

281

Upgrade manual

Replacing the gearbox cover

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1 Parts set components

Check whether the scope of delivery for parts set 0281 140254 is correct prior to attaching the gearbox cover.

Material number	Quantity	Description
0281 140250	1	Gearbox cover
0281 140100	1	Seal
0281 380513	1	Hook oil reservoir cover
0281 380080	1	Seal
9204 201757	7	Screw
0281 380544	1	Wick clamp
9204 201037	1	Screw
0281 380063	1	Locking bolt
0998 860280	1	O-ring
0556 003087	1	Filler plug
0281 380260	1	Nipple
9800 561006	1	Fan
9204 201727	4	Screw
9850 281005	1	Circuit board
9870 281006	1	Cable
0281 400060	1	Oil pan
0211 000699	1	Oil cushion DA10
0281 380600	2	Oil cushion DA32
9840 121001	2	Cable tie
0791 281773 EN	1	Upgrade manual

2 Dismantling the old gearbox cover

DANGER



Danger of life-threatening electric shock

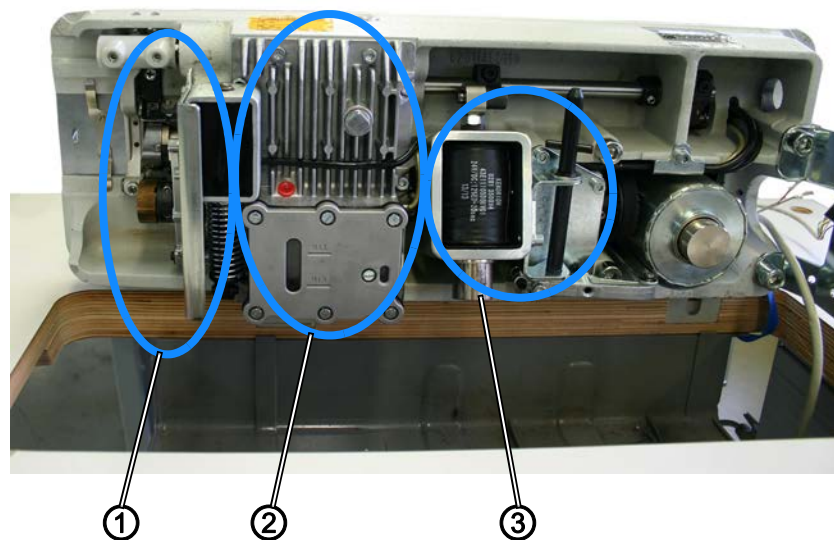
The gearbox cover should only be changed by qualified technicians.

Switch off the machine and disconnect the power plug before making changes to the gearbox cover. Make sure the power plug cannot be accidentally plugged back in.

Requirements:

- Switch off the machine.
- Unplug the power plug.

Figure. 1: Machine with old gearbox cover



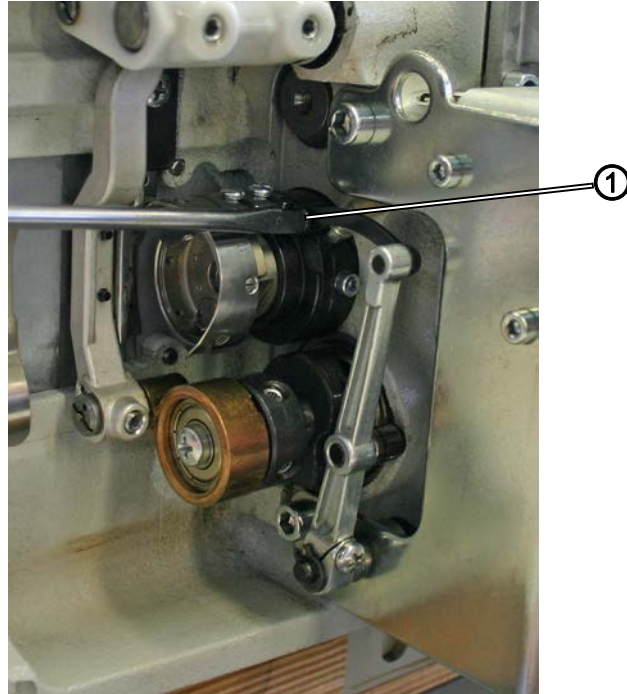
(1) - Thread cutter magnet
(2) - Gearbox cover

(3) - Locking solenoid

2.1 Removing the thread cutter magnet

1. Turn the machine over to the back.
2. Screw the screw (1) out of the connection to the thread cutter.

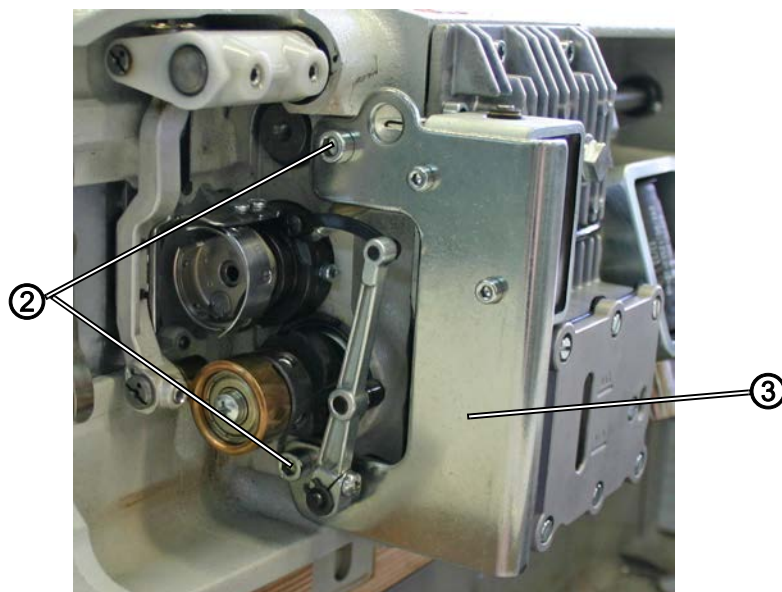
Figure. 2: Loosening the connection to the thread cutter



(1) - Screw

3. Unscrew both screws (2) from the mounting plate (3) of the thread cutter magnet.

Figure. 3: Removing the thread cutter magnet



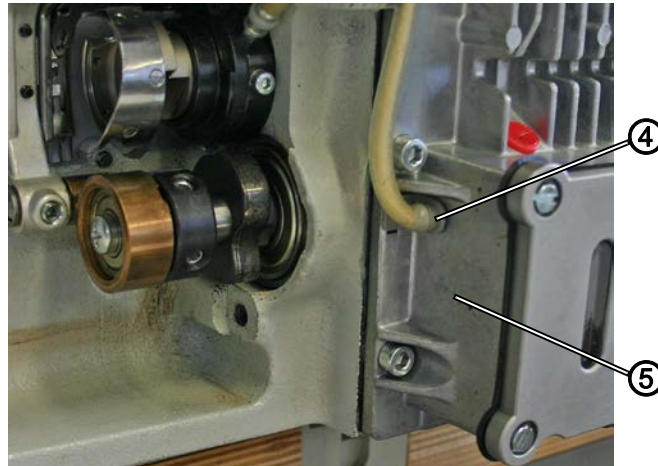
(2) - Screws

(3) - Mounting plate

4. Place the thread cutter magnet to one side.

5. Push the wick of the hook lubrication (4) out of the hook oil reservoir (5) using a screwdriver if necessary.

Figure. 4: Removing the hook lubrication wick



(4) - Hook lubrication wick

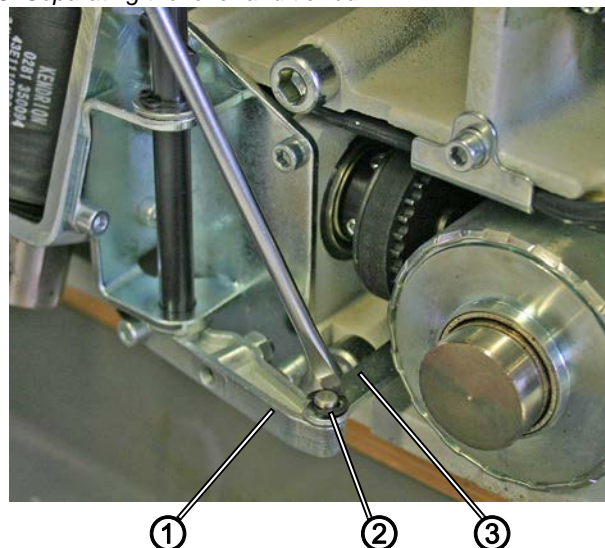
(5) - Hook oil reservoir

✎ The thread cutter magnet is dismantled.

