Maintenance

all machine types with T8 control unit

MADE IN GERMANY

ZSK STICKMASCHINEN MADE IN GERMANY

Subject to change!
Änderungen vorbehalten!

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Maintenance

General

Before undertaking any cleaning or maintenance work:

DANGER

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

As a general rule, cleaning and maintenance work is to be performed only if the plug has been removed from the mains socket.
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.

NOTICE

Some illustrations serve as principle sketches for action sequences and do not represent the conditions on site originally!

Overview

NOTICE

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.

	Cleaning and maintenance work (each embroidery position)
Every day	- Clean rotary hook and surrounding area, oil rotary hook - Clean thread trimmers and bobbin thread monitor
Every three months	- Grease drive wheels (foot plate) - Grease drive wheel (cylinder arm) - Thread trimmer drive (underneath cylinder arm) - Oil felt in drive unit (embroidery head) - Oil felts in needle unit (embroidery head) - Sequin device (grease spindle if used every day)
Every six months	- Grease connecting rod (foot plate) - Grease connecting rod (cylinder arm) - Oil connecting rods in drive unit (embroidery head)
As necessary	- Clean upper thread guide elements (embroidery head) - Boring attachment - Change borer
	Cleaning and maintenance work (machine, general)
Every three months	- Grease linear guide - Flatbed machines - SPRINT, JAFA, RACER - Pantograph control) All machines: grease side-to-side drive - SPRINT, JAFA, RACER : grease side-to-side and front-to-back drive
	Cleaning and maintenance work (control components)
As necessary	- Clean control components - Clean ventilation filter

NOTICE

All installed lifting magnets are maintenance-free and must not be oiled.

Lubricants

The following lubricants are required for maintenance. These can be ordered from **parts@zsk.de**.

a spray can containing sewing machine oil
(JCW 35 Super Lubrifiant, ZSK order No. 750 081)

a grease cartridge
(Gleitmo 585M, ZSK order No. 667 055)

If possible, use **only original lubricants** to maintain your embroidery machine.

NOTICE

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

Note the remarks below if you elect to use different lubricants:

The table below contains the DIN 51502 designations and the principal properties of the ZSK original lubricants. If using other lubricants, choose only greases and oils that are in the same category as the original lubricants and thus have similar properties.

Lubricant	Designation acc. to DIN 51 502	Description/Properties
JC W 35 Superlubrifiant	CL 22	Circulation system lubricating oil with additives to improve resistance to ageing and corrosion according to DIN 51517 Part 2. Viscosity at 40°C: 22 ± 2.2 mm2/s (cSt)
Gleitmo 585M	KPF 2K	Lubricating grease for high pressures, water resistant, with additives to improve resistance to corrosion and wear, and solid lubricant based on MoS2. Worked penetration: 265-295 10-1 mm, Service temperature: -20 to +120°C

Maintenance work

Every day:

Clean rotary hook and surrounding area, oil rotary hook

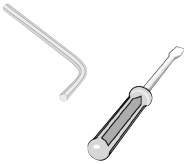
The rotary hook and surrounding area must be kept clean at all times. In addition, the hook must be oiled every day.

Fig. 1: Oiling rotary hook

- Take out the bobbin.
- Free the rotary hook of any loose threads and lint.
- Clean the rotary hook and surrounding area (thread trimmer, thread monitor, picker) with a brush or compressed air.
- Oil the rotary hook with a **small shot of oil** from the spray can supplied with the machine or sewing machine oil (1 to 2 drops).

Every day:

Foot plate: Flatbed machines



- Detach the stitch plate with a suitable tool.

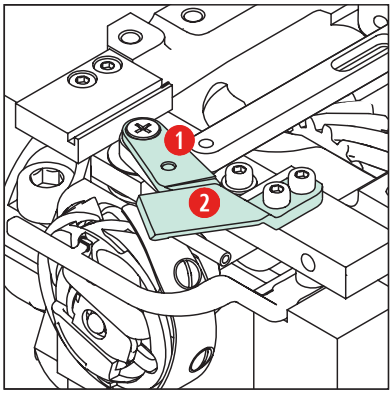
Clean thread trimmer

- Clean the thread trimmer area of the foot plate with compressed air or a brush.

NOTICE

Thread waste that becomes lodged between or beneath the blades of the thread trimmer can cause the thread trimmer to malfunction. For this reason, remove thread waste at least once a week and more frequently in the event of severe contamination.

To clean the thread trimmer, move the blade to the cleaning position (see *Thread trimmer cleaning position*).



① Blade
② Counter blade

Fig. 2: Thread trimmer area of foot plate

Thread trimmer drive

NOTICE

The thread trimmer drive assemblies do not require any maintenance.

Every three months: **Grease drive wheels**

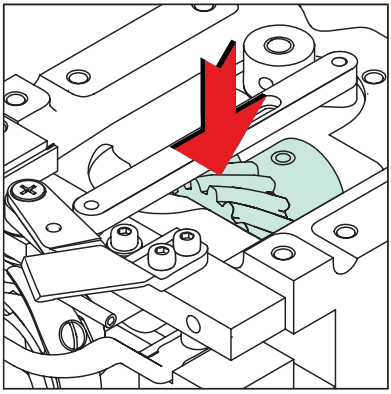


Fig. 3: Foot plate, greasing drive wheel

- With the stitch plate removed, apply a little grease to the upper drive wheel of the foot plate.

