use USB Memory Stick. Also possible: Floppy disk drive, CD drive, DVD drive, external hard disk.

Tab. 2-2 Overview Machine element 2

Inner side



	Designation	Explanation
1	Carriage	It moves over the needle beds. It controls the work positions of each yarn carrier and each and every needle in the needle bed.
2	Needle bed	Every machine has a front and a rear needle bed. There are grooves in the needle bed which are run by needles.
3	Thread clamp and cutting device (left, right)	The thread clamping and cutting device holds the thread of a yarn carrier not used for knitting at the moment.
4	Yarn carrier	It gets pulled by the carriage over the needle bed and leads the thread into the needle.
5	Yarn carrier rail	The bars are attached to the upper part of the needle beds. The yarn carrier glides on this rail.

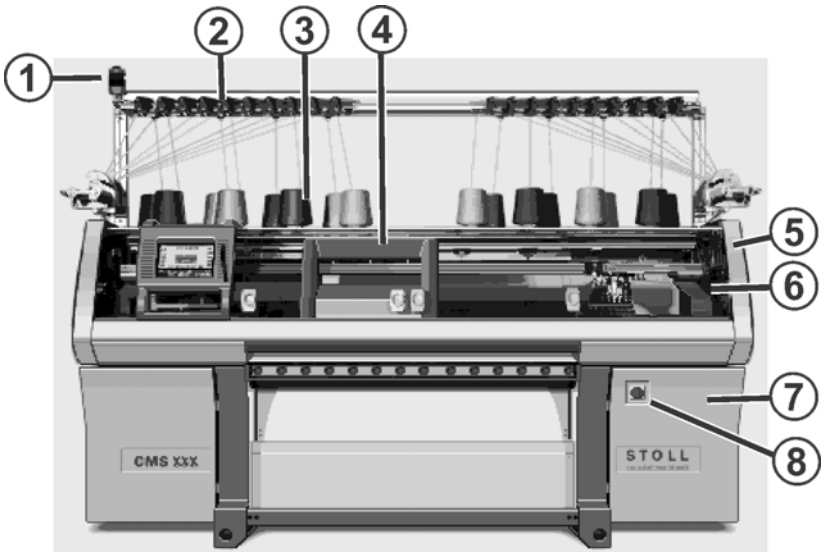
Tab. 2-3 Overview Machine element 3

Further information:

- Symbols in this document *(see page 1-3)*

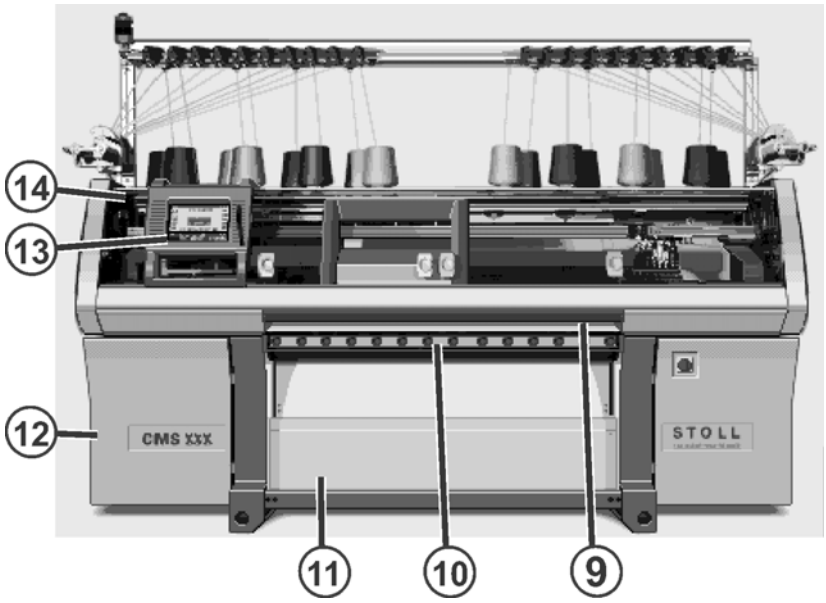
2.1.2 Front side (CMS 830 C, CMS 822, CMS 740) *

Valid for:				
Component type 003	CMS 822			
Component type 002	CMS 830 C	CMS 740		
Component type 000 - 001	CMS 830 C	CMS 740	CMS 530	CMS 520 C
	CMS 822		CMS 520	CMS 420 E (type 575, type 577)



	Designation	Explanation
1	Signal lamp	It displays the operating condition of the knitting machine.
2	Yarn control device	Tensions and monitors the thread.
3	Bobbin board	The yarn bobbins are stopped on it.
4	Carriage	It moves over the needle beds. It controls the work positions of each yarn carrier and each and every needle in the needle bed.
5	Protective hood (left, right)	The reversing point of the carriage is secured with the safety cover.
6	Cover hoods	The entire traversing path of the carraige is secured with a safety cover. You have to forbid everyone from reaching out into the running machine.
7	Control (right-hand side of the machine)	It controls the carriage run and the racking of the needle bed.
8	Main switch	Switching on and off of the machine EMERGENCY STOP switch

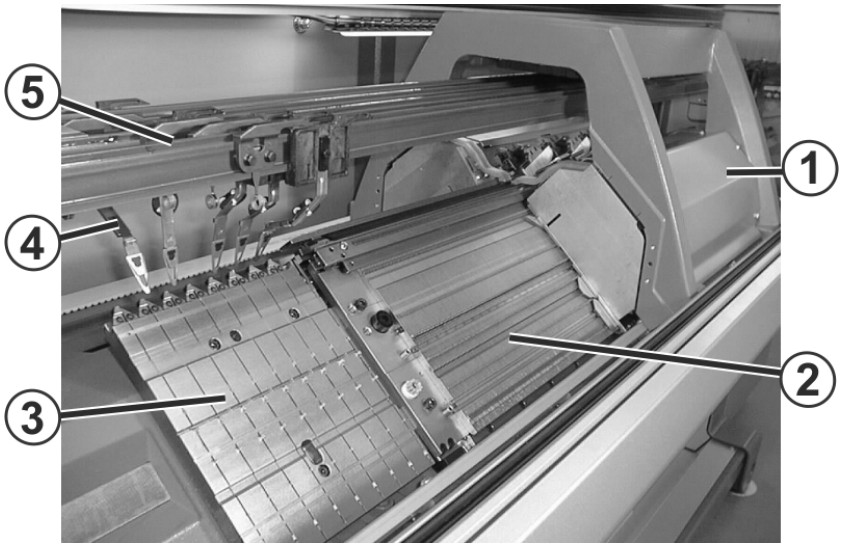
Tab. 2-4 Overview Machine-Element 1



	Designation	Explanation
9	Engaging rod	It activates and stops the carraige run.
10	Fabric take-down (main take-down, auxiliary take-down, take-down comb)	Main take-down: Pulls the stitches away from the needle downwards in the fabric tray. Auxiliary take-down: Grasps the fabric directly under the needle bed. Take-down comb: With the take-down comb fabric pieces are automatically started and press off after completion.
11	Fabric collection chamber	The take-down roller guides the finished fabric into the fabric collection chamber. There the fabric is protected from soiling.
12	Control (left-hand side of the machine)	It controls the knitting sequence It saves the data of the knitting program. It controls the needle selection and the motors in the carriage.
13	Touch screen	The Touch-Screen enables communication with the machine control
14	USB connection	Connection for a removable data carrier, containing knitting programs, operating systems and machine data. Recommendations: Use USB Memory Stick. Also possible: Floppy disk drive, CD drive, DVD drive, external hard disk.

Tab. 2-5 Overview Machine-Element 2

Inner side



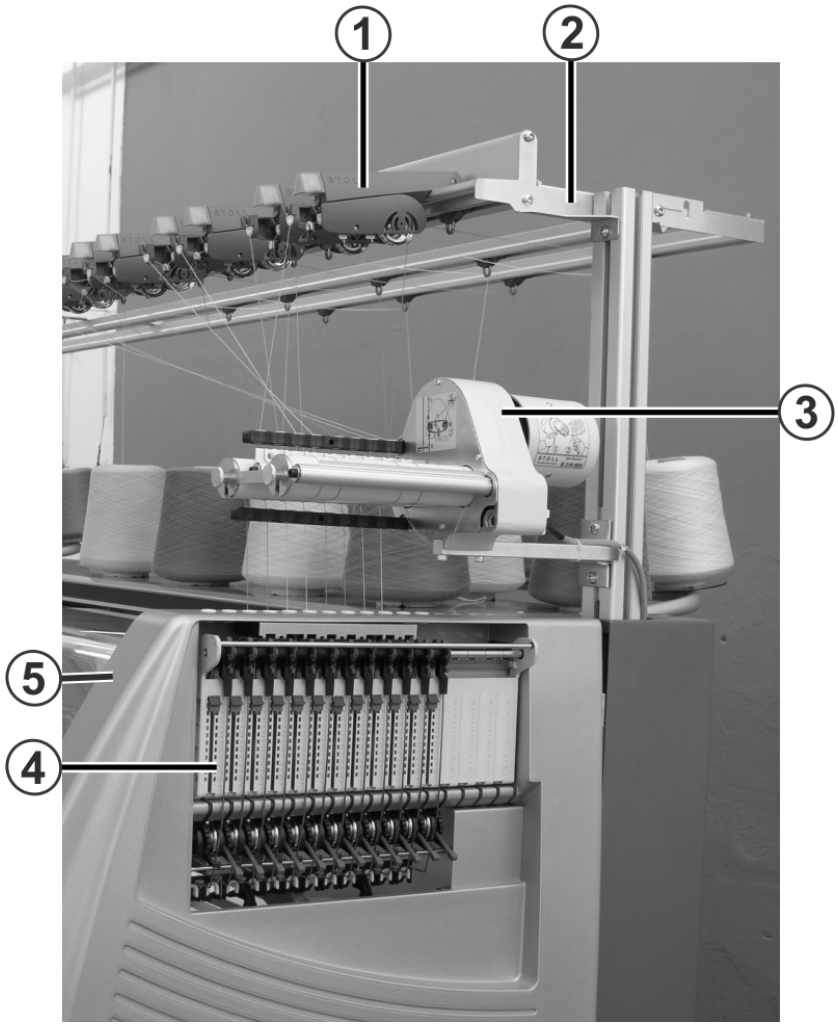
	Designation	Explanation
1	Carriage	It moves over the needle beds. It controls the work positions of each yarn carrier and each and every needle in the needle bed.
2	Needle bed	Every machine has a front and a rear needle bed. There are grooves in the needle bed which are run by needles.
3	Thread clamp and cutting device (left, right)	The thread clamping and cutting device holds the thread of a yarn carrier not used for knitting at the moment.
4	Yarn carrier	It gets pulled by the carriage over the needle bed and leads the thread into the needle.
5	Yarn carrier rail	The rails are attached to the upper part of the needle bed. The yarn carrier glides on this rail.

Tab. 2-6 Overview Machine-Element 3

Further information:

- Symbols in this document *(see page 1-3)*

2.1.3 Lateral view (right) *



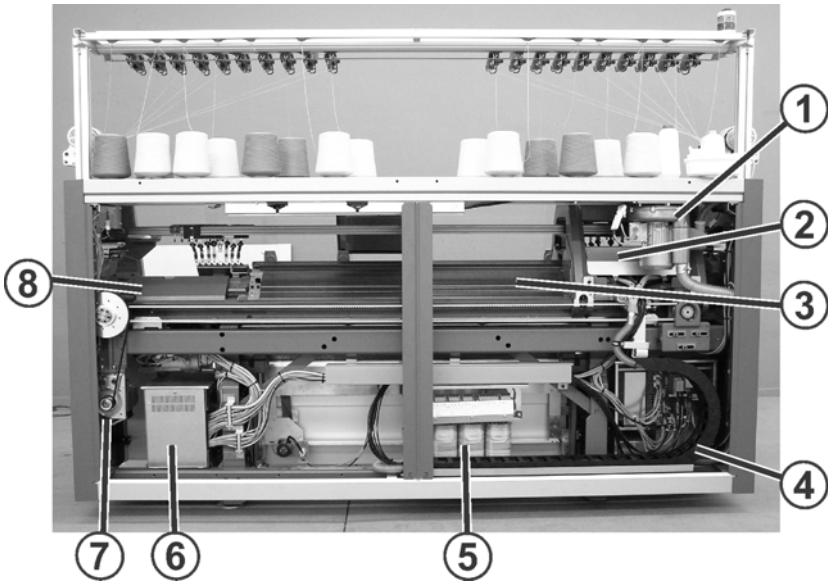
	Designation	Explanation
1	Yarn control device	Tensions and monitors the thread.
2	Yarn feeding and control device	On this the yarn control devices and the friction feed wheels are mounted.
3	Friction feed wheel	It pulls the thread from the bobbin and feeds it to the yarn carrier with a constant tension.
4	Side yarn tensioner	It monitors and tensions the thread.
5	Protective hood (left, right)	The reversing point of the carriage is secured with the safety cover.

Tab. 2-7 Overview Machine-Element 4

Further information:

- Symbols in this document *(see page 1-3)*

2.1.4 Rear side *



	Designation	Explanation
1	Fluff absorption	The fluff absorption removes the yarn lint from the upper area of the needle beds.
2	Carriage	It moves over the needle beds. It controls the work positions of each yarn carrier and each and every needle in the needle bed.
3	Rear needle bed	Every machine has a front and a rear needle bed. There are grooves in the needle bed which are run by needles.
4	Trailing cable (energy chain)	The cables for the carriage that travels hence and forth are fed alongwith in the energy chain.
5	Transformer (Fuses)	The knitting machine can be operated with various mains voltages.
6	Control unit (CMS 530, CMS 520, CMS 520 C, CMS 420)	It controls the knitting sequence It saves the data of the knitting program. It controls the needle selection and the motors in the carriage.
	Control (right-hand side of the machine) (CMS 830 C, CMS 822, CMS 740)	It controls the carriage run and the racking of the needle bed.
7	Main drive	The carriage assembly is driven by the drive motor via a toothed belt.
8	Racking device	Racks the rear needle bed laterally.

Tab. 2-8 Overview Machine-Element 5

Further information:

- Symbols in this document *(see page 1-3)*

2.2 Yarn guide

The yarn guide has the following tasks:

- Guiding knitting yarn
  - from the bobbin to the yarn carrier
  - as friction-free as possible
  - without the threads touching or crossing over each other
- Controlling knitting yarn for
  - thread end
  - Thread breakage
  - Knots
- Controlling yarn tension
- Preventing sagging threads with yarn tensioning

2.2.1 Thread lines

Various thread lines are provided for threading up the yarn on the knitting machine. The optimal thread line depends on the yarn and pattern.

Yarn	Thread line
Seldom used threads, e.g. elastic yarns	Thread line 1
Seldom used threads, e.g. draw separation threads	Thread line 2
Frequently used threads	Simple patterns: Thread line 2 Difficult patterns: Thread line 3
Difficult-to-process threads	Thread line 3
Equally long fabrics	Thread line 4

Tab. 2-9 Determining the thread line

The following pictures show the four possible thread lines.

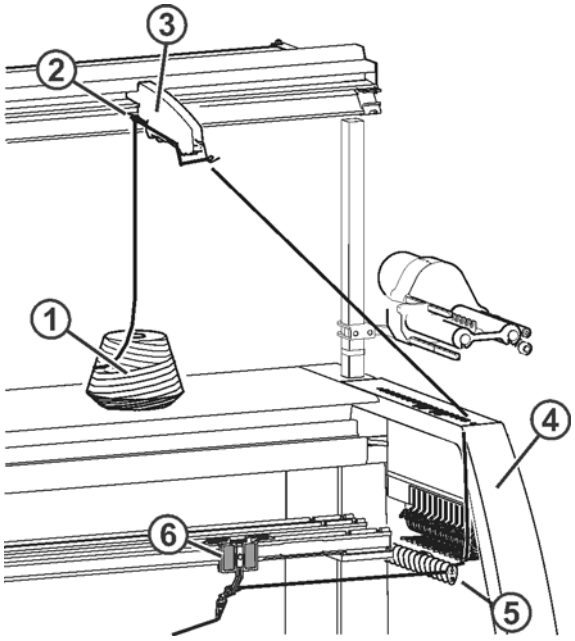


Fig. 2-1 Thread line 1

1 Bobbin
2 Yarn guide bracket
3 Yarn control device
4 Safety cover
5 Thread deflector
6 Yarn carrier

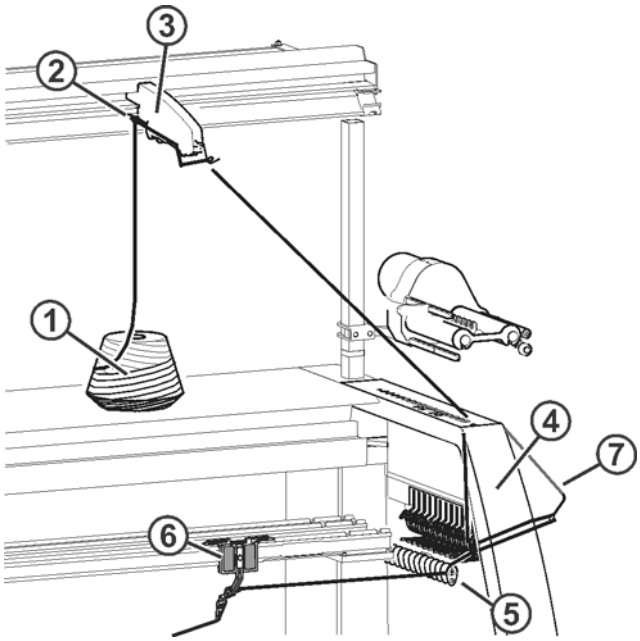


Fig. 2-2 Thread line 2

1 Bobbin
2 Yarn guide bracket
3 Yarn control device
4 Safety cover
5 Thread deflector
6 Yarn carrier
7 Side yarn tensioner

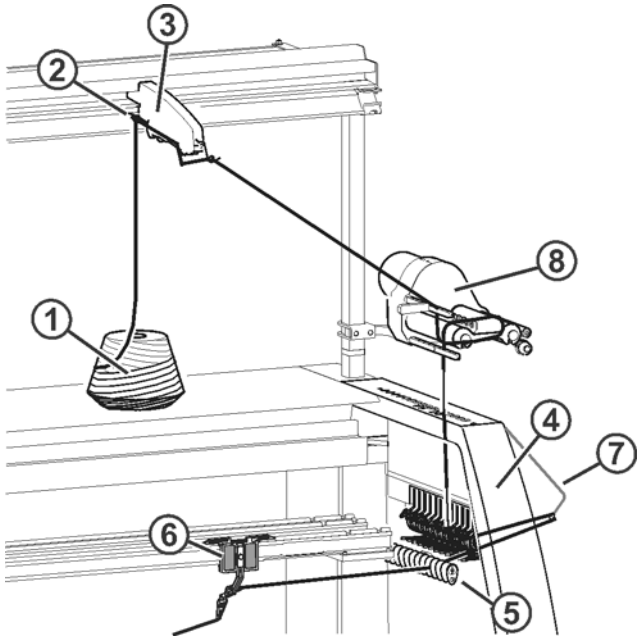


Fig. 2-3 Thread line 3

1 Bobbin
2 Yarn guide bracket
3 Yarn control device
4 Safety cover
5 Thread deflector
6 Yarn carrier
7 Side yarn tensioner
8 Friction feed wheel

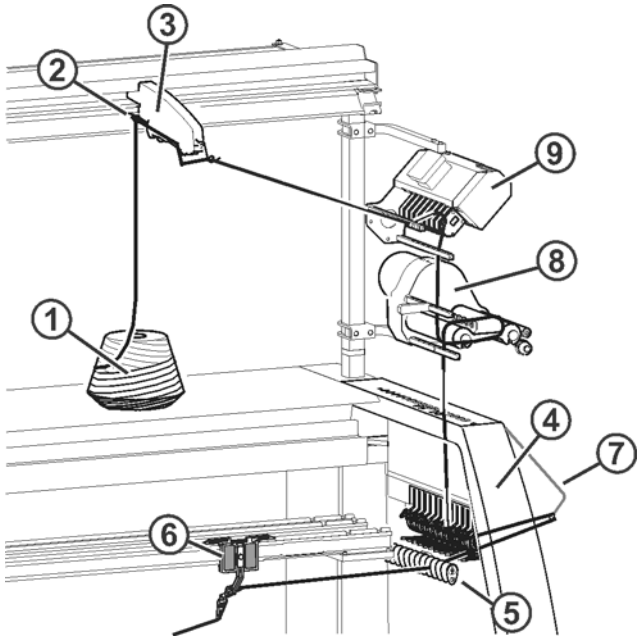


Fig. 2-4 Thread line 4

1 Bobbin
2 Yarn guide bracket
3 Yarn control device
4 Safety cover
5 Thread deflector
6 Yarn carrier
7 Side yarn tensioner
8 Friction feed wheel
9 STIXX device

2.2.2 Yarn control device

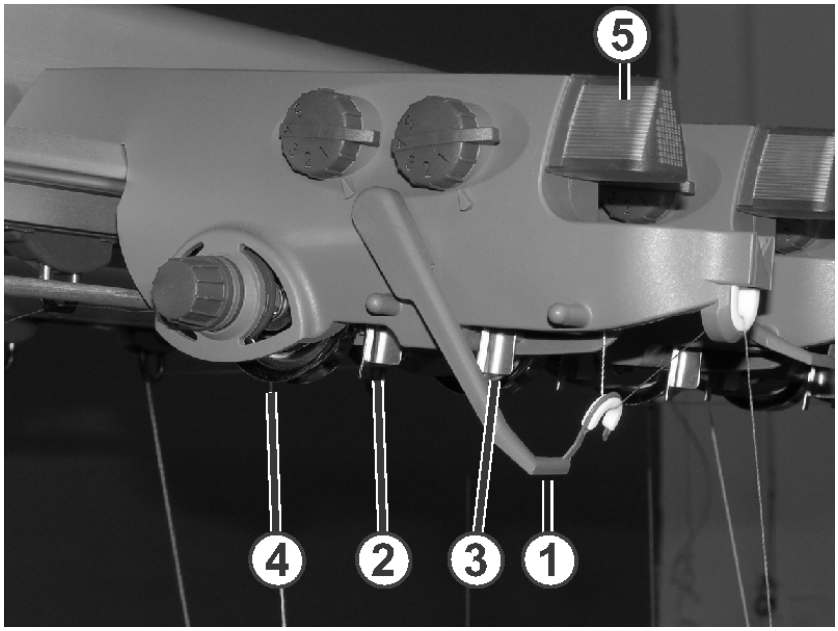


Fig. 2-5 Yarn control device

1 Thread break control
2 Knot detector for large knots
3 Knot detector for small knots
4 Thread brake disc
5 LED

The elements of the yarn control device can individually be adjusted to the yarn being processed.

The thread break control (1) monitors the thread ends and switches off the machine in case of a thread breakage or end. The error is indicated by the LED (5) on the yarn control device, the signal lamp and on the touch screen.

In the case of large knots in the yarn, the knot detector switches off the knitting machine. The error is indicated by the LED (5) on the yarn control device, the signal lamp and on the touch screen.

In the case of small knots in the yarn, the machine knits a programmed number of rows at reduced speed.

The thread brake setting (4) regulates the yarn tension and prevents the thread from hanging through.

2.2.3 Lateral yarn guide *

The friction feed wheel, the active thread clamp, the lateral yarn tensioner and the permanent brake work together.

Fig. 2-6 Lateral yarn guide

1	Friction feed wheel	3	Side yarn tensioner
2	Active thread clamp	4	Permanent brake

Friction feed wheel *

The friction rollers of the friction feed wheel (1) reduce the yarn tension.

The friction feed wheel is inserted for almost all guages. It is not inserted only for the guages E 16, E 18 and E 9.2 , the storage feed wheel is used.

Storage feed wheel SFE *

The feed wheel serves for intermediate storage of the thread. The cylindrical coiling and the separately positioned thread layers offer a more even thread tension when yarn is being drawn off than when drawing off the bobbin. Peaks in tension are caught up and compensated by the feed wheel.

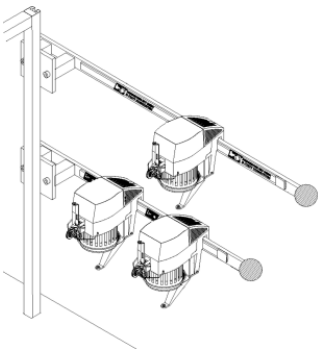


Fig. 2-7 Storage feed wheel SFE

According to use up to 5 feed wheels can be inserted on each machine side.

Further information:

- Symbols in this document *(see page 1-3)*

Active thread clamp

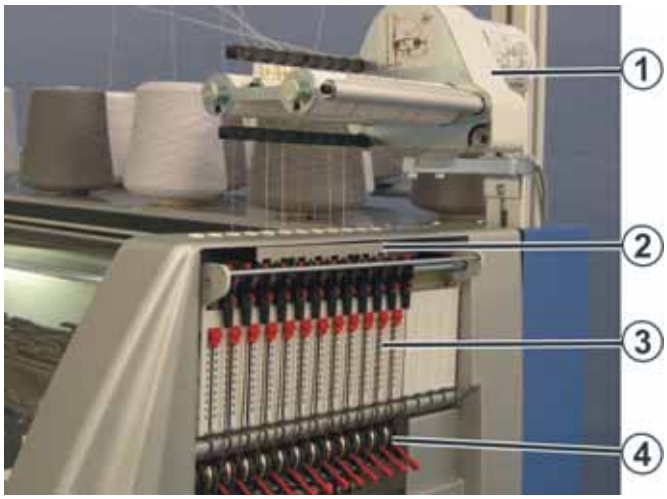


Fig. 2-8 Lateral yarn guide

1	Friction feed wheel	3	Side yarn tensioner
2	Active thread clamp	4	Permanent brake

The active thread clamp is found under the friction feed wheel. It is integrated in the lateral safety cover. The thread clamp is positioned in such a manner that each track of the friction feed wheel is arranged corresponding to a track of the thread clamp. In all there are 8 tracks available.

In the case of a friction feed wheel sometimes a problem appears:
When a thread is not knitted over a longer period of time it is possible that the friction feed wheel releases some threads because of the friction and thereby the lateral yarn tensioner swivels so mush outwards that the machine stops. This hinders the thread clamp. If the yarn tensioner swivels over the angle by approx.. 45 degree, the clamp closes automatically. If the thread is knitted again the yarn tensioner swivels inwards and the clamp is opened.

Side yarn tensioner

The lateral yarn tensioner has two tasks:

Function	Description
Control the thread	Switch off the knitting machine in case of a threak break or thread end.
Tension the thread	When the yarn carrier moves on the yarn tensioner, it can hold the threads that are not yet being knitted in a tensioned state. The yarn tensioner swivels and holds the threads tensioned.

In the case of a thread breakage the side yarn tensioner swivels outwards and switches off the knitting machine. On the upper end of the yarn tensioner a magnet is fixed that releases a contact in the lateral safety cover without touching it.

2.2.4 Thread clamping and cutting device *

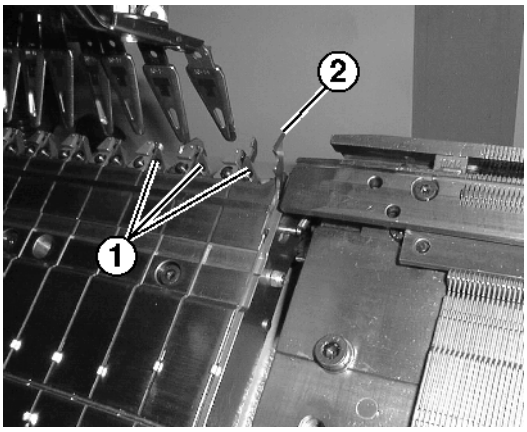


Fig. 2-9 Thread clamping and cutting device

1 Clamping devices
2 Catch hook

The thread clamping and cutting devices are mounted on the left and right next to the front needle bed. Each one works with six or eight clamps (1). The clamping devices are actuated by the carriage.

The thread clamping and cutting device holds the thread of a yarn carrier not used for knitting at the moment. When changing colors, a yarn carrier no longer used is parked behind a clamping device. The catch hook (2) pulls the thread downward. Then the thread is clamped and cut off. When the yarn carrier is used again, the carriage opens the clamping device after knitting a few rows and the thread end is released. The number of rows knitted until the clamping device opens up, is programmed in the knitting program.

Further information:

- Symbols in this document *(see page 1-3)*

2.2.5 Intarsia yarn carrier *

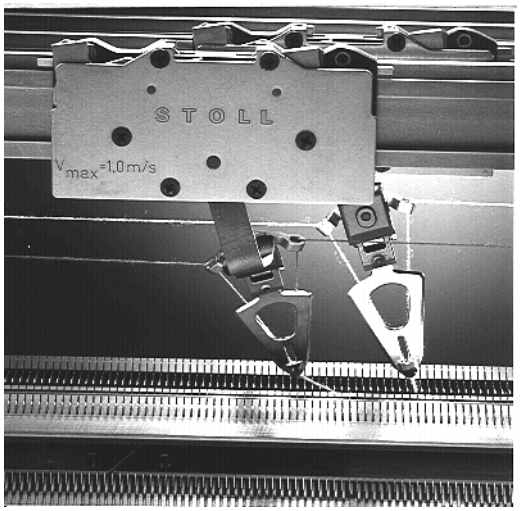


Fig. 2-10 Intarsia yarn carrier

Intarsia yarn carriers can be installed to produce intarsia patterns.

Further information:

- Symbols in this document *(see page 1-3)*

2.2.6 Plating yarn carriers *

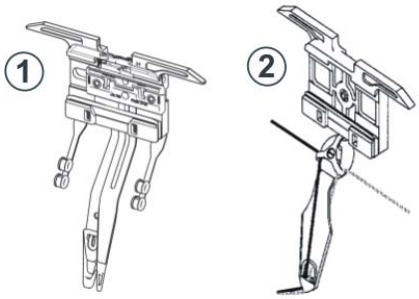


Fig. 2-11 Plating yarn carrier

1	Double bow yarn carrier	E 5 - E 18
2	Double eyelet yarn carrier	E 3 - E 4

Plating yarn carriers can be built-in for plating.

Further information:

- Symbols in this document *(see page 1-3)*
- Special equipment *(see page 9-1)*

2.3 Carriage

2.3.1 Drive, speed and operating path

Fig. 2-12 Carriage

The carriage assembly is driven by the drive motor via a toothed belt. The speed is infinitely programmable, and can therefore be adapted to the yarn material, pattern and working step.

Limit switches control the path of the carriage assembly. If the carriage assembly moves too far outward, the limit switch stops the knitting machine.

The operating path of the carriage is controlled by the knitting program and may differ for each knitting or transfer row The carriage assembly reverses when the last working needle leaves the system.

2.3.2 Suction and cleaning row

Suction *

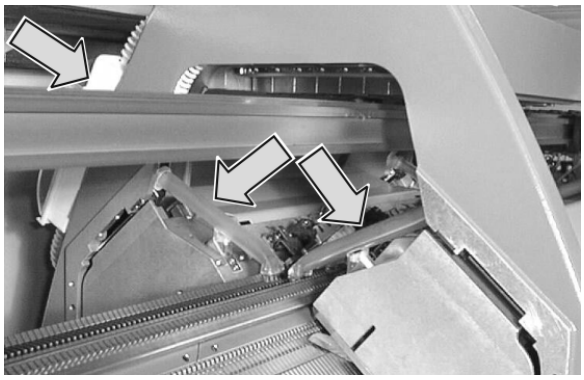


Fig. 2-13 Fluff absorption and lint container (from component type 001 on)

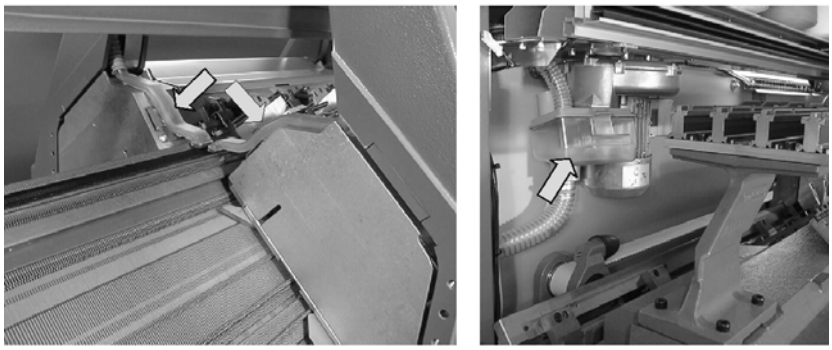


Fig. 2-14 Fluff absorption and lint container (component type 000)

The suction removes the yarn lint from the upper area of the needle beds. The fluff is collected in a container.

Cleaning row

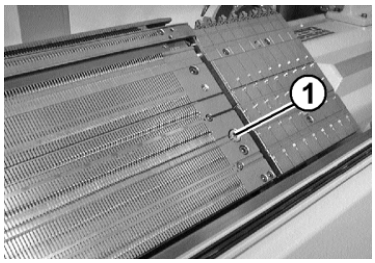


Fig. 2-15 Brushes for cleaning the selection systems

After a programmable number of knitting rows, the carriage assembly carries out a cleaning row over the entire needle bed during which the lint is extracted from the needle bed. Brushes (1) are mounted outside on the needle bed which clean the selection systems during the cleaning row.

Further information:

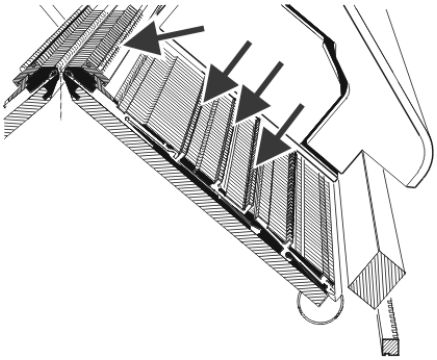
- Switching units on and off * *(see page 4-46)*
- Symbols in this document *(see page 1-3)*

2.3.3 Central lubrication

All machines with four or more knitting systems are equipped with a central lubrication as a standard equipment (not for CMS 822)

Fig. 2-16 Central lubrication on carriage, on the right: Oil supply

It lubricates the working butts of the holding-down jacks, the coupling part and the intermediate slider with oil. All other lubrication points must be lubricated manually.



Lubrication points of the central lubrication

2.4 Knitting system

2.4.1 Needle paths and design

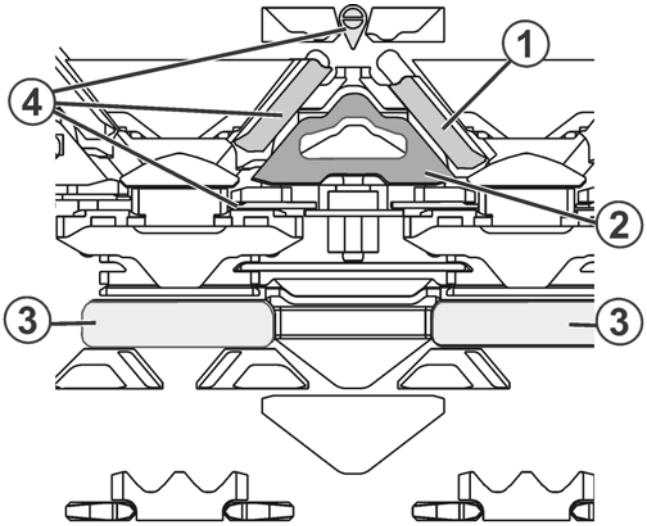


Fig. 2-17 Knitting system

1 Stitch cam
2 Raising cam
3 Selection system
4 movable cams

Each knitting system can knit using the three-way technique without limitation.

Each needle can be controlled in seven positions:

- Stitch
- Tuck
- out of operation
- Transfer
- Take-over
- Split - stitch/transfer
- Split - stitch/take-over

This results in the following possibilities during stitch formation:

- Stitch
- Tuck
- out of operation
- Transfer of stitches and tuck loops from the front to the rear needle bed or vice-versa, even simultaneously in both directions

The selection system only selects the needles which knit a stitch or tuck, transfer or split-stitch. All other needles are not selected and do not sink the stitches.

2.4.2 Raising cams

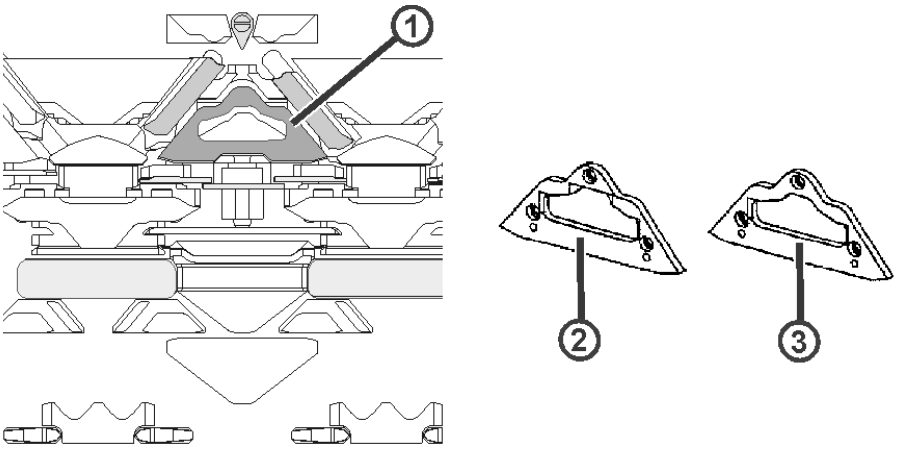


Fig. 2-18 Raising cams

1 Position of raising cam
2 Raising cam for transfer
3 Raising cam for split-stitch

There are two different raising cams for transfer and split-stitch. When the knitting machine is shipped, the raising cams for transfer (2) are built-in. The raising cams for split-stitch (3) are contained in the accessories.

The raising cam for split-stitch (3) can also be used for normal transfer patterns. In the case of particularly delicate yarns, the raising cam for transfer (2) should be used so that the yarn does not tear while transferring the stitches and no dropped stitches result.

2.4.3 Holding-down function

The holding-down jacks hold down the fabric when the needles for stitch formation are driven out. The holding down jacks are moved by the jack control unit on the carriage.

Following stitch formation, the holding-down jacks are opened again (exception: CMS 830 C, the holding-down jacks remain closed).

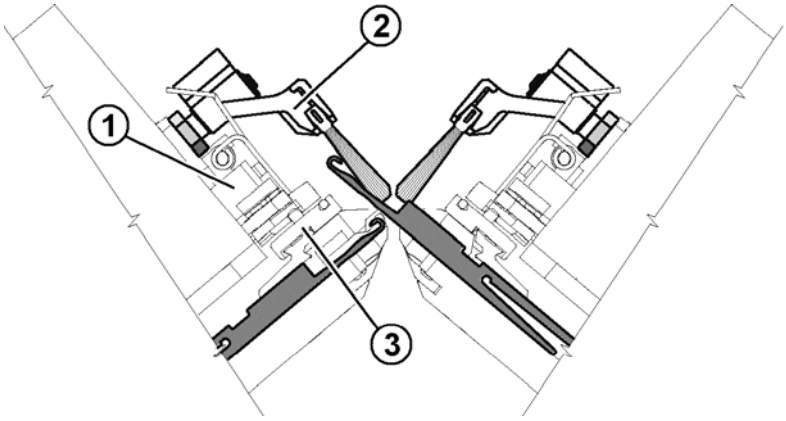


Fig. 2-19 Jack control unit

1 Jack control unit
2 Swiveling brush holder
3 Jack slider

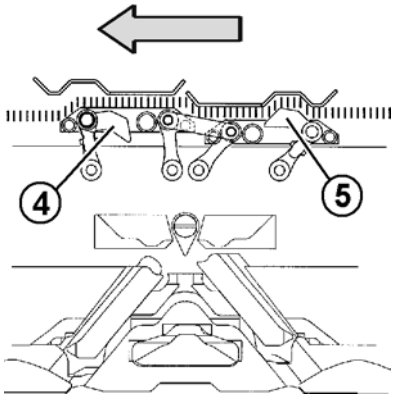


Fig. 2-20 Jack slider

4 Leading jack slider
5 Following jack slider

The leading jack slider (4) is switched upward.

This pivots the holding-down jacks downward into the holding-down position during needle clearance. They hold down the stitches.

The following jack slider (5) is pulled back and the holding-down jacks pivot back again. During thread insertion the holding-down jacks are open.

When the carriage reverses, the jack sliders are switched over automatically.

2.4.4 Step motor for adjusting the stitch tension

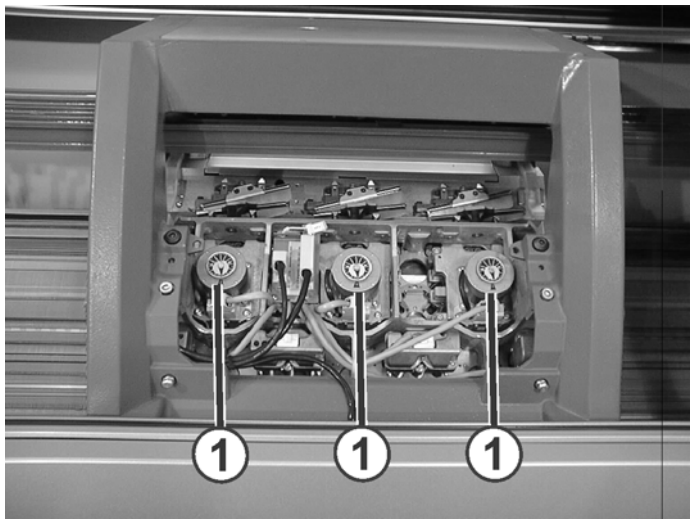


Fig. 2-21 Step motor for adjusting the stitch tension

A step motor (1) on each knitting system adjusts the stitch tension. The step motor is controlled by the knitting program.

The stitch tension can individually be adjusted

- for individual areas in the fabric which are subjected to particular loading, e.g. narrowing edges or pattern motifs
- for individual stitch cams
- for different yarns (yarn count correction)

During knitting, changes can also be made via the touch screen.

2.5 Control devices

2.5.1 Impulse giver

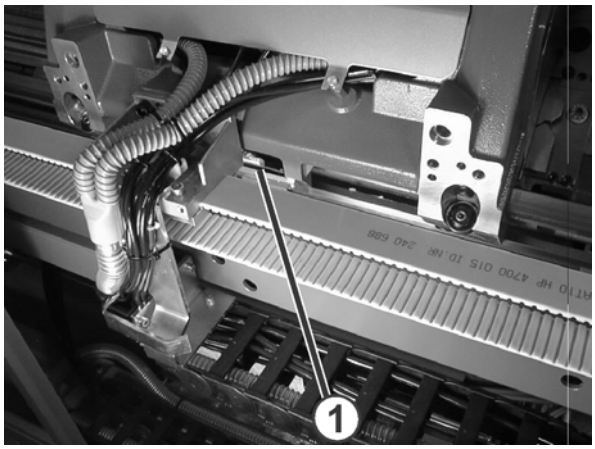


Fig. 2-22 Impulse giver

The impulse giver (1) scans the grooves and trick walls on the impulse giver rail on the guide rail for the carriage. It recognizes the position of the carriage assembly and specifies the time for the selection of the selection jacks by the selection system.

2.5.2 Stop resistance

If the power consumption of the drive motor differs from a stored value, the knitting machine is stopped. The reason for a higher power consumption may, for example, be a sticky needle.

2.5.3 Shock stop

In the case of a shock on the needle bed, e.g. in the case of needle breakage, the piezo-electric shock stop switches off the knitting machine. The piezo-electric shock stop is located below the needle beds.

2.5.4 Needle detector

The needle detector (1) checks the height of the fabric in the needle area.

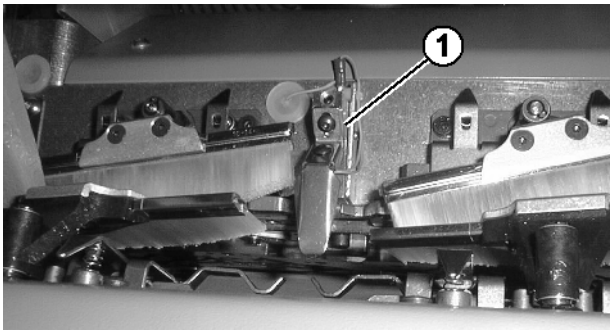


Fig. 2-23 Needle detector

If needles are defective (e.g. latch breakage), there is a danger of the fabric not being taken down downward and gathering in the needle area. To prevent major damage, the machine is stopped.

2.6 Needle beds

2.6.1 Design

The front needle bed is permanently screwed to the needle bed carrier. The rear needle bed can laterally be racked relative to the front needle bed.

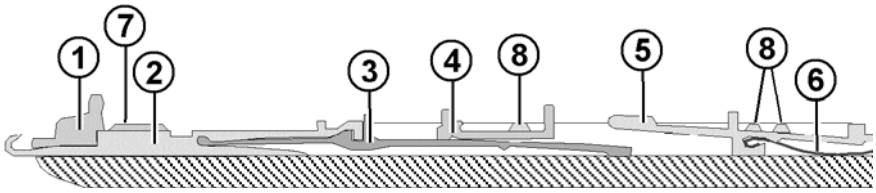


Fig. 2-24 Needle bed

1	Holding-down jack	5	Selection jack
2	Needle	6	Needle
3	Coupling part	7	Coupling part
4	Intermediate slider	8	Cover rail

The moveable parts (2) till (6) are fixed by multiple rails in the needle bed. To replace a part, the corresponding rail must be pulled to the side with the extraction hook. This takes place with the help of the extraction hook. It is included in the accessories.

2.6.2 Racking device

The front needle bed is permanently screwed to the needle bed carrier. The rear needle bed can laterally be racked relative to the front needle bed.

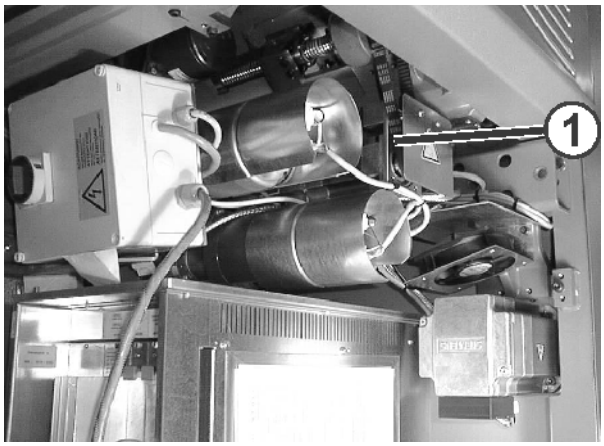


Fig. 2-25 Racking motor

The racking motor (1) is located on the right-hand side below the needle bed carrier. It laterally racks the rear needle bed. It is controlled by the knitting program. The racking movement is infinitely programmable.

Racking course

The racking course may be up to 4 inches (approx. 10 cm). Depending on the machine gauge, this is a maximum racking course over 12 to 72 needles.

Machine gauge	Maximum racking course
E 18 (E 9.2)	72 needles
E 16 (E 8.2)	64 needles
E 14 (E 7.2)	56 needles
E 12 (E 6.2)	48 needles
E 10 (E 5.2)	40 needles
E 8	32 needles
E 7 (E 3.5.2)	28 needles
E 5 (E 2,5.2)	20 needles
E 4	16 needles
E 3.5	14 needles
E 3	12 needles

Tab. 2-10 Maximum racking course in dependence on the machine gauge

Transfer	During transfer the rear needle bed is racked until the needles of the front and rear needle beds almost touch. The needle dips into the pelerine spring of the needle opposite.
Overracking	The overracking mechanism pre-stretches the stitches prior to transfer so, that they are somewhat enlarged. Then the needle bed is reset to the programmed racking. As a result, the stitches are also transferred very reliably even at a high carriage speed.
Compensation of different stitch length forces	A measuring device controls the exact position of the needle bed. If the tensile force of the stitches decreases during transfer, as several stitches have already been transferred, the racking motor adjusts automatically so that all stitches have the same transfer conditions.
Slow racking	To protect the yarn, the needle bed can be racked very slowly. The carriage assembly then waits at the reversing point until the needle bed is racked.

2.7 Fabric take-down

The fabric take-down consists of three units:

- Main take-down
- Auxiliary take-down
- Take-down comb

Each unit is driven by a separate motor. The motor can individually be adapted to the knitting situation.

2.7.1 Main take-down

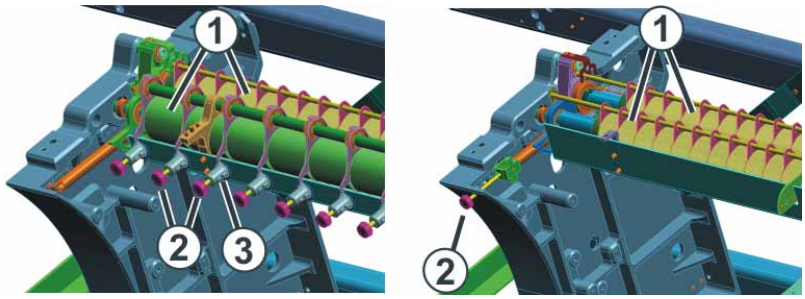


Fig. 2-26 Main take-down (right picture: CMS 420 E)

1 Take-down rollers
2 Knurled screws
3 Scale

A motor drives the take-down rollers (1). The take-down rollers guide the finished fabric into the fabric collection chamber. There the fabric is protected from soiling.

Take-down tension

The take-down tension consists of:

- Pretensioning when the carriage assembly is at the reversing point
- Take-down tension during knitting

Both tensions are independently set of each other. The optimum value for the take-down tension is dependent on the working width, yarn material and pattern.

The pressure of the take-down rollers (1) is individually adjusted with the knurled screws (2). The regulation acts on two take-down rollers. A scale (3) simplifies the adjustment of the take-down roller.

On CMS 420 E, the pressure of the take-down rollers (1) is adjusted individually with the knurled screws (2) (not for CMS 420 E, type 579). The knurled screws are placed on the left and right machine foot. If you change the adjustment you must take care that both the knurled screws are adjusted by the same value.

Premature wear of the take-down roller

The roller rubber of the take-down roller (1) is prematurely worn by:

- Fabric take-down values too high (roller spins)
- Contact pressure too high
- Yarns harmful to rubber, e.g. abrasive, sanding yarns or yarn finishes such as greases or oils
- UV radiation
- Cleaning agents harmful to rubber, e. g. ether or fuels.
  Recommendation: Use cleaning petrol

2.7.2 Auxiliary take-down *

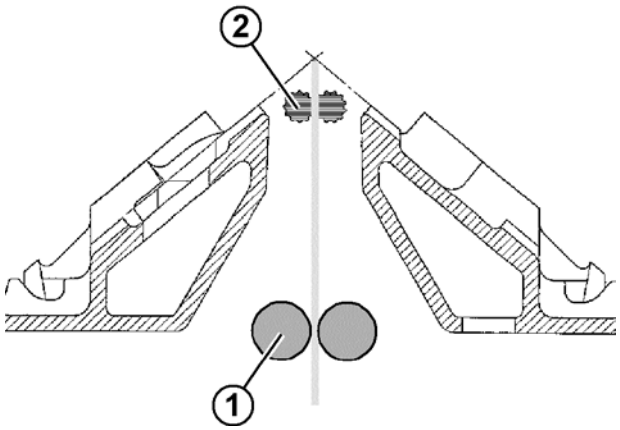


Fig. 2-27 Auxiliary take-down

1 Main take-down
2 Auxiliary take-down

The auxiliary take-down grasps the fabric directly under the needle bed.

The auxiliary take down supports:

- Stitch formation
- Adjustment of the fabric take-down to requirements typical of the fabric
- Narrowing or widening

If the fabric is only taken down with the main take-down, the rollers of the auxiliary take-down are pivoted apart.

The take-down force and the take-down speed are programmable.

Further information:

- Symbols in this document *(see page 1-3)*

2.7.3 Take-down comb *

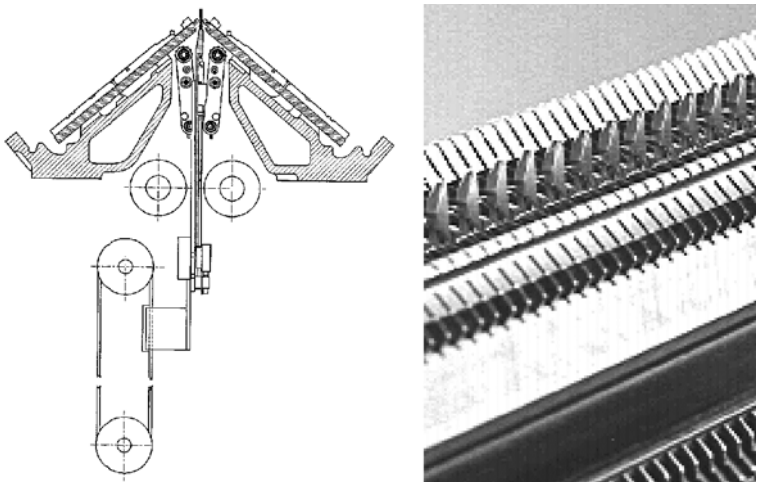


Fig. 2-28 Take-down comb

With the take-down comb fabric pieces are automatically started and press off after completion.

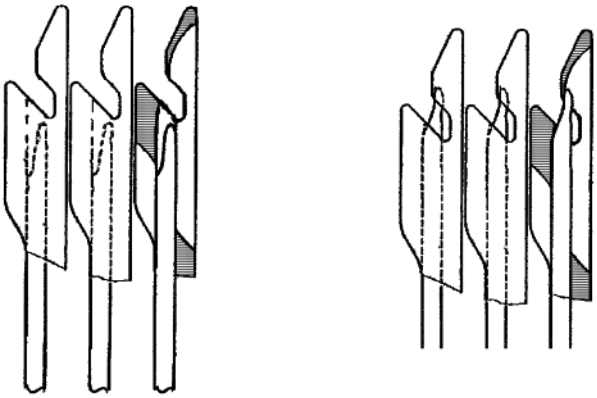


Fig. 2-29 Comb hooks of take-down comb with sliders (left open, right closed)

When starting a new knitted panel, a net course is knitted with the elastic thread (comb thread). The main and auxiliary take-down open and the take-down comb moves upward. The sliders open the holding-down recesses on the comb hooks.

The comb thread is automatically laid in the holding-down recesses and the sliders close the holding-down recesses again.

After two stitch rows, the draw thread is inserted and the knitting machine begins with the fully fashioned article. The take-down comb adopts the settings of the main take-down and pulls the fabric off downward.

As soon as the comb hooks are below the main take-down, the take-down rollers close and the fabric is transferred to the fabric take-down. The sliders open the holding-down recesses on the comb hooks. The take-down comb releases the fabric and moves into the basic position.

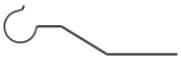
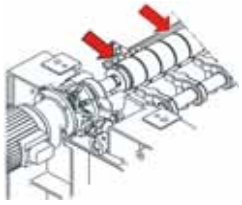
Further information:

- Symbols in this document *(see page 1-3)*

The sliders can open the comb hooks at any point. Therefore, short shape parts, e. g. collars or trimmings, can only be taken down by the take-down comb. They are knitted without the main or auxiliary take-down.

2.7.4 Control devices

The following parameters are controlled on the fabric take-down:

Parameter	Control
Speed of the take-down roller	The rotating speed of the take-down rollers is constantly measured. If the deviation from the upper or lower limit is too large, the knitting machine stops. The limit values are infinitely programmable.
Wrapping around loose threads (1) 	Four thread deflectors (accessory) prevent loose threads from wrapping around the fabric take-down rollers.
Wrapping around of fabric (1) 	A winding plate prevents the fabric from wrapping around the fabric take-down rollers. If the fabric nevertheless wraps around, the knitting machine stops.
Throwing off of fabric (1) 	Four fabric sensors (accessory) scan the fabric between the needle bed and the fabric take-down. They can be moved as desired over the entire working width. If the fabric is ejected, the knitting machine stops.

Tab. 2-11 Control devices on the fabric take-down
(1) not in the case of machines with take-down comb

Further information:

- Adjusting sensor mechanism *(see page 4-50)*

2.8 Display and operating elements

2.8.1 Main switch

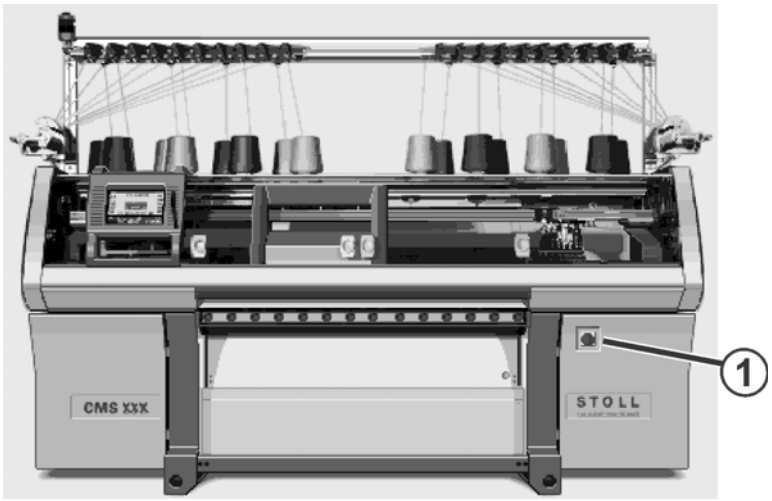


Fig. 2-30 Main switch

The main switch (1) is located on the front of the machine above the right control cabinet.

In position "1 - On" the main switch is switched on, in position "0 - Off" it is switched off.

Switch-off process

When the main switch is turned from "1" to "0", the machine is immediately switched off. Dangerous movements are immediately stopped. However, the machine data are not lost, as they are saved with a battery. This takes approx. 60 seconds. In the process, messages appear on the touch screen. Once the process has been completed, the touch screen becomes dark and a signal sounds.

Even with the main switch switched off, the customer building mains supply still carries current with extremely high voltage. The building mains supply must be disconnected before working on the main switch unit.

Emergency Stop

The main switch is also the emergency stop switch.

The main switch can be locked during maintenance and service work. This prevents the main switch from being switched on accidentally.

2.8.2 Engaging rod

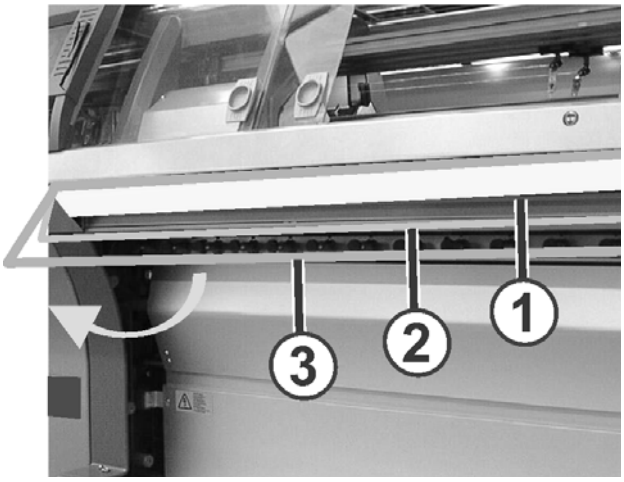


Fig. 2-31 Engaging rod

1 Carriage assembly stopped
2 Reduced speed
3 Normal speed

The carriage assembly, and therefore also knitting, is started and stopped with the engaging rod. The engaging rod can be moved into three positions.

Please observe in position 3:

1. When the cover hoods are closed, the engaging rod is held by a magnet (production at normal speed).

DANGER

Danger by parts of needles which have broken off!
Danger of injury to eyes by parts of needles.

➜ Wear safety glasses.

2. When the safety covers are open (e.g. during set-up and checking activities) the engaging rod is not held by a magnet and must be held by hand in Position 3 . If the engaging rod is released, it immediately falls into position 1 and stops the machine (dead man's switch in accordance with EN 11 111). The maximum carriage speed with open safety covers can be set.

Further information:

- Setting machine parameters *(see page 4-53)*

2.8.3 Signal lamp

Fig. 2-32 Signal lamp

The signal lamp (1) indicates the operating status of the knitting machine.

Model: single flame-signal lamp (green)

Color	Status of the knitting machine
green	Knitting machine is producing
green (flashes, slowly)	Knitting machine is stopped with engaging rod
green (flashes, fast)	Knitting machine is not producing, as an error has occurred during knitting
off	Main switch is off

Model: two-flame-signal lamp (green, yellow)

Color	Status of the knitting machine
green	Knitting machine is producing
green (flashes)	Knitting machine is stopped with engaging rod
yellow	Knitting machine is not producing, as an error has occurred during knitting
green, yellow	Both lamps light up during the shutdown process. Duration is approximately 60 seconds - from switching off main switch until machine is completely shut down.
off	Main switch is off

Tab. 2-12 Signal lamp colors

2.8.4 Input unit

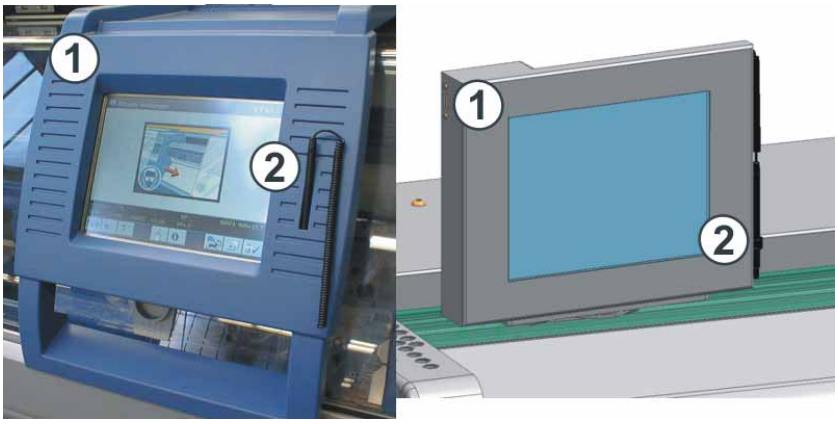


Fig. 2-33 Input unit (right: CMS 420 E)

The input unit (1) enables communication with the machine control:

- Display of operating data
- Calling up help information
- Changing machine settings and pattern data
- Entry of commands

The input unit can be moved over the entire width of the needle bed. On the CMS 420 E (Type 575, Type 577), the input unit is assembled tightly, on the CMS 420 E (type 579) it is pivotable.

To carry out a function, tap one of the symbols (keys) on the touch screen. We recommend using the touch pen (2) to prevent the touch screen from becoming dirty or damaged.

2.8.5 User interface

Design of the user interface

Fig. 2-34 Design of the user interface

Do not touch the touch screen with sharp objects and do not subject it to direct sunlight, which will destroy the picture tubes.

The user interface displays information on the current operating situation. It is always divided into three areas:

- Upper area (1)
  - Menu
  - Input and output of information
- Middle area (2)
  - Status display
  - Additional input elements
  - Selection elements
- Lower area (3)
  - Function keys

Functions of user interface

The following is possible on the touch screen:

- Calling up pages, menus and input masks
- Calling up help information
- Displaying the operating data of the knitting machine
- Accessing the functions of the knitting machine
- Inputting values for controlling the knitting machine
- Editing the knitting program

These functions are called up with the following keys and elements:

- Function keys
- Input elements

Function keys

In the following sections two groups of functions keys are shown:

- Standard function keys; these are displayed in standard configuration
- Additional function keys; these can be called up with a switchover key

Function keys in the main menu

Fig. 2-35 Function keys in the "Main menu"

Key	Function	Key	Function
	Read in/store data		Edit the knitting program
	Carriage speed		Racking correction
	Setting up a pattern		Machine start
	Machine stop		Changeable monitoring
	Cycle counters & counters		Manual interventions
	Take-down comb		Fabric take-down
	SEN areas		Stitch tension
	Yarn carrier		Release clamps
	Service		Machine settings
	Order menu		Sequence knitting (see programming manual)
	STIXX (special equipment with its own instructions)		

Tab. 2-13 Function keys in the "Main menu"

Standard function keys

Key	Function
	Switch back to "Main menu"
	Switch back to previous page
	Switch to next page
	Call help
	Switch back to previous help page
	List of last messages and information
	Confirm input
	Call command line and output window for direct commands
	Order menu: Reset counter of already knitted panels to "0"
	Switch over to 100 % of programmed carriage speed
	Switch over to 75 % of programmed carriage speed
	Switch over to status line
	Switch over to selection/input elements
	Confirm message
	Switch over to "additional function keys"

Tab. 2-14 Standard function keys

Additional function keys

The additional function keys can be called up from any window with the "Additional function keys" key.

These additional function keys are described in the accompanying chapters.

The following additional function keys are displayed in all windows.

Key	Function
	Call up input window for a direct sintral command. This is carried out within a menu or window, i.e. you do not need to leave the menu or call up the "Direct command" window.
	Edit the knitting program
	Switch over to standard function keys

Tab. 2-15 Additional function keys in all windows

Input elements

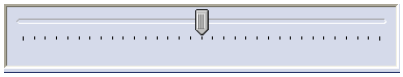
In the following sections three groups of input elements are shown:

- Standard input elements; these are displayed when an input field is activated by briefly touching in
- Selection elements; these are displayed when a selection field is activated by briefly touching it
- Virtual keyboard; this can be displayed for inputs

Standard input elements

Element	Function
	Reduce value by one step
	Increase value by one step
	Undo a change, the last value saved is displayed again.
	Undo a change, the previous value is displayed again.
	Confirm input, save changes, end setting process
	Delete character to left of cursor
	Position the cursor at the start of the line
	Position the cursor at the end of the line

Tab. 2-16 Standard input elements

Element	Function
	Only one switch can be active at a time
	Position switch (on/off)
	Check box (on/off)
	Arrow switch (left/right) or (up/down)
	Linear regulator
	Reduce current value by one step
	Increase current value by one step

Tab. 2-17 Switches and linear regulators

Selection elements

Element	Function
	Fold open selection field
	Fold closed selection field
	Move cursor: up one line
	Move cursor: down one line
	Move cursor: one character to left
	Move cursor: one character to right
	Move cursor: to first input of selection field
	Move cursor: to last input of selection field

Tab. 2-18 Selection elements

Virtual keyboard

To input letters and numbers, the virtual keyboard can be displayed. Either a number block appears for inputting numbers or an alphanumeric keyboard appears for entering letters and numbers.

The virtual keyboard contains three switchover keys:

- SHIFT key
- CPS LCK key
- CTRL key

To use a switchover key, e.g. to enter a special character, first press the switchover key and then the key with the special character. To return to normal characters, press the switchover key again.

Key	Function
	Switch on virtual keyboard
	Switch off virtual keyboard
	SHIFT key: switch over between uppercase and lowercase letters and between numbers and special characters
	CPS LCK key: switch over between uppercase and lowercase letters; the setting of numbers or special characters is maintained
	CTRL key: switch over to function keys F1 to F10 and keyboard codes (short cuts)

Tab. 2-19 Switchover keys

3 Producing with the knitting machine

This chapter contains information on:

3.1 Preparing production and shift changes

This chapter contains information on:

3.1.1 Reading in files, libraries and pattern folders

Files (Sintral, jacquard, setup), libraries (Auto -SINTRAL) and pattern folders can be read in from the following sources (data carriers):

- Removable data carrier (on the USB socket)
  for example: USB-Memory-Stick, floppy disk drive, CD drive, DVD drive, external hard drive
- Hard disk of the computer in the knitting machine
- Online
- Network drive

WARNING

Computer viruses!
Loss of data or production. Computer viruses can creep into the machine through unscanned data via USB port or network.

➜ Bring in only virus free data on to the knitting machine.

The socket for the USB-Memory-Stick is located on the left-hand side of the machine above the cover hood. On the CMS 420 E, the socket is located on the left-hand side of the display.

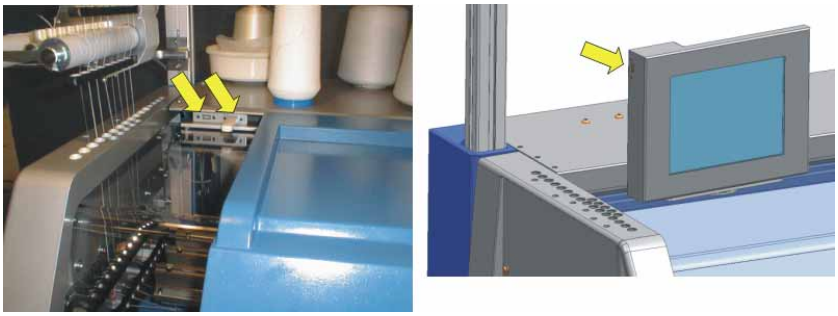
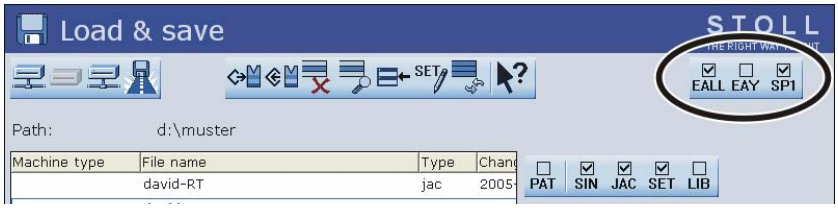


Fig. 3-1 USB sockets (right: CMS 420 E, type 579)

Key	Function
	Call up the "Load & save" window
	"Load" selected file and accompanying pattern elements
	Call up the "main menu"

Tab. 3-1 Keys for reading in one knitting program

Always set these settings before reading in:



Key	Function
EALL	Delete previous pattern
EAY	Delete all yarn carrier positions
SP1	After the pattern is loaded, the function is automatically executed "Start Program from Line 1". This means that you must not take the "detour" over the window "Machine start" in order to start the knitting program with the key "SP from Line 1".

The "Activate EALL" function is only executed when a Sintral file is loaded. Not only the entire previous pattern (Sin, Jac, Set) is deleted from memory, but also the contents of cycle counters, counters and NP values are reset to their basic position.

Keys		Function
☑ EALL	☐ EALL	Activate or deactivate "EALL selection"
☑ EAY	☐ EAY	Activate or deactivate "EAY selection"
☑ SP1	☐ SP1	"SP1"to be switched on and off

Tab. 3-2 Keys for the selection "EALL", "EAY" and "SP1"

Read in knitting program:

1. Call up the "Load & save" window from the "Main menu".

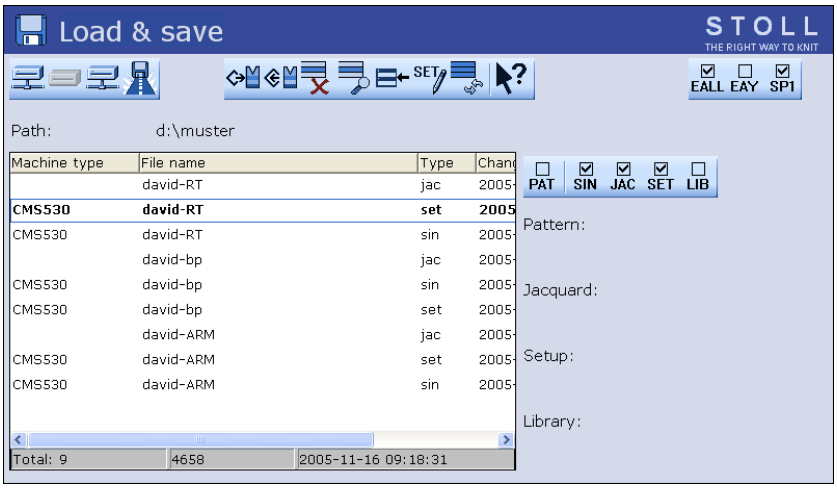


Fig. 3-2 "Load & save" window

2. Set the desired path with one of the "Direct pattern folder selection" keys.
3. Use the PAT/SIN/JAC/SET/LIB keys to select whether the entire pattern of the current machine (PAT) or individual file types are to be listed.
4. Select a file from the file list by tapping it.
5. Tap the "Load" key.
6. For the following prompt, tap "1" to confirm

   - or -

➜ Tap the key "0" to cancel.

7. Call up "Main menu".

If the SINTRAL editor window is open:

The knitting program loaded contains an error.

➜ Eliminate the error

"Invalid character" error message

Check the knitting program for special or foreign language characters. Only the characters of the ASCII character set may be used.

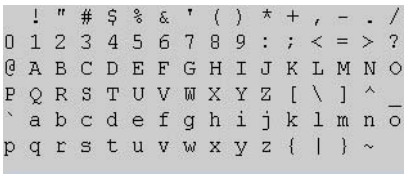


Fig. 3-3 ASCII character set

Further information:

- KNITLAN connection *(see page 4-121)*
- Select the current folder *(see page 4-105)*
- Working with files, libraries and pattern folders *(see page 4-94)*
- Go to help in function and error list *(see page 4-116)*

3.1.2 Entering piece number or number of revolutions

Key	Function
	Call up "Cycle counters & counters" window
	Call up the "main menu"

Tab. 3-3 Keys for entering the piece number or number of revolutions

Enter piece number or number of revolutions:

1. Call up the "Cycle counters & counters " window from the "Main menu".

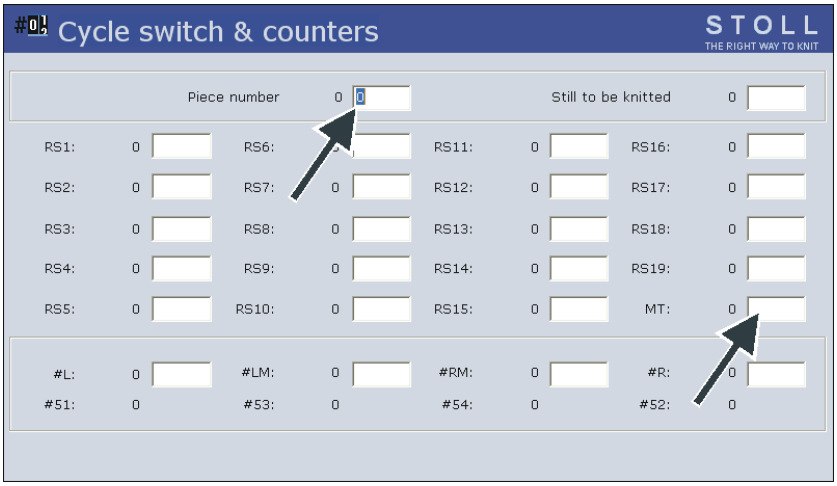


Fig. 3-4 "Cycle counters & counters" window

2. If you produce pieces, enter the "piece number".

   - or -

➜ If you produce yard goods, set the maximum number of revolutions with the "MT" counter to define the length of the fabric.

3. Call up "Main menu".

3.1.3 Configure automatic machine switching off

When the machine switches off, the main switch moves from "1" to "0".