2.2 Removing the locking solenoid

1. Remove the retaining ring (2) and separate the lever (1) and tie rod (3).

Figure. 5: Separating the lever and tie rod



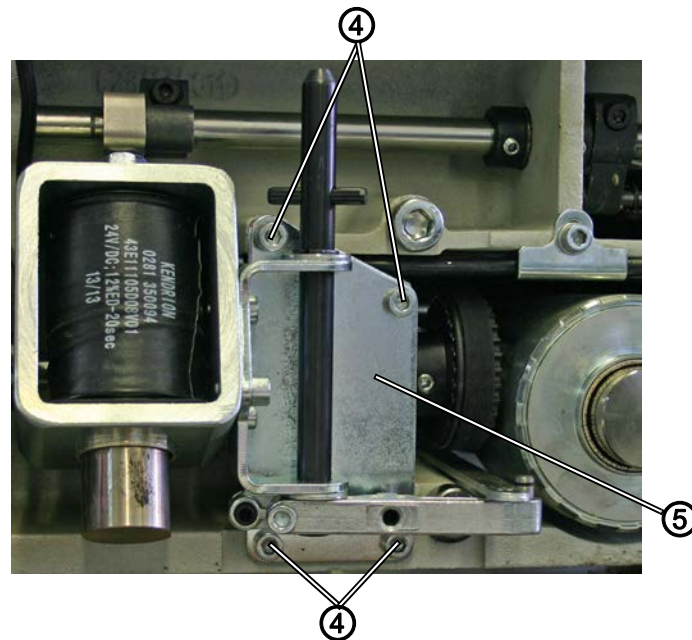
(1) - Lever

(2) - Retaining ring

(3) - Tie rod

2. Slacken the 4 screws (4) on the mounting plate (5) of the locking solenoid.

Figure. 6: Removing the locking solenoid



(4) - Screws

(5) - Mounting plate

3. Remove the locking solenoid and put to one side.

✎ The locking solenoid is dismantled.

2.3 Dismantling the gearbox cover

WARNING



Skin damage due to contact with oil

Oil can cause a rash if it comes into contact with skin.

Avoid any skin contact with the oil.

If oil gets on your skin, wash the affected areas thoroughly.

ENVIRONMENTAL PROTECTION



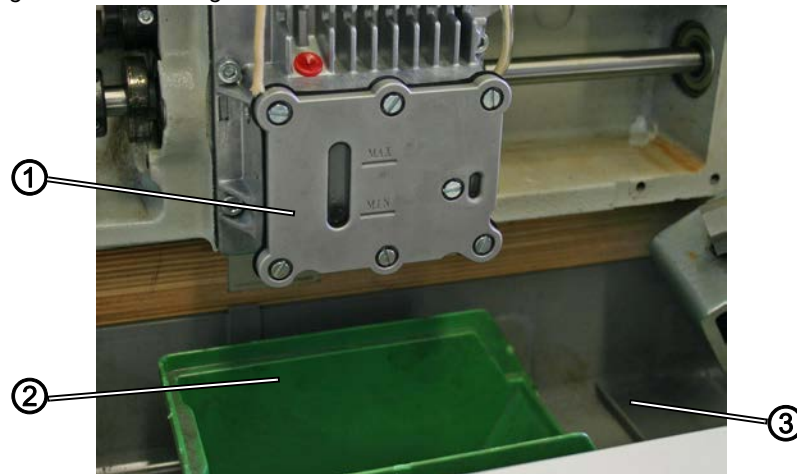
Risk of environmental damage from oil

Oil is a pollutant and must not enter the sewage system or the soil.

Carefully collect waste oil and dispose of the waste oil and oil-contaminated machine parts in the legally prescribed manner.

1. Place a sufficiently large vessel (2) in the oil pan (3) for collecting remaining oil.
2. Unscrew 7 screws from the cover (1) of the hook oil reservoir.

Figure 7: Unscrewing the hook oil reservoir cover

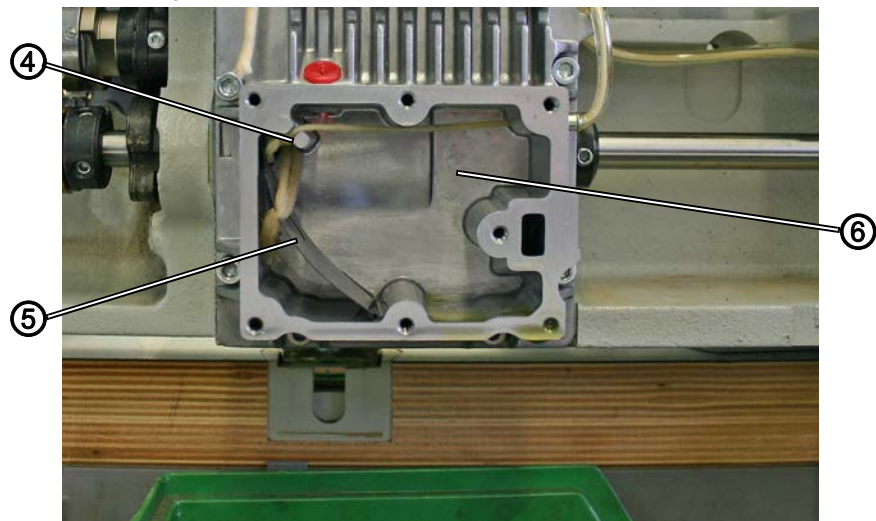


(1) - Cover
(2) - Vessel

(3) - Oil pan

3. Raise the machine slightly and allow the oil to run into the oil collection vessel (2).
4. Push the wick (4) of the needle bar lubrication out of the mounting plate (5) in the hook oil reservoir (6).

Figure 8: Removing the wick



(4) - Wick needle bar lubrication
(5) - Mounting plate

(6) - Hook oil reservoir

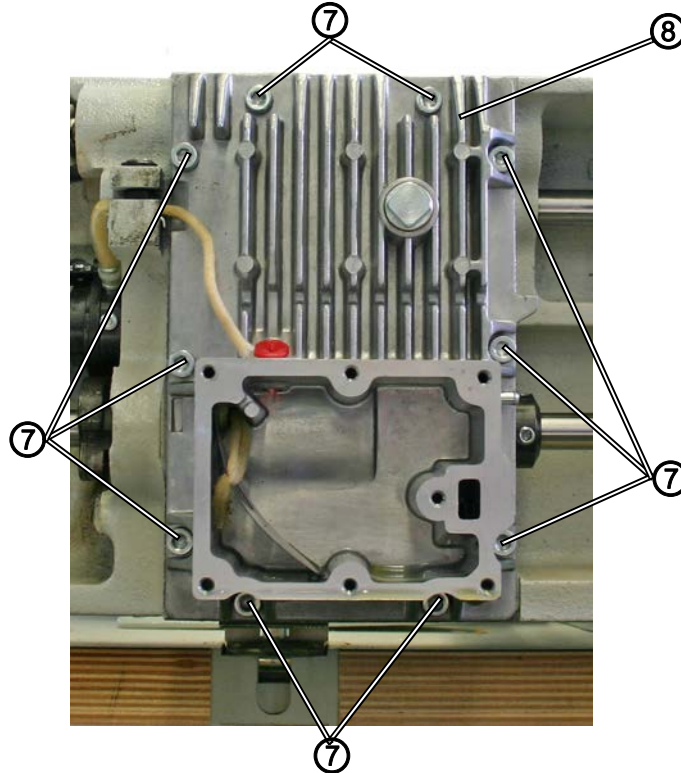
ATTENTION

Material damage due to careless handling

The hose around the wick can break as a result of careless handling.
Always remove the hose extremely carefully.

