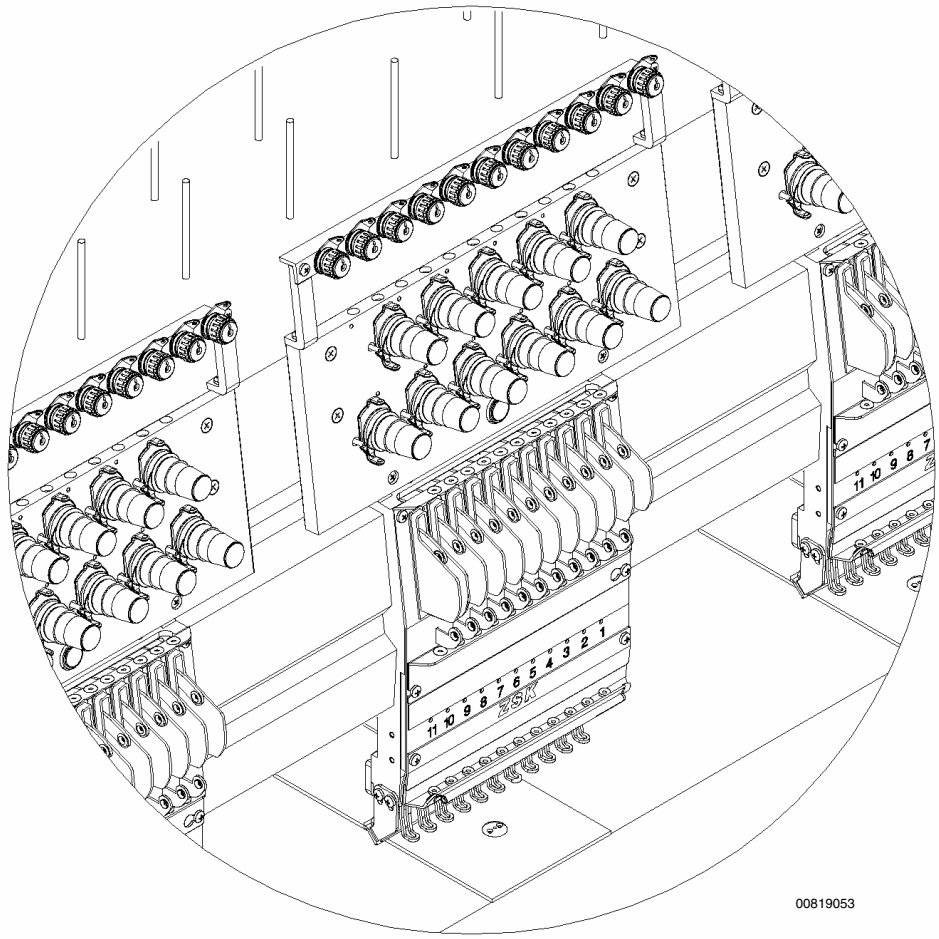
Operator’s Guide



F head

Version 1.1

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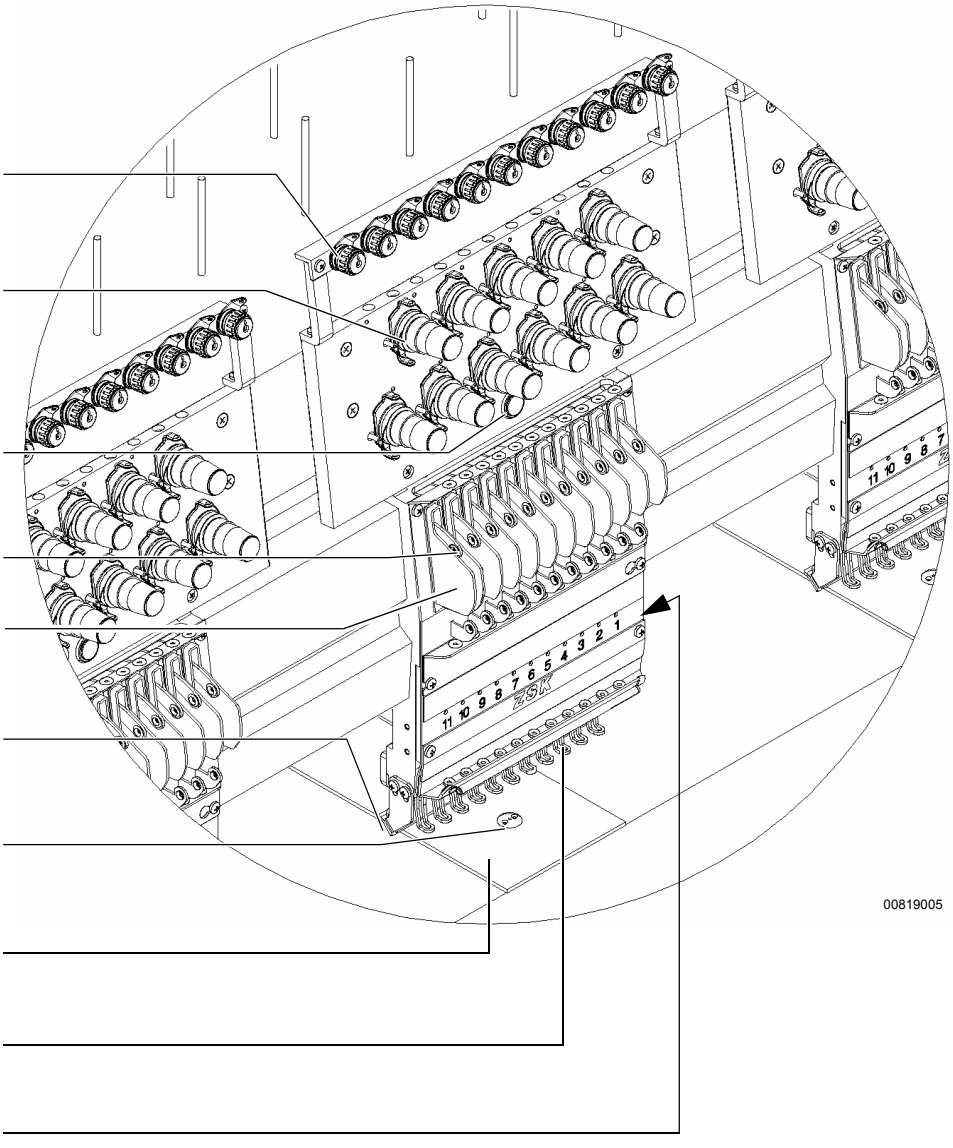
Contents

1. Embroidery head diagram

NOTE

Before carrying out any work on the machine or its components, you must familiarize yourself with the safety regulations; refer to the chapter entitled *Safety instructions*.

Figure 1.1:
Partial view
(illustrated: 11-needle machine)



Pretension regulator (holding tension)

Main tension regulator (bobbin tension)

Embroidery head button

Thread take-up lever

Guard

Catcher rail

Stitch plate insert

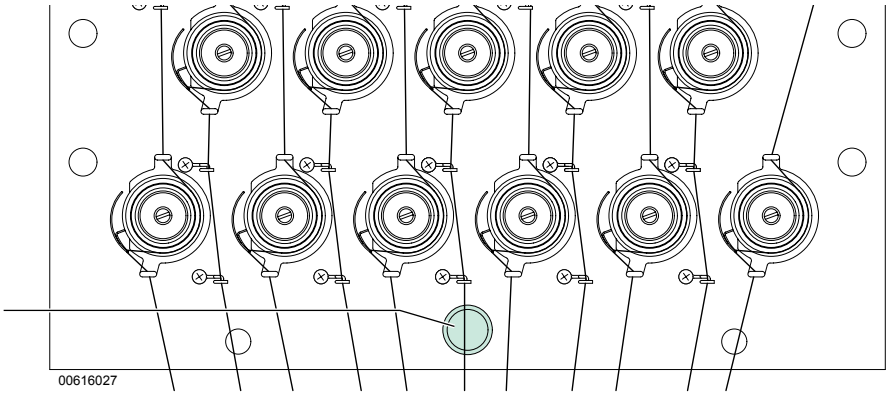
Stitch plate

Presser foot and needle

Needle counting direction

2. Embroidery head button

Figure 2.1:
Embroidery head button
(illustrated: 11-needle machine)



2.1-1

2.1 Switching embroidery head on and off (F head)

DANGER

The thread take-up, rotary hook and thread trimmer operate even when the embroidery head is switched off (does not apply to the thread take-up on machines with a take-up lever that can be switched off).

