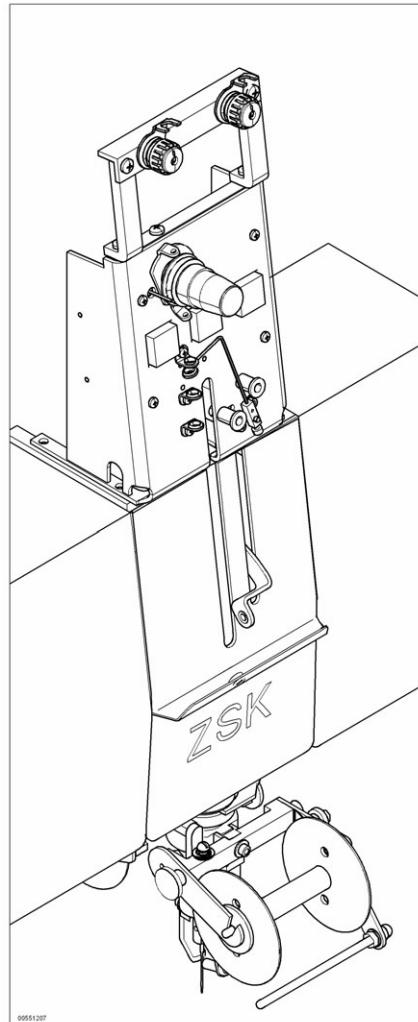


# Operator's guide



## **W head**

**for zigzag, cord/tape,  
coiling and regular embroidery**

Version 1.5

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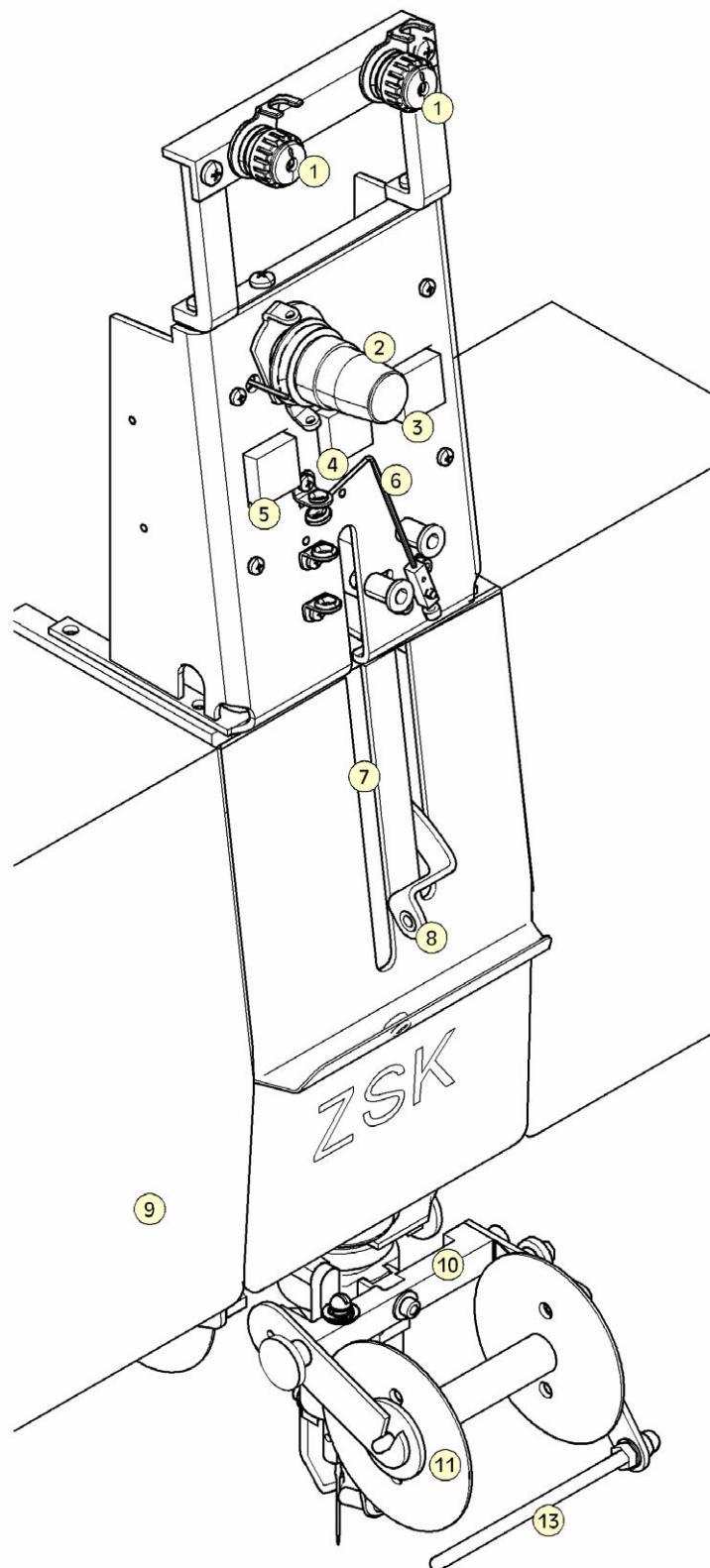
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## 1. Embroidery head diagram

Figure 1.1:  
Embroidery head  
(W head)



- (1) Pretension regulator (holding tension)
- (2) Main tension regulator (bobbin tension)
- (3) Z axis button
- (4) Embroidery head switch
- (5) Presser foot key
- (6) Thread layer
- (7) Needle bar
- (8) thread take-up
- (9) Cover
- (10) Bobbin holder
- (11) Fancy yarn bobbin
- (12) Needle
- (13 ) Deflector pin

## 2. Operation

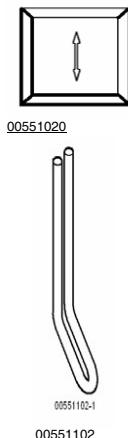
This chapter provides an overview of the embroidery machine's operating elements.

### NOTE

The operating elements and procedures described below are also associated with settings that are made via the control unit. More detailed information on these settings is contained in the *Machine setup* and *Machine setup for W heads* chapters of the operator's guide for the control unit.

### 2.1 Operating elements

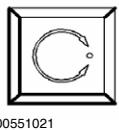
#### 2.1.1 The presser foot key



#### Manual operation of presser foot

- Press the presser foot button twice.
  - ⇒ Once activated, the lamp in the switch flashes (intermittently)
  - ⇒ The presser foot moves to its operating position.
- Press the presser foot button again
  - ⇒ Embroidery head switch illuminated
  - ⇒ The presser foot moves to its starting position

### 2.1.2 Z axis button



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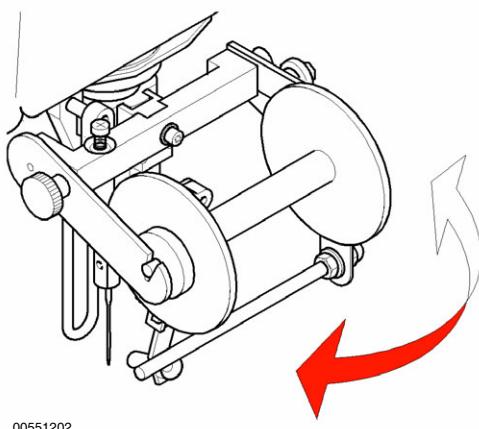
This button allows you to rotate the Z axis manually when certain tasks need to be performed (e.g. changing effect yarn bobbins or a foot).

#### Manual rotation of Z axis

- Press the Z axis button
  - ⇒ The lamp in the embroidery head switch flashes

Manually rotate the Z axis

Figure 2.1:  
Rotating Z axis



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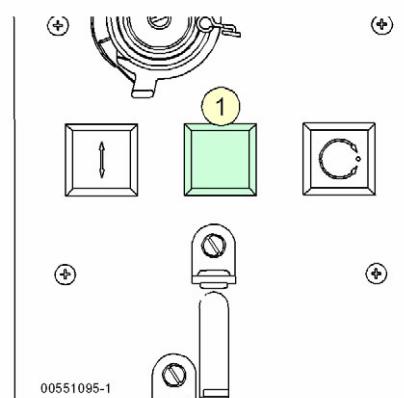
- Press the Z axis button again
  - ⇒ Embroidery head switch illuminated
  - ⇒ The Z axis rotates back to its starting position

#### NOTE

**For safety reasons, the machine cannot be started once the presser foot or Z axis button has been pressed. To deactivate the relevant button once the necessary adjustments have been made, in order to restart the machine, press it one more time.**

Figure 2.2:  
Embroidery head switch

### 2.1.3 The embroidery head switch



#### DANGER

**When the embroidery head switch is pressed and the machine is switched on, the presser foot, bobbin and zigzag device automatically return to the default settings for setting up the machine. The associated machine movements pose a danger to your head and hands.**

#### Switching embroidery head on and off (W head)

Each embroidery head has an embroidery head switch (1) with which it is switched on and off.

