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Instructions

Perforation Cutter
PCU400

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1.1   Instructions

Important information and instructions in this documentation are designated as follows:

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

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

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

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

Attention!
Draws attention to possible dangers, material damage or loss of quality.

Note!
Gives you tips. They make a working sequence easier or draw attention to important working processes.

Environment!

Gives you tips on protecting the environment.

▶   Handling instruction

▷   Reference to section, position, illustration number or document.

∗   Option (accessories, peripheral equipment, special fittings).

Time   Information in the display.

1.2 Intended Use

- The device is intended exclusively as an option for the printers of the SQUIX and XD Q series for perforating and cutting suitable materials that have been approved by the manufacturer. Any other use or use going beyond this shall be regarded as improper use. The manufacturer/supplier shall not be liable for damage resulting from unauthorized use; the user shall bear the risk alone.

- Usage for the intended purpose also includes complying with that manual.

- The device is manufactured in accordance with the current technological status and the recognized safety rules. However, danger to the life and limb of the user or third parties and/or damage to the device and other tangible assets can arise during use.

- The device may only be used for its intended purpose and if it is in perfect working order, and it must be used with regard to safety and dangers as stated in that manual.

Note!
**All documentations can also currently be found in the Internet.**

Warning!
This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

1.3   Safety Instructions

- Disconnect the printer from the electrical outlet before mounting or removing the cutter.
- The cutter may only be operated when it is mounted on the printer.
- Risk of injury, particularly during maintenance, the cutter blades are sharp.
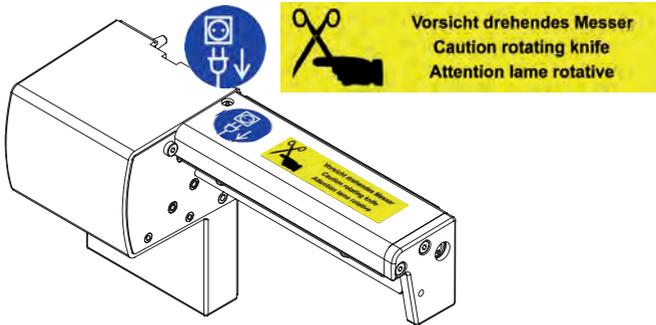
- Work going beyond this may only be performed by trained personnel or service technicians.
- Unauthorized interference with electronic modules or their software can cause malfunctions. Other unauthorized work on or modifications to the device can also endanger operational safety.
- Always have service work done in a qualified workshop, where the personnel have the technical knowledge and tools required to do the necessary work.
- Warning stickers must not be removed, as then you and other people cannot be aware of dangers and may be injured.

1.4   Environment

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

▶ Send to suitable collection points, separately from residual waste.

The modular construction of the device enables it to be easily disassembled into its component parts.

▶ Send the parts for recycling.

▶ Take the electronic circuit boards to public waste disposal centers or to the distributor.

1.5   Technical Data

Perforation Cutter		PCU400/2,5	PCU400/10
for printer type		SQUIX 4, XD Q4	
Material width max.	mm	85	
Material weight cardboard	g/m²	60 - 300	
Material thickness	mm	0.05 - 1.1	
Cutting length	mm	> 5	
Gap height	mm	2.5	
Cut frequency	1/min	120	
Perforation frequency	1/min	150	
Off-cut width	mm	0.5	
Perforation distance	mm	2.5	10
Power supply		peripheral connector of the printer	

> **!** **Attention!**
> **For very thin, very hard or very flexible materials preliminary tests are recommended.**

Removing Cover

1   2   3
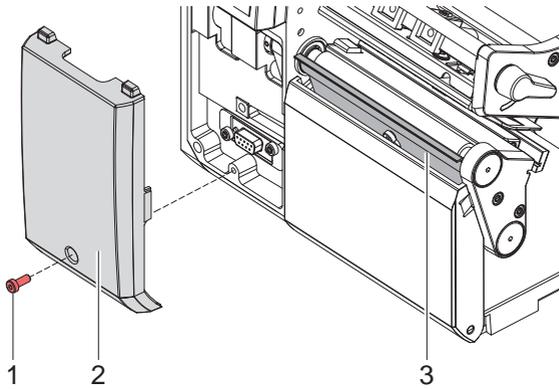
▶ Loosen screw (1) and remove cover (2).

