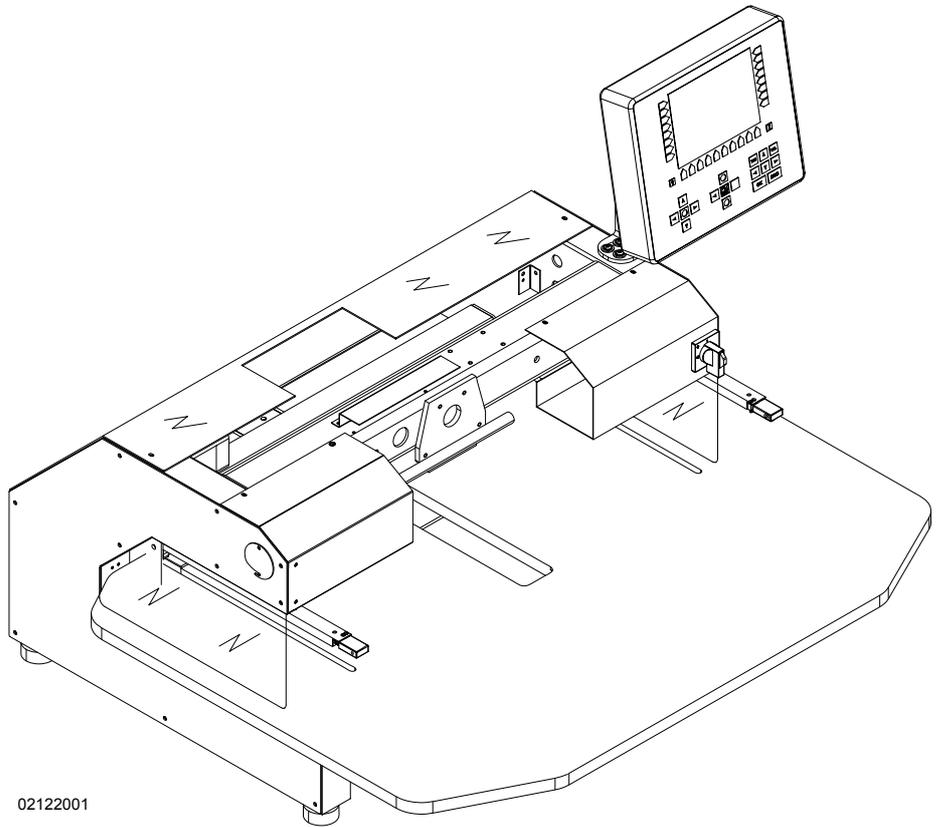


# Operator's guide



02122001

## SPRINT series machine

Version 1.0

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## 1. Safety guidelines

This chapter contains a summary of the principal rules of behavior that must be observed in order to exclude the risk of injury to yourself and others. It is therefore essential that you read this chapter carefully and thoroughly.

The safety guidelines, together with the relevant regulations governing safety at work, must be observed by all personnel working with the embroidery machine.



### 1.1 Safety instructions in operator's guide

The operator's guide contains various remarks under the following headings: "DANGER", "CAUTION" and "NOTE".

These are differentiated as follows:

**DANGER**

**Safety instructions labeled "Danger" must be observed in order to avoid the risk of personal injury.**



**Risk of injury from electric shock.**



**Danger from suspended loads.**



**This symbol marks instructions in the operator's guide whose infringement can give rise to personal injury or damage to property.**

## CAUTION



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**Risk of crushing by moving machine parts.**



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**Risk of piercing by moving mechanical parts (needles, borers).**



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**Risk of burning by hot components (magnets, motors).**

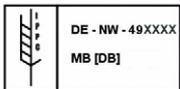
## NOTE

**Instructions labeled “Note” must be observed to avoid malfunctions/operating errors.**



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**Indicates waste disposal regulations and procedures.**



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## 1.2 Prescribed use

The embroidery machine is designed for industrial use. It is intended for finishing textiles and similar materials by embroidering. If the machine is fitted with the requisite auxiliaries, it can also embroider sequins and cord, and execute boring patterns.

The machine can be used with textile fabrics and threads that are customary in embroidery. Our customer service organization will be pleased to advise you, and is also available for testing unfamiliar material combinations on your behalf.

On principle, do not use the machine for purposes other than described in the operator's guide. It must **not** be used, for example, as a support surface or in place of a step ladder. Utilization for other than the intended purpose can give rise to risks of personal injury and material damage.

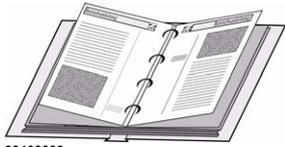
### Electromagnetic compatibility

**CAUTION**

**This machine is a class-A device. It can cause radio interference in residential areas; in such cases the operator may be required to take appropriate measures.**

## 1.3 Operational safety

The embroidery machine is designed according to modern principles. Its electrical equipment complies with the stringent German VDE regulations. Numerous design provisions have been made to improve safety.



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Design provisions cannot, however, exclude all risks. The embroidery machine must therefore be operated only by thoroughly instructed personnel familiar with the operators guide, safety guidelines and relevant accident prevention regulations.'

## 1.4 Regulations concerning safety at work

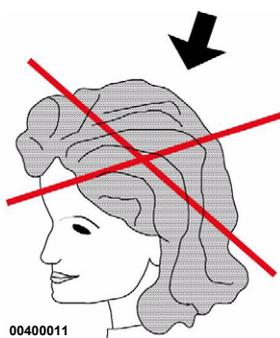
- In addition to the present safety guidelines, observe all the mandatory accident prevention regulations that apply in the country of use and at the operating location as well as the recognized technical rules for safe working practices. **The valid regulations must be known and accessible to all those entrusted with working at the machine.**



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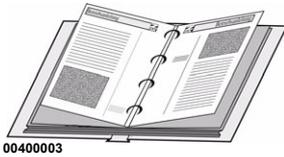
## 1.5 All work at and with the machine

- Wear close-fitting clothes and, if you have long hair, a hair net or suitable headgear when working at the machine. Do not wear jewelry. Wide sleeves, loose hair, rings or chains can become caught or entangled in moving machine parts.
- Wear shoes with non-slip soles in order to avoid the risk of falls.



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## 1.6 Operation



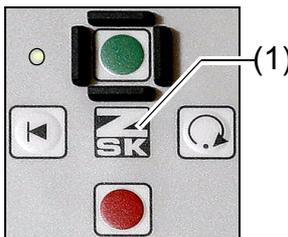
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The machine is to be operated only by thoroughly instructed personnel. For instruction purposes we recommend attending an operator training course run by ZSK Stickmaschinen GmbH. **In any case, before commencing work with the machine, make yourself familiar with the proper operating practices with reference to the operator's guide.**

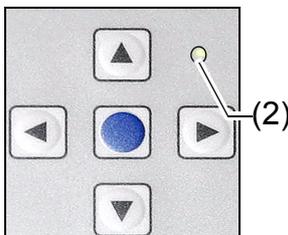
### 1.6.1 Essential operations before any manual work

**Equipping and setting-up work, conversions (between tabletop, cylinder arm and cap embroidery on tubular system machines, for instance), eliminating needle and thread breaks:**

#### NOTE



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**As a matter of principle, carry out such tasks *only* when the machine is *at a standstill*. Certain tasks involve switching off the machine and removing the mains plug first. Ensure compliance with the relevant instructions in the operator's guide.**

**Before working on the stationary machine with the main switch on, switch on the pantograph positioning keys by pressing the ZSK key (1) (LED (2) next to the keys lights up).**

**In this setting, you can operate the pantograph manually, but *cannot* start the machine inadvertently.**

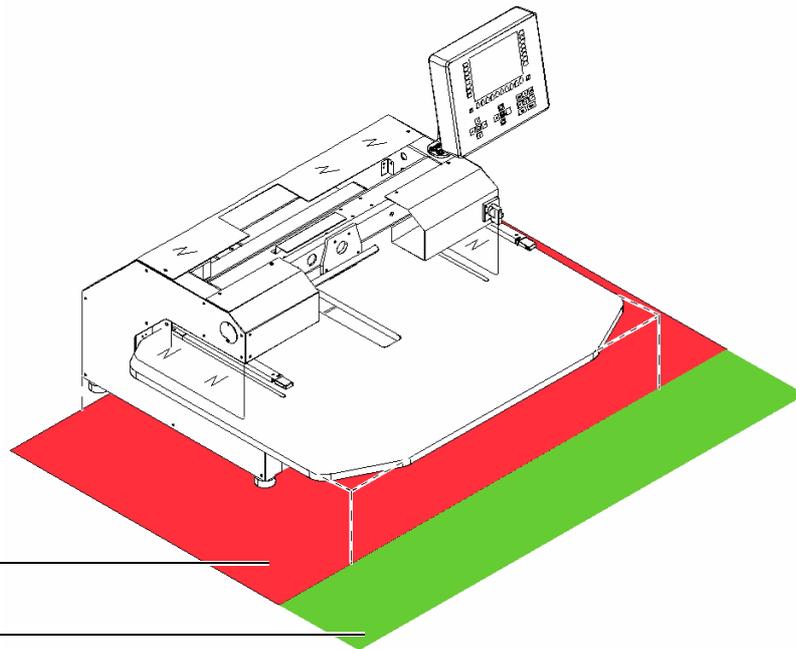
## 1.7 Embroidering

**DANGER**

**Do not remove any machine covers – they are provided for your safety. See Machine overview.**

- As a general principle, operate the machine from the front long side. **Each time before starting** the machine, make certain that nobody is in the vicinity of its moving parts.