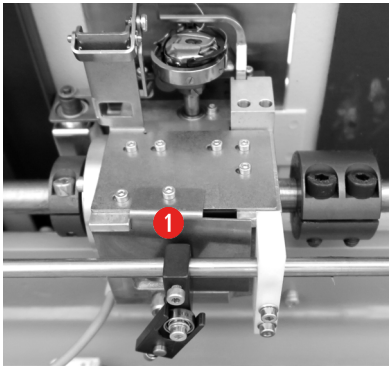


Fig. 4: Dismantle foot plate, protective hood below (view from below)

- Remove the protective hood ① under the foot plate q.

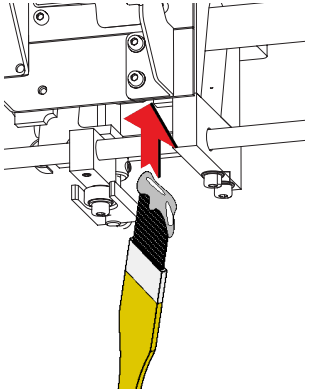


Fig. 5: Fußplatte, Antriebsrad fetten

- The bottom helical gear wheel is accessible through the open base of the foot plate. Apply grease to the gear wheel from underneath with a brush.
- Use the handwheel to rotate the shaft in order to gain access to the teeth at the back as well.
- Make sure that **all the teeth** of the helical gear wheels are adequately coated with grease.

NOTICE

To turn the main/bottom shaft by hand, the brake has to be released. Switch on the machine and use the relevant control function to release the brake for this purpose (see *Main shaft brake*).

De-energize the machine again after greasing.

Every six months:

Grease connecting rod

- The lubrication points of the connecting rod are marked by arrows in the drawing below. Grease these locations once every six months.

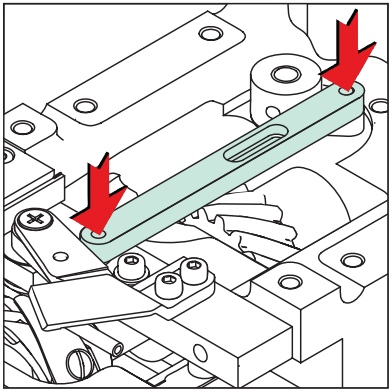
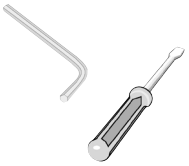


Fig. 6: Foot plate, connecting rod lubrication points

- Reinstall the stitch plate.
- When installing, align the stitch plate so that the **needle hole is located centrally under the needle**.
- Turn the handwheel to make certain that the active needle enters the middle of the needle hole.

Every day:

Cylinder arm



- Detach the stitch plate with a suitable tool.

Clean thread trimmer

- Clean the cylinder arm with compressed air or a brush.

NOTICE

Thread waste that becomes lodged between or beneath the blades of the thread trimmer can cause the thread trimmer to malfunction. For this reason, remove thread waste at least once a week and more frequently in the event of severe contamination.

To clean the thread trimmer, move the blade to the cleaning position (see *Thread trimmer cleaning position*).

① Blade

② Counter blade

Fig. 7: View of front, stitch plate removed

Thread trimmer drive

NOTICE

The thread trimmer drive assemblies do not require any maintenance.

Every three months: **Grease drive wheel**

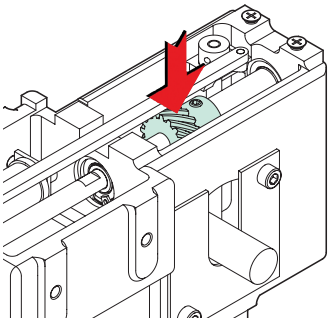


Fig. 8: Cylinder arm, thread trimmer drive wheel

- Helical gear wheel

NOTICE

To turn the main/bottom shaft by hand, the brake has to be released. Switch on the machine and use the relevant control function to release the brake for this purpose (see *Main shaft brake*).

De-energize the machine again after greasing.

Every six months: **Grease connecting rod**

- The lubrication points of the cylinder arm are marked by arrows in the drawings below. Grease these locations once **every six months**.

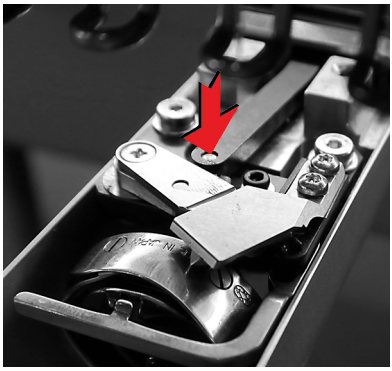
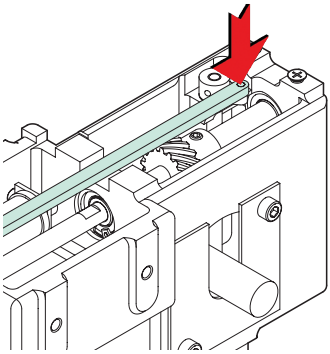


Fig. 9: Cylinder arm, connecting rod lubrication points

Front bearing of thread trimmer connecting rod.



Rear bearing of thread trimmer connecting rod

Fig. 10: Cylinder arm, connecting rod lubrication points

- Reinstall the stitch plate and the two cylinder arm cover plates.
- When installing, align the stitch plate so that the **needle hole is located centrally under the needle**.
- Turn the handwheel to make certain that the active needle enters the middle of the needle hole.

Every three months: **Thread trimmer drive (underneath cylinder arm)**

- Depending on the machine type, remove the protective covers ① to ③ on the rear of the machine.