- Press the embroidery head switches only when the machine is stationary.

Embroidery head switched on	Embroidery head switch illuminated	 00551018
Embroidery head switched off	Embroidery head switch not illuminated	 00551019

#### NOTE

**In case of a thread break, the embroidery head switch of the W head responds in the same way as the switch of a conventional embroidery head.**

When the embroidery head is switched off, the needle remains in the fully raised position while embroidering is taking place.

#### NOTE

**The machine's operating elements are illustrated and their locations shown in the chapter entitled *Embroidery head diagram*.**

#### DANGER

**The rotary hook and thread trimmer operate even when the embroidery head is switched off.**

## 2.2 Head types

### Multi-needle head

The multi-needle head is used for conventional embroidery. The zigzag, cord/braid (not to be confused with the optional cord/loop device, which can only be used with multi-needle heads) and coiling stitch types **cannot** be executed with the multi-needle head.

### W head

The W head is used to execute effect embroidery. The zigzag, cord/braid and coiling stitch types can **only** be executed with the W head.

### NOTE

**Z and V-series machines have two different types of embroidery head which can be selected separately. The different head types cannot be operated together.**

**Instructions on switching between embroidery heads are contained in the *Changing embroidery heads* chapter of the operator's guide for the control unit.**

### 3. Preparing for embroidering

This chapter describes all the general tasks that are to be performed before embroidering. These are fundamental operations that have to be performed after faults as well (e.g. needle changes and threading the machine). Tasks associated with special stitch types are described in the chapter entitled „*Stitch types*“.

#### NOTE

The operating procedures described below are also associated with settings that are made via the T8 control unit. More detailed information on these settings is contained in the *Machine setup* and *Machine setup for W heads* chapters of the operator's guide for the control unit.

#### 3.1 General

##### DANGER

The bobbin holder and effect yarn bobbins below the embroidery head are rotating parts. The associated machine movements pose a danger to your head and hands.

##### CAUTION

Be sure to adjust the lowest position of the presser foot according to the material being embroidered. If the foot is set too low, it can damage the work. Check the height of the presser foot before embroidering by performing a test run.

##### 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!

## 3.2 Exchange needle

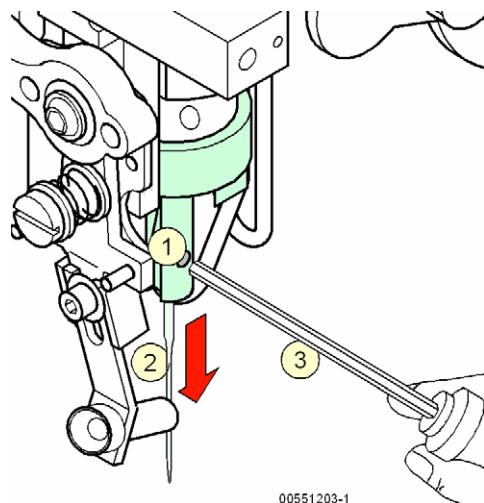
A needle can be removed from the needle bar only if it is positioned at a sufficient height above the needle plate. If the machine is stationary, the needle bar is automatically in a suitable position for changing the needle.

### 3.2.1 Removing needle

#### CAUTION

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

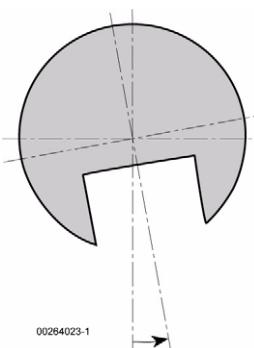
Figure 3.1:  
Removing needle



- Press the Z axis button  
⇒ Disconnects the Z axis.
- Press the presser foot button.
- Turn the Z axis manually to a position giving access to screw (1).
- Slacken off screw (1) with Allen key (3).
- Pull out needle (2).

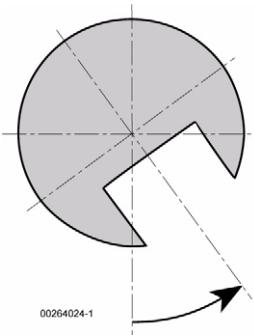
### 3.2.2 Inserting needle

Figure 3.2:  
Inserting needle



- Push the new needle (2) 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**, as illustrated alongside.
- Retighten screw (1).
- Press the Z axis button  
⇒ Activates the Z axis.
- Press the presser foot button until the light stops flashing.

Figure 3.3:  
Inserting needle

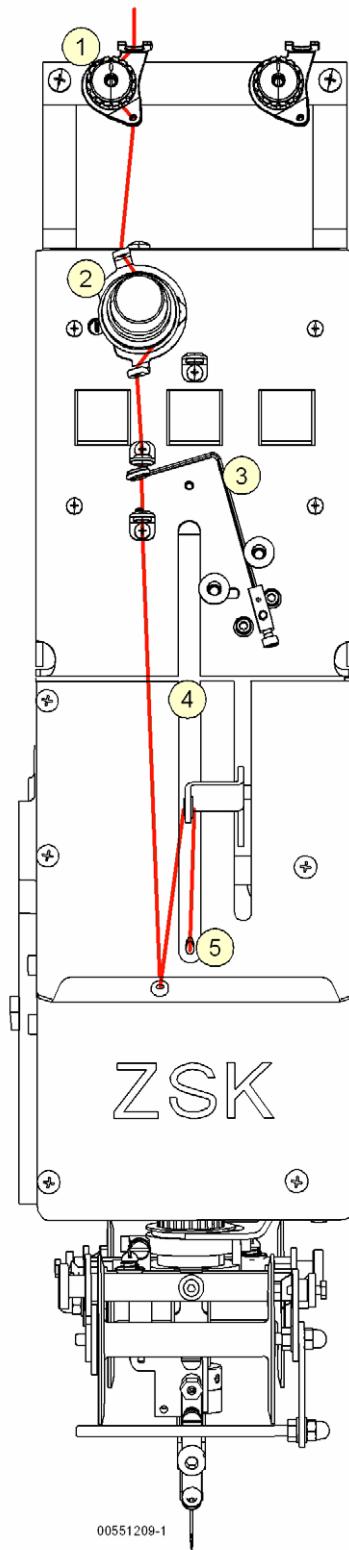


### NOTE

Certain kind of yarns (especially artificial silk) require a stronger turn of the needle to minimize the occurrence of thread breakages. If necessary, a favourable position must be found during the embroidery process.

### 3.3 Threading (upper thread)

Figure 3.4:  
W head,  
Threading (upper thread)



- |   |                                 |
|---|---------------------------------|
| (1) Pretension regulator (holding tension)  | (4) Needle bar                  |
| (2) Main tension regulator (bobbin tension) | (5) Hole in front of needle bar |
| (3) Thread layer                            |                                 |

Figure 3.5:  
Threading upper thread,  
pre-tension

### 3.3.1 Pretension regulator (holding tension)

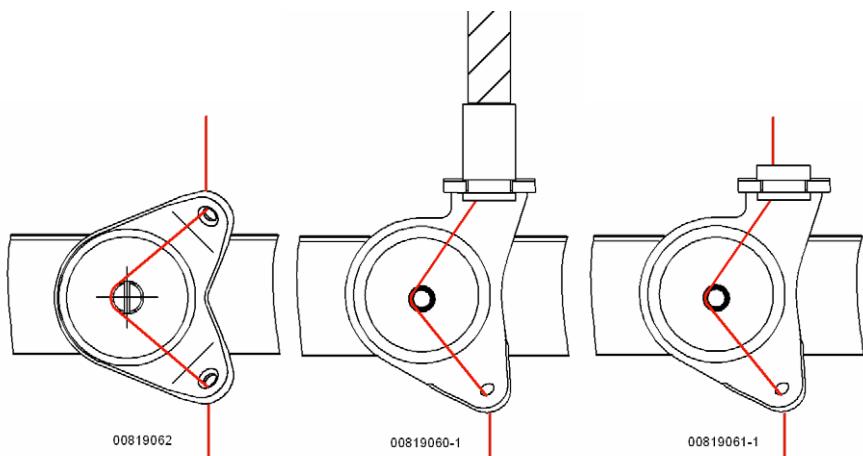
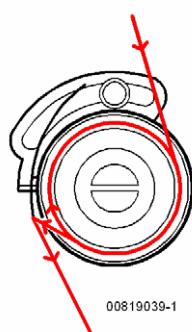


Figure 3.6:  
Threading upper thread,  
main tension

### 3.3.2 Main tension regulator (bobbin tension)



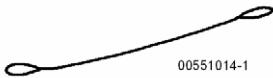
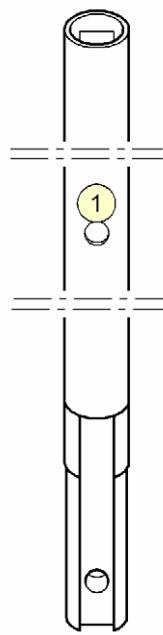


Figure 3.7:  
Threading,  
upper thread

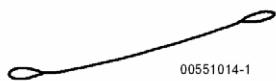


## 3.4 Threading upper thread

### 3.4.1 Threading wire

In contrast to multi-needle heads, the thread is passed from the inside through the needle bar. Threading is facilitated by a threading wire.

