Service Mechanics

Safety Instructions

WARNING!

The machine operates using mains voltage! Touching electrically live parts can cause exposure to hazardous electrical currents and may lead to burns.

➜ Only authorised service technicians are permitted to disassemble the housing.

➜ Before disassembling housing components, turn off the machine and unplug the power cable.

⇛ The machine can only be completely disconnected by unplugging the power cable.

⇛ The ALX 92x AI Pro is equipped with two power cables. To completely disconnect this machine, *both* power cables must be unplugged.

➜ If the machine needs to be powered up for repairs or testing after the housing has been disassembled, never touch electrically live parts. This also applies to low voltage parts.

➜ Never open the housing of the power supply! Faulty power supplies should always be replaced, not repaired.

➜ After switching off the printer, wait at least 1 minute before touching any electric contacts at the power supply.

➜ Ensure that the electrical system is in perfect condition:
– Check the electrical system on a regular basis.
– Fasten loose connections.
– Replace damaged cables immediately.

➜ Only operate the unit once the housing has been reassembled properly.

➜ After assembling, check the machine according to the regulations which are relevant in your country.

CAUTION! Always make sure the electronic circuitry is protected from electrostatic discharge:

➜ Wear ESD protective gear.

➜ Before opening the machine, make sure it is placed on an earthed surface.

General Notes

Illustrations and Descriptions

DPM or ALX

The following descriptions are largely applicable both to DPM and to ALX 92x. The latter will be referred to as "ALX" below. Some sections apply to only one of the two types of machine. In such cases the machine type will be shown after the heading in brackets.

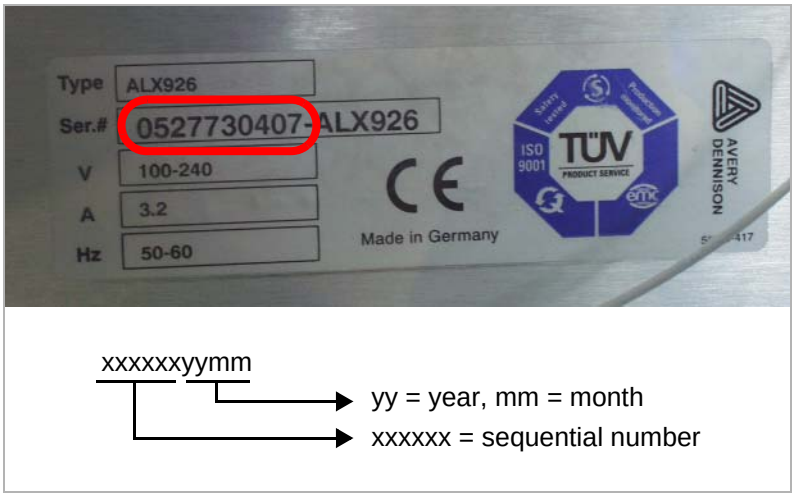
Figures

Texts are accompanied by figures where necessary. Figures are indicated using figure numbers in [square brackets]. A capital after a figure number, for example [12A], refers to a specific section of the figure.

Serial numbers

Some assemblies were subject to one or more constructive changes and can therefore be ordered in several versions. The spare parts catalog notes in those cases the serial number or the production month/year of the machine, which is required to be compatible with the respective assembly.

The serial number can be found on the rating plate of the machine as illustrated below [1].



[1] Rating plate at an ALX 926. The machine was built 07/2004 and has the sequential number 052773.

Factory Settings

All of the parameters are set to default values by the manufacturer. These vary from model to model. The factory settings can be restored at any time using the parameter SPECIAL FUNCTION > Factory settings.

Default Values

Requirements: The parameter SPECIAL FUNCTION > Default values is set to ""Standard". If it is set to "User setting", the values that were current when "User setting" was selected are restored.

❍ More details on factory settings can be found in the topic section 'Info-Printouts and Parameters', parameter SPECIAL FUNCTION > Factory settings.

Key Combinations

Access to certain of the printer's functions should be reserved for authorised service technicians. Access to these functions has been restricted. In order to access them, the operator must restart the printer while pressing a specific key combination for several seconds.

Key combination	Function	Described in
Cut+Prog	H8 forced reset	Topic "Firmware", section "Load Firmware (via Bootloader)"
Feed+Prog	Provides access to special service parameters.	Topic "Info-Printouts and Parameters", section Parameter SYSTEM PARAMETER > Access authoriz..
Cut+Online+ Feed+Prog	H8 forced reset plus access to special service parameters	see above

[Tab. 1] Special startup key combinations for authorised service technicians

Service Data

The status printout "Service status" lists the printer's main service data. Some of the counters contained in this function are incremented automatically, for example, the running time of the printhead. Other counters, such as the number of printhead replacements, need to be incremented manually by the service technician. This is done by using the appropriate parameter. (Tab. 2).

➠ Complete counter reset: Call up SERVICE FUNCTION > Serv. data reset.

Menu	Parameter	Use to
SERVICE FUNCTION	Service	Increment "service calls" counter
	Head exchange	Increment "head number" counter
	Roller exchange	Increment "feed roller no." counter
	Cutter exchange	Increment "cutter number" counter.
	Serv. data reset	Reset all counters to their initial value.

[Tab. 2] These parameters increment the relevant counters for the info printout "Service Status".

Preventative maintenance

Performance interval

Preventative maintenance should be carried out

- *annually* or
- after *250 km* printhead running time

➠ Printhead runtime: Call parameter SERVICE DATA > OPERATION DATA > Head run length.

Cleaning

In general:

➜ Cleaning according to the user manual, topic section Maintenance and Cleaning.

Electronic parts:

➜ Remove accumulated dirt.

➠ WARNING! - observe ESD safety measures.

Dust filter:

➜ If present, clean or replace.

Replacing wear parts

No.	Description	Location
A5597	Toothed belt (HTD 315-3M-06)	Foil rewinding mandrel
A2076	belt tightener	Foil rewinding mandrel
98159	Spring	Ribbon tightener
96798	Toothed belt (HTD 315-3M-09)	Feed roller

[Tab. 3] Parts to be replaced as part of preventative maintenance.

Visual inspection

➜ Subject all moving parts to a visual inspection.

➜ If any defect is visible, replace the affected part.

Performance test

OK	repl.	Part	Check	If defective...
		Springs	Deformations?	Replace spring
		Foil mandrels	Scoring, groove marks? Bearing clearance outside the normal range?	Replace foil mandrel
		Sensors	Check values (*SERVICE FUNCTIONS > Sensor test*)	Clean / replace sensor; Correct settings
		Blower	Sluggish operation; unusual noises?	Replace blower
		Dancer levers	Deformations? Clearance?	Replace dancer lever
		Rollers	Wear? Damage? Sluggishness?	Replace roller
		Brake pad on material dispenser	Function	Replace brake pad
		Material pressure rollers	Sluggish? Clearance?	Replace the pressure roller
		Drawing roller	Groove marks?	Replace drawing roller
		Print roller	Groove marks?	Replace print roller
		Printhead	Carry out dot check (*SERVICE FUNCTIONS > Head dot test*)	If dots are missing in important areas, replace the printing head
		Printing head axle	Clearance?	Adjust bearing or replace bearing bush

[Tab. 4] Parts to be checked as part of preventative maintenance.

Housing

The DPM housing consists of the parts shown in the illustrations [1]. The front and rear hoods each consist of several sheet metal components connected with hinges [8]. The hinges are welded, so the sheet metal components can not be taken apart.

[1] The DPM housing is made up of three parts:
A DPM rear hood
B DPM front hood
C Front screen (part of the front hood)

The ALX has the same front hood as the DPM but a different rear hood [2A].

[2] The ALX has a different rear hood:
A ALX rear hood
B DPM front hood

Front screen

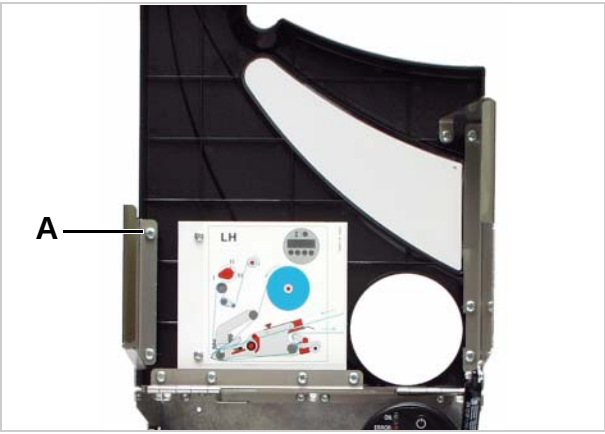
Tools
Medium-size cross-head screwdriver.

Dismantling

1. Open up the front hood.
2. Undo recessed head screws [3A] (10 screws). Take off the front hood.

Assembly

➜ To assemble the device, follow the steps in the reverse order.



[3] Open front hood.

Front hood

Tools

- Torx screwdriver T20, 20 cm long
- Small screwdriver
- Allen key 2.5 mm.

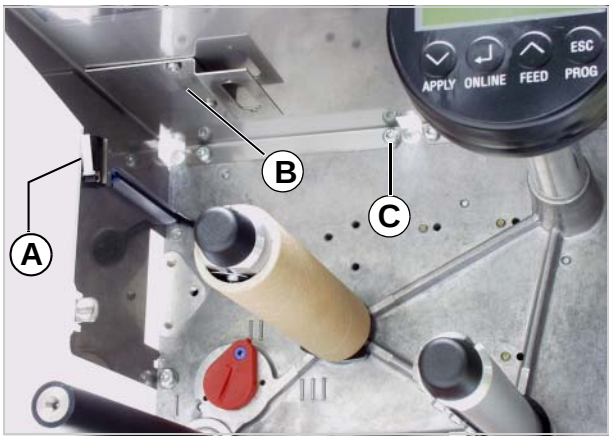
Dismantling

1. Open up the front hood [4].
2. Unscrew hood switch [4A]

   ➠ If there is a Sub-D applicator , unscrew the plug board [4B].
3. Undo Torx screws[4C] (7 screws). Take off the front hood.

Assembly

➜ To assemble the device, follow the steps in the reverse order.



[4] Front hood, seen from below and to the side.
A Hood switch
B Mounting plate for Sub-D connection
C Front hood fastening screw

DPM rear hood

Before dismantling the rear hood, the power supply, USI board and CPU board connected to the rear hood must be removed.

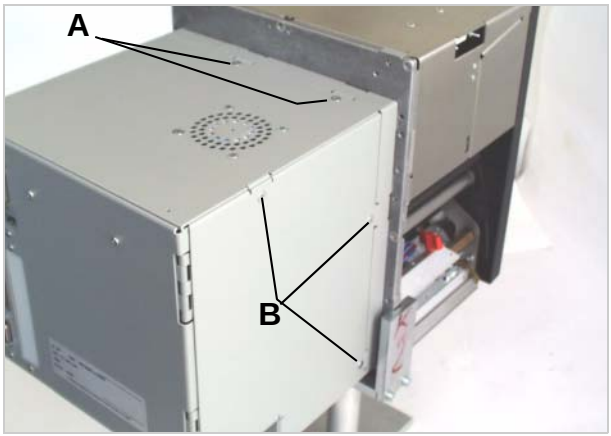
Tools

- Torx screwdriver size 20
- Allen key 2.5 mm.

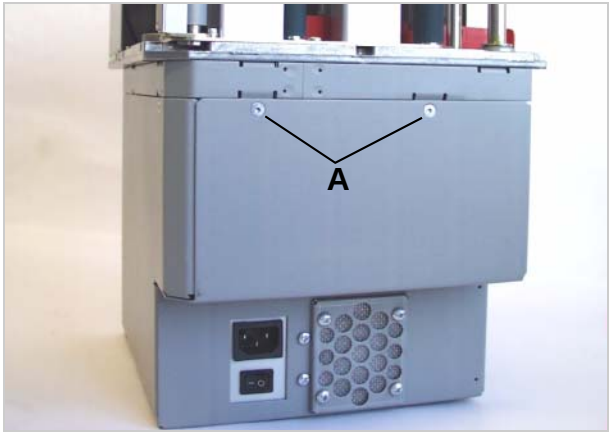
Dismantling

1. Remove two screws on the top and bottom of the rear hood [5A] [6A] and three on the lateral part [5B].

❍ (continued on the next page)



[5] DPM rear hood.



[6] Underside of front hood.

2. Open rear hood [7].

   ➠ To do this carefully pull the entire rear hood back as shown and at the same time open up the right-hand lateral part.

3. Remove the power supply

❍ Refer to paragraph Power supply (DPM, PEM) on page 92.

4. Remove the USI board.

❍ Refer to paragraph USI board (DPM, PEM) on page 84.

5. Remove the CPU board.

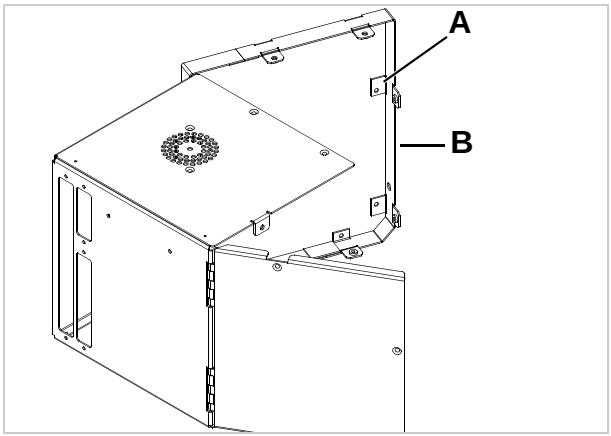
❍ Refer to paragraph CPU board (DPM, PEM) on page 86

6. Undo the fastening screws from the nine clips [8A] on the rear hood frame [8B]. Take off the rear hood.

   ➠ Lift the frame carefully over the "innards" of the DPM.

   Assembly
   To assemble the device, follow the steps in the reverse order.

[7] Open the rear hood. At the same time open up the right side.



[8] Clips (A) on the frame (B) of the DPM rear hood.

Blower (DPM)

Tools

- 2.5 mm allen key
- Size 7 open-ended wrench

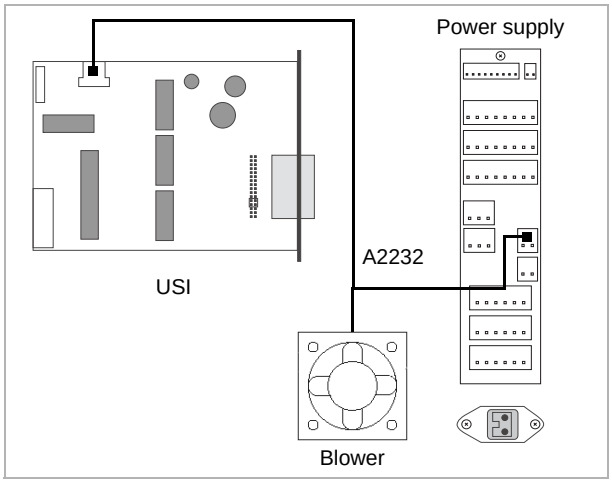
Dismantling

1. Open rear hood (see above).
2. Disconnect blower cable from USI board and power supply.
3. Remove the 2 screws [10A]. Remove blower.

Assembly

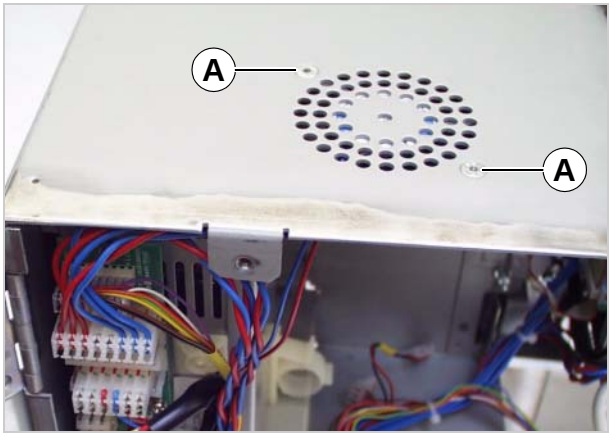
To assemble the device, follow the steps in the reverse order. Make sure to

➠ connect the blower in accordance with the illustration [11].



[11] Connecting scheme for the blower in DPM and PEM.

[9] Blower for the DPM. The cable has two plugs — for connecting to the power supply and the USI (Electronics Gen. 2).



[10] Fastening the blower to the rear hood.

Rear hood (ALX)

The rear hood of the ALX 92x consists of two identical plastic parts.

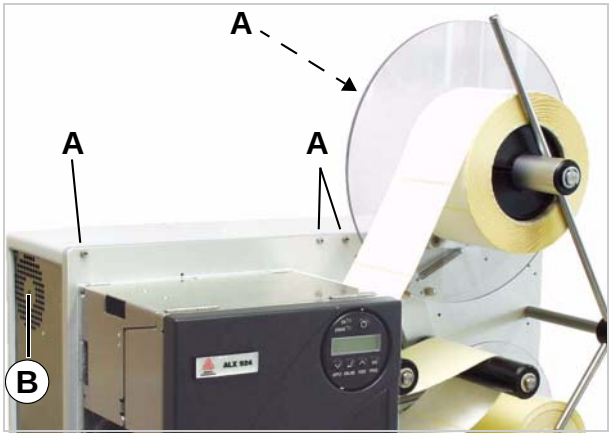
Tools
Allen key 3 mm.

Dismantling

1. Remove four screws on each half of the housing [12A], [13A].
2. Pull the housing parts straight off towards the back.

   ➠ The side panel with the electrical connections is not connected with the plastic part.

   ➠ Remove the lateral part with the blower [12B] carefully! The side panel remains on the plastic part. Disconnect the blower cable!



[12] Top fastening screws.

Blower (ALX)

The blower is attached to the side panel [12B] and is removed along with this half of the housing.

Tools

- Medium-size cross-head screwdriver
- Size 7 socket wrench

Dismantling

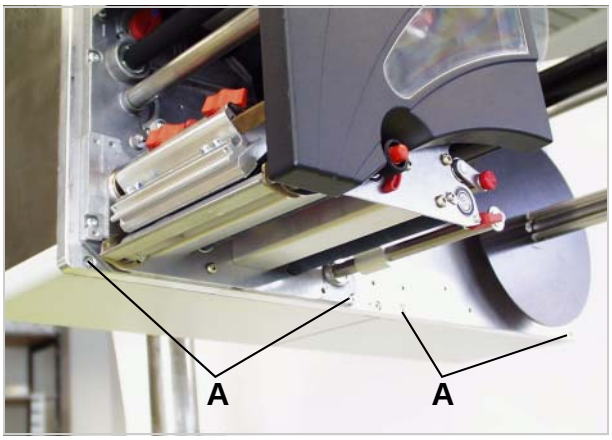
1. Remove rear hood. To do this disconnect the blower cable.

   ➠ You only need to dismantle the half of the housing that contains the blower.

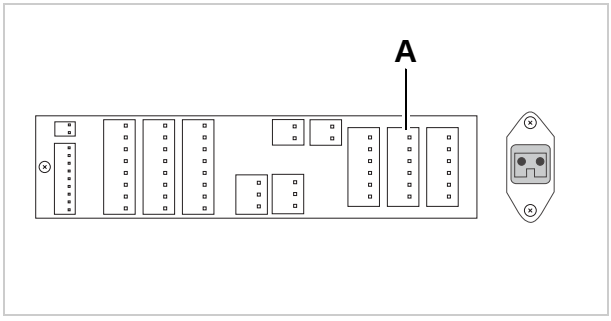
2. Unscrew the blower from the side panel (2 screws).

Assembly
To assemble the device, follow the steps in the reverse order. Make sure to

➠ connect the blower in accordance with the illustration [14].



[13] Bottom fastening screws.



[14] Connect the blower to the power supply.

Dust filter (ALX)

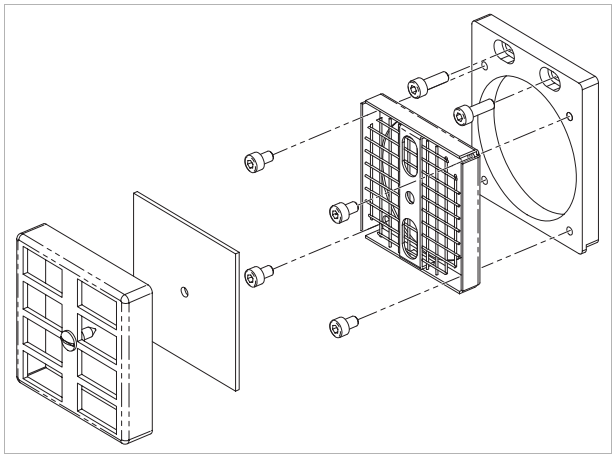
For especially dusty installation sites, the ALX 92x power supply can be equipped with an optional dust filter [15] (article no. A6206).

Tools

- 3 mm hex socket screwdriver
- Medium size screwdriver

Assembly

1. Put a filter liner [15C] into the filter housing [15B].
2. Press the filter housing onto the filter frame [15A]. Turn the screw [15D] by a quarter-turn.



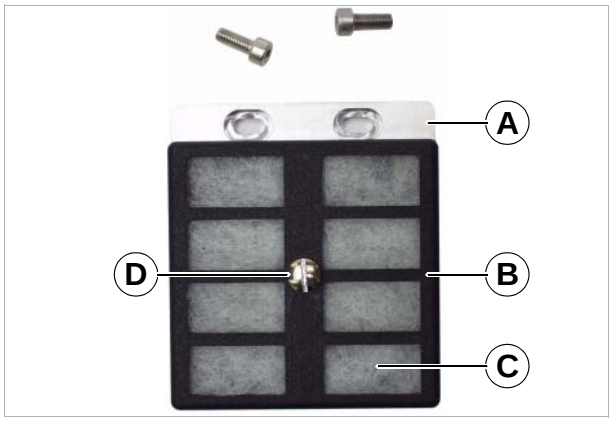
[18] Assembly of the dust filter.

Mounting

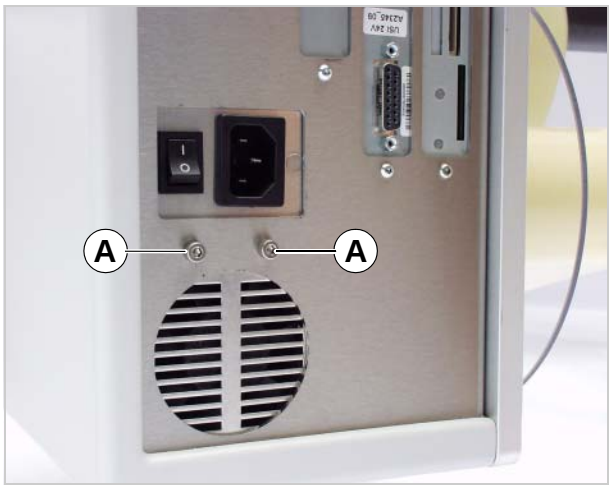
1. Unscrew the 2 screws [16A] at the side plate of the ALX.
2. Screw the dust filter [15A] onto the tapped holes *using the screws which came with the filter kit* [17].

CAUTION! - An exhausted filter liner can cause the power supply to overheat and the device to break down.

➜ Replace the filter liner regularly, at least in monthly intervals.



[15] Assembled dust filter for the ALX 92x power supply



[16] Undo those screws (A).

[17] Mounted dust filter (A).

Hood switch

WARNING!

The hood switch is there for your safety! Putting it out of operation increases the risk of hair, jewellery etc. being caught.

➜ Do not disable the hood switch!

➜ Regularly check that the hood switch is working!

❍ Checking the switch: see topic section Electronics Gen. 2, or Electronics Gen. 3, chapter „Settings“, „Sensor test“.

Tools
Small screwdriver

Dismantling

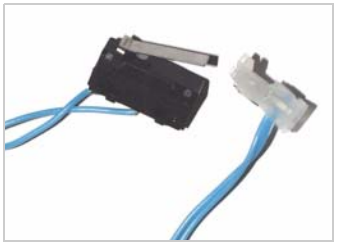
1. Open the front cover.
2. Remove the hood switch fastening screws (2 screws).
3. Open the rear hood.

❍ See paragraph Housing on page 8.

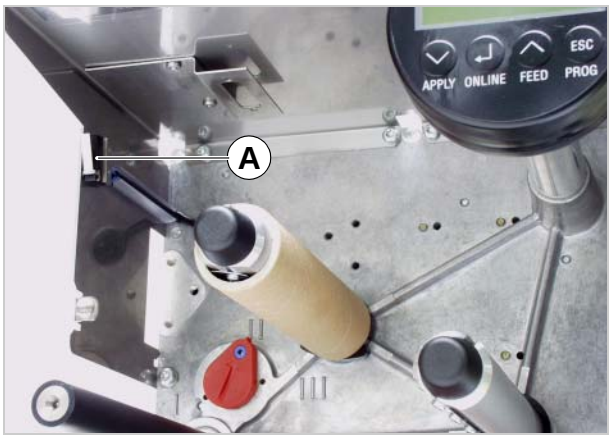
4. Undo the cable fastenings.
5. Thread the cable end through the opening in the base plate and disconnect from the CPU board (marked "COS").

Assembly
To assemble the device, follow the steps in the reverse order. Make sure to

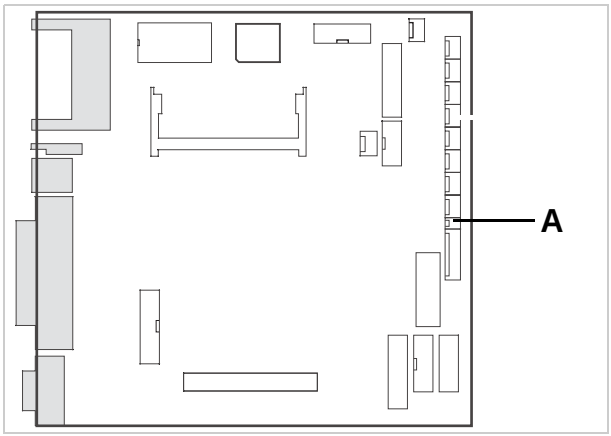
➠ When reattaching the cable, make sure it does not touch any moving parts.



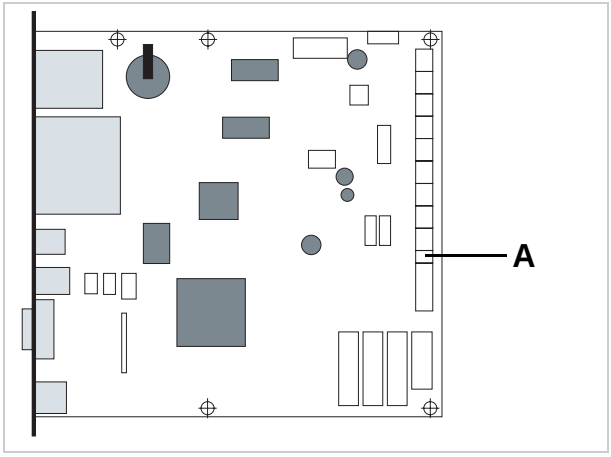
[19] Hood switch dismantled.



[20] Hood switch (A) assembled.



[21] Slot (A) of the hood switch on the CPU boards A2292 and A2293 (Electronics Gen. 2) (CN1109).



[22] Slot (A) of the hood switch on the CPU boards A6621 (Electronics Gen. 3) (CN1109).

Material transport

Unwinder (ALX)

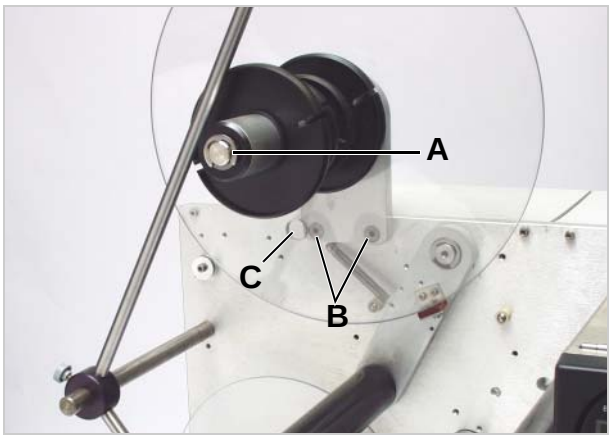
Tools
Screwdriver, medium

Dismantling

1. Remove locking ring [[23A].
2. Move the guide rod to the side, and pull the unwinder off the axle.

   For transport, the unwinder must be removed along with the holding plate.

➜ To do this unscrew the two screws [23B]. The screws can be accessed through the opening [23C].



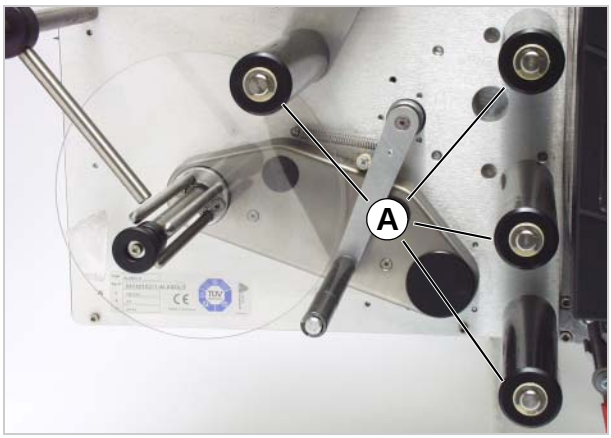
[23] Material unwinder (ALX/RH).

Deflection rollers (ALX)

Tools
Screwdriver, medium

Dismantling

1. Remove the locking ring from the end of the deflection roller axle [24A].
2. Pull the roller off the axle.



[24] Deflection rollers (ALX/RH)

Material dancer lever (ALX)

Tools

- Screwdriver, medium
- 2.5 mm hexagon spanner

Dismantling

1. Dismantle material unwinder (see above).
2. Remove locking ring [25B].
3. Unhook the spring [25A].
4. Pull the damcer lever off the axle.

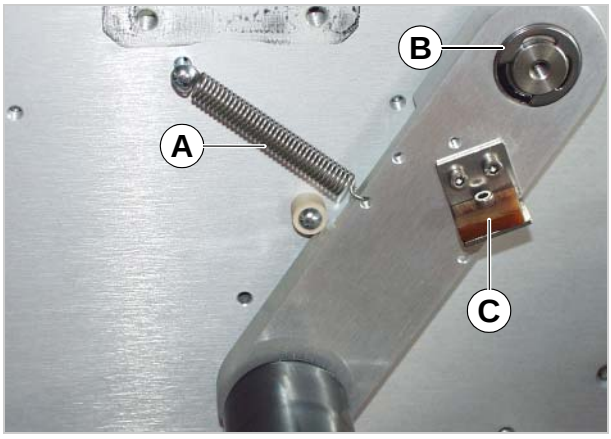
To replace the brake lining [25C]:

➜ Unscrew the brake lining fastening screw. Take out the brake lining.

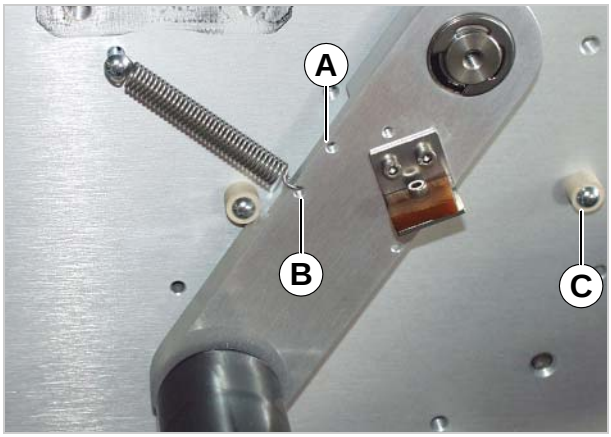
Adjusting the dancer lever spring

At the dancer lever are two holes [26A,B], into which the spring can be hooked. The recommended position depends on the label length and on the print speed.

➜ Choose the hook-in position in a way that the dancer lever never crushes against the outer limit bloc [26C] - neither with a new label roll, nor with a nearly empty roll.



[25] Upper dancer lever (ALX/RH)



[26] Hook-in position of the retaining spring at the dancer lever:
A Position for use with short labels and low print speed.
B Position for use with long labels and high print speed.

Contact pressure axle at drawing roller

Tools

2.5 and 3 mm allen keys

Dismantling the pressure roller

- *ALX 924*: One pressure roller.
- *ALX 925/926*: Two pressure rollers.

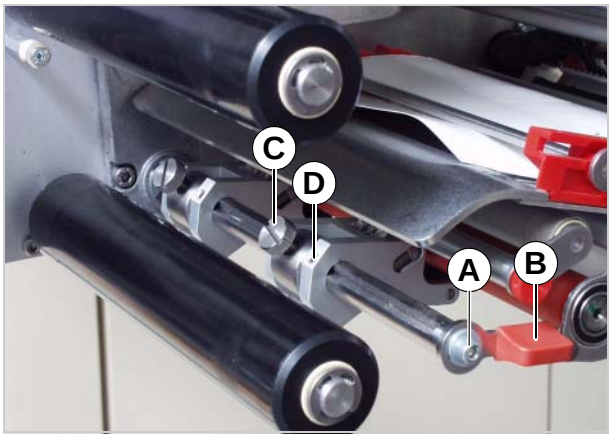
1. Loosen screw [27A].
2. Open the pressure lever [27B].
3. Remove screw [27A] and take off the pressure lever.
4. Loosen the thumb screw [27C].
5. Unscrew the set screws [27D].
6. Pull off the pressure rollers.

Assembling the pressure roller

To assemble the device, follow the steps in the reverse order. Make sure to:

➠ Lock the set screws [27D] with locking varnish (Loctite 243).

➠ Tighten set screws [27D] until the aluminium block is easily movable but has minimal game on the axle.



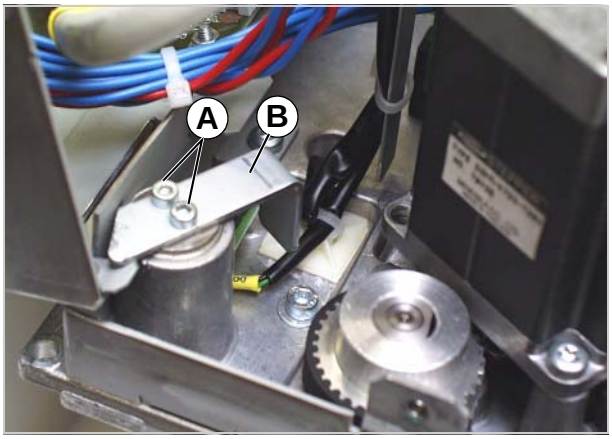
[27] Contact pressure rollers at the drawing roller (ALX RH).

Dismantling the mounting axle

1. Open (DPM) or dismantle (ALX) the rear hood.

❍ See paragraph Housing on page 8.

2. Unscrew the screws [28A] from the switch plate. Take off the switch plate [[28B].
3. Pull out the axle from the opposite side.



[28] Mounting axle with switching lug (B) (DPM/LH).