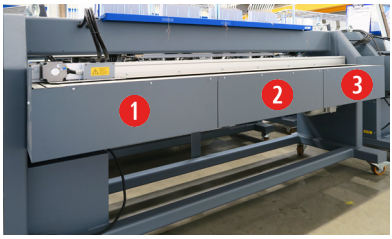


Fig. 11: Schutzhaben, Maschinenrückseite

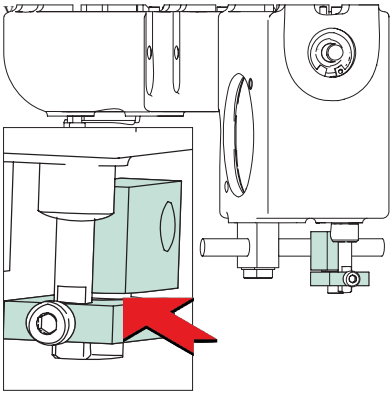


Fig. 12: Thread trimmer drive lubrication points (view of cylinder arm from rear)

Picker

The picker on the tubular arm is maintenance-free.

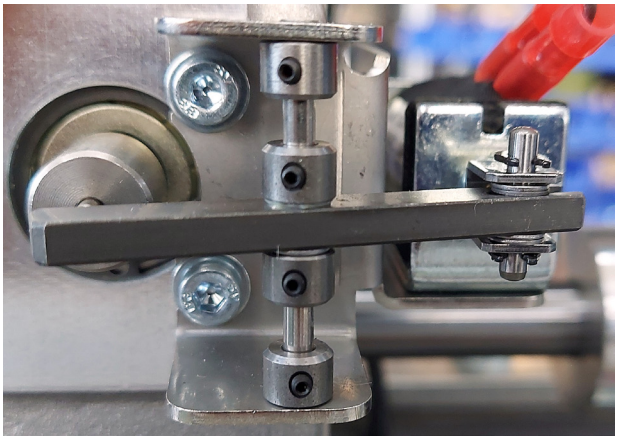


Fig. 13: Picker

Every three months:

Grease linear guide

Grease the linear guides every three months (more frequently in case of two or three-shift duty cycles). A cover has to be removed for this purpose.

DANGER

Switch off the machine and remove the plug from the mains socket.

Flatbed machines

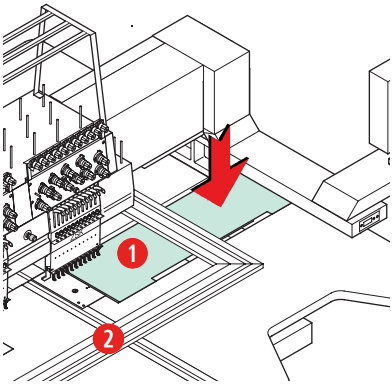


Fig. 14: Pantograph drive (side to side)

- With the machines in these series, the guides of the pantograph drive (side to side) have to be greased.
- Take off the border frame ② (consult the machine's Operator's Guide/ Operating Manual — "Conversion to border frame embroidery").
- Slacken off screws.
- Take off panel ①.

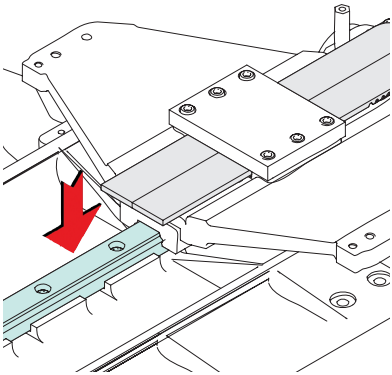


Fig. 15: Pantograph drive (side to side), underneath cover

- Grease the entire guide rail.

DANGER

Make certain that no grease is applied to the toothed belt; this can give rise to malfunctions.

Do not restart the machine until all covers have been properly reinstalled.

Machines with several transverse drives

The several transverse drives on some machines are connected by way of a crossarm, so that the covers cannot be removed.

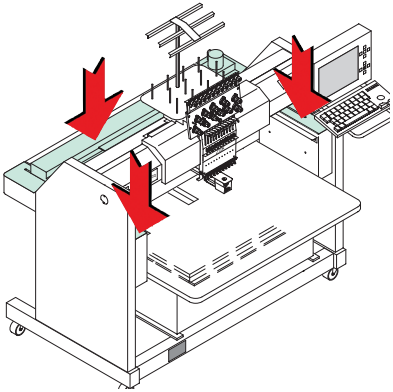
- Unscrew and remove the screws in the covers① (Fig. 12).
- Move the border frame ② (Fig. 12) to the right end position. The plates can then be moved to the right.
- After greasing the guide, slide the covers back to their original positions.
- Move the border frame ② to the left end position. Slightly raise the covers ①.
- Grease the guides underneath the panel with a brush.

Cylinder arm machines

NOTICE

For cylinder arm machines, lubrication of the linear guides is required in both axis directions (X and Y axis).

For free-arm machines with 8 heads or 6 heads with 495 mm head spacing, the center guide (X axis) must also be lubricated.