5. Remove any knots from the wick and pull the wick out of the reservoir.
To do this, pull the hose carefully off the nipple.
6. Unscrew 10 screws (7) from the gearbox cover (8).

Figure. 9: Unscrewing the gearbox cover

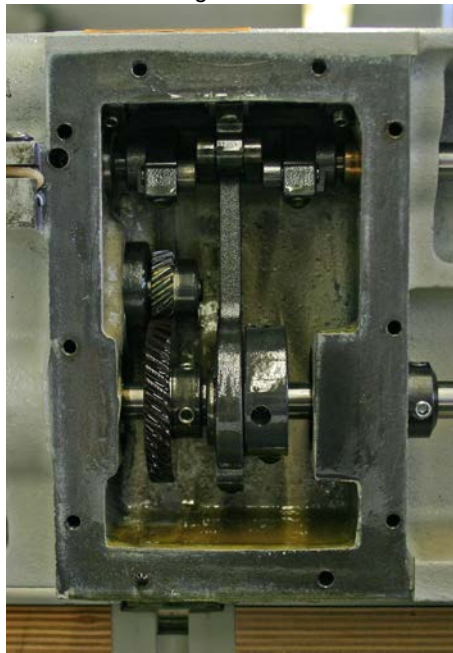


(7) - Screws

(8) - Gearbox cover

7. Remove the gearbox cover.

Figure. 10: Machine without gearbox cover



➡ The gearbox cover is dismantled.

3 Installing a new gearbox cover

DANGER



Danger of life-threatening electric shock

The gearbox cover should only be changed by qualified technicians.

Switch off the machine and disconnect the power plug before making changes to the gearbox cover

Make sure the power plug cannot be accidentally plugged back in.

3.1 Installing the gearbox cover

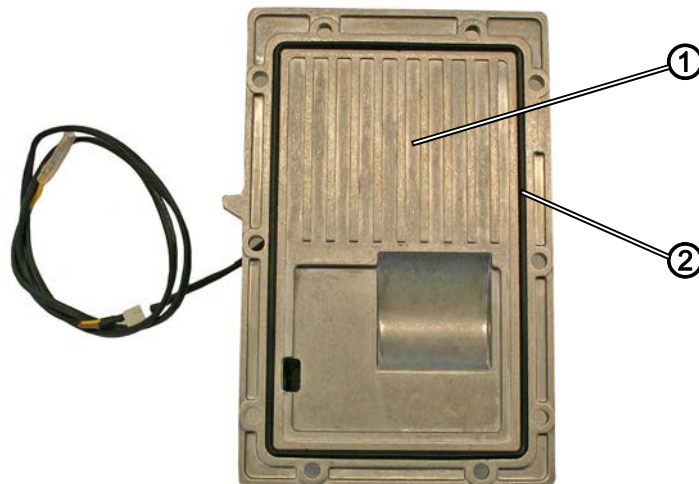
ATTENTION

Material damage possible due to escaping oil

Always keep sealing surfaces clean so that no oil can escape following assembly.

1. Insert the seal (2) in the gearbox cover (1) cleanly in the groove.

Figure. 11: New gearbox cover rear view

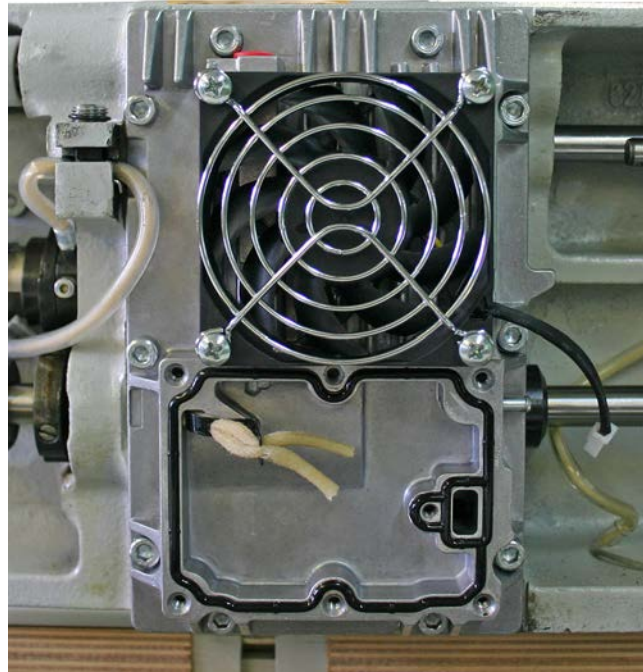


(1) - Gearbox cover

(2) - Seal

2. Screw on the gearbox cover (1) with 10 screws evenly and crosswise.
 ➡ The new gearbox cover is installed.

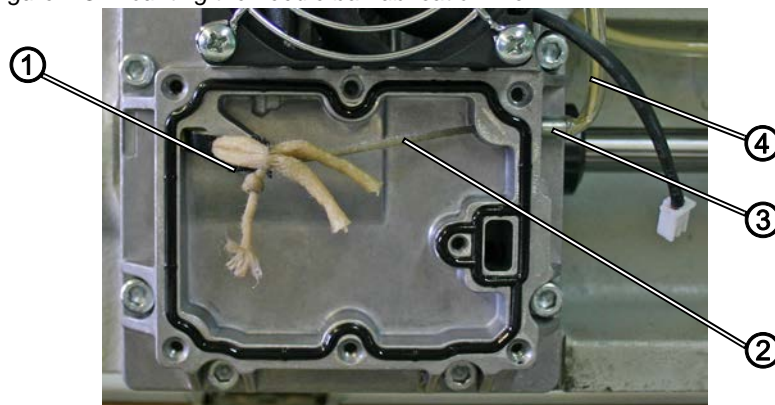
Figure. 12: New gearbox cover installed



3.2 Fitting the wick

1. Feed the wick (2) of the needle bar lubrication through the nipple (3) and connect the hose (4) on the nipple (3).
2. Make a knot in the end of the wick (2).

Figure. 13: Mounting the needle bar lubrication wick



(1) - Plate
(2) - Wick

(3) - Nipple
(4) - Hose

3. Fix the wick (2) in the plate (1) using the knot.
 - ✎ This ensures that the wicks are always at the lowest point of the hook oil reservoir.
4. Screw on the hook oil reservoir cover (6) with 7 screws (5) evenly and crosswise.
Ensure that the surfaces are clean and that the seal lies correctly in the groove.

Figure. 14: Screwing on the hook oil reservoir cover

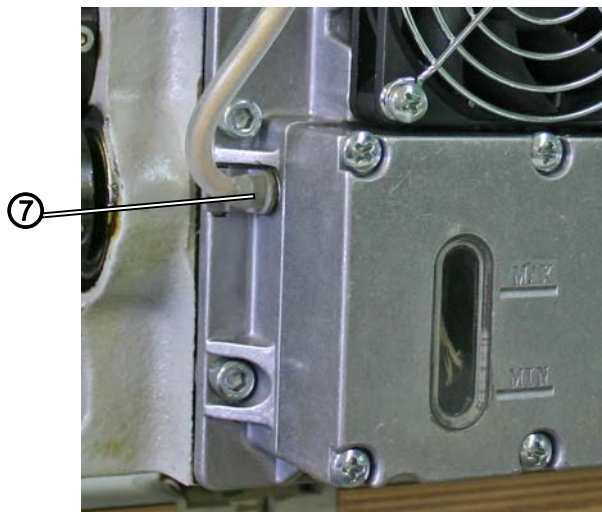


(5) - Screw (7x)