Contact axle sensor

❍ For details on testing the light barrier: see topic section Service Electronics: 'Settings', 'Sensor test'.

Tools
3 mm allen key

Dismantling

1. Open (DPM) or dismantle (ALX) the rear hood.

❍ See paragraph Housing on page 8.

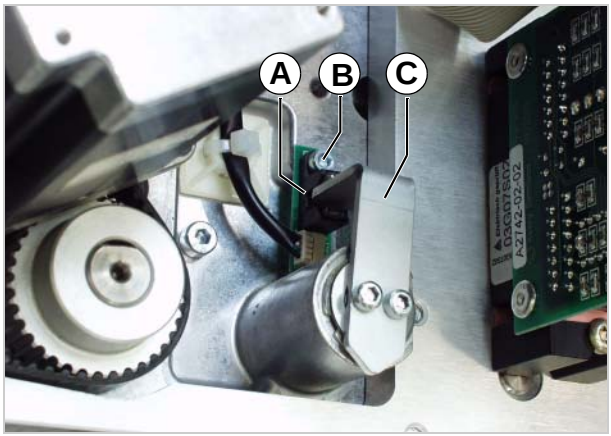
2. Undo the mounting axle. As a result the switching lug [29C] swings out of the light barrier sensor [29A].
3. Undo the screw [29B] on the light barrier sensor.
4. Disconnect the cable from the board of the light barrier sensor.

Assembly
To assemble the device, follow the steps in the reverse order.

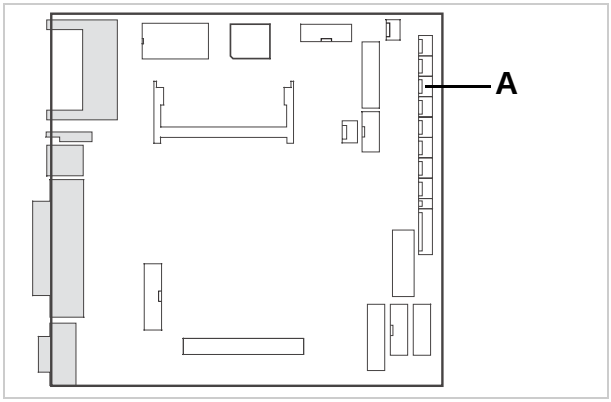
If the cable has been replaced:

➠ Plug the light barrier sensor into plug CN1103 on the CPU board [30A] or [31A].

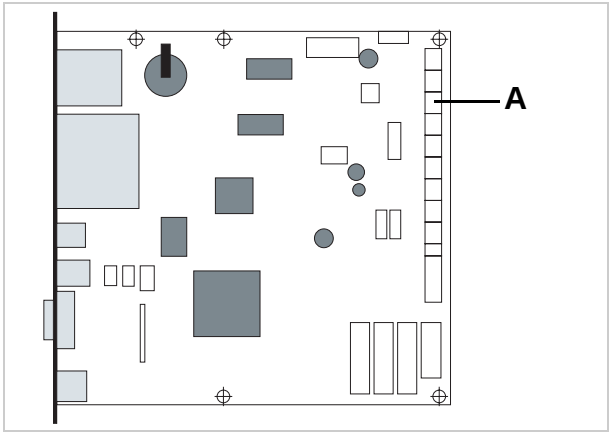
➠ Relay and attach the cable, making sure that it does not touch any moving parts.



[29] Switching lug (B) and light barrier sensor (A) on the mounting axle for the drawing roller.



[30] Slot for the mounting axle sensor (A) on the CPU boards A2292 and A2293 (Electronics Gen. 2) (CN1103)



[31] Slot for the mounting axle sensor (A) on the CPU board A6621 (Electronics Gen. 3) (CN1103)

Backing paper dancer lever (ALX)

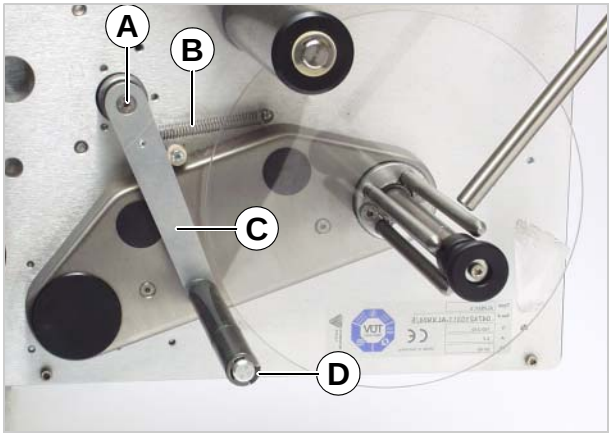
Tool

3 mm allen key

Dismantling

1. Unhook spring [32B].
2. Remove screw [32A]. Take off the dancer lever [32C].

➜ To replace the roller, take off the locking ring [32D].



[32] Backing paper dancer lever (C).

Dancer lever sensor (ALX)

Tool

2 mm allen key

Dismantling

1. Dismantle the rear hood.
2. See paragraph Housing on page 8.
3. Disconnect the cable at the sensor board.
4. Unscrew screws [33B]. Remove sensor board.

Assembly

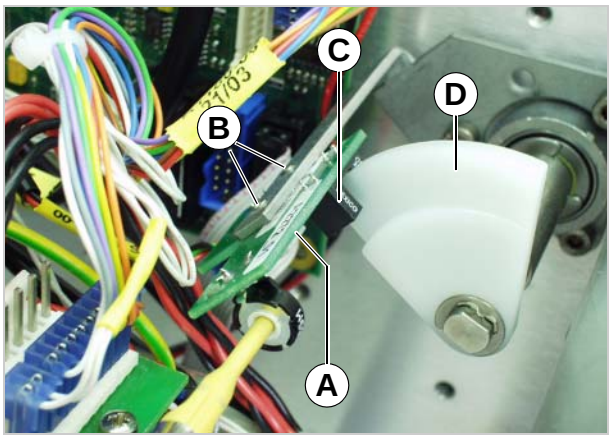
Make sure to:

➠ Position the sensor board in an way, that the sensor [33C] does not touch the wedge [33D].

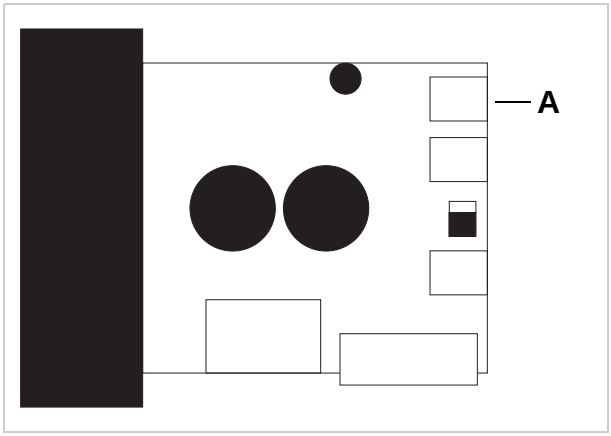
➠ Connect the dancer arm sensor to pos. [34A] at the rewinder output stage. CAUTION! - different mounting position in RH and LH machines.

➠ Set the sensor.

❍ See topic section Electronics Gen. 3, section „Settings“.



[33] **A** Sensor board
B Mounting screws
C Sensor
D Wedge



[34] Connection of the dancer arm sensor (A) at the rewinder output stage.

Backing paper rewinder (ALX)

Tools

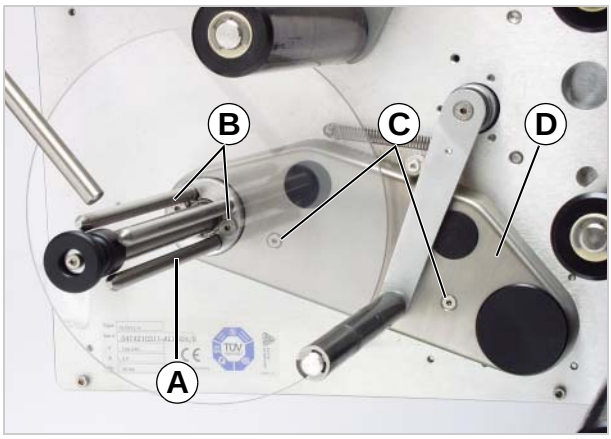
- 2.5 and 3 mm allen keys
- Size 17 open-ended wrench

Dismantling the drive belt

1. Take off the winder guide plate [[35A]. To do this, unscrew the two screws [35B].
2. Dismantle the dancer lever or unhook the spring and move the dancer lever out to the side.

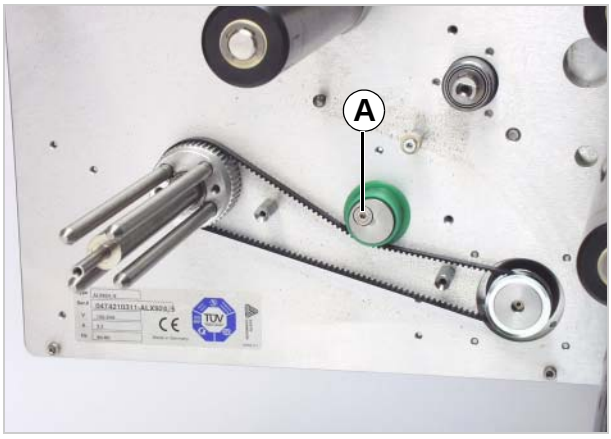
❍ Read paragraph Backing paper dancer lever (ALX) on page 19.

3. Remove screws [35C] and take off the belt cover.



[35] Backing paper winder (A) (ALX/RH)

4. Loosen screw [[36A] on the belt tightener. Take off the belt.

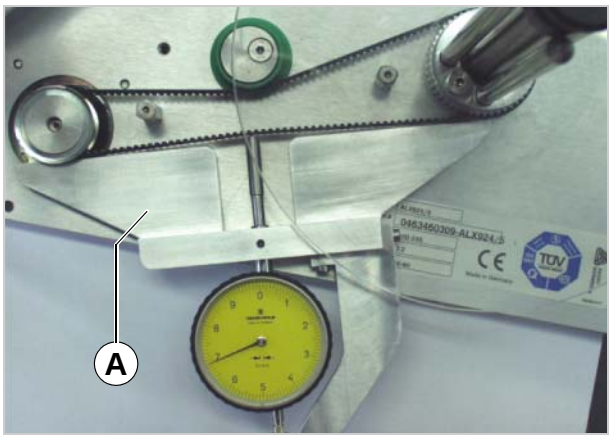


[36] Winder drive belt (ALX/RH)

Setting belt tension

At optimal tension the toothed belt deflexion may be 2-2.,5 mm by a load of 3N. The load must be positioned centrally between the two lock washers.

Centrical operating force:	3 N
Deflexion:	2-2,5 mm
Measured value by testing with the gauge:	7,5 - 8,0



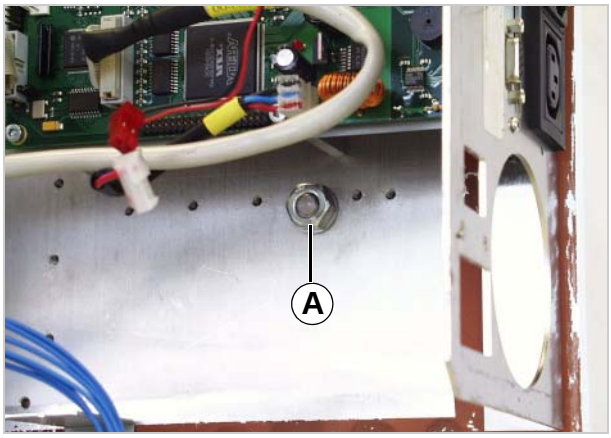
[37] Measuring the belt tension (ALX LH):
A Messgerät (Artikelnr. A6822)

Completely dismantle the winder

5. Dismantle the ALX rear hood.

❍ See paragraph Rear hood (ALX) on page 12.

6. Unscrew nut [[38A]. The nut can be accessed from below (between power supply and base plate).



[38] Undo this nut (A) to completely dismantle the winder (ALX/RH, power supply dismantled).

Rewinder motor (ALX)

Tools

Torx screwdriver size 20

Dismantling

1. Dismantle the drive belt.

❍ See paragraph Backing paper rewinder (ALX) on page 20.

2. Dismantle the ALX rear hood.

❍ See paragraph Rear hood (ALX) on page 12.

3. Disconnect the motor cable from the adapter cable [39D].

4. Undo screws (4 screws) [39B] and remove the motor.

Assembly

To assemble the device, follow the steps in the reverse order.

➠ The cable comes out of the motor pointing upwards.

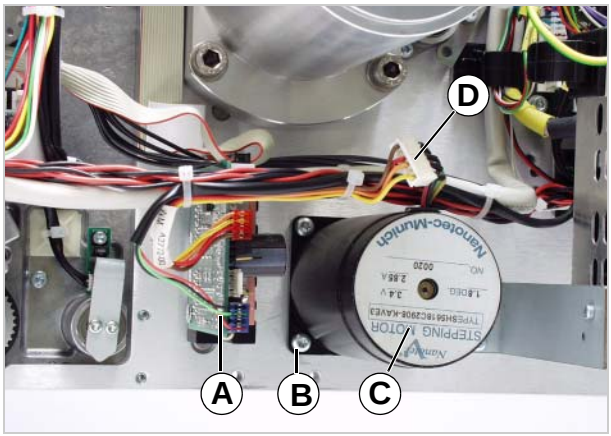
If the cable has been replaced:

➠ Attach the motor cable to plug J3 [40A] on the winder motor output stage board.

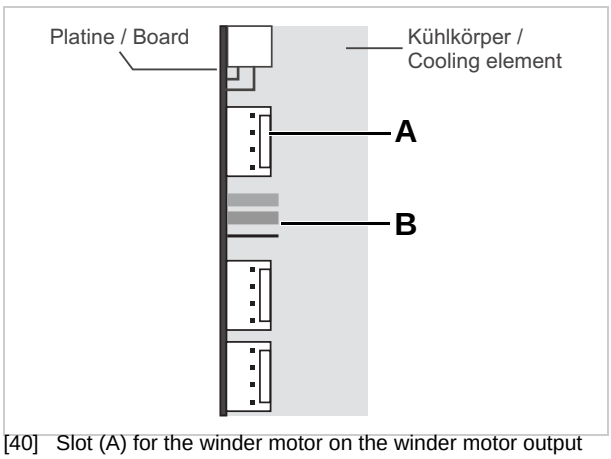
➠ Make sure the output stage board has the correct jumper setting [40B]!

❍ For more details on this point: see topic section Service Electronics: "Output stage board".

➠ Relay and attach the cable, making sure that it does not touch any moving parts.



[39] Winder motor (C) and the related motor driver board (A) (ALX/RH).



[40] Slot (A) for the winder motor on the winder motor output stage board (marking: J3).

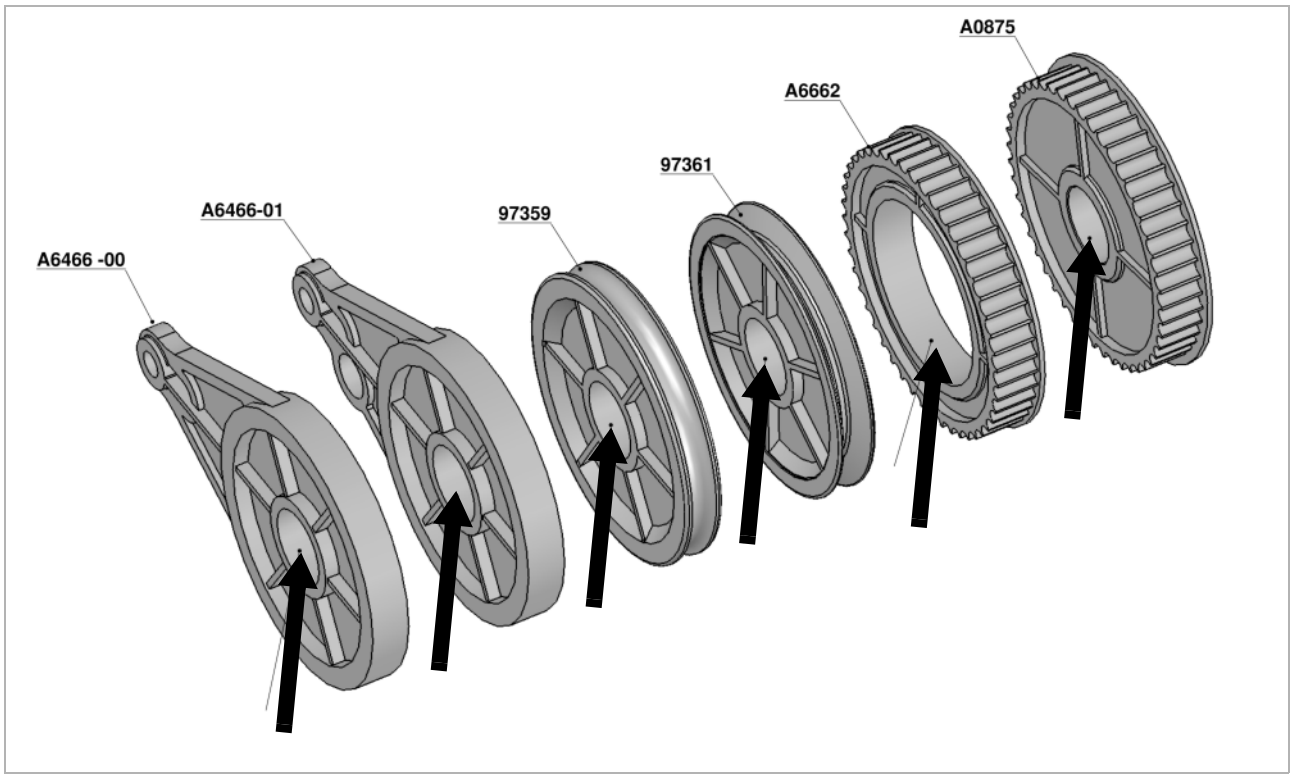
Foil transport

Important Notes

➠ The components for foil transport are the same for DPM and ALX.

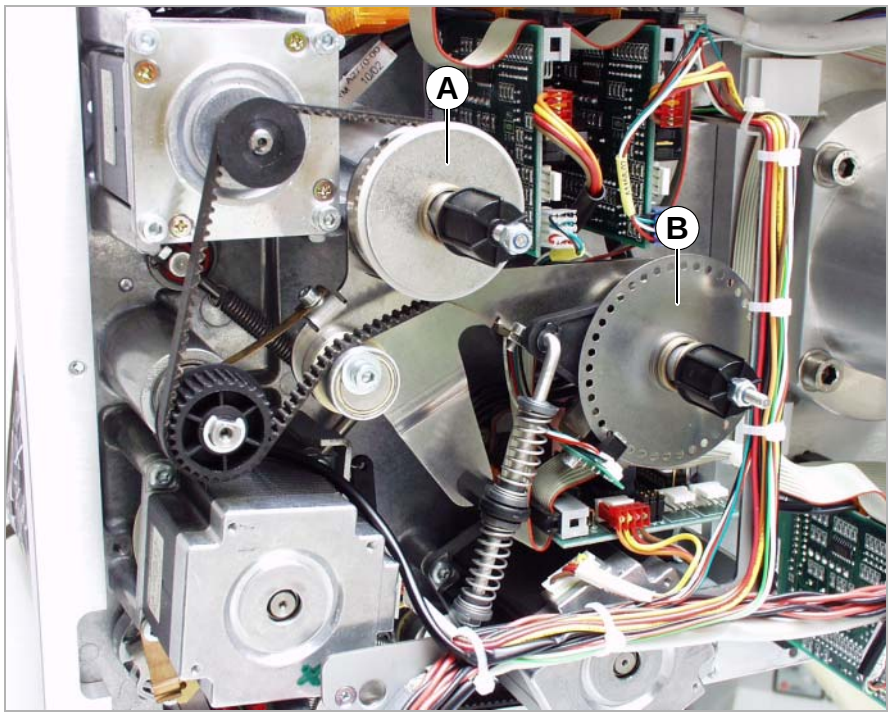
Lubricating plastic parts

➠ All plastic parts pictured below must be greased at the inner diameter [41 arrow] before assembling it. All other surfaces must be absolutely free of grease.

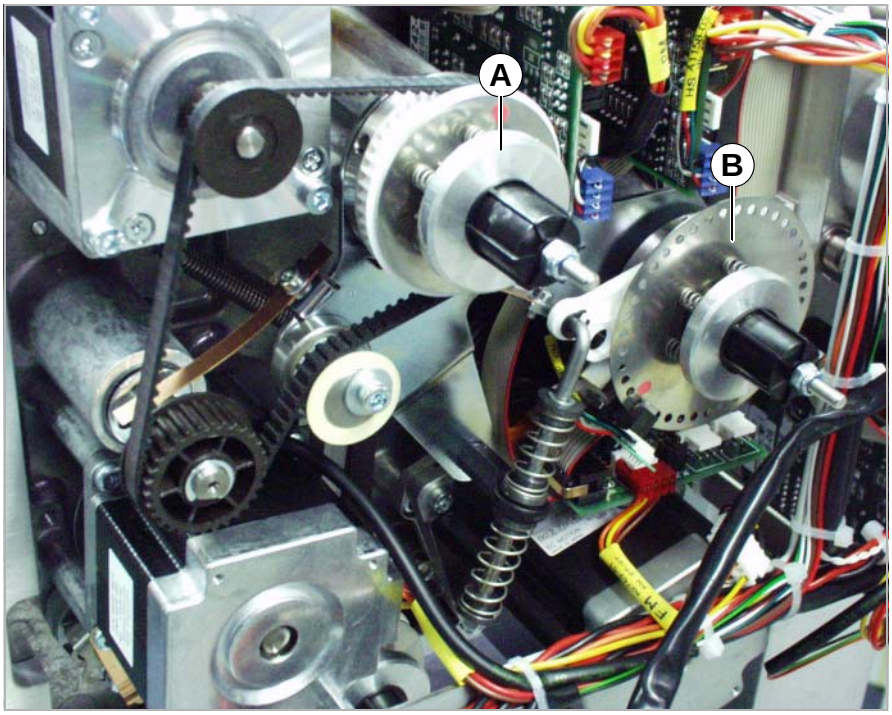


[41] Plastic parts used for foil transport with the surfaces to be lubricated (arrows).

Version Overview



[42] Type 2 of ribbon drive (A) and ribbon brake (B).
Built-in until serial number 074315 (12/2007).



[43] Type 3 of ribbon drive (A) and ribbon brake (B).
Built-in starting with serial number 074315 (12/2007).

Retrofitting kits

Part kits for retrofitting from type 2 to type 3:

- Rewinder: Article number A9040
- Unwinder: Article number A9017

Ribbon unwinding mandrel (type 2)

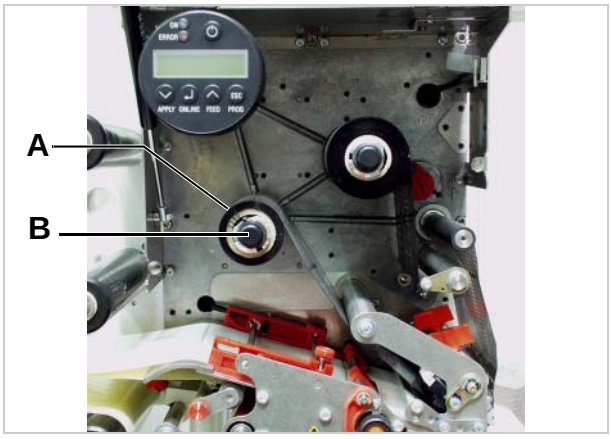
Tools

- 2.5 and 2 mm Allen key
- Size 7 and 8 socket wrenches
- Plastic hammer

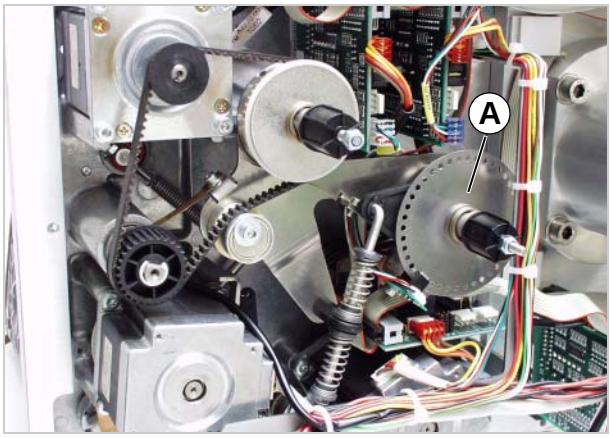
Dismantling

1. Pull the cap [44B] off the foil mandrel.
2. Open (DPM) or dismantle (ALX) the rear hood.

❍ See paragraph Housing on page 8.



[44] Foil unwinding mandrel (A) with cap (B) (ALX RH).

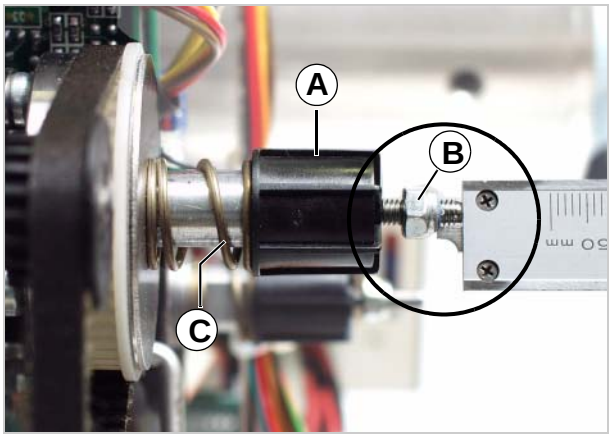


[45] Foil unwinding mandrel (A) with rear hood dismantled (B) (ALX RH)

3. Measure and note how deep the nut [46B, circled] and cap [46A] are screwed on to the foil mandrel.

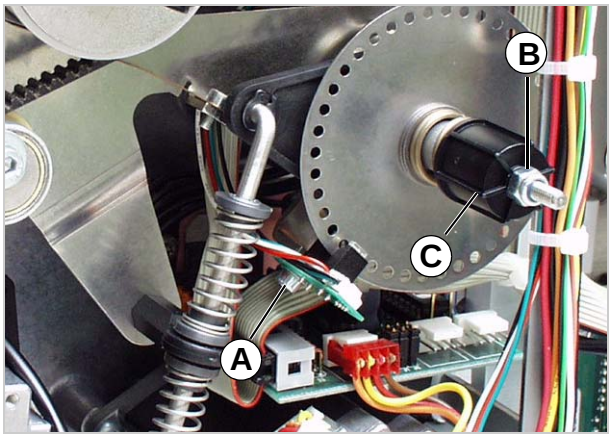
   ➠ This step saves having to set the braking torque after mounting the foil mandrel.

   ➠ This step is unnecessary if the spring [46C] is to be replaced.



[46] Before unscrewing the nut (B) and cap (A) it is essential to note how deep they are screwed in (circled)!

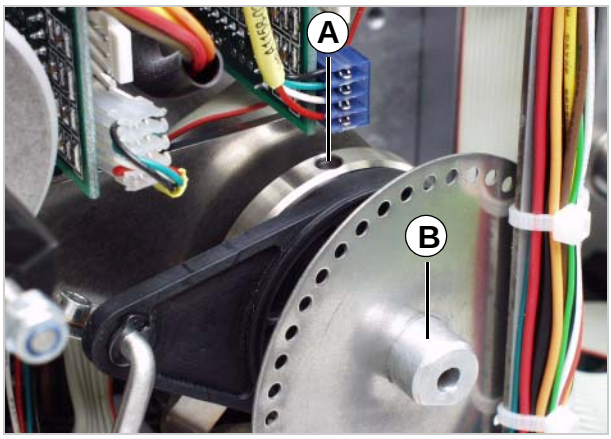
4. Dismantle the foil sensor by removing screw [47A].
5. Remove nut [47B]. At the same time brace the threaded rod with the red hexagonal head at the other end of the rod.
6. Turn the threaded rod by the hexagonal head out of the cap [47C] and pull it out of the foil mandrel.
7. Remove the cap, spring and discs.



[47] Foil unwinding mandrel

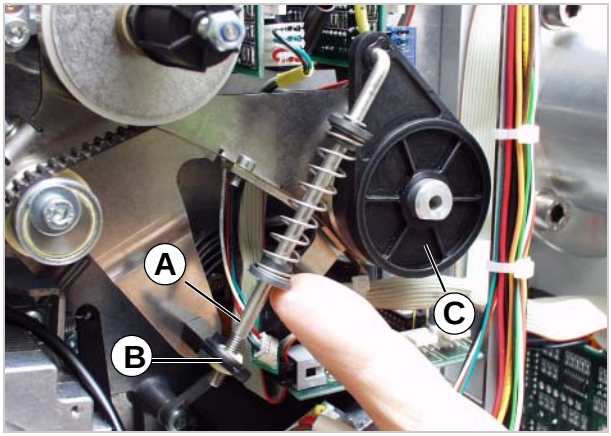
8. Undo the 2 set screws [48A] on the buffer disc.
9. Push in the end of the foil mandrel [48B] so that the other discs can be taken off.

   ➠ If necessary, force the foil mandrel out by tapping it lightly with the plastic hammer.



[48] Detail of foil unwinding mandrel. Nut, cap and spring have been removed.

10. Screw the nut off the end of the rod [49A]. Remove the lower spring and discs.
11. Pull the rod up and out of the joint [49B].
12. Remove the brake lever [49C] and the other parts from the foil mandrel.
13. Push the foil mandrel through to the opposite side.



[49] Foil brake. The lower spring has been removed.

Assembly

To assemble the device, follow the steps in the reverse order.

Make sure to do the following:

➠ Mount the *buffer disc* [50H] with the larger chamfer pointing outwards.

➠ *Brake lever [50G]*: Lightly grease the bearing surface (between plastic disc and mandrel) before assembly (with universal grease). The brake surfaces (between the dics) must not be greased. Mount the brake lever with the bulge side [51, arrow] facing outward.

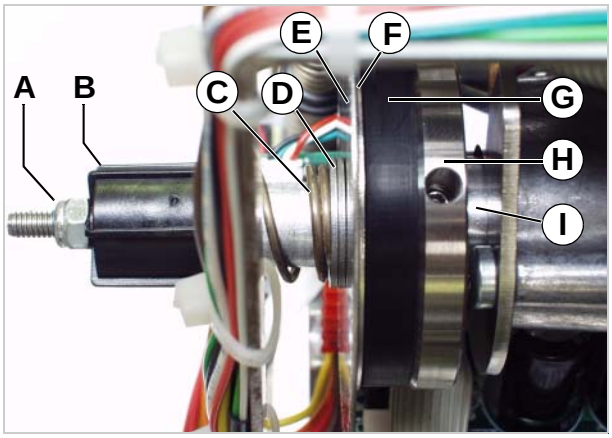
➠ Mount the *brake disc* [50F] with the sharp edge pointing outwards.

➠ Foil brake: Turn the *self-locking nut* on the end of the rod [50A] until it protrudes by 8 mm.

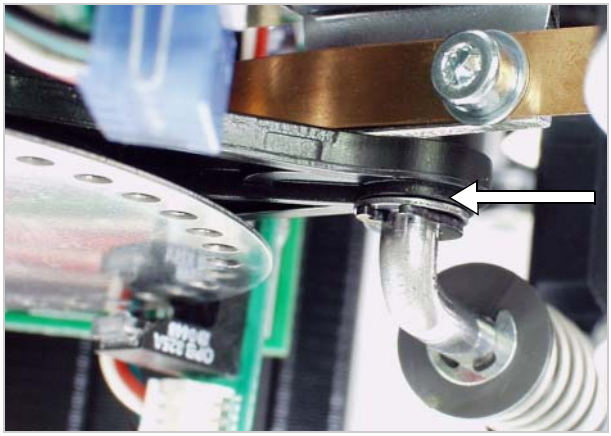
➠ Screw the *cap* [50B] and *nut* [50A] onto the threaded rod till they reach the depth noted earlier.

➠ If a new *spring* [50C] has been mounted, the braking torque must then be set.

❍ See paragraph Setting braking torque on page 37.



[50] Order of parts on the foil unwinding mandrel
A Nut
B Cap
C Spring
D Shim washers
E Oscillator disc
F Brake disc
G Brake lever
H Buffer disc
I Spacer ring



[51] Mount the brake lever (A) with the bulge side (arrow) facing outward.

Ribbon unwinding mandrel (type 3)

Tools

- 2.5 and 2 mm Allen key
- Size 7 and 8 socket wrenches
- Plastic hammer

Preparing for dismantling

1. Pull the cap [52B] off the foil mandrel.
2. Open (DPM) or dismantle (ALX) the rear hood.

❍ See paragraph Housing on page 8.

3. Remove the ribbon end sensor [54A].

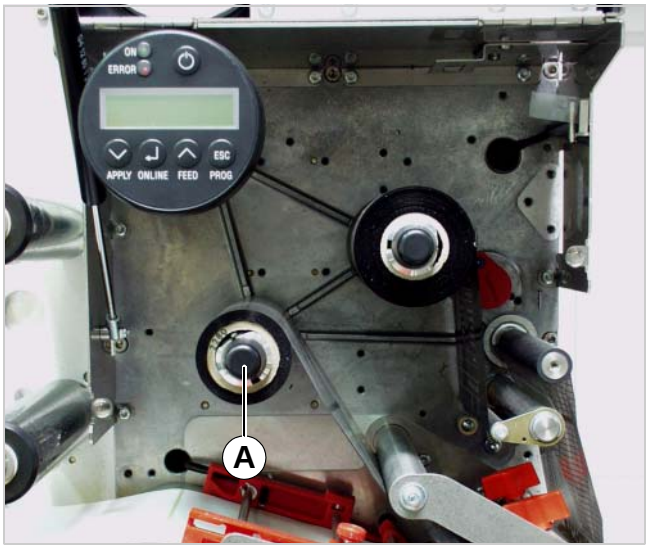
❍ See paragraph Ribbon end sensor on page 30.

4. Measure and note how deep the nut [53B, circled] and cap [53A] are screwed on to the treaded rod.

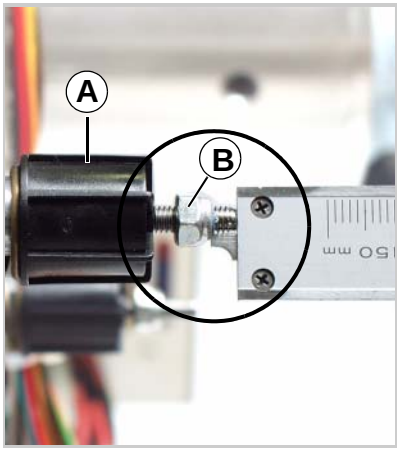
➠ This step saves having to set the braking torque after mounting the foil mandrel.