- Slacken off screws.
- Raise cover at front first, then at back;

Fig. 16: Pantograph drive, (illustrated on 1Head-Cylinder arm machine)
Pantograph - 1x Drive (side to side)
Pantograph - 2x Drive (front to back)

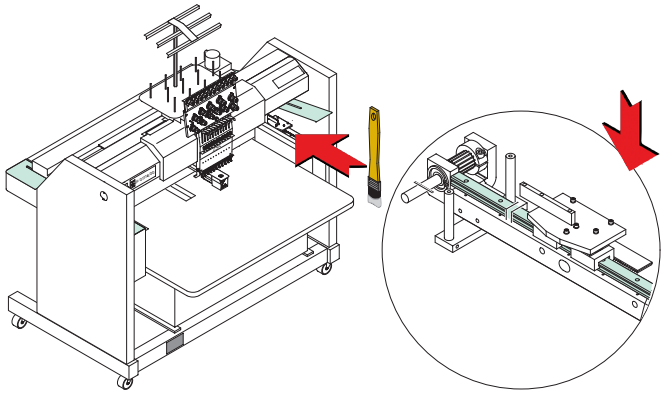


Fig. 17: Pantograph drive (front to back) (Tiefe) Illustration: front cover raised (machine shown without control)

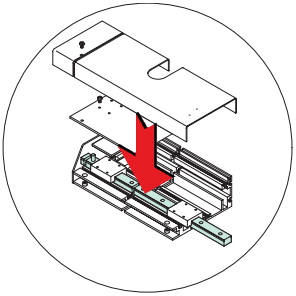


Fig. 18: Pantograph drive (side to side)

Every three months:

Embroidery head maintenance

Oil felt in drive unit

A drive unit ② accommodating the drives for the needles, presser feet and thread take-ups, as well as the jump stitch mechanism, is located behind each of the needle units ①. The oil-impregnated felt on the bottom of the drive unit must be oiled every three months (the interval is to be shortened accordingly in the case of a two or three-shift duty cycle). No dismantling is necessary when oiling the felt.

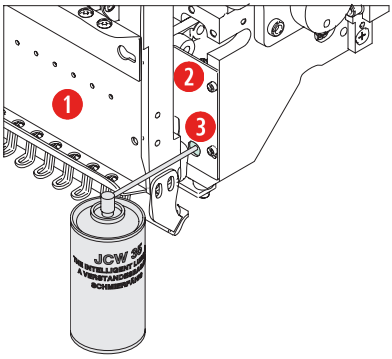
- Switch on the machine (insert the mains plug in the socket first).
- Execute a manual needle change to needle 1 (consult the Control Unit Operating Manual).

  ⇨ The needle units travel to the left until needle 1 is positioned above the needle hole. An aperture for oiling the felt ③ in the drive unit is revealed to the right of each needle unit.

DANGER

Switch off the machine at the main switch.

- At each embroidery head spray a little oil on the felt through the aperture ③ in the cover.



① Needle unit

② Drive unit

③ Aperture for oiling the felt

Fig. 19: Embroidery head with needle unit at left travel limit

Every three months: **Oil felts in needle unit**

Oil-impregnated felts provide a constant supply of oil to the needle bars. The felts must be oiled every three months (the interval is to be shortened accordingly in the case of a two or three-shift duty cycle).

- To oil the felts, the front panels do not have to be taken off the embroidery heads. The upper threads can also remain threaded..

① Visible part of needle bar

② Angle plate

③ Felt strip underneath

④ Top of presser foot

⑤ Felt ring underneath

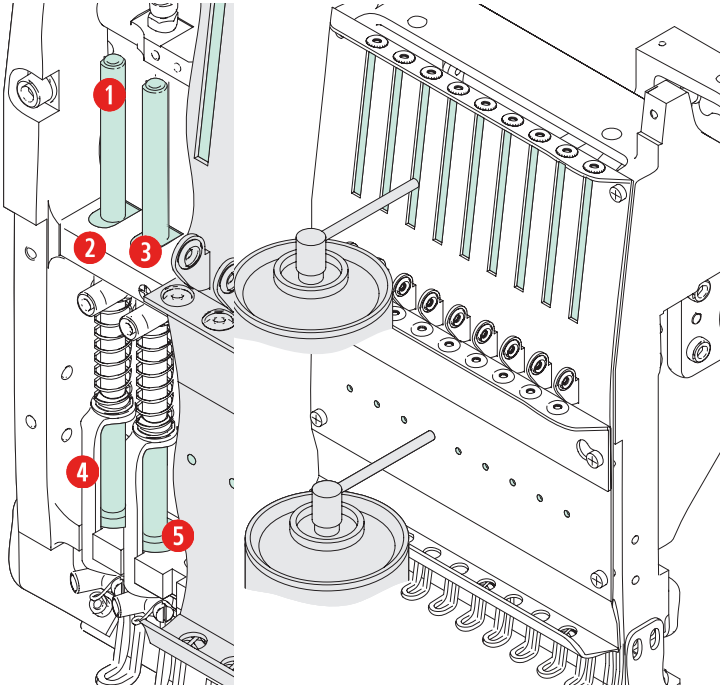


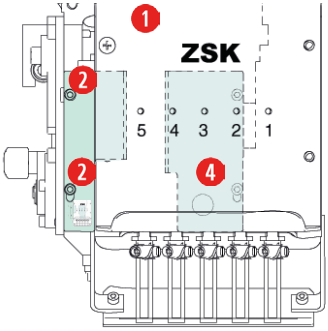
Fig. 20: Embroidery head Left: oiling felts in needle unit
Embroidery head Right: access to lubrication points in installed needle unit

- Offer up and introduce the spray can tube towards the bottom of the take-up lever slot in the front panel.
- With a **small** shot, spray a **little** oil on the visible part of the needle bar and the strip of felt underneath.
- Introduce the spray can tube in the lubrication apertures towards the bottom of the front panel.
- With a **small** shot, spray the needle bar behind the front panel.
- Oil **all** of the needle bars in this way.