- Insert the threading wire in hole (1) in the front of the needle bar.
- Feed in the threading wire until it appears at the bottom.
- Pass the thread through the eye at the top end of the threading wire.
- Hold the end of the thread at the top of the needle bar while pulling more thread off the bobbin with the threading wire, until the thread emerges from the bottom of the needle bar.
- Pull the threading wire with the thread down and out of the needle bar.
- Pass the thread through the needle.

**NOTE**

### 3.5 General threading instructions (effect yarns)

Since different yarns are threaded in a variety of ways, specific instructions are contained in the chapter entitled **Stitch types**.

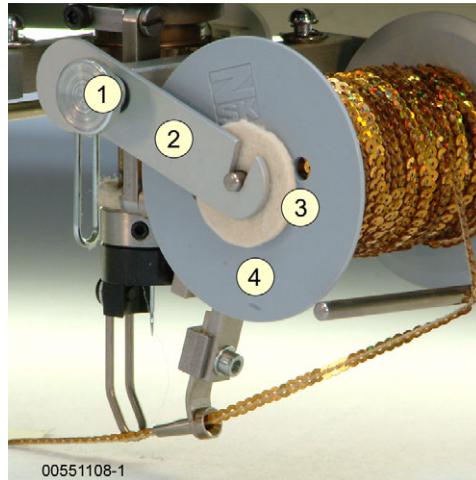
**Use the threading wire to facilitate the threading of effect yarns.**

#### 3.5.1 Exchanging effect yarn bobbin

**NOTE**

**Make sure that the effect yarn bobbin for the relevant stitch type is installed on the appropriate side (the feed element side).**

Figure 3.8:  
Effect yarn bobbin,  
exchanging



- Slacken off knurled screw (1).
- Pull down locating arm (2).
- Take out felt (3).
- Remove effect yarn bobbin (4).
- Install the new effect yarn bobbin.
- Insert felt (3).
- Push up locating arm (2) until positioning recess (5) engages with the pin.
- Retighten knurled screw (1).

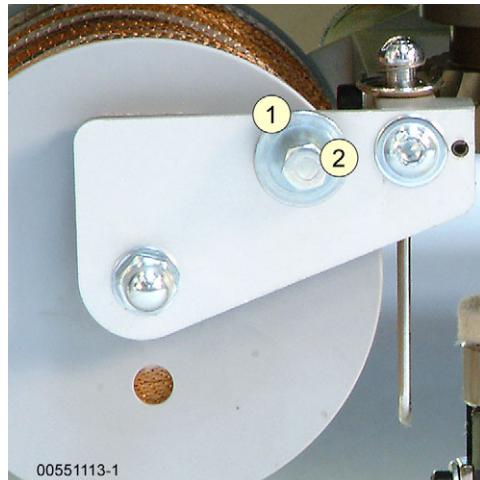
### 3.5.2 Changing pre-tension of effect yarn bobbin

The pretension of the effect yarn bobbin is adjusted by means of the bobbin brake.

#### NOTE

**Make sure that the effect yarn bobbin for the relevant stitch type is installed on the appropriate side (the feed element side).**

Figure 3.9:  
Bobbin brake,  
adjusting pre-tension



- Unscrew knurled nut (1).
- Adjust the pre-tension by turning hex screw (2).
- Retighten knurled nut (1).

#### NOTE

**Make the knurled nut tight again after adjusting the pretension, otherwise the hex nut will not be locked.**

## 4. Stitch types

### 4.1 Cord/tape

#### NOTE

Before using this stitch type, you have to switch to the *cord/tape* mode. Also see the *Changing stitch type* chapter in your operator's guide for the control unit.

The cord/tape stitch type enables you to fix round cord and flat tape.

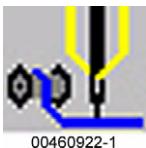


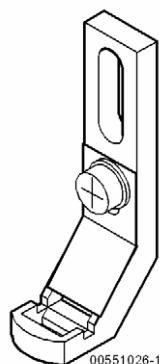
Figure 4.1:  
Typical applications.  
Cord/tape  
left: flat material  
right: round material

#### 4.1.1 Typical applications



#### 4.1.2 Cord/tape foot

Figure 4.2:  
Cord/tape foot



Thickness (mm)	
0,5	1,0
1,5	2,0
2,5	3,0
3,5	4,0
4,5	5,0
6,0	7,0
8,0	10,0
12,0	14,0
16,0	

When embroidering with the cord/tape stitch type, the cord/tape foot performs the function of the presser foot.

The cord/tape feet supplied with the machine are used for embroidering a broad variety of materials. Select the appropriate feet according to the embroidery material you intend to use and/or by experimentation.

**CAUTION**

Check that the height of foot (2) is suitable for the design/material before you start embroidering by performing a test run. If the foot is set too low, it can damage finished parts of the work.

**NOTE**

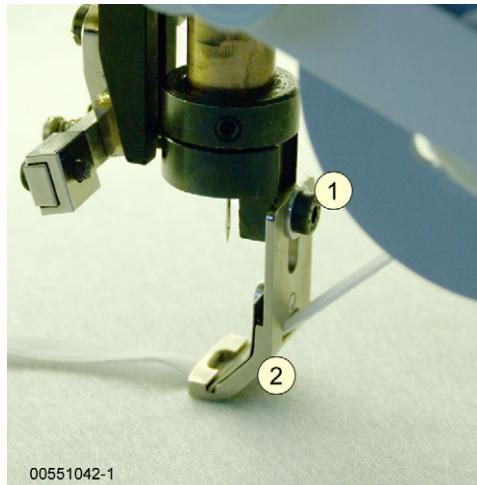
Make sure that the effect yarn bobbin for the relevant stitch type is installed on the appropriate side (the feed element side).

#### 4.1.3 Changing cord/tape foot

**CAUTION**

Be sure to use the appropriate size of foot for the material being embroidered. The material must be flush with the foot without getting caught, as this can impair the quality of the work.

Figure 4.3:  
Cord/tape foot,  
changing



- Slacken off and remove bolt (1).
- Remove the cord/tape foot.
- Attach new cord/braid foot (2).
- Adjust cord/braid foot to lowest position.
- Retighten screw (1).

#### Adjusting cord/tape foot

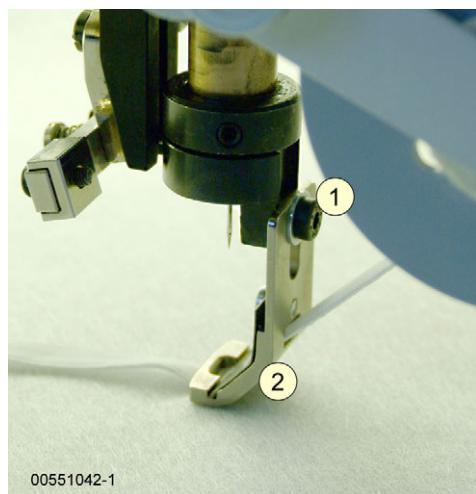
**CAUTION**

Check that the height of foot (2) is suitable for the design/material before you start embroidering by performing a test run. If the foot is set too low, it can damage finished parts of the work.

**NOTE**

To adjust the cord/tape foot, certain parameters have to be entered at the control unit (see operator's guide for the control unit).

Figure 4.4:  
Cord/tape foot,  
adjusting



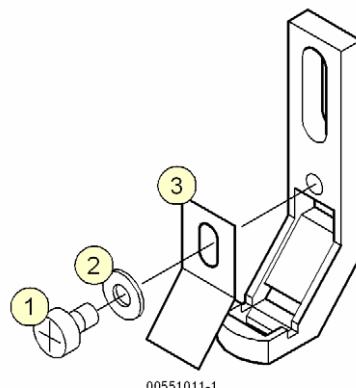
- Slacken off screw (1).
- Adjust cord/braid foot (2) to lowest position.
- Retighten screw (1).