(6) - Cover

5. Push the wick (7) of the hook lubrication in the hook oil reservoir - it must engage visibly and audibly.

Figure. 15: Pushing in the hook lubrication wick



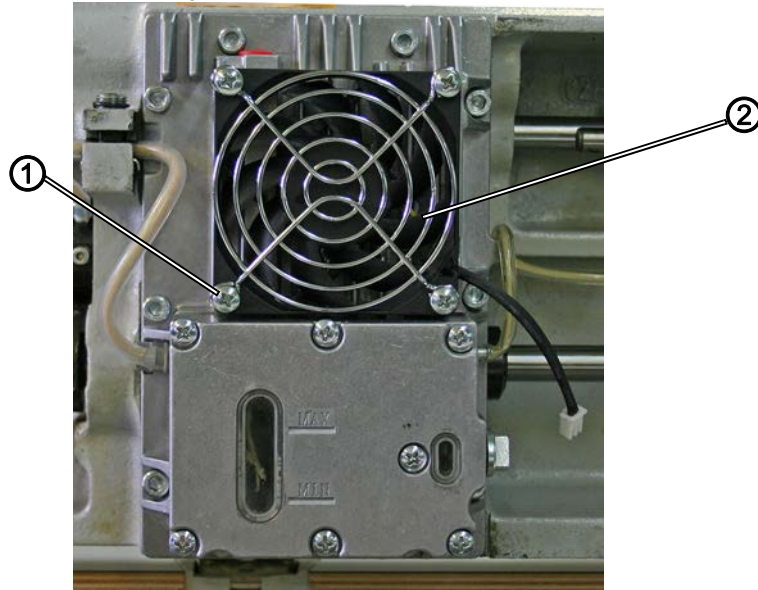
(7) - Hook lubrication wick

6. Collection vessel for remaining oil can be removed from the pan.
- ➡ The wicks are mounted.

3.3 Installing the thread cutter magnet

1. Unscrew 4 screws (1) of the fan (2) and put the fan (2) to one side.

Figure. 16: Removing the fan

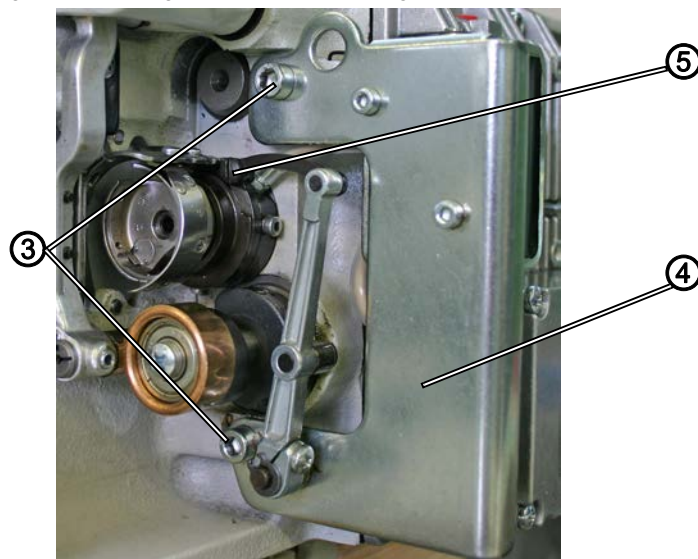


(1) - Screws (4x)

(2) - Fan

2. Mount the mounting plate (4) of the thread cutter magnet with the two screws (3).

Figure. 17: Fitting the thread cutter magnet



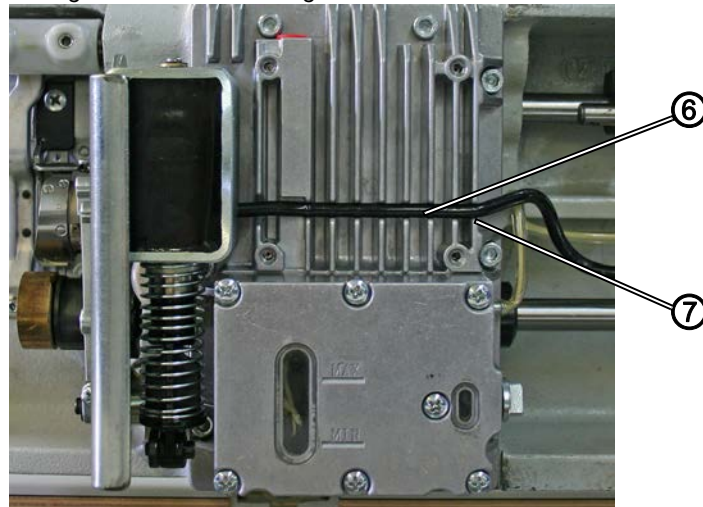
(3) - Screws

(4) - Mounting plate

(5) - Screw connection

3. Connect the thread cutter with the collar screw via screw connection (5).
4. Feed the cable (6) of the thread cutter magnet through the opening (7) of the gearbox cover.

Figure. 18: Routing the thread cutter magnet cable



(6) - Cables

(7) - Opening

5. Screw on the fan (10) again with 4 screws (8), the cable (9) is on the bottom right, the label on the fan must NOT be visible.

Figure. 19: Mounting the fan



(8) - Screws (4x)

(10) - Fan

(9) - Cable fan

6. If not already done: Connect the fan with the fan cable using the plug connection.

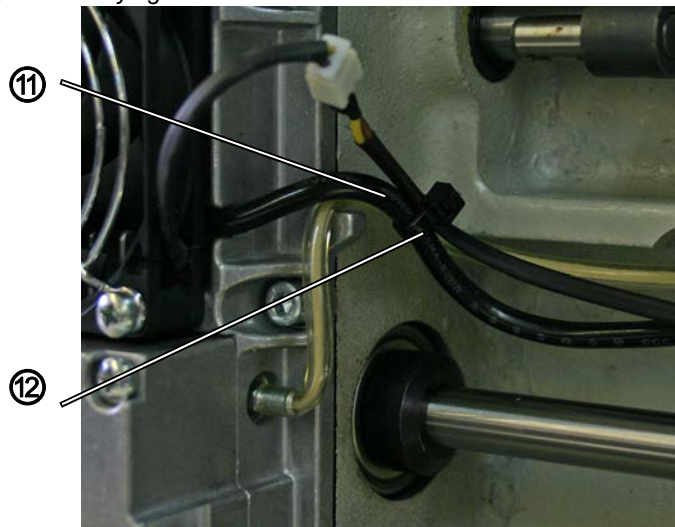
ATTENTION

Material damage due to crushing possible

Route the cables so that they have no contact with the rotating shaft.
Do not crush the cables when laying.

7. Bundle the cables (11) together with cable ties (12) in the machine room so that they are tidy.
ATTENTION: Do NOT clamp the oil wick in the cable ties!

Figure. 20: Laying the cable



(11) - Cables

(12) - Cable tie

➡ The thread cutter magnet is installed.

3.4 Installing the locking solenoid

1. Feed all cables, including the cable of the locking solenoid, through the opening (2) .
2. Place the clamp (1) on the bolt (3) with the opening to the back.