Every six months:

Oil connecting rods in drive unit

The plastic connecting rods in the drive units must be oiled every six months (the interval is to be shortened accordingly in the case of a two or three-shift duty cycle). For this purpose the drive unit covers located behind the needle units have to be removed.



- Move all needle units ① to the right travel limit (manual needle change to last needle).
- Remove fastening screws ② from left cover ③ of each drive unit.
- Move the needle units to the left travel limit (manual needle change to needle 1).

Fig. 21: Embroidery head, removing cover
(illustrated: needle unit at right, left fastening screws accessible)

- Remove the fastening screws from the right cover (24.4) of each drive unit and remove the cover.
- Release the brake.
- Turn the handwheel until needle 1 is in its lowest position.
- Engage the brake again.

DANGER

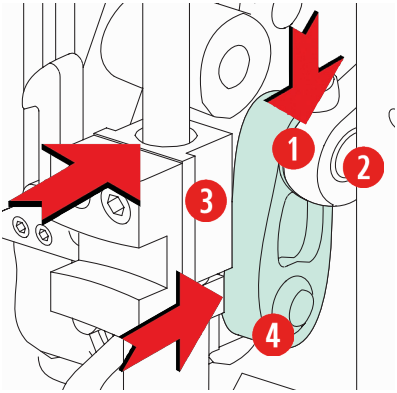
Switch off the machine and remove the plug from the mains socket.

① Rocker arm

② Pin

③ Carriage

④ Plastic connecting rod



- Spray oil onto the parts indicated by the arrows in the drawing.

DANGER

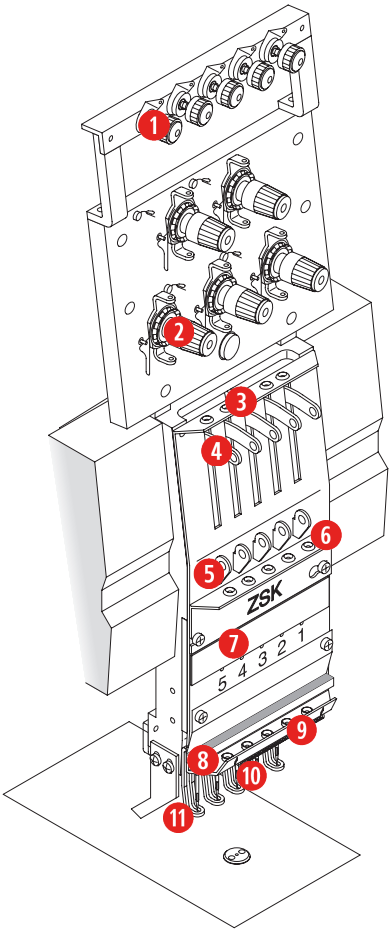
Do not restart the machine until all covers have been properly reinstalled.

As necessary:

Clean upper thread guide elements

Dust and lint gradually collect in the holes of the upper thread guide elements and at the thread tension devices (especially the pretension regulators). For this reason, clean the thread guide elements regularly.

- In the event of severe obstruction, unthread the upper threads.
- Clean the upper thread guide elements with a small brush or compressed air.



① Pretension regulator (holding tension)

② Main tension regulator (bobbin tension)

③ Guide rail

④ Thread take-up

⑤ Deflection eyes

⑥ Center guide rail

⑦ Magnetic strip

⑧ Clamping rail

⑨ Thread gripper

⑩ Needle

⑪ Presser foot

Fig. 23: Upper thread guide elements

Every three months:

Optional machine attachments

Sequin device

DANGER

As a general rule, cleaning and maintenance work is to be performed only if the plug has been removed from the mains socket.

Lubricate the spindles of all sequin devices all three month with Gleitmo 585M grease!

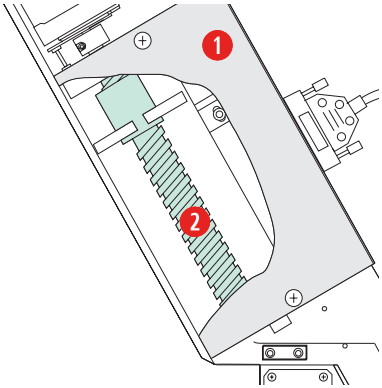


Fig. 24: Sequin device spindle (uncovered)

- Detach cover ① from the rear of the sequin device.
- Apply grease with a brush along the entire length of the spindle ②.

DANGER

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

As necessary:

Boring attachment

Change borer

The borer is a cutting tool and therefore razor sharp. Observe the following safety instructions to avoid injury:

DANGER

- Never touch the tip of the borer, always hold it by the shank.

- Free borers that have become jammed with a suitable pair of flat nose pliers.

- Do not leave dismantled borers on the work table or anywhere else on the machine. Clear away loose borers immediately to avoid causing injury to yourself and others.

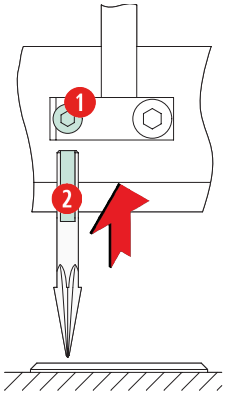


Fig. 25: Boring attachment, inserting borer

- Insert the new borer in such a way that the face of the borer shank ② faces forwards towards the pressure screw ①. This position is necessary to avoid damage to the borer shank when the pressure screw is tightened. It also positions the borer with a cutting edge facing forwards.
- For the time being, tighten the pressure screw only lightly.