#### 4.1.4 Embroidering round materials (cord)

##### NOTE

**Before embroidering round material, detach the spring plate from the cord/tape foot (Fig. 4.5).**

Figure 4.5:  
Cord/tape,  
removing spring plate



- Unscrew and remove screw (1) with washer (2).
- Remove spring plate (3).
- Insert and retighten screw (1) with washer (2).

##### NOTE

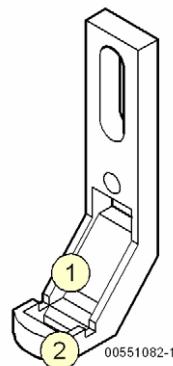
**Select the appropriate size of foot for the material being embroidered. The material must be flush with the foot without getting caught. Make sure that excessive friction cannot occur between the foot and the material being embroidered.**

Figure 4.6:  
Cord/tape,  
threading round material

#### Threading round material (cord)

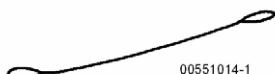


Figure 4.7:  
Embroidering round  
material



- Insert the material on the effect yarn bobbin from the back into the **bottom** aperture (1) in the foot.
- Pull through the material from the front.
- Pass the material through aperture (2) and pull it out.

#### NOTE



**Use the threading wire to facilitate the threading of effect yarns.**

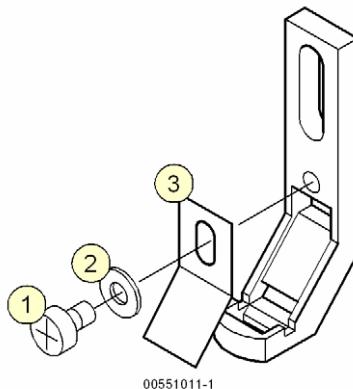
**NOTE****4.1.5 Embroidering flat material (tape)**

Select the appropriate size of foot for the type of flat material being embroidered. The material must be flush with the foot without getting caught, as this can impair the quality of the work. Make sure that excessive friction cannot occur between the foot and the material being embroidered.

**Adjusting spring plate****NOTE**

The slot in the spring plate allows its height to be adjusted (Fig. 4.8). The position (height) of the spring plate must be adjusted according to the material being embroidered, while making sure that the material does not get caught. Make sure that excessive friction cannot occur.

Figure 4.8:  
Cord/tape,  
adjusting spring plate for  
flat material



- Slacken off screw (1) with washer (2).
- Adjust spring plate (3) to desired height.
- Retighten screw (1) with washer (2).

**NOTE****Move spring plate before making tight:**

- for thin material: slide down
- for thick material: slide up

Figure 4.9:  
Cord/tape,  
threading round material

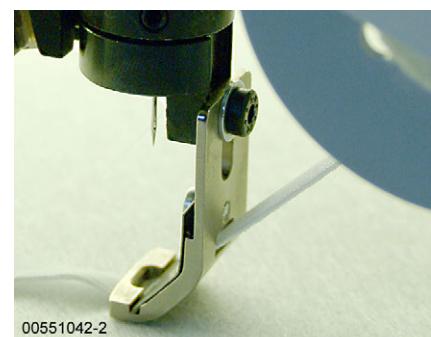
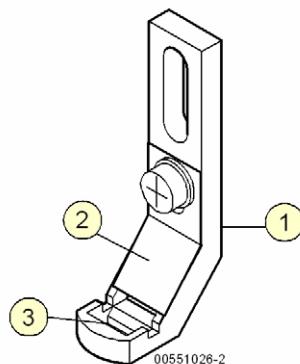
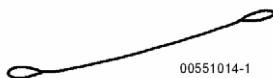


Figure 4.10:  
Embroidering round  
material



- Insert the material on the effect yarn bobbin from the back into the **middle** aperture (1) in the foot.
- Pass the material **behind** spring plate (2).
- Pull the material forward through **bottom** aperture (3).

## NOTE



**Use the threading wire to facilitate the threading of effect materials.**

## NOTE

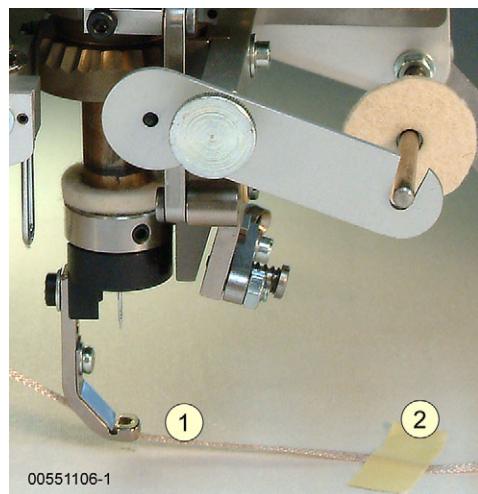
To set the cord/tape stitch type, certain parameters have to be entered at the control unit (see operator's guide for the control unit - *Modifying parameters*).

## 4.1.7 Fixing material before embroidering

## NOTE

At the start of the design, fix the material being embroidered (1) to the fabric, typically with adhesive tape (2), as a general rule otherwise it will be impossible to attach by embroidering.

Figure 4.11:  
Attaching material  
examples: Type of stitch  
coiling



## DANGER

The bobbin holder and effect yarn bobbins below the embroidery head are rotating parts. The associated machine movements pose a danger to your head and hands.

**NOTE****4.1.8 Frilling device**

**Before using the frilling device, you have to switch to the zigzag mode. Also see the *Changing stitch type* chapter in your operator's guide for the control unit.**

The frilling device allows tapes or ribbons 8-16 mm wide to be embroidered in the form of ruffles. It is used together with a conventional tape foot in the width of the tape or ribbon being used (8-16 mm). The frilling device can **only be used with the T8 control unit**.

**Typical applications**

Figure 4.12:  
Typical applications,  
frilling

**Preparing the frilling device**

Figure 4.13:  
Frilling device,  
preparation



- Choose a tape foot suitable for the tape or ribbon width (8-16 mm).
- Remove leaf spring (1) from the tape foot.

Figure 4.14:  
Frilling device,  
preparation



Figure 4.15:  
Frilling device,  
preparation

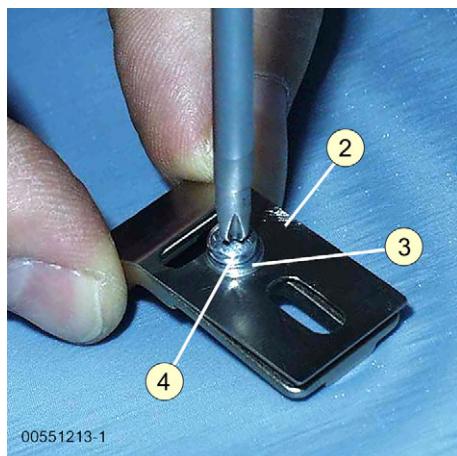
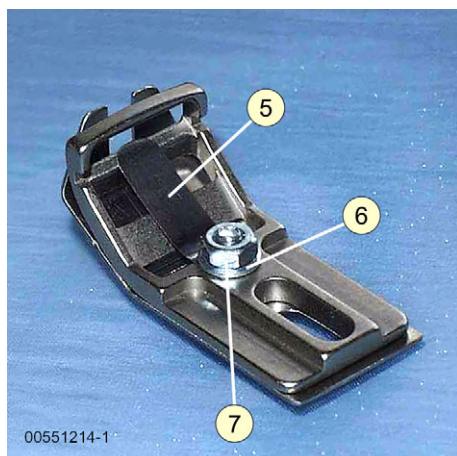


Figure 4.16:  
Frilling device,  
preparation



- Position large plate (2) of the frilling device centrally on the back of the tape foot.

- Secure plate (2) with washer (3) and the screw provided (4).

- Replace the conventional leaf spring by smaller, tonguelike leaf spring (5).
- Align the end of leaf spring (5) in a central position.
- Secure the leaf spring with washer (6) and a nut (7).

### Installing frilling device

#### CAUTION

**Be sure to use the appropriate size of foot for the material being embroidered. In particular, a foot that is too small can impair the quality of the work.**

**Adjust the height of the foot according to the design/material. Check the height of the foot before embroidering by performing a test run. If the foot is set too low, it can damage the work.**

#### NOTE

**Make sure that the effect yarn bobbin for the relevant stitch type is installed on the side of the feed element.**

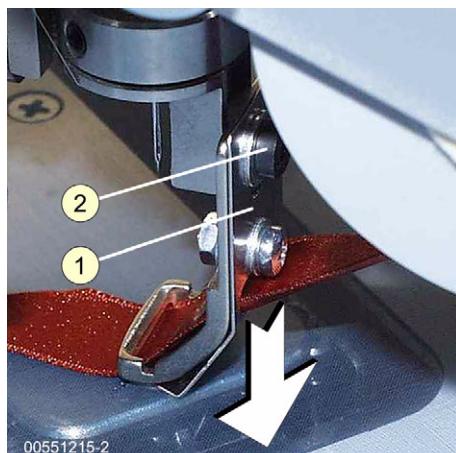
The frilling device is installed in the same way as a conventional cord/tape foot.  
(See chapter: 4.1.3 *Changing cord/tape foot*.)