5. Unscrew nut [54B].

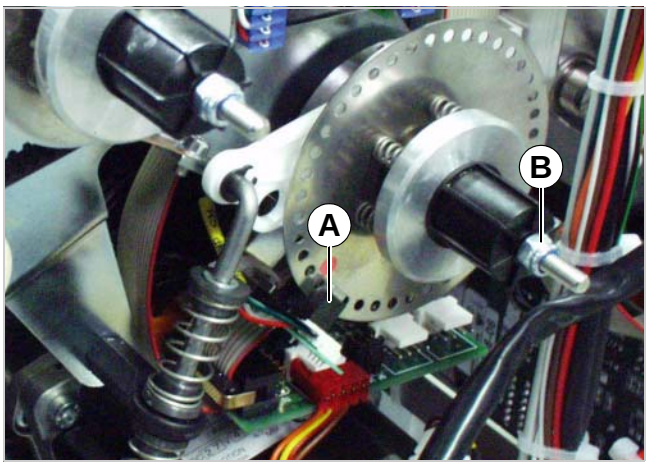
❍ Continued overleaf.



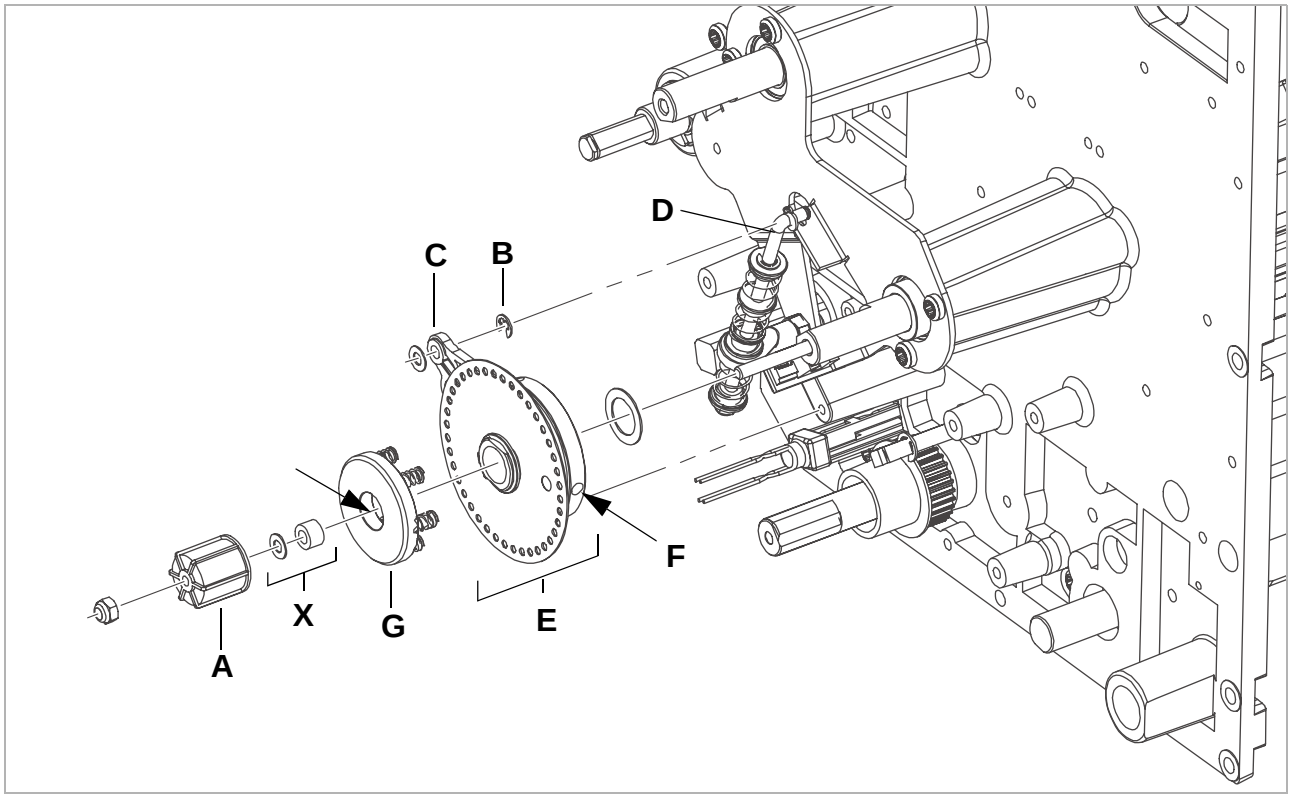
[52] (Locking) cap (A) at the ribbon unwinding mandrel.



[53] Note how deep the nut (B) and cap (A) are screwed on to the threaded rod (circle).



[54] Type 3 ribbon brake.



[55] Type 2 ribbon brake (RH).

Disassembly

6. Turn the threaded rod by the red hexagonal head out of the cap [55A] and pull it out of the ribbon mandrel.
7. Remove the retaining ring [55B] from the brake lever. Unmount the brake rod [55D] from the brake lever.
8. Remove all parts from the unwinding mandrel. Before removing the friction clutch [55E], loosen both set screws [55F].
9. Push the ribbon mandrel through to the opposite side.

➠ If necessary, force the ribbon mandrel out by tapping it lightly with the plastic hammer.

Assembly

To assemble the device, follow the steps in the reverse order:

➠ Slightly grease the disk [55G arrow] at its innner diameter before mounting it.

➠ Set the distance between cap and ribbon mandrel [55X] to 5.5 mm.

The distance X is crucial for the max. setable brake torque of the unwinder. The table shows only reference values, which can differ from printer to printer.

Possibly, some shim disks must be added or removed, to exactly obtain the required brake torque.

➠ Screw the cap and nut onto the threaded rod till they reach the depth noted earlier.

➠ After the assembly: set the braking torque.

❍ See paragraph Setting braking torque on page 37.

Ribbon end sensor

❍ For details on testing the sensor: see topic section Service Electronics: 'Settings', 'Sensor test'.

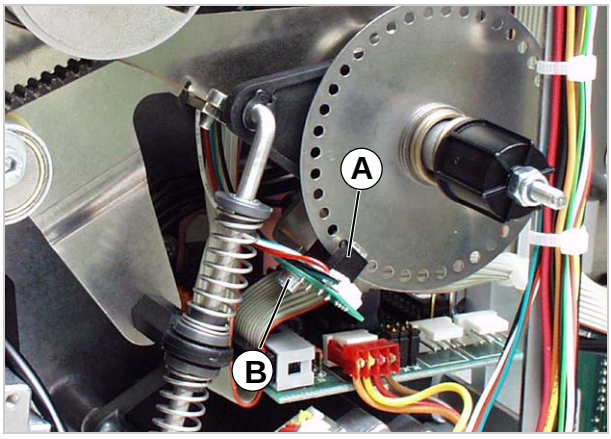
Tools
3 mm allen key

Dismantling

1. Open (DPM) or dismantle (ALX) the rear hood.

❍ See paragraph Housing on page 8.

2. Disconnect the cable from the sensor [56A].
3. Remove screw [56B] and take off the sensor.



[56] Foil sensor

Assembly
To assemble the device, follow the steps in the reverse order.

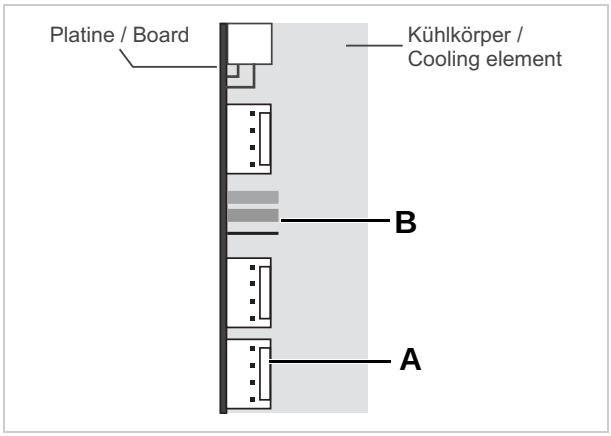
If the cable has been replaced:

➠ Attach the sensor to plug [57A] on the foil motor output stage board.

➠ Make sure the output stage board has the correct jumper setting [57B]!

❍ For more details on this point: see topic section Service Electronics: "Output stage board".

➠ Relay and attach the cable, making sure that it does not touch any moving parts.



[57] Slot (A) for the foil sensor on the foil motor output stage board (marking: J4).

Ribbon rewinding mandrel (type 1/2)

Tools

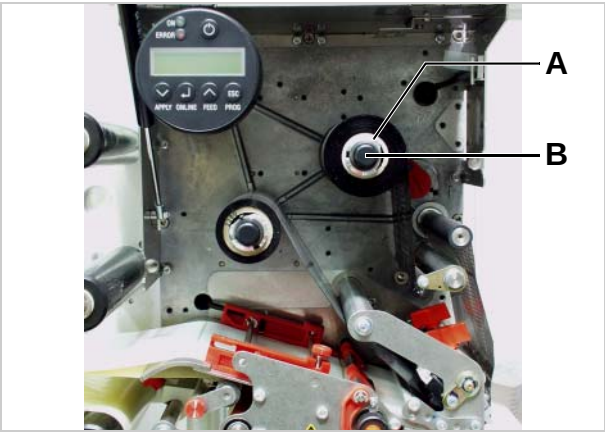
- Size 7 and 8 socket wrenches
- Allen key 2 mm.
- Plastic hammer
- Torx screwdriver size 20

Dismantling

1. Open (DPM) or dismantle (ALX) the rear hood.

   ❍ See paragraph Housing on page 8.

2. Pull the cap [58B] off the foil mandrel.

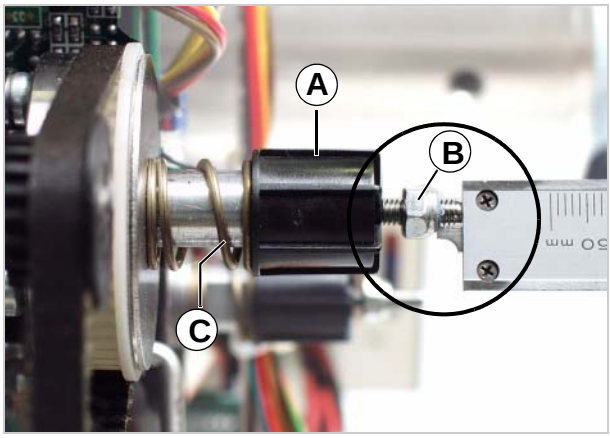


[58] Ribbon rewinding mandrel (A) with locking cap (B).

3. Measure and note how deep the nut [59B, circled] and cap [59A] are screwed on to the foil mandrel.

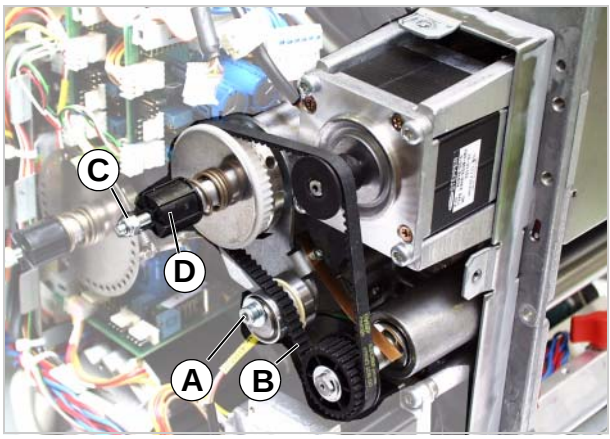
   ➠ Doing this saves setting the braking torque after mounting the foil mandrel.

   ➠ This step is unnecessary if the spring [59C] is to be replaced.



[59] Before unscrewing the nut (B) and cap (A) it is essential to note how deep they are screwed in (circled)!

4. Undo the retaining screw on the belt tightener [60A]. Take off belt [[60B].
5. Remove nut [60C]. At the same time brace the threaded rod by the red hexagonal head on the opposite side of the printer.
6. Unscrew the threaded rod out of the cap [60D]; remove the cap.
7. Take off the spring, brake disc and toothed belt pulley.



[60] Ribbon rewinding mandrel with drive (highlighted).

8. Undo the 2 set screws on the buffer disc [61F]. Remove the buffer disc.
9. Push the foil mandrel through to the opposite side.

   ➠ If necessary, force the foil mandrel out by tapping it lightly with the plastic hammer.

Assembly

To assemble the device, follow the steps in the reverse order. Make sure to do the following:

➠ Mount the buffer disc [61F] with the larger chamfer pointing outwards.

➠ Lightly grease contact surface of the toothed belt pulley [67E] before assembly.

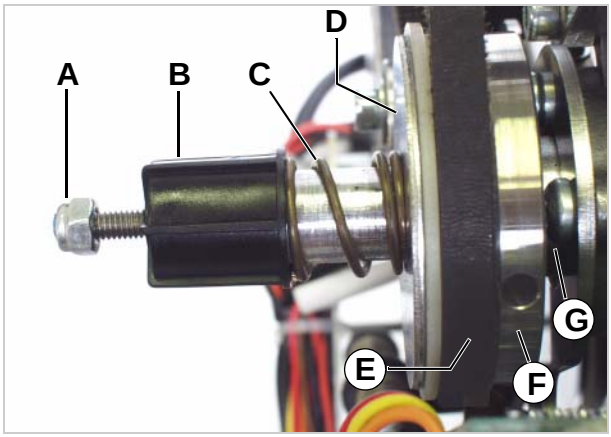
➠ Mount the brake disc [61D] with the chamfer pointing outwards.

➠ Screw the cap [61B] and nut [61A] onto the threaded rod till they reach the depth noted earlier.

➠ If a new spring [61C] has been mounted, the braking torque must then be set.

❍ See paragraph Setting braking torque on page 37.

➠ Following assembly, the belt tension needs to be set (see below).



[61] Order of parts on the foil winding mandrel
A Nut
B Cap
C Spring
D Brake disc
E Toothed belt pulley
F Buffer disc
G Spacer ring

Ribbon rewinding mandrel (type 3)

Tools

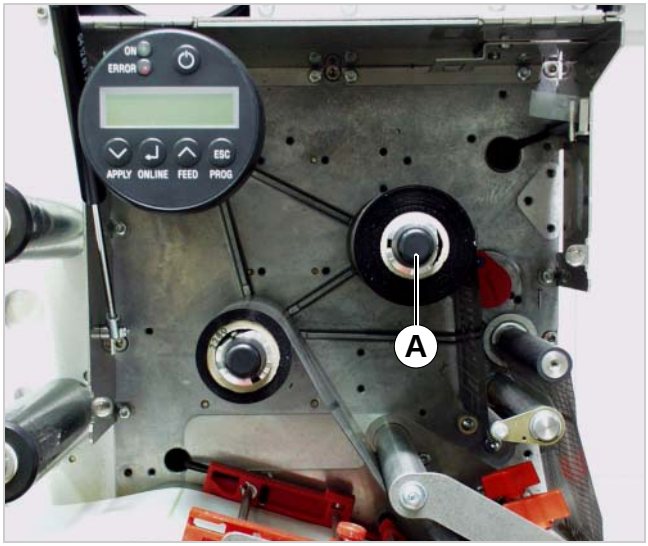
- Size 7 and 8 socket wrenches
- Allen key 2 mm.
- Plastic hammer
- Torx screwdriver size 20

Dismantling

1. Open (DPM) or dismantle (ALX) the rear hood.

   ❍ See paragraph Housing on page 8.

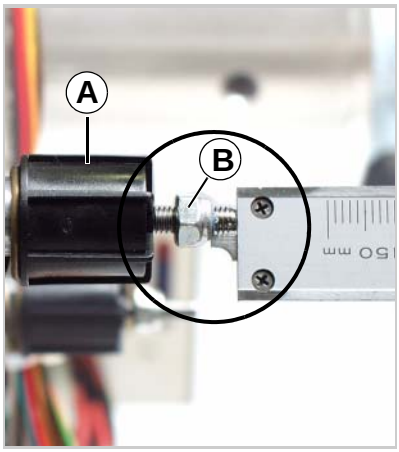
2. Pull the cap [58B] off the foil mandrel.



[62] Ribbon rewinding mandrel (A) with locking cap (B).

3. Measure and note how deep the nut [59B, circled] and cap [59A] are screwed on to the foil mandrel.

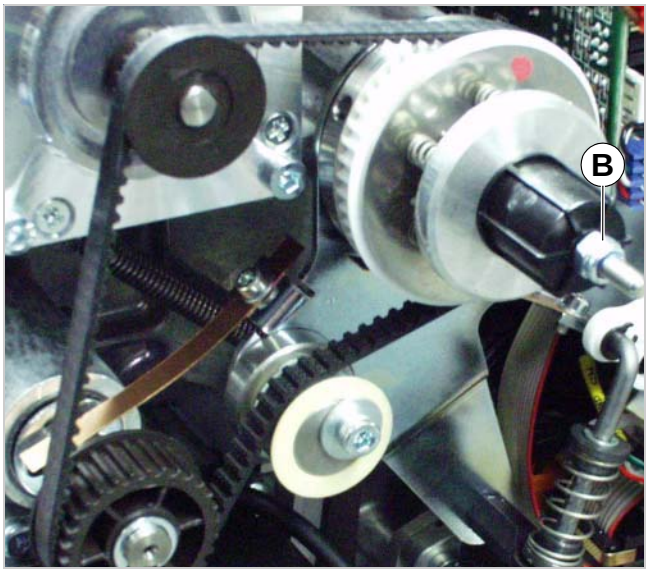
   ➠ Doing this saves setting the braking torque after mounting the foil mandrel.



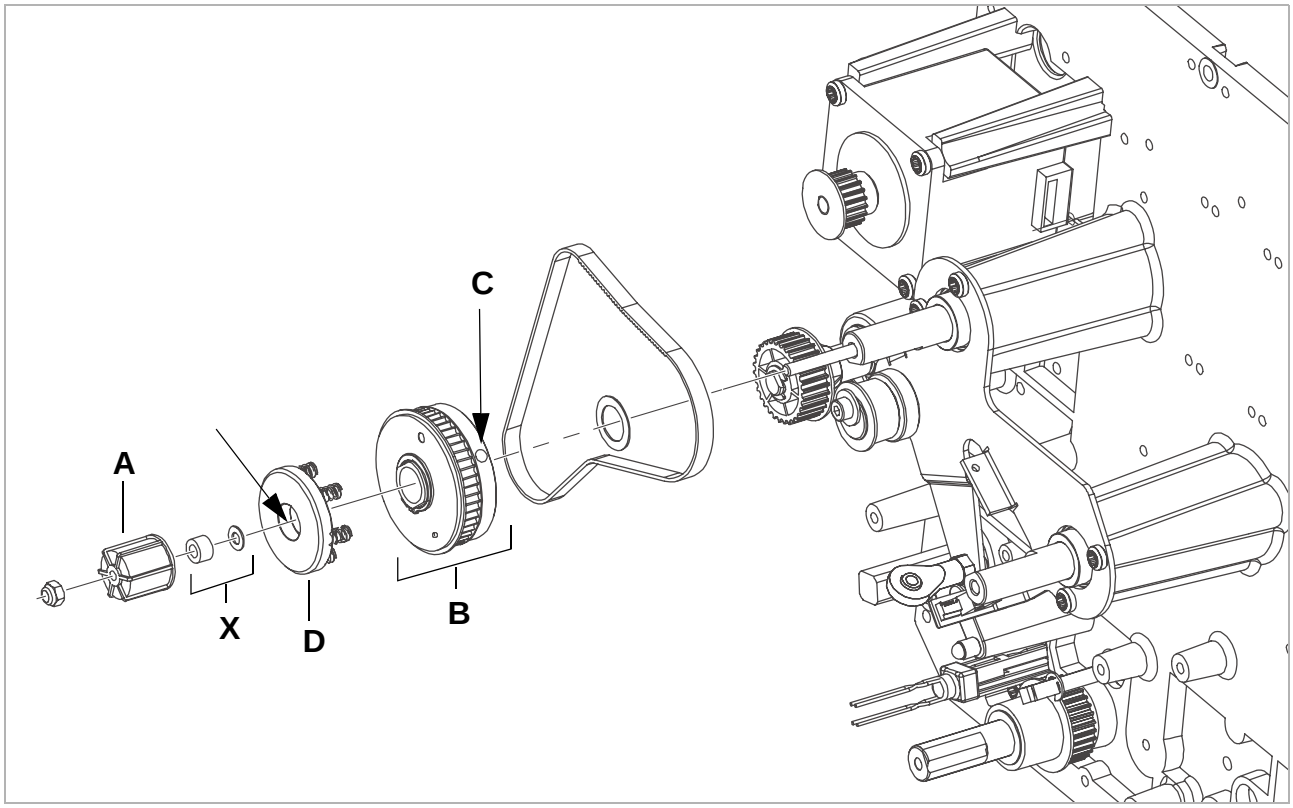
[63] Before unscrewing the nut (B) and cap (A) it is essential to note how deep they are screwed in (circled)!

4. Unscrew nut [64B].

❍ Continued overleaf.



[64] Type 3 ribbon drive.



[65] Type 3 rewinding mandrel (RH).

Disassembly

5. Turn the threaded rod by the red hexagonal head out of the cap [65A] and pull it out of the ribbon mandrel.
6. Remove all parts from the unwinding mandrel. Before removing the friction clutch [65E], loosen both set screws [65F].
7. Push the ribbon mandrel through to the opposite side.

➠ If necessary, force the ribbon mandrel out by tapping it lightly with the plastic hammer.

Assembly

To assemble the device, follow the steps in the reverse order:

➠ Slightly grease the disk [65D arrow] at its innner diameter before mounting it.

➠ Set the distance between cap and ribbon mandrel [65X] to the value given in the following table:

Device	Distance X
ALX 924/925, DPM 4“/5“, PEM 4“/5“	6.0 mm
ALX 926, DPM 6“, PEM 6“	4.2 mm

The distance X is crucial for the max. setable brake torque of the rewinder. The table shows only reference values, which can differ from printer to printer.

Possibly, some shim disks must be added or removed, to exactly obtain the required brake torque.

➠ Screw the cap and nut onto the threaded rod till they reach the depth noted earlier.

➠ After the assembly: set the braking torque.

❍ See paragraph Setting braking torque on page 37.

Setting belt tension

1. Press the belt tightener against the belt. Tighten screw [66A].
2. Measure the belt tension using one of the methods described below.
3. If necessary, repeat steps 1 and 2 until the belt is tightened correctly.

Measuring using a dial gauge

Tool:

Dial gauge, article number A6737

Proceeding:

1. Apply the dial gauge so, that the measurement takes place in the centre of the top strand of the belt.
2. Press the measurement bolt downwards onto the belt [66 arrow].

Set point: 8.5

Frequency measurement

Tool:

Frequency meter, e. g. from Optibelt, see http://www.optibelt.com/engl/info_messe/tt_mini.html

Proceeding:

➜ Measure the frequency according to the devices user manual.

➠ The measurement *must* be applied at the pictured strand [67 arrow].

Set point: 310 Hz

Measurement using a fish balance

From 04/2008 on, the cam at the belt tightener provides a grooved pin [68 arrow], at which the fish balance can be hooked in.

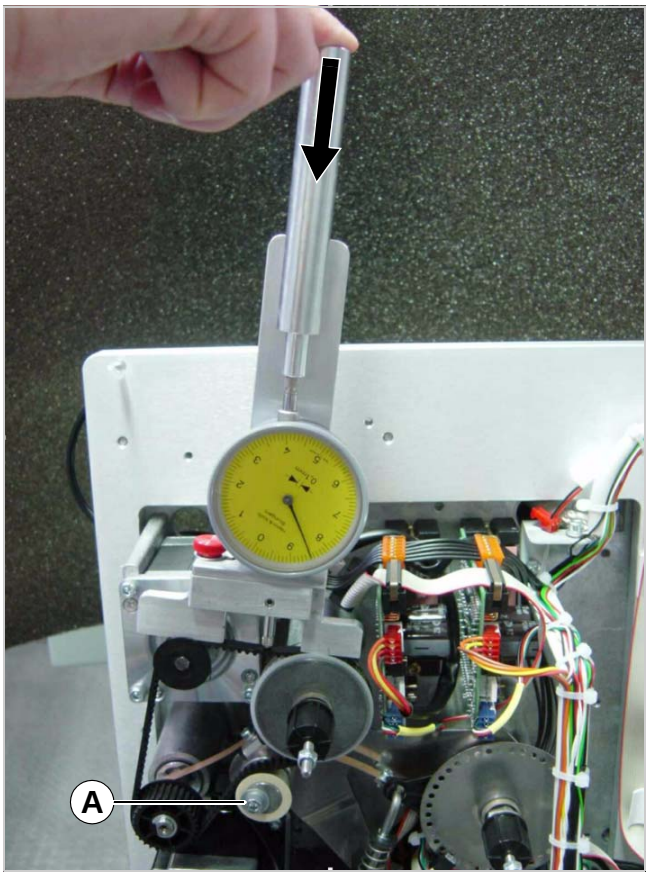
Tool:

Fish balance 10 N, Article no. 93665-02

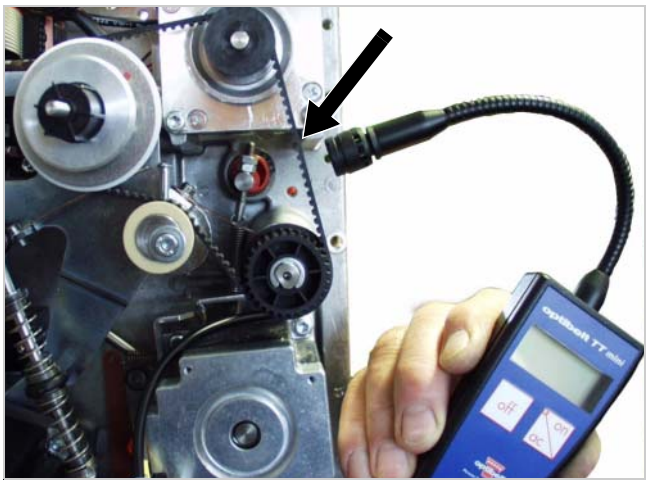
Proceeding:

1. Pull at the grooved pin with the pulling force indicated below.
2. Tighten the screw at the belt tightener.

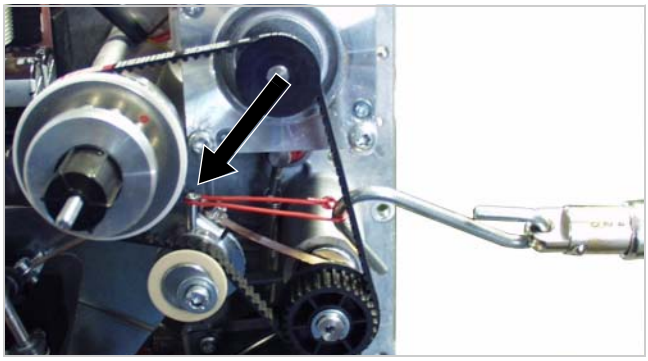
Set point: 5.6 N



[66] Measuring the impression depth of the T-belt.



[67] Checking the belt tension with a frequency meter.



[68] Measuring the belt tension with a fish balance.

Setting braking torque

The braking torques of the foil mandrels can be set by turning the red hexagon on each mandrel. Turn clockwise to increase the torque.

The traction exerted on the foil is in proportion to the winding/unwinding torque. To set the braking torque, measure the traction with a spring balance.

[69] Spring balance 50 N (part no. 93665-00-0)

Tools
Spring balance 50 N [69]

Procedure

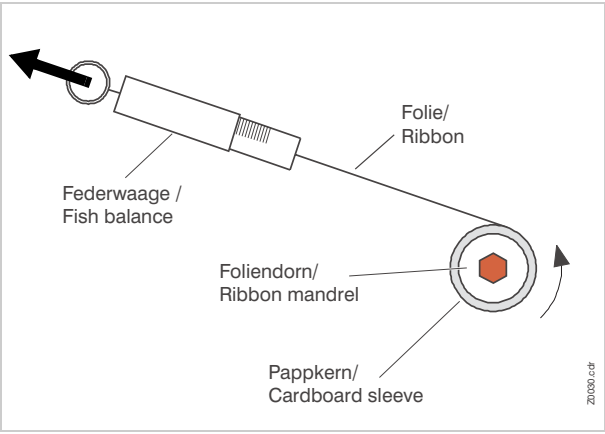
1. Put an empty cardboard sleeve onto the foil mandrel.
2. Wrap foil a few times round the cardboard sleeve. Fix the end of the foil to the backing paper.
3. Twist the other end of the foil together and knot it into a loop.
4. Hook the spring balance [69] into the foil loop and pull on it until the foil mandrel turns slowly and steady [70]. Read off the traction.

➠ While pulling at the rewinding mandrel, it is essential to keep the foil feed roller blocked!

➠ The pulling force may vary within the indicated tolerances (Tab. 1).

5. If necessary, increase or lower the brake force by turning the red hexagon on the foil mandrel.
   - Screw in the threaded rod = turn the red hexagon *clockwise.*
   - Screw out the threaded rod = turn the red hexagon *anti-clockwise.*

❍ Continued overleaf.



[70] Determine the traction needed for winding or unwinding with a spring balance.

Setting the maximum brake force

1. Screw in the threaded rod until it stops.
2. Measure the brake force as described above.

   If the value measured is *lower than* the specified range,

➜ insert additional shim washers[71] [72] and repeat steps 1 and 2.

If the value measured is *higher than* the range given:

➜ Remove shim washers [71] [72] and repeat steps 1 and 2.

➠ Small parts kit with the required shim rings: article number A9249.

Setting the minimum brake force

1. Screw the threaded rod out until the spring is just slack.
2. Measure the brake force.

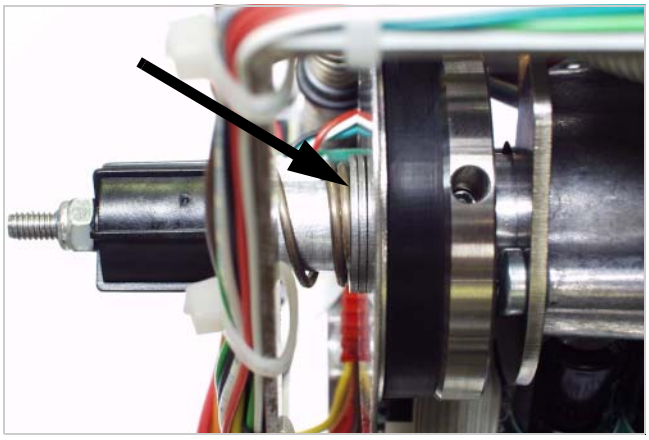
   The measured force is lower than the indicated value:

➜ Screw in the threaded rod a couple of turns and repeat step 2.

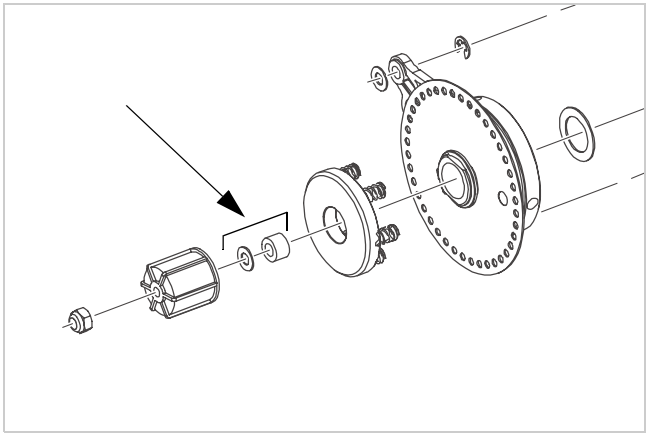
The measured value is higher than the indicated value:

➜ Check movability of the bearing. Replace the part causing sluggish operation.

3. Screw the nut up to the cap, without lokking the cap.



[71] Position of the shim disks at type 2 unwinders.



[72] Position of the shim disks at type 3 unwinders.

Printhead width	Core-Ø	Unwinding mandrel		Winding mandrel	
		min. (N)	max. (N)	min. (N)	max. (N)
4"/5"	1“	5^{+2}	13^{+2}	5^{+1}	14^{+2}
	1,5“	4^{+1}	9^{+2}	4^{+2}	10^{+2}
6"	1“	5^{+2}	13^{+2}	5^{+1}	25^{+2}
	1,5“	4^{+1}	9^{+2}	3^{+2}	20^{+2}

[Tab. 1] Minimum and maximum setting values for the traction on the winding and unwinding mandrels

Setting the functional brake force

With the settings given above, the range that can actually be set corresponds to the permissible range for the braking torque.

➜ Screw the threaded rod in until it stops then screw it out again by about 2 rotations.

Foil motor

Tools
Torx screwdriver size 20

Dismantling

1. Remove the tension disc, lock washer and washer disc from the foil winding mandrel[73].

❍ See paragraph Ribbon rewinding mandrel (type 1/2) on page 31.

2. Undo the fastening screws [73B] (4 screws) on the motor [73A].
3. Disconnect the cable from the motor and take out the motor.

Assembly
To assemble the device, follow the steps in the reverse order. Make sure to

➠ Ensure that the motor connection faces up and to the left.

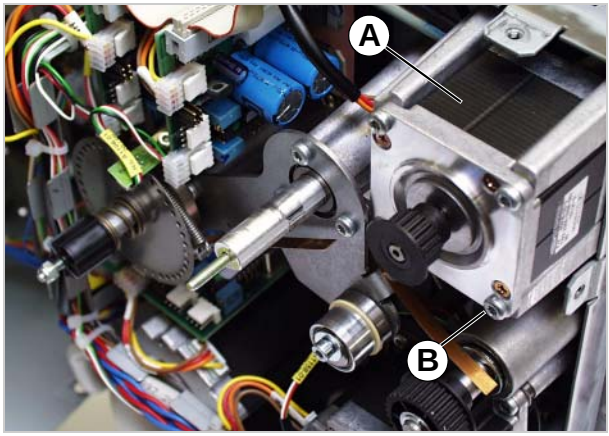
If the cable has been replaced:

➠ Attach the motor cable to plug J3 [74A] on the foil motor output stage board.

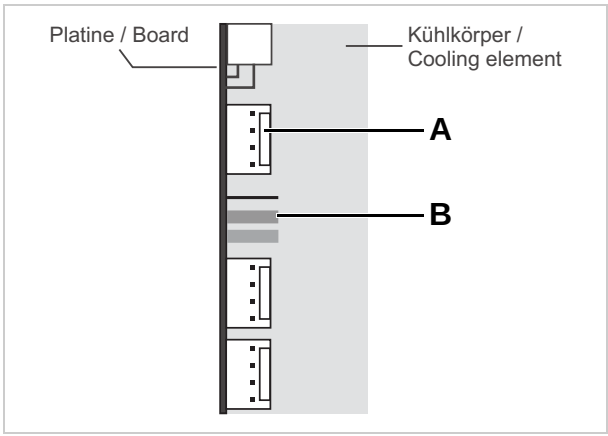
➠ Make sure the output stage board has the correct jumper setting [74B]!

❍ For more details on this point: see topic section Service Electronics: "Output stage board".