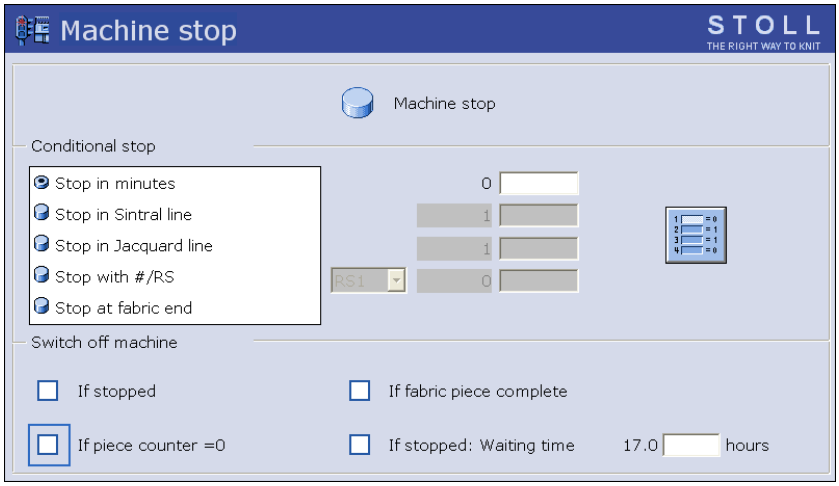


Fig. 3-5 "Machine stop" window

Switch in field "Switch off machine"	Machine switches off automatically
"If stopped"	Each time machine stops
"When piece counter = 0"	After completing the set number of pieces
"If fabric piece is complete"	after completing the current fabric
"If stopped: Waiting time"	If the machine has stopped, after completion of the adjusted time (in hours) the main switch gets switched off automatically.

Tab. 3-4 Configuration of the automatic switching off in the "Machine stop" window

Key	Function
	Call up "Machine stop" window
	Call up the "Main menu"

Tab. 3-5 Keys for configuring the automatic machine switching off

Configure automatic machine switching off:

1. Call up the "Machine stop" from the window "Main menu".
2. Set the switches to "0" or "1" in the "Switch off machine" field.
3. Call up "Main menu".

While switching off the main switch, the fabric remains tensioned in the fabric take-down. This can lead to a visible stretching on a delicate fabric. To prevent this, the fabric take-down can be released.

Further information:

- Setting machine parameters *(see page 4-53)*

3.1.4 Setting touch screen

Calibrating touch screen

The calibration is particularly important when persons of different heights work at the same machine. In the case of different viewing angles, the position of the keys may change. So that you always press the proper keys, calibrate the touch screen at the beginning of your shift.

Key	Function
	Call up the "Service" menu
	Call up the "Set touch screen" window.
	"Calibrate" key
	Call up the "main menu"

Tab. 3-6 Keys for calibrating the touch screen

Calibrating the touch screen:

CAUTION

Incorrect adjustment of the touch screen!
Permanent incorrect adjustment: If you adjust the touch screen incorrectly, the keys at the edge of the screen will no longer be accessible. The program can only be readjusted with a keyboard (STOLL helpline).

➜ During calibration, touch the touch screen within the target circles only!

1. Call up the "Service" menu from the "Main menu".
2. Call up the "Set the touch screen" window from the "Service" menu.

The "Set touch screen" window appears.

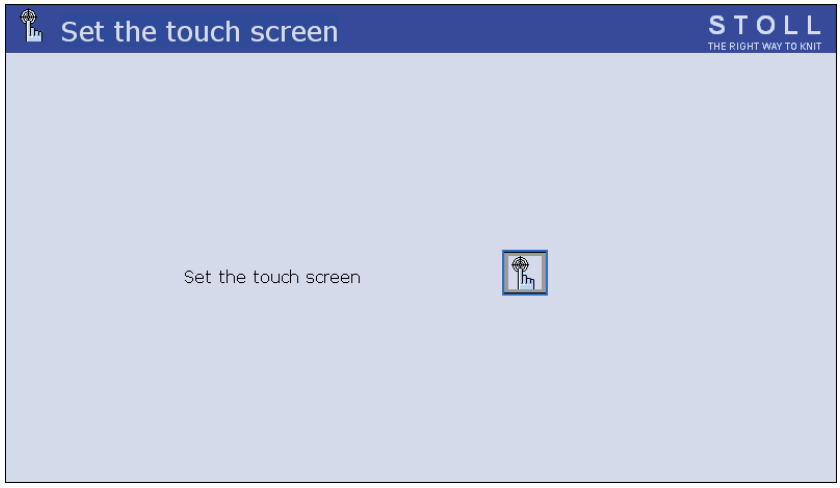


Fig. 3-6 The "Set touch screen" window appears.

3. Tap the "Calibrate" key.
   The setting window appears. A target circle is located on the upper, left-hand side.

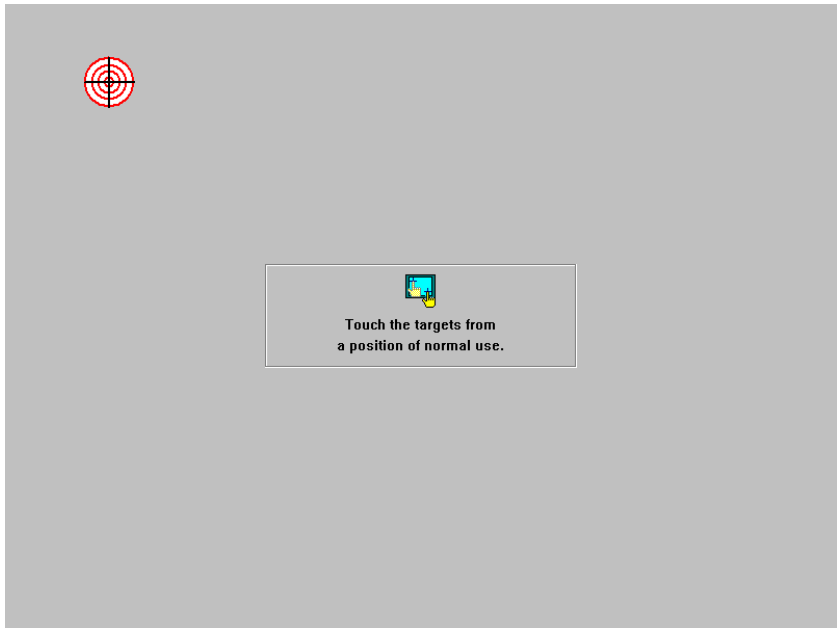


Fig. 3-7 Setting window with target circle

4. Tap exactly on the target circle.
   A second target circle appears on the lower right-hand side.
5. Tap exactly on the target circle.
   A third target circle appears on the upper, right-hand side.
6. Tap exactly on the target circle.
   A message box appears. The request in the message box is not important, as there is no mouse cursor here.
7. Press on the "Yes" key.
8. Call up "Main menu".

Set screen brightness

Two key buttons for brightness setting are located on the rear of the input unit.

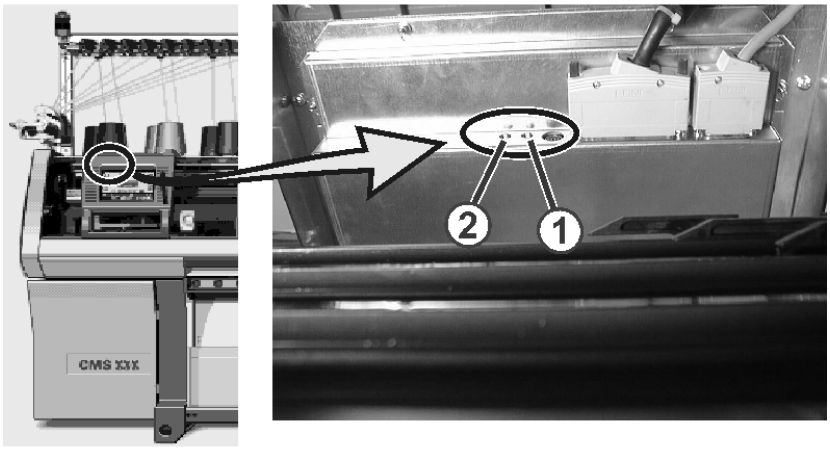


Fig. 3-8 Adjusting screen brightness

The screen display is set brighter with button (1) and darker with button (2).

3.2 Threading up yarn

Various thread lines are provided for threading up the yarn on the knitting machine. The optimal thread line depends on the yarn and pattern.

Further information:

- Thread lines *(see page 2-10)*

3.2.1 Calling up yarn carrier assignment

Key	Function
	Call up "Machine start & stop" window
	Call up the "Main menu"
	Call up the "Yarn carrier" window
	Call up "Additional function keys"
	Call up "Allocation yarn carrier" window

Tab. 3-7 Keys for calling up the assignment of the yarn carriers

Call up the assignment and allocation of the yarn carriers:

1. Call up the "Machine start & stop" window from the "Main menu".

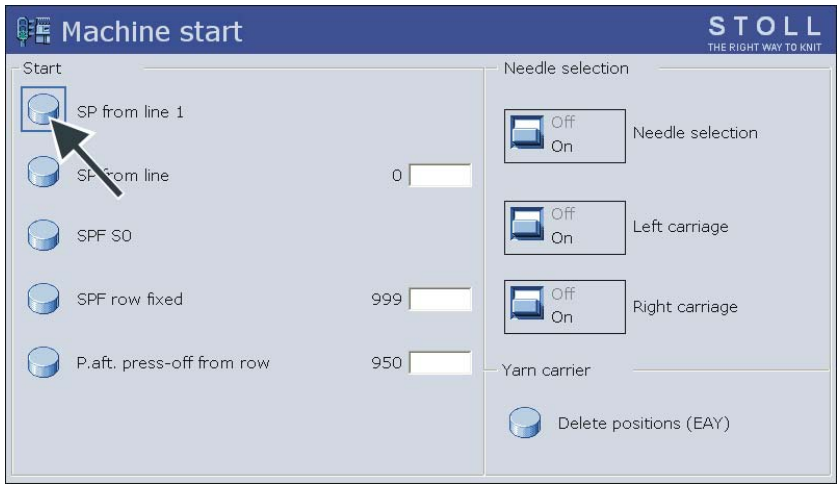


Fig. 3-9 Window "Machine start & stop"

2. Type key "SP from Line 1" .
   The computer searches in the knitting program to see which yarn carriers are required.
3. Call up "Main menu".

4. Call up the "Yarn carrier" window.

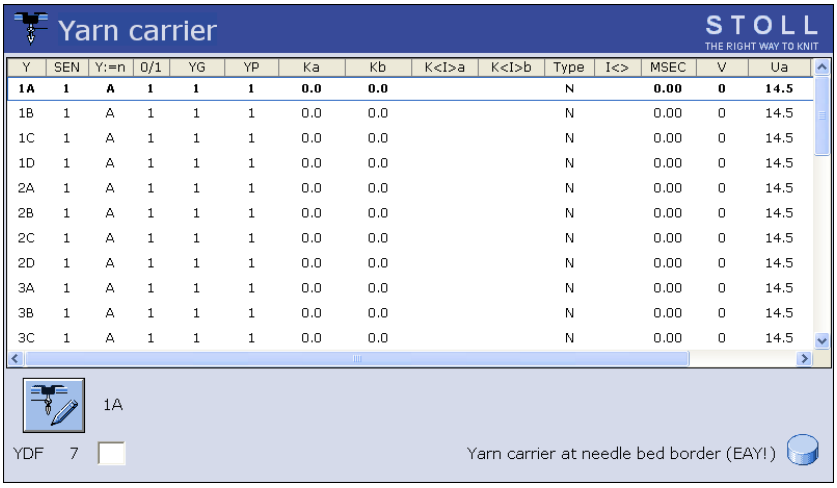


Fig. 3-10 Assignment yarn carrier in "Yarn carrier" window

5. On tandem machines also call up the allocation of the yarn carriers to both carriage assemblies.
6. Call up "Additional function keys".
7. Call up the "Allocation yarn carrier" window.

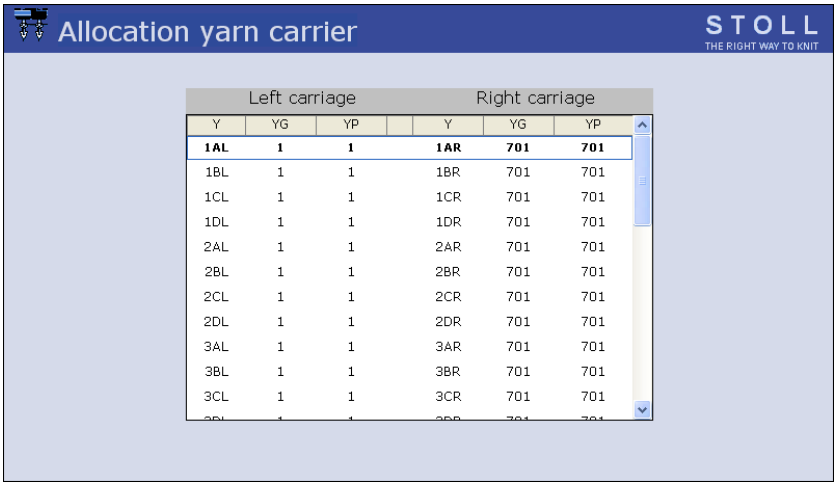


Fig. 3-11 "Allocation yarn carrier" window

8. Call up "Main menu".

3.2.2 Putting up bobbins

When the threads of several bobbins are led to one yarn carrier, supply approximately the same number of threads to the yarn carrier from each side.

➜ Put up the bobbins on the knitting machine or on the additional bobbin board.

3.2.3 Threading threads through yarn guide bracket

1. Push the yarn guide brackets to the side so that a yarn guide bracket hangs over each bobbin.
2. Thread each thread through a yarn guide bracket.

3.2.4 Threading threads through yarn control device

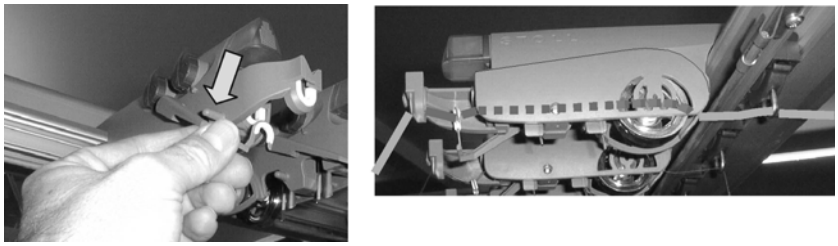


Fig. 3-12 Path of the thread through the yarn control device

1. Bring thread break control in work position.
   Pull thread break control a little towards left till it is not held by the stopping cam anymore.
2. Thread each thread through a yarn control device as shown in the picture.

3.2.5 Threading threads through STIXX device *

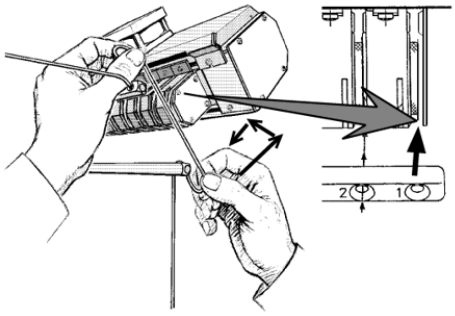


Fig. 3-13 Path of the thread through the STIXX device

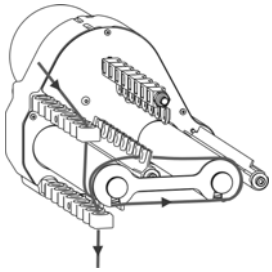
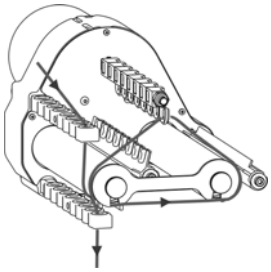
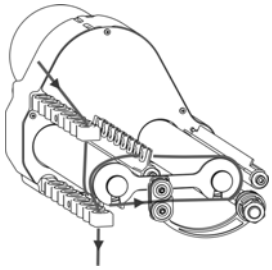
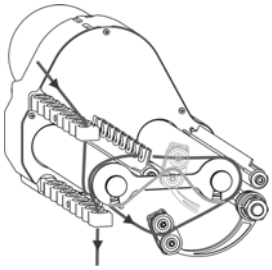
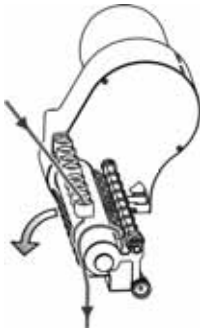
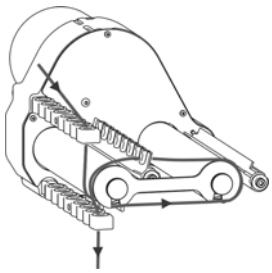
➜ Push thread upward with both hands through the threading gap and lay it around the measuring wheel.

Further information:

- Symbols in this document *(see page 1-3)*

3.2.6 Threading threads into friction feed wheel

Depending on machine model and component type, there are different models of friction feed wheels.

	Run of yarn	
1	 Standard setting	 Insufficient yarn delivery
2	 Standard setting	 Greater yarn delivery (grey) Insufficient yarn delivery (black)
3	 Standard setting	 Insufficient yarn delivery seldom used threads
4		

Further information:

- Adjusting yarn delivery on friction feed wheel * *(see page 4-14)*

3.2.7 Threading threads through safety cover

Make sure that you thread the thread vertically through the lateral safety hood

1. Bring the Lateral yarn tensioner in still position (anchoring) Thereby the active thread clamp is opened.
2. Thread the threads through one of the eyes (1) on the lateral safety hood.
   Use Eyelet number 3 to10 when the thread is coming from the friction feed wheel. So the clamp positions of the active thread clamp are positioned exactly under it.
   Use Eyelet number 1 and 2 or from eyelet no.11: for the thread if you working without the feed wheel

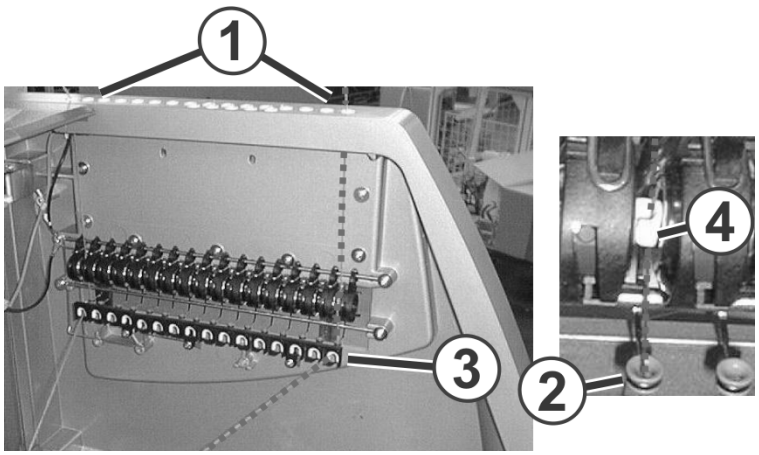


Fig. 3-14 Path of the thread through the lateral safety hood

3. Thread the thread vertically downwards in the eyelet (2) above the permanent brake. For quicker orientation a vertically running riffel is attached in the safety hood.
4. Thread the threads in the eyelet (3) of the lateral yarn tensioner.
5. Feed the threads through the thread deflector (4) to the yarn carrier.
6. Bring lateral yarn tensioner in work position.
7. Pull the thread between the brake setting of the permanent brake.

3.2.8 Threading threads into yarn carrier

➜ Thread the threads into the respective next eyelet on the yarn carrier.

If several yarn carriers of a track are used and the threads are fed to the yarn carriers from the same side:

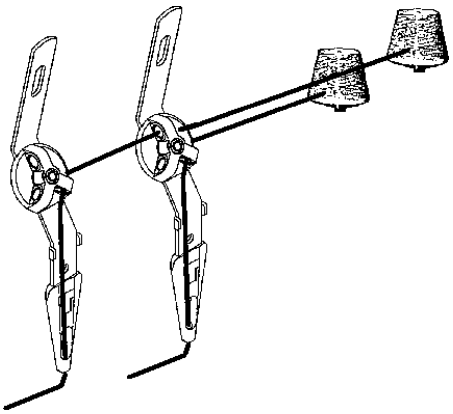


Fig. 3-15 Threading into several yarn carriers of one track

➜ Thread in the threads as shown in the picture above.

If multiple bobbins are used for a yarn carrier:

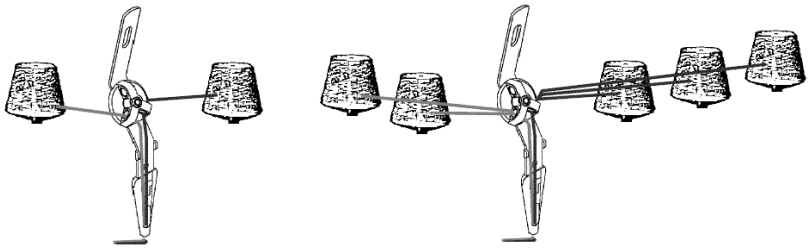


Fig. 3-16 Threading-in for multiple bobbins

➜ Threading in of threads from left and right Make sure that almost the same number of threads are used from left and right.

3.3 Production

This chapter contains information on:

- Starting machine *(see page 3-17)*
- Calling up report and shift counters *(see page 3-18)*
- Stopping machine *(see page 3-22)*
- Monitoring the running time *(see page 3-23)*
- Measuring the running time *(see page 3-29)*

3.3.1 Starting machine

Key	Function
	Call up "Machine start" window
	Call up "Additional function keys"
	Call up the "Changeable monitoring" menu

Tab. 3-8 Keys for starting the machine

1. Call up the "Machine start" window from the "Main menu".

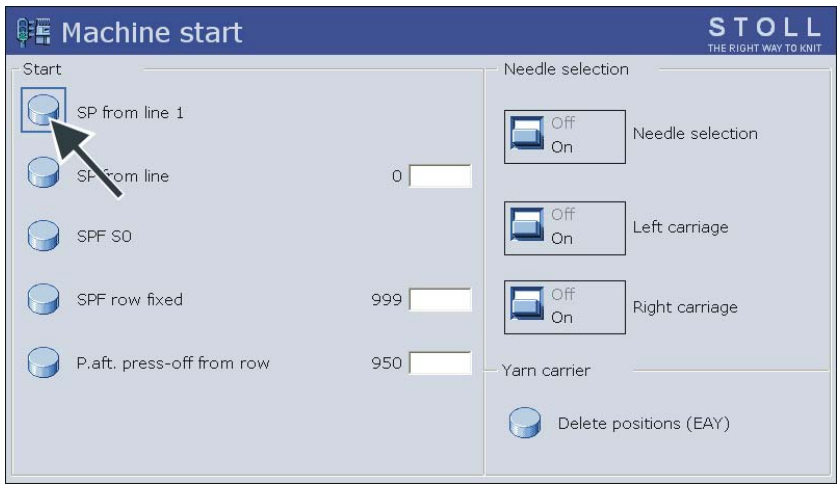


Fig. 3-17 Window "Machine start"

2. In the space "Start" type on the key "SP from Line 1".
3. Call up "Additional function keys".
4. Call up the "Changeable Monitoring" window.
   Machine data and the program sequence are displayed in the "Changeable Monitoring" window during production.

5. Start the machine with the engaging rod.

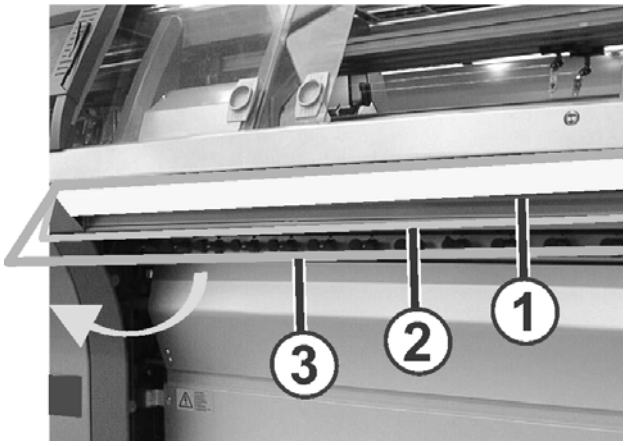


Fig. 3-18 Engaging rod

1 Carriage assembly stopped
2 Reduced speed
3 Normal speed

Further information:

- Configuring monitoring *(see page 4-31)*

3.3.2 Calling up report and shift counters

The control collects all operating data recorded since the operating system was first read in and since the current knitting program was started. These data help you optimize the performance and loading of the knitting machine.

Report

The individual types of operating data (1) are listed on the left side. The left table (2) shows the consecutive listing of all data which have resulted after reading in the operating system. The data of this table cannot be deleted. The data of the right table (3) can be deleted with the "Report0" key.

The production data can be listed during a certain period of time. This may consist of part of a shift, day or week.

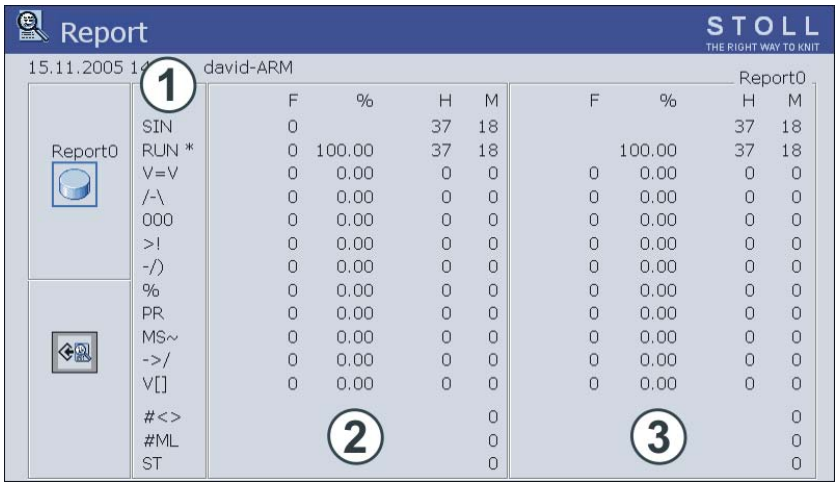


Fig. 3-19 "Report" window

Designation	Data shown
"F"	No. of errors or No. of stop motions
"%", "H", "M"	Percent, hours, minutes
"SIN"	Operating time of control (SINTRAL)
"RUN"	Time of production
"V=V"	Stop switching off at engaging rod
"/-\"	Stop yarn control device, yarn feed
"000"	Stop piece counter
">!"	Stop stop resistance
"-/)"	Stop position needle sensor
"%"	Stop fabric take-down
"PR"	Stop programming
"MS~"	Machine stop or brief power failure
"->/"	Stop shock stop
"V[ ]"	Racking error
"#<>"	Total number of strokes
"#ML"	Number of strokes at reduced speed
"ST"	Number of produced fabric pieces

Tab. 3-9 Data in the "Report" window Key

Key	Function
	Call up the "Service" menu
	Call up "Statistics" menu
	Call up "Report" window
	Save report
	Call up the "main menu"

Tab. 3-10 Keys for calling up the report

Call up report or save to USB-Memory-Stick:

1. Call up the "Service" menu from the "Main menu".
2. Call up the "Statistics" menu.
3. Call up the "Report" window.
4. To delete the operating data in the report, tap the "Report0" key.

   - or -

➜ To save the operating data, tap the "Save Report" key.
The data is saved to the selected data carrier with the STOLL machine number (e. g. "5320081234.rep").

5. Call up "Main menu".

Further information:

- Copying service data *(see page 4-57)*

Shift counter

A total of five shift counters are available. A complete report is generated for each shift. The table has the same structure as the report. Column "F" shows the number of stop motions during the shift.

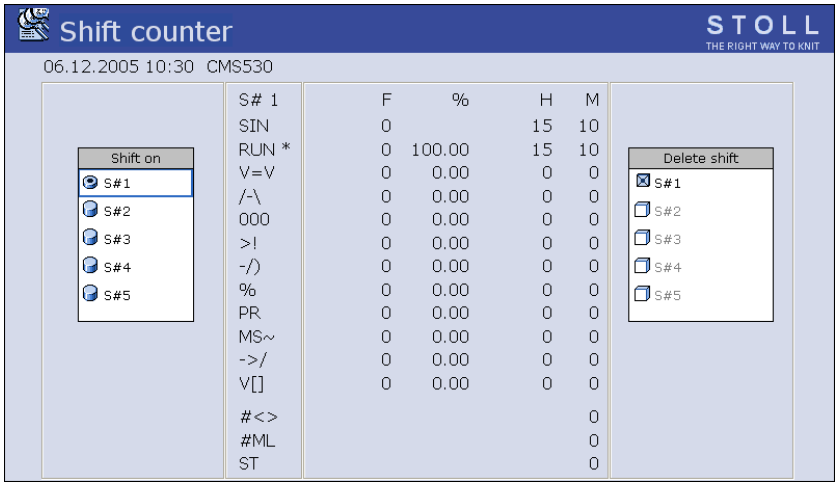


Fig. 3-20 "Shift counter" window

Key	Function
	Call up the "Service" menu
	Call up "Statistics" menu
	Call up "Shift counter" window
	Call up the "main menu"

Tab. 3-11 Keys for calling up the shift counter

Call up shift counter:

1. Call up the "Service" menu from the "Main menu".
2. Call up the "Statistics" menu.
3. Call up "Shift counter" window.
4. To activate a shift, tap the corresponding key in the "Shift On" field.
5. If data of an earlier shift are displayed, tap the corresponding key in the "Delete shift" field (reset shift counter).
6. Call up "Main menu".

3.3.3 Stopping machine

The knitting machine can be stopped in the following ways:

- Disengage the engaging rod
- Actuate the stop motion device, e.g. . open a cover
- Activate emergency stop
- Stop the machine in the "Machine stop" window

Key	Function
	Call up the "Main menu"
	Call up "Machine stop" window
	Resetting the conditions to standard values (Reset).
	End setting process and save changes

Tab. 3-12 Keys for stopping the knitting machine

Stop the knitting machine in the "Machine stop" window:

1. Call up the "Machine stop" from the window "Main menu".

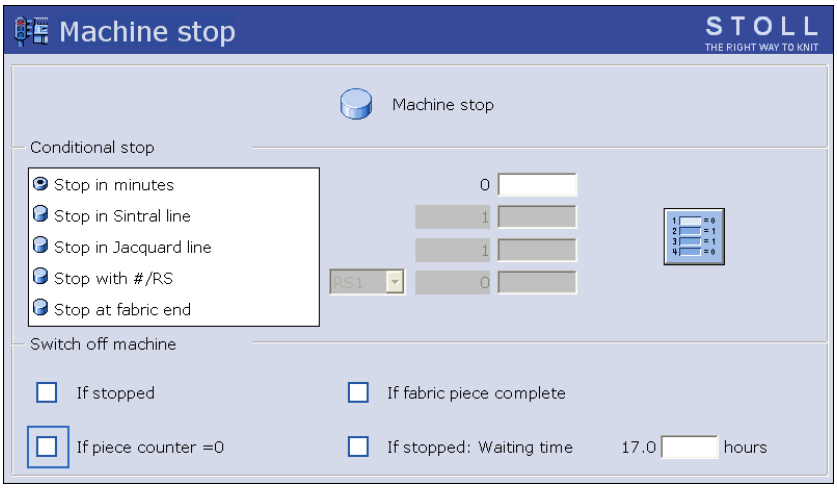


Fig. 3-21 "Machine stop" window

2. If the knitting machine is to stop at the next reversing point of the carriage assembly, tap the key "Machine stop".

3. If the knitting machine is to stop when a certain condition is fulfilled, select a condition in the field "Conditional stop".

Stop in minutes	Remaining running time in minutes
Stop in sintral line	When the set sintral line is reached
Stop in jacquard line	When the set jacquard line is reached
Stop with #/RS	When the counter or cycle counter has reached the set value
Stop at fabric end	When the fabric is knitted completely

4. Enter corresponding value for the condition. Confirm setting.

When a conditional stop is activated, a stop icon is displayed in the status line.

3.3.4 Monitoring the running time

In order to display the window "Running time control" it must be activated in the window "Knit report configuration". (BootOkc --> Restart and configuration --> Knit report configuration --> Additional function keys)

The running times of sequence lists, sequences or orders, their individual elements or individual patterns are recorded and displayed in the "Running time control" window.

This adds extensive knitting process data to the commands "MIN", "MINSEQ" and "MINSEQEL":

- Display of the running time of a pattern (sequence, sequence element, order).
  The current, last, minimum, maximum and average running times are displayed respectively.
- Display of the probable remaining running time of a pattern (sequence, sequence element, order).
- Display of the number of pieces that have been knitted and are still to be knitted.
- Display of the running time with or without loading and standing times.

Key	Function
	Call up the "Service" window
	Call up "Statistics" window
	Call up the "Running time control" window
	Call up the "Running time data sequence" window or the "Running time data pattern" window
	Call up "Storage of running time data" window.
	Returning to the previous window
	Call up the "Main menu" window

Fig. 3-22 Keys for the "Running time control" window

Open the "Running time control" window

1. Call up the "Service" window in the "Main menu".
2. Call up the "Running time control" window in the "Service" window.

The "Running time control" window can alternatively be called up by using the additional functions keys in the "Sequence menu" or "Sequence list" window.

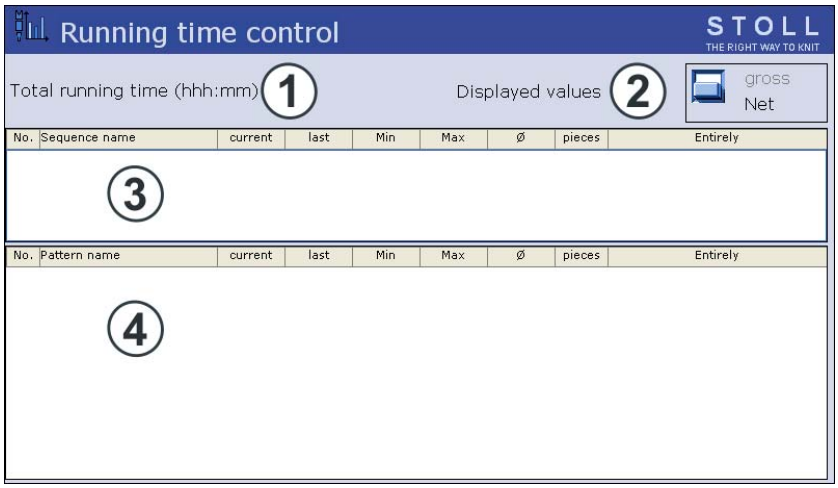


Fig. 3-23 "Running time control" window

Field/ Key	Meaning	
1	Total running time	Display of the estimated total running time of the sequence, sequence list or pattern.
2	Gross	Display of the total production time including loading and standing times as well as manual interventions.
	Net	Display of the pure machine running time from "SP" (Start Program) to "piece finished".
3/4	No.	Current number.
	Sequence/ sequence element name	Name of the sequence, of the order or the sequence element names or individual patterns.
	Current	Previous time of the current sequence of the order or of the sequence element or pattern.
	Last	Running time of the last knitted sequence of the order or of the sequence element or pattern.
	Min.	Minimum running time of the sequence of the order or of the sequence element or pattern.
	Max.	Maximum running time of the sequence of the order or of the sequence element or pattern.
	Ø	Average running time of the sequence of the order or of the sequence element or pattern.
	Pieces	Amount of sequences or orders or of the sequence elements or patterns already knitted.
	Total	Amount of the total sequences or orders or of the sequence elements or patterns.

Tab. 3-13 Meaning of the elements in the "Running time control" window.

Functional description for the "Storage of running time data" window:

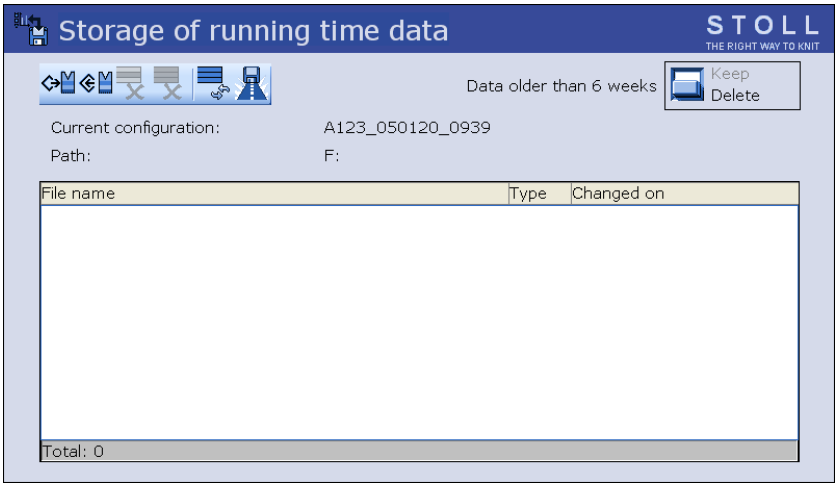


Fig. 3-24 "Storage of running time data" window

Key	Meaning
	"Load" selected file and accompanying data
	"Save" selected file in the current folder
	"Delete file" that was selected
	delete all files
	"Update" : Re-determine the contents of the current folder
	"Select current folder": Dialog box for selecting the current storage folder
Data older than 6 weeks	Delete (activated by default) The data are deleted automatically when they get older than 6 weeks. This saves storage space. Keep: The files are not deleted.

Tab. 3-14 Keys in the "Storage of running time data" window

1. Call up the "Service" window in the "Main menu".
2. Call up the "Running time control" window in the "Service" window.
3. Call up "Additional function keys".
4. Call up "Storage of running time data" window
5. Select the desired path with the key "Current folder selection"
6. Select file.
7. Select action (load, save, delete).
8. If an additional prompt appears, tap the key "1" to confirm.

   - or -

➜ Tap the key "0" to cancel.

Functional description for the "Running time data sequence" or "Running time data pattern" window:

Depending on the marking in the "Running time control" window either the "Running time data sequence" window is displayed for the selected sequence or the "Running time data pattern" window is displayed for a sequence element or individual pattern.
Gross running times are displayed in this window.

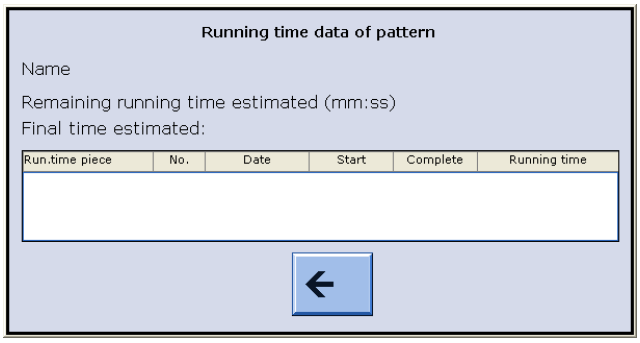


Fig. 3-25 "Running time data sequence" ("Running time data pattern") window

Entry	Meaning
Name	Name of the sequence, of the sequence element or pattern
Remaining running time	Estimated remaining running time in the format mmm:ss
End time	Estimated end time (date, time), only possible after a run-through
Running time piece	At sequence: Longest and shortest run-through time of the sequence At sequence element/pattern: Longest and shortest run-through time of the piece
No.	Number of the sequence, sequence element or of the piece
Date	Creation date
Start	Starting time
Finished	Completion moment
Running time	Running time in hhh.mm

Tab. 3-15 Keys in the "Running time data sequence" window or the "Running time data pattern" window

1. Call up the "Service" window in the "Main menu".
2. Call up the "Running time control" window in the "Service" window.
3. Select sequence, sequence element or pattern.
4. Call up "Additional function keys".
5. Call up the "Running time data sequence" window or the "Running time data pattern" window.
   The "Running time data sequence"or "Running time data pattern" window is displayed with the associated data.
6. Close the window by using the "Return to previous window" key.

Further information:

- Carrying out restart with machine configuration *(see page 7-37)*

3.3.5 Measuring the running time

In order to display the window "Running time control" it must be activated in the window "Knit report configuration". (BootOkc --> Restart and configuration --> Knit report configuration --> Additional function keys)

In the window "Measurements of running time "manual measurements of running time can be carried out (Stop watch function). The functions Start, Stop and backup are deleted with the additional function keys.

Fig. 3-26 "Measurement of running time" window

Key	Function
	Call up the "Service" window
	Call up "Statistics" window
	Call up "Measurement of running time" window
	Start measurement of running time (Start)
	Stop measurement of running time (Stop)
	Set display at "0" (Reset)
	Call up the "Main menu" window

Fig. 3-27 Keys for the "Measurement of running time" window

Stopping the running time:

- A pattern file has to be loaded (1).

1. If necessary set display with "Reset" at "0" .
2. Tap on "Start" .
   The time that has passed since "Start" was activated is shown in the "Running time" (2) field in the format hh:mm.ss.
3. Starting the knitting process
4. After the knitting process has been completed, touch "Stop".
   The stopped time is displayed in the "Running time" (2) field.

Further information:

- Carrying out restart with machine configuration *(see page 7-37)*

3.4 Producing with knitting oders (order menu)

This chapter contains information on:

- Creating and managing order menu *(see page 3-31)*
- Setting or changing counters for order menu *(see page 3-33)*
- Save/load order menu *(see page 3-34)*

3.4.1 Creating and managing order menu

With the order menu the different making-up sizes of an article (knitting program) are summarized in a list and worked through sequentially. The quantity and the cycle counters are specified for each making-up size.

A knitting order (line) is processed until the number of pieces in the "ST1" and "ST2" columns are the same. The machine automatically switches over to the next size and produces the set number of pieces. Knitting is carried out line by line from top to bottom.

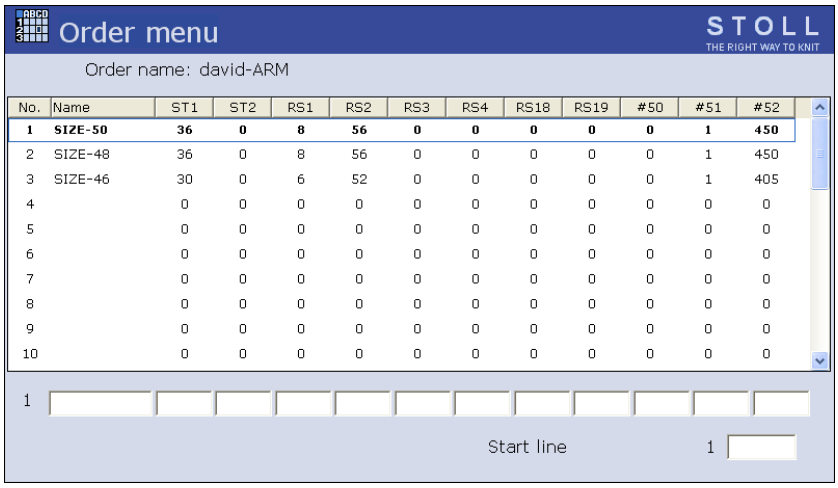


Fig. 3-28 "Order menu" window

Column	Data shown
1	current order number
2	Order name
3 ("ST1")	No. of pieces to be produced
4 ("ST2")	No. of pieces already produced
5 to 11	Cycle counters and counter
12 ("#51")	Left border
13 ("#52")	Right border

Tab. 3-16 Data in the "Order menu" window

Key	Function
	Call up "Order menu" window
	Confirm entries
	Call up "Additional function keys"
	Reset values in "ST2" column (counter for the pieces already produced) to "0"
	delete all information in the order menu
	"Copy line" contents
	"Insert line" contents
	"Activate knitting order"

Tab. 3-17 Keys for processing the "Order menu"

Edit the order menu:

1. Call up the "Order menu" window from the "Main menu".
2. Tap a line to be processed.
   The line appears at the bottom edge of the window.
3. Tap the fields of the selected line and enter the desired values and name.

   - or -

➜ Call up "Additional function keys", copy contents of a line and insert it at desired location again.

4. Confirm the entries.
5. Call up the "additional function keys" and activate the "knitting order".
   If the order is active, "ORDER" appears in the status line.

Fig. 3-29 Status line with active knitting order

Missing pieces of an order can be knitted afterward by changing "ST2". When the last order is carried out, a check is performed to determine whether any parts are still to be knitted. The machine will not stop until all orders have been completed.

3.4.2 Setting or changing counters for order menu

With counters the knitting of different parts or sizes in the SINTRAL program can be controlled from a program.

Key	Function
	Call up "Order menu" window
	End setting process and save changes

Tab. 3-18 Keys for setting the counters

Use another cycle counter or counter:

Do not use the counters "#1" to "#39", as they are set to "0" during start-up!

1. Call up the "Order menu" window from the "Main menu".
   The "Order menu" window appears.
2. Tap the desired column (cycle counter or counter) in the header of the table.
   The setting window appears.

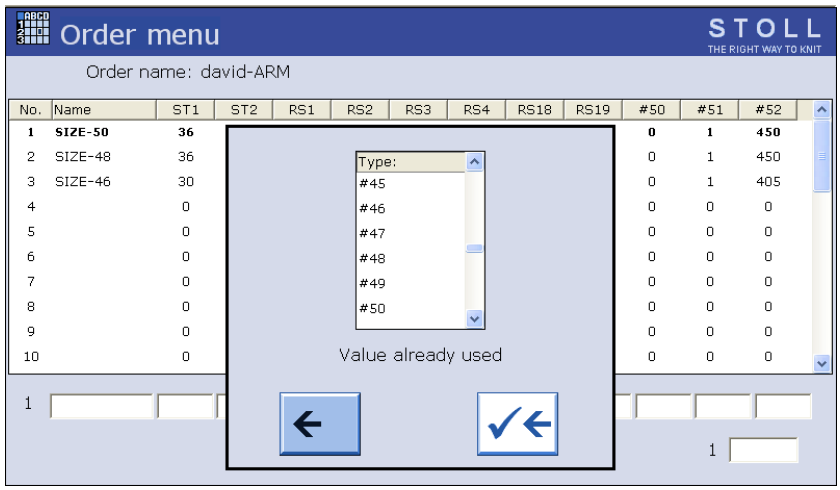


Fig. 3-30 Setting window for changing cycle counters and counters

3. Assign a cycle counter or a counter.
4. Confirm the entries.
5. The "Order menu" appears again.

The values of the cycle counters and counters are copied from the machine at the beginning of an order. If they are modified during knitting, they will take effect starting with the next piece.

3.4.3 Save/load order menu

The information in the order menu can be saved, loaded and deleted in the "Catalog order data" window.

Key	Function
	Call up "Order menu" window
	Call up "Additional function keys"
	Call up the "Catalog order data" window

Tab. 3-19 Keys for the "Catalog order data" window

Functional description for working in the "Catalog order data":

1. Call up the "Order menu" window from the "Main menu".
2. Call up "Additional function keys".
3. Call up the "Catalog order data" window.

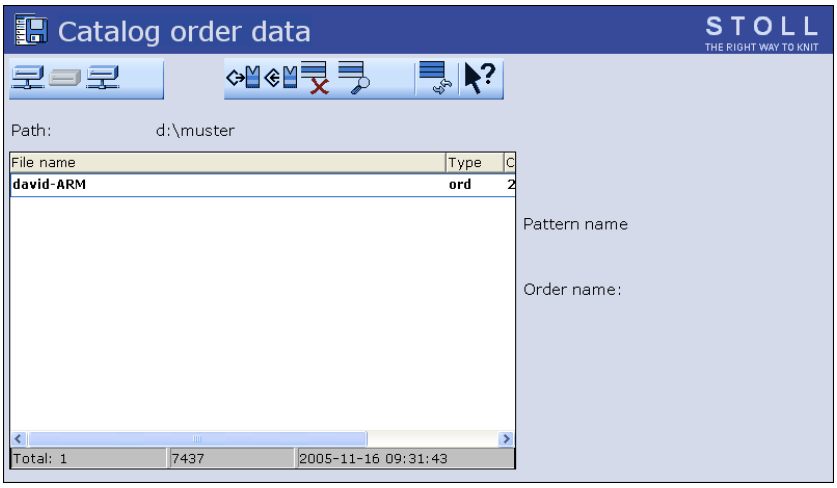


Fig. 3-31 "Catalog order data" window

4. Set the desired path with one of the "Direct selection folder" keys.
5. Select file.
6. Select action.
7. If an additional prompt appears, tap "1" to confirm

   - or -

➜ Tap the key "0" to cancel.

8. Call up "Main menu".

Actions in "Catalog order data" window

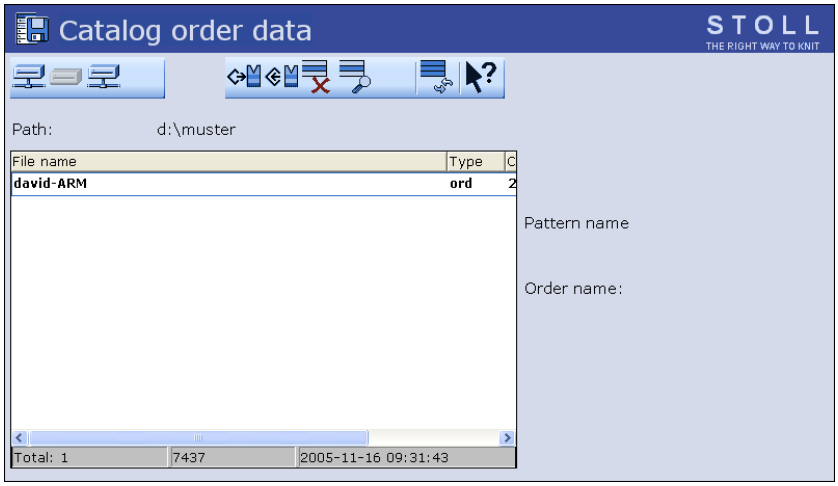
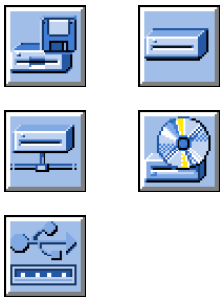


Fig. 3-32 "Catalog order data" window

Key	Function
	"Direct folder selection": predefined folder selection
	"Load" selected file and accompanying pattern elements
	save selected pattern parts in the current folder ""
	"Delete file" which is selected
	"Display file" which is selected
	"Update" : Refresh the contents of the folder
	Call up "Direct help" for the next pressed key

Tab. 3-20 Keys in "Catalog order data" window

Further information:

- Select the current folder *(see page 4-105)*
- Displaying file in pattern editor *(see page 4-98)*

3.5 Eliminating errors in the fabric

If the fabric piece is not to be completed properly, two options in the "Machine start" window can be used.

Key	Function
	Call up "Additional function keys"
	The cycle currently being knitted is aborted and the other cycles will be knitted as programmed.
	The machine automatically begins with a new fabric piece if the following conditions are met: The racking device is in the basic position The yarn carriers are in starting position The carriage direction allows beginning again. As long as these conditions are not met, cycles will only be knitted once.

Tab. 3-21 Keys to interrupt a knitted panel

This chapter contains information on:

- Beginning again after pressing off fabric *(see page 3-37)*
- Threading thread into yarn carrier *(see page 3-40)*
- Removing fabric winding around fabric take-down *(see page 3-41)*

3.5.1 Beginning again after pressing off fabric

Key	Function
	Call up "Machine start" window
	Confirm entries

Tab. 3-22 Keys for beginning again after pressing off fabric

For machines without a take-down comb

After fabric ejection, a problem arises where stitches are pressed off and therefore further knitting is not possible. To be able to continue, we recommend to call up the "Picking up after pressing off" function. It allows you to begin knitting even without fabric.

Normally, each knitting program includes the "Picking up after pressing off" function. With older knitting programs, the function is found from line 950 on. With the pattern workstation M1, it is activated via "#90".

The machine detects which pattern workstation was used to generate the pattern. A knitting program of M1 contains the ID "<M1>" on line 1. Likewise, program point "P.aft. press-off" in the "Machine start" window is adapted automatically.

"Picking up after pressing off" function in older knitting programs (e. g. SIRIX)

1. If threads are broken, thread them up again.
2. Call up "Machine start" window.
3. Call up the "Picking up after pressing off" function. Tap the "P.aft. press-off from row" key for this purpose.

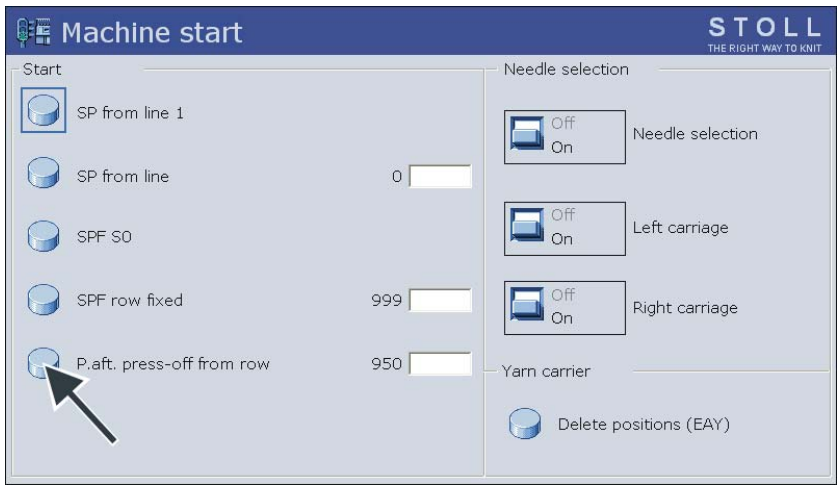


Fig. 3-33 Call up "Machine start" window

4. Start the machine with the engaging rod.

If you notice defective needles while picking up after pressing off:

➜ Stop picking up after pressing off and replace the defective needles.

5. When the fabric is long enough to be placed in the main take-down, stop the machine with the engaging rod.
6. Open the main take-down, place the fabric in the main take-down and close the main take-down.
7. To start the knitting program, tap the key "SP from line 1".
8. Start the machine with the engaging rod.

"Picking up after pressing off" function with an M1 pattern

Requirements:

- The knitting program has been generated on M1
- When the pattern is generated, the "P.aft.press-off" menu point is activated

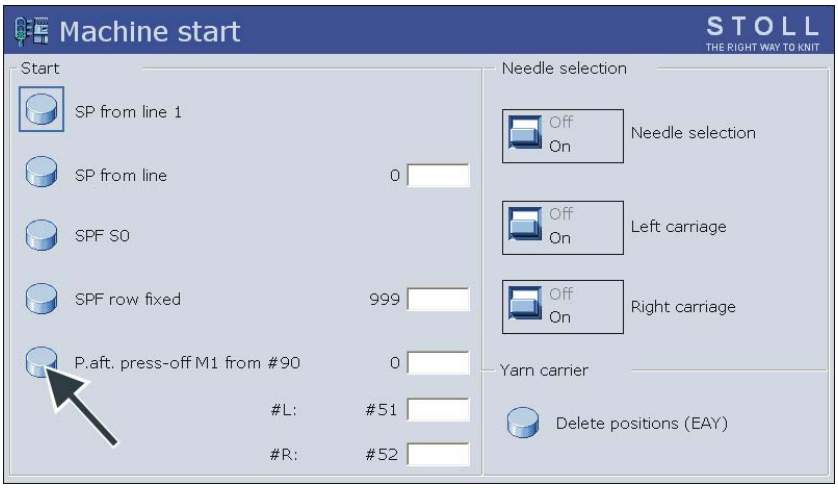


Fig. 3-34 Call up "Machine start" window

Setting	Function
#90=0	"Picking up after pressing off" function is deactivated
#90=1	"Picking up after pressing off" function is activated. A specific row number (gauge x 4) is knitted, depending on the gauge of the machine. A total of 40 knitting rows are processed for a machine of gauge E 10.
#90=n	If this is too many knitting rows, "#90" can be set to another number. Two knitting rows, similar to the "Picking up after pressing off" function, are repeated as often as "#90" is set. Example: #90=15. A total of 30 knitting rows (2 x 15) are processed.
#L, #R	Setting the fabric width for the "Picking up after pressing off" function. Default setting: Starting width (#L=#51, #R=#52)

1. If threads are broken, thread them up again.

2. Call up "Machine start" window.
3. Call up the "Picking up after pressing off" function. Tap the "P.aft. press-off M1 from row" key for this purpose.
4. Tap the input fields. Enter values and confirm entries.
5. Start the machine with the engaging rod.

If you notice defective needles while picking up after pressing off:

➜ Stop picking up after pressing off and replace the defective needles.

6. When the set number of knitting rows has been processed, the machine stops automatically.
   The "Place fabric in fabric take-down" message appears.
7. When the fabric is long enough to be placed in the main take-down, open the main take-down, place the fabric in the main take-down and close main take-down.
8. If the fabric cannot yet be placed in the main take-down, repeat points 2 through 8.
9. Start the machine with the engaging rod. The knitting program is started automatically.

Further information:

- Threading up yarn *(see page 3-11)*

3.5.2 Threading thread into yarn carrier

Key	Function
	Call up "Manual interventions" window
	Call up "Machine start" window

Tab. 3-23 Keys for threading thread into yarn carrier

1. Call up "Manual interventions" window.
2. Tap the "YC bolts Up" key.
3. Note the position of the yarn carriers, push the yarn carriers under the carriage and thread in.
4. Push the yarn carriers into their previous position again.
5. Tap the "YC bolts Bottom" key.
6. To move the carriage assembly slowly, pull the engaging rod slightly toward the front.
7. When knitting slowly, make sure that the thread is laid in the needles.
8. To continue knitting, start the machine with the engaging rod.

- or -

➜ If the fabric is defective, call up the "Machine start" window and tap the "SP from line 1" to knit the fabric again.

3.5.3 Removing fabric winding around fabric take-down

Key	Function
	Call up "Take-down" window

Tab. 3-24 Key for removing fabric winding around fabric take-down

Fabric winding in main take-down

1. To remove the fabric winding, call up the "Take-down" window.

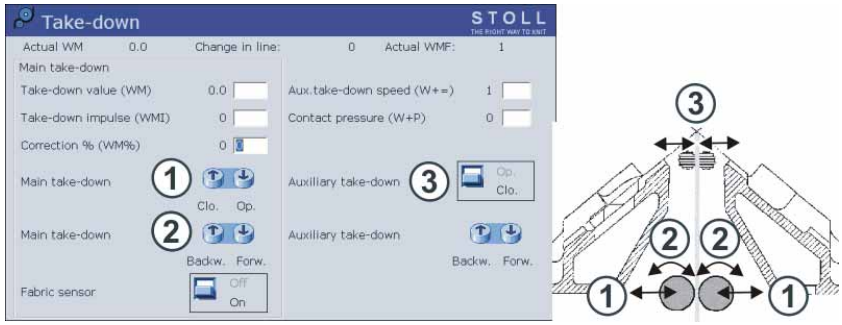


Fig. 3-35 "Take-down" window

2. Tap the "Main take-down Op." key (1).
3. Pull the fabric smooth and free the take-down rollers from loose threads and fabric remainders

   - or -

➜ Press the "Main take-down backw." key (2) until the fabric winding can be removed.

4. Tap the "Main take-down Clo." key to close the main take-down.
5. To continue knitting, start the machine with the engaging rod.

Fabric winding in auxiliary take-down

1. To remove the fabric winding, call up the "Take-down" window.
2. Remove needle bed or position it at an angle
3. Tap the "Auxiliary take-down Op." key (3).
4. Press the "Auxiliary take-down backw." key until the fabric winding can be removed.
5. Free the take-down rollers from loose threads and fabric remainders.
6. To close the auxiliary take-down, tap the "Auxiliary take-down Clo." key.
7. Screw on the needle bed again tight.
8. To continue knitting, start the machine with the engaging rod.

Further information:

■ Remove needle bed or position it at an angle *(see page 6-14)*

3.6 Starting machine after a malfunction *

The knitting machine control constantly controls the yarn, the fabric, all movable parts of machine, the motors and the electronic components. If an error occurs, the machine stops. The signal light glows yellow, a pictograph appears on the touch screen and a horn goes off. The most common error causes are shown in the pictographs on the touch screen. If an error occurs, one pictograph appears, and in the case of several errors the corresponding pictographs appear consecutively. Errors which occur seldom (e. g. hardware errors) are shown with a common pictograph.

Key	Function
	"Information on bug fixing "A big and a small mark appear alternatively
	Confirm error message

Tab. 3-25 Keys for starting machine after a fault

Start the machine after a fault:

1. To get detailed information on an error, tap the pictograph.
   The "Current messages" window appears. If the error can be remedied by changing the settings, a function key appears in the middle of the lower screen bar.

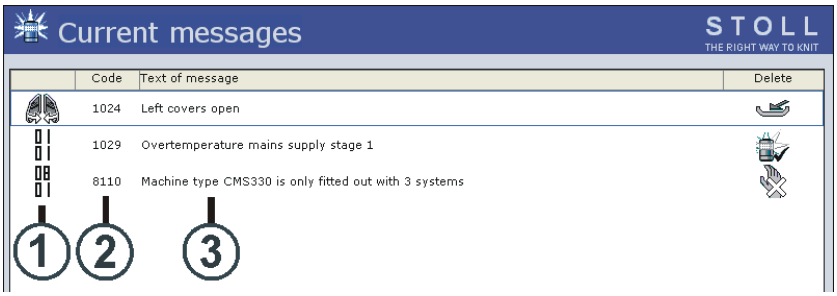


Fig. 3-36 "Current messages" window.

1 Pictograph
2 Error code
3 Message text

2. To change the settings, tap the function key in the middle of the bottom line of the screen and eliminate the error.

   - or -

➜ If additional information is required, tap the desired error message and the "Information on bug fixing" button.
   The possible error causes and their correction will be displayed.

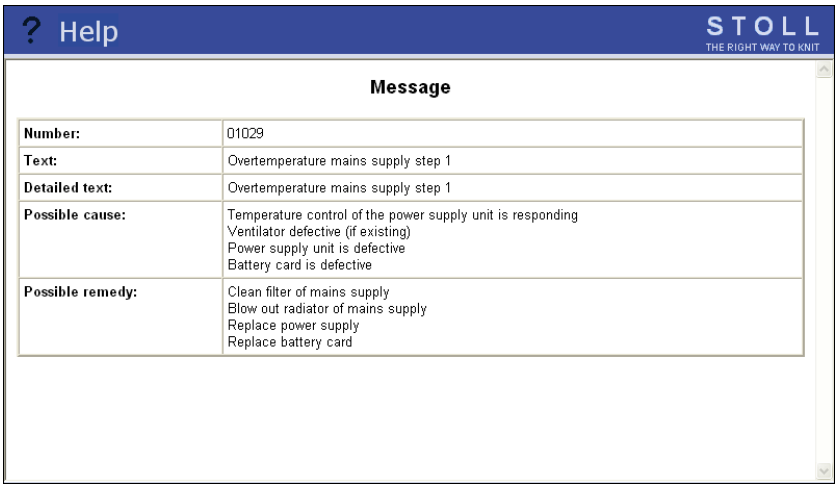


Fig. 3-37 Further information about an error message

3. Eliminate the error.
4. Confirm the error message.
5. To continue knitting, start the machine with the engaging rod.

Further information:

- Symbols in this document *(see page 1-3)*

3.6.1 Message and tip history

Message history

If an error occurs, it is not only displayed in the "Current messages" window, it is also written into an additional memory. The error messages for the respective day are saved in this memory.

A new memory is automatically selected for each day. There are a total of seven memories so that the error messages of the last 7 days are available. As a result, you can create an overview of which error messages have occurred over the past several days.

When switching off the machine main switch, the error messages currently present in the "Current messages" window are deleted, however the daily memories with the error messages are not cleared.

Key	Function
	Call up "Info" window
	Call up "Additional function keys"
	Display message history
	Key for daily message history (the key for the message history of the past day is shown in the picture)

Tab. 3-26 Keys for viewing history of error messages

Display message history:

1. Call up "Info" window.
2. Call up "Additional function keys".
3. Display message history.

4. Call up "Additional function keys".
   A list of the keys of the message histories appears.

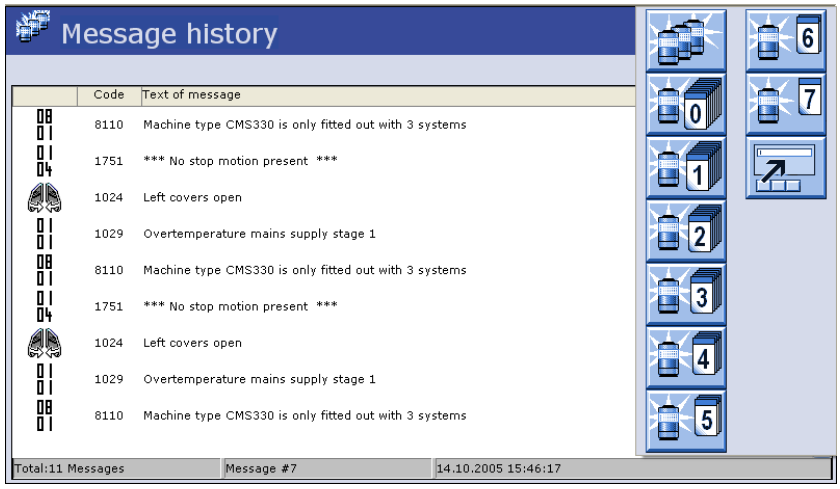


Fig. 3-38 List of message histories

5. Call up the desired daily history.

Tip history

The tips for the error messages are also saved. As with the message history, there are seven daily memories so that the tips of the last 7 days are available. As a result, you can create an overview of which tips have occurred over the past several days.

Key	Function
	Call up "Info" window
	Call up "Additional function keys"
	Display tip history
	Key for daily tip history (the key for the tip history of the past day is shown in the picture)

Tab. 3-27 Keys for displaying tip history

Display tip history:

1. Call up "Info" window.
2. Call up "Additional function keys".
3. Display tip history.
4. Call up "Additional function keys".
   A list of the keys of the tip histories appears.
5. Call up the desired daily history.

3.6.2 Suppressing error messages

If, for example, a change is made to a knitting program and an error message is present, the knitting program or other windows are covered by the current error message. This may interrupt your work. To prevent this from happening, the error messages can be suppressed. Only the display on the touch screen is suppressed, not the stoppage of the knitting machine.

Key	Function
	Call up "Additional function keys"
	Suppress error messages ("activate Setting-up operation")
	Returning to the previous window
	"Setting-up operation active" symbol
	Activate error messages again ("deactivate Setting-up operation")

Tab. 3-28 Keys for suppressing error messages

Suppressing error messages

1. If an error message is displayed, call up the "Additional function keys" button.

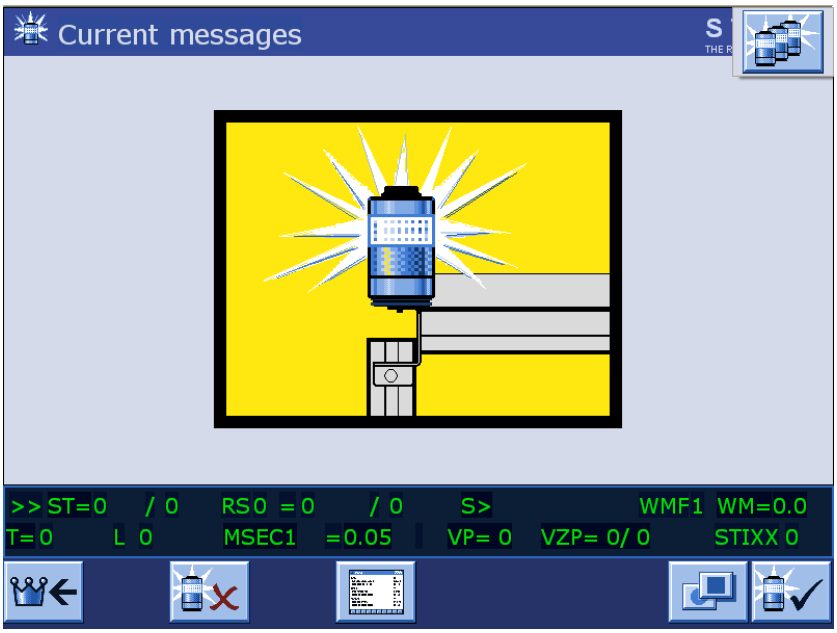


Fig. 3-39 Suppressing error messages

2. Tap the "Suppress error message" key.
   The "Setting-up operation" message appears. The error messages are suppressed until this is changed back. You are automatically brought back to the previous window and can continue working.
3. As a reminder that the error messages are being suppressed, the "Setting-up operation active" symbol appears in the upper right corner of each window.
4. The currently active and suppressed error messages can be viewed. Tap the "Setting-up operation active" symbol for this.

Enabling suppressed error messages again

1. Touch "Setting-up operation active" symbol.
2. Call up "Additional function keys".
3. Tap the "Enable error messages again" key.

Automatic enabling

If there are no more stop motions, set-up mode is deactivated automatically.

Notes

4 Adjust the knitting machine

This chapter contains information on:

4.1 Basic settings

This chapter contains the adjustment instructions and other information on:

4.1.1 Adjusting carriage speed

Different carriage speeds can be entered for different knitting situations. The indirect carriage speed only becomes effective when it is slower than the normal speed.

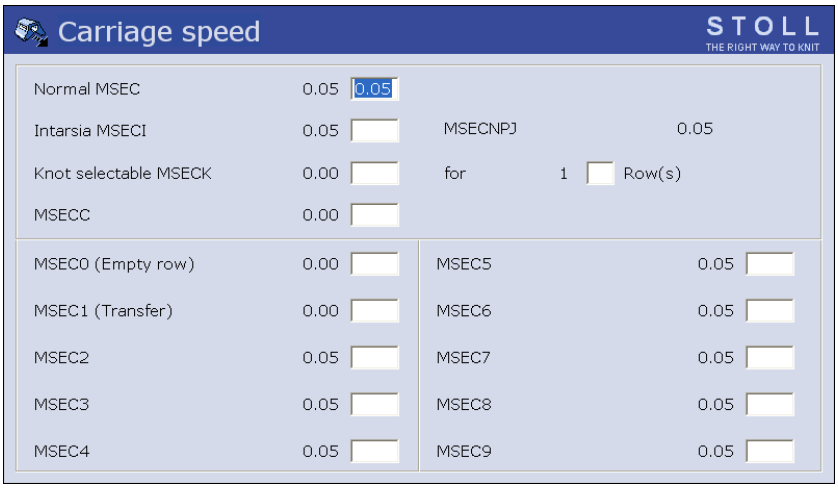


Fig. 4-1 "Carriage speed" window

Input field	Meaning	Input values	Step width
"Normal MSEC"	Carriage speed for normal yarn carriers	0.05 to 1.20 m/s	0.05
"Intarsia MSECI"	Carriage speed with intarsia yarn carriers	0.05 to 1.00 m/s	0.05
"Knot selectable MSECK"	Carriage speed after small knots	0.05 to 1.20 m/s	0.05
"for row(s)"	Number of rows with reduced carriage speed after small knots	1 to 12 rows	1
"MSECC"	Carriage speed outside the needle bed, when the yarn carrier is brought into the clamp or taken out of the clamp.	0.05 to 0.50 m/s	0.05
"MSECNPJ=n"	Display of the carriage speed with NPJ		
"MSEC0=n"	Indirect carriage speed "n" with empty rows ("S0")	"n" = 0.05 to 1.40 m/s	0.05
"MSEC1=n"	Indirect carriage speed "n" with transfer rows	"n" = 0.05 to 1.20 m/s	0.05
"MSEC2=n" to "MSEC9=n"	Indirect carriage speed "n" with knitting rows	"n" = 0.05 to 1.20 m/s	0.05

Tab. 4-1 Input fields in "Carriage speed" window

Key	Function
	Call up "Carriage speed" window
	Confirm entries
	Call up the "Main menu"

Tab. 4-2 Keys for entering the carriage speed

Adjusting the carriage speed:

1. Call up the "Carriage speed" window.
2. Tap the input fields for the carriage speed and enter the desired values.
3. Confirm the entries.
4. Call up "Main menu".

4.1.2 Setting stitch tension

The stitch tension, and therefore the stitch size are dependent on the take-down cam values. It is possible to specify either the stitch tension as an absolute value or the stitch length.

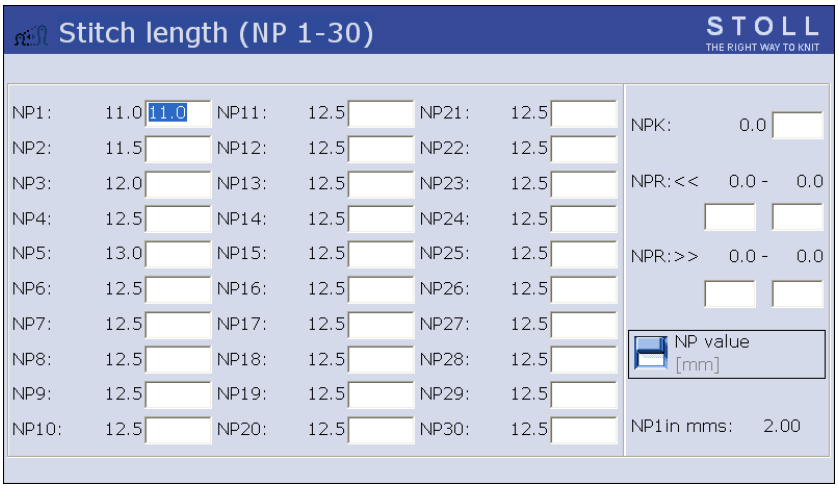


Fig. 4-2 "Stitch length" window during tandem operation

Input fields	Meaning
"NP#"	Stitch cam value (NP1-NP 100). Step width: 0.05. Call up NP31-NP100 with the help of the additional function keys.
"NPK"	Stitch cam correction value for all stitch cam positions. Step width: 0.05.
"NPR <<"	With tandem operation: Stitch cam correction values (front - back) from right to left carriage. Step width: 0.05. Carriage direction to the left.
"NPR >>"	With tandem operation: Stitch cam correction values (front - back) from right to left carriage. Step width: 0.05. Carriage direction to the right.
"NP value"	Adjusting stitch tension in NP values
"(mm)"	Setting the yarn length per stitch

Tab. 4-3 Input fields for setting the stitch tension

Key	Function
	Call up "Stitch length" window
	Confirm entries
	Call up the "Main menu"

Tab. 4-4 Keys for adjusting the stitch tension

Setting stitch tension:

1. Call up the "Stitch length" window.
2. Set the switch in the "NP value/(mm)" field to "NP value" or "(mm)".
3. Tap the input fields for the take-down cam values and enter the NP values.

   - or -

➜ Tap the input fields for the take-down cam values and enter the yarn length per stitch in mm.

4. Confirm the entries.
5. Call up "Main menu".

➜ To change all needle sinker values by the same value, tap the "NPK" input field, enter the take-down cam correction value and confirm the entries.

