

## Service Manual



Labelling System

# AXON 1

MADE IN GERMANY

Family	Type
Labelling system	AXON 1.1/300
	AXON 1.1/600
	AXON 1.2/300
	AXON 1.2/600

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## 1.1 Instructions

Important information and instructions in this documentation 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!**

Gives you tips on protecting the environment.



Handling instruction



Reference to section, position, illustration number or document.



Option (accessories, peripheral equipment, special fittings).

*Time*

Information in the display.

## 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!**

Double pole/neutral fusing.



### **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.
- ▶ Do not wear spectacles with metal frames.



### **Warning!**

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.
- Only use one hand to work on electric circuits of devices that are switched on. Keep the other hand behind your back or in your pocket.  
This prevents electricity from flowing through your own body.

## 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.

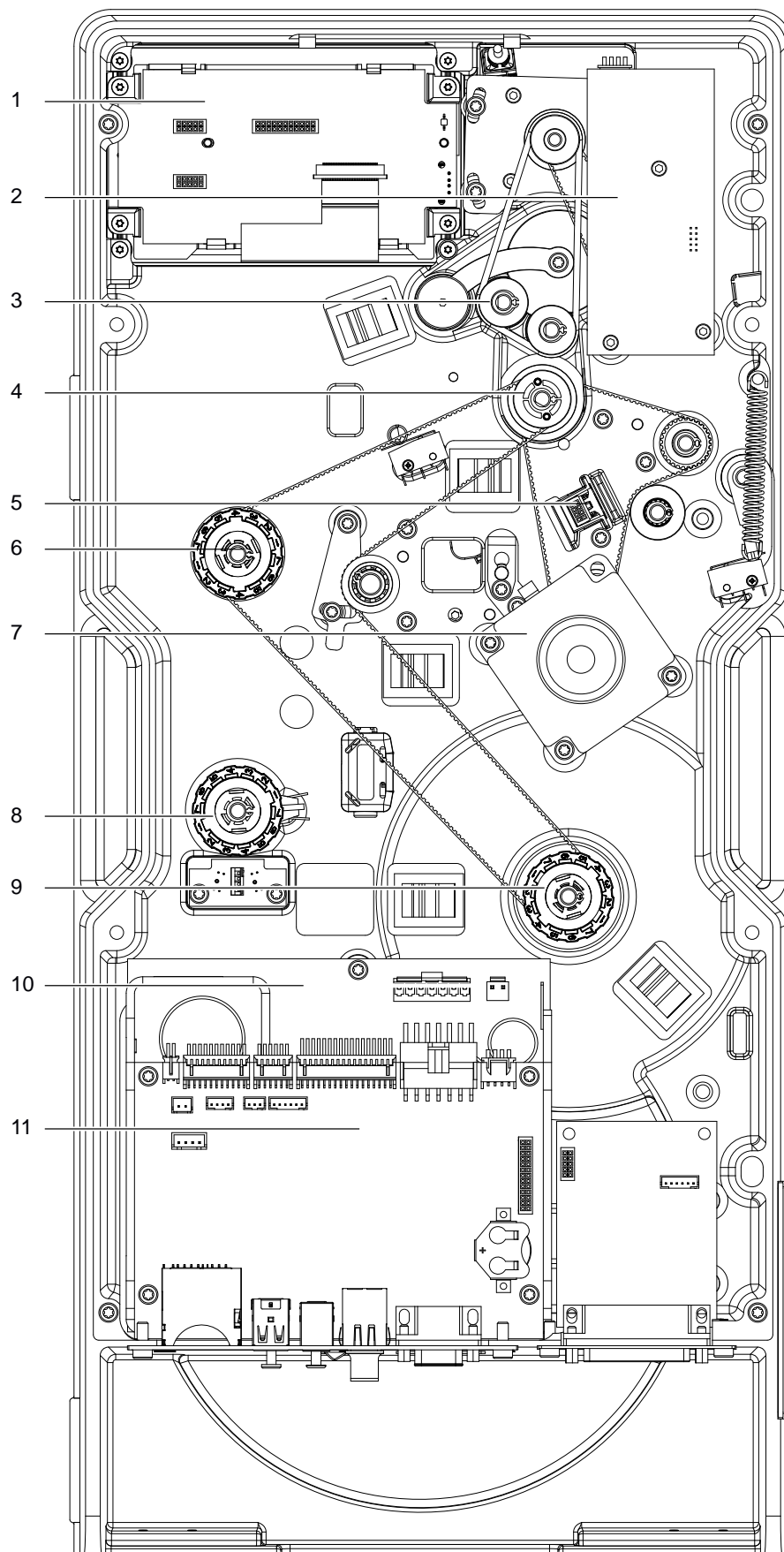
## 1.6 Environment



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.

## 1.7 Overview



- 1 Display / control panel
- 2 PCB Control
- 3 Motor product move
- 4 Print roller
- 5 Label sensor
- 6 Ribbon take up hub: coupling
- 7 Motor main drive
- 8 Ribbon unwinder: brake
- 9 Internal rewinder: coupling
- 10 Power supply
- 11 PCB CPU

Fig. 1 Geräteübersicht, innen

- ▶ 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. 5540932)

**Standard tools:**

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



#### **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.

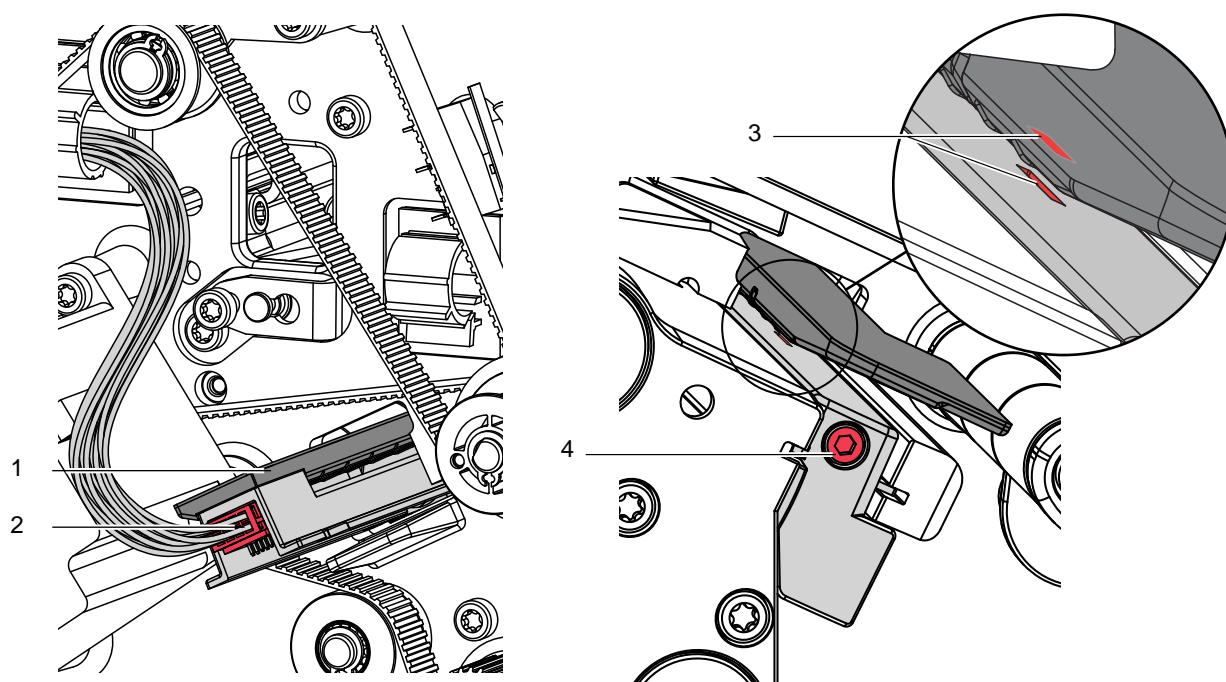


Fig. 2 Cleaning the label sensor

1. Remove the material from the printer.
2. Remove the rear cover.
3. Disconnect the plug (2) from the label sensor (1).
4. Loosen screw (4).
5. Clean the label sensor slots (3) with brush or cotton swab soaked in pure alcohol.
6. Push label sensor back into the guide.
7. Connect the plug (2) to the label sensor (1).
8. Mount the rear cover.
9. Adjust label sensor mechanically and tighten the screw (5) ▷ Operator's Manual.



### 4.1 Replacing the Printhead

The printhead of the label printer 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.