➠ Relay and attach the cable, making sure that it does not touch any moving parts.



[73] Foil motor (A).



[74] Slot (A) for the foil motor on the output stage board for the foil motor (marking: J3).

Foil roller

Tools

- Allen key 2.5 mm.
- Large and medium-sized screwdrivers

Dismantling

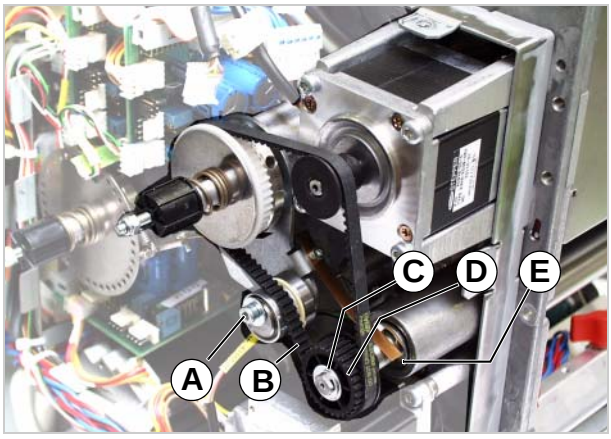
1. Open (DPM) or dismantle (ALX) the rear hood.

❍ See paragraph Housing on page 8.

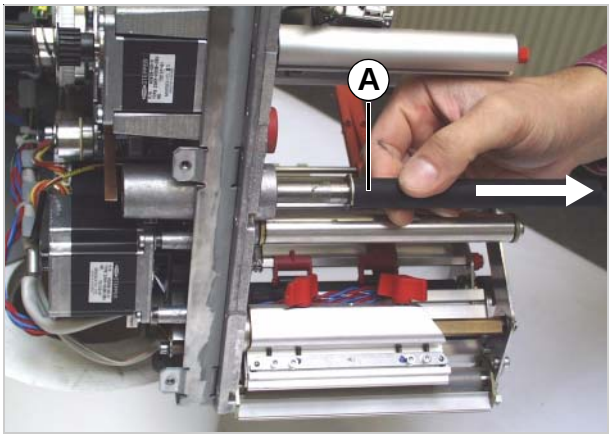
2. Undo the retaining screw [75A] on the belt tightener. Take off the belt [75B].
3. Take off the first locking ring [75C], the toothed belt pulley [75D] and the second lokking ring [75E].
4. Pull out the foil roller [76].

Assembly

To assemble the device, follow the steps in the reverse order.



[75] Foil winding mandrel with drive (highlighted).



[76] Pull the foil roller (A) out.

Foil tensioner

Tools

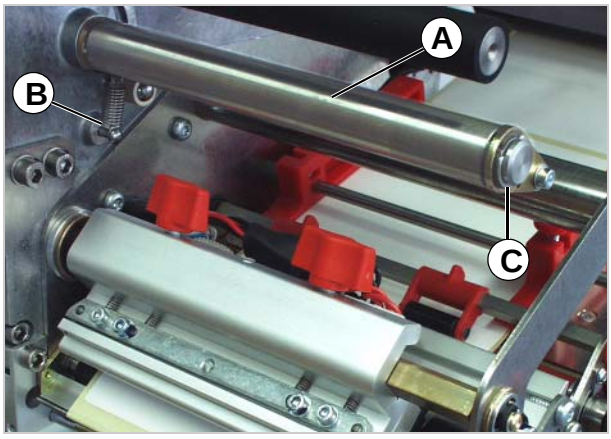
Screwdriver, medium

Dismantling

1. Unhook spring [77B].
2. Remove locking ring [[77C].
3. Pull out the foil tensioner (roller [77A] and swivel arm) off the axle.

Assembly

To assemble the device, follow the steps in the reverse order.



[77] The foil tensioner consists of the roller (A) and the swivel arm.

Print module

Feed motor (DPM, ALX)

Tools

- 4 mm allen key
- Torx screwdriver size 20

Dismantling

1. Open (DPM) or dismantle (ALX) the rear hood.

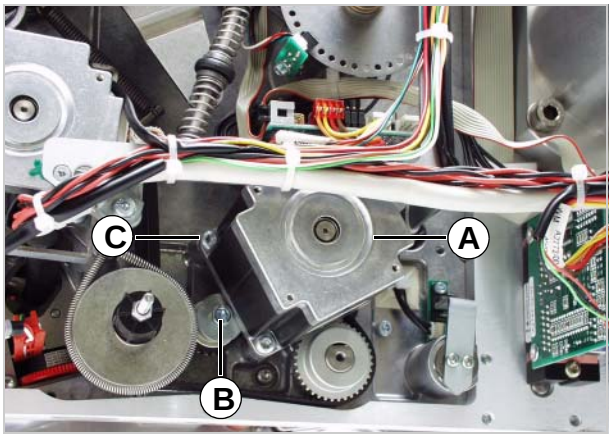
❍ See paragraph Housing on page 8.

2. Disconnect the cable from the feed motor [78A].
3. Loosen screw [78B] on the belt tightener.
4. Undo screws (3 screws) [78C] and remove the motor.

Assembly

To assemble the device, follow the steps in the reverse order. Make sure to

➠ Ensure that the motor connection faces up and to the left.



[78] Feed motor (A) (ALX/RH)

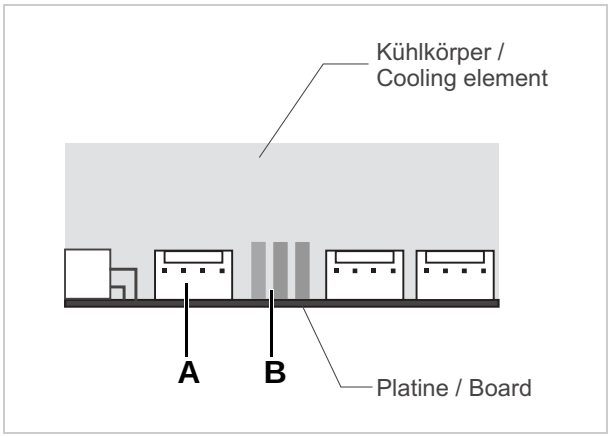
If the cable has been replaced:

➠ Attach the motor cable to plug J3 [79A] on the feed motor output stage board.

➠ Make sure the output stage board has the correct jumper setting [79B]!

❍ For more details on this point: see topic section Service Electronics: "Output stage board".

➠ Relay and attach the cable, making sure that it does not touch any moving parts.



[79] Slot (A) for the feed motor on the feed motor output stage board (marking: J3).

Feed motor (PEM)

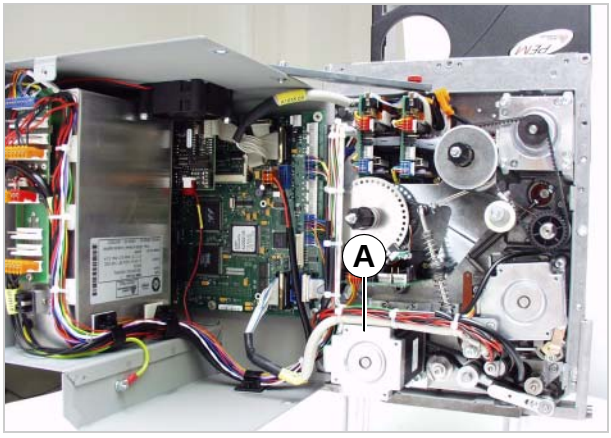
Tools

5 mm allen key

Dismantling

1. Open the rear hood.

❍ See paragraph Housing on page 8.



[80] Feed motor positioning (A) in the PEM (LH.

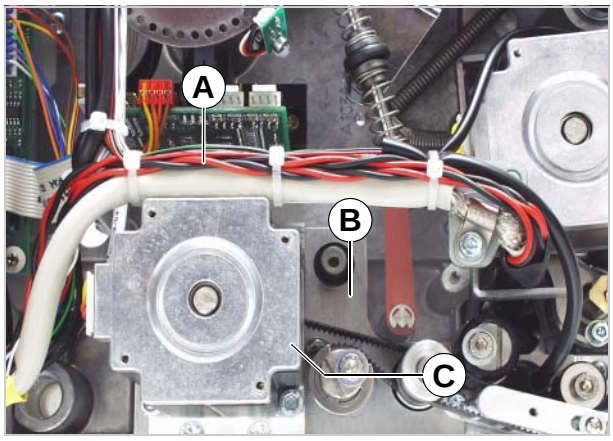
2. Disconnect the cable from the feed motor [80A].
3. Loosen screw [80B] on the belt tightener.
4. Unscrew the four motor flange screws [80C] and remove the motor.

Assembly

To assemble the device, follow the steps in the reverse order. Ensure that:

➠ The motor connection faces towards the left.

❍ You will find details for connecting the motor to the output stage board in the previous section.



[81] **A** Feed motor
B belt tightener
C Screws on the motor flange (4 fastening screws))

Replacing the toothed belt disk on the motor

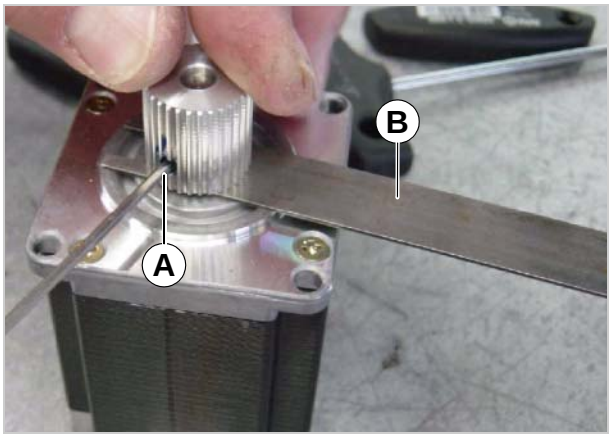
1. Undo the set screws (2 screws) [81A] on the toothed belt (t-belt) disk.
2. Remove the t-belt disk.

➠ If necessary, heat the t-belt disk beforehand with hot air.

Assembly:

3. Ensure a 1 mm gap between motor and t-belt disk using the clearance gauge [81B].
4. Secure and tighten the set screws with thread-locking adhesive (Loctite 243).

➠ Fit the t-belt disk in such a way that one of the set screws presses on the flattening at the motor shaft.

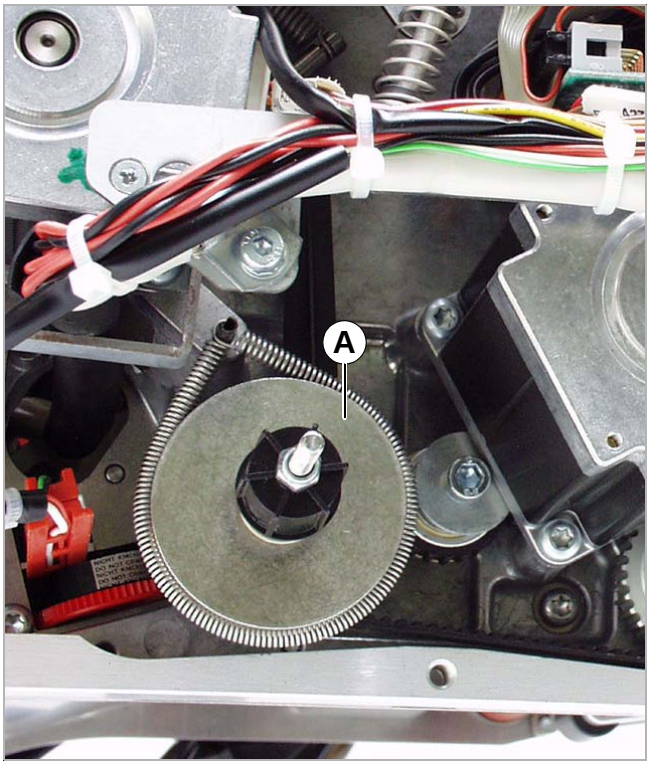


[82] Assembly of the new toothed belt disk
A Set screw
B Clearance gauge 1 mm

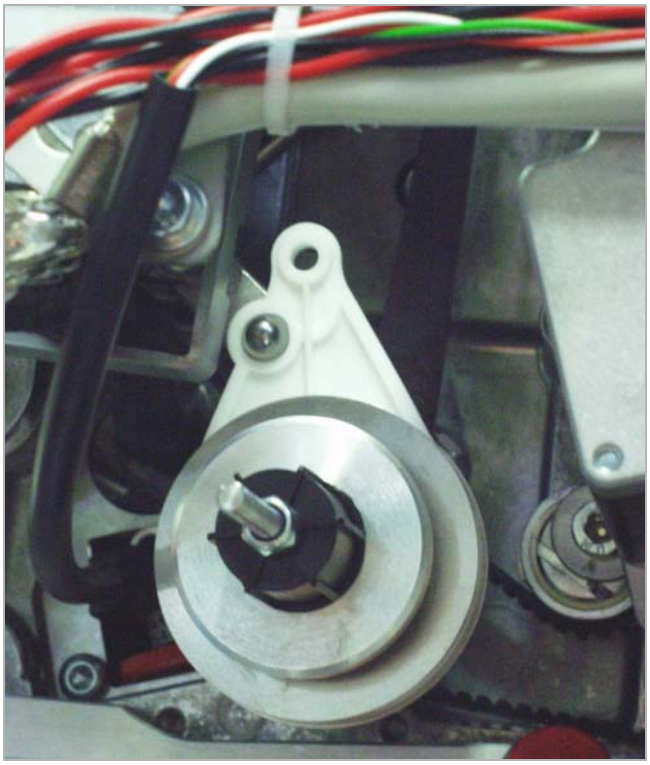
Brake roller version overview

Parts kit for retrofitting from type 1 to type 2:

- A9138 (LH)
- A9239 (RH)



[83] Type 1 of the brake mechanics (with wrap around spring) (A).

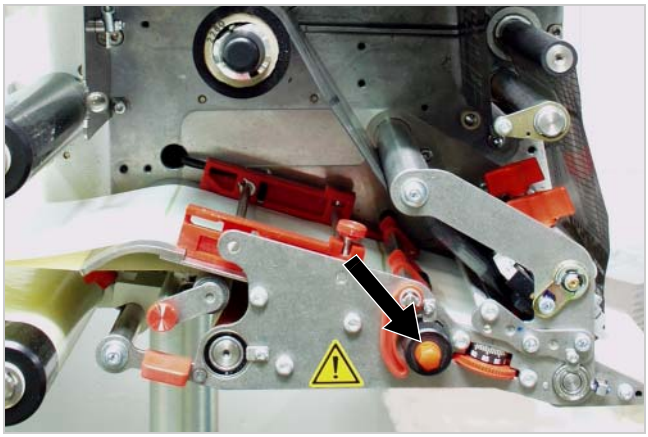


[84] Type 2 of the brake mechanics.

Brake roller (type 1 - DPM, ALX)

Tools

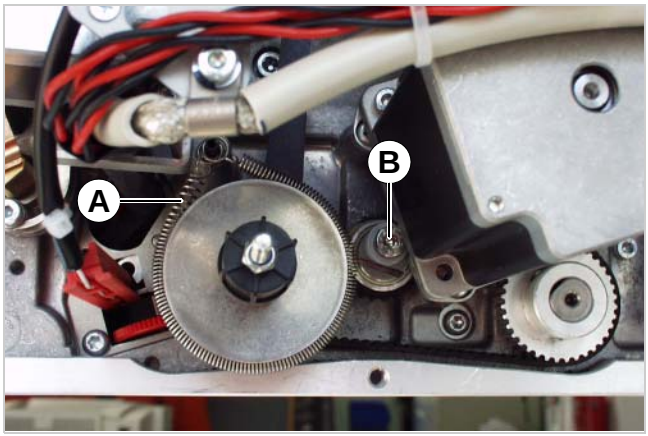
- Size 7 and 8 socket wrenches
- 2 mm allen key
- Small screwdriver



[85] Brake roller (arrow) at an ALX 92x (RH).

Dismantling

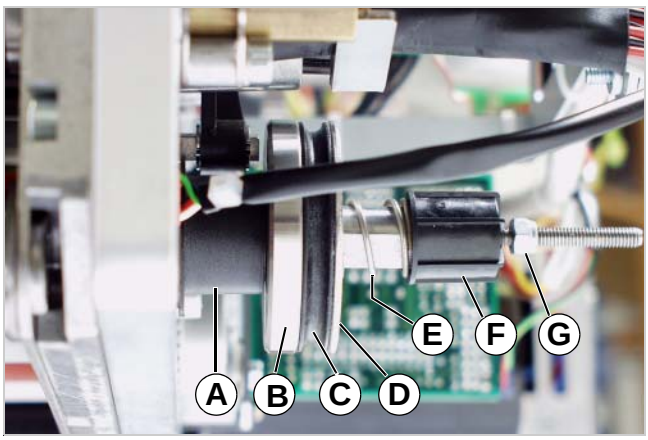
1. Unhook and remove the brake spring [86A].
2. Loosen the screw at the belt tightener [86B].



[86] Type 1 brake mechanism at the brake roller.
A Brake spring
B belt tightener

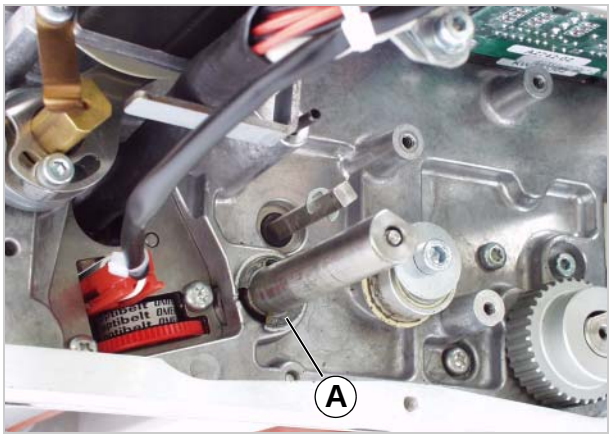
3. Unscrew nut [87G]. At the same time brace the threaded rod with the red hexagonal head [85 arrow] at the other end of the rod.
4. Screw the threaded rod out of the cap [87F].
5. Remove parts [87F-C] from the brake roller axle.
6. Undo the set screws (2 screws) on the washer disc [87B].
7. Remove the washer disc and the lock washer [87A] from the brake roller axle.

❍ Continued overleaf.



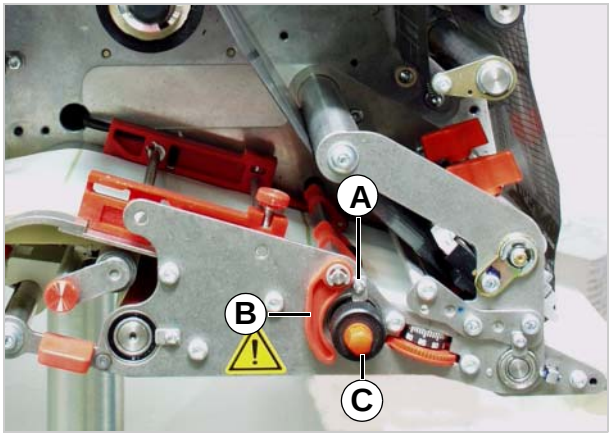
[87] **A** Free-running lock washer
B Washer disc
C Spring
D Plastic disc
E Tension disc
F Cap
G Nut

8. Remove the locking ring [88A].



[88] **A** Locking ring on the brake roller.

9. Remove locking plate [89A].
10. Press in lever [89B] and pull out the brake roller [89C] along with the bearings.



[89] Brake roller (C) on the printhead side of the machine (ALX/RH)

Assembly

To assemble the device, follow the steps in the reverse order. Do the following:

➠ Insert a shim ring 0.5 mm thick both in front and behind the t-belt pulley [90A]!

➠ Set a space of 0.3 mm between the t-belt pulley and the washer disc [90B] (feeler gauge)!

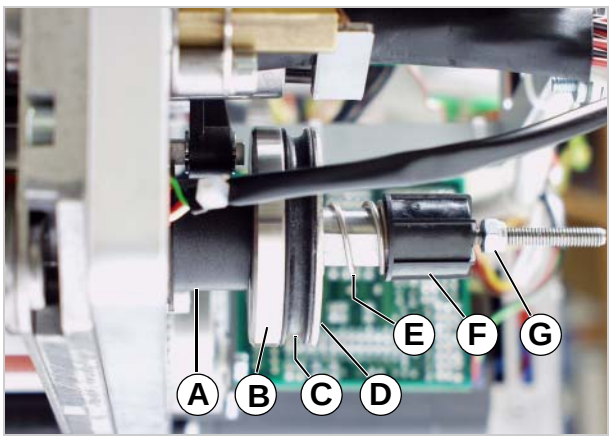
➠ Mount the parts onto the brake roller axle in the order shown [90].

➠ Mount washer disc [90B] with the larger chamfer pointing outwards.

➠ Mount tension disc [90D] with the chamfer pointing outwards.

➠ Lubrication: The surface between the discs [90B-D] must be free of grease.

➠ Insert two 1 mm thick discs between the spring [90E] and the cap [90F].

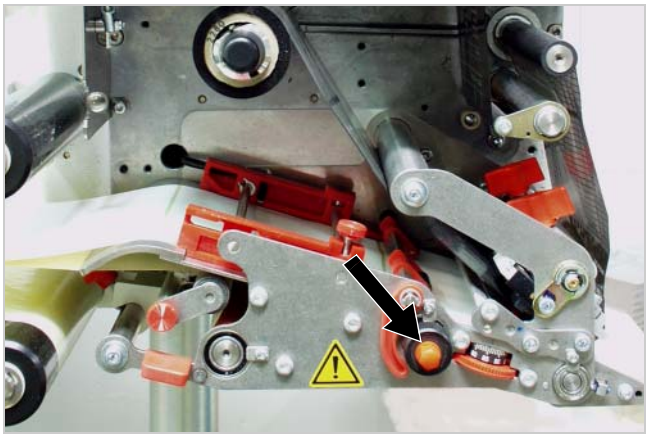


[90] **A** Overrunning t-belt pulley
B Washer disc
C Tension disc
D Plastic disc
E Spring
F Cap
G Nut

Brake roller (type 2 - DPM, ALX)

Tools

- Size 7 and 8 socket wrenches
- 2 mm allen key
- Small screwdriver

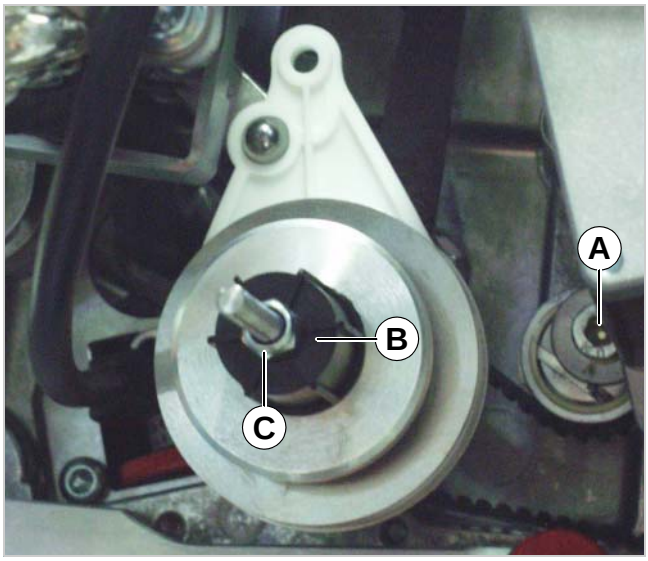


[91] Brake roller (arrow) at an ALX 92x (RH).

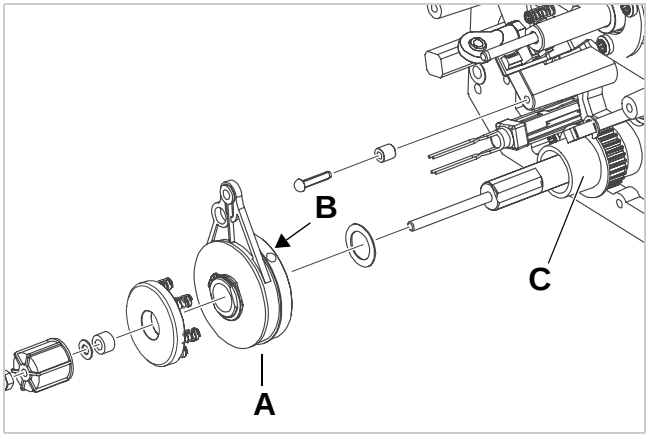
Dismantling

1. Loosen the screw at the belt tightener [92A].
2. Unscrew nut [92C]. At the same time brace the threaded rod with the red hexagonal head [91 arrow] at the other end of the rod.
3. Screw the threaded rod out of the cap [92B] and pull it out or the brake roller.
4. Remove all parts [93] from the brake roller axle. Before removing the friction clutch [93A], loosen both set screws [93B].
5. Remove the t-belt pulley [93C] from the brake roller axle.

❍ Continued overleaf.

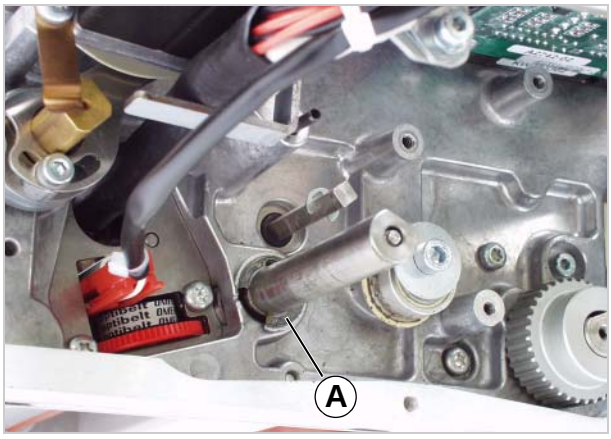


[92] Type 2 brake machanics at the brake roller.



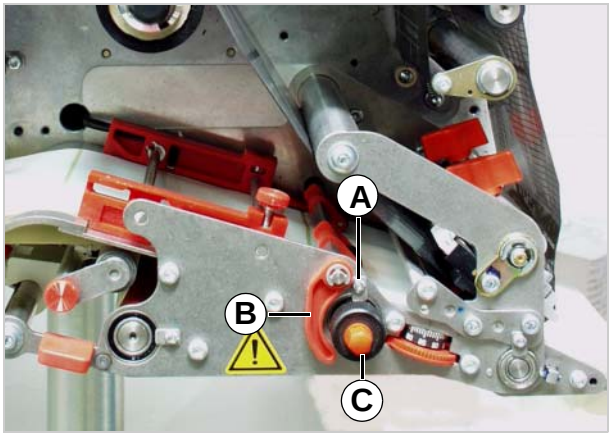
[93] Type 2 brake mechanics - part positions.

6. Remove the retaining ring [94A].



[94] **A** Locking ring on the brake roller.

7. Remove locking plate [95A].
8. Press in lever [95B] and pull out the brake roller [95C] along with the bearings.



[95] Brake roller (C) on the printhead side of the machine (ALX/RH)

Assembly

To assemble the device, follow the steps in the reverse order. Do the following:

- Insert a shim ring 0.5 mm thick both in front and behind the t-belt pulley [96A]!
- Set a space of 0.3 mm between the t-belt pulley and the friction clutch (feeler gauge)!
- Slightly grease the inner diameter of part [96B arrow] before mounting it.
- Set the distance between cap and ribbon mandrel (X) to the value given in the following table:

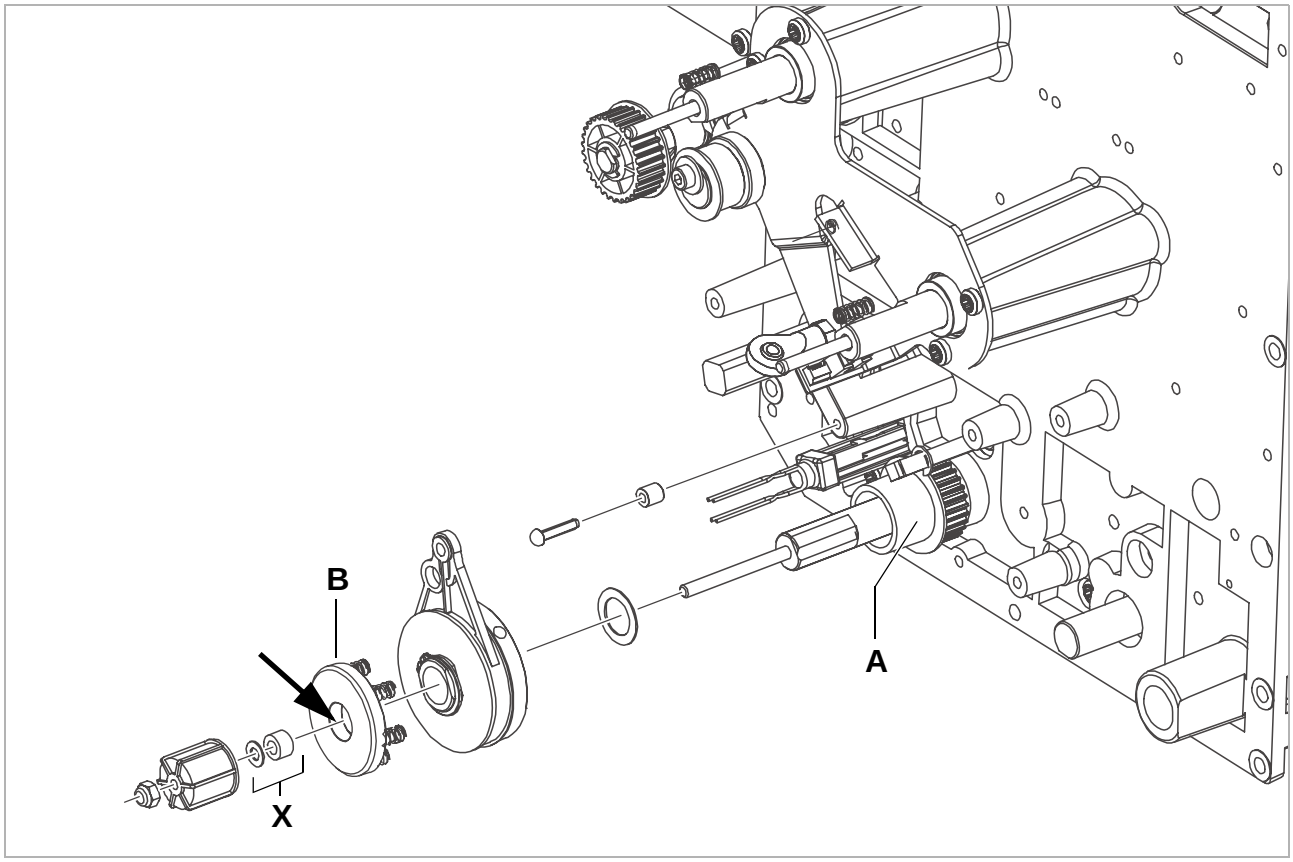
Device	Distance X
ALX 924/925, DPM 4“/5“	6.8 mm
ALX 926, DPM 6“	6.4 mm

The distance X is crucial for the max. setable brake torque of the rewinder. The table shows only reference values, which can differ from printer to printer.

Possibly, some shim disks must be added or removed, to exactly obtain the required brake torque.

- After the assembly: set the braking torque.

❍ See paragraph Setting the braking torque on page 51.

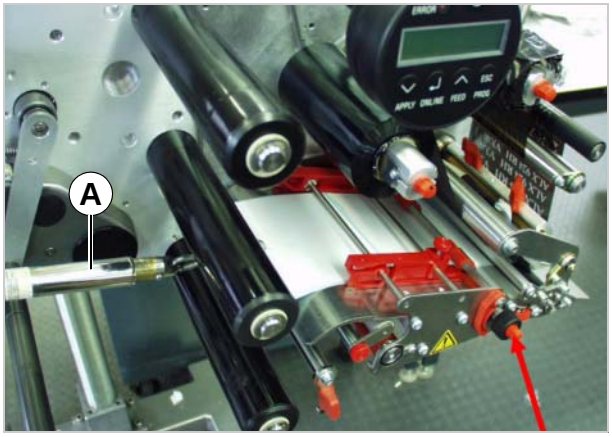


[96] Position of the parts on the brake roller axle.

Setting the braking torque

- Measuring the *break force*

1. Insert material strip [97]. Material size: 110 mm.
2. Fit spring balance [97A] onto the material strip.
3. Pull on the spring balance until the material moves. Read off the traction..

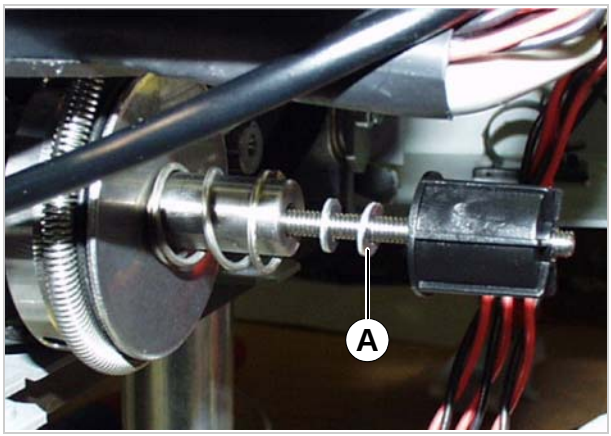


[97] Measuring the break force.
A Spring balance

- Setting *maximum braking torque*:

1. Screw in the threaded rod until the spring is maximally tensioned.
2. Measure the brake force. Compare measured value with the values on the table.
3. If the measured value is too high, insert shim washers [98A] [99 arrow] and measure again.
4. Repeat steps 2 and 3, until the measured value is in the permissible range (see table).

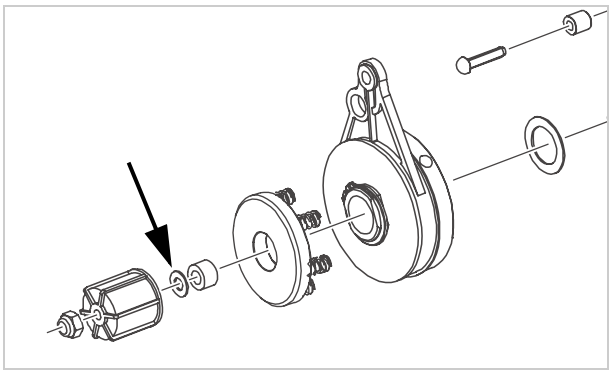
➠ Small parts kit with the required shim rings: article number A9249.



[98] Insert shim washers 4x8x1(A) to set the maximum braking torque.

- Setting *minimal braking torque*:

1. Screw the threaded rod out until the spring is completely slack.
2. Measure brake force and compare with the table.
3. If the brake force is too low, continue screwing on the threaded rod and repeat measurement.
4. Screw on the self-locking nut up to the cap.



[99] Position of the shim rings (arrow) at type 2 brake rollers.