NOTE

Press the embroidery head button only when the machine is stationary.

Each embroidery head has an embroidery head button *(2.1-1)* with which it is switched on and off.

Embroidery head switched on	Embroidery head button illuminated	 00400027
Embroidery head switched off	Embroidery head button not illuminated	 00400026

When an embroidery head is switched off, all its needles remain in the **rest position** (needles fully raised) while embroidering is taking place.

2.1.1 Indication of a thread break

A thread break at an embroidery head is indicated by the appropriate embroidery head button responding:

Upper thread break	Embroidery head button flashes quickly	 00400029
Bobbin thread break	Embroidery head button flashes slowly	 00400028
Upper and bobbin thread break at same embroidery head	Embroidery head button illuminated at the affected head	 00400027

NOTE


00264096

The thread break indicator is cancelled once the fault has been repaired and the machine is restarted with the Start key. The embroidery head buttons are again illuminated at all the heads that are switched on.

3. 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.

This chapter describes all the work that has to be executed before embroidering. It covers the fundamental manual tasks that the operator also has to execute after faults (e.g. changing needles and threading) or in order to optimize the embroidered work (e.g. adjusting thread tension).

DANGER

To prevent injury, use pliers or a needle inserter to insert the embroidery needle!

DANGER

To prevent injury, use a tool (e.g. tweezers) to thread the embroidery needle!

3.1 Exchange needle

CAUTION

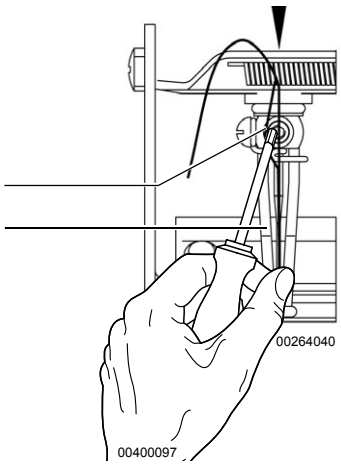
If the needle bar does not come to rest in a suitably high position, please notify the ZSK customer service department.

Removing needle

NOTE

A needle can be removed from the needle bar only if it is positioned at a sufficient height above the stitch plate. If the machine is stationary, the needle bar is automatically in a suitable position for changing the needle.

Figure 3.1:
Fitting the needle



- Slacken off screw *(3.1-1)*.
- Remove needle *(3.1-2)*.

Inserting needle

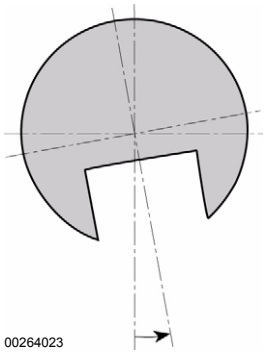
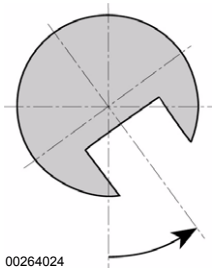


Figure 3.2:
Needle cross section, long needle slot facing slightly right

- Push the new needle into the needle bar **as far as it will go**. The long needle slot must not face directly to the front, but **a little to the right**, *Fig. 3.2*.
- Retighten the screw.

NOTE

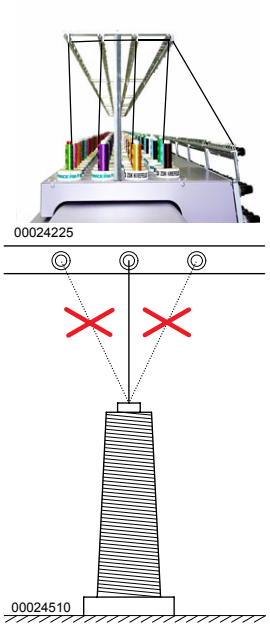


Certain kinds of yarns (especially artificial silk or rayon) require the needle to be turned farther than just off-center to minimize the occurrence of thread breakages.

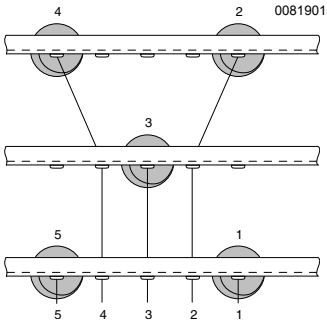
Determine the most favorable position *while embroidering*.

3.2 Filling yarn rack

Figure 3.3:
Top view of yarn racks from above embroidery head showing cross-wound bobbins and run of thread

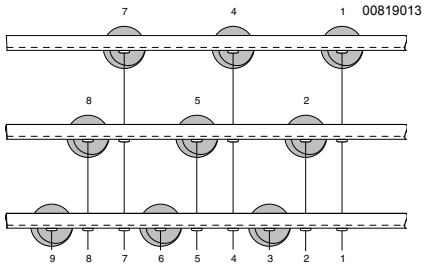


5-needle machine:

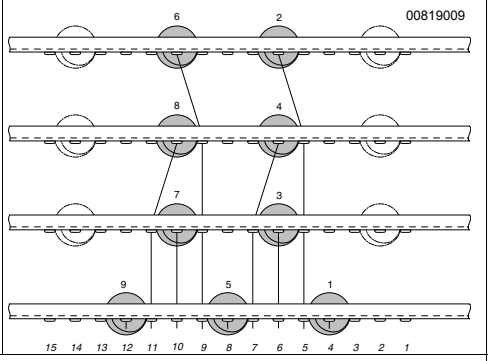


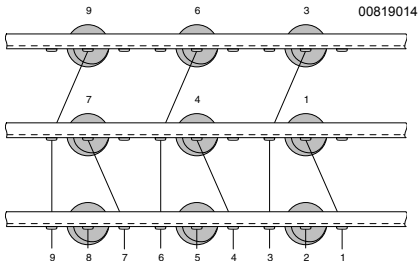
9-needle machine:

- Yarn rack with 9 pegs per embroidery head

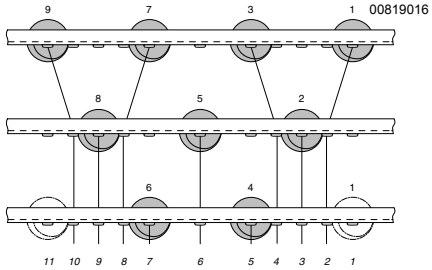


- Yarn rack with 15 pegs per embroidery head



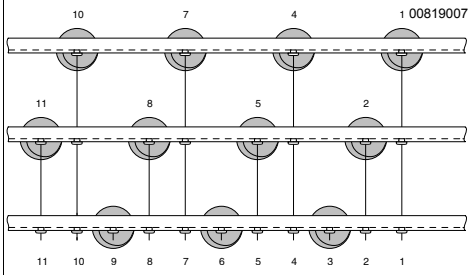


- Yarn rack with 11 pegs per embroidery head

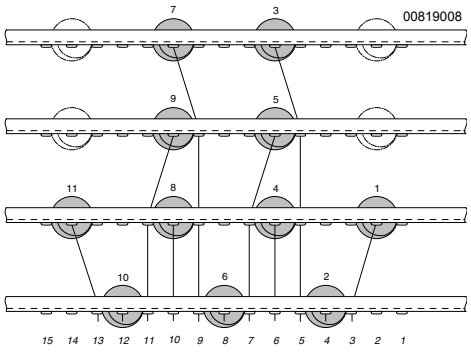


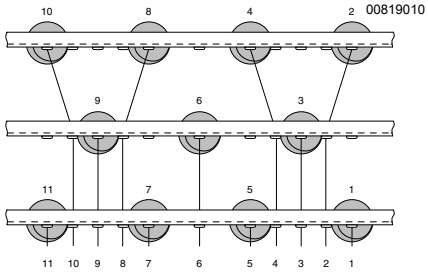
11-needle machine:

- Yarn rack with 11 pegs per embroidery head

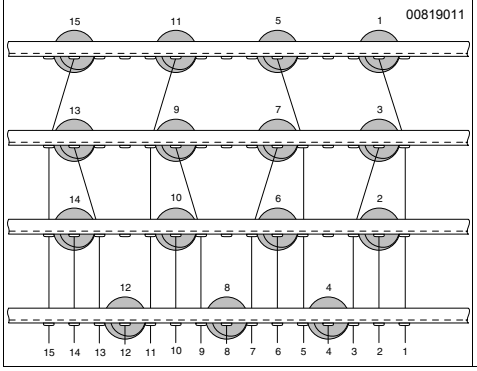


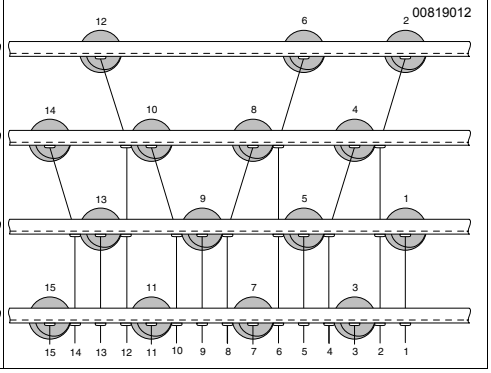
- Yarn rack with 15 pegs per embroidery head





15-needle machine:

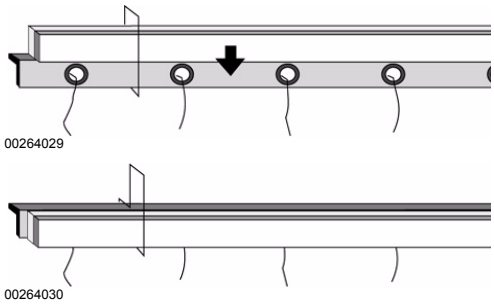




NOTE

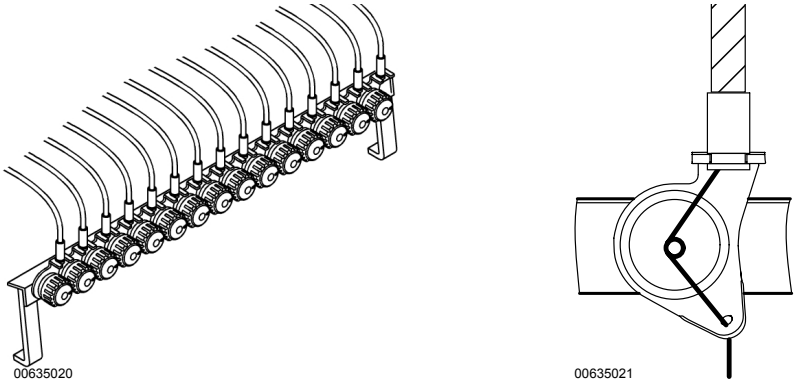
Felt-covered plates that smooth the threads are located ahead of the front angle rail on the yarn rack. Push up the plates to thread the yarns and then push them back down to conceal the eyes. See *Fig. 3.4.*

Figure 3.4:
Yarn rack,
Plates ahead of the front angle rail of the yarn rack
Top: pushed up for threading
Bottom: after threading

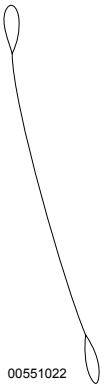


with guide tubes

Figure 3.5:
Feeding thread through pretension regulator (holding tension)



NOTE



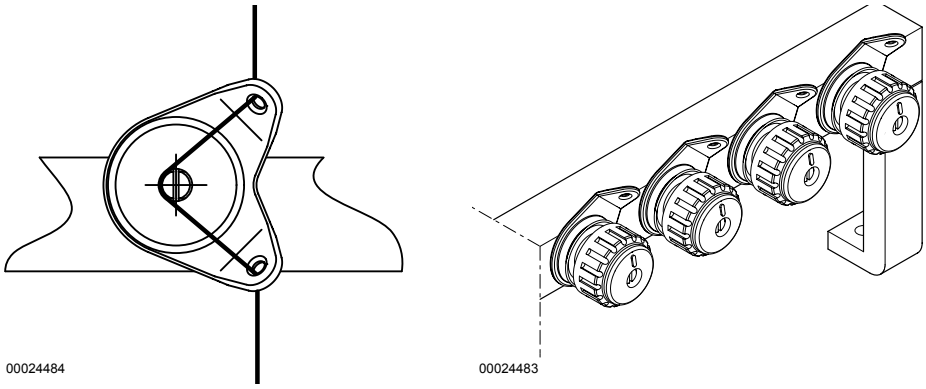
Threading is facilitated by the supplied threading wire. Introduce the threading wire, with the thread, into the tube from above, pull it through from the bottom and take hold of it again in the vicinity of the pretension regulator.

When changing yarn, tie the new thread to the old one and pull it through accordingly.

3.3 Threading upper thread

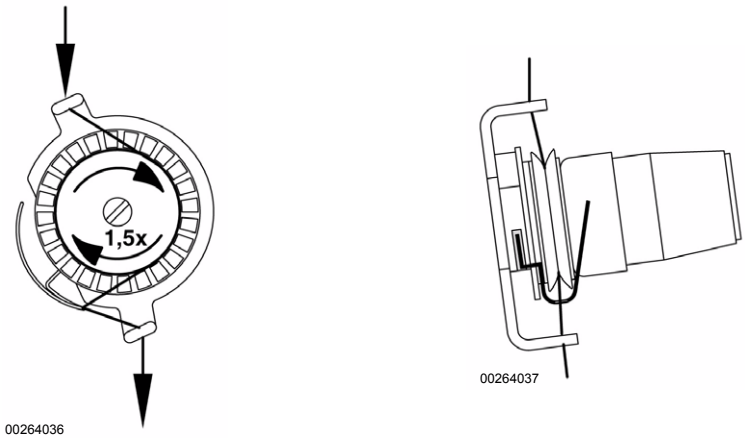
3.3.1 Pretension regulator (holding tension)

Figure 3.6:
Feeding thread through pretension regulator (holding tension)



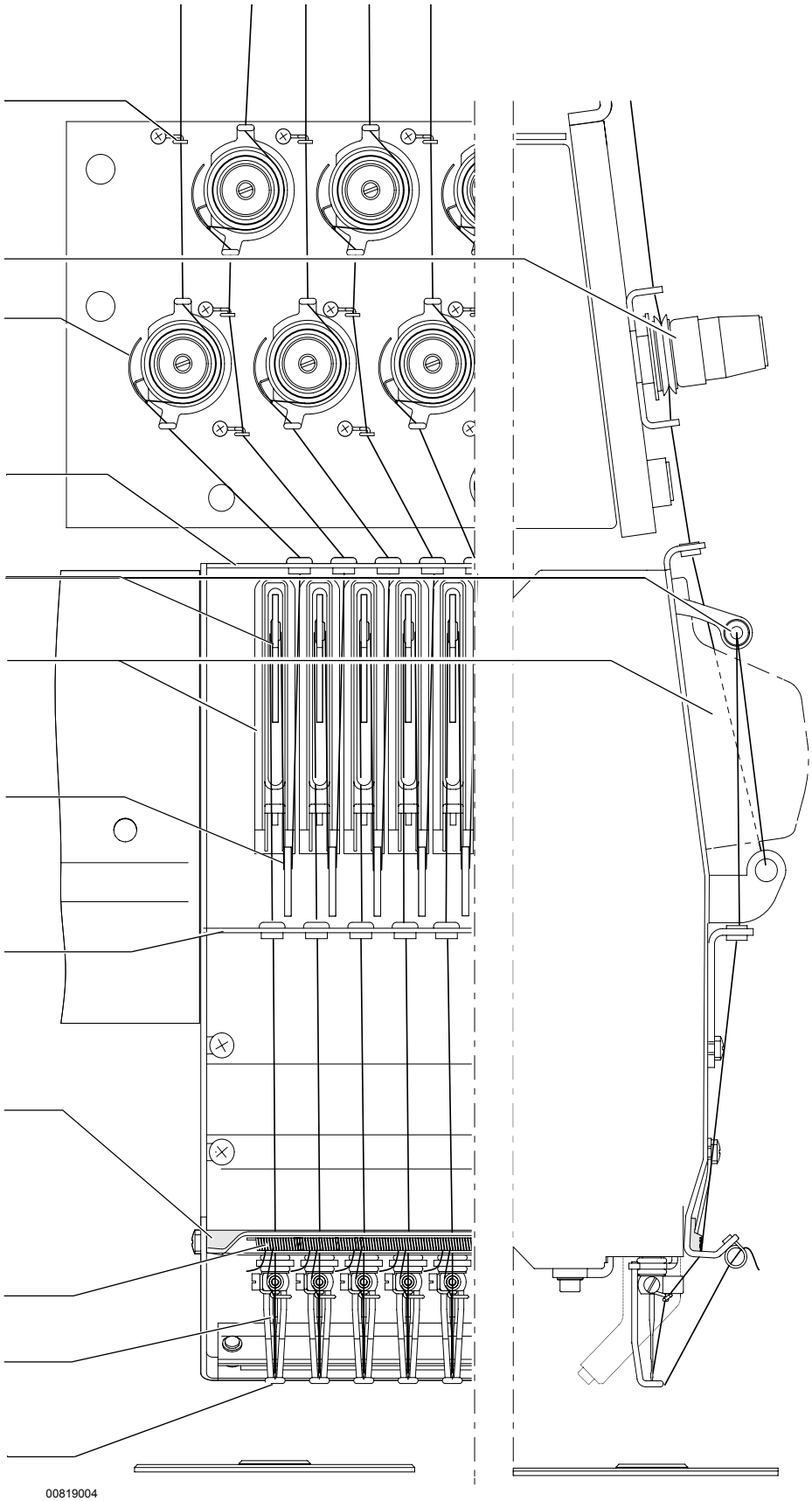
3.3.2 Main tension regulator (bobbin tension)