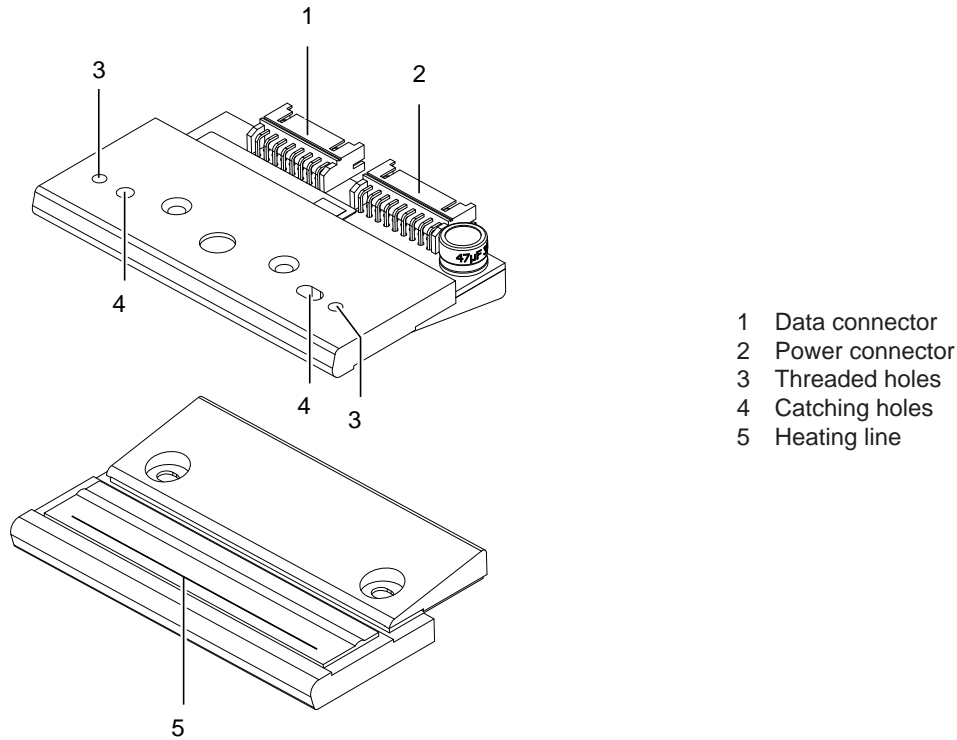


Fig. 3 Structure of the printhead



#### Attention!

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

- ▶ Set up printer on a grounded, conductive surface.
- ▶ Ground your body, e.g. by wearing a grounded wristband.
- ▶ Do not touch contacts on the plug connections (1, 2).
- ▶ Do not touch heating line (5) with hard objects or your hands.

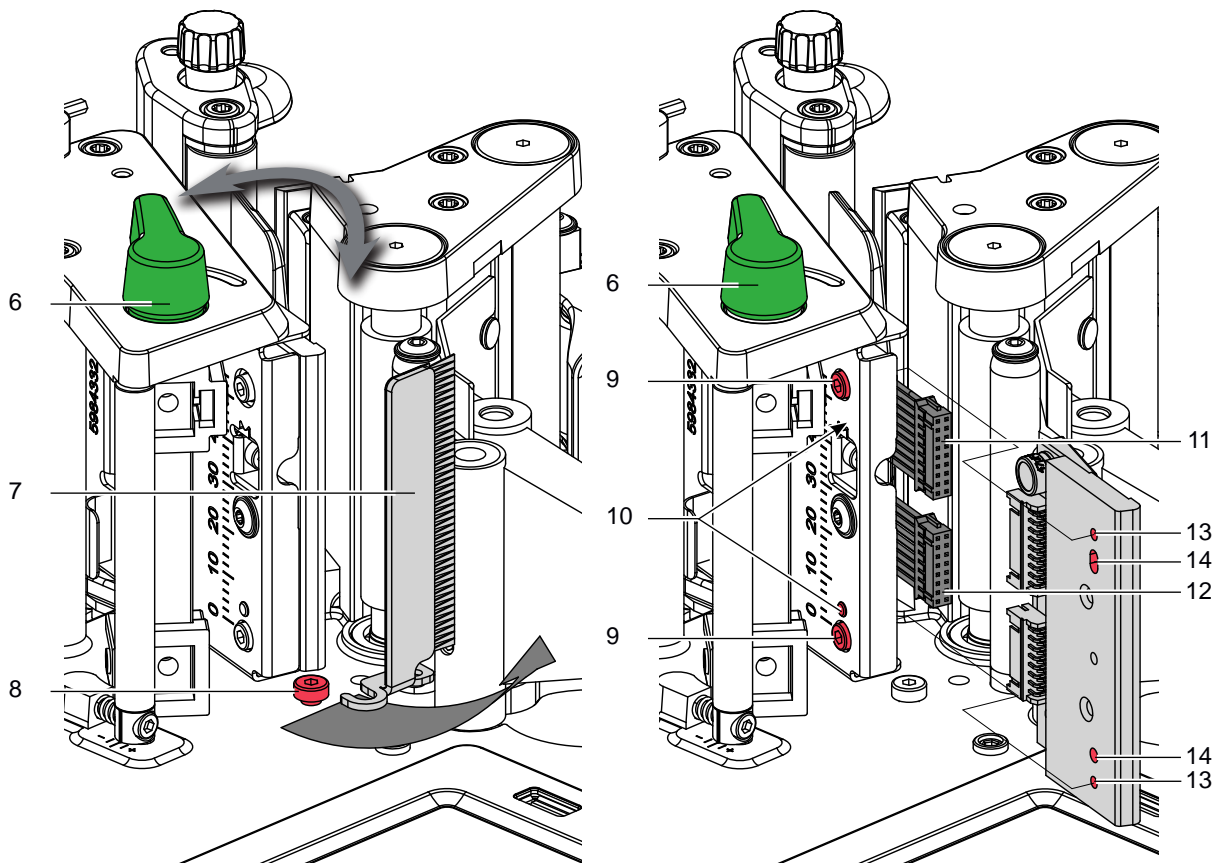


Fig. 4 Replacing the printhead

#### Dismount the antistatic brush

1. Loosen screw (8) .
2. Remove the antistatic brush (7) in print direction (arrow).

#### Dismounting the Printhead

3. Remove the media from the printer.
4. Lock the printhead via lever (6).
5. Loosen two screws (9).
6. Open the printhead locking and if necessary remove the printhead from the pins (10).
7. First unplug the power cable (11), followed by the data cable (12).

#### Mounting the Printhead

1. First connect the data cable (12), followed by the power cable (11).
2. Place the printhead into the printhead assembly and insert the pins (10) into the holes (14).
3. Hold the printhead bracket lightly on the print roller with one finger and check that the printhead is correctly positioned in the printhead bracket.
4. Fix the printhead with the screws (9) at the carriage using the threaded holes (13).
5. Clean the heating line with the cleaning cloth included in the contents of delivery.
6. Reload labels and transfer ribbon.
7. Mount the antistatic brush again (7) .

## 4.2 Replacing the Print Roller and the Rewind Assist Roller

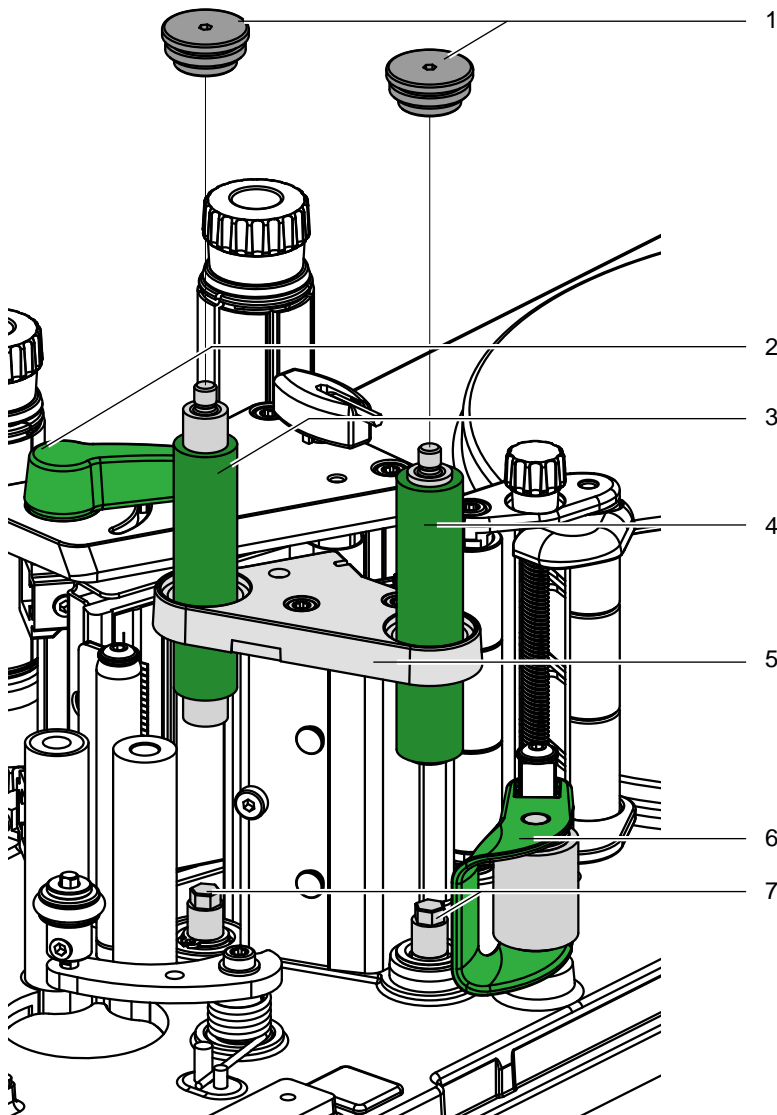


Fig. 5 Replacing the print roller and the rewind assist roller

1. Open the printhead locking via lever (4) , turning counter clockwise.
2. Lift the pinch roller (6) from the rewind assist roller (4).
3. Remove labels and transfer ribbon from the printer.
4. Turn the roller bearings (1) with the 2.5 mm Allen key out of the side plate (5).
5. Pull print roller (3) and rewind assist roller (4) from the shafts (7) though the side plate (5).
6. Clean the shafts (7).
7. Lubricate the shafts (7) with all-round high-performance grease.
8. Insert the new rollers (3,4) and slide them onto the concerning shaft(7). Turn the rollers slightly until the hexagonal shafts engage the hexagonal sockets of the rollers.
9. Put the roller bearings (1) onto the axles of the rollers and screw them into the side plate (5).