Figure. 21: Positioning the locking solenoid



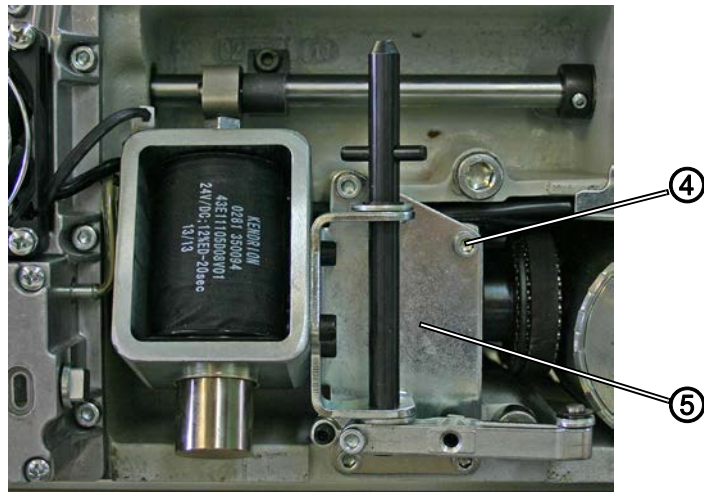
(1) - Clamp

(2) - Opening

(3) - Bolt

3. Fix the mounting plate (5) of the locking solenoid in place with the 4 screws (4).

Figure. 22: Fixing the locking solenoid



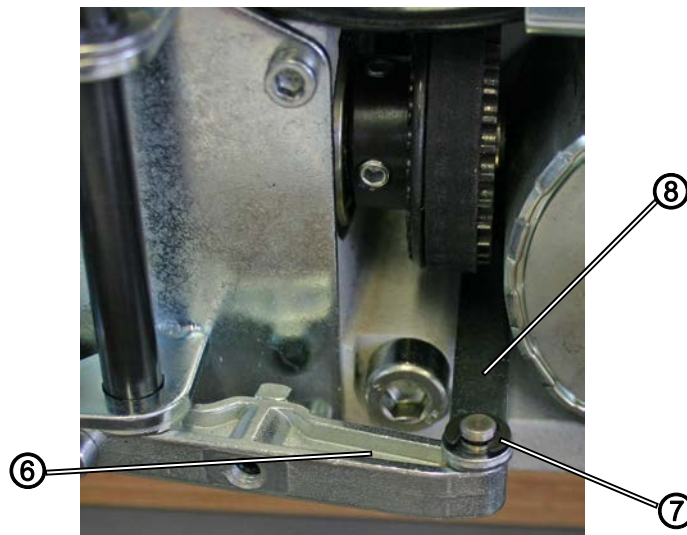
(4) - Screws (4x)

(5) - Mounting plate

4. Establish the connection between the lever (6) and tie rod (8).

5. Fix the connection with a retaining ring (7).

Figure. 23: Connecting the lever and tie rod



(6) - Lever

(7) - Retaining ring

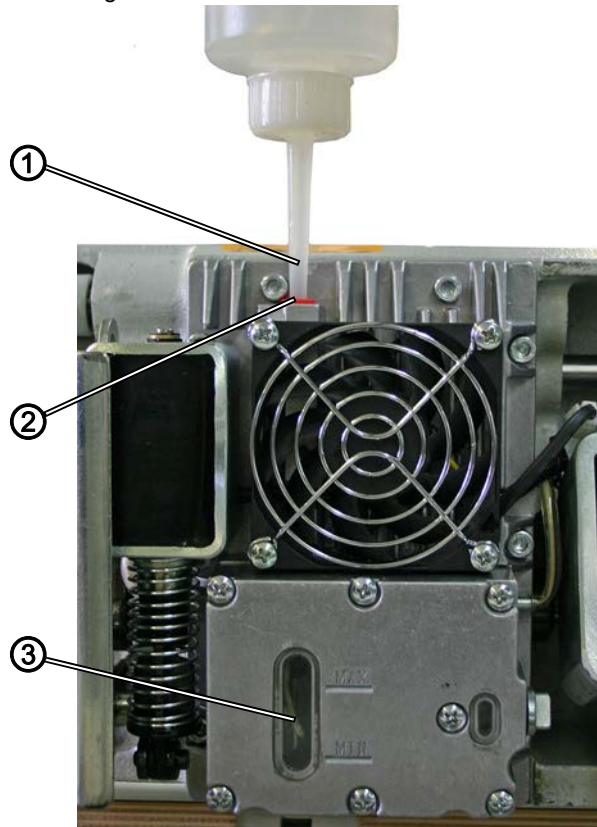
(8) - Tie rod

3.5 Filling in oil

Hook oil Only use DA-10 oil for the hook oil reservoir (included in scope of supply).

1. Insert the tip of the oil filling vessel (1) in the oil filling opening (2) on the top edge of the gearbox cover.

Figure. 24: Filling in hook oil



(1) - Oil filling vessel
(2) - Oil filling opening

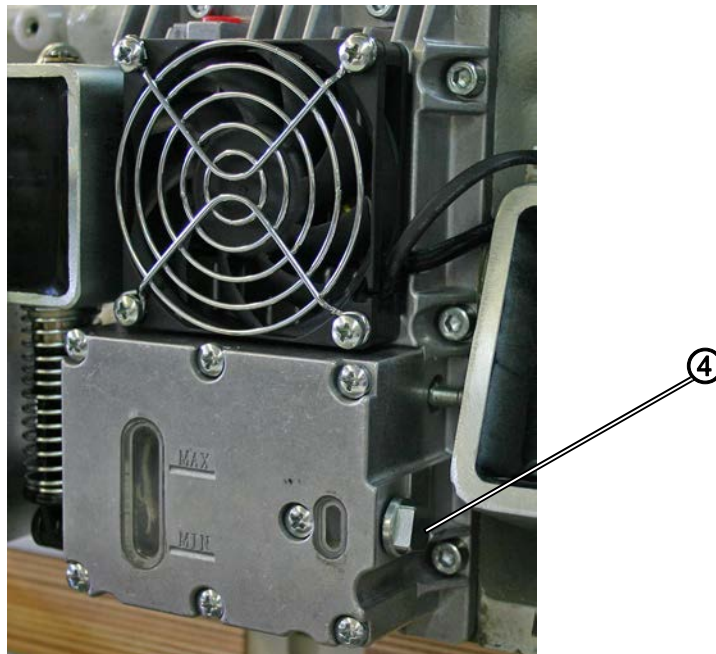
(3) - Hook oil inspection glass

2. Fill in oil until the oil is visible in the middle between MIN and MAX on the inspection glass (3), approx. 60 ml oil.

Gearbox oil Only use DA-32 oil for the gearbox oil reservoir (included in scope of supply).

1. Unscrew the locking bolt (4) from the gearbox oil reservoir with a spanner (width across flats 10 mm).

Figure. 25: Removing the locking bolt



(4) - Locking bolt

2. Clean any soiling off the magnet (5) on the locking bolt.
3. Check that the O-ring (6) is still positioned correctly on the locking bolt (4).

Figure. 26: Locking bolt



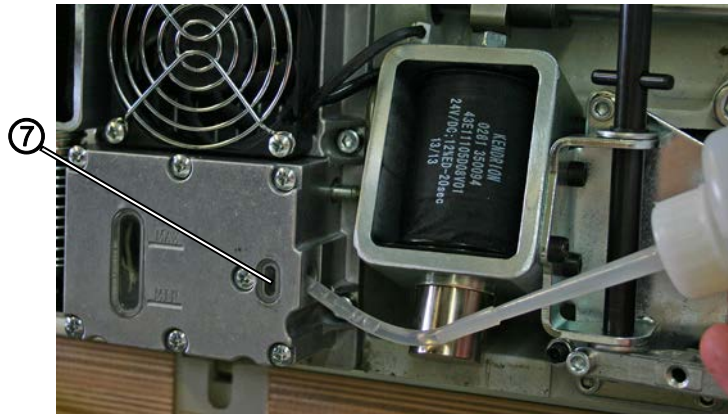
(4) - Locking bolt

(5) - Magnet

(6) - O-ring

4. Allow the oil to flow in slowly until it is visible in the center of the inspection glass (7), approx. 100 ml oil. If necessary, extend the filling tip with a hose section.

Figure. 27: Filling in gearbox oil



(7) - Gearbox oil inspection glass

5. Screw in the locking bolt (4) again and tighten.

4 Electrical connection of the fan

DANGER



Danger of life-threatening electric shock

The fan should only be connected by qualified technicians.

Switch off the machine and disconnect the power plug before connecting the fan.

Make sure the power plug cannot be accidentally plugged back in.

WARNING



Risk of crushing due to the weight of the machine

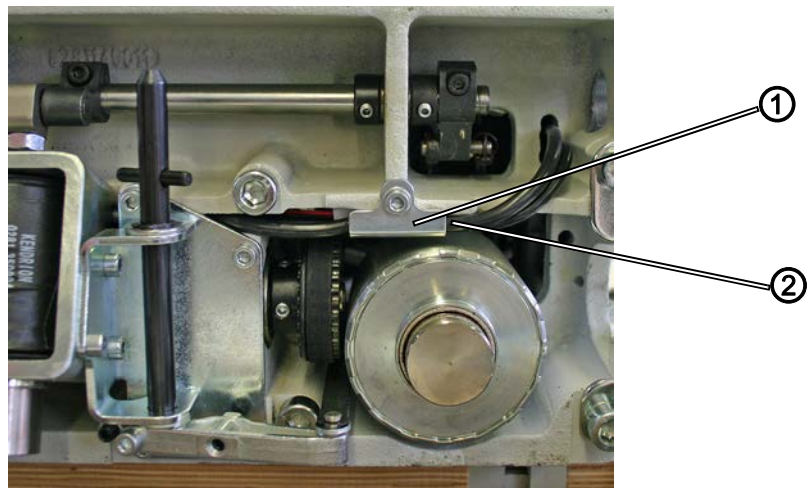
Always tilt the machine in a controlled manner.

