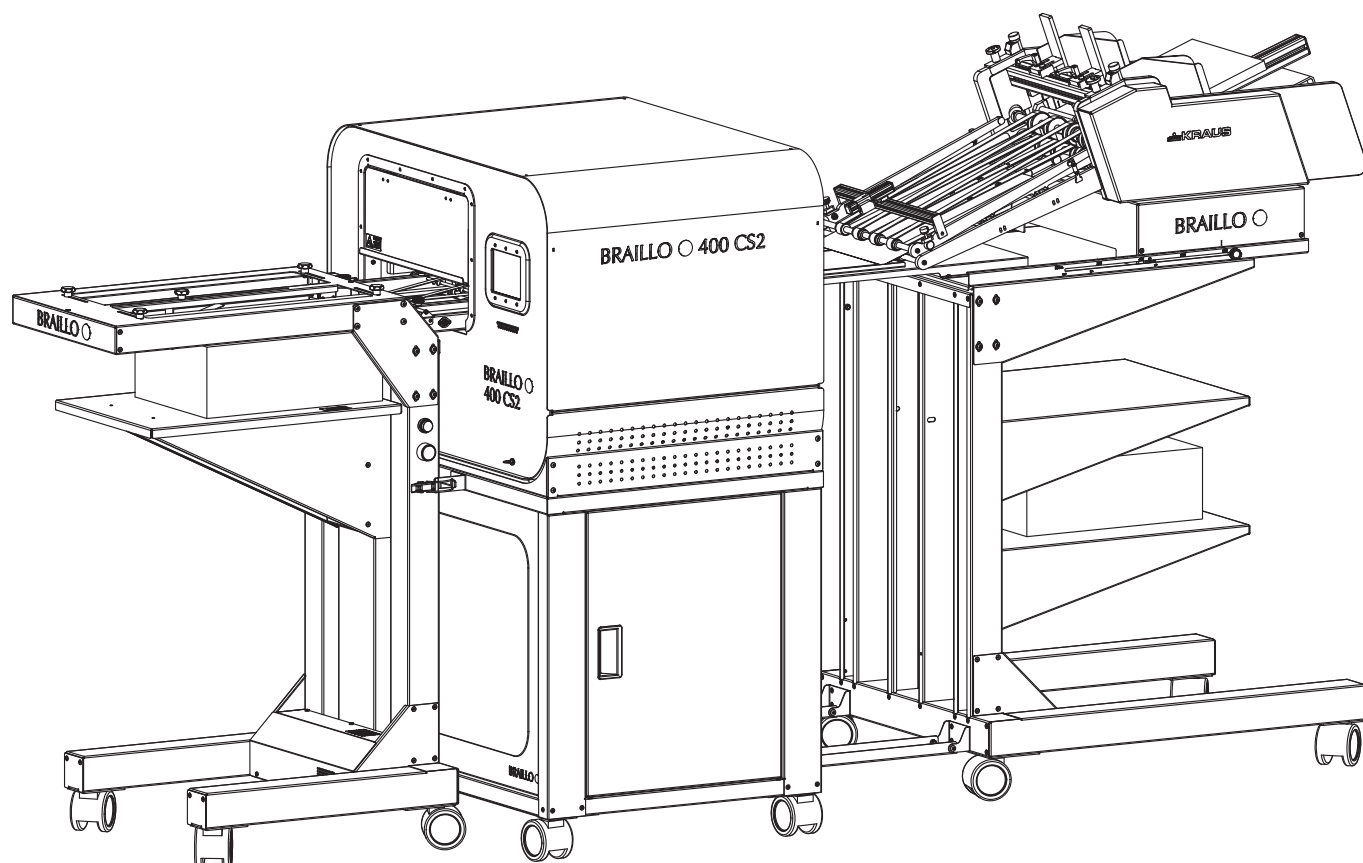


BRAILLO 400 CS2.1



User's Guide



Dear Valued Customer,

Thank you for purchasing a Braillo braille printer and placing your trust in our company and products.

I know that the purchase of a production braille printer is a big one, and we are proud that you have chosen us. You have joined a close community that includes the largest and most important braille production centers in the world.

Since 1980, Braillo has manufactured the finest braille printers available, many of which are still being used today. We provide a comprehensive warranty up to 4 years, which is unmatched in this industry. For further peace of mind, your Braillo is upgradeable, meaning that as technology changes, your printer will have the ability to change with it. Our goal is to manufacture a braille printer that when properly maintained by following the instructions in this manual, will not only last decades, but will also produce braille that is recognized as the highest quality available.

We rely on a close cooperation with our customers and we encourage your suggestions for improvements. Please take a moment to register your printer so we can provide a lifetime of technical support, updates and special prices.

Again, thank you for giving us this opportunity to serve you.

Best regards,

A handwritten signature in blue ink that reads "Patrick N. Nunnelly". The signature is stylized with a large, looped 'P' and a trailing flourish.

Patrick N. Nunnelly
Managing director

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1. PRINTER BASICS

Thank you for your purchase of the Braillo 400 CS2.1. Please read this manual carefully before installing and operating this printer.

Key features

- Prints interpoint, both sides of the sheet are printed simultaneously
- Specially designed to print 4 pages/sheet (like e.g. newspapers, magazines)
- Prints up to 400 characters per second
- Self-test system that checks the magnets continuously during printing
- Reliable, sturdy construction
- Safety switches will turn the printer off if someone accidentally opens the cover while printing

Maximizing the operational life of your Braillo printer

Many 30-year-old Braillo printers are still in daily operation – a testament to their quality. To maximize the life of your Braillo printer, we strongly recommend using the correct tools, which come with your printer; as well as following the correct procedures, which we prescribe in the manual and reinforce in our training courses.

Additionally, just as the wrong wrench can ruin a nut, using poor quality braille paper can ruin the printer's pins, print shoes and moveable parts by causing them to wear out prematurely. Failures due to user negligence of this nature, just as repairs carried out by untrained personnel, may compromise your warranty rights.

Braillo recommends using our specialized braille paper and having your printer serviced by certified technicians who have successfully completed our training course.

More information regarding our training courses can be found on our website:

<https://braillo.com/braillo-services/>
<https://braillo.com/event-registration/>

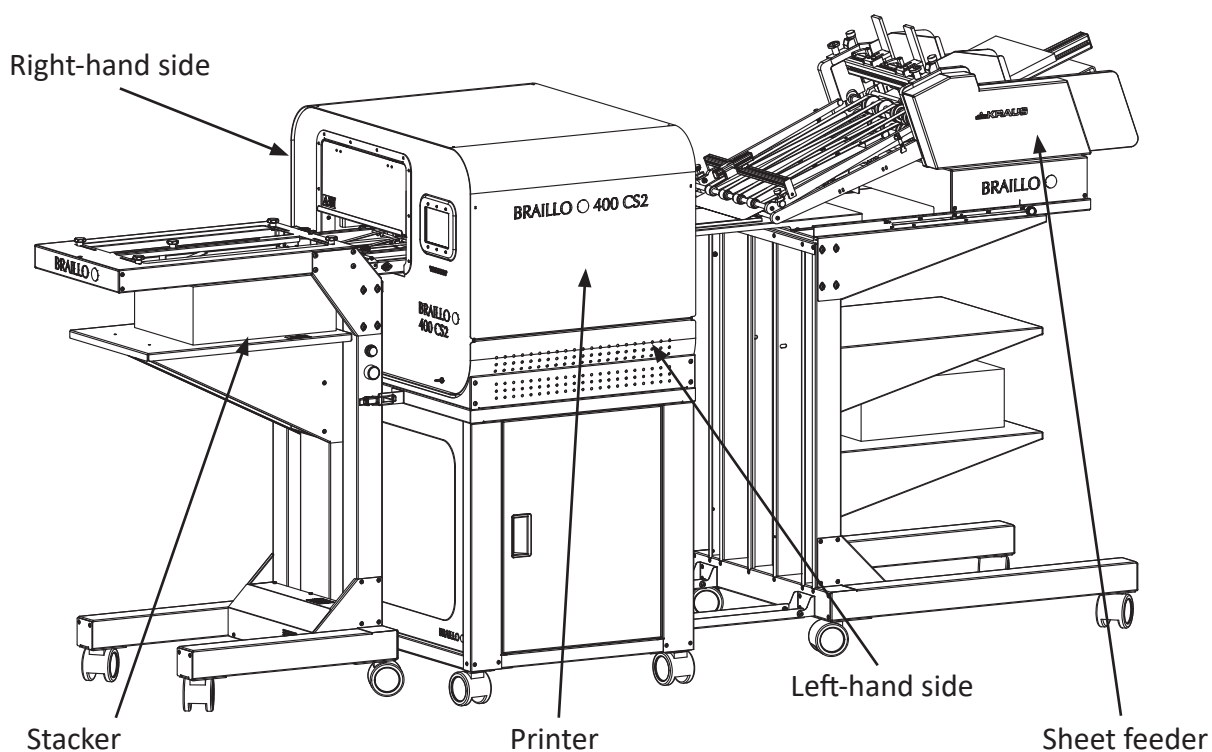
More information on our braille paper can be found on our websites:

<https://braillo.com/braille-paper/>
<https://braillepaper.com/>

Printer overview

Please see the figure below.

Note that the right-hand and left-hand sides are defined as if you were standing behind the printer, facing the opening where the paper is inserted.



2. INSTALLATION

Space

The minimum space required for the Braillo 400 CS2.1 is approximately 3.0 m x 2.0 m (10 x 6.5 feet). At least 1.0 m (3 feet) free space is required on both ends so paper sheets can be added and embossed sheets removed.

Environment

Braillo printers are made to operate continuously and to be reliable for many years. However, sensitive electronic and mechanical components require a suitable installation environment to ensure long and trouble-free operation. The temperature should be between 15° and 30°C (60° - 86°F), and the relative humidity should be between 40% and 60%.

Maintain a clean environment, as dust may clog the printer, especially when combined with high humidity. Too low humidity should also be avoided to prevent electrostatic problems.

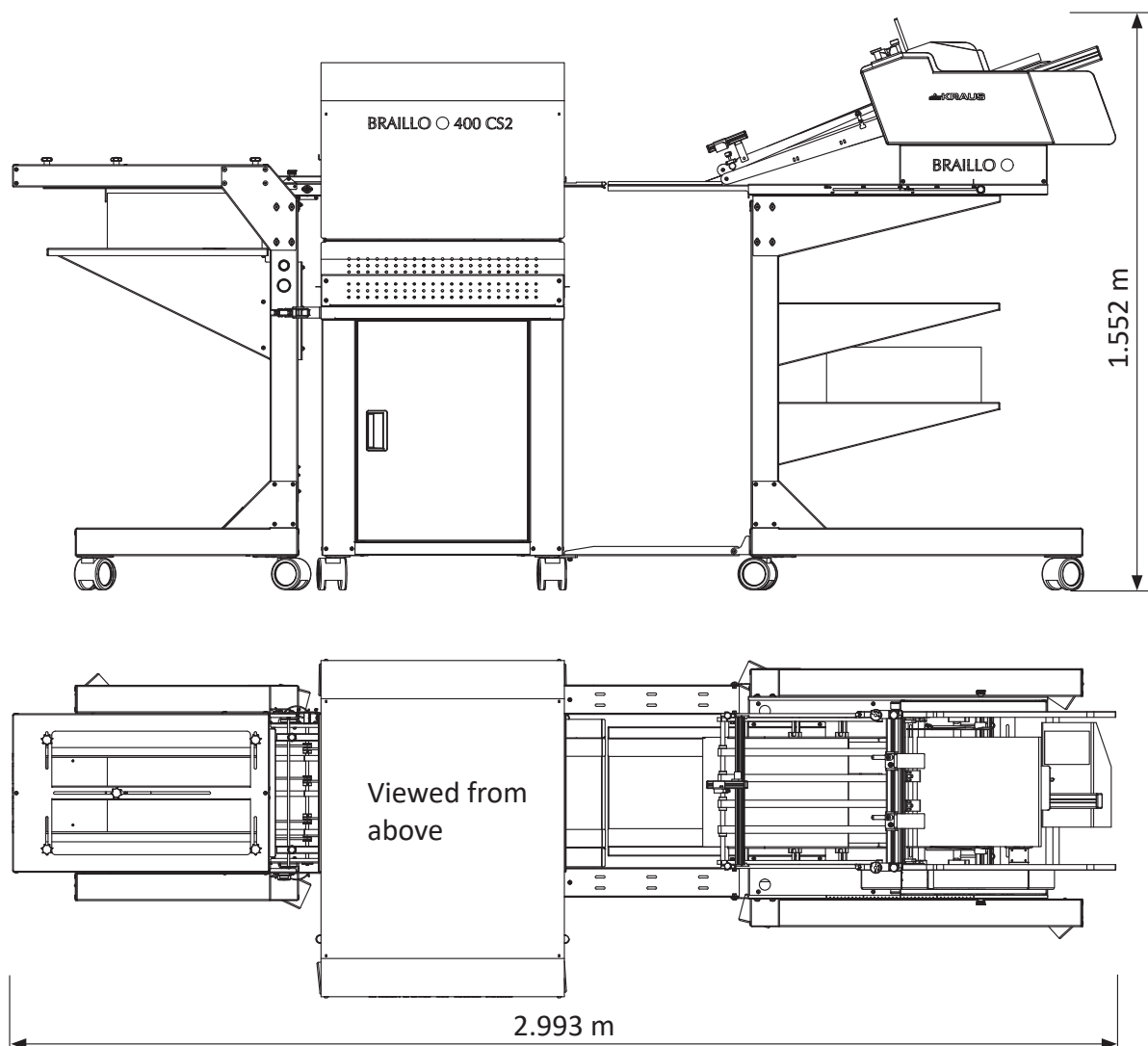
Some paper qualities may generate excessive paper dust. This should be removed with a vacuum cleaner and a damp cloth. (approx. every 50,000 sheets).

Electrical

Single-phase 230 volt (+/- 10%), 50/60 Hz. Circuit breakers should be at least 6 amps.

Be sure to consult your distributor or supplier for further details concerning the installation site.

Failure to meet the installation requirements may relieve the supplier of any warranty responsibilities.



2.1 Unpacking

Unpacking and installation can be carried out by the user.

Any lifting of the printer must always be performed from the base of the printer and should be done with extreme care.

Make sure that your Braillo printer has not been damaged during transport. Check whether the packing is damaged; if so, the printer may also be damaged or scratched. If any damage is found, please contact your distributor or Braillo Norway AS immediately.

The total shipment consists of three pallets. Make sure that the following items are included.

Pallet with the printer:

- Power cable for the printer
- Data cable (USB)
- Data cable (Ethernet)
- Printer User's guide
- Tool kit for service and maintenance

Pallet with the sheet feeder:

- Sheet feeder
- Sheet feeder manual
- Sample paper

Pallet with the CS2 Stacker and the sheet feeder base:

- CS2 Stacker
- Guide plate with 2 magnetic guides
- 8 wheels
- Belt unit
- Sheet feeder base

If any of these items are missing, please contact your distributor or Braillo Norway AS.



Important!

It is very important that the printer's specified voltage value, 230V, +/- 10%, corresponds to the local mains power supply.

If the plug on the mains power cable needs to be replaced, note that the yellow/green wire is the grounding (earthing) wire. See section ["2.10 Secure the grounding" on page 23](#) for more information.



Note! The printer must always be connected to ground.

After the printer is unpacked, we advise that the transport boxes are stored for possible later use.

2.2 Add the wheels to the printer

Place the wheels under the Stand, one in each corner.

This can most easily be done by following the procedure described below.

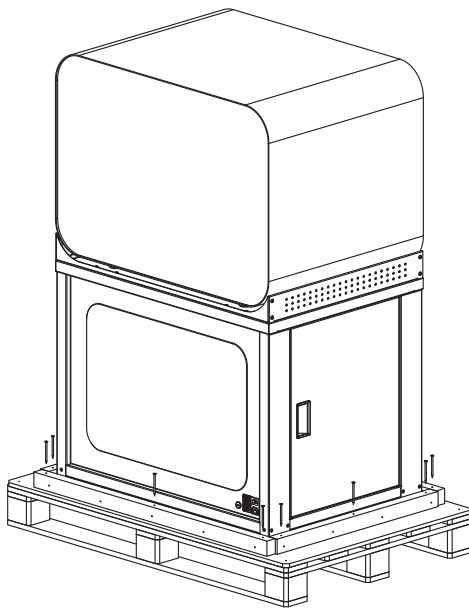
Make sure that at least two persons are present while performing this task.



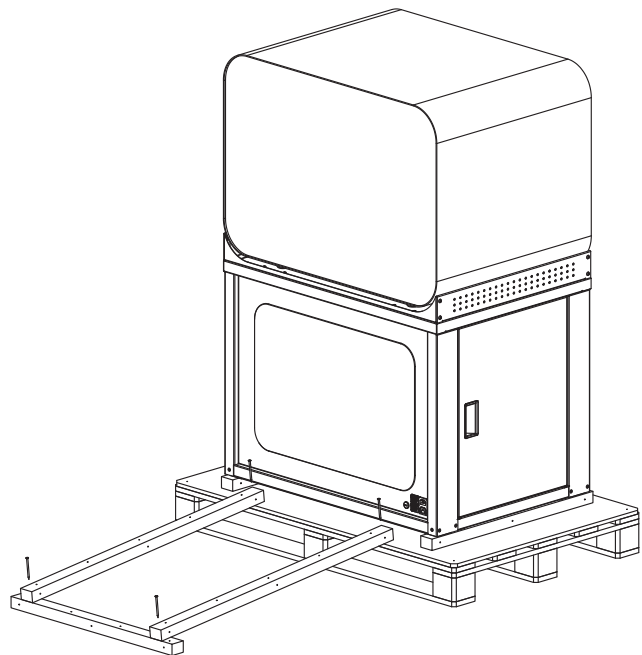
Note! Do not lay the printer on its side to mount the wheels.

How to add the wheels to the stand

1. Remove the strapping and the cardboard box

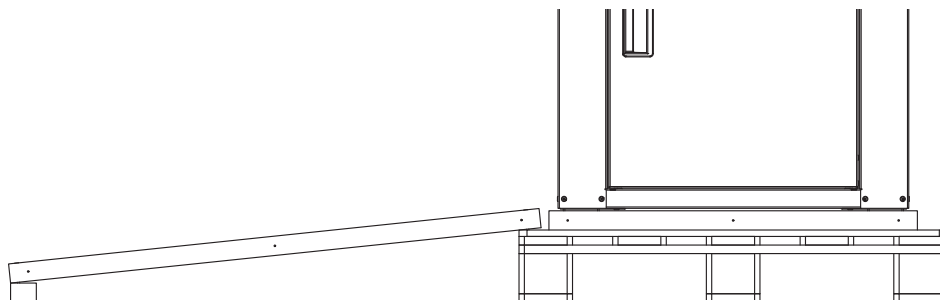


2. Remove the screws and the four wooden strips around the printer.



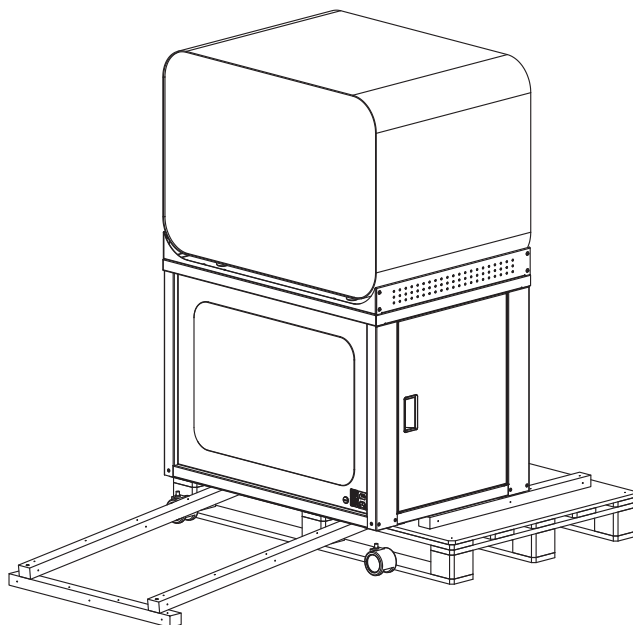
3. Create a slope using the two long and one short wooden strips, and place them like shown in the figure above.

Note! Use screws to secure both ends on the long wooden strips.

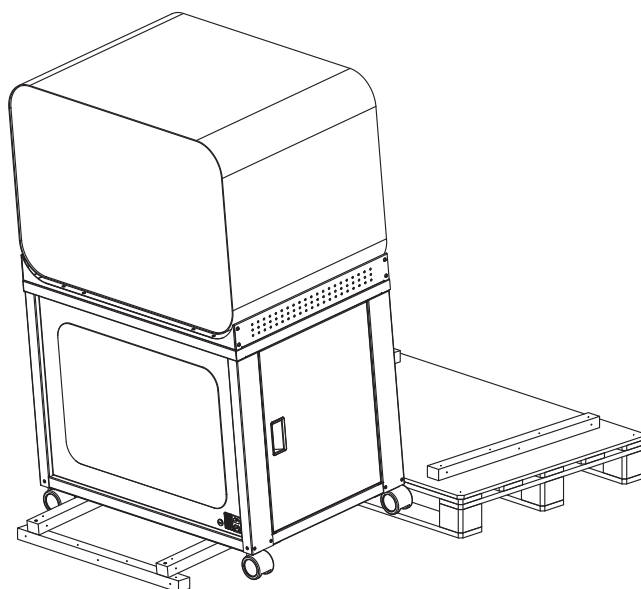


When completed, it should look as shown in the side view.

Ensure that two persons are present for steps 4 and 5.



4. Carefully slide the printer out sideways and mount the first two wheels. Use the thin 13 mm wrench from the tool kit to tighten the wheels.



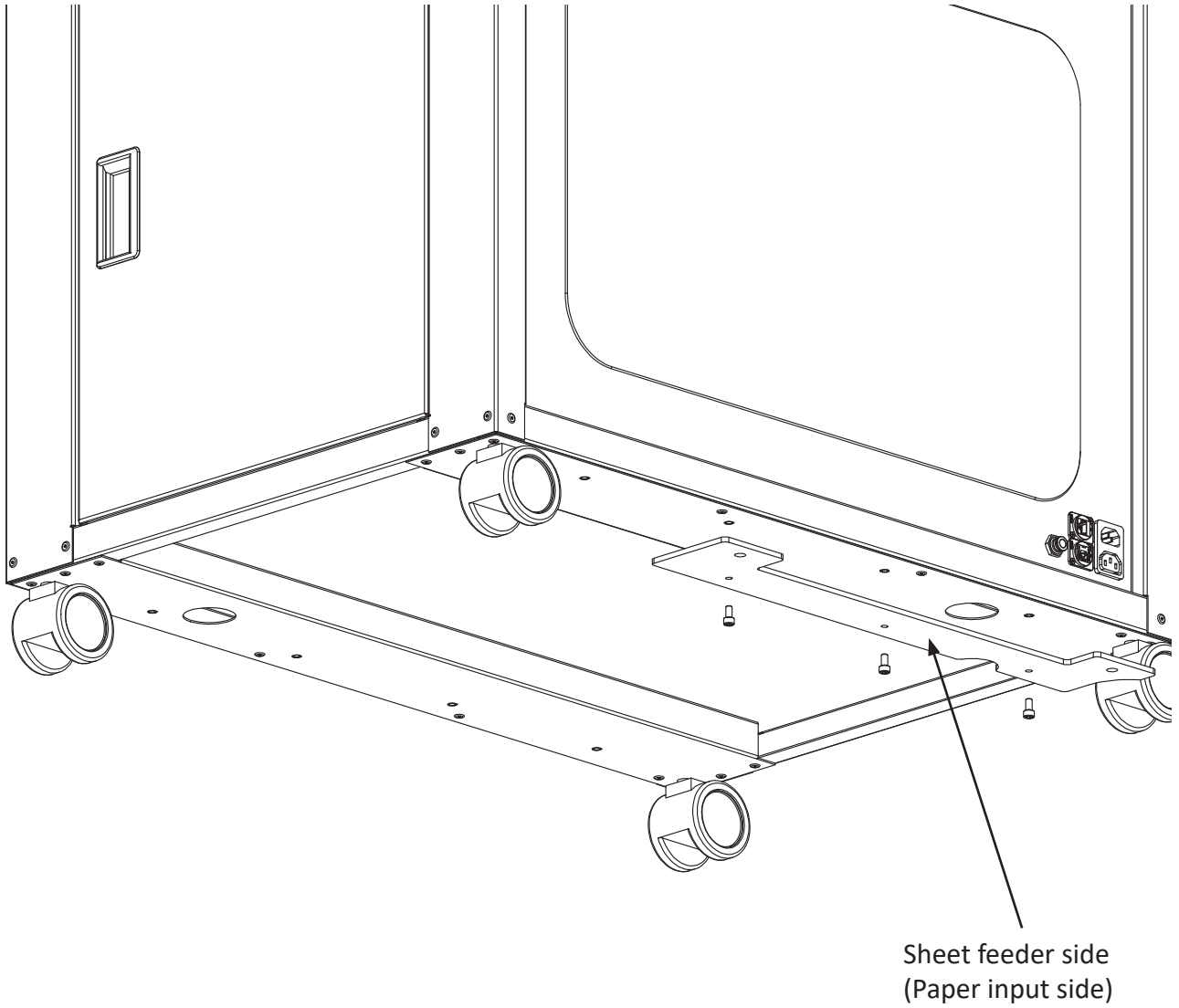
5. Then slide the printer further down the slope so that the last two wheels can be mounted. Finally, pull it further down until the printer can roll onto the floor.