Figure 1.1:  
Work areas



1.1-1

1.1-2

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- Users are allowed to enter this area (1.1-1) **only** when the machine is switched off.
- This area (1.1-2) can be entered for monitoring purposes while the machine is running.



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- Keep hands away from **moving parts** during embroidering. There is a risk of serious injury especially in the vicinity of the **needles, borers, take-up levers** and **rotary hooks**.
- **Stop the embroidery machine before all manual operating procedures at the machine**, even when simply removing fluff or loose threads from the start of embroidery. Consider your own safety at all times.
- **Never thread the upper threads while the machine is running.**

Figure 1.2:  
Working range of  
pantograph

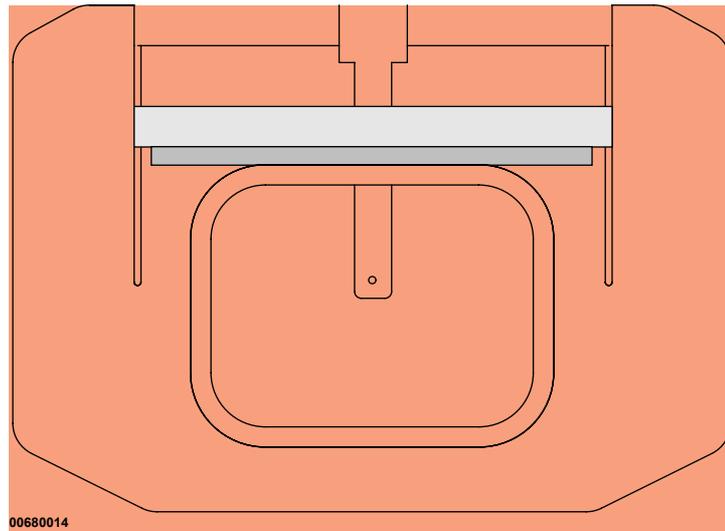
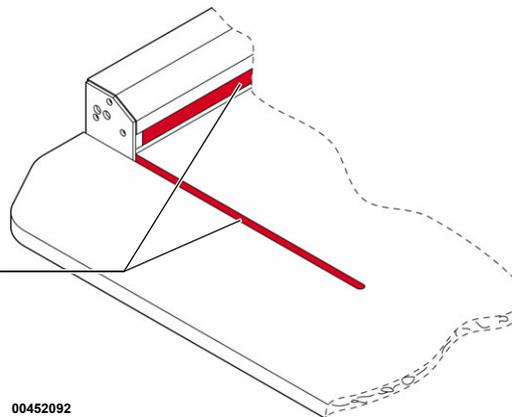


Figure 1.3:  
Risk of crushing,  
pantograph guide slot

1.3-1



- Keep your hands well away from pantograph guide slot (1.3-1) because of the risk of injury. See Fig. 1.3.
- Do not support yourself by the work table.

- Do not place any objects on the embroidery machine or work table. They could be pushed off the work table by movements of the pantograph. Objects that enter the pantograph guide slot can cause operating malfunctions or damage the machine.
- To prevent unauthorized intervention, **never leave the embroidery machine running unsupervised.**

## 1.8 Cleaning and maintenance

Insofar as they are described in the operator's guide, cleaning and maintenance tasks must be carried out only by appropriately instructed personnel.

More extensive maintenance and repair tasks must always be carried out by service personnel that has been trained and accordingly equipped by ZSK Stickmaschinen GmbH because this work requires the application of special knowledge and resources.



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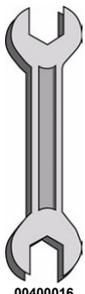
- **Always** disconnect the power supply before carrying out cleaning and maintenance work.
- The machine is at zero current only when the mains plug is pulled out **and after a delay of at least 30 seconds**.
- Observe the regular servicing periods laid down in the operator's guide.

## 1.9 Repairs and modifications

Repair and modification work must be carried out only by service personnel that has been instructed and trained by ZSK Stickmaschinen GmbH. Note the following:

- Use only genuine spare parts and accessories or parts that have been approved by ZSK Stickmaschinen GmbH.
- The machine must not be started up until it is fully assembled with all safety covers and devices installed.
- Independent changes and modifications to the machine are not permitted for safety reasons. Such alterations can invalidate the CE Conformity Declaration.

Modification work does **not** include the conversion tasks described in the operator's guide (e.g. changing between tabletop, cylinder arm and cap embroidery).



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## 2. Unloading, unpacking and handling

### 2.1 For your safety

**CAUTION**

The machine is to be lifted only by 4 persons, each of whom can lift at least 25 kg.

Make certain that the table is capable of carrying the load (at least 300 kg). In case of doubt, please consult the manufacturer or supplier of the table.

### 2.2 Unloading

#### 2.2.1 Consignments delivered in a transport crate

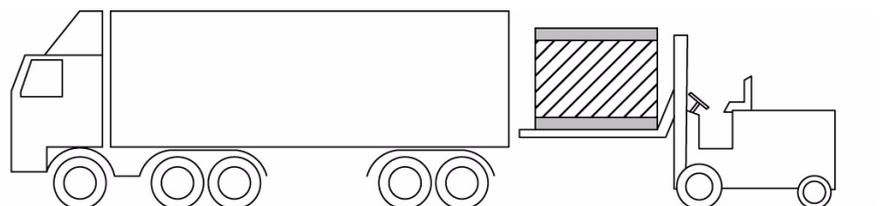
**CAUTION**



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Figure 2.1:  
Unloading by fork-lift  
truck

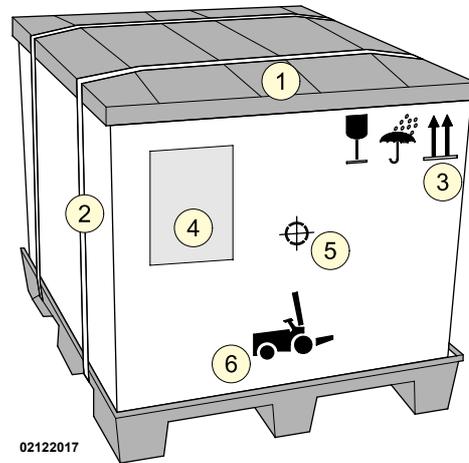
In view of its weight, lift the crate off the truck with a fork-lift truck or ropes and a crane.



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## 2.3 Unpacking

Figure 2.2:  
Transport crate



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- (1) Lid
- (2) Lashing straps
- (3) Arrows pointing upward
- (4) Unloading instructions
- (5) Symbol indicating approximate position of center of gravity
- (6) Insert locations for lifting forks

- Remove lashing straps (2).
- Lift off lid (1).
- Remove all individual parts.
- Remove the packing material and desiccant sachets.

## 2.4 Moving to the installation location

**CAUTION**

For safety reasons, if the machine is delivered in a transport crate, move the machine to the installation location with a forklift or stacker truck before detaching it from the floor of the crate if possible.

Figure 2.3:  
Removing lashing straps



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- Remove the lashing straps (1) that secure the control cabinet and machine to **the pallet**.

## 2.5 Attaching carrying handles

### NOTE

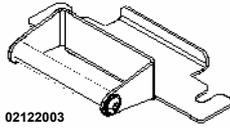
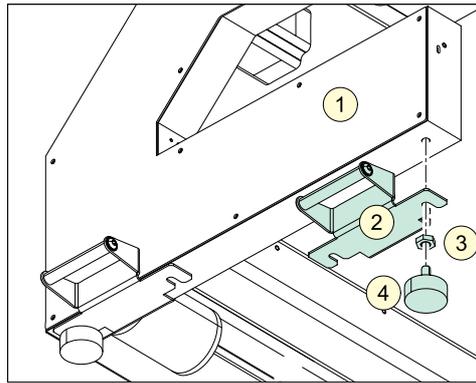


Figure 2.4:  
Installing carrying handles  
(view from below)

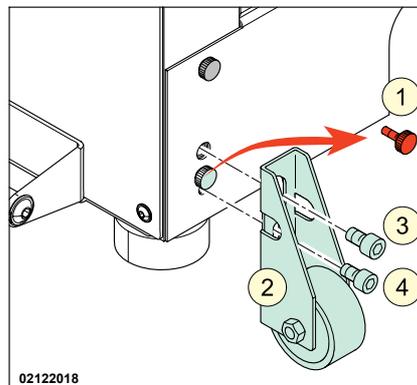
If the machine is being delivered in a transport crate, the machine carrying handles are detached for space reasons. The handles form part of the delivery scope.