Further information:

- Stitch tension range *(see page 8-1)*
- Stitch length *(see page 8-2)*

4.1.3 Setting and staggering yarn carriers

Adjusting yarn carriers

Key	Function
	Call up the "Yarn carrier" window
	Call up the "Adjusting yarn carriers" window
	Call up "Additional function keys"
	Call up desired knitting area
	Confirm entries
	Save changes and end setting process
	End setting process without saving changes
	Call up the "Main menu"

Tab. 4-5 Keys for adjusting the yarn carriers

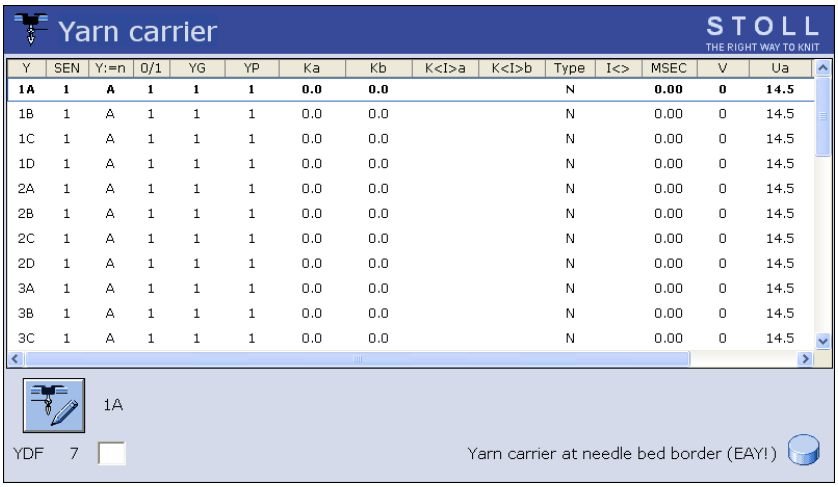


Fig. 4-3 "Yarn carrier" window

Column	Data shown
Y	Specification of yarn carrier
SEN	Specification of SEN area in which yarn carrier works
Y: =n	Specification of yarn type
0/1	Activate/deactivate yarn type
YG	Basic yarn carrier setting for needle. . .
YP	Current yarn carrier position for needle. . .
Ka	Yarn carrier correction value a (left) with selected knitting. Value range: -120...0...120 . Step width: 0.5=1/32 inch=0.8 mm
KB	Yarn carrier correction value b (right) with selected knitting. Value range: -120...0...120 . Step width: 0.5=1/32 inch=0.8 mm
K<I>a	Intarsia yarn carrier correction value a (left) for swiveled yarn carrier. Value range: -120...0...120 . Step width: 0.5=1/32 inch=0.8 mm
K<I>b	Intarsia yarn carrier correction value b (right) for swiveled yarn carrier. Value range: -120...0...120 . Step width: 0.5=1/32 inch=0.8 mm
Type	Display of the yarn carrier type: Normal yarn carrier (N), plating yarn carrier (P), double bow yarn carrier (PA), intarsia yarn carrier (I)
I<>	Swivel direction of intarsia yarn carrier
MSEC	Carriage speed when this yarn carrier is used (technical fabrics)
V	Number of selvedge needles until first knitting needle (technical fabrics)
Ua	Adjust the mesh width a (left) (Plating with normal yarn carriers)
Ub	Adjust the mesh width b (right) (Plating with normal yarn carriers)
Ba	Yarn carrier brake value a (left)
Bb	Yarn carrier brake value b (right)
YDF	Additional distance of yarn carrier from fabric selvedge when knitting fully fashion. Value range: 1-20 needles.

Tab. 4-6 Data in the "Yarn carrier" window

Adjusting yarn carriers:

1. Call up the "Yarn carrier" window.
   In the default setting the yarn carriers are displayed in all knitting areas (SEN areas).

2. If only the yarn carriers of a certain SEN area are to be displayed, then call up "additional function keys" and tap the desired SEN area.
3. Tap a line (yarn carrier) to be processed.
   The number of the yarn carrier appears at the bottom edge of the window, on the right of the "Adjusting yarn carriers" key.
4. Tap the "Adjusting yarn carriers" key.

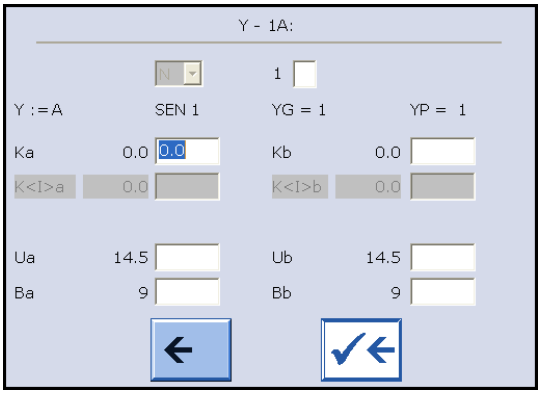


Fig. 4-4 "Adjusting yarn carriers" window

5. Tap the fields of the selected line in the "Adjusting yarn carriers" window and enter the values.
6. Save changes and end setting process.
7. Call up "Main menu".

Staggering yarn carriers

Key	Function
	Call up the "Yarn carrier" window
	Call up "Additional function keys"
	Call up "YC staggering" window
	Confirm entries
	Call up the "Main menu"

Tab. 4-7 Keys for staggering the yarn carriers

Stagger the yarn carriers:

1. Call up the "Yarn carrier" window.
2. Call up "Additional function keys".
3. Call up the "YC staggering" window.

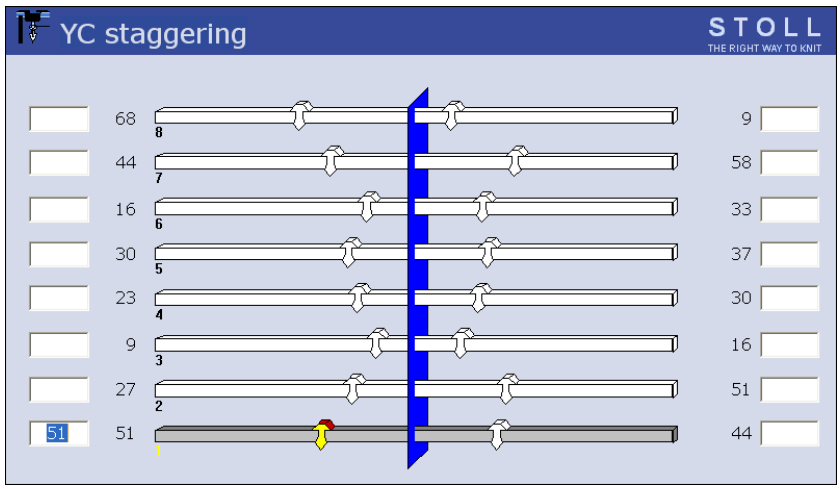


Fig. 4-5 "YC staggering" window

4. Tap the input fields next to the yarn carriers and enter the desired values.
   Value range: 0-160. Step width: 0.5=1/32 inch=0,8 mm
5. Confirm the entries.
6. Call up "Main menu".

Tandem machine: Correction of the yarn carriers in the right carriage

If the carriages have a wide coupling, the stop positions of the yarn carriers in the right carriage can be corrected (column "Right offset"). It may, for example, be necessary to carry out corrections at very fine fabrics or at special intarsia patterns. Possible reasons for a correction:

- different wear of the yarn carriers used in the left and right carriages
- different wear of the yarn carrier rails
- different lubrication
- different directions of the yarn feed in the left and right carriages

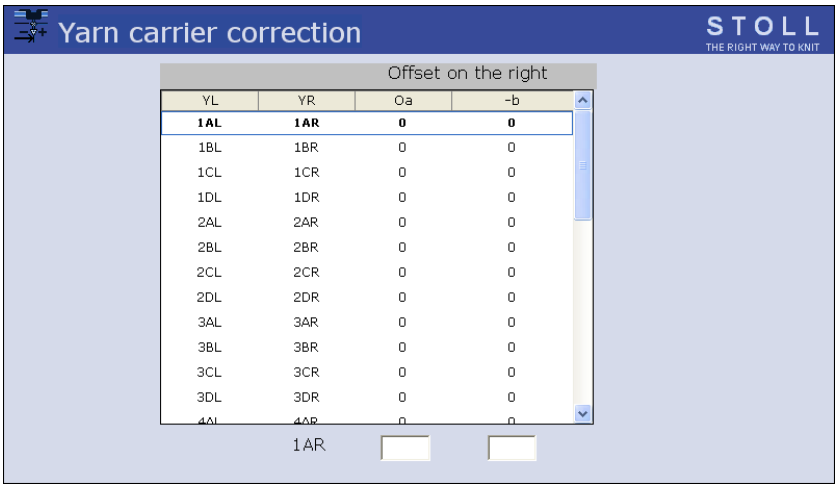


Fig. 4-6 "Yarn carrier correction" window during tandem operation

Column	Data shown
"YL"	Specification of the yarn carrier in the left carriage.
"YR"	Specification of the yarn carrier in the right carriage.
"Oa"	Right carriage during tandem operation: Yarn carrier correction value a (stop position on the left). Value range: -8...0...8 . Step width: 0.5=1/32 inch=0,8 mm The correction value refers to the stop position of the left carriage.
"-b"	Right carriage during tandem operation: Yarn carrier correction value b (stop position on the right). Value range: -8...0...8 . Step width: 0.5=1/32 inch=0,8 mm

Tab. 4-8 Data in the "Yarn carrier correction" window

Key	Function
	Call up the "Yarn carrier" window
	Call up "Additional function keys"
	Call up the "Yarn carrier correction" window
	Call up the "Main menu"

Tab. 4-9 Keys for correcting the yarn carriers

Enter correction of a yarn carrier:

1. Call up the "Yarn carrier" window from the "Main menu".
2. Call up "Additional function keys".
3. Call up the "Yarn carrier correction" window.
4. Enter new values for the yarn carrier.
5. Confirm the entries.
6. Call up "Main menu".

The correction values are not pattern-dependent, but rather machine-dependent. These data are therefore not deleted when a new knitting program is read in. The correction values always remain saved, even when the operating system is read in again. If the correction is no longer required, the correction values have to be reset to "0" manually.

4.1.4 Adjust yarn tension

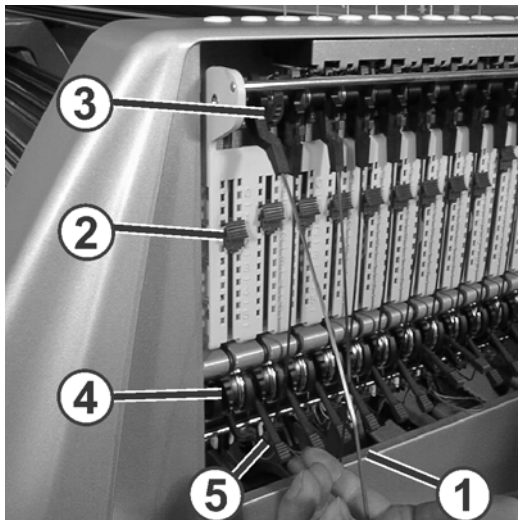


Fig. 4-7 Adjustment of yarn tension

The adjustment of yarn tension is done in the following sequence:

1. Lateral yarn tensioner: Adjusting the return force on the linear regulator (2)
2. Open permanent brakes
3. Adjusting yarn control device
4. Adjusting permanent brakes
5. Lateral yarn tensioner: Adjust the slack take-up path on the lock segment (3)

This sequence should help you to find the optimal adjustment of the yarn tension. Depending upon the type of fabric and the yarn charcteristics it is possible that you may have to change the adjustments many times before you find the optimal adjustment.
These adjustments are the easiest to undertake while the machine is knitting.
Make sure that the braking and restoring force on all elements is set at the lowest possible.

Set restoring force

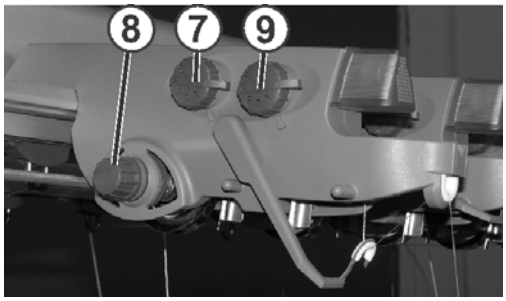
1. Remove lateral yarn tensioner (1) from the stay.
2. Linear regulator (2) is to be set in a manner that the lateral yarn tensioner has enough strength to hold the thread tensioned always.
3. Control the setting while the machine is knitting.
   In this case the thread must not sag rather it should always be tensioned by the yarn tensioner.

Open permanent brakes

➜ Push lever (5) of the permanent brake (4) in the lowest position.

Adjusting yarn control device

1. Thread brake (8) to be adjusted in such a manner that the thread break control does not move too much underneath such that the stop impulse gets released.



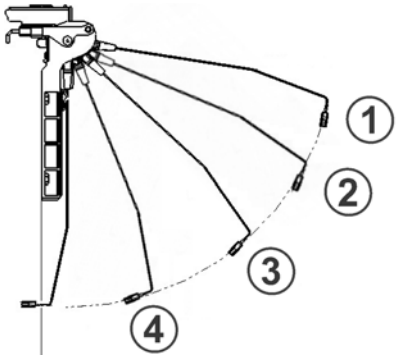
2. Adjust knot detectors for large knots (7) and for small knots (9) depending on yarn thickness and knots in such a way that they are triggered by an undesirable knot size.

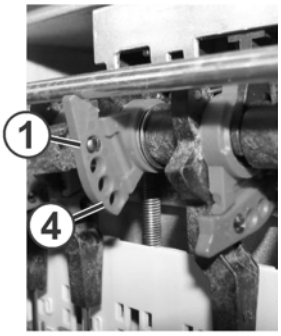
Adjusting permanent brakes

➜ Permanent brake (4) to be set in such a manner that the lateral yarn tensioner swivels very little (approx.. 25 degress), when the yarn carrier has achieved it's left or right stop position.
If a thread loop is formed between the friction feed wheel and the permanent brake (on the inner side of the lateral security cover) then the thread brake on the thread control unit should be set a little stronger and the permanent brake should be set a little weaker.

Set the maximum slack take-up path of the yarn tensioner

If desired the maximum slack take-up path of the yarn tensioner can be set from 80 to 35 degree. This will be set with the lock segment (3). It has four grid positions.





Position	max. angle	Explanation
1	80	Basic setting of the lock segment Active thread clamp in action Largest slack take-up path
2	65	Active thread clamp in action
3	50	Active thread clamp in action
4	35	Active thread clamp out of action Smallest slack take-up path

4.1.5 Adjusting yarn delivery on friction feed wheel *

The friction rollers have a constant peripheral speed and feed the maximum amount of thread consumed by the knitting machine. To adjust the yarn delivery to the actual consumption, the winding angle of the thread is modified. If the winding angle is enlarged, then the friction force increases and the friction feed wheel delivers more thread. The friction feed wheel should always feed somewhat more thread than the yarn carriers consume.

Depending on machine model and component type, there are different models of friction feed wheels.

Model 1

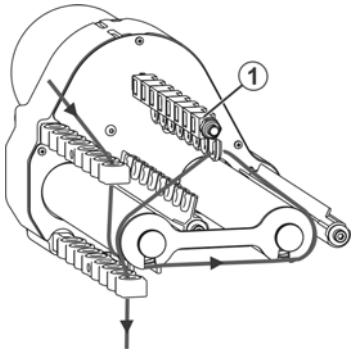


Fig. 4-8 Adjusting the yarn delivery on the friction feed wheel

➜ If the yarn delivery is to be reduced, then lead the yarn through the eyelet (1).

Model 2

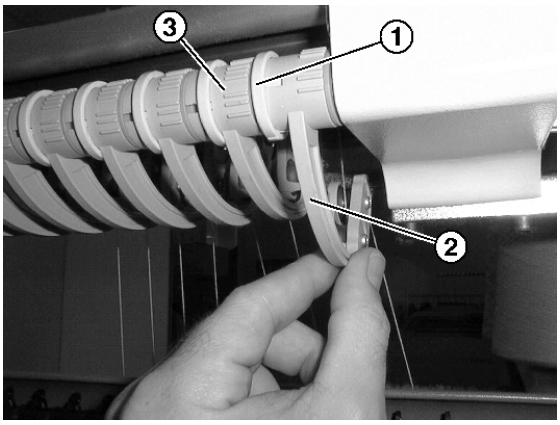


Fig. 4-9 Adjusting the yarn delivery on the friction feed wheel

Adjusting the yarn delivery:

1. Push the fixing device (1) toward the front.
2. If the yarn delivery is to be increased, turn the swivel bow (2) upward.

- or -

➜ If the yarn delivery is to be reduced, turn the swivel bow (2) downward.

3. Push the fixing device (1) toward the rear.
4. Switch on the knitting machine and start knitting.

5. Check the yarn delivery.
6. Set all swivel bows consecutively with the scale (3) as described in steps 1 to 5.

For very coarse yarn (valid for all models)

The distance between stop motion rail and friction roller is too small so that the yarn comes into contact wih the stop motion rail and releases a stop impulse, then the machine stops.

Modify the distance:

1. Remove the screw (5) and the stop motion rail (4).

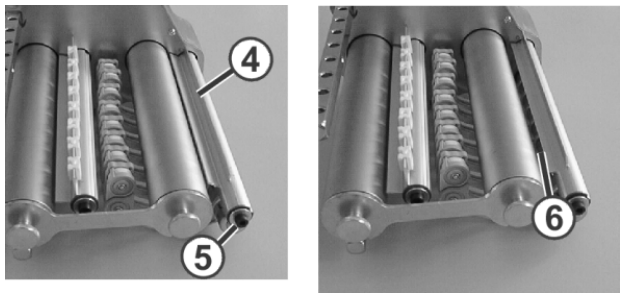


Fig. 4-10 Set the distance between stop motion rail and friction roller

2. Turn the stop motion rail by 180 degrees and assembly it again.

   A bigger distance (6) is between the stop motion rail and the friction roller.

Further information:

- Symbols in this document *(see page 1-3)*
- Threading threads into friction feed wheel *(see page 3-14)*

4.1.6 Setting storage feed wheel SFE *

The yarn tension is set at the outgoing of the feed wheel with the brake rings "1". The Stoll company recommends the following assembly:

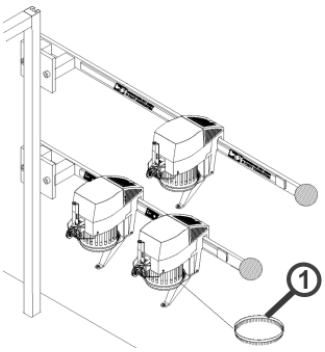


Fig. 4-11 Storage feed wheel SFE

Gauge	Quantity	Colour of brake rings
E 16-18	1	red
E 9.2	2	red

Tab. 4-10 Assembly of brake rings

You will find further information on the storage feed wheel SFE in the operating instructions which are enclosed.

Further information:

- Symbols in this document *(see page 1-3)*

4.1.7 Adjusting knitting areas

In the SINTRAL program up to four knitting areas (SEN areas) can be defined and switched on and off separately. If the knitting areas are not defined in the SINTRAL program, they can be adjusted in the "Knitting areas" window.

Key	Function
	Call up "Knitting areas" window
	Confirm entries
	Call up the "Main menu"

Tab. 4-11 Keys for adjusting the knitting areas

1. Call up the "Knitting areas" window.

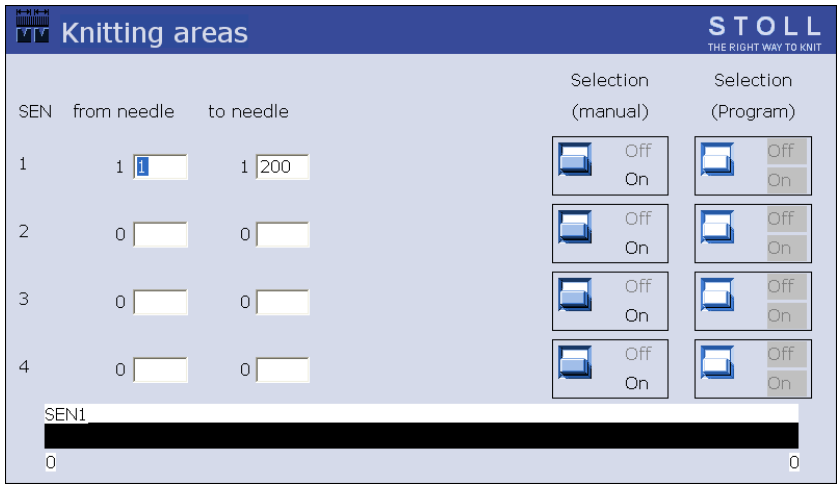


Fig. 4-12 "Knitting areas" window

2. Assign each knitting area ("SEN") a needle area.
3. Confirm the entries.
   The assigned areas are graphically shown.
4. To switch individual knitting areas on or off, tap the switch in the "Selection (manual)" column.
5. Call up "Main menu".

4.1.8 Adjusting take-down

Adjusting fabric take-down values

Key	Function
	Call up "Take-down" window
	Confirm entries
	Call up the "Main menu"

Tab. 4-12 Keys for adjusting the fabric take-down values

Adjusting the fabric take-down values:

1. Call up the "Take-down" window.
   The current fabric take-down values are shown.

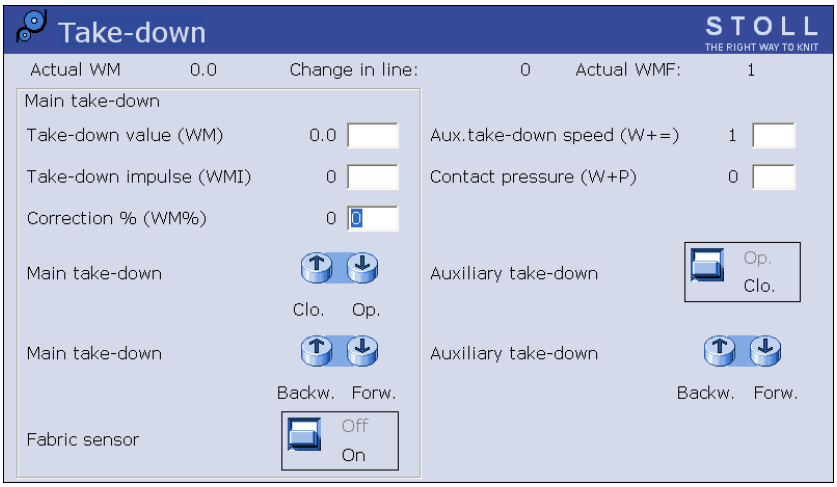


Fig. 4-13 "Take-down" window

2. To enter the fabric take-down values, tap the input fields and enter the desired values.
3. Confirm the entries.

Machine with 50" needle bed

The contact pressure of the auxiliary take-down is adjusted with the detent plate (1).

Fig. 4-14 Detent plate

Adjusting fabric take-down control

During production, the control of knitting machine compares the current values with threshold values. If a threshold value is exceeded, the knitting machine stops and displays a malfunction.

Key	Function
	Call up "Additional function keys"
	Call up "Fabric take down control" window
	Confirm entries
	Return to "Take-down" window

Tab. 4-13 Keys for adjusting fabric take-down control

Adjusting fabric take-down control:

1. Call up the "additional function keys" in the "Take-down" window.
2. Call up the "Fab. take-down control" window.

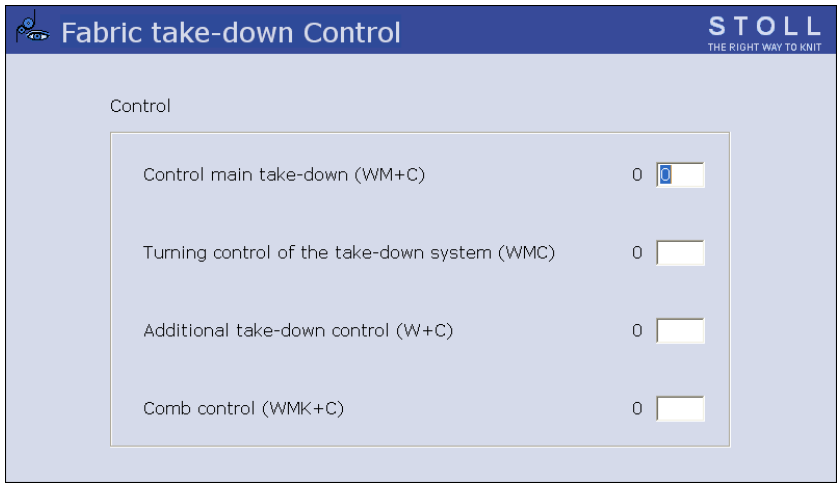


Fig. 4-15 "Fabric take-down control" window

3. Enter the threshold values.
4. Confirm the entries.
5. Return to the "Take-down" window.

Processing fabric take-down menu

The fabric take-down commands which concern a knitting situation are combined in one function in the fabric take-down menu (WMF menu). You will find a detailed description of the fabric take-down menu in the programming manual (Chap. 2.18.1).

Key	Function
	Call up "Additional function keys"
	Call up "WMF menu" window
	Delete all information in the fabric take-down menu
	"Copy line" contents
	"Insert line" contents
	Confirm entries
	Return to "Take-down" window
	Call up the "Main menu"

Tab. 4-14 Keys for adjusting the fabric take-down menu

Adjusting fabric take-down menu:

1. Call up the "additional function keys" in the "Take-down" window.
2. Call up the "WMF menu" window.

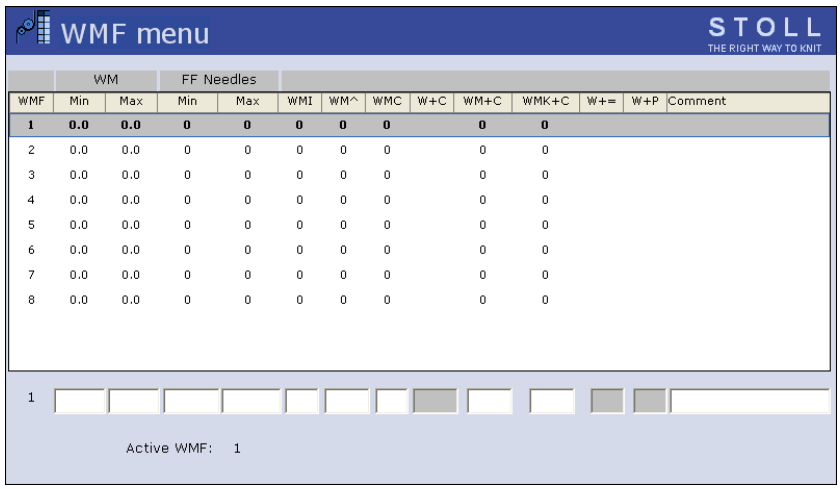


Fig. 4-16 "WMF menu" window

3. Tap a line to be processed.
   The line appears at the bottom edge of the window.
4. Tap the fields of the selected line and enter the desired values.

   - or -

➜ Copy contents of a line and insert at desired location again.

5. Confirm the entries.
6. Return to the "Take-down" window.

Save fabric take-down menu

The data of the fabric take-down menu is part of the setup file. If changes have been made in the fabric take-down menu, they are saved in the setup file.

Further information:

- Working with files, libraries and pattern folders *(see page 4-94)*

Control take-down comb

It is always only possible to carry out one comb function.

Key	Function
	Call up "Additional function keys"
	Call up "Comb" window
	Return to "Take-down" window

Tab. 4-15 Keys for controlling take-down comb

Control take-down comb:

1. Call up the "additional function keys" in the "Take-down" window.
2. Call up the "Comb" window.

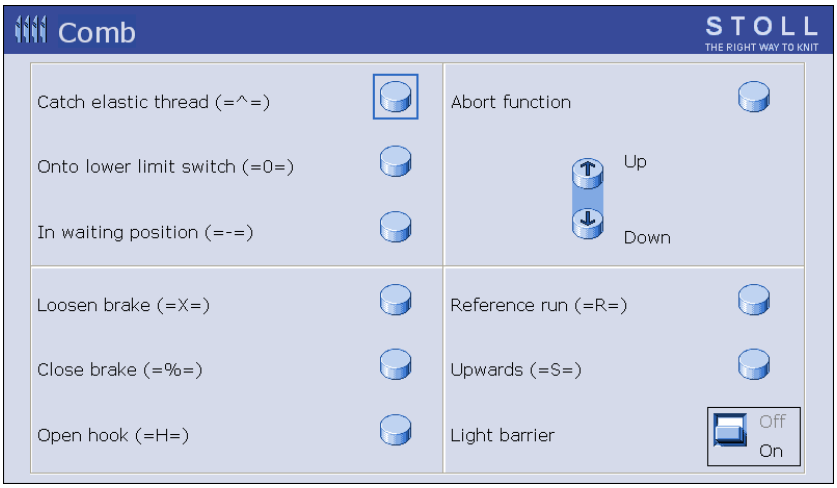


Fig. 4-17 "Comb" window

3. To activate a funtion, touch a key.
4. Return to the "Take-down" window.

4.1.9 Setting cycle counter and piece number

The cycle counter specifies how often a pattern section is to be repeated. Which cycle counter controls which pattern section is defined in the knitting program.

The piece number specifies how many pieces are to be knitted. During production, the piece number is decreased by "1" as soon as a complete piece has been produced.

Key	Function
	Call up "Cycle counters & counters" window
	Confirm entries
	Call up the "Main menu"

Tab. 4-16 Keys for adjusting the cycle counter and the piece number

Setting cycle counter and piece number:

1. Call up the "Cycle counters & counters" window.

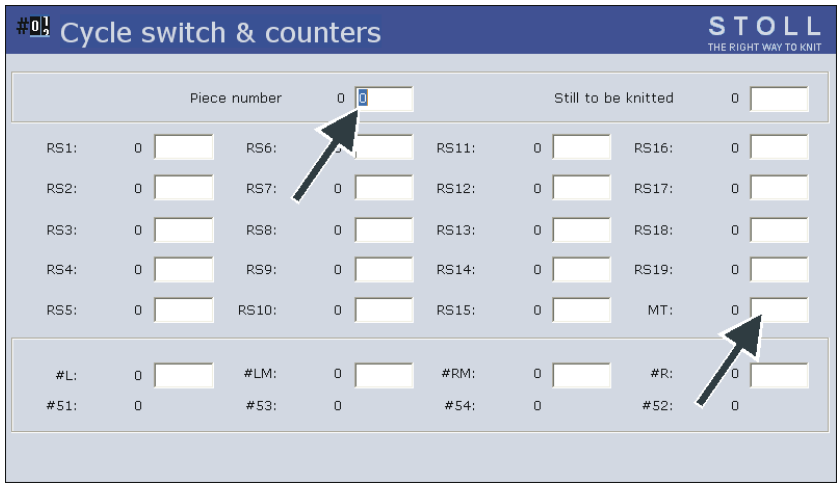


Fig. 4-18 "Cycle counters & counters" window

2. Set the cycle counters "RS1" to "RS19".
3. Adjust the piece number.
4. Confirm the entries.
5. Call up "Main menu".

4.1.10 Adjusting the shape counters

During fully-fashion knitting the fabric selvedges are controlled by selvedge counters. When the values of the shape counters changes, then the fabric becomes broader or narrower. The alteration in the fabric width is mentioned in the knitting program. The shape counters should be changed manually only in exceptional cases, for example during designing.

Key	Function
	Call up "Cycle counters & counters" window
	Call up "Additional function keys"
	"Adjusting the shape counters " call-up.
	Confirm entries
	Call up the "Main menu"

Tab. 4-17 Keys for adjusting the shape counters

Adjusting the shape counters

1. Call up the "Cycle counters & counters" window.
2. Call up "Additional function keys".
3. "Adjusting the shape counters" call-up.

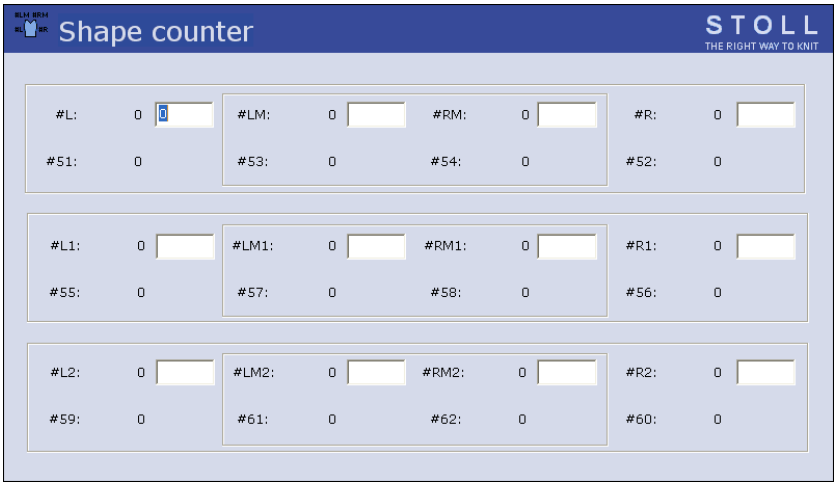
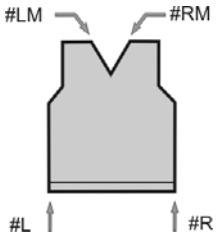
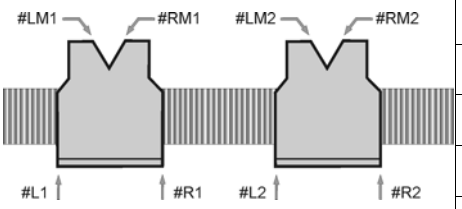


Fig. 4-19 "Shape counters" window

4. Set the counters to the desired value.
5. Confirm the entries.

6. Call up "Main menu".

In the case of single-piece knitting, upto 4 shape counters can be used, in the case of double-piece knitting upto 8 shape counters.

		Shape counter	Counters for the start-width
single-piece		#L	#51
		#R	#52
		#LM	#53
		#RM	#54
double-piece		#L1	#55
		#R1	#56
		#LM1	#57
		#RM1	#58
		#L2	#59
		#R2	#60
		#LM2	#61
		#RM2	#62

The counters for start-width can be changed only in the knitting program or in the pattern preparation unit.

4.1.11 Setting counters

In addition to the piece counter and the cycle counters, there are also other counters. On the one hand, they can be used in the knitting program, e.g. to request conditions. On the other hand, they indicate various machine states, see Programming Manual, Chapter 4.4.

Key	Function
	Call up "Cycle counters & counters" window
	Call up "Additional function keys"
	Call up desired counter group
	Call up the "Main menu"

Tab. 4-18 Keys for setting the counters

Setting counters:

1. Call up the "Cycle counters & counters" window.
2. Call up "Additional function keys".
3. Tap the key for the desired counter group.
4. Set counter to the desired value.
5. Call up "Main menu".

4.1.12 Switching lighting on and off

Key	Function
	Call up "Machine start" window
	Call up "Additional function keys"
	Switch on lighting
	Switch off lighting
	Call up the "Main menu"

Tab. 4-19 Keys for switching the lighting on and off

Switch the lighting on and off:

1. Call up "Machine start" window.
2. Call up "Additional function keys".
3. Switch on the lighting.

   - or -

➜ Switch off the lighting.

   Call up "Main menu".

4.1.13 Set value for releasing thread clamp

The thread clamping and cutting device holds the thread of a yarn carrier not used for knitting at the moment. When the yarn carrier is used again, the carriage opens the clamping device after knitting a few rows and the thread end is released. In the default setting the clamp is released after 19 knitting rows. This value can be set individually for each yarn carrier in the "Release clamps" window.

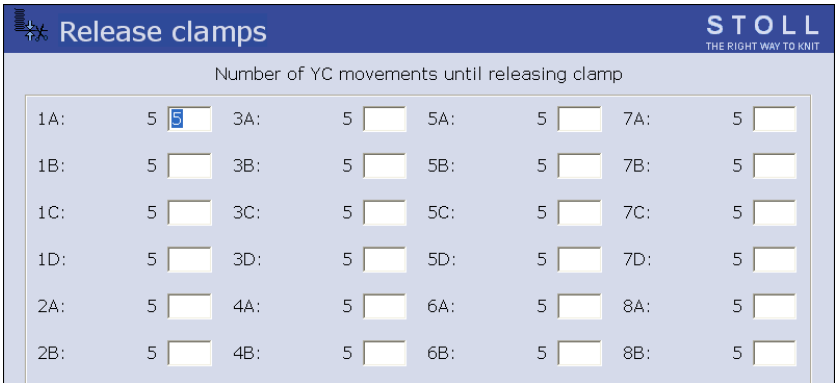


Fig. 4-20 "Release clamps" window

Key	Function
	Call up "Release clamps" window
	Confirm entries
	Call up the "Main menu"

Tab. 4-20 Keys for entering the value for releasing thread clamp

Set value for releasing thread clamp:

1. Call up the "Release clamps" window from the "Main menu".
2. Tap the input field of the corresponding yarn carrier and enter a value. In the default setting the value "20" which corresponds to 19 knitting rows (value - 1) is set.
3. Confirm the entries.
4. Call up "Main menu".

4.1.14 Configuration tool bar

The configurable tool bar allows you to jump directly to the individual windows without having to take the "Detour" through the main menu or using the "Additional functions" key. The tool bar is the headline or title bar of a window. You can include the symbols of those windows which you use most often in the tool bar.

The symbols can be called up in any window. To do so, tap the symbol on the top left of the title bar and the symbols are displayed. (Exception: Tap the "Go to mask" key in the SINTRAL editor.) To close the symbols again, tap the empty field next to them.

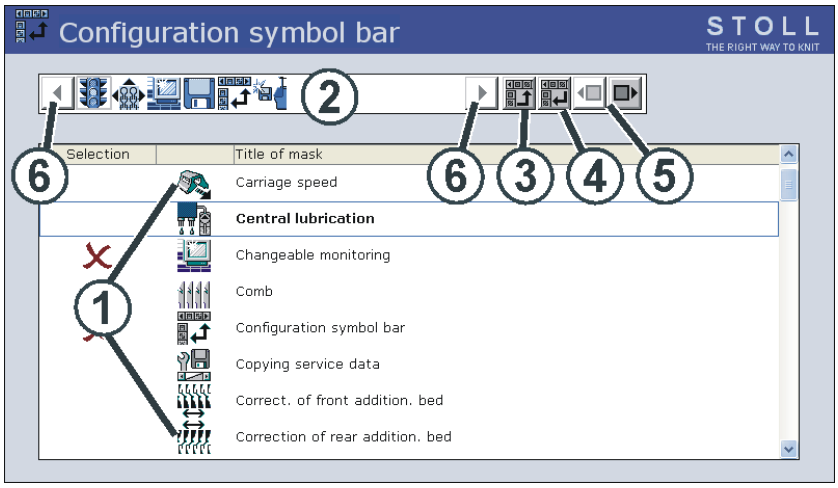


Fig. 4-21 Window "Configuration tool bar"

Field/ Key	Function
1	List of the windows which can be selected for the tool bar.
2	The tool bar contains the symbols of the selected windows. In the above figure the carriage speed has been selected.
3	Key used to set a symbol in the tool bar (2).
4	Key used to remove a symbol from the tool bar (2).
5	Change the position of a symbol in the tool bar (2). To do so, tap the symbol in the tool bar and use the corresponding key to move it forwards or backwards.
6	If there are more than 11 symbols in the tool bar, the display can be moved to the left or right by means of the arrow keys.

Key	Function
	Call up the "Service" window
	Call up "Configuration tool bar" window
	Call up the "Main menu"

Tab. 4-21 Keys for configuring the tool bar

Configuring tool bar:

1. Call up the "Service" window.
2. Call up "Configuration tool bar" window.
3. Tap the desired symbol (1).
4. Press the key (3).

   - or -

➜ Double-click on the symbol.
The symbol is displayed in the tool bar (2). The character "X" before the symbol indicates that the symbol has been selected from the list (1) for the tool bar.

5. Call up "Main menu".

4.1.15 Configuring monitoring

The current Sintral line and the corresponding values for the cycle counter, Jacquards, stitch tension and counters are displayed in the "Changeable monitoring" window for each carriage stroke during production.

You can specify yourself which values are to be displayed or have them determined automatically. (Exception: The counters and cycle counters which are exclusively used in the Auto-Sintral program are not displayed.)

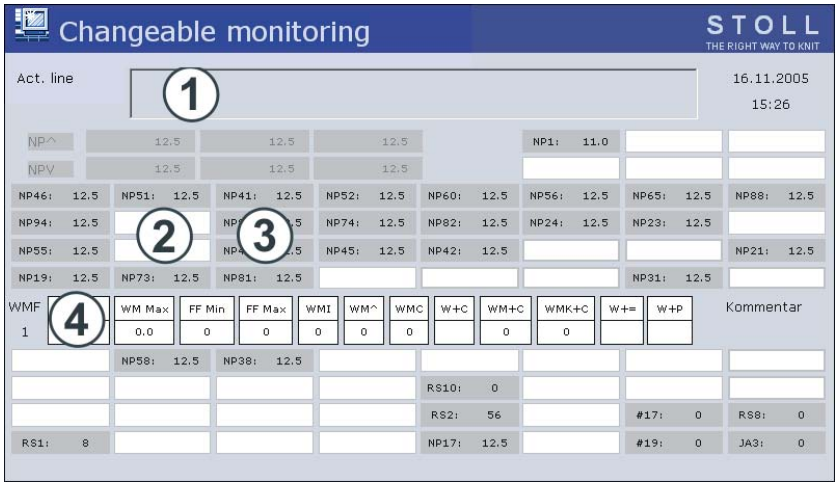


Fig. 4-22 "Changeable monitoring" window

Field	Function
1	Display of the current Sintral line
2	White field with frame. The field can be linked to a value. The value is then displayed in this field.
	A thick frame around the field indicates that it cannot be covered by a function block (4).
3	Gray field. If a field (2) is linked to a value, the color changes from white to gray.
4	White field without frame. This is a function block. A function block can be activated or deactivated.

Linking a field to a value

Key	Function
	Call up the "Changeable monitoring" window.
	Call up "Additional function keys"
	"Automatic Configuration"
	"Clear all fields" (reset)
	End setting process and save changes
	End setting process without saving changes
	Call up the "Main menu"

Tab. 4-22 Keys for linking a field

Linking a field to a value:

1. Call up the "Changeable monitoring" window from the "Main menu".
2. Tap a white field with a frame. The setting window appears.

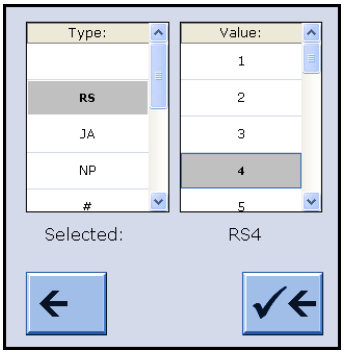


Fig. 4-23 Window for linking a field

3. Select the type of the value in the left column.
4. Select the value in the right column.
   The selected value is displayed in the lower line.
5. Confirm the entries.
6. If necessary, link further fields to a value.
7. Call up "Main menu".

If only one value is to be deleted, select the empty (white) field above "RS".

Activating the function block

Various function blocks can furthermore be displayed for the configurable values. The selected function blocks are positioned at fixed positions over the existing fields. They do not delete these, but just cover them, so that the fields are visible again when the function block is deactivated.

Key	Function
	Call up the "Changeable monitoring" window.
	Call up "Additional function keys"
	Activate and de-activate the "Stitch tension" function block
	Activate and de-activate the "SEN area" function block
	Activate and de-activate the "Yarn carrier" function block
	Activate and de-activate the "Function name" function block
	Activate and de-activate the "Fabric take-down values" function block (Can only be activated, if the "STIXX" function block is deactivated.)
	Activate and de-activate the "Sintral print line" function block
	Activate and de-activate the "STIXX" function block (Can only be activated, if the "Fabric take-down values" function block is deactivated.)
	Call up the "Main menu"

Tab. 4-23 Keys for activating a function block

1. Call up the "Changeable monitoring" window from the "Main menu".
2. Call up "Additional function keys".
3. Activate the desired function blocks.
4. Call up "Main menu".

Saving, loading, deleting settings ...

The configuration carried out by you can be saved, loaded and deleted.

Key	Function
	Call up the "Changeable monitoring" window.
	Call up "Additional function keys"
	Call up "Monitoring deposit" window.
	Call up the "Main menu"

Tab. 4-24 Keys for calling up the "Monitoring deposit" window

1. Call up the "Changeable monitoring" window from the "Main menu".
2. Call up "Additional function keys".
3. Call up "Monitoring deposit" window

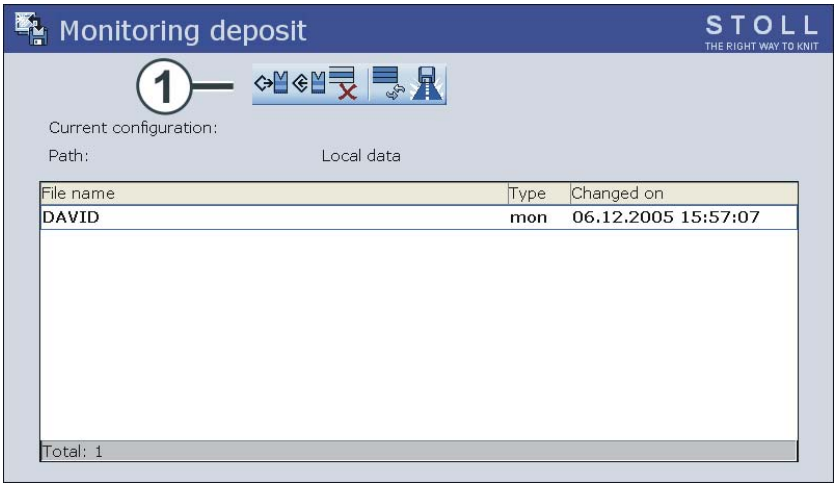


Fig. 4-24 "Monitoring deposit" window

4. Select the desired program point (1) (loading, saving, deleting ...).
5. Call up "Main menu".

4.1.16 Setting up a pattern

This menu can be used for fine adjustment of a pattern at the knitting machine. While the machine is knitting, the corresponding data of the knitting program are displayed for every carriage stroke. If required, changes can be carried out directly in this menu via setting windows, or the corresponding menu opens up for your input. To do so, tap the corresponding field.

Key	Function
	Call up the "Setting up the pattern" menu

Tab. 4-25 Key for calling up the "Setting up the pattern" menu

The window is structured into various areas:

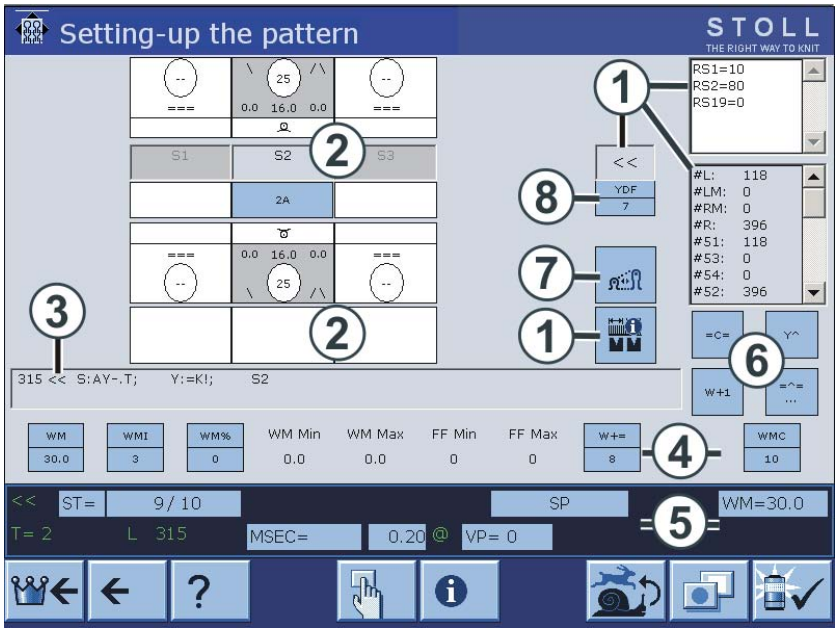


Fig. 4-25 "Setting-up the pattern" window

Area	Explanation
1	Display of: Carriage direction, cycle counters, SEN area, coupling width (for tandem machine), counters. The active cycle counter is highlighted. The values cannot be modified.
2	Setting up of the knitting systems: Needle action, stitch tension, yarn carrier, jacquard line.
3	Current Sintral line
4	Fabric take-down values or fabric take-down function
5	Status line: Here the individual values can be changed or the corresponding setting menu called up.

Area	Explanation
6	Actions for yarn carrier plunger, fabric take-down, take-down comb and auxiliary take-down
7	Call up "Stitch length" window
8	Additional yarn carrier distance during fully fashion knitting

Changing a value

The values are changed by means of a virtual keyboard. If a value can be changed, a keyboard bar which allows a value to be entered, is displayed in the title bar of the menu.

Fig. 4-26 Numerical keyboard

Element	Function
	End setting process without saving changes
	Undo a change, the previous value is displayed again.
	End setting process and save changes

Tab. 4-26 Input elements

Changing a value:

1. Tap the corresponding field. The setting window appears, for example:

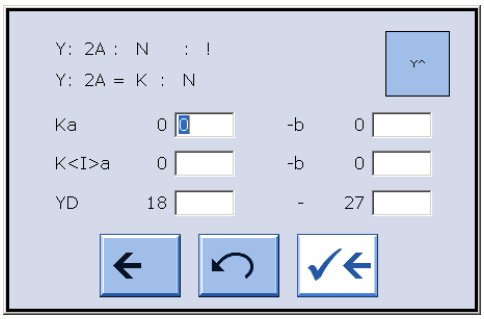


Fig. 4-27 "Yarn carrier" window

2. The keyboard bar appears in the title bar. Use it to carry out the changes.
3. Confirm the input.

Setting up of the knitting systems

The stitch tension, needle action, yarn carrier and jacquard line are displayed for every knitting system. The corresponding menu is opened if the yarn carrier, stitch tension or jacquard line is touched.

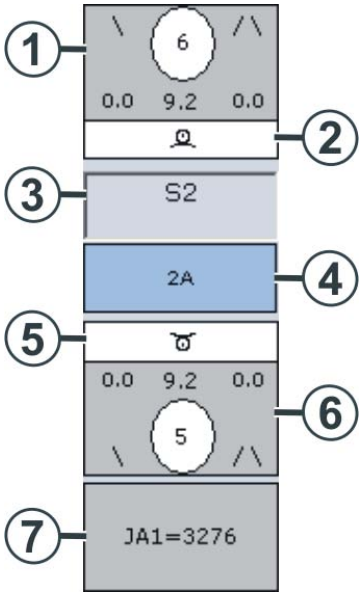


Fig. 4-28 "Change NP value" window

Area	Display	Modify
1	Stitch tension (rear knitting system)	Value can be changed at indirect specification (NP6=9.2)
2	Needle action (rear knitting system)	
3	Number of the knitting system	
4	Yarn carrier	Yarn carrier correction Yarn carrier stopping position
5	Needle action (front knitting system)	
6	Stitch tension (front knitting system)	Value can be changed at indirect specification (NP5=9.2)
7		Jacquard line

Stitch tension

Not only the value of the stitch tension is displayed, but also the type of specification.

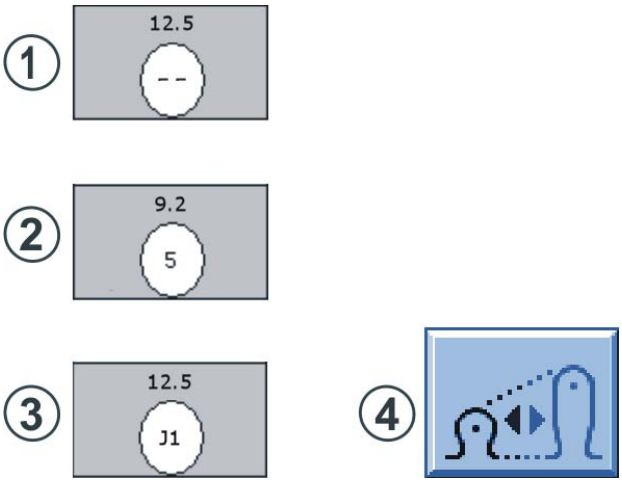


Fig. 4-29 "Display of the stitch tension" window

Type	Explanation	Setting possibility
1	Direct specification: "- -" (NP=12.5)	
2	Indirect specification: "5" (NP5=9.2)	Value can be changed
3	Jacquard-controlled stitch tension: "J1" (NPJ1=12.5). Depiction at flexible stitch: J1!	
4	Change the stitch tension	The "Stitch length" window appears. All the values can be changed.

Symbols for the needle actions

The needle actions are represented by symbols so that you know immediately which needle action is being carried out in one knitting system.

Symbol	Meaning	Symbol	Meaning
	Do not knit		Front stitch
	Rear stitch		Front tuck
	Rear tuck		Cast off
	Transfer forwards		Transfer to rear
	Transfer to the front and rear		Split-stitch to the front
	Split-stitch to the rear		Split-stitch to the front and rear
	Split-stitch to the front, stitch to the rear		Split-stitch to the rear, stitch to the front
	Stitch to the front, tuck to the front		Stitch to the rear, tuck to the rear
	Stitch to the front, tuck to the front, do not knit		Stitch to the rear, tuck to the rear, do not knit
	Transfer to the front, press off to the rear		Transfer to the rear, press off to the front
	Transfer to the front and rear, press off to the front and rear		Cast off, tuck to the front (after-pressing)
	Cast off, tuck to the rear (after-pressing)		Transfer with additional bed to the front
	Transfer with additional bed to the rear		Transfer with additional bed to the front and rear
	Transfer with additional bed to the front, transfer to the front and rear		Transfer with additional bed to the rear, knit to the front
	Transfer with additional bed to the rear, knit to the rear		

Tab. 4-27 Symbols of the needle actions

Yarn carrier

If this field is touched, the "Yarn carrier" window opens up.

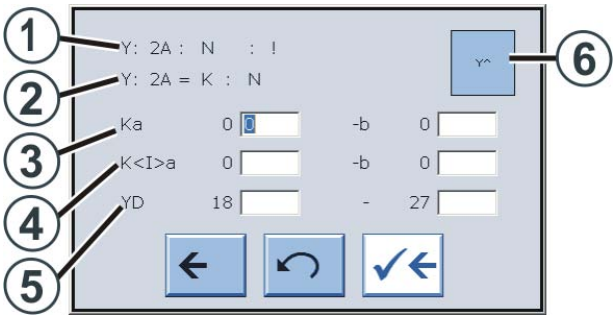


Fig. 4-30 "Yarn carrier" window

Area	Explanation
1	Display of the current yarn carrier instruction. After this information (End character " : ") further information is available about this yarn carrier: N = Normal yarn carrier I = Intarsia yarn carrier S = Selected H = Home C = Yarn carrier is clamped and cut off ! = Yard carrier is stopped outside the SEN area PA = Plating yarn carrier (double bow) P = Plating yarn carrier (double eyelet) < = Intarsia yarn carrier swivels to the left > = Intarsia yarn carrier swivels to the right
2	Definition of the yarn carrier (display only)
3	Yarn carrier correction with an application (selected knitting) at the left or right edge.
4	Correction for swiveled Intarsia yarn carrier on the left and on the right edge.
5	Yarn carrier stopping position at the left or right fabric selvedge.
6	Activate or de-activate the yarn carrier plunger.

Jacquard line

If this field is touched, the "Sintral editor" window opens up. The cursor is automatically positioned before the current jacquard line. The jacquard is displayed by default as compressed.

If the jacquard is unpacked, then depicted uncompressed and the jacquard line exceeds 1,200 characters, it can no longer be displayed. An error message indicates this condition.

Window with selection possibilities

Actions can be selected in the following windows:

- Comb actions
- Fabric take-down, auxiliary take-down and yarn carrier plunger
- Status line
- Sintral line

Comb actions

Various actions for the take-down comb can be selected by tapping the key (1).

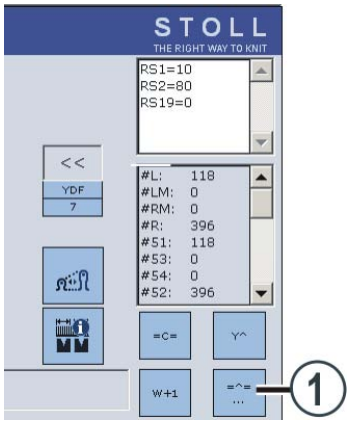


Fig. 4-31 "Comb actions" window

The "Select comb actions" window appears.

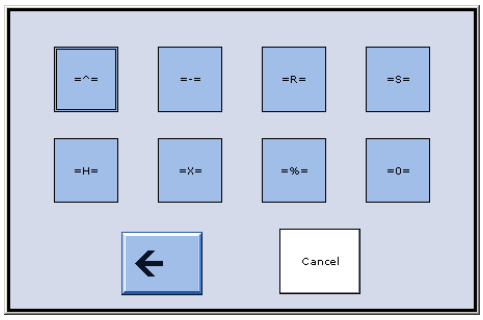


Fig. 4-32 "Select comb actions" window

Key	Explanation
= ^ =	Take-down comb upwards, grip elastic yarn
= - =	Take-down comb in waiting position
= R =	Take-down comb reference run
= S =	Take-down comb at upper limit switch
= H =	Open the comb hook
= X =	Open the comb brake
= % =	Close the comb brake
= 0 =	Take-down comb at lower limit switch
Cancel	This key can be used to abort an action as long as it is being carried out.

Actions for fabric take-down, auxiliary take-down, yarn carrier plunger

The keys (1) can be used to select actions for the fabric take-down, auxiliary take-down and the yarn carrier plungers. The possible action is always displayed on the key.

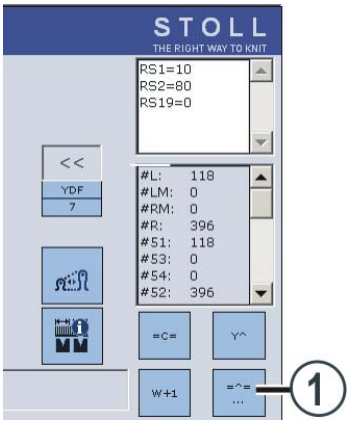


Fig. 4-33 "Actions for fabric take-down, ... " window

Key	Explanation
= C =	Close fabric take-down
= W =	Open fabric take-down
Y^	De-activate all the yarn carrier plungers
Yv	Activate all the yarn carrier plungers
W+1	Close auxiliary take-down
W+0	Open auxiliary take-down

Status line

The elements displayed in gray in the status bar can be selected. To do so, tap one of the gray fields.

Fig. 4-34 "Status bar" window

At some elements the gray field is divided. This means: If the front field is touched, the complete setting menu for this element appears. If the rear part of the gray field is touched, the window for changing the value appears.

Sintral line

If this field is touched, the "Sintral editor" window opens up. The cursor is automatically positioned before the current Sintral line.

4.1.17 Racking correction

To achieve the optimum transfer position even with different stitch lengths, the racking specification can be provided with a correction. When creating the knitting program, the value for the correction is usually provided with a "?", see Programming Manual, Chapter 2.16.

During knitting, the machine automatically stops in the reversing position before the line with the correction specification is knitted. Now the optimum value can be entered.

Key	Function
	Call up the "Racking correction" window
	Confirm entries

Tab. 4-28 Button for calling up the "Racking correction" window

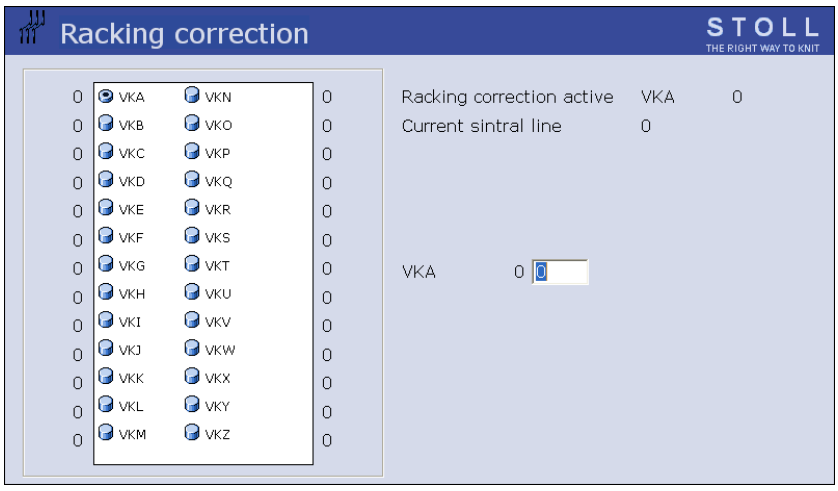


Fig. 4-35 "Racking correction" window

Adjusting racking correction value:

1. Call up the "Racking correction" window from the "Main menu".
2. Tap the input field for the racking correction and enter the value.

   - or -

➜ If a racking correction is to be changed, then tap the corresponding button and enter the value in the input field.

3. Confirm the input.

Saving/reading in racking corrections

The racking corrections are not only pattern-dependent, but also machine-dependent. As a result, these settings can be saved on the hard disk or copied back from it.

Key	Function
	Call up "Additional function keys"
	Delete all racking corrections
	Save racking corrections on hard disk
	Copy back racking corrections from hard disk to machine memory

Tab. 4-29 Buttons for saving/reading in racking corrections

1. Call up the "Additional function key" in the "Racking correction" window.
2. Tap desired key.

4.2 Advanced adjustments

This chapter contains information on:

4.2.1 Switching units on and off *

Key	Function
	Call up "Machine settings" window

Tab. 4-30 Keys for calling up the "Machine settings" window

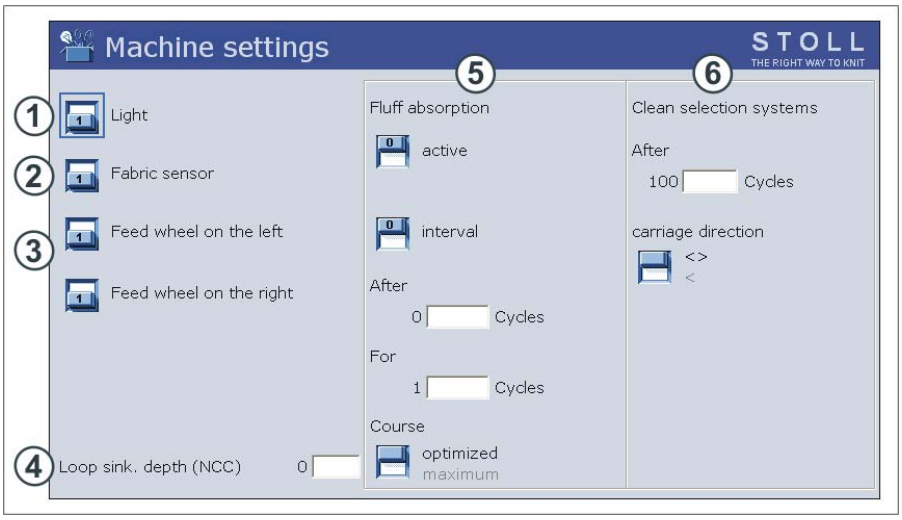


Fig. 4-36 "Machine settings" window

	Explanation
1	Switch lighting in machine room on and off
2	Switch fabric sensors on and off (not in the case of machines with comb take-down)
3	Switching right or left feed wheel on or off. If the feed wheel is not required, we recommend switching it off. This saves energy.
4	Adjusting the loop sinking depth of the cutting needles. With negative values, the cutting needles carry out loop sinking lower. If a large NPK correction is carried out, or if several threads are processed, it may be necessary for the cutting needles to carry out loop sinking lower to ensure reliable cut-off. Adjustment area: -10 to 10. Default setting: "0".

	Explanation	
5	Switch fluff absorption on or off. The needle beds in the knitting area are vacuumed off with the fluff absorption automatically. This does not interrupt ongoing knitting. We recommend switching on the fluff absorption permanently.	
	Interval	Periodic switch on and off of the suction device. After n courses: Number of courses without suction (1 course = 2 rows) For n courses: Number of courses with suction
	Stroke	"optimised": The cleaning row is carried out only in SEN area. "maximum": The cleaning row is carried out over the entire needle bed.
6	Clean the selection systems. Brushes are attached at the side of the needle bed. The carriage runs so far outwards that the brushes of the selection systems clean it. This does not interrupt ongoing knitting.	
	After n courses	Number of courses till the selection systems get cleaned (1 course = 2 rows)
	Carriage direction	"< >": to left and right "< >": to left only

Further information:

- Suction and cleaning row *(see page 2-19)*
- Symbols in this document *(see page 1-3)*

4.2.2 Setting language

The windows and the messages on the touch screen can be displayed in different languages.

Key	Function
	Call up the "Service" menu
	Call up "Basic settings" menu
	Call up the "Language" window
	Tap the "Select Path" key.
	Confirm input
	Save changes and end setting process
	End setting process without saving changes
	Call up the "Main menu"

Tab. 4-31 Keys for setting the language

Setting language:

1. Call up the "Service" menu.
2. Call up the "Basic settings" menu.
3. Call up the "Language" window.

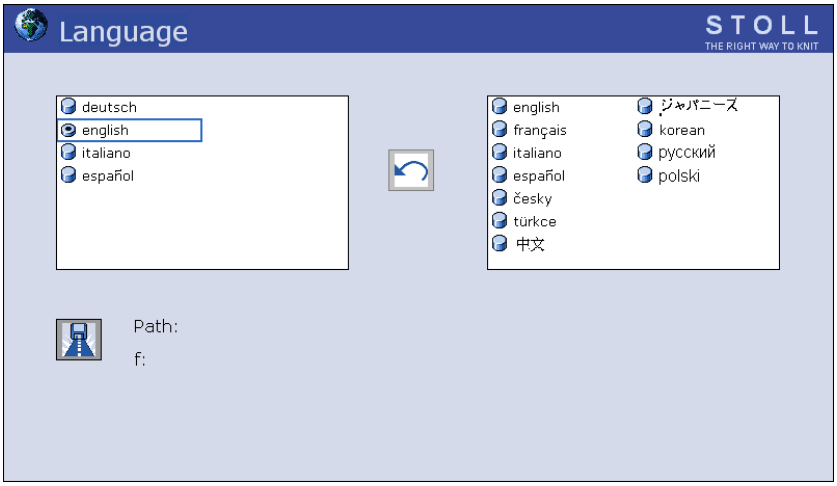


Fig. 4-37 "Language" window

4. Select a language present in the machine from the column on the left.

Confirm the input.

5. If the language has not been loaded yet, it must be reloaded now. The languages are, for example, saved on a floppy disk, the USB Memory Stick or the M1. To select the storage location, the corresponding source directory must be selected. Tap the "Select path" key. Select the new path. Save changes and end setting process.
6. Select the language in the right column. If the language is loaded, it appears in the column on the left. Repeat Step 4.
7. Call up the "Main menu".

4.2.3 Adjusting sensor mechanism *

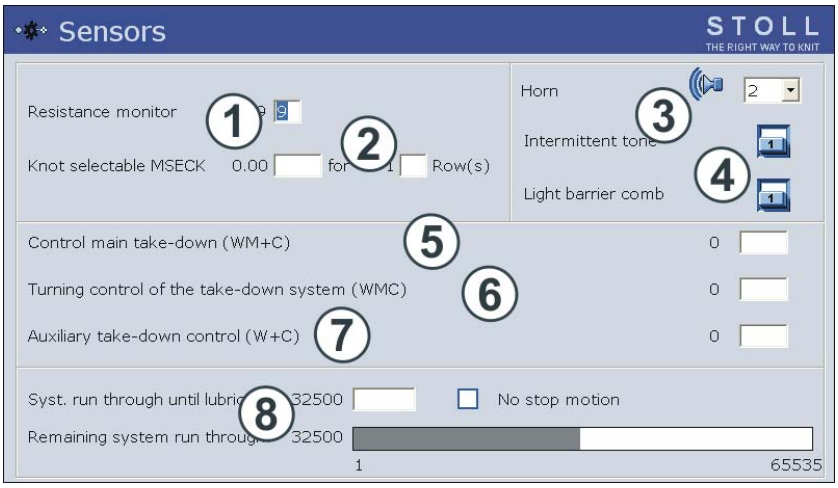


Fig. 4-38 "Sensors" window

Field	Data shown
1	Stop resistance Value range: 1-32, 1=not sensitive, 32=very sensitive
2	Carriage speed after small knots
3	Activation/deactivation of the horn and selection of the volume in three stages: 0=off, 1=low, 2=moderate, 3=loud Intermittent tone Switching on and off of intermittent tone for the horn.
4	If the take-down comb moves upward for fabric transfer, a light barrier checks whether the previously produced knitted panel has completely been ejected.
5	Monitoring of main take-down. If the fabric take-down roller has not turned after "n" (0-100) knitting rows, a stop motion is carried out (0=monitoring off).
6	Monitoring of main take-down. If the roller turns too quickly, a stop motion is carried out (e.g. when the fabric is ejected). Value range: 1-32, 1=not sensitive, 32=very sensitive
7	Monitoring of auxiliary take-down. If the auxiliary take-down has not turned after "n" (0-100) knitting rows, a stop motion is carried out (0=monitoring off).
8	Setting lubricating interval for needle bed

Key	Function
	Call up "Machine settings" window
	Call up "Additional function keys"
	Call up "Sensors" window
	Confirm input
	Call up the "Main menu"

Tab. 4-32 Keys for adjusting the sensors

Adjusting sensors:

1. Call up "Machine settings" window.
2. Call up "Additional function keys".
3. Call up the "Sensors" window.
4. Enter the value on the appropriate line.
5. Confirm the input.
6. Call up "Main menu".

Further information:

- Stop resistance *(see page 2-25)*
- Adjusting carriage speed *(see page 4-2)*
- Setting lubricating interval for needle bed *(see page 5-18)*
- Symbols in this document *(see page 1-3)*

4.2.4 Setting needle bed parameters

The needle bed parameters are used to make the needle-bed-specific settings. They serve for the fine adjustment of the needle beds. The needle bed parameters always remain saved, even when the operating system is read in again.

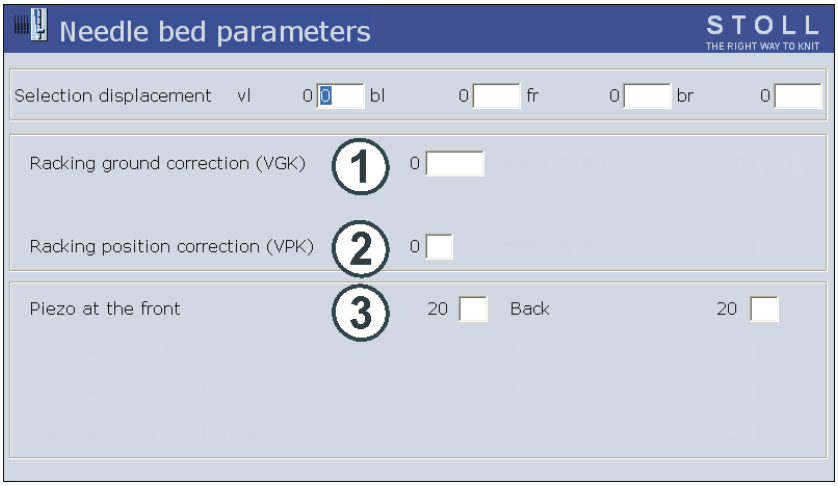


Fig. 4-39 "Needle Bed Parameters" window

Field	Data shown
1	Racking basic correction (VGK)
2	Racking position correction (VPK)
3	Shock stop for the front and rear needle beds and additional bed. Value range: 1-32, 1=not sensitive, 32=very sensitive

Key	Function
	Confirm input
	Call up the "Service" menu
	Call up "Basic settings" menu
	Call up the "Needle Bed Parameters" window.
	Call up the "Main menu"

Tab. 4-33 Keys for setting the needle bed parameters

Setting needle bed parameters:

1. Call up "Main menu".
2. Call up the "Service" menu.
3. Call up "Basic Settings" menu.
4. Call up the "Needle Bed Parameters" window.
5. Enter the value on the appropriate line.
6. Confirm the input.
7. Call up the "Main menu".
8. Save the change in the machine settings on the USB-Memory-Stick.

Further information:

- Adjusting basic racking correction VGK *(see page 4-64)*
- Adjusting racking position correction VPK *(see page 4-62)*
- Shock stop *(see page 2-25)*
- Save all machine data on the USB-Memory-Stick *(see page 7-18)*

4.2.5 Setting machine parameters

The machine parameters are used to make the machine-specific settings. They serve for the fine adjustment of the machine. The machine parameters always remain saved, even when the operating system is read in again.

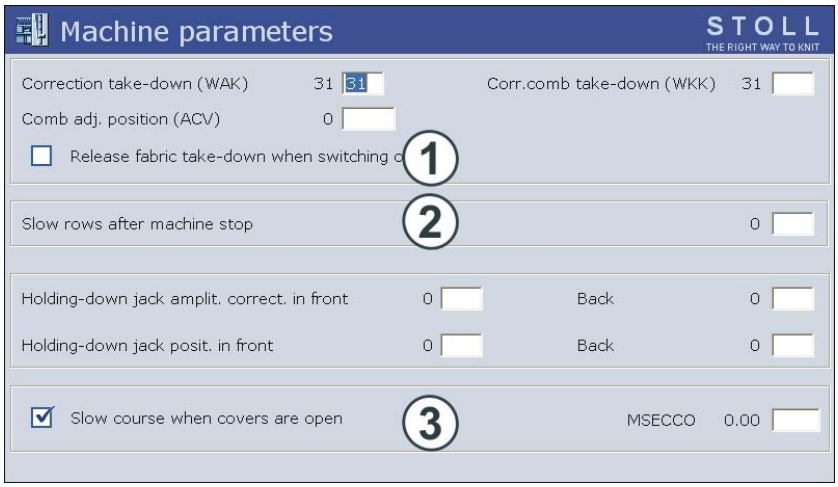


Fig. 4-40 "Machine parameters" window

Field	Data shown
1	Relieve fabric take-down when switching off the main switch. With a delicate fabric no stitch elongations then occur.
2	Following a machine stop the machine runs for several rows at reduced speed. Value range: 0-6, 0=off
3	Maximale Schlittengeschwindigkeit bei offenen Abdeckhauben, wenn die Einrückstange in Position 3 gehalten wird. Value range in input field "MSECCO": 0.00 to 0.20 m/s, standard: 0.05, step width: 0.05, 0.00=carriage does not move.

Key	Function
	Confirm input
	Call up the "Service" menu
	Call up "Basic settings" menu
	Call up "Machine parameters" window
	Call up the "Main menu"

Tab. 4-34 Keys for setting the machine parameters

Set machine parameters:

1. Call up "Main menu".
2. Call up the "Service" menu.
3. Call up "Basic Settings" menu.
4. Call up the "Machine parameters" window.
5. Enter the value on the appropriate line.
6. Confirm the input.
7. Call up the "Main menu".
8. Save the change in the machine adjustments on the USB-Memory-Stick.