### 4.3

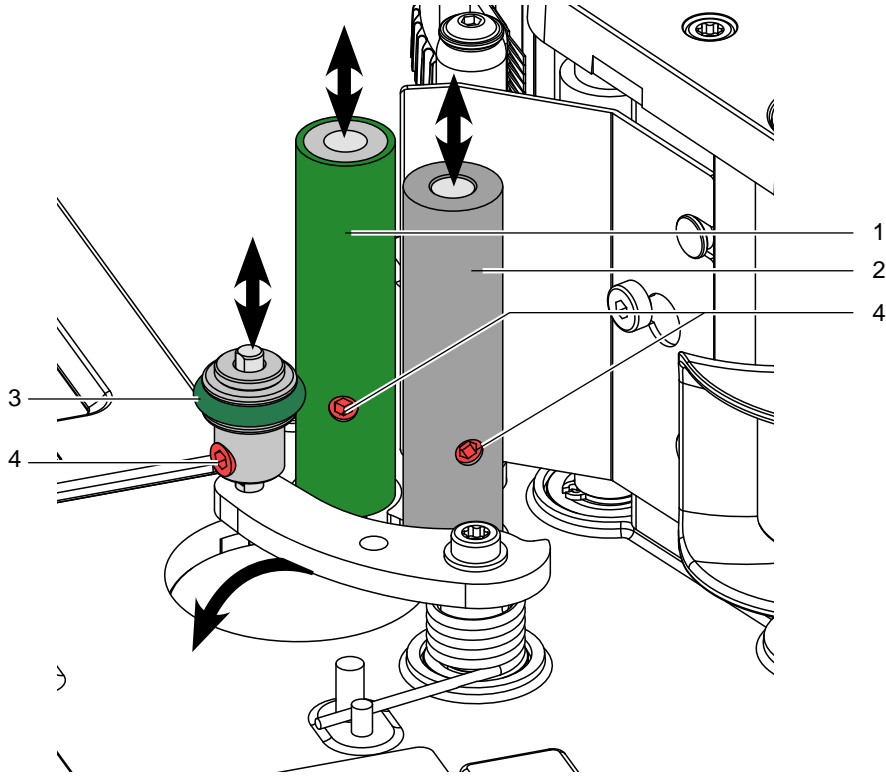


Fig. 6 Replacing the pressure and pinch roller

1. Loosen the set screw (4) of the pressure roller (1 / 2) or pinch roller (3) to be changed.
2. Fold down the pinch roller (3) from the pressure rollers (1/2).
3. Pull the loosened pressure roller or the pinch roller up and out.
4. Put on and adjust the new pressure roller or pinch roller ▷ Operating instructions.
5. Tighten the set screw (4).

#### 4.4 Replacing the Slipping Clutches and Brake

The rewinders for the transfer ribbon are coupled with slipping clutches to the main drive. The supply hubs of the transfer ribbon are braked with slipping clutches during printing.

Replace a slipping clutch when the set value of the torque cannot be set ▷ 5.1 on page 19.

Removal and installation of the slipping clutch is also required for replacement of a winder.

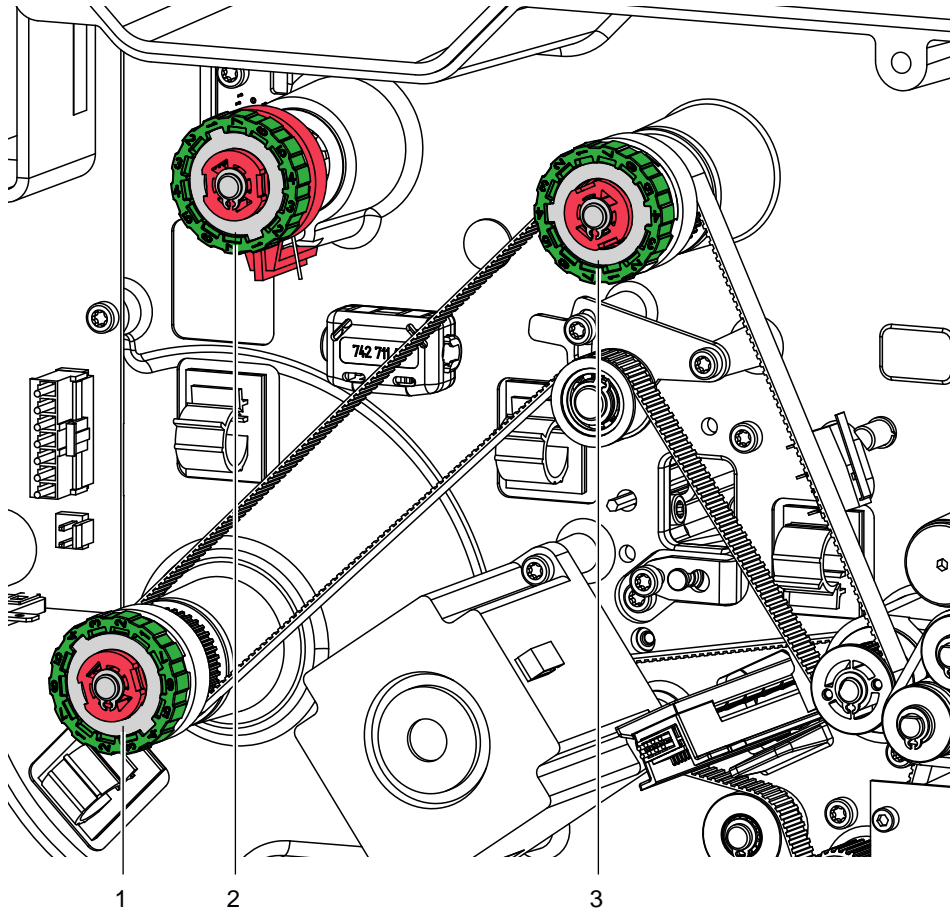


Fig. 7 Slipping clutches and brake

- 1 Coupling internal rewinder
- 2 Brake ribbon supply hub
- 3 Coupling ribbon takeup hub

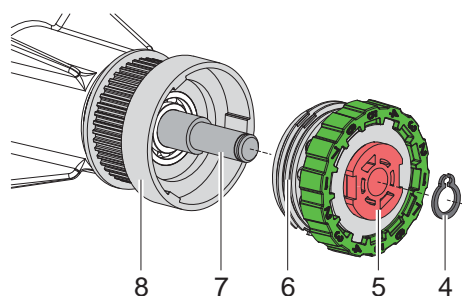


#### **Danger!**

**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.

## Replacing the Slipping Clutches at the Rewinders

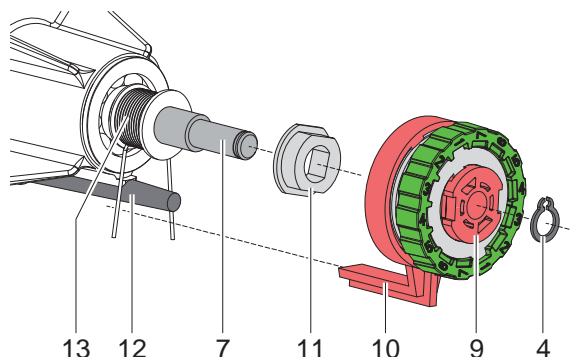


- 4 Slipping clutch
- 5 Snap ring
- 6 Coupling disks
- 7 Winder axle
- 8 Collar of the belt gear

Fig. 8 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 (7).
5. Slide the new clutch (4) onto the winder axle (7).
6. Align grooves in the coupling disks (6) with the guides in the collar of the belt gear (8).
7. Slide coupling further until it stops.
8. Secure the snap ring (5).
9. Adjust the clutch ▷ 5.1 on page 19

## Replacing the Brake at the Ribbon Unwinder



- 4 Snap ring
- 6 Brake
- 7 Winder axle
- 10 Lever
- 11 Tappet
- 12 Pin
- 13 Spring

Fig. 9 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 (4).
4. Pull the brake (9) from the winder axle (7). Ensure that the tappet (11) 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 (13). Ensure that the pin (12) grasps between the spring arms.
6. Slide the new brake (9) onto the winder axle (7) in such a way that it fits on the hexagonal profile of the tappet (11).
7. Push the clutch further until it stops in such a way that lever (10) grasps between the spring arms..
8. Secure the snap ring (4).
9. Adjust the brake ▷ 5.1 on page 19.

## 4.5 Replacing the Label Sensor

**Note!**

Soiling of the label sensor can also cause malfunctions.