- Slacken off nut (3) on machine foot (4) and create a gap between the nut and the frame.
- Insert carrying handle (2) between frame (1) and nut (3) and gently ease into contact with the frame.
- Make nut (3) hand tight against the carrying handle.
- Attach a carrying handle to each corner of the frame.

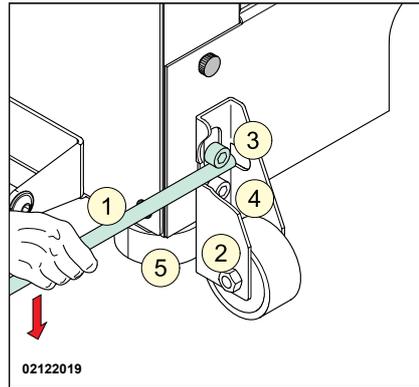
## 2.6 Casters (optional)

Figure 2.5:  
Installing casters,  
illustration: back of  
machine, left



- Slacken off and remove bolt (1).
- Attach caster (2) and loosely fasten screw (4).
- Insert and tighten screw (3).

Figure 2.6:  
Aligning caster  
(section view)



- Push bar (1) through the opening in the side of caster (2) so that it rests underneath the head of top screw (3).
- Apply downward pressure to bar (1) until machine foot (5) is raised.
- Tighten screw (4).

Repeat this procedure on the other side.

### After moving the machine

- Slowly slacken off screws (4).
  - ⇒ The machine feet are lowered to the floor.
- Detach screws (4) and (5) and casters (2).
- Insert bolt; see *Fig. 2.5* item (1).

## 2.7 Disposing of packaging materials

### NOTE

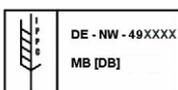
**Dispose of the materials in compliance with national and local law.**

**Keep the parts that make up the crate in case required for service purposes.**



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IPPC symbol



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- The wooden packaging is made almost entirely from natural, non-toxic materials and can be disposed of accordingly. Other treatment guidelines apply in a small number of specific countries. Advice about these can be obtained locally from the relevant authorities.
- Packaging paper and foil can be reused and should be recycled.
- The desiccant bags contain a natural salt that can be disposed of together with domestic refuse.

## 3. Setting up and aligning

### 3.1 Setting up machine

#### NOTE



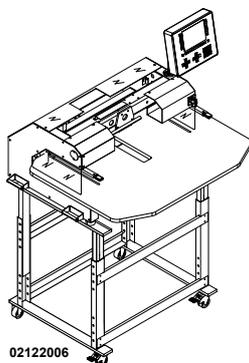
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All the fastening elements (bolts, washers, cable ties etc.) are located together with the accessories.

#### Note the following:

- Place the embroidery machine only on a solid surface of **sufficient load carrying** capacity (e.g. desk, workbench etc.). Make sure that the machine is standing securely.
- Each time it is installed, distribute the load between all the machine feet and align the machine.

### 3.2 Stand (optional)



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The stand for the machine can be adjusted to three different heights.

## 3.2.1 Assembling stand

Figure 3.1:  
Attaching casters



- Attach two casters (one with and one without a brake) to each end of the stand.

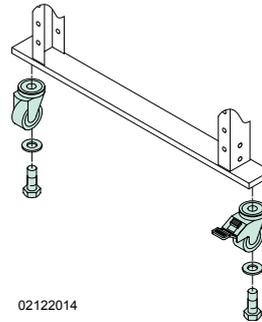


Figure 3.2:  
Assembling stand



- Fasten two of the side struts, with the broader flange at the bottom, to one end of the stand with the screws and associated washers, making them hand tight.

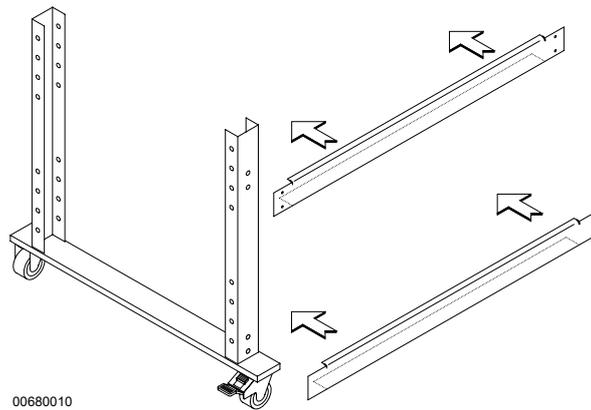
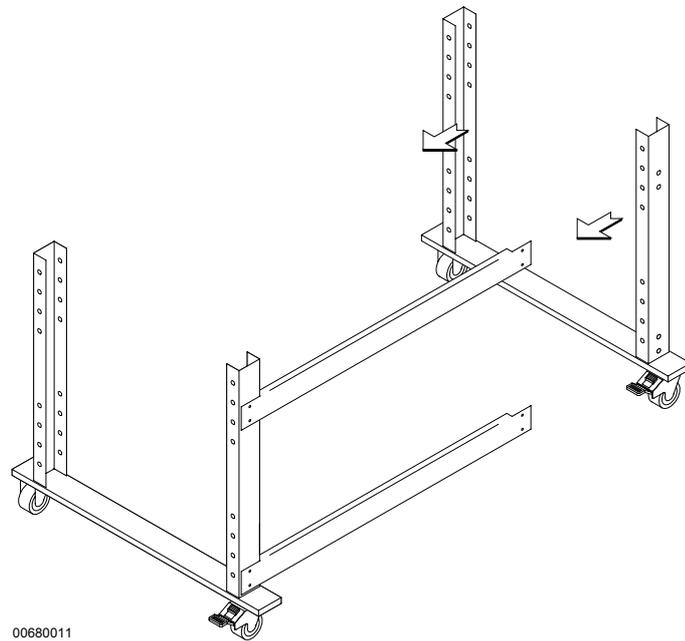


Figure 3.3:  
Assembling stand

- Loosely attach the other end of the stand to the pre-assembled side struts.



- Loosely attach the other two side struts in the envisaged positions on the opposite side of the stand with the screws and associated washers.

Figure 3.4:  
Assembling stand

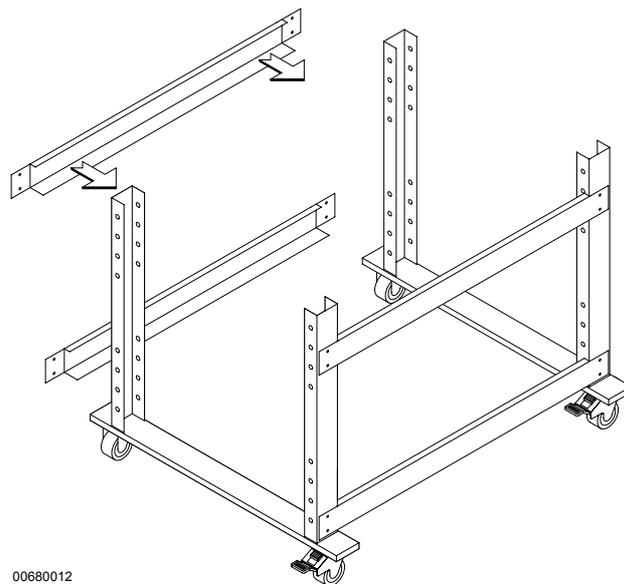
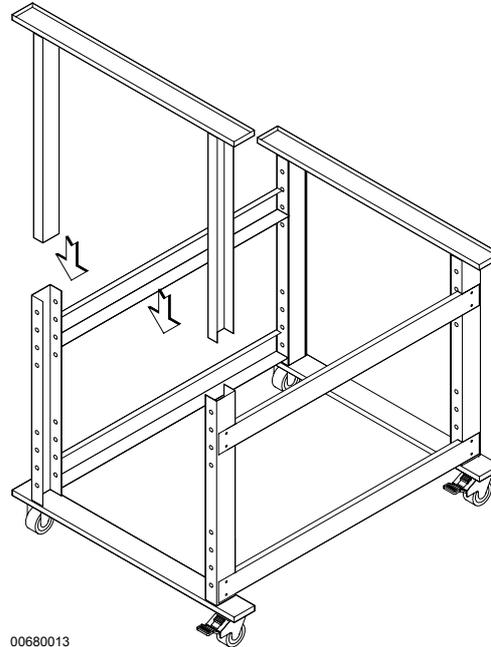


