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1. Function

1.1 Intended use

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

1.2 Materials

1.2.1 Embroidery material

Sequins can be attached to all materials that are suitable for conventional embroidery.

1.2.2 Yarn

Avoid using cotton yarns as far as possible because they fray easily on the sharp edges of the sequins.

High-strength polyester and monofilament yarns are particularly suitable for sequin embroidery.

1.2.3 Sequins

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: 4-9 mm
- Standard sequin diameters: 5 mm, 7 mm
- Sequin hole diameter: 1.5 mm
- Sequin thickness: 0.2 mm
- Reel diameter: 180 mm

NOTE

Avoid using cotton yarns as far as possible because they fray easily on the sharp edges of the sequins.
2. Overview

2.1 General view

The illustration shows the right-hand version of the sequin device. The left-hand version is identical, but with the elements arranged as a mirror image.

Figure 2.1: General view

- Connector (differs depending on version)

- Reel holder

- Guide roller, top

- Adapter

- Guide roller, bottom

- Tensioning roller

- Sequin head
2.2 Partial view: LEDs

NOTE

Some sequin devices are equipped with light-emitting diodes (LEDs) that indicate the device’s current position.

Figure 2.2:
View of right side with LEDs

Lit LED indicates:

(2.2-1) = Rest position
(2.2-2) = Interim position
(2.2-3) = Operating position

The operating position is adopted as soon as sequins are to be attached to the design or parts of the design.

The sequin device adopts the interim position when individual parts of the design are not to be embroidered with sequins.

The rest position is adopted once the design is finished.
2.3 Partial view: sequin head

Figure 2.3:
Partial view, sequin head

Sequin head connecting cable

Sequin head mounting

Feed lever

Positioning wire

Hinged blade

Slide

Control bar

Leaf spring

Blade plate
3. Assembling

3.1 Erstmontage

**CAUTION**

The initial installation of sequin devices is to be performed only by service personnel trained specifically to carry out this task by ZSK.

The ZSK sequin device is available in two different versions for mounting either on the left or right of the embroidery head. If sufficient space is available, two sequin devices can be attached to each head; one on the left and one on the right.

NOTE

When the sequin device is installed for the first time, a special presser foot (3.1-1) and needle holder (3.1-2) are attached at the relevant outermost needle of the embroidery head.

Figure 3.1: Presser foot and needle holder for sequin device

3.1-1

3.1-2

NOTE

Once it has been made ready for sequins, the needle can still be used for conventional embroidery without sequins as well, but the quality is likely to be impaired. If you wish to resume conventional embroidery to the usual quality standard, you are advised to have the machine set up again accordingly by ZSK service engineers trained to performed this work.
3.2 Needle holder

Depending on the version, two different needle holders are available for the sequin device. If you wish to embroider caps with the sequin device, you need the needle holder with the rounded underside. It can be obtained subsequently from ZSK under order number: 270 022 204.

3.2.1 Exchanging needle

Before reinstalling the needle holder, make sure that the thread guide is correctly positioned. Depending on the version of the sequin device (e.g. right-hand sequin device = right-hand thread guide) the thread guide is inserted in the right or left side of the needle holder. See Fig. 3.2.

- Slacken off screw (3.3-3).
- Remove needle.
- Grip O-ring (3.3-1) and washer (3.3-2).
- Remove needle holder.
- Attach new needle holder.
- Tighten screw.
3.3 Clearance between blade plate and stitch plate

Figure 3.4: Overview, clearance between blade plate and stitch plate

3.3.1 Adjustment range

Figure 3.5: Table, adjustment range for clearance between blade plate and stitch plate

<table>
<thead>
<tr>
<th>Needle holder</th>
<th>Suitable for all embroidery applications</th>
<th>Minimum (mm)</th>
<th>Maximum (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>essential for cap embroidery</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Needle holder</th>
<th>Suitable for all embroidery applications</th>
<th>Minimum (mm)</th>
<th>Maximum (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>except cap embroidery</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3.3.2 Adjusting clearance

When adjusting the clearance between the blade plate and stitch plate, always observe the values in table Fig. 3,5 otherwise mechanical damage can occur. Realign the sequin head once you have adjusted the clearance. See “Aligning sequin head”.

