



Label Printer

Hermes+

Made in Germany

Family	Type	
Hermes +	Hermes+ 2L/300-S	Hermes+ 2R/300-S
	Hermes+ 2L/600-S	Hermes+ 2R/600-S
	Hermes+ 2L/300-2	Hermes+ 2R/300-2
	Hermes+ 2L/600-2	Hermes+ 2R/600-2
	Hermes+ 4L/200-2	Hermes+ 4R/200-2
	Hermes+ 4L/300-2	Hermes+ 4R/300-2
	Hermes+ 4L/600-2	Hermes+ 4R/600-2
	Hermes+ 4.3L/200-2	Hermes+ 4.3R/200-2
	Hermes+ 4.3L/300-2	Hermes+ 4.3R/300-2
	Hermes+ 6L/200-2	Hermes+ 6R/200-2
	Hermes+ 6L/300-2	Hermes+ 6R/300-2
	Hermes+ 2L/300-3	Hermes+ 2R/300-3
	Hermes+ 2L/600-3	Hermes+ 2R/600-3
	Hermes+ 4L/200-3	Hermes+ 4R/200-3
	Hermes+ 4L/300-3	Hermes+ 4R/300-3
	Hermes+ 4L/600-3	Hermes+ 4R/600-3
	Hermes+ 4.3L/200-3	Hermes+ 4.3R/200-3
	Hermes+ 4.3L/300-3	Hermes+ 4.3R/300-3
	Hermes+ 6L/200-3	Hermes+ 6R/200-3
	Hermes+ 6L/300-3	Hermes+ 6R/300-3

Edition: 03/2018 - **Part No.** 9008980

Copyright

This documentation as well as translation hereof are property of cab Produkttechnik GmbH & Co. KG.

The replication, conversion, duplication or divulgement of the whole manual or parts of it for other intentions than its original intended purpose - in particular the procurement of spare parts for products sold by cab - demand the previous written authorization by cab.

Trademark

Windows is a registered trademark of the Microsoft Corporation.

Editor

Regarding questions or comments please contact
cab Produkttechnik GmbH & Co. KG.

Topicality

Due to the constant further development of our products discrepancies between documentation and product can occur.
Please check www.cab.de for the latest update.

Terms and conditions

Deliveries and performances are effected under the General conditions of sale of cab.

Germany
cab Produkttechnik GmbH & Co KG
Karlsruhe
Phone +49 721 6626 0
www.cab.de

USA
cab Technology, Inc.
Chelmsford, MA
Phone +1 978 250 8321
www.cab.de/us

Taiwan
cab Technology Co., Ltd.
Taipei
Phone +886 (02) 8227 3966
www.cab.de/tw

China
cab (Shanghai) Trading Co., Ltd.
Guangzhou
Phone +86 (020) 2831 7358
www.cab.de/cn

France
cab Technologies S.à.r.l.
Niedermörsen
Phone +33 388 722501
www.cab.de/fr

Mexico
cab Technology, Inc.
Juárez
Phone +52 656 682 4301
www.cab.de/es

China
cab (Shanghai) Trading Co., Ltd.
Shanghai
Phone +86 (021) 6236 3161
www.cab.de/cn

South Africa
cab Technology (Pty) Ltd.
Randburg
Phone +27 11 886 3580
www.cab.de/za

1	Important Information	4
1.1	Notes	4
1.2	General Safety Instructions	4
1.3	Protective Devices	5
1.4	Handling Electricity	5
1.5	Procedure in Case of Accidents	5
1.6	Environment	5
2	Tools	6
3	Maintenance	7
3.1	Cleaning by the Operator	7
3.2	Cleaning the Label Sensor	7
4	Replacing Assembly Units	8
4.1	Replacing the Printhead	8
4.1.1	Replacing Printhead Hermes+ 2, Hermes+ 4 and Hermes+ 4.3	8
4.1.2	Replacing Printhead Hermes+ 6	9
4.2	Replacing the Print Roller and Transport Roller	11
4.3	Replacing the Slipping Clutches	12
4.4	Replacing the Brake Shoe at the Label Unwinder	14
4.5	Replacing the Label Sensor	15
4.6	Replacing the PCB CPU	16
4.7	Replacing the Power Supply Unit	17
5	Adjustments	18
5.1	Measuring and Adjusting the Winding Torques	18
5.1.1	Measuring the Winding Torques	18
5.1.2	Adjusting the Winding Torques	21
5.2	Adjusting the Brake at the Label Unwinder	22
5.3	Adjusting the Label Run	23
5.4	Adjusting the Printing Mechanism	24
5.4.1	Preparing the Printer for Adjustment	24
5.4.2	Adjusting the Printhead Position	25
5.4.3	Adjusting the Printhead Pressure	26
5.4.4	Adjusting the Transfer Ribbon Feed Path	27
5.4.5	Final Test	27
5.5	Adjusting the Belt Tension	28
5.5.1	Adjusting the Tension at the Main Drive Motor Belt	28
5.5.2	Adjusting the Tension at the Rewinder and Transport Roller Belt	29
5.6	Adjusting the Magnetic Clutch	30
5.7	Adjusting the Ribbon Saver	31
6	Troubleshooting and Error Treatment	32
6.1	Failure of Device Functions	32
6.2	Hardware Faults	33
7	Block Diagram	34
8	Layout Diagram CPU	35
9	Index	37

1.1 Notes

Important information and instructions are designated as follows:



Danger!

Draws attention to an exceptionally great, imminent danger to your health or life due to hazardous voltages.



Danger!

Draws attention to a danger with high risk which, if not avoided, may result in death or serious injury.



Warning!

Draws attention to a danger with medium risk which, if not avoided, may result in death or serious injury.



Caution!

Draws attention to a danger with low risk which, if not avoided, may result in minor or moderate injury.



Attention!

Draws attention to potential risks of property damage or loss of quality.



Note!

Advices to make work routine easier or on important steps to be carried out.



Environment!

Advices on protecting the environment.



Handling instructions



Reference to chapter, position, picture number or document.



Option (accessories, peripherals, extras).

Time Viewed in the display / monitor.

1.2 General Safety Instructions

This service manual is intended for use by qualified service and maintenance personnel. For more operation and configuration information, refer to the user or configuration manual.

Follow the general safety rules below:

- Keep the area around the device clean at all times!
- Work with safety in mind.
- Parts of device that are removed during the maintenance work must be put in a safe place.
- Avoid risks of tripping over.



Danger!

Danger to life and limb from increased current flow through metal parts in contact with the device.

- ▶ Do not wear clothing with metal parts.
- ▶ Do not wear jewelry.



Caution!

Items of clothing drawn into the device by moving parts can lead to injuries.

- ▶ Do not wear any items of clothing which could get caught by moving parts.

1.3 Protective Devices



Warning!

There is a risk of injury if protective devices are missing or defective.

- ▶ Replace all protective devices (covers, safety notices, grounding cables etc) after maintenance work has been completed.
- ▶ Replace parts that have become defective or unusable.

Wear protective goggles for:

- Knocking pins or similar parts in or out with a hammer.
- Using spring hooks.
- Inserting or removing springs, retaining rings or grip rings.
- Using solvents, cleansers or other chemicals.

1.4 Handling Electricity

The following work may only be done by trained and qualified electricians:

- Work on electrical components.
- Work on an open device still connected to the mains supply.

General precautions before starting maintenance work:

- Find out where the emergency and power switches are so that they can be quickly thrown in an emergency.
- Disconnect the current supply before carrying out the following work:
 - Installing or removing power units.
 - Working in the immediate vicinity of open power supply components.
 - Mechanical check of power supply components.
 - Modifying circuits in the device.
- Test the zero potential of the device parts.
- Check the working area for possible sources of danger, such as wet floors, defective extension cables, defective protective conductor connections.

Additional precautions in the case of exposed voltages:

- Ask a second person to remain near the working site. This person must know where the emergency and power switches are, and how to switch the current off if danger arises.

1.5 Procedure in Case of Accidents

- Act calmly and with great care.
- Avoid danger to yourself.
- Switch off power.
- Request medical assistance.
- Give first aid, if necessary.

1.6 Environment



Obsolete assemblies contain valuable recyclable materials that should be sent for recycling.

- ▶ Send to suitable collection points, separately from residual waste.
- ▶ Send the parts for recycling.

- ▶ Do not use any worn or damaged tools.
- ▶ Only use tools and testing devices that are suitable for the task at hand.

cab special tools:

- Test collar for transfer ribbon winder (cab Part-No. 5534199)
- Distance caliber 0,1 mm (cab Part-No. 5961064)
- Gauge for brake adjustment at the label unwinder Hermes+ xx/xxx-2 (cab Part-No. 5961092)
- Gauge for brake adjustment at the label unwinder Hermes+ xx/xxx-3 (cab Part-No. 5961694)

Standard tools:

- Screw driver Torx, size TX 10, TX 20
- Allen key 1,5 mm
- Phillips-head screwdriver, size 1
- Allen key 2,5 mm (included)
- Snap ring pliers ZGG 0
- Snap ring pliers ZGG 1
- Cylindrical dynamometer (spring scale), 0 - 10 N
- Cylindrical dynamometer (spring scale), 0 - 25 N
- Digital Circuit Analyzer

3.1 Cleaning by the Operator

The following cleaning work is described in the "Operator's Manual":

- Cleaning the device
- Cleaning the printhead
- Cleaning the print roller

3.2 Cleaning the Label Sensor

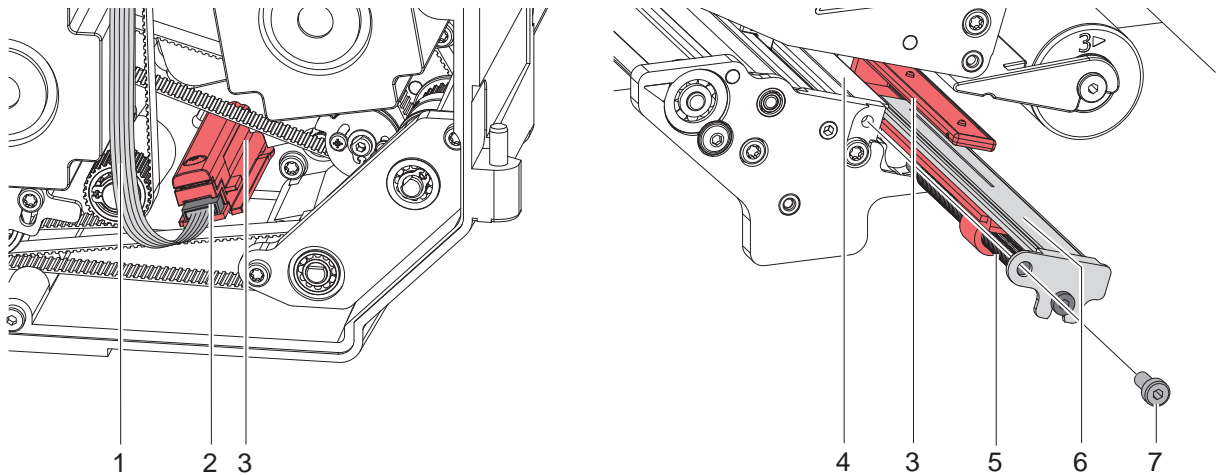


Figure 1 Cleaning the label sensor



Danger!

Risk of death via electric shock!

- **Before opening the rear cover, disconnect the device from the mains supply and wait at least one minute until the power supply unit has discharged.**

1. Unplug the printer from the electrical outlet and remove the rear cover.
2. Remove the material from the printer.
3. Unplug the male connector (2) of cable (1) from the female connector of the label sensor (3).
4. Loosen screw (7) and pull out of the profile (4) the label sensor (3) with spindle (5) and the cover (6).
5. Clean label sensor (3) with a brush or a cotton swab soaked in pure alcohol.
6. Move the label sensor (3) with spindle (5) and cover (6) into the profile (4) in the former position.
7. Fix the assembly with screw (7).
8. Plug in the connector (2) from cable (1) on the label sensor (3).
9. Mount the cover and restore all connections.
10. Adjust the label sensor ► Operator's manual.

4.1 Replacing the Printhead

4.1.1 Replacing Printhead Hermes+ 2, Hermes+ 4 and Hermes+ 4.3

The printhead can be replaced without the need for fine adjustment. The printhead must be replaced if worn or when switching to a printhead with higher or lower resolution. For better differentiation, the printheads have a label stating the resolution.

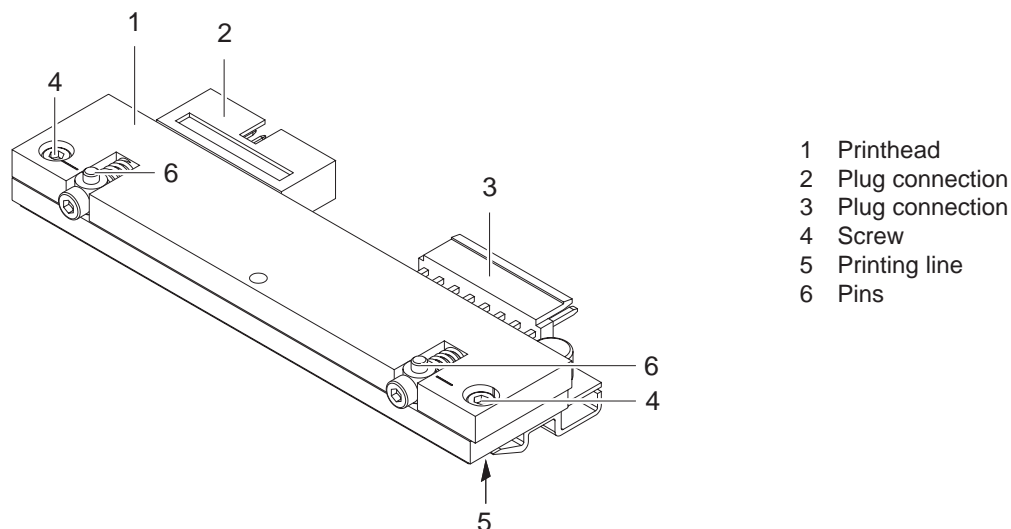


Figure 2 Structure of the printhead Hermes+ 2, Hermes+ 4, Hermes+ 4.3



Attention!