▶ Leave the tear-off or peel-off plate (2) mounted on the printer.

> **! Attention!**
> **For cutter operation there has to be mounted a tear-off plate or a dispense plate on the printer, to lead the material through the blades of the cutter.**

Mounting Cutter

> **!** **Attention!**
> ► **Disconnect the printer from the electrical outlet before mounting or removing the cutter.**

1   2   3   4   5
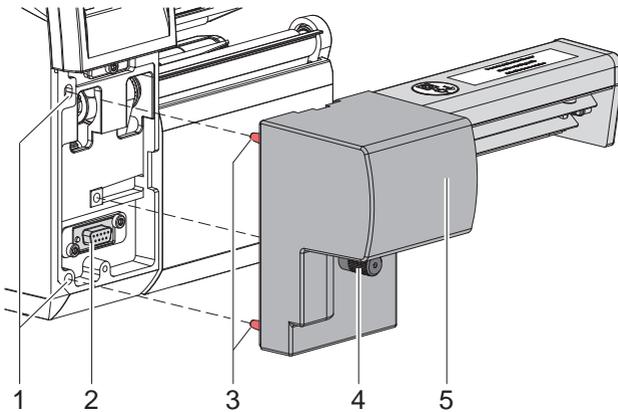
► Insert the pins (3) of the cutter (5) into the holes (1) of the printer.
► Press the cutter against the printer. That way the plug of the cutter will be connected to the peripheral port (2) of the printer.
► Secure the cutter (5) with the screw (4).

3.1   Preparation

▶ Insert labels for tear-off mode ▷ Instructions of the printer.
Place the media strip between the printhead and the drive roller, so that
the front edge of the strip reaches through the cutter.

▶ Insert ribbon ▷ Instructions of the printer.

▶ Activate the commands for perforation or cut-off in the software.
For direct programming use the following commands:

C p   Perforation command
C   Cut-off command
Both commands may be combined, but C p has a lower priority.
▷ Programming Manual

Using the sequence :
C 3
C p
the material will be perforated two times and afterwards cut off.

▶ Configure the cut parameters ▷ 4. Printer Configuration

ⓘ Note!
The cut parameters are only accessible with cutter installed.

⚠ Attention!
**In several label software solutions the perforation command C p
is not implemented. Perforating material via such a software is not
possible.**

▶ For direct programming use the following command :

O Cn   n...Value between 0.0 and 10.0

ⓘ Note!
**If the label software has no setting for the perforation level,
i.e. O Cn is not implemented, the adjustment also may be done
using the printer setup ▷ 4. Printer Configuration.**

3.2   Standard Operation

▶ Switch on the printer.
  The cutter performs a synchronization action.

> **Note!**
> **To operate the cutter with continuous material in the printer menu**
> *Setup* -> *Labels* -> *Label sensor* **the setting** *Continuous media* **has to be**
> **selected. Otherwise no synchronization cut is carried out.**

▶ Press   . For synchronization the media will be moved forward and
  cut off.
  That synchronization is not necessary when the printhead was not opened
  between print jobs, even if the printer was powered off between print jobs.

▶ Send a print job.
  All labels in a print job will be printed without stopping and be perforated or
  cut as chosen in the software : after each label, after a specific quantity of
  labels, or at the end of a print job.