- Before replacing the label sensor, check whether it is soiled and clean it if necessary.

**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.

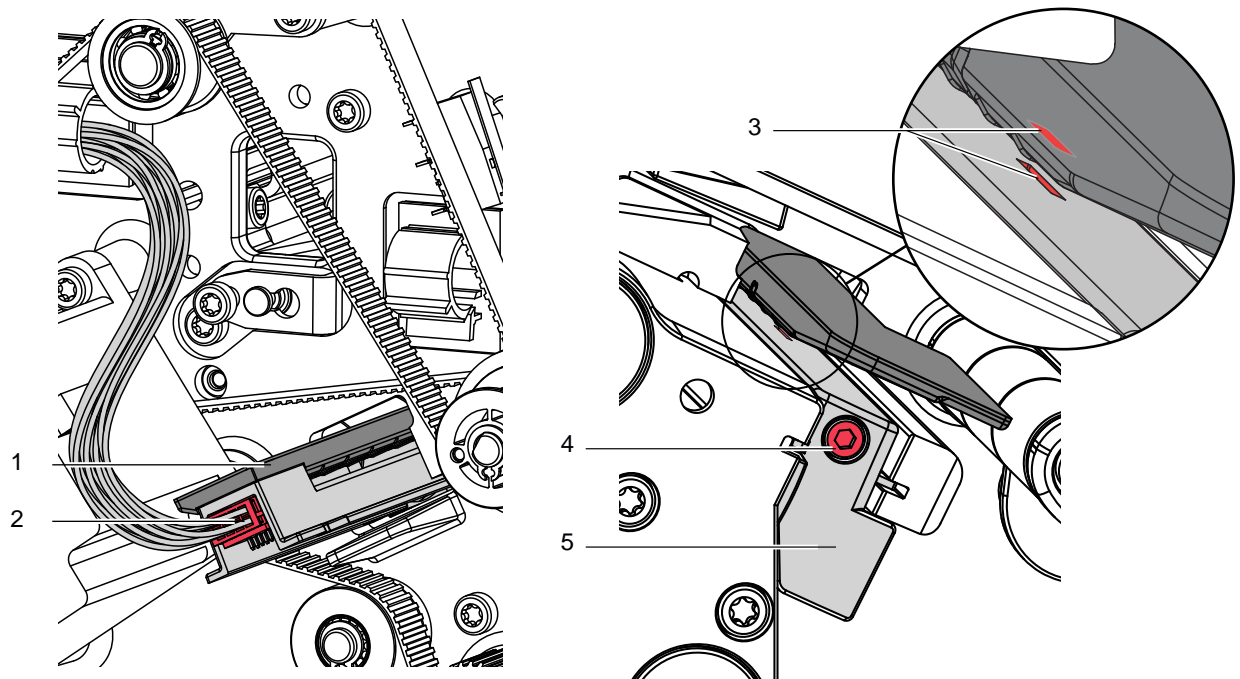


Fig. 10 Replacing the label sensor

1. Remove the material from the printer.
2. Remove the rear cover.
3. Disconnect the plug (2) from the label sensor (1).
4. Loosen the screw (4).
5. Push the new label sensor into the guide.
6. Connect the plug (2) to the label sensor (1).
7. Mount the rear cover.
8. Adjust label sensor (1) mechanically by lever (5) and tighten the screw (4) ► Operator's Manual.
9. Adjust label sensor electrically ► Configuration Manual > *Calibrate label sensor*.

## 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.

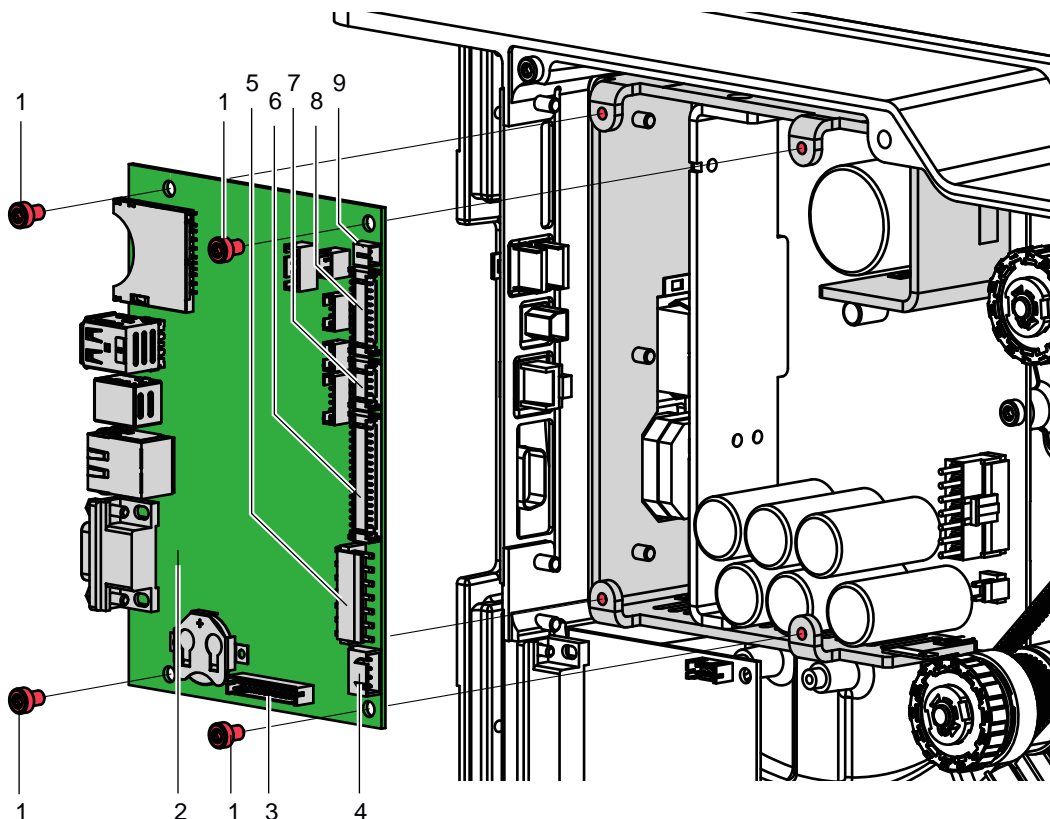


Fig. 11 Replacing the PCB CPU

- 1 4 screws
- 2 PCB CPU

#### Connectors inside

- 3 CON7 - I/O interface
- 4 CON8 - Stepper motor

- 5 CON9 - Power supply
- 6 CON10 - Printhead
- 7 CON11 - Sensors
- 8 CON12 - Control panel
- 9 CON13 - Switch locking system

1. If possible, save the printer configuration to an external medium ▷ 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 media from the slots.
5. Dismount the rear cover.
6. Unplug all plug connections (3-9) from the PCB CPU (2).
7. Loosen screws (1) and remove PCB CPU (2).
8. Attach the new PCB CPU (2) with four screws (1).
9. Connect all cables to the PCB CPU (2).
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 medium if possible. Otherwise, set the printer configuration via control panel ▷ Configuration Manual.



## 4.7 Replacing the Power Supply Unit / DC-DC Converter

**Note!**

Changing the 230 VAC power supply is carried out in the same way as changing the DC-DC converter.

**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.

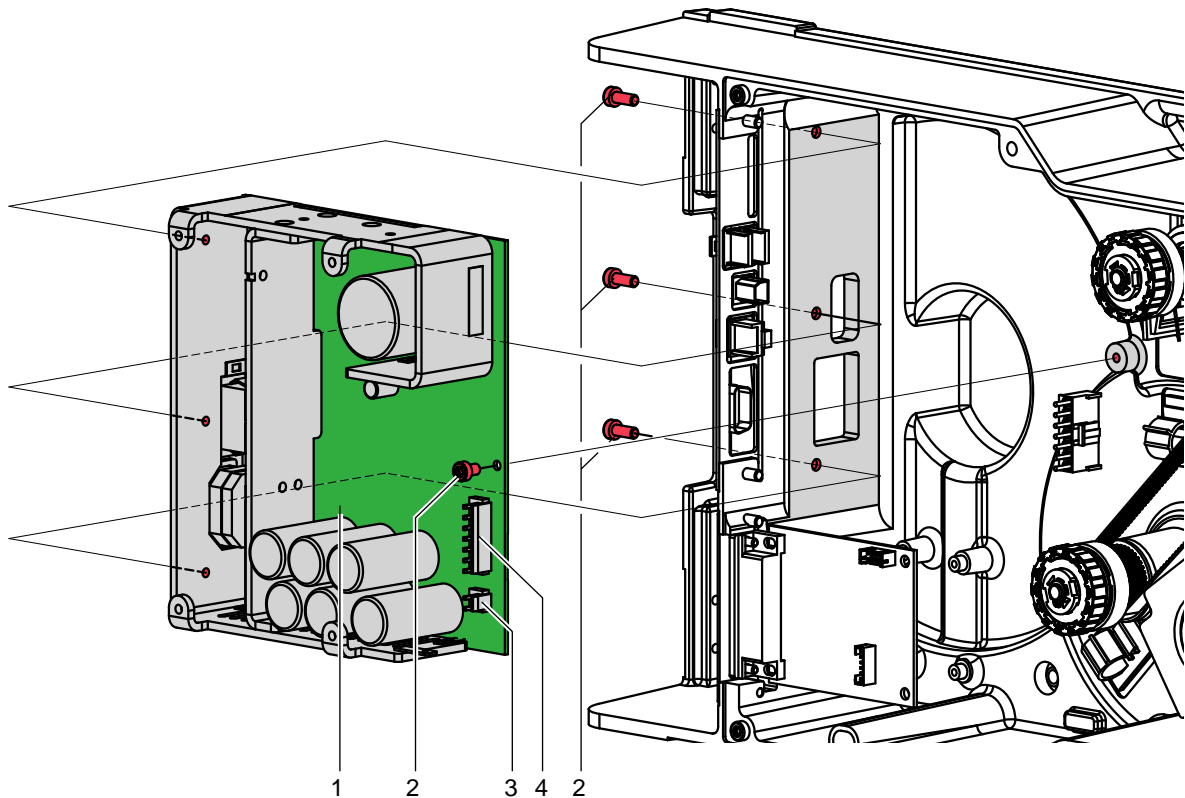
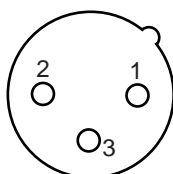