2.3 Add the connection plate under the printer

Place the connection plate under the printer as shown in the figure below.

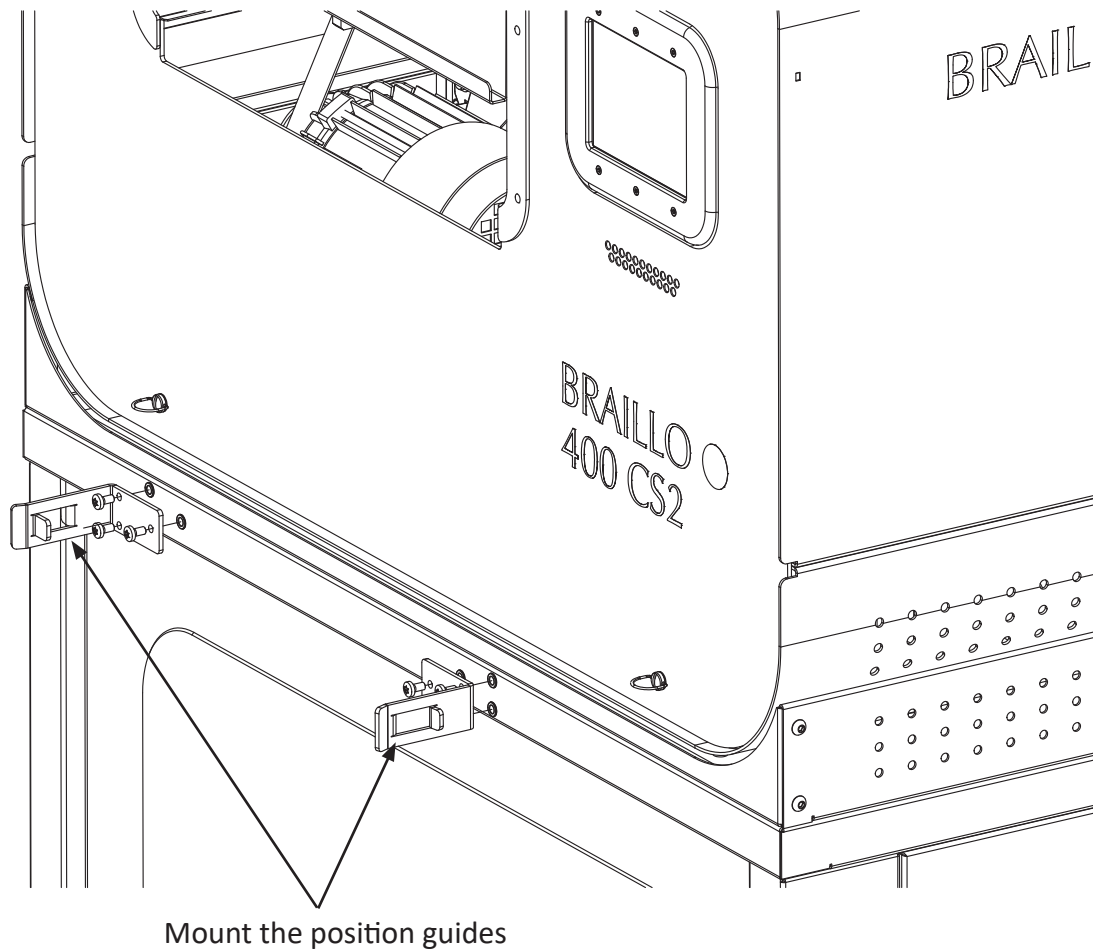


Note! Do not lay the printer on its side to mount the plate.



2.4 Adding the position guides

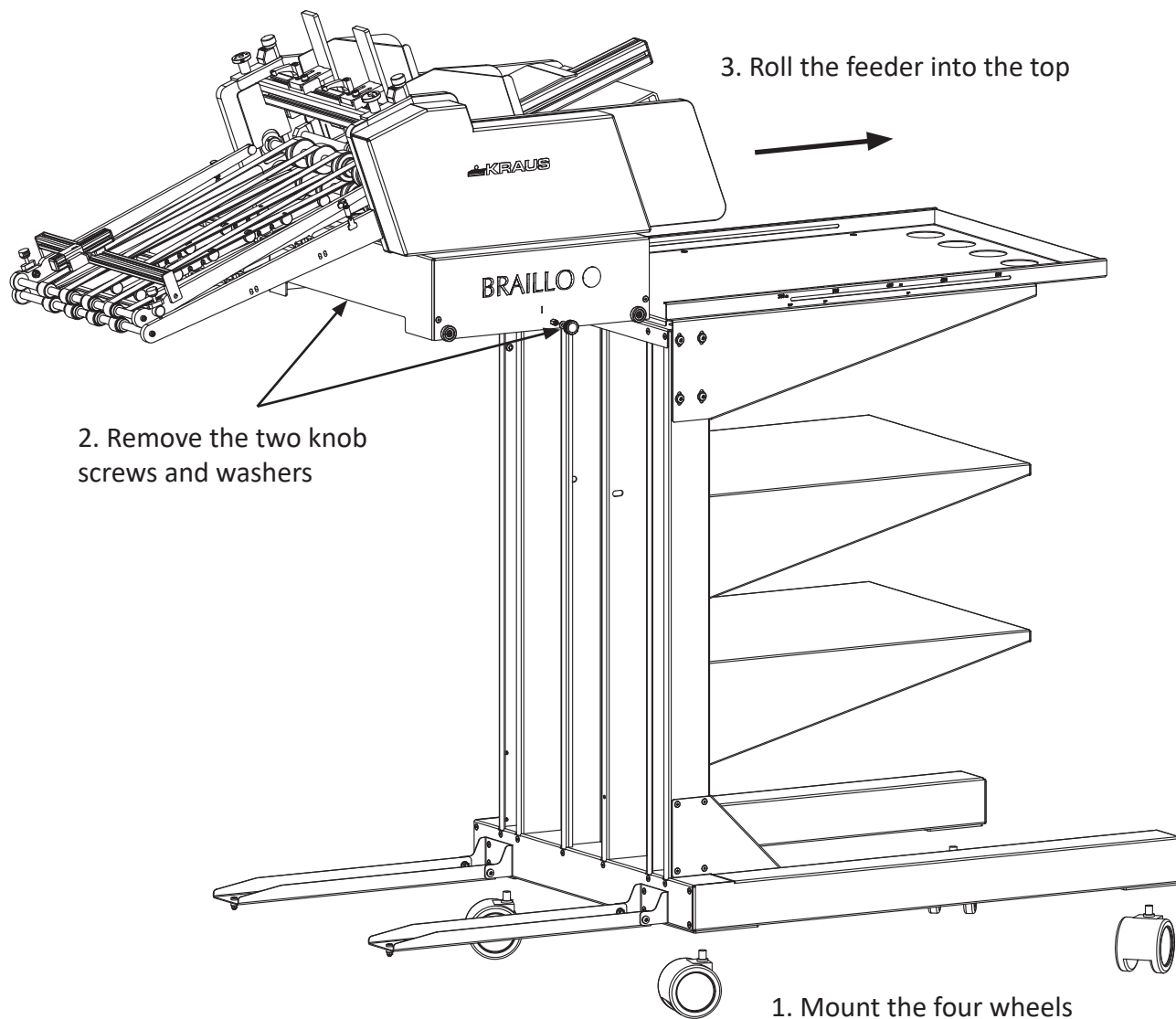
Mount the position guides for the CS2 Stacker on the printer.

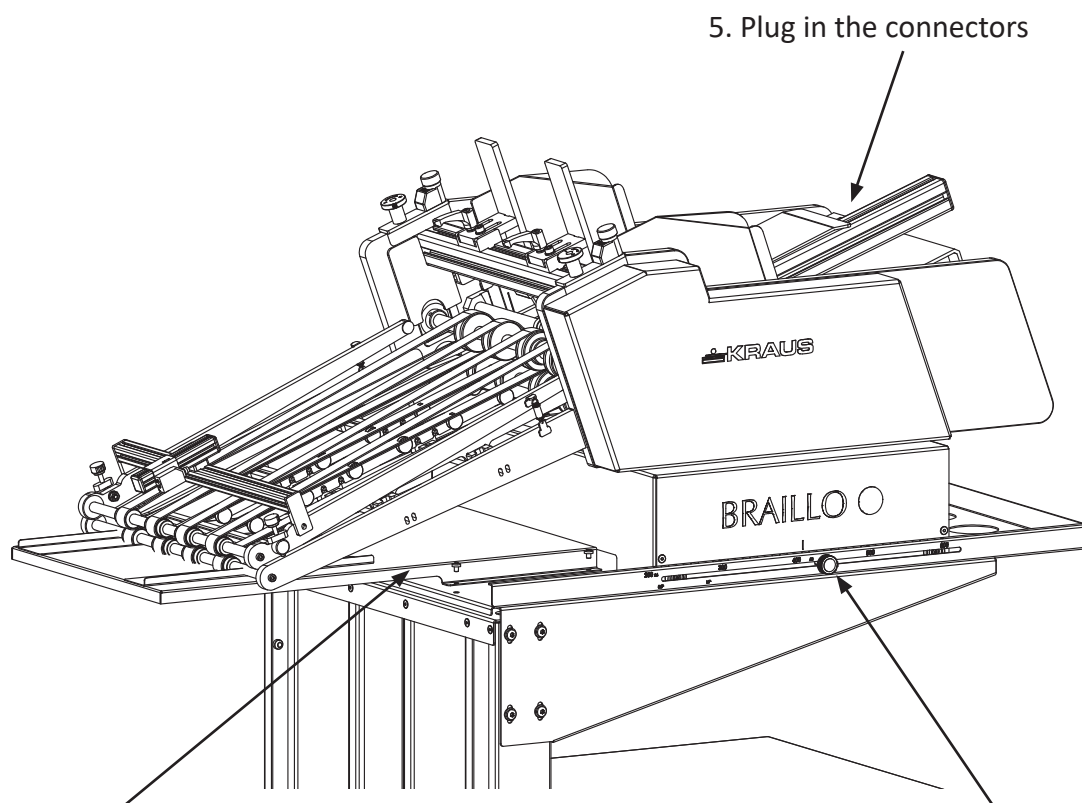


2.5 Assemble the Sheet feeder

This task requires two persons.

1. Mount the four wheels
2. Remove the two knob screws and washers from the feeder
3. Lift the feeder and roll it into the top of the feeder base
4. Reinstall the two knob screws and washers and tighten them to secure the feeder
5. Connect the two cables at the back of the feeder
6. Add the guide plate





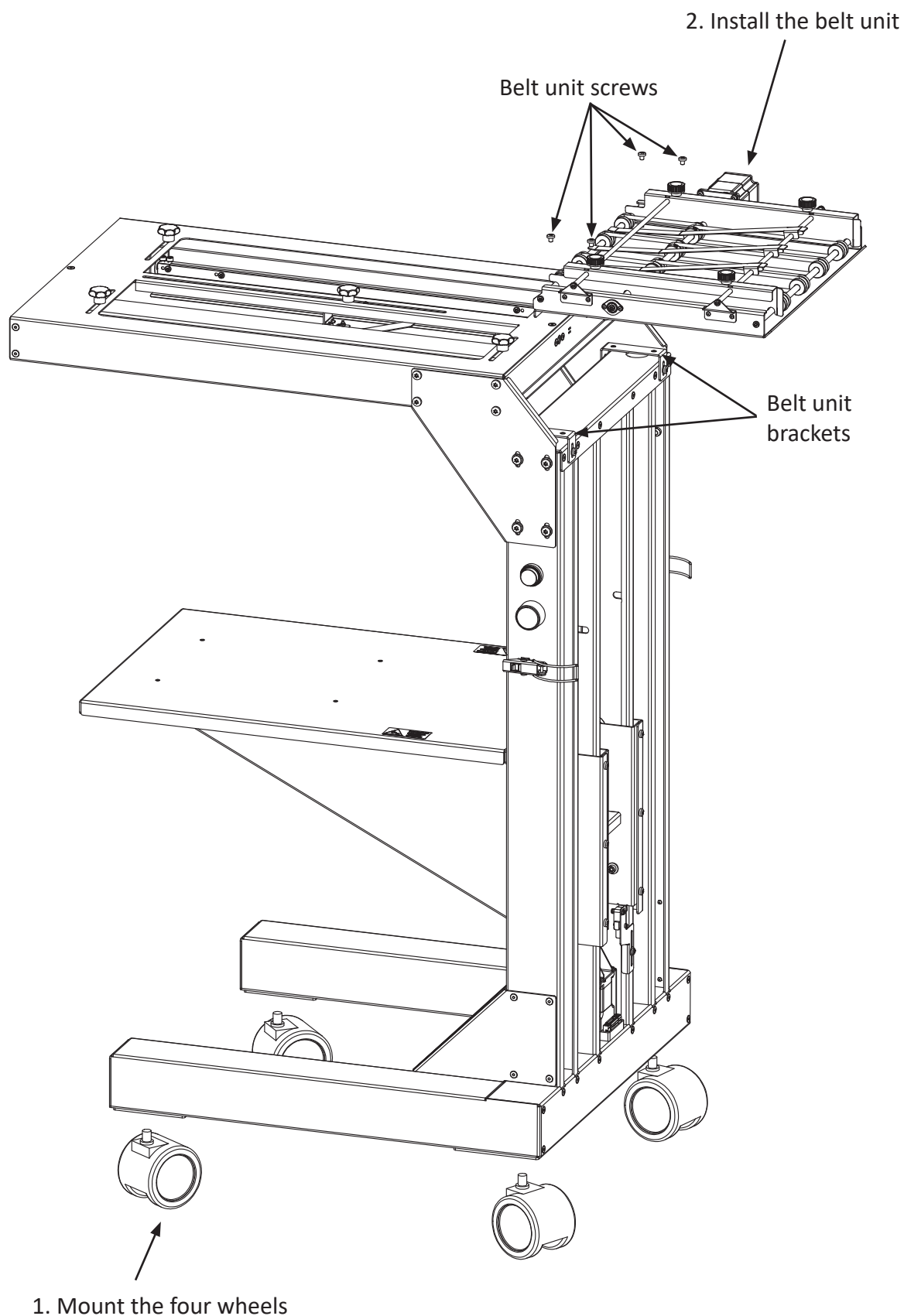
6. Add the guide plate using the four screws

4. Reinstall the two knob screws with washers and tighten them

2.6 Assemble the CS2 Stacker

This task requires two persons.

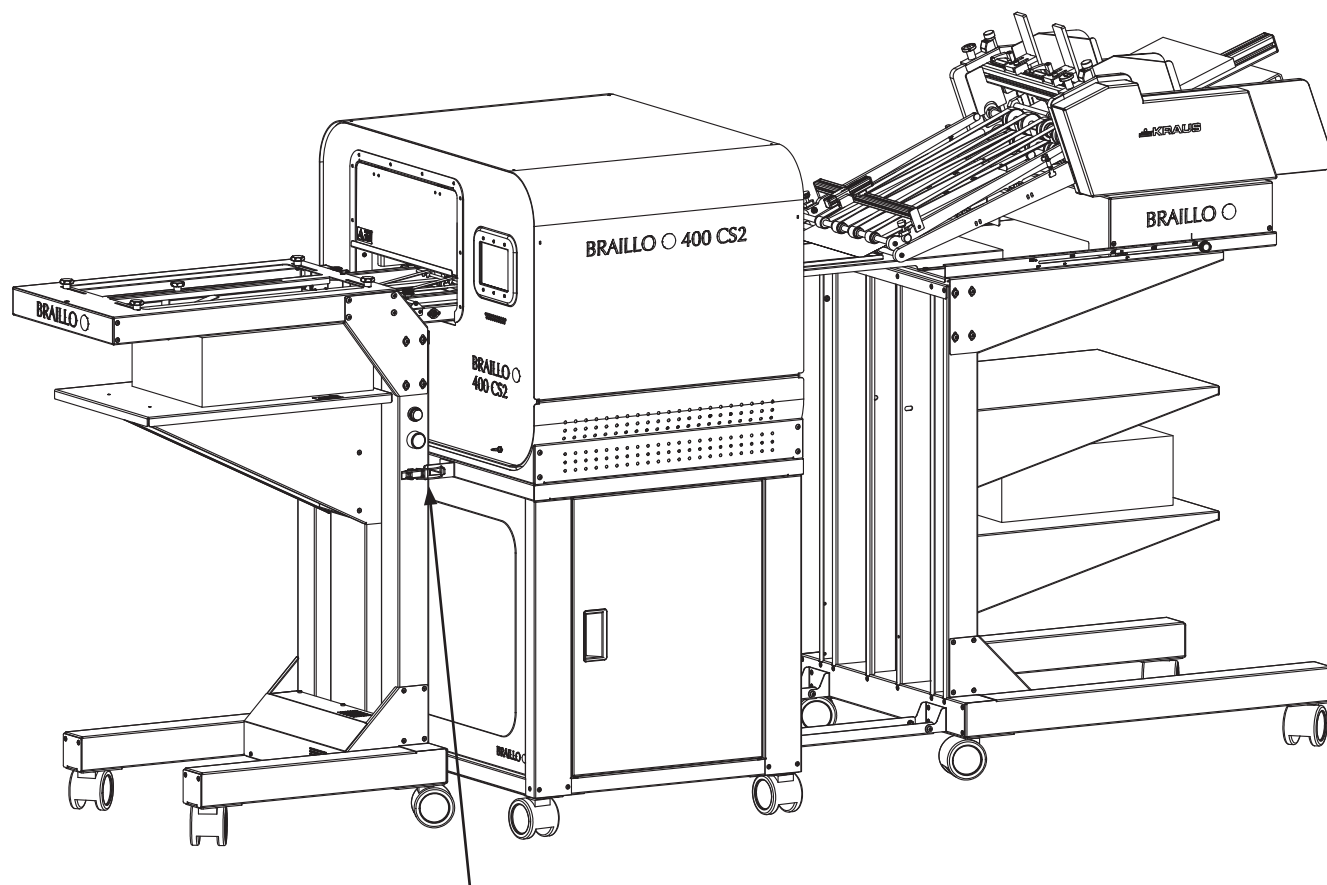
1. Mount the four wheels
2. Install the belt unit and connect the connectors to the motor



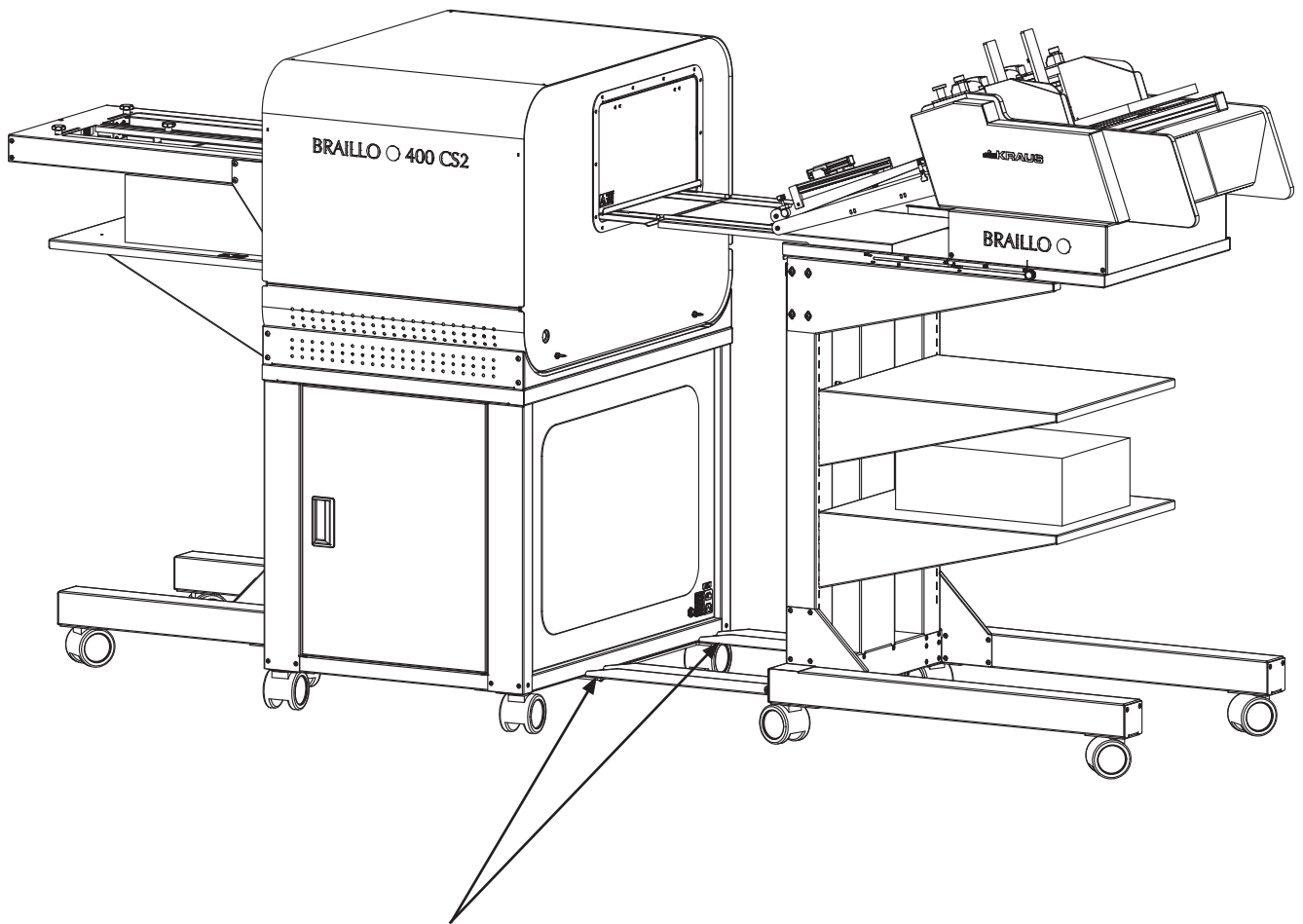
2.7 Place the units

To position the CS2 Stacker correctly in relation to the printer, use the quick-release latches on the stacker and the guides on the printer stand.

The Sheet feeder locks in place by inserting the guiding pins into the holes in the plate on the printer stand. See the figure below and on next page.