> **Note!**
> **Between the print jobs a direct cut can be released by pressing**
> **   on the control panel.**

> **Note!**
> **In case the material do adhere in follow of electrostatic charge it's**
> **possible to mount an antistatic brush (Part No. 5977339.001) on the**
> **printer.**

3.3 Operation Without Cover Plates

Due to the most varied materials it can come in rare cases to transportation problems of the material depend of the cover plates.
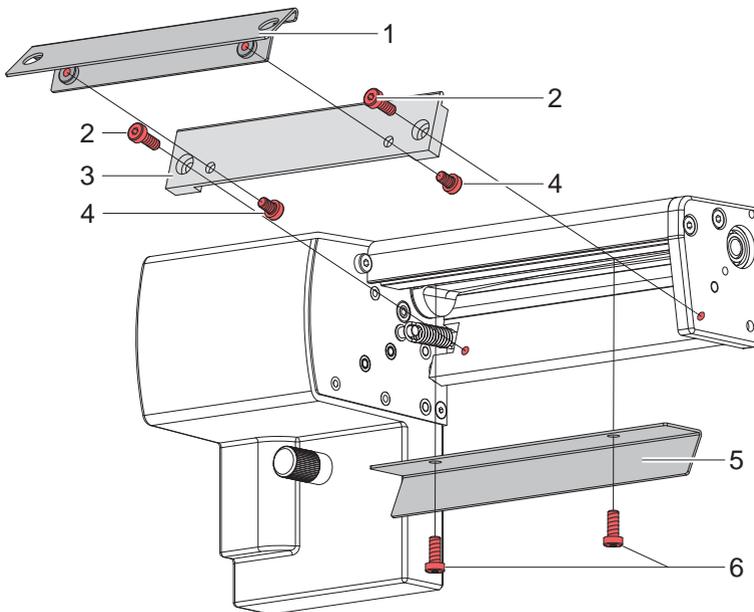It's possible to clear this problem with dismounting the cover plates.

⚠️ **Warning!**
Risk of injury!

▶ **If the cover plates for a better performance should be removed, appropriate compensating measures are to be arranged for the guarantee of security!**

⚠️ **Warning!**
Risk of injury! The cutter blades are sharp!

▶ **Disconnect printer from electrical outlet .**

1. Switch off the printer and demount the cutter.
2. Loosen screws (6) and detach cover plate (5).
3. Loosen screws (2) and detach support (3) with attached over plate (1).
4. Loosen screws (4) and detach cover plate (1) from support (3).
5. Re-mount support (3).

Mounting in reverse order.

i **Note!**
The values of the setup are basic settings for the current printer/ cutter combination.
After changing the cutter or printer a re-adjustment may be necessary.

Changes required for processing different print jobs should be implemented by additional offsets available in the software.

The offset values from setup and software are added together for execution.

For detailed instructions for configuration
▷ **Configuration Manual of the printer.**

Cut Parameters

▶ Start menu.

▶ Select ⚙ *Setup >* ✂ *Cutting.*

	Parameter	Meaning	Default
✂	*Cut position*	Offset of the cut position relative to the rear label edge.	*0.0 mm*
		The setting can also be adjusted by the software. The settings of configuration and software are added together.	
⊔⊔⊔	*Perforation level*	Setting of the perforation depth.	*0*
		The setting can also be adjusted by the software. The settings of configuration and software are added together.	

Backfeed

▶ Start menu.

▶ Select 🞂 *Setup >* 🖾 *Printing.*

Parameter		Meaning	Default
⛃	*Backfeed*	Method for backfeeding the label medium.	*smart*
		Backfeeding is necessary in the cutting and peel-off modes since a label is pushed out passed the front edge of the next label above the print line when peeling off/cutting.	
		always: Backfeeding occurs independently of label contents.	
		smart: Backfeeding only occurs when the next label is not yet completely prepared when peeling off/cutting the current label. Otherwise, the second label is pushed on and completed after removal of the first label without backfeeding.	

Label Sensor

▶ Start menu.

▶ Select 🞂 *Setup >* 🞂 *Labels.*

| Parameter		Meaning	Default
⛃	*Label sensor*	Method for detecting the starting end of the label.	*Gap sensor*
		Gap Sensor: Detection using changes in the transparency between the label and label gap.	
		Bottom-Reflect: Detection using reflex marks on the bottom of the medium.	
		Continuous media: Checking the existence of media only.	