NOTE

The clearance from the bottom edge of the blade plate to the top edge of the stitch plate is accurately adjusted at the factory for most embroidery applications. If you wish to embroidery very thick materials or designs containing appliqués with the sequin device, you can increase the clearance up to the maximum value indicated. Consult table Fig. 3,5 for the available adjusting range.

- Use the control unit to move the sequin head to the operating position. See “Changing position manually” under TFT or LCD.

- Slacken off adjusting screw (3.6-1).

- Adjust the clearance by sliding the sequin device in the appropriate direction.

- Tighten the adjusting screw.
3.4 Removing/installing

Switch off the machine and pull out the mains plug before removing or reinstalling the sequin device.

You can detach the sequin device if you do not intend to use it for an extended period. You can reinstall the head easily yourself because no adjustments need to be made.

3.4.1 Removing

When detaching the sequin device, *never* slacken off fastening screw (3.7-1). Slackening off this screw readjusts the entire sequin device.

Figure 3.7: Do not slacken off fastening screw

3.7-1
• Move the sequin device to the rest position.
• Slacken off screws (3.9-1) (depending on sequin device version).
• Pull out connector (3.8-2).
• Place connecting cable (3.8-1) in plastic clip (3.8-3) on the front of the machine.
• Remove retaining screw (3.8-4) while gripping the sequin device; pull off the device to the front.

• Twist the ends of the clip to secure the connecting cable.
3.4.2 Installing

The sequin devices are consecutively numbered. Always install them in the prescribed sequence. In compliance with the embroidery head numbering, start on the right of the machine with sequin device No. 1.

**NOTE**

- Insert the sequin device with pin (3.11-4) in matching adapter (3.11-3).
- Tighten retaining screw (3.11-5).
- Release connecting cable (3.11-1) from the plastic clip.
- Insert connector (3.11-2) in the mating socket.

**NOTE**

Insert the connector in the mating socket without exerting any force – it is designed to prevent insertion the wrong way round.

Depending on the version of the sequin device:
- Turn screws (3.12-1) to make them hand-tight.
3.5 Changing sequin head

The sequin head has to be changed if you wish to work with a different sequin diameter.

NOTE

After changing the sequin head, adjust the sequin feed. See “Adjusting sequin feed”.

3.5.1 Detaching sequin head

- Disconnect the machine from the power supply.
- Pull out sequin head connector (3.13-1).
- Unscrew and remove cable clamp screw (3.13-3).
- Release the cable from cable clamp (3.13-2).

- Unscrew and remove retaining screw (3.14-1) while gripping sequin head (3.14-3).
- Lower the sequin head and remove it from mounting (3.14-2).
3.5.2 Installing sequin head

- Slacken off locknut (3.15-4).
- Slightly slacken off stop screw (3.15-5).
- Insert sequin head (3.15-3) pin mounting (3.15-2) and push it against the stop pin.
- Lightly tighten retaining screw (3.15-1).

NOTE

Insert the connector in the mating socket without exerting any force – it is designed to prevent insertion the wrong way round.

- Insert connector (3.16-1) in the mating socket.
- Secure the cable with cable clamp (3.16-2).
- Insert sequin tape. See “Embroidery preparations”.
- Switch on the machine.

- Execute a manual color change. Consult the operator's guide for the control unit.
- Lower the sequin device to the operating position. See “Embroidery preparations”.

Figure 3.15: Installing sequin head

Figure 3.16: Installing sequin head
3.5.3 Aligning sequin head

**CAUTION**

Switch on manual pantograph positioning before working on the machine, while it is stationary, with the main switch on. In this setting, you can operate the pantograph manually, but cannot start the machine inadvertently.