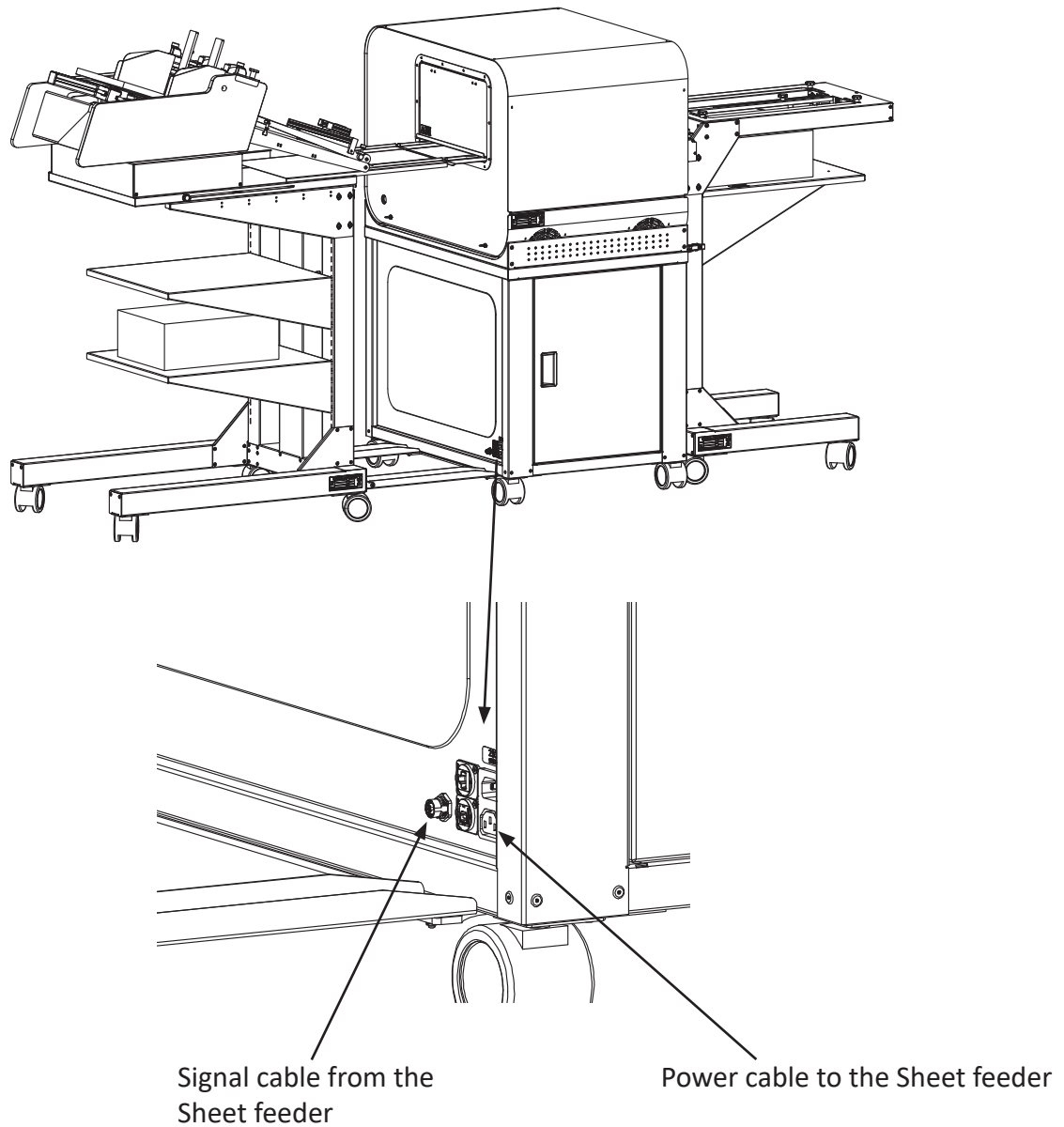
Quick-release latches and guides
for positioning the CS2 Stacker.



Place the Sheet feeder so that the guiding pins fit into the holes in the plate on the printer stand

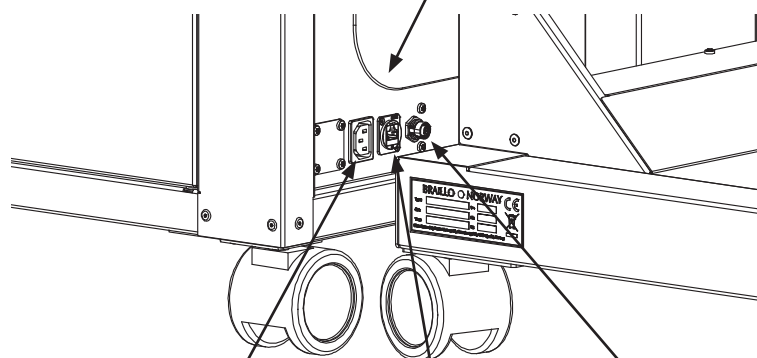
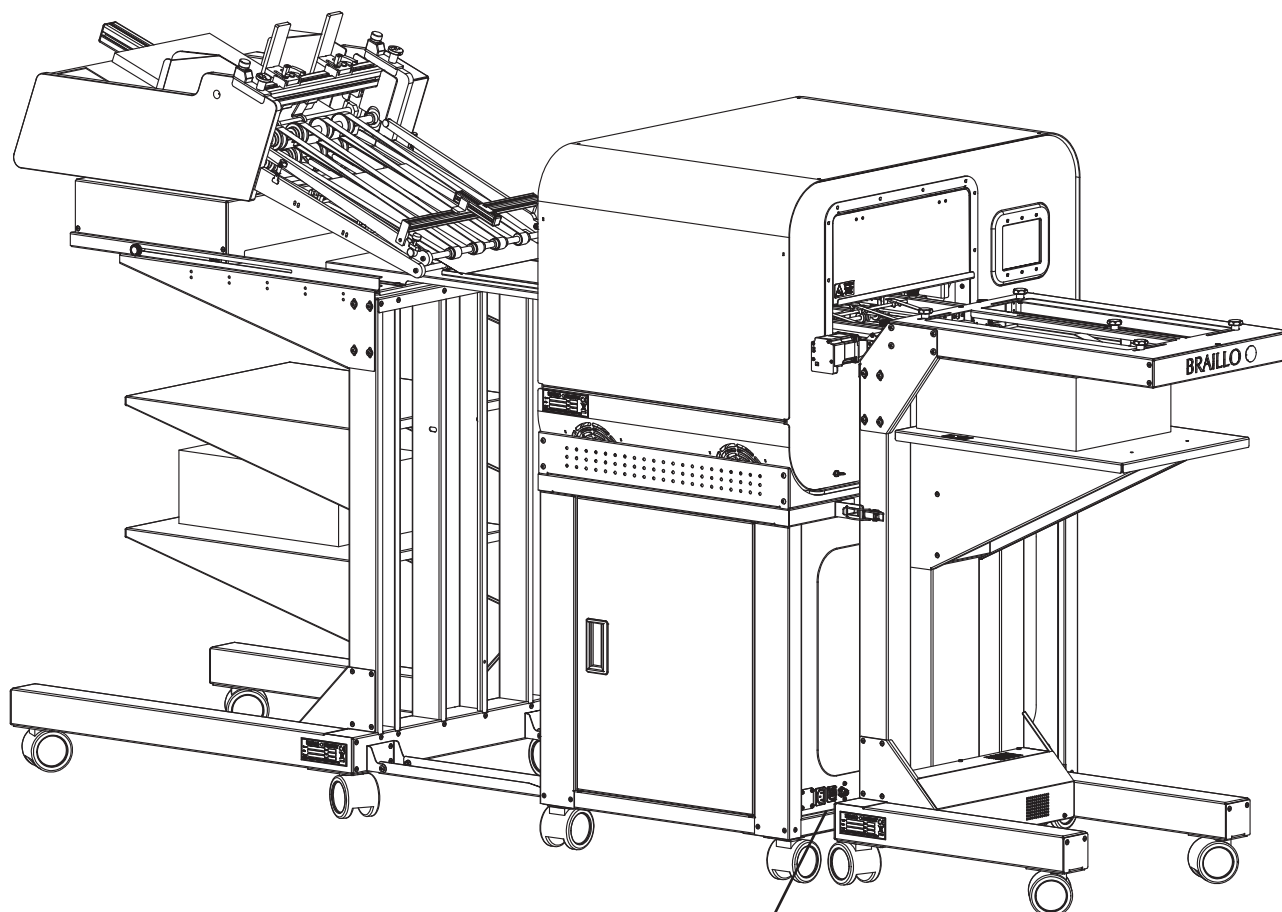
2.8 Connect the units together

Plug the power cable from the Sheet feeder into the corresponding outlet on the printer.
Plug the M12 signal cable from the Sheet feeder into the printer.



On the CS2 Stacker, plug in:

- Data signal to feeder (M12 connector)
- Communication cable to printer (RJ45 connector)
- Power cable



Power
cable

Communication
cable to printer

Data signal to Sheet
feeder

2.9 Connect the printer to the mains and computer

Plug the mains cable into the inlet as shown in the figure below.

Connect the enclosed mains power cable to the mains inlet. If you need to replace the connector on the mains cable, see section [“2.10 Secure the grounding” on page 23](#).

The connection to the computer can be made in three ways: Ethernet, USB, or WLAN.

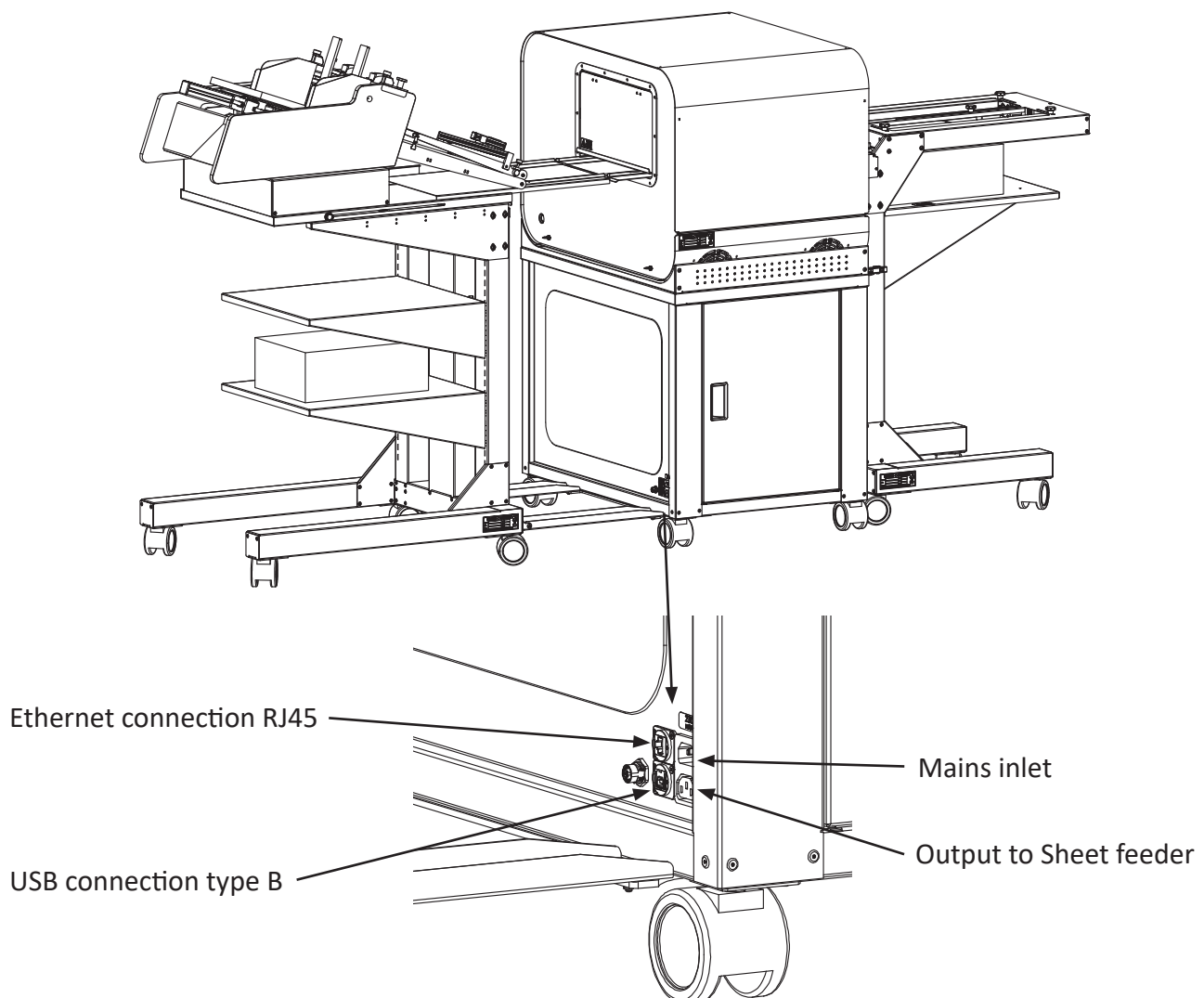
For Ethernet and USB, the connections are placed on the side of the printer, together with the power inlet.

The Ethernet input is a standard RJ45 connector, and the USB input is a standard USB type B connector.

The WLAN transmits and receives via a small antenna located near the operating panel.

If you connect the printer to the computer using a cable, there is no need to select between Ethernet and USB. The printer will automatically use the input that receives data first. This means that if data is received via Ethernet, the USB connection will not be active until the Ethernet transmission has finished.

For instruction on how to install the printer on your computer, see chapter [“3 SETTING UP THE COMPUTER” on page 25](#).

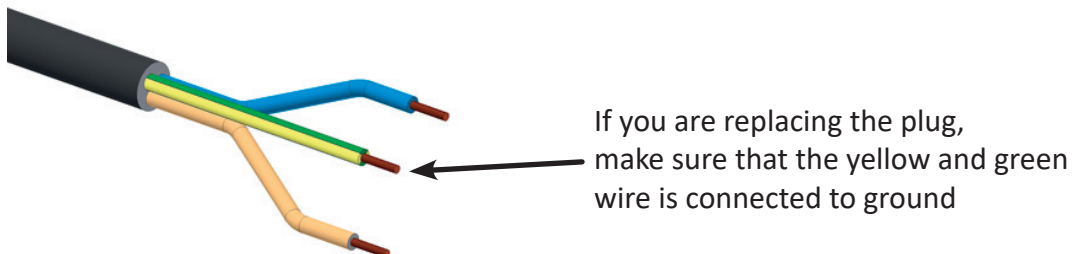


2.10 Secure the grounding

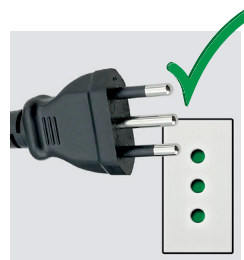
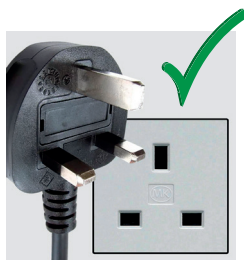
The printer's mains cable must always be connected to ground.

If the plug on the mains power cable needs to be replaced with one that is compatible with the local electric outlets, note that the yellow/green wire is the grounding (earthing) wire.

Also make sure that the power supply is 230 V $\pm$ 10%, 50/60 Hz.



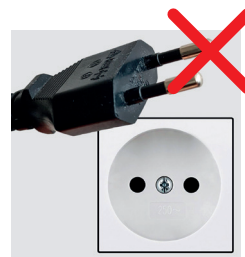
Examples of mains plugs and sockets with ground:



These two socket types can be used with the enclosed cable

With these and other types, you must replace either the complete cable or the plug on the enclosed cable.

Do not use mains plugs or sockets without ground.



2.11 Power on

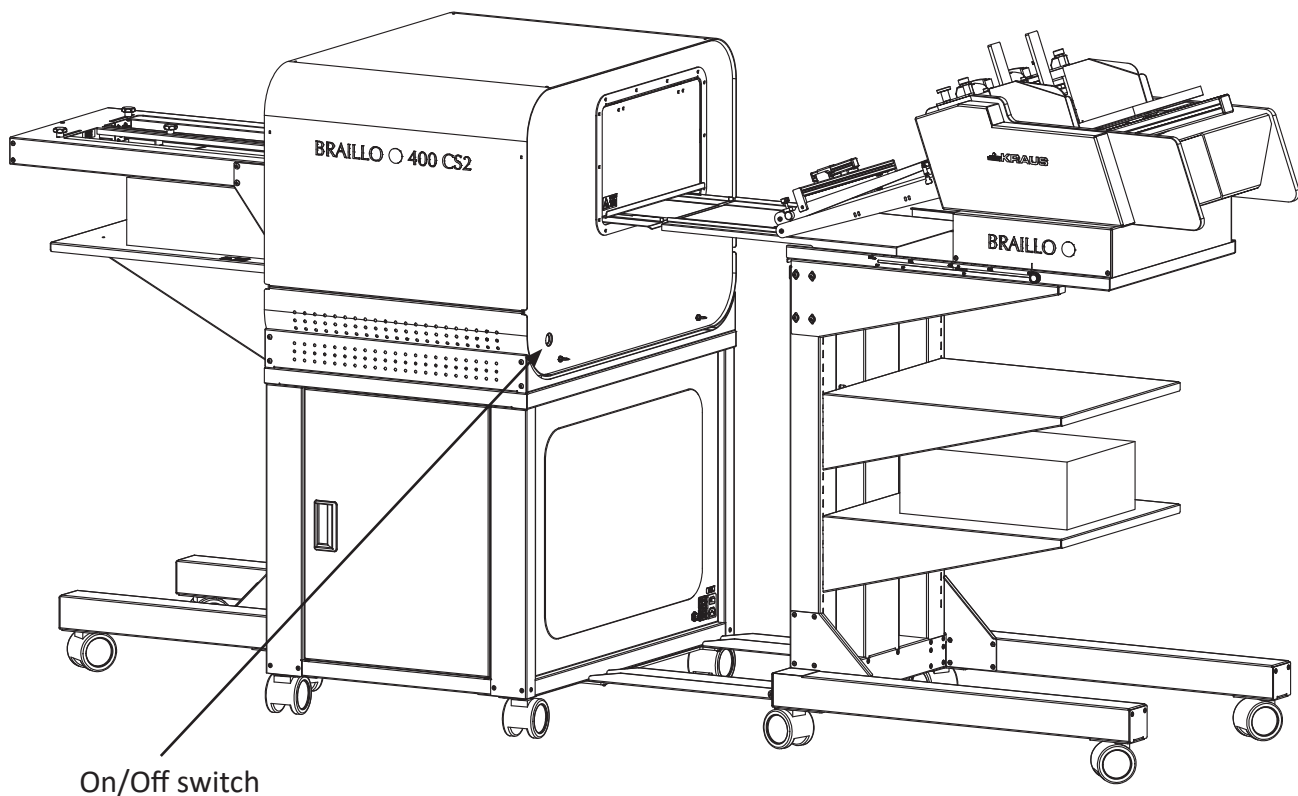
The on/off switch is located on the printer, behind the back panel, and can be accessed through an opening in the panel. When the mains cable has been connected and the power has been switched on, the printer will do its startup sequence. The display will remain black for a moment, after which it will show a progress bar during startup. When the startup sequence is complete, the display will show “Welcome, press the accept button to continue”. Press the button, and the display will change to “Ready to emboss”.



For safety reasons, there are mechanical switches on the printer cover. These switches will disable operation of the printer if the side plates are removed.

Note that the printer will enter sleep mode after 15 minutes of inactivity. If this happens, the printer will wake up when you touch the operating panel or send a file from the computer. It is also possible to manually activate sleep mode by entering the main menu and selecting “Enter sleep mode”.

The printer is now ready. Before continuing, please read chapter [“4 OPERATING THE PRINTER”](#) on [page 36](#) carefully.



3. SETTING UP THE COMPUTER

Note! When connecting multiple Braillo printers with USB to the same computer, all printers must have unique IDs configured.

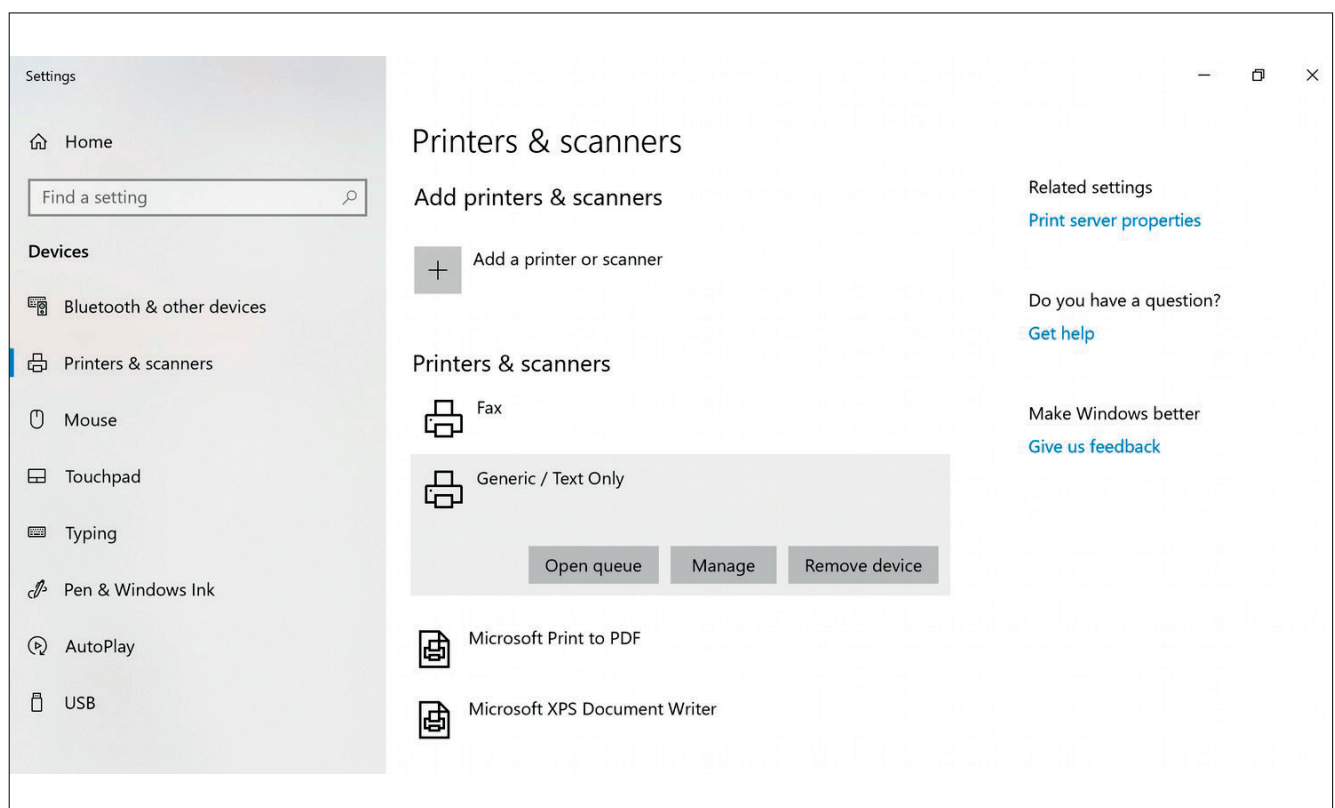
See “[Printer ID](#)” on [page 59](#) for more information on how to set the printer ID.

3.1 USB on Windows

Make sure the printer is powered on and connected to the Windows computer via a USB device cable (Type A to Type B).

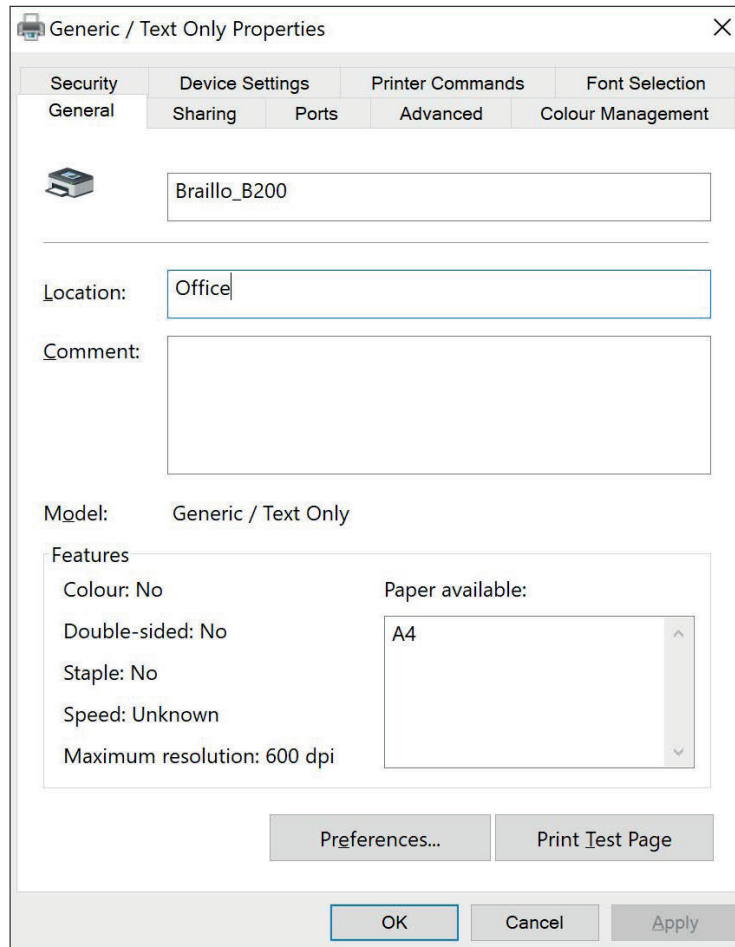
Windows should automatically identify the printer and find the correct driver. If it does not, you must manually add the printer and select the “Generic Text Only” printer driver.)