Never reach in to areas where there is a risk of crushing.

4.1 Laying the fan cable

1. Screw on the cable clamp (1) and lay the cable of the fan (2) together with the other cables.
2. Screw on the cable clamp (1) again.

Figure. 28: Laying the cable

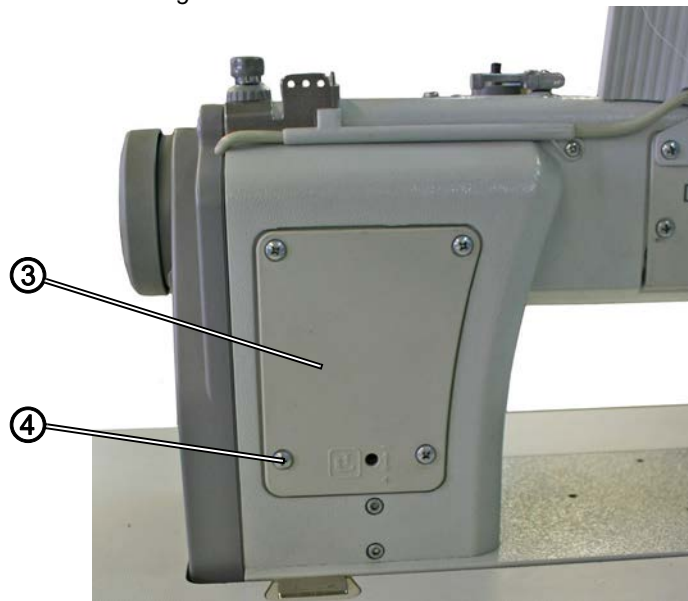


(1) - Cable clamp

(2) - Cable fan

3. Erect the machine.
4. Unscrew 4 screws (4) of the cover (3) on the rear side of the machine.

Figure. 29: Removing the cover on the rear side



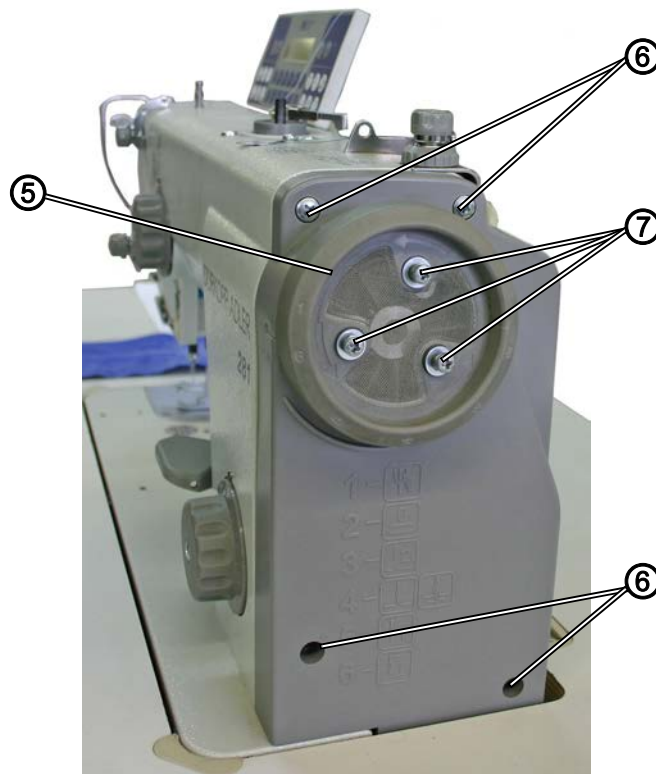
(3) - Cover

(4) - Screw (4x)

5. Remove the cover (3).

6. Unscrew 3 screws (7) of the handwheel (5) and remove the handwheel (5).

Figure. 30: Removing the handwheel and machine arm cover



(5) - Handwheel

(6) - Cover screws

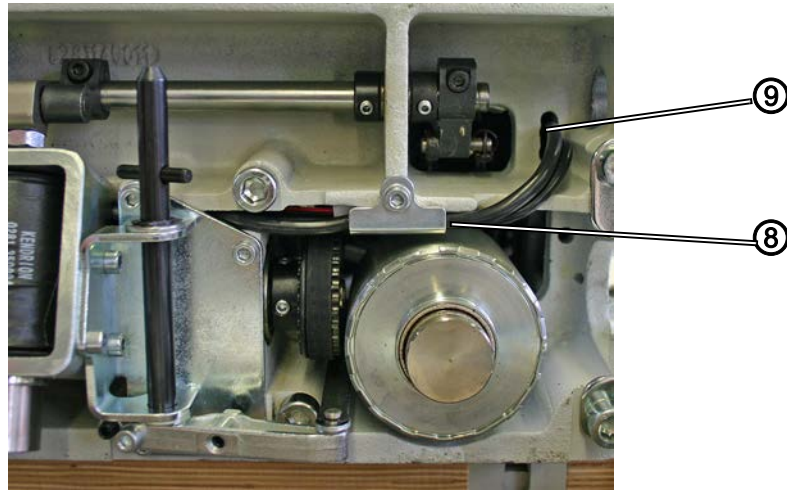
(7) - Handwheel screws

7. Unscrew 4 screws on the cover (6) of the machine arm.

8. Tip the machine back slightly and remove the cover.

9. Turn over the machine completely.
10. Feed the cable (8) of the fan through the opening (9) of the machine from the bottom.

Figure. 31: Laying the cable I

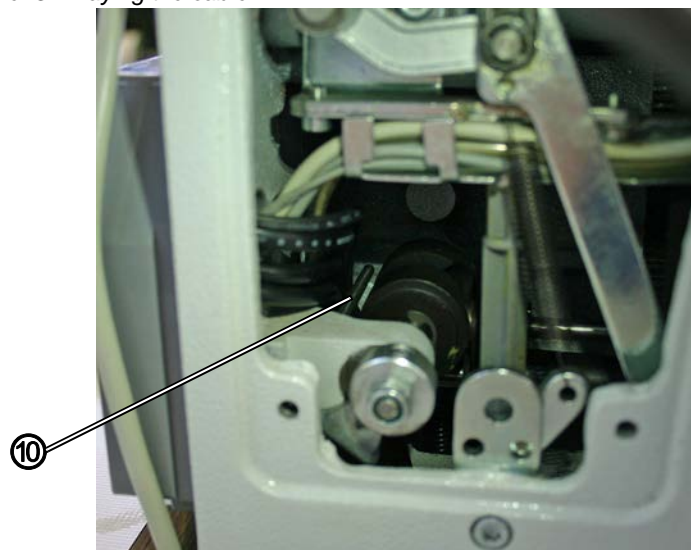


(8) - Cable fan

(9) - Opening machine

11. Erect the machine.
12. Receive the cable of the fan (8) through the rear opening of the machine and feed it out behind the bar (10).