### Adjusting frilling device

#### NOTE

**To adjust the frilling device, certain parameters have to be entered at the control unit (see *Appendix B – W head applications*).**

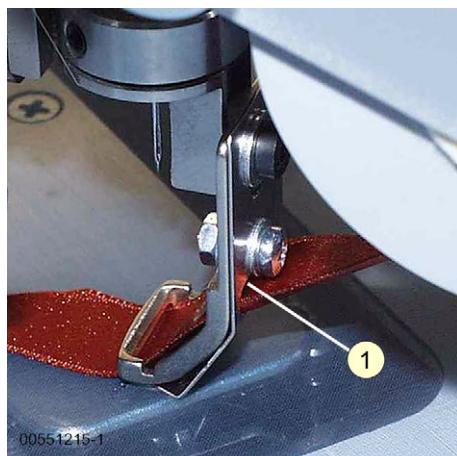
Figure 4.17:  
Frilling device,  
adjustment



- Adjust the presser foot height at the control unit according to the instructions in *Appendix B – W head applications*.
- Set presser foot (1) to its lowest position.
- Firmly tighten presser foot retaining screw (2).

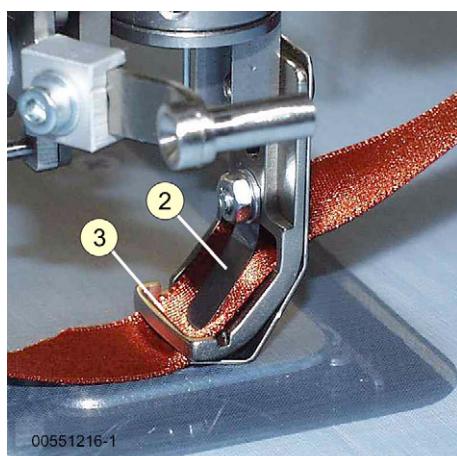
### Threading frilling device

Figure 4.18:  
Frilling device,  
threading



- Insert tape or ribbon from the rear through the top aperture in plate (1) and tape foot.

Figure 4.19:  
Frilling device,  
threading



- Pull the tape or ribbon through underneath tongue-like leaf spring (2).
- Pass the tape or ribbon down through tape foot front aperture (3) from top to bottom.

#### 4.1.9 Sideways stitch adapter

The sideways stitch adapter allows tapes to be stitched off-center in braid embroidery. The adapter is used together with conventional tape feet (1.5 - 16 mm).

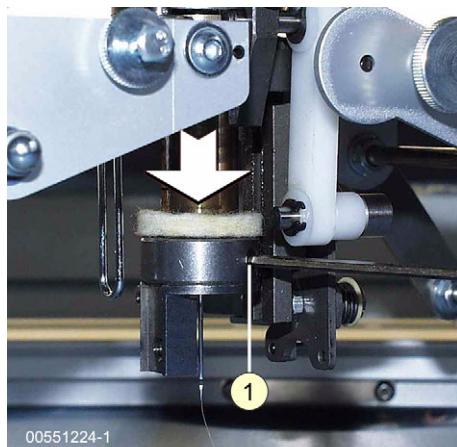
##### Typical applications

Figure 4.20:  
Typical applications,  
sideways stitch adapter

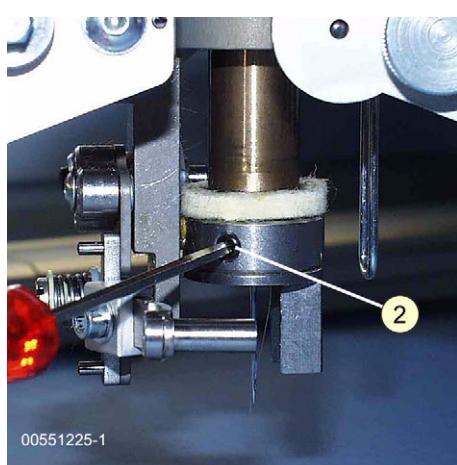


##### Installing sideways stitch adapter

Figure 4.21:  
Sideways stitch adapter,  
installation



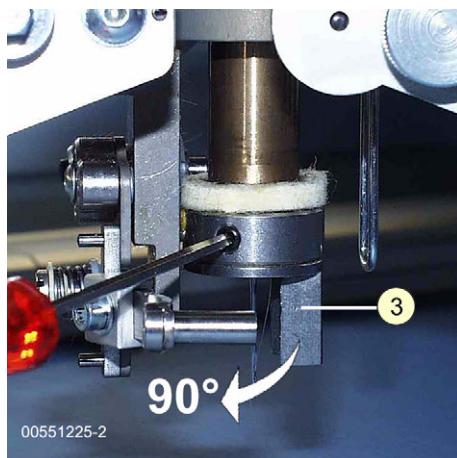
- Using the presser foot key on the embroidery head, lower the presser foot to its bottom position.
- Slacken off threaded pin (1) in the adjusting ring.



- Slacken off threaded pin (2) on the back of the adjusting ring.

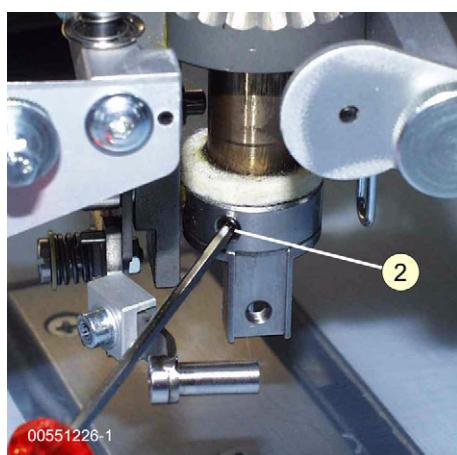
Figure 4.22:  
Sideways stitch adapter,  
installation

Figure 4.23:  
Sideways stitch adapter,  
installation



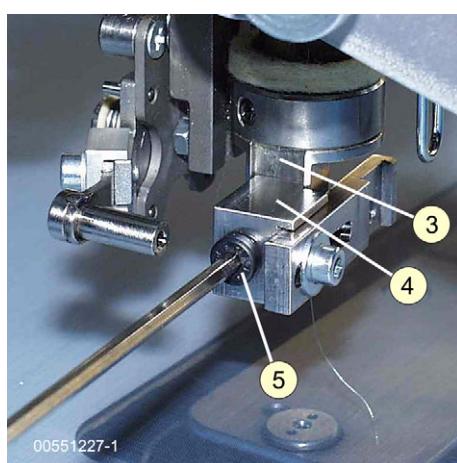
- Turn holder (3) 90° counter-clockwise.

Figure 4.24:  
Sideways stitch adapter,  
installation



- Retighten threaded pins (2), (1).

Figure 4.25:  
Sideways stitch adapter,  
installation



- Tightly secure stitch adapter (4) on repositioned holder (3) with screw (5).

Figure 4.26:  
Sideways stitch adapter,  
installation

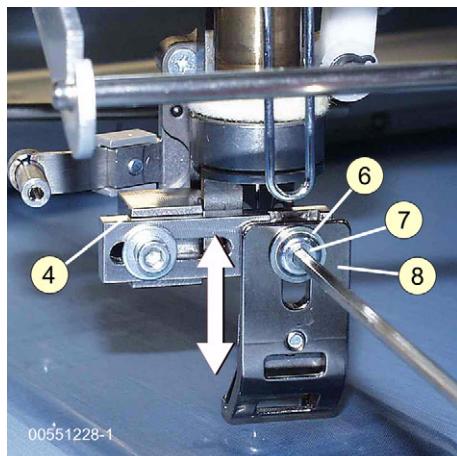
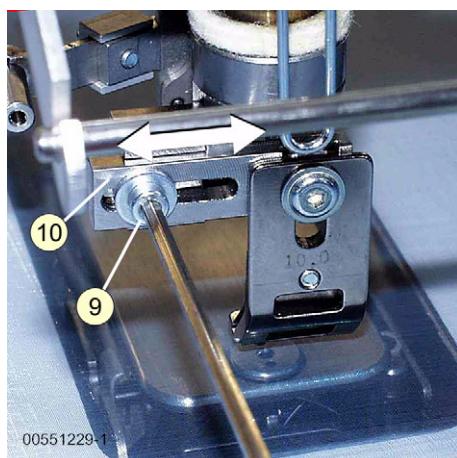


Figure 4.27:  
Sideways stitch adapter,  
installation



- Loosely attach selected tape foot (8) with screw (7) and washer (6) to sideways stitch adapter (4).
- Adjust the presser foot height to suit the tape material (see chapter: *4.1.3 Changing cord/tape foot*).
- Tighten screw (7).
- Slacken off screw (9).
- Position adjusting plate (10) of the sideways stitch adapter laterally according to the desired embroidery effect and tape width.
- Retighten screw (9).