Further information:

- Engaging rod *(see page 2-34)*
- Save all machine data on the USB-Memory-Stick *(see page 7-18)*

4.2.6 Setting switch-off time when a power failure occurs

The machine is immediately stopped when a power failure (longer than 45 milliseconds) occurs. The knitting program, operating system and the machine-specific data are not lost. The battery card (with the accumulators) ensures this. A pictograph indicating the power failure appears on the touch screen.

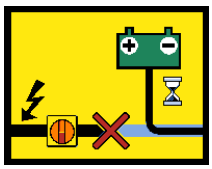


Fig. 4-41 "Power failure" pictograph

DANGER

High voltage!
Electrical shock may cause death or serious injuries.

➜ Even in the case of power failure, do not work on the electrical system of the machine without interrupting the power supply .

➜ Set the main switch to "0".

Longer power failure

If the power failure lasts more than 30 seconds (default setting), the computer of the knitting machine is automatically shut down. The time until the computer shuts down can be set from 2 to 180 seconds.

If you are sure that the power failure has been in effect for a longer period of time, you can switch off the main switch with "Switch off main switch".

The set time always remain saved, even when the operating system is read in again.

Shorter power failure

If the power supply is restored within the set time, confirm the power failure message with the "Confirm message" key. To continue knitting, start the machine with the engaging rod.

Conditions

If the battery voltage is too low ("Battery voltage low" message appears), it is not possible to extend the power failure time.

If a STIXX device is used with the machine, a check is automatically performed to determine which device it is. With a new STIXX device (ID No. 236 275), extension of the power failure time is possible. This is not possible with an older device, as the STIXX correction values cannot be saved and are therefore lost during a power failure. The power failure time is automatically reduced to 2 seconds. If a higher time is set, a message appears stating that this is not possible.

Key	Function
	Confirm message
	Switch off main switch
	Call up the "Service" menu
	Call up "Basic settings" menu
	Call up "Machine parameters" window
	Call up "Additional function keys"
	Call up the "Machine parameters 2" window.
	Confirm input
	Call up the "Main menu"

Tab. 4-35 Keys for adjusting the power failure time

Set power failure time:

1. Call up the "Service" menu from the "Main menu".
2. Call up the "Machine parameters" window from the "Basic settings" menu.
3. Call up "Additional function keys".
4. Call up the "Machine parameters 2" window.

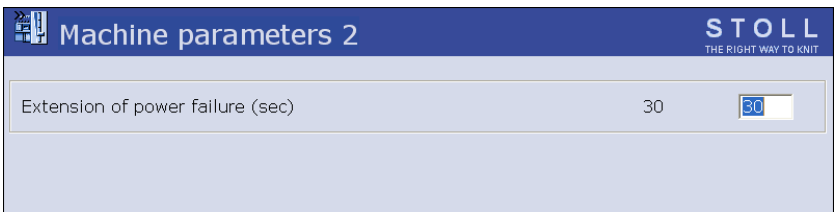


Fig. 4-42 "Machine parameters 2" window

5. Enter the desired time.
6. Confirm the input.
7. Call up "Main menu".

4.2.7 Copying service data

With this menu the service data can be copied on a data carrier.

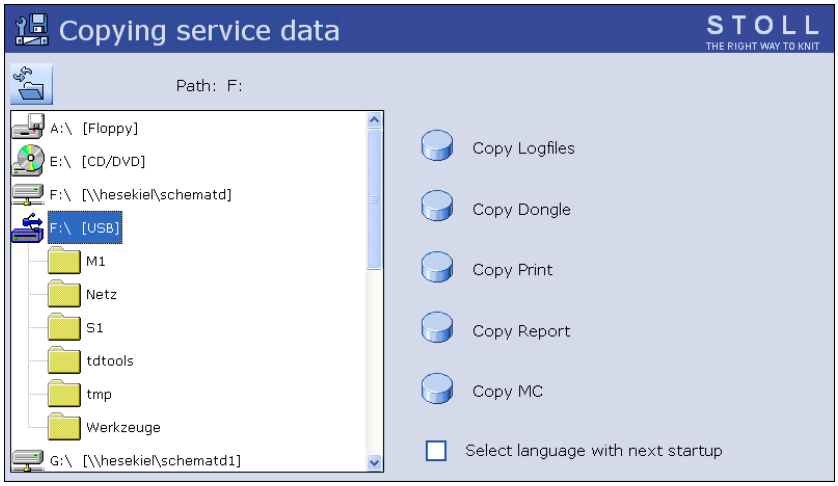


Fig. 4-43 "Copy service data" window

Designation	Explanation
Copy Logfiles	If the machine computer has serious problems, e.g.. . it does not react to any inputs or the program crashes any longer, the cause is very important for Stoll. The computer saves the data up to the fault internally in so-called "Logfiles". These files can be saved and sent to the Stoll helpline so that Stoll can carry out an exact error diagnosis.
Copy Dongle	The machine settings do not only contain the machine data, but also the machine options, the machine configuration, the report and other internal control information. It is important to back up the data, e.g. when the hard disk is replaced.
Copy Print	For the Stoll technician only
Copy Report	The operating data are saved with the STOLL machine number.
Copy Mc	The machine data include the machine-specific settings (correction values).
Select language with next startup	The language selection appears when switching on the machine again. After switching on the machine, the setting is reset.

Key	Function
	Call up the "Service" menu
	Call up "Copy service data" window
	Call up the "Main menu"

Tab. 4-36 Keys for copying the service data

Copy service data:

1. Call up the "Service" menu from the "Main menu".
2. Call up the "Copy service data" window.
3. Select the desired data carrier e.g. USB-Memory-Stick (Drive F:).
4. Tap the desired key.
   The data are saved.
5. Call up "Main menu".

Further information:

- Calling up report and shift counters *(see page 3-18)*
- Load/save machine data *(see page 7-16)*

4.2.8 Carrying out reference run

Following all repair and conversion work on the carriage assembly or on the needle bed, a reference run must be carried out.

The reference run is carried out with the following steps:

- Calling up and noting the machine data
- Carrying out the reference run
- Calling up and correcting the machine data
- Loading the knitting program and determining the racking reference data

Key	Function
	Call up the "Service" menu
	Call up "Basic settings" menu
	Returning to the previous window
	Call up "Machine parameters" window
	Call up the "Needle Bed Parameters" window.
	Call up "NPK values" window
	Call up "Needle selection" window
	Call up "Reference runs" window
	Call up the "Main menu"
	Call up "Machine start" window

Tab. 4-37 Keys for carrying out a reference run

Call up and note machine data

1. Call up the "Service" menu.
2. Call up "Basic Settings" menu.
3. Call up the "Machine parameters" window.

4. Compare the displayed values with the values on the machine data sheet. If necessary, correct the values on the machine data sheet.
5. Switch back to the previous window.
6. Call up the "Needle bed parameters" window.
7. Compare the displayed values with the values on the machine data sheet. If necessary, correct the values on the machine data sheet.
8. Switch back to the previous window.
9. Call up the "NPK values" window.
10. Compare the displayed values with the values on the machine data sheet. If necessary, correct the values on the machine data sheet.
11. Switch back to the previous window.
12. Call up the "Needle selection" window.
13. Compare the displayed values with the values on the machine data sheet. If necessary, correct the values on the machine data sheet.
14. Call up "Main menu".

Carrying out reference run

1. If the racking device is not in the basic position, press off the stitches of a needle bed.
2. Call up the "Service" menu.
3. Call up the "Reference runs" window.
4. If the carriage assembly is stopped in the left reversing position, tap the "SR!>" key.

   - or -

➜ If the carriage assembly is stopped in the right reversing position, tap the "SR!<" key.

5. Start the machine with the engaging rod.
   The carriage assembly carries out a reference run and stops when it has read in the reference data.
6. Press the engaging rod downward.
7. To stop the carriage assembly on the left-hand side outside the needle bed, tap the "S<" or "S>" key and start the machine with the engaging rod.
8. To move the carriage assembly a few centimeters to the right, tap the "S>" key, start the machine with the engaging rod and stop it again immediately. The carriage assembly must still be positioned outside the needle space.
9. Switch back to the previous window.

Calling up and correcting machine data

1. Call up the "Basic settings" menu.
2. Call up the "Machine parameters" window.
3. Compare the displayed values with the Stoll-values on the machine data sheet and if necessary correct the values in the window "Machine-Parameter" and confirm them.
4. Switch back to the previous window.
5. Call up the "Needle bed parameters" window.
6. Compare the displayed values with the values on the machine data sheet. If necessary, correct the values on the machine data sheet.
7. Switch back to the previous window.
8. Call up the "NPK values" window.
9. Compare the displayed values with the target values on the machine data sheet. If necessary, correct the values in the "NPK values" window and confirm them.
10. Switch back to the previous window.
11. Call up the "Needle selection" window.
12. Compare the displayed values with the target values on the machine data sheet. If necessary, correct the values in the "needle selection" window and confirm them.
13. Call up the "Main menu".

Read in knitting program and determine racking reference data

1. Read in the knitting program.
2. Call up the "Machine start" window.
3. Tap on the key "SP from line 1"
4. Start the machine with the engaging rod.
   The carriage assembly moves slowly and stops in the right reversing position.
5. Wait until the message "Racking finished" appears on the touch screen.
6. To switch on the needle selection, tap the needle selection "On" key in the "Machine start "window.

   The reference run is complete, the machine is ready to knit.

Further information:

- Reading in files, libraries and pattern folders *(see page 3-2)*

4.2.9 Adjusting racking position correction VPK

With the "Racking position correction (VPK)" the rear needle bed is aligned exactly relative to the front needle bed. The VPK always remains saved, even if the operating system is imported again.

Key	Function
	Call up the "Service" menu
	Call up "Basic settings" menu
	Call up the "Needle Bed Parameters" window.
	Call up the "Main menu"

Tab. 4-38 Buttons for adjusting VPK

Adjusting VPK:

1. Program an empty row with transfer racking and fix the knitting indication.
2. Push up two opposite needles in the center of the needle bed.
3. Check whether the needle hook of the front needle dips into the pelerine spring of the rear needle.
4. If this is not the case: Push back needles and correct racking device.
5. Call up "Main menu".
6. Call up the "Service" menu.
7. Call up "Basic Settings" menu.

8. Call up the "Needle Bed Parameters" window.

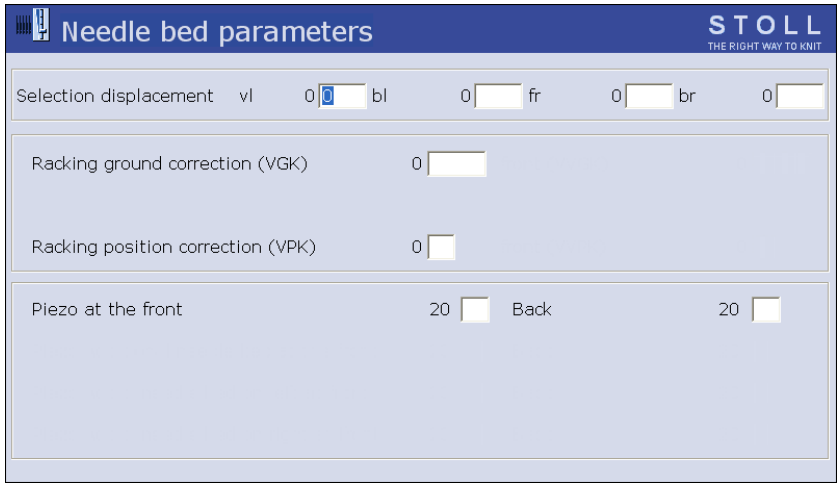


Fig. 4-44 "Needle Bed Parameters" window

9. Correct the value in the "Racking position correction (VPK)" line.
10. Repeat steps 2 to 9 until the needle hook of the front needle dips into the pelerine spring of the rear needle.
11. Enter the value of the "Racking position correction (VPK)" in the machine data sheet.
12. Call up the "Main menu".
13. Save the machine data on the hard disk.

Further information:

- Helpful knitting rows *(see page 6-4)*
- Load/save machine data *(see page 7-16)*

4.2.10 Adjusting basic racking correction VGK

The "basic racking correction (VGK)" must be adjusted after changing part of the racking device, e.g. of racking motor or racking belt. During installation, make sure that the front and rear needle beds are opposite each other. The VGK always remains saved, even if the operating system is imported again.

Key	Function
	Call up the "Service" menu
	Call up "Basic settings" menu
	Call up the "Needle Bed Parameters" window.
	Call up the "Main menu"
	Confirm input

Tab. 4-39 Buttons for adjusting VGK

Adjusting VGK:

1. Call up "Main menu".
2. Call up the "Service" menu.
3. Call up "Basic Settings" menu.
4. Call up the "Needle Bed Parameters" window.

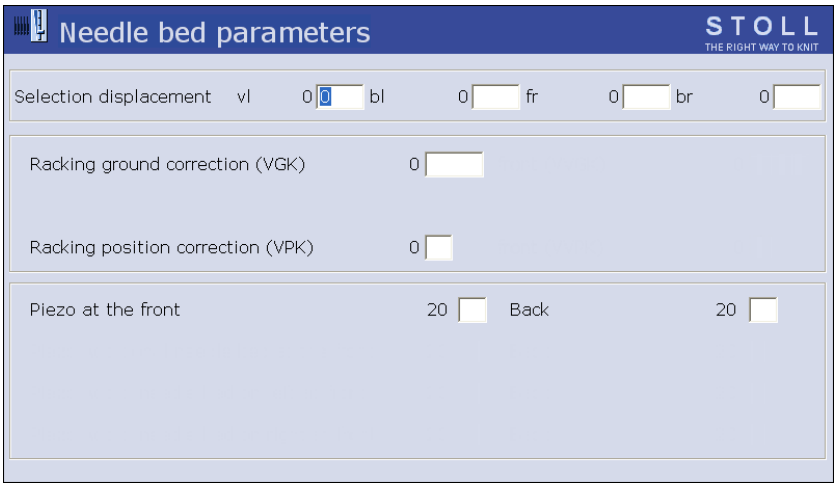


Fig. 4-45 "Needle Bed Parameters" window

5. In the "Racking position correction (VPK)" line, enter the value "0" and

confirm it.

6. Program an empty row with half racking and fix the knitting indication.
7. Push up several opposite needles at various positions of the needle bed (left, center, right) on both needle beds in such a way that the needle hooks touch each other.
8. Check whether the needle heads of the front and rear needle beds are exactly in a line.
9. If this is not the case: Push back needles somewhat and enter the "Basic racking correction (VGK)" using the linear regulator. Confirm the input.
10. Check whether the needle heads of the front and rear needle beds are exactly in a line.
11. If this is not the case, repeat steps 9 and 10 until the needle hooks of the front and rear needle beds are exactly in line.
12. Enter the value of the "Basic racking correction (VGK)" in the machine data sheet.
13. Call up the "Main menu".
14. Adjust the "Racking position correction (VPK)".
15. Save the machine data on the hard disk.

Further information:

- Helpful knitting rows *(see page 6-4)*
- Adjusting racking position correction VPK *(see page 4-62)*
- Load/save machine data *(see page 7-16)*

4.2.11 Correcting position of stitch cams

Each take-down cam can be corrected for each carriage direction

- for knitting
- for knitting with split technique

Reduce stitch tension: Value without sign or with "+" sign

Increase stitch tension: Value with "-" sign

The second take-down cam of a system is always corrected, as only it is active.

The stitch cams are numbered consecutively from left to right, regardless of the carriage direction.

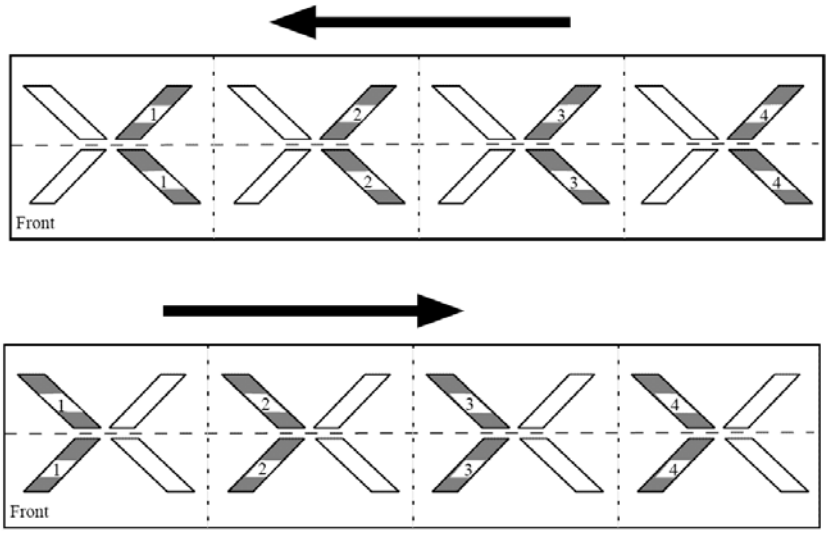


Fig. 4-46 Numbering of stitch cams for a 4-system machine

	Meaning
System 1-n	Number of knitting system counted from left to right
<<	Carriage direction to the left
>>	Carriage direction to the right
n.n	Correction value for knitting
$ n.n	Correction value for knitting with split technique

Tab. 4-40 Meaning of displays in NPK values window

Key	Function
	Call up the "Service" menu
	Call up "Basic settings" menu
	Call up "NPK values" window
	Reduce current value by one step
	Increase current value by one step
	End the setting process and save the changed values.
	Call up the "Main menu"

Tab. 4-41 Keys for correction of stitch cam position (NPK value)

Correct position of stitch cams:

1. Call up the "Service" menu.
2. Call up the "Basic settings" menu.
3. Call up the "NPK values" window.
4. Change the NPK values for knitting and for knitting with split stitch and confirm the changes.
5. Call up the "Main menu".

4.2.12 Adjusting needle brushes

The needle brushes must be adjusted when malfunctions occur during stitch formation, e.g. drop stitches.

The needle brushes open the needle latches for laying in the thread. They are swivel-mounted so, that they are always inclined in the direction of travel of the carriage assembly.

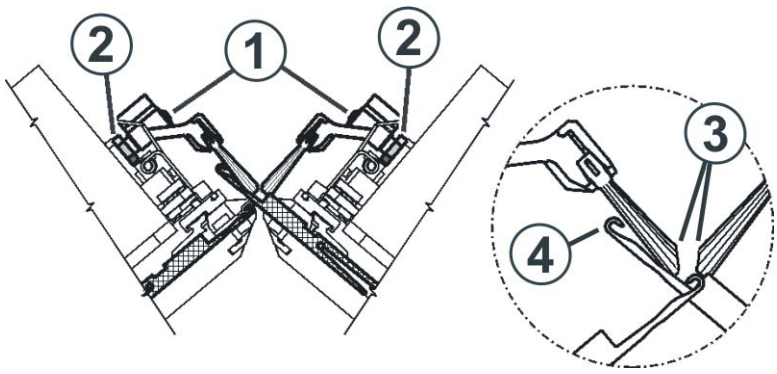


Fig. 4-47 Inclination of needle brushes

The needle brushes are correctly adjusted when

- the brushes project an equal distance over both sides of the holder. The markings on the brush are visible on both sides.
- the canted surfaces (3) opposite each other
- the brushes do not touch the needle hooks of the fully raised needles (RR). The distance (4) is to be 0.5 mm to 1 mm.

Key	Function
	Call up "Manual interventions" window

Tab. 4-42 Key for calling up "Manual interventions" window

Adjusting needle brushes:

1. Release hexagon nut (2).
2. Adjusting needle brush at screw (1).
3. Retighten hexagon nut (2).
4. Adjust needle brushes on all systems.
5. Call up "Manual interventions" window.
6. Move carriage assembly at low speed. To do this, press "Jog" button and check adjustment of needle brushes.

4.2.13 Coupling carriage assembly wide or narrow (CMS 822)

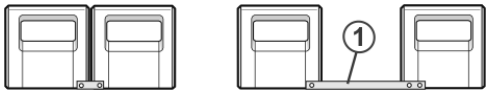


Fig. 4-48 Narrow coupling and wide coupling

Both carriage assemblies can work coupled wide in the tandem mode or as four systems coupled narrow.

Certain patterns require a larger parking area for the yarn carriers between both fabric pieces. To prevent the carriage assembly from having to move and additional traversing path for this reason, the coupling widths can be changed. Various holes are provided on the coupling rod (1) for this purpose.

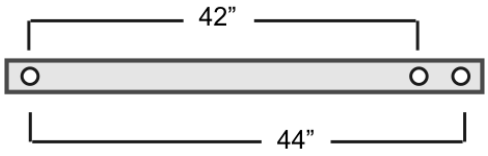
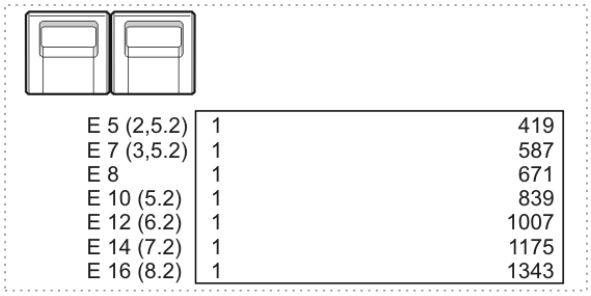


Fig. 4-49 Coupling widths for CMS 822

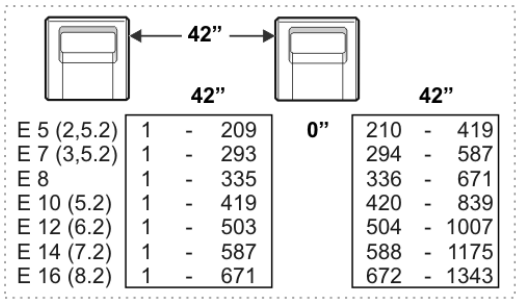
Needle area with 84" needle bed width



E 5 (2,5.2)	1	419
E 7 (3,5.2)	1	587
E 8	1	671
E 10 (5.2)	1	839
E 12 (6.2)	1	1007
E 14 (7.2)	1	1175
E 16 (8.2)	1	1343

Fig. 4-50 Narrow coupling

Coupling width 42"



E 5 (2,5.2)	1	-	209	0”	210	-	419
E 7 (3,5.2)	1	-	293		294	-	587
E 8	1	-	335		336	-	671
E 10 (5.2)	1	-	419		420	-	839
E 12 (6.2)	1	-	503		504	-	1007
E 14 (7.2)	1	-	587		588	-	1175
E 16 (8.2)	1	-	671		672	-	1343

Fig. 4-51 Needle area for coupling width 42"

Coupling width 44"

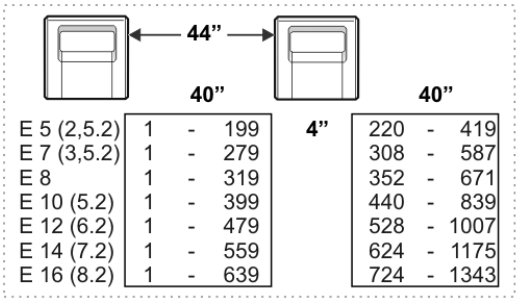


Fig. 4-52 Needle area for coupling width 44"

Coupling carriage assembly wide or narrow

Key	Function
	Call up the "Main menu"
	Call up the "Service" menu
	Call up "Basic settings" menu
	Call up the "Machine configuration 2" window.
	Call up "Reference runs" window

Tab. 4-43 Keys for the work step coupling carriage assemblies wide or narrow

Couple carriage assemblies wide

1. Program an empty row and fix the knitting indication.
2. Start the machine with the engaging rod and stop it again when the carriage stands just after the left reversing position.
3. Switch off 40 V power supply.
4. Open the lock of the rear panel segments with the square wrench from the enclosed accessories and take off the segments.

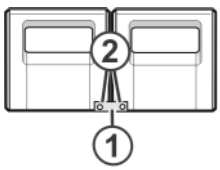


Fig. 4-53 Narrow coupling of carriage assemblies

5. Remove the screws (2). Take off the coupling rod (1).

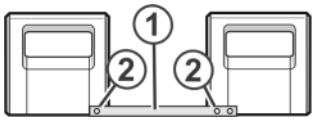


Fig. 4-54 Wide coupling of carriage assemblies

6. For wide coupling (tandem machine), push the right carriage assembly to the right till the coupling rod (1) can be mounted.
7. Insert the screws (2) and tighten.
8. To replace the cams, remove the carriage part.

Fig. 4-55 Replacing cams for wide coupling

9. Place carriage part on support surface and assembly with carriage assembly.
10. Close the rear panel.
11. Switch on 40 V power supply.
12. Call up the "Main menu".
13. Call up the "Service" menu.
14. Call up the "Basic settings" menu.

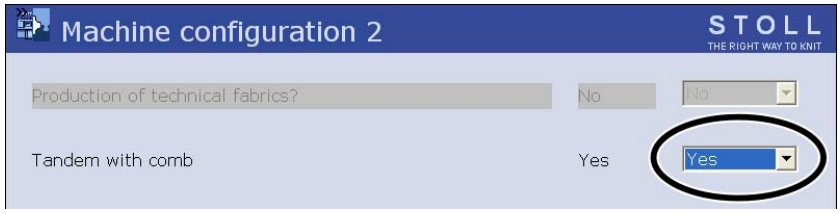


Fig. 4-56 "Tandem with comb" setting

15. Call up the "Machine configuration 2" window. Check the setting in the "Tandem with comb" field.
"Yes" - Machine works with the comb take-down
"No" - Machine works without comb take-down
16. Call up the "Reference runs" menu from the "Service" menu.
17. Tap the "SR!>" key and start the machine with the engaging rod.
The carriage assembly runs in the creep speed until it automatically stops and the message "Reconfiguration" appears on the display. The control adapts itself to the new coupling width. After a short time the message disappears again.
18. Move carriages to the left. Thereby in the window "Reference courses" tap on the key "S<" and start machine with the engaging rod.
19. If the left carriage is located outside the needle bed, stop the machine.

20. In the window "Reference courses" tap on the key "S>". Pull the engaging rod slightly upward. The carriages may run only a few centimeters towards right.
    The reference course is ended.
21. Reading in the knitting program.

If the carriage assemblies operate coupled wide, the needles between both fabric pieces and at the right edge next to the right fabric piece must be free of fabric.

All yarn carriers must be positioned. Calling up yarn carrier assignment.

Couple carriage assembly narrow

1. Program an empty row and fix the knitting indication.
2. Start the machine with the engaging rod and stop it again when the carriage stands just after the left reversing position.
3. To replace the cams, remove the carriage part.

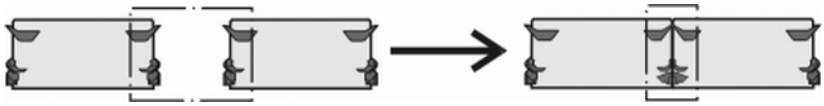


Fig. 4-57 Replacing cams for narrow coupling

4. Place carriage part on support surface and assembly with carriage assembly.
5. Open the lock of the rear panel segments with the square wrench from the enclosed accessories and take off the segments.

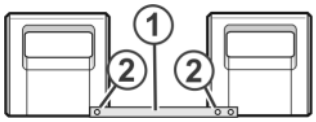


Fig. 4-58 Wide coupling of carriage assemblies

6. Remove the screws (2). Take off the coupling rod (1).

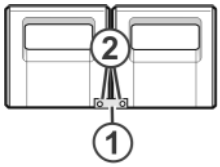


Fig. 4-59 Narrow coupling of carriage assemblies

7. For narrow coupling (tandem machine), push the left carriage assembly to the right and hook in the coupling rod (1).
8. Insert the screws (2) and tighten.

9. Lay the cable strand in the clip. This prevents the cables at the support (3) from rubbing and being damaged.

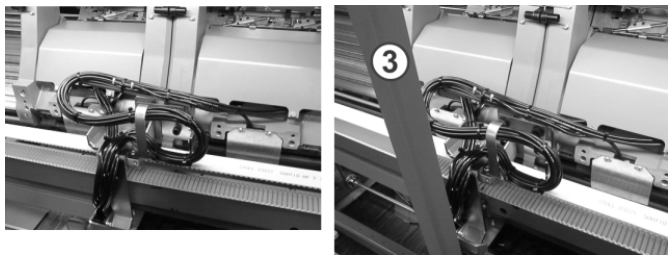


Fig. 4-60 Laying cable strand in clip

10. Close the rear panel.
11. Switch on 40 V power supply.
12. Call up the "Main menu".
13. Call up the "Service" menu.
14. Call up the "Reference runs" window.
15. Tap the "SR!>" key and start the machine with the engaging rod.
    The carriage assembly runs in the creep speed until it automatically stops and the message "Reconfiguration" appears on the display. The control adapts itself to the new coupling width. After a short time the message disappears again.
16. Move carriage to the left. Thereby in the window "Reference courses" tap on the key "S<" and start machine with the engaging rod.
17. If the carriage is located outside the needle bed, stop the machine.
18. In the window "Reference courses" tap on the key "S>". Pull the engaging rod slightly upward. The carriage may run only a few centimeters towards right.
    The reference course is ended.
19. Reading in the knitting program.

Further information:

- Calling up yarn carrier assignment and allocation *(see page 3-11)*
- Helpful knitting rows *(see page 6-4)*
- Switching power supply 40 V off and on *(see page 6-1)*
- Removing and mounting carriage part *(see page 6-25)*
- Removing cam plate *(see page 6-32)*

4.2.14 Adjusting needle detector

The needle detector is correctly adjusted when

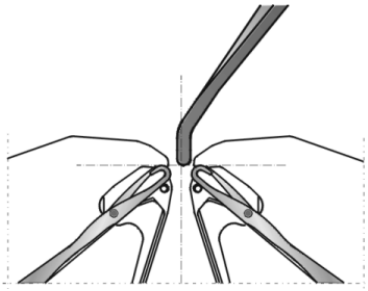


Fig. 4-61 Adjusting the needle detector

- it is near the holding-down jacks of the rear needle bed, however does not tap them
- the lower end of the needle detector is at the level of the needle hooks

CAUTION

Damage to the needle detector!
If several yarn carriers are stopped at the same place, the needle detector will be damaged, as the yarn carriers cannot avoid the needle detector.

➜ Always stagger yarn carriers.

➜ Staggering yarn carriers.

Further information:

- Setting and staggering yarn carriers *(see page 4-6)*

4.2.15 Adjusting yarn carriers

The yarn carriers are correctly adjusted when

- the distance between the cam center of the knitting system and the yarn carrier in each system is identical in both carriage directions
- the thread is laid on the open latch at exactly the same point by each yarn carrier for both selvedge needles
- the yarn carrier tips exactly move between the needle beds in the needle cross and the distance between yarn carriers and the closed needle latch is 0.5 mm to 1.0 mm
- the yarn carrier in the clamping and cutting area does not tap the cutting needle located in the working position
- the yarn carriers of the track 1 and 8 are also set 0.5 higher so that they do not touch the yarn carrier limiters (3)

Key	Function
	Call up "Manual interventions" window

Tab. 4-44 Key for calling up "Manual interventions" window

Adjusting yarn carriers:

1. Remove needle brushes by releasing screws (1).

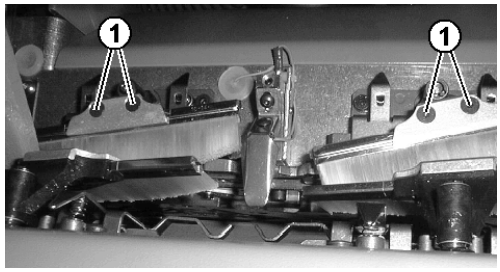


Fig. 4-62 Screws of needle brushes

2. Stop carriage assembly in needle area.

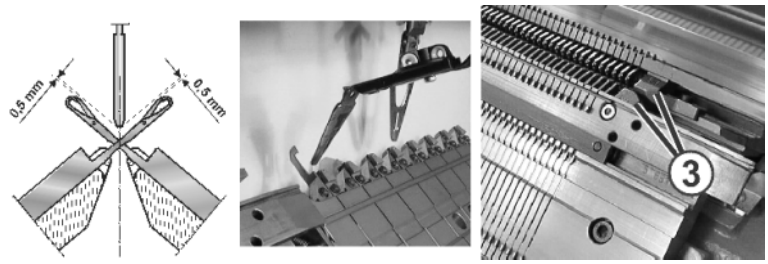


Fig. 4-63 Adjusting yarn carriers

3. Adjust yarn carriers if necessary. When doing so, the carriage assembly must be stopped in the needle area.
4. Call up "Manual interventions" window.
5. Move carriage assembly at low speed. To do this, press "Jog" button and check adjustment of yarn carriers.

4.2.16 Adjusting yarn carrier limiters

in case of all machines (exception: CMS 830 C and CMS 520 C)

The yarn carrier 1 is stopped after clamping point 8.

Adjusting yarn carrier limiters:

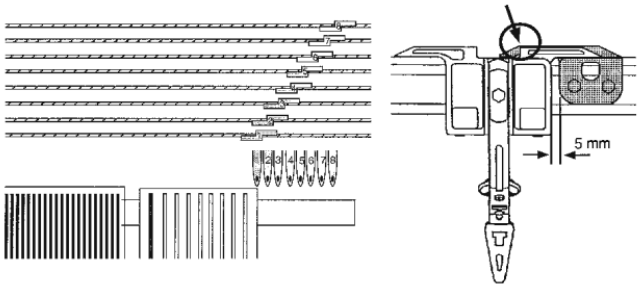


Fig. 4-64 Adjusting yarn carrier limiters

1. Release screws (1) .
2. Move yarn carrier limiters and position them staggered.
3. Retighten the screws (1).

with CMS 830 C and CMS 520 C

For reasons of space, yarn carrier 1 must be stopped exactly between clamping points 7 and 8.

Adjusting yarn carrier limiters:

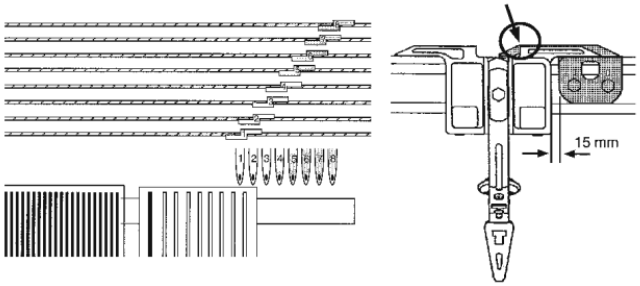


Fig. 4-65 Adjusting yarn carrier limiters

1. Release screws (1) .
2. Move yarn carrier limiters and position them staggered.
3. Retighten the screws (1).

4.2.17 Adjusting yarn carrier guide

The yarn carrier guide must be adjusted if the yarn carrier can be lifted from the yarn carrier rail or a yarn carrier plunger is not put out of action.

Adjusting yarn carrier guide:

1. To check whether the yarn carrier can be lifted from the yarn carrier rail, take the left and right-hand sides of the yarn carrier housing in both hands and move the yarn carrier housing upward and downward.

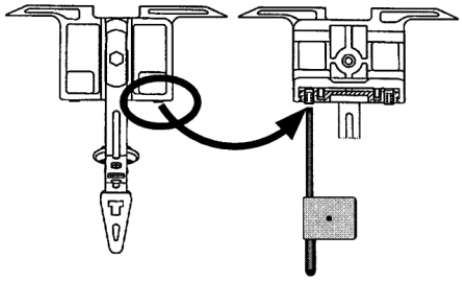


Fig. 4-66 Adjusting yarn carrier guide

2. If necessary push the setting key inwards with the adjusting key from the accessories till the yarn carrier cannot be raised erect any more.
3. Turn the setting key back by one-eighth of a turn.

4.2.18 Adjusting the brushes of the central lubrication *

The brushes have been adjusted correctly if they touch the working butts lightly.

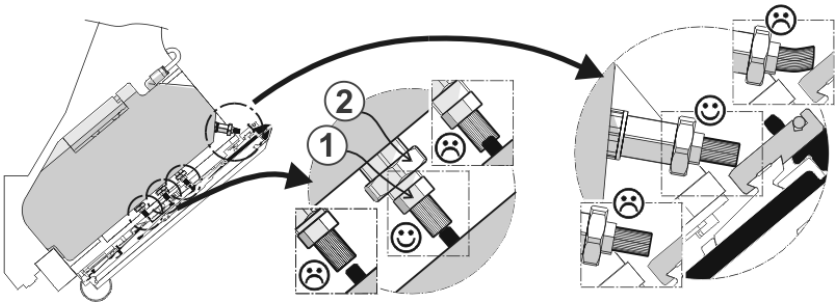


Fig. 4-67 Brushes of the central lubrication

Adjusting the brushes of the central lubrication:

1. Release hexagon nut (2).
2. Adjust brushes on hexagon nut (1).
3. Retighten hexagon nut (2).
4. Adjust all brushes.

Further information:

- Symbols in this document *(see page 1-3)*

4.2.19 Adjusting intarsia yarn carrier *

The yarn carriers are correctly adjusted when

- an unswiveled yarn carrier passes by a swiveled yarn carrier
- the distance between the cam center of the knitting system and the yarn carrier in each system is identical in both carriage directions
- the thread is laid on the open latch at exactly the same point by each yarn carrier for both selvedge needles
- the yarn carrier tips exactly move between the needle beds in the needle cross and the distance between yarn carriers and the closed needle latch is 0.5 mm to 1.0 mm
- the yarn carriers of the track 1 and 8 are also set 0.5 higher so that they do not touch the yarn carrier limiters (3)

Adjust intarsia yarn carrier:

1. Remove needle brushes by releasing screws (1).

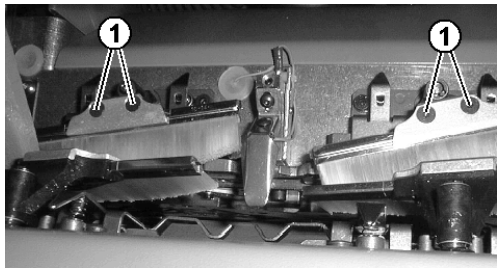


Fig. 4-68 Screws of needle brushes

2. Stop carriage assembly in needle area.

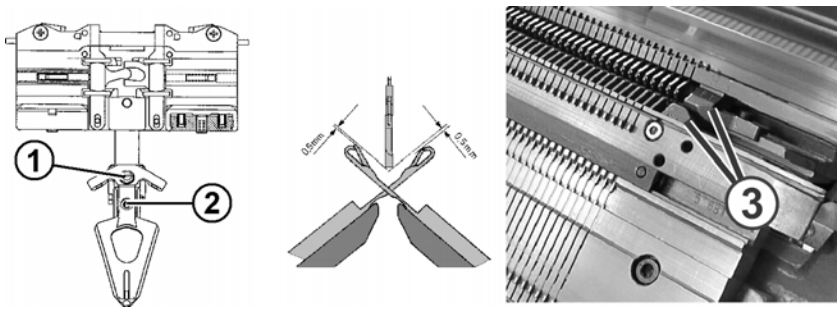


Fig. 4-69 Adjusting intarsia yarn carriers

3. To adjust the height of the yarn carrier, release the screw (1).
4. Adjust the height of the yarn carrier and retighten the screw (1).
5. To adjust the position of the yarn carrier head relative to the needle beds, release the screw (2).
6. Adjust the position of the yarn carrier head relative to the needle beds, retighten the screw (2) and coat it with a screw locking compound (e. g. LOCTITE 221).

Further information:

- Symbols in this document *(see page 1-3)*

4.2.20 Shifting intarsia yarn carrier in area of carriage assembly *

Intarsia yarn carriers located in the area of the carriage assembly cannot be shifted by hand. They are shifted with the shifting device from the accessories.

Shift yarn carriers in area of carriage assembly:

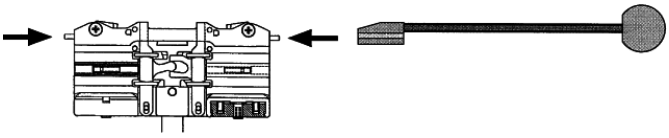


Fig. 4-70 Shifting device

7. Press the lifters inward with the shifting device from the accessories and shift one or more yarn carriers out of the area of the carriage assembly.

Further information:

- Symbols in this document *(see page 1-3)*

4.2.21 Adjusting the stopping point of an intarsia yarn carrier

As soon as an intarsia yarn carrier reaches the end of its working area during knitting, the driver is lifted out of the yarn carrier. The yarn carrier is braked and swivels back into its color field. In the process, it is to stop approx. 1 to 2 needles from the edge of its color field.

The following reasons may cause the yarn carrier not to be stopped in the correct position:

- the inner surface of the yarn carrier rail is oily or greasy
- the stopping time of the yarn carrier is not set correctly

8. the pressure plates are worn

Further information:

- Symbols in this document *(see page 1-3)*

Check yarn carrier rail

➜ Make sure that the yarn carrier rail is oil and grease-free, and clean it if necessary.

If the yarn carrier is not stopped in the correct position:

➜ Correct the stopping point of the yarn carriers.

Correct the stopping point of the yarn carriers

Key	Function
	Call up the "Yarn carrier" window
	Confirm changes
	Call up the "Main menu"

Tab. 4-45 Keys for correcting the stopping point

1. Call up the "Yarn carrier" window.
2. Enter the yarn carrier correction value.
3. Confirm the changes.
4. Call up "Main menu".

If the yarn carrier is not stopped in the correct position:

➜ Turn over or replace the pressure plate.

Further information:

- Setting and staggering yarn carriers *(see page 4-6)*

Turn over or replace the pressure plates

1. Remove the yarn carrier.

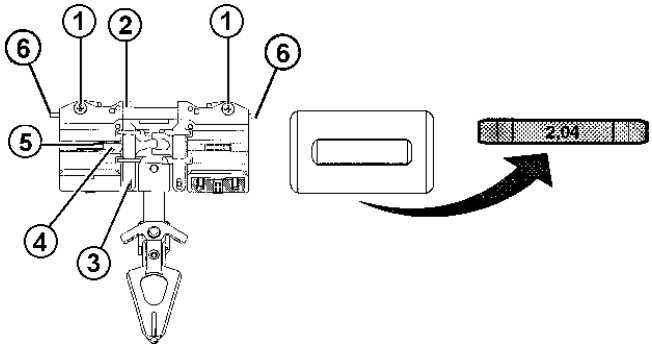


Fig. 4-71 Removing pressure plate

2. Release but do not remove the screws (1).
3. Lift the clamping lever (2) out of the locating screw (3) and remove it. When doing this, make sure that the spring pin (5) remains in the housing (4).
4. Check whether the thickness designation 2.04 or 2.06 is visible on the built-in pressure plate.
5. Remove the pressure plate from the clamping lever.

CAUTION

Complicated adjustment work is required when replacing the pressure plates!

If the various thicknesses and positions of the pressure plates are interchanged, complicated adjustment work is required to set the stopping point of the yarn carrier correctly.

➜ Do not interchange the various thicknesses and positions of the pressure plates!

6. If the marking 2.04 or 2.06 was visible on the built-in pressure plate, turn over the pressure plate and reinsert it.

- or -

➜ If the marking 2.04 or 2.06 was not visible on the built-in pressure plate, insert a new pressure plate of the same thickness with the marking facing upward.

7. Press the spring pin (4) into the spring part (5) and insert the clamping lever (2).
8. Tighten the screws (1).
9. Make sure that the lifter (6) moves smoothly.

Further information:

■ Replacing yarn carrier *(see page 6-36)*

4.2.22 Adjusting plating yarn carrier

Note the following items when working with this yarn carrier:

1. Set yarn carrier as deep as possible.
2. Basic thread into the oblong hole (1).

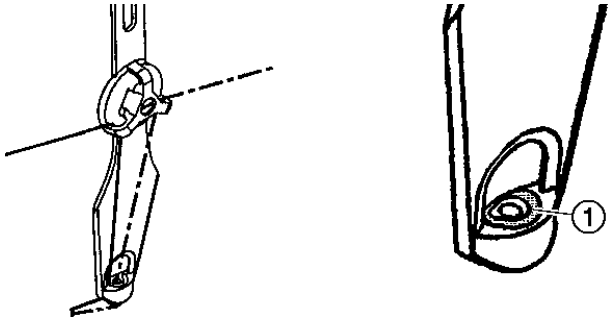


Fig. 4-72 Oblong hole of plating yarn carrier

3. Set the thread tension of the ground thread somewhat higher than for the plating thread.

Define the yarn carrier as a plating yarn carrier in the knitting program (e.g.: "Y-3A:P;"). The specification is important for yarn carrier checking. The command takes the larger width of the plating yarn carrier feeder when positioning the yarn carrier.

4.3 Working with files

WARNING

Computer viruses!
Loss of data or production. Computer viruses can creep into the machine through unscanned data via USB port or network.

➜ Bring in only virus free data on to the knitting machine.

This chapter contains information on:

- Help on working in the windows *(see page 4-84)*
- File manager *(see page 4-90)*
- Working with files, libraries and pattern folders *(see page 4-94)*
- Displaying file in pattern editor *(see page 4-98)*
- Deleting knitting memory *(see page 4-100)*
- Copying files *(see page 4-102)*
- Select the current folder *(see page 4-105)*
- Carrying program test *(see page 4-108)*

4.3.1 Help on working in the windows

The following help items should be heeded so that you may work in the various windows.

Call up direct help

Key	Function
	Call up "Direct help" for the next pressed key

Tab. 4-46 "Direct help" key

➜ To receive direct help on a specific key in the menu, first tap the "direct help" key and then the key for which you want help.

Positioning cursor

The text is entered at the point at which the cursor (insert mark) is located.

➜ To move the cursor to a certain position, touch that position.

Marking text

A word or a text block is marked for being copied, moved or deleted.

➜ To mark a word, tap the word twice.

➜ To mark a line, tap the line three times.

➜ To mark a text block, pull your finger from the starting position to the end position.
- or -
On the 1st level of the SINTRAL editor, use both keys "Set beginning of a marking" and "Set end of a marking".

Deactivating marking

➜ To cancel a marking, touch any spot.

Set/deactivate write protection

Key	Function
	"Activate write protection" : Activate write protection of selected file
	"Deactivate write protection" : Deactivate write protection of the selected file

Tab. 4-47 "Activate write protection" and "Deactivate write protection" key

➜ If a write-protected file is loaded, the information "Write protection" appears in the status line of the SINTRAL editor.

Entry in selection window

Selection windows are opened when some keys are selected. The following input is possible:

- a text can be entered with the virtual keyboard
- a selection occurs manually by tapping a key

The entries must be confirmed by the "Confirm input" key.

Key	Function	Key	Function
	Return to the 1st level in the SINTRAL editor		Confirm input and run in the SINTRAL editor

Tab. 4-48 Function keys in the selection windows

Call up "Find" selection window

The corresponding location is sought when you enter line numbers or text and select the keys.

Key	Function
	"Find" a certain term
	"Continue" : Continue searching for a certain term

Tab. 4-49 "Find" and "Continue" keys

1. Call up the "Find" selection window with the "Find" key.
   The "Search for" window appears.

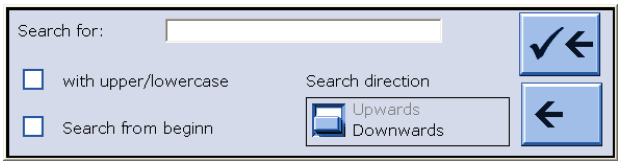


Fig. 4-73 "Find" selection window

2. Enter the line number or text to be searched for with the virtual keyboard.
3. Select options for uppercase/lowercase letters and the search direction.
4. To start the "Search from begin", select the "Yes" key.

   - or -

➜ Select the "No" key if you only want to search from here.

5. To activate the search, tap the top arrow key,

   - or -

➜ To exit the window, tap the bottom arrow key.

6. To find other instances of the text, tap the "Continue" key,

   - or -

➜ To start the next search, enter a new line number or text with the virtual keyboard.

If the message "Search title not found" appears:

Either the text searched for is not contained in the knitting program or the options are not set correctly.

➜ Check the text entered.

➜ Change the search direction.

Call up "Replace" selection window

This is replaced in the loaded file by entering line numbers and commands and selecting the keys.

Key	Function
	Search for a certain term and "Replace" it by a new one

Tab. 4-50 "Replace" key

1. Call up the "Replace" selection window. Answer the safety prompt. The "Replace by" window appears.

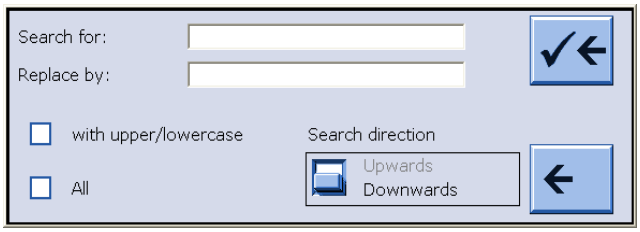


Fig. 4-74 "Replace" selection window

2. Enter the text to be replaced via "Search for" with the virtual keyboard.
3. Enter the text to be inserted via "Replace by" with the virtual keyboard.
4. Selecting the "All" key, the text (without prompt in Item 7) is replaced throughout the entire file.
5. Select options for uppercase/lowercase letters and the search direction.
6. To activate the search, tap the top arrow key,

   - or -

➜ To exit the window, tap the bottom arrow key.

If the message "Search title not found" appears:

Either the text searched for is not contained in the knitting program or the options are not set correctly.

➜ Check the text entered.

➜ Change the search direction.

7. Answer the question in the newly opened selection window. Press the key "1" to confirm.

   - or -

➜ For repeated prompting, press the "0" key if the term is only to be replaced once.

   - or -

➜ Press the "ESC" key to cancel.

Call up "Go to" selection window

You can jump to the corresponding point in the loaded file by entering line numbers or names and selecting the keys.

Key	Function
	Carry out "Go to" a certain position

Tab. 4-51 "Go to" key

1. Call up the "Go to" selection window with the "Go to" key.
   The "Go to" window appears.

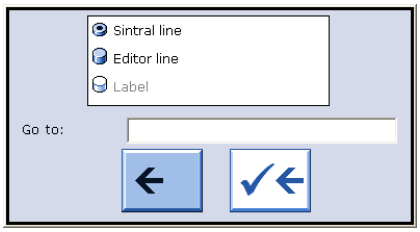


Fig. 4-75 Selection window for "Go to" function key

2. Enter the line number or name to be searched for with the virtual keyboard.
3. To go to Sintral line numbers, tap the "Sintral line" key,

   - or -

➜ To execute a real line jump, tap the "Editor line" key,

   - or -

➜ To jump to the named line, tap the "Label" key.

4. To activate the search, tap the right arrow key,

   - or -

➜ To exit the window, tap the left arrow key.

Automatic calling of virtual keyboard

The virtual keyboard is automatically activated when various function keys are selected. Either a number block appears for inputting numbers or an alphanumeric keyboard appears for entering letters and numbers.

The virtual keyboard contains three switchover keys:

- SHIFT key
- CPS LCK key
- CTRL key

To use a switchover key, e.g. to enter a special character, first press the switchover key and then the key with the special character. To return to normal characters, press the switchover key again.

Key	Function
	Switch on virtual keyboard
	Switch off virtual keyboard
SHIFT	SHIFT key: switch over between uppercase and lowercase letters and between numbers and special characters
CPS LCK	CPS LCK key: switch over between uppercase and lowercase letters; the setting of numbers or special characters is maintained
CTRL	CTRL key: switch over to function keys F1 to F10 and keyboard codes (short cuts)

Tab. 4-52 Switchover keys

4.3.2 File manager

Files and folders (directories and images) are managed in "File -Manager" window.

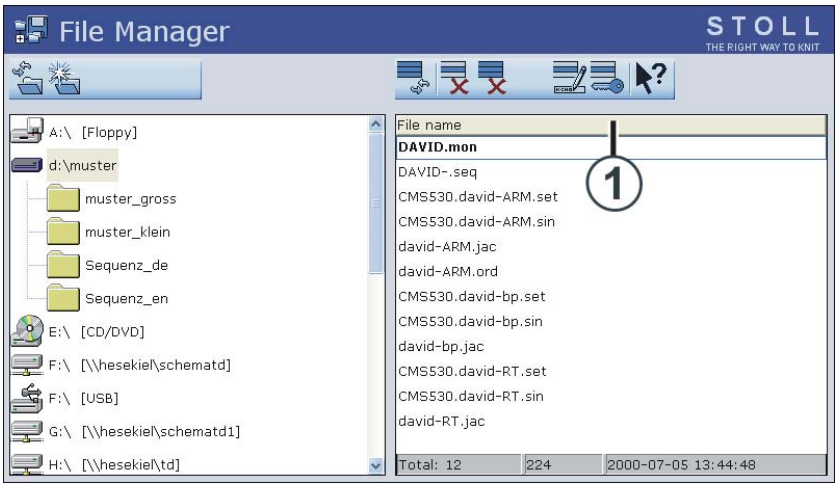


Fig. 4-76 "File manager" window

All actions pertaining to folders are mentioned on the left-hand side. A new folder can be created, for example.

You have access to the following data carriers:

- USB Memory Stick
- Hard disk of the computer in the knitting machine
- Online
- Network

On the right hand-side the files from the selected folders are displayed. This list of files appears in alphabetical order (standard setting), and the number of existing files is displayed on the status line (Total:) of the list.

Setting the sort sequence

The sort sequence can individually be adjusted. To do so, click on the header (1). Select and confirm the sort sequence in the "Sort by" window.

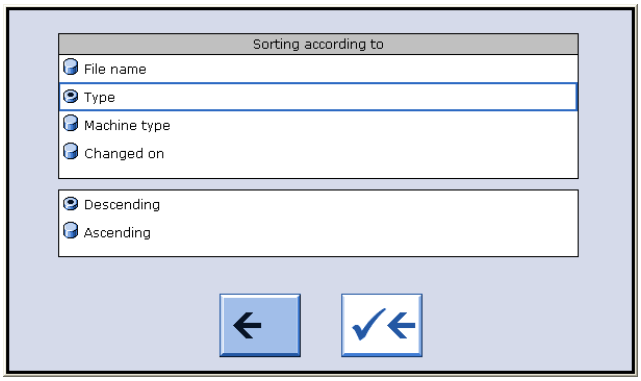


Fig. 4-77 Setting the sort criteria

Key	Function
	Call up the "Load & save" window
	Call up "Additional function keys"
	Call up "File manager" window
	Call up the "Main menu"

Tab. 4-53 Keys for the "File manager" window

Call up "File manager" window:

1. Call up the "Load & save" window from the "Main menu".
2. Call up "Additional function keys".
3. Call up "File manager" window.

Actions in the "File manager" window

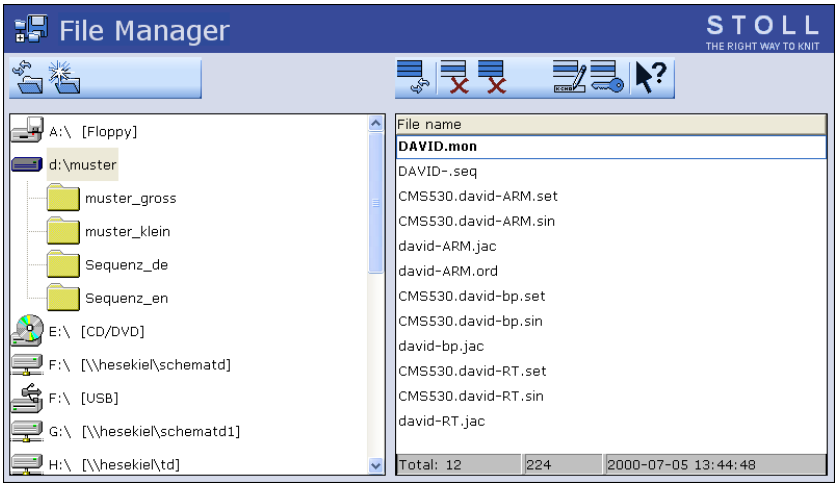


Fig. 4-78 "File manager" window

Key	Function	Key	Function
	"Update" : Refresh the contents of all the folders		"Delete all": Delete all files in the selected folder
	"Create folder": Create folder in the selected directory		"Display file" which is selected
	"Copy folder": Copy the selected folder, including contents to a target folder		"Rename file" : Change name of selected file
	"Delete folder": Delete the selected folder including contents		"Activate write protection" : Activate write protection of selected file
	"Rename folder": Change the name of the selected folder		"Deactivate write protection" : Deactivate write protection of the selected file
	"Update" : Refresh the contents of the folder		Call up "Direct help" for the next pressed key
	"Delete file" which is selected		

Tab. 4-54 Keys in the "File manager" window

Call up the Selection window "Create folder"

With the selection of a drive or a folder in the list on the left-hand side, the key "Create folder " appears.

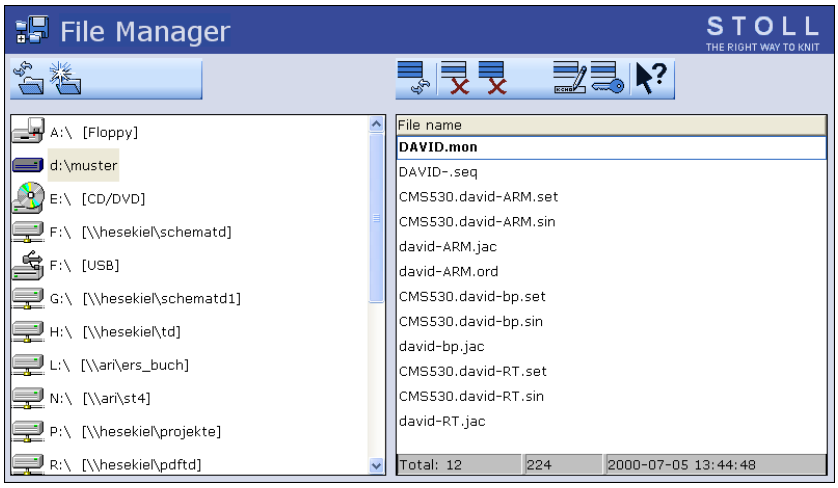


Fig. 4-79 "Create folder"key in window "File-Manager"

1. Tap the desired folder in the list on the left in which the new folder is to be created
2. Call up the Selection window with the key "Create folder".
   The window "Create new folder" appears

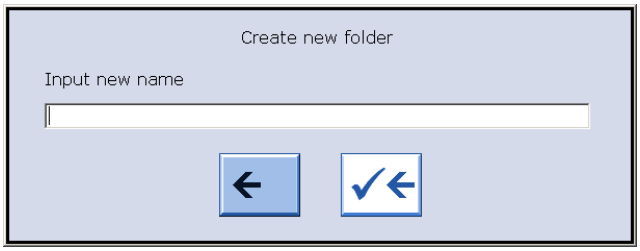


Fig. 4-80 Selection window "Create new folder"

3. Enter the name of the new folder with the virtual keyboard.
4. To save the new folder, tap the right arrow key.

   - or -

➜ To exit the window, tap the left arrow key.

Further information:

- KNITLAN connection *(see page 4-121)*
- Select the current folder *(see page 4-105)*

4.3.3 Working with files, libraries and pattern folders

Working with files (Sintral, jacquard, setup), libraries (Auto-Sintral) and pattern folders occurs in the "Load & Save".

The file list is divided into machine type, file name, type and changed_on: Sorting is possible in each of the four columns by pressing the column header. In the status line of the list, the number of existing files (total:), the file size and the date/time of the last change to the selected file are displayed.

You have access to the following data carriers:

- Removable data carrier (on the USB socket)
  for example: USB-Memory-Stick, floppy disk drive, CD drive, DVD drive, external hard drive
- Hard disk of the computer in the knitting machine
- Online
- Network drive

If "EALL" is activated when loading, the previously loaded pattern is completely deleted.

Keys	Function
	Call up the "Load & save" window
	Call up the "Main menu"

Tab. 4-55 Keys for "Load & Save" window

Work with files and pattern folders:

WARNING

Data loss!
Files and folders might be deleted accidentally if you do not proceed carefully!

➜ Create a back-up copy of each folder!

1. Call up the "Load & save" window from the "Main menu".

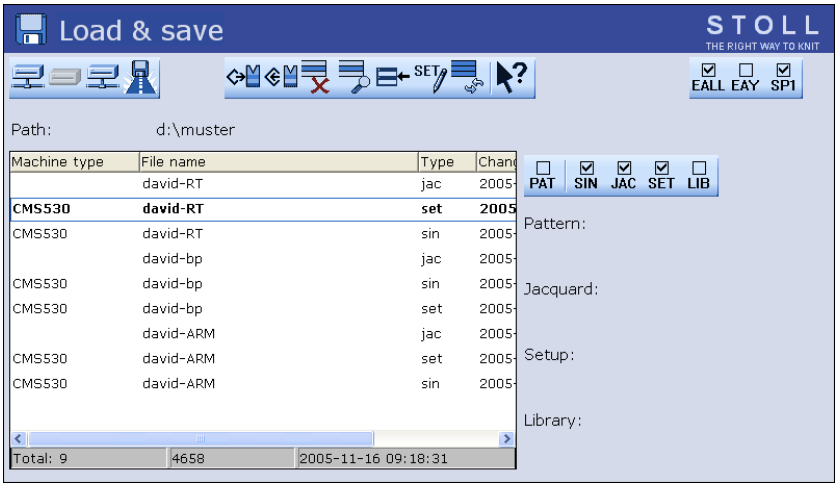


Fig. 4-81 "Load & save" window

2. Set the desired path with one of the "Direct pattern folder selection" keys.
3. Use the PAT/SIN/JAC/SET/LIB keys to select whether the entire pattern of the current machine (PAT) or individual file types are to be listed.
4. Select file.
5. Select action.
6. If an additional prompt appears, tap "1" to confirm

   - or -

➜ Tap the key "0" to cancel.

7. Call up "Main menu".

Actions in "Load & Save" window

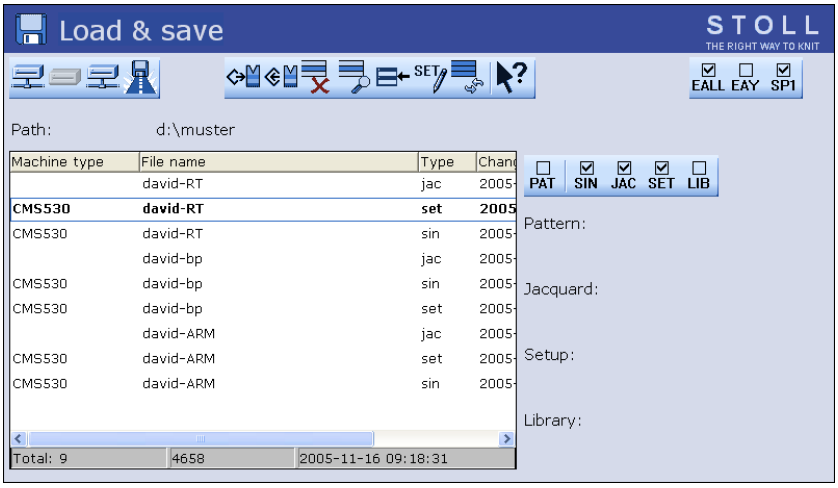
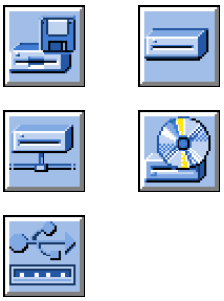
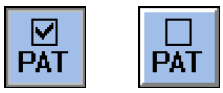
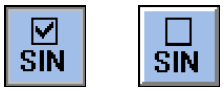
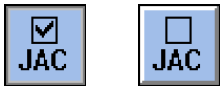
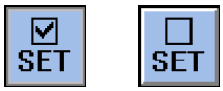
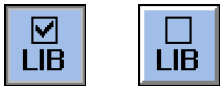
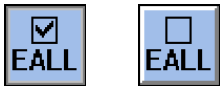
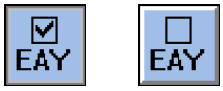
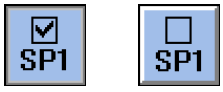


Fig. 4-82 "Load & save" window

Key	Function
	"Direct folder selection ": predefined folder selection
	"Current folder selection": Open the dialog box for definition of the current folder
	"Load" selected file and accompanying pattern elements
	save selected pattern parts in the current folder ""
	"Delete file" which is selected
	"Display file" which is selected
	"Add"selected file and accompanying pattern elements to pattern already loaded

Key	Function
	Editing the setup data
	"Update" : Refresh the contents of the folder
	Call up "Direct help" for the next pressed key
	Activate or deactivate "Entire pattern selection"
	Activate or deactivate "Sintral selection"
	Activate or deactivate "Jacquard selection"
	Activate or deactivate "Setup selection"
	Activate or deactivate "Library selection"
	Activate or deactivate "EALL selection"
	Activate or deactivate "EAY selection"
	"Selection SP1" to be switched on and off

Tab. 4-56 Keys in "Load & Save" window

Further information:

- KNITLAN connection *(see page 4-121)*
- Select the current folder *(see page 4-105)*
- Copying files *(see page 4-102)*
- Displaying file in pattern editor *(see page 4-98)*
- Editing the setup file *(see page 4-117)*

4.3.4 Displaying file in pattern editor

The selected file from the "Load & Save" window is displayed in the "Pattern editor" window (preview).

Key	Function
	Call up the "Load & save" window
	Touch "Display file"
	The "Pattern editor" window is open

Tab. 4-57 Keys for the "Pattern editor" window

Displaying file in pattern editor:

1. Call up the "Load & save" window from the "Main menu".
2. Select the file to be viewed in the file list.
3. Tap the "Display file" key.
4. The "Pattern editor" window is open.

Actions in the "Pattern editor" window

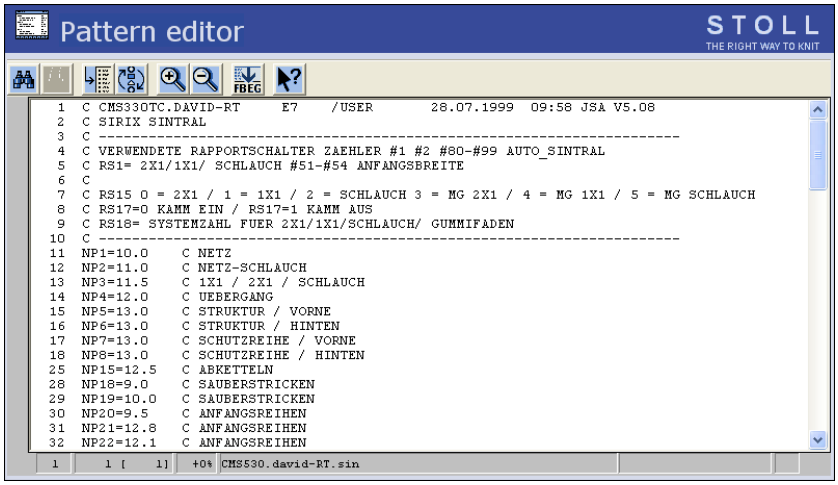


Fig. 4-83 "Pattern editor" window

Key	Function
	"Find" a certain term
	"Continue" : Continue searching for a certain term
	Carry out "Go to" a certain position
	Carry out "Go directly to" accompanying mark (e.g. from FBEG to FEND)
	"Enlarge": Display text enlarged
	"Reduce": Display text reduced
	"Function list": Activate/deactivate display of the functions of the pattern
	Call up "Direct help" for the next pressed key

Tab. 4-58 Keys in the "Pattern editor" window

4.3.5 Deleting knitting memory

The current knitting pattern with which your knitting machine works is saved in the knitting memory. When you delete the knitting memory, this has no influence on the saved patterns and files on the data carriers.

Key	Function
	Call up the "Load & save" window
	Call up "Additional function keys"
	Call up "Delete knitting memory"
	Call up the "Main menu"

Tab. 4-59 Keys for deleting the knitting memory

Delete knitting memory:

1. Call up the "Load & save" window.

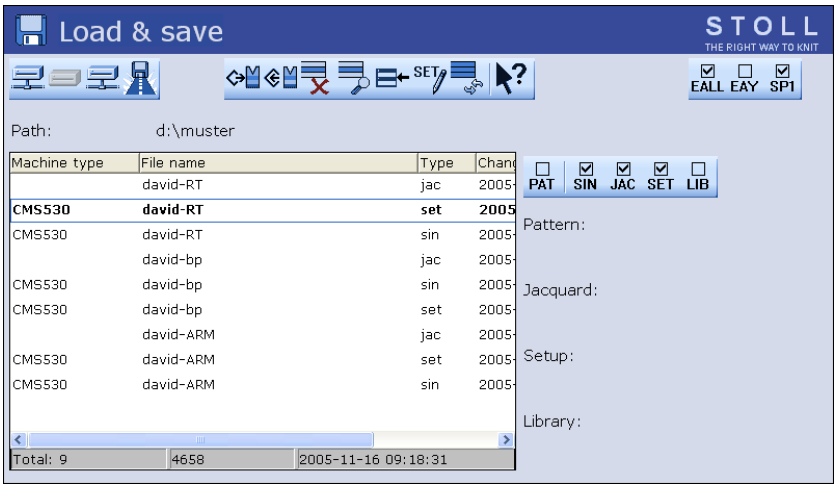


Fig. 4-84 "Load & save" window

2. Call up "Additional function keys".
3. Call up "Delete knitting memory".
4. Call up "Main menu".

If the "EALL" key is not selected, individual files (sin, jac or Autosintral) of the knitting memory can be deleted.

Delete individual files in the knitting memory:

1. Call up the "Load & save" window.

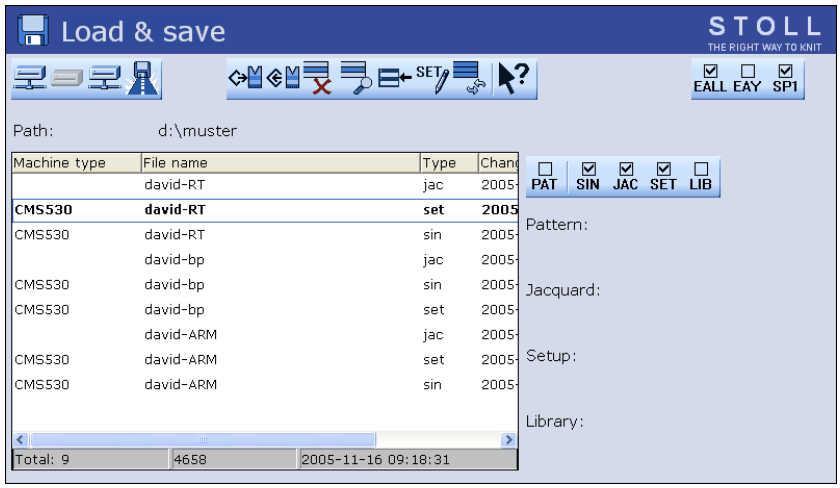


Fig. 4-85 "Load & save" window

2. Select the file via the SIN or JAC key.
3. Call up "Additional function keys".
4. Call up "Delete knitting memory".
5. Call up "Main menu".

4.3.6 Copying files

Files are copied from one drive to another in the "Copying catalogue" window. This list of files appears in alphabetical order, and the number of existing files is displayed on the status line (Total:)) of the list.

In the following example, the files are copied from the hard disk to the USB -Memory-Stick (backup copy).

Key	Function
	Call up the "Load & save" window
	Call up "Additional function keys"
	Call up the "Copying catalogue" window

Tab. 4-60 Keys in the "Copying catalogue" window

Copy file from the Harddisk to the USB-Memory-Stick :

1. Insert the USB-Memory-Stick in the USB-socket.
2. Call up the "Load & save" window from the "Main menu".
3. Call up "Additional function keys".
4. Call up the "Copying catalogue" window.

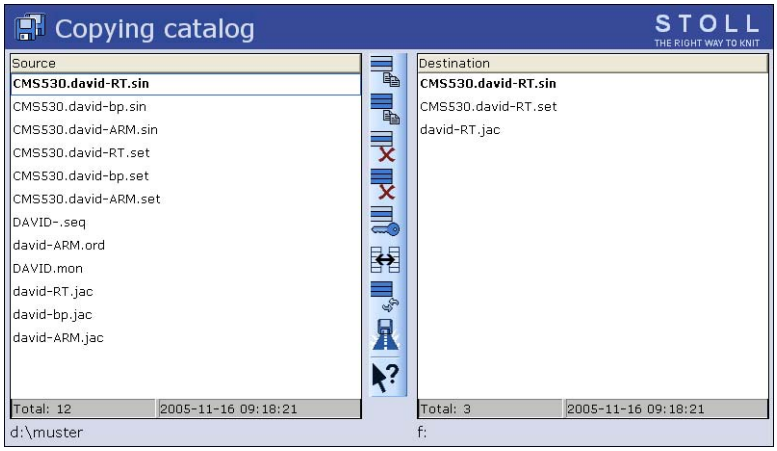


Fig. 4-86 Path specification in the "Copying catalogue" window

5. Check whether the path in the "Source" and "Target" lists is correctly displayed. The path is displayed at the end of each list.
6. If this is not so, change the path with the "Select current folder" key.
7. Tap the desired file in the left-hand list ("Source").
8. Tap the "Copy file" key.
   When the file is copied, it appears in the right list ("Target").
9. To copy other files, repeat steps 7 and 8.

Actions in "Copying catalogue" window

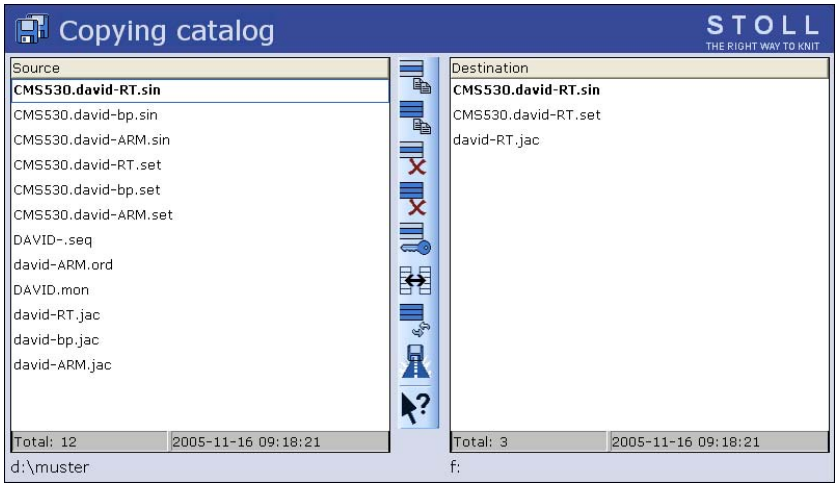


Fig. 4-87 Path specification in the "Copying catalogue" window

Key	Function	Key	Function
	"Copying a file": copy file selected in source to target		"Deactivate write protection" : Deactivate write protection of the selected file
	"Copy all": Copy all files from source to target		"Current folder selection": Open the dialog box for definition of the current folder
	"Delete file" which is selected		Call up "Direct help" for the next pressed key
	"Delete all": Delete all files in the selected folder		"Change content": Contents of source and target to be exchanged left is always source, right is the target
	"Activate write protection" : Activate write protection of selected file		"Update" : Refresh the contents of the folder

Tab. 4-61 Keys in the "Copying catalogue" window

Execute the action:

1. Tap the list for which the action is to be carried out.
2. Tap desired key.
3. To carry out additional actions, repeat steps 1 and 2.