The printhead (1) is mounted as assembly and precisely aligned at the factory. Do not loosen the screws (4) under any circumstances.



Attention!

The printhead can be damaged by static electricity discharges and impacts!

- ▶ Ground your body, e.g. by wearing a grounded wristband.
- ▶ Do not touch contacts on the plug connections (2, 3).
- ▶ Do not touch printing line (5) with hard objects or your hands.

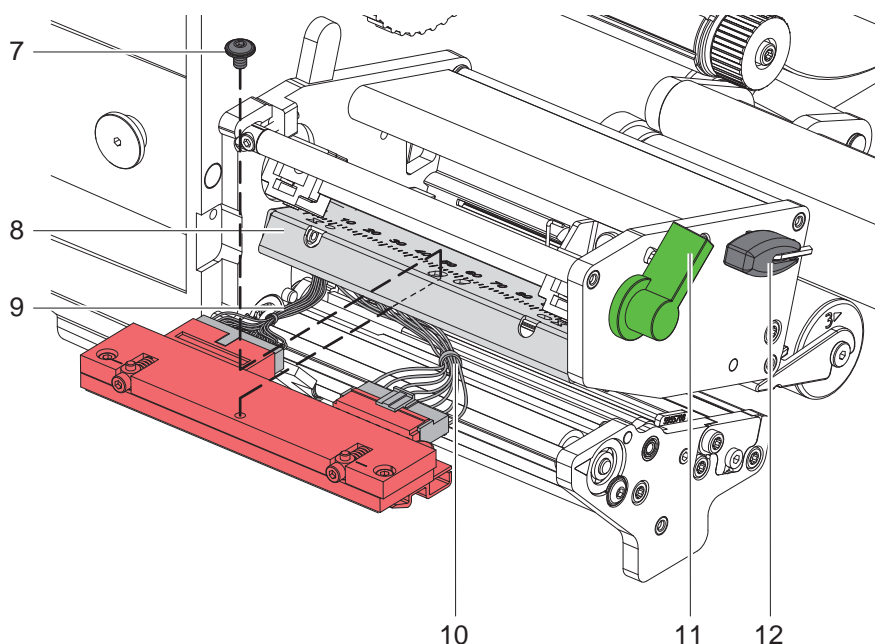


Figure 3 Changing printhead of Hermes+ 2, Hermes+ 4, Hermes+ 4.3

Removing the printhead

1. Turn lever (11) counterclockwise to lift the printhead.
2. Remove labels and transfer ribbon from the printer.
3. Lightly keep printhead mounting bracket (8) on the print roller with one finger and screw out screw (7) with the Allen key (12).
4. Swivel printhead mounting bracket (8) upward.
5. Remove printhead (1) from the printhead mounting bracket (8) if necessary.
6. Loosen both plug connections (9, 10) on the printhead and set printhead down on a clean, soft surface.

Installing the printhead

1. Attach plug connections (9, 10).
2. Position printhead (1) in printhead mounting bracket (8) in such a way that the pins (6) are secured in the corresponding holes in the printhead mounting bracket (8).
3. Lightly keep printhead mounting bracket (8) on the print roller with one finger and check for correct positioning of the printhead mounting bracket (8).
4. Screw in screw (7) with washer with the Allen key (12) and tighten it.
5. Reload labels and transfer ribbon.

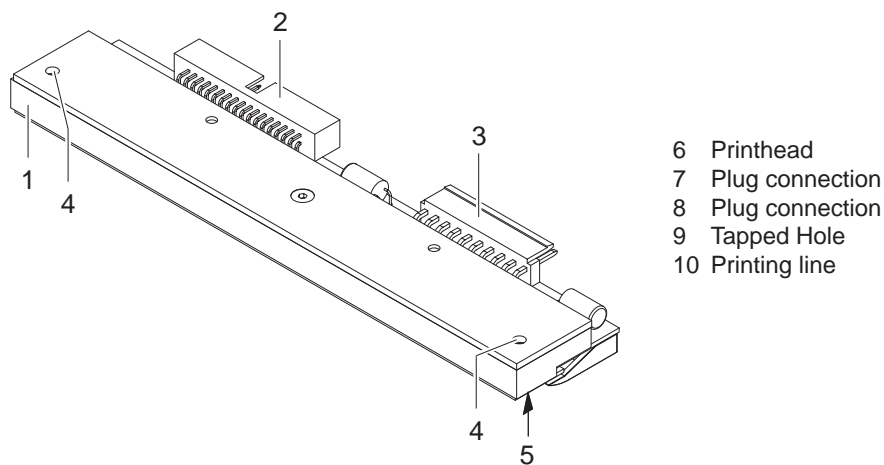
4.1.2 Replacing Printhead Hermes+ 6

Figure 4 Structure of the printhead Hermes+ 6

**Attention!**

The printhead can be damaged by static electricity discharges and impacts!

- ▶ Ground your body, e.g. by wearing a grounded wristband.
- ▶ Do not touch contacts on the plug connections (2, 3).
- ▶ Do not touch printing line (5) with hard objects or your hands

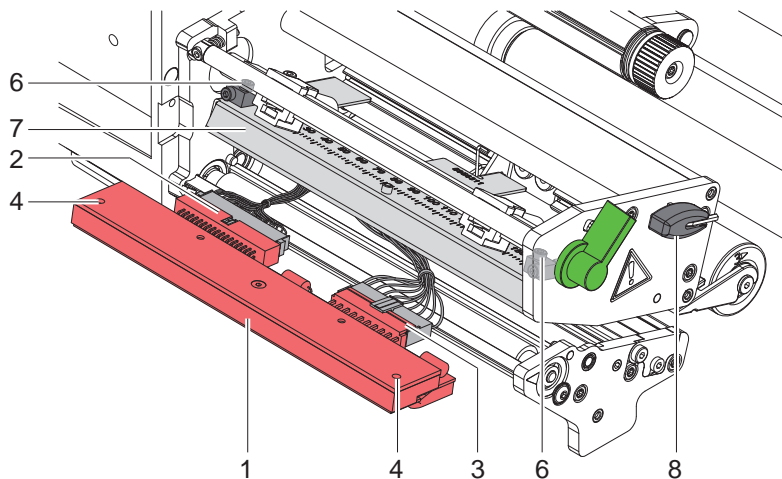


Figure 5 Dismounting printhead Hermes+ 6

Dismounting printhead

1. Open the printhead assembly.
2. Remove the labels and transfer ribbon.
3. Press the printhead bracket (7) on the print roller and loosen screw (6) with the hexagon wrench (8).
4. Open the printhead bracket (7) with turning on top.
5. If necessary, takeout the printhead (1) from the printhead bracket (7).
6. Unplug both connections (2,3) on the printhead.

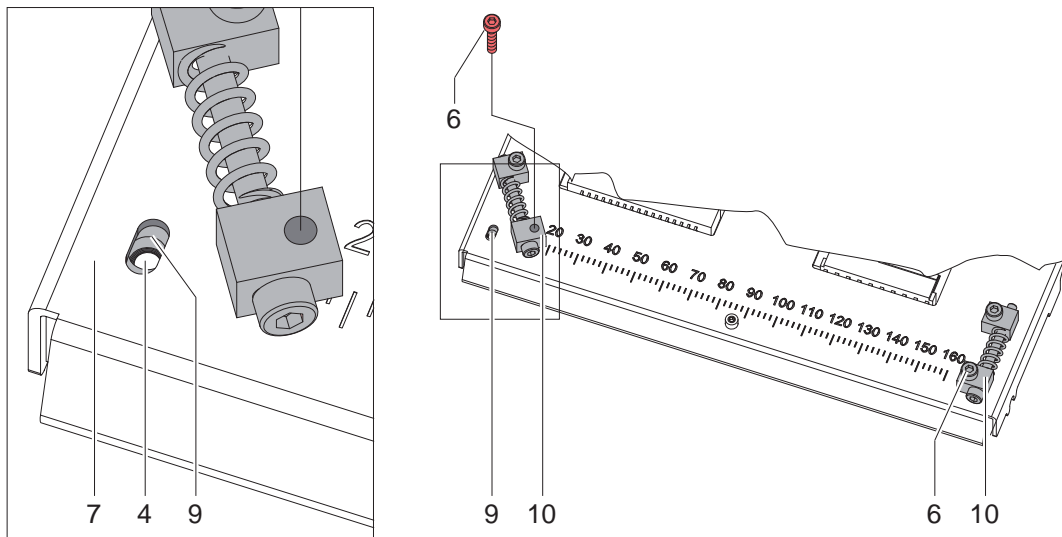


Figure 6 Mounting printhead Hermes+ 6

Mounting printhead

1. Plug in the connectors (2,3) on the printhead.
2. Turn the adjustment element (10) sideways to get free the hole under the element.
3. Put in the printhead into the printhead carriage and press the printhead assembly down and hold it.
4. Position the printhead in such away that the threaded holes of the printhead (4) are centered into the slots (9) of the printhead carriage.
5. Swing back the adjustment elements(10) to the home position.
6. Insert and tighten the screws (6).
7. Reloaded labels and transfer ribbon.

4.2 Replacing the Print Roller and Transport Roller

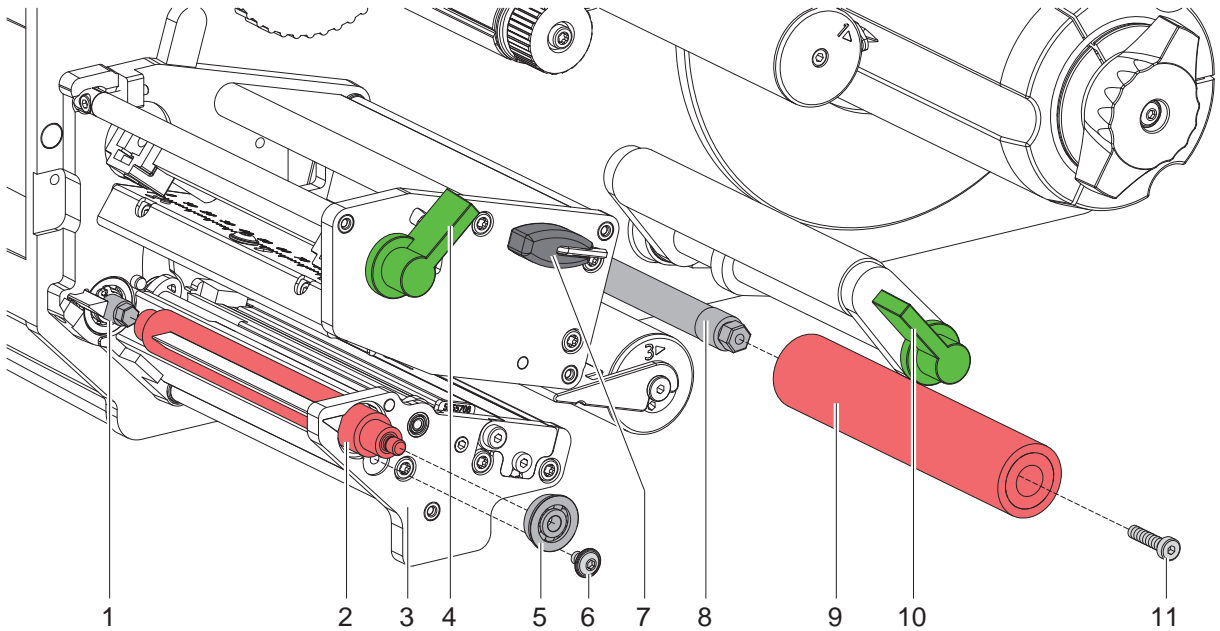


Figure 7 Replacing print roller and transport roller

Replacing the print roller

1. Turn lever (4) counterclockwise to lift the printhead assembly.
2. Loosen screw (6).
3. Remove ball bearing (5) and print roller (2) through the plate (3).
4. Guide the new print roller through the plate (3) to the axle (1). Turn the roller easily to align it to the hexagonal end of the axle and push the roller further until it stops.
5. Insert the ball bearing (5) in to the plate (3) and fix it with screw (6).

Replacing the transport roller

1. Turn lever (10) clockwise to open the transport system.
2. Loosen screw (11).
3. Remove the transport roller (9) from the axle (8).
4. Put the new roller onto the axle (8). Turn the roller easily to align it to the hexagonal end of the axle and push the roller further until it stops.
5. Fix the roller (9) with the screw (11).

4.3 Replacing the Slipping Clutches

The rewinder for the transfer ribbon and the internal rewinder are coupled to a slipping clutch in the main drive. The supply hub of the transfer ribbon is braked with a slipping clutch during printing.