## NOTE

**Because the position of the adjusting plate affects the embroidery effect and visual impact of the design, you are recommended to check this by doing an embroidery test and making any necessary improvements by repositioning the adjusting plate.**

**NOTE**

## 4.2 Zigzag

**Before using this stitch type, you have to switch to the zigzag mode. Also see the *Changing stitch type* chapter in your operator's guide for the control unit.**

The cord/tape stitch type enables you to fix round cord and flat tape.

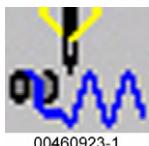


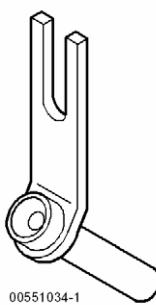
Figure 4.28:  
Typical applications  
Zigzag  
left: sequins  
right: beaded tape

### 4.2.1 Typical applications



### 4.2.2 Zigzag foot

Figure 4.29:  
Zigzag foot



The zigzag feet supplied with the machine are used for embroidering a broad variety of materials. There are three different variants of the feet:

- Sequin foot for 3.0 mm sequin tape
  - 2.0 mm and 3.5 mm feet for all embroidery materials (except sequin tape).
- Select the appropriate feet according to the embroidery material you intend to use.

**CAUTION**

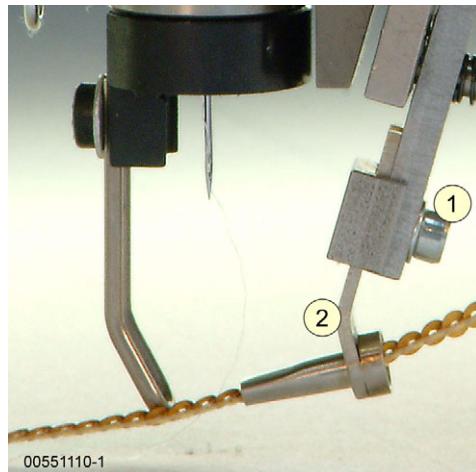
**Be sure to use the appropriate size of foot for the material being embroidered. In particular, a foot that is too small can impair the quality of the work.**

#### 4.2.3 Changing zigzag foot

**CAUTION**

Be sure to use the appropriate size of foot for the material being embroidered. In particular, a foot that is too small can impair the quality of the work.

Figure 4.30:  
Zigzag foot,  
changing



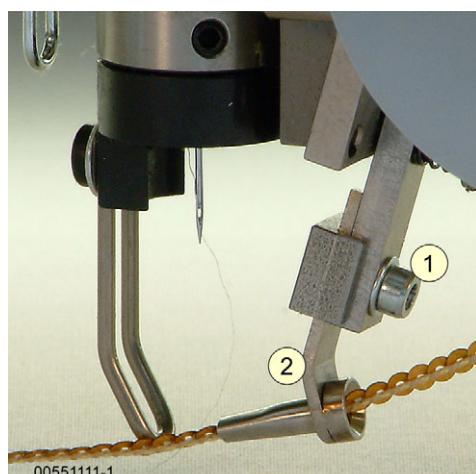
- Swing up the foot.
- Slacken off screw (1).
- Remove the zigzag foot.
- Attach new zigzag foot (2).
- Retighten screw (1).

#### Adjusting zigzag foot

**CAUTION**

Be sure to use the appropriate size of foot for the material being embroidered. In particular, a foot that is too small can impair the quality of the work.

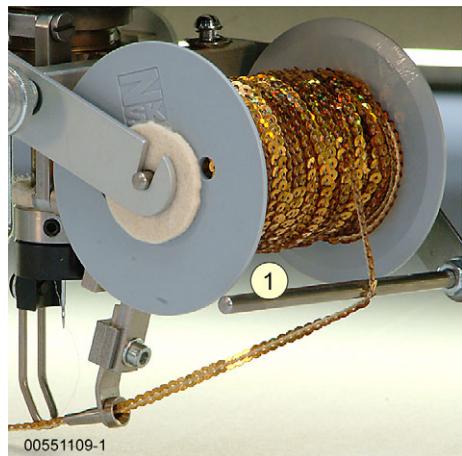
Figure 4.31:  
Zigzag foot,  
adjusting



- Slacken off screw (1).
- Adjust zigzag foot (2) to desired position/height.
- Retighten screw (1).

Figure 4.32:  
Effect yarn bobbin,  
deflector pin

#### 4.2.4 Threading

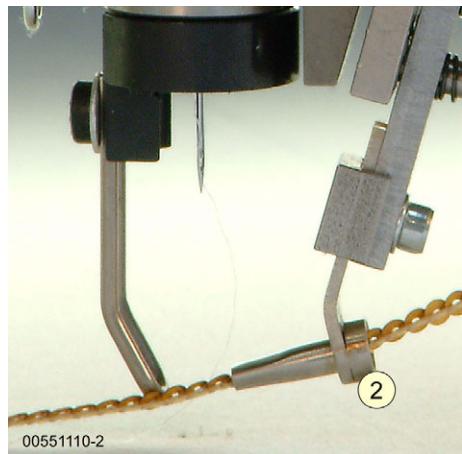


- Run the material off the effect yarn bobbin and over deflector pin (1).

#### NOTE

In order to obtain the correct effect yarn pretension, it is essential that you run the material over the deflector pin Fig. 4.32.

Figure 4.33:  
Zigzag, threading



- Thread the material through hole (2) in the foot.

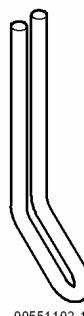
#### Algorithms (zigzag design)

#### NOTE

The zigzag stitch type includes various zigzag designs for attaching the embroidery material. More detailed information on the designs is contained in the operator's guide for the control unit.

Figure 4.34:  
Presser foot

#### 4.2.5 Presser foot



- When employing the zigzag stitch type, the presser foot must be used in addition to the zigzag foot.

#### NOTE

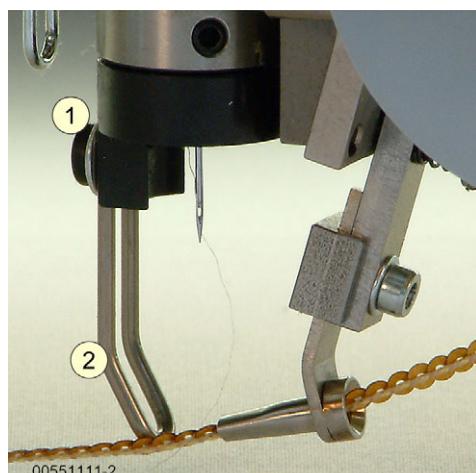
**Never embroider without the presser foot.**

#### Changing presser foot

#### NOTE

**Before changing the presser foot, certain parameters have to be entered at the control unit (see operator's guide for the control unit).**

Figure 4.35:  
Changing foot



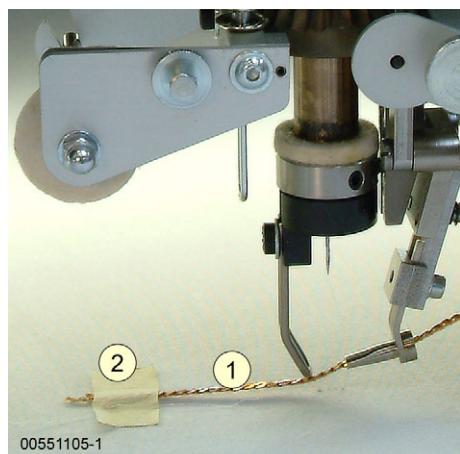
- Slacken off screw (1).
- Remove foot (e.g. coiling foot).
- Attach presser foot for zigzag stitch type (2).
- Adjust presser foot (2) to lowest position.
- Retighten screw (1).

**NOTE**

Figure 4.36:  
Attaching material examples: Coiling stitch type

**4.2.6 Fixing material before embroidering**

At the start of the design, fix the material being embroidered (1) to the fabric, typically with adhesive tape (2), as a general rule otherwise it will be impossible to attach by embroidering.

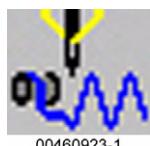
**DANGER**

The bobbin holder and effect yarn bobbins below the embroidery head are rotating parts. The associated machine movements pose a danger to your head and hands.