Figure 3.7:
Threading main tension regulator (bobbin tension)



3.3.3 Threading

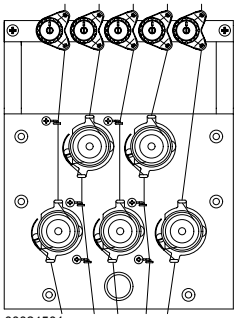
Figure 3.8:
Upper thread guide elements



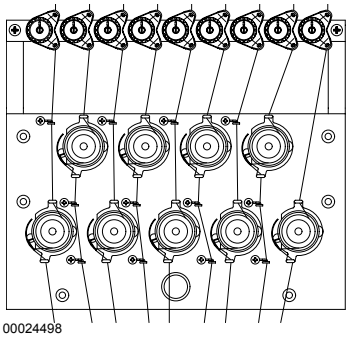
Run of thread through pretension and main tension regulators

Figure 3.9:
Threading,
examples: pretension
regulators without guide
tubes

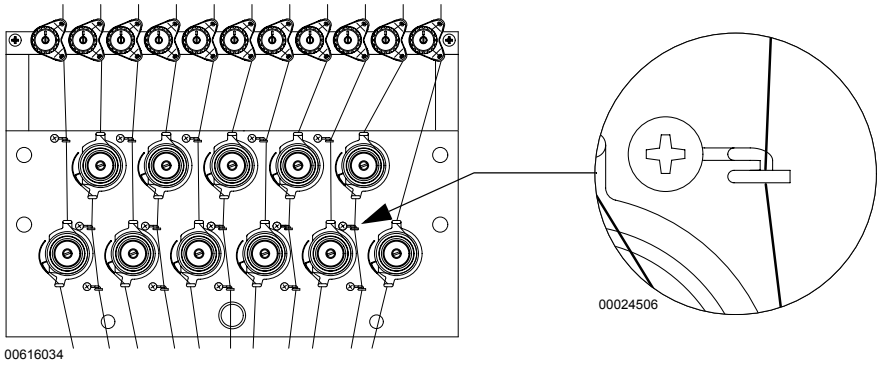
5-needle machine:



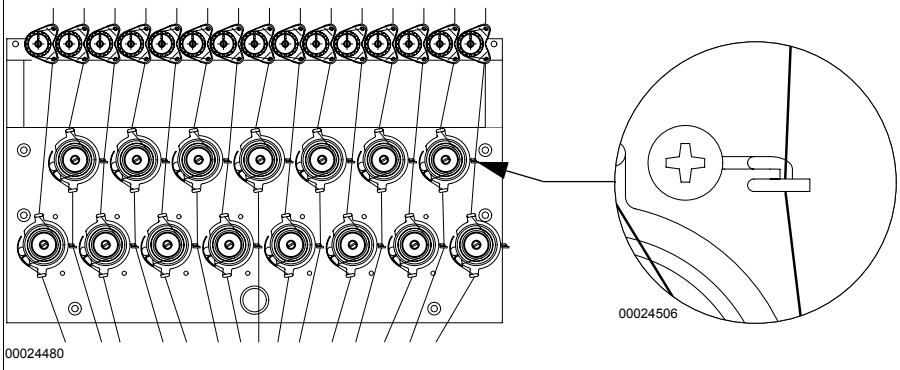
9-needle machine:



11-needle machine:



15-needle machine:



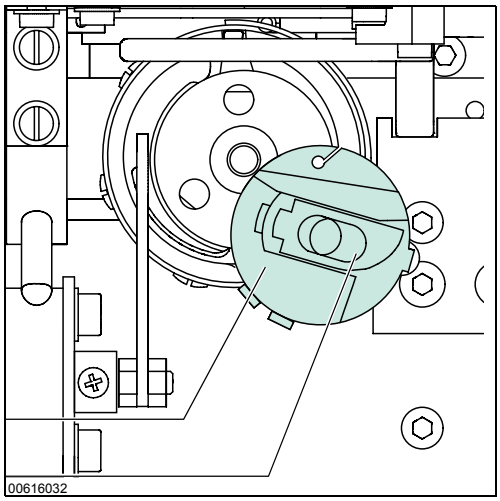
NOTE

The needles can be assigned to the needle numbers stated in the design as you wish. That is to say, the machine does not have to be rethreaded if you wish to change the sequence of colors in the design. See *Needle assignment* in the Operator's Guide for the *control unit*.

3.4 Changing bobbin thread bobbin

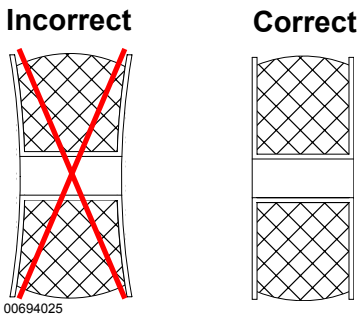
3.4.1 Taking out bobbin case

Figure 3.10:
Taking out bobbin case



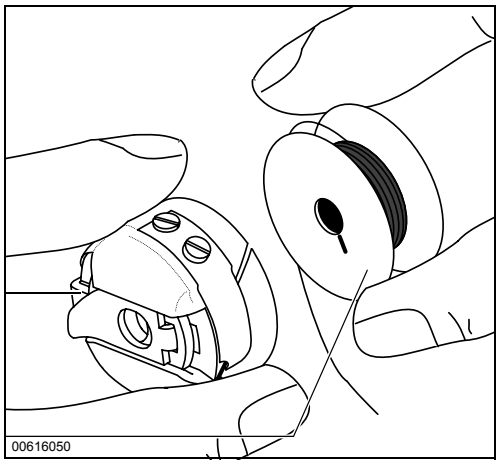
- Release latch *(3.10-1)* and pull out bobbin case *(3.10-1)*.

Figure 3.11:
Bobbin winding



3.4.2 Inserting bobbin thread bobbin

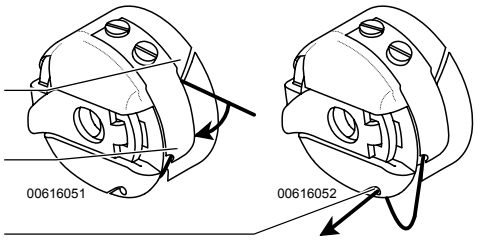
Figure 3.12:
Inserting bobbin thread bobbin



- Take out bobbin *(3.12-2)* from bobbin case *(3.12-1)*.
- Place new bobbin in bobbin case.

⇒ Hold the bobbin case with your left hand and the bobbin with your right hand: the **end of the thread must face away from you.** (*Fig. 3.12)*

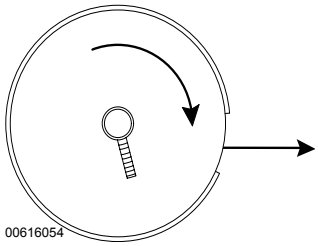
Figure 3.13:
Threading bobbin case



- Place the thread in the oblique slot *(3.13-1)* in the bobbin case.
- Run thread underneath leaf spring *(3.13-2)* and pull through.
- Insert thread in wire eyelet *(3.13-3)*.