Figure 3.5:  
Assembling stand

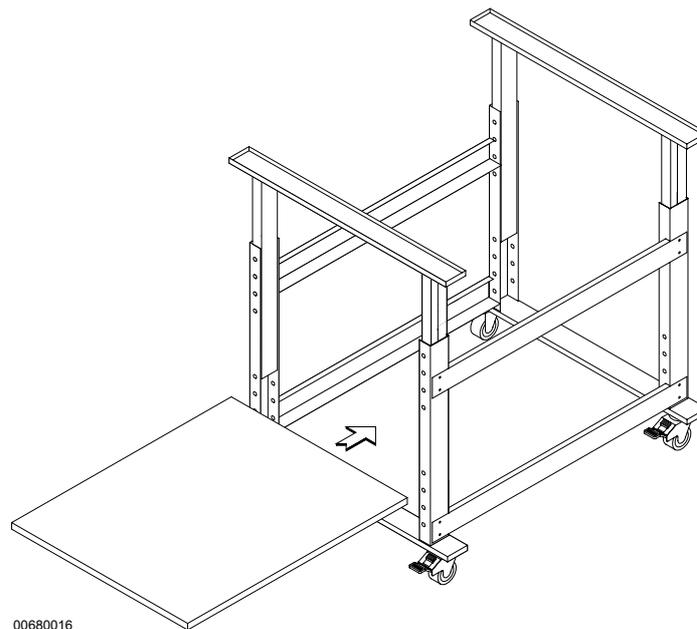
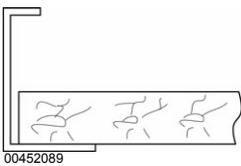


- Insert the variable-height machine rests into the ends of the stand from above.
- With the rests located at the desired height, fasten the screws with washers so that they are hand tight.



- Place the stand on a firm, flat surface.
- Tighten all the screws.
- Insert the shelf between the two bottom side struts of the stand.

Figure 3.6:  
Assembling stand

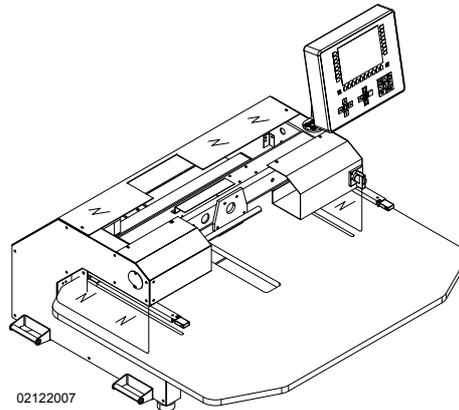


## 3.2.2 Installing machine

**DANGER**

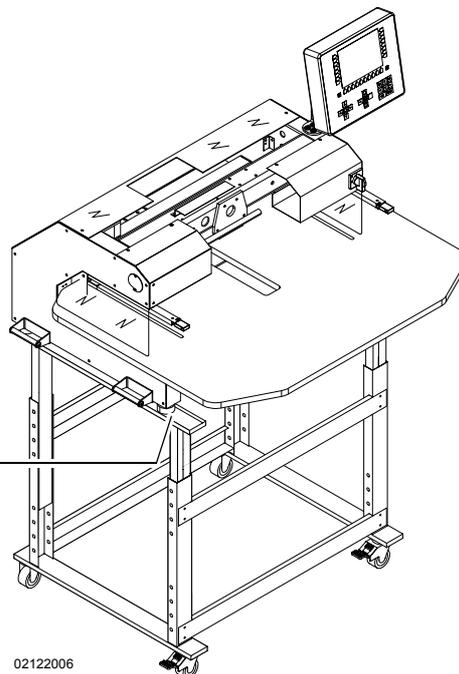
The machine is to be lifted only by 4 persons, each of whom can lift at least 25 kg.

Figure 3.7:  
Installing machine



- Lift the machine.

Figure 3.8:  
Machine on stand



- Place the machine on the stand by locating the machine feet in the provided seat (3.8-1).

## 3.2.3 Applying caster brakes

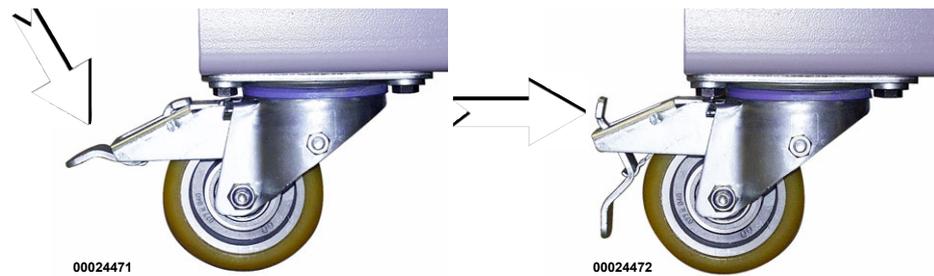
**CAUTION**

It is essential that you apply the caster brakes before starting up the machine otherwise it could roll away.

Figure 3.9:  
Typical casters

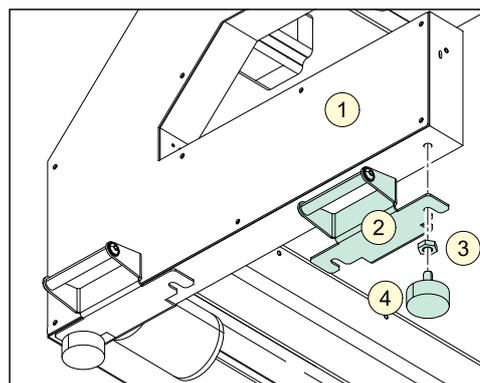
Left: released,  
braking

Right: **brake engaged**,  
releasing  
brake



## 3.3 Detaching carrying handles

Figure 3.10:  
Detaching carrying handles  
(view from below)

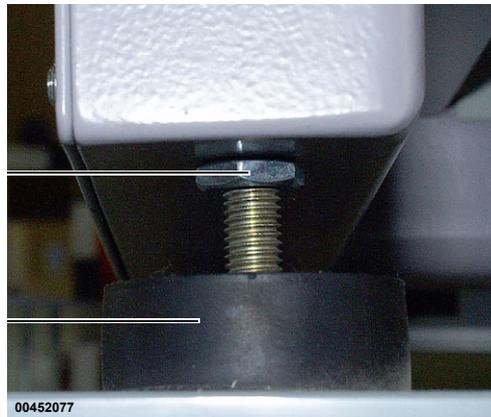
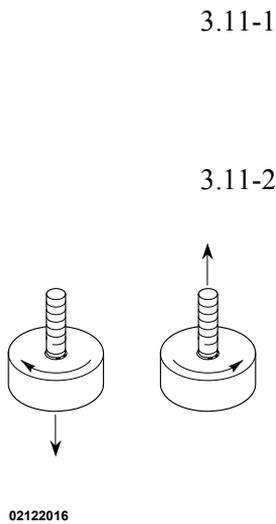


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- Slacken off nut (3) on machine foot (4) and create a gap between the nut and the frame.
- Take out carrying handle (2).
- Tighten nut (3) against frame (1) so that it is hand tight.
- Detach the carrying handle from each corner of the frame.

## 3.4 Aligning machine feet

Figure 3.11:  
Machine foot, adjusting



- Slacken off nut (3.11-1).
- Rotate machine foot (3.11-2) to the desired position (see sketch).

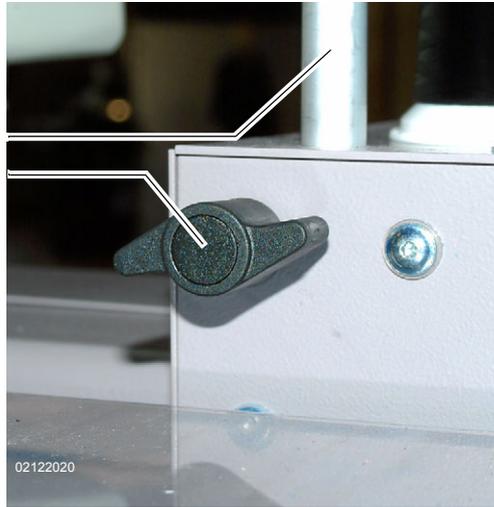
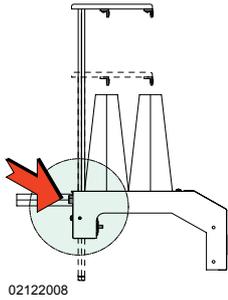
Each time it is installed, distribute the load between all the machine feet and align the machine.

- Tighten nut.