- **Aligning front to back**

  - Slightly slacken off retaining screw (3.17-1).
  - Slacken off locknut (3.17-3).
  - Turn adjusting screw (3.17-4) to position the sequin head in mounting (3.17-2) so that the needle is located towards the back of the sequin hole. See Fig. 3.19.
  - Tighten the retaining screw.
  - Tighten the locknut.

*Figure 3.17: Aligning front to back*
- Aligning side to side

Manufacturing tolerances can make it necessary for you to align the sequin head in the side-to-side direction.

NOTE

Manufacturing tolerances can make it necessary for you to align the sequin head in the side-to-side direction.

Figure 3.18: Side view

- Slightly slacken off retaining screw (3.18-1).
- Slacken off fastening screw (3.18-3).
- Align the sequin head with the needle by means of eccentric bolt (3.18-2).
- Tighten the retaining screw.
- Tighten the fastening screw.

Checking alignment

Figure 3.19: Needle position

Hinged blade
4. Embroidery preparations

4.1 Installing reel

Figure 4.1: Installing reel

Felt washers

End washer

4.2 Threading sequin tape

Figure 4.2: Threading sequin tape at top

- Thread the sequin tape around the rollers. See Fig. 4.2.
• Pull the insertion aid out of the sequin head towards the sequin feed.

⇒ The insertion aid raises slide (4.4-3).

• With insertion aid (4.3-1) attached, push the sequin tape into the sequin head.

Figure 4.3: Insertion aid

4.3-1

Figure 4.4: Feed lever

4.4-1

4.4-2

4.4-3

• Pull back feed lever (4.4-1) with control bar (4.4-2) and hold it in position.

Figure 4.5: Threading sequin tape at bottom

• Pull the insertion aid out of the sequin head towards the sequin feed Fig. 4.5.
NOTE

With the aid of control bar (4.4-2) on the feed lever you can operate the sequin feed manually and thus check that the sequin tape is being advanced correctly.

4.2.1 Manual trimming

Figure 4.6: Trimming sequin tape

- Trim any surplus tape by pressing down hinged blade (4.6-1).
4.3 Threading yarn

Pass the thread that attaches the sequin tape to the work through the thread guide before threading the appropriate needle.

4.4 Exchanging needle

4 mm dia. sequin tape

If you wish to embroider 4 mm dia. sequin tape, you must use a special needle with a flat side. This needle is supplied together with the sequin head for embroidering 4 mm dia. sequin tape. It can be reordered from ZSK under order number: 574 687. Change the needle in the same way as you would change a conventional one. When inserting the needle, it is essential to ensure that the flat side faces the hinged blade.


4.5 Changing position

The sequin device is actuated automatically by means of special functions in the design or by special machine operations.

The sequin device is automatically returned to the rest position in the event of a malfunction, e.g. a thread break. Once the fault has been remedied, it is lowered again when the machine is next started up.

You can also move individual sequin devices to the rest position manually by pressing the appropriate embroidery head button – the embroidery head and thus the sequin device are switched off, and the sequin device moves to the rest position.

4.5.1 Operating, rest and interim positions

The table below describes the various positions of the sequin device and the situations in which they can occur.

<table>
<thead>
<tr>
<th>Position</th>
<th>Sequin device without LEDs</th>
<th>Sequin device with LEDs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rest position (raised)</td>
<td>e.g. Head off Thread break Special functions: Raise sequin Trimming Needle change End of design</td>
<td>e.g. Head off Thread break Special functions: Needle change End of design</td>
</tr>
<tr>
<td>Interim position (middle)</td>
<td>not available</td>
<td></td>
</tr>
<tr>
<td>Operating position (lowered)</td>
<td>Embroidering</td>
<td>Embroidering</td>
</tr>
</tbody>
</table>
Sequin device without LEDs

The sequin head is lowered to the **operating position** for embroidering sequins and raised again afterwards to the **rest position**.