5.1 Cleaning

⚠️ **Warning!**
► **Disconnect the printer from the electrical outlet.**

❗ **Attention!**
Risk of injury. The cutter blades are sharp.
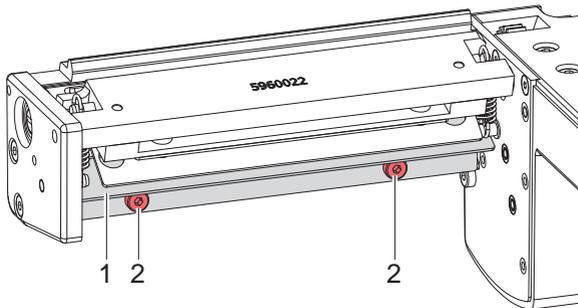
1. Remove the cutter from the printer.
2. Loosen the screws (2) and remove the upper cover sheet (1).
3. Remove dust and paper particles with a soft brush or a vacuum.
4. For cleaning the circular blade it is possible to turn the axle (3) with a screwdriver for slotted head screws (slot width 7 mm). The turn angle is limited by the support (7).
   If it is necessary to turn the circular blade further, loosen the screws (6) and remove the support (7) incl the lower cover sheet (8). Now the circular blade can be turned completely.
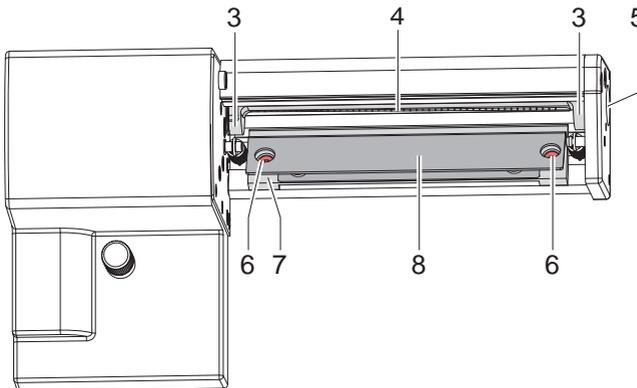
5. Remove all deposits at the cutter blades with isopropyl alcohol and a soft cloth.

6. Grease the cylindrical areas (4) at both ends of the circular blade (5) with an All round-High quality Grease. For that hold a greased brush on the cylindrical areas and turn the axle (3) with a screwdriver for slotted head screws (slot width 7 mm).
    During the turning the areas are all-around greased.

7. If the support was removed during cleaning, adjust the initial state of the cutter ▷ 5.3 on page 20.

8. Mount the upper cover sheet (1) with the screws (2) and the support (7) incl. the lower cover sheet (8) with the screws (6).

5.2 Changing the Blades

⚠ **Warning!**
   ▶ **Disconnect the printer from the electrical outlet.**

1. Remove the cutter from the printer.
2. Remove the upper cover sheet ▷ 5.1 on page 16.
3. Turn the axle (3) of the circular blade (2) with a screwdriver for slotted head screws (slot width 7 mm) so that the inscription (1) of the blade points downward. In this position the set screw (4) on the gear wheel can be achieved from the rear of the cutter.
4. Loosen the set screw (4) a few turns.
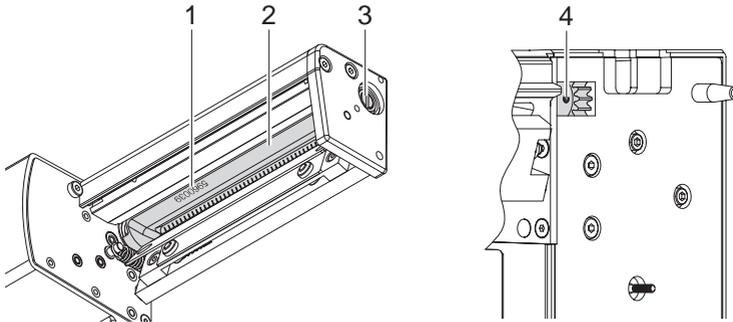
ℹ **Note!**
   ▶ **Save the washers (A, B, C) for the circular blade (2) and the lineal blade (11) when dismounting the cutter.**