Change the slipping clutch when it can no longer be set ▷ 5.1 on page 18. Removal and installation of the slipping clutch is also required for replacement of a winder.

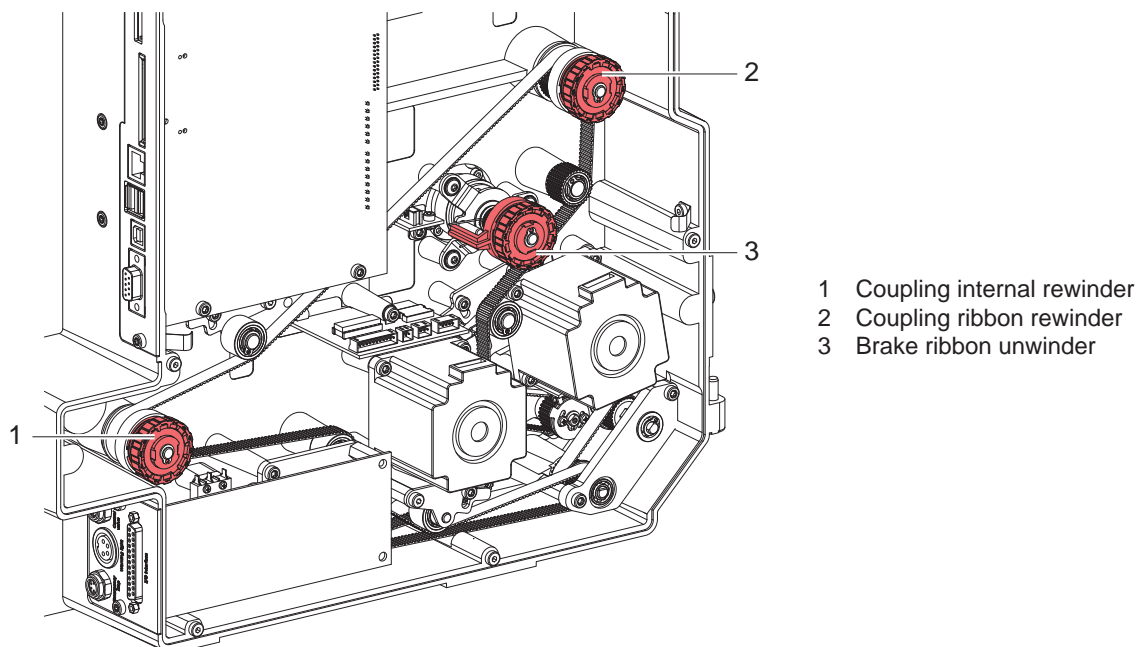


Figure 8 Slipping clutches



Danger!

Risk of death via electric shock!

► Before opening the housing cover, disconnect the device from the mains supply and wait at least one minute until the power supply unit has discharged.

Removing the slipping clutches at the rewinders

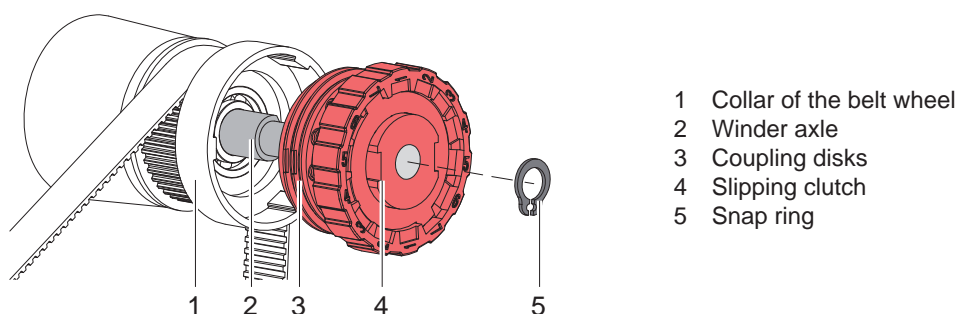


Figure 9 Slipping clutches at the rewinders

1. Unplug the printer from the electrical outlet.
2. Remove the rear cover of the printer
3. Remove the snap ring (5).
4. Pull the clutch (4) from the winder axle (2).
5. Slide the new clutch (4) onto the winder axle (2).
6. Align grooves in the coupling disks (3) with the guides in the collar of the belt wheel (1).
7. Slide coupling further until it stops.
8. Secure the snap ring (5).
9. Adjust the clutch ▷ 5.1 on page 18.

Removing the brake at the ribbon unwinder

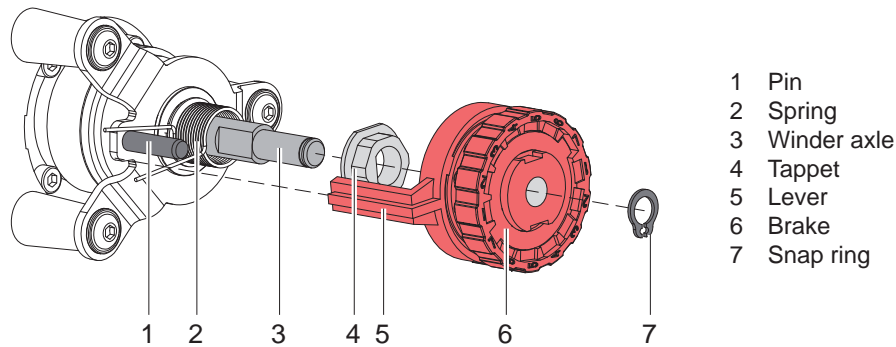


Figure 10 Brake at the ribbon unwinder

1. Unplug the printer from the electrical outlet.
2. Remove the rear cover of the printer
3. Remove the snap ring (7).
4. Pull the clutch (6) from the winder axle (3). Ensure that the tappet (4) remains on the winder axle. Reattach the tappet to the winder axle if it has been pulled off. The axle profile is shaped in such a way that the tappet only fits in one way.
5. Check the position of the spring (2). Ensure that pin (1) grasps between the spring arms.
6. Slide the new clutch (6) onto the winder axle (3) in such a way that it fits on the hexagonal profile of the tappet (4).
7. Push the clutch further until it stops in such a way that lever (5) grasps between the spring arms..
8. Secure the snap ring (7).
9. Adjust the clutch ▷ 5.1 on page 18.

4.4 Replacing the Brake Shoe at the Label Unwinder

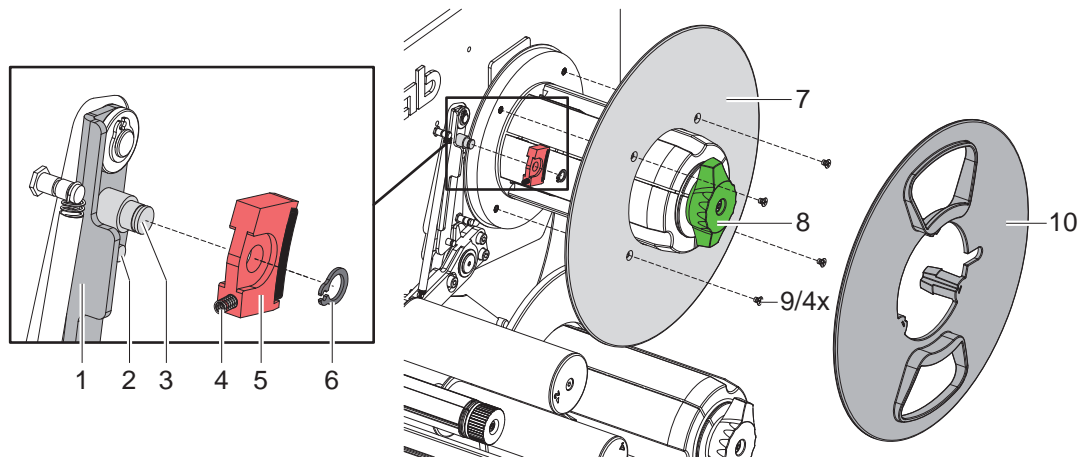


Figure 11 Brake at the label unwinder

1. Turn the knurled knob (8) counterclockwise and remove the margin stop (10) from the unwinder.
2. Loosen 4 screws (9) remove the wall spacer (7).
3. Remove the snap ring (6).
4. Pull the brake shoe (5) from the pin (3), remove the spring (4) from the brake shoe.
5. Insert the spring in the new brake shoe.
6. Push the brake shoe onto the pin (3) in such a way that pin (2) grasps into the sink on the back side of the brake shoe and the spring (4) presses against the flap (1) of the brake lever.
7. Secure the snap ring (6).
8. Complete the unwinder.

4.5 Replacing the Label Sensor

**Notice!**

Soiling of the label sensor can also cause malfunctions. Before replacing the label sensor, check whether it is soiled and clean it if necessary. ▷ 3.1 on page 7.

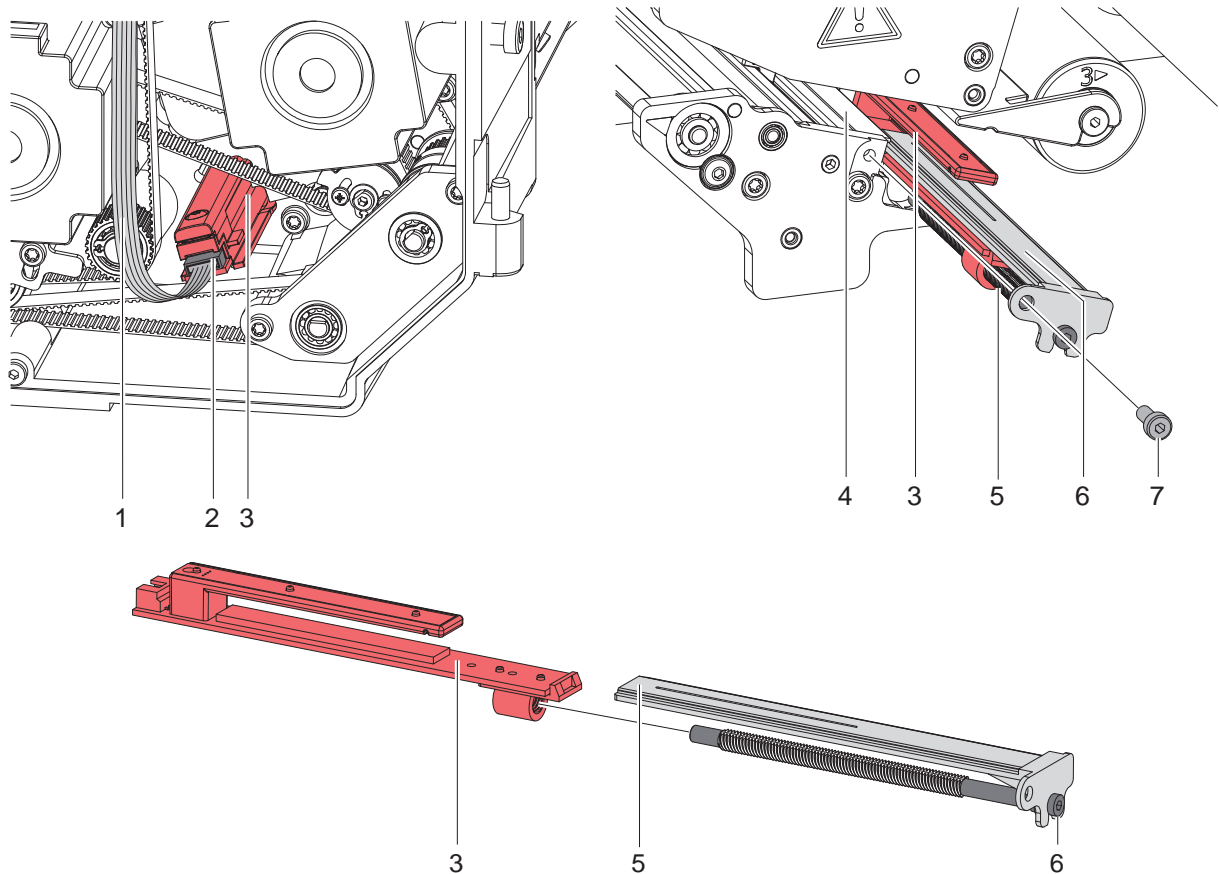


Figure 12 Replacing the label sensor

**Danger!**

Risk of death via electric shock!

► Before opening the housing cover, disconnect the device from the mains supply and wait at least one minute until the power supply unit has discharged.

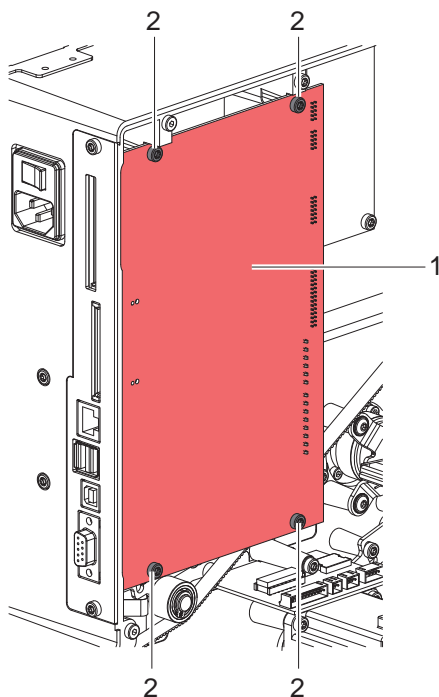
1. Unplug the printer from the electrical outlet and remove the rear cover.
2. Remove the material from the printer.
3. Totally loosen the knurled screw (2).
4. Disconnect the cable (4) from the connector (5).
5. Push the label sensor (3) in arrow direction and pull it out
6. Insert the new label sensor and move it against the arrow direction in the former position.
7. Connect the cable (4) to the connector (5).
8. Mount cover and restore all connections.
9. Adjust label sensor mechanically ▷ Operator's Manual.
10. Insert the knurled screw (2) through the slot (1) in to the label sensor and tighten it.
11. Adjust label sensor electrically ▷ Configuration Manual.