Fig. 12 Replacing the power supply unit

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 (3,4).
5. Loosen 4 screws (2) and remove the power supply unit / DC-DC converter (1).
6. Insert the new power supply unit / DC-DC converter (1) and fix it with the screws (2).
7. Connect the cables at the connectors (3,4).
8. Re-mount the PCB CPU ► 4.6 on page 16
9. Mount the rear cover.

## 4.8 Assignment of the plug on the cable of the DC-DC Converter supply line



- |   |               |
|---|---------------|
| 1 | not connected |
| 2 | - Connection  |
| 3 | + Connection  |

Fig. 13 Connector plug XLR socket female 3-pin

### 4.9 Replacing Gear with Freewheel

When assembling/disassembling the gear, the rollers can be pulled out of the freewheel by the magnets attached to the axle. A mounting sleeve is included to prevent this.



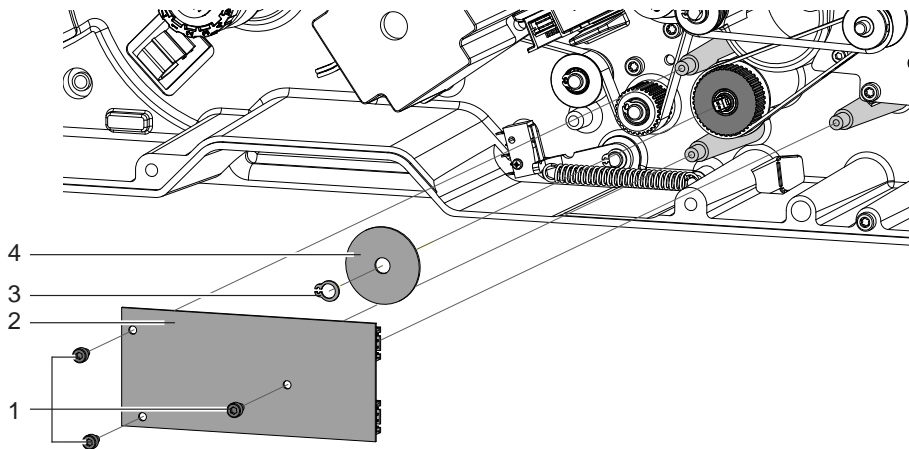
#### **Danger!**

**Risk of death via electric shock!**

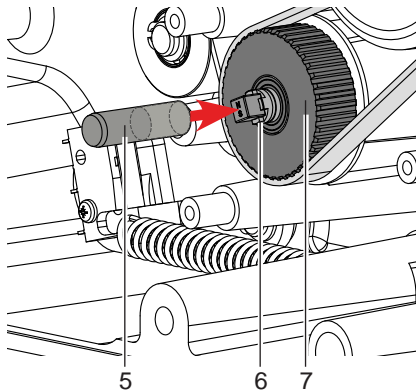
- ▶ Before opening the housing cover, disconnect the device from the mains supply and wait at least one minute until the power supply unit has discharged.

#### **Disassembling**

- ▶ Disconnect the device from the mains!
- ▶ Dismantle the rear cover.



- ▶ Loosen screws (1) and remove the circuit board (2).
- ▶ Remove the snap ring (3) and the washer (4).



- ▶ Push the assembly sleeve (5) as far as possible onto the axle (6).
- ▶ Detach the belt from the gear (7).
- ▶ Pull gear with freewheel (7) onto assembly sleeve (5) and pull off axle together.

#### **Assembling**

- ▶ Proceed in reverse order for assembly.  
First slide the gear with the freewheel (7) onto the assembly sleeve (5).  
After inserting the gear with freewheel (7), pull out the assembly sleeve (5).

## 5.1 Measuring and Adjusting the Winding Torques

The rewinder for the transfer ribbon and the internal rewinder are coupled with slipping clutches to the rewinder drive. The unwinder of the transfer ribbon is braked with slipping clutches 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 backfeed, 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 rewinder and unwinder ▷ 5.1.1 on page 19
- Measurement of the winding torque at the internal rewinder ▷ 5.1.1 on page 19

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 22

### 5.1.1 Measuring the Winding Torques

#### Transfer Ribbon Rewinder and Unwinder

**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:

Winder	Measurement	Direction of rotation	Winding torque M	Pulling force F
Ribbon rewinder	A	against winding direction	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 unwinder	C	any	3.6 - 4.5 Ncm	1.2 - 1.5 N

Table 1 Winding torques at the transfer ribbon winders

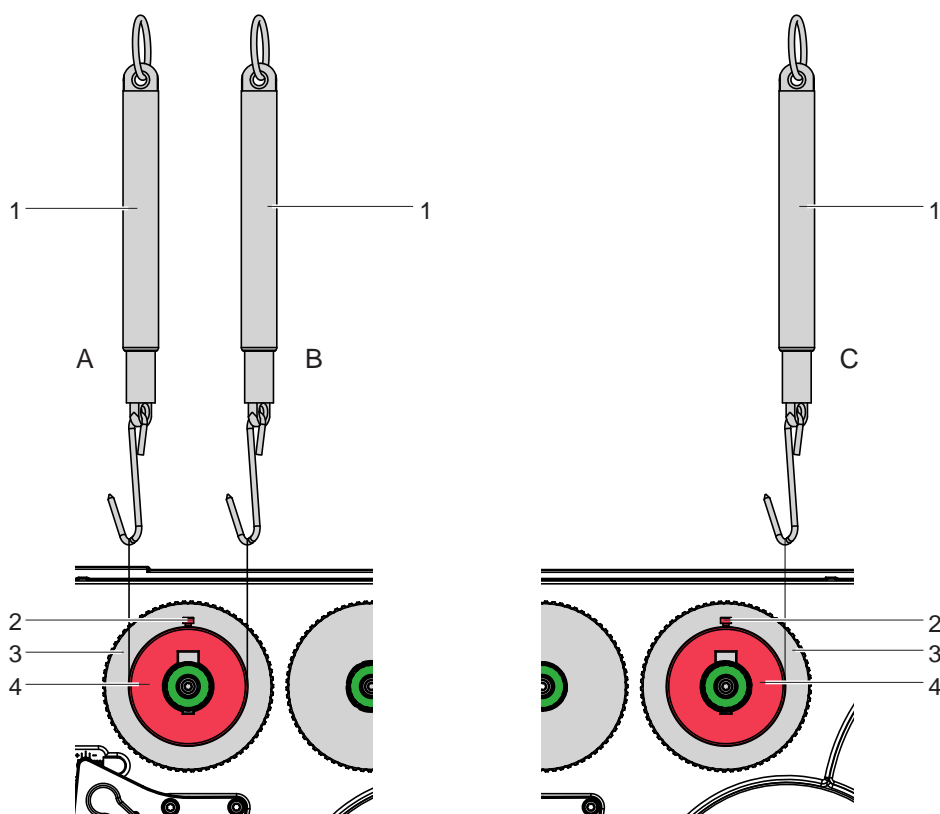


Fig. 14 Measuring the winding torque at the transfer ribbon rewinder (left) and unwinder (right)



### 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 the rear 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. Hold the drive belt 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 22

**Internal Rewinder**

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

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 rewinder (38 mm)

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

Winder	Measurement	Direction of rotation	Printer	Winding torque M	Pulling force F
Internal rewinder	A	against winding direction	all	28 - 32 Ncm	14 - 16 N
	B	in winding direction	all	8 - 12 Ncm	4 - 6 N