Device	F_{min}	F_{max}
DPM 4“/5“, ALX 924/925	4^{+1} N	10^{+2} N
DPM 6“, ALX 926	4^{+1} N	14^{+2} N

[Tab. 2] Tractive forces for setting the breaking torque

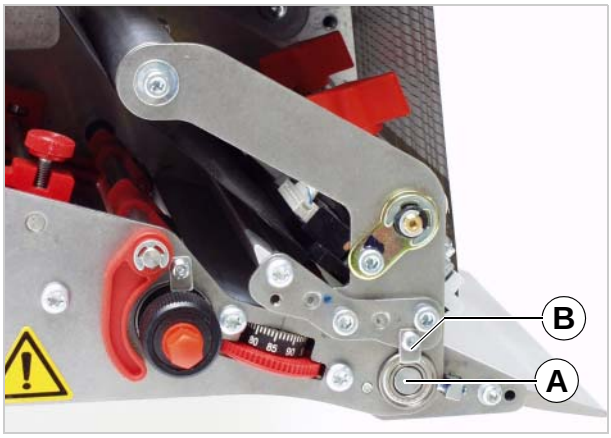
Print roller (DPM, ALX)

Tools

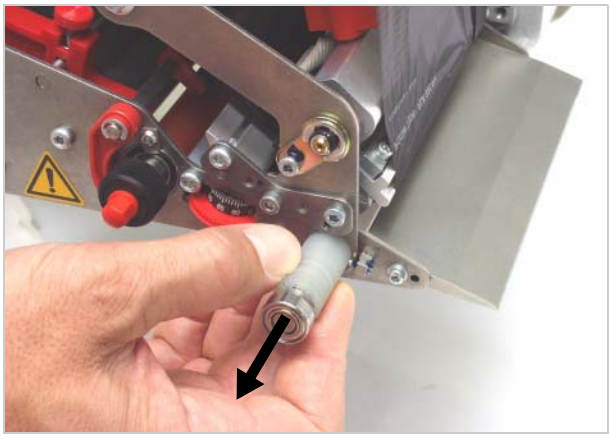
2 mm allen key

Dismantling

1. Remove locking plate [100B].
2. Pull out the print roller [101].



[100] **A** Print roller
B Locking plate



[101] Pull out the print roller.

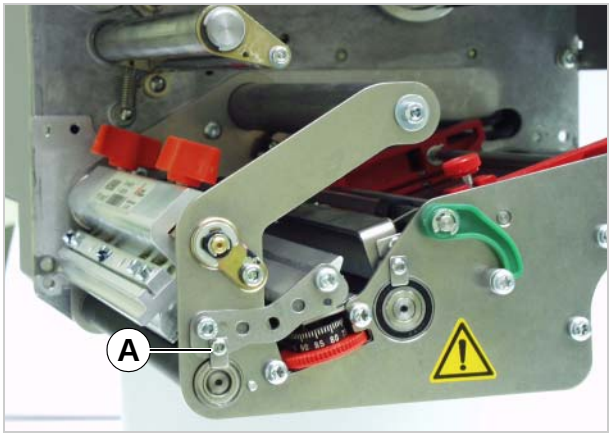
Print roller (PEM)

Tools

- 2 mm allen key

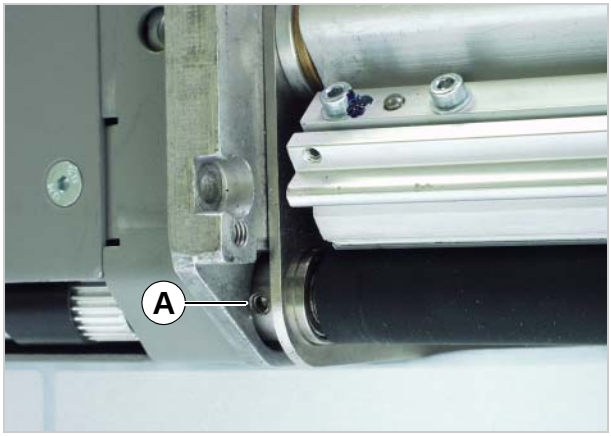
Dismantling

1. Remove the locking plate [91A]..



[102] Locking plate (A) on the print roller (PEM LH).

2. Loosen both set screws [103A] at the print roller coupling.



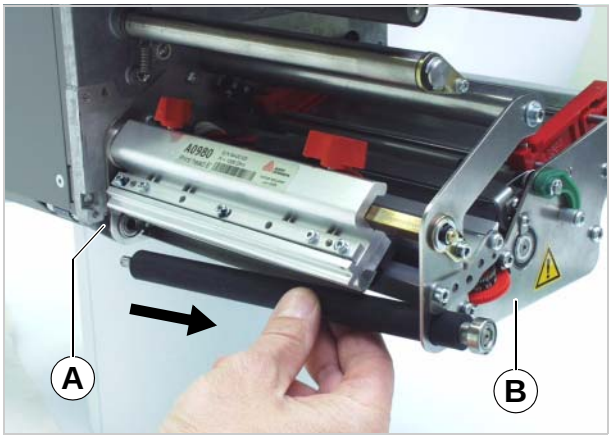
[103] Set screws (A, 2x) at the print roller coupling.

3. Pull the print roller out of the coupling [104A] and remove it from the bearing plate [104B].

Assembly

To assemble the device, follow the steps in the reverse order. Ensure that:

➠ One of the set screws presses against the flattening of the print roller axle.



[104] Removing the print roller.

Print roller drive belt (PEM)

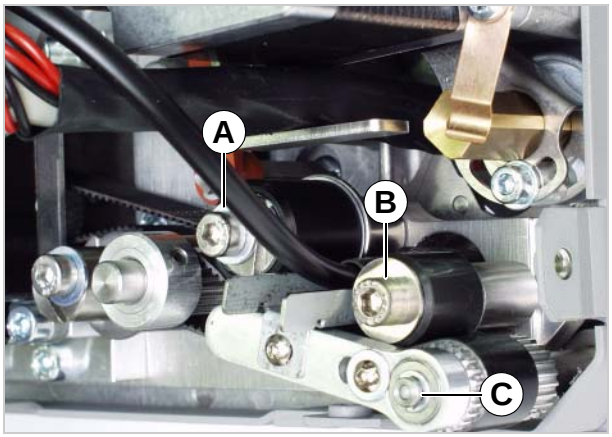
Tools
2 and 5 mm allen keys

Dismantling

1. Dismantle belt tightener [95A] and roll [95B].
2. Remove print roller.

❍ See paragraph Print roller (PEM) on page 53.

3. Remove toothed belt.



[105] Print roller drive belt of the PEM (LH
A belt tightener
B Roll

Toothed belt for feed roller (DPM, ALX)

Tools

- Size 7 and 8 socket wrenches
- 2 mm allen key
- Small screwdriver

Dismantling

1. Dismantle the feed motor.

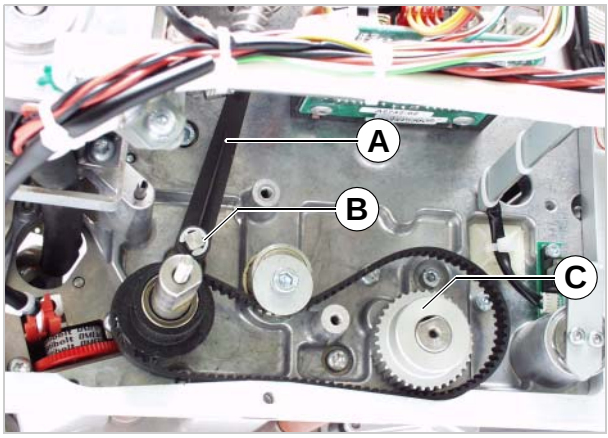
❍ See paragraph Feed motor (DPM, ALX) on page 42.

2. Dismantle the braking mechanism including the washer disc from the brake roller.

❍ See paragraph Brake roller (type 1 - DPM, ALX) on page 45.

3. Remove locking ring [[106B] and take off the lever[106A].
4. Take off the toothed belt.

Assembly
To assemble the device, follow the steps in the reverse order.



[106] The lever (A) in front of the belt must be removed.

Feed roller drive belt (PEM)

Dismantling

1. Dismantle drive belt from the print roller.

❍ See paragraph Print roller drive belt (PEM) on page 54.

2. Disassemble the feed motor.

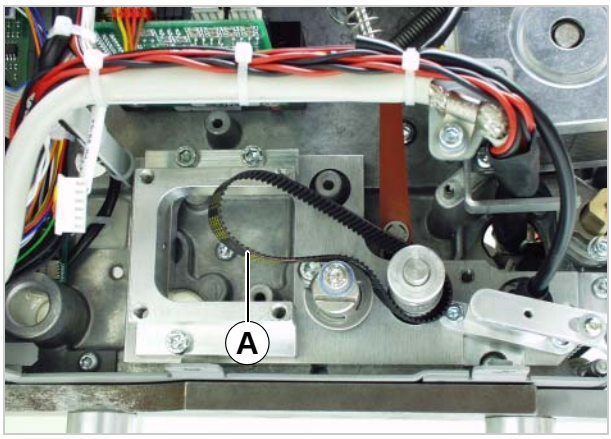
❍ See paragraph Feed motor (PEM) on page 43.

3. Take out the belt [97A].

Assembly

To assemble the device, follow the steps in the reverse order. Ensure that:

➠ Turn the belt tightener *clockwise* to tighten the belt.



[107] Feed roller drive belt (A)

Feed roller (DPM, ALX)

Tools

- 6 mm allen key
- Screwdriver, medium

Dismantling

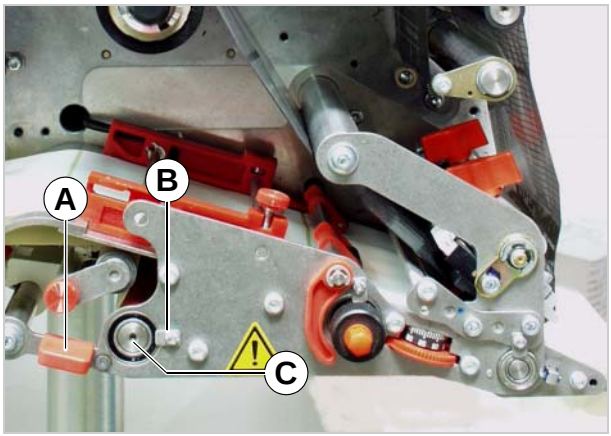
1. Disassemble the feed motor.

❍ See paragraph Feed motor (DPM, ALX) on page 42.

2. Undo the set screws (2 screws) on the lock washer [106C]. Take off the lock washer.
3. Remove the locking ring from the axle.
4. Undo the mounting axle. To do this, push the lever [108A] downwards.
5. Remove locking plate [108B].
6. Pull out the feed roller [108C] along with the bearings.

Assembly

To assemble the device, follow the steps in the reverse order.



[108] **A** Mounting axle lever
B Locking plate
C Feed roller

Feed roller (PEM)

Tools
2 mm allen key

Dismantling

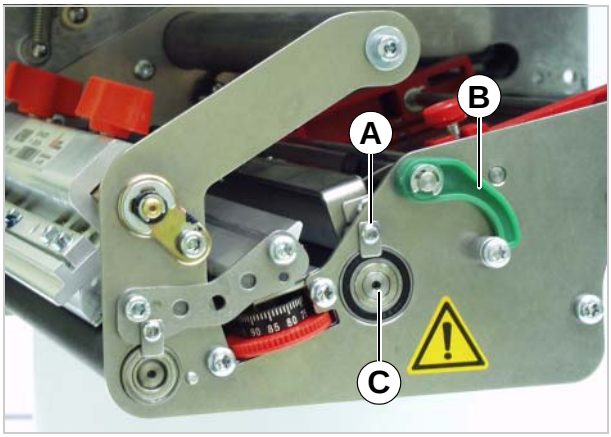
1. Dismantle drive belt from the print roller.

❍ See paragraph Print roller drive belt (PEM) on page 54.

2. Dismantle drive belt from the print roller.

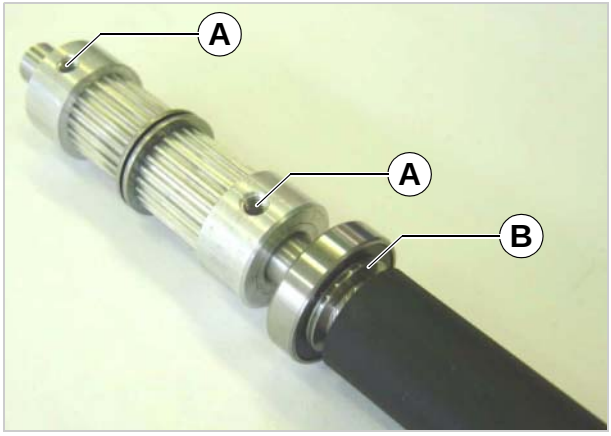
❍ See paragraph Feed roller drive belt (PEM) on page 55.

3. Remove locking plate [109A] of the feed roller.
4. Open the pressure roll lever [109B].
5. Pull out the feed roller [109C].



[109] Locking plate (A) of the feed roller (PEM LH).

6. Undo the set screws (2 each) [110A] on the t-belt disk. Take off the t-belt disk..



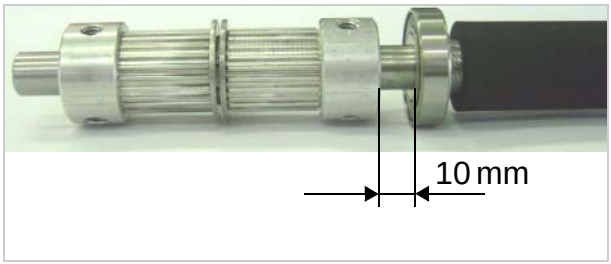
[110] Arrangement of t-belt disks on the feed roller axis.
A Set screws
B Collar on the steel bushing

Assembly
To assemble the device, follow the steps in the reverse order. Ensure that:

➠ The steel bushing [110B] is attached with the collar facing the roller.

➠ The inner t-belt disk fits to the plate [101] with a space of 10 mm.

➠ Set screws are secured with thread-lok-king adhesive (Loctite 243)..



[111] Required distance during lock washer mounting.

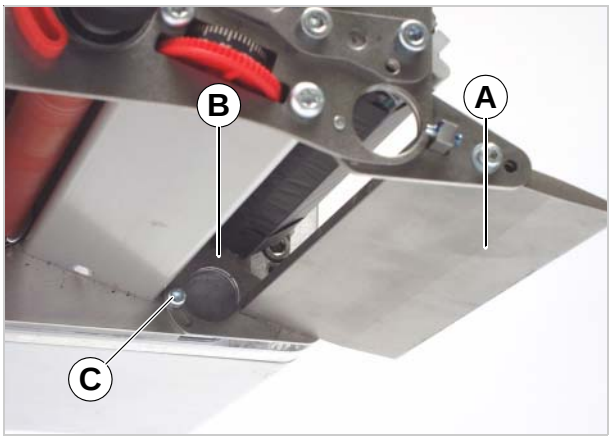
Dispensing edge

The dispensing edge [112A] is held at both ends in side panels [112B].

Tools
2.5 mm allen key

Dismantling

1. Dismantle the print roller (see above).
2. Remove holding screws from the side panels [112C] (one in each). Take off the dispensing edge.



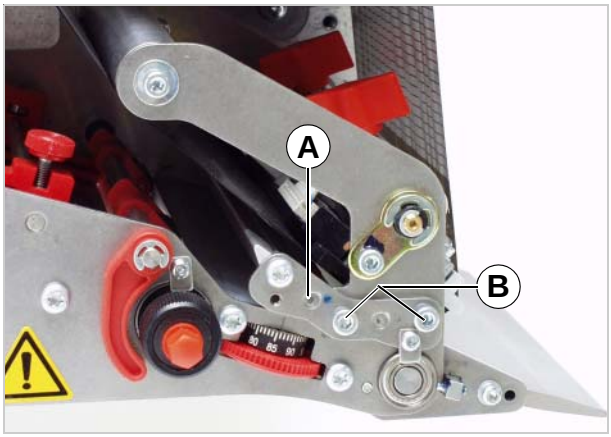
[112] **A** Dispensing edge (long version, from below)
B Side panel

Guiding profile

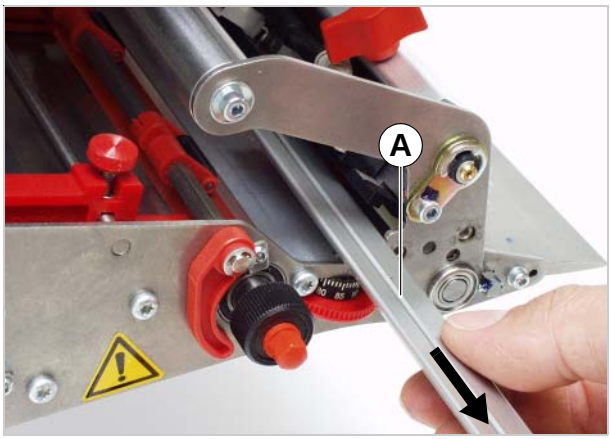
Tools
Allen key 3 mm.

Dismantling

1. Undo the screws [113B].
2. Pull the guiding profile [114A] out to the side.



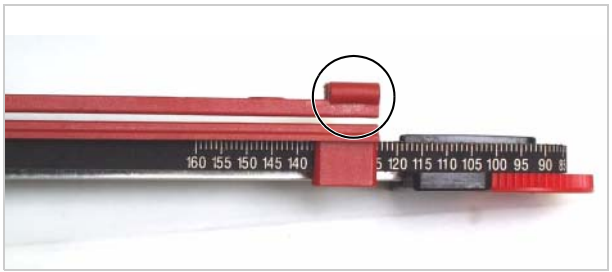
[113] **A** Guiding profile
B Fastening screws



[114] Pull the guiding profile (A) out.

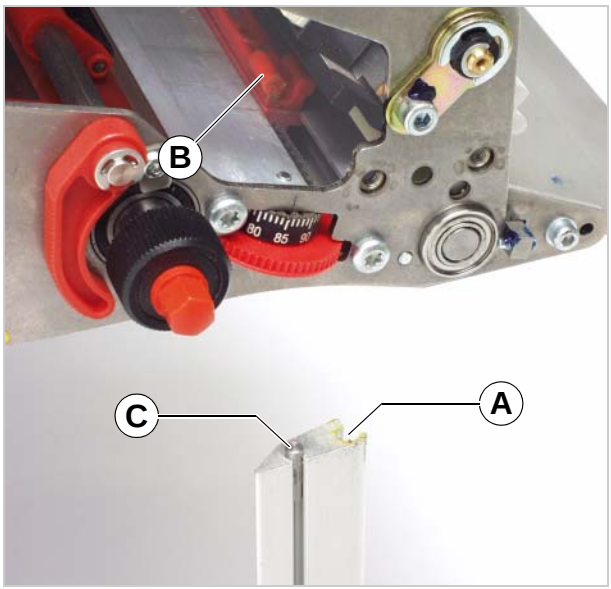
Assembly
To assemble the device, follow the steps in the reverse order. Do the following:

➠ Push the guiding profile nut [115A] over the cylindrical moulding on the sensor fitting [115B]!



[116] Cylindrical moulding (circled) on the sensor fitting.

➠ The steel pin [115C] must engage in the corresponding hole.



[115] When assembling, push the guiding profile nut (A) over the cylindrical moulding (B) on the sensor fitting.

Pressure roller unit

The pressure rollers [117C] press the label material onto the brake roller. The unit includes the axle [117B] with the two pressure rollers and a lever at each end of the axle.

Tools

- Small screwdriver
- Locking ring grippers

Dismantling (DPM, ALX)

1. Open the rear hood.

❍ See paragraph Housing on page 8.

2. Disassemble the feed motor.

❍ See paragraph Feed motor (DPM, ALX) on page 42.

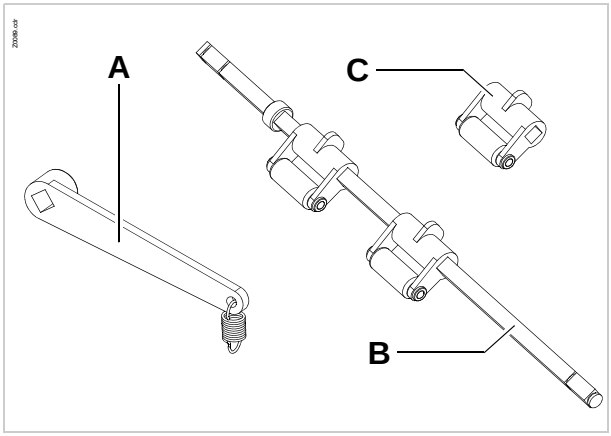
3. Remove the braking mechanism from the brake roller axle.

❍ See paragraph Brake roller (type 1 - DPM, ALX) on page 45.

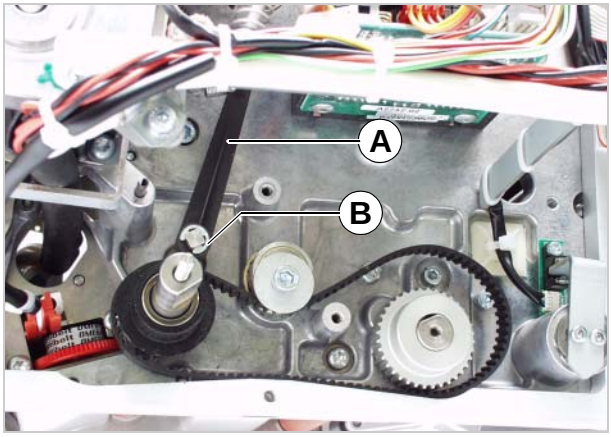
4. Remove locking ring [118B]. Remove the pressure lever [118A] and the spacer sleeve from the axle.

5. Remove the locking ring [119B] and the red opener [119A] from the axle.

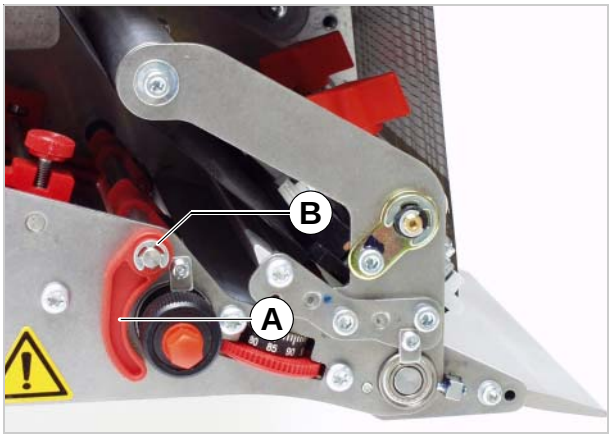
❍ (continued on the next page)



[117] Pressure roller unit
A Pressure lever with spring
B Axle with pressure rollers
C Pressure roller

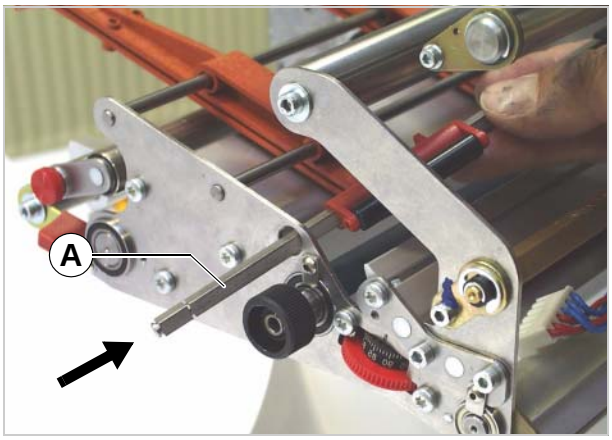


[118] Pressure lever with the dismantled rear hood, feed motor and brake roller mechanism.
A Pressure lever
B Locking ring



[119] The opener (A) is located on the printhead side of the pressure roller axle.

6. Thread the axle out, back and to the side [120].



[120] Thread the pressure roller axle (A) out, back and to the side.

Pressure roller (PEM)

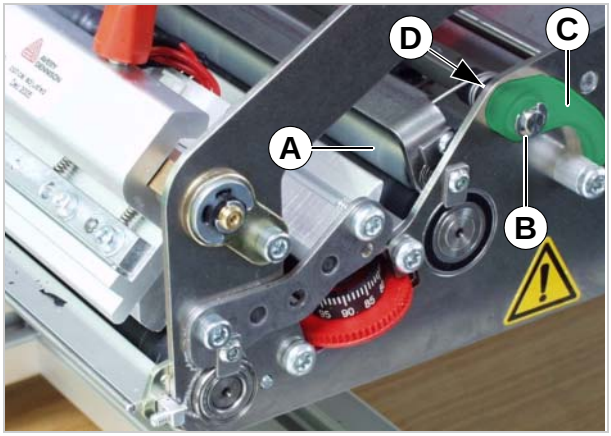
Unlike the DPM with its two plastic rollers, the PEM is equipped with one long sillicone pressure roller [121A].

Tools

- Allen key 2 mm
- Retaining ring pliers

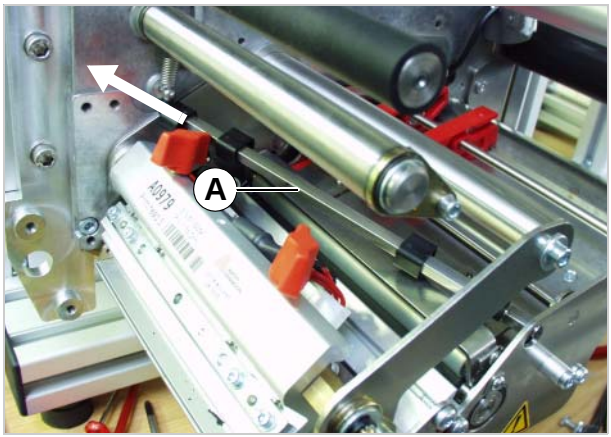
Dismantling

1. Remove retaining washer [121B] and opener [121C] from the end of the pressure axle.
2. Remove retaining washer [121D] at the inner side of the bearing plate.



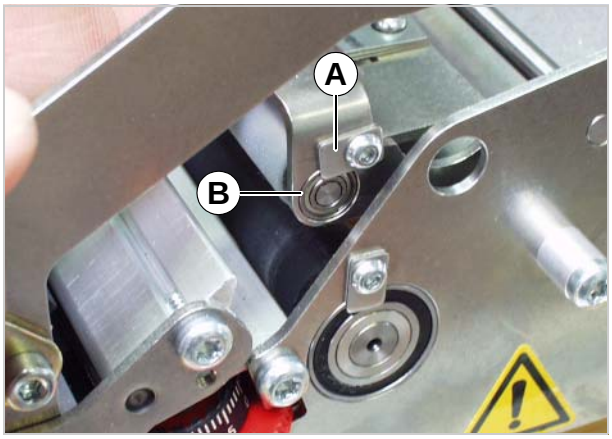
[121] Silicone pressure roller (A) at the PEM LH.

3. Pull the rear end of the pressure axle [122A] out of the bearing plate; then remove the axle diagonal as pictured [122, arrow].
4. Remove the torsion spring.



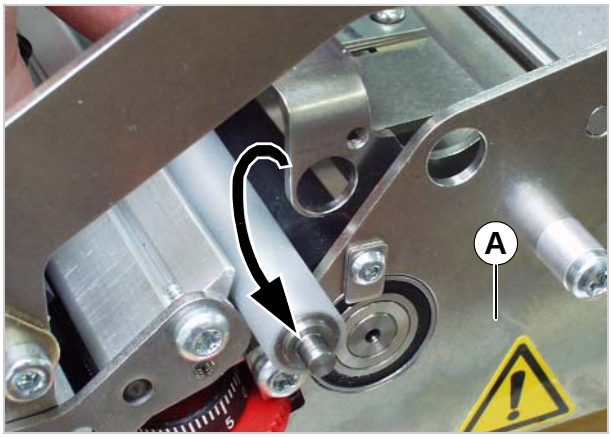
[122] Dismantling the pressure axle (A).

5. Lift the pressure roller. Unscrew the locking plate [123A].
6. Remove the ball bearing [123B] from the pressure roller wing (outside direction).



[123] Locking plate (A) at the pressure roller wing.

7. Remove the pressure roller from the wing.

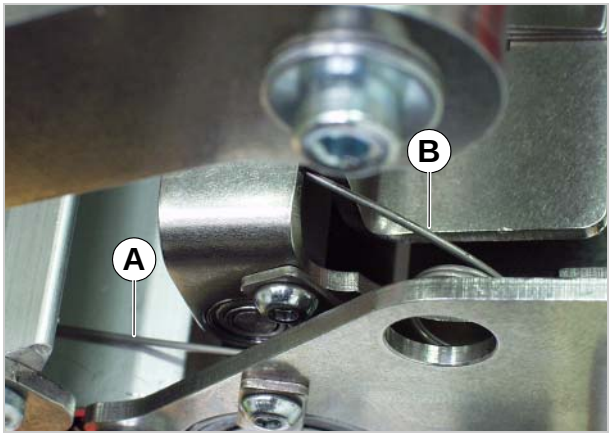


[124] Dismantling the pressure roller (A).

Assembly

To assemble the device, follow the steps in the reverse order. Make sure to:

➠ Before assembling the pressure axle, insert the torsion spring as illustrated in [125].



[125] Assembling the torsion spring
A Long side
B Short side

Material guide

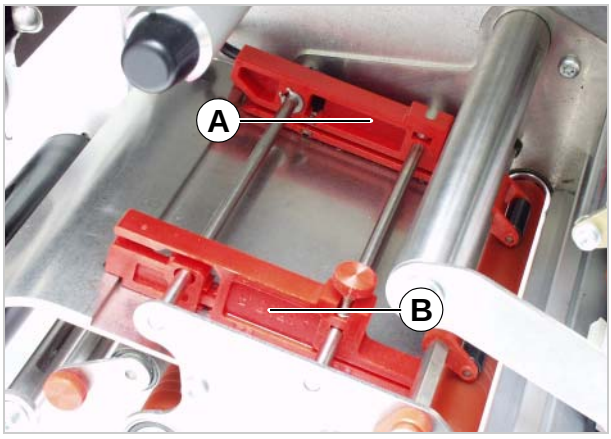
The material end sensor is located in the inner material guide [126A].

Tools

- Retaining ring pliers
- 2 mm allen key

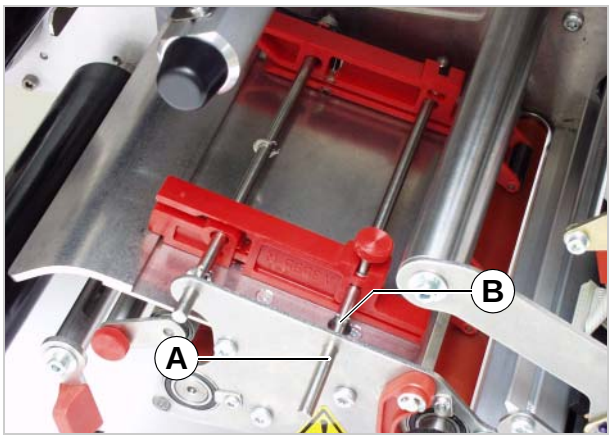
Dismantling

1. Undo the set screw on the inner material guide [126A]. Undo the thumbscrew on the outer material guide [126B].
2. Push the outer material guide into the middle of the guide rods.



[126] **A** Inner material guide (secured with set screw)
B Outer material guide (secured with thumbscrew)

3. For each of the two guide rods: spread the front retaining ring and at the same time pull out the guide rod [127].
4. Push the inner material guide out over the inner guide rod end.



[127] Spread the retaining ring (B) and at the same time pull out the rod (A).
A Guide rod
B Retaining ring

Assembly

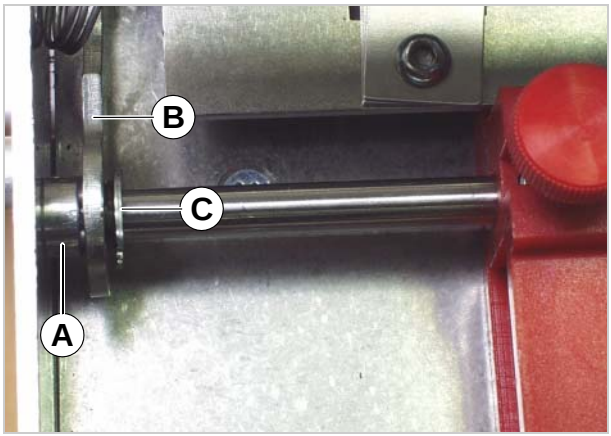
To assemble the device, follow the steps in the reverse order. Assure the following:

➠ Spacer sleeves behind the rear material guide:

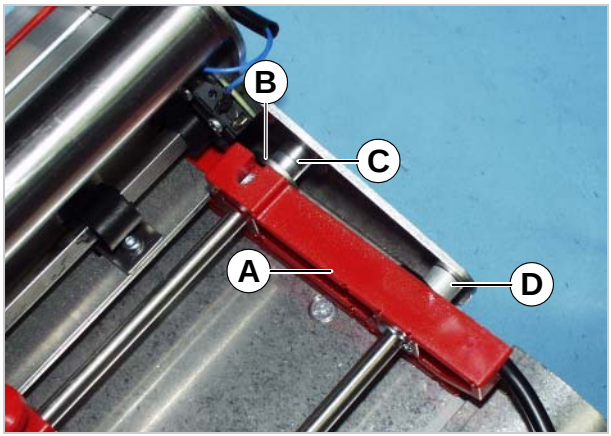
– ALX, DPM: each axle 1x A3629 (6.7 mm)
– PEM: rear axle: 1x A3629 (6.7 mm), front axle: 1x A7650 (3.5 mm)

➠ Tightening torque for setting screw in the inner material guide: *20 Ncm*.

➠ PEM, front axle: Insert a spacer ring on each side between pressure roller wing and bearing plate [128A] [129C].



[128] Parts arrangement at the front axle, PEM LH, outer side:
A Aluminium ring (3.5 mm, A7650)
B Pressure roller wing
C Retaining ring



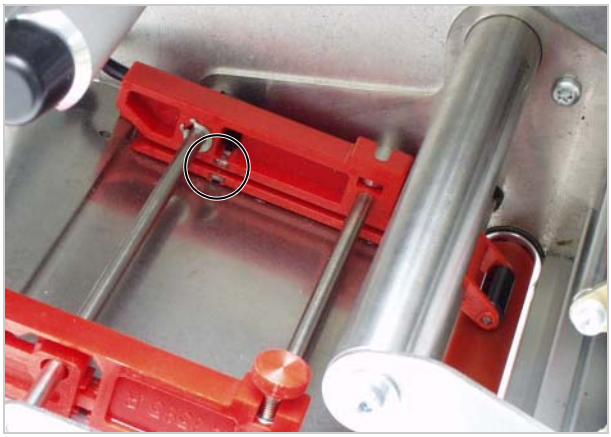
[129] **A** Inner material guide at a PEM LH (feeding module dismantled)
B Pressure roller wing
C Aluminium ring 3.5 mm (A7650)
D Aluminium ring 6.7 mm (A3629)

Material end sensor

The material end sensor recognises when no more material is there and thus protects the printhead from unnecessary wear. The error is displayed, and the machine stops.