The printer will then appear as “Generic / Text Only” as shown in the screenshot below.



Select it and click “Manage”, then “Printer properties”.

Here you can change the printer name and location as desired, for example “Braillo <model number>”



Click “OK”, and your printer is now configured and ready to use.

3.2 USB on Apple Mac

Note! A PostScript Printer Driver (PPD) file is required for the following steps.

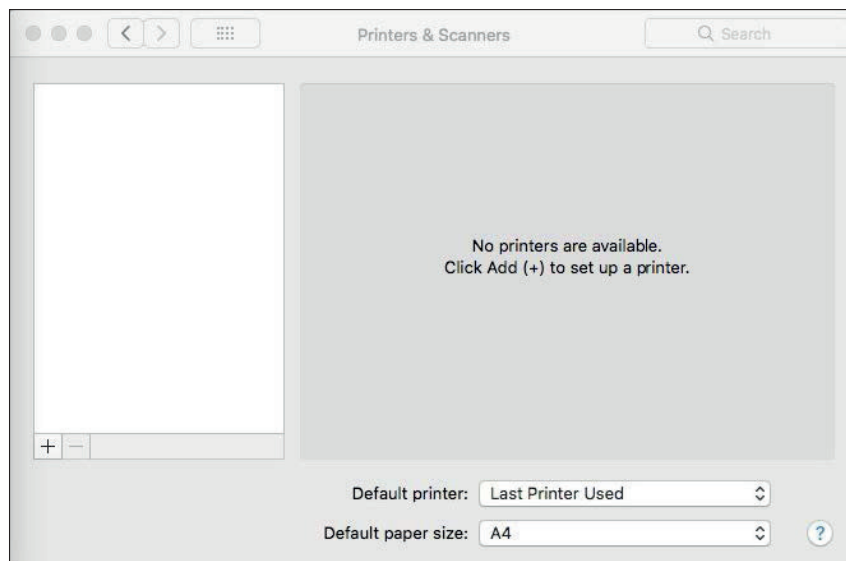
Without it, the Apple computer will be unable to communicate successfully with the printer. The PPD file has been modified to work correctly with an Apple computer, and any modifications to this file before set up might cause unexpected or erroneous results.

Contact Braillo Norway AS or your distributor to obtain the “braillo.ppd” file.

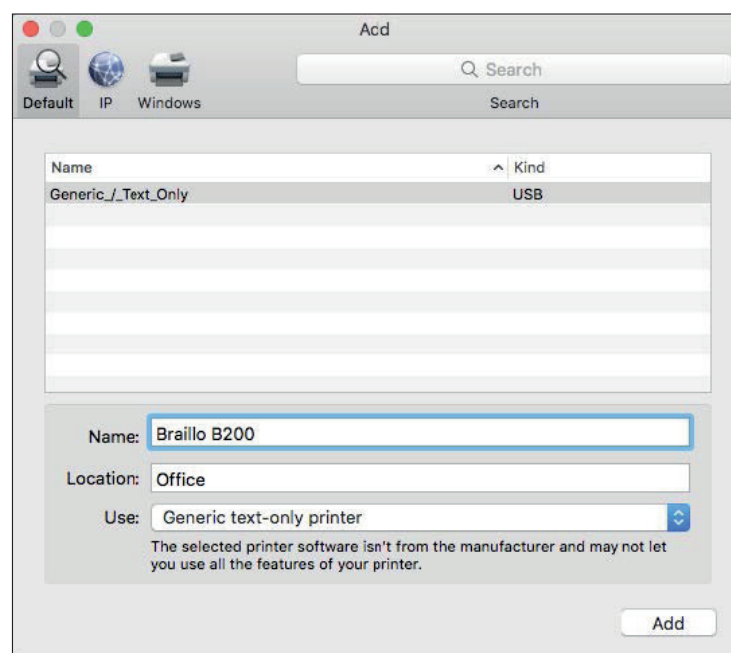
The PPD file must be copied to the Apple computer before performing the printer setup.

Make sure the printer is powered on and connected to the Apple computer via a USB device cable (Type A to Type B).

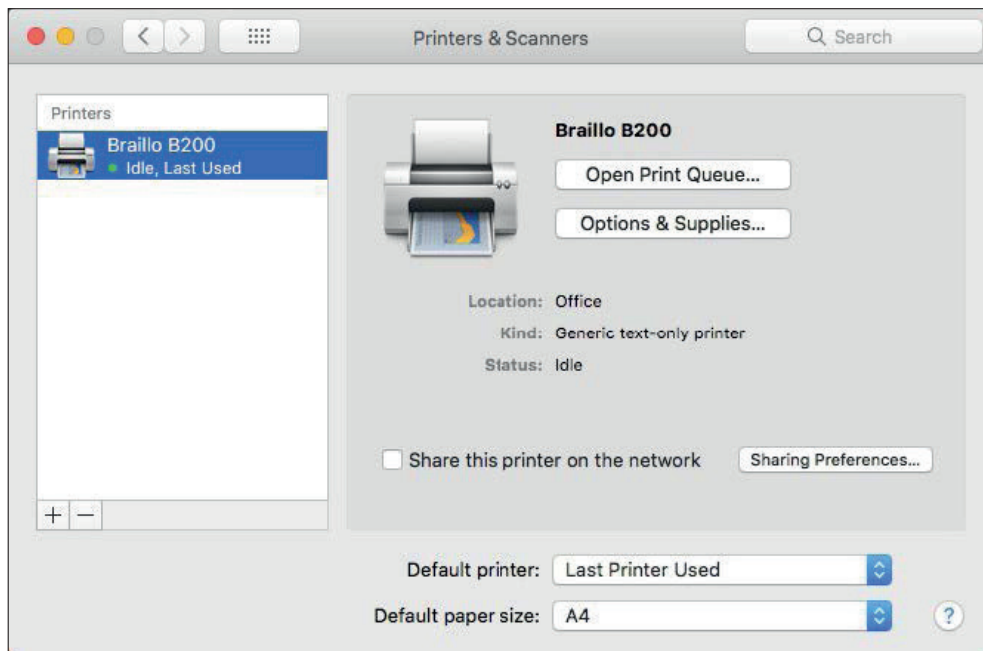
1. Open “System Preferences”
2. Go to “Printers & Scanners”



3. Click the plus sign (+) button to add a new printer
4. In the new dialogue, select the “Generic_/_Text_Only” USB printer (under the Default tab)
5. Mac OS will attempt to automatically identify the printer, but will not succeed. This is expected.
6. In the “Use” drop-down menu, choose “Other” and select the provided PPD file
7. Verify that the “Use” field now displays “Generic text-only printer”
8. You can also modify the name and location fields as desired, for example “Braillo <model number>”
9. Click “Add”



10. Your printer is now configured and ready to use

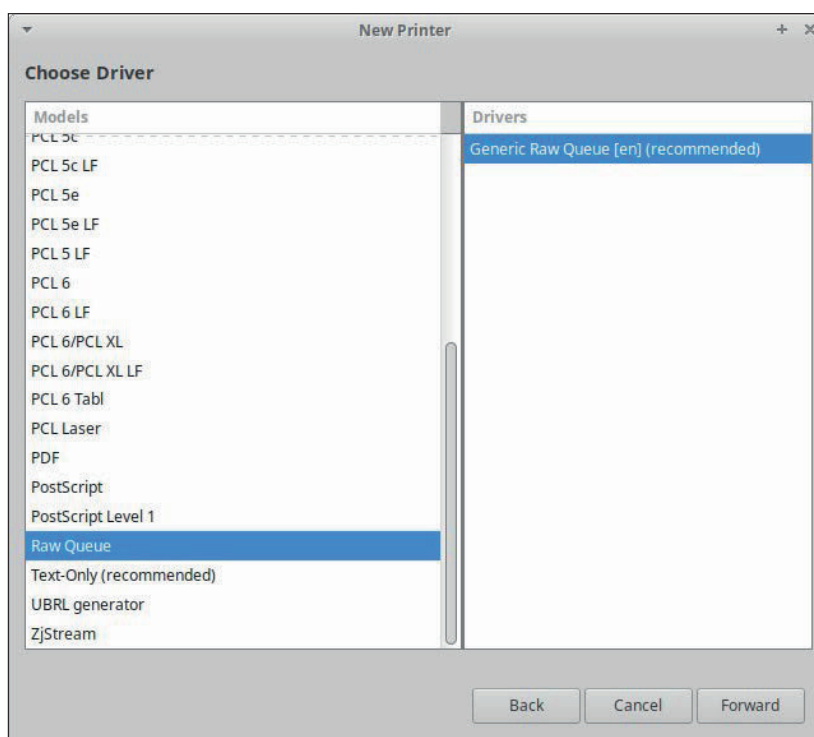


3.3 USB on Linux

Linux distributions can use many different graphical interfaces. Because of this, the following guide is kept as generic as possible, and you may need to consult your distribution's documentation.

Make sure the printer is powered on and connected to the Linux computer via a USB device cable (Type A to Type B).

1. Open your distribution's control panel and locate the dialogue for adding a printer
2. The printer should appear as a USB printer named "Generic/_Text_Only (<serial number>)"
3. Select it and choose "Generic" - "Generic Raw Queue" as the printer driver



4. If you can choose any settings for the new printer, leave all settings at their default values
5. Give the printer an identifiable name and location, for example “Braillo_<model number>”
6. The printer is now configured and ready to use

Note! If you use the default “Generic Text-only printer” driver for USB printing on Linux you may encounter issues where the driver strips certain control characters and only prints the text. It may also refuse to print documents that contain more than printable text characters.

Also note that this driver adds margins around the text by default, which may interfere with the document formatting. The recommended driver on Linux is “Generic Raw Queue” or similar raw forwarding driver.

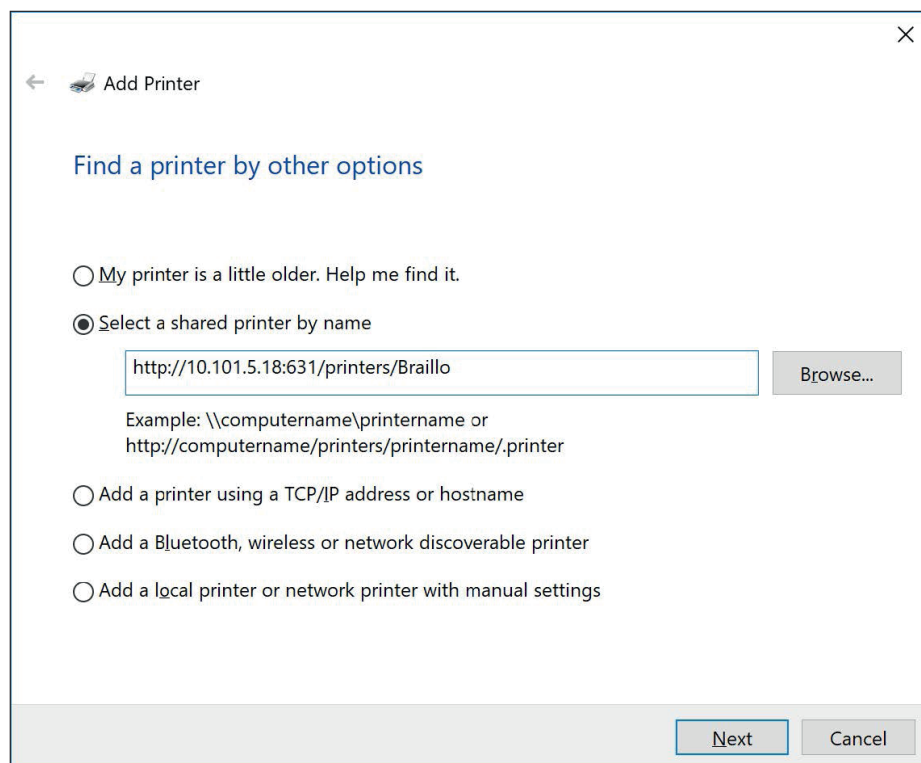
3.4 Ethernet on Windows

Before starting, make sure the printer is powered on and connected to the network.

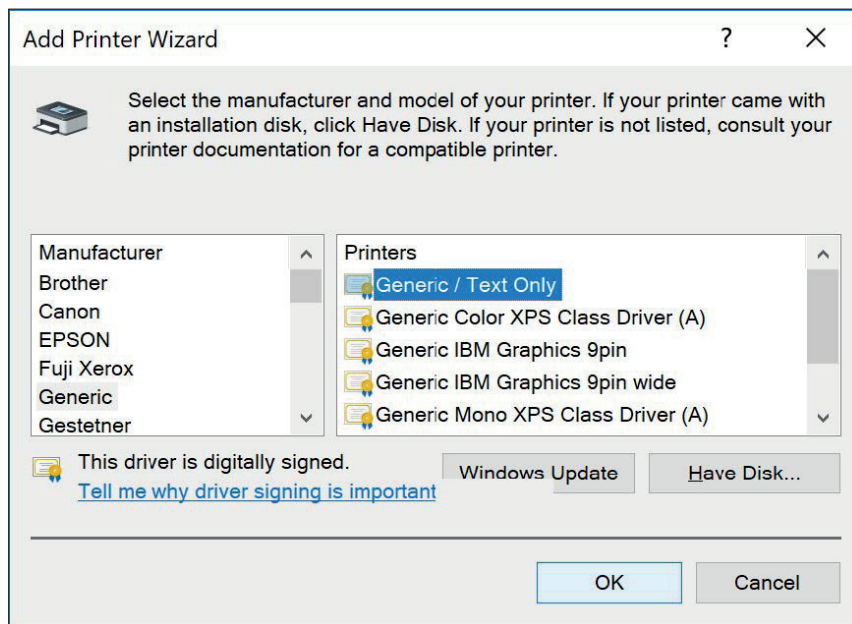
You will need the printer’s IP address, which can be found in menu: *Main Menu - Warning - Service/diagnostic - Status / Software upgrade*.

See “[Status / Software upgrade](#)” on [page 57](#) for more information.

1. Open “Printers & Scanners” settings via the Windows menu or via Settings - Devices
2. Click “Add a printer or scanner”
3. After Windows has completed the scan, click “The printer that I want is not listed”
4. In the “Add Printer” dialog, select “Select a shared printer by name”
5. Enter the following in the field: `http://<IP-address>:631/printers/Braillo`



6. Click “Next”
7. In the driver selection dialog, select “Generic” and “Generic / Text Only”



8. Click “OK”
9. Click “Next” and “Finish” to close the dialog
10. Your printer is now configured and ready to use

Note! If you print a file using Notepad or another text editor, the editor may attempt to format the text before sending it to the printer. If you have a preformatted file created for the Braillo printer containing control characters, it may not print correctly. To print a file verbatim on Windows, you can share the printer on the Windows network (“Sharing” under printer properties), and use the following command in a command-line prompt:

```
copy /b <filename.txt> \\<Name-of-computer>\<name-of-shared-printer>
```

3.5 Ethernet on Apple Mac

Note! A PostScript Printer Driver (PPD) file is required for the following steps.

Without it, the Apple computer will be unable to communicate successfully with the printer. The PPD file has been modified to work correctly with an Apple computer, and any modifications to this file before setup may cause unexpected or erroneous results.

Contact Braillo Norway AS or your distributor to obtain the “braillo.ppd” file.

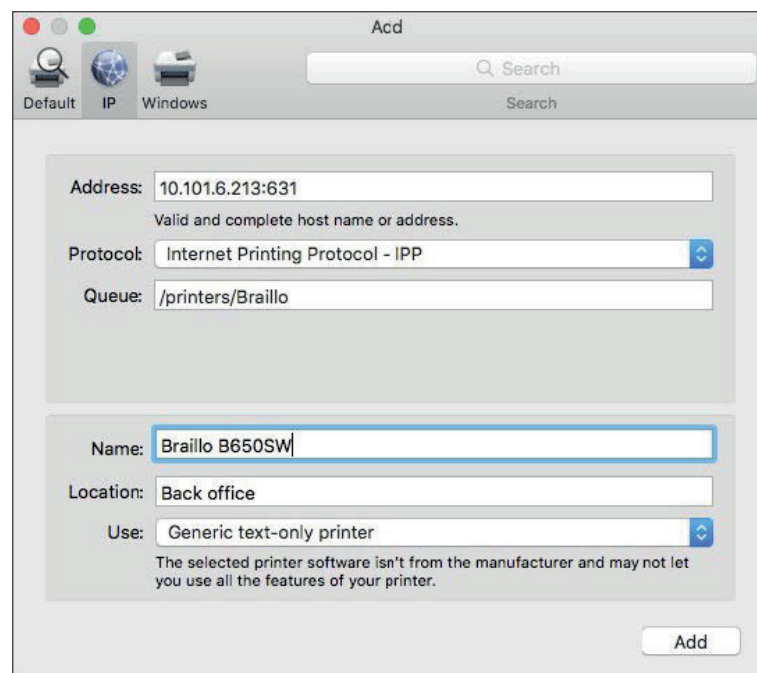
The PPD file must be copied to the Apple computer before performing the printer setup.

Before starting, make sure the printer is powered on and connected to the network.

You will need the printer’s IP address, which can be found in the menu: *Main Menu - Warning - Service/diagnostic - Status / Software upgrade*.

See “[Status / Software upgrade](#)” on page 57 for more information.

1. Open “System Preferences”
2. Go to “Printers & Scanners”
3. Click the plus sign (+) button to add new printer
4. In the new dialog, select the “IP” tab
5. Fill in:
Address: “<IP-address>:631”
Protocol: IPP
Queue: “/printers/Braillo”
6. In the “Use” drop-down menu, choose “Other” and select the provided PPD file
7. Verify that the “Use” field now displays “Generic text-only printer”
You can also modify the name and location fields as desired, for example “Braillo <model number>”



8. Click “Add”
9. Your printer is now configured and ready to use

If you want to configure network printing in another way, the full connection string is:
ipp://<IP-address>:631/printers/Braillo

Test the communication

To test whether the Apple computer is successfully communicating with the Braillo printer, you first need the exact name of the Braillo printer. This can be found using the “`lpstat -t`” command. Next, create or select a file to print. Open a Terminal and use the “`lpr`” command to send the file to the printer, as shown below:

```
lpr -P <Braillo_Name> <file_to_print>
```

In this command, `-P` means destination (which printer to use). `<Braillo_Name>` is the exact name of the Braillo printer identified above, and `<file_to_print>` is the file to be printed, with the path relative to the current Terminal directory.

3.6 Ethernet on Linux

Before starting, make sure the printer is powered on and connected to the network.

You will need the printer’s IP address which can be found in the menu: *Main Menu - Warning - Service/diagnostic - Status / Software upgrade*.

See “[Status / Software upgrade](#)” on page 57 for more information.

The printer broadcasts itself using DNS-SD/Bonjour. If you only have one Braillo printer on your network, you can use this method if your computer detects it. If you have multiple Braillo printers, it is recommended to add them by their IP address to ensure that you configure the correct one.

1. Open your distribution’s control panel and locate the dialog for adding a printer
2. Select “Internet Printing Protocol (IPP)”
3. Use the network URI: “`ipp://<IP-address>:631/printers/Braillo`”
4. Give the printer an identifiable name and location, for example “`Braillo_<model number>`”
5. The printer is now configured and ready to use

Test the communication

To test whether the Linux computer is successfully communicating with the Braillo printer, use the “`lpr`” command. Create or select a file to print, and enter the following command in a terminal:

```
lpr -P <Braillo_Name> <file_to_print>
```

In this command, `-P` specifies the destination (which printer to use), `<Braillo_Name>` is the printer name, and `<file_to_print>` is a file compatible with the Braillo printer.

The exact printer name can be found using the “`lpstat -t`” command.

3.7 Wireless network (WLAN)

The configuring of the wireless network connection is handled through a special configuration mode in which the printer creates a temporary Access Point. When connected to this access point, the rest of the configuration is completed through a standard web page.

To enter the WLAN configuration mode, navigate to:

Main Menu - Printer setup - Network configuration - Conf. WLAN.

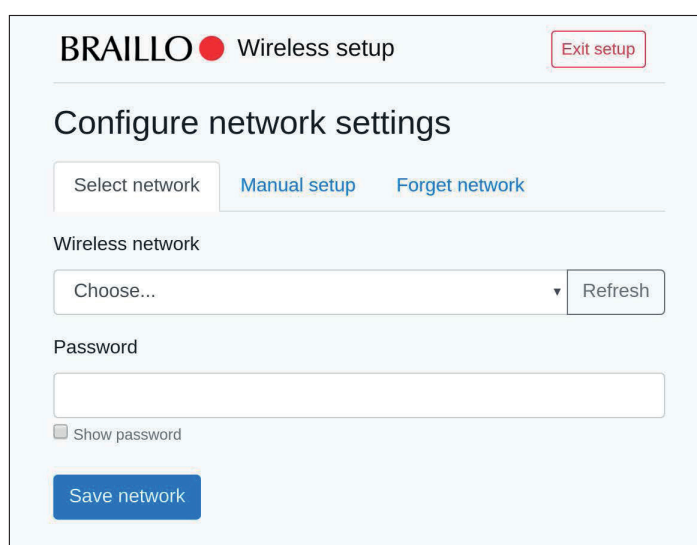
See section “ - Wireless configuration” on page 61 for more information.

A screen will now appear with the credentials required to log on to the temporary configuration access point. The network name (SSID) is unique to this printer, and the password is generated and will differ each time you start configuration mode.

Leave the printer in this state while you continue the configuration.

Using a laptop, tablet, smartphone or other wireless-enabled device with a web browser:

1. Connect to the temporary access point using the credentials shown on the printer display
2. Open a web browser and navigate to <http://192.168.45.1/>
Some devices may detect that sign-in or authorization is required. Selecting this notification will take you to the same web page.



The screenshot shows the 'BRAILLO Wireless setup' web interface. At the top, there is a header with the BRAILLO logo and the text 'Wireless setup', and an 'Exit setup' button. Below the header, the main heading is 'Configure network settings'. Under this heading, there are three tabs: 'Select network' (which is active), 'Manual setup', and 'Forget network'. Below the tabs, there is a section titled 'Wireless network' containing a dropdown menu with 'Choose...' and a 'Refresh' button. Below this, there is a 'Password' section with a text input field and a 'Show password' checkbox. At the bottom of the form is a blue 'Save network' button.

3. In the “Wireless network” drop-down menu, select the name of the wireless network to use
4. Enter the password in the “Password” field
5. Click the “Save network” button

The screenshot shows the BRAILLO Wireless setup interface. At the top, the title is "BRAILLO ● Wireless setup" with an "Exit setup" button in the top right corner. Below the title, the heading "Network settings updated" is displayed. Underneath, there is a label "New network" followed by a text input field containing "My network name". At the bottom, there are two buttons: "Activate & exit setup" (blue) and "Choose different network" (grey).