**NOTE**

## 4.3 Rolling

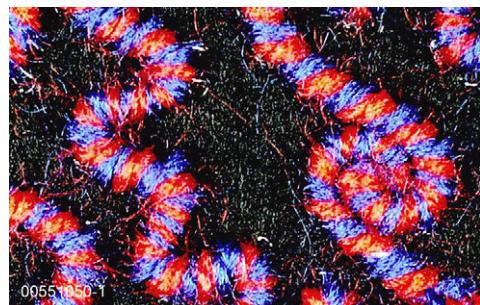
**Before using this stitch type, you have to switch to the *coiling* mode. Also see the *Changing stitch type* chapter in your operator's guide for the control unit.**



With the coiling stitch type, the coiling thread is wound around the feed thread. The finished embroidery has the appearance of a twisted cord.

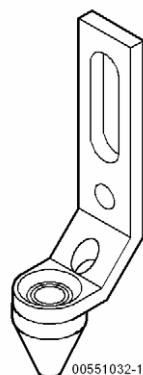
### 4.3.1 Typical applications

Figure 4.37:  
Typical applications:  
Coiling



### 4.3.2 Coiling foot

Figure 4.38:  
Coiling foot



When embroidering with the coiling stitch type, the coiling foot performs the function of the presser foot.

**CAUTION**

**When embroidering with the coiling stitch type, the coiling foot performs the function of the presser foot. Adjust the height of the foot (2) according to the design/material. Check the height of the foot before embroidering by performing a test run. If the foot is set too low, it can damage finished parts of the work.**

### Adjusting coiling foot

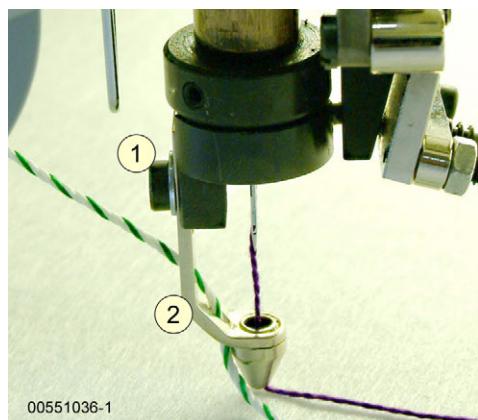
**CAUTION**

If the foot is set too low, it can damage finished parts of the work.

**NOTE**

Before adjusting the coiling foot, certain parameters have to be entered at the control unit (see operator's guide for the control unit).

Figure 4.39:  
Adjusting coiling foot



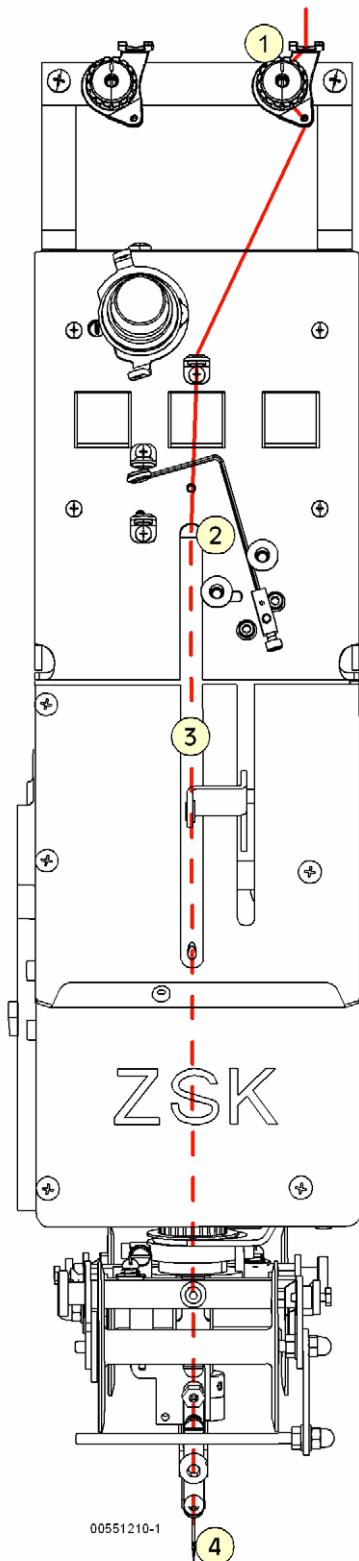
- Slacken off screw (1).
- Adjust coiling foot (2) to desired position/height.
- Retighten screw (1).

**CAUTION**

Adjust the height of the foot (2) according to the design/material.  
Check the height of the foot before embroidering by performing a test run. If the foot is set too low, it can damage the work.

#### 4.3.3 Threading (feed thread)

Figure 4.40:  
Coiling,  
threading feed thread



- (1) Pretension regulator (holding tension)      (3) Needle bar  
(2) Needle bar (top hole)      (4) Needle

#### 4.3.4 Threading feed thread

##### Feed thread

The coiling thread is wound around the feed thread. Its function, depending on the coiling ratio, is to give the coiling thread a more voluminous appearance or to create a special effect. Like the upper thread, it is threaded through the pretension regulator. See chapter entitled *3.3.1 Pretension regulator (holding tension)*.

##### Threading wire

Figure 4.41:  
Threading wire

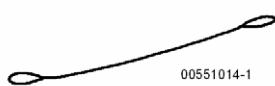
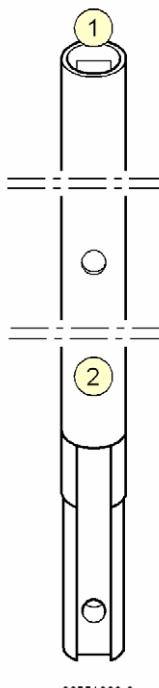


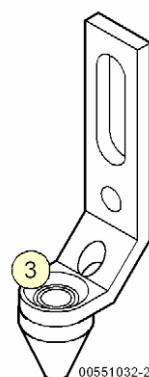
Figure 4.42:  
Coiling,  
threading feed thread



The feed thread is threaded with the aid of the threading wire. It is inserted together with the thread in the top of the needle bar and pulled out at the bottom behind the embroidery needle.

- Insert the threading wire in top hole (1) in needle bar (2).
- Feed in the threading wire until it appears at the bottom.
- Pass the thread through the eye at the top end of the threading wire.
- Hold the end of the thread at the top of the needle bar while pulling more thread off the bobbin with the threading wire, until the thread emerges from the bottom of the needle bar.
- Pull the threading wire with the thread down behind the needle and out of the needle bar.

Figure 4.43:  
Coiling foot,  
threading



- Pass the thread through hole (3) in the coiling foot.

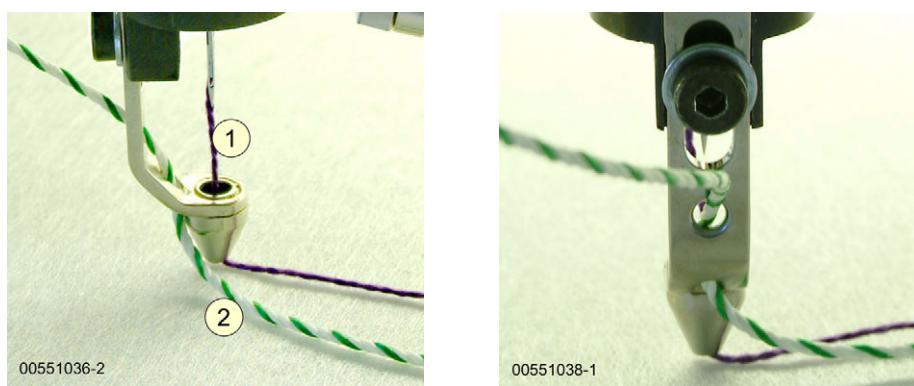
#### 4.3.5 Threading coiling thread

##### Coiling thread

##### NOTE

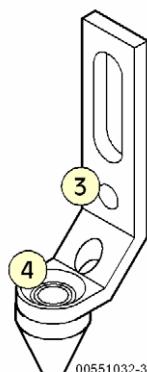
The coiling thread is the material that is wound around the feed thread. It is supplied from an effect yarn bobbin and threaded through the coiling foot.

Figure 4.44:  
Coiling thread



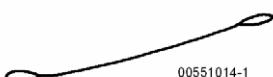
- (1) Feed thread  
(2) Coiling thread

Figure 4.45:  
Coiling foot



- Insert the coiling thread on the effect yarn bobbin from the outside into **upper** hole (3) of the foot.
- Insert the coiling thread from above into **bottom** hole (4) and pull it down and through the hole.