4.6 Replacing the PCB CPU

**Danger!**

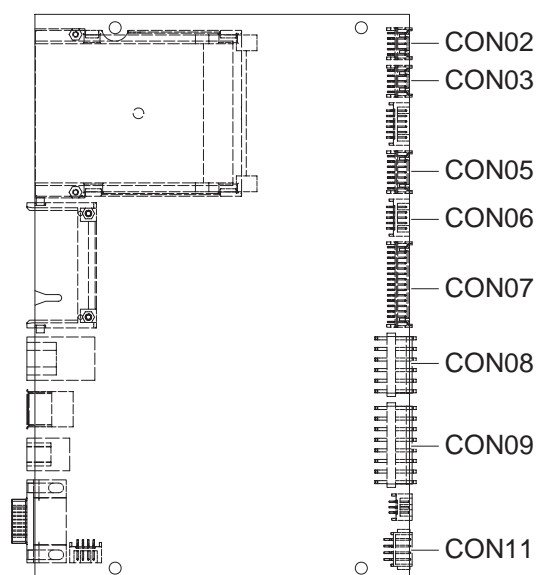
Risk of death via electric shock!

- Before opening the housing cover, disconnect the device from the mains supply and wait at least one minute until the power supply unit has discharged.



1. If possible, save the printer configuration to a Compact Flash card ▷ Configuration Manual.
2. Unplug the printer from the electrical outlet.
3. Detach all interface cables from the back of the printer.
4. Remove all memory cards from the slots.
5. Dismount cover.
6. Unplug all side plug connections from the CPU (1).
7. Loosen screws (2) and remove CPU (1).
8. Attach the new CPU (1) with four screws (2).
9. Connect all cables to the CPU (1).
10. Mount the rear cover.
11. Restore all interface connections on the back of the printer.
12. Connect the power cable.
13. Update the firmware if necessary.
14. Adjust the label sensor ▷ Configuration Manual.
15. Load the printer configuration from the memory card if possible. Otherwise, set the printer configuration via the control panel ▷ Configuration Manual.

Figure 13 Replacing the CPU



CON2	PCB Control Panel
CON3	PCB USB Hub
CON5	Sensors
CON6	Sensors
CON7	Printhead - Signals
CON8	Printhead - Power supply
CON9	Power supply unit
CON11	Main motor

Figure 14 Connectors on the CPU ▷ Layout diagram

4.7 Replacing the Power Supply Unit

**Danger!**

Risk of death via electric shock!

- Before opening the housing cover, disconnect the device from the mains supply and wait at least one minute until the power supply unit has discharged.

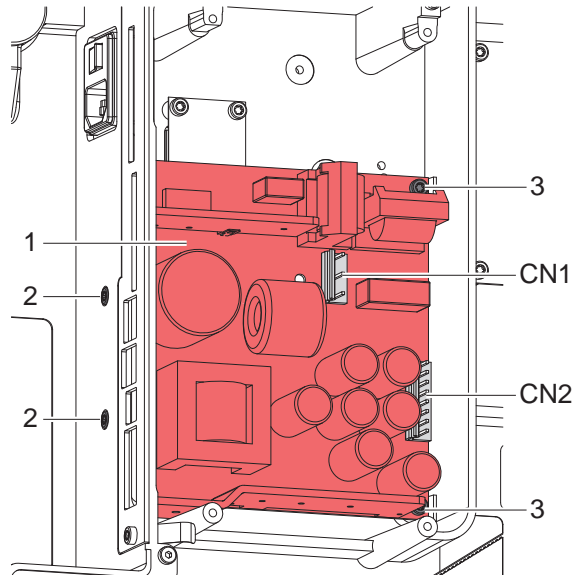


Figure 15 Replace the power supply unit

1. Unplug the printer from the electrical outlet.
2. Remove the rear cover.
3. Dismount the PCB CPU ► 4.6 on page 16.
4. Unplug the cables from the connectors CN1 and CN2.
5. Loosen 2 screws M4x10 (3) and 2 screws M4x6 (2).
6. Remove the power supply unit (1).
7. Insert the new power supply unit and fix it with the screws (2,3).
8. Connect the cable coming from the power input module to CN1, the cable Power unit - CPU to CN2.
9. Re-mount the PCB CPU ► 4.6 on page 16.
10. Mount the rear cover.

5.1 Measuring and Adjusting the Winding Torques

The rewinder for the transfer ribbon and the internal rewinder are coupled to a slipping clutch in the main drive. The supply hub of the transfer ribbon is braked with a slipping clutch during printing.

The correct setting of the torques of these slipping clutches is necessary for:

- precise conveyance of the transfer ribbon during label transport
- the prevention of wrinkles in the feed path of the transfer ribbon
- high positioning accuracy of the peeled labels.

The winding axes of the rewinders are not actively driven by the belts during label reverse, but rather solely by the pull of the print roller. The torque required to disengage the rewinder from the belt drive is implemented via a brake in the winding reel, which works in both directions. The measured clockwise torque is the sum of the coupling torque and the torque of the brake. Only the torque of the brake is measured when the winding axis is rotating counter-clockwise. For this reason, measurement of the torques at the rewinders are required in both directions.

The method of measurement differs for the various types of slipping clutches:

- Measurement of the winding torques at the transfer ribbon take up and supply hub ▷ 5.1.1 on page 18.
- Measurement of the winding torque at the internal rewinder ▷ 5.1.1 on page 18.

If the winding torque differs from the set value, it must be adjusted. The procedures for adjusting the winding torques of the transfer ribbon winders and the internal rewinder are identical ▷ 5.1.2 on page 21.

5.1.1 Measuring the Winding Torques

Transfer ribbon take up and supply hub

Measurement of the winding torque at the transfer ribbon take up and supply hub occurs by determining the pulling forces on a test collar attached to the winder.

The physical relation between the torque and the pulling force is:

$$F = M / r$$

F: Pulling force [N],

M: Winding torque [Ncm],

r: Radius of the test collar (30 mm)

The set values for the winding torque and the resulting pulling force at the test collar are:

Slipping clutch on	Measurement	Direction of rotation	Winding torque M	Pulling force F
Ribbon take up hub	A	against winding direction		
		Hermes+ 2	10,2 - 10,8 Ncm	3,4 - 3,6 N
		Hermes+ 4/4.3/6	12,9 - 14,4 Ncm	4,3 - 4,8 N
	B	in winding direction	2,1 - 3,0 Ncm	0,7 - 1,0 N
Ribbon supply hub	C	any	3,6 - 4,5 Ncm	1,2 - 1,5 N

Table 1 Winding torques at the transfer ribbon hubs

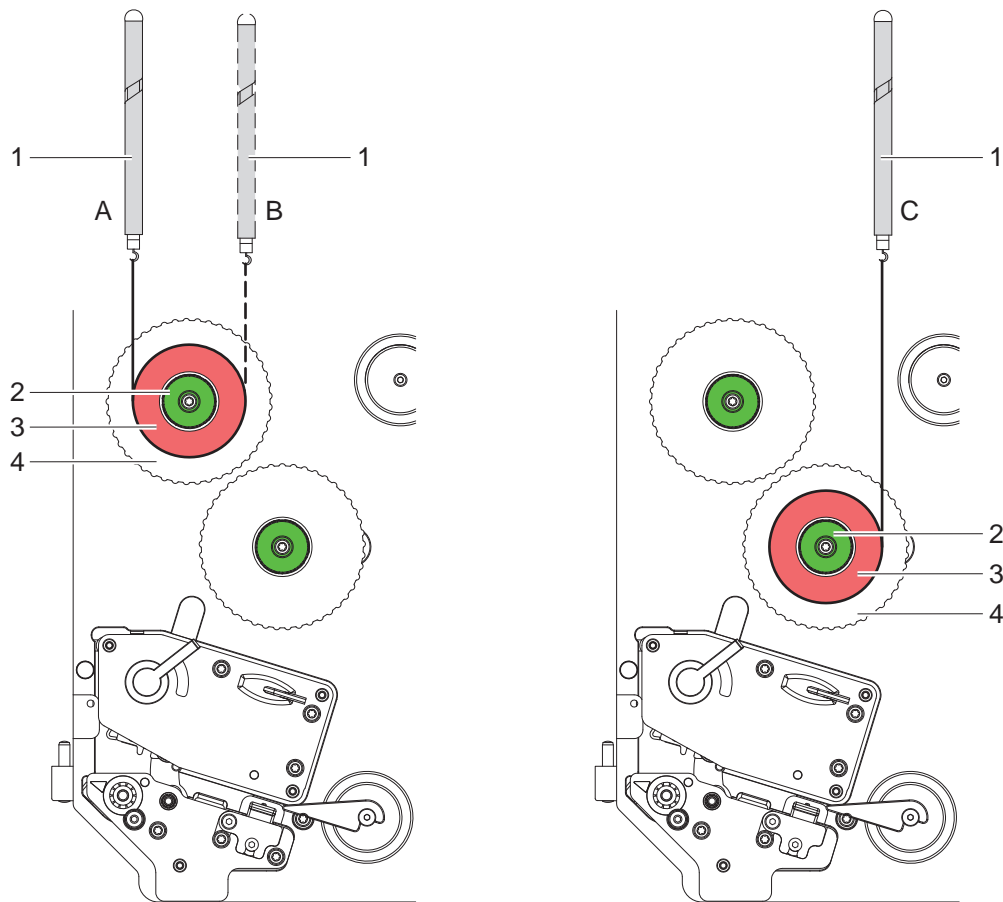


Figure 16 Measuring the winding torque at the transfer ribbon take up hub (left) and supply hub (right)



Danger!

Risk of death via electric shock!

► **Before opening the housing cover, disconnect the device from the mains supply and wait at least one minute until the power supply unit has discharged.**

1. Unplug the printer from the electrical outlet.
2. Remove cover.
3. Remove the transfer ribbon from the printer.
4. Attach the test collar (3) to the winder (4).
5. Turn the knurled nut counterclockwise to clamp the test collar.
6. Wind the cord attached to the test collar around the test collar several times.
7. Secure spring scale [10 N] (1) at the end of the cord.
8. Move the spring scale upward vertically until the winder begins turning.
9. If the drive belt at the rewinder is also moving, hold it in place during the measurement. Otherwise, the measurement is not accurate.
10. Allow the cord to unwind from the test collar at least one full turn and read the pulling force F on the spring scale at the same time.
11. If the winding torque differs from the set value, it must be adjusted ► 5.1.2 on page 21.

Internal Rewinder

Measurement of the winding torque at the internal rewriter occurs by determining the pulling forces with a cord wrapped around the rewriter.

The physical relation between the torque and the pulling force is:

$$F = M / r$$

F: Pulling force [N],

M: Winding torque [Ncm],

r: Radius of the rewriter (38 mm)

The set values for the winding torque and the resulting pulling force at the rewriter are:

Slipping clutch on	Measurement	Direction of rotation	Winding torque M	Pulling force F
Internal rewriter	A	against winding direction	19,0 - 26,6 Ncm	5,0 - 7,0 N
	B	in winding direction	7,6 - 11,4 Ncm	2,0 - 3,0 N

Table 2 Winding torques at the internal rewriter

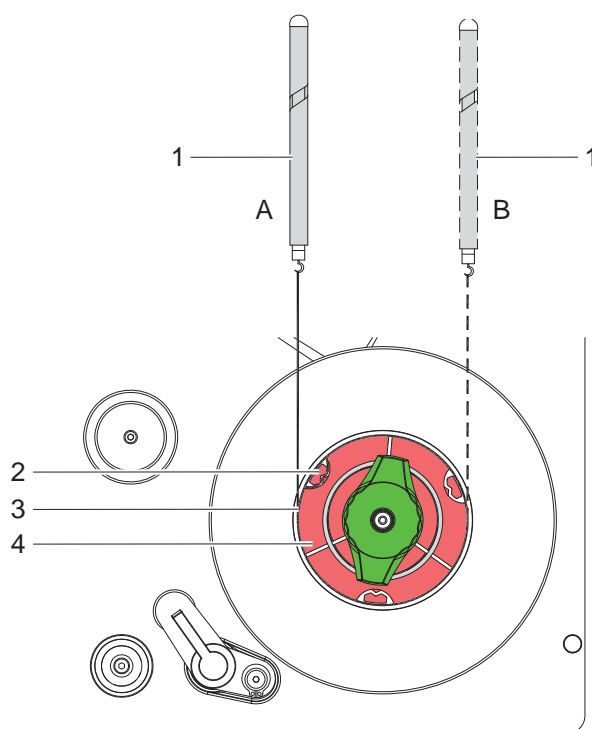


Figure 17 Winding torques at the internal rewriter



Danger!

Risk of death via electric shock!