6. Click the "Activate & exit setup" button

If your wireless network is not detected by the printer, you can configure it manually:

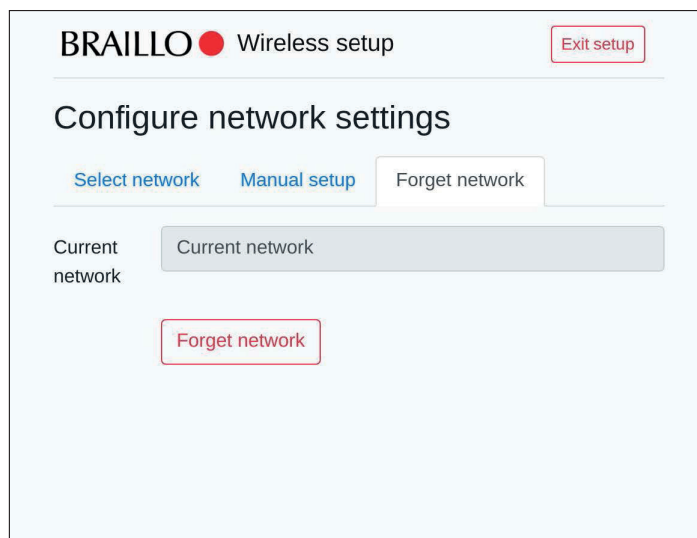
1. Follow steps 1 and 2 above
2. Click the "Manual setup" tab
3. Enter the SSID, select the security type, and enter the password (if required)

The screenshot shows the BRAILLO Wireless setup interface for manual configuration. At the top, the title is "BRAILLO ● Wireless setup" with an "Exit setup" button in the top right corner. Below the title, the heading "Configure network settings" is displayed. Underneath, there are three tabs: "Select network" (blue), "Manual setup" (active, white), and "Forget network" (blue). Below the tabs, there are three input fields: "Network SSID" with the text "My network name", "Security" with a dropdown menu showing "WPA2", and "Password" with a masked input field (dots). Below the password field is a checkbox labeled "Show password". At the bottom, there is a blue "Save network" button.

4. Click the "Save network" button
5. Click "Activate & exit setup" button

To remove an already configured wireless network without activating a new one:

1. Follow steps 1 and 2 at the beginning of this section
2. Click the “Forget network” tab



3. Click the “Forget network” button
4. Click the “Activate & exit setup” button

After clicking the “Activate & exit setup” button, you will receive a confirmation message, and the configuration mode will shut down. The printer will then return to normal operation with the new configuration.

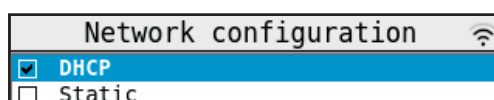
To exit the WLAN configuration mode:

To exit configuration mode, you must either:

- Save and activate a new configuration
- Click the “Exit setup” button on the configuration web page
- Click the “Back” button on the printer display

When the configuration server shuts down, the printer returns to normal operation.

If a new wireless configuration has been activated, you can view the connection status and signal strength in the top right corner of the printer display.

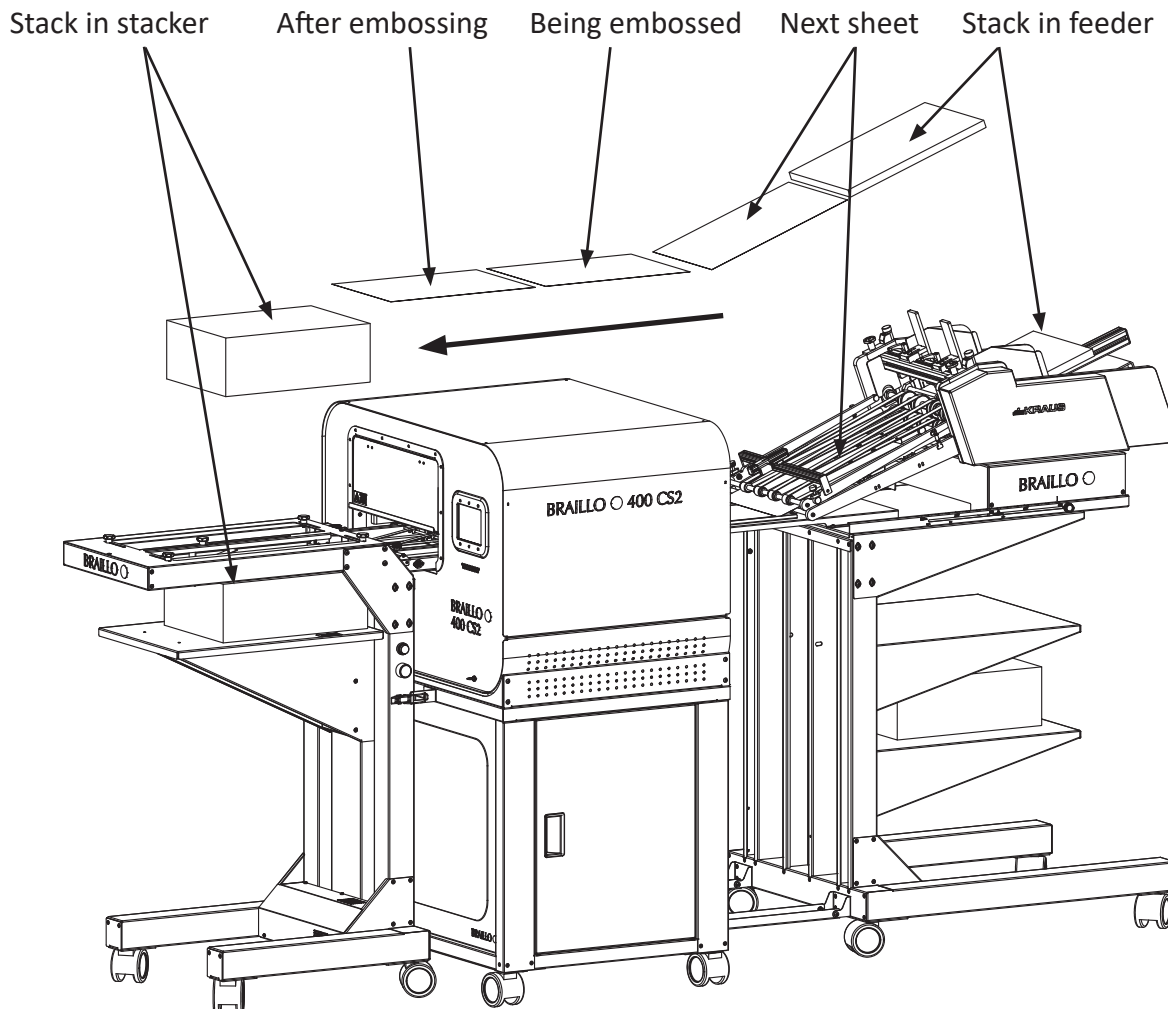


Note! If the printer behaves unexpectedly after being in Wireless network configuration mode, restart the printer.

4. OPERATING THE PRINTER

4.1 The printer's basic functions

The figure below shows how the sheets travel through the machine.



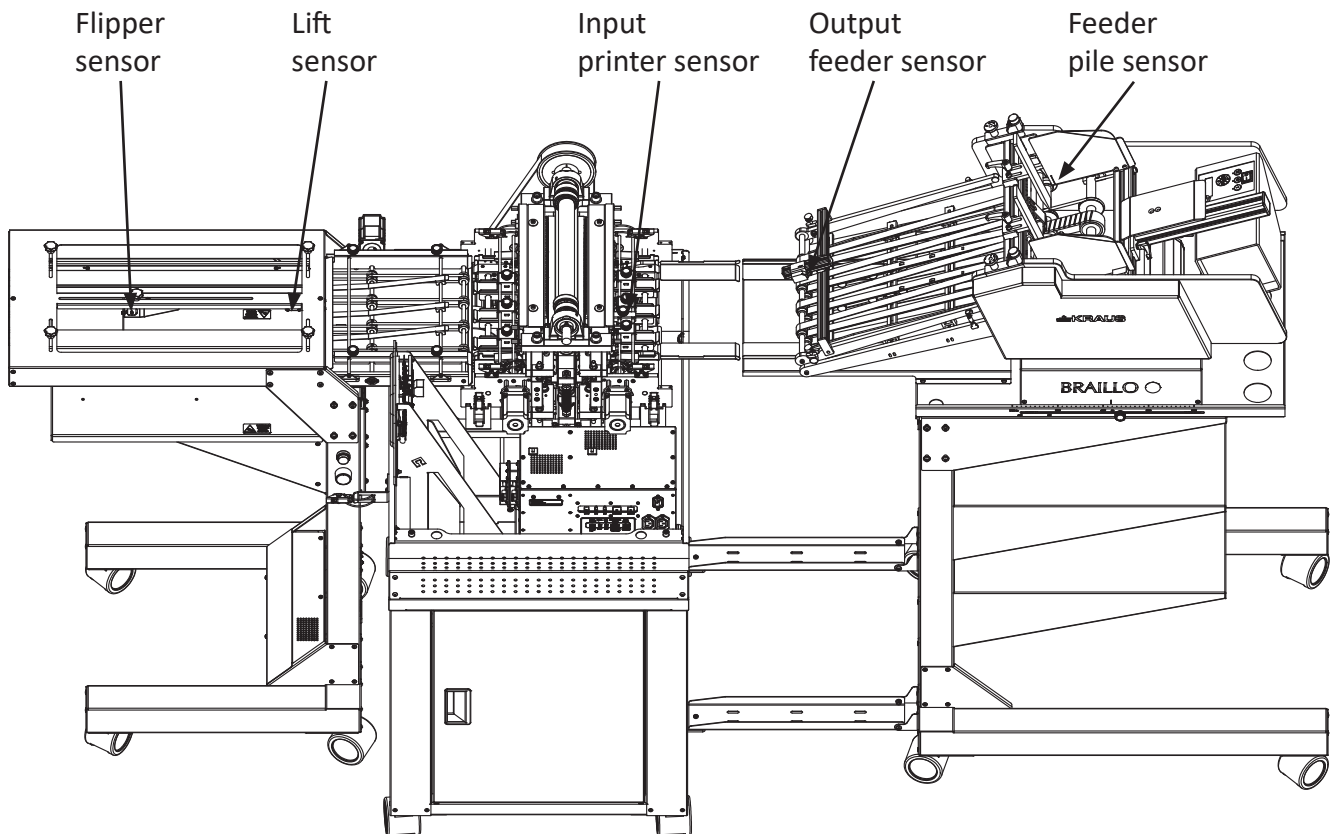
It starts with text being sent from a computer to the printer. The printer then sends a signal to the sheet feeder indicating that it needs a sheet. The sheet feeder ejects the sheet marked “Next sheet” in the figure above and, at the same time, pulls another sheet from the stack and places it in the “Next sheet” position.

When the ejected sheet reaches the input sensor in the printer, the sensor detects the leading edge of the sheet and pulls it into the printing mechanism. The printer begins printing, and when the trailing edge of the sheet passes the input sensor, the printer requests another sheet from the feeder.

When the sheet has been printed, it is ejected from the printer into the stacker by the belts. When the sheet reaches the flipper sensor, the flippers open, and the sheet falls onto the stacker shelf. The shelf in the stacker moves downward as more sheets are added, maintaining a constant distance between the flippers and the top of the stack.

4.2 Sheet sensors overview

(The printer is shown without the case and protective covers for clarity).



In the sheet travel direction:

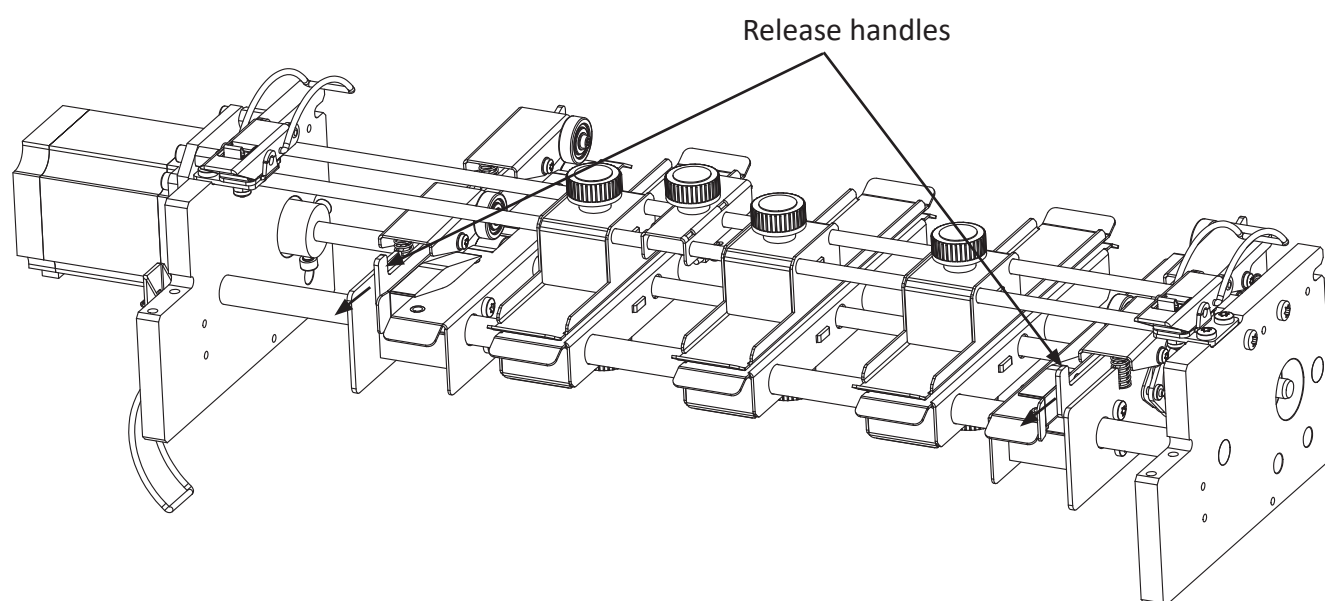
- **Feeder stack sensor:**
Keeps track of the sheet stack in the sheet feeder. An alarm is triggered if the pile becomes too low.
- **Output feeder sensor:**
The sheet feeder pulls a sheet from the bottom of the stack, and feeds it forward until the sheet is detected by this sensor. It then stops and waits for the signal from the printer for the next sheet.
- **Input printer sensor:**
This sensor detects the edge of the sheet as it passes and synchronizes the paper position with the printing mechanism. When the trailing edge of the sheet has passed this sensor, the printer requests the next sheet from the sheet feeder.
- **Lift sensor:**
Measures the distance to the sheet stack each time the flippers are open. When the distance decreases as the stack builds up, the lift lowers the shelf to maintain a constant drop height.
- **Flipper sensor:**
When a sheet is detected, the flippers opens. If the sheet does not arrive at this sensor within a set time after being ejected from the printer, the printer stops and an alarm is triggered.

4.3 Release the sheet in the feeders

There are two feeders in the printer: one on the input side and one on the output side. Each feeder has four friction wheels with spring-loaded roller bearings. The sheet is normally held between the friction wheels and the roller bearings.

If you need to slide a sheet in or out of the feeders, you can release the spring pressure on the roller bearings by pulling the two handles outward from the printer.

Do not forget to push them back in when finished.



4.4 Adjusting to sheet size

All these adjustments depend on the sheet size, so it is advisable to use a sheet to set the correct distances. Note the orientation of the sheet. It may be helpful to mark the sheet with a pen to indicate where the first text line should appear below the top margin, as well as the left and right sides of the sheet.

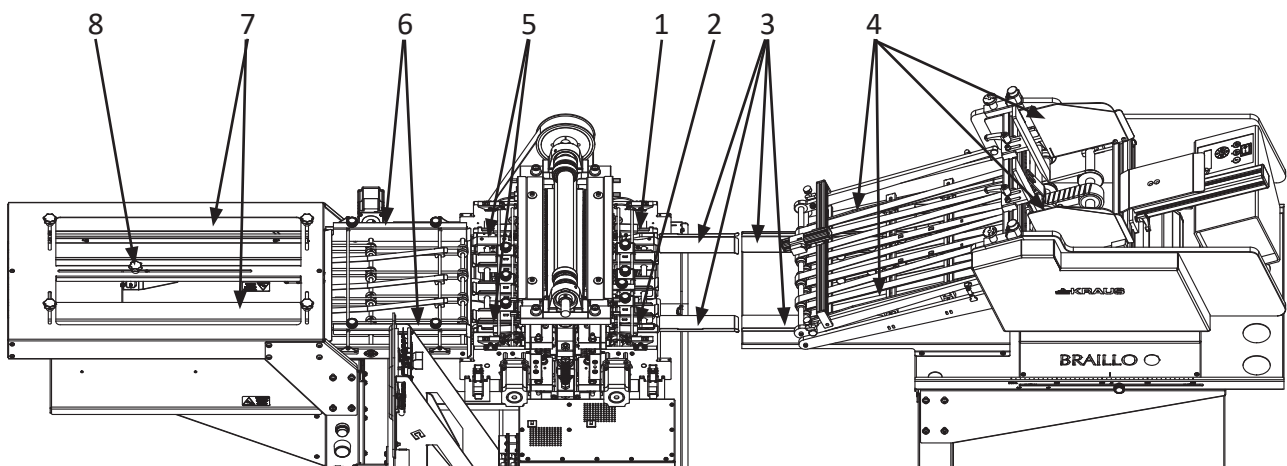
It is recommended to start with the Input feeder unit nearest the chassis fans (the right-hand unit when viewed in the direction of sheet travel), as this will determine the top margin on the sheet. If you are using a marked sheet, the mark indicating the first text line should be positioned at the first printing pin (or pivot arm) nearest the side of the printer where the chassis fans are located. The position of the right-hand input feeder is then determined by the edge of the sheet.

The adjustment must be performed in the following order:

1. The Input feeder unit on the right-hand side (when viewed in the direction of sheet travel)
2. The Input feeder unit on the left-hand side
3. The magnetic guides on the input tray
4. All guides on the sheet feeder
5. The Output feeder
6. The side guides on the belt unit
7. The flippers on the stacker
8. The end stop on the stacker

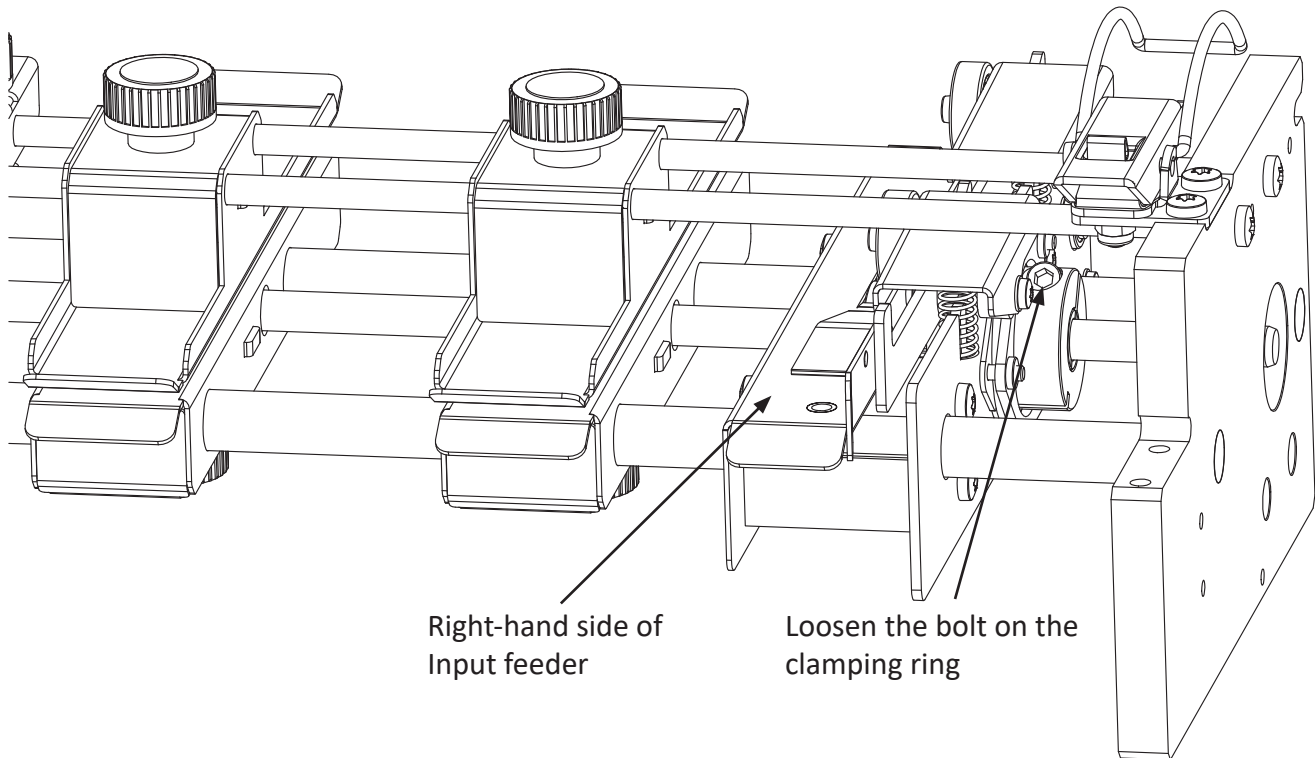
See further explanations on the following pages.

Sheet size adjustment order:



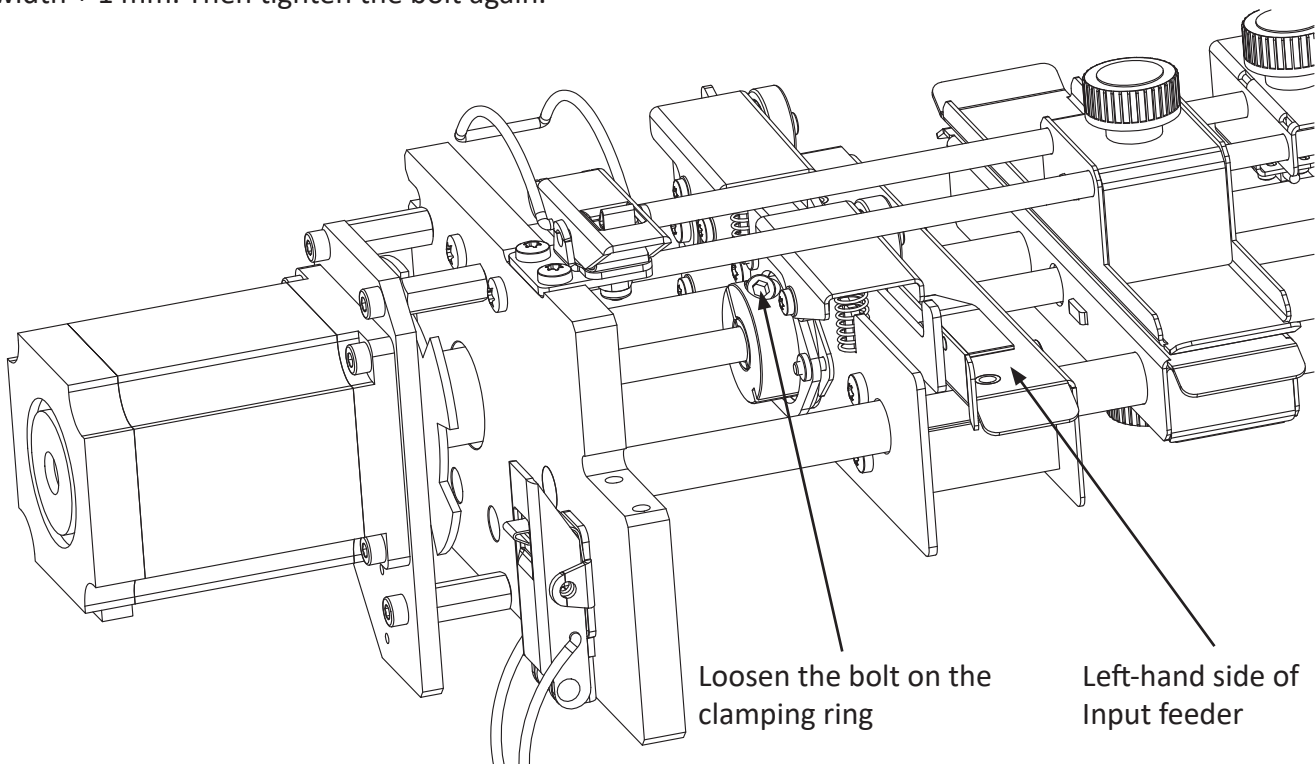
Step 1. Position the right-hand side Input feeder (defining the top margin)

Note that this adjustment sets the top margin. Use the 3 mm Allen key with T-handle to loosen the bolt on the clamping ring, as shown in the figure below. Slide the right-hand side unit to the desired position and then tighten the bolt again.