##### NOTE

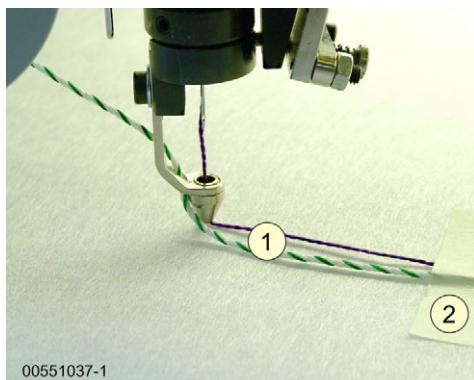


Use the threading wire to facilitate the threading of effect yarns.

**NOTE****4.3.6 Fixing material before embroidering**

**At the start of the design, fix the material being embroidered (1) to the fabric, typically with adhesive tape (2), as a general rule otherwise it will be impossible to attach by embroidering.**

Figure 4.46:  
Attaching material,  
example:  
Coiling stitch type

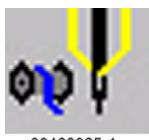
**DANGER**

**The bobbin holder and effect yarn bobbins below the embroidery head are rotating parts. The associated machine movements pose a danger to your head and hands.**

**NOTE**

## 4.4 Embroidery (sewing)

**Before using this stitch type, you have to switch to the *embroidery* mode. Also see the *Changing stitch type* chapter in your operator's guide for the control unit.**

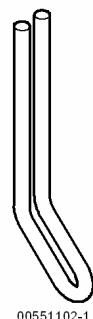


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The embroidery stitch type performed with the W head is equivalent to conventional embroidery executed in the multi-head mode, but with only **one** needle and color. For multi-color embroidery or to use different yarns, the yarn must be changed manually.

**NOTE**

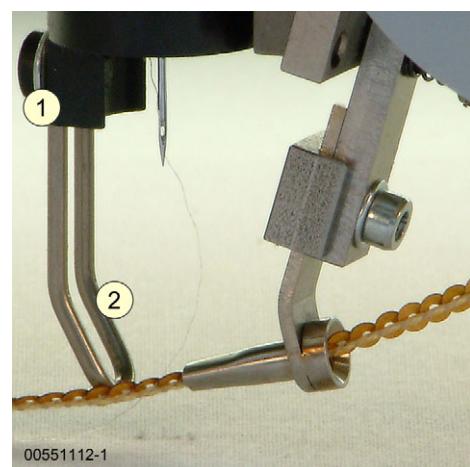
### 4.4.1 Presser foot



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**For the embroidery stitch type, use the presser foot for the zigzag stitch type. Remove all other feet you have used previously.**

Figure 4.47:  
Changing presser foot



- Slacken off screw (1).
- Remove foot (e.g. coiling foot).
- Use presser foot for zigzag stitch type (2).
- Adjust foot (2) to lowest position.
- Retighten screw (1).

**CAUTION**

Check the height of the foot before embroidering by performing a test run. If the foot is set too low, it can damage the work.

#### 4.4.3 Threading

**NOTE**

The yarn for the *embroidery* stitch type is threaded in the same way as the upper thread. Also see *Threading upper thread*. The run of the thread is illustrated in the chapter entitled *Threading (upper thread)*.



**NOTE**

## 5. Troubleshooting

In case of frequent malfunctions, note whether the same problem always occurs at the same embroidery head or same needle. If customer service is required, this information is important to ensure a quick remedy.

### 5.1 W head, general

Fault	Cause	Remedy
Z axis offset	Toothed belt too loose	<ul style="list-style-type: none"><li>Tighten toothed belt</li></ul>
	Movement of rotating parts (in Z axis) impeded by incorrect screws	<ul style="list-style-type: none"><li>Use screws with correct length for bobbin holders</li></ul>
	Toothed belt coated with oil	<ul style="list-style-type: none"><li>Clean or exchange toothed belt</li></ul>

### 5.2 Zigzag stitch type

Fault	Cause	Remedy
Untidy work (zigzag)	Irregular sequence of stitches in design	<ul style="list-style-type: none"><li>Recalculate stitch length in the editor</li></ul>
	Incorrect zigzag foot	<ul style="list-style-type: none"><li>Change zigzag foot</li></ul>
	Effect yarn poorly wound on bobbin	<ul style="list-style-type: none"><li>Wind on effect yarn/tape according to yarn/tape properties</li></ul>

Zigzag not on center of tape	Zigzag foot not engaged	<ul style="list-style-type: none"><li>Engage foot</li></ul>
	Incorrect or irregular stitch length	<ul style="list-style-type: none"><li>Recalculate stitch length in the editor</li></ul>
	Unsymmetrical pivoting of zigzag foot	<ul style="list-style-type: none"><li>Properly adjust zigzag drive clamp in the head</li></ul>
Stitches missing (zigzag)	Presser foot height incorrectly set	<ul style="list-style-type: none"><li>Set presser foot height in the parameters dialog</li></ul>

### 5.3 Cord/tape stitch type

Fault	Cause	Remedy
Tape is not embroidered	Incorrect tape foot	<ul style="list-style-type: none"><li>Change tape foot</li></ul>
	Incorrect stitch length	<ul style="list-style-type: none"><li>Recalculate stitch length in the editor</li></ul>
	Tape foot height incorrectly set	<ul style="list-style-type: none"><li>Set tape foot height electrically or mechanically</li></ul>

## 5.4 Coiling stitch type

Fault	Cause	Remedy
Irregular coiling	Irregular stitch lengths	<ul style="list-style-type: none"><li>• Recalculate stitch length in the editor</li><li>• Modify parameters to suit materials</li><li>• Adjust presser foot height / coiling ratio</li></ul>
Coiling too wide	Coiling / feed thread too thick	<ul style="list-style-type: none"><li>• Modify parameters to suit materials</li></ul>
	Coiling foot set too low	<ul style="list-style-type: none"><li>• Adjust presser foot height in parameters to suit materials</li></ul>
	Incorrect stitch length	<ul style="list-style-type: none"><li>• Recalculate stitch length in the editor</li><li>• Modify parameters to suit materials</li></ul>
	Incorrect coiling ratio	<ul style="list-style-type: none"><li>• Modify parameters to suit materials</li></ul>
	Incorrect tension of coiling / feed thread	<ul style="list-style-type: none"><li>• Recalculate stitch length in the editor</li><li>• Modify parameters to suit materials</li></ul>
Inconsistent appearance of mirrored design parts	Design is mirrored, but coiling direction is not reversed	<ul style="list-style-type: none"><li>• Change coiling direction</li></ul> <p><u>Caution:</u> The effect yarn behaves differently according to the coiling direction (yarn twist direction, S or Z-twist)</p>



## 6. Punching advice

The following advice does not constitute punching instructions, but merely describes various key points from the perspective of the embroidery machine manufacturer. The advice is not to be regarded as exhaustive; complying with general rules does not always give rise to a good punching result. Machine-specific factors often play a crucial role and therefore need to be taken into account.

### 6.1 General rules

- The **ideal stitch length** depends on the **type of design** and the **yarn count**.
- In contrast to the practice with multi-needle heads, **fixing sequences at the design start and end** are to be avoided.
- Stitches that are **shorter than 0.5 mm** and **blank stitches** (no movement in X or Y direction) give rise to **thread breaks**.
- **Corners** in the design that are **more acute than 90** give rise to **untidy work**.

There are **no special factors** to consider with W-head embroidery; punching follows the pattern of a **step stitch line**.

Depending on the yarn material, the **punching length** is **1.3 mm - 2.0 mm**.

#### NOTE

**Additional special settings for W-head embroidery form part of the machine setup routine (presser foot height, zigzag designs, coiling ratio etc.) and are entered as described under *Machine setup for W heads*.**



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**M**

Machine not ready  
Main tension regulator  
Multi-needle head

**N**

Needle  
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  inserting  
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**O**

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Operation

**P**

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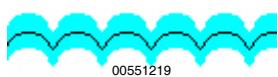


## Appendix B – W head applications

### Frilling device

#### Setting presser foot height

- Enable zigzag operating mode.
- Select frilling pattern (pattern No. 6).
- Set presser foot height to 1.
- Execute one stitch with the machine.



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#### NOTE

The mechanical steps are explained in greater detail in the W head operator's guide under *Adjusting frilling device*.

#### Configuring frilling device

The following configuration is recommended for using the frilling device with a stitch length of 2 mm, although values may differ depending on the embroidery material and stitch length:



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<b>Presser foot stroke:</b>	depending on tape width and thickness, between 30-40 INC
<b>Start angle:</b>	135°
<b>Stroke zigzag:</b>	0 INC
<b>Stroke pantograph:</b>	80 INC; with broad tapes also 60 INC
<b>Zigzag pattern:</b>	No. 6
<b>Pantograph start:</b>	320° (automatic available soon!)
<b>Bobbin thread sensing off:</b>	300° (automatic available soon!)

In the frilling operating mode a **maximum speed of 500 rpm** is possible, including the necessary jump stitches.



## Appendix B – W head applications