► **Before opening the housing cover, disconnect the device from the mains supply and wait at least one minute until the power supply unit has discharged.**

1. Unplug the printer from the electrical outlet.
2. Remove cover
3. Remove the labels from the printer.
4. Push the cord under a bracket (2) of the internal rewriter (3) and wind it around the rewriter (4).
5. Secure spring scale [10 N] (1) at the end of the cord.
6. Move the spring scale upward vertically until the winder begins turning. If the drive belt at the rewriter is also moving, hold it in place during the measurement. Otherwise, the measurement is not accurate.
7. Allow the cord to unwind from the rewriter at least one full turn and read the pulling force F on the spring scale at the same time.
8. If the winding torque differs from the set value, it must be adjusted ▷ 5.1.2 on page 21.

5.1.2 Adjusting the Winding Torques

The winding torque of a winder can be changed at the knurled ring of the respective slipping clutch. The numbers on the knurled ring stand for the value of the winding torque:

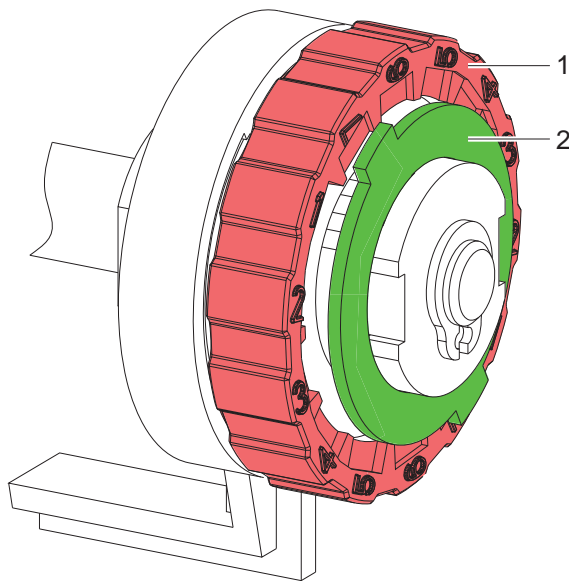
- 1: Lowest winding torque
- 7: Highest winding torque

The current value is indicated by the number located at the positions of the two locking tabs.

**Danger!**

Risk of death via electric shock!

- Before opening the housing cover, disconnect the device from the mains supply and wait at least one minute until the power supply unit has discharged.



1. Unplug the printer from the electrical outlet.
2. Remove the cover.
3. Press the knurled ring (1) of the slipping clutch toward the housing wall.
The lock (2) of the knurled ring is released.
4. Turn the knurled ring while pushing it and release it in the desired position.
5. Ensure that the tabs of the lock are located completely in the grooves of the setting value.
6. Measure the winding torque again and compare it to the set value.
7. Repeat the adjustment until the measured winding torque is within the tolerance range.
Is it not possible change the slipping clutch
▷ 4.3 on page 12.
8. Mount cover.

Figure 18 Adjusting the winding torque

5.2 Adjusting the Brake at the Label Unwinder

The brake (9) at the label unwinder is switched on and off by the movement of the swing arm (2). The correct adjustment of the switching point guarantees an accurate label transport and a high positioning accuracy of the peeled labels.

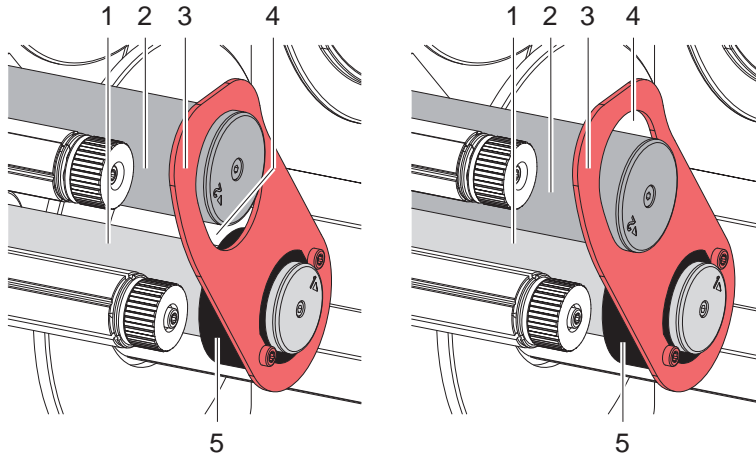


Figure 19 ing

1. Press down the swing arm with the guide roller (2).
2. Push the collar (5) of the gauge (3) onto the guide roller (1) and insert the guide roller (2) into the slot hole (4).
3. Release the swing arm. The guide roller (2) moves to the upper end of the slot hole (4) (Figure 19 left side).
Requirement A: In that position the unwinder must be blocked by the brake.
4. Press down the swing arm so that the guide roller touches the lower end of the slot hole (4) (Figure 19 right side).
Requirement B: In that position the brake must deblock the label unwinder.

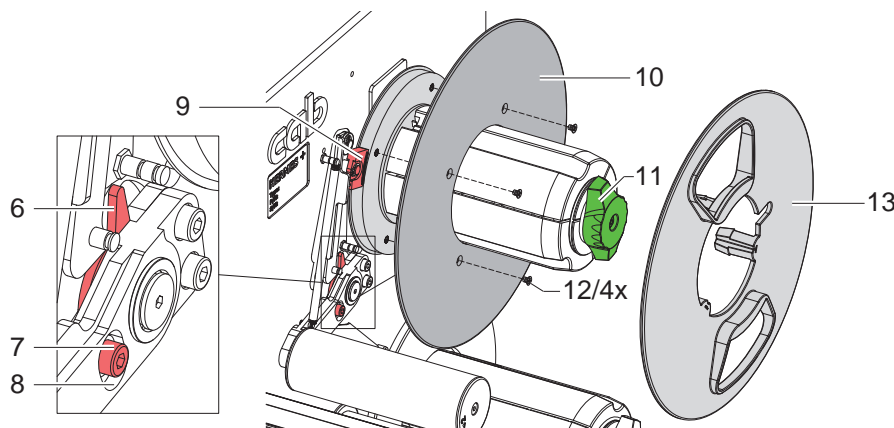


Figure 20 Adjusting the switching point of the brake

If one of the requirements will not be achieved the switching point must be re-adjusted :

5. Turn the knurled knob (11) counterclockwise and remove the margin stop (13) from the unwinder.
6. Loosen 4 screws (12) remove the wall spacer (10).
7. Loosen screw (7) and move it inside the slot hole (8). That way the initial position of the lever (6) will be altered :
 - Requirement A not achieved : Move the screw upwards inside the slot hole
 - Requirement B not achieved : Move the screw downwards inside the slot hole
8. Tighten screw (7) and repeat the check with the gauge (3).
9. If necessary repeat the adjustment.
10. If the switching point cannot be adjusted to achieve requirement A (blocking), replace the brake shoe ▷ 4.4 on page 14.
11. Complete the unwinder.

5.3 Adjusting the Label Run

Over an eccentric on the 3. deflection roller (5) it's possible to change the angle between roller and chassis and so the direction of the material (2) run. The label material (2) must so run that the material edge touched softly the paper run edge (1) of the chassis.

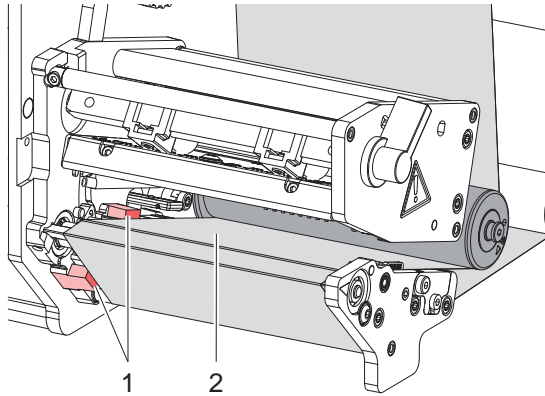


Figure 21 Material on the paper run edge

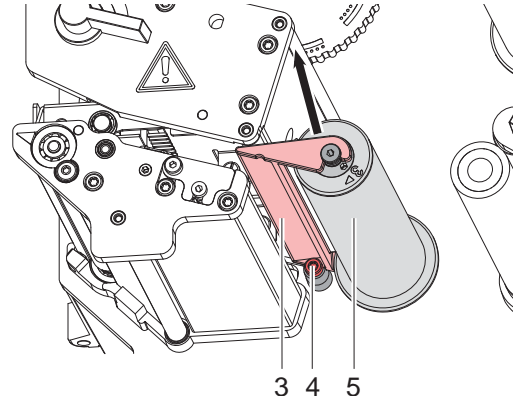


Figure 22 Mount and dismount of the guiding

To adjust the eccentric it's necessary to dismount the guiding (3).

Removing the guiding

1. Loosen screw (4).
2. Pull out the guiding (3) on top in arrow direction.

Changing the approach angle of the deflection roller

3. Loosen screw (6) two rounds.
4. Turn the eccentric on the (7) internal hexagon with the hexagon key in the right position.
5. Tighten screw (6) and hold at the same time the eccentric (7) with a second hexagon key.
6. Press the button feed to test the material run. If necessary adjust it again.

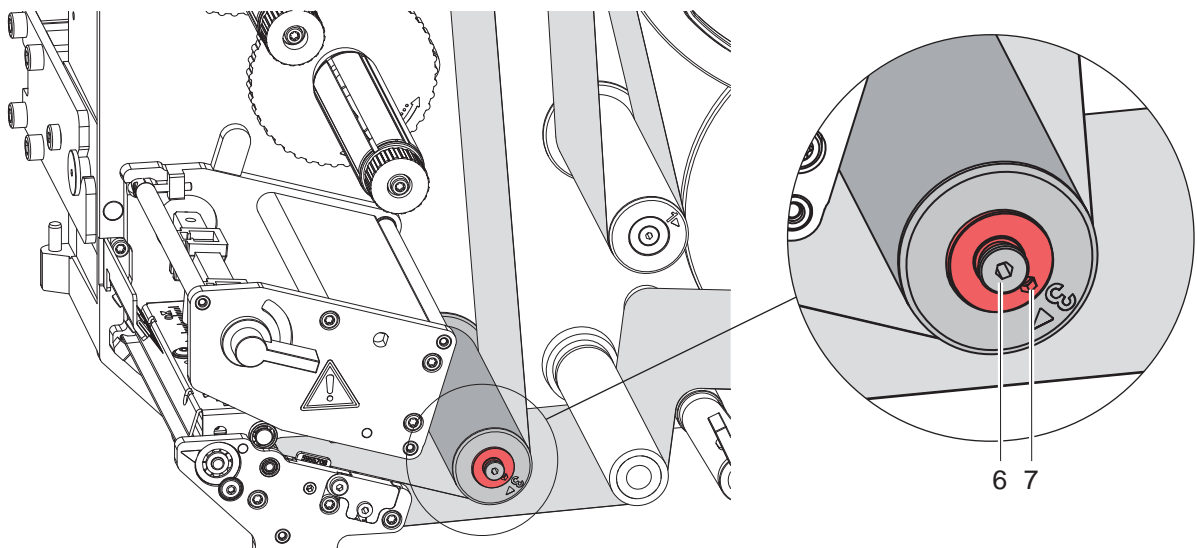


Figure 23 Changing the material run via changing the angle of the 3. deflection roller

Mount the guiding

7. Loosen screw (4).
8. Put the guiding (3) down (against the arrow) on the deflection roller (5). On both sides are grows to fix the guiding.
9. Press guiding (3) down and tighten screw (4).

5.4 Adjusting the Printing Mechanism

Major adjustment of the printing mechanism beyond format-based settings is only required if the printhead assembly has been removed or parts in this area have been replaced. Excluded from this is the replacement of the printhead, after which readjustment is generally not required.

The following print quality imperfections may indicate maladjustment of the printing mechanism:

- Print image too light
- Print image is spotty
- Print image lighter on one side
- Horizontal lines not parallel to the horizontal label edges
- Clear lateral drift of the transfer ribbon



Notice!

Print image errors can also arise from wrinkling of the transfer ribbon. This is why you should check the transfer ribbon feed path and the head locking system for correct adjustment before making adjustments to the printing mechanism ▷ [Operator's Manual](#).

Adjustment of the printing mechanism comprises the following procedures in the order specified:

1. Prepare the label printer for adjustment ▷ 5.4.1 on page 24.
2. Adjust the position of the printhead ▷ 5.4.2 on page 25.
3. Adjust the printhead pressure ▷ 5.4.3 on page 26
4. Adjust the transfer ribbon feed path ▷ 5.4.4 on page 27.
5. Perform a final test ▷ 5.4.5 on page 27.