Sequin device with LEDs

The sequin head is lowered to the **operating position** for embroidering sequins and raised again afterwards to the **rest position**. Once the design is finished, the sequin device adopts the **rest position**. The adopted position is indicated by the relevant LED. Also see “**Partial view: LEDs**”.

4.5.2 Changing position manually

You can trigger a position change manually from the control unit for **testing purposes** as well.

TFT control unit

Starting from the “**ZSK machine control**” menu:

1. Press button **E Service**.
2. Press button **A Tests / diagnostics**.
3. In the menu “**Test machine devices**” press the appropriate button for the installed version of the sequin device, e.g. button **D Sequin right** (if the device is installed on the right).
4. Press button **X Start testing**.
5. Depending on the machine type, either press the reverse embroidery key or push the operating lever back to the left and hold.

⇒ The sequin device moves to the **next** position.
LCD control unit

Starting from the “Machine” basic screen:

- Press MENU key.
- Press key 5 “Service”.
- Hold down SHIFT and press MENU.
- Press key 9 “More service functions”.
- Press key 3 “Test machine attachment”.
- In the selection menu use the cursor keys to select the appropriate option, e.g. “Sequin right”.
- Press key 2 “Start testing”.
- Depending on the machine type, either press the reverse embroidery key or push the operating lever back to the left.

⇒ The sequin device moves to the next position.

NOTE

You can employ the same method to initiate a single sequin feed for test purposes – at the time the sequin device must be in the rest position (raised). Mark the SEQUIN LEFT or SEQUIN RIGHT item. Then press the STOP key or move the lever to the left as appropriate.
4.6 Control unit settings

4.6.1 Switching embroidery device on and off

**TFT control unit**

Starting from the “ZSK machine control” menu:

- Press button **Machine setup**.

- In the menu “Embroidery machine setup data” under **Tools**, switch the embroidery device on or off as required. To do so, activate/deactivate the box alongside **Sequins**. Consult the operator's guide for the control unit.

**LCD control unit**

Starting from the “Machine” basic screen:

- Press **MENU** key.

- Press key 4 “**Machine setup**”.

- Press key 4 “**Tools**”.

- Press key 3 “**Sequins**”.

- Press key 0 “**Deactivate**” or 1 “**Activate**”.

4.6.2 Adjusting speed

A maximum speed of 700 rpm is recommended for embroidering sequins. The speed is automatically set to 700 rpm when the sequin device is activated.

TFT control unit

Starting from the “ZSK machine control” menu:

• Press key D Machine setup.

In the menu “Embroidery machine setup data” under A Speeds setup, you can set the sequin embroidery speed under F Sequins. Consult the operator's guide for the control unit.

• Enter the desired speed alongside menu item F Sequins.

• Confirm the speed with X Confirm.
LCD control unit

Starting from the “Machine” basic screen:

• Press **MENU** key.

• Press key 4 “**Machine setup**”.

• Press key 1 “**Speeds setup**”.

• Press key 5 “**Sequins**”.

• Enter the desired speed on the control unit's number keypad.

• Press the **RETURN** key to confirm your selection.

• Press the **RETURN** key again to accept the speed.
4.6.3 Adjusting sequin feed

Adjust the sequin feed **only** if you have changed to a sequin head for a different sequin size.

**TFT control unit**

Starting from the “ZSK machine control” menu:

- Press button **Machine setup**.

Set the feed with *Motor for sequin feed ...* in the menu “Embroidery machine setup data” under **Sequins setup**.

- Enter the nominal sequin size (e.g. “7” for an outside diameter of 7 mm) in the *Motor for sequin feed ...* box.

- Confirm the setting with **Confirm**.

**LCD control unit**

Starting from the “Machine” basic screen:

- Press **MENU** key.

- Press key 4 “Machine setup”.

- Hold down **SHIFT** and press **MENU**.
Embroidery preparations

4 - 12 Sequin Device - Version 1.3

• Press key 9 “More service functions”.