Setting the sort sequence

The sort sequence can individually be adjusted. To do so, click on the header (1).

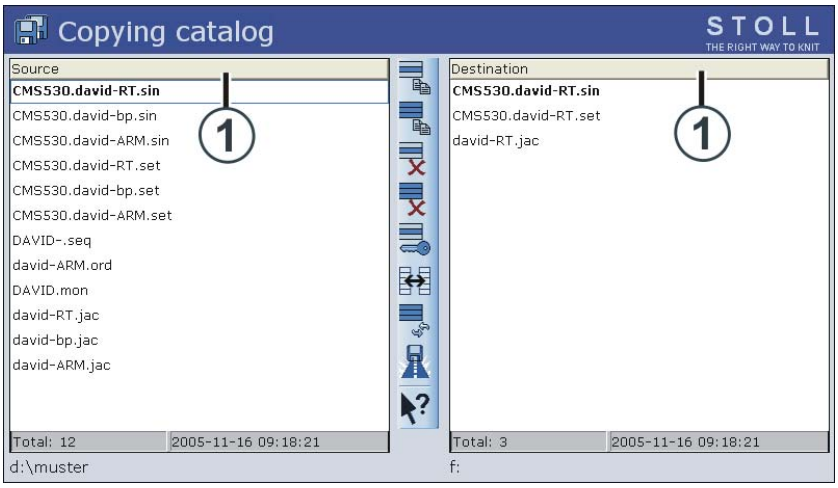


Fig. 4-88 "Copying catalogue" window

Select and confirm the sort sequence in the "Sort by" window.

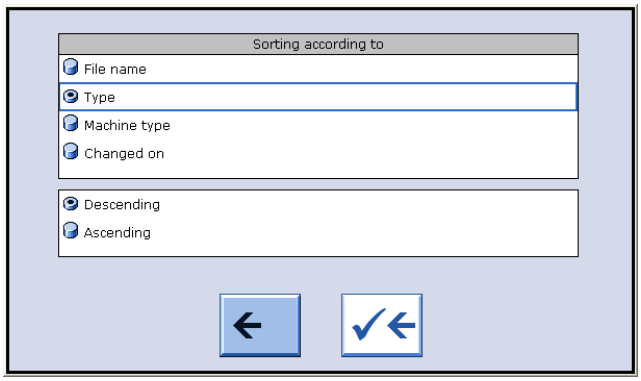


Fig. 4-89 Setting the sort criteria

Further information:

- Select the current folder *(see page 4-105)*

4.3.7 Select the current folder

General information

Pattern files can be saved to various drives (memory locations) of the knitting machine or to another computer on the network.

To read a file into the knitting machine from another drive, the entire path must be specified. By path, we mean the specification of where the file is located, for example on a drive of the M1.

A path contains the following information:

1. Drive letter (or Computer name) (e.g. .: "D:" or "\\SERVER01")
2. Specification of the subdirectories (e.g.. .: "\PATTERN" or "Stoll\M1\Extract\")

Default setting

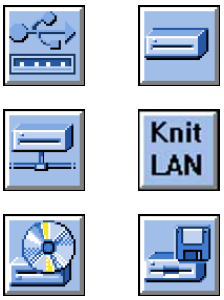
Following drives are set by default in the keys of "Direct folder selection" :

Key	Drive	Explanation
	F:\	USB Memory Stick
	D:\	Fixed disk
	Name:\	Network drive

Tab. 4-62 Default settings of the drives

Seelct the current folder

The selection of the patterns from the "Load & Save" window is applied in the "Catalog order data ", "Catalog Sequence data" and "Catalog Sequence lists" windows.
(Exception: The specification in the "Copying catalogue" window is only effective for this window.)
With the key "Select current folder" one can specify the drive to which the three keys "Direct folder selection" are linked.

Key	Function
	Call up the "Load & save" window
	Tap "Direct folder selection" key The symbols of the 3 keys "Direct folder selection" are adapted based on the linked drive: USB Memory Stick Hard disk Network drive KNITLAN CD-Drive (on the USB-socket) Disk drive (on the USB socket)
	Tap "Select current folder" key.
	End setting process and save changes
	End setting process without saving changes

Tab. 4-63 Keys for changing a path

Change the path of "Direct folder selection" key:

1. Call up the "Load & save" window from the "Main menu".
2. Tap "Direct folder selection" key for which the path is to be changed.
3. Tap on the key "Current folder selection".
   The input window "Select new folder " appears..

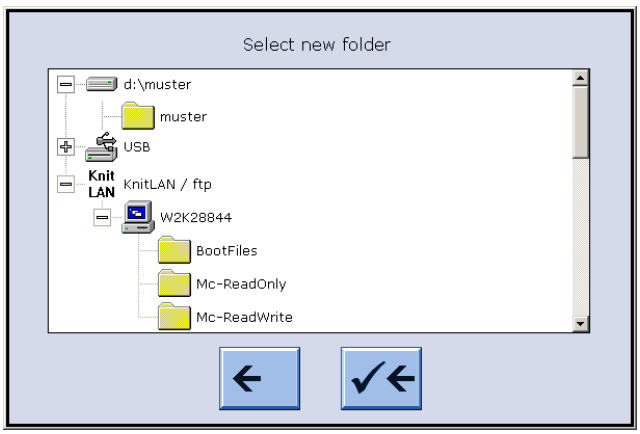


Fig. 4-90 Window "Select new folder"

4. Select the new path.
5. End setting process and save changes.

6. In the "Load & Save " window, the display of the key"Direct folder selection" is adapted to the new path. The path is indicated below it.

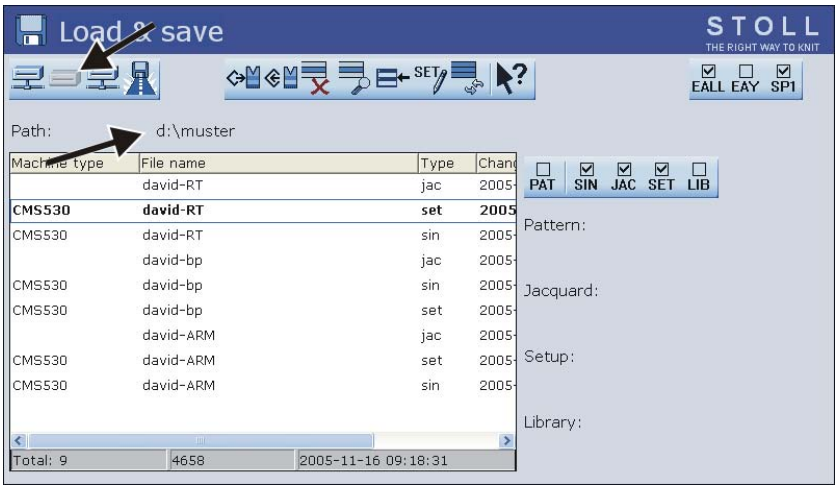


Fig. 4-91 Display of the set path

4.3.8 Carrying program test

A program test is performed with the loaded file from the "Load & Save" window in the "TP" window.

During the program test, the pattern is displayed in the upper area and the TP messages in the lower area. The window size of both areas can be changed.

Key	Function
	Call up the "Load & save" window
	Touch "Load"
	Call up the "Main menu"
	Call up "Editor" window
	Call up "Additional function keys"
	Call up "Program test" window

Tab. 4-64 Keys for the "Program test" window

Call up "Program test" window:

1. Call up the "Load & save" window from the "Main menu".
2. Load the file, for which a test program is to be carried out, into the knitting memory with the "Load" key.
3. Call up "Main menu".
4. Call up "Editor" window.
5. Call up "additional function keys".
6. Call up "Program test" window.

Actions in "Program test" window

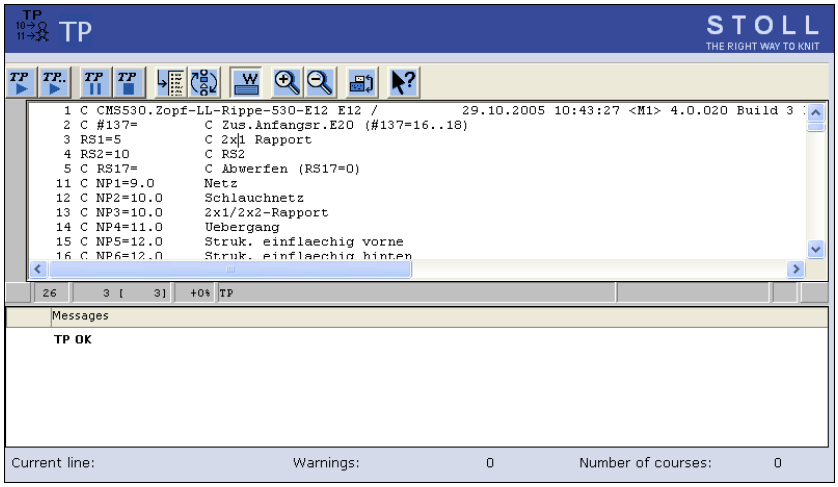


Fig. 4-92 "Program test" window

Key	Function
	"Start program test": Start program test from 1st line
	"Start program test": Start program test from a specific line
	"Interrupt program test": Interrupt and restart program test
	"End program test"
	Carry out "Go to" a certain position
	Carry out "Go directly to" accompanying mark (e.g. from FBEG to FEND)
	"Display warning" : Activate/deactivate depiction of warnings during a program test
	"Enlarge": Display text enlarged
	"Reduce": Display text reduced

Key	Function
	"Change sizes" : Change window size of pattern and error output
	Call up "Direct help" for the next pressed key

Tab. 4-65 Keys in the "Program test" window

4.4 Working with the Sintral editor

Minor changes or additions to the knitting programs are processed with the SINTRAL editor. To be able to process a knitting program with the SINTRAL editor, the knitting machine must be stopped. The knitting program can only be displayed while the machine is running.

Further information:

- Help on working in the windows *(see page 4-84)*

4.4.1 Activating Sintral editor

Key	Function
	Call up SINTRAL editor window

Tab. 4-66 Key for SINTRAL editor window

➜ Call up SINTRAL editor.
The window of the first level in the SINTRAL editor appears. The file currently loaded is shown in this window.

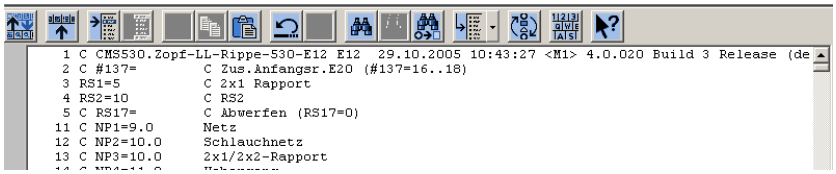


Fig. 4-93 Window of the first level in the SINTRAL editor

Key	Function	Key	Function
	"Switch over toolbar" : Switch over toolbar to second level		"Find" a certain term
	Display toolbar for "Go to mask"		"Continue" : Continue searching for a certain term
	"Start of marking" : Set the beginning of a marking. Any existing marking is deleted		Search for a certain term and "Replace" it by a new one
	"End of marking" : Set the end of a marking		Carry out "Go to" a certain position
	"Cut" marked area		"Go to" submenu is opened
	"Copy" marked area		Carry out "Go directly to" accompanying mark (e.g. from FBEG to FEND)
	"Insert" copied or cut-out area again		Activate and deactivate display of "Keyboard"
	Carry out multi-step "Undo"		Call up "Direct help" for the next pressed key
	"Redo" multi-step undo		

Tab. 4-67 Keys of the first level in the SINTRAL editor

Second level of SINTRAL editor

Pressing the "Switch over toolbar" key, the window goes to the second level of the SINTRAL editor.

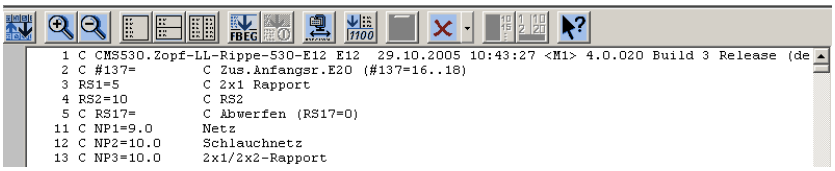


Fig. 4-94 Window of the second level in the SINTRAL editor

Key	Function	Key	Function
	"Switch over toolbar" : Switch over toolbar to first level		"Pack and unpack jacquard": Pack or unpack selected jacquard lines
	"Enlarge": Display text enlarged		"Set start of jacquard": Set start of jacquard on current line
	"Reduce": Display text reduced		Switch over between current pattern and "Auto-Sintral"
	"Remove split window": Remove split window (horizontally or vertically)		"Delete all": Delete entire pattern
	"Split window horizontally": Split window horizontally		"Delete" submenu is opened
	"Split window vertically": Split window vertically		"Sort" marked area ascendingly by line numbers
	"Function list": Activate/ deactivate display of the functions of the pattern		"Renumber": Reassign line numbers in the marked area
	Activate and deactivate display of Sintral "error messages"		Call up "Direct help" for the next pressed key

Tab. 4-68 Additional keys of the second level of the SINTRAL editor

"Auto-Sintral" function key

To activate this key, "Auto-Sintral" must be loaded. In the editor now one can switch between the currently loaded pattern and "Auto-Sintral"

Key	Function
	Switch over between current pattern and "Auto-Sintral"

Tab. 4-69 "Auto-Sintral" key

"Split window horizontally" function key

This function makes two editors available which work independently of one another. When opening, the jacquard is jumped to in the lower editor. The size of the division is changed via both arrow keys on the left or right-hand sides at the bottom edge of the screen.

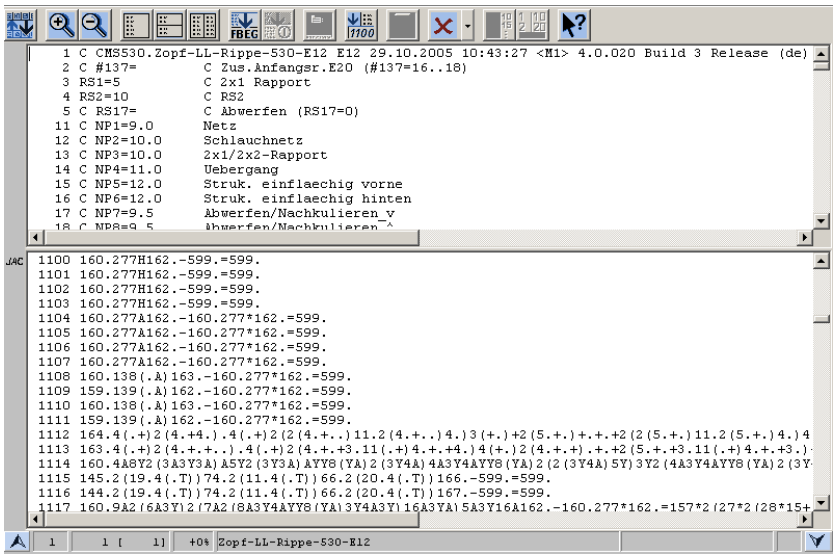


Fig. 4-95 Window for the function "Split window horizontally"

Key	Function	Key	Function
	Enlarge lower division		Enlarge upper division

Tab. 4-70 Function keys for the function "Split window horizontally"

"Split window vertically" function key

This function makes two editors available, which both always show the same lines. Vertical scrolling in one editor changes the second editor simultaneously. Horizontal scrolling only changes one editor, and the start of a long line can be displayed in the left editor and the rest on the right one. Selections will immediately be copied in the other editor. The size of the division is changed via both arrow keys on the left or right-hand sides at the bottom edge of the screen.

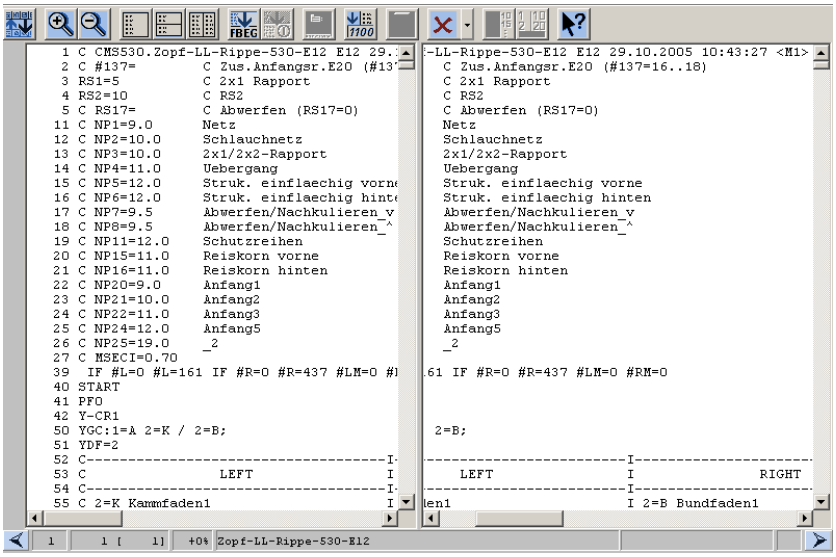


Fig. 4-96 Window for the function "Split window vertically"

Key	Function	Key	Function
	Enlarge right division		Enlarge left division

Tab. 4-71 Function keys for the function "Split window vertically"

Call up "Go to" submenu

Press the arrow key next to the "Go to" key. You can jump to the start or the end of the file / line using this submenu.

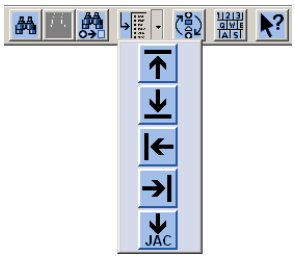


Fig. 4-97 Window "Go to" submenu

Key	Function	Key	Function
	Go to the start of the file		Go to the start of the line
	Go to the end of the file		Go to the end of the line
	Go to the begin of jacquard		

Tab. 4-72 Function keys in "Go to" submenu

Call up Delete submenu

Press the arrow key next to the "Delete" key. Sintral, jacquard or a line from the loaded file can be deleted via this submenu.

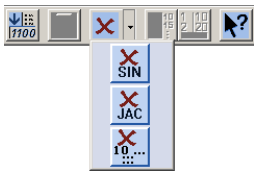


Fig. 4-98 Window "Delete" submenu

Key	Function	Key	Function
	Delete Sintral from file		Delete specified line from file
	Delete jacquard from file		

Tab. 4-73 Function keys in "Delete" submenu

4.4.2 Go to help in function and error list

After loading and checking a file, the accompanying functions and error messages can be displayed in the "SINTRAL editor". You can jump in these lists using the following keys.

Key	Function
	"Go to help for next"
	"Go to help for previous"

Tab. 4-74 Keys for go to help

➜ To jump to the next function / to the next error in the knitting program, tap the "Go to help for next" key.

- or -

➜ To jump to the previous function / to the previous error in the knitting program, press the "Go to help for previous" key.

4.5 Editing the setup file

The Setup data editor allows setup data to be edited without loading them into the machine beforehand. It is thus possible to edit another setup file while the machine is knitting a pattern. Each group of setup data has its own tab with the corresponding input fields in the "Setup data editor" window.

If no STIXX device is connected to the machine, the "STIXX" and "STIXX3" tabs are not displayed although the setup file contains STIXX data.
The STIXX data cannot be edited.
When the setup data are saved, existing STIXX data (that are not displayed) are also saved.

The following events can prevent a correct storage of the setup data:

- The setup file is write-protected.
  This is displayed by a tip. The write protection can be deactivated by the additional function key "Deactivate write protection".
- Limits do not match.
  The limit values of the entered setup data are compared with the data of the current machine and checked.
  Conflicts may therefore arise if a setup file of a different machine is being edited on the machine (NPmm values are gauge-dependent).
- The tabs "NP1..50", "NP51..100", "WMF" and "MSEC" can contain empty input fields.
  This is due to the fact that the M1 only stores the used NP, WMF and MSEC data in the setup data.
  When the data are saved from the setup data editor, only the used NP, WMF and MSEC data are then saved correspondingly in the setup file.

Key	Function
	Call up the "Load & save" window
	Activate the "Setup selection"
	Call up the "Setup data editor" window
	Call up "Additional function keys"
	"Activate write protection" key
	"Deactivate write protection" key
	Call up the "Main menu" window

Fig. 4-99 Keys for the "Setup data editor" window

Activating the Setup data editor

1. Call up the "Load & save" window.

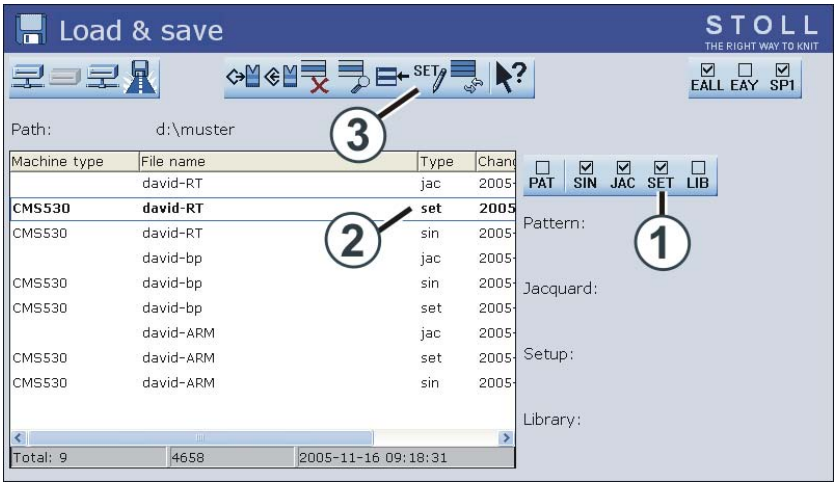


Fig. 4-100 "Load & save" window

2. Activate the "Setup selection" key (1).
3. Select the desired setup file (2).
   The "Setup data editor" key is displayed (3).
4. Tap the "Setup data editor" key (3).

The "Setup data editor" window is open.

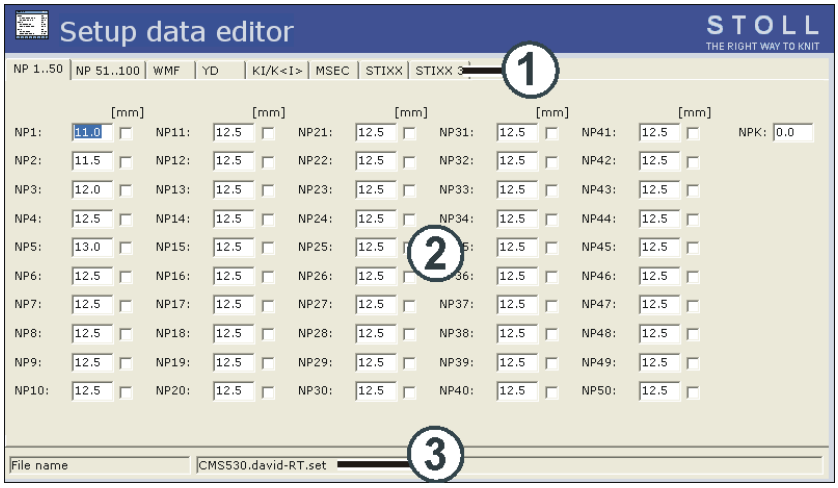


Fig. 4-101 "Setup data editor" window

1 Total of 8 tabs:
The STIXX and STIXX3 tabs are only displayed if a STIXX device is connected.
2 Working area:
changes, depending on the selected card.
3 Status bar:
with the file name of the loaded setup file.

The "Setup data editor" window contains a maximum of 8 tabs:

Card	Meaning
NP 1.0.50	Stitch cam position with index 1 to 50
NP 51..100	Stitch cam position with index 51 to 100
WMF	Specifications for the fabric take-down value
YD	Distance of the yarn carrier from the fabric selvedge
KI/K<I>	Correction value of yarn carriers in fabric area
MSEC	Specifications for the carriage speed in m/sec
STIXX	Specifications for the STIXX yarn length measuring device (STIXX menu)
STIXX3	Specifications for the STIXX yarn length measuring device (STIXX3 menu)

Fig. 4-102 Tabs in the "Setup data editor" window

Working with the setup data editor

■ The Setup data editor window is open.

Set/deactivate write protection:

1. Call up "Additional function keys".
2. Tap the "Activate write protection" key in order to activate the write protection.

   - or -

➜ Tap the "Deactivate write protection" key in order to deactivate the write protection.

Editing the setup file:

1. Tap the tab to be edited.
2. Select the desired field.
3. Overwrite the value.
4. Confirm the input.
5. Repeat steps 1 or 2 to 4 for further entries.

   - or -

➜ Call up the "Main menu" window.

4.6 KnitLAN connection

The KNITLAN connection helps in the transmission of data and patterns between the machine and a M1 or a FTP-Server (FTP = File Transfer Protocol, network protocol for data transmission).

The KNITLAN connection takes the place of the previous online program. In this chapter the adjustment of KNITLAN connection has been described. The selection of computer for "My network" has been described in the MCNET2 manual.

The KNITLAN connection can be used for:

- Transmitting knitting programs
- Production monitoring
- Machine data acquisition

Requirements:

- Machine and M1 are networked
- Operating system of the machine: V 1.2 (or higher)
- Software version of M1: V 3.9 (or higher)

Adjust KnitLAN connection

Key	Function
	Call up the "Service" menu
	Call up "Basic settings" menu
	Call up window "Network configuration"
	Opens the substructure of the marked network.
	Closes the substructure of the marked network.
	Transfers the selected computer in the field "KnitLAN / ftp"
	Deletes the selected computer
	Call up the "Main menu"

Tab. 4-75 Keys for adjusting the KNITLAN connection

1. Call up the "Service" menu.
2. Call up the "Basic settings" menu.

3. Call up window "Network configuration".

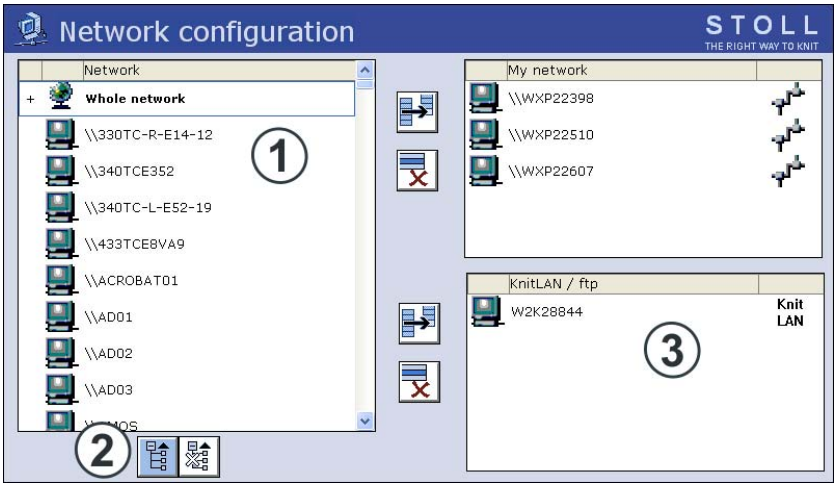
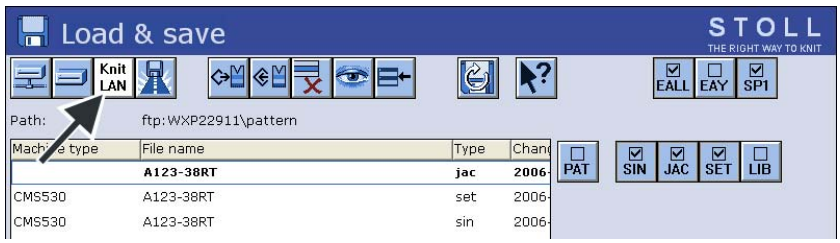


Fig. 4-103 Window "Network configuration"

1 Display of the network environment in which the machine is included.
2 Opens the substructure of the marked network.
3 Computer that is used for KnitLAN (e.g. patterning units) or computer on which a FTP server is attached.
FTP = File transfer protocol (network protocol for data transmission).

4. From the entire network (1) select the computer of M1.
If only the entire network is displayed, then with the key (2) open the substructure.
5. Transfer the selected computer to the field "KnitLAN / ftp" (3).
6. If another computer needs to be selected, repeat steps 4 and 5.
7. Call up the "Main menu".

You can lay the KNITLAN connection on one of the keys of "Direct folder selection". The key is indicated with the symbol "KnitLAN". In the selection field see the contents of the folder on M1.



Working at the M1:

1. So that the KnitLAN connection from M1 to OKC machines works, the access to KnitLAN directories ("D:\Stoll\M1\KnitLAN\Bootfiles" and "Mc-ReadWrite") must be shared.
   Select directory, call up context menu, activate properties, tab release and folder
2. You must call up Firewall settings in the Windows Firewall and allow the Stoll FTP service as an exception. (Start -> Control Panel -> Windows Firewall > Tab: exceptions).
   You will find the program "Stoll FTP-Service" under the installation path of the M1 (e.g. "C:\Program Files\Stoll\M1\Bin\ftpservice.exe").

Further information:

➜ Select the current folder *(see page 4-105)*

4.7 Defining user profile

In the standard configuration each knitting machine user can open and make changes to any window of the user interface. However, in some cases this is not desirable and not every user is to be able to change data and machine settings. This can be set with the "User Profile" window. In this window, rights as to which changes may be carried out and which may not, can be assigned to a user or a user group. If a window is blocked, it can be called up and the data viewed, however changes are not possible (exception: the password is known to the user and he/she can enable the window).

The operating elements in a blocked window are shown on a light gray background.

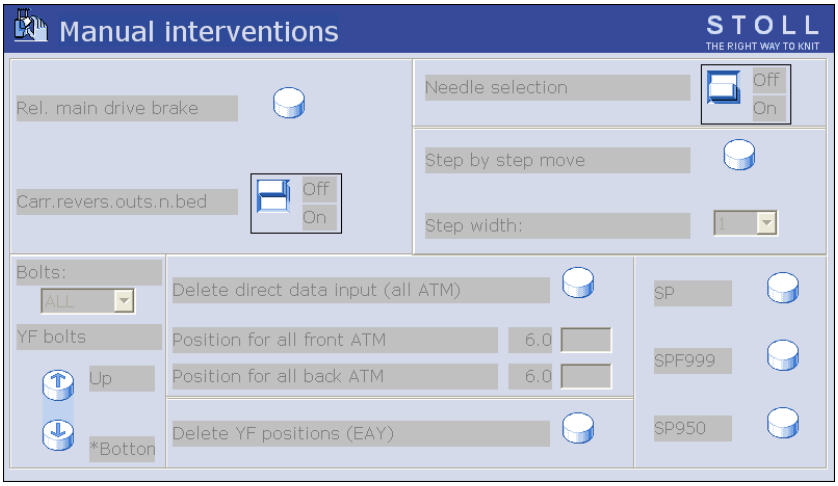


Fig. 4-104 Blocked window "Manual interventions"

The assignment of the rights is reserved for an authorized person and protected by a password.

Any number of user profiles can be defined, for example for:

- Knitters
- Personnel of the night shift
- Setup personnel (technicians)
- Foremen/Forewomen

CAUTION

The window is protected by a password!
When calling up a window, a password is always requested. This serves the purpose of security so that no unauthorized persons have access to this window.

➜ The password must remain secret.

➜ Uppercase and lowercase letters can be used in a password.

➜ Note the password and keep it in a safe place.

If the password is lost, the Stoll Helpline can help with a special password.

The "User Profile" window

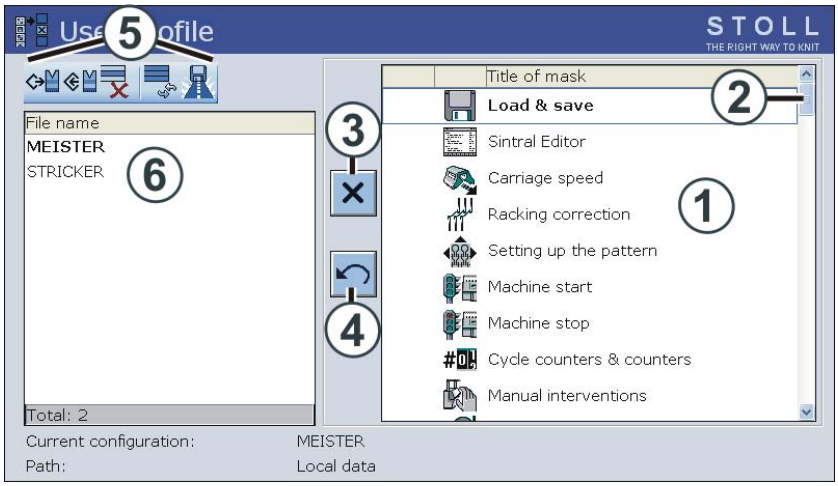


Fig. 4-105 "User Profile" window

Field	Function
1	Selection list of the windows to be enabled or blocked. It is possible to scroll down/up in the selection list with the scroll bar (2). Additional windows are then available for selection.
3	Switch for blocking or enabling a window
4	Reset all changes
5	Operations for the selected user profile
6	Select or define user profile

Defining user profile

Key	Function
	Call up the "Service" window
	Call up "User Profile" window
	Confirm password
	Return to previous window (cancel process)
	Block window
	Enable window
	Call up "Additional function keys"
	Enable all windows
	Block all windows
	Call up the "Main menu"

Tab. 4-76 Keys for defining "User profile"

Defining user profile:

1. Call up the "Service" window.
2. Call up "User Profile" window.

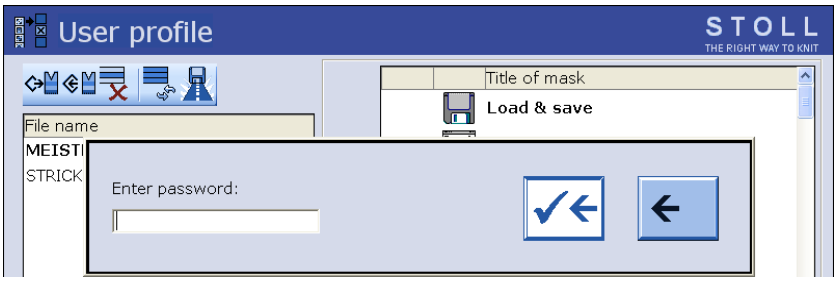


Fig. 4-106 Entering password

3. Enter and confirm the password with the keyboard. In the standard configuration, the first password is "MASK.ACCESS". It is written in uppercase letters and without quotation marks.

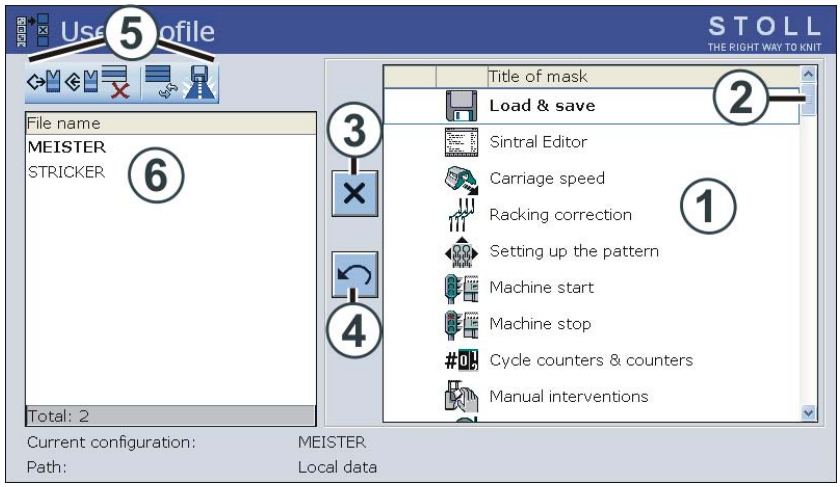


Fig. 4-107 "User Profile" window

4. Block window: Tap the corresponding window in the selection list (1) and Tap the "Block window" switch (3).

   - or -

➜ Tap the corresponding window in the selection list with a double click.

5. Enable window: If a window is blocked, then enable it again with a double click.

   - or -

➜ Tap the switch (3).

6. Only enable a few windows: First block all windows ("Additional function keys" key and "Block all windows" key) and then enable the few windows again.
7. Enable all windows: Tap the "Additional function keys" key and enable all windows again with the "Enable all windows" key.
8. Give a name to the user profile and save it.
9. Define another user profile if necessary.
10. For the user profile to become effective, it must be activated with the "Load" key.
11. Call up "Main menu".

Saving, loading, deleting user profiles ...

The user profile can be saved, loaded and deleted.

So that the same user profiles are active on all knitting machines, save the user profiles to USB -Memory-Stick or a network drive and load them in each machine.

Key	Function
	Call up the "Service" window
	Call up "User Profile" window
	Confirm password
	Confirm selection
	Call up the "Main menu"

Tab. 4-77 Keys for "Saving, loading, exporting user profile ..."

Saving, loading, deleting user profiles ...:

1. Call up the "Service" window.
2. Call up "User Profile" window.

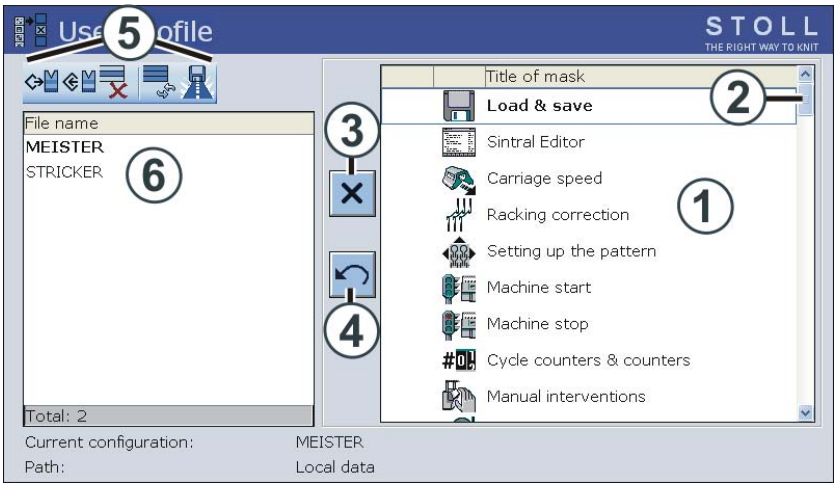


Fig. 4-108 "User Profile" window

3. Enter and confirm the password with the keyboard.
4. Select the desired program point (5) (loading, saving, deleting ...).
5. Select a user profile. Tap the desired user profile in the field (6).
6. Confirm the selection.
7. If additional user profiles are to be called up, repeat the steps 4 to 6.
8. Call up "Main menu".

Enabling blocked window

During production it may be necessary to open a blocked window and carry out a change or action. Or you find that it is necessary for this window to be enabled for the active user. Naturally, this is only possible for a person who knows the password.

Key	Function
	Call up "Additional function keys"
	Tap "Password"
	Confirm password
	Return to previous window (cancel process)
	Call up "User Profile" window

Tab. 4-78 Keys for "Enabling blocked window"

Enabling blocked window:

1. Display the "additional function keys" in the blocked window.
2. Tap the "Password" key.
3. Enter the password with the keyboard.

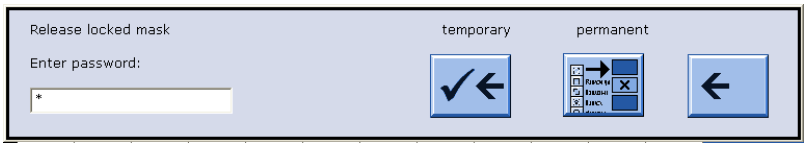


Fig. 4-109 "Enabling blocked window" window

4. Enable window once by tapping the "Confirm password" key.

- or -

➜ Change the user profile by tapping the "User profile" key.

Change password

From time to time you should change the password to be sure that it has not become known. Carry out this activity on all knitting machines.

If the knitting machine is connected with the STOLL-pattern preparation unit, the password can be changed simultaneously on all the knitting machines with the help of Online-Connection (see Section."Online-Commands" at the end of this chapter).

Key	Function
	Call up the "Service" window
	Call up "User Profile" window
	Confirm password
	Call up "Additional function keys"
	"Change password"
	Call up the "Main menu"

Tab. 4-79 Keys for "Change password"

Change password:

1. Call up the "Service" window.
2. Call up "User Profile" window.
3. Enter and confirm the password with the keyboard.
4. Call up "Additional function keys"
5. Tap the "Change password" key.

Fig. 4-110 "Change password" window

6. Type in the new password in the top line.
7. Type in the new password again in the bottom line.
8. Confirm the password.
9. Call up "Main menu".

Examples of how a user profile can be specified

Example 1:

The machine settings are to be blocked. To do this, block the four windows in the selection list.

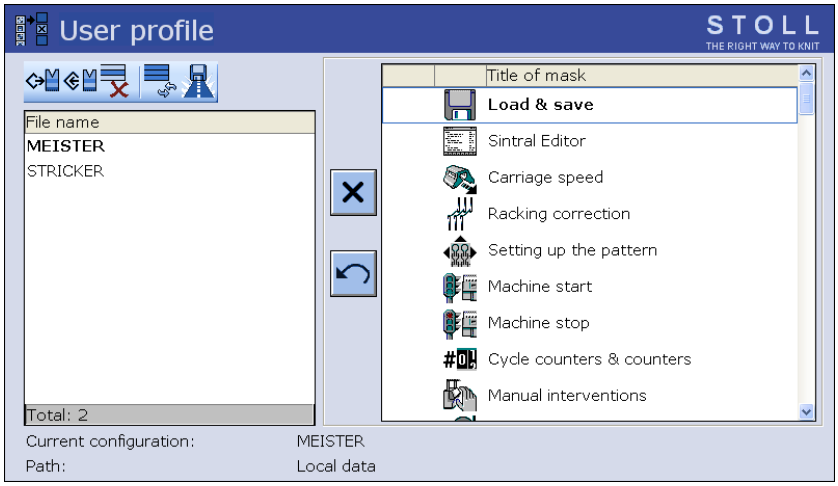


Fig. 4-111 "User Profile" window

Example 2:

When beginning work with user profiles, there is an uncertainty as to which windows are required for daily work and which are not. We suggest using the following procedure:

1. First block all windows.
2. The knitter begins working with the machine.
3. If it is necessary to change something in a window, the knitter reports this and the window is enabled in the user profile.
4. Save the user profile.
5. Continue this step-by-step determination of the user profile for a certain period of time. This may, for example, be for a working day or a week.

Online commands

If the knitting machine is connected with the STOLL-pattern preparation unit , the password and the user profile can be changed simultaneously on all the machines with the help of the Online-Connection. The condition is that the password is written in uppercase letters.

Commands	Function
setuserlevel Password User profile name Example: The password is "JOE", the user profile is "david". The complete command is: setuserlevel JOE david	Activate the same user profile on all knitting machines
setulword OldPassword NewPassword Example: The old password is "JOE", the new one is "JOHN". The complete command is: setuppassword JOE JOHN	Activate the same password on all knitting machines

Tab. 4-80 Commands for activating user profile and password

To enter the commands on the pattern preparation unit the following steps are necessary:

1. Programm "Online" aktivieren.
2. Select the "Display call-round ->" program point in the "NET" program. The "call-round" window appears.
3. Type in the corresponding command and confirm.

5 Maintenance of the knitting machine

This chapter contains information on:

5.1 Minimizing wear

All parts of the knitting machine have carefully been selected and checked by STOLL. Nevertheless, they are subject to wear due to wear. You can keep the wear to a minimum if you lubricate, clean and check the machine regularly.

The following table contains an overview of the wearing parts and the possible causes for excessive wear.

Wearing part	Possible causes of increased wear
Fabric take-down rollers	■ Excessive fabric take-down values ■ Contact pressure too high/low ■ Yarns harmful for e.g. abrasive, sanding yarns or yarn finishes like greases or oils ■ UV radiation (including direct sunlight) ■ Cleaning agents harmful to rubber, e. g. ether or fuels. Recommendation: Use cleaning petrol for cleaning
Needle brushes, brushes of the central lubrication	■ Incorrect adjustment
Feed wheel rollers	■ Sanding yarn ■ Allowing the feed wheel to run unnecessarily
Needle bed elements, cams	■ Excessive fabric take-down values ■ Yarn too thick ■ Insufficient lubrication ■ Insufficient cleaning
Yarn guiding parts (deflectors, yarn control device etc.)	■ Sanding yarn
Yarn carrier, yarn carrier slide block	■ Insufficient lubrication ■ Sanding yarn

Wearing part	Possible causes of increased wear
Yarn carrier magnet	■ Magnet may not come into contact with grease or oil
Belt on auxiliary take-down	■ Following a malfunction on the auxiliary take-down (fabric winding device), the residual threads were not removed carefully
Belts (drive, racking, take-down comb, auxiliary take-down)	■ Belt tension too high: Danger of bearing damage (adjustment with measuring device by Stoll technician) ■ Belt tension too low: Danger of position errors (racking, auxiliary take-down)
Energy chain trailing cable	■ Heavy soiling ■ Laying down of objects ■ Damage to set-down gutter ■ Not moved into position carefully after work at the rear of the machine

Tab. 5-1 Wearing parts

Further information:

- Adjusting needle brushes *(see page 4-68)*
- Yarn table *(see page 8-5)*
- Lubricate knitting machine *(see page 5-16)*
- Cleaning knitting machine *(see page 5-3)*

5.2 Cleaning knitting machine

To retain the operability of the knitting machine and ensure the quality of the fabric, the knitting machine must be cleaned regularly.

Cleaning interval	Cleaning work
if necessary	Cleaning the touch screen
6 to 24 operating hours	Cleaning vacuum device and lint container
daily	Vacuuming off knitting machine Cleaning needle bed Cleaning the thread clamps Cleaning the permanent brakes Clean the friction feed wheel
100 operating hours	Cleaning main drive ventilator
monthly	Cleaning ventilator and radiators in right control unit Cleaning filter mat of power supply
3 to 6 Months	Cleaning needle bed thoroughly
6 months	Cleaning knitting systems

Tab. 5-2 Cleaning plan

We recommed the use of following cleaning agent:

Cleaning agent	Cleaning work
Cloth, suction, compressed air	on the entire knitting machine
Special cleaning agent for Plexi glass (Note the Manufacturer's instructions)	Touch-Screen and Cover hoods
Cleaning petrol (Note the manufacturer's instructions)	Roller rubber of the take-down roller

Tab. 5-3 Cleaning agent

Plastics, in particular the transparent cover hoods, may not be cleaned with alcohol or spirit, but instead only with a special cleaning agent for plexiglas.

Do not remove metallic parts and fragments (e.g. broken needle latch or hook) with a magnetic tool There is a danger that the needle bed or cams can be magnetized, leading to incorrect selection.

- Cleaning the touch screen *(see page 5-5)*
- Vacuuming off knitting machine *(see page 5-8)*
- Cleaning needle bed *(see page 5-9)*
- Clean the active thread clamp *(see page 5-9)*
- Cleaning the permanent brakes *(see page 5-10)*
- Clean the friction feed wheel *(see page 5-10)*
- Cleaning main drive ventilator *(see page 5-11)*
- Cleaning ventilator and radiators in right control unit *(see page 5-12)*
- Cleaning filter mat of power supply *(see page 5-12)*
- Cleaning needle bed thoroughly *(see page 5-13)*
- Cleaning knitting systems *(see page 5-15)*

5.2.1 Cleaning the touch screen

Use a clean, soft cloth for cleaning. If heavy soiling is present, use a cleaning agent suitable for plexiglas. To prevent menus and function keys from being activated when cleaning, two options are available:

- Disconnect machine main switch
- Deactivate touch screen using the "Block input" key

Key	Function
	Call up the "Service" menu
	"Block input" key

Tab. 5-4 Keys for cleaning the touch screen

Cleaning the touch screen:

1. Call up the "Service" menu from the "Main menu".
2. Tap the "Block input" key.
3. Clean the touch screen.
4. Reactivate the screen again after cleaning. For this purpose, trigger a manual stop, e.g. by pushing open a cover over the needle bed.

5.2.2 Cleaning vacuum device and lint container *

from component type 001 on

1. Stop knitting machine when carriage is located on right half of needle bed.
2. Slide on cover hood over needle bed.
3. Push locking of lint container inwards and pull away container upwards.

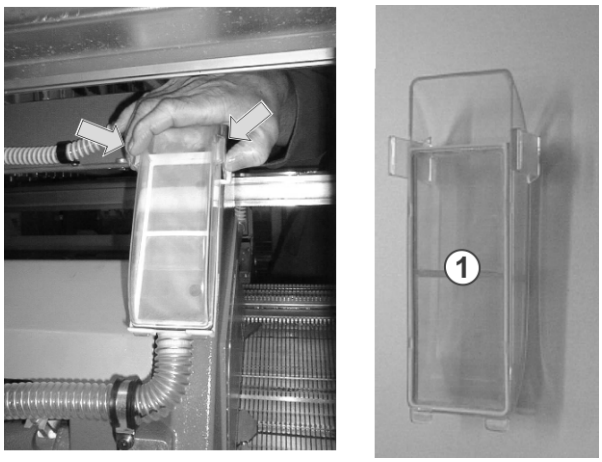


Fig. 5-1 Lint container and filter

4. Empty the lint container.
5. Clean filter (1) of lint container.
6. Reinstate the lint container.
7. Remove left rear panel segment.
8. Clean motor cover.

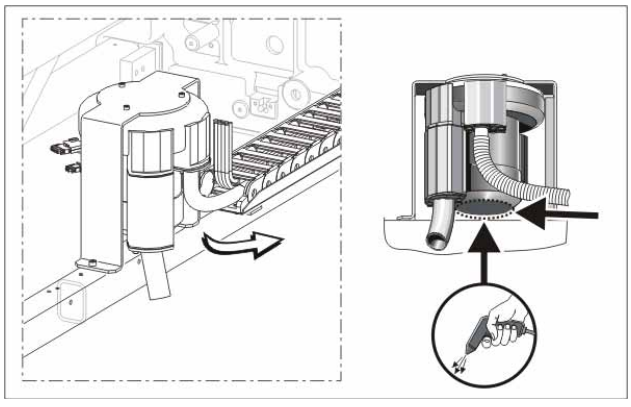


Fig. 5-2 Cleaning motor cover

9. Remove the suction tube (2) on the carriage and blow it out with compressed air.
   For doing this, raise oil jet (3) so far, that fixing clip is pulled out from carriage.
   Raise suction tube at the rear end (4) until there is no connection to hose anymore.

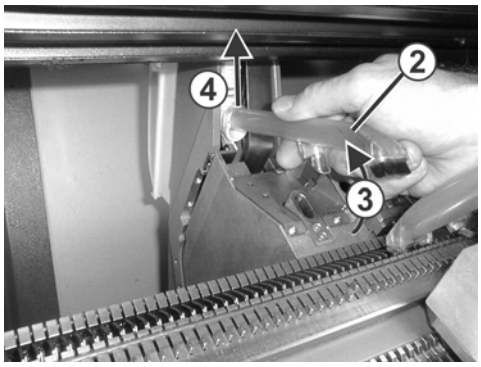


Fig. 5-3 Suction tube

Component type 000

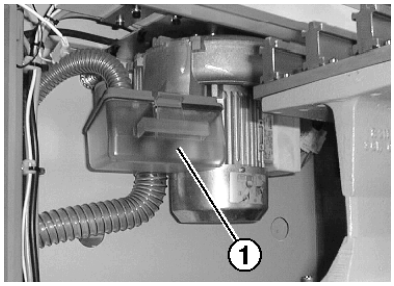


Fig. 5-4 Lint container of vacuum device

1. Stop the knitting machine.
2. Push open the left cover over the needle bed.
3. Push the lock of the lint container (1) toward the rear and pull away the container downward.
4. Empty the lint container.
5. Clean the filter (2) in the lint container and the filter (3) at the vacuum device.

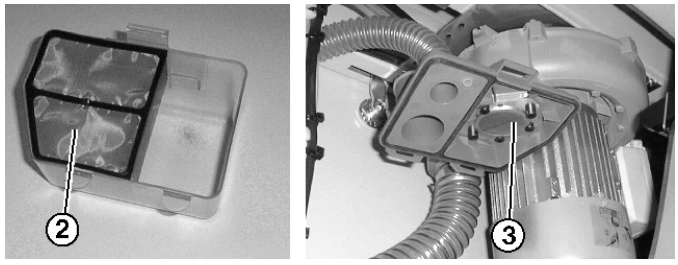


Fig. 5-5 Lint container and filter

6. Reinstate the lint container.

7. Clean motor cover.

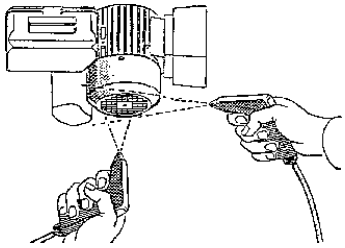


Fig. 5-6 Cleaning motor cover

8. Remove the suction tube (4) on the carriage and blow it out with compressed air

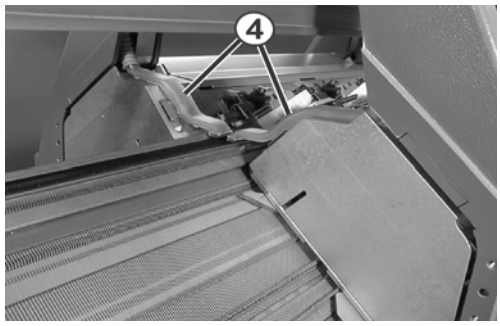


Fig. 5-7 Suction tube

Further information:

- Symbols in this document *(see page 1-3)*

5.2.3 Vacuuming off knitting machine

In order to avoid any dust being deposited on the inaccessible points of the machine, we recommend that the dust should be vacuum cleaned and the machine not to be cleaned by compressed air.

CAUTION

Damage to the needles!
The spring-mounted needle latches will be damaged if the needles are blown out with compressed air.

➜ Always vacuum lint and dust off the needles, never blow them out.

1. Stop the knitting machine.
2. Vacuum lint and dust off the knitting machine.

5.2.4 Cleaning needle bed

The pelerine springs of the needles should be cleaned daily, however at least once a week. The entire needle bed is cleaned every 12 to 26 weeks.

Cleaning needle bed:

1. Transfer all stitches to the rear needle bed.
2. Push open all covers over the needle bed.

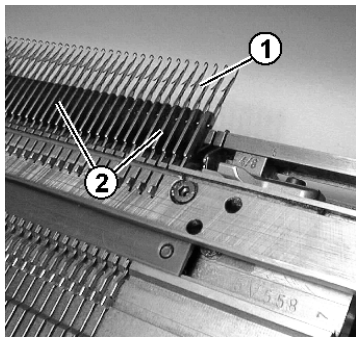


Fig. 5-8 Cleaning needle bed

3. Push up all needles of the front needle bed completely.
4. Vacuum off dirt in the area of the needle hook/pelerine spring (1) and in the area of the needle bed (2).
5. Close all covers over the needle bed again.
6. Transfer all stitches to the front needle bed and clean the rear needle bed in the same way.

Further information:

- Cleaning needle bed thoroughly *(see page 5-13)*
- Helpful knitting rows *(see page 6-4)*

5.2.5 Clean the active thread clamp

1. Bring the lateral yarn tensioner in still position. Thereby the active thread clamp is open.

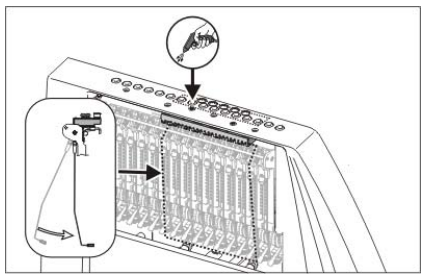


Fig. 5-9 Cleaning the active thread clamp

2. Blow the eyelets in the lateral safety hood by compressed air.

5.2.6 Cleaning the permanent brakes

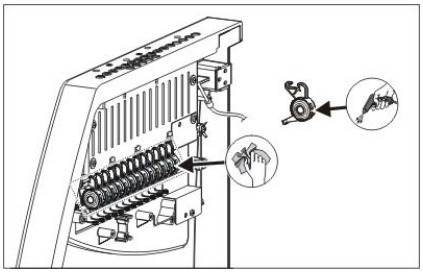


Fig. 5-10 Cleaning the permanent brake

➜ Clean both the brake settings of each permanent brake with a cloth

In case it is very dirty, then the permanent brake can be dismantled and can be blown out with compressed air.

1. Pull the adjusting lever of the permanent brake outwards and simultaneously press the lug of the permanent brake on the inner side of the safety hood.
   The permanent brake flaps underneath.
2. Blow out the permanent brake with the compressed air.

5.2.7 Clean the friction feed wheel *

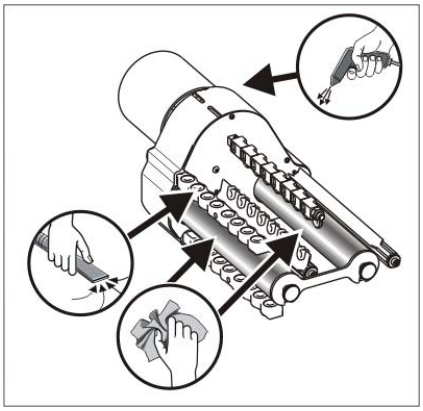


Fig. 5-11 Cleaning the friction feed wheel

1. Suck in the lint and dust from the friction feed wheel.
2. Remove dirt (e. g. paraffin) from the friction rollers.

Further information:

■ Symbols in this document *(see page 1-3)*

5.2.8 Cleaning main drive ventilator

1. Switch off the machine and wait until the machine is currentless.
2. Swing open the cover on the right control unit.

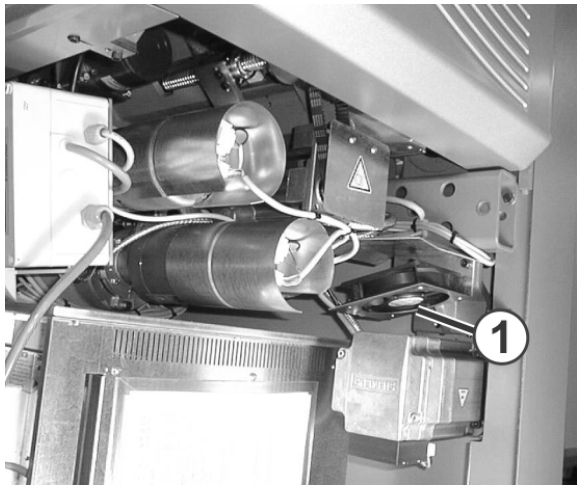


Fig. 5-12 Main drive ventilator

3. Clean ventilator (1).
4. Swing in the cover on the right control unit.
5. Switch on the machine.

The control checks the motor temperature when switching on machine main switch. The ventilator only runs at higher motor temperature.

Further information:

- Symbols in this document *(see page 1-3)*

5.2.9 Cleaning ventilator and radiators in right control unit

1. Switch off the machine and wait until the machine is currentless.
2. Swing open the cover on the right control unit.

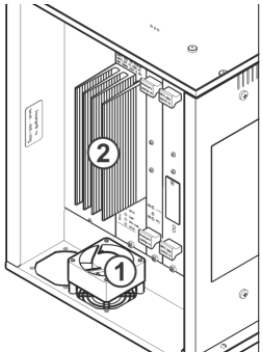


Fig. 5-13 Control unit

3. Vacuum off and blow out the ventilator (1) and radiator (2).
4. Swing in the cover on the right control unit.
5. Switch on the machine.

The ventilator is temperature-controlled.

5.2.10 Cleaning filter mat of power supply

1. Swing open the cover on the left control unit.

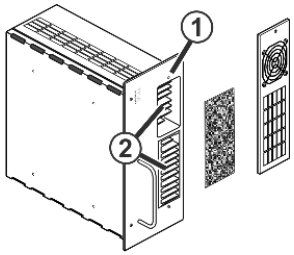


Fig. 5-14 Ventilator power supply

2. Remove screw (1) and hinge down the housing toward the front.
3. Remove filter mat and blow it out with compressed air.
4. If heavy soiling is present, vacuum off and blow out the radiator (2)
5. Replace filter mat.
6. Swing in the cover on the left control unit.

5.2.11 Cleaning needle bed thoroughly

The needle bed is cleaned daily by the operator. In addition, it must be cleaned thoroughly every 12 to 26 weeks.

If the needle bed it not cleaned thoroughly and carefully, a non-uniform stitch appearance results during production due to needles that do not run smoothly, and the operation of the machine can no longer be ensured.

Thorough cleaning of needle bed:

- No fabric may be hanging on the needle bed.
- The required tools (groove cleaner and extraction hook) are included with the accessories.

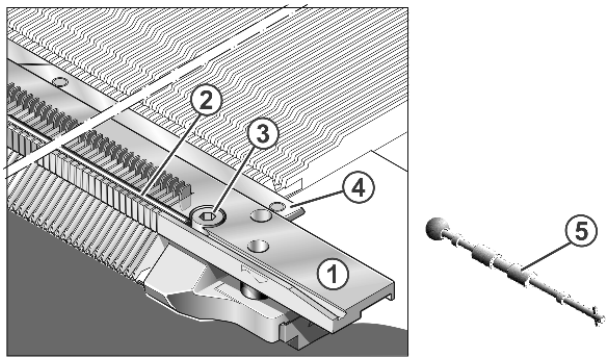


Fig. 5-15 Thorough cleaning of needle bed

1. Remove needle rail (4) with extraction hook (5).
2. Remove screw (3) on left and right-hand side of jack bed.
3. Take off jack bed (1).
4. Remove needles, coupling part, intermediate slider and selection jacks.
5. In case of CMS 520 C and CMS 830 C take off the selection jack bed additionally.

CAUTION

Dirt-caked needle channels due to oil or cleaning agent!
When the needle channels are cleaned with oil or cleaning agent, the dirt swells up and clogs the needle channels.

➜ Do not clean needle channels with oil or cleaning agent.

➜ Push dirt out of needle channels and blow out needle channels with compressed air.

6. Push dirt out of needle channels with groove cleaner (6).

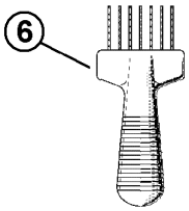


Fig. 5-16 Groove cleaner

7. Clean groove for pelerine spring of needle.
8. Blow out dirt with compressed air from the needle bed.
9. Make sure needles, coupling part, intermediate slider and selection jacks are undamaged.
10. Clean needles, coupling part, intermediate slider and selection jacks with oil.
11. Pull out wire (2) to enable jack bed to be guided into holding-down jacks more easily during assembly.
12. Reassembly needle bed.
13. Lubricate needles, coupling part, intermediate slider and selection jacks. If a central lubrication is installed, then use the setting "Initial lubrication" for approx. 15 minutes.

The needle hooks and the holding-down jacks can be cleaned quickly and easily with the needle bed cleaning apparatus (special equipment).

Further information:

- Removing selection jack bed (CMS 520 C and CMS 830 C) *(see page 6-22)*
- Cleaning needle bed *(see page 5-9)*
- Lubricating interval *(see page 5-17)*
- Special equipment *(see page 9-1)*

5.2.12 Cleaning knitting systems

1. Stop the knitting machine.
2. Move the carriage assembly into the left reversing position.
3. Set the main switch to "0" and wait until the touch screen is switched off.
4. Remove the carriage part.

CAUTION

Damage to the knitting systems!
Dirt will be blown into the guides of the movable parts and the knitting systems will be damaged if they are blown out with compressed air.

➜ Always vacuum off the knitting systems, never blow them out.

5. Vacuum off the knitting systems and selection systems.

CAUTION

Damage to the selection systems and impulse givers!
The selection systems and impulse givers will be damaged if they are cleaned with acetone or trichlorethylene (Tri).

➜ Clean the selection systems and impulse givers with a clean cloth.

6. Clean the selection systems and impulse givers with a clean cloth.
7. Check the cams for wear and damage.
8. Apply oil to the cams with a brush.
9. Set the carriage part on the needle bed again.
10. Repeat step 4 to 9 for all carriage parts.
11. Set the main switch to "1".

    The carriage assembly position is referenced again.

Further information:

- Removing and mounting carriage part *(see page 6-25)*

5.3 Lubricate knitting machine

This chapter contains information on:

5.3.1 Lubricating interval

To retain the operability of the knitting machine and ensure the quality of the fabric, the knitting machine must regularly be lubricated.

Lubricating interval	Lubricating work
adjustable Recommendation: Every 6 - 10 operating hours; select shorter interval if necessary	Oiling the needle bed without central lubrication
10 operating hours	Oiling the thread clamping and cutting device on the right (only with central lubrication), oiling the jack bed, oiling the yarn carrier rods
100 operating hours	Oiling the carriage guide bar, greasing the impulse giver rails, greasing the carriage guide, greasing the coupling parts and intermediate sliders, oiling the needle latch hinges, greasing the yarn carrier rods, greasing the control slider (CMS 822)
6 months	Greasing the racking device, greasing the adjustment pieces

Tab. 5-5 Lubricating schedule

Only the named lubricants or others recommended by STOLL may be used. Other lubricants may damage the machine, e.g. due to insufficient lubricating action, rust on metal parts or damage to the electrical cable insulation and the plastic parts. We point out here that failure to observe this, will void our warranty services.

Oil Use only the oil SILVERTEX T46 (ID No. 230 614) found with the accessories of the machine.

Grease Use only the greases found with the accessories of the machine or those listed in the lubricating schedule.

- Grease from STOLL - ID No. 5 351
- We recommend grease OKS 270, ID No. 229 372, especially for the carriage guide

In the first weeks after setting up the knitting machine, select shorter lubricating intervals.

5.3.2 Setting lubricating interval for needle bed

Between 1 and 65,535 revolutions can be set for the needle bed as a lubricating interval. A mean value for a three-system machine is 25,000 revolutions. However, this value is highly dependent on: Machine speed, temperature and number of knitting systems. We recommend: Selecting a shorter lubricating interval instead of a longer one. After the lubricating interval expires, a message appears stating that the needle bed must be oiled.

Key	Function
	Call up "Machine settings" window
	Call up "Additional function keys"
	Call up "Sensors" window
	Confirm input
	Call up the "Main menu"

Tab. 5-6 Keys for setting the lubricating interval

Set lubricating interval:

1. Call up "Machine settings" window.
2. Call up "Additional function keys".
3. Call up the "Sensors" window.

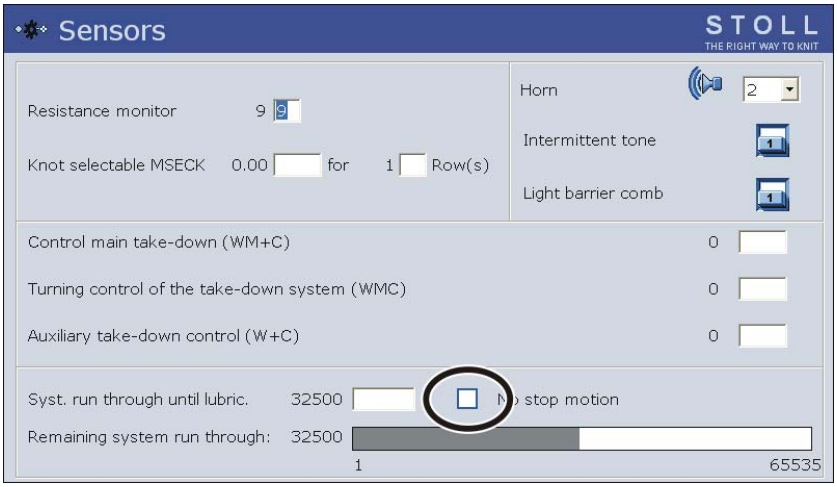


Fig. 5-17 "Sensors" window

4. Input "Syst. run through until lubric.".
5. If the machine is to be stopped after reaching the system run-throughs, then deactivate the check box.

6. Confirm the input.
7. Call up "Main menu".

5.3.3 Setting of central lubrication

All machines with four or more knitting systems are equipped with a central lubrication as a standard equipment (not for CMS 822)

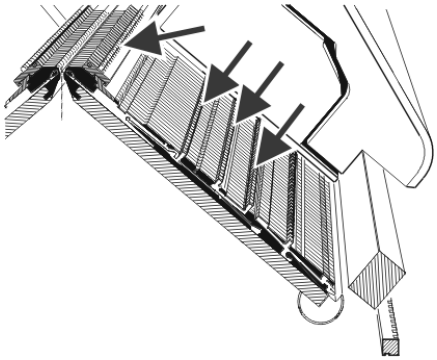


Fig. 5-18 Lubrication points of the central lubrication

The central lubrication can be activated/deactivated. If it is deactivated, monitoring of the lubrication interval is automatically activated.

When central lubrication is deactivated, the following lubrication tasks must be performed manually again:

- Oiling needle bed
- Oiling jack bed

The needle bed and jack bed must be oiled manually before a new machine has been set up and for a machine which has been out of operation for a longer period of time or which has just had a gauge conversion. Then use the "Initial lubrication" setting for approx. 15 minutes.

Key	Function
	Call up "Machine settings" window
	Call up "Additional function keys"
	Call up the "Central lubrication" window
	Call up the "Main menu"

Tab. 5-7 Keys for adjusting the central lubrication

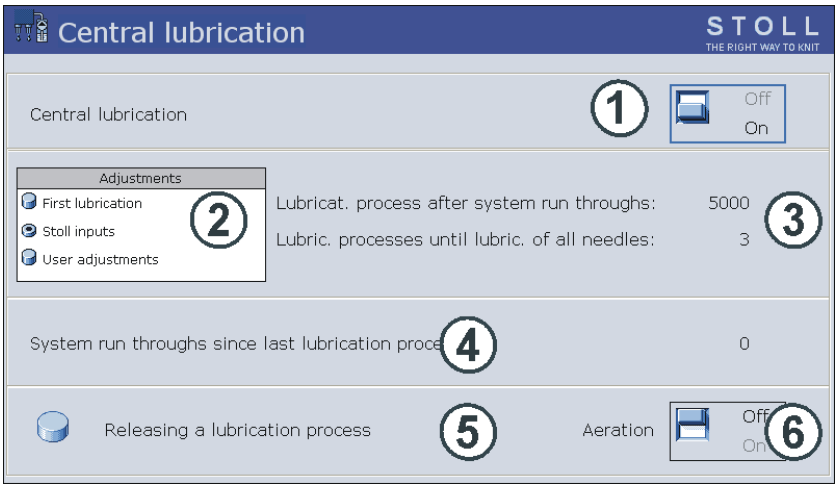


Fig. 5-19 "Central lubrication" window

Field	Explanation
1	Activate/deactivate central lubrication
2	Three settings are available for the lubrication interval:
	Initial lubrication: This setting is used for the initial lubrication of a new machine at the STOLL factory. The values cannot be modified. (Caution: risk of soiling the fabric) Select this setting for approx. 15 minutes after a gauge conversion or with a machine which has been out of operation for a longer period of time.
	STOLL inputs: This setting can be used for production mode. The values cannot be modified.
	User adjustments: In this setting, the values can be changed by the user. (Caution: An improper setting could lead to insufficient oiling. Ensure that the central lubrication applies sufficient oil to the needle bed.)
3	Each setting consists of two values.
	Lubrication process after system run-throughs: Setting of the number of knitting systems after which lubrication occurs. The lubrication process stretches across the current traversing path of the carriage.
	Lubrication processes until all needles are lubricated: Setting of the number of lubrication processes after which the entire needle bed is to be lubricated.
4	Number of system run-throughs since the last lubrication process
5	A lubrication process is triggered in the next carriage reversal point. The entire needle bed is lubricated.
6	The oil line is deaerated with this switch. The oil pump is switched on for max. 30 seconds. Use this switch for ventilation only, not for lubrication (Caution: risk of soiling the fabric).

Tab. 5-8 "Central lubrication" window

All lubrication processes and operating actions are logged. The entries can be read. For this purpose, call up the "additional function keys" and the "Central lubrication log" key in the "Central lubrication" window.

Error messages

If an error occurs in the area of the central lubrication, it is displayed on the touch screen.

Error message	Explanation
Central lubrication oil reservoir almost empty	If a certain level is undershot, this message appears. It is always displayed until the oil is filled up or the oil level reaches the "Min" mark. The machine then stops and the "Oil reservoir empty" error message appears.
Central lubrication oil reservoir empty	Fill oil reservoir with oil until the "Max" mark is reached (SILVERTEX T46, ID No. 230 614). 
Central lubrication pressure switch	The oil pressure is monitored. If it is too low, this error message appears. Check oil line. If the oil line is OK, set the "Ventilation" switch to "On" and then to "Off" again. This switches the oil pump on again. If the error occurs again, the oil line must be deaerated.

Tab. 5-9 Error messages for central lubrication

Further information:

- Setting lubricating interval for needle bed *(see page 5-18)*
- Oiling needle bed *(see page 5-22)*
- Oiling jack bed *(see page 5-23)*
- Oiling carriage guide bar *(see page 5-24)*
- Deaerating oil line *(see page 6-41)*

5.3.4 Oil the thread clamping and cutting device on the right

Machines which have central lubrication must have their thread clamping and cutting device on the right-hand side oiled manually. For mechanical reasons, the central lubrication does not reach all eight clamping positions.

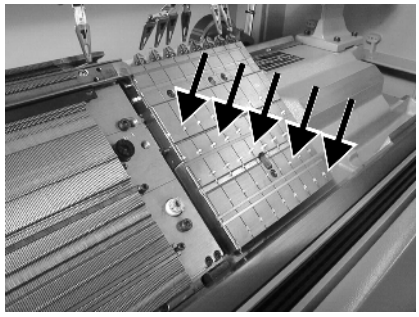


Fig. 5-20 Oiling the thread clamping and cutting device

➜ Use a brush or a spray bottle to apply oil to all working butts of the clamping points.

5.3.5 Oiling needle bed

When the lubricating interval for the needle bed expires, a message appears stating that the needle bed must be oiled. Then the lubricating interval must be restarted.

Fig. 5-21 "Lubricate needle bed (OIL)" pictograph

1. Apply oil with a brush or spray bottle.

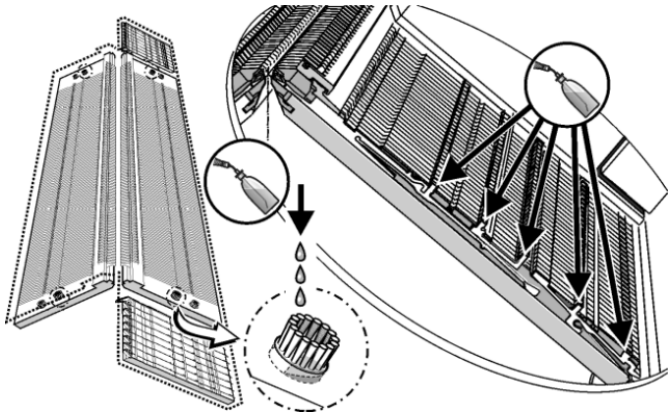


Fig. 5-22 Oiling needle bed

2. Brushes are attached at the side of the needle bed. Put some oil in the upper brush so that the cams near the coupling parts are oiled (not for CMS 420 E of type 579).