## 3.5 Adjusting yarn rack (e.g. FA head)

Figure 3.12:  
Yarn rack,  
adjusting height

3.12-1  
3.12-2



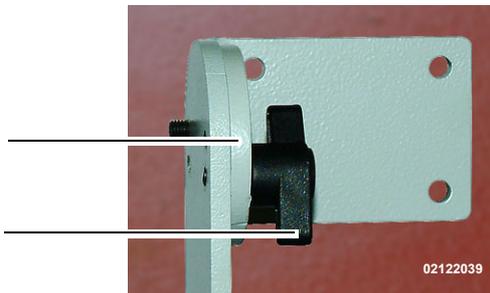
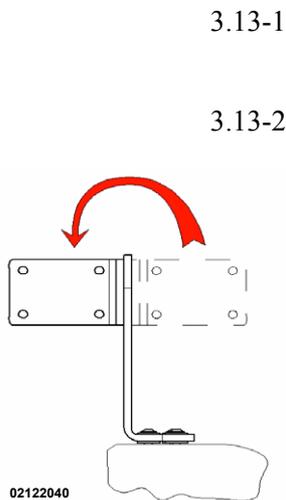
- Slacken off screws (3.12-2).
- Adjust yarn rack (3.12-1).
- Tighten screws (3.12-2).

### NOTE

If the yarn rack is not moved to the top position, an obstruction can occur during a color change.

## 3.6 Installing control unit

Figure 3.13:  
Holder in transit position



- Slacken off and remove screw (3.13-2).
- Rotate top holder bracket (3.16-2) through 180°.
- Insert screw (3.13-2) and make hand tight.



- Attach the control unit by inserting the threaded pins on the rear panel into the appropriate holes in the holder; see Fig. 3.14.

Figure 3.14:  
Rear of control unit

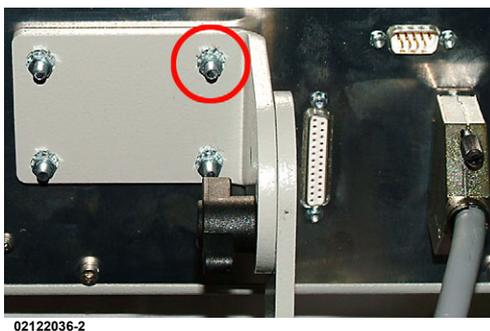
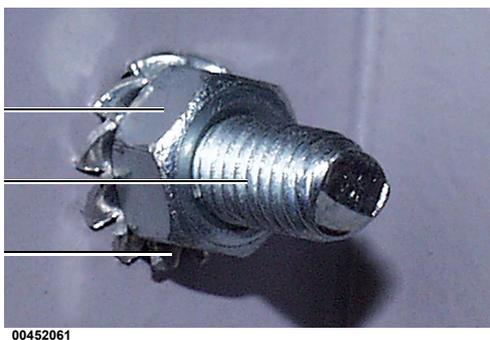


Figure 3.15:  
Rear of control unit

3.15-1

3.15-2

3.15-3



- Place serrated lock washers (3.15-3) on threaded pins (3.15-2).
- Tighten nuts (3.15-1).

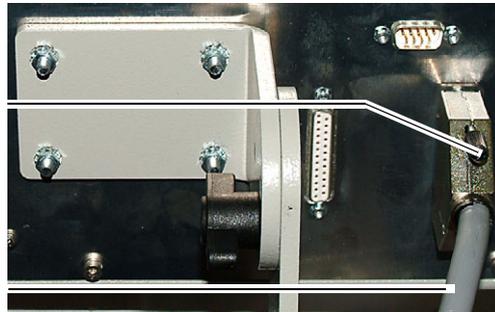
## 3.6.1 Connecting cables

### Control unit

Figure 3.16:  
Rear of control unit

3.16-1

3.16-2



02122038-1

- Connect cable (3.16-2) to rear of control unit and fasten with screws (3.16-1).

### Machine

Figure 3.17:  
Rear of machine before connection

3.17-1

3.17-2



02122035

- Remove screws (3.17-1) and rear cover (3.17-2).

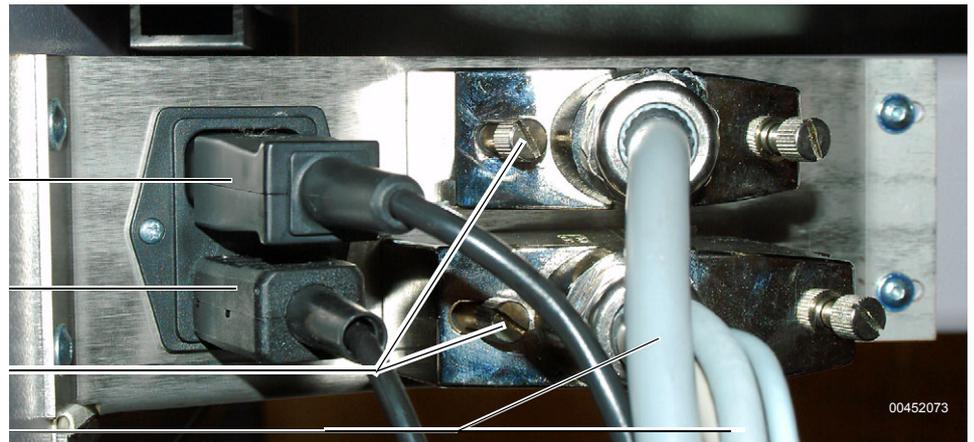
Figure 3.18:  
Machine,  
cable connectors

Connecting cable between  
machine and control cabinet

Power supply

Retaining screws

Control cables



- Connect cable to machine as illustrated in *Fig. 3.18*.
- Fasten control cable retaining screws.

**DANGER**

**On no account is the machine to be started before you have re-installed all covers properly.**

Figure 3.19:  
Machine,  
cover attached

3.19-1

3.19-2



- Fasten cover (3.19-2) with screws (3.19-1).

## 3.6.2 Adjusting control unit holder

### NOTE

The control unit holder can be individually adjusted.

### CAUTION

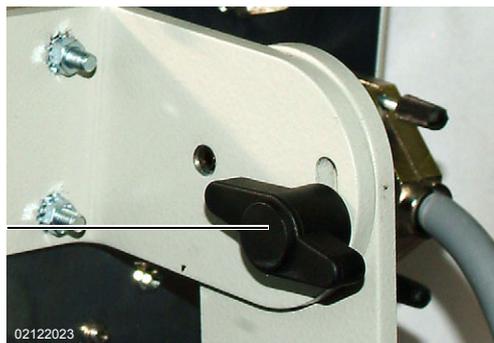
Do not align the control unit as described below until the machine has been connected and started up.

Before the control unit is adjusted horizontally or vertically to a new position, the traversing and fully equipped yarn rack has to approach the final needle (right) position by executing a color change (change of needle position).

Once this position has been adopted, the control unit can be adjusted. Make certain that adequate clearance is maintained between the control unit and yarn rack in order to avoid damage and malfunctions when a color change takes place.

Figure 3.20:  
Control unit,  
holder,  
adjusting vertically

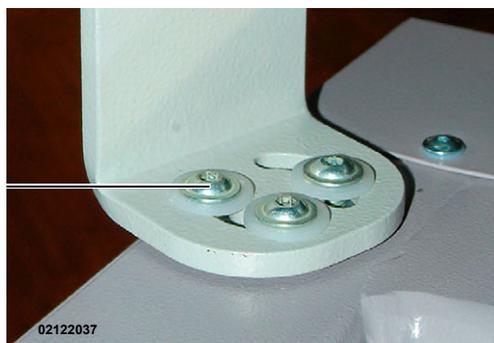
3.20-1



- Slacken off screw (3.20-1).
- Adjust the control unit to the desired angle.
- Tighten screw (3.20-1).

Figure 3.21:  
Control unit,  
holder,  
adjusting horizontally

3.21-1



- Slacken off screws (3.21-1).
- Rotate the control unit to the desired position.
- Tighten screws (3.21-1).

### 3.7 Positioning control cabinet

**NOTE**

Position the control cabinet so that all the cables can reach their connections on the machine without any trapped stresses or twisting.



## 4. Installing

**CAUTION**

Start up the machine only if connected to the mains voltage indicated on the type plate.

### 4.1 Mains connection

**DANGER**

Run the mains and control cables in such a way that they do not create a trip hazard.

**CAUTION**

Do not connect the machine to the power supply until it is fully assembled and the control cabinet is closed.

**DANGER**



All installation and service work is to be carried out exclusively by trained experts.

The machine is at zero current only when the mains plug is pulled out and after a delay of at least 30 seconds.

## 4.2 Fuses/automatic circuit breakers

**CAUTION**



00400010

Fuses and circuit-breakers are safety devices. Before restarting the machine, find out what caused the power loss so as to avoid possible damage or further production down-times. Fuses can blow if you are working with fabric that is too heavy or using devices with excessive power consumption.