Figure. 32: Laying the cable II



(10) - Bar

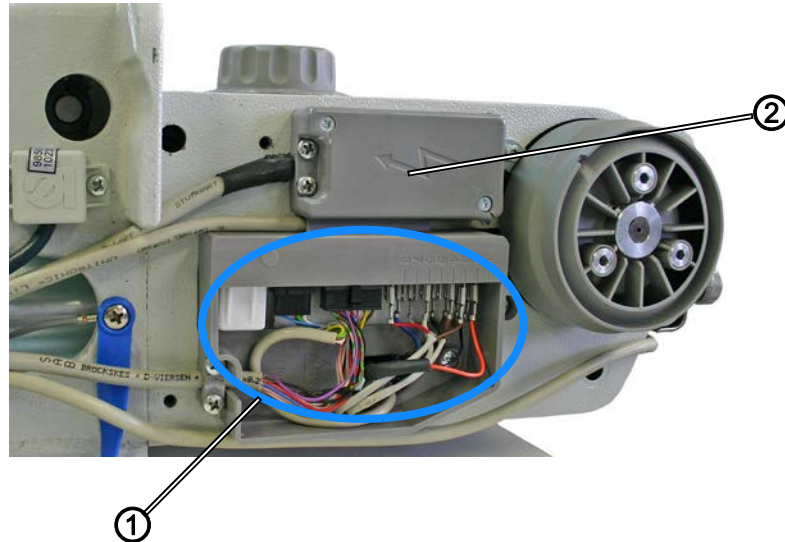
✎ The cable of the fan is laid.

4.2 Replacing the PCB

4.2.1 Dismantling the old PCB

1. In the low-voltage range (1), disconnect all plugs carefully.

Figure. 33: Disconnecting plug connections

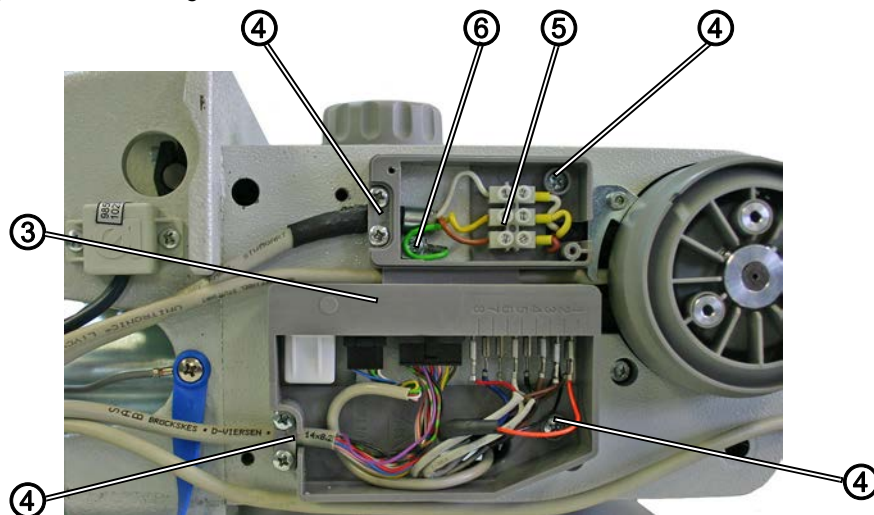


(1) - Low-voltage range

(2) - High-voltage range cover

2. In the high-voltage range, screw off the cover (2).
3. Loosen 6 screws (5) of the luster terminals, the equipotential bonding (6) does not have to be unscrewed.

Figure. 34: Removing the electrode holder



(3) - Electrode holder

(4) - Screws (6x)

(5) - Luster terminal screws

(6) - Equipotential bonding

4. Unscrew 6 screws (4) and remove the electrode holder (3) from the machine.
 5. Remove the PCB from the electrode holder (3).
- ✎ The old PCB is removed.

4.2.2 Installing the new PCB

ATTENTION

Material damage due to forceful installation

Do not push the PCB into the electrode holder using force. Ensure that the alignment is correct when installing the new PCB.

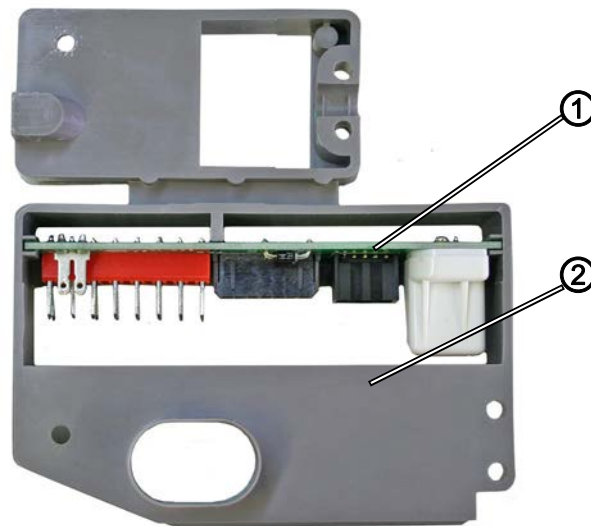
ATTENTION

Material damage due to crushing possible

Route the cables so that they have no contact with the rotating shaft. Do not crush the cables when laying.

1. Replace the old 14-pin plug with the new plug.
2. Push the new PCB (1) in the electrode holder (2) with the correct alignment.

Figure. 35: Positioning the new PCB in the electrode holder



(1) - PCB

(2) - Electrode holder


3. Screw on the electrode holder (2) again.
4. Connect the plug in the low-voltage range in accordance with the circuit diagram,  7 Appendix, page 29.
5. Connect the luster terminals in the high-voltage range according to identical colors.

Figure. 36: Connecting the luster terminals



6. Mount the high-voltage range cover again.

↳ The new PCB is installed.

7. Fix the cover (3) of the machine arm in place with the 4 screws (4).

Figure. 37: Fixing the cover of the machine arm in place

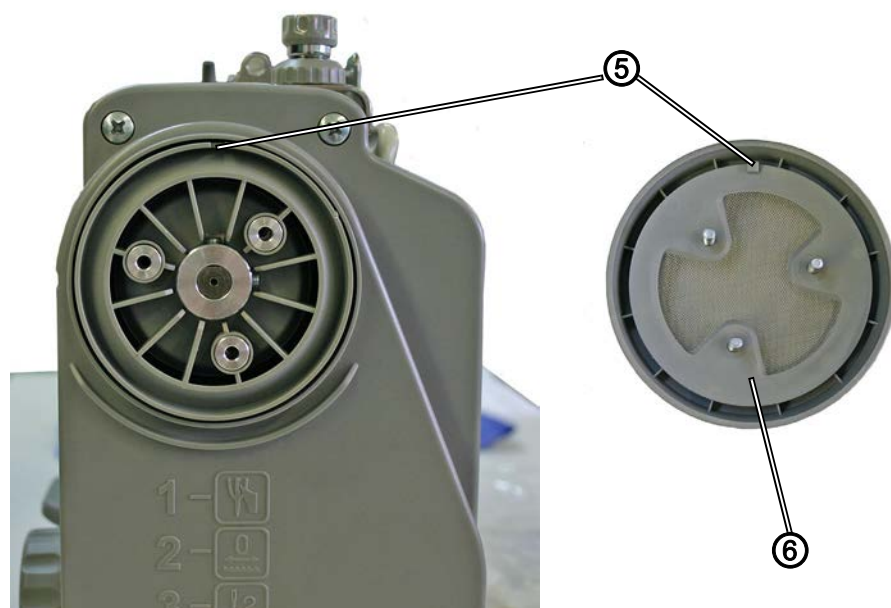


(3) - Cover

(4) - Screw (4x)

8. Screw on the handwheel (6) again, evenly and crosswise
Attention: Note the marking (5) for the correct alignment!

Figure. 38: Screwing on the handwheel

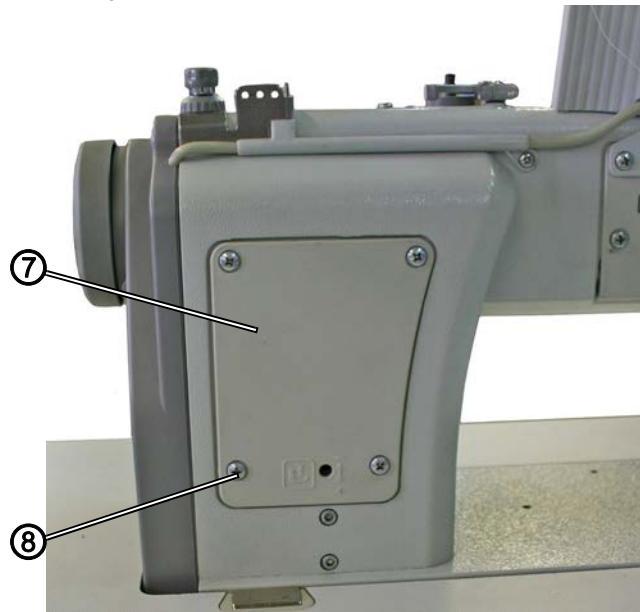


(5) - Marking

(6) - Handwheel

9. Fix the cover (7) on the rear of the machine with the 4 screws (8).

Figure. 39: Fixing the cover on the rear side



(7) - Cover

(8) - Screw (4x)

5 Replacing the oil pan

Figure. 40: Old oil pan



Figure. 41: New oil pan



1. Unscrew 9 screws of the old oil pan from the table top.
 2. Remove the old oil pan.
 3. Screw the new oil pan on to the table top with 9 screws.
- 👉 The oil pan is replaced.