Table 2 Winding torques at the internal rewinder

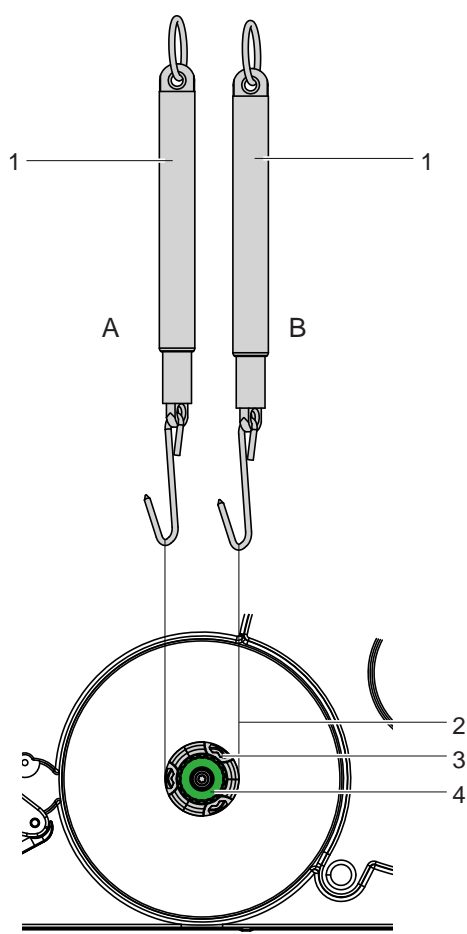


Fig. 15 Winding torques at the internal rewinder

1. Unplug the printer from the electrical outlet.
2. Remove the rear cover.
3. Remove the labels from the printer.
4. Push the cord (2) under a bracket (3) of the internal rewinder (4) and wind it around the rewinder.
5. Secure spring scale [25 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 rewinder is also moving, hold it in place during the measurement. Otherwise, the measurement is not accurate.
7. Allow the cord to unwind from the rewinder 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 22

### 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.**

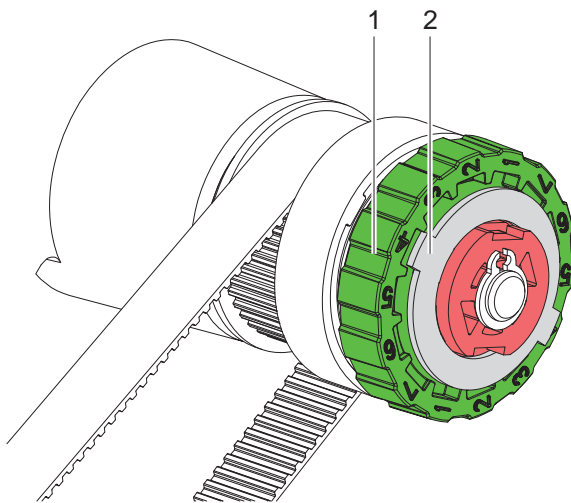


Fig. 16 Adjusting the winding torque

1. Unplug the printer from the electrical outlet.
2. Remove the rear 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 ► 4.4 on page 13.
8. Mount the rear cover.

## 5.2 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



### Note!

Print image errors can also arise from wrinkling of the transfer ribbon.

- 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 ► page 23.
2. Adjust the position of the printhead ► page 24.
3. Adjust the printhead pressure ► page 25.
4. Adjust the transfer ribbon feed path ► page 26.
5. Perform a final test ► page 26.

### 5.2.1 Preparing the Printer for Adjustment

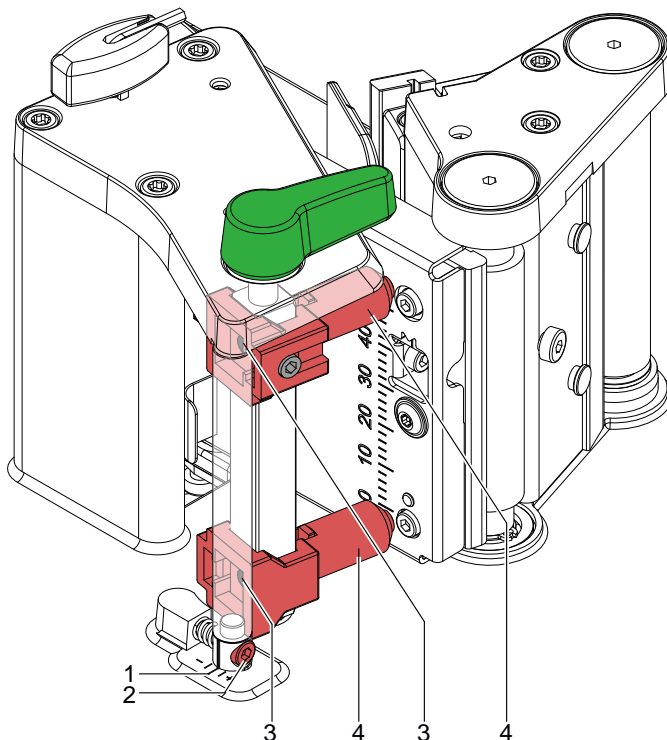


Fig. 17 Preparing the printer for adjustment

1. Load transfer ribbon at the print unit to be adjusted and labels which extend across the entire printing width.
2. In the printer configuration, set the *Print speed* parameter to 100 mm/s.
3. Move the transfer ribbon deflection to the central position (1) with the screw (2).
4. Position the plungers (4) in such a way that the adjustment screws are accessible through the holes (3) of the square axis.

### 5.2.2 Adjusting the Printhead Position

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

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



#### Attention!

**Risk of damage.**

Attempting to adjust the printhead when the fixing screws (1) are tight can lead to defects at the printhead assembly.

► Always loosen the fixing screws (1) before adjusting the printhead.

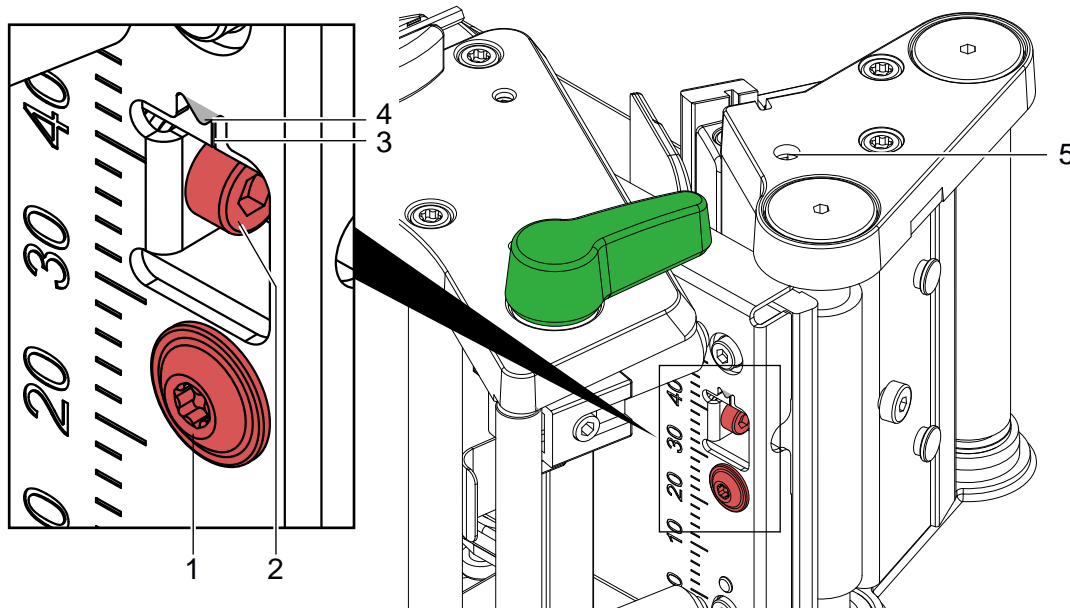


Fig. 18 Adjusting the printhead position



#### Note!

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

1. Loosen the screw (1) about a quarter turn.
2. Align the mark (3) on the carrier plate to the pointer (4) in the printhead carriage by turning the screw (2).
3. Check the printhead alignment with the test function *Test grid* (► Configuration Manual) or a similar pattern.
4. If horizontal lines are not parallel to the label edges, adjust the parallelism with the screw (2).
5. Tighten the screw (1).
6. Set the best possible image quality by turning the eccentric (5).  
Differences in the density between the two sides are still permissible.
7. Continue with the adjustment of the printhead pressure ► 5.2.3 on page 25



### 5.2.3 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 printhead pressure leads to an improvement of the print image density on the corresponding side and to a shifting of the ribbon feed path to the other side.