**NOTE**

Control cabinets in the MSCL-T series do not have fuses of their own. The machines are covered by the protective provisions of the operator's power supply.

## 5. Machine overview

### 5.1 General view

Figure 5.1:  
General view,  
SPRINT series

Control cabinet

T8 Control Unit

Machine cover

Type plate

Frame

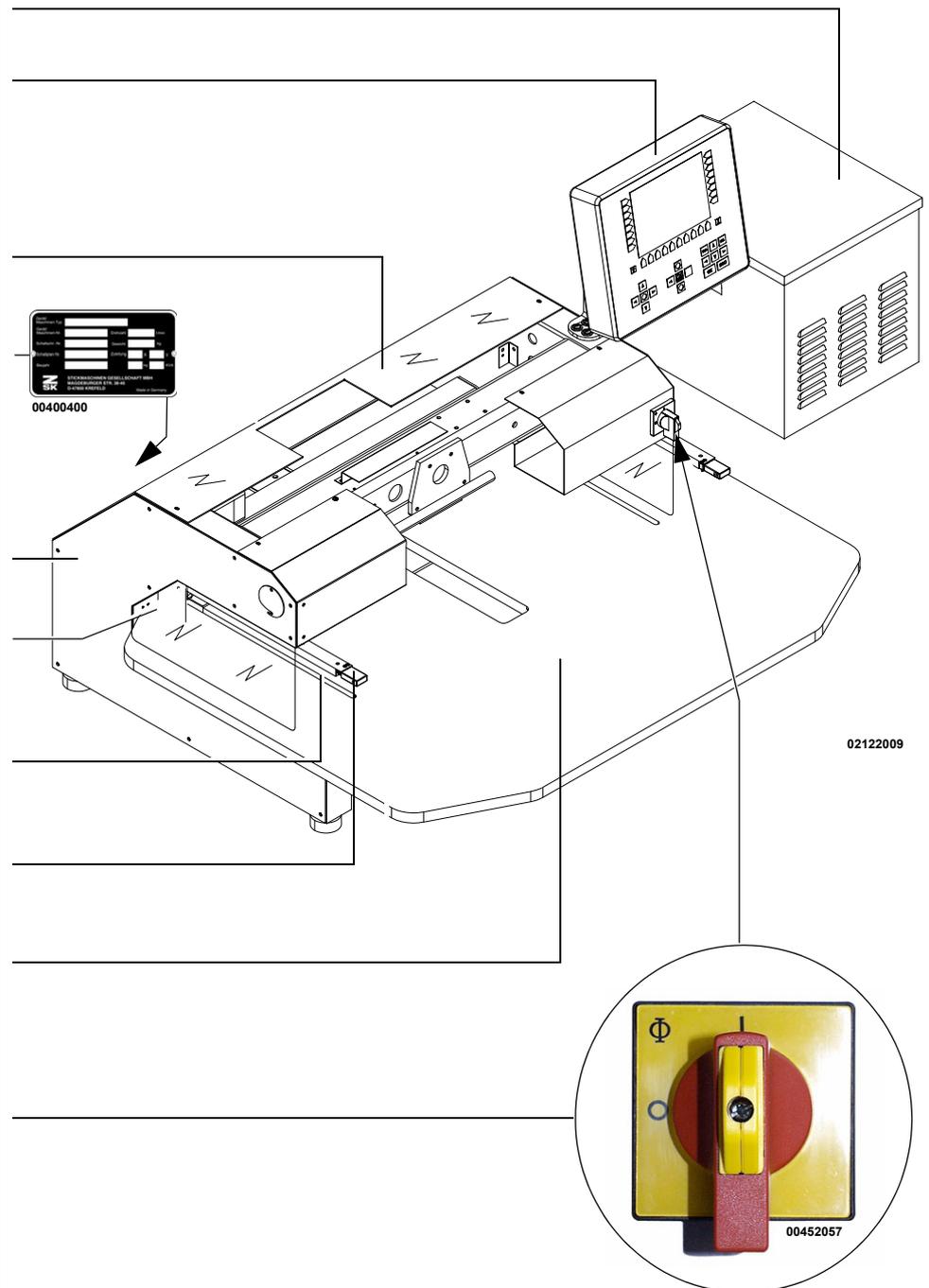
Machine cover

Pantograph guide

Light barrier

Work table

Main switch/  
EMERGENCY STOP  
switch



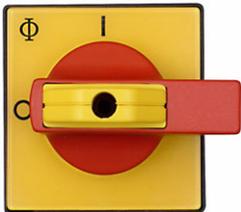
## 5.2 Operation

This chapter provides an overview of the embroidery machine's operating elements. These controls are used, for example, to position the pantograph, for starting and stopping the embroidering routine, for reverse embroidering, and when working with appliqués.

### NOTE

The position of the individual operating elements on the machine is illustrated under *Machine overview and Control unit*.

### 5.2.1 Main switch



00024122

The machine and control cabinet are switched on and off with the main switch.

### 5.2.2 EMERGENCY STOP

**EMERGENCY STOP**

The main switch also serves as the **EMERGENCY STOP** switch.

### NOTE

Before switching the machine back on, make sure that the cause of the **EMERGENCY STOP** has been rectified.

All the operating elements described below operate only if the main switch is switched on.

## 5.2.3 Control unit

### NOTE

In line with more recent ZSK control units, this control unit has a start/stop control panel and a control panel for manual pantograph positioning.

Figure 5.2:  
T8 control unit

Start key

ZSK-key

Stop key

Light-emitting diode (LED)

Appliqué key

Pantograph positioning keys



### Start/Stop keys

### NOTE

You can use the Start/Stop key cluster when the LED (light-emitting diode) in the cluster is illuminated. The pantograph positioning keys *must* be switched off.



00833102



00833104

The start/stop cluster of keys is situated on the control unit. It consists of the keys for starting and stopping the machine, selecting and deselecting the pantograph positioning keys (ZSK key), reverse embroidery and executing single stitches.

Operation		Function
 00264095	Press	Stops the machine
 00264096	Press	Starts the machine
 00264093	Press	Switches pantograph positioning keys on/off
 00264094	Press briefly Hold down	Executes a single stitch Executes a sequence of single stitches (embroidering at low speed)
 00264092	Press briefly Hold down	Moves the pantograph back one stitch at a time (reverse embroidery) Executes a sequence of reverse stitches

## NOTE



You can stop the machine at any time with the Stop key. The interrupted embroidering routine is resumed as soon as the machine is restarted with the Start key.

## NOTE



### Pantograph positioning key cluster

Do not select manual pantograph positioning while the machine is running. This would stop the machine and interrupt the embroidering routine.

The key cluster for positioning the pantograph manually is situated on the control unit. It consists of the arrow keys for positioning the pantograph and the Appliqué key.

Figure 5.3:  
ZSK key

5.3-1

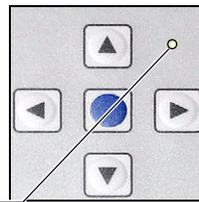


00833102

- Press ZSK key (5.3-1).

Figure 5.4:  
LED

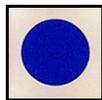
5.4-1



00833101

⇒ Pantograph positioning keys switched on (LED (5.4-1) illuminated).

## Appliqué key



00264089

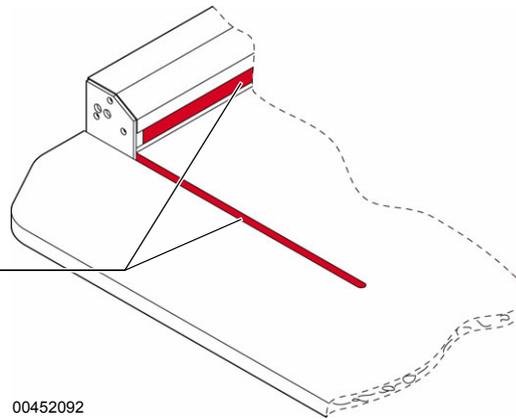
The appliqué key is located in the *Pantograph positioning key cluster*; it is required when you wish to embroider with appliqués. The key cannot be used unless the key cluster is switched on.