The light barrier for sensing the end of material [130 circled] is located in the internal material guide of the machine. The light barrier sensor is attached to the guide and can only be replaced as a complete unit.

❍ For details on testing the light barrier sensor: see topic section Service Electronics: 'Settings', 'Sensor test'.



[130] Material end sensor (circled), stuck in the rear material guide.

Dismantling

1. Remove the rear hood.
2. Disconnect the material end sensor from the CPU board (cable marked "MS").
3. Dismantle the rear material guide.

❍ See paragraph Material guide on page 62.

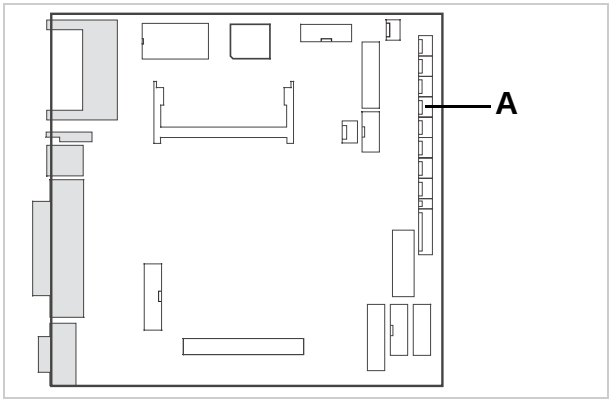
4. Pull the material end sensor cable through the cutout in the base plate.

Assembly

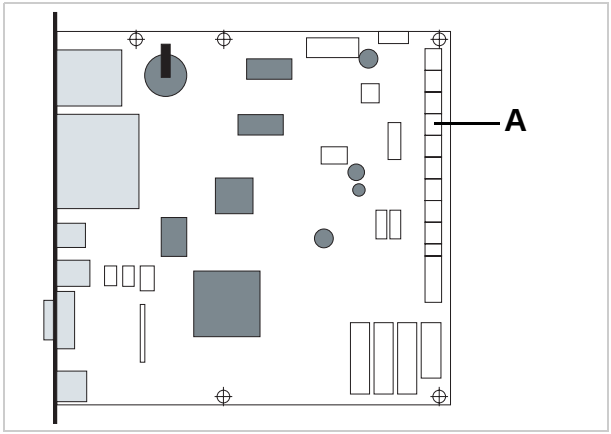
To assemble the device, follow the steps in the reverse order. Make sure to

➠ Plug the sensor into plug CN1104 on the CPU board [131A] or [132A].

➠ Relay and attach the cable, making sure that it does not touch any moving parts.



[131] Slot of the material end sensor (A) on the CPU boards A2292 and A2293 (Electronics Gen. 2) (CN1104).



[132] Slot of the material end sensor (A) on the CPU board A6621 (Electronics Gen. 3) (CN1104).

Punch sensor

❍ For details on testing the light barrier sensor: see topic section Service Electronics: 'Settings', 'Sensor test'.

Tools

- 2.5 mm allen key
- Torx screwdriver size 20
- Cross-head screwdriver, small

Dismantling

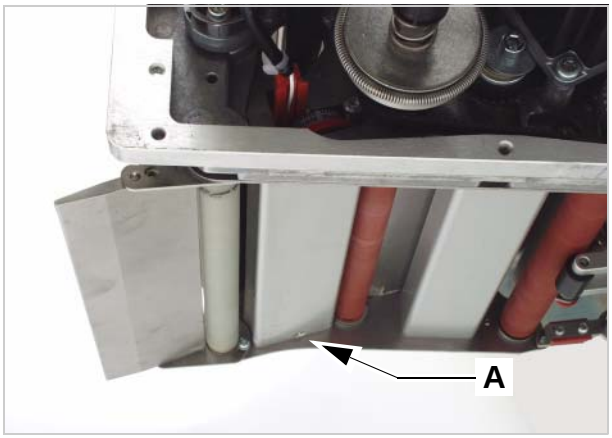
1. Open (DPM) or dismantle (ALX) the rear hood.

❍ See paragraph Housing on page 8.

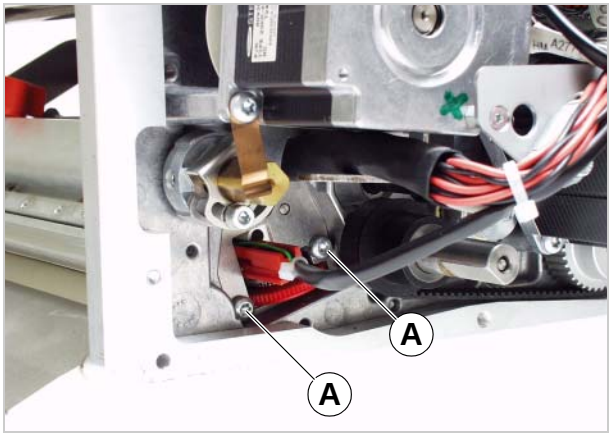
2. Take the braking mechanism off the brake roller axle.

❍ See paragraph Brake roller (type 1 - DPM, ALX) on page 45.

3. Remove screw [133A].
4. Remove screws [134A] (2 screws).

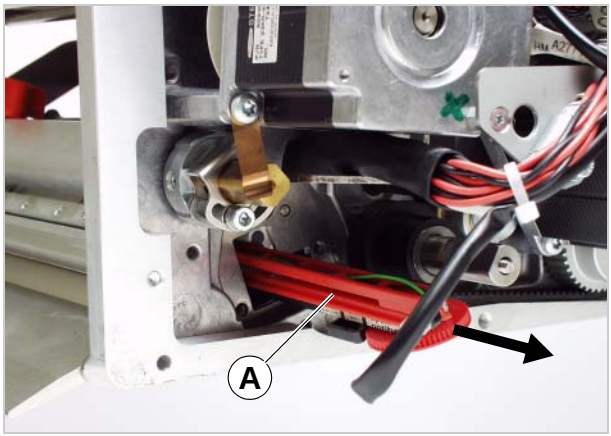


[133] Screw (A) on the underside of the print module (ALX/RH with long dispensing edge).



[134] Fastening screws on the base plate (ALX/RH).

5. Carefully pull the light barrier sensor [135A] out along with the adjustment wheels and belt.
6. Pull the light barrier sensor [136A] off the belt.
7. Undo the connection cable from the fastening and disconnect it from the CPU board.

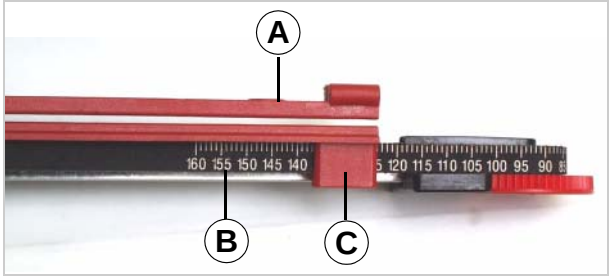


[135] Pull the sensor (A) out carefully.

Assembly (DPM, ALX)

To assemble the device, follow the steps in the reverse order. Make sure to

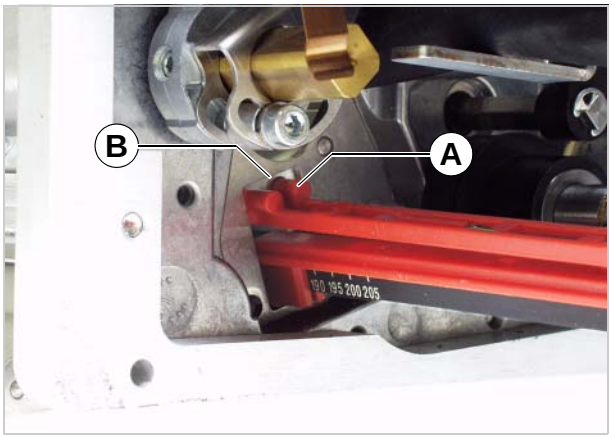
➠ Fix the sensor onto the belt as shown [136]. The right-hand edge of the clip [136C] "points" to 123.



[136] The sensor fitting (A) is attached to the belt (B).

❍ (continued on the next page)

➠ Fit the cylindrical moulding [137A] into the groove on the guiding profile [137B].



[137] **A** Cylindrical moulding on the sensor fitting
B Groove on the guiding profile

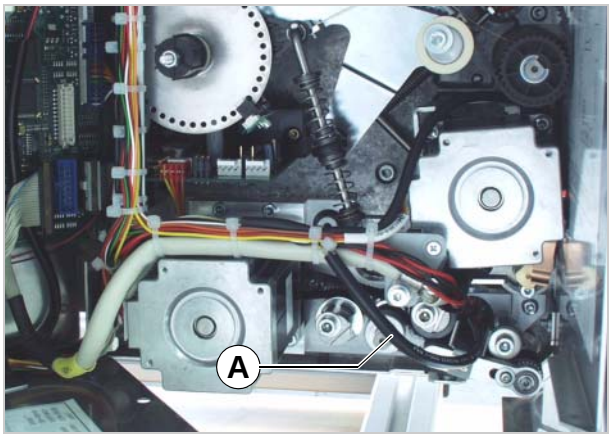
Dismantling (PEM)

1. Open the rear hood.

❍ See paragraph Housing on page 8.

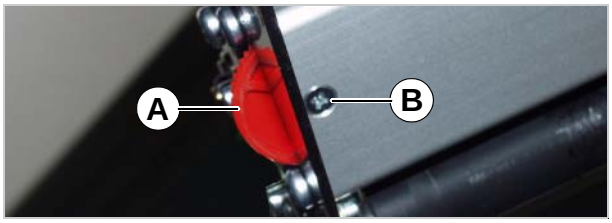
2. Remove the cable straps from the sensor cable [138A] and disconnect the cable from the CPU board.
3. Remove the guiding profile.

❍ See paragraph Guiding profile on page 58.



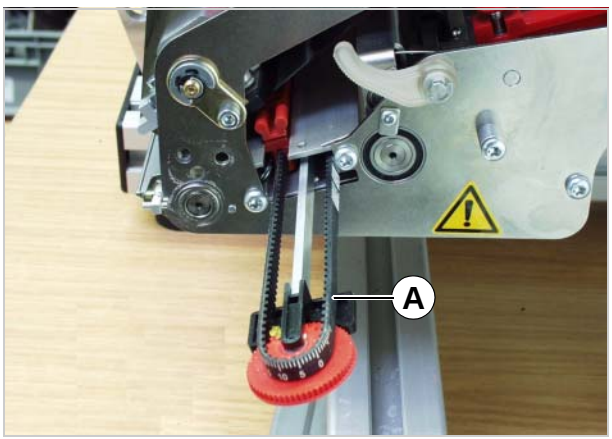
[138] **A** Connection cable punch/reflex sensor (PEM LH)

4. Remove the screw [139B] underneath the punch sensor thumb wheel [139A].



[139] Fixing screw (B) of the punch sensor assy. (View from the bottom side)

5. Pull out the punch sensor assy. [140A].

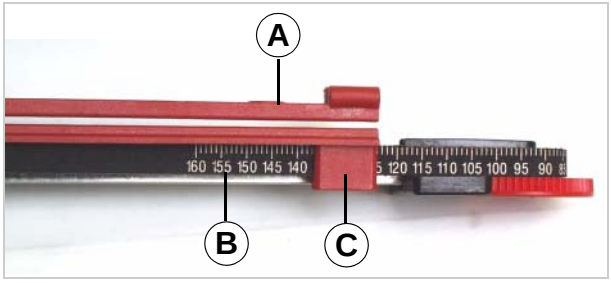


[140] Pulling out the punch sensor assy. (A) (PEM LH).

Assembly (PEM)

To assemble the device, follow the steps in the reverse order. Make sure to

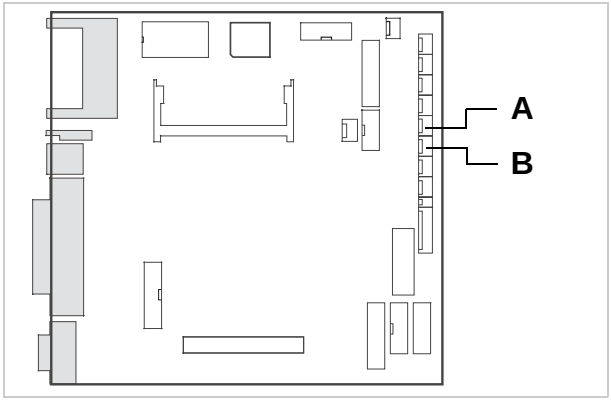
➠ Fix the sensor onto the belt as shown [141]. The right-hand edge of the clip [141C] "points" to 123.



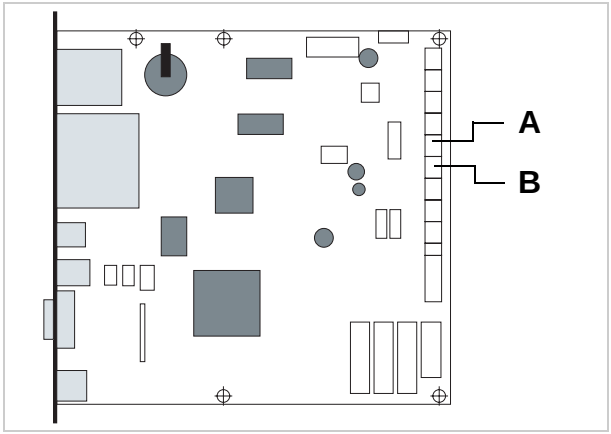
[141] The sensor fitting (A) is attached to the belt (B).

➠ Connect the punch sensor to the connectors CN 1105 and CN 1106 on the CPU board [142] or [143].

➠ Relay and attach the cable, making sure that it does not touch any moving parts.



[142] Slots of the label sensors on the CPU boards A2292 and A2293 (Electronics Gen. 2)
A Slot of the light transmission sensor (cable marking PS) (CN 1105)
B Slot of the reflex sensor (cable marking RS) (CN 1106)



[143] Slots of the label sensors on the CPU board A6621 (Electronics Gen. 3)
A Slot of the light transmission sensor (cable marking PS) (CN 1105)
B Slot of the reflex sensor (cable marking RS) (CN 1106)

Printhead

General Notes

CAUTION! - Electrostatic discharges or contact with sharps edges can damage the printhead.

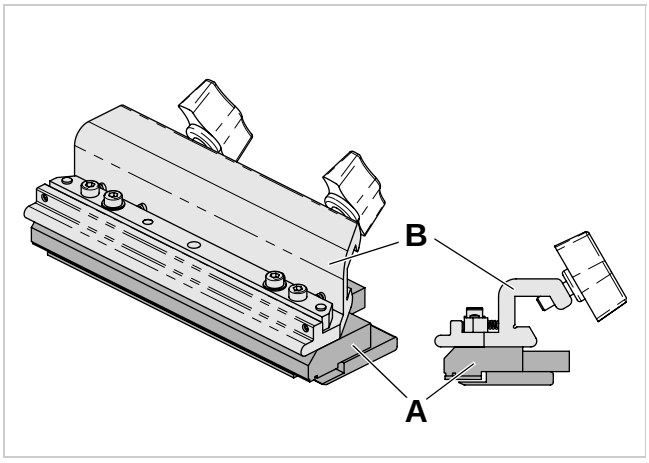
- ➜ Protect the printhead from electrostatic discharges when performing maintenance work or cleaning.
- ➜ Avoid touching the thermal edge [145C] printhead with bare hands as much as possible.
- ➜ Do not allow sharp objects to come into contact with the termal edge.

Printhead type: Corner Edge.

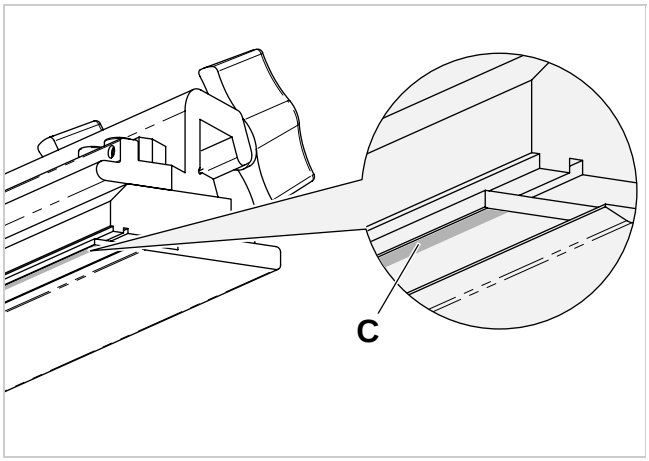
In this chapter, “printhead” means the assembly of thermal printhead [144A] and printhead bracket [144B].

The position of the printhead on the printhead bracket is set ex works using optical aids. This setting fits for most of the applications.

In rare cases, after replacing the printhead, the printing may be worse than before (low blackening, low contrast). In this case, a service technician should correct the printhead position, see chapter Adjusting the printhead position on page 46.



[144] Printhead = thermal printhead (A) + printhead bracket (B).



[145] Thermal edge (C) at the printhead.

Overview of printhead settings

There are electronic and mechanical printhead settings:

Electronic settings	Parameter	When required?
Print contrast	SYSTEM PARAMETER > Print contrast [a]	Blackening of the printout is too low (depends on material/foil combination)
Printhead resistance	SYSTEM PARAMETER > Head resistance	After each printhead exchange.
Printhead temperature compensation	SYSTEM PARAMETER > Temp. reduction	Label layout with huge areas of blackening and smearing of tiny structures, see user manual, topic section „Advanced Applications“, paragraph Printing with temperature compensation on page 2.

[Tab. 3] Electronic printhead settings.

a. Oder, im Online-Modus: Prog-Taste.

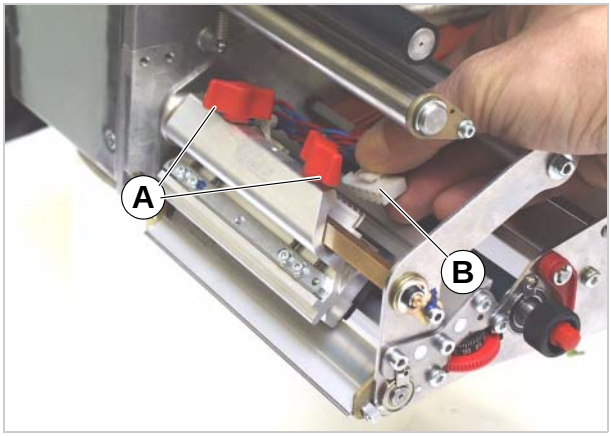
Mechanical settings	When required?
Adjusting the printhead position	After printhead exchange, if the printout is considerably worse, see paragraph Adjusting the printhead position on page 75.
Adjusting the printhead contact pressure	After removal of the printhead contact pressure lever, see paragraph Adjusting the printhead contact pressure on page 76.
Adjusting the printhead gap	After removal of the printhead motor, see paragraph Adjusting the printhead gap on page 72.

[Tab. 4] Mechanic printhead settings.

Replacing the printhead

Dismantling

1. Switch off the machine and unplug it.
2. Disconnect the printhead cable [146B] (2 units).



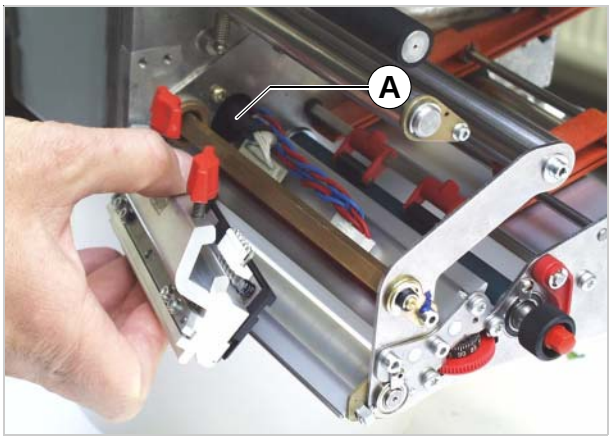
[146] Detach the printhead cable.

3. Undo the wingscrews [146A] and take off the print head [147].

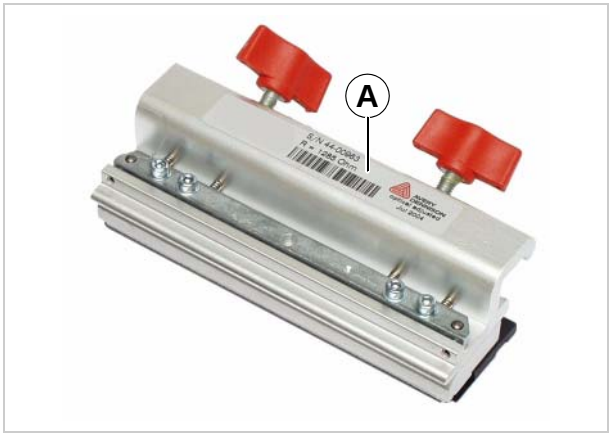
Assembly

To assemble the device, follow the steps in the reverse order. Make sure to do the following:

➠ After mounting a new printhead, it is essential to enter the printhead resistance with the parameter SYSTEM PARAMETERS > Head resistance. Read off the resistance value from the label on the printhead [148A].



[147] Remove the printhead.



[148] Label (A) at the printhead.

Replacing the printhead cable

Dismantling

1. Disconnect cable (2 units) from the print head (see above).
2. Open (DPM) or dismantle (ALX) the rear hood.
3. Pull the end of the cable line (printhead side) through the opening in the base plate [147A].
4. Undo the cable fastenings.
5. Detach the cable from the power supply and CPU board.

Assembly

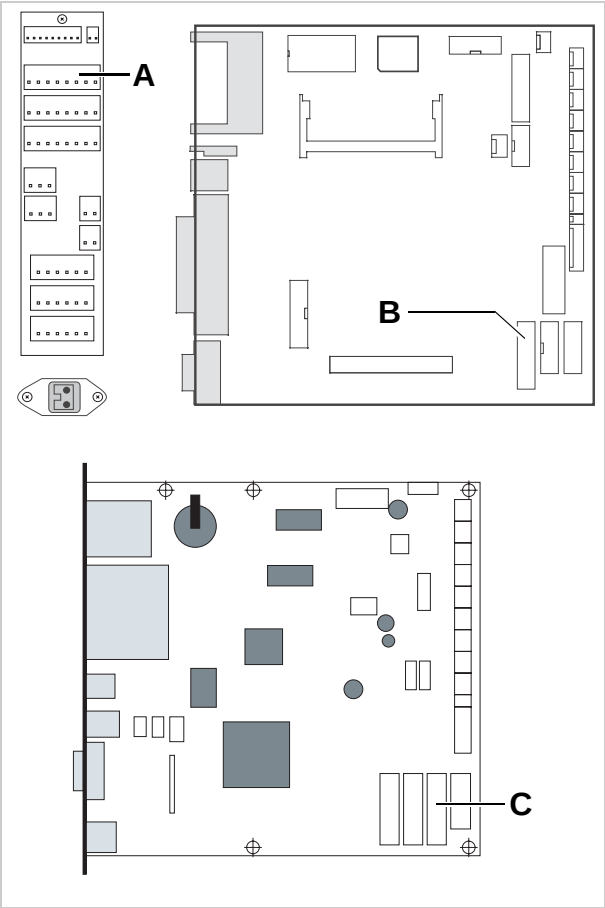
To assemble the device, follow the steps in the reverse order. Make sure to:

➠ Connect the cable as shown [149].

➠ Relay and attach the cable, making sure that it does not touch any moving parts.

➠ Reattach the securing clamps.

❍ For details on the connections to the power supply and CPU board: see topic section Electronics Gen. 2 or Electronics Gen. 3.



[149] Attach the printhead cable to:
A Power supply
B CPU board A2292 or A2293 (CN901) (Electronics Gen. 2)
or
C CPU board A6621 (CN1002) (Electronics Gen. 3)

Printhead adjustment

Adjusting the printhead gap

When the machine is switched on and the foil is in place, there should be a gap of between 0.75 and 1.00 mm between the printhead and the print roller. If this is not the case, set the printhead gap as follows:

Tools

- 2 and 3mm allen keys
- Pressure tool [150] (part number A8288)

Preparation

1. Open (DPM) or dismantle (ALX) the rear hood.

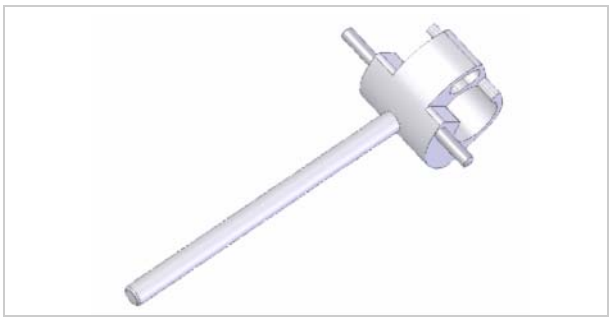
❍ See paragraph Housing on page 8.

2. Set the printhead pressure to the minimum.
3. Insert foil and thin material.
4. Call parameter SERVICE FUNCTIONS > Head adjust. Confirm with Enter.

Head adjust "Press Feed"

➠ Do *not* press the Feed button yet!

5. Loosen screw [151A] on the pressure arm.

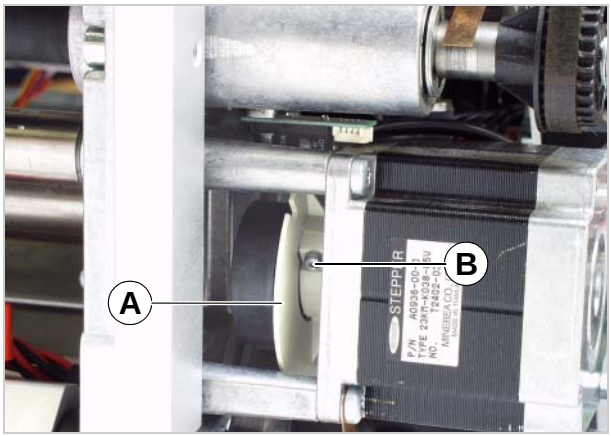


[150] Pressure tool for setting the printhead gap.

[151] Head pressure arm (DPM/RH, head lifting motor dismantled).

6. Undo the clamping screw [152B] on the timing disc [152A].

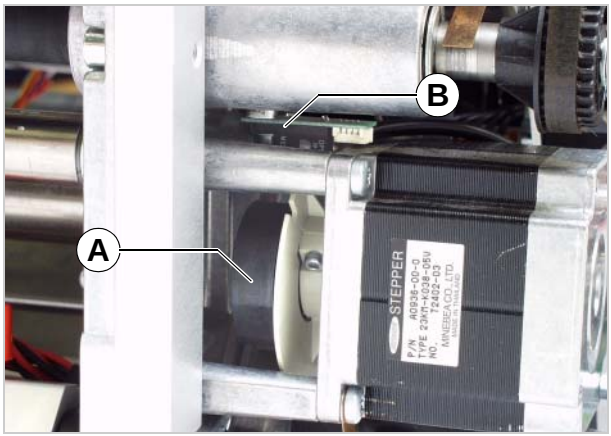
❍ (continued on the next page)



[152] Timing disc (A) on the head lifting motor (ALX/RH).

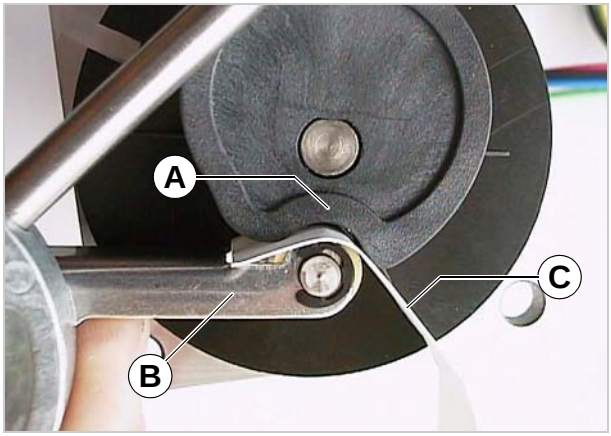
Setting

7. Turn the connecting link [153A] to the lowest position (printing position).



[153] Connecting link (A) on the mounted head lifting motor (ALX/RH)

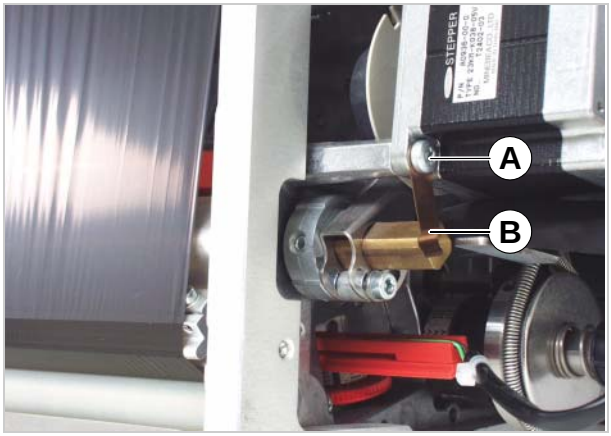
8. Clamp 0.1 mm thick material [154C] between the connecting link and the pressure arm [154B].



[154] Connecting link (A) on the dismantled head lifting motor.
A Connecting link
B Pressure arm
C 0.1mm thick material

9. Loosen screw [155A] at the head lifting motor. Turn the contact spring [155B] aside.

❍ (continued next page)



[155] Kontaktfeder (A) an der Druckkopf-Andruckachse.

10. Shift the pressure tool [156A], [157A] onto the printhead axle.

    ➠ The pressure tool suits for both machine types, RH and LH.

11. Press the lever of the pressure tool [157A] downwards, to press the pressure arm against the connecting link and reattach the pressure arm fastening screw.

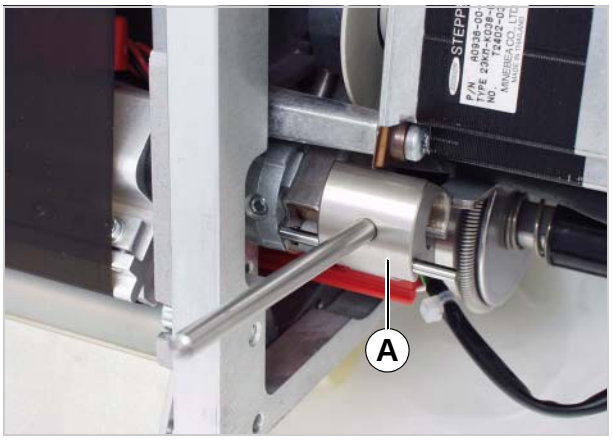
    ➠ Tightening torque: *350 Ncm.*

    ➠ Secure the screw with *Loctite 243*.

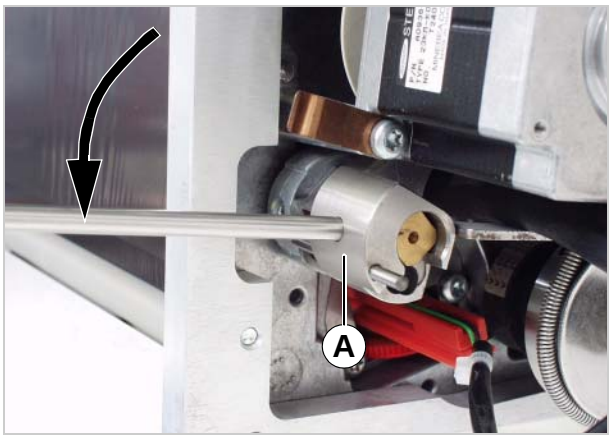
12. Bring back the contact spring [155B] in its initial position and tighten the screw.

13. Press the Feed button.

Head adjust	
Sens.: 3.01	255



[156] Pressure tool (A) applied (ALX RH).



[157] Pressure tool (A) applied (side view).

14. Turn the timing disc until the notch [158A] is at the top (12 o'clock).

15. Slowly turn the timing disc with the notch to the sensor [153B] until the display shows 0 (zero):

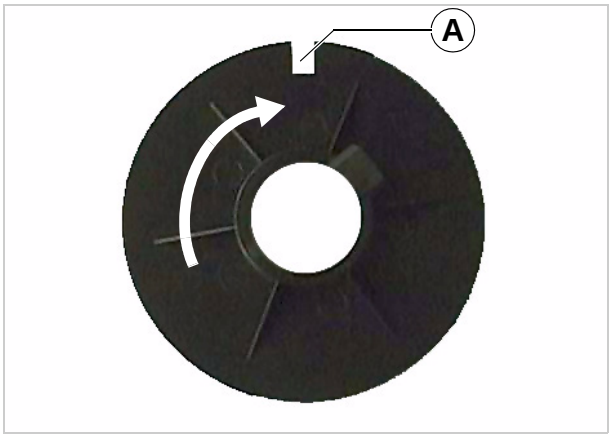
Head adjust	
Sens.: 3.01	0

16. Carefully retighten the fastening screw on the timing disc.

    ➠ Tightening torque: *20 Ncm*.

    ➠ Don´t overtighten the screw, this would damage the timing disc. Don´t undertighten it, this would cause the timing disc to rotate on the motor axle.

17. Press the Online button. Press Escape twice.



[158] Timing disc on head lifting motor (dismantled).
A Notch in the timing disc

Adjusting the printhead position

In this chapter, „Printhead position“ means the position of the printhead [159A] at the printhead bracket [159B] in printing direction.

The printhead position is factory-adjusted and hasn´t to be changed in most of the applications.

Changing the printhead position is only recommended, if the following is the case:

- A spare part printhead was installed.
- The printout is considerably worse than before (regarding blackening and contrast)

➠ During the adjustment, no other settings may be changed, which influence the printing quality.

➠ For test printouts use parameter PRINT INFO > Dottest endless.

Tool

Allen key 1.5 mm

Adjustment

1. Print a sample label (PRINT INFO > Dottest endless).
2. Loosen all screws [160A] and [160B].
3. Turn *in* the set screws [160C] ½ turn.
4. Tighten the screws [160B].
5. Print a sample label and evaluate it:

   If the printout became better:

➜ Repeat steps 2 to 5 until the printout is good enough or until it is worsening again.

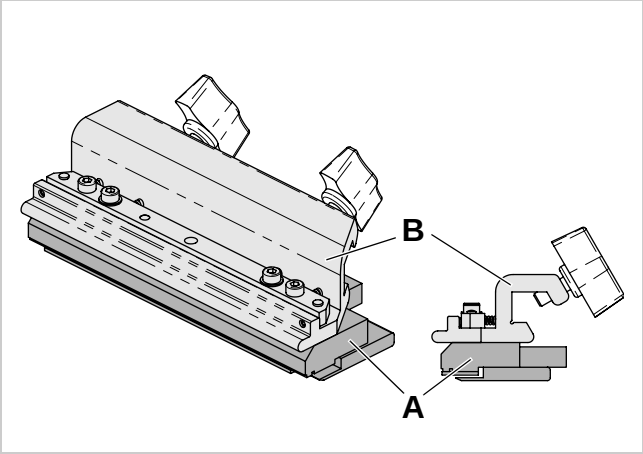
   If the printout became worse:

➜ Repeat steps 2 to 5, but turn the set screws *out* step by step, until the printout is good enough or until it is worsening again.