Adjusting borer height

NOTICE

At the control, set the top shaft to 141° and adjust the clearance between the borer point and stitch plate insert to 0.8 + 0.1 mm.

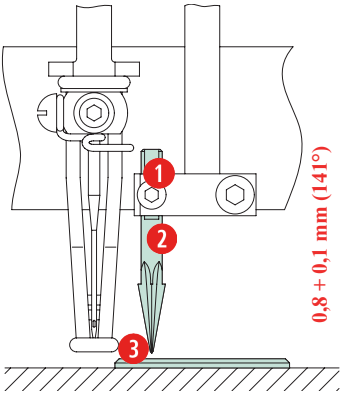


Fig. 26: Setting borer heights

- Clean the stitch plate insert ③ and place the 0.8 mm feeler gauge between the borer and stitch plate insert.
- Slacken off the pressure screw ① in the borer holder and pull down the borer ② until it rests on the feeler gauge.
- Tighten the pressure screw.
- Remove the feeler gauge.

DANGER

Do not start operating the machine until the protective cover has been correctly replaced.

Needle/Rotary Hook Adjustment

The values stated below are intended to help a specialist make the correct settings.

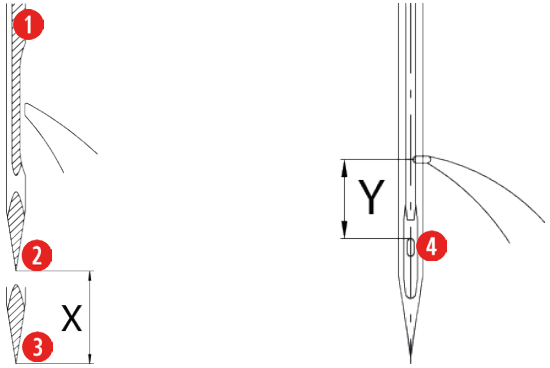
WARNING

Changes to these values made by untrained personnel can damage the machine.

Adjusting loop stroke/needle depth

The loop stroke is the distance from the bottom dead center (BDC) of the needle point to the position of the point during the upward movement at which the point of the rotary hook is located centrally behind the needle.
The needle depth is the distance between the top edge of the needle eye and the point of the rotary hook.

Loop stroke **Needle depth**



① Needle

② Exact loop stroke position

③ Bottom dead center

④ Eye of needle

Fig. 27: Needle depth, adjusting

Application	Loop stroke [X=mm]	Needle depth [Y=mm]
Flatbed machines	2,0	1,0
JAFA	2,0	1,0
SPRINT/RACER	2,5	1,0

Rotary hook clearance

The rotary hook clearance is the distance between the hollow shaft of the needle and the point of the rotary hook.

① Needle

② Hollow shaft

③ Point of rotary hook

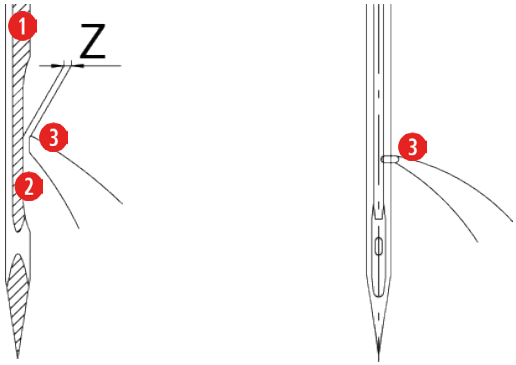


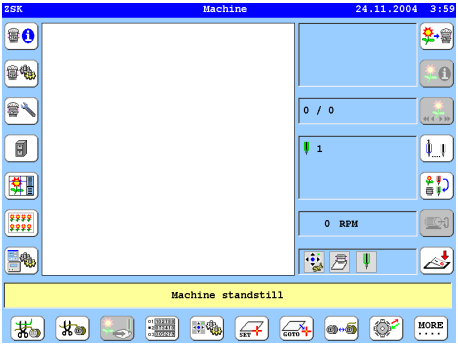
Fig. 28: Adjusting rotary hook

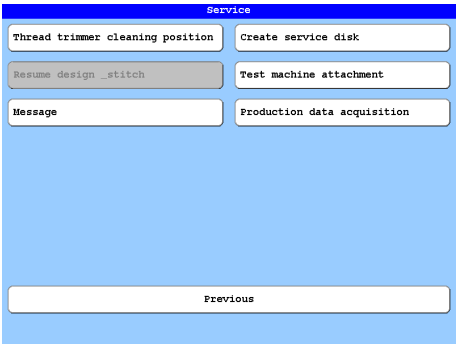
Application	Clearance [Z=mm]
Flatbed machines	0,05 - 0,1
SPRINT, JAFA, RACER	0,05 - 0,1

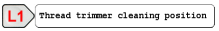
T8/T8-2 settings

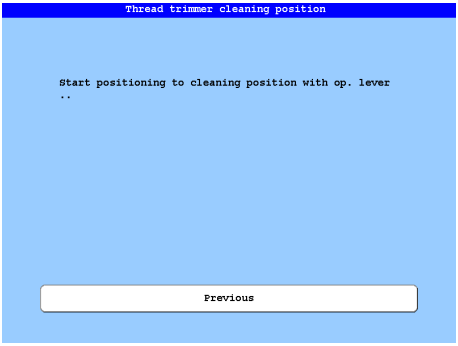
Thread trimmer cleaning position

Execution 1





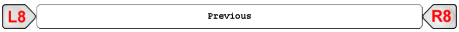




- Press the **[Start]** key or the hand bar.