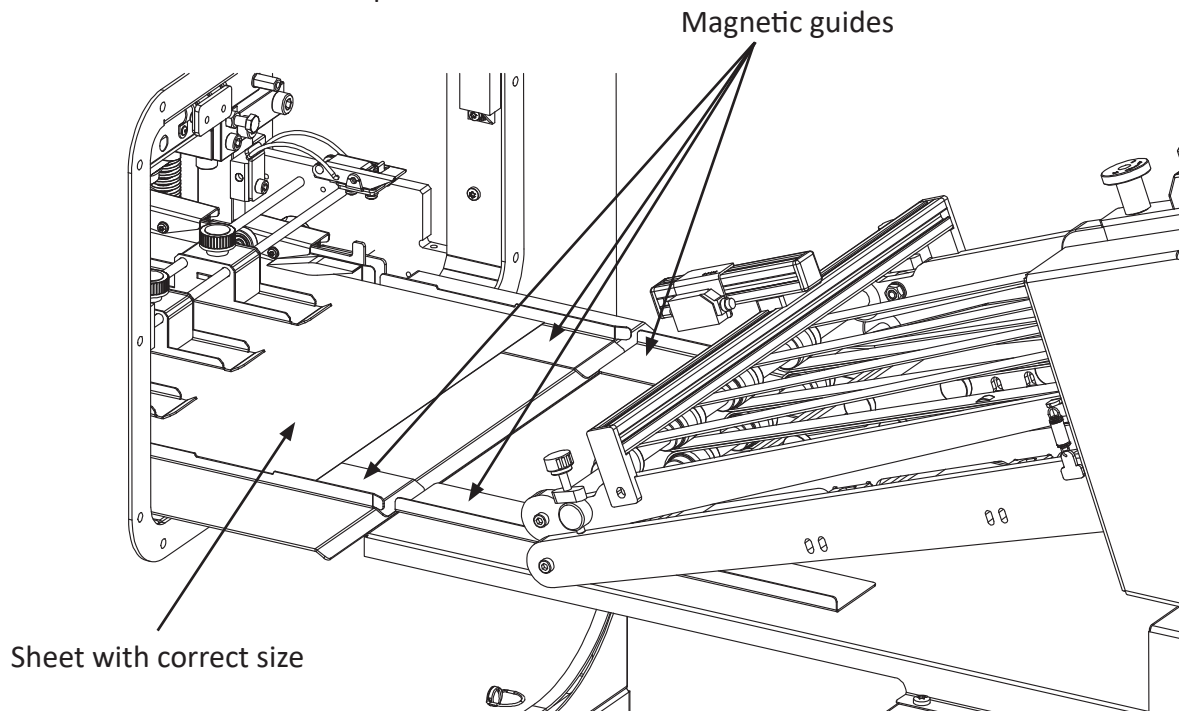
Step 2. Adjust the left-hand side Input feeder

Use the 3 mm Allen key with T-handle to loosen the bolt on the clamping ring, as shown in the figure below. Move the left-hand side so that the distance between the sheet guides is equal to the sheet width + 1 mm. Then tighten the bolt again.



Step 3. Align the input tray guides

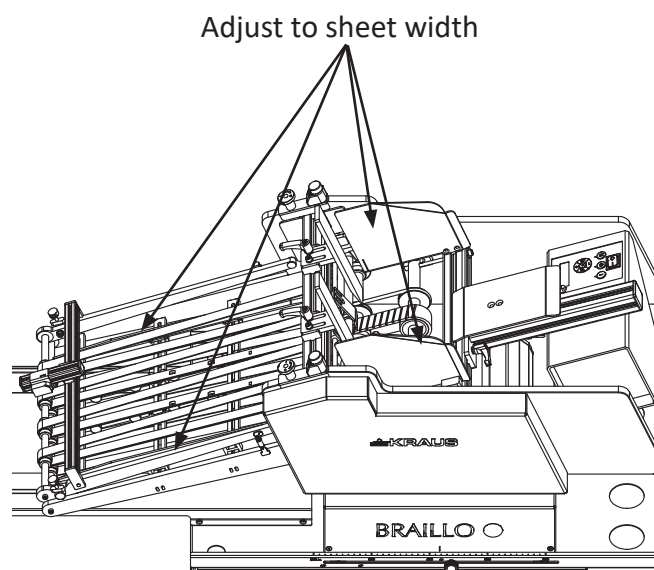
Insert a sheet into the Input feeder, and align the guides on the input tray. The guides are magnetic and can be slid to the correct positions.



Step 4. Adjust all guides on the sheet feeder

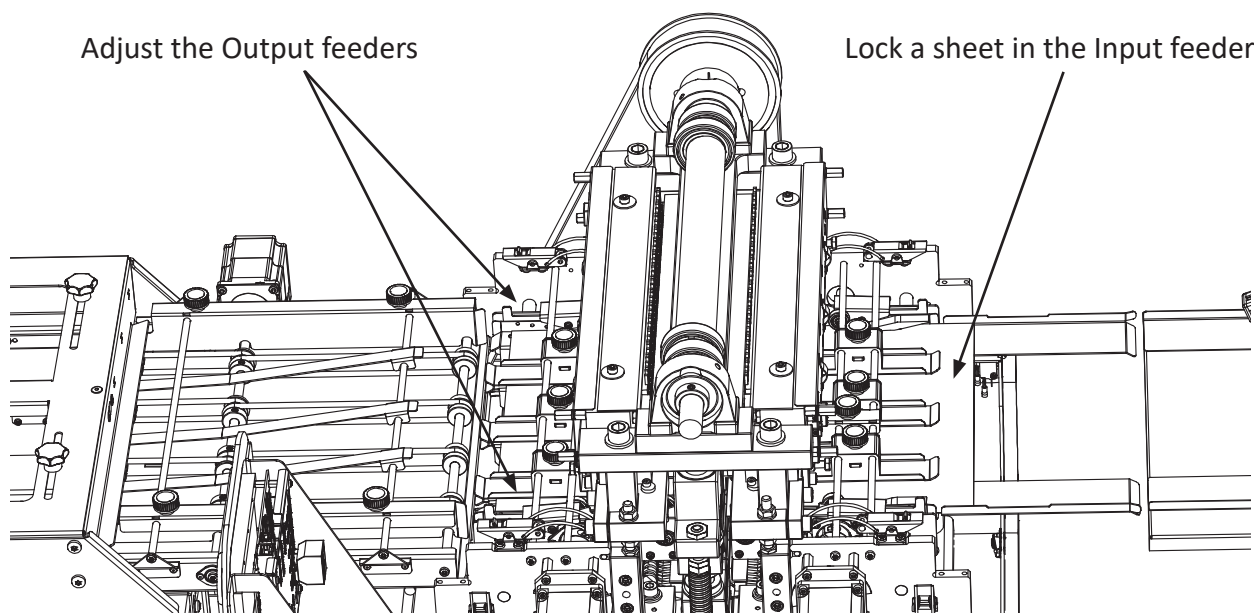
Adjust all the guides on the Sheet feeder so that the sheets coming from the Sheet feeder will align correctly with the input tray guides. **See the sheet feeder user manual for details.**

Note that is also possible to move the entire sheet feeder slightly sideways to align the sheets with the guides. This is done by loosening the four fastening bolts that secure the sheet feeder to its base.



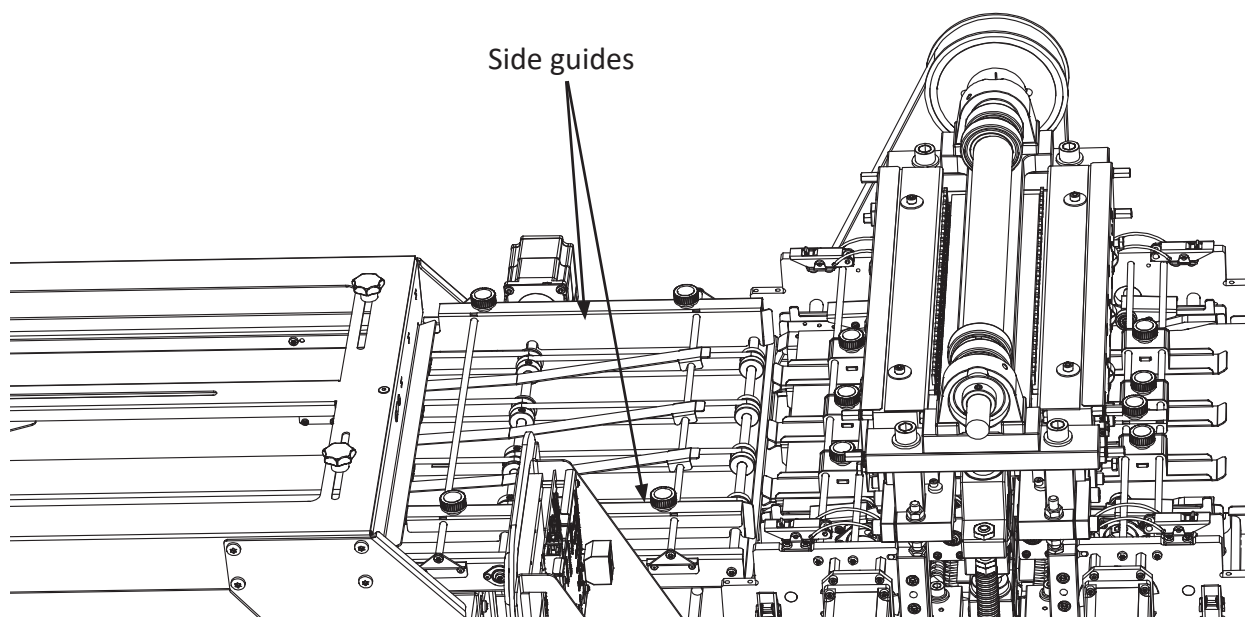
Step 5. Adjust the Output feeder

Lock a sheet in the Input feeder and let it pass through the printing mechanism. Then adjust the Output feeders sideways to align them with the sheet, ensuring a clearance of 1 - 1.5 mm on each side.



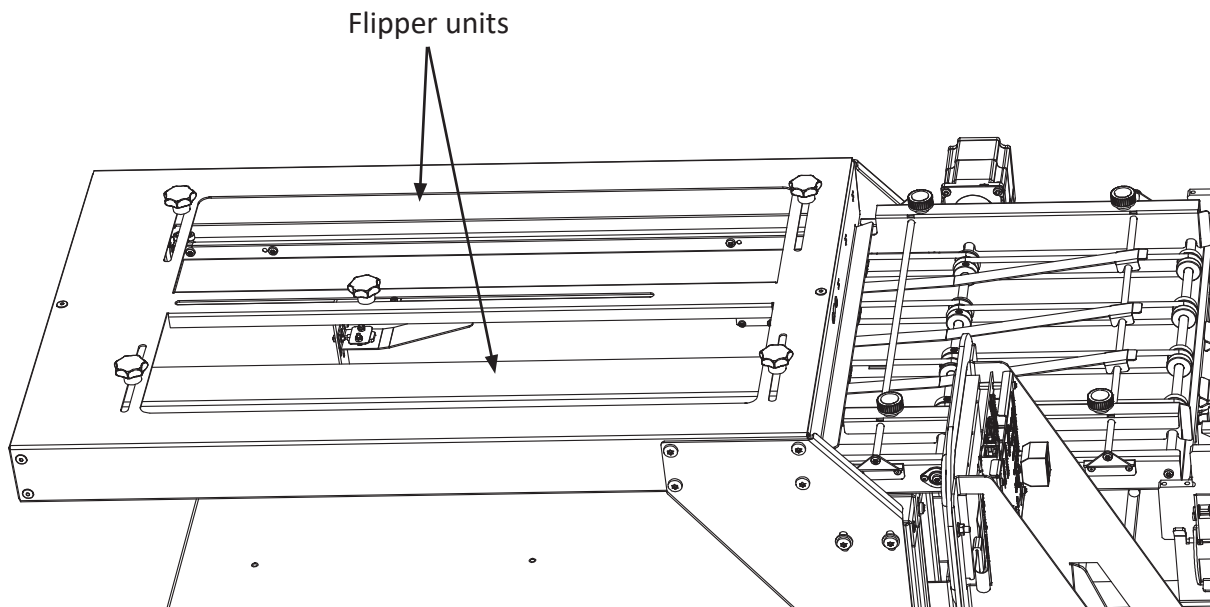
Step 6. Side guides on the belt unit

Adjust the side guides on the eject belt unit slightly wider than the Output feeder.



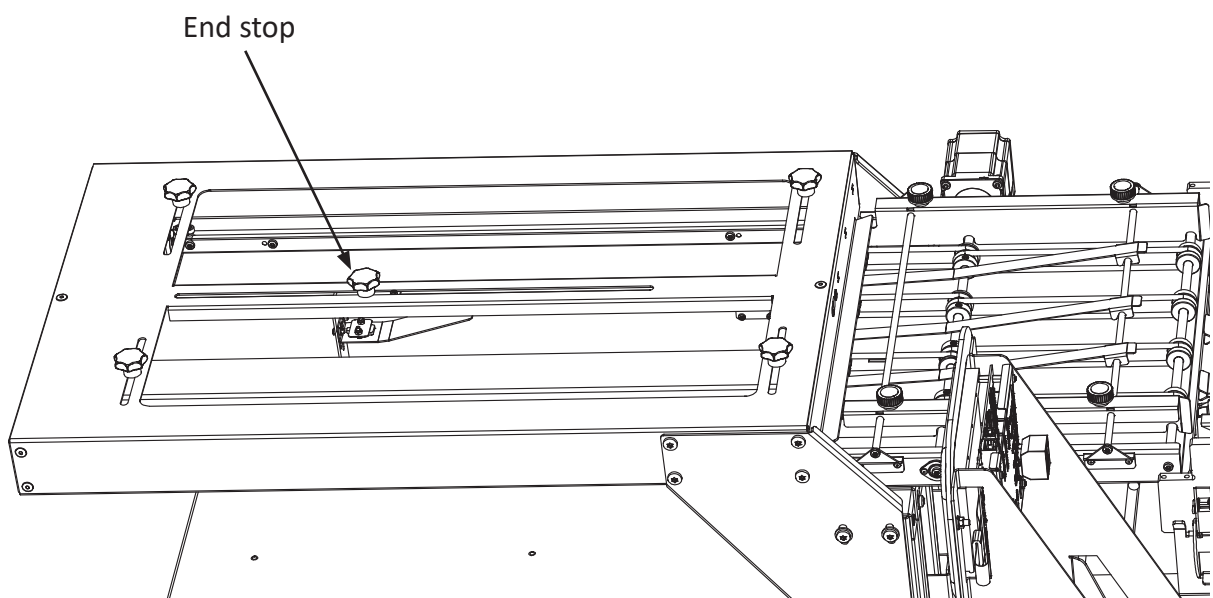
Step 7. Adjust the flippers on the stacker

Adjust the width of the stacker, allowing a few millimeters of clearance on each side. Make sure that the two flipper units are parallel.



Step 8. Adjust the end stop on the stacker

Adjust the end stop with the flipper sensor so that it matches the sheet length in use.



4.5 Printing with B400 CS2

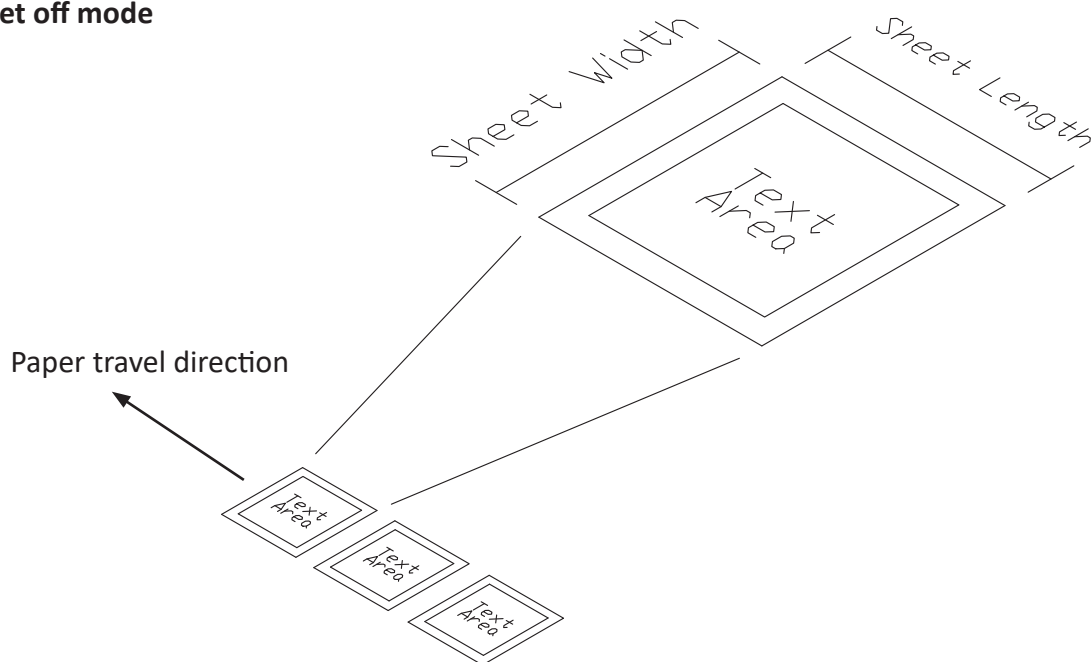
This printer uses interpoint printing and prints the text sideways on the paper. This printing method can create some confusion regarding the terms used to describe the sheet of paper. Please refer to the figures below for the terminology used by Braillo.

The printer can operate in two different modes: “Booklet off” and “Booklet”.

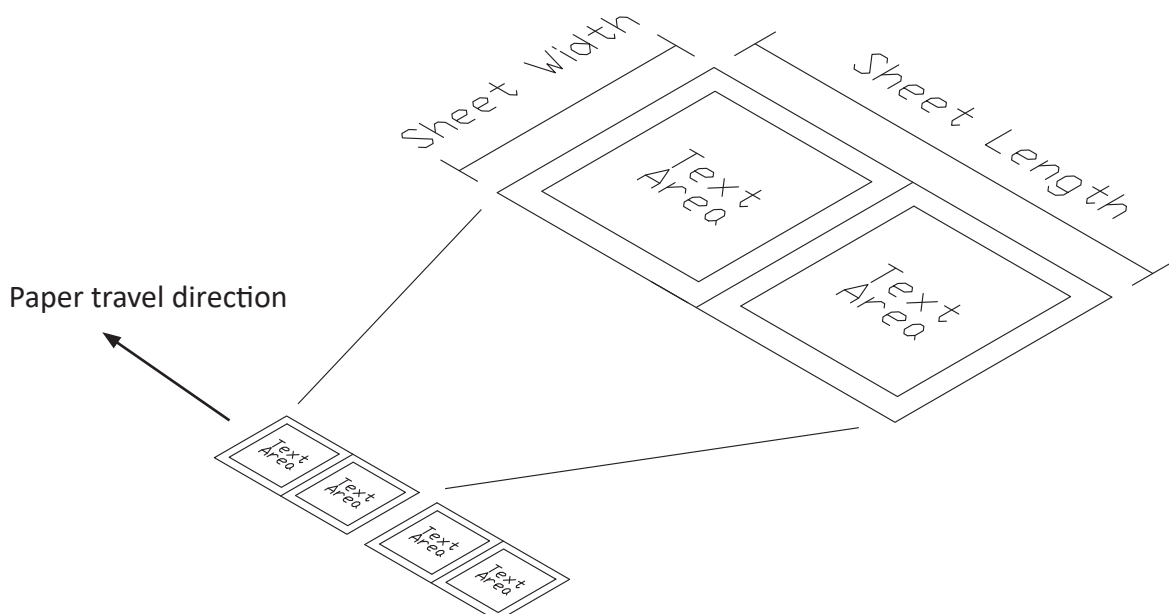
The term “Booklet off” indicates that two pages are printed on each sheet. (one page on each side of the sheet).

In “Booklet” mode, the printer prints four pages on each sheet (two pages at each side of the sheet). This makes it possible to stack the sheets and stitch and fold them in the middle to create a booklet. This method of printing makes it easy to produce, for example, newspapers or magazines in braille.

Booklet off mode



Booklet mode



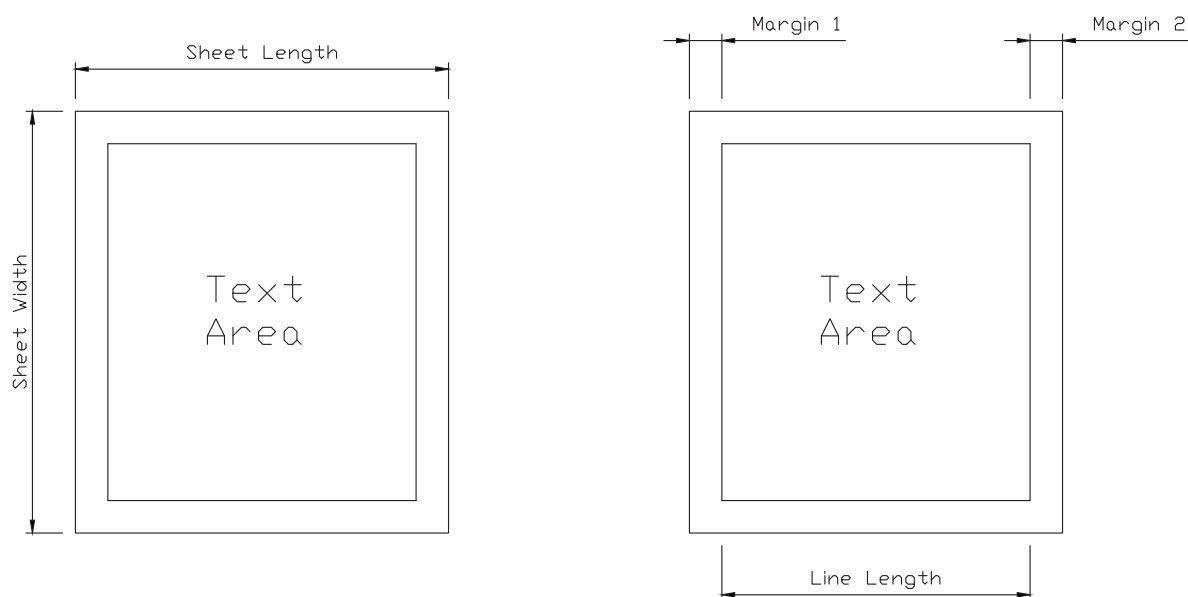
The sheet in “Booklet off” mode

Please see the figure below.

The “virtual” sheet length is calculated by adding the margins and line length settings, while the physical sheet length is defined by the paper in use.

Sheet length = Margin 1 + Line length + Margin 2, measured from left to right, in the direction of paper travel.

Sheet width = measured from top to bottom, across the direction of paper travel.



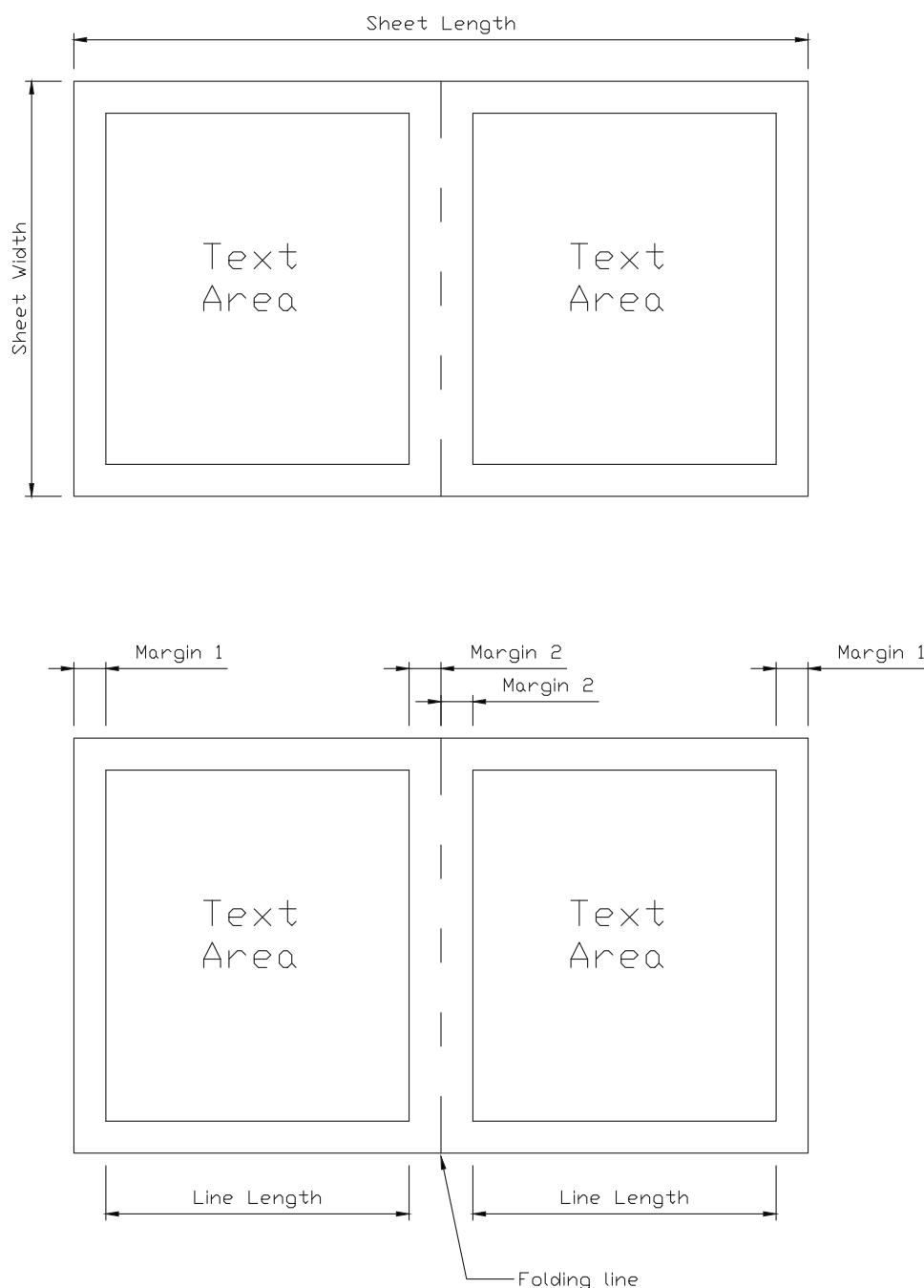
The sheet in “Booklet” mode

Please see the figure below.