5.4.1 Preparing the Printer for Adjustment

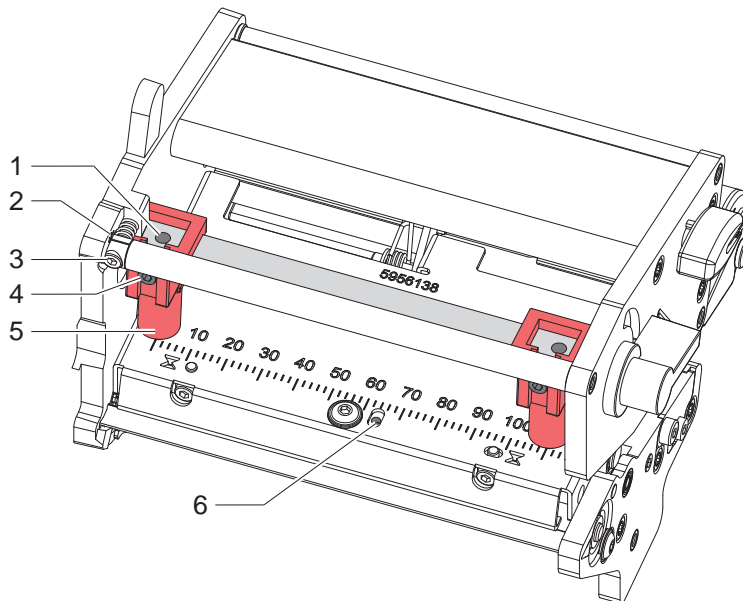


Figure 24 Preparing the printer for adjustment

1. Load labels and transfer ribbon which extend across the entire printing width
2. In the printer configuration, set the `Heat level` parameter to -5 and the `Print speed` parameter to 100 mm/s.
3. Move the transfer ribbon deflection to the central position (2) with the screw (3).
4. Loosen screws (4) and position the plungers (5) in such a way that the adjustment screws are accessible through the holes (1) of the square axis.
5. Loosen the screw (6) for the printhead bowing with an Allen key (1.5 mm) and turn it counterclockwise until turning becomes perceptibly easier. This should occur after a maximum of a half a rotation.
6. Continue with the adjustment of the printhead position ▷ 5.4.2 on page 25.

5.4.2 Adjusting the Printhead Position

In order to achieve the best possible print image the following printhead settings are necessary:

- Align the heating line with the highest point of the print roller. Density of the print image is the greatest at this point.
- Set the parallelism of horizontal lines with the edge of the label.

Attention!

The printhead assembly can be damaged.

Attempting to adjust the printhead when the fixing screws (3) are tight can lead to defects at the printhead assembly.

► Always loosen the fixing screws (3) before adjusting the printhead.

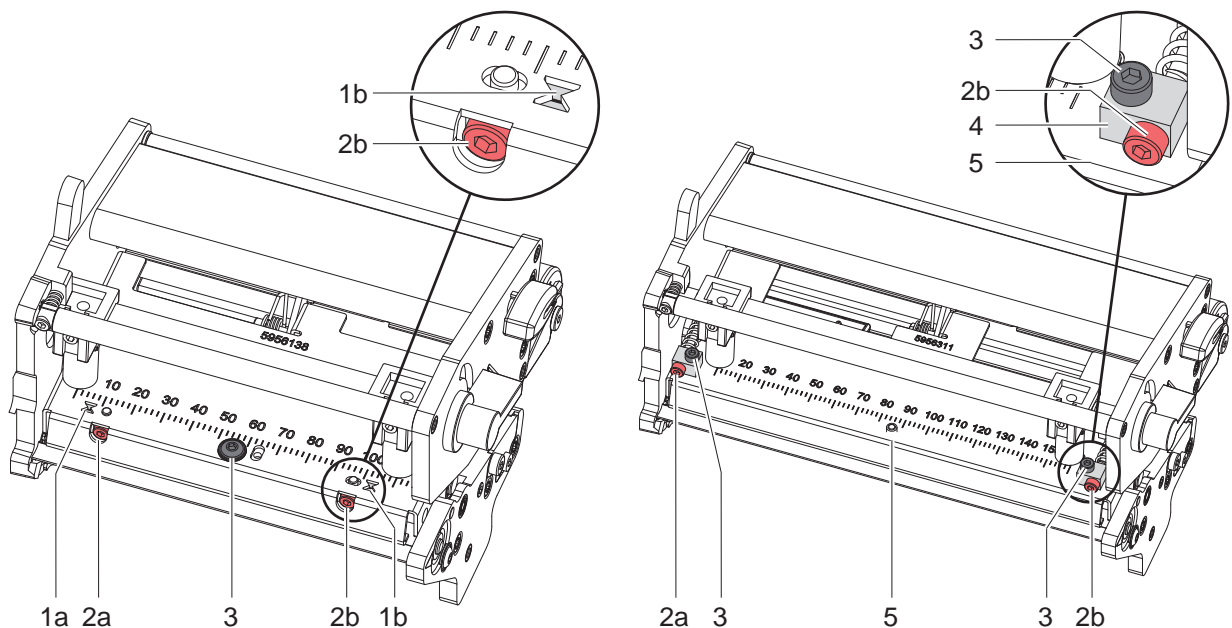


Figure 25 Adjusting the printhead position (left Hermes+ 2, 4 and 4.3 / right Hermes+ 6)

Notice!

► Open and close the printhead after each step of the adjustment.

1. Check the alignment of the printhead on a output of a test print - parallelism printed lines to the label corner.
2. If the printhead is not aligned properly, loosen the screw (3) about one quarter turn.
3. If the printhead is not aligned properly, use the screws (2) to align the lines on the printhead with the tips of the grooves (1).
 - Screw (2a) effects the inner half of the printhead, and screw (2b) the outer half.
 - Turning clockwise moves the printhead forward for Hermes+ 2, 4, 4.3 and backwards for Hermes+ 6.
4. Create print samples with the test function `Test grid` (► Configuration Manual) or a similar print pattern.
5. If the horizontal lines in the test grid are not parallel with the label edges, adjust the parallelism with the screws (2).
6. Set the best possible image quality by maintaining parallelism via turning the screws (2a) and (2b) in an alternating fashion.

Differences in the density between the two sides are still permissible.
7. Tighten the screws (3).
8. When the parallelism of the printhead is set, continue with the adjustment of the printhead pressure ► 5.4.3 on page 26.

5.4.3 Adjusting the Printhead Pressure

The printhead pressure can be changed with the screws (1a) and (1b) at the inside and outside of the printhead. Increasing the head contact pressure leads to an improvement of the print image density on the corresponding side and to a shifting of the ribbon feed path in the corresponding direction.

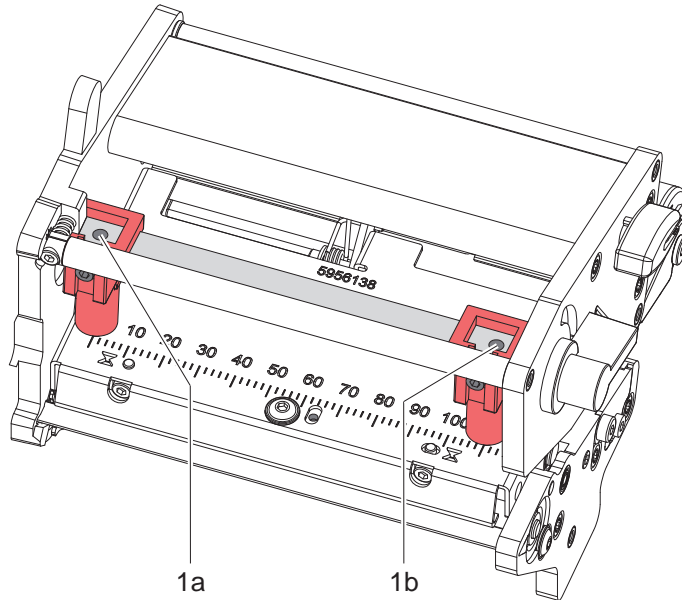


Figure 26 Adjusting the printhead pressure

1. Turn the adjustment screws (1) counterclockwise until turning becomes perceptibly easy.
2. The heat level is to be reduced in the printer configuration until the print image is only barely recognizable. Under these conditions, inaccuracies become clearly visible during adjustment.
3. Create print samples with the test function `Test grid` (▷ Configuration Manual) or a similar print pattern.
4. Adjust the adjustment screw (1a or 1b) clockwise in small increments on the side with the weaker print image until the print image is even across the entire width. It may happen that you must turn the adjustment screws in an alternating fashion, resulting in a print image which is too light overall.
5. When the print image is set evenly, continue with setting of the transfer ribbon feed path ▷ 5.4.4 on page 27.

5.4.4 Adjusting the Transfer Ribbon Feed Path

You can adjust the transfer ribbon feed path by changing the head contact pressure and adjusting the transfer ribbon deflection. Increasing the head contact pressure with the screws (3a) and (3b) shifts the ribbon feed path in the corresponding direction. The skew of the transfer ribbon deflection is used to suppress wrinkles in the transfer ribbon feed path. Wrinkles which cannot be remedied with the skew of the transfer ribbon deflection can be suppressed by bowing the printhead.

Attention!

The printhead assembly can be damaged when bowing the printhead.

Turning the adjustment screw (4) too hard can cause damage to the printhead assembly.

- ▶ As soon as you perceive clear resistance when turning the adjustment screw (4), you may only continue turning the screw in very small increments, but no more than one eighth of a turn.
- ▶ Only turn the adjustment screw (4) as far as is absolutely necessary.

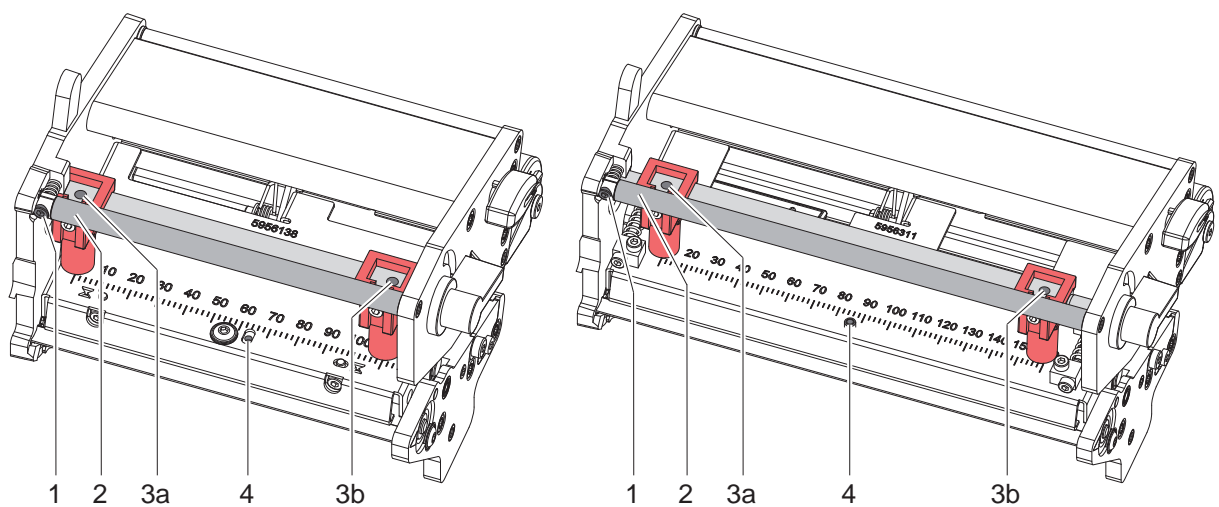


Figure 27 Adjusting the transfer ribbon feed path (left Hermes+ 2, 4 and 4.3 / right Hermes+ 6)

1. Check the transfer ribbon feed path.
The wound up ribbon should be the same distance from the disk of the winder as the supply roll is from the disk of the supply hub.
2. If the ribbon runs inward or outward, turn the corresponding screw (3a) or (3b) clockwise in small increments. Wait until the ribbon feed path has stabilized after each step of the adjustment.
3. Check the ribbon feed path for wrinkles.
4. If wrinkles arise on the inside, turn the screw (1) counterclockwise. If wrinkles arise on the outside, turn the screw (1) clockwise.
5. If the wrinkles cannot be remedied (e.g. wrinkles in the center), turn the adjustment screw (4) clockwise **with extreme care** using an Allen key (1.5 mm) and observe the ribbon feed path.
When the adjustment screw (4) is tightened, the printhead is bent downward slightly in the center. It is possible that a slight lightening at the edge areas of the print image could occur here.
6. If bowing is not necessary, turn the screw (4) clockwise until the screw is just barely clamping.
7. When the transfer ribbon feed path is set, continue with the final test.

5.4.5 Final Test

- ▶ Reset the Heat level to 0 in the printer configuration ▷ Configuration Manual.
- ▶ Recheck the setting with the test function Test grid (▷ Configuration Manual) or a similar print pattern.

When using standard cab media, the test printout must show lines with sharp contours and black areas without any parts missing.

5.5 Adjusting the Belt Tension

5.5.1 Adjusting the Tension at the Main Drive Motor Belt

**Danger!**

Risk of death via electric shock!

- Before opening the housing cover, disconnect the device from the mains supply and wait at least one minute until the power supply unit has discharged.