3.4.3 Checking direction of rotation of bobbin

Figure 3.14:
Checking direction of rotation of bobbin



- Pull out the thread.

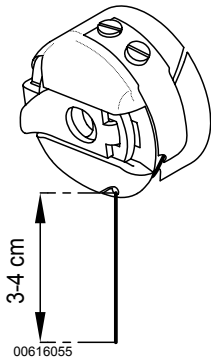
⇒ If the bobbin is inserted correctly, it rotates **clockwise** when you pull out the thread.

3.4.4 Cutting off bobbin thread

NOTE

It is essential that you cut the end of the thread to a length of 3-4 cm *(Fig. 3.15)*, to prevent it winding around the rotary hook when embroidering starts up.

Figure 3.15:
Bobbin thread, cutting off



- Cut the end of the thread to a length of 3 to 4 cm.

Before inserting the bobbin case:

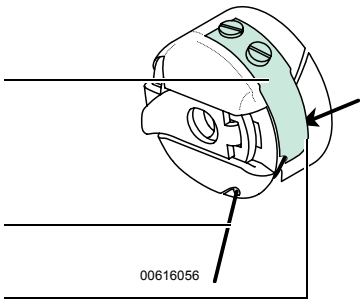
NOTE

You have to adjust the bobbin thread tension before reinserting the bobbin case. See *Bobbin thread tension, adjusting* in this chapter.

<u>Each</u> time you insert the bobbin case, clean the the gap between the leaf spring and the case itself – this helps to maintain the leaf spring tension and avoids constant pretensioning of the spring.

3.4.5 Cleaning gap

Figure 3.16: Cleaning gap



Each time you insert the bobbin:

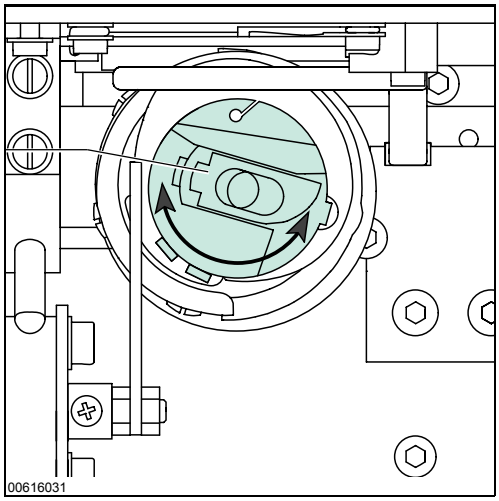
- Hold the bobbin firmly and pull lightly on bobbin thread *(3.16-2)*.

  ⇒ This lifts the leaf spring *(3.16-1)* slightly.

- Clean gap *(3.16-3)* by blowing.

3.4.6 Inserting bobbin case

Figure 3.17: Inserting bobbin case



- Insert the bobbin case in the rotary hook again with latch *(3.17-1)* opened, rotating it until it engages in the correct position.

NOTE

Make certain that the latch is completely closed.

3.5 Adjusting thread tension

NOTE

The thread tension has a significant influence on the quality of the embroidery. The optimum tension can be obtained only by trial and error on samples.

General rule: The thread tension is good if about 2/3 upper thread and 1/3 bobbin thread are visible on the back of the embroidery.

If the **tension is too low**, the embroidered work will be untidy with undesirable loops; it will also cause knots and thread breaks.

If the **tension is too high**, the embroidered material will become gathered and the yarn will be exposed to an excessive load. This will result in puckering as well as needle and thread breaks.

Upper thread tension, adjusting

NOTE

Generate 2/3 of the upper thread tension with the pretension regulator (holding tension) and 1/3 with the main tension regulator (bobbin tension).

Adjust the upper thread tension with the pretension and main tension regulators.

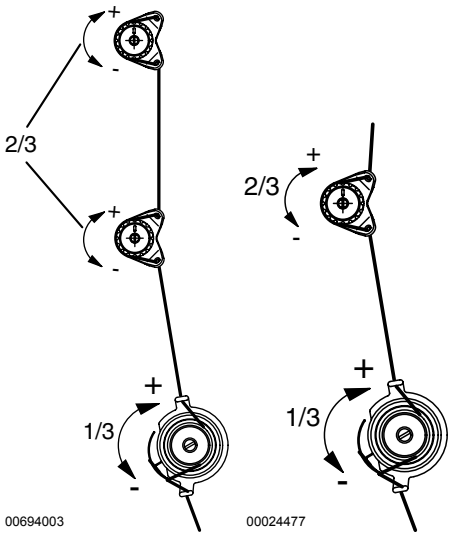


Figure 3.18:
Regulators for adjusting upper thread tension Right: 2 pretension regulators
Left: 1 pretension regulator

Turning **clockwise increases** upper thread tension.

Turning **counterclockwise reduces** it.

Bobbin thread tension, adjusting

Adjust the bobbin thread tension by turning the screw in the leaf spring.

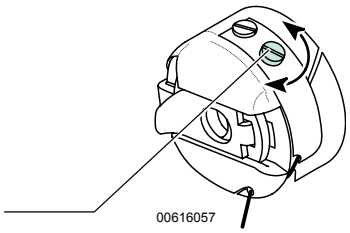


Figure 3.19:
Bobbin thread tension, adjusting

3.19-1

Tightening screw *(3.19-1)* **increases** bobbin thread tension.

Slackening off screw *(3.19-1)* **decreases** bobbin thread tension.

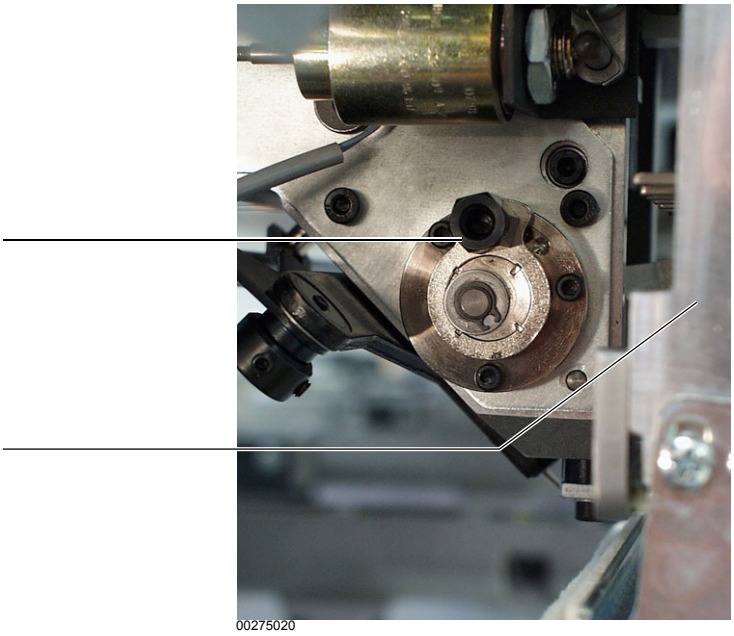
NOTE

For most applications the appropriate bobbin thread tension is in the range 3 to 5 dN (corresponds to a weight of approx. 30 to 50 grams). Avoid significantly higher bobbin thread tension – if necessary, modify the ratio between the upper and bobbin thread tension by adjusting the *upper thread tension*.

3.6 Adjusting presser foot height

The clearance between the presser foot and stitch plate insert is one of the factors that determines the quality of the work. You can adjust this clearance by rotating the **stop pin.** The stop pin *(3.20-1)* is situated on the left behind the needle unit *(3.20-2)* on the embroidery head housing.

Figure 3.20:
Adjusting presser foot; detail of left side of embroidery head (default position 1)



Rotating stop pin

CAUTION

The stop pin is to be adjusted *only* if the machine is stationary.

- Stop the machine.
- Move the needle unit as far as possible to the right (highest needle number).
- Rotate stop pin *(3.20-1)* by hand to the required position (*Fig. 3.21)*.