5.3.6 Restarting lubricating interval

1. Tap display for "Lubricate needle bed" message.
   The "Current message" window appears.
2. Tap "624 Lubricate needle bed (OIL)" message.
   The message is marked with a frame. The function key for opening the "Sensors" window appears at the bottom of the touch screen.
3. Call up the "Sensors" window.
4. Input "Syst. run through until lubric.".
5. Confirm the input.
6. Call up "Main menu".

5.3.7 Oiling jack bed

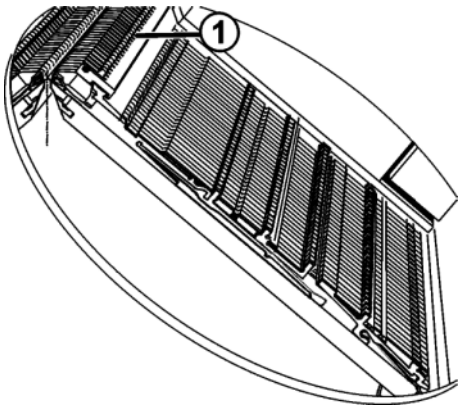


Fig. 5-23 Oiling jack bed

WARNING

If a spray gun is used for oiling, too much oil may be applied!
The suction tube becomes clogged.

➜ Do not use a spray gun for oiling.

➜ Use a brush to apply oil to the jack bed (1).

5.3.8 Oiling yarn carrier rods

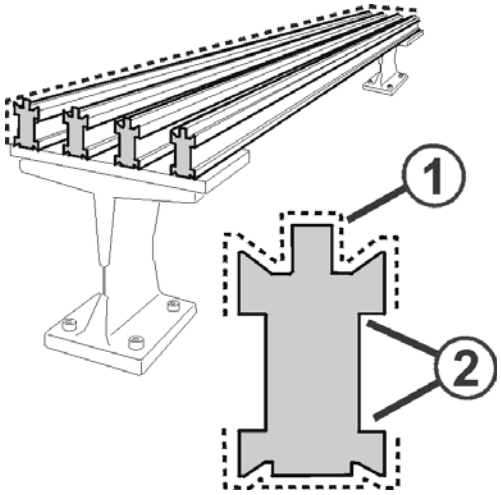


Fig. 5-24 Oiling the yarn carrier rods

1. Use a brush or a spray bottle to apply oil to the yarn carrier rods (1).
2. If intarsia yarn carriers are used, wipe off the oil with a cloth until the notch on the yarn carrier rod (2) is only coated with a residual lubricating film.

5.3.9 Oiling carriage guide bar

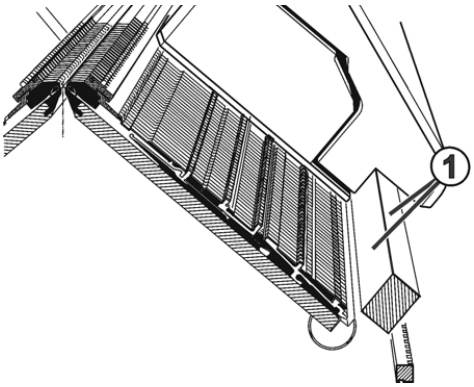


Fig. 5-25 Oiling the carriage guide bar

➜ Use a cloth to apply oil to the carriage guide bar (1).

5.3.10 Greasing impulse giver rails

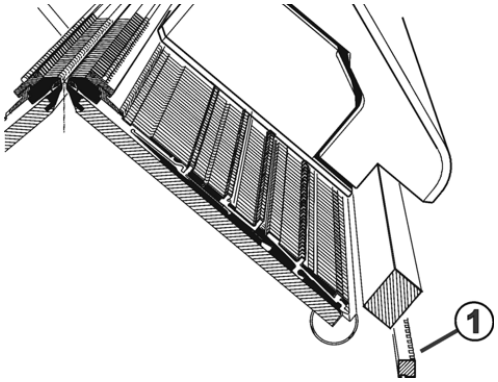


Fig. 5-26 Greasing the impulse giver rails

➜ Use a brush to apply grease to the impulse giver rails (1).

Gauge E 5, E 7, E 8
The front impulse giver rail does not exist for the following machines:

Component type 003	CMS 822			
Component type 002	CMS 830 C	CMS 740	CMS 530	CMS 520 C
			CMS 520	
Component type 000				CMS 420 E (type 579)

5.3.11 Greasing butts of the coupling parts and intermediate sliders

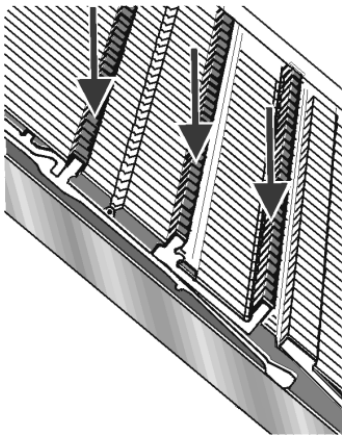


Fig. 5-27 Greasing the butts of the coupling part and intermediate sliders

➜ Use a brush to apply grease to the butts of the coupling parts and intermediate sliders.

5.3.12 Oiling hinges of needle latches

Fig. 5-28 Oiling hinges of needle latches

1. Use a brush to apply oil to the needle latch hinges.
2. Knit with residual yarn until oil lines no longer occur in the fabric.

5.3.13 Greasing yarn carrier rods

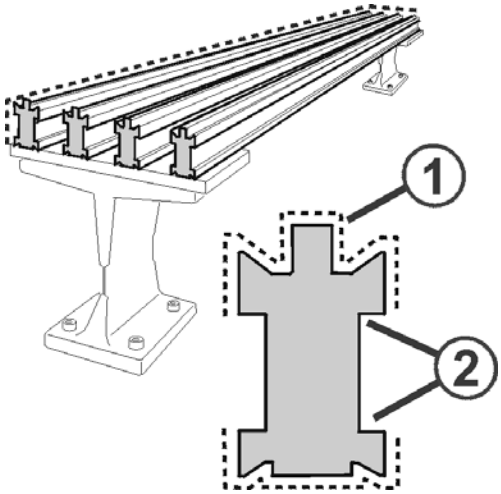


Fig. 5-29 Greasing the yarn carrier rods

1. Use a brush to apply grease to the yarn carrier rods (1).
2. If intarsia yarn carriers are used, wipe off the grease with a cloth until the notch on the yarn carrier rod (2) is only coated with a residual lubricating film.

5.3.14 Greasing the control sliders (CMS 822)

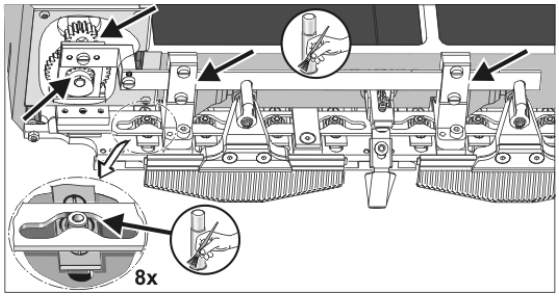


Fig. 5-30 Greasing the control slider

➜ Apply grease to the control slider with a brush.

5.3.15 Greasing racking device

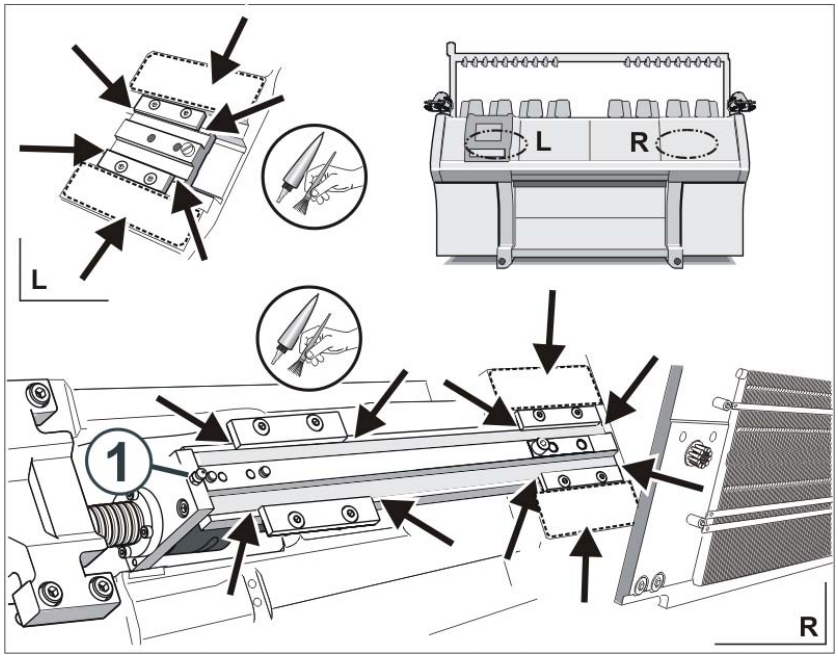


Fig. 5-31 Greasing racking device

1. Position the rear needle bed at an angle.
2. Remove the cover over the racking spindle.
3. Apply grease to the racking strip and to the sliding guidance with a brush.
4. Grease the lubricating nipple (1) with a grease gun (KLUEBER Staburags NBU 12/300 KP, Ident. no. 231 191).

Further information:

- Remove needle bed or position it at an angle *(see page 6-17)*

5.3.16 Grease needle bed support/adjustment pieces

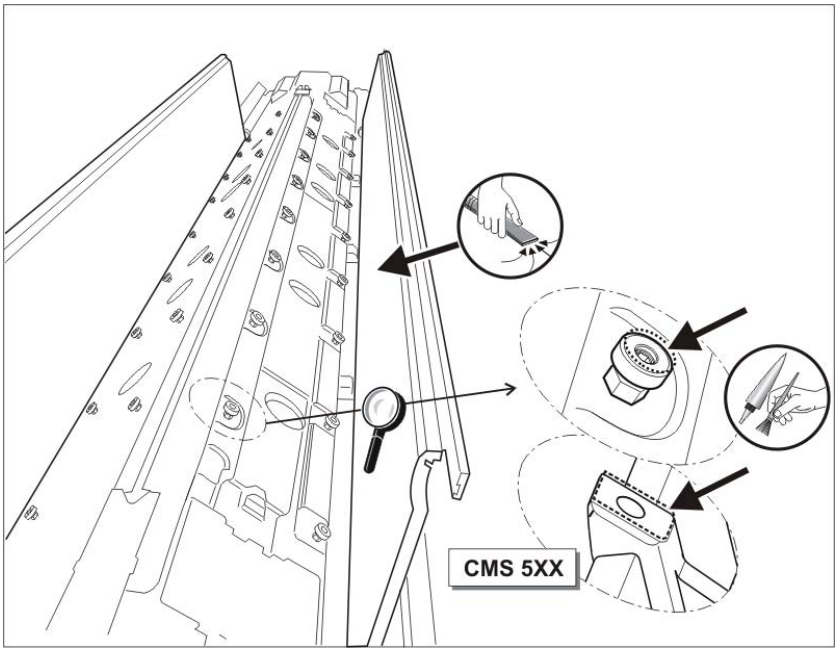


Fig. 5-32 Greasing the needle bed supports/adjustment pieces

1. Position the needle beds at an angle.
2. Vacuum off lint and dust.
3. Apply grease to adjustment pieces with a brush.

Further information:

- Remove needle bed or position it at an angle *(see page 6-17)*

6 Repairing the knitting machine

This chapter contains information on:

- Supplementary activities during repairing *(see page 6-1)*
- Helpful knitting rows *(see page 6-4)*
- Replacing parts *(see page 6-6)*
- Eliminating malfunctions in electronics system *(see page 6-45)*
- Checking fuses *(see page 6-54)*

6.1 Supplementary activities during repairing

This chapter contains information on:

- Switching power supply 40 V off and on *(see page 6-1)*
- Central lubrication - mounting and working position *(see page 6-3)*

6.1.1 Switching power supply 40 V off and on

The power supply of the carriage (step motors, selection systems, yarn carrier plungers) can be switched off for assembly work. This eliminates the switching off and on of the main machine switch and thereby the wait time until the computer of the knitting machine has shut down and rebooted.

The machine cannot be started with the engaging rod when the power supply is switched off.

Key	Function
	Call up the "Service" menu
	Call up window "Manual interventions Service"
	Confirm message
	Call up the "Main menu"

Tab. 6-1 Keys for switching power supply 40 V off / on

Switch power supply off and on again:

1. Call up the "Service" menu from the "Main menu".
2. Call up from"Service" window "Manual interventions Service".

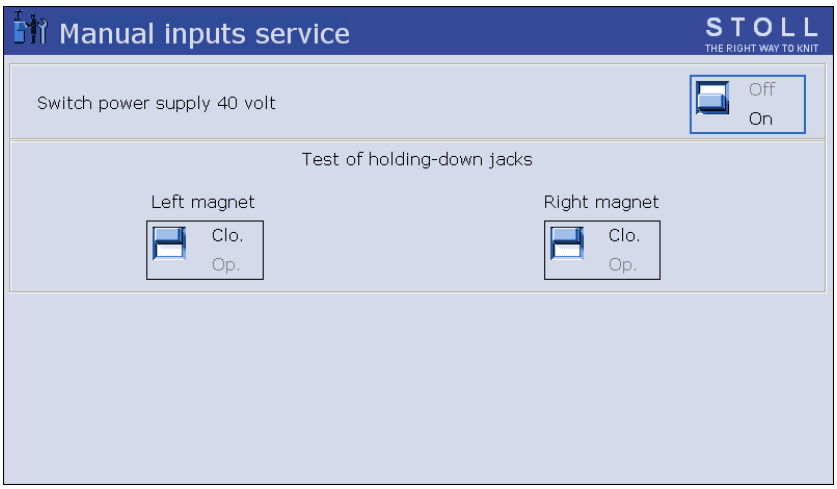


Fig. 6-1 Window "Manual interventions Service"

3. Tap the "Off" switch if the power supply is to be switched off. Answer the message "Switch off?" with "Yes".

   - or -

➜ Tap the "On" switch if the power supply is to be switched on. Tap the "Confirm message" key. The machine is ready for operation.

4. Call up "Main menu".

6.1.2 Central lubrication - mounting and working position

Only on machines with central lubrication

The central lubrication can be swiveled upward for mounting activities, e.g. to remove the carriage part.

Mounting position

Swivel central lubrication into mounting position:

1. Swivel central lubrication upward (approx. 100 degrees).

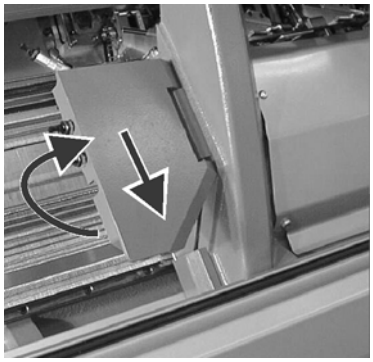


Fig. 6-2 Mounting position of central lubrication

2. Move central lubrication downward somewhat until it stops.

Working position

Swivel central lubrication into working position:

DANGER

Central lubrication in mounting position!
If the machine is started and the carriage moves outward, the side safety cover could be thrown open.

➜ Swivel central lubrication into working position.

1. Move central lubrication upward somewhat until the lock is released.

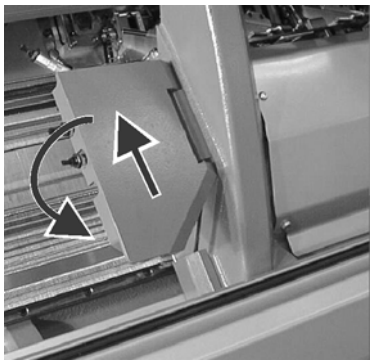


Fig. 6-3 Swiveling central lubrication into working position

2. Swivel central lubrication downward until it touches the carriage.

6.2 Helpful knitting rows

When carrying out cleaning, adjustments and repair work, it is helpful to set a certain knitting situation immediately. The following table lists the knitting specifications mentioned in the instruction manual.

	Knitting specifications
Empty row	< > S0 W0 Or: Tap in window "Machine start" on the key "SPF S0".
Empty row with transfer racking	< > VU S0 W0
Empty row with half racking	< > V# S0 W0
Transfer row to the rear (R = all needles)	< > S:U^SR; S1
Transfer row to the front	< > S:UVSR; S1

Tab. 6-2 Knitting specifications

Key	Function
	Activating SINTRAL editor
	Call up "Machine start" window
	Call up the "Main menu"

Tab. 6-3 Keys for entering a knitting row

Enter and fix a knitting row:

1. Park the carriage just after the left reversing position.
2. Call up SINTRAL editor.
3. Position the cursor accordingly (e.g. on line 998) in the Sintral program.
4. Enter the knitting row using the virtual keyboard.
   For example, you may want to enter a transfer row to the rear on line 998. The specifications are as follows: 998 <> S:U^SR; S1
5. Confirm input and return to the "Main menu".

6. Call up the "Machine start" window.
7. On the "SPF row fixed" line, tap the "Line: 999" field and enter the line number "998".

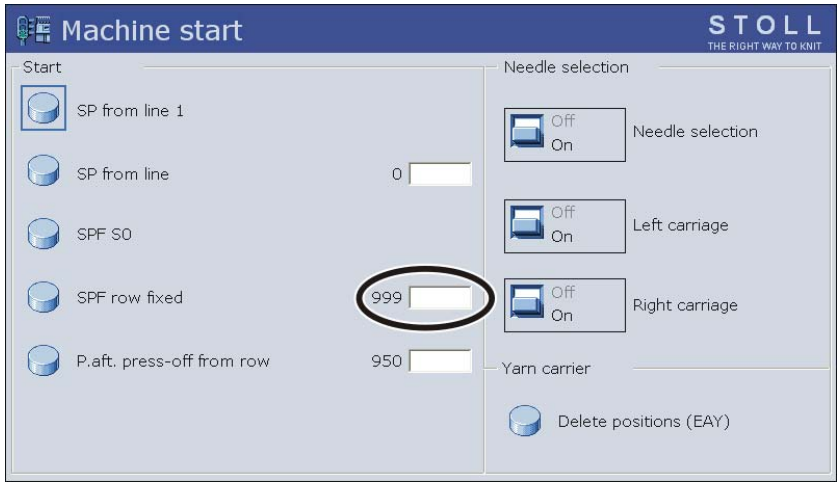


Fig. 6-4 Window "Machine start"

8. Fix this line by tapping the "SPF row fixed" key and engaging the machine.
   The knitting specification is carried out after the next reversal point.
9. Stop the carriage if it is in the left reversal point again.
10. Carry out work on the knitting machine.
11. To resume production tap in the window "Machine start" on the key "SP from line 1" and engage the machine.

An empty row is entered on line 999 in a STOLL knitting program.

For the first 2 knitting rows after "SPF", the carriage moves over the entire needle bed.

6.3 Replacing parts

This chapter contains information on:

6.3.1 Replacing needle and coupling part

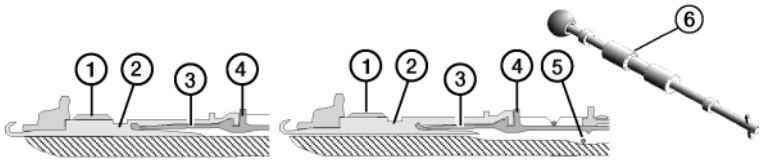


Fig. 6-5 Changing needle and coupling part (right picture: CMS 520 C and CMS 830 C)

in case of all machines (exception: CMS 830 C)

1. Pull-out the needle rail (1) with the extraction hook (6).
2. Pull the needle (2) upward; this also pulls out the coupling part (3).
3. When the butt of the coupling parts (4) bumps into the holding-down jack bed, press the coupling part downward. Pull out the needle and coupling part upward.

- or -

➜ On the CMS 520 C the end of the coupling part bumps into the wire (5), and must therefore be pushed harder.

Only on CMS 830 C

1. Pull needle (2) upwards, the coupling part (3) will, with it, also be pulled upwards.
2. If needle butt bumps into needle rail, tilt needle laterally so that the connection needle-coupling part is loosen. Should this be difficult, then provide help with a knitting hook. Push coupling part downward and return needle to straight position. Pull out needle upward.
3. Install the new needle in the reverse order. Lift coupling part a little by means of pliers.

Replace coupling part (CMS 830 C)

1. If a coupling part must be replaced, then remove the corresponding needle. Lift upper end of coupling part out of needle bed with a needle or a knitter hook. Push coupling part upwards by means of pliers and lift it out of needle bed.

Fig. 6-6 Removing a coupling part

2. Inserting a new coupling part. Put pliers above butt of coupling part and then push coupling part downwards by means of pliers.

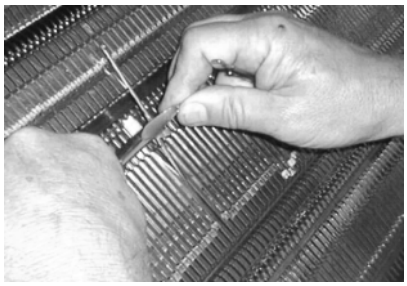


Fig. 6-7 Inserting a coupling part

3. Reassemble needle.

6.3.2 Replacing intermediate slider

To change the intermediate slider, you need a small pair of pliers.

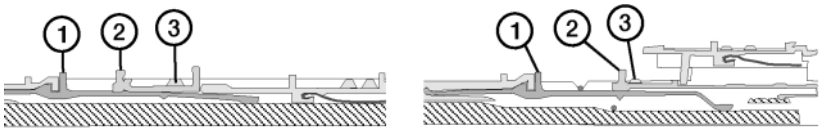


Fig. 6-8 Replacing intermediate slider (right picture: CMS 520 C and CMS 830 C)

1. Push the needle and coupling part (1) upward.
2. Push the intermediate slider (2) until the lower butt bumps into the cover rail (3).
3. Pull the upper butt of the intermediate slider out of the needle bed while pressing the lower butt into the needle bed and under the cover rail.

   - or -

➜ On the CMS 520 C and CMS 830 C, push the spring wedge (3) to the side.

4. Install the new intermediate slider in the reverse order.
5. Slide the needle and coupling part into the basic position.

6.3.3 Changing selection jack

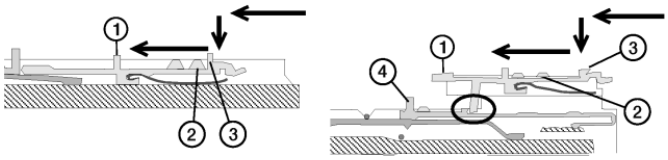


Fig. 6-9 Changing selection jack (right picture: CMS 520 C and CMS 830 C)

1. Push the needle with the coupling part upward.
2. Push the intermediate slider (2) until the lower butt bumps into the spring wedge (3).
3. Push the selection jack (1) upward until it bumps into the cover rail (2).
4. Press the butt (3) of the selection jack into the needle bed while at the same time sliding the selection jack further upward.

   - or -

➜ On the CMS 520 C and CMS 830 C, push the intermediate slider (4) toward the front until it bumps into the wire.

5. Remove the selection jack.
6. Install the new selection jack in the reverse order.
7. On the CMS 520 C and CMS 830 C, make sure when inserting the new selection jack that the butt of the selection jack is behind the butt of the intermediate slider.
8. Remount the intermediate slider.

■ Slide the needle and the coupling part into the basic position.

6.3.4 Replacing holding-down jack

Not on CMS 830 C

1. Transfer all stitches of the needle bed in which the jack is replaced to the other needle bed.

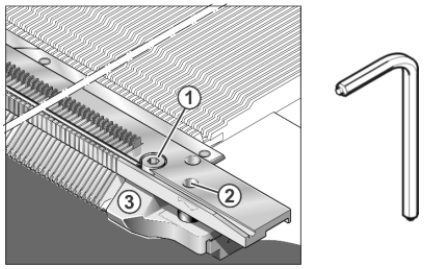


Fig. 6-10 Removing yarn carrier limiter (3)

2. Remove screw (1) on left and right-hand side of jack bed. Use the special hexagon screwdriver from the accessories for this purpose.
3. Release the screw (2) on the left and right-hand sides of the jack bed.
4. Remove the yarn carrier limiter (3) on both sides.

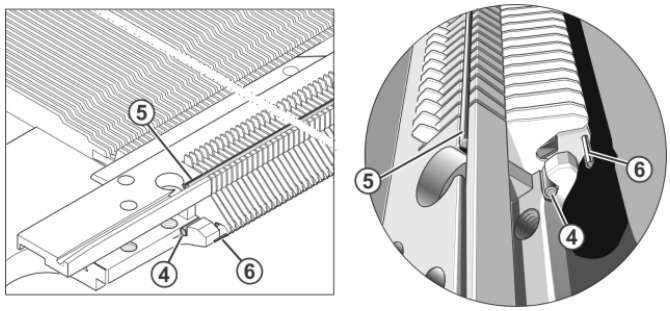


Fig. 6-11 Replacing a jack

5. Pull out wire (4) and, with gauge E 3,5.2, E 5.2, E 6.2, E 7.2, E 8.2, E 9.2 (with 72", 84"), (6) as well, up to the point of repair. When doing so, always guide in the replacement wire from the accessories after it from the other side of the machine so that the jacks do not fall out of the needle bed.
6. Pull out the wire (5).
7. Take out the holding-down jack from above and insert a new one.
8. Reassemble the needle bed in the reverse order.

On CMS 830 TC Replacing spring of holding-down jack:

1. Transfer all stitches of the needle bed in which the jack is replaced to the other needle bed.

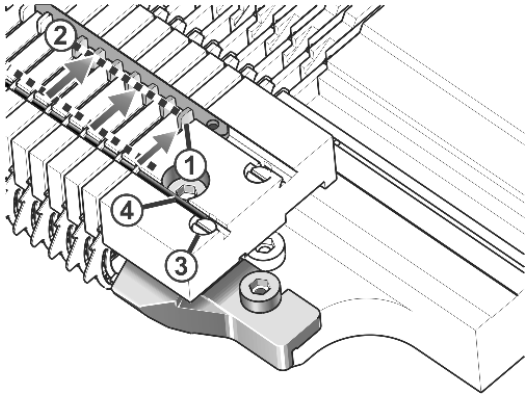


Fig. 6-12 Push spring into "Position open"

2. Push all springs (1) of the holding-down jacks into the rear position(2).
3. Remove screw (3) on left and right-hand side of jack bed.
4. Pull out the wire (4) up to the point of repair.
5. Push defective spring into the front position and pull out upward.
6. Push holding-down jack(5) into "Position closed" and insert new spring. While doing so, the holding-down jack is pushed into "Position open" again. Make sure that the spring lies under the spring wedge (6) and is located in the rear position (2).

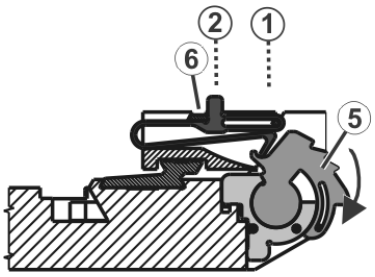


Fig. 6-13 Replacing spring

7. Assemble in reverse order.

- or -

➜ Replace holding-down jack.

Replacing holding-down jack:

1. Once work has been carried out on the front needle bed, then position the needle bed at an angle. This enables the wires to be pulled out more easily.

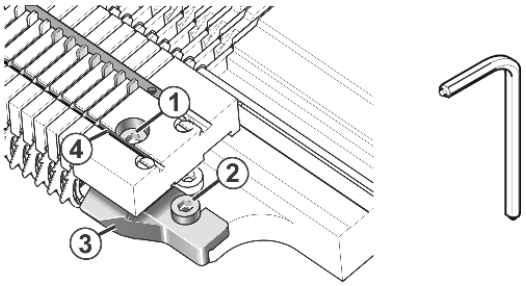


Fig. 6-14 Removing yarn carrier limiter (3)

2. Release screws (1) and (2) on the left and right-hand sides of the jack bed. Use the special hexagon screwdriver from the accessories for screws (1).
3. Remove the yarn carrier limiter (3) on both sides.
4. Pull out the wire (4). Push the springs toward the front carefully until force is no longer being applied to the holding-down jacks.

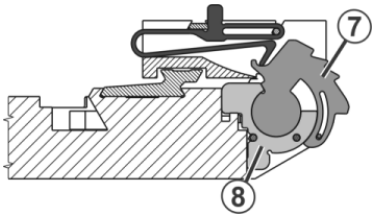


Fig. 6-15 Push springs toward the front

5. Pull out the wire (5) and (6) up to the point of repair.

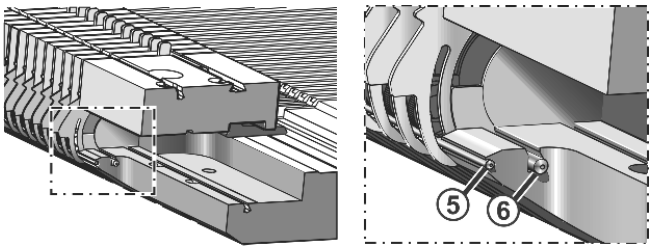


Fig. 6-16 Pulling the wires out

6. Remove the spring of the defective holding-down jack.
7. Take out the holding-down jack (7) together with the support (8) upward. Insert new holding-down jack and support.
8. Reassemble the needle bed in the reverse order.

Further information:

- Helpful knitting rows *(see page 6-4)*
- Remove needle bed or position it at an angle *(see page 6-14)*

6.3.5 Remove needle bed or position it at an angle

This chapter contains instructions on:

- Loosening needle bed
- Removing needle bed
- Positioning the needle bed at an angle
- Screwing on the needle bed tight

Key	Function
	Call up "Manual interventions" window

Tab. 6-4 Key for calling up "Manual interventions" window

Loosening needle bed

Valid for:			
Component type 003	CMS 822		
Component type 002	CMS 830 C	CMS 740	CMS 530
	CMS 520 C	CMS 520	
Component type 000	CMS 420 E (type 579)		

1. Transfer all stitches of the needle bed to be removed or positioned vertically to the other needle bed.
2. When the carriage assembly is in the left reversing position, stop the machine with the engaging rod. If a central lubrication is present, the carriage must be in the left reversing position.

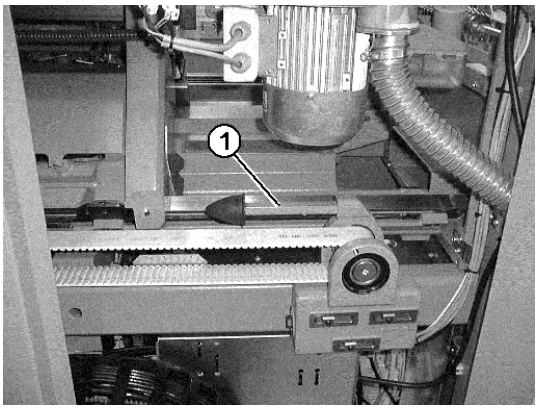


Fig. 6-17 Hexagonal bolts on CMS 740

3. On CMS 740 TC remove the right segment of the rear panel and the hexagonal bolts (1) at the rear of the machine.
4. Tap the "Rel. drive brake" key in the "Manual interventions" window

and slide the carriage assembly to the left up to the stop.

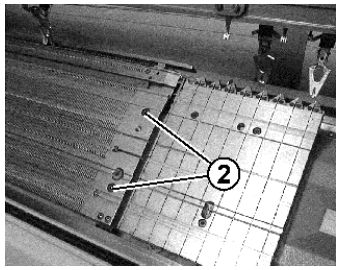


Fig. 6-18 Loosening needle bed

5. Remove two screws (2) on each side of the machine.
6. Loosen the rear needle bed for gauge E 10 -E 18 (not for CMS 420 E): Remove the screws (3). Push the connection (4) to the side. While doing so, the impulse giver rail is pushed to the side.

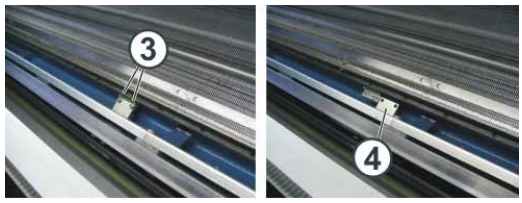


Fig. 6-19 Link of the impulse giver rail

Further information:

- Helpful knitting rows *(see page 6-4)*

Loosening needle bed

Valid for:			
Component type 000 - 002	CMS 822		
Component type 000 - 001	CMS 830 C	CMS 740	CMS 530
	CMS 520 C	CMS 520	CMS 420 E (type 575, type 577)

1. Transfer all stitches of the needle bed to be removed or positioned vertically to the other needle bed.
2. When the carriage assembly is in the left reversing position, stop the machine with the engaging rod. If a central lubrication is present, the carriage must be in the left reversing position.

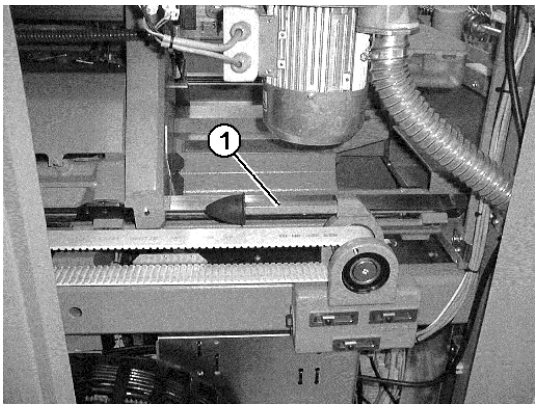


Fig. 6-20 Hexagonal bolts on CMS 740

3. On CMS 740 TC remove the right segment of the rear panel and the hexagonal bolts (1) at the rear of the machine.
4. Tap the "Rel. drive brake" key in the "Manual interventions" window and slide the carriage assembly to the left up to the stop.

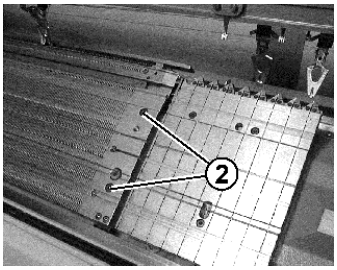


Fig. 6-21 Loosening needle bed

5. Remove two screws (2) on each side of the machine.
6. Rear needle bed: Remove the screws (3). Push the connection (4) to the side. While doing so, the impulse giver rail is pushed to the side.

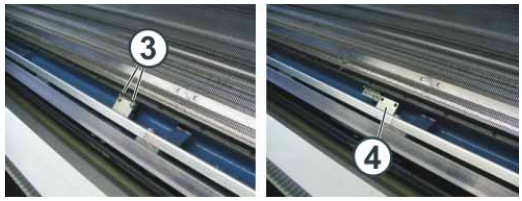


Fig. 6-22 Link of the impulse giver rail

Further information:

- Helpful knitting rows *(see page 6-4)*

Remove needle bed or position it at an angle

➜ Front needle bed Swivel towards the front carefully and lean it against the machine covering

➜ Rear needle bed: Remove the needle bed from the machine with two persons.

Screwing on needle bed tight

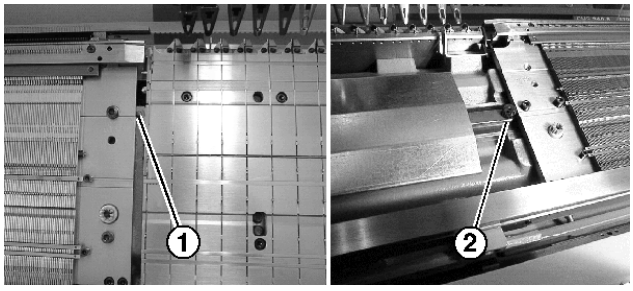


Fig. 6-23 Installing front and rear needle beds

➜ Reassemble the needle bed in the reverse order. When doing so, make sure that the needle bed contacts the pin (1) and the roller (2).

6.3.6 Repairing needle bed and additional bed

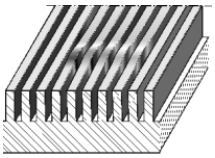


Fig. 6-24 Damaged needle bed

If the carriage is blocked, the needle bed may be damaged. This means that the movable parts (needles, coupling part, intermediate slider and selection jack) do not move smoothly or are blocked. This damage must be eliminated carefully and conscientiously before the machine is started up again. If it is not, a risk of the carriage blocking again immediately and damaging the needle bed again is present.

When performing repairs, the needle bed types must be determined. There are two different versions: milled and combined needle beds. The additional beds are always milled.

Needle bed	Description
milled	The grooves for the movable parts are milled out of the needle bed.
combined	The needle bed is composed of individual stays. They are inserted into a basic plate and screwed down.

Repairs must be carried out very carefully and without the use of force.

milled needle bed

1. If the carriage blocks, then separate the connection of the carriage part to the carriage. Move carriage to the next reversal point. Lift carriage part from needle bed. Check cams for damage and remove broken working butts from the movable parts.
2. Find the channel chisel and channel file accessories.
3. Remove the movable parts (needle, coupling part etc.) at the point of damage.
4. Set damaged stays into a vertical position again using the channel chisel and straighten them. The chisel may only be struck with light hammer blows in the damaged groove. Do not strike the chisel in too deep, as the needle bed foundation will be damaged.

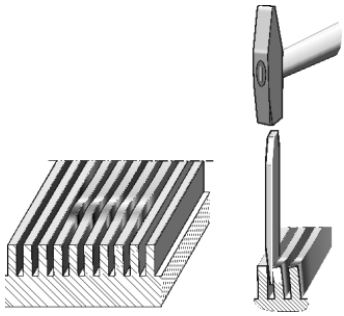


Fig. 6-25 Positioning stays vertically

5. Take a needle or selection jack from this machine and place it into the repaired groove. Push the needle up and down in the groove. If it moves easily, check whether the movable parts of the neighboring grooves move easily as well.
6. If this is not the case, repeat steps 4 and 5.
7. Do this for all damaged grooves. The grooves to the left and right of the point of damage must move easily as well.
8. If the damaged stays are bent upward, knock them even (smooth) again using the channel chisel.

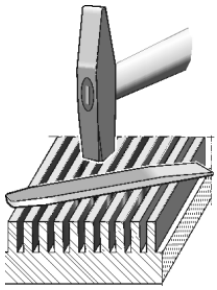


Fig. 6-26 Smoothing surface

9. Check whether the needle bed elements move easily in the grooves. Repeat Step 5.

CAUTION

The needle bed may be damaged if the channel file is used improperly!
If too much of a stay is filed off, the needle bed is defective at this point and can only be repaired by a Stoll technician.

➜ Use the channel file for the removal of burrs only.

➜ The grooves must be cleaned carefully after the channel file is used.

10. Check whether the edges of the damaged stays have burrs. If this is the case, then remove them with the channel file carefully.

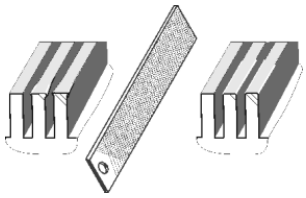


Fig. 6-27 Removing burrs

11. Check whether the needle bed elements move easily in the grooves. Repeat Step 5.
12. If everything is in order, polish the needle bed with the channel file carefully. Place the channel file flat on the needle bed and lightly move it back and forth perpendicular to the needle channel.
13. The metal debris must be removed from the needle channels. For this purpose, clean the area of repair with a brush.
14. If everything is in order, reinsert the movable parts into the needle bed.

Further information:

- Removing and mounting carriage part *(see page 6-25)*
- Replacing needle and coupling part *(see page 6-7)*
- Replacing intermediate slider *(see page 6-9)*
- Changing selection jack *(see page 6-10)*

Combined needle bed

If a stay of a combined needle bed is slightly damaged, it can be repaired as described above. It must be replaced if it is heavily damaged, though.

1. If the carriage blocks, then separate the connection of the carriage part to the carriage. Move carriage to the next reversal point. Lift carriage part from needle bed. Check cams for damage and remove broken working butts from the movable parts.
2. Remove needle bed. Place the needle bed on a level surface (e.g. workbench or table).
3. Remove the movable parts (needle, coupling part etc.) at the point of damage.
4. Remove the holding-down jacks at the point of damage.
5. Remove safety device and pull out wire (1).

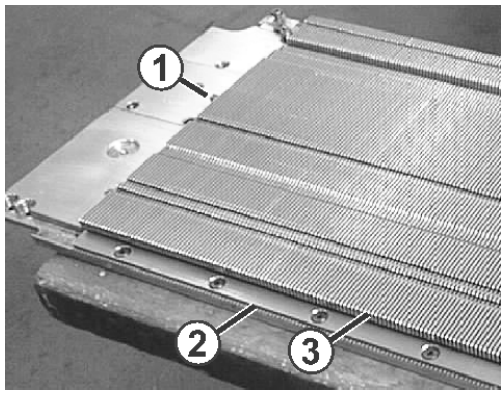


Fig. 6-28 Repairing a combined needle bed

6. Remove the bar (2) at the point of damage.
7. Lift the damaged stay at the rear end (3) and pull it out toward the rear carefully.
8. Remove the debris near the removed stay.
9. Spare stays are found among the machine accessories. Use a new stay from the accessories.
10. Reassemble the needle bed in the reverse order. Tighten the screws used to fasten the strip (2) to a torque of 2.6 Nm. Return the needle bed to the machine.

Further information:

- Removing and mounting carriage part *(see page 6-25)*
- Remove needle bed or position it at an angle *(see page 6-14)*
- Replacing holding-down jack *(see page 6-11)*
- Replacing intermediate slider *(see page 6-9)*
- Changing selection jack *(see page 6-10)*
- Replacing needle and coupling part *(see page 6-7)*

6.3.7 Removing selection jack bed (CMS 520 C and CMS 830 C)

With CMS 520 C

1. Stop the carriage assembly into the left reversing position.
2. Remove two screws (1) on each side of the machine.

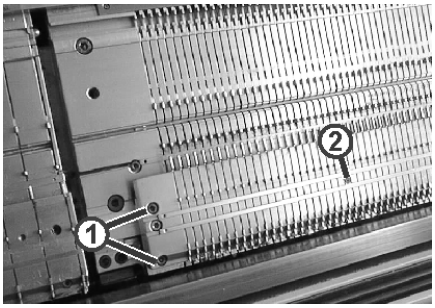


Fig. 6-29 Loosening the selection jack bed

3. Remove the screws (2) over the entire length of the selection jack bed.
4. Push the intermediate sliders (3) into its highest position.

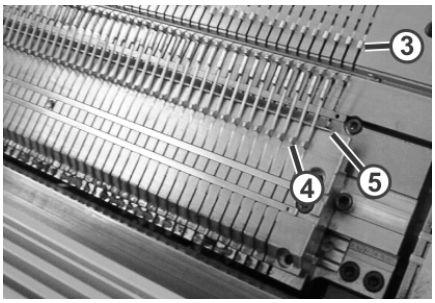


Fig. 6-30 Lifting selection jacks

5. Push the selection jacks (4) into their highest position.
6. Starting from one side, lift the selection jacks at their top end while simultaneously pushing the wire (5) out of the accessory between the selection jack bed and the selection jack. Carry this out over the entire length of the selection jack bed. The wire must be pushed in so that the working butts of the selection jacks stick out so high that they touch neither the intermediate slider nor the needle bed.
7. Push the selection jack bed to the side. The front bed to the left and the rear bed to the right. (Use a rubber mallet, if necessary.)
8. Take off the selection jack bed.

9. When mounting the selection jack bed, make sure that it rests on the pin (6).

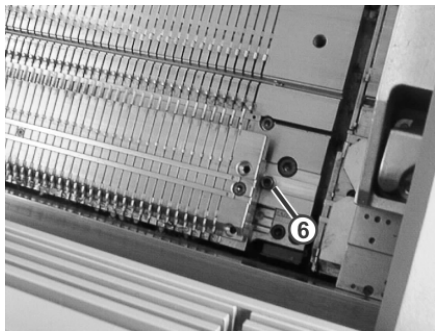


Fig. 6-31 Installing selection jack bed

With CMS 830 C

1. Stop the carriage assembly into the left reversing position.
2. Remove needle bed. Lay the needle bed on a flat surface (e.g. workbench or table).
3. Push the intermediate sliders (1) into their highest position.

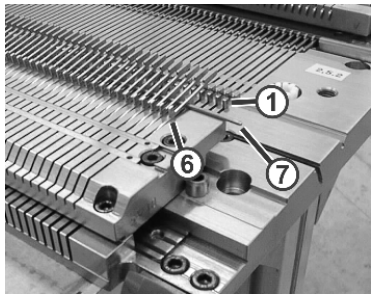


Fig. 6-32 Lifting selection jacks

4. Remove two screws (2) on each side of the machine.

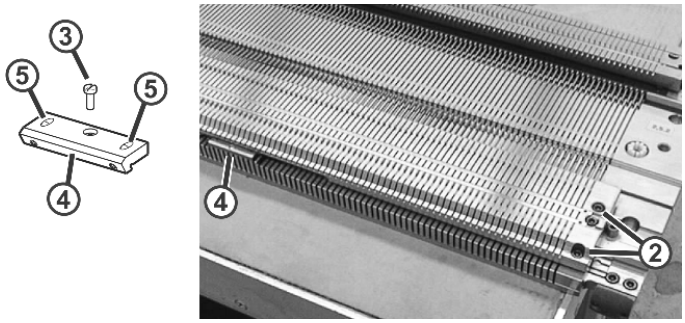


Fig. 6-33 Loosening the selection jack bed

5. Remove the screws (3) of the clamping pieces (4) over the entire length of the selection jack bed.
6. Release both grub screws (5) at each clamping piece. Move clamping piece to the side and remove it.
7. Push the selection jacks (6) into their highest position.
8. Starting from one side, lift the selection jacks at their top end while simultaneously pushing the wire (7) out of the accessory between the

selection jack bed and the selection jack. Carry this out over the entire length of the selection jack bed. The wire must be pushed in so that the working butts of the selection jacks stick out so high that they touch neither the intermediate slider nor the needle bed.

9. Take off the selection jack bed.
10. When mounting the selection jack bed, make sure that it rests on pin (8).

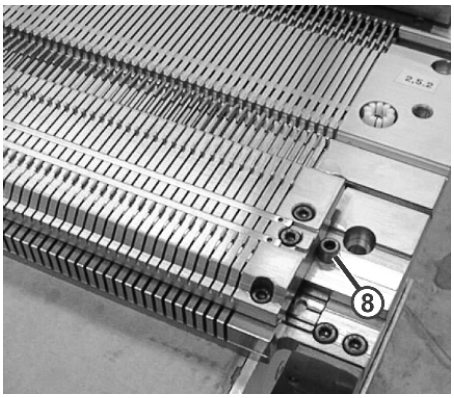


Fig. 6-34 Installing selection jack bed

11. Mounting the clamping pieces: Insert clamping piece and push it to the side. Secure it with the screw (3) and then tighten the grub screws (5).

Further information:

- Remove needle bed or position it at an angle *(see page 6-14)*

6.3.8 Removing and mounting carriage part

Removing carriage part

The carriage assembly is removed when:

- the cams must be replaced (e.g. wide or narrow coupling of tandem machines
- If a carriage part is blocked, it is separated (separating point) with the integrated device.

The carriage assembly is stopped (support surface) outside the needle bed and the carriage part is lowered again.

On tandem machines both front or rear carriage parts are raised, even when only one is blocked.

This chapter contains information on:

- Remove the carriage part to replace the cams *(see page 6-25)*
- Remove the carriage part when the carriage assembly is blocked in the needle bed *(see page 6-27)*
- Assembling carriage part and carriage assembly *(see page 6-30)*

Remove the carriage part to replace the cams

1. If a central lubrication is present, swivel it into mounting position.
2. Move the carriage assembly outward up to the support surface.
3. Switch off 40 V power supply.

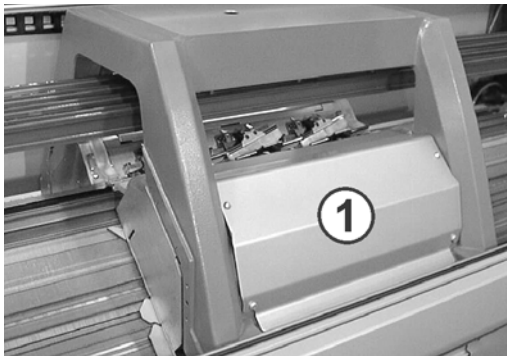


Fig. 6-35 Cover of carriage assembly

4. Remove the cover (1) of the carriage assembly.
5. If the rear carriage part is removed, the needle detector is to be removed as well.

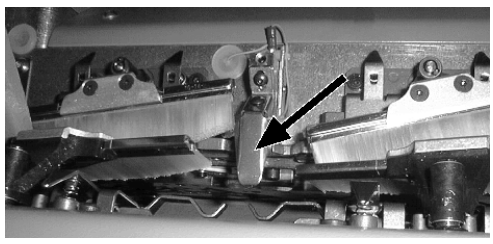


Fig. 6-36 Needle detector

6. Mark the position of the needle detector so that it can be reassembled in the same position.
7. Remove the suction tube on the carriage assembly.
8. Unscrew the shoulder screws (2) and screws (4) on the left and right-hand sides.

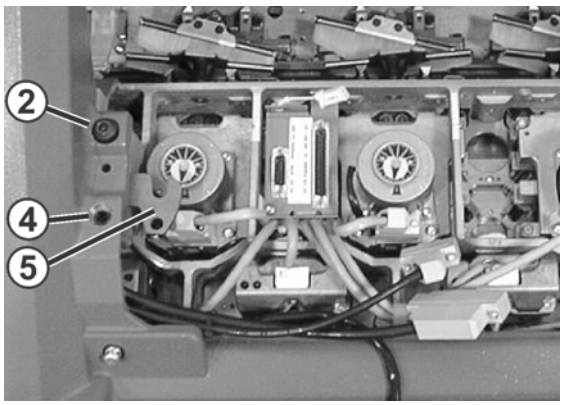


Fig. 6-37 Swiveling plate

9. Swivel left and right swiveling plates (5) inward.

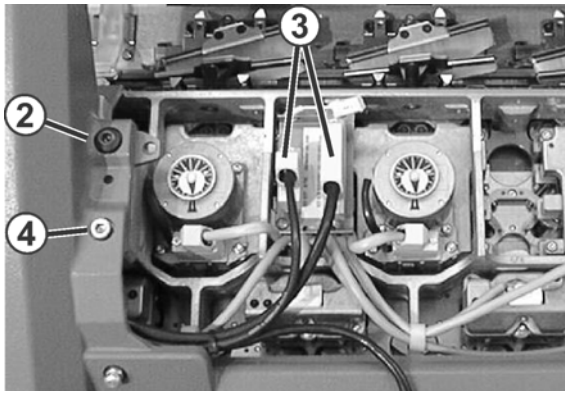


Fig. 6-38 Opened carriage assembly

10. Release the screws on the plugs (3) and pull out the plugs.
11. Push away the carriage assembly.

If the carriage assembly is blocked:

The drive brake has automatically closed.

➜ Release the drive brake again and continue pushing the carriage assembly in the original direction.

12. Lift the carriage part off the support surface.

- or -

➜ Open the side cover hood and lift out the carriage part to the side.

13. To replace the cams, turn the cam plate upward.

Further information:

- Switching power supply 40 V off and on *(see page 6-1)*
- Central lubrication - mounting and working position *(see page 6-3)*
- Removing cam plate *(see page 6-32)*

Remove the carriage part when the carriage assembly is blocked in the needle bed

Key	Function
	Call up "Manual interventions" window

Tab. 6-5 Key for calling up "Manual interventions" window

1. Call up "Manual interventions" window.
2. To switch off the needle selection, set the "Needle selection" switch to "Off".
3. To switch off all yarn carriers, tap the "YC bolt Up" key.
4. Push all yarn carriers outward.
5. If a central lubrication is present, swivel it into mounting position.
6. Switch off 40 V power supply.

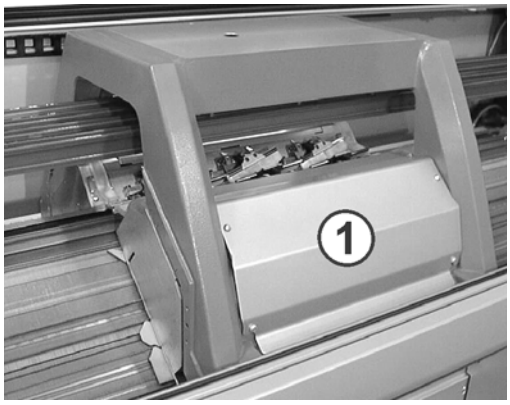


Fig. 6-39 Cover of carriage assembly

7. Remove the cover (1) of the carriage assembly.
8. If the rear carriage part is removed, the needle detector is to be removed as well.

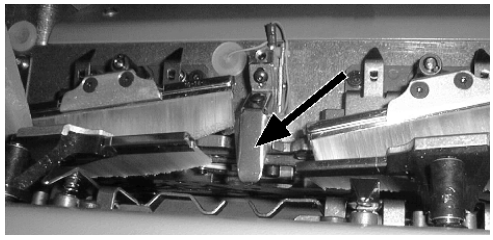


Fig. 6-40 Needle detector

9. Mark the position of the needle detector so that it can be reassembled

in the same position.

10. Remove the suction tube on the carriage assembly.
11. Release shoulder screws (2) and screws (4) on the left and right-hand sides.

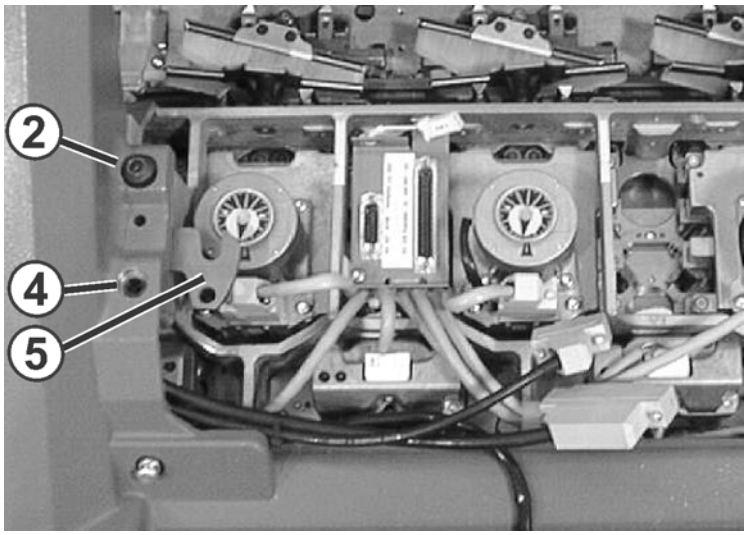


Fig. 6-41 Swiveling plate

12. Swivel left and right swiveling plates (5) inward.
13. Tighten shoulder screws (2) and screws (4) evenly; the carriage part is raised off the needle bed in the process.
14. To release the drive brake, tap the "Rel. drive brake" key.
15. Release the screws on the plugs (3) and pull out the plugs.

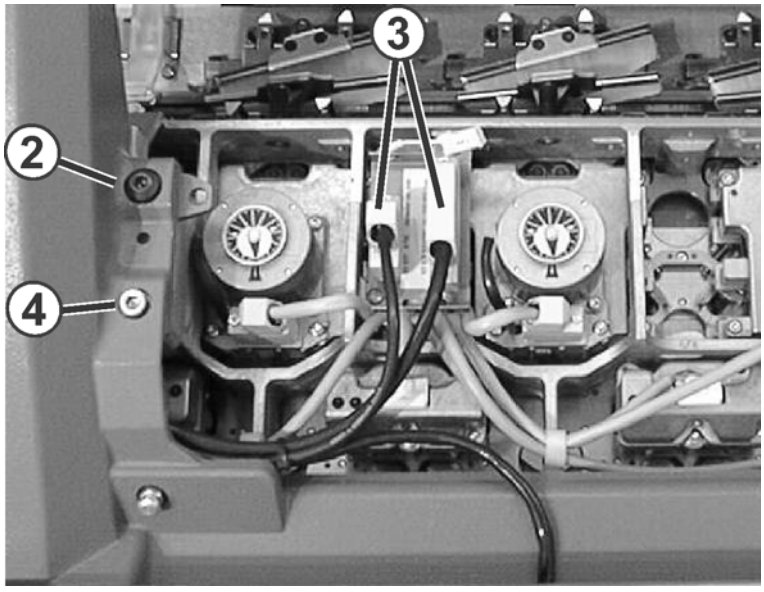


Fig. 6-42 Opened carriage assembly

16. To lower the carriage part again, release the shoulder screws (2) and screws (4) on the left and right-hand sides.

17. Remove the shoulder screws (2) and screws (4).

WARNING

Damage to needles and knitting system!
There are still needles in the knitting system. If the direction is changed when moving the carriage assembly, the needles and knitting system will be damaged.

➜ Never change the pushing direction of the carriage assembly.

18. Push away the carriage assembly.

If the carriage assembly is blocked:

The drive brake has automatically closed.

➜ Release the drive brake again and continue pushing the carriage assembly in the original direction.

19. Lift carriage part from needle bed.

Do not remove metallic parts and fragments (e.g. broken needle latch or hook) with a magnetic tool There is a danger that the needle bed or cams can be magnetized, leading to incorrect selection.

Further information:

- Central lubrication - mounting and working position *(see page 6-3)*
- Switching power supply 40 V off and on *(see page 6-1)*

Assembling carriage part and carriage assembly

Key	Function
	Call up "Manual interventions" window
	Confirm the repair
	Call up "Machine start" window
	Call up the "Main menu"

Tab. 6-6 Keys for assembling carriage part and carriage assembly

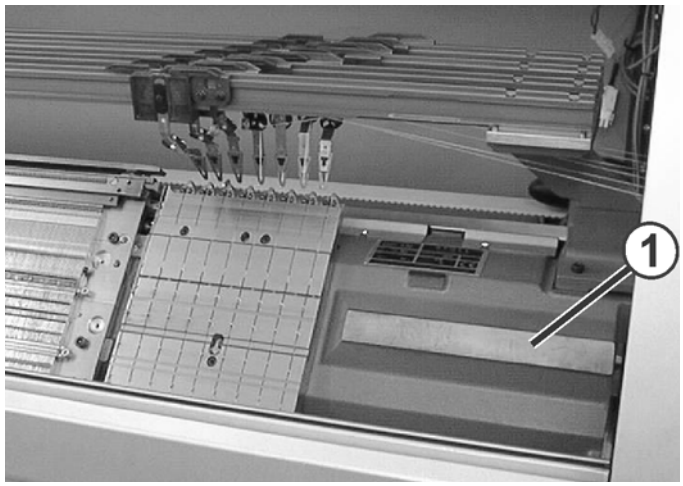


Fig. 6-43 Support surface of carriage part

1. Mount the carriage part on the left or right outside the needle bed in such a way that it contacts the support surface (1).
2. Switch on 40 V power supply.
3. Call up "Manual interventions" window
4. To release the drive brake, tap the "Rel. drive brake" key.
5. Push the carriage assembly directly over the carriage part.
6. Switch off 40 V power supply.

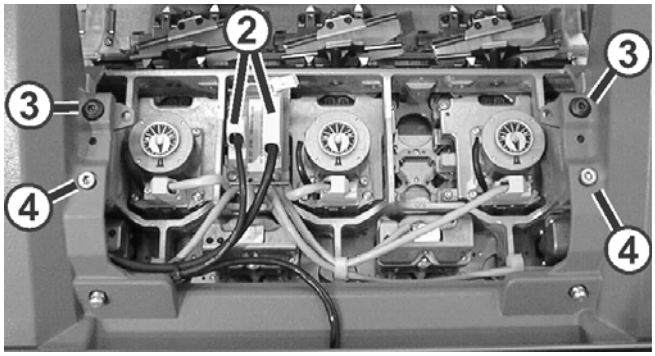


Fig. 6-44 Fastening carriage assembly on carriage part

7. Screw in the shoulder screws (3) until the carriage assembly is raised somewhat.
8. Swivel the left and right swiveling plates outward below the carriage assembly.
9. Tighten both shoulder screws (3) for fastening the carriage assembly.
10. Tighten screws (4) evenly.
11. Plug in the plugs (2) while watching the plug coding.
12. Tighten the safety screws on the plugs.
13. Place the yarn carriers in their starting positions.
14. Mount the carriage assembly cover.
15. Mount the suction tube on the carriage assembly.
16. If a central lubrication is present, swivel it into working position.
17. Switch on 40 V power supply.
18. Call up "Main menu".
19. Call up "Machine start" window.
20. Tap the " SPF row fixed" key.
21. Start the machine with the engaging rod.
22. Only if the carriage assembly was blocked: If the carriage stops after the left reversal point, set the needle selection to "On" in the "Machine start" window.
23. To start production, tap in window "Machine start" on the key "SP from line 1".

Further information:

- Switching power supply 40 V off and on *(see page 6-1)*
- Central lubrication - mounting and working position *(see page 6-3)*

6.3.9 Removing cam plate

The cam plate is removed for cleaning, checking or replacing cams or step motors.

1. Switch off 40 V power supply.
2. Remove the carriage part.

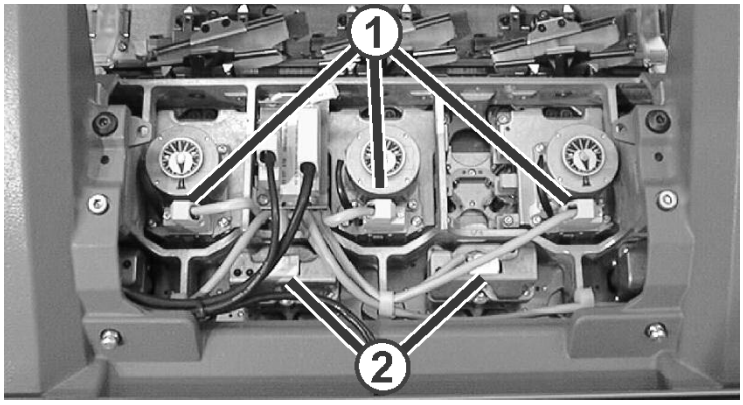


Fig. 6-45 Plugs of the selection systems

3. Disconnect the plugs of the step motors (1) and selection systems (2).
4. Remove the screws (3).

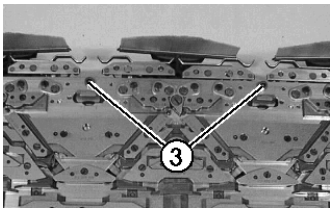


Fig. 6-46 Screws for cast body on cam plate

5. Release screws (4) . Pull control (5) of holding-down jacks a little bit forewards. Thus, the cam plate is not blocked by control (5) anymore.

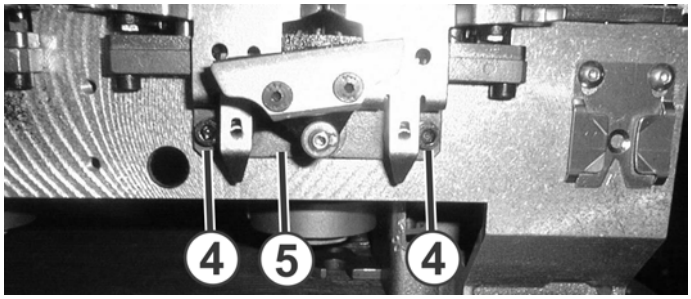


Fig. 6-47 Control of holding-down jacks

6. Turn over the carriage part so that the cam plate is located at the bottom, making sure that the cam plate and the carriage part (cast body) do not separate.
7. Remove the carriage part.

8. Carry out work on cams or step motors.
9. Reassemble the cam plate and carriage part in the reverse order.

Further information:

- Switching power supply 40 V off and on *(see page 6-1)*
- Removing and mounting step motor *(see page 6-33)*

6.3.10 Removing and mounting step motor

Each knitting system contains a step motor which controls the stitch cam position.

1. Remove the carriage part.
2. Remove the cam plate.

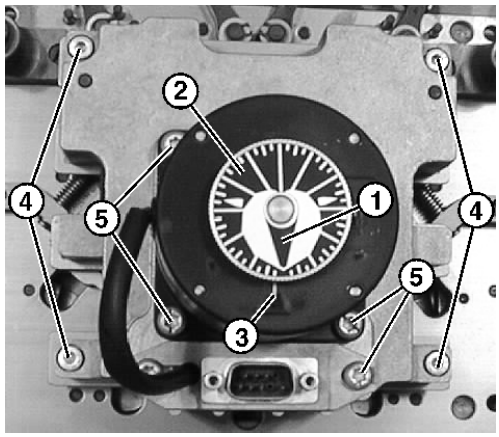


Fig. 6-48 Removing step motor

3. Move defective step motor into basic position: Turn the scale (2) until the pointer (1) is positioned exactly on the zero point (3).

CAUTION

Adjusting screws!
If adjusting screws are released, the step motor must be readjusted at STOLL.

➜ Do not release any adjusting screws (5).

4. Remove the screws (4).
5. Take off the defective step motor.
6. Adjust the new step motor.
7. Step motor basic position: Turn the scale (2) until the pointer (1) is positioned exactly on the zero point (3).
8. Mount the step motor.

9. Screw on the screws (4) tight.
10. Reassemble the cam plate and carriage part in the reverse order.

Further information:

- Removing cam plate *(see page 6-32)*
- Removing and mounting carriage part *(see page 6-25)*

6.3.11 Replacement of the gear racks in the step motor

Replacing gear racks:

1. Take off the step motor.
2. Turn positioning disk (7) to the basic position (6).

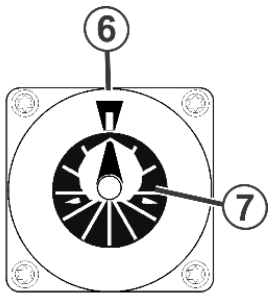


Fig. 6-49 Step motor basic position

3. Set at the back the left pin of the lower gear rack guide.

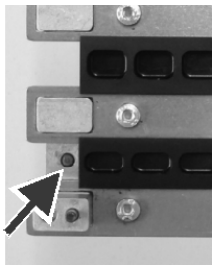


Fig. 6-50 Pin of gear rack guide

4. Push lower gear rack manually to the left until all gear racks can be removed.
5. Replacing defective gear rack.
6. Set the built-in position. For this purpose, turn the serrated lock washer (1) in such a way that the right edge is positioned somewhat in front of the light barrier (2). (visually expressed: if this setting were on a clock, the time would be: 11:58)

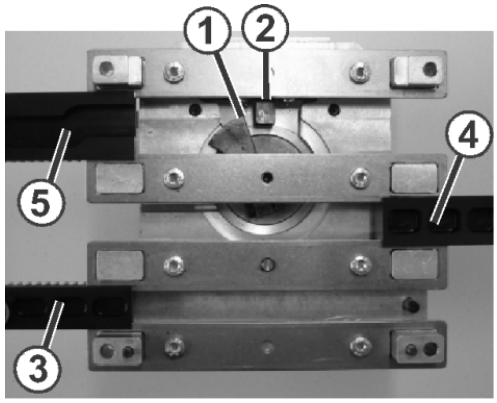


Fig. 6-51 Built-in position

7. In this built-in position, push in the gear rack (3) from the left until light resistance can be felt.
   The gear rack contacts the pinion.
8. Push in gear rack (5) as well.
9. Push in gear rack (4) from the right until light resistance can be felt.
   The gear rack contacts the pinion.
10. Push gear racks (3) and (4) inward evenly.
    Gear rack (5) is automatically pulled inward when gear rack (4) is pushed.
11. Check whether the gear racks are positioned correctly. For this purpose, turn the positioning disk (7) to the basic position (6).
12. The gear racks must be aligned.

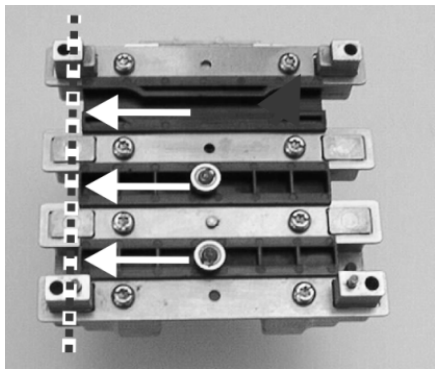


Fig. 6-52 Monitoring of built-in position

13. If this is not the case, repeat steps 3 till 11.
14. Move pin of the lower gear rack guide at the back to the basic position.
15. Replacement of the gear racks is complete.

Further information:

- Removing and mounting step motor *(see page 6-33)*

6.3.12 Replacing yarn carrier

When replacing the yarn carrier bow, ensure that the punch mark is located on the inside when mounting shim (2).

1. Stop the carriage assembly into the left reversing position.

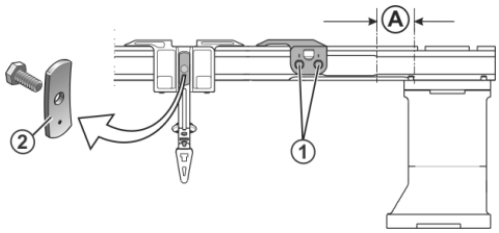


Fig. 6-53 Screws of the yarn carrier limiter

2. Release the screws (1) of the yarn carrier limiter.
3. To remove the yarn carrier limiters, turn the screws (1). The yarn carrier limiters can be removed and mounted in any position.
4. Shift yarn carrier to the right or left to replacement point (A) and remove it.
5. Place new yarn carriers on the rails.
6. Place the yarn carrier limiters of yarn carriers on the rails, position them in a staggered way and screw them on tight.

6.3.13 Using intarsia yarn carriers *

Normal and intarsia yarn carriers can be used side by side.

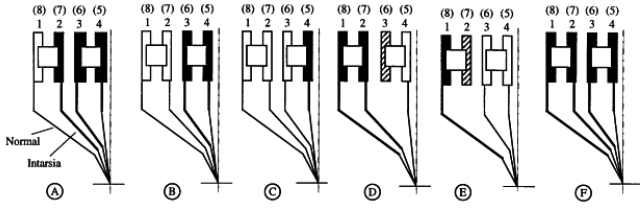


Fig. 6-54 Possible combinations for normal and intarsia yarn carriers.

Each combination can be used with itself or with another combination.

Assembling intarsia yarn carriers:

1. Stop the carriage assembly into the left reversing position.

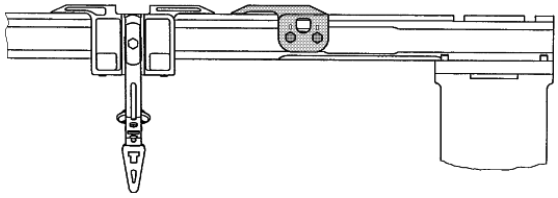


Fig. 6-55 Yarn carrier limiter and thread deflector

2. Release the screws of the yarn carrier limiter.
3. To remove the yarn carrier limiters, turn the screws. This enables the yarn carrier limiters to be removed and mounted in any position.
4. Push the normal yarn carrier to the right and remove it.

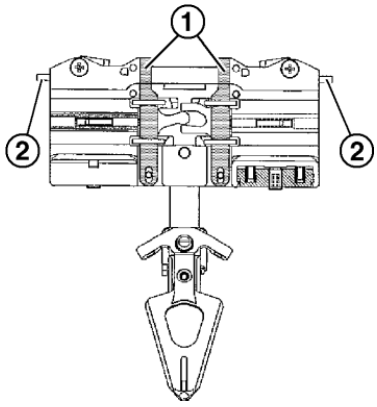


Fig. 6-56 Intarsia yarn carrier

5. Mount the intarsia yarn carriers and push them into their starting positions. To do this, press the clamp (1) outward or the lifter (2) inward.

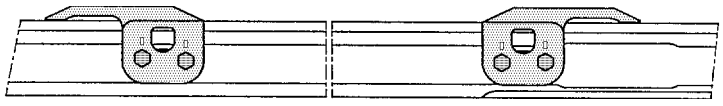


Fig. 6-57 Yarn carrier limiter

6. Place the yarn carrier limiter on the rails so that the ramp faces outward.
7. Position the yarn carrier limiters of yarn carriers in a staggered way and screw them on tight.

Further information:

- Symbols in this document *(see page 1-3)*

6.3.14 Replacing yarn control device

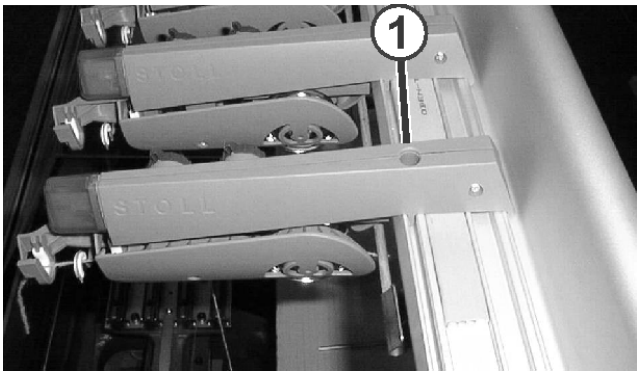


Fig. 6-58 Dismantling a yarn control device

1. Mark the position of the old yarn control device
2. Remove the screw (1).
3. Lift the yarn control device in the front such till the contact pins are free. Push the yarn control device in the rear and remove.
4. Set the new yarn control device exactly on the position (Marking) of the old yarn control device.

   - or -

➜ Mount an additional yarn control device at a distance of 90 mm (minimum 75 mm).from the next yarn control device.

5. Hook in the new yarn control device in the rear guide rail. Push the yarn control device in the front and press it downwards simultaneously.
6. Push the yarn control device in the front and screw it firmly in with the screw (1.)

6.3.15 Replacing drive belts and friction roller of friction feed wheel

The drive belts and the friction roller of the friction feed wheel are replaced with the following steps:

- Preparations
- Replace the drive belt
- Change the position of the friction roller
- Replacing the friction roller

Preparations

1. Remove the lug (1) by releasing the knurled screws somewhat.

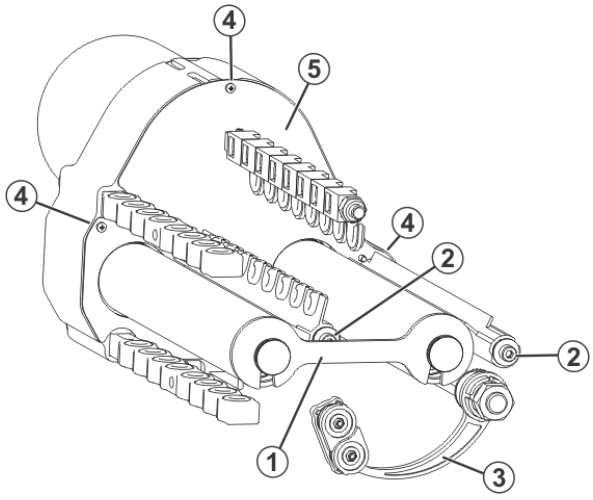


Fig. 6-59 Friction feed wheel

2. Remove screws (2) and take off the stop motion rails.
3. Release the couplings of the arms (3) so that they can swing downward.
4. Remove the screws (4) and take off the housing cover (5).