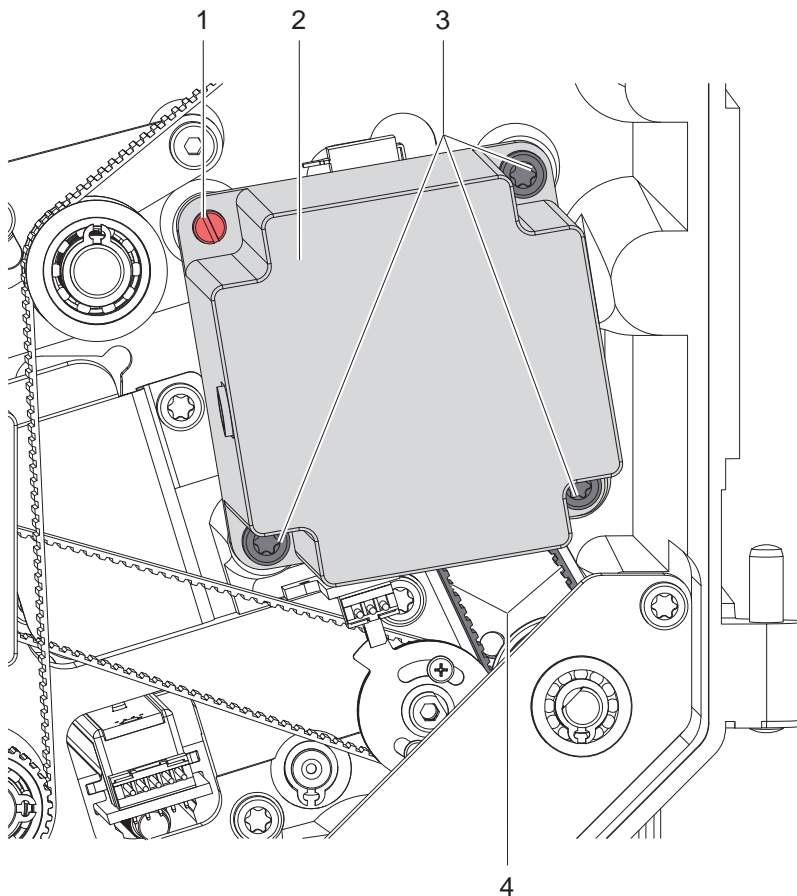


Figure 28 Adjusting the tension at the main drive motor belt

1. Unplug the printer from the electrical outlet.
2. Remove the cover.
3. Loosen three screws (3).
4. Position the motor (2) by turning the eccentric (1) so that the belt (4) is tensioned tightly.
5. Tighten three (3) screws.
6. Mount cover.

5.5.2 Adjusting the Tension at the Rewinder and Transport Roller Belt

**Danger!**

Risk of death via electric shock!

- Before opening the housing cover, disconnect the device from the mains supply and wait at least one minute until the power supply unit has discharged.

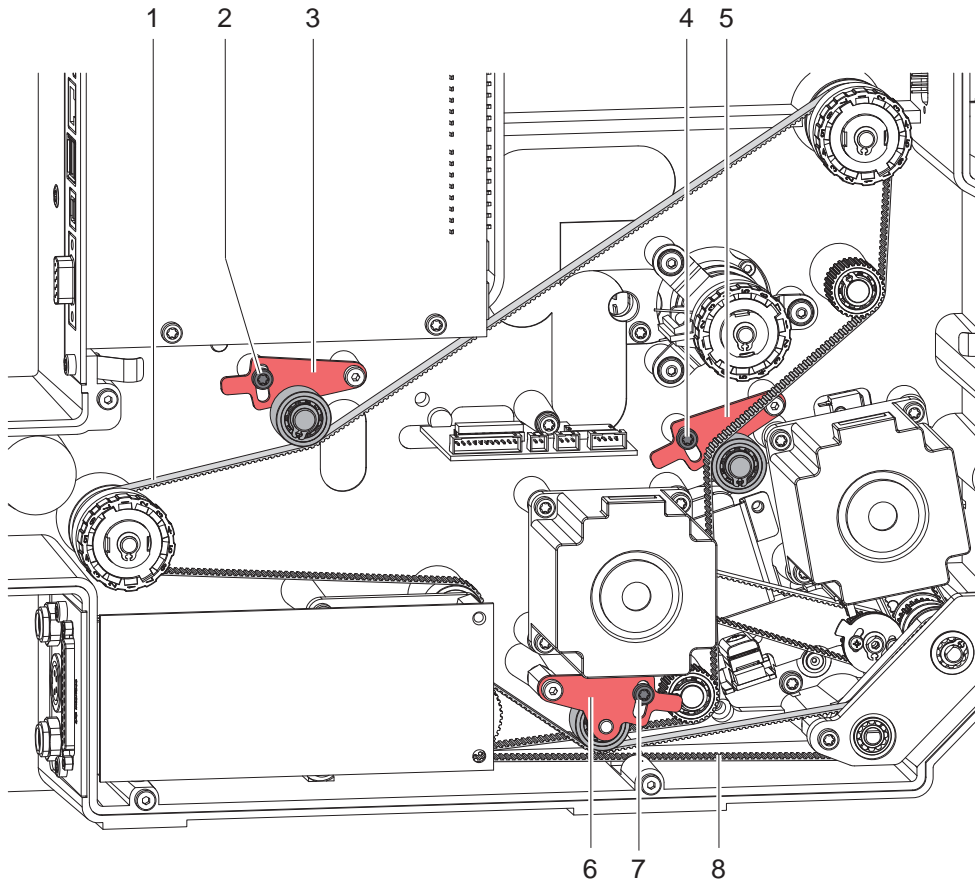


Figure 29 Adjusting the tension at the retractor and transport roller belt

1. Unplug the printer from the electrical outlet.
2. Remove the cover.
3. Adjusting driver belt (1) for the retractor :
 - Loosen screw (4).
 - Swing bracket (5) so that the belt (1) is tensioned tightly.
 - Tighten screw (4).
 - If necessary loosen screw (2), further increase the tension by swinging bracket (3) and re-tighten screw (2).
4. Adjusting the driver belt (8) for the transport roller :
 - Loosen screw (7).
 - Swing bracket (6) so that the belt (8) is tensioned tightly.
 - Tighten screw (7).
5. Mount cover.

5.6 Adjusting the Magnetic Clutch

A misaligned magnetic clutch can cause a very high and not adjustable torque at the ribbon supply hub. The distance between chassis of the magnetic clutch (2) and the armature disk (3) must be 0.1 mm .



Danger!

Risk of death via electric shock!

- Before opening the housing cover, disconnect the device from the mains supply and wait at least one minute until the power supply unit has discharged.

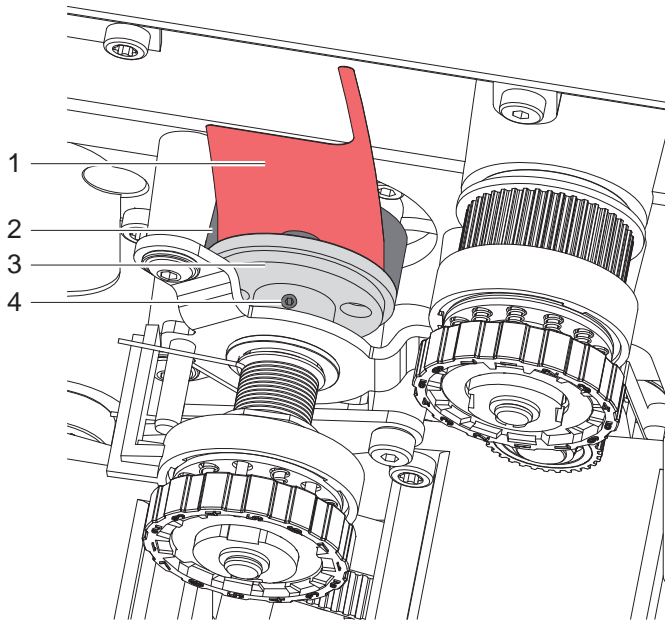


Figure 30 Adjusting the magnetic clutch

1. Unplug the printer from the electrical outlet.
2. Remove the cover.
3. Loosen screw (4).
4. Pull armature disk (3) to the slipping clutch.
5. Insert the distance caliber 0.1 mm (1) between armature disk (3) and chassis of magnetic clutch (2) .
6. Slide armature disk (3) to the chassis so that the distance caliber (1) will clamp slightly and tighten screw (4).
7. Remove the caliber.
8. Adjust the torque at the ribbon supply hub.
9. Mount cover.

5.7 Adjusting the Ribbon Saver

The ribbon saver reduces the consumption of transfer ribbon amongst others by lifting the printhead while feeding blank label areas. The printhead will be lifted by eccentrics (6) which are controlled by a clock wheel (2) and an optical sensor (1).

A misaligned clock wheel can cause a reduction of the saver effect in the saver phase or a deterioration of the print image and a stagnant ribbon transport in the print phase.



Danger!

Risk of death via electric shock!

► Before opening the housing cover, disconnect the device from the mains supply and wait at least one minute until the power supply unit has discharged.

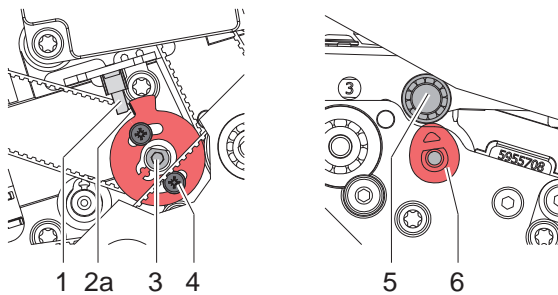


Figure 31 Position of eccentrics and clock wheel in the saver phase

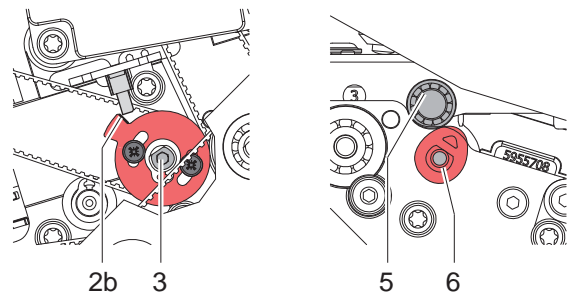


Figure 32 Position of eccentrics and clock wheel in the print phase

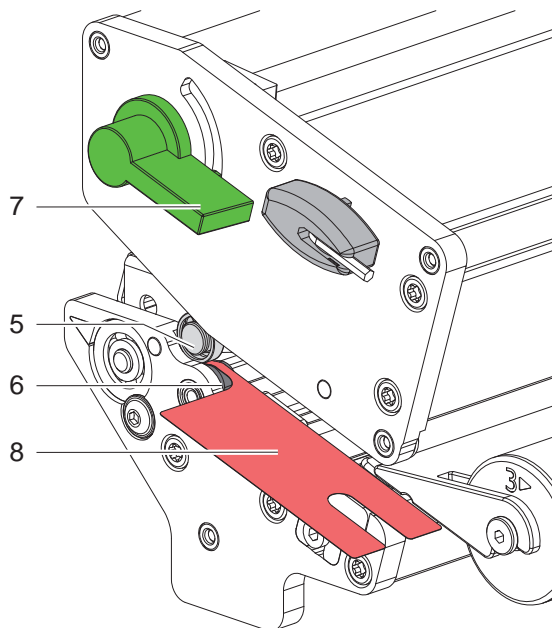


Figure 33 Checking the distance ball bearing - eccentric

1. Unplug the printer from the electrical outlet.
2. Remove the cover.
3. Turn lever (7) clockwise to lock the printhead.
4. Loosen the screws (4) at the clock wheel.
5. Turn axle (3) in such a way that the eccentrics (6) lift the printhead via the ball bearings (5) at most
▷ Figure 31 right side.
6. Adjust a gap of ca. 1 mm between flange (2a) and the edge of the sensor housing (1) by turning the clock wheel
▷ Figure 31 left side.
7. Tighten screws (4).
8. Turn axle (3) in such a way that there is a gap of 1 mm between flange (2b) and the other edge of the sensor housing
▷ Figure 32 left side.
9. Check the distance between ball bearing (5) and eccentric (6) with the 0,1 mm gauge (8).
10. Mount cover.

6.1 Failure of Device Functions

Functional error	Possible remedy
Medium is not transported	Check electrical connections between PCB CPU and motor
	Check drive mechanism
	Replace the PCB CPU
	Replace the motor
No print image with medium transport	Check plug connections at the printhead
	Examine printhead cable for damage and replace if necessary
	Replace the printhead
	Replace the PCB CPU
Display and navigator pad are not functioning	Check whether LED1 (green) is illuminating on the PCB CPU ▷ 8 on page 35:
	<ul style="list-style-type: none"> LED1 is not illuminating: The power supply unit or CPU PCB is defective. Replace PCB CPU or Power supply unit. LED1 flashes: Firmware update unsuccessful. Reload the firmware ▷ Configuration Manual
	Check cable connection between PCB CPU and control panel
	Check whether the correct voltages are active at the 3,3 V and 5 V measurement points on the PCB CPU ▷ 8 on page 35
	<ul style="list-style-type: none"> No voltage at either measurement point: The power supply unit may be defective. Replace the power supply unit No voltage at one measurement point: The PCB CPU may be defective. Replace the PCB CPU.
	Replace LCD Display cpl.
	Replace PCB Navi Button assem.
The display is not functioning, but the navigator pad is functioning	Replace LCD Display cpl.
The navigator pad is not functioning, but the display is functioning	Check the cable connection between LCD Display cpl. and PCB Navi Button assem. and replace if necessary
	Replace PCB Navi Button assem.
	Replace LCD Display cpl.
Communication via an interface is not functioning	Check whether the interface configurations of the printer and computer match
	For an Ethernet connection, check the validity of the IP address and the subnet mask
	Check the interface cable and replace it if necessary
	If all functionality of the interface has been lost, replace the PCB CPU
Communication via the interface on the PCB I/O Interface is not functioning	Check the cable and it's necessary change it.
	Replace PCB I/O Interface.
	Check connection between PCB USB Hub and PCB CPU .
	Replace PCB USB Hub.