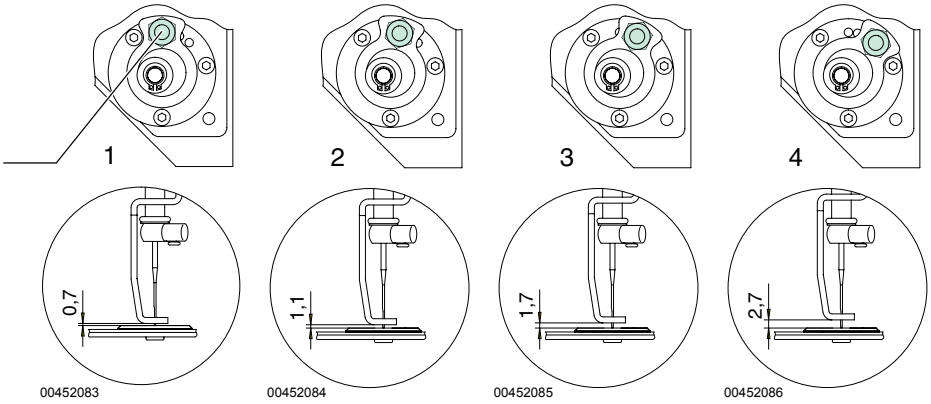
  ⇒ You can <u>feel</u> the stop pin engage in the proper position.

Determining position of stop pin

CAUTION

Positioning the presser foot too high above the stitch plate insert (incorrect stop pin position) increases the thread break frequency. For this reason, select stop pin position “3” or “4” only if the material is substantially thicker than conventional fabric. If you wish to select position “3” or “4”, conduct trials with the envisaged material to verify that the machine stitches reliably.

Figure 3.21:
Stop pin positions 1 - 4



Stop pin

Stop pin position	Embroidery material
1	Conventional
2	Medium thick
3	Thick
4	Extremely thick

4. Stitch types

This chapter provides an overview of the **optional** embroidery applications available for the F head. Separate operator's guides are supplied together with the individual options.

NOTE

Depending on the machine variant or version, the use of some attachments may be restricted or ruled out.

4.1 Sequin embroidery

The ZSK sequin device is used for embroidery with commercially available sequin tape. It must be used in conjunction with special sequin designs containing special functions that actuate the sequin device.

Commercially available sequin tapes on reels can be used with the ZSK sequin device. One suitable sequin head is required for each sequin diameter.

Range of sequin diameters:	3-9 mm
Sequin hole diameter:	1.5 mm
Sequin thickness:	0.2 mm
Reel diameter:	180 mm

4.2 Boring embroidery

The ZSK boring attachment enables you to produce eyelet embroidery with your embroidery machine. The borer cuts holes in the embroidery material at places designated by the boring design. These holes are then reinforced by edging with suitable stitching.

For this purpose you require special boring designs containing special functions that actuate the boring attachment.

This type of embroidery is used for curtains and lingerie.

4.3 Double-roller cord embroidery

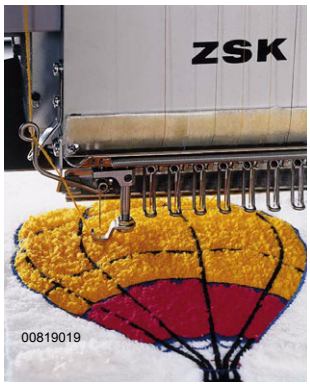
The ZSK double-roller cord attachment is capable of embroidering fairly bulky, round and elastic cord that is not too hard/stiff and up to 4 mm thick; it feeds the cord to the work at low tension.

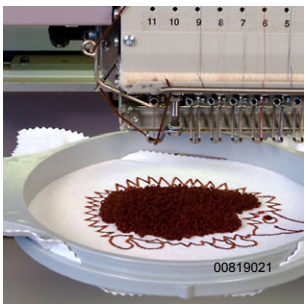
It is compatible with almost all cords, yarns and backings that are commonly used in embroidery. Use of the double-roller cord attachment involves embroidering a cord onto predetermined contours with a monofilament transparent or decorative thread. Owing to the large number of possible combinations we are not able to provide general outlines on the suitability of material combinations. As a general rule, check the practicability of any new material combination by embroidering a sample first.

Appropriately punched embroidery designs are required for the ZSK double-roller cord attachment.

This type of embroidery is typically used for overgarments.

4.4 Cord/loop embroidery





Cord embroidery involves embroidering a cord onto predetermined contours with a monofilament transparent or decorative thread.

Loop embroidery involves embroidering standing wool yarn loops onto a predetermined surface across the full width. The wool yarn is embroidered with a monofilament transparent or decorative thread.

The ZSK cord/loop attachment is compatible with almost all cords, yarns (up to a thickness of 2.5 mm) and backings that are commonly used in embroidery. Owing to the large number of possible combinations we are not able to provide general outlines on the suitability of material combinations. As a general rule, check the practicability of any new material combination by embroidering a sample first.

For cord/loop embroidery appropriately punched embroidery designs are necessary.

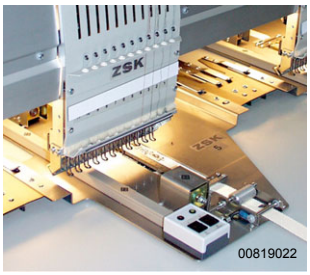
This type of embroidery is used for embroidering motives, typically on children's clothes, table mats etc..

4.5 Cap embroidery

The ZSK cap attachment allows ready-made baseball and other caps to be embroidered.

Appropriately punched embroidery designs are required for cap embroidery.

4.6 Reel-to-reel tape embroidery



The ZSK reel-to-reel tape attachment is used to embroider belts and similar, such as belt band, twill tape and Velcro tape.

It is designed for a:

- max. belt width of 35 mm

and a

- max. belt length of 25 m with Velcro tape reels and 100 m with twill tape reels (max. embroidery field length 220 mm)

This type of embroidery is used for name tags, hat ribbons etc..

5. Embroidery materials and needles

As a general rule, all conventional embroidery materials can be used with the ZSK single and multi-head embroidery machines. The embroidery backing, yarn and needle must, however, be matched to each other. Not every combination results in optimum embroidered work. As well as coordinated materials and the correct choice of needles, the thread tension and the design have a major influence on the quality of the embroidery.

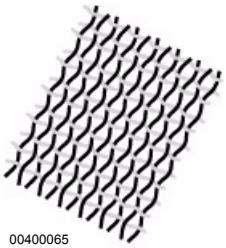
Owing to the large number of possible material combinations, we are able to provide only general guidelines on the choice of embroidery material and needles. On principle, you are recommended to test any new combination of materials by embroidering a sample first.

Consult our customer service in case of doubt. We will gladly advise you and try out unusual material combinations on your behalf if you submit samples.

5.1 Embroidery backing and underlay materials

CAUTION

Adhesive sprays *are not be used in the vicinity of the embroidery machine*, but *only* on separate tables – the adhesive mist can cause the embroidery machine to malfunction.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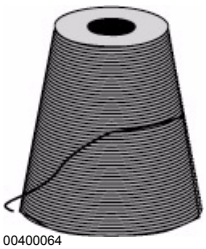
The following materials are typical of suitable embroidery backings:
- Natural and synthetic wovens
- Knitted fabrics
- Plush fabric, velvet, terry cloth
- Felts
- Leather, imitation leather
- Plastic foils

With lightweight and elastic fabrics, it is often advisable to place an underlay underneath the embroidery material in order to avoid puckering when embroidering. Nonwoven fabric or ironing cloth are examples of suitable underlay materials.

The underlay can be clamped in the frame, fused on by ironing or simply placed underneath the embroidery material. Whichever method is chosen, the underlay must be removed after embroidering.

5.2 Yarns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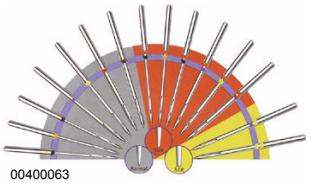
Among the conventional yarns are:
- Cotton embroidery yarns
- Rayon embroidery yarns
- Polyester embroidery yarns
- Metallized twisted yarns

5.3 Needles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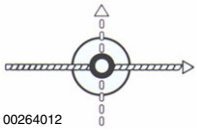
ZSK delivers its machines with 70 Nm SES needles. The needles have a normal cloth point and can be used when working with most textiles. Replacement needles are available from ZSK.