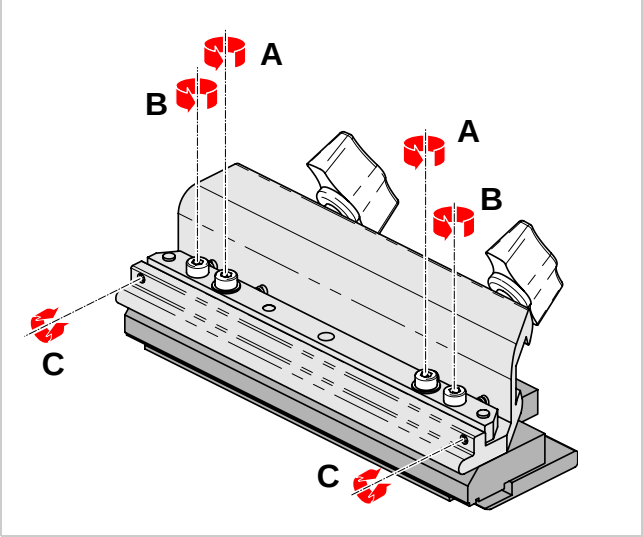
   If the printout is good enough:

➜ Tighten all screws [160A] and [160B].

➠ Secure the screws [160B] with locking varnish.



[159] Printhead = thermal printhead (A) + printhead bracket (B).



[160] Adjusting the printhead position by rotating the set screws (C).

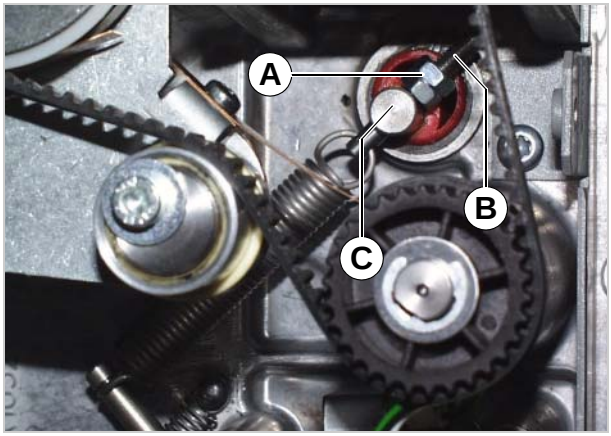
Adjusting the printhead contact pressure

Tools

- Spring balance 0 to 50 N (Part number 93665-00-0)
- Size 7 open-ended wrench
- Coupling piece (allows the spring balance to be hooked onto the end of the threaded bolt)

Adjusting

1. Set the setting knob to the lowest pressure (one line).
2. Turn the connecting link on the head motor until the head lifting mechanism's pressure arm is pointing into the recess in the connecting link (= printhead lowered position).
3. Screw the coupling piece onto the bolt [161B]
4. Unscrew the locknuts [[161A].
5. Hook the spring balance onto the coupling piece and pull on it until the balance shows 8 N.
6. At the same time tighten the locknuts against the axle [161C] until they lock.



[161] Adjusting knob with printhead lifting mechanism

Printhead lifting mechanism

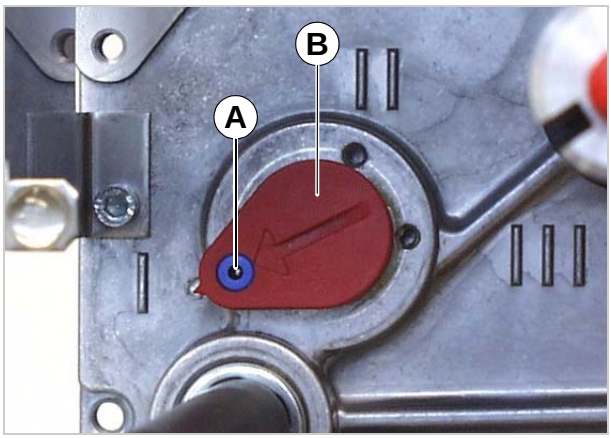
Printhead pressure setting knob

The printhead press-on unit is used to ensure that the printhead presses on the print roller at a defined and consistent rate.

This pressure must be adjusted for different material widths and/or material strengths.

❍ See operating instructions, topic section Setup, "Setting printhead pressure".

A spring-loaded thrust pad [162A] on the adjusting knob[162B] engages at the selected position and prevents the pressure from being changed accidentally.



[162] The printhead pressure is set with this adjusting knob (B).

Tools

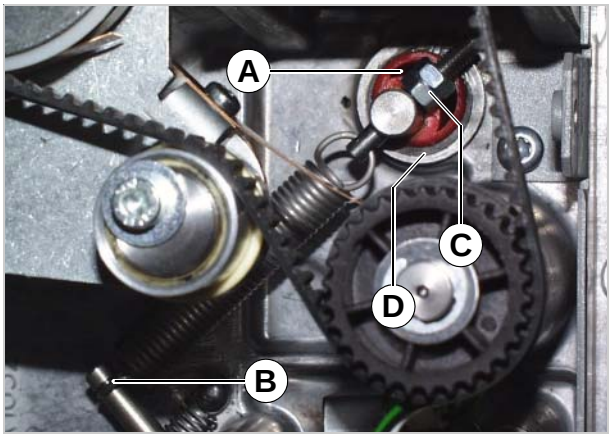
- Size 7 open-ended wrench
- Retaining ring pliers

Dismantling

1. Open (DPM) or dismantle (ALX) the rear hood.

❍ See "Housing".

2. Unhook the spring [163B] at the lower end.
3. Unscrew nuts [163C].
4. Remove the grip screw [163D].
5. Remove the adjusting knob on the printhead side of the base plate.



[163] Adjusting knob (A) with printhead lifting mechanism

Printhead lift sensor

❍ For details on testing the sensor: see topic section Service Electronics: 'Settings', 'Sensor test'.

The light barrier [164A] is fastened to the head lifting motor [164D] with a mount [164B]. It is advisable to dismantle the mount along with the light barrier.

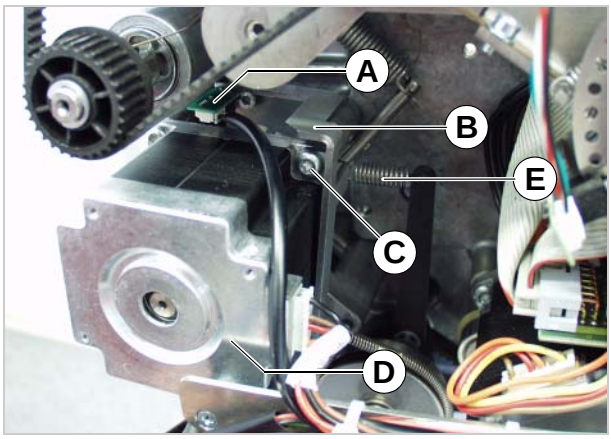
Tools

- Torx screwdriver size 20
- 2.5mm allen key

Dismantling

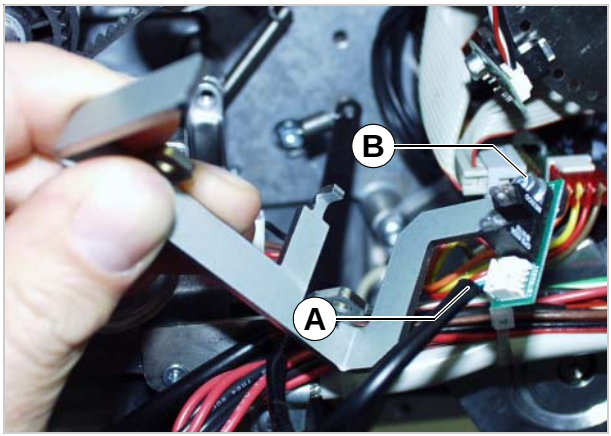
1. Undo the two fastening screws [164C] on the inner side of the motor to which the mount [164B] is attached.

   ➠ *Do not* undo the two external screws! - If the head lifting motor is detached the printhead gap must be reset.



[164] Head lifting motor (D) with head lifting sensor (A).

2. Unhook spring [164E].
3. Carefully take out the sensor mount [165].
4. Unplug the cable [165A] from the sensor and unscrew the screw [165B]. Remove the sensor.



[165] Mount for head lifting light barrier.

Assembly

To assemble the device, follow the steps in the reverse order. Make sure to do the following:

➠ Reattach the spring [164E] after assembling the mount!

➠ Underneath the motor the mount serves as a cable guide. Do not trap the cable!

❍ (continued on the next page)

➠ The sensor [166A] must reach over the motor timing disc [166B]. The disc must not drag on the sensor!

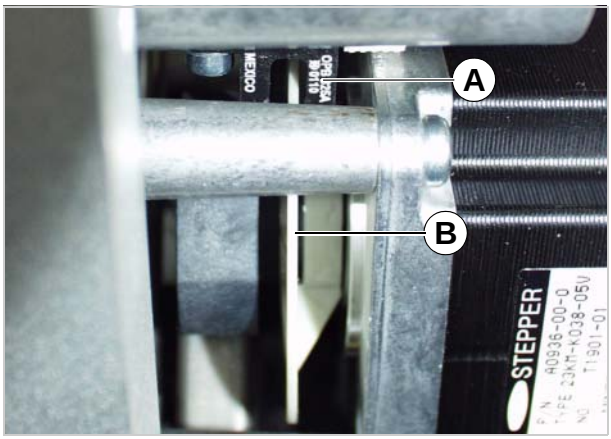
If the cable has been replaced:

➠ Attach the sensor to plug J4[167A] on the head lifting motor output stage board.

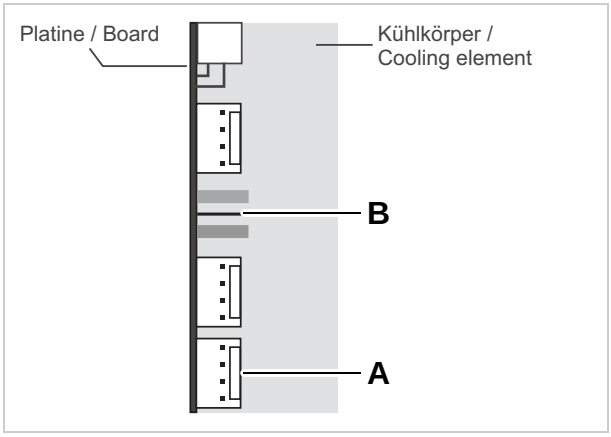
➠ Make sure the output stage board has the correct jumper setting [167B]!

❍ For more details on this point: see topic section Service Electronics: "Output stage board".

➠ Relay and attach the cable, making sure that it does not touch any moving parts.



[166] **A** Sensor
B Timing disc



[167] Slot (A) for the head lifting sensor on the head lifting sensor output stage board.

Boards

USI board (ALX)

Tools

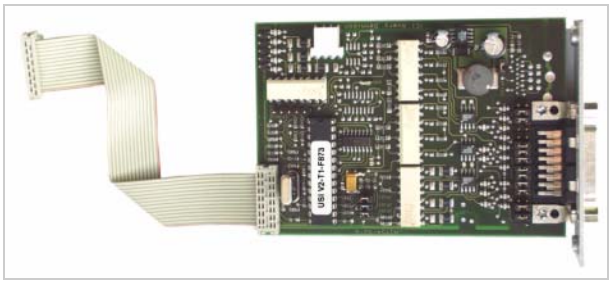
2 mm allen key

Dismantling

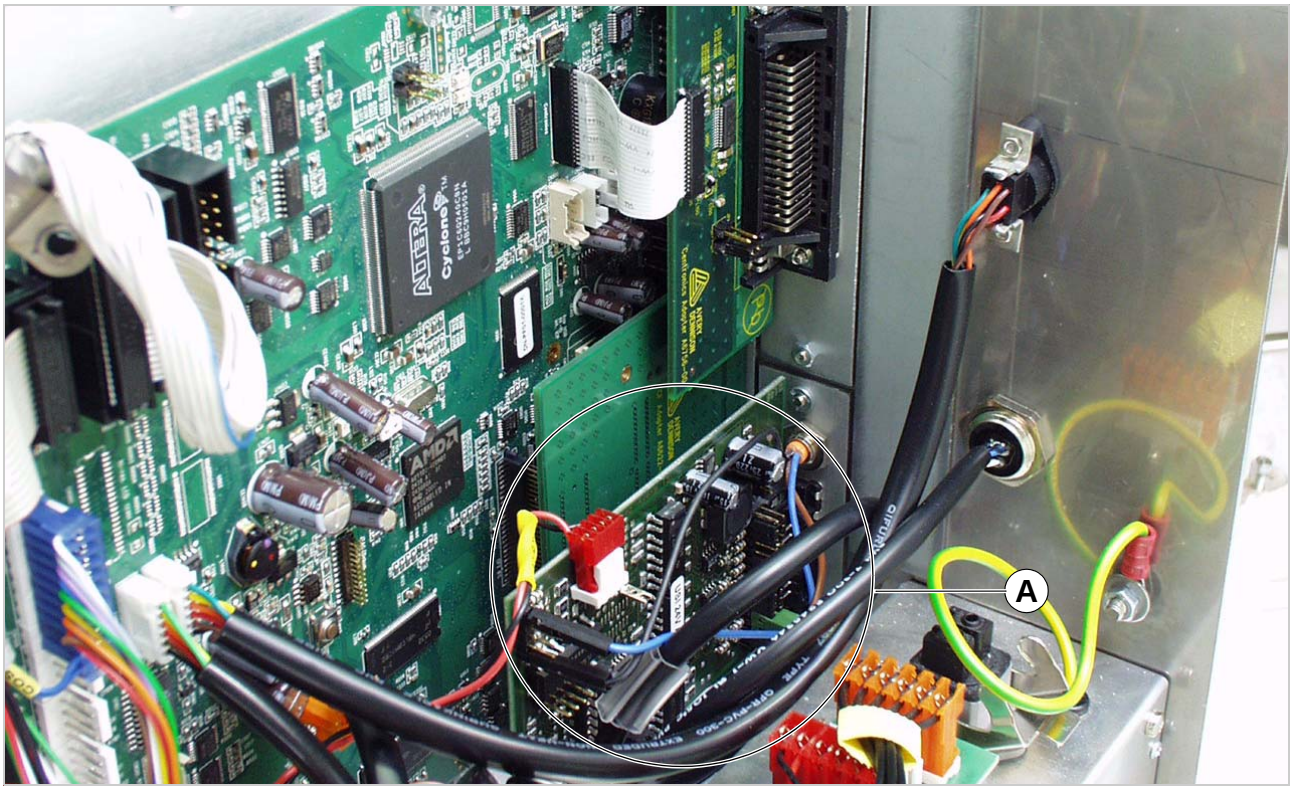
1. Remove rear hood.

❍ See paragraph Rear hood (ALX) on page 12.

2. Disconnect all cables from the board [169A].

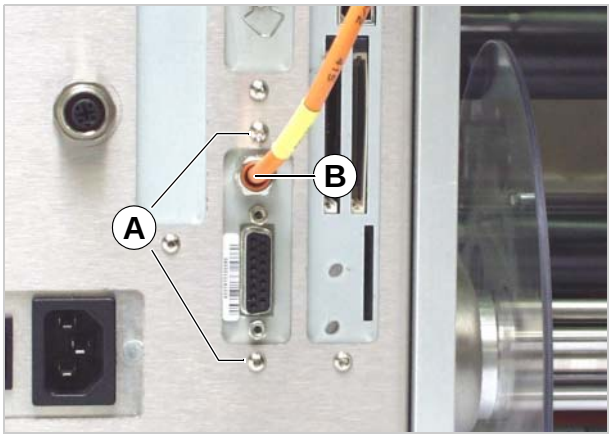


[168] USI board



[169] Mounted position (A) of the USI board.

3. Unscrew the circuit board from the side panel (2 screws [170A]).



[170] Fastening (A) of the USI board to the side panel (with cable feedthrough (B) for the OD-control sensor).

Assembly

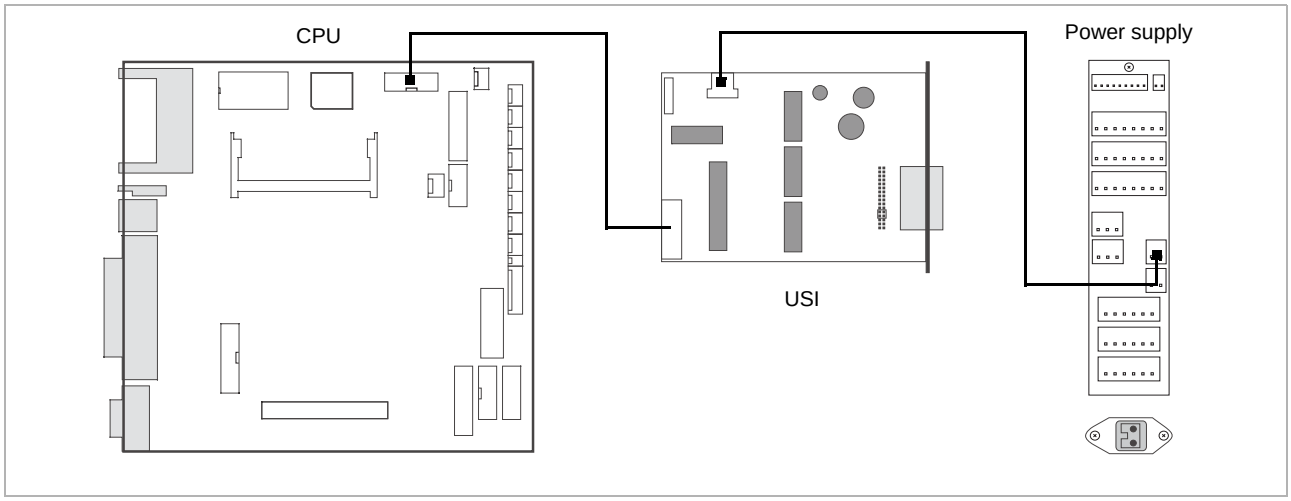
To assemble the device, follow the steps in the reverse order. Make sure to

➠ Check any new board before mounting:

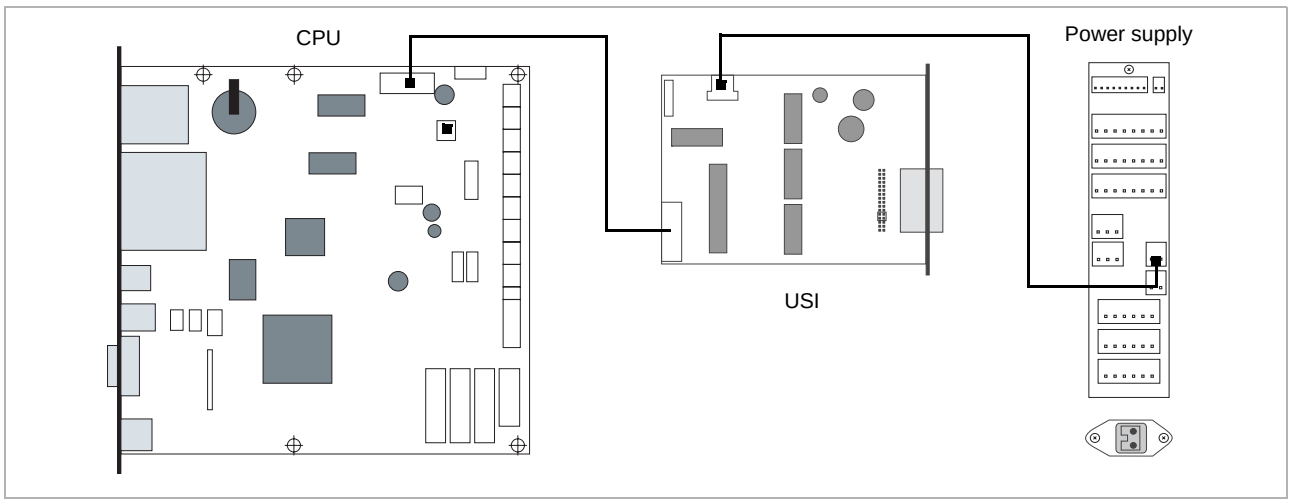
– Circuit board version
– Controller version
– Jumper setting

➠ Connect the board as shown in the illustration [171] and [172]. You may have to attach additional cables to the board, depending on the machine's specifications (e.g., applicator PLC, AI).

❍ See: topic section Electronics Gen. 2 or Electronics Gen. 3, chapter "USI board".



[171] Connecting scheme USI to CPU boards A2292 and A2293 in ALX 92x.



[172] Connecting scheme USI to CPU board A6621 in ALX 92x.

CPU board (ALX)

Tools

2 and 3 mm allen keys

Disassembly / Assembly

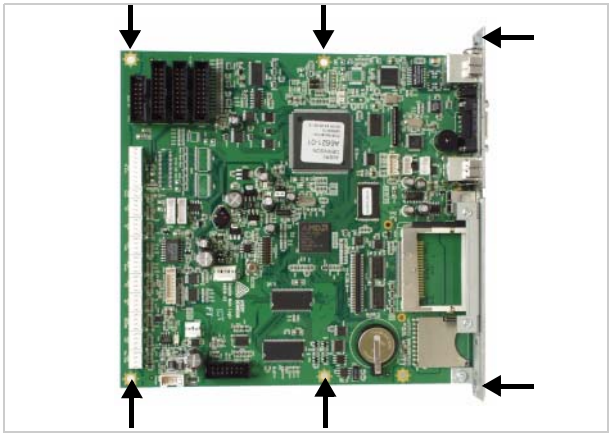
1. Remove rear hood.

❍ See paragraph Rear hood (ALX) on page 12.

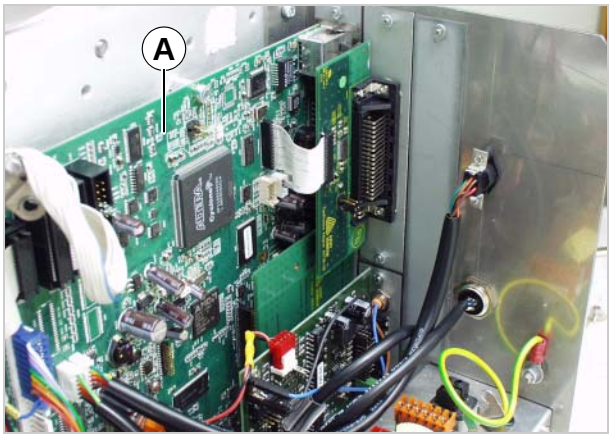
2. Remove the USI board.

❍ See paragraph USI board (ALX) on page 80.

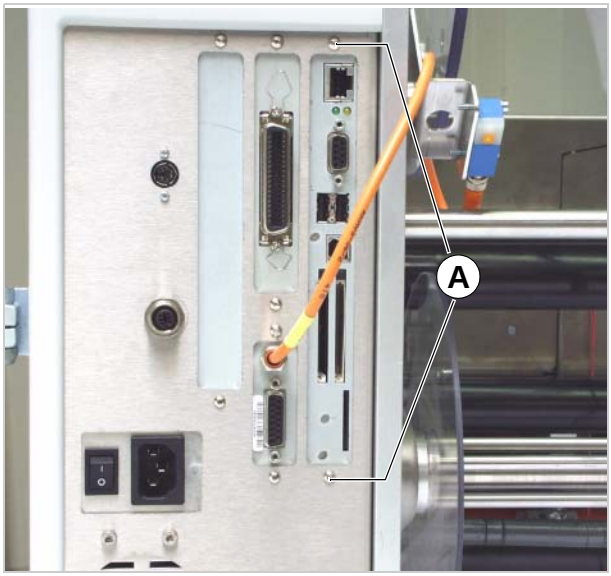
3. Disconnect all cables from the CPU board [174A].
4. Remove fastening screws [175A] from side panel.
5. Remove screws [173, arrows] from the board.
6. Carefully remove the board.



[173] Fastening points (arrows) at the CPU board.



[174] CPU board mounted (A)



[175] Fastening screws (A) of the CPU board at the side panel.

Assembly
To assemble the device, follow the steps in the reverse order. Make sure to

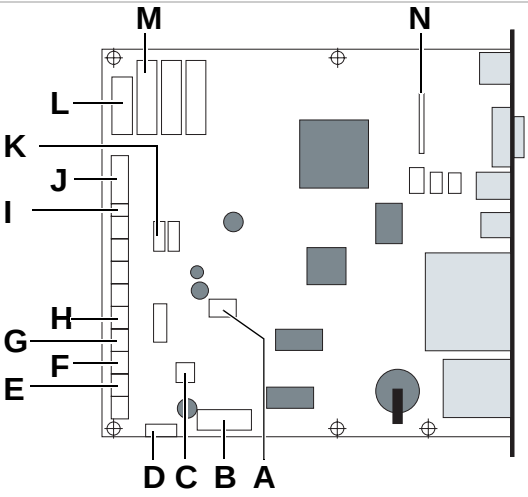
➠ Check any new board before mounting:

– Circuit board version
– Jumper settings

➠ The type and number of cables to be attached depend on the machine's specifications.

❍ Complete connection list: see topic section Electronics Gen. 3, chapter "CPU board".

❍ Connectors on the CPU boards A2292 and A2293: see topic section Electronics Gen. 2, chapter "CPU board".



[176] Connectors on CPU board A6621(Electronics Gen. 3)

A Power supply 5 V
B USI or AI
C Power supply 24 V
D Rotary encoder
E Backing paper rewinder sensor
F Feed roller sensor
G Material end sensor
H Light transmission label sensor
I Cover switch
J Power supply (data cable)
K Operator panel
L Motor output stages (data cable)
M Printhead
N Centronics interface

USI board (DPM, PEM)

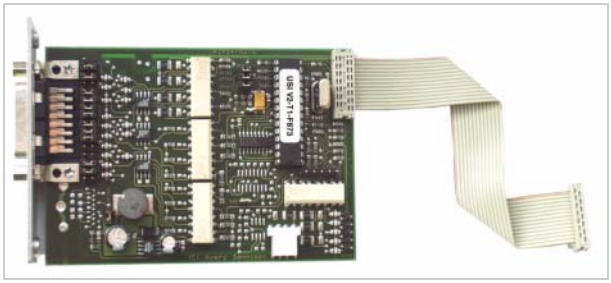
Tools
2 mm allen key

Dismantling

1. Open the rear hood.

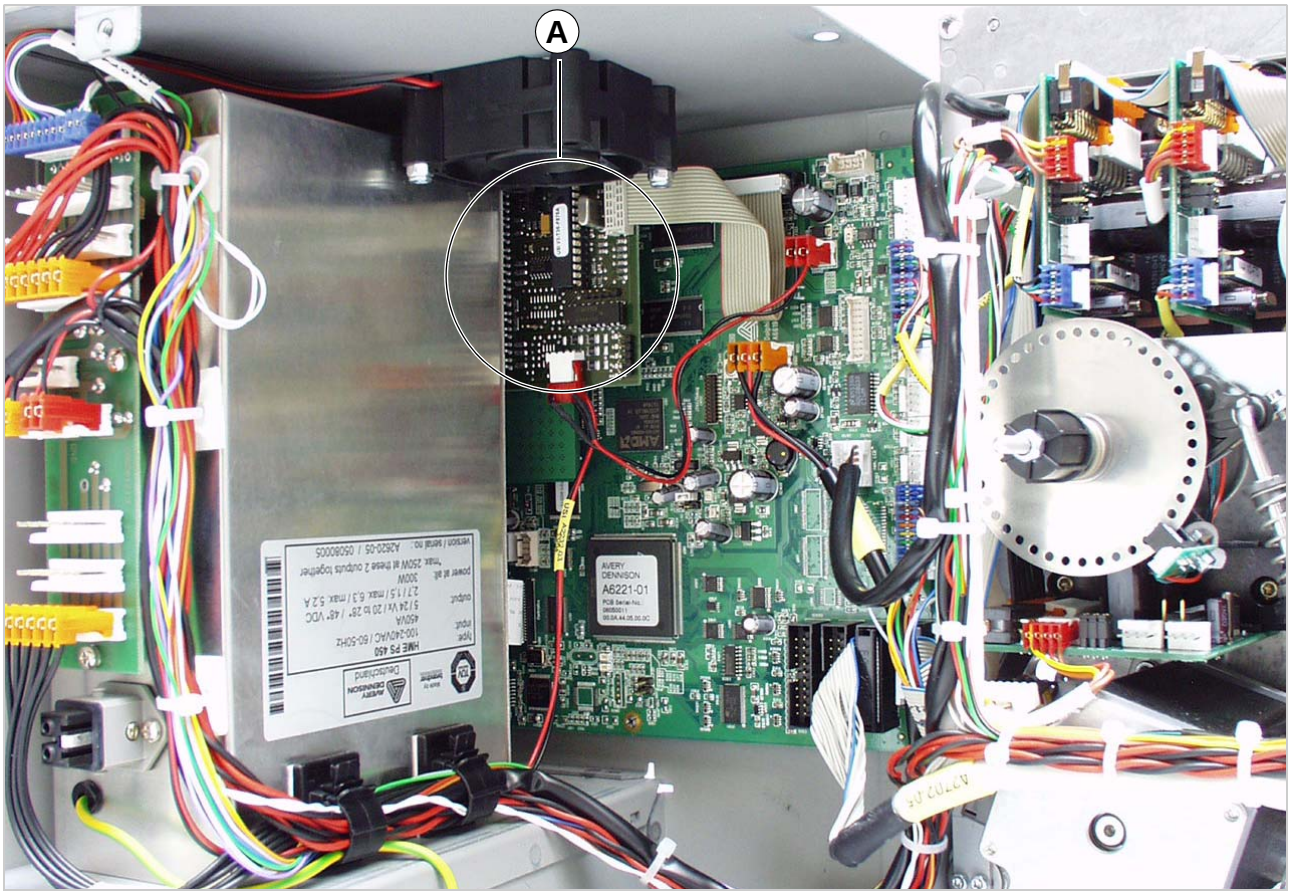
❍ See paragraph DPM rear hood on page 9.

2. Disconnect all cables from the board.
3. Unscrew the circuit board from the back casing (2 screws [178A]).



[177] USI board

[178] Fastening (A) of the USI board to the back casing.



[179] Mounted position of the USI board (A) (DPM LH).

Assembly

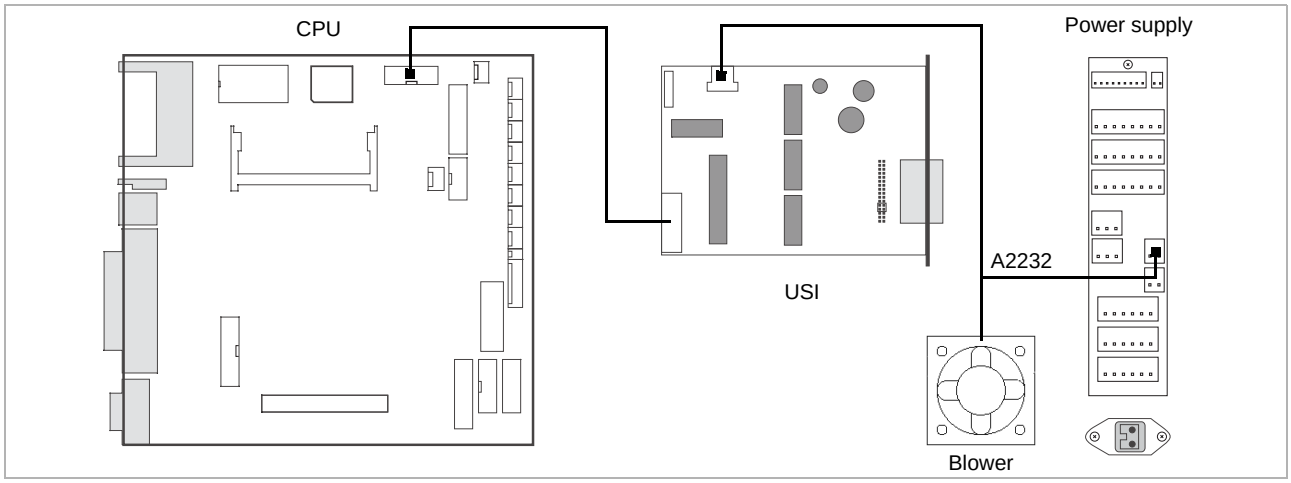
To assemble the device, follow the steps in the reverse order. Make sure to

➠ Check any new board before mounting:

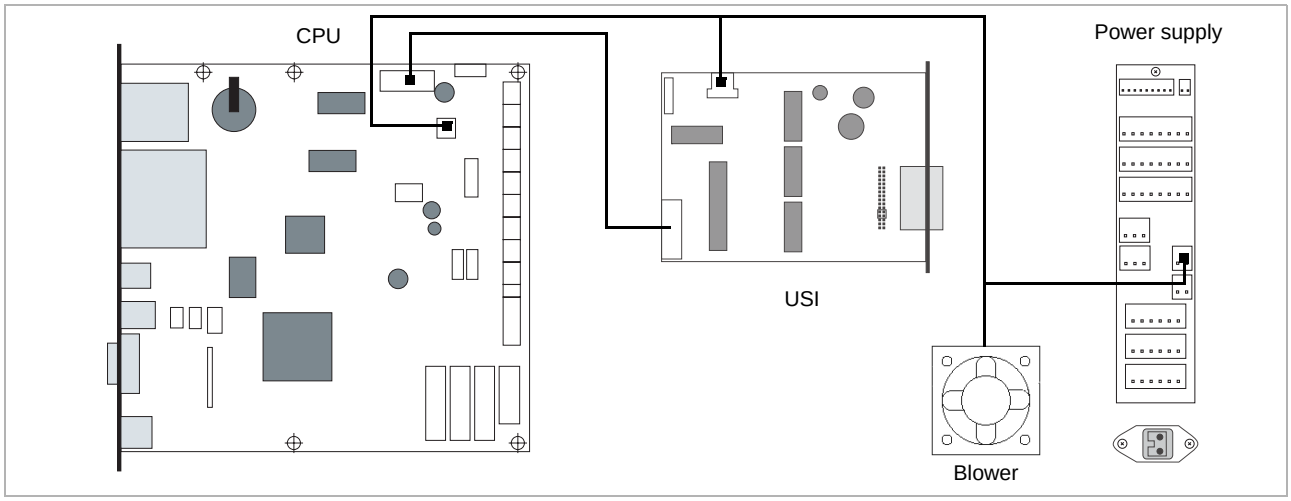
– Circuit board version
– Controller version
– Jumper setting

➠ Connect the board as shown in illustration [180] or [181]. Further cables may have to be attached to the board, depending on the machine's specifications (e.g. applicator PLC, AI).

❍ See topic section Electronics Gen. 2 or Electronics Gen. 3, chapter "USI board".



[180] Connection scheme USI to CPU boards A2292 and A2293 in DPM and PEM.