❗ **Attention!**
   The springs (6, 13) are tense.
   ▶ **Always hold tight lineal blade (11) in its position and push its axle slightly to the mounting plate (9) of the cutter.**

5. Loosen the screws (8) and remove the bearing plate (15). The spring (13) becomes slack.
6. Remove spring (13) from the lineal blade.
7. Pull the circular blade (2) out of the bearing (5). The spring (6) at the lineal blade becomes slack.

If the lineal blade should not be changed skip to step 13.

8. Remove the support incl. the lower cover sheet ▷ 5.1 on page 16.
9. Remove spring (6) and lineal blade (11).
10. Insert the axle of the (new) lineal blade withe the washer (B) in the bearing (10) of the mounting plate.
11. Hang in the slack spring (6) to the pins of the mounting plate (9) and the lineal blade (11).
12. Re-mount the support incl. the lower cover sheet.
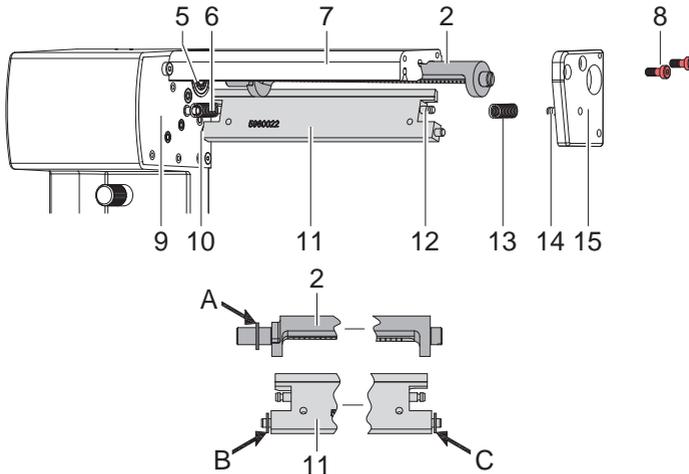
13. Turn the lineal blade (11) backwards. The spring (6) gets tense.
14. Insert the Axle of the (new) circular blade (2) with the washer (A) in the bearing (5) of the mounting plate.
15. Place the washer (C) on the axle of the lineal blade.
16. Hang in the slack spring (13) to the pins (12,14) of the lineal blade and the bearing plate.
17. Push the bearing plate (15) onto the blade axles (2, 11). The spring (13) gets tense.
18. Append the bearing plate (15) to the profile (7) using the screws (8).
19. Tighten the set screw (4) at the gear wheel.
20. Turn the circular blade (2) in such a position that the edges of the circular and lineal blade touch each other.
21. Tighten the screws (8) and check that circular and lineal blade touch each other. If necessary loosen and tighten the screws (8) again.
22. Lubricate the circular blade ▷ 5.1 on page 16 and adjust its initial state ▷ 5.3 on page 20.
23. Re-mount the upper cover sheet ▷ 5.1 on page 16.

5.3 Setting the Initial State of the Cutter

To operate the cutter correctly after cleaning or after changing the blades the circular blade (4) and the clock wheel (11) must be adjusted to each other.
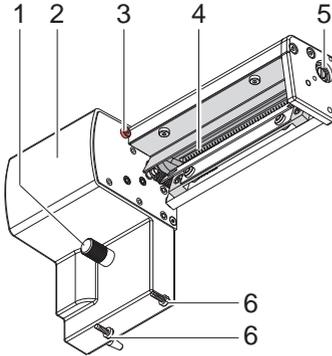