6 Setting the parameters

The fan must be activated. It can then be used in a variety of different operating modes.

6.1 Activating the fan

For the fan to run, it usually has to be activated via a parameter.

You activate the fan as follows:

1. Select the parameter **o 13 00** via the control panel.
 2. Set the value to 1=active.
- 👉 The fan is activated.

6.2 Setting the fan

The fan can run in different operating modes:

- constant
- speed-dependent

For this, the following values must be set on technician level:

Parameters	Preset value	Unit	Description
t 13 00	0	-	0 = fan runs continuously 1 = fan runs speed-dependently (t 13 01 and t 13 02 should then also be set)
t 13 01	2.5	s	Lag time of the fan
t 13 02	100	rpm	Speed for switching on the fan

Figure. 42: Circuit diagram 281

Figure. 42: Circuit diagram 281

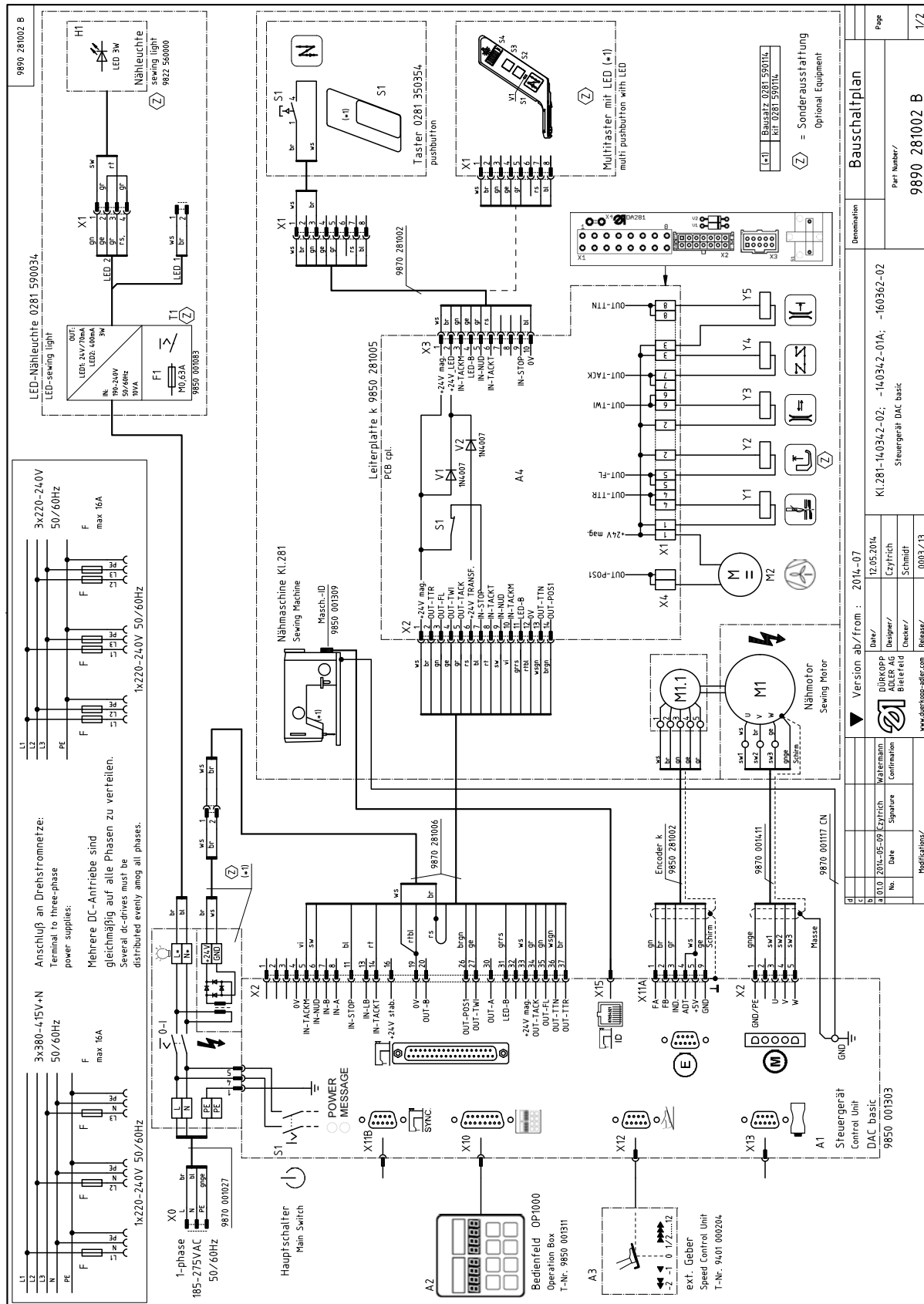
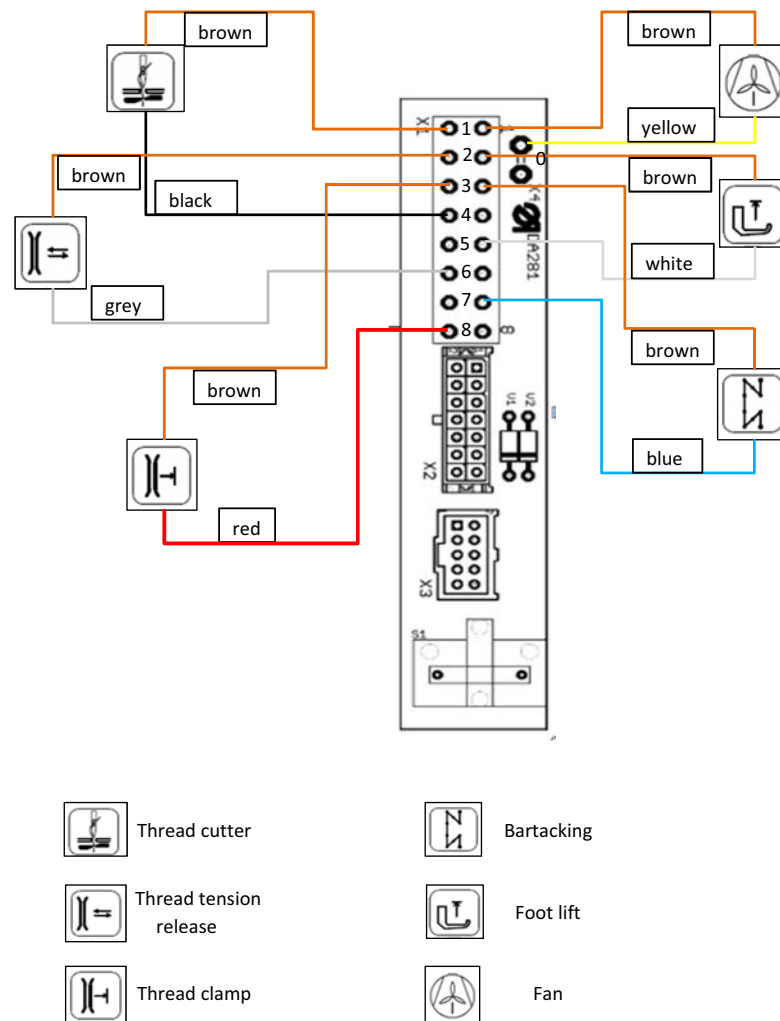


Figure. 43: Circuit diagram 281 in detail





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