Replace the drive belt

1. Turn the ribbed V-belt pulley (6) by hand until both Allen screws can be released through the holes (7).

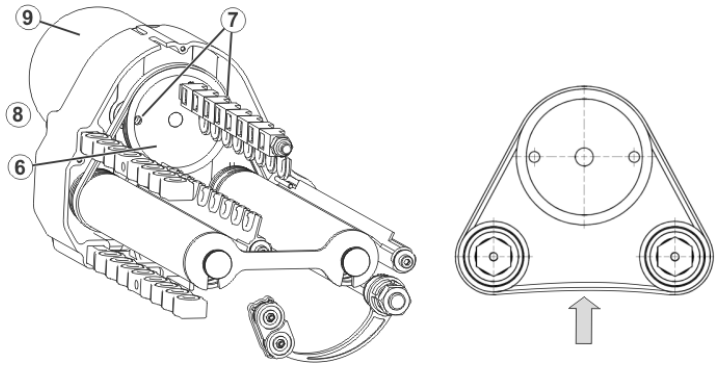


Fig. 6-60 Drive belt

2. Remove the belt (8).

3. Mount the new belt in such a way that it runs in the grooves of the drive pulley.
4. Press the motor (9) upward and tighten the screws of holes (7).
5. Check the belt tension.

   The belt can be pushed through by approx. 2 to 4 mm when light pressure is applied.

Change the position of the friction roller

The surface of the friction roller is worn over the course of time by the yarn. Then the friction roller does not need to be replaced immediately, but its position can be shifted by 11 mm. This doubles its service life.

1. Remove the screws (12).

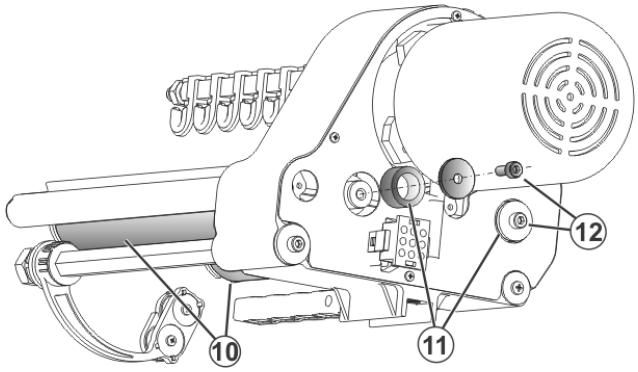


Fig. 6-61 Screws for friction rollers

2. Remove the spacer (11).
3. Take off both friction rollers (10).
4. To assemble: Push the spacer (11) onto the axis of the friction roller (10)
5. Reinstate the friction rollers (10).
6. Retighten the screws (12) without the spacers.

Replacing the friction roller

1. Remove the screws (12).
2. Take off the friction rollers (10).
3. Lay down the new friction roller.
4. Tighten the screws (12).

6.3.16 Deaerating oil line

Only on machines with central lubrication

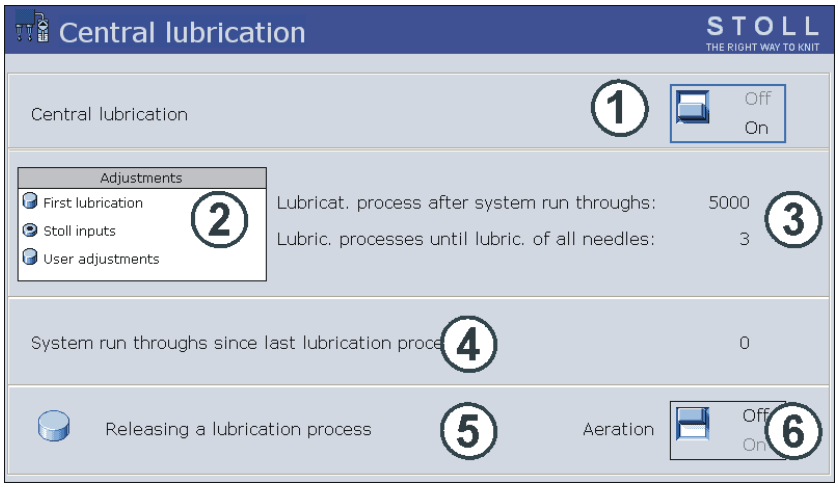


Fig. 6-62 "Central lubrication" window

Key	Function
	Call up "Machine settings" window
	Call up "Additional function keys"
	Call up the "Central lubrication" window
	Call up the "Main menu"

Tab. 6-7 Keys for deaerating the central lubrication

Deaerate oil line:

1. Stop carriage outside needle bed.
2. Release vent screw (7) somewhat.

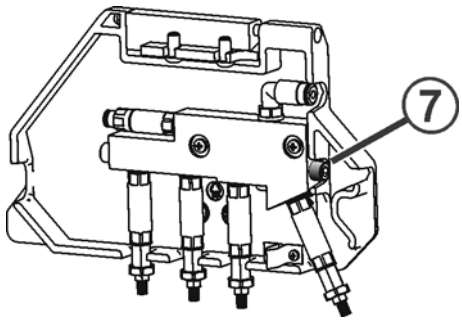


Fig. 6-63 Deaerating central lubrication

3. Swivel central lubrication into mounting position. Recommendation: Place a cleaning cloth under the central lubrication, as oil will be fed.
4. Call up the "Machine settings" window from the "Main menu".
5. Call up "Additional function keys".
6. Call up the "Central lubrication" window.
7. Set "Ventilation" switch to "On".
   The pump feeds oil into the oil line.
8. If oil comes out of the hole of the vent screw, set "Ventilation" (6) switch to "Off".
9. Tighten vent screw again (9.5 Nm).
10. Repeat the ventilation process at all lubrication units.
11. Call up "Main menu".

6.3.17 Replace stop point of the take-down roller

Valid for:
CMS 420 E (type 579)

Both take-down rollers have an unchangeably set distance between each other. If the machine stops frequently (Error message "Take-down turns too quickly") or the take-down action is insufficient, then you can increase the contact pressure again, by replacing the stop point.
The condition is that the roller rubber is worn evenly.
If they are not worn evenly, it is possible that the take-down reacts less sensitive due to the increased contact pressure.

Proceed as follows:

1. Disconnect machine main switch.
2. Take off the side cover removing the screws (1).

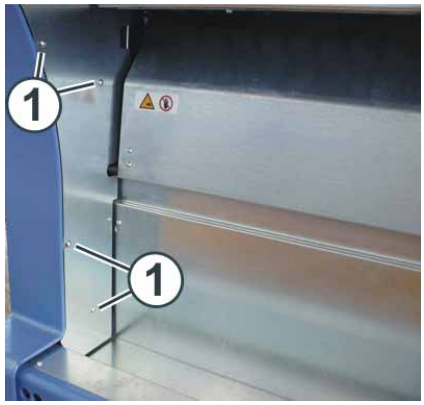


Fig. 6-64 Side cover

DANGER

Tensioned tension spring (potential energy)!
If the tension spring is dismantled carelessly, then there is a risk of injury.

➜ Wear work gloves for removing the tension spring or wrap the tension spring with a rag (better handling)!

3. Unhook the tension spring (2).

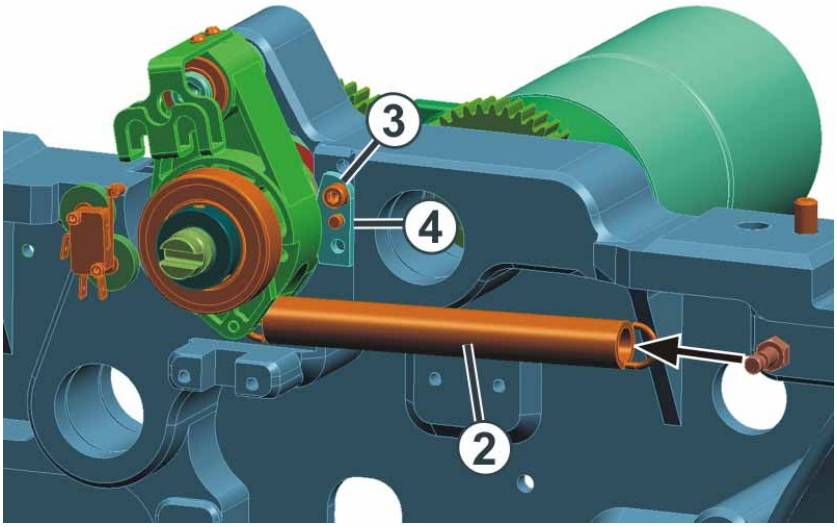


Fig. 6-65 Stop point of the take-down roller

4. Remove the screw (3).
5. Remove the stop point (4), turn it by 180 degrees and place it again. The horizontal side of the stop point points upward.

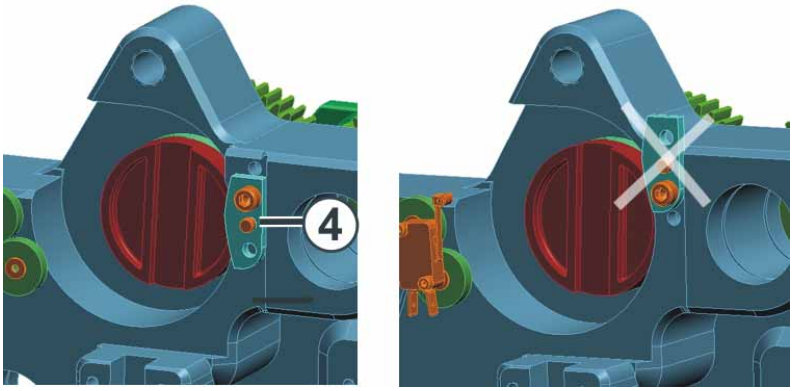


Fig. 6-66 Turned stop point

6. Screw in the screw (3).
7. Hook in the tension spring again.
8. Re-fix the side cover.
9. Repeat the procedure on the other machine side.

6.4 Eliminating malfunctions in electronics system

This chapter contains information on:

- Overview of the electronic control (control cabinet right) *(see page 6-45)*
- Overview of the electronic control (control cabinet left and right) *(see page 6-48)*
- Power supply unit *(see page 6-51)*
- Control of yarn carrier magnets *(see page 6-52)*
- Replacing electronic card *(see page 6-53)*

6.4.1 Overview of the electronic control (control cabinet right)

Valid for:				
≥ Component type 002	CMS 530	CMS 520 C	CMS 520	
≥ Component type 000				CMS 420 E (type 579)

The machine control is located in the right control cabinet under the cover. The card for controlling the yarn carrier magnets is located in the carriage.

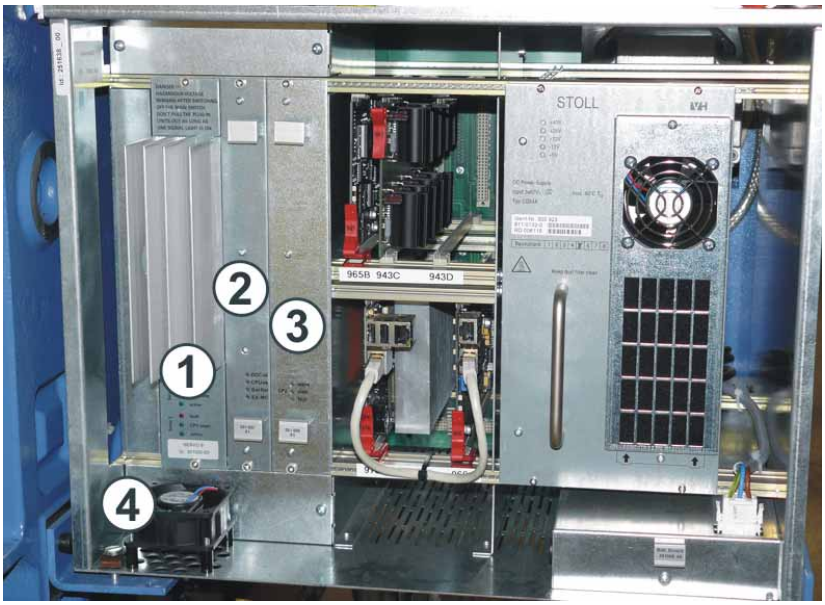


Fig. 6-67 Right control cabinet

	Card	Function
1	301 000	Drive and racking control unit Controlling the drive and racking motor. Passing on the error messages from the motors to card 966.
2	301 007	Battery card, input card, output card (BIO), fuse for (1) The card controls that the machine cannot be started as long as an error is present. Switching off main switch: - if the automatic switching off of the machine is activated - in case of extreme overvoltage - if the servos are not ready for operation Controlling the feed wheel, fluff absorption and fault lamp. Ballast fuse for servo drive and racking. Checking the charging state of the batteries. Activating charging. Controlling horn, lighting, piezo elements, and central lubrication, battery relay.
3	301 006	Fabric take-down card Controlling the fabric take-down motors (main take-down, auxiliary take-down, comb, contact motor). Passing on the error messages from the fabric take-down motors to card 966. Capacitors for fabric take-down motors on the wiring system (CMS 530, CMS 520: 251 453, CMS 420 E: 253 667)
4		Ventilator

Tab. 6-8 Electronic cards

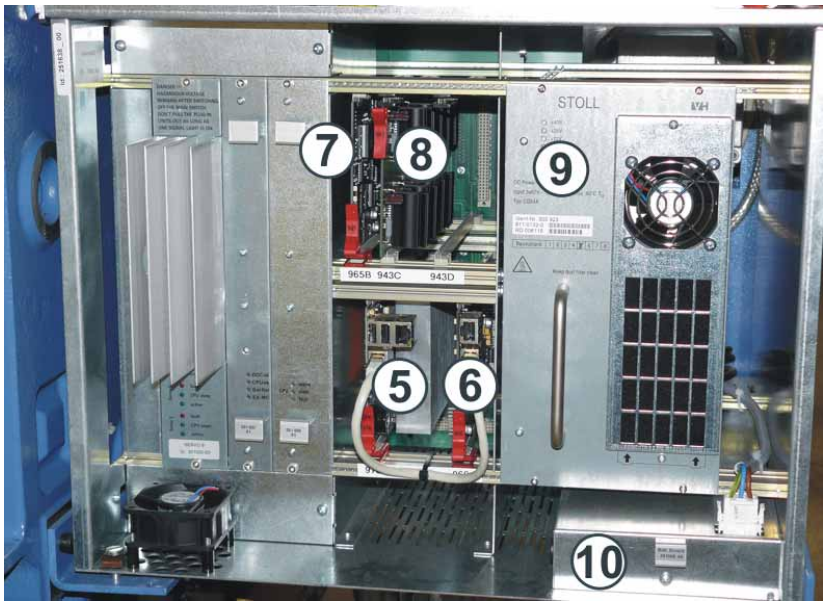


Fig. 6-68 Right control cabinet

	Card	Function
5	976	Controlling the input unit and the touch screen. Controlling hard disk. The hard disk is integrated on the card.
6	966	Main computer; collecting all messages from the other cards. Output of instructions to the other cards. Control of the knitting sequence. Controlling the carriage (main drive) and the racking position of the rear needle bed.
7	965	Monitoring of the carriage assembly positions. Actuation of the selection systems and the step motors. Forwarding of the information to the card 943.
8	943	Motor driver of the step motors of the stitch cams. Cooperation with the card 965.
9	300 923	Power supply unit with LEDs
10	301 008	Battery

Tab. 6-9 Electronic cards

Further information:

- Configure automatic machine switching off *(see page 3-7)*

6.4.2 Overview of the electronic control (control cabinet left and right)

Valid for:				
≥ Component type 003	CMS 822			
≥ Component type 002	CMS 830 C	CMS 740		
	CMS 822			
Component type 000 - 001	CMS 830 C	CMS 740	CMS 530	CMS 520 C
	CMS 822		CMS 520	CMS 420 E (type 575, type 577)

The machine control is located in the left and right control cabinet under the covers. The card for controlling the yarn carrier magnets is located in the carriage.

Left control cabinet *

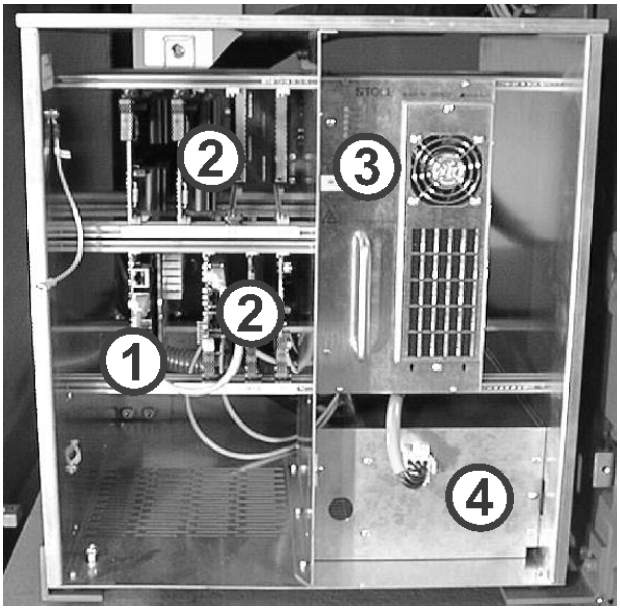


Fig. 6-69 Left control cabinet

1 Industrial PC and hard disk
2 Electronic cards
3 Power supply unit with LEDs
4 Battery

Card	Function
976	Controlling the input unit and the touch screen. Controlling hard disk. The hard disk is integrated on the card.
966	Main computer; collecting all messages from the other cards. Output of instructions to the other cards. Control of the knitting sequence. Controlling the carriage (main drive) and the racking position of the rear needle bed.
965	Monitoring of the carriage assembly positions. Actuation of the selection systems and the step motors. Forwarding of the information to the card 943.
951	Checking the charging state of the batteries. Activating charging. Controlling horn, lighting, piezo elements, and central lubrication.
943	Motor driver of the step motors of the stitch cams. Cooperation with the card 965.

10. Electronic cards

Further information:

- Symbols in this document *(see page 1-3)*

Right control cabinet *

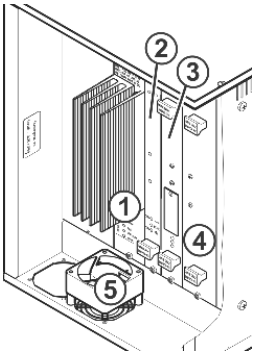


Fig. 6-70 Right control cabinet

1 Drive and racking control unit
2 Relay card, fuse for (1)
3 Fabric take-down card
4 Capacitor card
5 Ventilator

Card	Function
954	Controlling the drive and racking motor. Passing on the error messages from the motors to card 966.
953	The relay card ensures that the machine cannot be started as long as an error is present. Switching off main switch: - if the automatic switching off of the machine is activated - in case of extreme overvoltage - if the servos are not ready for operation Controlling the feed wheel, fluff absorption and fault lamp. Ballast fuse for servo drive and racking.
929	Controlling the fabric take-down motors (main take-down, auxiliary take-down, comb, contact motor). Passing on the error messages from the fabric take-down motors to card 966.
936	Motor capacitors for fabric take-down motors (for needle bed widths 72", 84", and 96")
948	Motor capacitors for fabric take-down motors (for needle bed width 50")

Tab. 6-10 Electronic cards

Further information:

- Configuring automatic machine switching off *(see page 3-7)*
- Symbols in this document *(see page 1-3)*

6.4.3 Power supply unit

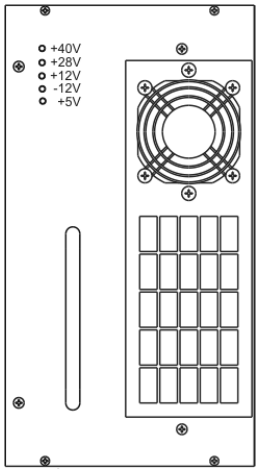


Fig. 6-71 Power supply unit

The LEDs on the power supply unit indicate which voltages are generated and at which voltage an error occurs. While switching on the main switch, the lower three LEDs light up immediately, and the +28 V approx. 1 second later, followed by the +40 V. The order in which the LEDs light up when switching on may provide information on malfunction causes.

6.4.4 Control of yarn carrier magnets

Each knitting system has got an electronic card (1) for controlling yarn carrier magnets.

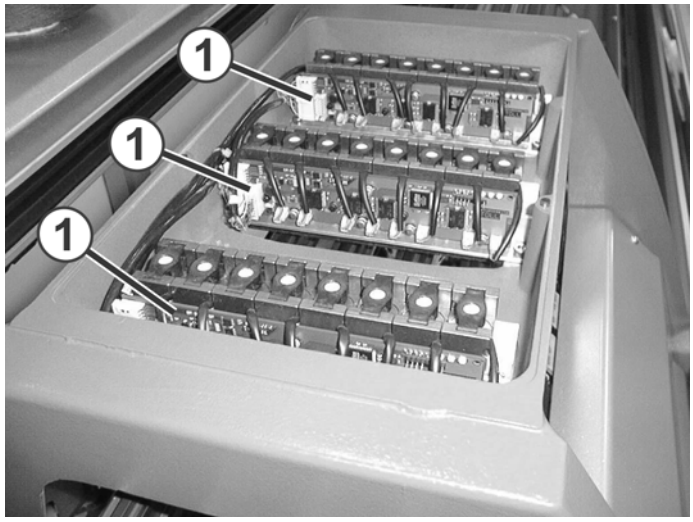


Fig. 6-72 Electronic cards for controlling yarn carrier magnets

Card	Function
960	Activating of the yarn carrier magnets after the time for switching the yarn carrier magnets has been announced by the card 966.

Electronic cards

6.4.5 Replacing electronic card

1. Set main switch to "0" and wait until the LEDs on the power supply unit go out (approx. 60 seconds).
2. Open the cover of the left control cabinet.

CAUTION

An electronic card can be destroyed by electrostatic charge!
If you touch a card while you are electrostatically charged, the card will be destroyed.

➜ First discharge yourself by touching "ground", e.g. a water pipe or the machine frame, then touch a card.

➜ Only touch cards on the edge or the front side.

CAUTION

The electronic cards can be damaged by damage to the pins on the rear of the card!
If the pins of the cards are bent or broken off at the rear, new cards must be used.

➜ When replacing the cards, make sure that the pins are not damaged.

3. Remove the card.
4. Plug in the new card.
5. Close the cover of the left control cabinet.
6. Set the main switch to "1" and acknowledge the error remedy.

6.5 Checking fuses

DANGER

High voltage!
Electrical shock may cause death or serious injuries.

➜ Set the main switch to "0" and wait until the touch screen is dark and an alarm signal sounds.

1. Set the main switch to "0".
2. Wait until the touch screen is dark and an alarm signal sounds.

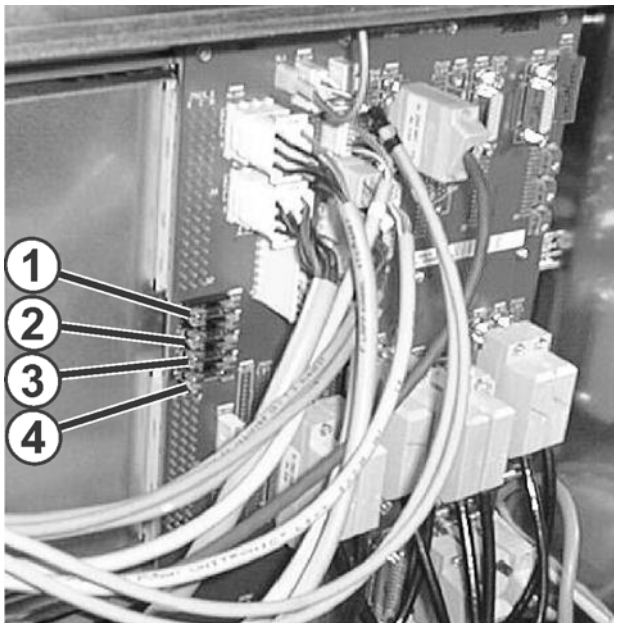


Fig. 6-73 Fuses at rear of left control unit

1	28 V (stop motions) (1A, slow-blowing)	3	Yarn control device (1A, slow-blowing)
2	STIXX (1A, slow-blowing)	4	Battery charging (1AT)

3. Check fuses (1) to (4) at the rear of the left control unit.

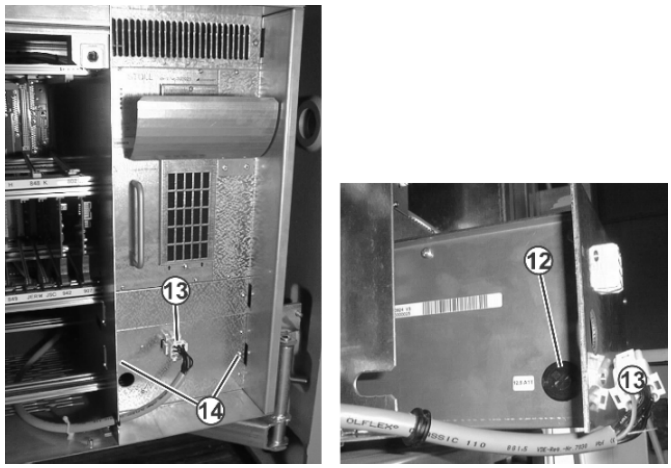


Fig. 6-74 Battery fuse (12) below the power supply unit

4. Check fuse (12) on the left control unit. For this purpose, pull out plug (13), remove both screws (14) and pull out battery insert.

DANGER

Burning risk!
Injuries by hot parts.

➜ Watch out not to touch the resistors (6) when pulling out the board. The resistors can get very hot.

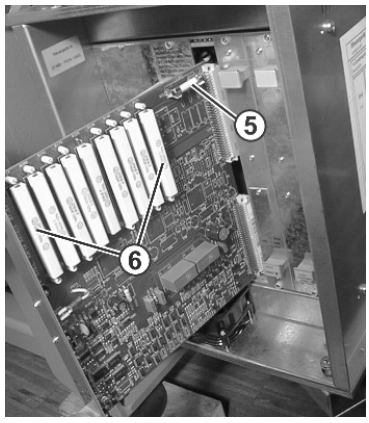


Fig. 6-75 Ballast fuse (5) for servo drive and racking on right control unit

5. Check fuse (5) on the right control unit. For this purpose, remove the screws at the top and bottom and pull out the board.

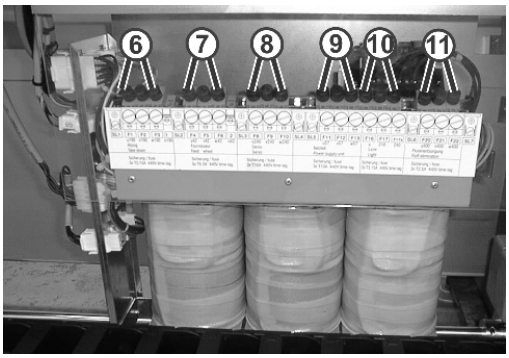


Fig. 6-76 Fuses on transformer at the rear of the machine

6	F1-F3: Fabric take-down	10	F16-F17: Lighting
7	F4-F6: Friction feed wheel	11	F20-F22: Fluff absorption
8	F8-F10: Servos	11	F20: Central lubrication
9	F11-F13: Power supply unit		

6. Check fuses (6) to (11) on the transformer on the rear of the machine.

Fuse is defective.

➜ Use a replacement fuse from the accessories. Use only a fuse with the same specifications
Specifications of the fuse: see sticker (impression) or ciruit diagram.
The circuit diagram is located in the spare parts catalogue which has been delivered with this machine.

7 Software - Installation and basic settings

In this chapter the description of how can one install and set the Stoll-Operating system is given.
It is important thereby that one gets to know the boot process (the booting of Software and the activation of control) on the knitting machine

One has to engage in this booting process during installtion and the setting of the Stoll-Operating system.
Thereby call up various windows e.g. the window "Basic Settings Menu". For the setting of the Stoll-Operating system more windows are opened in which the changes can be made.

If your knitting machines are interconnected or are connected with a pattern unit, you can configure the Online-Connection.

Save the machine data against any data losses before every installation of Stoll-Operating system or before any changes in the configuration.

This chapter contains information on:

7.1 Boot process

The following figure shows a schematic representation of the boot process of the knitting machine (with control OKC).

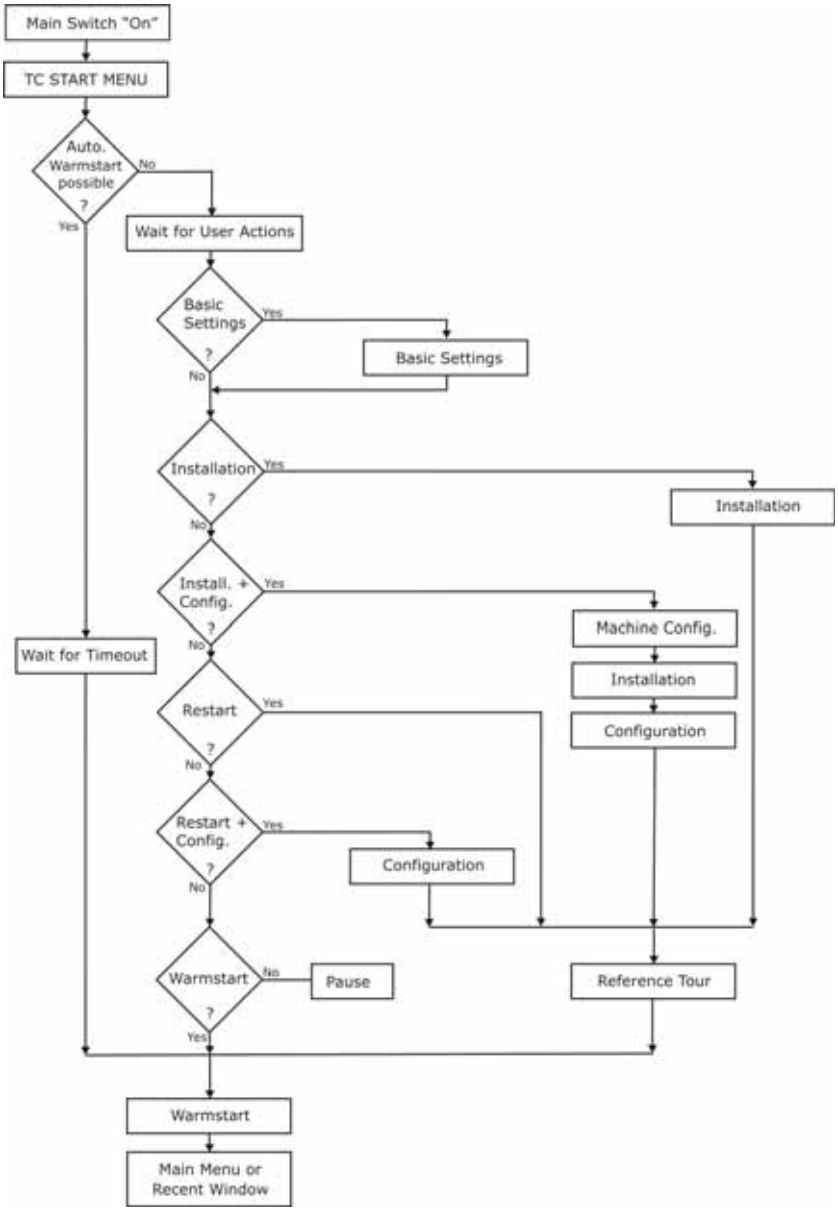


Fig. 7-1 Schematic representation of the Boot process

Description of the Boot process

After switching on of the knitting machine (main switch "1") windows XP gets started. The opening screen is displayed on the touch screen.

Thereafter the individual control components start their boot programs i.e. the different drivers and the applications of the System Control Unit (SCU) are loaded.

During this time, the following window is displayed on the touch screen:

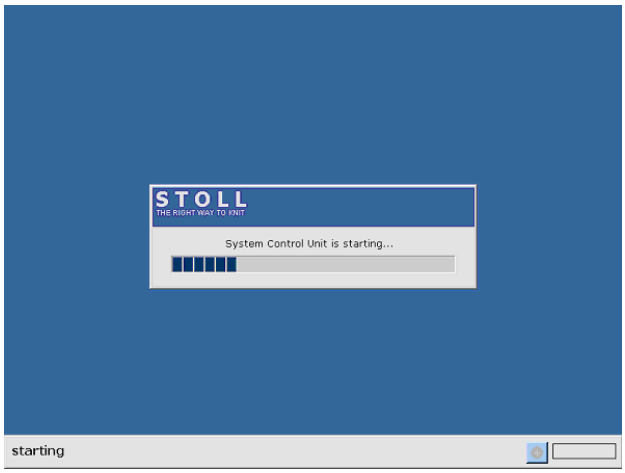


Fig. 7-2 Start the System Control Unit (SCU)

If this process is closed, then the window "BootOkc" is displayed.

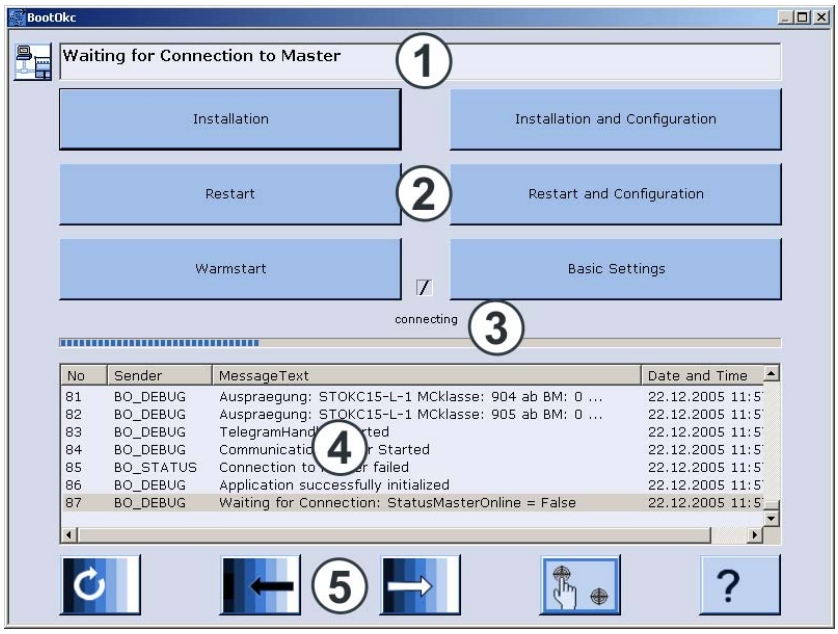


Fig. 7-3 "BootOkc" window

1 Symbol and status bar show the connection status.
2 Keys for carrying out definite actions.
3 Activity and progress display show the present progress of the boot process.
4 Lists that number the status and error messages and show the date and time. Further debug information can be connected to, if needed. This information is also saved in a log file and can be copied with "Copy Logfiles", if needed.
5 Keys for setting the touch screen.

First of all only the keys"Installation" and "Installation and Configuration" and "Basic Settings" are released. As soon as the connection to control is made more keys are released based on the Control information.

If a warmstart is possible then this is automatically carried out after a waiting time that can be set (Basic setting: 30 Seconds)

Thereafter, the main menu and the last opened window are displayed.

Fig. 7-4 Main menu

The knitting machine is now ready to knit.

Interrupt Warmstart

The warmstart of the knitting machine can be interrupted. This happens by tapping the keys in the window "BootOkc".

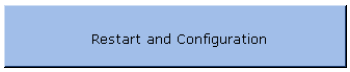
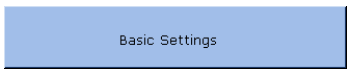
Key	Meaning
	Start the installation process of a Stoll-Operating system The storage location of the Stoll-Operating system can be selected in the window "Basic Settings"
	Start the installation process of a Stoll-Operating system including configuration of the Software. The storage location of the Stoll-Operating system can be selected in the window "Basic Settings"
	Starts the Software anew (Reboot).
	Starts the Software anew (Reboot) with configuration of the Software.inclusive
	Carries out a manual warmstart
	Calls up the window "Basic Settings Menu"
	Set the screen brightness infinite
	Set Screen brightness one step darker
	Set the screen one step brighter
	Calibrating Touch-Screen

Fig. 7-5 Possibilities for interrupting a Warmstart

Further information:

- Setting touch screen *(see page 3-8)*

7.1.1 Basic Settings

Call up window "Basic Settings Menu":

- The knitting machine is switched off.

1. Set the main switch to "1".
   The window "BootOkc" is displayed.
2. Type in within the waiting time for the warm start on the key "Basic Settings".
   The window "Basic Settings Menu" is displayed.

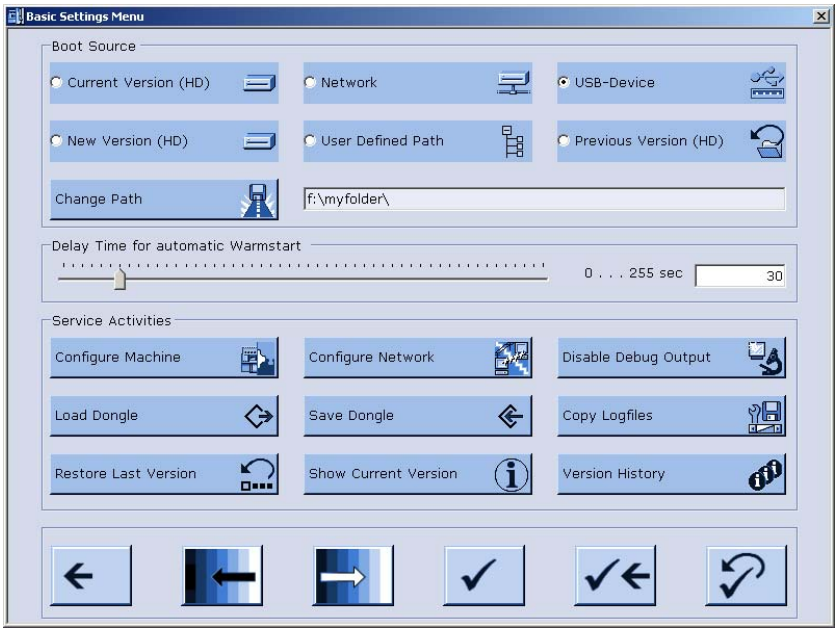


Fig. 7-6 Window "Basic Settings Menu"

Area	Explanation
Boot Source	Keys for selecting a source for the installation data.
Delay Time for automatic warm start	Enter the waiting time till the automatic warm start.
Service Activities	Keys for service purposes.

Tab. 7-1 Areas of the window "Basic Settings Menu"

Select the source of the installation data (Boot Source)

In the area "Boot Source" of the window "Basic Settings Menu" ascertain the source from where the installation of the Stoll operating system is done.

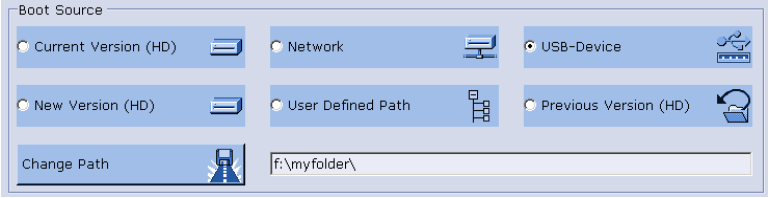


Fig. 7-7 Selection of the source in window "Basic Settings Menu"

Key	Explanation
Current Version (HD)	Renewed installation of the existing version.
New Version (HD)	Installation of a new version.
Previous Version (HD)	Installation of the previous version.
Network	Installation of a version from a network drive.
USB Device	Installation of a version from a device which is connected to the USB socket.
User Defined Path	Installation of a version from a user-defined storage location.
Change Path	Key for selection of a storage location.

Tab. 7-2 Keys in the area "Boot Source" of the window "Basic Settings Menu"

Set waiting time until warm start

In this area of the window "Basic Settings Menu", the waiting time that is spent in between the display of the window "BootOkc" and the automatic warm start (display of the main menu) is entered.

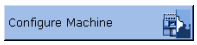
Fig. 7-8 Waiting time for warm start in the window" Basic Settings Menu"

The waiting time can be interrupted at anytime by pressing any key in the window "Basic Settings".

Set waiting time:

1. Pull the slide to the desired position.
   The waiting time is displayed in the input field.
2. Confirm the input.

Configure machine



Defined by the concept of control OKC some basic information about the machine should be known right from the start. Enter this information in the window "Machine Configuration".

➜ Tap on the key "Configure Machine".
The window "Machine Configuration" is displayed.

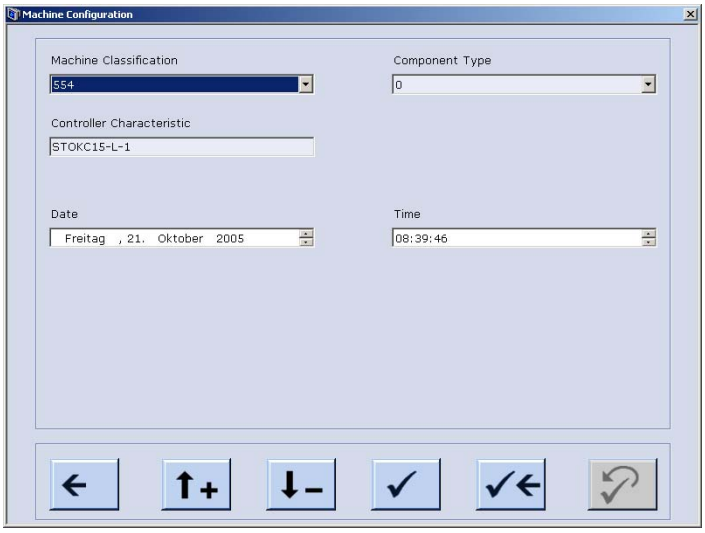


Fig. 7-9 Window "Machine Configuration"

Designation	Description
Machine Classification	Enter the machine classification.
Component Type	Enter the component type.
Controller Characteristic	Name of control. Is derived from the machine classification and the component type.
Date	Date of entry.
Time	Time of entry.

Tab. 7-3 Components of the window "Machine Configuration"

Enter the machine classification and the component type:

1. In the list field "Machine Classification" select the machine classification.
2. In the list field "Component Type", select the component type.
   In the field "Controller Characteristic" the controller type is displayed.
3. Confirm the input.

Enter the date and time:

1. In the list field "Date" enter current date.
2. In the list field "Time" enter current time.
3. Confirm the input.

Configure network

If you wish to connect the knitting machine with another knitting machine or a pattern unit, you must set up and switch on the network on the knitting machine. The window "Network Configuration" can be used.

➜ Tap on the key"Configure Network".
The window "Network Configuration" is displayed.

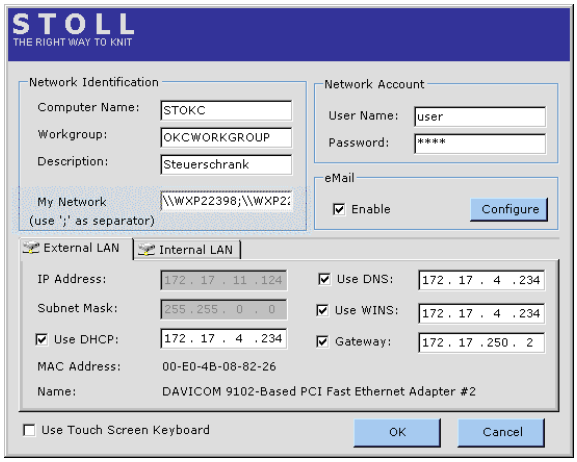


Fig. 7-10 Window "Network Configuration"

In this window all the necessary network parameters are entered. The values are entered with the internal keyboard (screen keyboard) or with an external keyboard.

Designation	Description
Computer name	The input of a (machine) name is necessary in order to enable the other network users an access to this machine. This machine is identified with this name in the network. Descriptions to this machine are given in the field "Description".
Workgroup	All knitting machines should be located in the same "Workgroup" so that the machines can communicate with each other. This input field must be filled up. Ask for your corresponding Work group name from your Network administrator in case of a network spanning your firm/LAN.
Description	The input of a description is optional, but it helps in identifying a machine better in larger networks, e.g. Machine type, gauge and other specifications of this machine. This input appears as a comment in Windows Explorer.
My network	Here those computers are listed that are defined in the field "My Network", see KnitLAN connection *(see page 4-121)*. If you wish to supplement the lists manually, take note of the spelling when multiple computers are used: \\computer name;\\computer name;\\computer name As a separator between the individual computers the semicolon (";") must be used.

Designation	Description
User name	This user must be familiar with his password in the network so that the shared drives and the folders can be used. Your Network administrator will create a user name and a password for you so that you can access the network resources.
Password	
e-mail	Input an e-mail address (Configure). The messages of control are sent to this address, when the check box is activated before "Enable".
IP address	Each machine (computer) should have a unique IP address within a network. The network protocol TCP/IP communicates with the individual machines about this IP address. The division of the network is done in the so-called network classes. Each machine is automatically assigned an individual Network-address by the program and it is displayed here.
Subnet mask	This field is automatically filled up by the program with a value for the shared network "Class B".
Use DHCP	The DHCP (Dynamic Host Configuration Protocol) enables with the help of a corresponding server the dynamic allocation of an IP-Address and the further configuration parameters on the computer (machine) in a network.
MAC address	Media Access Control Address.
Name	Name of the network card.
Use DNS	Domain Name Services over a DNS Server. Enter the name of the IP address of the server, if necessary.
Use WINS	Windows Internet Name Services. Enter the name of the IP address of the server, if necessary.
Gateway	A Gateway enables the connection between the shared networks. Enter the IP-Address of the active component, if necessary.

Tab. 7-4 Components of the window "Network Configuration"

Settings in the window "Network Configuration", especially the settings for "External LAN", are to be done by a Network Administrator. The settings for "Internal LAN" serve developmental purposes only and may not be altered.
The Ethernet IP addresses 192.168.0.1 and 192.168.0.2 are reserved for Stoll knitting machines and may not be used in the company network.
The reason for this: The cards 963 (IPC) and 966 (Power-CPU) in the knitting machine use these IP addresses in order to communicate with each other. But if both these addresses are used in the company network, the cards cannot work correctly with each other anymore and the machine does not function any longer.

Opening and closing screen keyboard

➜ In order to keep the screen keyboard constantly open, activate the check box before "Use Touch Screen Keyboard".
By clicking on an input field the screen keyboard opens.

- or -

➜ In order to close the screen keyboard deactivate the check box before "Use Touch Screen Keyboard".

Enter the machine name (Computer-Name)

1. Tap in the input field "Computer Name".
The screen keyboard is displayed.
2. Enter in the input field "Computer Name" by any desired name (5-15 characters) for the respective knitting machine.

Enter the user name and the password

Your Network administrator must create a user name and a password before you can access the network resources.

1. Key in in the input field "User Name" the user name (5-15 characters).
2. Key in in the input field "Password" the corresponding password (5-15 characters).
For every character entered "*" an asterik is displayed.

Enter Workgroup

➜ In the input field "Workgroup" key in the name of the work group and the machine group for this machine (5-15 characters).

- or -

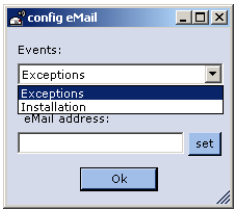
➜ Maintain the standard setting.

Enter the description of the machine (Description)

➜ In the input field "Description" enter a meaningful description of this machine (maximum 50 characters).

Enter E-Mail-Address

1. Activate the check box before "Enable".
2. Tap on the key "Configure".
   The window "E-Mail Configuration" is displayed.



3. Select the case in the field Events by the appearance of which the e-mail should be sent.
4. Enter the e-mail address in the field "E-Mail address"
5. Confirm the input.

Further information:

- KNITLAN connection *(see page 4-121)*

Debug output on/off

With this key an extended output of debug messages can be switched on or off in the window "Logging".

1. To give out extended debug messages in the window "Logging" tap on the key "Enable Debug Output".
   The marking of the key in "Disable Debug Output" is altered.
2. Confirm the input.

- or -

1. To give no extended debug messages tap on the key "Disable Debug Output".
   The marking of the key in "Enable Debug Output" is altered.
2. Confirm the input.

Load the machine settings in the machine computer

The machine settings do not only contain the machine data, but also the machine options, the machine configuration, the report, the network settings, and other internal control information. This data is displayed as "Dongle". Dongle-Data are saved in a file with the name "mcnumber.dgl" (mcnumber = machine number).

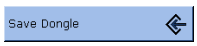
- A file with dongle data is available.

1. Tap the "Load Dongle" key.
   A selection window for opening a file is displayed.
2. Select Dongle-file (mcnumber.dgl).

The current machine settings will be overwritten!
When you copy the machine settings to the hard disk, the current machine settings are overwritten.
Only carry out the following steps if you want to replace the current machine settings with the settings saved on the file.

3. Confirm the input.
4. When the network settings are available, the question appears whether these should be read also. If you answer this question with "Yes" the network settings are read and a Reboot is automatically run. The machine settings are copied to the machine. After the copying is complete, a message appears.

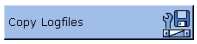
Save dongle data



The machine settings do not only contain the machine data, but also the machine options, the machine configuration, the report, the network settings, and other internal control information. This data is displayed as "Dongle". Dongle-Data are saved in a file with the name "mcnumber.dgl" (mcnumber = machine number). It is important to back up the data, e.g. when the hard disk is replaced.

1. Tap on the key "Save Dongle".
   A selection window for saving a file is displayed.
2. Select the saving location.
3. Confirm the input.
   The machine settings are copied on the target medium (file name: mcnumber.dgl).

Error diagnosis with Copy log files



If the machine computer has serious problems, e.g. it does not react to any entries or the program crashes any longer, he cause is very important for Stoll. The computer saves the data up to the error internally in so-called "Logfiles". These files can be zipped and can be saved on a target medium as desired. The file gets the name "Log_date_time_mcnr.zip" and can be sent to STOLL-HELPLINE in order to carry out an exact diagnosis of the error.

1. Tap the "Copy Logfiles" key.
   A selection window for saving a file is displayed.
2. Select the saving location.
3. Confirm the input.
   The log files are zipped and saved on the target medium (file name: Log_date_time_mcnr.zip).

Restore the last version of the Stoll operating system

1. Tap on the key "Restore Last Version".
   A dialog window for confirming the restoration appears.

The current operating system version will be overwritten!
When you restore the saved operating system version, the current operating system version is overwritten.
Only carry out the following steps if you want to replace the current operating system by the previous version.

2. Confirm message.
   The window "BootOkc" is displayed. The source (Boot Source) "Previous Version (HD)" is automaticaly set.
3. When the Stoll operating system is to be installed without the final configuration tap on the key "Installation".

   - or -

➜ When the Stoll operating system is to be installed with the final configuration, tap on the key "Installation and Configuration".
The Stoll operating system gets installed.

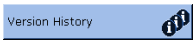
Display current software version

For diagnosis purposes it is important to know which software is installed on the computer. In the window "Info" the version numbers of the currently installed Stoll operating system are displayed. In the case of error messages, these version numbers should also be provided to STOLL-HELPLINE, if possible.

➜ Tap on the key "Show Current Version".
The window "Info" is displayed. Here the current version numbers of the Stoll operating system are displayed.

With "Copy Logfiles" this data is automatically saved with the file "Log_date_time_mcnr.zip".

Display the history of the software versions



For diagnosis purposes it is important to know which software is installed on the computer. In the window "Version Info" the current versions and all previously installed software programs are logged. In the case of error messages, these version numbers should also be provided to STOLL-HELPLINE, if possible.

➜ Tap on the key "Show Version History".
The window "Version Info" is displayed. Here the current version numbers and all the software installations of Stoll operating system executed so far, are displayed.

With "Copy Logfiles" this data is automatically saved with the file "Log_date_time_mcnr.zip".

7.2 Load/save machine data

The machine data comprise of the machine-specific settings (correction values) for example:

- Machine number (for Ethernet)
- Racking
- Stitch cam
- Fabric take-down
- Take-down comb
- Needle selection shifting
- Machine model and machine number
- Clamp/Cut
- Holding-down jack control

The machine data can be saved on the hard disk or can be restored from it again.

List of machine data

When the knitting machine was shipped, the machine data was printed out on this sheet and put on the right control cabinet

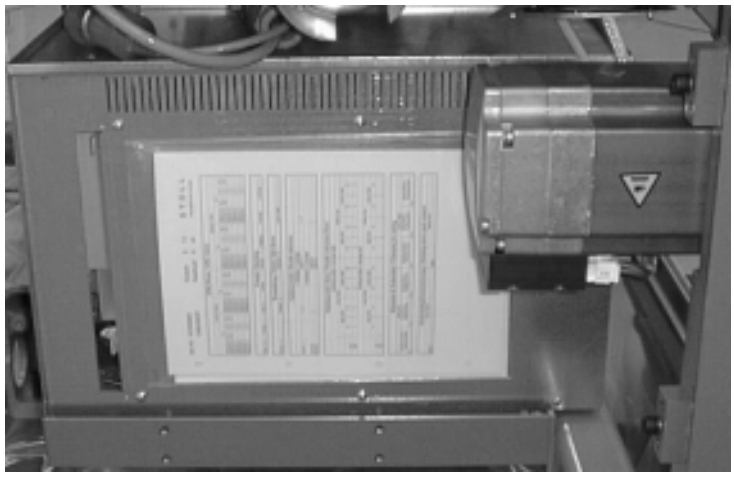


Fig. 7-11 List of machine data

If any changes are made in the machine data, these can be saved on the hard disk.

Instruction	Function
MC-SAVE	Save machine data on the hard disk
MC-RESTORE	Restore machine data from the hard disk to the machine memory
MC-RESTOREDATA	Restore the STOLL factory settings to the machine memory

Tab. 7-5 Commands for saving and reading the machine data

Key	Function
	Call up the "Direct commands" window
	Tap the "Keyboard" key

Tab. 7-6 Keys for saving and reading the machine data

1. Call up the "Direct commands" window.
2. Tap the "Keyboard" key.
   The virtual keyboard is displayed.
3. Type in the corresponding command and confirm.

Further information:

- Copying service data *(see page 4-57)*

7.3 Save all machine data on the USB-Memory-Stick

The machine settings do not only contain the machine data, but also the machine options, the machine configuration, the report, the network settings, and other internal control information. This data is displayed as "Dongle". Dongle-Data are saved in a file with the name "mcnumber.dgl" (mcnumber = machine number).

The Machine data can be copied on a USB-Memory-Stick. After installing a new operating system version or following data loss or the change of the hard disk the machine data can be copied back from the USB Memory-Stick to the machine computer.

Key	Function
	Call up the "Direct commands" window
	Tap the "Keyboard" key

Tab. 7-7 Keys for saving the machine data on a USB-Memory-Stick

1. Insert the USB-Memory-Stick in the USB-socket.
2. Call up the "Direct commands" window.
3. Tap the "Keyboard" key.
   The virtual keyboard is displayed.
4. Type in the command "save dongle" and confirm.
   The entire machine data are saved under the file name "mcnumber.dgl" on the USB-Memory-Stick ("mcnumber" = machine number).
5. Take out the USB-Memory-Stick.

Further information:

- Basic Settings *(see page 7-6)*
- Copying service data *(see page 4-57)*

7.4 Install the Stoll-Operating system

The installation of the Stoll-Operating system can be carried out in two ways:

- Direct Installation:
  After switching on of the main switch the window "BootOkc" gets displayed. Type in within the waiting time for the warm start on the key "Basic Settings" and select in the window "Basic Settings Menu" the protected location of the new Stoll-Operating system. Go back to the window "BootOkc" and type on the key "Installation" or "Installation and Configuration". The Installation process is triggered.
  When you tap on the key "Installation" the Installation is run through till the window "Reference run".
  If you tap on the key "Installation and Configuration" the machine can be configured afresh for stopping the installation.
- Indirect Installation:
  During the production the new Stoll-Operating system is copied on the hard disk. You use the window "Actualising Software" for this purpose. When the machine is switched on again the software can determine that a new Stoll-Operating system is available for installation. You will be asked in one window whether you want to install the new Stoll-Operating system and whether you wish to configure the machine anew simultaneously. If you acknowledge this process with "Yes" the installation process gets started with or without configuration.

In the next sections the different types of installations will be discussed at length.

It contains the following information:

- Direct Installation *(see page 7-20)*
- Indirect Installation *(see page 7-26)*
- Updating software *(see page 7-32)*
- Carrying out a restart *(see page 7-36)*
- Carrying out restart with machine configuration *(see page 7-37)*
- Setting online connection *(see page 7-39)*
- Overview of all system data *(see page 7-42)*

Further information:

- Setting touch screen *(see page 3-8)*
- Setting machine parameters *(see page 4-53)*
- Basic Settings *(see page 7-6)*

7.4.1 Direct Installation

In the case of "Direct Installation" the installation process is started directly in the window "BootOkc".

Overview:

- Start the installation process by switching on the machine Tap in the window "BootOkc" on the key "Basic Settings" to select storage location in which the installation data is available.("Boot Source").
- Start the installation in the window"BootOkc" with the keys "Installation and Configuration" or "Installation".
- Configure the machine when you have selected the key "Installation and Configuration" or start a reference run when you have selected the key "Installation" .

Select the key "Installation and Configuration", when alongwith the installation of the new Stoll-Operating system the machine parameters have also to be altered.
Select the key "Installation", when the machine parameters are not to be altered. This shortens the installation process

The current operating system version will be overwritten!
When you install a new Stoll-Operating system-Version the current Stoll-Operating system-Version is overwritten.
Carry out the following steps only if you want to replace the current operating system by the previous version.
Save the machine data and the files specifically the ones you have created before the installation process.

Select Boot Source

■ The amchine is switched off.

1. Set the main switch to "1".
   The window "BootOkc" is displayed on the Touch-Screen

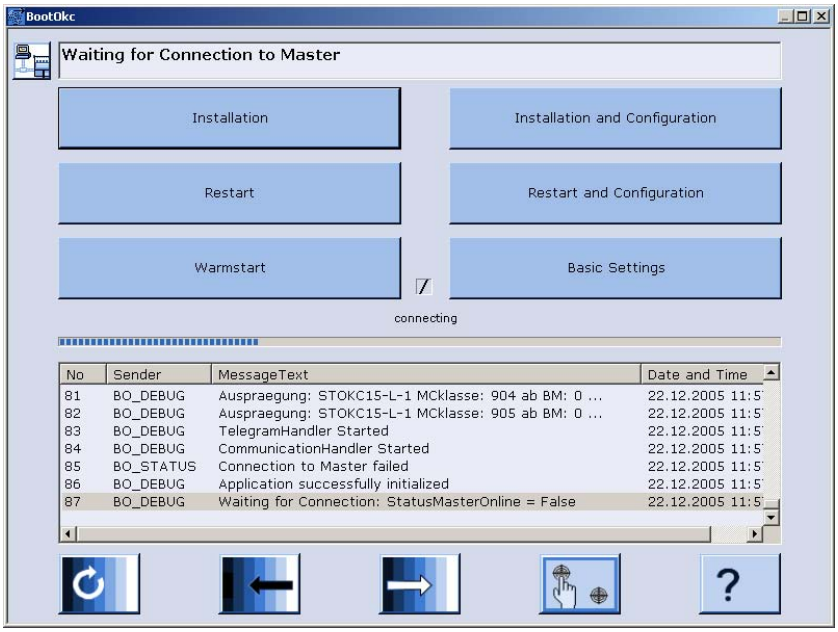


Fig. 7-12 "BootOkc" window

2. For the automatic warm start tap on the key"Basic Settings" within the waiting time.
   The window "Basic Settings Menu" is displayed.
3. In the space"Boot Source" select a source for the installation data.
4. Confirm the input.
   The window "BootOkc" is displayed.
5. Continue with the next section.

Start Installation

1. When you want to execute the installation with the final configuration, tap in the window "BootOkc" on the key "Installation and Configuration"

   - or -

➜ When you want to execute the installation without the final configuration, tap in the window "BootOkc" on the key "Installation"
In the window "User Message" (INSTALLATION STARTED!) the path to the installation data is displayed.

Fig. 7-13 Window "User Message" (INSTALLATION STARTED!)

2. If only the files that have got altered are to be installed anew during the installation deactivate the check box "FORCE INSTALLATION" (expedites the installation process).

When you take up an installation in order to repair your operating system, activate the check box "FORCE INSTALLATION" so that the damaged files do not get overwritten subsequently.

3. To confirm the Installation tap on the key "YES"
   In the window "User Message" (ATTENTION!) the Version number of the Stoll-Operating system Version selected earlier gets displayed.

Fig. 7-14 Window "User Message" (ATTENTION!)

The current operating system version will be overwritten!
When you install a new Stoll-Operating system-Version the current Stoll-Operating system-Version is overwritten.
Carry out the following steps only if you want to replace the current operating system by the previous version.

4. To confirm the installation tap on the key "YES"
   When the installation file of the Stoll operating system has several languages, the window "Install Languages" is open.

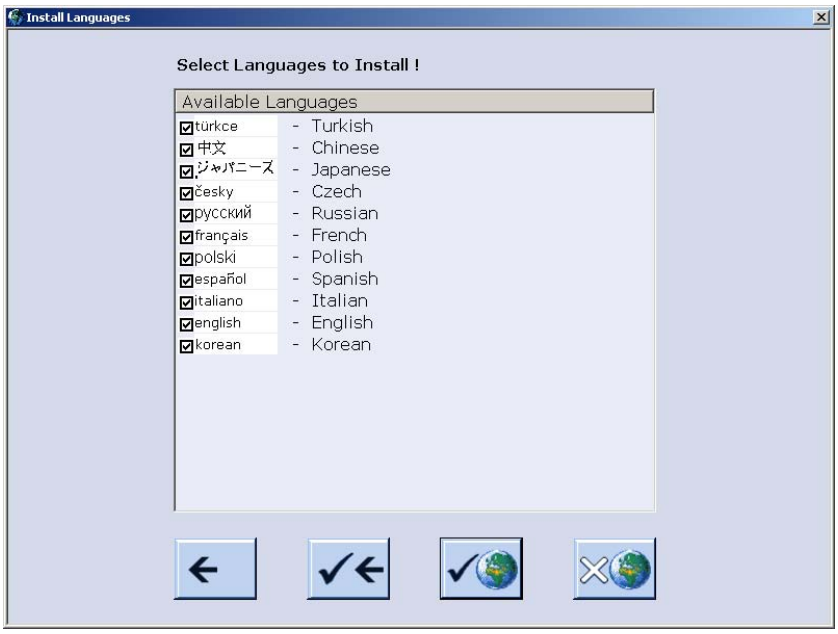


Fig. 7-15 "Install Languages" window

Key	Function
	End selection process without saving modifications
	Confirm selection
	Key "All languages"
	Key "No language"

Tab. 7-8 Key for selection languages

5. Select the desired language(s)

If you want to have all languages available simultaneously, tap the "All languages" key.
If you only want to carry on working in "German", end selection process.

6. Confirm the selection.
   The installation process gets started.
   The window "Language" is displayed when you select the key "Installation and Configuration"
   - or -
   The window "Reference runs " is displayed when you select the key "Installation"
7. If the window "Language" is displayed , continue with the section "Configure machine "

   - or -

➜ If the window "Reference runs " is displayed , continue with the section "Start Reference runs"

Configure Machine

■ The window "Language " is displayed

1. Select the dialog language and confirm the selection.
2. Continue on to the next window.
   The window"Configure machine " is displayed The data have been set at the factory and will not be changed.
3. Continue on to the next window.
   The window "Machine-configuration 2" is displayed. The data have been set at the factory and will not be changed.
4. Continue on to the next window.
   The window "Machine-Options"is displayed The data have been set at the factory.

Machine malfunction!
The presence or lack of machine options must correctly be specified, as otherwise a malfunction may occur on the machine.
Always specify the machine options correctly.

5. If necessary, change the data and confirm the changes.
6. Continue on to the next window.
   The window "Machine-Parameter" is displayed The data have been set at the factory.
7. If necessary, change the data and confirm the changes.

8. Continue on to the next window.
   The window "Needle bed -Parameter " is displayed The data have been set at the factory.
9. If necessary, change the data and confirm the changes.
10. Continue on to the next window.
    The window "NPK-Values" is displayed The data have been set at the factory.
11. If other NPK values are to be used, change the values and confirm the changes.
12. Continue on to the next window.
    The window "Knit Report Configartion" is displayed
13. If other settings are to be used, change the settings and confirm the changes. Use the "additional function keys" to activate/deactivate the running time control and/or running time measurement.
14. Continue on to the next window.
    The configuration is complete
    The window "Reference runs " is displayed
15. Continue with the next section.

Start Reference runs

- The window "Reference runs " is displayed.

1. If the racking device is not in the basic position, press off the stitches of a needle bed.
2. Carry out reference run(s).
3. Proceed to the next window.

   The installation process is complete and the "Main menu" is displayed.

Further information:

- Select the source of the installation data (Boot Source) *(see page 7-7)*
- Enter waiting time to warm start *(see page 7-7)*
- Configure Machine *(see page 7-8)*
- Configure Network *(see page 7-9)*
- Load the machine settings in the machine computer *(see page 7-13)*
- Save Dongle-Data *(see page 7-14)*

7.4.2 Indirect Installation

In the case of "Indirect Installation" the new Stoll-Operating system is immediately transmitted on the hard disk of the knitting machine (Window "Software update").

Overview:

- Start the installation process by switching on the machine A message prompt displays that a new Stoll-Operating system is available for installation.
  You have to make a decision here whether you wish to install the new Stoll-Operating system or wish to continue with the old one.
- Determine with the check box "Installation without configuration" whether the new Stoll-Operating system should be installed with simultaneous configuration of the machine paramter.
- Configure the machine if you have deactivated the check box "Installation without configuration" or carry out a reference run if you have activated the check box "Installation without configuration".

Deactivate the check box "Installation without configuration", if the machine parameters have also to be altered simultaneously with the installation of the new Stoll-Operating system.
Activate the check box "Installation without configuration" if you do not want to alter any machine parameters. This shortens the installation process

The current operating system version will be overwritten!
When you install a new Stoll-Operating system-Version the current Stoll-Operating system-Version is overwritten.
Carry out the following steps only if you want to replace the current operating system by the previous version.
Save the machine data and the files specifically the ones you have created before the installation process.

Start Installation

- The Stoll-Operating system was updated.
- The amchine is switched off.

1. Set the main switch to "1".
   The window "BootOkc" is displayed with the following message on theTouch-Screen.

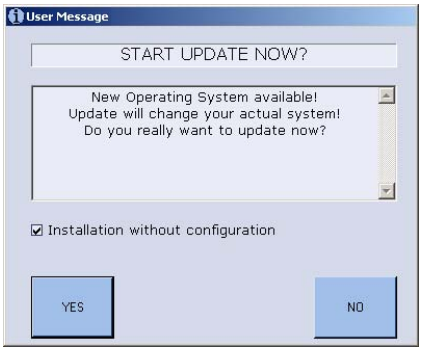


Fig. 7-16 Window "User Message" (START UPDATE NOW?)

2. Deactivate the check box "Installation without configuration", if the machine parameters have also to be altered simultaneously with the installation of the new Stoll-Operating system.

   - or -

➜ Activate the check box "Installation without configuration" if you do not want to alter any machine parameters.

3. To start installation process tap on "YES"

To proceed with the old Stoll-Operating system tap on "NO"

In the window "User Message" (INSTALLATION STARTED!) the path to the installation data is displayed.

Fig. 7-17 Window "User Message" (INSTALLATION STARTED!)

4. If only the files that have got altered are to be installed anew during the installation deactivate the check box "FORCE INSTALLATION" (expedites the installation process).

When you take up an installation in order to repair your operating system, activate the check box "FORCE INSTALLATION" so that the damaged files do not get overwritten subsequently.

5. To confirm the Installation tap on the key "YES"
   In the window "User Message" (ATTENTION!) the Version number of the Stoll-Operating system Version selected earlier gets displayed.

Fig. 7-18 Window "User Message" (ATTENTION!)

The current operating system version will be overwritten!
When you install a new Stoll-Operating system-Version the current Stoll-Operating system-Version is overwritten.
Carry out the following steps only if you want to replace the current operating system by the previous version.

6. To confirm the installation tap on the key "YES"
   When the installation file of the Stoll operating system has several languages, the window "Install Languages" is open.

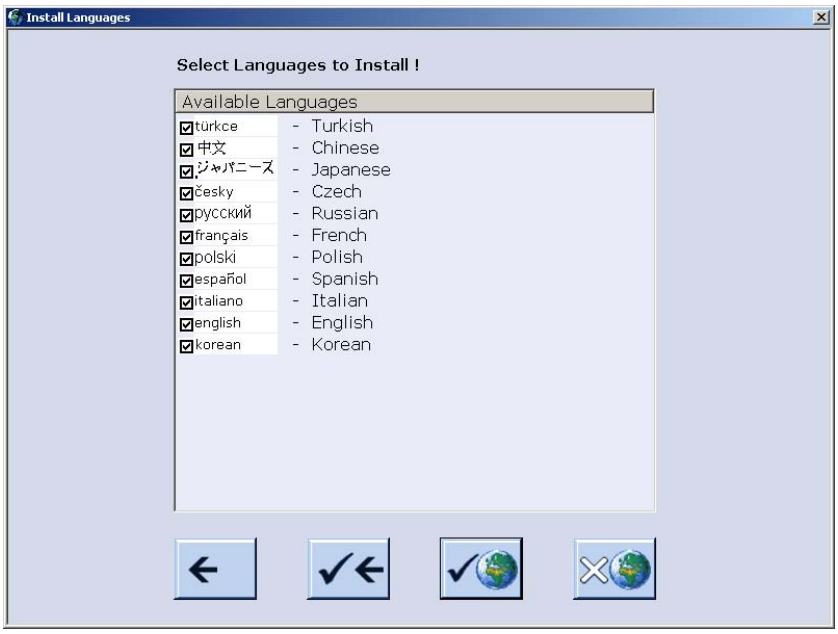


Fig. 7-19 "Install Languages" window

Key	Function
	End selection process without saving modifications
	Confirm selection
	Key "All languages"
	Key "No language"

Tab. 7-9 Key for selection languages

7. Select the desired language(s)

If you want to have all languages available simultaneously, tap the "All languages" key.
If you only want to carry on working in "German", end selection process.

8. Confirm the selection.
   The installation process gets started.
   The window "Language" is displayed when you select the check box "Installation without configuration"
   - or -
   The window "Reference runs" is displayed when you select the check box "Installation without configuration"
9. If the window "Language" is displayed , continue with the section "Configure machine "

   - or -

➜ If the window "Reference runs " is displayed , continue with the section "Start Reference runs"

Configure Machine

■ The window "Language " is displayed

1. Select the dialog language and confirm the selection.
2. Continue on to the next window.
   The window"Configure machine " is displayed The data have been set at the factory and will not be changed.
3. Continue on to the next window.
   The window "Machine-configuration 2" is displayed. The data have been set at the factory and will not be changed.
4. Continue on to the next window.
   The window "Machine-Options"is displayed The data have been set at the factory.

Machine malfunction!
The presence or lack of machine options must correctly be specified, as otherwise a malfunction may occur on the machine.
Always specify the machine options correctly.

5. If necessary, change the data and confirm the changes.
6. Continue on to the next window.
   The window "Machine-Parameter" is displayed The data have been set at the factory.
7. If necessary, change the data and confirm the changes.

8. Continue on to the next window.
   The window "Needle bed -Parameter " is displayed The data have been set at the factory.
9. If necessary, change the data and confirm the changes.
10. Continue on to the next window.
    The window "NPK-Values" is displayed The data have been set at the factory.
11. If other NPK values are to be used, change the values and confirm the changes.
12. Continue on to the next window.
    The window "Knit Report Configartion" is displayed
13. If other settings are to be used, change the settings and confirm the changes. Use the "additional function keys" to activate/deactivate the running time control and/or running time measurement.
14. Continue on to the next window.
    The configuration is complete
    The window "Reference runs " is displayed
15. Continue with the next section.

Start Reference runs

- The window "Reference runs " is displayed.

1. If the racking device is not in the basic position, press off the stitches of a needle bed.
2. Carry out reference run(s).
3. Proceed to the next window.

   The installation process is complete and the "Main menu" is displayed.

Further information:

- Configure Machine *(see page 7-8)*
- Configure Network *(see page 7-9)*
- Load the machine settings in the machine computer *(see page 7-13)*
- Save Dongle-Data *(see page 7-14)*
- Updating software *(see page 7-32)*

7.4.3 Updating software

A new Stoll-Operating system can also be copied on the hard disk while the machine is producing. No data is overwritten here; the operating system is loaded in a separate memory area.

This saves a few minutes time, as copying occurs during production. The updating is not carried out until later, i.e. when the machine is switched off and on again at the main switch. A prompt appears, asking you whether the new operating system is to be loaded.

- If the question is answered with "YES" then the new Stoll-Operating system is installed.
- If it is answered with "NO" then this question is asked again the next time you switch on whether the new Stoll-Operating system should be installed.

For the Software-updation the source from where the new Stoll-Operating system should be copied can be selected.

Key	Function
	Call up the "Service" menu
	Call up the "Software updating" window
	Key "Select source folder"
	Key "Carry out update"
	Key "Update display"
	Save changes and end setting process
	End setting process without saving changes
	Call up the "Main menu"

Tab. 7-10 Keys for updating the Software

Updating software

1. Call up the "Service" menu from the "Main menu".
2. Call up "Software updating" window.

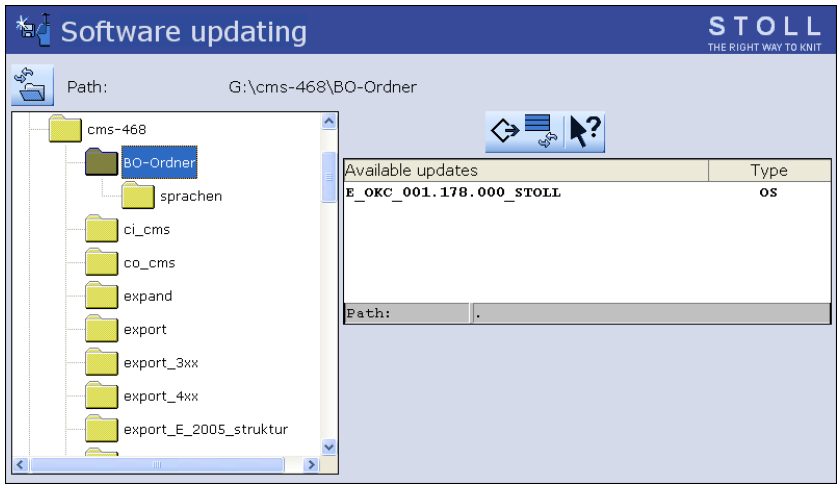


Fig. 7-20 "Software updating" window

3. Select source folder
   If multiple Stoll-Operating systems are found on the data carrier, these are lsited.

When searching for the Stoll-Operating system the selected folder section and a section under this section (sub-folder section) is also searched.