[181] Connection scheme USI to CPU board A6621 in DPM and PEM.

CPU board (DPM, PEM)

Tool

2 mm allen key

Disassembly / Assembly

1. Open the rear hood.

❍ See paragraph DPM rear hood on page 9.

2. Remove the USI board.

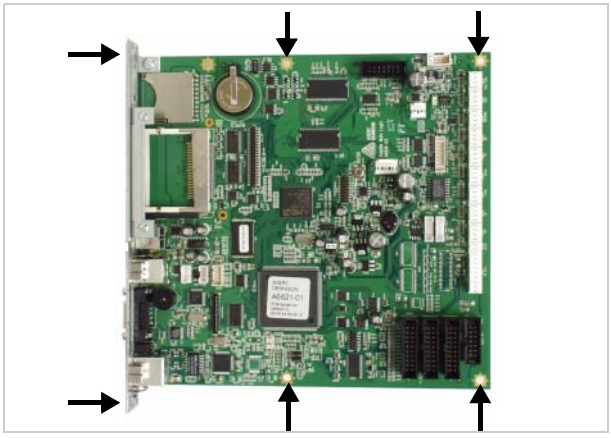
❍ See paragraph USI board (DPM, PEM) on page 84.

3. Disconnect all cables from the CPU board [183A].
4. Remove fastening screws [A] from side panel.
5. Carefully detach the board from its four plug sockets.

CAUTION! - Disregard may damage the board.

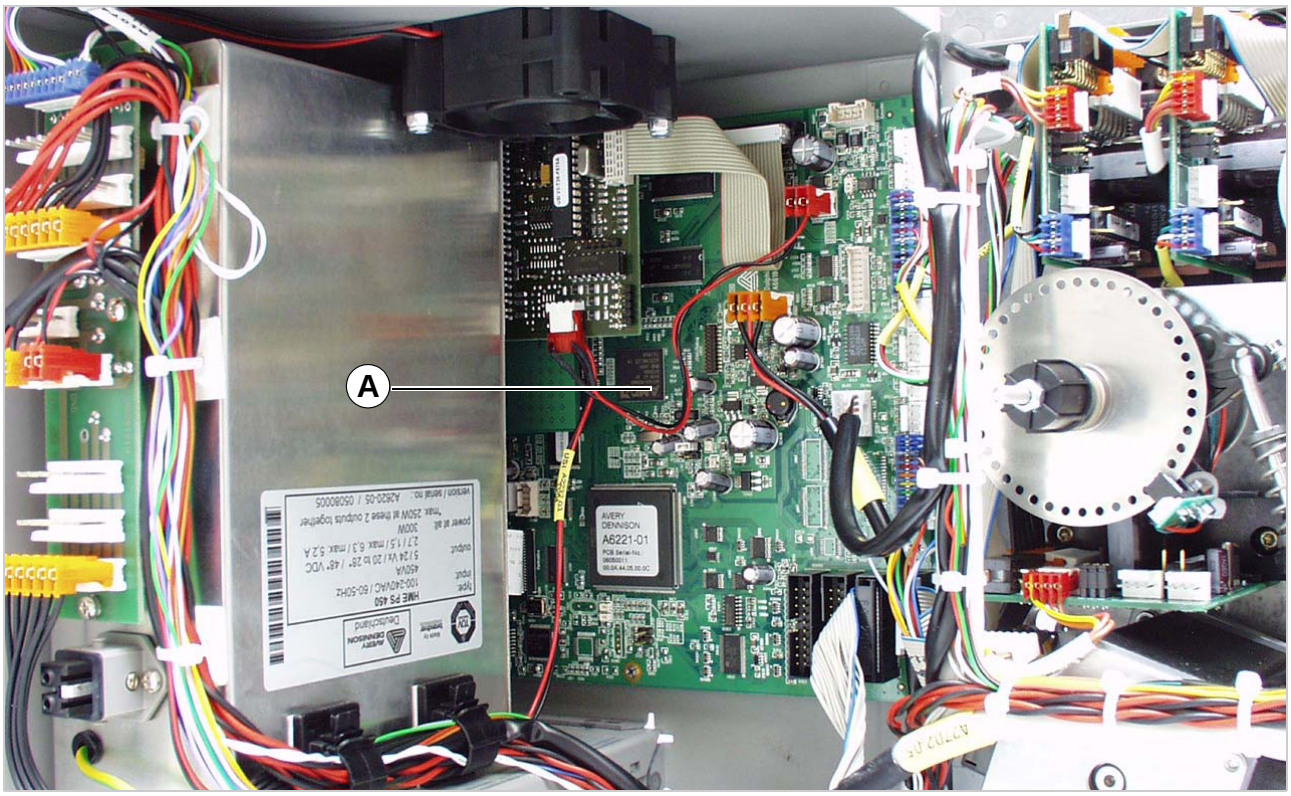
➔ Do not bend the board under any circumstances when removing it.

6. Remove the board carefully.



[182] Fastening points (arrows) at the CPU board.

[183] Fastening of the CPU board to the back casing.



[184] Mounted position of CPU board (A) (DPM LH).

Assembly
To assemble the device, follow the steps in the reverse order. Make sure to

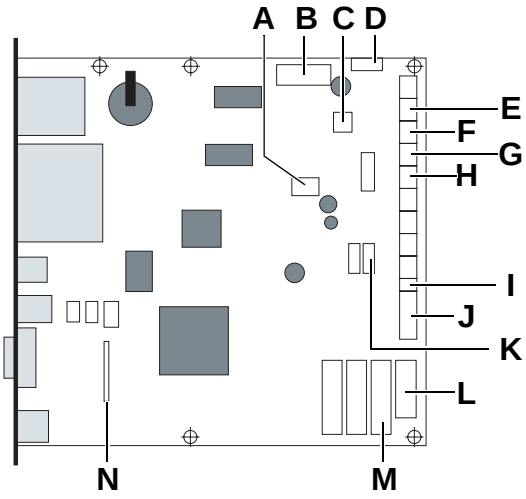
➠ Check any new board before mounting:

– Circuit board version
– Jumper settings

➠ The type and number of cables to be attached depend on the machine's specifications.

❍ Complete connection list: see topic section Electronics Gen. 3, chapter "CPU board".

❍ Connectors on the CPU boards A2292 and A2293: see topic section Electronics Gen. 2, chapter "CPU board".



[185] Connections of the CPU board A6621(Electronics Gen. 3)

A Power supply 5 V
B USI or AI
C USI - Blower - Power supply 24 V
D Rotary encoder
E Backing paper rewinder sensor
F Feed roller sensor
G Material end sensor
H Light transmission label sensor
I Cover switch
J Power supply (data cable)
K Operator panel
L Motor output stages (data cable)
M Printhead
N Centronics interface

Stepper motor output stages

Each of the three end stage circuit boards [186] controls one of the three stepper motors. Each board forms a unit with a cooling element [186A]. The cooling elements are each attached to the DPM base plate with two screws.

Motor - board allocation [187]:

– Foil motor [187B]
– Head motor [187A]
– Feed motor [187C]

Tools

- 3 mm Allen key
- Torx screwdriver size 15 (machines built until 6/2006)

Dismantling

1. Open (DPM) or dismantle (ALX) the rear hood.

❍ See paragraph Housing on page 8.

2. Disconnect the cable from the board.
3. Undo the fastening screws (2 screws) on the board cooling element. Remove the board.

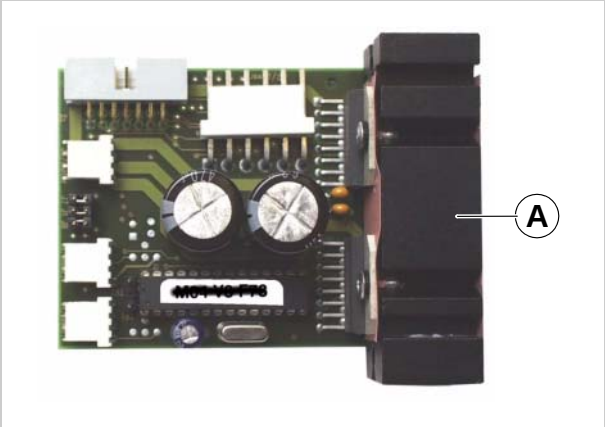
Assembly

To assemble the device, follow the steps in the reverse order. Make sure to

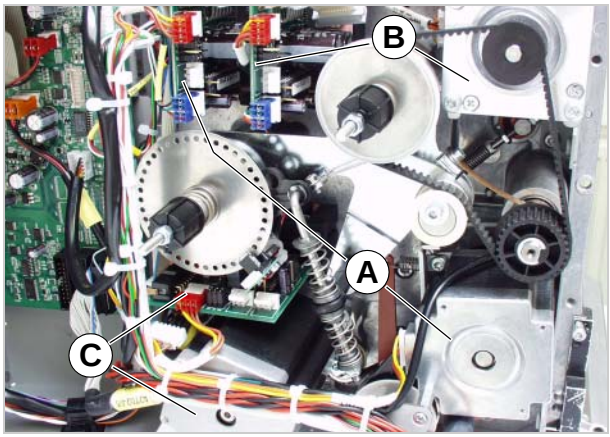
➠ Check any new output stage board before mounting:

– Circuit board version
– PIC version
– Jumper setting (must be appropriate for the motor!)

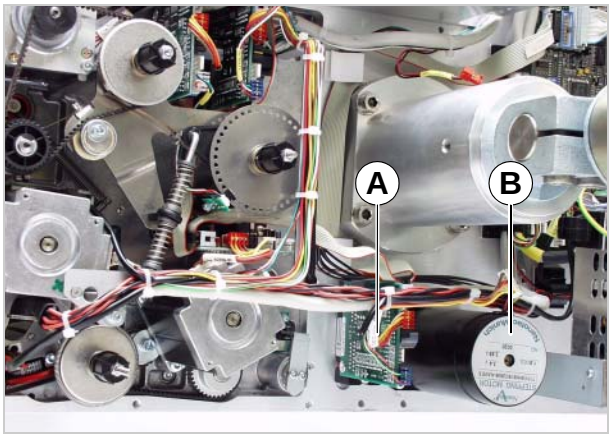
❍ Further information can be found in the topic section Service Electronics, "Output stage board".



[186] Stepper motor output stage



[187] Stepper motors and the corresponding output stages (DPM/LH).
A Head lifting motor
B Foil motor
C Feed motor



[188] The ALX contains an additional output stage (A) for the rewind motor (B).

Operator panel board

Dismantling

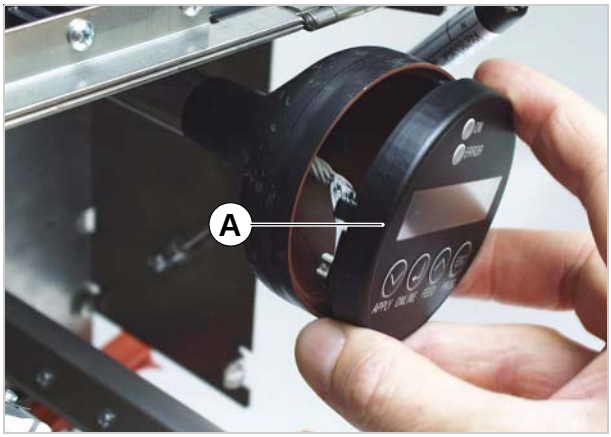
1. Open the front cover.
2. Carefully remove the front part of the operator panel housing [189A]. This does not require tools.
3. Detach the display board.

Assembly

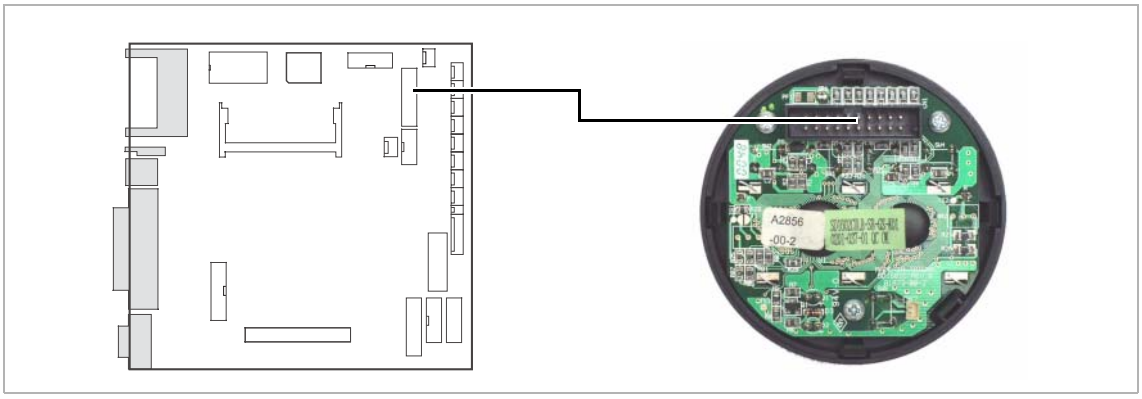
To assemble the device, follow the steps in the reverse order.

➠ If the connection cable has been replaced: plug the cable onto the CPU board as illustrated in [190] and [191].

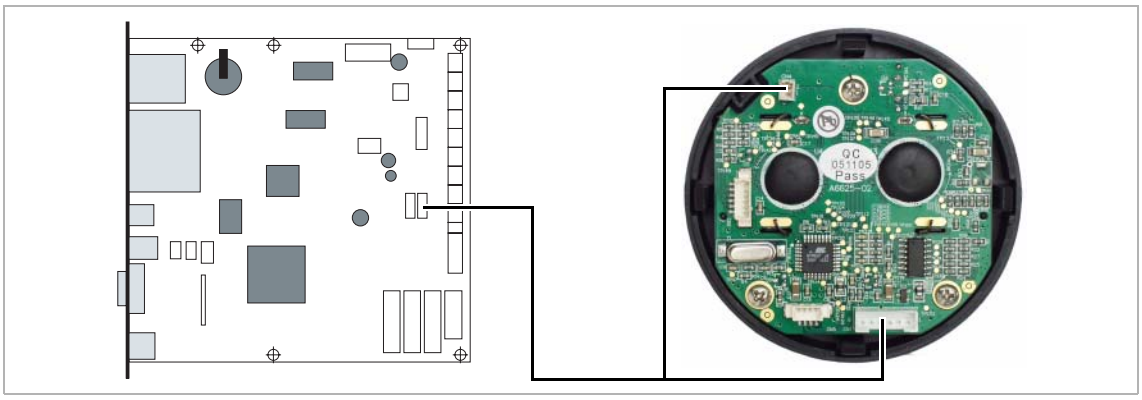
❍ For more information about boards, see topic section Electronics Gen. 2 or Electronics Gen. 3, chapter "Operator panel".



[189] Opening the operator panel.



[190] Connecting scheme operator panel to CPU boards A2292 and A2293 (Electronics Gen. 2).



[191] Connecting scheme operator panel to CPU board A6621 (Electronics Gen. 3).

Power supply (ALX)

WARNING!

Hazard caused by dangerous contact voltage!

➜ After switching off the printer, wait at least 1 minute before touching any electric contacts at the power supply.

Tools
2.5/3mm allen key

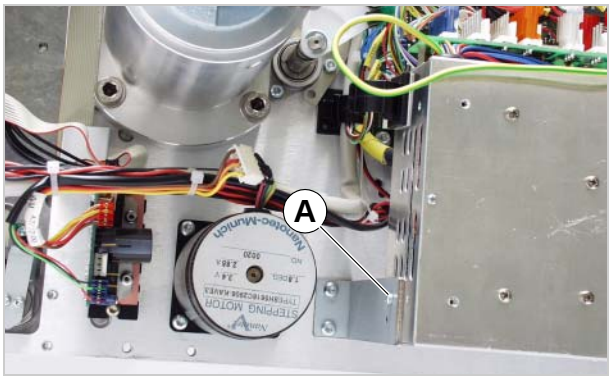
Dismantling

1. Remove rear hood.

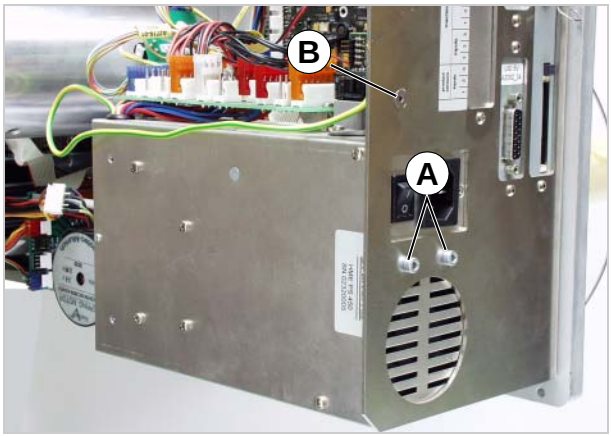
❍ See paragraph Rear hood (ALX) on page 12.

2. Detach all cables from the power supply [192].
3. Remove screw on the inside of the power supply [193A].
4. Unscrew earth contact [194B].
5. Remove screws in the side panel [194A] (2 screws).
6. Remove the power supply.

[192] Power supply



[193] Fastening of power supply (A) to the base plate.



[194] Fastening of power supply (A) to side panel.

Assembly

To assemble the device, follow the steps in the reverse order. While doing so, pay attention to:

WARNING!

Hazard caused by dangerous contact voltage!

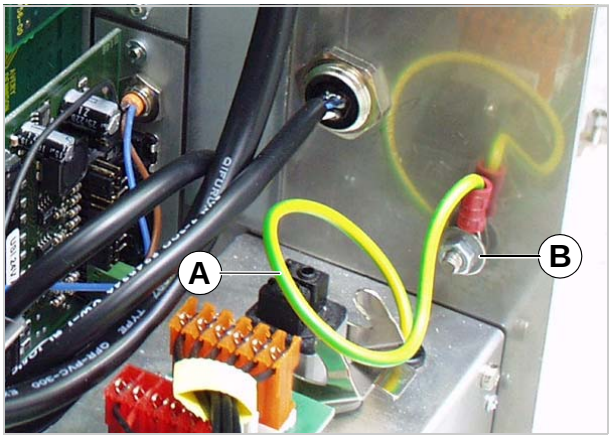
➜ Attach the ground cable to the machine housing.

➜ After assembling, check the machine according to the regulations which are relevant in your country.

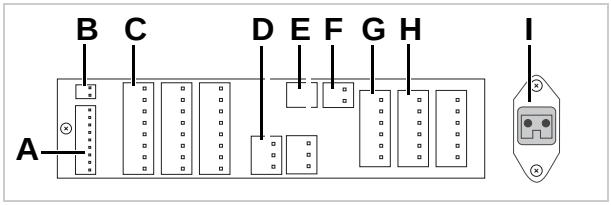
➠ Connect the power supply as shown in the illustration [196].

➠ Screw the ground cable [195A] to the machine housing; assemble the parts in the following order to the threaded bolt: Serrated lock washer - Eyelet [195B] - Serrated lock washer - Nut.

❍ Further information can be found in the topic section Service Electronics, "Power supplies".



[195] Ground cable (A) of the power supply .



[196] Connecting the power supply:

A CPU data (-->CN 403)
B Remote on-off switch
C Printhead
D CPU supply voltage 5 V (-->CN 1401)
E USI / AI basic
F CPU supply voltage 24 V (-->CN 1400)
G Blower
H Output stages
I AI pro

Power supply (DPM, PEM)

WARNING!

Hazard caused by dangerous contact voltage!

➜ After switching off the printer, wait at least 1 minute before touching any electric contacts at the power supply.

Tools

- 2.5/3mm allen key
- Small/medium cross-head screwdriver
- Side-cutting pliers

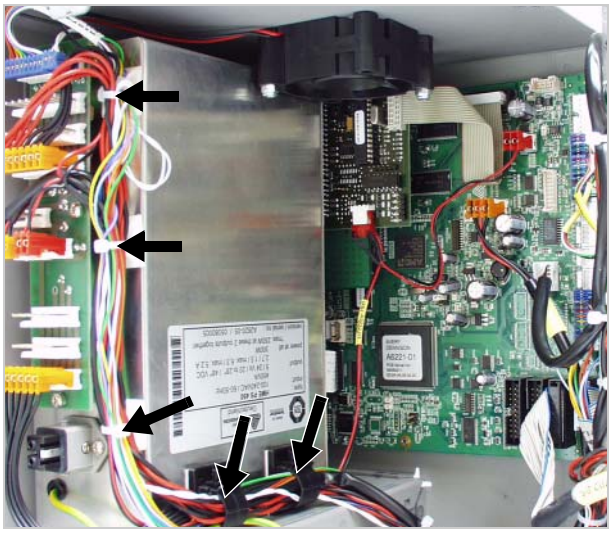
Dismantling

1. Open the rear hood.

❍ See paragraph DPM rear hood on page 9.

2. Detach all cables from the power supply. Open the cable clamps [198A] and separate the cable ties

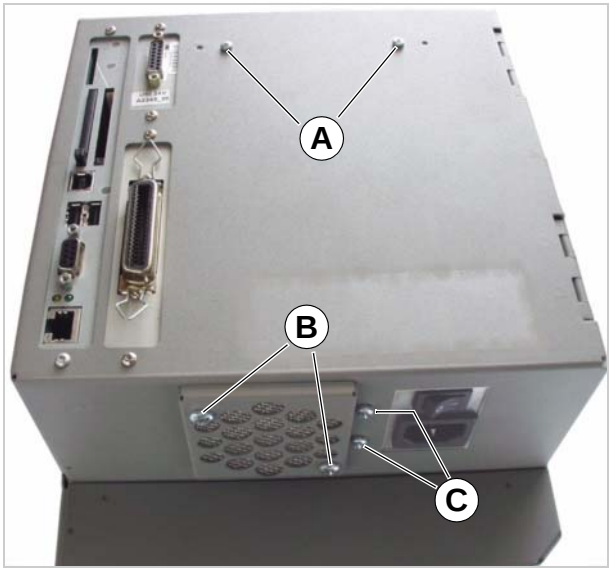
[197] Power supply



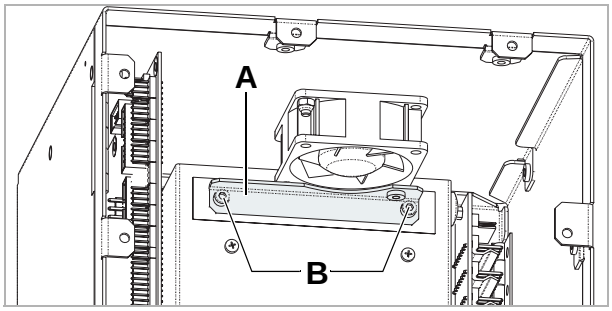
[198] Detach the cable from the fastenings (arrows).

3. Remove screws (2x A, 2x B, 2x C) on the outside of the rear hood [199A-C] (LH-version).

➠ *RH-version*: The both screws [199A] are fixed at a mounting bracket [200A] inside the DPM/PEM. Unscrew them [200B] from this bracket.



[199] Fastening of power supply (A,B,C) to side panel.



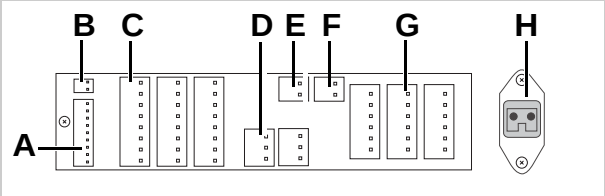
[200] Fixing the power supply with the bracket (A).

4. Take out the power supply.

Assembly
To assemble the device, follow the steps in the reverse order.

⇛ Connect the power supply as shown in the illustration [201].

❍ Further information can be found in the topic section Service Electronics, "Power supplies".



[201] Connecting the power supply:
A CPU data (-->CN 403)
B Remote on-off switch
C Printhead
D CPU supply voltage 5 V (-->CN 1401)
E USI + blower + CPU board
F CPU supply voltage 24 V (-->CN 1400)
G Output stages
H AI

Remote operator panel

Prerequisites

- Device with electronics Gen. 3 (CPU board A6621)
- Drilling for connector mounting is available
- Remote operator panel upgrade kit (article number A8719)
  The upgrade kit contains:
  – Remote operator panel (article number A8293)
  – Internal cable (article number A8380)

Assembly of internal cable (ALX 92x)

Tools

- Cross-head screwdriver, small size
- Hex socket wrench, size 4

Assembly

1. Remove the rear hood, see paragraph Rear hood (ALX) on page 12.
2. a) Drilling hole [204A] for connector mounting is available: remove the cap.

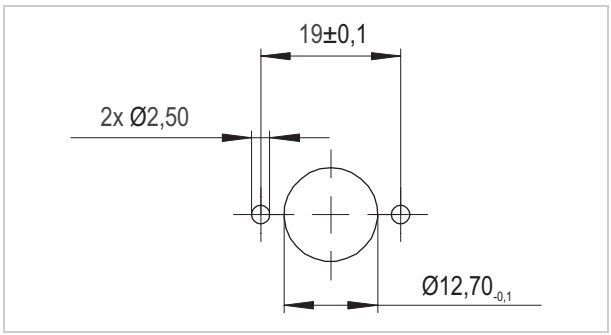
   b) Drilling hole for connector mounting is *not* available: drill the holes according to [203] and [204].
3. Hold the connector from inside against the side panel

➠ The connector key [204B] must face the built-in boards.

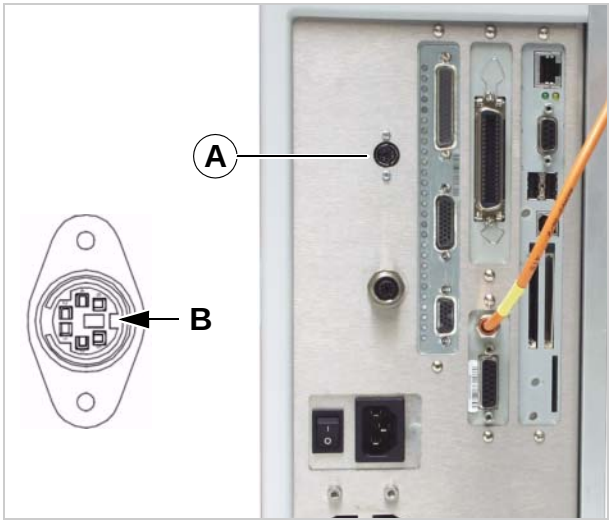
4. Push two screws (M2x16) from outside through the side panel and the connector holes. Mount lock washers and nuts on each of the screws; tighten the nuts. Lock each nut with a second nut [205, arrows].

❍ Continue with step 5 on page 96.

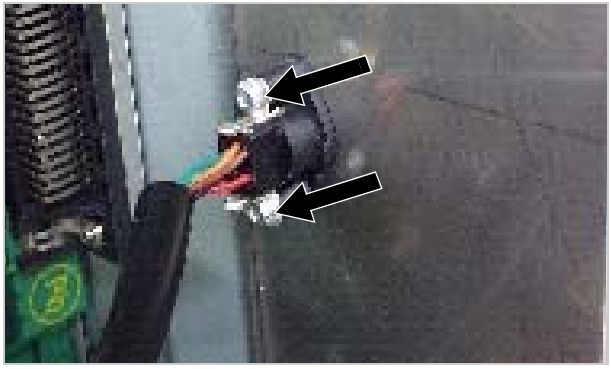
[202] Remote operator panel.



[203] Sizes and positions of drilling holes for the connector mounting.



[204] Connector (A) for the remote operator panel at an ALX 92x side panel (RH). Connector key position (B).



[205] Connector locked with a second nut (arrows) on each side.

Assembly of internal cable (DPM/PEM)

Tools

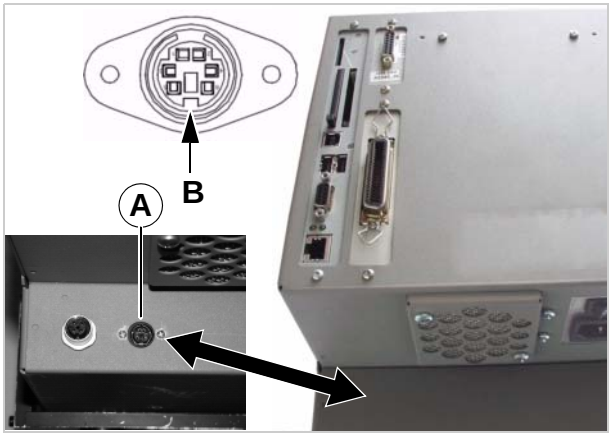
- Cross-head screwdriver, small size
- Hex socket wrench, size 4

Assembly

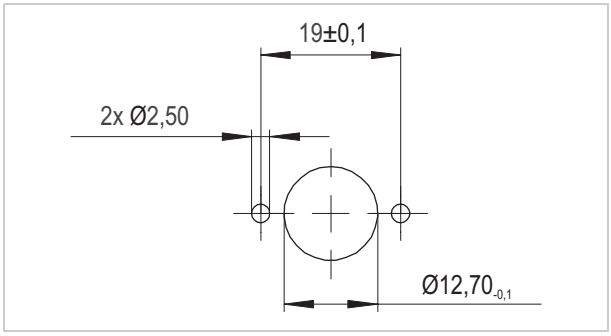
1. Open the rear hood, see paragraph DPM rear hood on page 9.
2. a) Drilling hole [206A] for connector mounting is available: remove the cap.

   b) Drilling hole for connector mounting is *not* available: drill the holes according to [206] and [207].
3. Hold the connector from inside against the side panel

➠ The connector key [206B] must face the bottom of the machine.



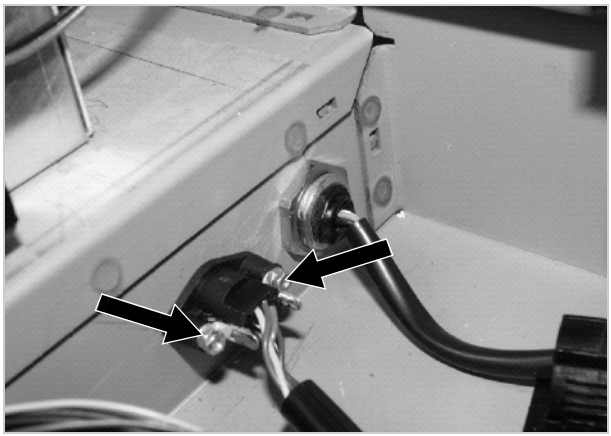
[206] Connector (A) for the remote operator panel at an DPM/ PEM rear hood (RH). Connector key position (B).



[207] Sizes and positions of drilling holes for the connector mounting.

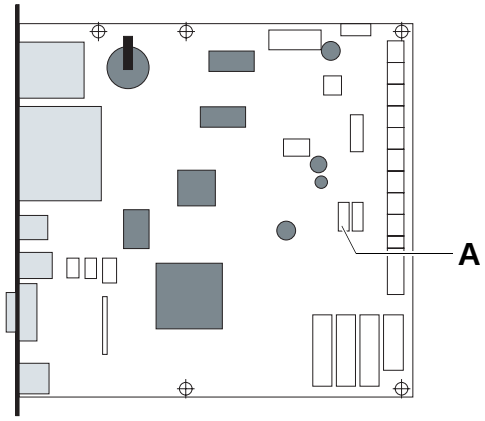
4. Push two screws (M2x16) from outside through the rear hood and the connector holes. Mount lock washers and nuts on each of the screws; tighten the nuts. Lock each nut with a second nut [208, arrows].

❍ Continued overleaf.



[208] Connector locked with a second nut (arrows) on each side.

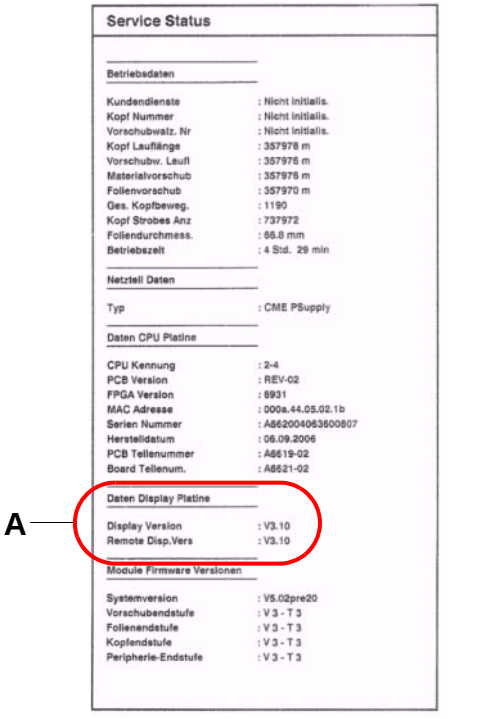
5. Connect the internal cable to connector CN 701 on the CPU board [209A].
6. Attach respectively close the rear hood.
7. Plug in the remote operator panel. Switch on the machine.



[209] Connector (A) for the remote operator panel on the CPU board A6621 (CN 701).

8. Operate the machine using the remote operator panel. Print a service status printout (PRINT INFO > Service status).

   The service printout must show the firmware versions of both operator panels [210A].



[210] The service status printout shows the firmware for both operator panels (A).

CAUTION!

Manipulating both operator panels simultaneously can cause malfunctions.

➜ Always use only one operator panel at a time to operate the machine (Using both operator panels alternately is admissible).

CAUTION!

If the connection cable is longer than 2.5 m, EMC-caused disturbances can occur.

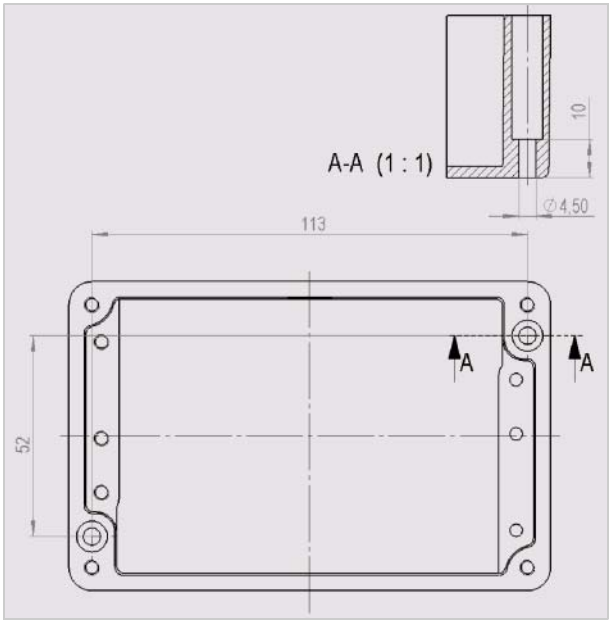
➜ Only use the factory-installed cable.
➜ Don´t extend the cable.

Wall mounting the remote operator panel

Tool
Cross-head screwdriver, medium size

Mounting

1. Drill 2 holes according to the drawing beside [211].
2. Open the operator panel housing (4 screws)
3. Mount the lower part of the housing using 2 M4 screws.
4. Close the operator panel housing.



[211] Hole distances for wall mounting of the remote operator panel.