• Depending on the installed device, press key 1 or 2.

• Enter the nominal sequin size (e.g. “7” for an outside diameter of 7 mm) in the box.

• Press the RETURN key to confirm.

TFT and LCD control units

NOTE

Once you have adjusted the sequin feed, perform a feed motor reset in order to return the motor to its 0 position.

Initiating a reset

Figure 4.8: Reset

• Use control bar (4.8-3) to move feed lever (4.8-2) to the travel limit in the feeding direction of the sequin tape.

• Slacken off screw (4.8-1).
Figure 4,9: Start key

- Tighten screw (4.8-1).

- Press start key
  \[\Rightarrow\] A whistle sounds.
  \[\Rightarrow\] The reset is initiated.

Figure 4,10: Stop key

- Press stop key
  \[\Rightarrow\] The reset is terminated.
NOTE

4.7 Reduction in embroidery field size

When in the operating position, the sequin device reduces the size of the available embroidery field (4.11-1).

Depending on the machine type, the safety area (4.11-2) inside the border frame (4.11-3) is of various sizes or entirely absent. This area determines the extent of the lateral restriction of the embroidery field (dimension A in table Fig. 4,13).

Figure 4,11: Embroidery field without use of sequins
NOTE

Before embroidering, check that the motif fits inside the available embroidery field when the sequin devices are lowered. To avoid additional restrictions, use only flat border or side clamps to secure the work at the side.

Figure 4.12: Restricted embroidery field with sequin device installed on right

4.12-1

4.12-2

Figure 4.13: Table of embroidery field restrictions

<table>
<thead>
<tr>
<th>Embroidery field restriction</th>
<th>A [mm]</th>
<th>B [mm]</th>
<th>C [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flat border clamp left/right</td>
<td>≤ 60</td>
<td>90</td>
<td>15</td>
</tr>
<tr>
<td>Flat side clamp left/right</td>
<td>≤ 40</td>
<td>90</td>
<td>15</td>
</tr>
<tr>
<td>Toggle-joint clamp left/right</td>
<td>≤ 60</td>
<td>100</td>
<td>15</td>
</tr>
</tbody>
</table>

NOTE

Special note must be taken of the reduced embroidery field in case of single frame embroidery.

Switch off the sequin device (SEQUINS OFF) once you no longer need it. The sequin device does not reduce the size of the embroidery field when it is in the rest position.

With the sequin device lowered (in the operating position), no other special functions can be executed apart from sequin functions and jump stitches.
5. Sequin designs

5.1 Editing

**CAUTION**

*Do not use the HEIGHT, WIDTH and ANGLE editor functions with sequin designs.*

The lengths of certain stitches are matched to the sequin diameter and must not be modified globally with the HEIGHT and WIDTH functions.

The final stitch before inserting a sequin must always be positioned after the sequin (see 'Punching' below). It must not come out in front as a result of rotating the design with ANGLE.

5.2 Punching

**NOTE**

Sequin designs should always be created by experienced punchers familiar with the peculiarities of sequin embroidery.

To help non-punchers understand design-related embroidery problems, we have outlined a number of important basic rules that must be observed when punching sequin designs. These basic rules are not envisaged as a substitute for a punching manual. Punchers will find detailed information on creating sequin designs in the manuals provided with their punching software and in the relevant specialist literature.
ZSK sequin designs contain special functions for sequins:

- The **SEQUINS ON** function advances the sequin and inserts a stitch in the sequin hole. The sequin device is lowered automatically the first time SEQUINS ON occurs.

- **SEQUINS OFF** raises the sequin device to the rest position.

- Before embroidering sequins, execute a **needle change** to the needle to which the sequin device is assigned.

---

**CAUTION**

If the needle misses the sequin hole (**Fig. 5.1**) because the sequin is incorrectly placed, this may result in damage to the embroidery material, needles or stitch plates.