  ⇨ The thread cutter moves forward to the cleaning position.

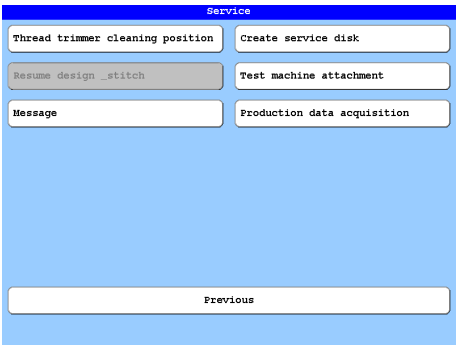
- Use compressed air to clean the thread trimmer knife.
-

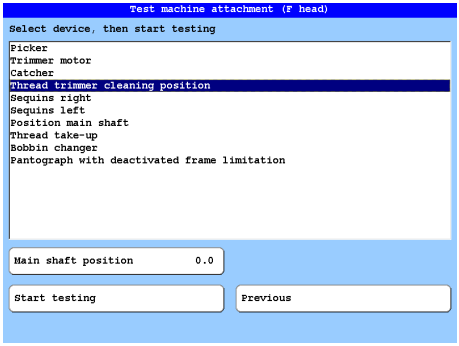


- After cleaning is complete, press the key **[L8/R8]** ***Previous***.

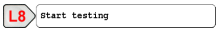
  ⇨ The thread trimmer moves back to the starting position.

Execution 2



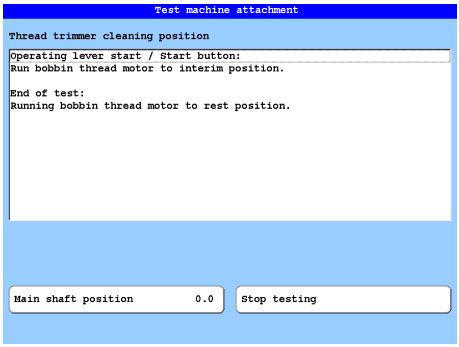


Use the cursor keys ▲▼ to select the ***Thread Cutter Cleaning Position***.



- Press the **[Start]** key or the hand bar.

  ⇨ The thread cutter moves forward to the cleaning position.



- Use compressed air to clean the thread trimmer knife.

- After cleaning is complete, press the key **[R8]** ***Stop testing***.

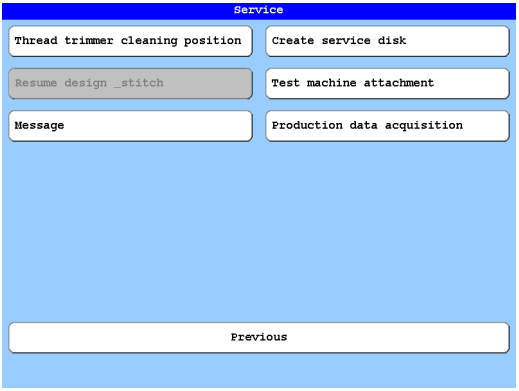
  ⇨ The thread trimmer moves back to the starting position.

Adjusting boring depth

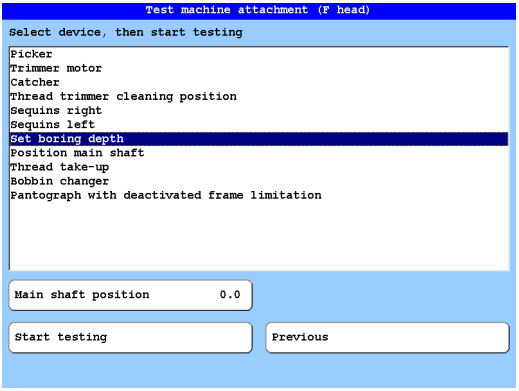
Main shaft positioning

Starting from the basic screen of the T8 operating unit:

• Press the **[L3]** ***Service key***.

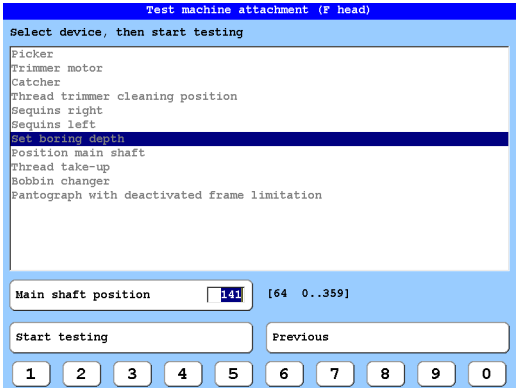


• Press the **[R2]** ***Test machine attachment*** key in the ***Service*** dialog.



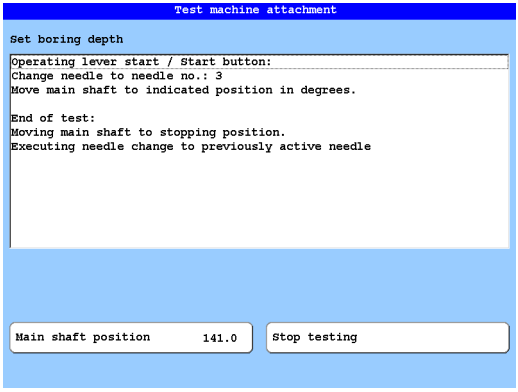
• Use the cursor keys to select the ***Set boring depth*** item in the selection list.