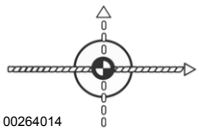
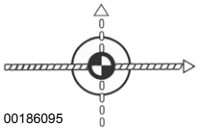
Special needles are required when working with certain materials (e.g. rounded points for elastic material, cutting points for leather). In such cases, obtain advice on the appropriate needle shape from a needle manufacturer.

5.3.1 Recommended needles

Manufacturer: Organ or Groz-Beckert
Needle type: DBxK5
Point types: R, SES, SUK

Figure 5.1:
Needle systems

Needle systems	
R system	
 00264011	 00264012

SES system	
 00264013	 00264014
SUK system	
 00186094	 00186095

5.3.2 Yarn and needle size combinations

Needle / Yarn	65 Nm DBxK5	70 Nm DBxK5	75 Nm DBxK5	80 Nm DBxK5	90 Nm DBxK5	100 Nm DBxK5
60 Nm rayon	X	X				
40 Nm rayon		X	X	X		
30 Nm rayon			X	X	X	
50 Nm cotton		X	X	X		
30 Nm cotton			X	X	X	
40 Nm polyester		X	X	X		
30 Nm lurex			X	X	X	
12 Nm wool				X	X	X

5.3.3 Material and needle point combinations

There are no hard and fast rules for combining specific materials and needle points. Both the design and the nature of the surface being embroidered (face fabric, nonwoven, foil, leather, adhesive spray etc.) play an important role in the choice of combination. For this reason, only rough guidelines can be given.

Conventional round point (R point)

- The R point is suitable for closely woven or heavy fabrics.
- This type of point reproduces contours very well with lettering, borders and step stitch areas without a border.
- The R point has a tendency to pierce the embroidery or fabric yarn which can give rise to needle operating problems (thread breaks, loop formation and erroneous stitches) and thus impair clean stitching.

Small ball point (SES point)

- The SES point is suitable for embroidering materials that are not especially closely woven as well as moderately elastic materials.
- This type of point reproduces contours very well with lettering, borders and step stitch areas without a border.
- The SES offers good runnability because the small ball point does not pierce, but displaces the threads.
- This needle type is the standard for commercial embroidery and represents a good compromise for most applications.

Medium ball point (SUK point)

- The SUK point is particularly suitable for embroidering coarse and highly elastic embroidery materials.
- This type of point reproduces contours less well with lettering, borders and step stitch areas without a border because the needle is deflected by the material.
- The SUK offers very good runnability because the relatively large ball point does not pierce, but displaces the threads.
- The SUK point is especially recommended for wool because of its only moderate twisting and pronounced roughness.

Use of this needle in combination with the forenamed materials appreciably reduces the risk of threads being pierced.

5.4 Special features of tubular system machines

While both conventional tabletop and tubular system configurations are suitable for embroidering flat materials, tubular system machines also allow ready-made and tubular goods to be embroidered.

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6. Maintenance and troubleshooting

6.1 For your safety

DANGER

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<u>Before undertaking any cleaning or maintenance work:</u>

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 reinstalled all covers properly.

6.2 Lubricants

The standard machine accessories include:

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

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

NOTE

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Waste grease and oil are to be treated in compliance with the disposal regulations applicable in the country concerned or surrendered to a hazardous waste facility.

6.3 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.

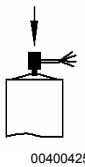
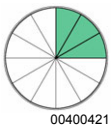
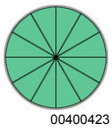
Before applying grease or oil, remove dirt and old residual lubricant.

All installed lifting magnets are maintenance-free and must <u>not</u> be oiled.

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

CAUTION

Do not apply an <u>excessive amount</u> 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	
 00400425 1x (No. of shots)	 00400421 every three months
 00400424 every day	 00400422 every six months
 00400420 every month	 00400423 every twelve months
~ as necessary	

A	*JC W-35 Super Lubrifiant* - sewing machine oil
B	*Gleitmo 585M* - grease

Item	Maintenance – head	Lubricant	Quantity	Frequency	Remarks
6.2-2	Clean rotary hook and surrounding area, oil rotary hook	A[a]	1x	24h	
	Clean upper thread monitor	—	—	24h	
6.1-2	Oil felt in drive unit (embroidery head)	A	1x		felt on housing base
6.1-3	Oil felts in needle unit (embroidery head)	A	1x		felt and needle bar
6.1-1	Oil connecting rods in drive unit (embroidery head)	A	1x		
	Clean upper thread guide elements (embroidery head)	—	—	~	
	Sequin attachment (grease spindle if used every day)	B[b]	—		

a. *JC W-35 Super Lubrifiant* - sewing machine oil
b. *Gleitmo 585M* - grease

Item	Maintenance - foot plate/cylinder arm	Lubricant	Quantity	Frequency	Remarks
6.2-1	Clean thread trimmers and thread monitors	—	—	24h	Clean as necessary (fluff)
6.2-3	Grease helical gear wheels (foot plate/cylinder arm)	B[a]			

a. *Gleitmo 585M* - grease

Figure 6.1:
F head,
maintenance points

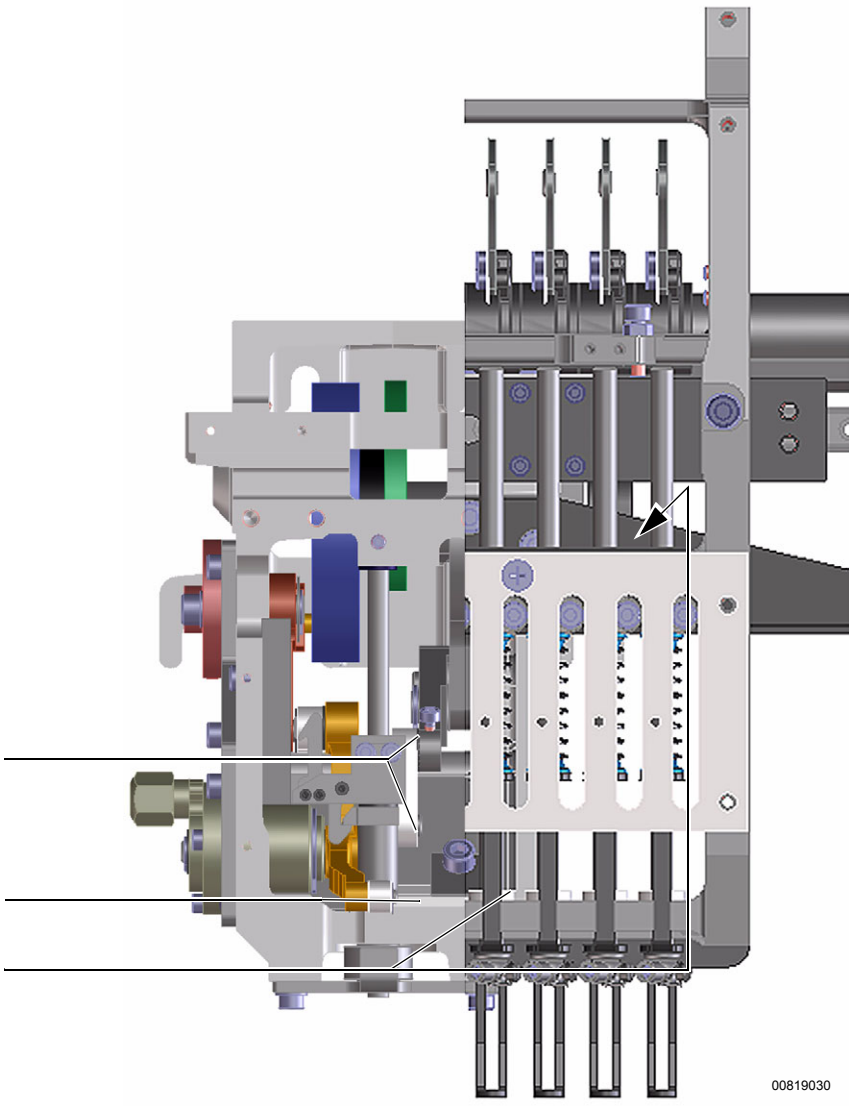
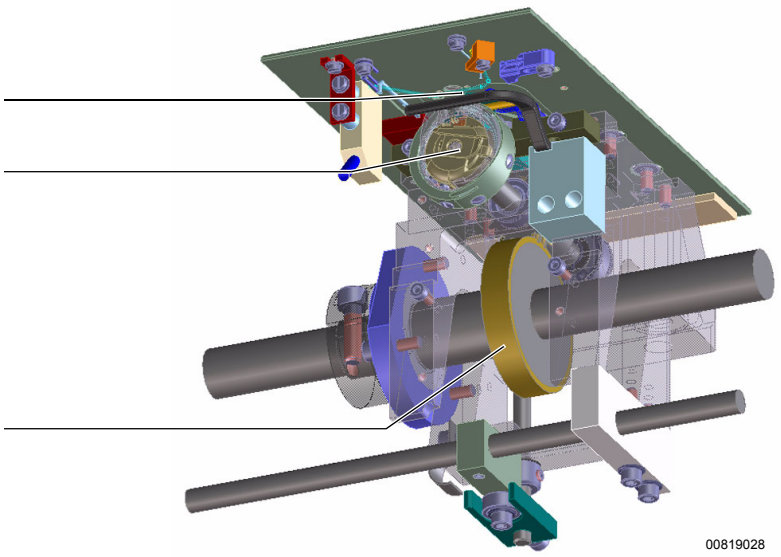