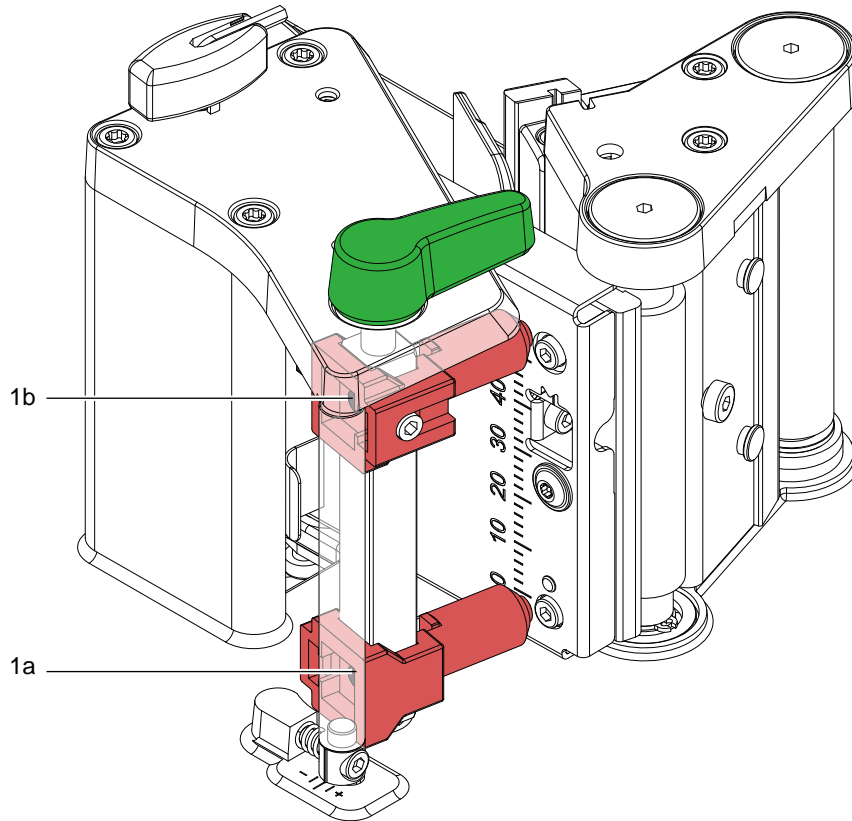


Fig. 19 Adjusting the printhead pressure

1. Turn the adjustment screws (1a, 1b) counterclockwise until turning becomes perceptibly easy.
2. Reduce the *Heat level* 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.
5. Set the original *Heat level* in the printer configuration.
6. Continue with setting of the transfer ribbon feed path ▷5.2.4 on page 26

### 5.2.4 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 (3). Increasing the head contact pressure with the screws (2a) and (2b) 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.

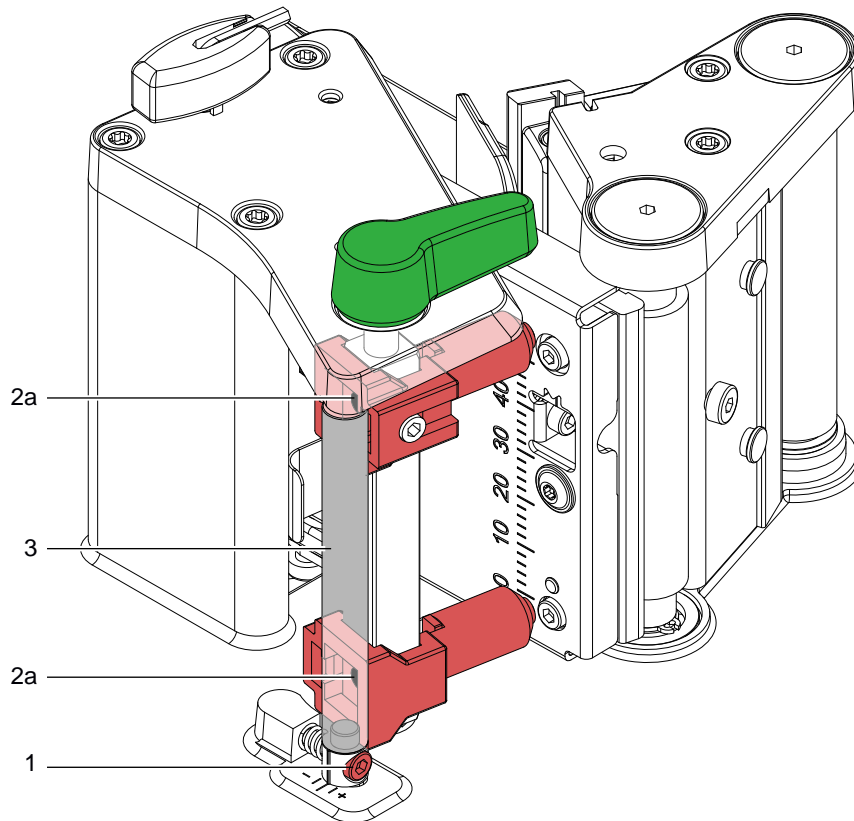


Fig. 20 Adjusting the transfer ribbon feed path

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 outward, turn screw (2a), or if the ribbon runs inward, turn screw (2b) 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. When the transfer ribbon feed path is set, continue with the final test.

### 5.2.5 Final Test

► 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.

## 5.3 Adjusting the Belt Tension at the Main Drive Motor

**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.

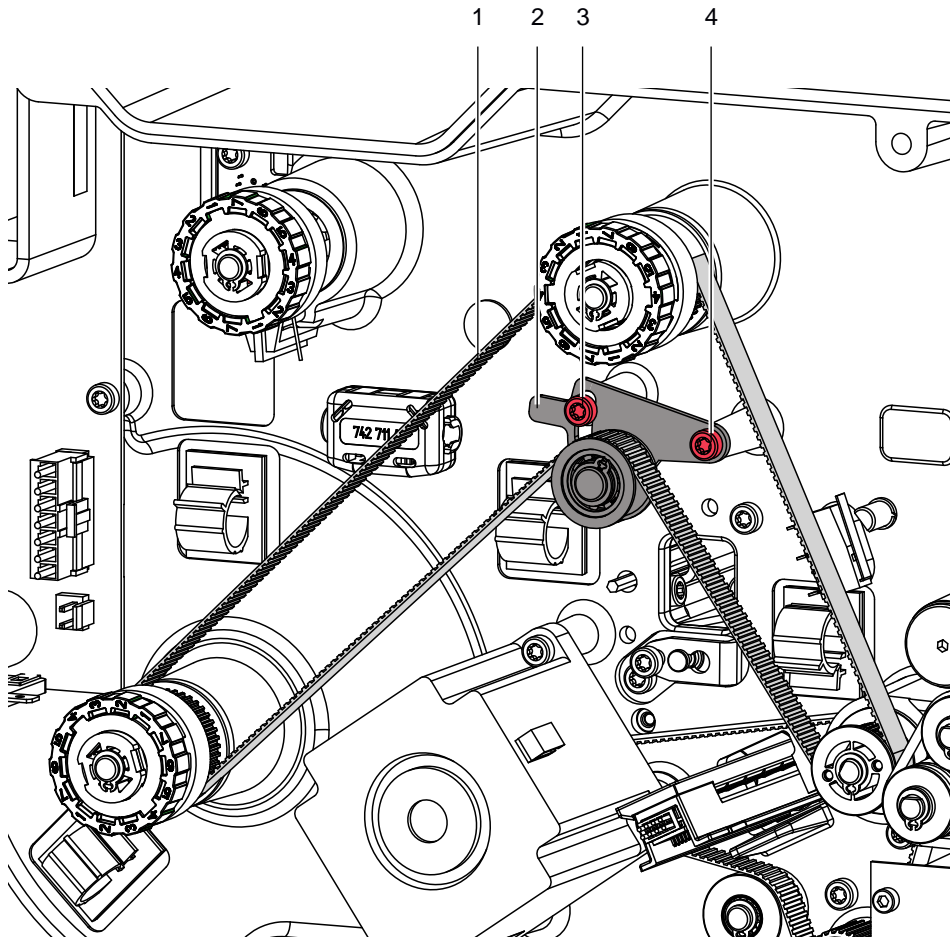


Fig. 21 Adjusting the belt tension of ribbon rewinder

1. Unplug the printer from the electrical outlet.
2. Remove the rear cover.
3. To adjust the belt (1) driving the winders :
  - Loosen screws (3,4).
  - Swivel the clamping plate (2) so that the toothed belt (1) is tensioned taut.
  - Tighten the screw (3,4).
  - If necessary, increase the belt tension further.

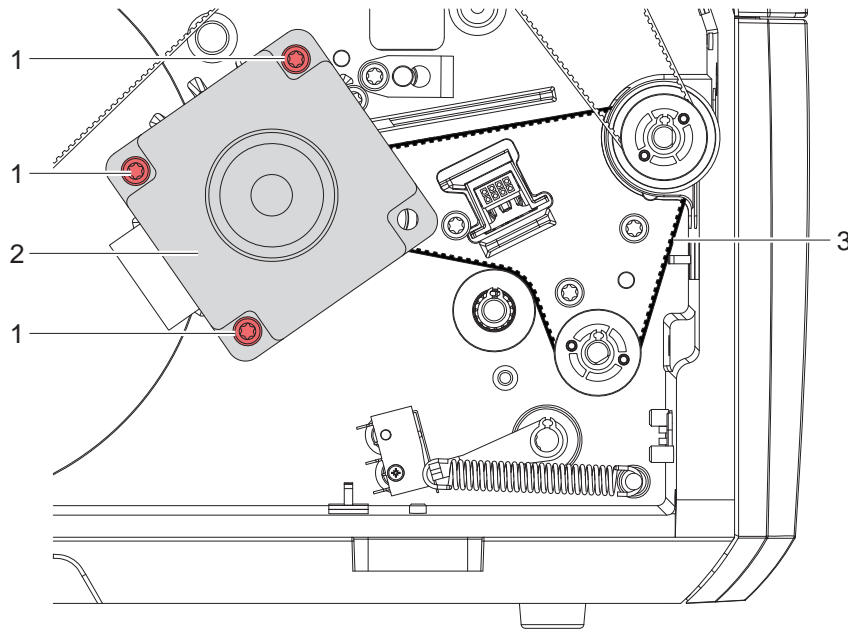


Fig. 22 Adjusting the belt tension

4. Loosen the three fixing screws (1) of the motor (2).
5. Swivel the motor (2) in such a way that the toothed belt (3) is tensioned tightly and tighten the fixing screws (1) in this position of the motor.