1. Unscrew the screws (1), (3) and (6, at the rear).
2. Remove the cover (2).
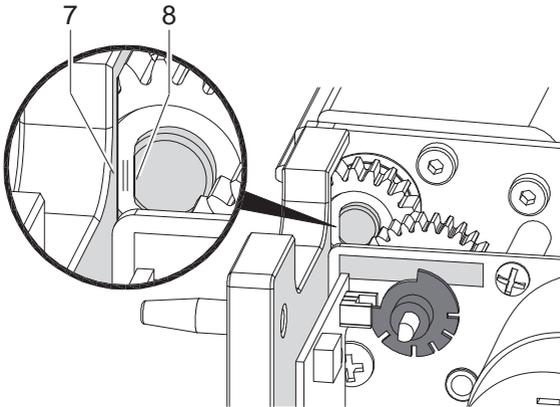
3. Turn the axle (5) of the circular blade with a screwdriver for slotted head screws (slot width 7 mm) so that the planar area (8) of the blade axle becomes parallel to the base plate (7).

1 - right   2 - wrong   3 - wrong
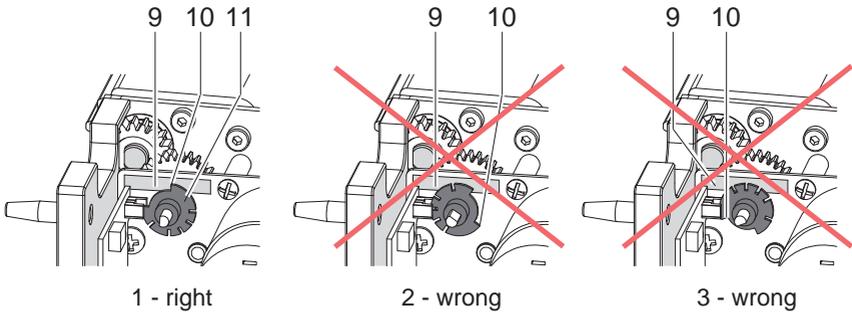
4. Check the position of the clock wheel (11).

• If the clock wheel is in the right position 1, the edge (10) of the clock wheel (11) is located in the area of the marking (9).

• If the clock wheel is in position 2 or 3 turn the circular blade to reach the position 1 :
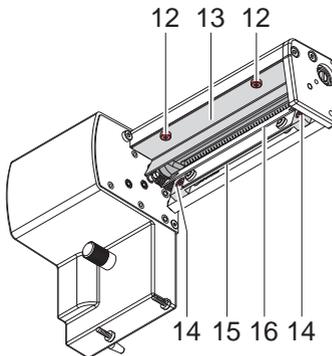
• Loosen screws (12) and remove upper cover sheet (13).

• Loosen screws (14) and remove support (15) incl. lower cover sheet (16).

• Turn the circular blade by one or two full turns, until the planar area (8) of the blade axle becomes parallel to the base plate (7) again and the clock wheel reaches the position 1.

• Re-mount upper cover sheet (13) and support (15) incl. lower cover sheet (16).

5. Mount the cover.

Error message	Cause	Remedy
Cutter blocked	Cutter cannot return into its home position and stays in an undefined position	▶ Switch off the printer. ▶ Remove material. ▶ Switch on the printer. ▶ Restart print job. ▶ Change material
	No cutter function	▶ Switch the printer off and then on. ▶ If error recurs call service.
Media too thick	The cutter is unable to cut the labels but is able to return into its home position	▶ Press *Cancel* ▶ Change material.

7.1 Reference to the EU Declaration of Conformity

The perforation cutters of the PCU series comply with the relevant fundamental regulations of the EU Rules for Safety and Health:

- Directive 2014/30/EU relating to electromagnetic compatibility
- Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment

EU Declaration of Conformity

▷ https://www.cab.de/media/pushfile.cfm?file=2789 📄

7.2 FCC

NOTE : This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. The equipment generates, uses, and can radiate radio frequency and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user may be required to correct the interference at his own expense.

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