Figure 6.2:
Foot plate,
maintenance points



6.4 Troubleshooting

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

NOTE

If faults occur frequently, note whether they are occurring at the same needle. If customer service is required, this information is important to ensure a quick remedy.

Fault	Cause	Remedy
Thread break	Knots in yarn	• If knots occur with excessive frequency, renew reel
	Yarn twisted too slack	• Renew yarn reel • Select a larger needle size if necessary • Use a different make of thread
	Old or poor quality yarn	• Renew yarn reel
	Needle not suitable for yarn	• Match needle size to yarn
	Incorrect yarn size in relation to stitch density	• Use finer yarn • Slightly enlarge design if possible • Reduce stitch density in design/part of design
	Restricted take-off from yarn reel (yarn layer fallen off)	• Place yarn reel on appropriate cone plate, or underlay with foam • Renew yarn reel
	Incorrect upper and bobbin thread tension	• Set correct upper and bobbin thread tension
	Thread guide mechanism not moving freely	• Check threading and upper thread tension

Fault	Cause	Remedy
Thread break	Needle inserted incorrectly	• Insert needle correctly
	Wrong needle type	• Use correct needle type
	Point of needle damaged	• Renew needle
	Rotary hook not oiled	• Oil rotary hook as required
	Embroidery material is clamped too slackly	• Clamp material taut
	Rough surfaces on thread guides, rotary hooks, holding fingers and needle holes	• Examine and polish surfaces • Renew parts • Notify ZSK customer service
	Thread controller spring malfunction	• Check thread controller spring, reset or renew if necessary
	Incorrect presser foot height	• Set correct presser foot height
	Needle position not central to needle hole	• Renew needle • Notify ZSK customer service
	High stitch density caused by excessive reduction	• Slightly enlarge design if possible • Reduce stitch density, e.g. read in design again with optimized stitch length • Notify ZSK customer service
	Punching error in design (e.g. stitch density too high)	• Reduce stitch density in design/part of design • Notify ZSK customer service
	Several stitches in one place	• Alter design, e.g. with the Editor module • Notify ZSK customer service

Fault	Cause	Remedy
Needle break	Needle inserted incorrectly	• Insert needle correctly
	Poor needle quality or wrong needle type	• Use recommended quality needles
	Needle bent	• Exchange needle
	Needle blunt	• Exchange needle
	Needle too fine or not suitable for embroidery material or yarn	• Replace needle with a suitable one
	Restricted take-off from yarn reel (yarn layer fallen off)	• Place yarn reel on appropriate cone plate, or underlay with foam • Renew yarn reel
	Thread guide mechanism not moving freely	• Check threading and upper thread tension
	Bobbin case not inserted properly	• Insert the bobbin case so that the latch closes with a click
	Needle position not central to needle hole	• Renew needle • Notify ZSK customer service
	Incorrect start time for pantograph	• Enter the pantograph starting point in the control unit (only trained specialists) (Basic screen, key sequence: [L3], [SHIFT]+[U0], [L5]-[ZSK engineer], [L1]-[Degrees])
	Incorrect ramp setting	• Select correct application in the control unit (Reselect the design for loading and select the correct pantograph configuration) • Notify ZSK customer service

Fault	Cause	Remedy
Loop formation	Bobbin too full	• Take off yarn • Renew bobbin
	Bobbin wound too tightly	• Renew bobbin
	Bobbin case contaminated	• Clean bobbin case
	Bobbin out of true	• Renew bobbin
	Bobbin case out of true	• Renew bobbin case
	Upper thread tension too low	• Set correct upper thread tension
	Course of thread inconsistent	• Check threading
	Yarn thickness inconsistent	• Renew yarn reel
	Upper thread tension inconsistent	• Clean thread tension device
	Bobbin thread tension inconsistent	• Clean bobbin case • Check tension spring and renew if necessary • Renew bobbin case
	Rotary hook excessively oiled	• Clean rotary hook
	Incorrect rotary hook oil	• Clean rotary hook and use recommended oil

Fault	Cause	Remedy
Pantograph offset	Pantograph adheres to work table as a result of using adhesive spray	• Clean work table • If possible avoid use of adhesive spray - use nonwoven fabric instead
	Sequence of individual stitches not operating smoothly	• Limit stitch length
	Parts of design lie outside embroidery field	• Position in such a way that entire design lies within embroidery field (framing)
	Embroidery material or frame too heavy	• Use only every second embroidery head and a lighter frame
	Faulty punched tape or diskette	• Prepare new copy from original
	Clamped connections of toothed-belt pulleys are slack	• Check clamped connections, take up slack if necessary
Design offset	Embroidery material is clamped too slackly	• Clamp material taut
	Material distortion, especially with very fine material	• Reinforce embroidery material, e.g. with nonwoven fabric
	Embroidery frames not sufficiently secured	• Secure individual frames, mounting rails etc. well
	Upper and bobbin thread tension too high	• Set correct thread tension
	Punch faults (processing sequence not operating smoothly, especially with stitch-intensive designs)	• Obtain information from card manufacturer • Notify ZSK customer service

Fault	Cause	Remedy
Skipped stitches	Needle faulty or bent	• Renew needle
	Needle not suitable for yarn	• Match needle size to yarn
	Needle inserted incorrectly	• Insert needle correctly
	Upper thread not threaded correctly	• Check threading
	Presser foot too high	• Set correct presser foot height
	Jump stitch facility incorrectly set	• Set jump stitch facility correctly
Machine runs irregularly	Drive belts coated with oil and slipping	• Degrease pulley • Renew drive belts
	Belt tension too slack	• Tighten belts
	Components not running freely	• Notify ZSK customer service
Inaccurate stopping position	Belt tension too slack	• Tighten belts
	Drive belts coated with oil and slipping	• Degrease pulley • Renew drive belts
	Components not running freely	• Notify ZSK customer service
Machine does not start	Power supply interrupted	• Press ZSK-button on control panel (LED in start/stop switch group comes on)
False stops	Upper or bobbin thread tension too slack	• Set correct upper or bobbin thread tension • Renew tension spring • Renew bobbin case
	Skipped stitches	• See “skipped stitches” trouble-shooting table
	Bobbin thread monitor magnet incorrectly set	• Set correct distance between magnet and switching wire

Fault	Cause	Remedy
Bobbin or upper thread monitor switches off too late or not at all	Upper or bobbin thread monitor contaminated with dust or lint	• Clean upper or bobbin thread monitor
	Upper thread monitor switched off in machine menu	• Switch on upper thread monitor (basic screen, key sequence: [L2], [SHIFT]+[U0], [R5]-[Thread break setup], [L4]/[R4]-[Upper thread sensing])
	Bobbin thread monitor switched off in machine menu	• Switch on bobbin thread monitor (basic screen, key sequence: [L2], [SHIFT]+[U0], [R5]-[Thread break setup], [L5]/[R5]-[Bobbin thread sensing])“
	Thread controller spring defective	• Check distance and initial tension between thread controller spring and contact pin, and alter or renew thread controller spring setting if necessary
	Bobbin thread monitor magnet incorrectly set	• Set correct distance between magnet and switching wire
	Initiator incorrectly set or defective	• Set initiator correctly, renew if necessary

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