4. If more Stoll-Operating sytems are listed, the Stoll-Operating system (Type OS) that is to be copied should be marked.
5. Tap the "Carry out updating" key.
   The installation files are copied on the hard disk of the machine in a separate storage location.
6. When the new Stoll-Operating system gets copied the message "Update successfully installed " is displayed

When the Stoll-Operating system is copied two more program points are displayed in the window "Software updation"

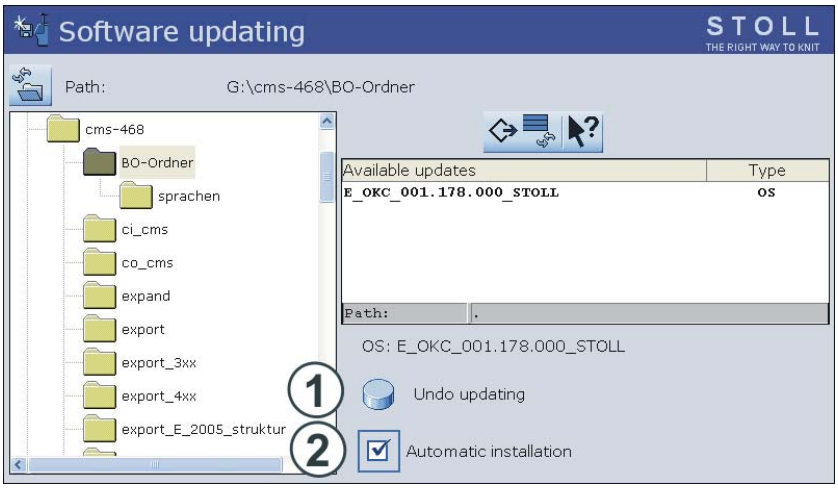


Fig. 7-21 "Software updating" expanded window

Key	Function	
1	The data in the separate memory area are deleted.	
2	Selection of whether the installation should be executed automatically or manually when the machine is switched on next.	
	On	After a waiting time of 10 seconds the installation is automatically carried out till the window "Reference runs" (like in the case of "Installation"). Within the waiting time the installation can be cancelled by tapping on"Cancel" Choose this setting if just the operating system is to be updated.
	off	Installation like in the case of "Installation and Configuration". Select this setting if the machine data have changed. For example, after a gauge conversion or if a special equipment has been mounted.

Tab. 7-11 More functions in the window "Software updation"

Reset updation:

➜ Tap on the key "Reset updation" (1)
The data is deleted in a separate storage location on the hard disk of the machine.

Select type of Installation:

1. If the new Stoll-Operating system is to be installed after a waiting time of 10 Seconds automatically , set the switch "Automatic Installation" (2) at "On" .

   - or -

➜ If the new Stoll-Operating system is to be installed manually set the switch "Automatic Installation" (2) at "Off"

2. Call up "Main menu".
3. If the new Stoll-Operating system is to be installed the knitting machine must be switched off and then switched on again.

More data on a network drive or USB-Memory-Stick

In addition to the operating system, other data can be present on the network drive and the USB Memory Stick. Which data is available can be displayed by activating the key "Carry out updation"

Type	Meaning
OS	Operating system (OS)
IMG	Hard disk image
HDA	HD Analyst
UPT	Update of Windows XP Embedded (OPTION)
REP	Update of repair image

Tab. 7-12 Selection of individual installation types

Further information:

■ Indirect Installation *(see page 7-26)*

7.4.4 Carrying out a restart

A restart is carried out when the software no longer reacts to inputs following an error.

Carry out a restart:

1. Set the main switch to "0".
   The switch-off process takes approx. 60 seconds. When the process is complete, the touch screen becomes dark and a signal sounds.
2. Set the main switch to "1".
   The window "BootOkc" is displayed on the Touch-Screen

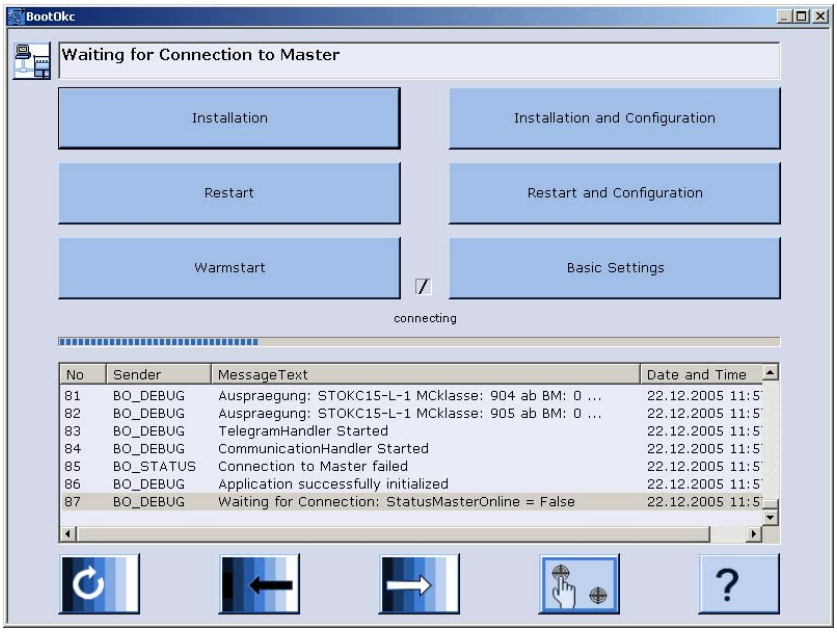


Fig. 7-22 "BootOkc" window

3. For the automatic Warmstart within the waiting time tap on the key "Restart"
   The machine is configured.
   Finally the window "Reference runs " is displayed.
4. Carry out Reference run(s)
5. Continue on to the next window.

   The Restart is complete and the "Main menu" is displayed.
   The machine is ready to knit.

Further information:

- Setting touch screen *(see page 3-8)*
- Enter waiting time to warm start *(see page 7-7)*

7.4.5 Carrying out restart with machine configuration

A restart with the machine configuration is carried out after a gauge conversion or after attaching special equipments.

Carry out restart with machine configuration:

- The machine is switched off.

1. To switch on the machine, set the main switch to "1".
   The window "BootOkc" is displayed on the Touch-Screen.

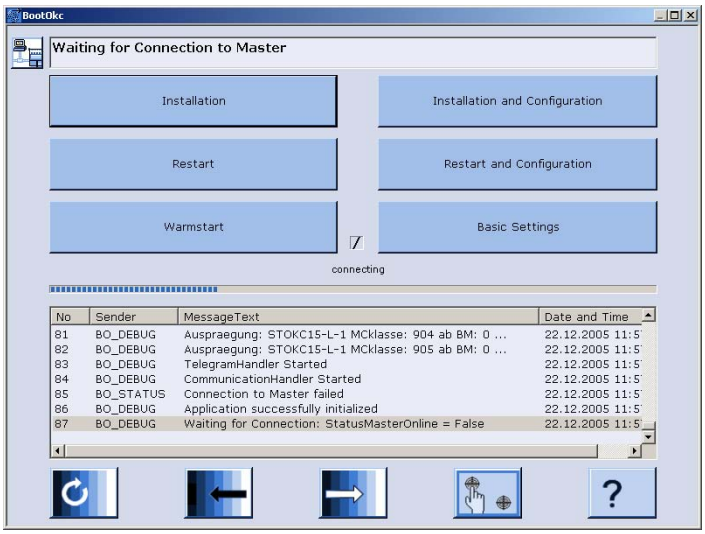


Fig. 7-23 "BootOkc" window

2. For the automatic Warmstart within the waiting time tap on the key "Restart and Configuration"
   The Restart-Process gets started.
   After the process is shut, the window "Language" is displayed.
3. Select the dialog language and confirm the selection.
4. Continue on to the next window.
   The window "Machine-configuration" is displayed. The data have been set at the factory and will not be changed.
5. Continue on to the next window.
   The window "Machine-configuration 2" is displayed The data have been set at the factory and will not be changed.
6. Continue on to the next window.
   The window "Machine-Options" is displayed. The data have been set at the factory.

Machine malfunction!
The presence or lack of machine options must correctly be specified, as otherwise a malfunction may occur on the machine.
Always specify the machine options correctly.

7. If necessary, change the data and confirm the changes.
8. Continue on to the next window.
   The window "Machine-Parameters" is displayed. The data have been set at the factory.
9. If necessary, change the data and confirm the changes.
10. Continue on to the next window.
    The window "Needle bed -Parameter " is displayed. The data have been set at the factory.
11. If necessary, change the data and confirm the changes.
12. Continue on to the next window.
    The window "NPK-Values" is displayed. The data have been set at the factory.
13. If other NPK values are to be used, change the values and confirm the changes.
14. Continue on to the next window.
    The window "Knit Report Configartion" is displayed.
15. If other settings are to be used, change the settings and confirm the changes. Use the "additional function keys" to activate/deactivate the running time control and/or running time measurement.
16. Continue on to the next window.
    The configuration is complete.
    The window "Reference runs" is displayed.
17. Carry out Reference run(s)
18. Continue on to the next window.

    The Restart is complete and the "Main menu" is displayed.
    The machine is ready to knit.

Further information:

- Setting touch screen *(see page 3-8)*
- Setting machine parameters *(see page 4-53)*
- Enter waiting time to warm start *(see page 7-7)*
- Configure Machine *(see page 7-8)*
- Configure Network *(see page 7-9)*

7.4.6 Setting online connection

The knitting machine (s) and the STOLL-pattern preparation unit can be connected by an Ethernet-connection.

Key	Function
	Switch on virtual keyboard
	Confirm input
	Continue on to the next window
	Confirm selection

Tab. 7-13 Keys for setting online connection

Setting online connection:

- The knitting machine is switched off.

1. To switch on the machine, set the main switch to "1".
   The window "BootOkc" is displayed on the Touch-Screen.

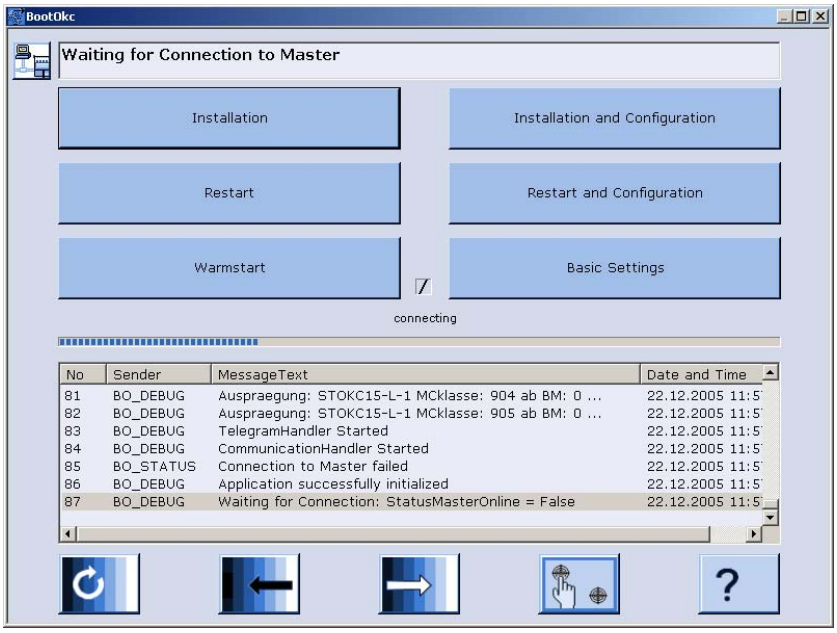


Fig. 7-24 "BootOkc" window

2. For the automatic Warmstart within the waiting time tap on the key "Restart and Configuration"
   The Restart-Process gets started.
   After the process is shut, the window "Language" is displayed.
3. Continue on to the next window.
   The window "Machine-configuration" is displayed.

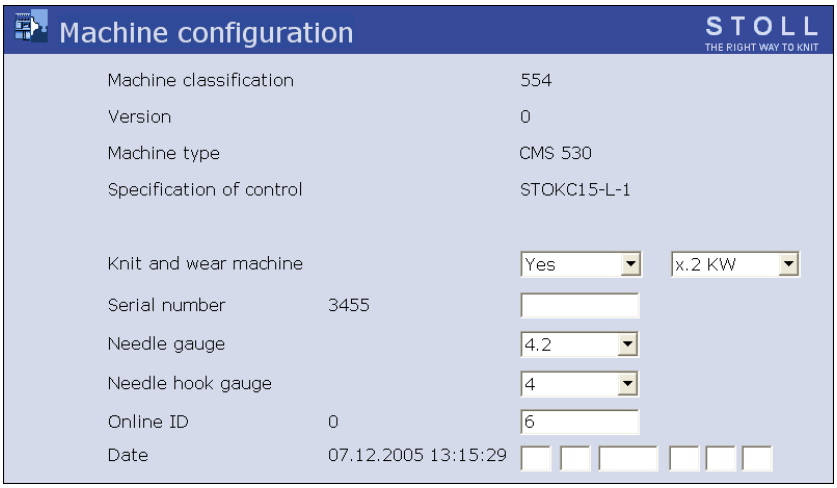


Fig. 7-25 "Machine configuration" window

4. Tap in the field "Online Id"
5. Enter the Online -ID of the knitting machine with the help of the virtual keyboard.
6. Confirm the input.

7. Advance till the "Main menu" appears.

   The Restart is ended

If network problems occur and these are impairing the production , then the Online ID can be set at "0" (switched off) To do this call up in the menu"Service/Basic settings" the window "Machine-configuration"and alter the Online ID.

7.4.7 Overview of all system data

All important hardware and software data of the control are displayed in the window "System info".

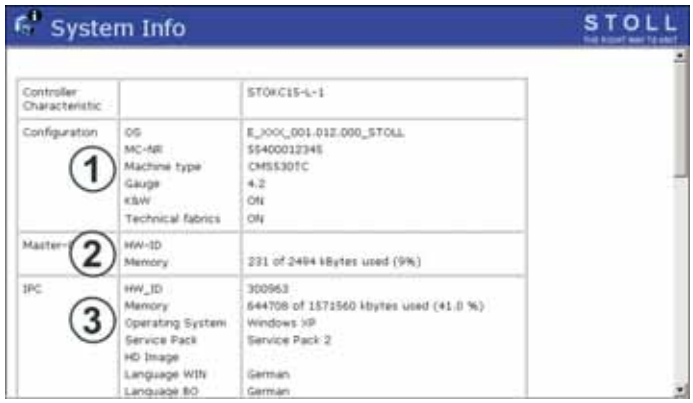


Fig. 7-26 "System info" window

Field	Data shown
1	Stoll-Operating system (OS) that is loaded, the machine number, machine type and the guage etc.
2	"Memory" line: Display of the amount of memory this pattern occupies
3	Additional hardware and software data

Key	Function
	Call up the "Service" window
	Call up Window" Diagnosis"
	Call up the "System info" window
	Call up the "Main menu"

Tab. 7-14 Keys for calling up the "System info" window

Display System data:

1. In the "Main menu" tap on the key "Service"
   The window "Service" is displayed.
2. Tap on the key"Diagnosis"
   The window "Diagnosis" is displayed
3. Tap on the key "System Info"
   The window "System Info" with all the important Hardware and Software data of the control is displayed.

8 Yarns and stitch tension

8.1 Stitch tension range

The tension ranges for knitting and splitting differ. The reason for this is the shape of the split-stitch piece. The information in the table show the minimum and maximum NP values.

	min. NP	max. NP	min. NP (Split)	max. NP (Split)
E 3	7.0	16.7	8.2	15.6
E 3,5	7.0	16.7	8.2	15.6
E 4	7.0	16.7	8.2	15.6
E 5	6.5	16.9	8.0	14.1
E 7	8.3	18.7	9.8	15.9
E 8	8.8	19.5	10.3	16.6
E 10	7.4	21.5	9.4	17.7
E 12	7.7	21.5	9.4	15.1
E 14	8.1	22.3	9.8	15.5
E 16	8.1	22.5	9.5	15.2
E 18	8.1	22.5	9.5	15.2
E 5.2	7.8	17.5	9.0	14.7
E 6.2	7.7	21.5	9.4	15.1
E 7.2	8.1	22.3	9.8	15.5
E 8.2	8.1	22.5	9.5	15.2
E 9.2	8.1	22.4	9.5	15.5
E 2,5.2	6.5	16.9	8.0	14.1
E 3,5.2	8.3	18.7	9.8	15.9

Tab. 8-1 Stitch tension range

8.2 Stitch length

The specified values serve as a guideline. Depending on the yarn, these values may differ, as the quality and the specific weight of the material influence the stitch length.

NP	E 3	E 3.5	E 4	E 5	E 7	E 8	E 10	E 12
6.5				6.26				
7.0	7.67	5.90	7.03	6.96				
7.5	9.25	7.40	8.48	7.52			2.20	
8.0	10.83	8.90	9.93	8.22			2.80	2.85
8.5	12.42	10.40	11.38	8.92	4.66		3.60	3.38
9.0	14.00	11.90	12.83	9.48	5.46	3.58	4.20	3.91
9.5	15.85	13.40	14.28	10.18	6.10	4.30	4.80	4.45
10.0	17.17	14.90	15.73	10.88	6.90	5.20	5.60	4.98
10.5	18.75	16.40	17.18	11.44	7.70	5.92	6.20	5.51
11.0	20.33	17.90	18.63	12.14	8.34	6.82	7.00	6.05
11.5	21.92	19.40	20.08	12.84	9.14	7.54	7.60	6.58
12.0	23.50	20.90	21.53	13.40	9.94	8.44	8.40	7.11
12.5	25.08	22.40	22.98	14.10	10.58	9.34	9.00	7.65
13.0	26.67	23.90	24.43	14.80	11.38	10.06	9.80	8.18
13.5	28.25	25.40	25.88	15.36	12.18	10.96	10.40	8.71
14.0	29.83	26.90	27.33	16.06	12.82	11.68	11.00	9.25
14.5	31.42	28.40	28.78	16.76	13.62	12.58	11.80	9.78
15.0	33.00	29.90	30.23	17.32	14.26	13.30	12.40	10.31

Tab. 8-2 Stitch length - yarn consumption per stitch (mm) with R/L fabric (Table 1)

NP	E 14	E 16	E 18	E 2,5.2	E 2,5.2 (1)	E 3,5.2
6.5				6.26		
7.0				6.96	4.36	
7.5				7.52	5.71	
8.0		1.88		8.22	7.06	4.97
8.5	2.58	2.16	1.86	8.92	8.41	5.30
9.0	3.13	2.51	2.21	9.48	9.76	6.13
9.5	3.68	2.86	2.56	10.18	11.11	6.80
10.0	4.23	3.21	2.91	10.88	12.46	7.63
10.5	4.78	3.56	3.26	11.44	13.81	8.47
11.0	5.33	3.91	3.61	12.14	15.16	9.13
11.5	5.88	4.26	3.96	12.84	16.51	9.97
12.0	6.43	4.61	4.31	13.40	17.86	10.80
12.5	6.98	4.96	4.66	14.10	19.21	11.47
13.0	7.53	5.31	5.01	14.80	20.56	12.30
13.5	8.08	5.66	5.36	15.36	21.91	13.13
14.0	8.63	6.01	5.71	16.06	23.26	13.97
14.5	9.18	6.36	6.06	16.76	24.61	14.80
15.0	9.73	6.71	6.41	17.32	25.96	15.47

Tab. 8-3 Stitch length - yarn consumption per stitch (mm) with R/L fabric (Table 2)

(1) CMS 830 C

NP	E 5.2	E 6.2	E 6.2 (knit and wear) (1)	E 7.2	E 7.2 (knit and wear) (1)	E 9.2
6.5						
7.0						
7.5	3.54	2.14	1.77			
8.0	3.86	2.47	2.07	2.14	1.58	1.61
8.5	4.66	3.02	2.57	2.58	1.99	1.91
9.0	5.46	3.57	3.08	3.13	2.49	2.30
9.5	6.26	4.12	3.58	3.68	3.00	2.68
10.0	7.06	4.67	4.08	4.23	3.50	3.06
10.5	7.86	5.22	4.58	4.78	4.01	3.45
11.0	8.66	5.77	5.08	5.33	4.51	3.83
11.5	9.46	6.32	5.58	5.88	5.02	4.21
12.0	10.26	6.87	6.09	6.43	5.52	4.60
12.5	11.06	7.42	6.59	6.98	6.03	4.98
13.0	11.86	7.97	7.09	7.53	6.53	5.36
13.5	12.66	8.52	7.59	8.08	7.04	5.75
14.0	13.46	9.07	8.09	8.63	7.54	6.13
14.5	14.26	9.62	8.59	9.18	8.05	6.51
15.0	15.06	10.17	9.10	9.73	8.55	6.90

Tab. 8-4 Stitch length - yarn consumption per stitch (mm) with R/L fabric (Table 3)

(1) Stitch length on:

- CMS 822
- CMS 740

8.3 Yarn table

The specified values serve as a guideline. The quality and the specific weight of a yarn must also be taken into account. Instead of a simple yarn, we recommend twisted yarn. With coarser machines it is advisable to use several twisted threads.

Gauge	Final count [Nm]	Assembled processing [Nm]
2	1,2 - 1,4	6 X 16/2
2.5	1,3 - 1,6	6 X 18/2
3	1 - 2	5 X 18/2
3.5	1,4 - 2,5	6 X 24/2
4	1,4 - 3	5 X 24/2 6 X 34/2
5	3 - 4,5	4 X 24/2 4 X 34/2
7	4,5 - 7	2 X 22/2 2 X 28/2
8	6 - 8	2 X 24/2 2 X 34/2
10	8 - 12	2 X 36/2 1 X 24/2
12	10 - 18	1 X 24/2 2 X 44/2
14	14 - 20	1 X 28/2 2 X 40/1
16	20 - 30	1 X 48/2 1 X 54/2 1 X 60/2
18	20 - 40	1 X 54/2 1 X 60/2 1 X 80/2
20	20 - 40	1 X 80/2
2,5.2 (all needles)	3 - 4,5	3 X 28/2 2 X 14/2
2,5.2 (CMS 830 C) (each 2nd needle)	1,3 - 2	3 X 14/2 6X 14/2
2,5.2 (each 2nd needle)	1,3 - 2	3 X 14/2 4 X 14/2

Tab. 8-5 Yarn table - Allocation of machine gauge and yarn thickness (Table 1)

Gauge	Final count [Nm]	Assembled processing [Nm]
3,5.2 (all needles)	4,5 - 7	2 X 28/2 3 X 28/2
3,5.2 (each 2nd needle)	1,5 - 2,5	3 X 14/2 7 X 28/2
5.2 (all needles)	8 - 12	1 X 20/2 2 X 28/2
5.2 (each 2nd needle)	3 - 4,5	3 X 28/2 4 X 28/2
6.2 (all needles)	10 - 16	2 X 44/2 1 X 28/2
6.2 (each 2nd needle)	4,5 - 7	2 X 28/2 3 X 28/2
7.2 (all needles)	14 - 20	1 X 28/2 1 X 30/2
7.2 (each 2nd needle)	6 - 8	2 X 28/2 2 X 30/2
8.2 (all needles)	15 - 25	1 X 50/2 2 X 60/2
8.2 (each 2nd needle)	10 - 12	2 X 50/2 3 X 60/2
9.2 (all needles)	20 - 30	1 X 40/2 1 X 60/2
9.2 (each 2nd needle)	10 - 16	2 X 40/2 2 X 44/2 2 X 60/2 3 X 60/2

Tab. 8-6 Yarn table - Allocation of machine gauge and yarn thickness (Table 2)

Knitting information

Gauge	Explanation
2,5.2 and 3,5.2 (knit and wear)	If an extreme yarn (non-elastic and/or very thick) is used, it should not be knitted too loosely (in the upper NP area), as there is a danger of wear of the cams and needle bed.
9.2	For tight knitting, special cams must be used (ID No. 213 303, 213 304 and 210 285). They are included in the machine accessories.

Tab. 8-7 Knitting information

8.4 Conversion table

The following table is used for the conversion of one yarn gauge to another. The named yarn gauges mean:

TEX (Tt)
Grams per kilometer

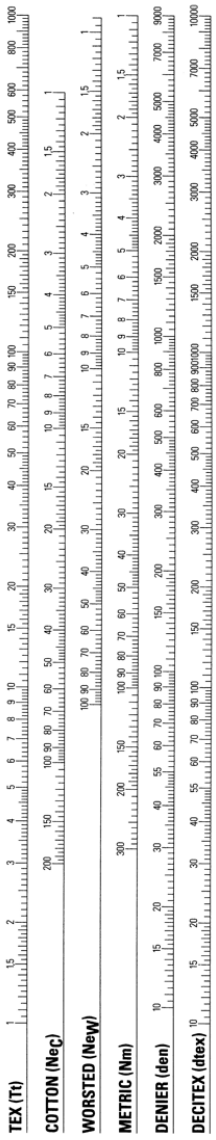
COTTON (NeC)
Number of strands at 840 yd. per lb.

WORSTED (NeW)
Number of strands at 560 yd. per lb.

METRIC (Nm)
Meters per gram

DENIER (den)
Grams per 9000 meters

DECITEX (dtex)
Grams per 10000 meters

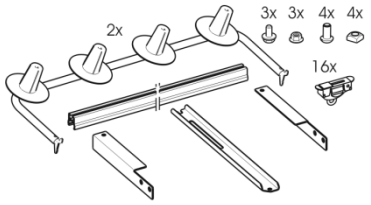
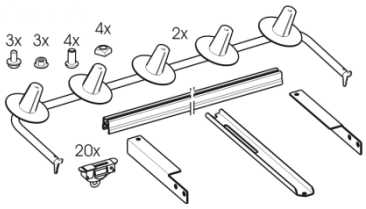


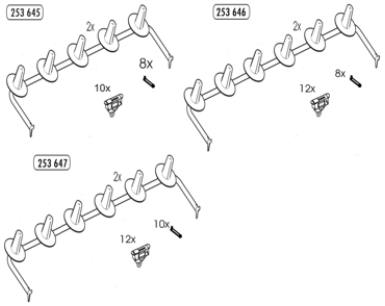
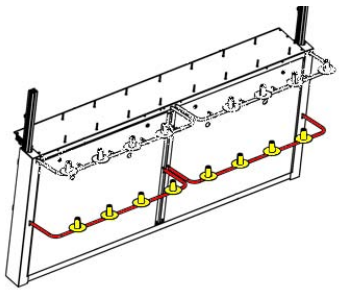
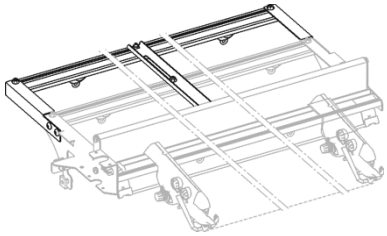
Tab. 8-8 Conversion table

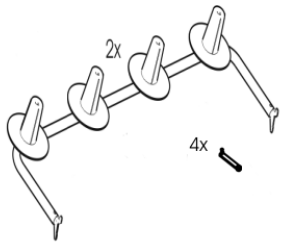
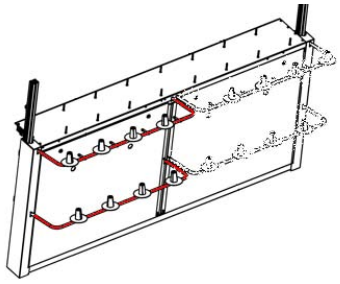
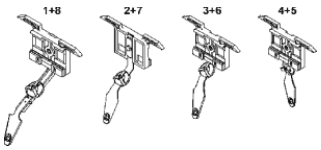
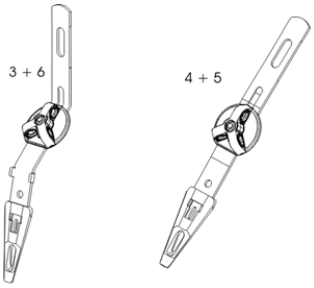
Due to the great variety of natural and synthetic fibers, it must be noted that yarns with a low specific weight are often more voluminous than yarns with a high specific weight. Therefore, the relationship dtex / den / Nm does not necessarily correspond to the conversion result.

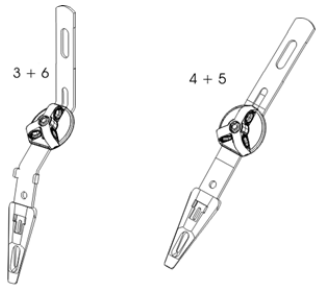
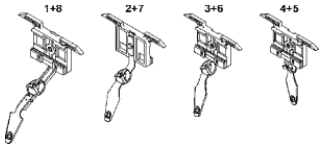
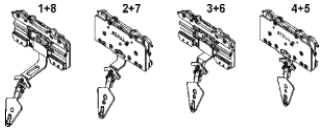
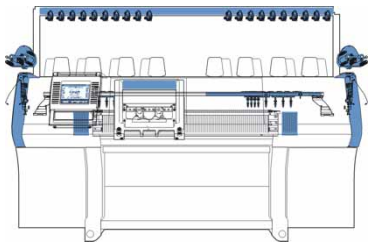
Notes

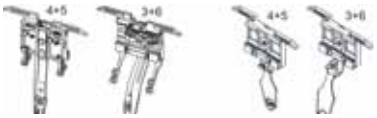
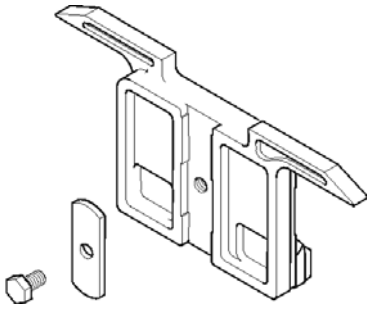
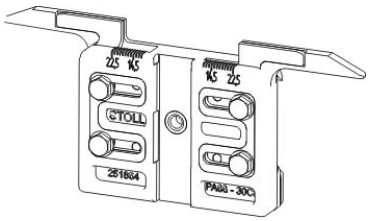
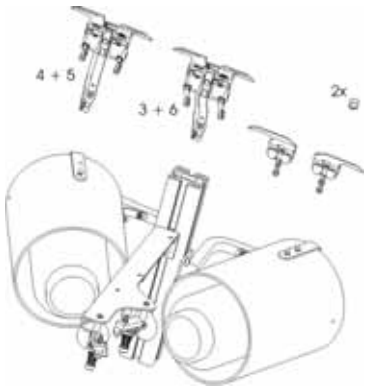
9 Special equipment

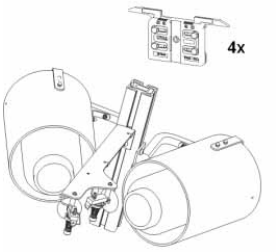
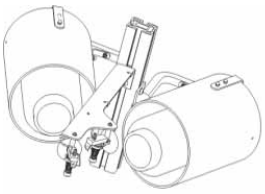
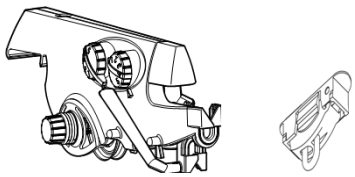
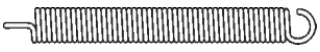
Designation	Id-No.	Machine type
2 additional bobbin boards for 4 yarn bobbins each and 1 yarn guide bar 	243 770	CMS 530 CMS 520
2 additional bobbin boards for 5 yarn bobbins each and 1 yarn guide bar 	243 777 243 776	CMS 740 CMS 822

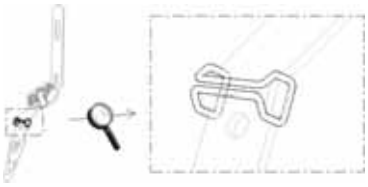
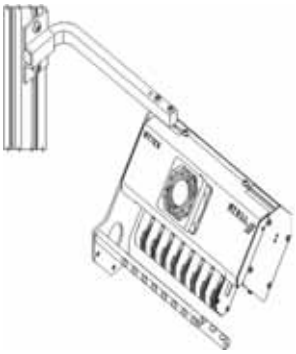
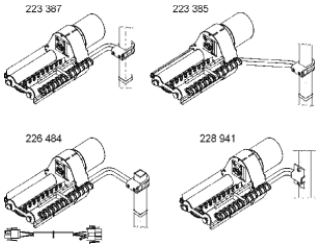
Designation	Id-No.	Machine type
2 additional bobbin boards (bottom)   Condition: The second yarn guide bar has to be available. 	253 645 253 646	CMS 740 CMS 830 C CMS 822

Designation	Id-No.	Machine type
2 additional bobbin boards (top, bottom)   Condition: The second yarn guide bar has to be available.	244 424	CMS 530 CMS 520 C CMS 520
Yarn carrier carriage 	See spare parts catalog	all CMS
Yarn carrier carriage for very sanding, abrasive yarns.  The eyelet is hard chrome plated. This prevents premature wear of the lower eyelet.	E 10-14: No. 3+6 -239,074 No. 4+5 -239,076 E 16-18: No. 3+6 -239,059 No. 4+5 -239,061	all CMS except CMS 830 C CMS 520 C

Designation	Id-No.	Machine type
Yarn carrier carriage for very sanding, abrasive yarns.  The eyelet is ceramic-coated. This prevents premature wear of the lower eyelet.	E 5: No. 3+6 -250,860 No. 4+5 -250,863 E 7-8: No. 3+6 -250,866 No. 4+5 -250,869 E 10-14: No. 3+6 -250,872 No. 4+5 -250,875 E 16-18: No. 3+6 -250,878 No. 4+5 -250,881	all CMS except CMS 830 C CMS 520 C
Yarn carrier carriage for ultra coarse yarns 	E 2-2.5: No. 1+8 - 231 856 No. 2+7 - 231 857 No. 3+6 -231,858 No. 4+5 -231,859	CMS 520 C
Shifting device for intarsia yarn carrier 	214 268	all CMS except CMS 420 E
Intarsia yarn carrier 	See spare parts catalog	all CMS except CMS 420 E
Conversion kit Intarsia yarn carrier Type 2 	E 5: 244 539 E 7-8: 244 540 E 10-14: 244 541 E 16-18: 245 005 E 7.2 / E 8.2: 254 955	CMS 530
	E 5: 254 896 E 7-8: 254 897 E 10-14: 254 898 E 16-18: 254 899	CMS 520
	E 5: 250 302 E 7-8: 250 303 E 10-14: 250 304 E 16-18: 250 305	CMS 822
	E 5: 254 912 E 7-8: 254 906 E 10-14: 252 694 E 16-18: 254 907	CMS 520

Designation	Id-No.	Machine type
Plating yarn carrier 	See spare parts catalog	all CMS
Plating yarn carrier (46 mm) - for plating with a standard yarn carrier 	244 998	all CMS
Plating yarn carrier - adjustable mesh width 	251 867	all CMS except CMS 830 C CMS 520 C
Assembly kit Plating kit 1 	E 5 E 2.5.2 E 3,5.2 E 5.2 left: 253 857 right: 253 858	all CMS except CMS 830 C CMS 520 C
	E 7 E 8 E 6.2 left: 253 859 right: 253 860	
	E 10 E 12 E 14 E 7.2 E 8.2 left: 253 861 right: 253 862	
	E 16 E 18 E 9.2 left: 253 863 right: 253 864	

Designation	Id-No.	Machine type
Assembly kit Plating kit 2 	left: 254 257 right: 254 258	all CMS except CMS 830 C CMS 520 C
Assembly kit Plating kit 3 	left: 253 965 right: 253 966	all CMS except CMS 830 C CMS 520 C
Yarn control device / Yarn guide bracket 	237 124 241581	all CMS
O-ring - for switching off the yarn brake  Area of application: For the processing of highly elastic yarn, e.g. lycra Measuring the yarn tension outside the safety cover	252 679	all CMS
Tension spring with E-5 (for insufficient tensioning force in slack tensioner) 	023 722	all CMS

Designation	Id-No.	Machine type
Wire bow (more exact yarn guidance with yarn carriers 2+7 and 3+6) 	250 243	all CMS
STIXX device  Measures the used yarn length and corrects the stitch length by adjusting the stitch cams, if necessary.	228 943	CMS 830 C CMS 822 CMS 740 CMS 530 CMS 520 C CMS 520
Friction feed wheel 	See spare parts catalog	all CMS
Retrofitting kit Short tuck (per system) 	E 3 / E 4: 243 840 E 5 / E 2,5.2 / E 3,5.2 / E 5.2: 243 841 E 7 / E 8: 243 842 E 10 / E 12 / E 14 / E 7.2: 243 843 E 6.2: 243 844 E 16 / E 18 / E 8.2 / E 9.2: 254 954	all CMS

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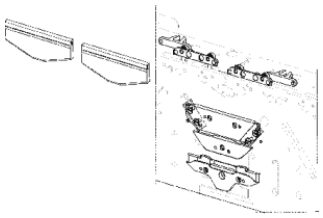
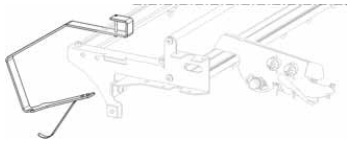
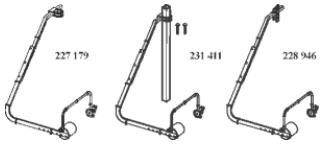
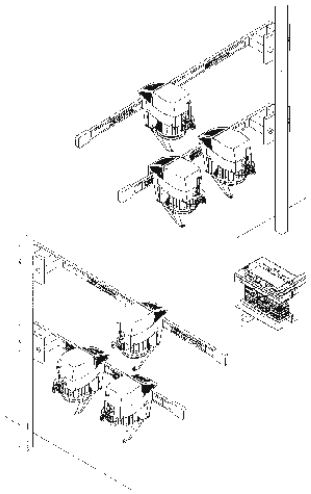
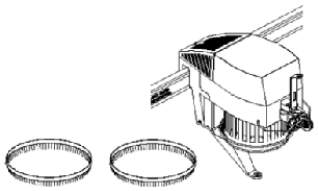
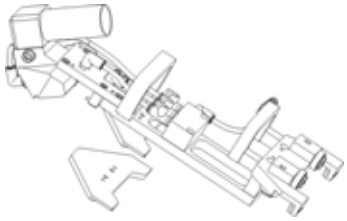
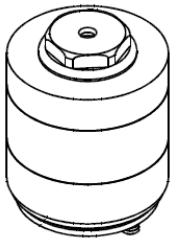
Designation	Id-No.	Machine type
Plush equipment  Special cams allow the knitting of plush.	E 5, 5.2, 7, 8: 218 779 E 6.2, 7.2, 10-14: 218 780	CMS 530 CMS 520
Bobbin holder 	244 204	all CMS
Bobbin holder  For the processing of highly elastic yarn, e.g. Lycra.	See spare parts catalog	all CMS
Front panel (fabric collection chamber) 	243 771	CMS 530 CMS 520 C CMS 520
	243 772	CMS 740
	243 773	CMS 830 C CMS 822
Keyboard and keyboard support 	244 558	all CMS except CMS 420 E
Trolley with shims 	202 197	all CMS

Designation	Id-No.	Machine type
SFE feed wheel assembly kit 	231 427	CMS 5XX CMS 7XX CMS 8XX
SFE feed wheel 	213 537	CMS 5XX CMS 7XX CMS 8XX
Cleaning apparatus 	251 593	CMS 822 CMS 740 CMS 530 CMS 520 C CMS 520 CMS 420 E
Signal light with horn 	251 153	CMS 420 E

Tab. 9-1 Special equipment

10 CMS 822 - Operating modes and particularities

This chapter contains information on:

- Operating modes of CMS 822 *(see page 10-1)*
- Unusual features in the Tandem with comb operating mode *(see page 10-7)*
- Installing operating system for CMS 822 *(see page 10-9)*
- Opening and closing the holding-down jacks *(see page 10-10)*

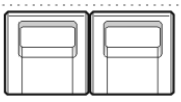
10.1 Operating modes of CMS 822

Three operating modes are possible with the CMS 822:

- Four-system machine operating mode *(see page 10-1)*
- "Tandem machine without comb" operating mode *(see page 10-2)*
- "Tandem machine with comb" operating mode *(see page 10-5)*

10.1.1 Four-system machine operating mode

The needle area covers the entire needle bed width of 84".



E 5 (2,5.2)	1	419
E 7 (3,5.2)	1	587
E 8	1	671
E 10 (5.2)	1	839
E 12 (6.2)	1	1007
E 14 (7.2)	1	1175
E 16 (8.2)	1	1343

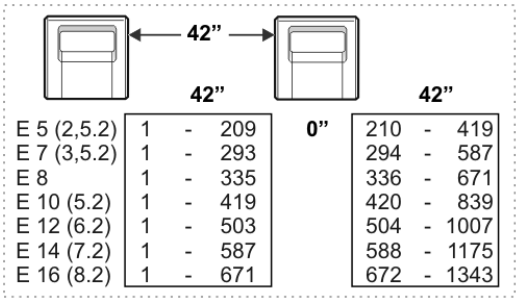
Fig. 10-1 Narrow coupling

No unusual features are to be taken into account in the knitting program. All four knitting systems can be used, and a SEN area is to be defined.

10.1.2 "Tandem machine without comb" operating mode

Coupling widths of 42" or 44" are possible with this operating mode.

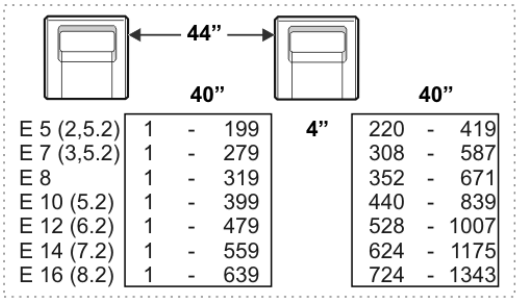
Coupling width 42"



E 5 (2,5.2)	1	-	209		210	-	419
E 7 (3,5.2)	1	-	293		294	-	587
E 8	1	-	335		336	-	671
E 10 (5.2)	1	-	419		420	-	839
E 12 (6.2)	1	-	503		504	-	1007
E 14 (7.2)	1	-	587		588	-	1175
E 16 (8.2)	1	-	671		672	-	1343

Fig. 10-2 Needle area for coupling width 42"

Coupling width 44"



E 5 (2,5.2)	1	-	199		220	-	419
E 7 (3,5.2)	1	-	279		308	-	587
E 8	1	-	319		352	-	671
E 10 (5.2)	1	-	399		440	-	839
E 12 (6.2)	1	-	479		528	-	1007
E 14 (7.2)	1	-	559		624	-	1175
E 16 (8.2)	1	-	639		724	-	1343

Fig. 10-3 Needle area for coupling width 44"

Knitting program

Unusual features in knitting program:

- The knitting program is generated for the left carriage with knitting systems "S1" and "S2". The needle selection is calculated internally for the left fabric piece and transferred to the right fabric piece. This corresponds to the functioning of a CMS 422 TC.

Setting knitting machine to operating mode

The "Tandem without comb" operating mode must be set in the "Machine configuration 2" window.

Key	Function
	Call up the "Main menu"
	Call up the "Service" menu
	Call up "Basic settings" menu
	Call up the "Machine configuration 2" window.
	Confirm input

Tab. 10-1 Keys for setting the operating mode

1. Call up the "Main menu".
2. Call up the "Service" menu.
3. Call up the "Basic settings" menu.
4. Call up the "Machine configuration 2" window.

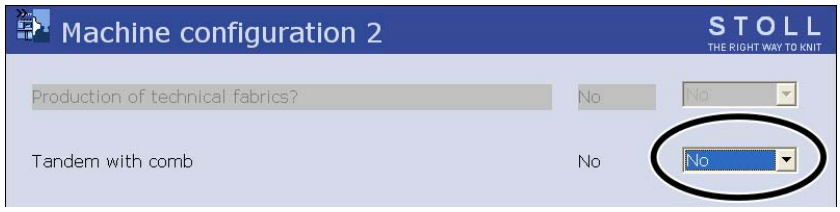


Fig. 10-4 "Tandem without comb" setting

5. Check the setting in the "Tandem with comb" field. "No" must be set for the "Tandem without comb" operating mode.
6. If the setting is "No", the operating mode is set properly. The setting process is complete. Call up the "Main menu" window.

   or

7. If the setting is "Yes", change it to "No". Confirm the input. A reference run must be carried out after the operating mode has been changed.

The "Clamping & cutting" menu is not active (gray) with the "Tandem without comb" operating mode.

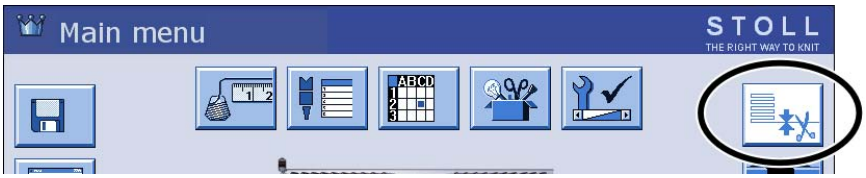


Fig. 10-5 Inactive "Clamping & cutting" menu

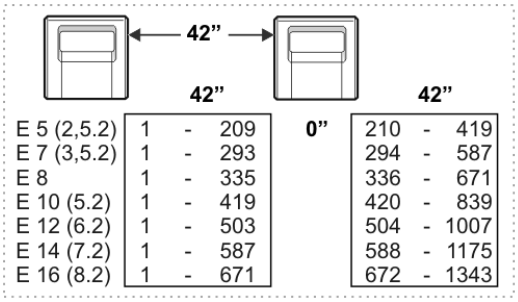
Further information:

- Carrying out reference run *(see page 4-59)*

10.1.3 "Tandem machine with comb" operating mode

Coupling widths of 42" or 44" are possible with this operating mode.

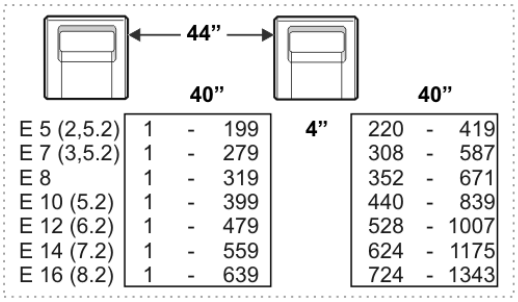
Coupling width 42"



E 5 (2,5.2)	1	-	209	0”	210	-	419
E 7 (3,5.2)	1	-	293		294	-	587
E 8	1	-	335		336	-	671
E 10 (5.2)	1	-	419		420	-	839
E 12 (6.2)	1	-	503		504	-	1007
E 14 (7.2)	1	-	587		588	-	1175
E 16 (8.2)	1	-	671		672	-	1343

Fig. 10-6 Needle area for coupling width 42"

Coupling width 44"



E 5 (2,5.2)	1	-	199	4”	220	-	419
E 7 (3,5.2)	1	-	279		308	-	587
E 8	1	-	319		352	-	671
E 10 (5.2)	1	-	399		440	-	839
E 12 (6.2)	1	-	479		528	-	1007
E 14 (7.2)	1	-	559		624	-	1175
E 16 (8.2)	1	-	639		724	-	1343

Fig. 10-7 Needle area for coupling width 44"

Knitting program

Unusual features in knitting program:

- Both carriages function as one carriage with a wide space between "S2" and "S3" with system sequence "S1 S2 S3 S4".
- The yarn carriers for the left fabric piece are positioned in the left yarn clamping and cutting device.
- The yarn carriers for the right fabric piece are positioned in the right yarn clamping and cutting device.
- The comb start is knitted in with a yarn carrier via both fabric pieces. The yarn carrier is transferred to the neighboring carriage via a swing stroke here.

The M1 supports program generation for two-piece knitting. Additional information is found in the "M1 Online Help" (e.g. under the keywords "CMS 322 TC-M", "CMS 822", "Tandem CCC").

Setting knitting machine to operating mode

The "Tandem with comb" operating mode must be set in the "Machine configuration 2" window.

Key	Function
	Call up the "Main menu"
	Call up the "Service" menu
	Call up "Basic settings" menu
	Call up the "Machine configuration 2" window.
	Confirm input

Tab. 10-2 Keys for setting the operating mode

1. Call up the "Main menu".
2. Call up the "Service" menu.
3. Call up the "Basic settings" menu.
4. Call up the "Machine configuration 2" window.

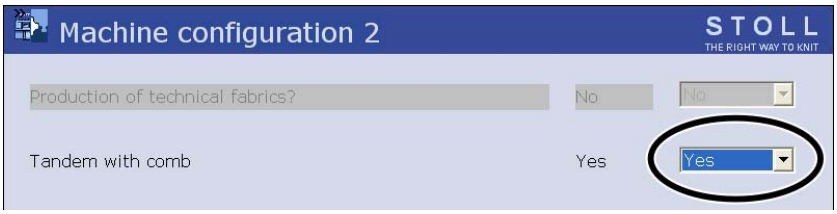


Fig. 10-8 "Tandem with comb" setting

5. Check the setting in the "Tandem with comb" field. "Yes" must be set for the "Tandem with comb" operating mode.
6. If the setting is "Yes", the operating mode is set properly. The setting process is complete. Call up the "Main menu" window.

   or

7. If the setting is "No", change it to "Yes". Confirm the input. A reference run must be carried out after the operating mode has been changed.

Further information:

- Carrying out reference run *(see page 4-59)*

10.2 Unusual features in the Tandem with comb operating mode

Switch needle selection off and on again

If the left fabric piece is defective, for example, needle selection of the left carriage can be deactivated so that the right fabric piece can be finished.

Key	Function
	Call up the "Main menu"
	Call up "Machine start" window

Tab. 10-3 Keys for calling up the "Machine start" window

1. Call up the "Machine start" window from the "Main menu".

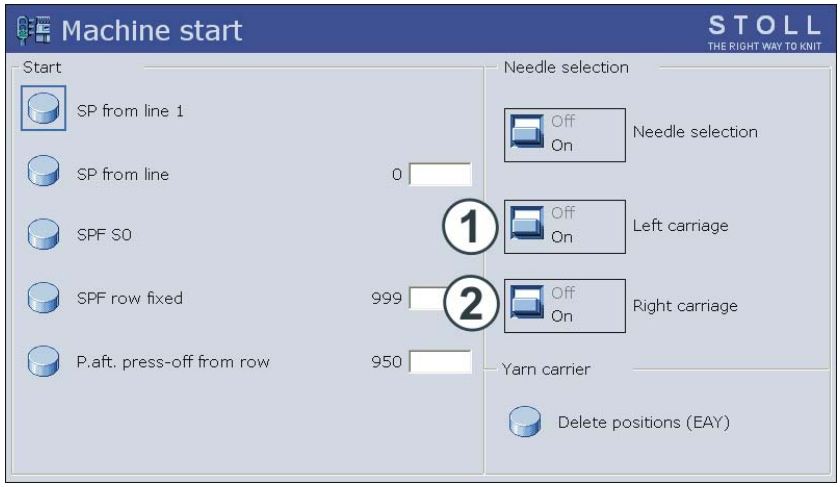


Fig. 10-9 Window "Machine start"

2. Deactivate needle selection of the corresponding carriage (left (1), right (2)).
3. The setting window for the "WM%"-value appears. The fabric take-down value must be adjusted, as only one fabric piece is produced. In order to decrease the take-down, input a negative value, for example "-50" and confirm the value.
4. Cast off the fabric of the deactivated carriage manually and remove from the fabric take-down and take-down comb.
5. Stop manually yarn carriers of the deactivated carriage which are located in the needle bed outside the needle bed or bring them into the clamp.
6. Continue production.
7. The needle selection must be reactivated manually when the next fabric piece is started. Production over several pieces with needle

selection deactivated is not possible. The reason for this is the comb thread, which is transferred from one carriage to the other in a swing stroke.

"Comb upward" command

This command ("=^=") may only appear in an empty tour (two knitting rows without knitting specifications). Here, the left or right carriage is exactly stopped in the center of the needle bed in such a way that the needle detector is not damaged by the comb take-down moving upward.

- Row 1: S0 =^=
- Row 2: S0

Staggering of yarn carriers

The following description is valid only when work is done with:"#L", "#R" ("#LM", "#RM")

It may happen that the yarn carrier positions are to be corrected while double-piece knitting.

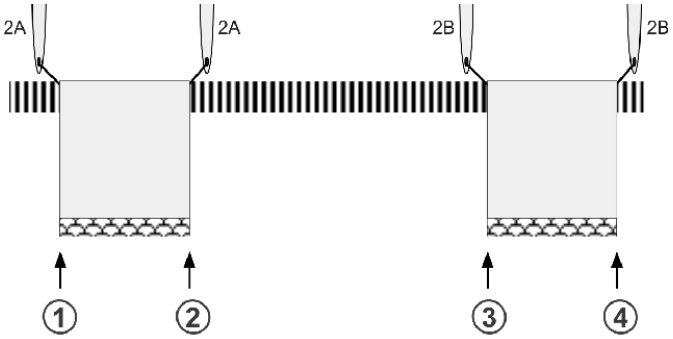


Fig. 10-10 Staggering of yarn carriers

In memory of: The CMS 822 functions as a four-system machine in this operating mode.

This means that a correction of the yarn carrier positions with two specifications must be carried out.

- The stop position of the yarn carrier is corrected with the "YD" specification outside the SEN area (e.g. YD2=8-8;). It is position "1" and "4" in the example above.
- The stop position of the yarn carrier is specified with the yarn carrier correction within the SEN area. The figure above shows specifications "Y-2A:K0-8;" and "Y-2B:K8-0;", for example.

The left value for yarn carrier "2A" and the right value for yarn carrier "2B" can have the value "0", as this value is not taken into consideration and the "YD" specification is in effect.

If work is carried out with "#L1", "#R1", "#L2" and "#R2", the stop positions ("YD") will be executed on the left and the right selvedges of the fabric of both parts.

10.3 Installing operating system for CMS 822

The CMS 822 is available in three machine types:

- As a normal machine
- As a multi-gauge machine
- As a knit and wear machine

When installing the operating system ensure that the corresponding machine type is specified in the "Machine configuration" window.

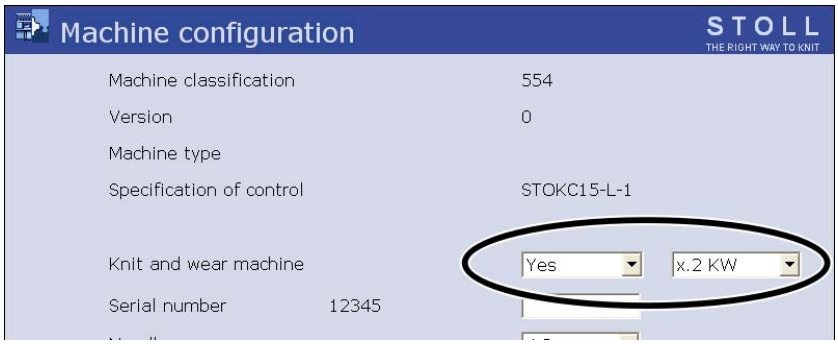


Fig. 10-11 "Machine configuration" window

Gauge	Knit and wear machine	Machine type
E 5 - 16	No	
E 2,5.2 - E 8.2	Yes	"x.2 KW" (knit and wear)
E 2,5.2 - E 8.2	Yes	"x.2 MG" (Multi-gauge)

Fig. 10-12 Setting the machine type

10.4 Opening and closing the holding-down jacks

In tandem operation one or both carriages are located in the needle bed. The holding-down jacks in the carriage area are closed. If the take-down comb is moved upwards, the holding-down jacks in the carriage area are open. In order to avoid this happening, the holding-down jacks are opened.

Fig. 10-13 "Holding-down jack control" window

Key	Function
	Call up the "Service" menu
	Call up the "Holding-down jack control" window
	Call up the "Main menu"

Tab. 10-4 Keys for opening the holding-down jacks

Opening the holding-down jacks:

1. Call up the "Service" menu from the "Main menu".
2. Call up the "Holding-down jack control" window
3. Tap the "Open" key in the "Open/Close jacks" field.
   The holding-down jacks in the carriage area are opened.
4. Move the take-down comb upwards. The needle detectors can be raised and the corresponding error message is displayed.
5. After work at the knitting machine has been terminated, a reference run of the holding-down jacks has to be carried out. To do so tap the "reference run jacks" key.
   The needle brushes are aligned again in the knitting direction and the holding-down jacks are closed.
6. Call up "Main menu".

11 Machine Management Tools

In our world the fast exchange of information has achieved a high level of significance. In order that the knitting machines lives up to the growing requirements, a series of auxiliary tools in the software have been taken up with the control OKC that can prove to be more efficient while working with the knitting machine and they are referred under the term "Machine Management Tools" comprehensively.

This chapter contains information on:

- Window Machine Management Tools *(see page 11-1)*
- Open the screen keyboard *(see page 11-3)*
- Remote control with the software VNC *(see page 11-4)*
- Send e-mail directly from the machine *(see page 11-12)*

11.1 Window Machine Management Tools

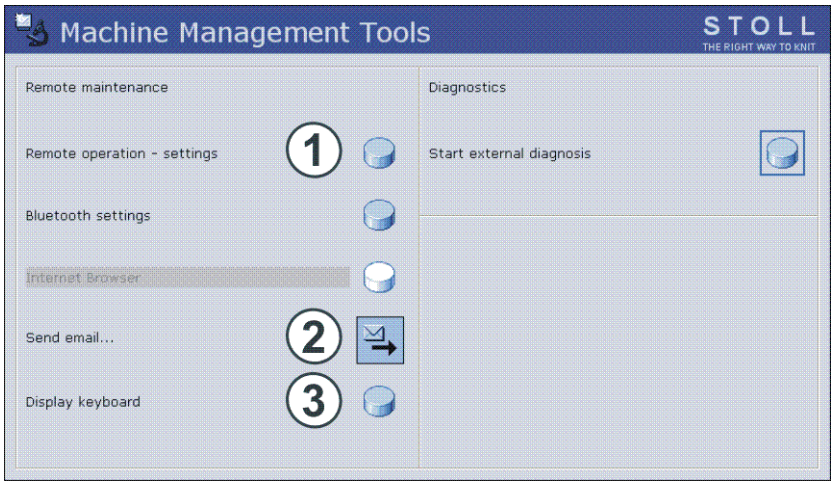


Fig. 11-1 Window "Machine Management Tools"

1 Opens the window "VNC Properties (Service-Mode)" for configuration of the remote control VNC.
2 Opens the window" send e-mail" to send the e-mails directly from the machine.
3 A screen keyboard opens.

Key	Function
	Call up the "Service" window
	Call up "Diagnosis" window
	Call up "Machine Management Tools" window

Tab. 11-1 Keys for calling up the Machine Management Tools

Call up Machine Management Tools:

1. In the "Main menu" tap on the key "Service".
2. In window "Service" tap on "Diagnosis" key.
3. In window "Diagnosis" tap on the "Machine Management Tools" key. The window "Machine Management Tools" opens.
4. Call up the desired machine management tool.

In the following sections is described how to set up the different tools and how to use them.

Further information:

- Open the screen keyboard *(see page 11-3)*
- Remote control with the software VNC *(see page 11-4)*
- Send e-mail directly from the machine *(see page 11-12)*

11.2 Open the screen keyboard

For inputs that are not integrated in the user interface, an external keyboard or a screen keyboard is required.

Open the screen keyboard

Key	Function
	Call up the "Service" window
	Call up "Diagnosis" window
	Call up "Machine Management Tools" window
	Call up the "Main menu"

Tab. 11-2 Keys for calling up "send e-mail" window

1. Call up the "Service" window.
2. Call up "Diagnosis" window.
3. Call up "Machine Management Tools" window.
4. Tap on the "Screen keyboard" switch.
   The screen keyboard is opened.

Fig. 11-2 Screen keyboard

With the screen keyboard you can make inputs as if an external keyboard has been connected.

You can find information for usage of the screen keyboard in the Menu "Help".

Tips for working with the screen keyboard:

- An "locked" key (e. g. alt) must be activated finally again in order that a double key function can be achieved.
- Various key layouts can be selelcted (Menu "Keyboard").

11.3 Remote control with the software VNC

You can use the remote control VNC to control a networked machine (VNC Server) by a remote computer (VNC client) as if you were standing in front of the machine and you can enter data via the touch screen.

Requirements:

- Network
- Networked and correctly configured ready-to-use machine
- Computer that serves as a client, is networked also (e. g. a Notebook)
- Software VNC Viewer for the client
- Software for the client:
  VNC Viewer or the Java Runtime Engine from Sun Microsystems Inc.

The Software VNC Viewer for the client can for e. g. be obtained from the following manufacturer websites:

- www.realvnc.com
- www.tightvnc.com
- www.ultravnc.sourceforge.net

The Java Runtime Engine for the client can be obtained from the manufacturer website www.java.com.

In the following sections is described how to activate and use the remote control VNC:

- Activate the remote control VNC on the machine *(see page 11-5)*
- Configure the remote control VNC on the machine *(see page 11-6)*
- Dtermine the IP address of the machine *(see page 11-7)*
- Install software VNC Viewer on the computer (e. g. a Notebook) *(see page 11-7)*
- Remote control with the VNC Viewer *(see page 11-8)*
- Remote control thhrough a web browser *(see page 11-10)*

11.3.1 Activate the remote control VNC on the machine

The remote control VNC is deactivated on the knitting machine by default.

Key	Function
	Call up the "Service" window
	Call up "Diagnosis" window
	Call up "Machine Management Tools" window
	Call up "Additional function keys"
 	Activate/deactivet "Remote control VNC"
	Call up the "Main menu"

Tab. 11-3 Keys to activate the remote control VNC on the machine

1. Call up the "Service" window.
2. Call up "Diagnosis" window.
3. Call up "Machine Management Tools" window.
4. Call up "Additional function keys".
5. Tap on "Remote control VNC" key.
   The activation of the remote control VNC gets is acknowledged by a message.

11.3.2 Configure the remote control VNC on the machine

- The remote control VNC is activated on the machine.
- The window "Machine Management Tools" is displayed.

1. Tap on the "Remote control - Adjustments" switch.
   The window "VNC Server Properties (Service-Mode)" opens with different tabs.

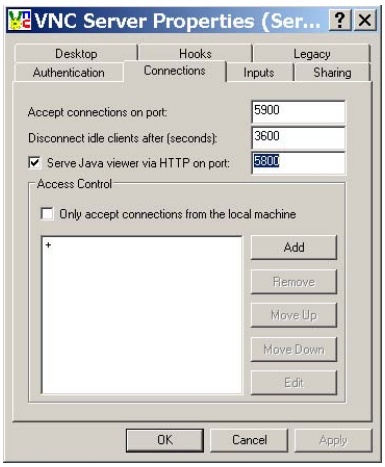


Fig. 11-3 Window "VNC Server Properties (Service-Mode)" with the tab "Connections"

2. Activate "Connections" tab.
   Here all the fields are set to their default values.
3. Should another port be activated as the standard port"5900" the number of the port is to be entered in the field "Accept connections on port:" .
4. If the machine has to be controlled remote also via a web browser, activate the check box "Serve Java viewer via HTTP on port:" and enter "5800" as port.

Any other adjustments on the various tabs are not necessary.

The value in the field "Disconnect idle clients after (seconds):" causes the automatic disconnection of a VNC connection when the value entered here is exceeded and within the mentioned time no operation is carried out. Thereafter, the connection can be established again without any problem. By default one hour = 3600 seconds is adjusted.

11.3.3 Determine the IP address of the machine

- The main menu is displayed.

Key	Function
	Call up the "Service" window
	Call up "Diagnosis" window
	Call up the "System info" window
	Call up the "Main menu"

Tab. 11-4 Keys for determining the IP address of the machine

1. In the "Main menu" tap on the key "Service".
2. In window "Service" tap on "Diagnosis" key.
3. In window "Diagnosis" tap on the "System Info" key.
   The window "System Info" opens.

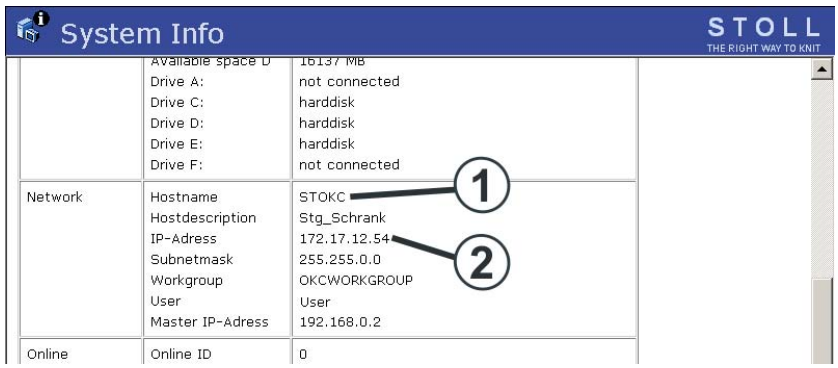


Fig. 11-4 "System info" window

4. Note IP-Adresse (2) and host name (1).

11.3.4 Install software VNC Viewer on the computer (e. g. a Notebook)

- The software VNC Viewer was obtained from the internet.

1. Start installation program.
2. Follow instructions of the installation program.
   Thereafter the software VNC Viewer is installed on the computer.

11.3.5 Remote control with the VNC Viewer

1. Start the software VNC Viewer on the computer.
   The window "VNC Viewer: Connecting Details" opens.

Fig. 11-5 Window "VNC Viewer: Connection Details"

2. Enter the noted IP address of the machine in the field "Server".

When your network makes the "Naming Service" available, instead of the IP address the host name can also be entered.
If another port as "5900" was entered during configuration of the remote control VNC on the machine the port must be entered alongwith e. g. 172.17.12.54:5903.

3. In order to configure the software VNC Viewer when needed, click on the button "Options".
   The window "VNC Viewer Options" opens.

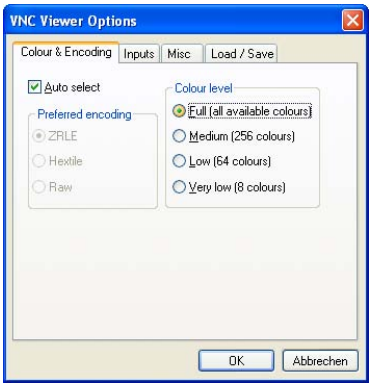


Fig. 11-6 Window "VNC Viewer Options", tab "Colour & Encoding"

4. In order that all colors are displayed, activate the Option "Full (all available colours)" on the tab "Colour & Encoding" under "Colour level".
5. In order to make a small square visible as the mouse pointer alternative, deactivate on the tab "Misc" the check box "Render cursor locally".
6. To save the option adjustments, click on the button "Save" on the tab "Load / Save" under "Defaults".

You can find continutative instructions for configuration of VNC in the documentation of VNC.

7. Click on the " OK" button.
   The window "VNC Viewer: Connection Details" opens.
8. Click on the " OK" button.
   Now the user interface of the selected machine gets displayed.

Fig. 11-7 Display of the user interface of the machine

9. Operate the machine now from this window.

The machine can be operated simultaneously through the user interface of the machine or through the computer (VNC Client).

Further information:

- Configure the remote control VNC on the machine *(see page 11-6)*

11.3.6 Remote control through a web browser

When the Java Runtime Engine from Sun Microsystems Inc. is installed on the controlling computer (client), the access to a machine can be also be done through the web browser without the software VNC Viewer being installed.

By default the port "5800" is adjusted for this access on the VNC server on the machine and is activated in the server adjustment under "Serve Java Viewer".

Start remote control:

1. Start web browser e. g. the Internet Explorer.
2. Enter the following address as URL: http://<IP address of the machine>:5800
   A Java applet is run which is obtained as a alternative for the software VNC Viewer from VNC Server (machine).
   Then the web browser appears as follows:

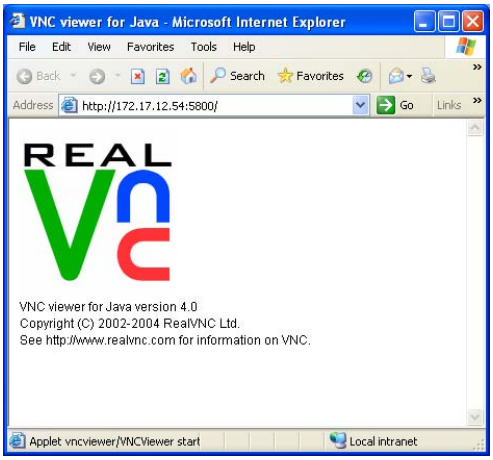


Fig. 11-8 Web browser with the Java applet from VNC

Above opens the window "VNC Viewer: Connection Details".
The IP address is entered automatically.

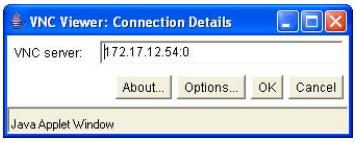


Fig. 11-9 Window "VNC Viewer: Connection Details"

3. Click on "Options".

The window "VNC Viewer: Connection Details" opens.

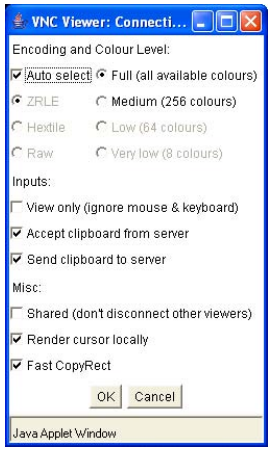


Fig. 11-10 Window "VNC Viewer: Connection Details"

4. So that all colors are displayed, activate under "Encoding and Colour Level:" the option "Full (all available colours)".
5. In order to activate the mouse pointer alternative, deactivate the check box "View only (ignore mouse & keyboard)" under "Inputs".
6. Click "OK".
   The user interface of the machine is opened in the web browser and can now be operated from here.

Fig. 11-11 Display of user interface of the machine in the window "Java applet"

The machine can be operated through the user interface of the machine or in the window "Java applet" simultaneously.

11.4 Send e-mail directly from the machine

In the window "send e-mail" e-mails can be written and sent directly from the machine.

For this purpose the machine must be connected to the internet or to a network with a mail server. Call up your network administrator in order to install this function.

Call up window send e-mail

Key	Function
	Call up the "Service" window
	Call up "Diagnosis" window
	Call up "Machine Management Tools" window
	Call up "send e-mail" window
	Call up the "Main menu"

Tab. 11-5 Keys for calling up "send e-mail" window

1. Call up the "Service" window.
2. Call up "Diagnosis" window.
3. Call up "Machine Management Tools" window.
4. Call up "send e-mail" window.
   The window "send e-mail" opens.

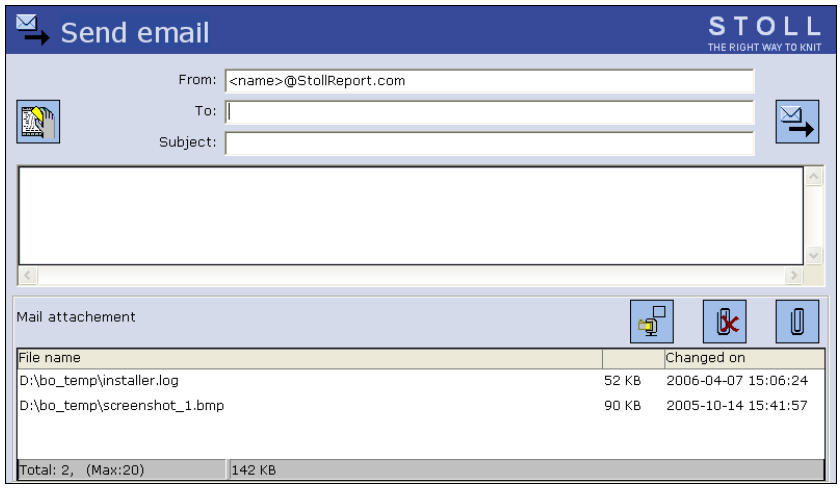


Fig. 11-12 Window "send e-mail" on the machine

Entries	Explanation
	Key "Delete all entries" (except the entry in the field "from").
	Key "send e-mail".
From	Sender of the message. Here the machine name is entered by default as the sender. If you are expecting an answer to the e-mail, enter a valid e-mail address here as the machine cannot receive any e-mails.
To	Receiver of the message. Multiple receivers are to be separated by semicolon (;).
Subject	Subject of the message.
	Field for entering the content of message.
Mail attachment	
 	Key "Unzipped": In the field "File name" displayed files are attached unzipped to the message. Key "Zipped": In the field "File name" displayed files are zipped before they are attached to the message.

Entries	Explanation
	Key "Delete marked entry" (in the field "File name").
	Key "Mail attachment": Opens the window " Mail attachment" for selection of files (for example Bitmaps, Logfiles, Zipfiles) that can be attached to the message. The file names are displayed in the field "File name " subsequently.
File name	Display of file(s) that can be attached to the message.

Write e-mail

Use the virtual keyboard for input.

1. Enter a sender address in the field "from".

If you are expecting an answer to the e-mail, enter a valid e-mail address here as the machine cannot receive any e-mails.

2. In the field "To" enter the e-mail address of the receiver.
   Multiple receivers are to be separated by semicolon (;).
3. In the field "Subject" enter the subject of the message.
4. In the field below the field "Subject" enter the content of the message.

With the key "Delete all entries" you can delete all entries in all fields of the window "Window send e-mail" (except the entry in the field "from").

Attach files to the e-mail

You can attach any files to an e-mail which are sent with the message. In order to reduce the size of the file, the files to be attached can be zipped (compressed).

1. Tap on "Mail attachment"key.
   The window "Mail attachment" opens.

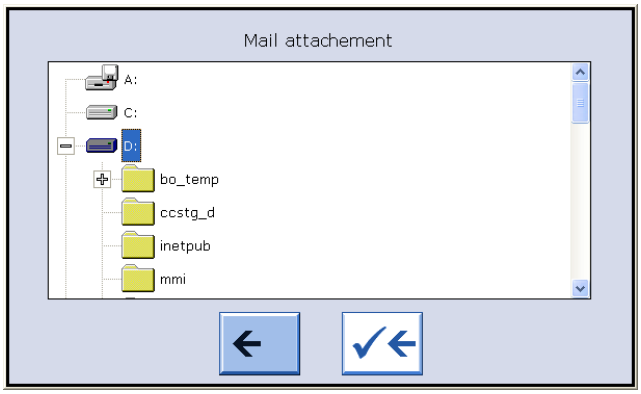


Fig. 11-13 Window "Mail attachment":

2. In window "Mail attachment" select the file that has to be attached.
3. Confirm the selection.
   The file is displayed in the field "File name ".
4. If additional files are to be attached, repeat the steps 1 to 3.
5. If the files in the field "File name" are to be attached zipped to the e-mail, tap "Zipped" key.

   - or -

➜ If the files in the field "File name" are to be attached unzipped to the e-mail, tap "Unzipped" key.

In order to remove a file from the field "File name" mark this file and then tap on the key "Delete marked entry".

Send e-mail

- Sender and receiver addresses have been entered correctly.
- The message is entered.
- The e-mail attachments are selected.

➜ Tap on "Send e-mail"key.

The e-mail is sent with the attachments.

Notes

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