## 5.2.4 Aligning pantograph

**Risk of crushing**

Figure 5.5:  
Risk of crushing by  
pantograph

5.5-1



**DANGER**



**The pantograph responds straight away.**

**Keep your hands well away from the pantograph guide slot (5.5-1) and frame.  
Risk of injury!**

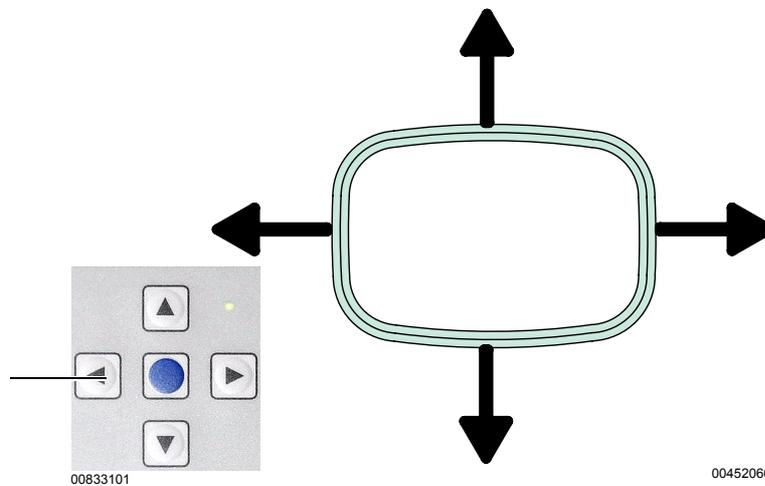
**NOTE**

**You cannot align the pantograph unless the machine is stationary.**

Figure 5.6:  
Directions of pantograph  
movement (example)

Keys for positioning  
pantograph  
(e.g. to the left)

## Aligning with arrow keys



- Align the pantograph with the arrow keys. See *Fig. 5.6*.

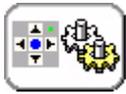
Key	Direction of pantograph movement
▲	Backwards (away from the front edge of the work table)
▼	Forwards (towards the front edge of the work table)
◀	To the left
▶	To the right

- Press the ZSK key again.  
⇒ The pantograph positioning keys are deselected (LED goes out).

## NOTE

**Once you have aligned the pantograph, switch off the positioning key cluster because the machine cannot be started while manual positioning is switched on.**

## NOTE

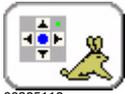


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00987166

## NOTE



00965116



00965125



00965122



00965119

## NOTE

### Aligning by way of control unit

**Aligning the pantograph by way of the control unit is possible only in the *Machine* module.**

By way of the control unit the pantograph position can also be controlled with reference to the screen display. This allows paths to be traveled quickly or slowly or in 1 mm or 1/10 mm steps (increments).

- Press the **[U5]** button below the screen display to activate manual pantograph positioning.

⇒ The following symbols are displayed at the bottom of the screen.

**The *control unit* operator's guide contains more detailed information on using the menu keys.**

Press button **[U1]** and hold down arrow button to move pantograph continuously and fast.

Press button **[U2]** and hold down arrow button to move pantograph continuously and slowly.

Press button **[U3]** and briefly press arrow button to move pantograph in 1 mm steps with each press.

Press button **[U4]** and briefly press arrow button to move pantograph in 1/10 mm steps with each press.

**Once you have aligned the pantograph, switch off the manual pantograph positioning function. With manual pantograph positioning selected, the machine cannot be started.**

## 6. Changing modes

### NOTE

This part of the operator's guide refers exclusively to machines with tubular system functionality.

### 6.1 Tabletop embroidery - tubular system

#### DANGER

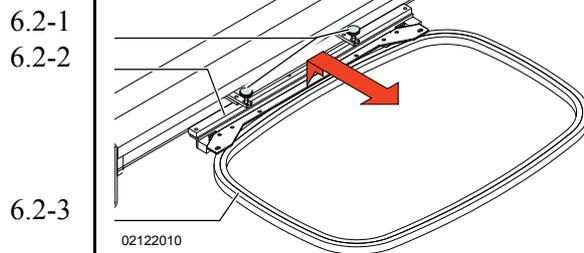
The conversion is not to be carried out when the machine is running.

Figure 6.1:  
Examples for SPRINT 4

- 1) Tabletop embroidery
- 2) Tubular system embroidery



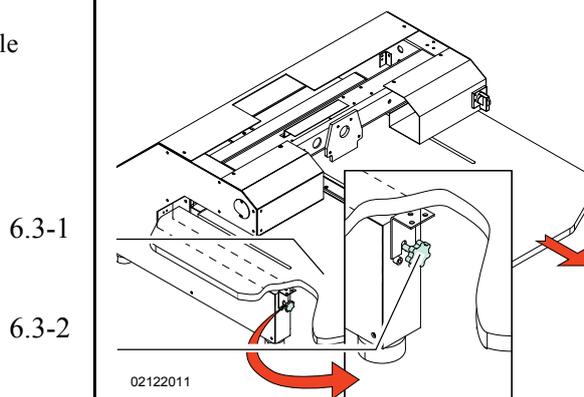
Figure 6.2:  
Dismantling frame locator



## 6.1.1 Dismantling frame locator

- Take out single frame (6.2-3).
- Slacken off screws (6.2-1).
- Remove Z rail (6.2-2).

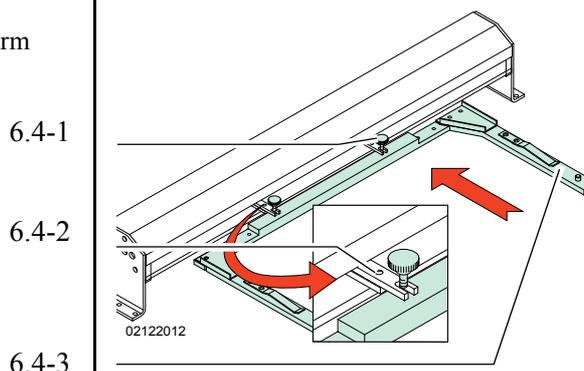
Figure 6.3:  
Removing work table



## 6.1.2 Dismantling work table

- Slacken off and remove screws (6.3-2) (left/right).
- Pull out work table (6.3-1) to the front and set it down safely.
- Insert and tighten screws (6.3-2).

Figure 6.4:  
Installing cylinder arm  
frame holder

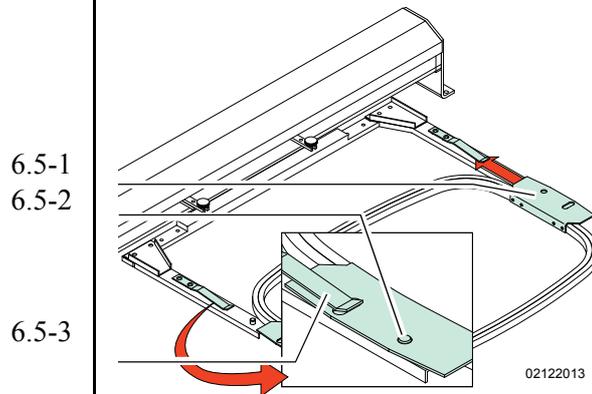


## 6.1.3 Installing cylinder arm frame holder

- Tighten screws (6.4-1) in cylinder arm frame holder (6.4-3) by about 2 turns.
- Slide cylinder arm frame holder (6.4-3) underneath carriage support (6.4-2).
- Tighten screws (6.4-1).

## 6.1.4 Inserting frame

Figure 6.5:  
Inserting frame



- Place frame holder (6.5-1) on stop pins (6.5-2).
- Slide frame holder (6.5-1) underneath springs (6.5-3) and engage stop pins (6.5-2).

**CAUTION**

***Each time you convert the machine for a different mode, change the pantograph configuration to suit the application (e.g. border frame embroidery) by way of the control unit.***

## 6.2 Tubular system - tabletop embroidery

**DANGER**

The conversion is not to be carried out when the machine is running.

**NOTE**

To convert from tubular system to tabletop embroidery, follow the same steps as for converting from tabletop embroidery to tubular system operation, but in the reverse sequence.

## 6.3 Changing from tubular system to cap embroidery

**DANGER**

The conversion is not to be carried out when the machine is running.

**NOTE**

The conversion for optional cap embroidery is described in the operating instructions for the cap attachment.

## 6.4 Work to be performed after each mode change

**CAUTION**

*Each time you convert the machine for a different mode, change the pantograph configuration to suit the application (e.g. border frame embroidery) by way of the control unit.*

## 7. Preparing to embroider

**DANGER**

As a general rule, carry out the work described here only when the machine is stationary. Make sure that no-one is able to start the machine while you are fitting the embroidery material and setting it up.

**NOTE**

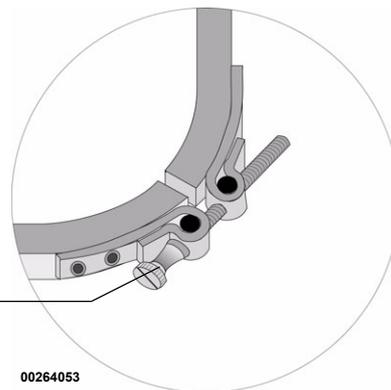
This chapter describes additional work that has to be executed before embroidering. Further information, including on the choice of needles, filling the yarn rack, thread tension etc., is contained in the relevant operator's guide – *head* –.