Table 3 Failure of device functions

6.2 Hardware Faults

Error message	Cause	Fault recovery
ADC malfunction	Fault on the PCB CPU	Replace the PCB CPU
FPGA malfunction	Fault on the PCB CPU	Replace the PCB CPU
Invalid setup	Fault on the PCB CPU	Replace the PCB CPU
Voltage error		
V_{BAT}	Voltage of the battery on the PCB CPU is too low	Replace the PCB CPU
V_{MOT}	Motor voltage is too low	Check motor voltage (+38 V) at the measurement point $V_{mot} \triangleright 8$ on page 35: <ul style="list-style-type: none"> • Voltage too low: Replace the power supply unit • Voltage is correct: Replace the PCB CPU
24 V	24 V too low	Check voltage at measurement point +24V $\triangleright 8$ on page 35: <ul style="list-style-type: none"> • Voltage too low: Replace the power supply unit • Voltage is correct: Replace the PCB CPU
24 V ext.	24 V at peripheral connection too low	Disconnect peripheral device <ul style="list-style-type: none"> • Fault still exists: Replace the PCB CPU • Fault remedied: Repair or replace peripheral device

Table 4 Hardware faults

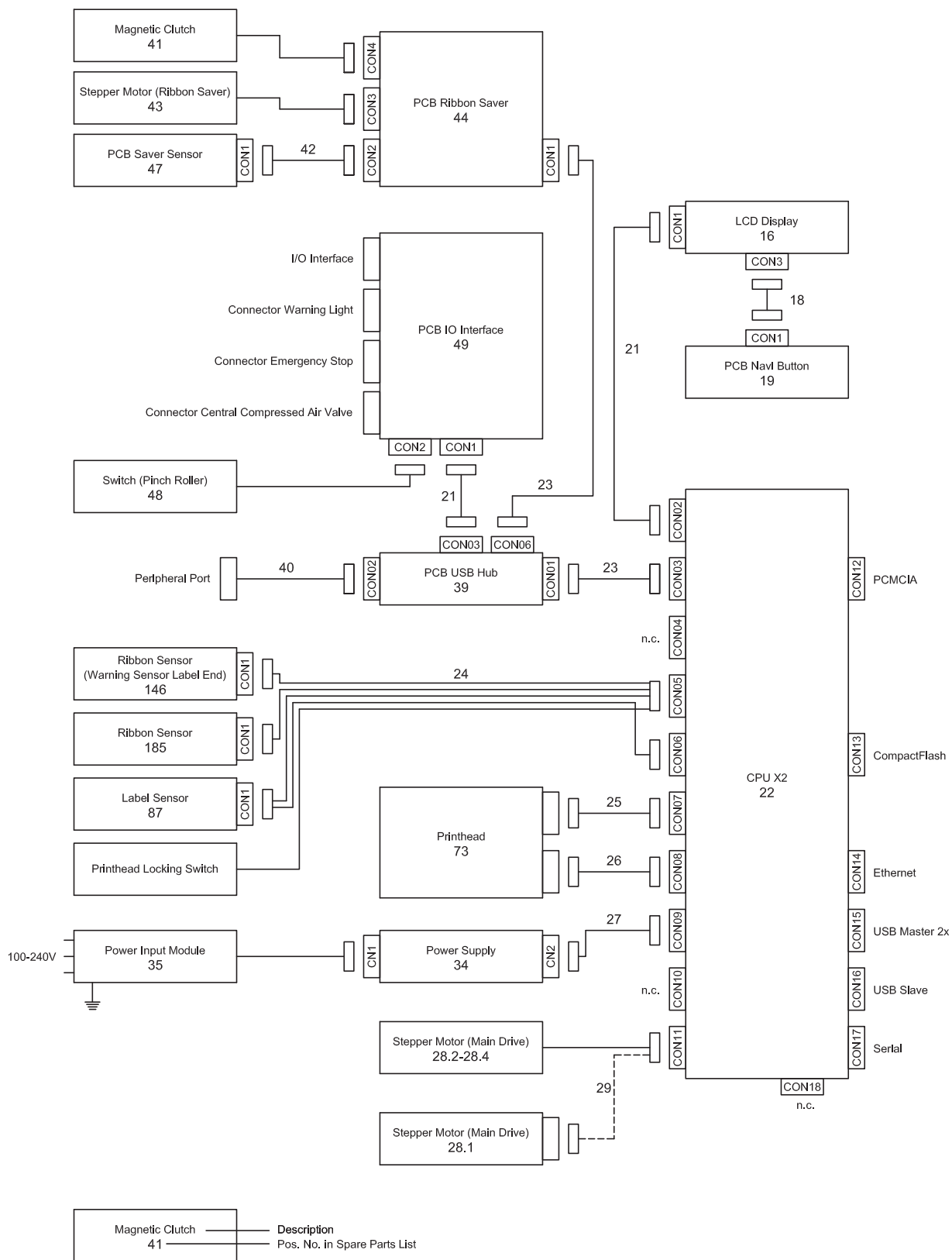


Figure 34 Block diagram Hermes+

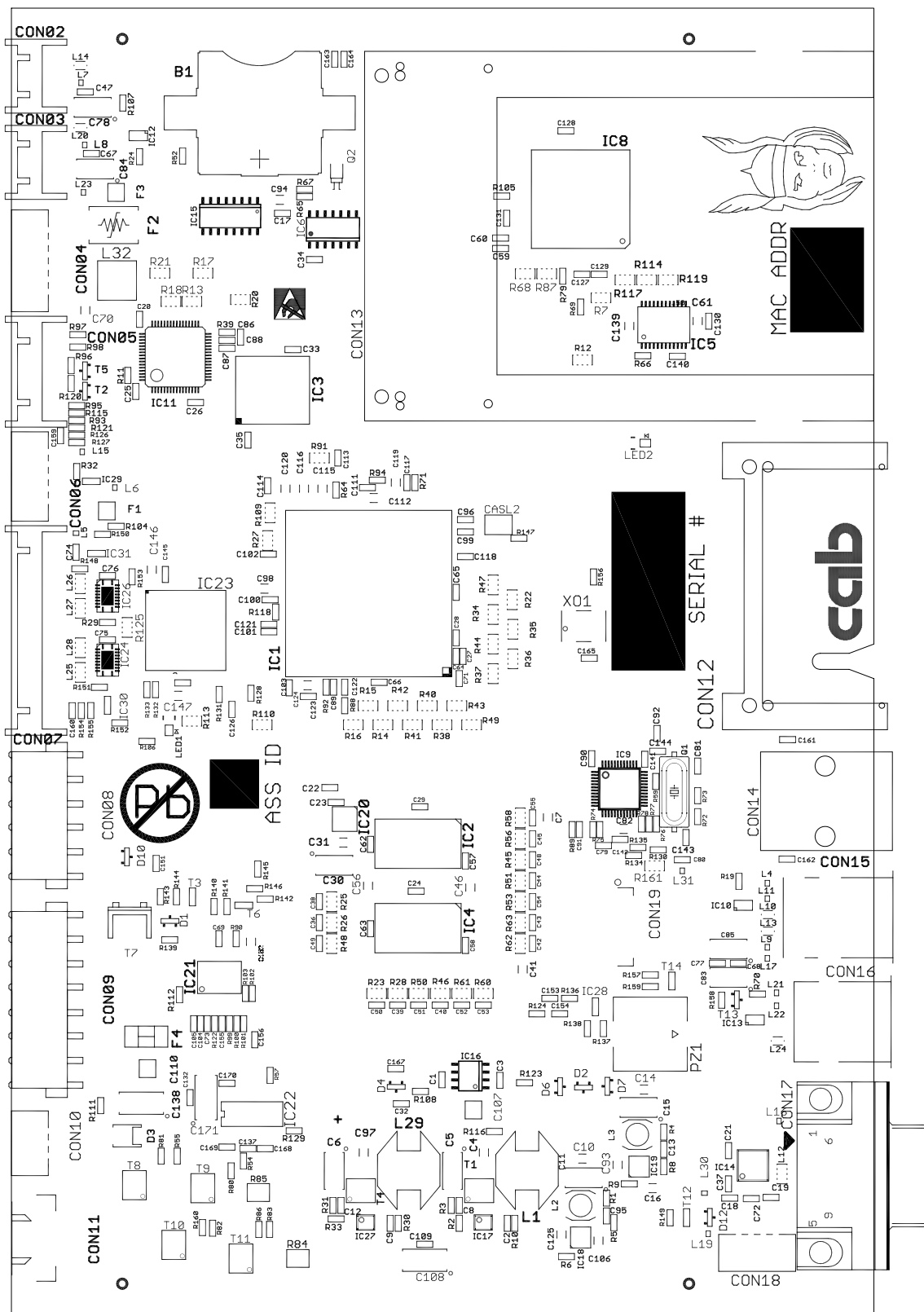


Figure 35 Layout diagram PCB CPU - components side

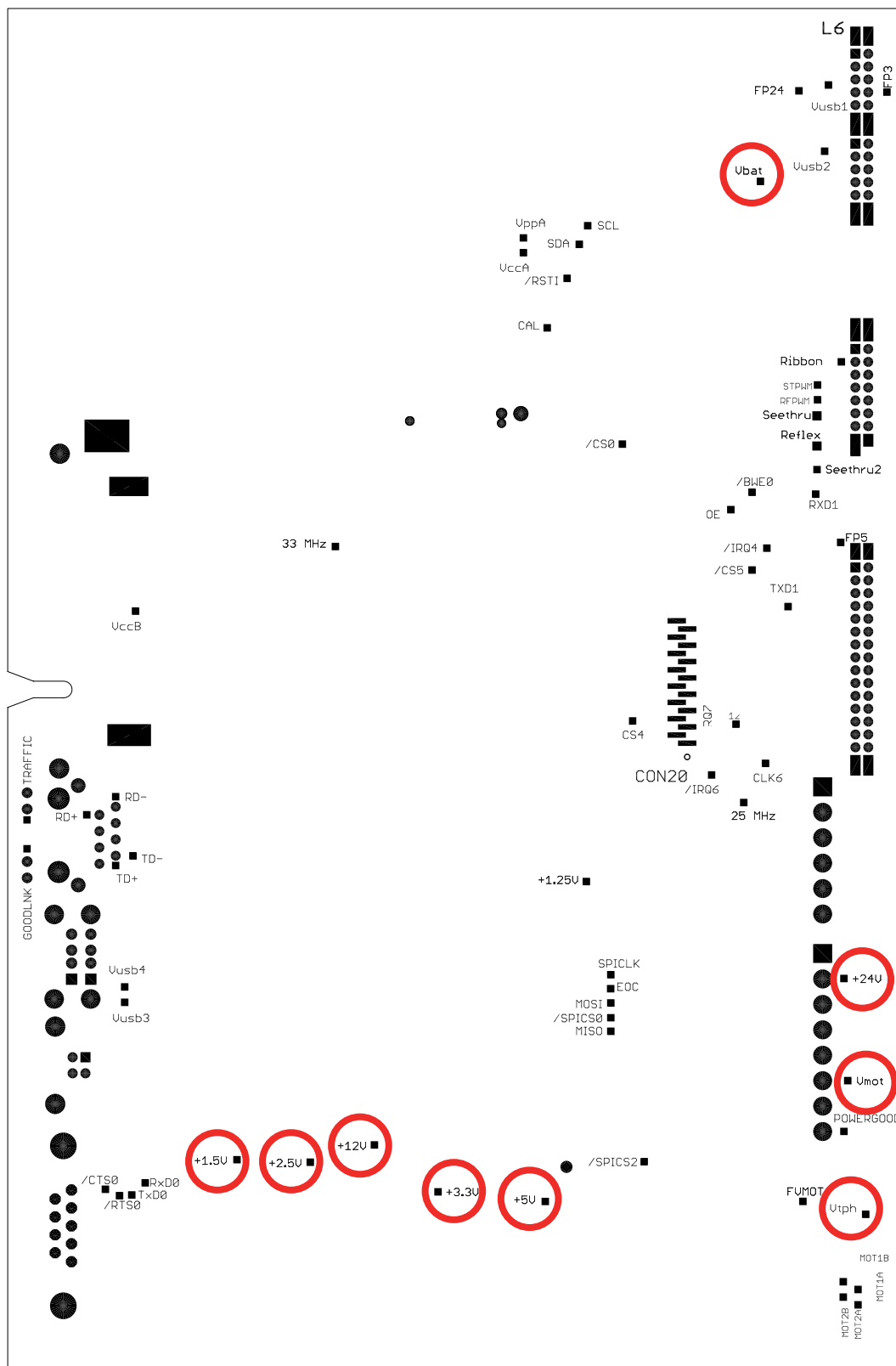


Figure 36 Layout diagram PCB CPU - soldering side

A

Accidents5

B

Belt tension28, 29

Block Diagram34

Brake13

Brake label unwinder

Adjustment22

Replacement14

C

Clutch12

CPU16

E

Electricity5

Environment5

Error treatment32

F

Failure of device functions32

H

Hardware faults33

I

Important information4

L

Label run23

Label sensor

Cleaning7

Replace15

M

Magnetic clutch30

P

PCB CPU

Layout diagram35

Replacement16

Power supply unit17

Printhead

Position25

Pressure26

Replacement8

Printhead position25

Print image24

Printing mechanism24

Print roller replacement11

Protective devices5

R

Rewinder12, 19, 20

Ribbon saver31

S

Safety instructions4

Sensor ribbon saver31

Slipping clutches

Adjustment21

Replacement12

T

Test collar18

Torque18

Transfer ribbon feed path27

Transport roller11

Troubleshooting32

U

Unwinder13, 19

W

Winding torques18

Adjustment21

Measuring18