The “virtual” sheet length is calculated by adding the margins and line length settings, while the physical sheet length is defined by the paper in use.

Sheet length = (Margin 1 + Line length + Margin 2) + (Margin 2 + Line length + Margin 1), measured from left to right, in the direction of paper travel.

Sheet width = measured from top to bottom, across the direction of paper travel.



Printing in “Booklet” mode

The number of pages sent to the printer in booklet mode, must be divisible by four. For example, a document that contains seven pages of text must have one empty page added to reach a total of eight pages.

These eight pages will fit on two sheets (8 pages divided by 4 = 2 sheets).

Next, the text must be sent to the printer in the following sequence:

Page 1, 2, 7, 8, 3, 4, 5 and 6.

This formatting is normally handled automatically by the computer software.

The following physical limits should be considered when adjusting the settings:

Maximum paper width (top to bottom): 330 mm (13.0 inch)

Maximum paper length (left to right): 584 mm (23.0 inch)

Maximum numbers of characters per line: 44 characters

Margins are adjustable from 12.7 mm (0.5 inch) to 50.8 mm (2.0 inch) in steps of 2.54 mm (0.1 inch)

4.6 Calculating the sheet measurements

Note! These calculations are based on the “Marburg” braille cell, and the booklet off format.

To determine the physical dimensions of the margins and the braille layout, use the description below.

To determine the margin size:

The margins are measured in increments of 0.1 inch. To find the value in millimeters, use:

[margin in inch] x 25.4 mm.

Example (margin set to 0.6 inches):

0.6 inch x 25.4 = 15.24 mm

To determine the text line length:

Add the length occupied by the characters and the length occupied by the spaces between the characters:

Characters: [no of characters] x 2.54 mm

Spaces: [no of characters - 1] x 3.4925 mm

Example (text line set to 27 characters):

27 characters x 2.54 mm = 68.58 mm

(27 - 1) spaces x 3.4925 mm = 90.805 mm

Total text line length = 68.58 mm + 90.805 mm = 159.385 mm (159.4 mm)

To determine the sheet length:

Margin 1 + Text line length + Margin 2

Using the examples above:

15.24 + 159.4 + 15.24 = 189.88 mm (189.9 mm)

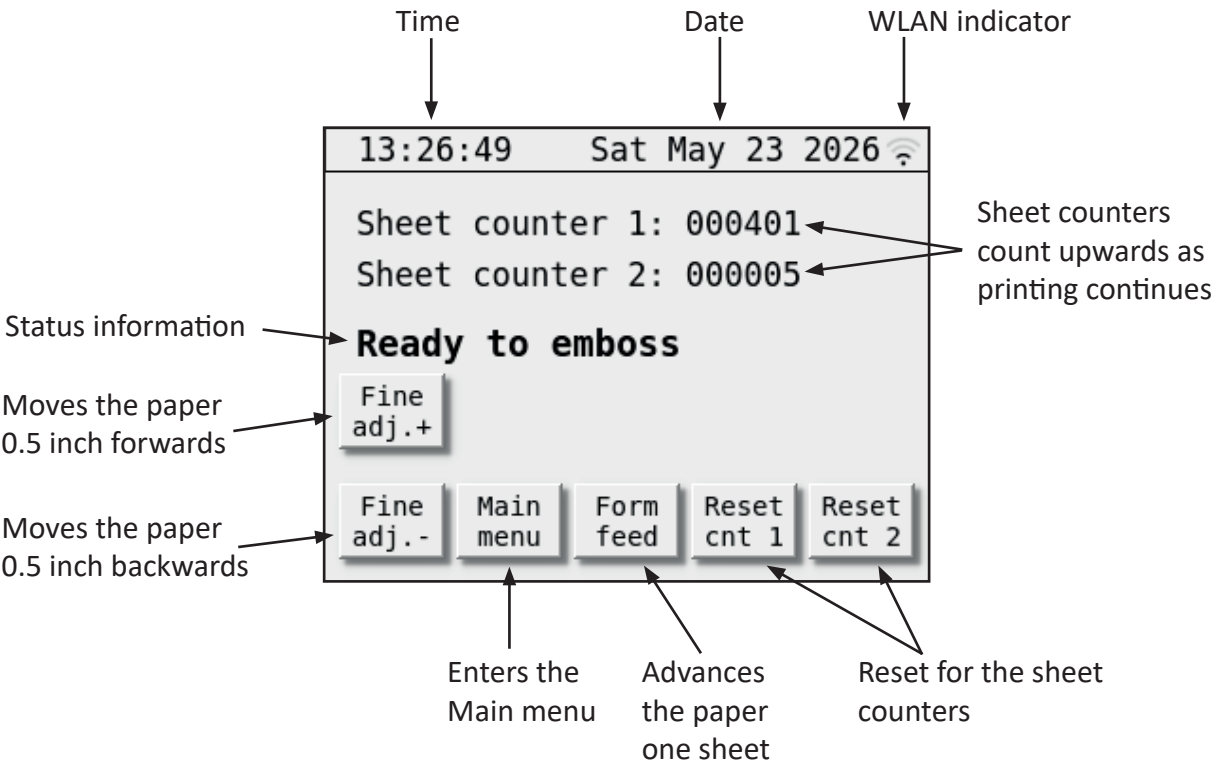
If you are using booklet mode, multiply the result by 2.

4.7 Basic operating panel functions

When the printer is powered on, you must press the **Accept** button to make the printer ready.

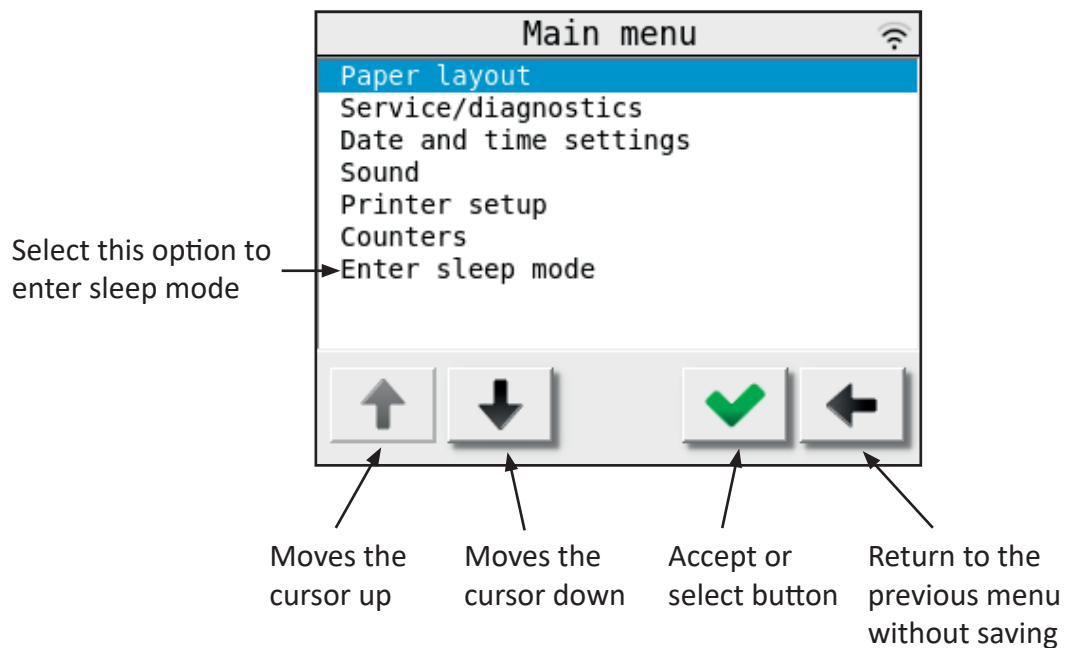


After pressing **Accept**, the window shown below appears. Please refer to the explanation in the figure below.



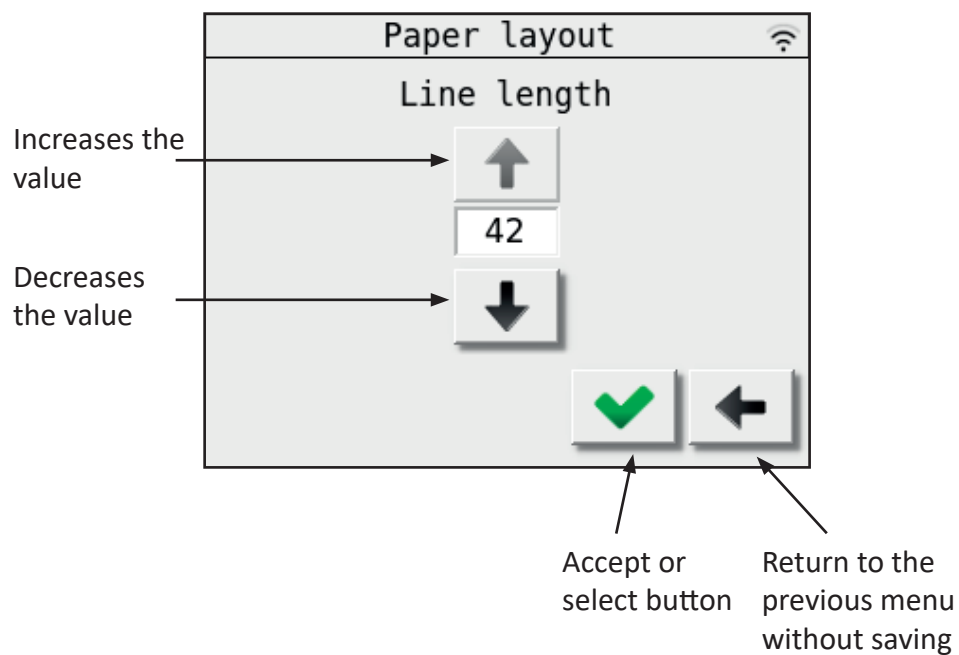
Navigating the menus

Move the cursor to the desired submenu, then press the **Accept** button.



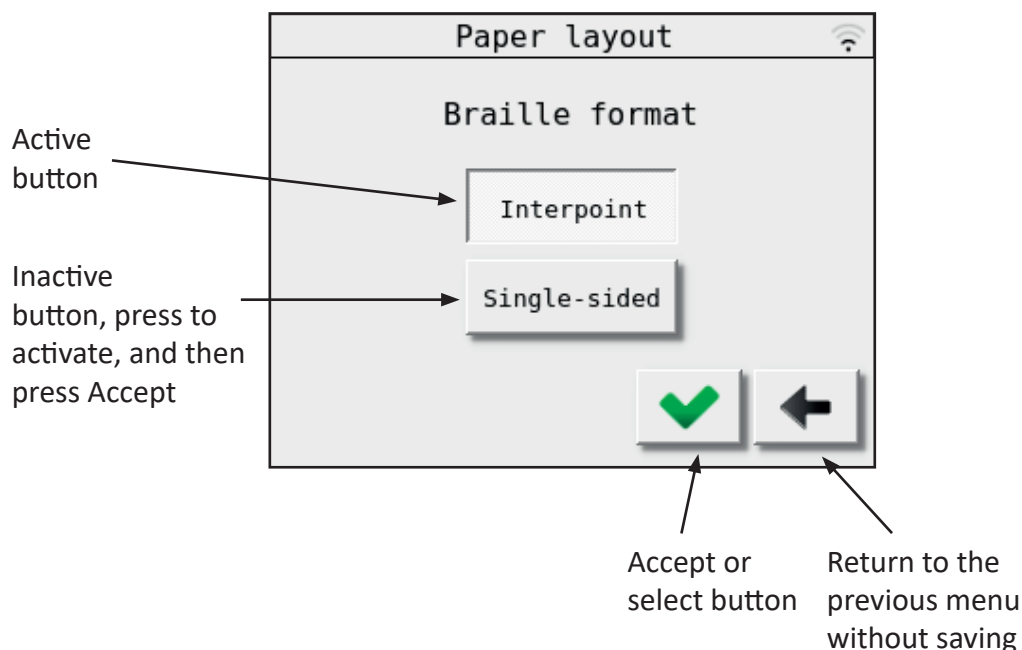
To change a variable setting

If a setting can have more than two values, the display will appear as shown below.



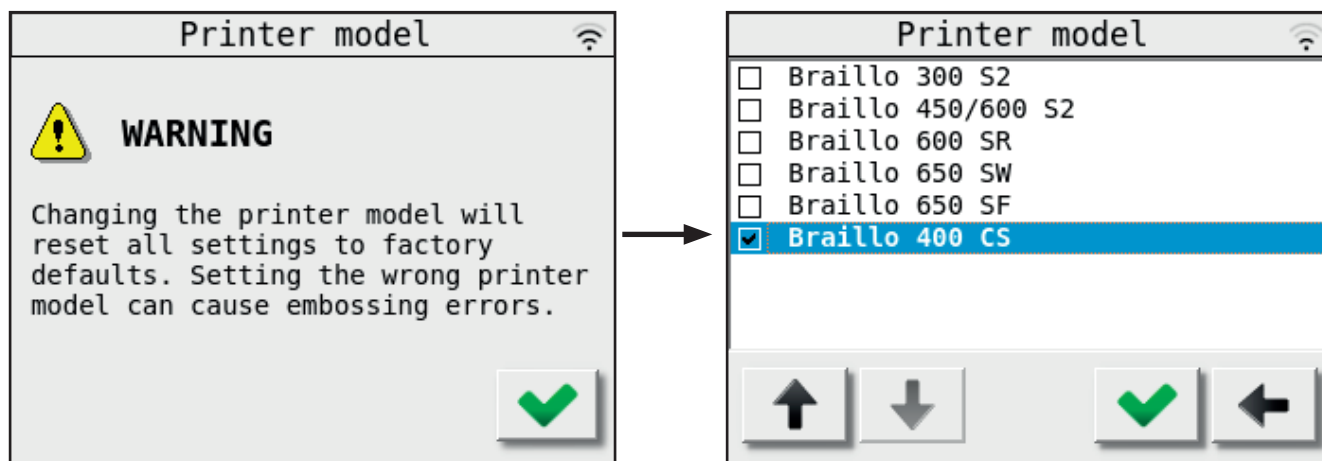
To change a setting with two alternatives

If a setting has only two alternatives, the display will appear as shown below.



Select printer model

The printer model is set correctly when the printer is shipped. However, if the main board needs to be replaced for any reason, you must select the correct printer model.



Note!

The settings configured via the operating panel are the default values. However, when sending a text file from the computer, some parameters for that specific job are included with the file. The parameters included with the file will be active during the print job. When the job is finished, the settings will revert to the default values.

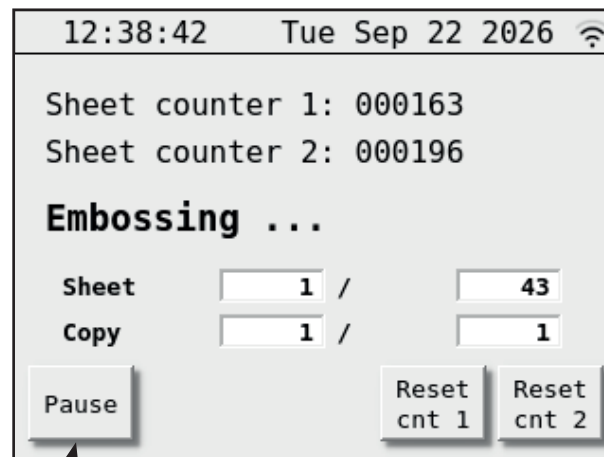
Operating panel during printing

Please see the figure below.

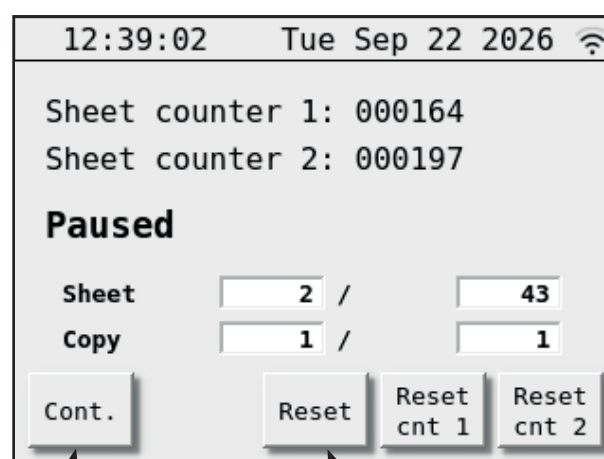
“Embossing Sheet 1 / 5” means that the printer is currently printing sheet 1 of a print job with a total of 5 sheets.

“Copy 1 / 1” means that only one copy will be printed.

If you want to pause a print job, press the **Pause** button. When the printer is paused, the button will change to **“Continue”**. Press **“Continue”** to resume printing. If you want to cancel the remaining part of the print job, press **“Reset”**.



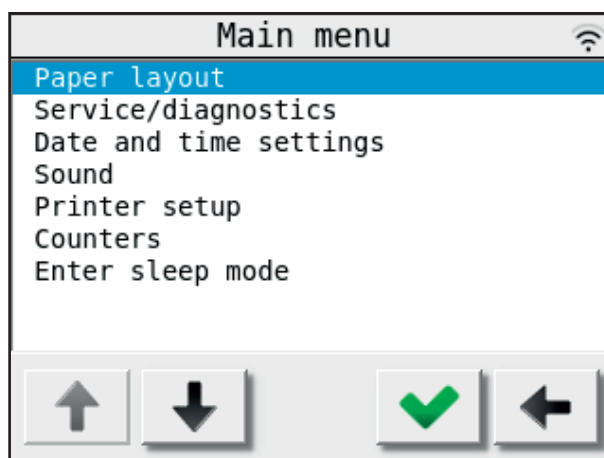
Pause the print job



Continue the print job

Cancel the rest of the print job

4.8 Main menu



The Main menu options

[“4.9 Paper layout menu” on page 53](#)

Settings for the braille output layout on paper

[“4.10 Service/diagnostic menu” on page 55](#)

Options for test print patterns, viewing the log, checking status etc.

[“4.11 Date and time menu” on page 58](#)

Settings for the date and time

[“4.12 Sound menu” on page 58](#)

Settings for sound

[“4.13 Printer setup menu” on page 59](#)

Options for selecting the printer model, ASCII tables etc.

[“4.14 Counters menu” on page 62](#)

Displays the total operating time and number of processed sheets

Enter sleep mode

Puts the printer directly into sleep mode

4.9 Paper layout menu

Main Menu - Paper Layout

Paper layout	
Booklet	On
Line length	31 char
Page margin 1	0.5 inch
Page margin 2	0.5 inch
Braille format	Interpoint
Cell Spec	Marburg
Foldline	On
Sheet length	418 mm

Navigation buttons: Up, Down, Confirm (Green Check), Back (Left Arrow)

Booklet

Main Menu - Paper Layout - Booklet

Select Booklet on (4-page) or off (2-page).

See section [“4.5 Printing with B400 CS2” on page 44](#) for more information.

Paper layout	
Booklet	
On	
off	

Navigation buttons: Confirm (Green Check), Back (Left Arrow)

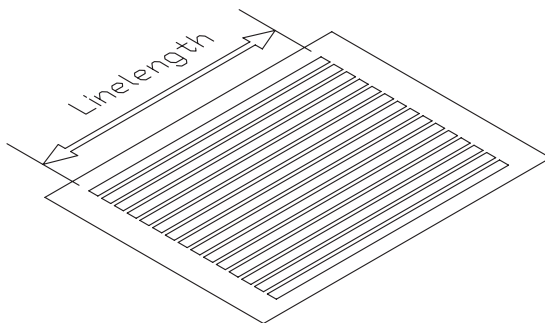
Line length

Main Menu - Paper Layout - Line Length

The line length is the maximum number of characters that can be printed on a single braille line. The range is from 10 to 44 characters.

Paper layout	
Line length	
42	

Navigation buttons: Up, Down, Confirm (Green Check), Back (Left Arrow)



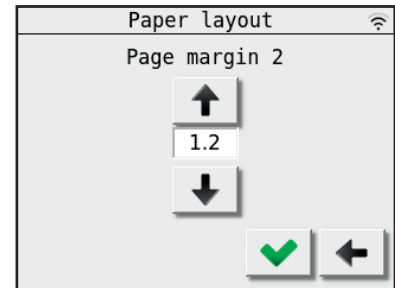
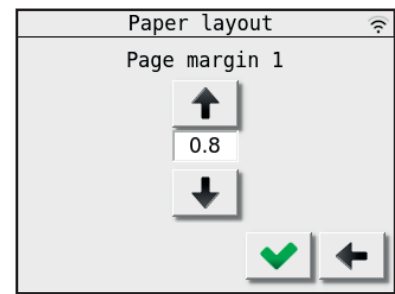
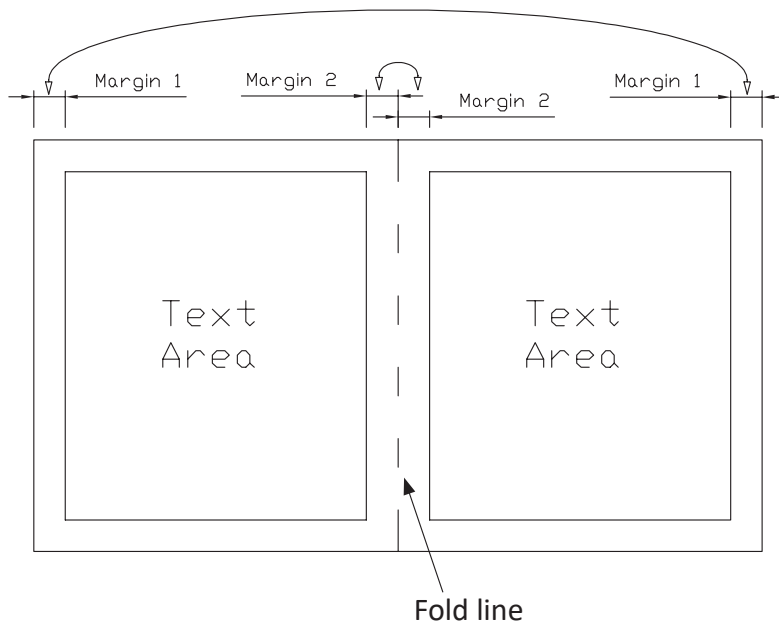
Page margin 1 and 2

Main Menu - Paper Layout - Page margin 1/2

The margins are adjustable from 12.7 mm (0.5 inch) to 50.8 mm (2.0 inch), in increments of 2.54 mm (0.1 inch).

There are two margins, Margin 1 and Margin 2.

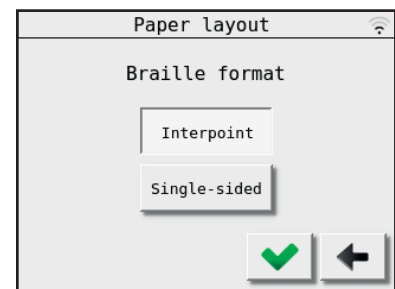
Note that the value of Margin 1 affects both outer margins, and the value of Margin 2 affects both inner margins.