### 7.1 Clamping embroidery material

#### 7.1.1 Tubular system embroidery

##### Adjusting frame tension

Figure 7.1:  
Tubular system embroidery, screw for adjusting frame tension



- Adjust the frame tension to match the thickness of the embroidery material with the adjusting screw (7.1-1) on the outer frame.

Figure 7.2:  
Tubular system  
embroidery,  
clamping tubular fabric in  
cylinder arm frame

7.2-1

7.2-2

## Clamping embroidery material in the frame

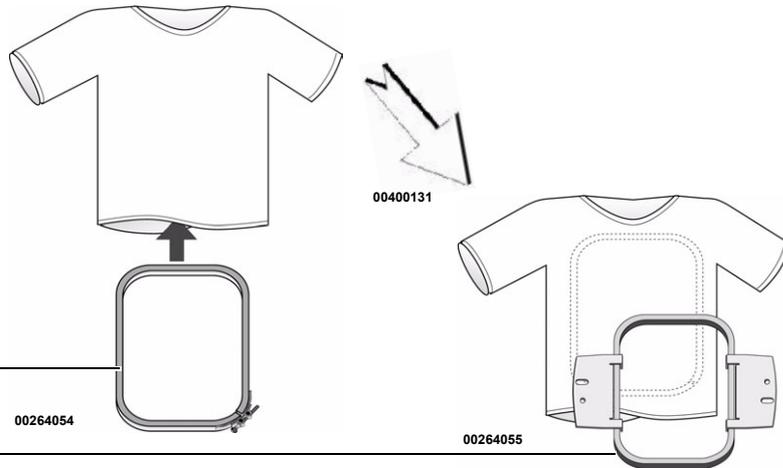
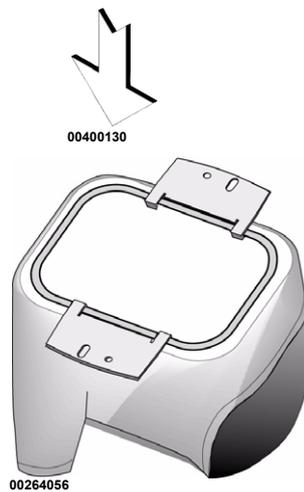
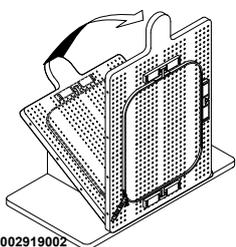


Figure 7.3:  
Tubular system  
embroidery, screw for  
adjusting frame tension

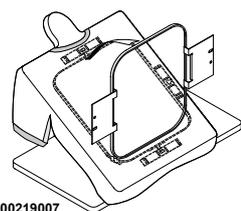


- Place outer frame (7.2-1) underneath the area that you wish to embroider (**between** the two layers of tubular fabric).
- Apply pressure with the ball of the thumb to press inner frame (7.2-2) into the outer frame from above so that the embroidery material is stretched smoothly over the frame.

## NOTE



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Optional clamping aids are available to facilitate clamping the embroidery material in the cylinder arm frame.

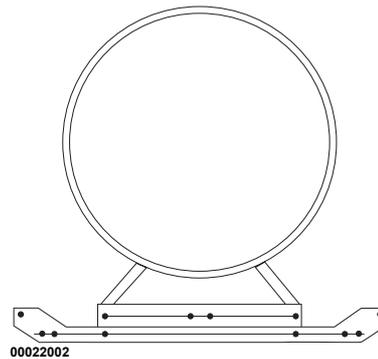
## 7.1.2 Tabletop embroidery

### Single frame technology, (optional)

#### NOTE

Figure 7.4:  
Single frame

A separate *frame technology* operating manual is provided with the single frame embroidery option.



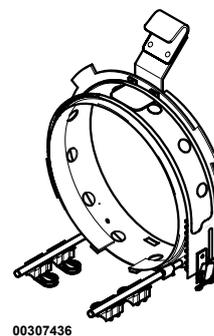
## 7.1.3 cap embroidery

### Cap device (optional)

#### NOTE

Figure 7.5:  
Cap frame

A separate manual is provided with the cap device.





## 8. Maintenance and troubleshooting

### 8.1 For your safety

**DANGER**



00400035

**Before undertaking any cleaning or maintenance work:**

**Make certain that the machine cannot be switched on unintentionally by unauthorized persons.**

**Covers have to be removed to perform some maintenance work. On no account is the machine to be restarted before you have re-installed all covers properly.**

### 8.2 Lubricants

The standard machine accessories include:

- a spray can containing sewing machine oil (JCW 35 Super Lubrifiant, ZSK order No. 750 081)
- A grease cartridge (Gleitmo 585M, ZSK order No. 667 055).

As far as possible, use only the original lubricants supplied with the machine when carrying out maintenance work. These lubricants are available from ZSK.

#### NOTE



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**Waste grease and oil is to be treated and disposed of in compliance with the regulations applicable in the country concerned.**

## 8.3 Overview

### NOTE

The stated maintenance intervals are guidelines for conventional single shifts. In case of 2 or 3-shift duty cycles, the intervals are to be reduced accordingly.

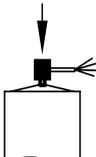
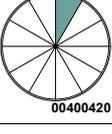
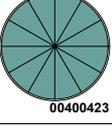
Before applying grease or oil, remove dirt and old residual lubricant.

Lifting magnets are maintenance-free and must not be oiled.

More detailed maintenance instructions are contained in the *Maintenance guide*.

### CAUTION

Do not apply an excessive amount of grease or oil, otherwise moving parts can hurl off lubricant or give rise to dripping. This could cause the work to be soiled.

Key to maintenance table	
 1x (No. of shots) <small>00400425</small>	 <small>00400421</small> every three months
 24h every day <small>00400424</small>	 <small>00400422</small> every six months
 <small>00400420</small> every month	 <small>00400423</small> every twelve months
~ as necessary	
A Gleitmo 585M - grease	

Item	Maintenance - machine in general	Lubricant	Quantity	Frequency	Remarks
	Grease linear guide (pantograph control, grease <b>side-to-side</b> and <b>front-to back</b> drive)	A	-		

A.) *Gleitmo 585M* - grease

Item	Maintenance - control components	Lubricant	Quantity	Frequency	Remarks
	Clean control components			~	
	Clean ventilation filter			~	

## 8.4 Troubleshooting

The following tables are designed to help you rectify faults caused by incorrect operation or minor damage.

Fault	Cause	Remedy
<b>Pantograph offset</b>	Pantograph adheres to work table as a result of using adhesive spray	<ul style="list-style-type: none"> <li>• Clean work table</li> <li>• If possible avoid use of adhesive spray - use nonwoven fabric instead</li> </ul>
	Sequence of individual stitches not operating smoothly	<ul style="list-style-type: none"> <li>• Limit stitch length</li> </ul>
	Parts of design lie outside embroidery field	<ul style="list-style-type: none"> <li>• Position in such a way that entire design lies within embroidery field (framing)</li> </ul>
	Embroidery material or frame too heavy	<ul style="list-style-type: none"> <li>• Use only every second embroidery head and a lighter frame</li> </ul>
	Design is defective	<ul style="list-style-type: none"> <li>• Prepare new copy from original</li> </ul>
	Clamped connections of toothed-belt pulleys are slack	<ul style="list-style-type: none"> <li>• Check clamped connections, take up slack if necessary</li> </ul>
<b>Design offset</b>	Embroidery material is clamped too slackly	<ul style="list-style-type: none"> <li>• Clamp material taut</li> </ul>
	Material distortion, especially with very fine material	<ul style="list-style-type: none"> <li>• Reinforce embroidery material, e.g. with nonwoven fabric</li> </ul>
	Embroidery frames not sufficiently secured	<ul style="list-style-type: none"> <li>• Secure individual frames, mounting rails etc. well</li> </ul>
	Upper and bobbin thread tension too high	<ul style="list-style-type: none"> <li>• Set correct thread tension</li> </ul>
	Punch faults (processing sequence not operating smoothly, especially with stitch-intensive designs)	<ul style="list-style-type: none"> <li>• Obtain information from design producer</li> <li>• Notify ZSK customer service</li> </ul>
<b>Machine runs irregularly</b>	Belt tension too slack	<ul style="list-style-type: none"> <li>• Tighten belts</li> </ul>
	Components not running freely	<ul style="list-style-type: none"> <li>• Notify ZSK customer service</li> </ul>

Fault	Cause	Remedy
<b>Inaccurate stopping position</b>	Belt tension too slack	<ul style="list-style-type: none"> <li>• Tighten belts</li> </ul>
	Components not running freely	<ul style="list-style-type: none"> <li>• Notify ZSK customer service</li> </ul>
<b>Machine does not start</b>	Power supply interrupted	<ul style="list-style-type: none"> <li>• Press ZSK-button on control panel (LED in start/stop switch group comes on)</li> <li>• Check fuse/automatic circuit breaker</li> </ul>



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