## 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
No display function	Check cable connection between PCB CPU and control panel
	Replace the control panel
	Replace the PCB CPU
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
A peripheral device is not functioning	Check whether the peripheral device is activated via programming
	Check the USB cable of the peripheral device and replace it if necessary
	Check the peripheral device
	Replace the PCB CPU

Table 3 Failure of device functions

## 6.2 Permanent Hardware Faults

Error message	Cause	Fault recovery
<i>Printhead thermistor broken</i>	Thermistor at the printhead defective	Replace the printhead
<i>Voltage error</i>		
$V_{BAT}$	Voltage of the battery on the PCB CPU is too low	Replace the PCB CPU
24 V	24 V too low	Check voltage at measurement point +24V ▷ Fig. 24 on page 31: <ul style="list-style-type: none"> <li>Voltage too low: Replace the power supply unit</li> <li>Voltage is correct: Replace the PCB CPU</li> </ul>
24 V TPH	24 V for the printhead too low	Check voltage at measurement point +24V TPH ▷ Fig. 24 on page 31: <ul style="list-style-type: none"> <li>Voltage too low: Replace the power supply unit</li> <li>Voltage is correct: Replace the PCB CPU</li> </ul>

Table 4 Hardware faults

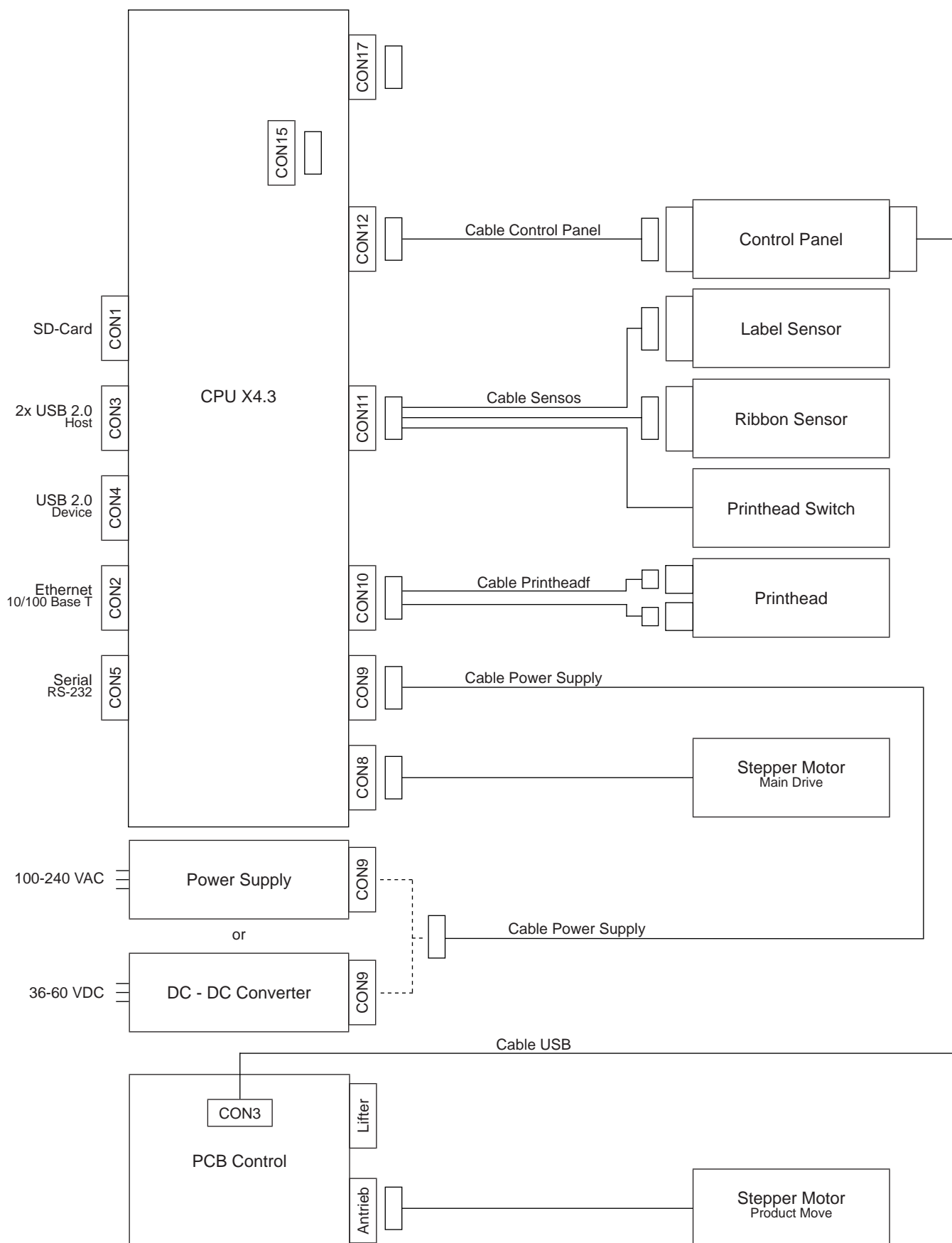


Fig. 23 Block diagram

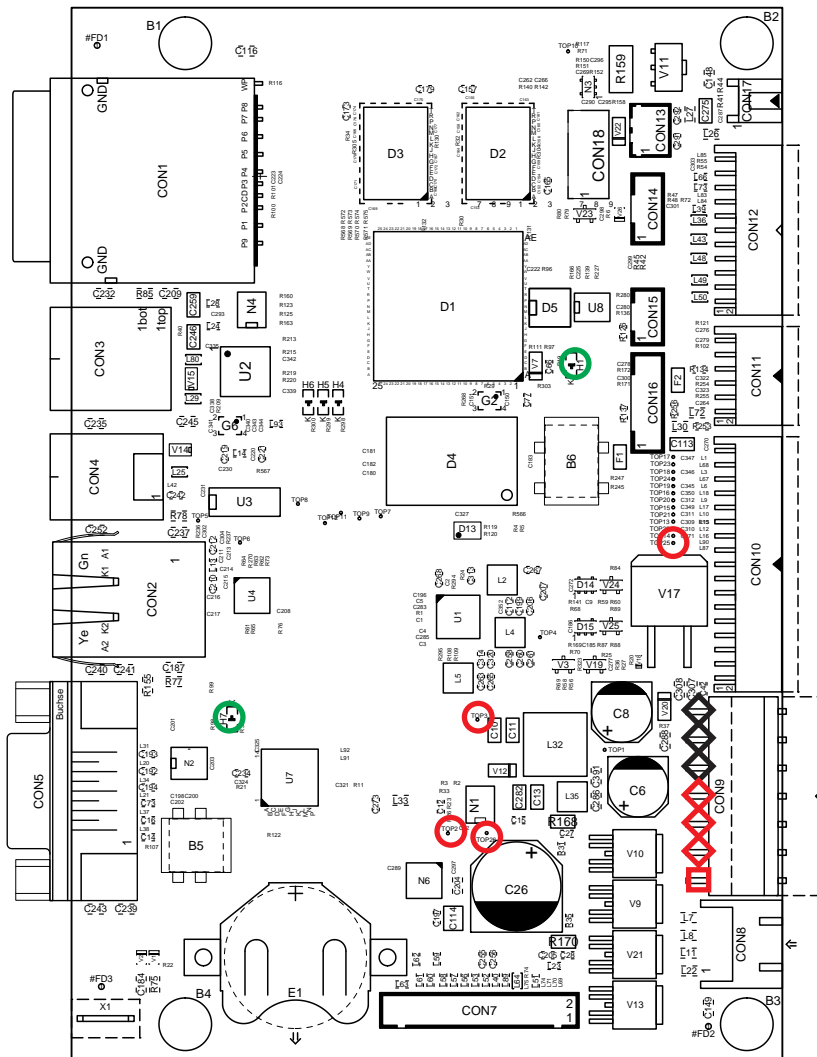


Fig. 24 Layout diagram PCB CPU X4.3

Measuring points at CON9:

◇	GND
◇	+24V
□	+V <sub>MOT</sub> (+24V)

Measuring points on the PCB:

○	TOP2	+24V
○	TOP3	+5V
○	TOP25	+V <sub>TPH</sub> during printing: +24 V otherwise: +5 V
○	TOP26	+V <sub>MOT</sub> (+24V)

LEDs on the PCB:

○	H1	+3,3V
○	H7	LED FPGA on during start procedure blinking after start procedure

## 9 Further documentation

### Programming guide for JScript



Programming manual, in which all possible functions of the cab printing systems are described and can be addressed via the programming.

<https://www.cab.de/media/pushfile.cfm?file=3047>

### Configuration instructions for cab label printer



Guide for configuring the printer settings and the system.

<https://www.cab.de/media/pushfile.cfm?file=3257>

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