---

**Figure 5.1:**
Sequin advance and final stitch before sequin is attached

5.1-1

5.1-2

- Sequins are fed from the **front** (**5.1-1**). The last stitch before a sequin is inserted must be located **behind** the position envisaged for the sequin (**5.1-2**), otherwise the sequin will be deflected by the taut upper thread and placed in the wrong position.

- You are recommend to apply the sequins with a sequence of stitches forming a star. In the illustration the SEQUINS ON function is initiated by the stitch from 1 to 2.
6. Troubleshooting

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

<table>
<thead>
<tr>
<th>Fault</th>
<th>Possible cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>No sequin advance</td>
<td>Connector not inserted properly</td>
<td>• Check that all the sequin device connectors are properly inserted</td>
</tr>
<tr>
<td></td>
<td>Sequin tape incorrectly inserted</td>
<td>• Insert the sequin tape again</td>
</tr>
<tr>
<td>Individual sequin heads not being raised/lowered</td>
<td>Connector not inserted properly</td>
<td>• Check that all the sequin device connectors are properly inserted</td>
</tr>
<tr>
<td></td>
<td>Embroidery head is switched off</td>
<td>• Switch on embroidery head</td>
</tr>
<tr>
<td>Needle break when attaching sequins</td>
<td>Error in design: the final stitch before the sequin was outside the permitted area</td>
<td>• Edit the design</td>
</tr>
<tr>
<td></td>
<td>Incorrect sequin head</td>
<td>• Insert the correct sequin head for the sequin diameter</td>
</tr>
<tr>
<td></td>
<td>Sequin tape incorrectly inserted</td>
<td>• Insert the sequin tape again</td>
</tr>
<tr>
<td></td>
<td>Sequin feed incorrectly set</td>
<td>• Reset in the EMBROIDERY MACHINE SETUP DATA menu</td>
</tr>
<tr>
<td>Thread break when attaching sequins</td>
<td>Yarn too weak</td>
<td>• Use polyester or monofilament yarn</td>
</tr>
<tr>
<td></td>
<td>Needle positioned in front half of sequin hole</td>
<td>• Adjust front-to-back alignment of sequin head</td>
</tr>
<tr>
<td>Fault</td>
<td>Possible cause</td>
<td>Remedy</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>---------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Sequins trimmed at the incorrect place</td>
<td>Incorrect sequin head</td>
<td>• Insert the correct sequin head for the sequin diameter</td>
</tr>
<tr>
<td></td>
<td>Sequin feed incorrectly set</td>
<td>• Reset in the EMBROIDERY MACHINE SETUP DATA menu</td>
</tr>
<tr>
<td></td>
<td>Sequin tape incorrectly inserted</td>
<td>• Insert the sequin tape again</td>
</tr>
<tr>
<td>Sequin device colliding with embroidery frame</td>
<td>Design does not fit inside the available embroidery field</td>
<td>• Choose a different design Bear in mind that the embroidery field is reduced by the footprint of the sequin head</td>
</tr>
<tr>
<td></td>
<td>Start point of design was not chosen correctly</td>
<td>• Align the pantograph carefully before starting the design. Bear in mind that the embroidery field is reduced by the footprint of the sequin head</td>
</tr>
<tr>
<td>Screen message: END POSITION SEQUIN</td>
<td>Sequin head has not been moved to its top or bottom end position</td>
<td>• Check all connections Check whether the spindle is adequately lubricated and - if necessary - apply a little grease. If the message continues to be issued, contact the ZSK service department</td>
</tr>
</tbody>
</table>
7. Maintenance

7.1 Monthly

Lubricate the spindles of all sequin devices every month with the grease provided with the machine accessories.

7.1.1 Greasing spindle

As a general rule, cleaning and maintenance work are to be carried out only with the mains plug removed from the socket.

- Detach cover (7.1-1) from the rear of the sequin device.
- Apply a light coating of grease with a brush along the entire length of spindle (7.1-2).
- Attach the cover.

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