• Press the **[L8]** ***Start Testing*** key to activate the ***Set Boring Depth*** function.



⇨ An input box is displayed on the Main shaft position button.

• Enter the value **141.0°** required for setting the boring depth in the input box using the U keys.



• Press the green ***Start*** key on the T8 control unit.

⇨ The machine now performs an automatic needle change to needle 3.

⇨ The main shaft is moved to the desired position.

⇨ The machine is automatically set to the braked state when the entered shaft position is reached.

⇨ Main shaft position of 141.0° is displayed on the Main shaft position button.

NOTICE

If you need a larger display of the set value to see the value from a greater distance, press the [L8] Main shaft position key. The set value is then shown large on the display.

NOTICE

The display should show a value that reaches max. +/- 0.5° deviation from the entered main shaft position. If no value within this tolerance is reached (possibly with larger multi-head machines), the main shaft position must be readjusted manually. If necessary, the correct position of the main shaft can also be adjusted by pressing [R8] *Stop testing* and pressing [L8] *Start testing* again.

- Perform the height adjustment of the borer.
- Press the **[R8]** ***Stop testing*** key to end the ***Set boring depth*** function.

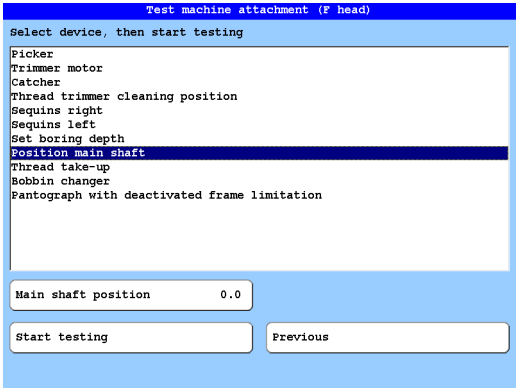
NOTICE

After pressing the [R8] *Stop testing* key, the main shaft is returned to the original position after the drilling depth has been set. There is also a needle change to the previously active needle.

Manual main shaft positioning

NOTICE

The starting point for this operation is the *Test machine attachment (f head)* menu, which is still active.



- Unlock the main shaft brake by pressing the ***Jog*** key once.

  ⇨ The main shaft can now be freely rotated.

- Manually rotate the main shaft with the handwheel or supplied lever wrench to a more exact position within the stated tolerance.

  ⇨ The current main shaft position is directly displayed on the ***Main shaft position*** button.

- Once the desired main shaft position is reached, press the ***Jog*** button again to apply the main shaft brake.

- Adjust the height of the borer.

NOTICE

Once the borer height has been set, pressing [R8] *Stop testing* returns the main shaft to its original position. The machine also performs a needle change to the needle that was active beforehand.

Main shaft brake

The machine is braked by an electromagnet integrated in the main motor when stationary and disconnected from the power supply (main shaft brake). For some maintenance purposes the main shaft brake has to be released when the machine is stationary. The brake is released electromagnetically; it is operated and controlled by functions that form part of the machine control software. Im stromlosen Zustand ist die Maschine grundsätzlich gebremst, und kann nicht mehr über das Handrad durchgedreht werden.

NOTICE

When disconnected from the power supply, the machine is braked as a general rule and the shaft cannot be rotated with the handwheel.

Releasing/engaging brake

For adjusting and maintenance work the brake can be deactivated and activated again manually by way of the control.

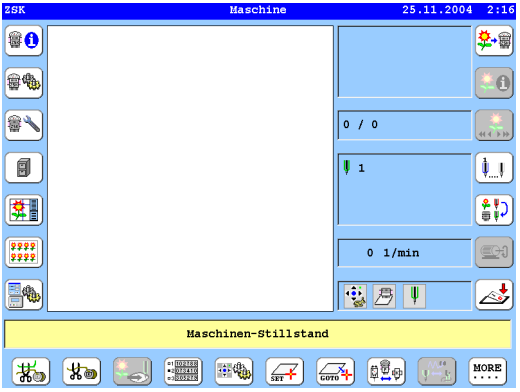
• Stop the machine.

DANGER

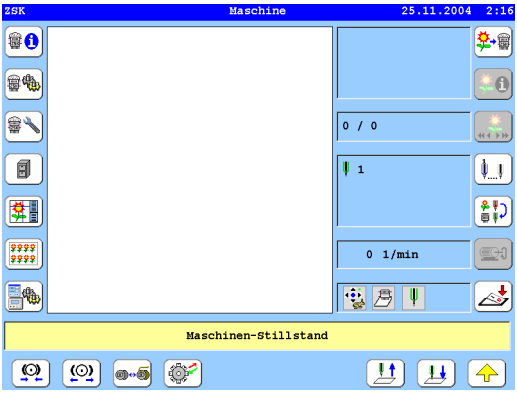
Depending on the position in which it stops, the machine may run forward or back a little when the brake is released.

Before the brake is released, it is essential to ensure that nobody is within the operating range of needles, rotary hooks or, in case protective covers have been removed, rotating drive elements.

• For example, go back to the T8 basic screen in the control software.



• Press the **[U0]** ***More*** key to enter the 2nd level of the U keys.



• Press the **[U2]** ***Switch off main shaft brake*** key to release the main shaft brake.

NOTICE

You can now rotate the main shaft manually with the handwheel or supplied lever wrench to the position required to perform the necessary maintenance work.

• After completing the maintenance work, activate the brake by means of the **[U1]** ***Switch on main shaft brake*** key in order to set the main shaft brake again.

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