Braille format

Main Menu - Paper Layout - Braille format

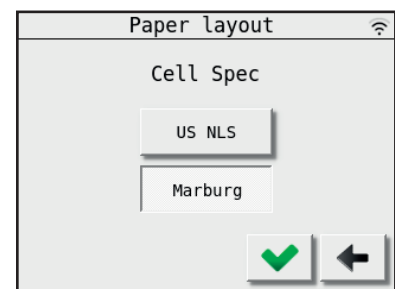
Selects between Interpoint (dots on both sides of the sheet) and single-sided (dots on just one side of the sheet).



Cell spec

Main Menu - Paper Layout - Cell spec

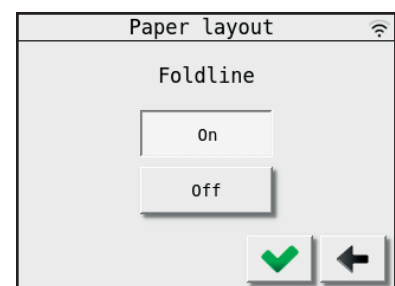
Allows you to choose between the Marburg medium standard or the US NLS standard braille cell spacing.



Fold line

Main Menu - Paper Layout - Fold line

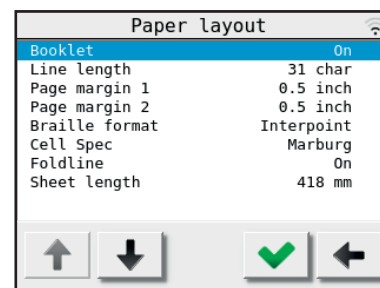
Turns a row of dots in the middle of the 4-page sheet on or off. This makes it easier to fold the sheet.



Paper width

Main Menu - Paper Layout - Sheet length

This is not a configurable setting. It displays the calculated sheet length in mm based on the values for Sheet width, Line length, Margin 1, and Margin 2.



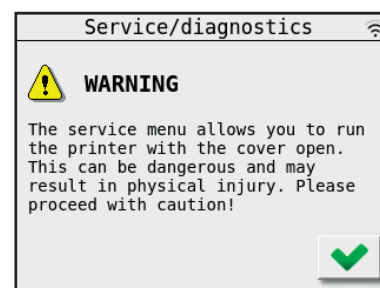
4.10 Service/diagnostic menu

Main Menu - Warning - Service/diagnostic

When entering this menu option, a warning window will appear. The purpose of this warning is to inform the user that the safety switches on the cover are disabled. This allows smaller tests to be performed during service.



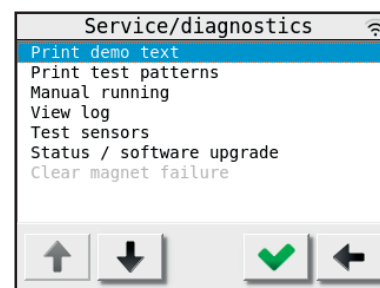
Please be aware of rotating parts to prevent injury.
The printer may be started unexpectedly by other users.



Print demo text

Main Menu - Warning - Service/diagnostic - Warning - Print demo text

Prints a short demo text on approx. one sheet of paper.



Print Test Pattern

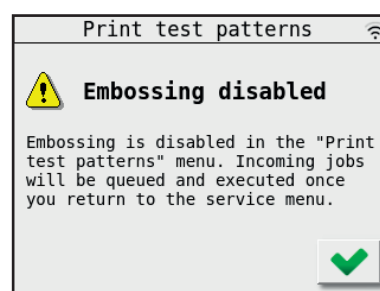
Main Menu - Warning - Service/diagnostic - Warning - Print Test Pattern

When entering this menu option, a warning window will appear. This informs the user that print jobs from the computer will not be processed while this submenu is active.

- X pattern

Prints dots in an X pattern across the sheet.

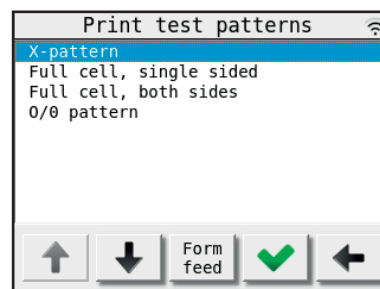
Useful when searching for missing dots.



- Full cell, single sided

Prints all six dots for each character on one side of the sheet.

Useful for dot quality testing.



- Full cell, both sides

Prints all six dots for each character on both sides of the sheet.

Useful for testing paper quality.

- O/Ø pattern

Prints a test pattern consisting of dot 1,3, and 5 and 2,4, and 6 (single-sided). Useful when searching for extra dots.

Manual running

Main Menu - Warning - Service/diagnostic - Warning - Manual running

When entering this menu option, a warning window will appear. This informs the user that print jobs from the computer will not be processed while this submenu is active.

The purpose of this menu option is to activate different functions manually for troubleshooting.

- Main motor

Use this to manually start and stop the main motor.

- Step motor

Runs the step motors forward approx. one sheet.

- Signal processor reset

Resets the Signal processor.

- Single sheet feed pulse

Sends one pulse to the sheet feeder

- X pattern without motor

Activates the magnets on the magnet racks one by one.

- Sleep relay

Turns the Sleep relay on or off.

- Alarm relay

Turns the Alarm relay on or off.

- Spare relay

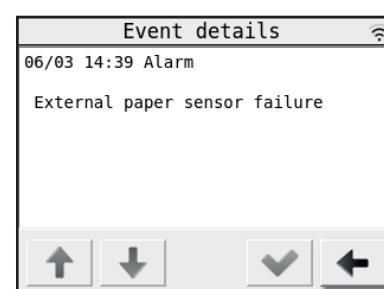
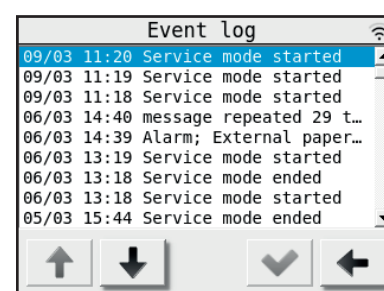
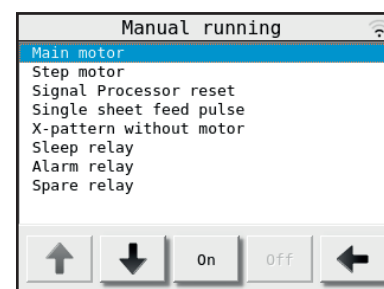
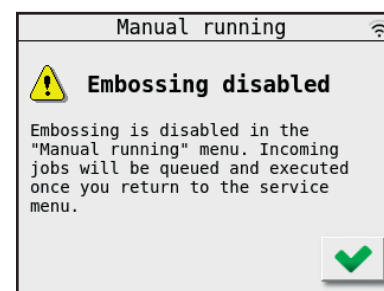
Turns the Spare relay on or off.

View Log

Main Menu - Warning - Service/diagnostic - Warning - View Log

The printer records events that occur and stores them in a log. This log can be viewed as a list, as shown in the figure to the right. If a message is repeated several times, the display will show a line with the text "Last message repeated x times". Use the up and down arrows to scroll through the list.

If the **Accept** button is shown in green, additional details about a specific event can be viewed by pressing the **Accept** button.



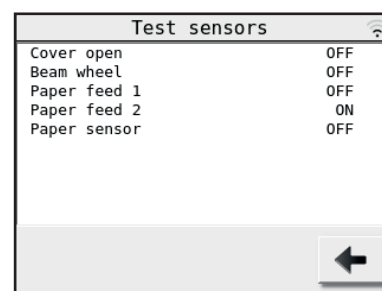
Test Sensors

Main Menu - Warning - Service/diagnostic - Test sensors

This function is used for troubleshooting the sensors on the printer. "ON" or "OFF" indicates the current status of the sensor.

To verify that a sensor is working correctly, it can be physically activated and deactivated. The status shown in the display should then change between "ON" and "OFF" accordingly.

- | | |
|----------------|---------------------------------------|
| - Cover open | Safety switches on the printer panels |
| - Beam wheel | Sensor located on the lower shaft |
| - Paper feed 1 | Sensor 1 on the paper feed tractor |
| - Paper feed 2 | Sensor 2 on the paper feed tractor |
| - Paper sensor | Sensor to detects the sheet edges |



Status / Software upgrade

Main Menu - Warning - Service/diagnostic - Status / Software upgrade

Displays the printer's current IP addresses, MAC addresses, and software version. (Eth. = Ethernet).

- Software upgrade:

It is possible to upgrade the printer's internal software. You will need a file with the newer software version, which can be obtained from Braillo Norway AS or a Braillo distributor.

Copy the file to a USB memory stick.

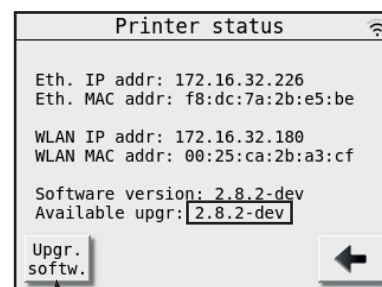
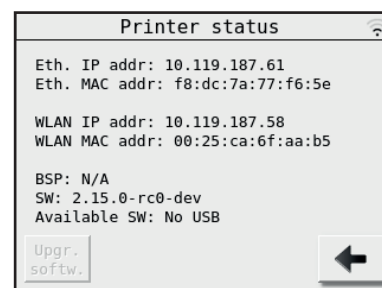
Insert the memory stick into the USB type A connector on the main board. See section ["5.28 Main board - connections" on page 114](#) for details about its location.

The printer checks for available software versions only when the "Status/Software upgrade" window is opened. If the upgrade does not appear, return to the Service menu and open the "Status/Software upgrade" window again.

The new software version will then appear at "Available upgr:", and the "Upgr. softw." button will become active. Press this button to start the upgrade.

The printer will run an upgrade sequence, and then perform a normal startup when the upgrade is complete.

All settings and counters are retained after the upgrade.

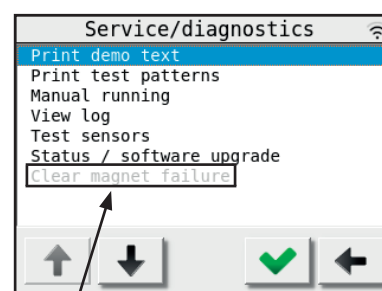


Upgrade software button

Clear magnet failure

Main Menu - Warning - Service/diagnostic - Clear magnet failure

This menu option is normally inactive. If a faulty magnet is detected during printing, a magnet symbol will appear in the "Ready to emboss" window. The "Clear magnet failure" option will then become active in the Service/diagnostics menu, allowing the magnet failure to be reset.



The Clear magnet failure option

4.11 Date and time menu

Main Menu - Date and time

Used to change the date and time settings.

Date

Main Menu - Date and time - Date

Used to change the date.

Note! Let the printer enter sleep mode, or use “Enter sleep mode” in the main menu before turning the power off after adjusting the date.

Time

Main Menu - Date and time - Time

Used to change the time.

Note! Let the printer enter sleep mode, or use “Enter sleep mode” in the main menu before turning the power off after adjusting the time.

4.12 Sound menu

Main Menu - Sound

Volume

Main Menu - Sound - Volume

Controls the volume for beep, speech, and alarm.

Pitch

Main Menu - Sound - Pitch

Sets the pitch level for the beep.

Speech

Main Menu - Sound - Speech

Toggles Speech on or off.

Accessibility

Main Menu - Sound - Accessibility

Toggles Accessibility on or off.

If this setting is enabled, pressing a button will cause the button function to be announced by Speech.

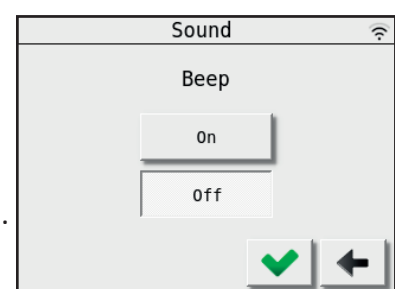
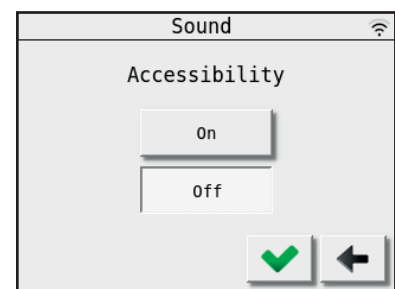
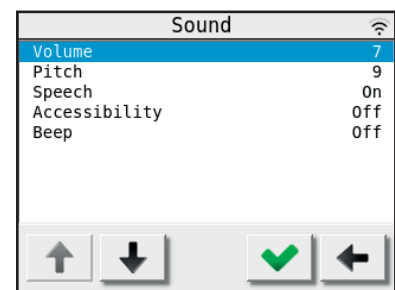
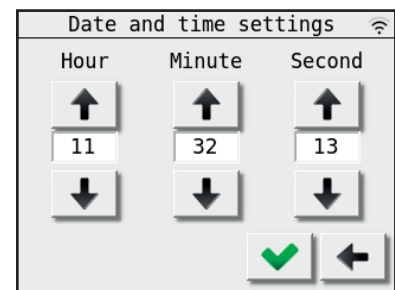
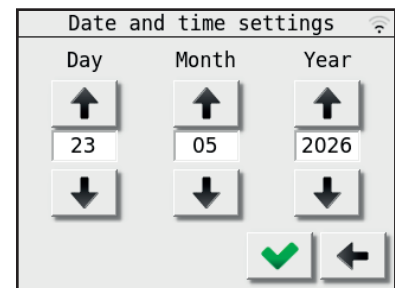
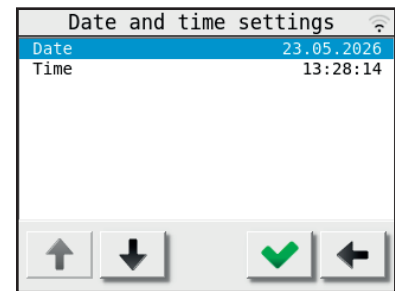
The next press will then activate the button.

Beep

Main Menu - Sound - Beep

Toggles Beep on or off.

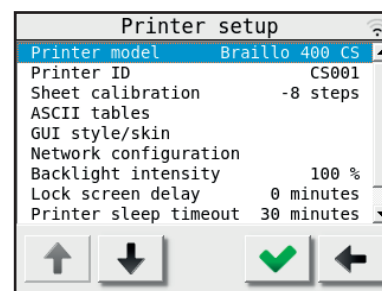
If enabled, the printer will sound a short beep when a button is pressed.



4.13 Printer setup menu

Main Menu - Printer setup

In this menu, the basic settings for the printer are configured.



Printer model

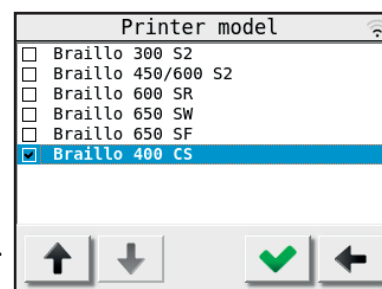
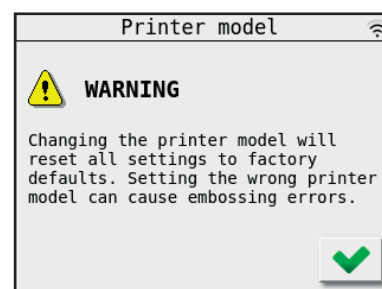
Main Menu - Printer setup - Warning - Printer model

When entering this menu option, a warning window will appear.

Braillo Norway AS offers several printer models that use the same electronics. However, the different models have different settings and functions. This menu option is used to select the specific printer model. The software will then be adapted to the printer in use.

This setting is configured at the factory and should, under normal conditions, not need to be changed.

However, if the main board in the printer has been replaced, you must ensure that the correct printer model is selected in this menu.

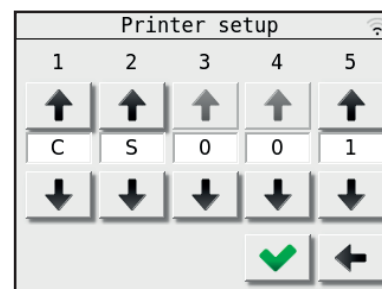


Printer ID

Main Menu - Printer setup - Printer ID

The printer includes a function that makes it possible to identify which printer has printed a particular braille document. This is done by sending a command with the document that instructs the printer to print its identification. In this setting, you can define a five-character code or name that identifies the printer.

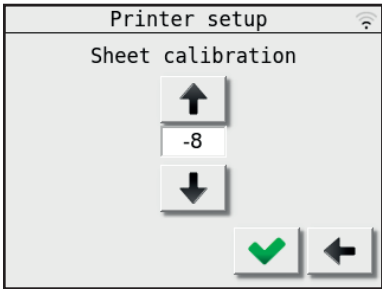
When more than one printer is connected to the same computer via USB, the printer ID must be set. This ensures that each connected printers has a unique ID on the computer.



Sheet calibration

Main Menu - Printer Setup - Sheet calibration

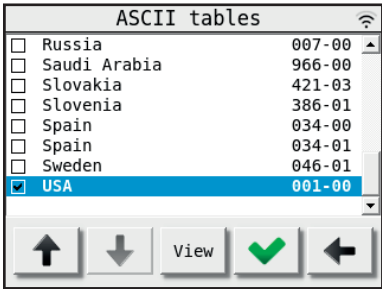
This function allows adjustment of the starting position for the left margin of the braille on the sheet.
The value can be set from -32 to +32. One step corresponds to 0.3175 mm. A value of 0 means no correction is applied.



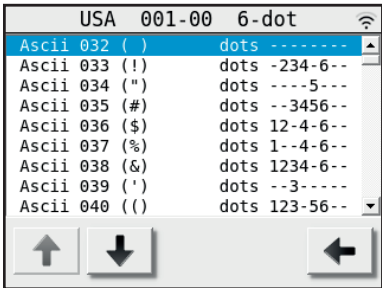
ASCII tables

Main Menu - Printer setup - ASCII tables

An ASCII table is the same as a character set. When the printer receives a character from the computer, it uses the ASCII table to determine which dot pattern corresponds to that character.
This printer includes several ASCII tables, which are listed as shown in the figure to the right. To select another table, use the up and down arrow and press the **Accept** button. The selected table then becomes the active table.



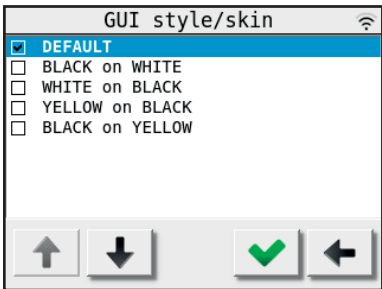
It is also possible to view the mapping between characters and dot patterns in the different ASCII tables by pressing the “View” button. A list, as shown in the figure to the right, will appear. Use the up and down arrows to scroll through the list.



GUI style/skin

Main Menu - Printer setup - GUI style/skin

If any users of this printer has low vision or find it difficult to read the operating panel, it is possible to change the background and text colors to improve contrast.



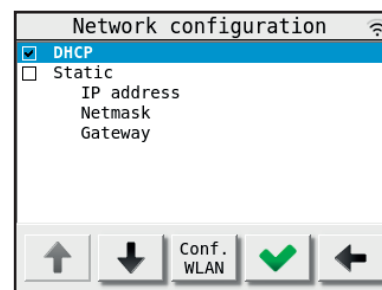
Network configuration

Main Menu - Printer setup - Network configuration

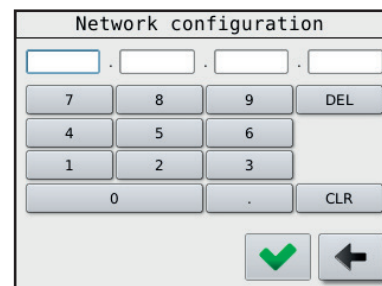
This menu option allows you to choose between:

- **Regular DHCP IP address (default setting)**
- **Static IP address**

Note that when using a static IP address, all three network parameters must be set manually, and all three must be configured.



The three parameters for the static IP address are entered using the buttons shown in the figure to the right. Enter the numbers in the first field, then select the next field to move to it. When all four fields are set, press the **Accept** button to return to the Network configuration menu.



- Wireless configuration

To start the set up for connecting to a WLAN network, press the “Conf. WLAN” button.

The printer will then start transmitting a temporary WLAN network with the SSID and password shown on the display.

Note that the password changes each time. If you need to repeat this process, always use the current password.



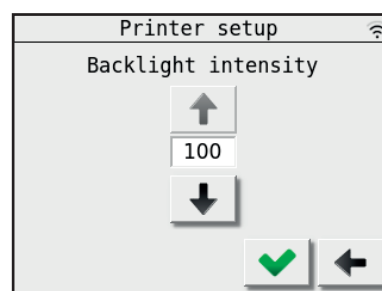
See [“3.7 Wireless network \(WLAN\)”](#) on page 33 for more information.

Backlight intensity

Main Menu - Printer setup - Backlight intensity

Setting for the backlight intensity of the display.

Can be set from 15% to 100%.

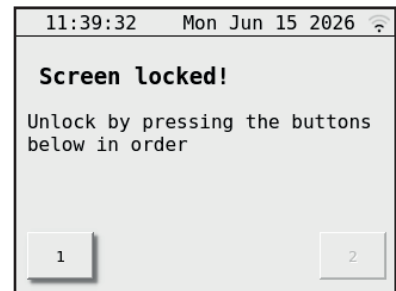
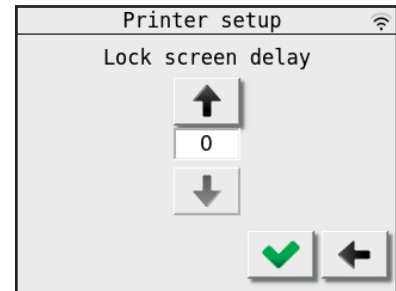


Lock screen delay*Main Menu - Printer setup - Lock screen delay*

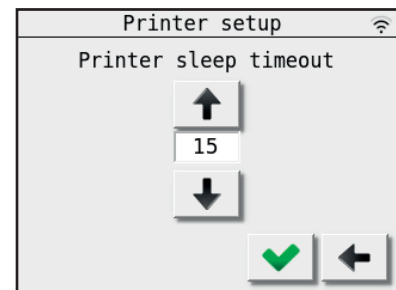
Sets the delay, in minutes, after the operating panel has been used before the screen is locked. A value of 0 disables the screen lock.

The Lock screen function prevents accidental button presses.

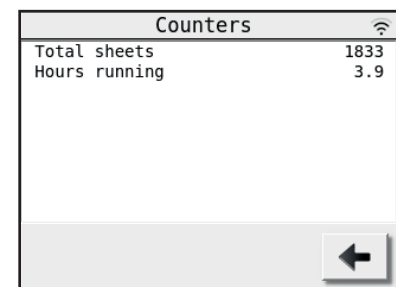
To unlock the screen, press button 1, then button 2.

**Printer sleep timeout***Main Menu - Printer setup - Printer sleep timeout*

Sets the time, in minutes, after the operating panel has been used or a printjob has finished before the printer enters sleep mode.

**4.14 Counters menu***Main Menu - Counters*

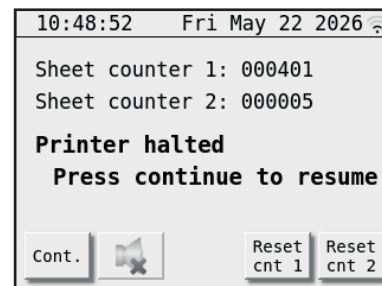
Displays two counters. The first shows the total number of sheets printed. The second shows the total number of hours the main motor has been running (the time the printer has been actively printing).



4.15 Display messages

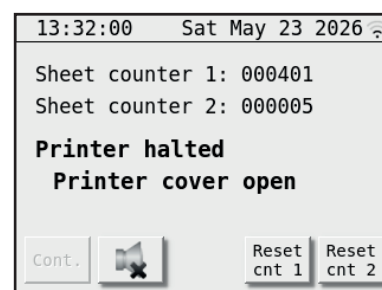
When a problem occurs, the display will show a message indicating the issue, for example “Printer halted, Printer cover open”. The message will remain until the error is resolved. Once the error is fixed, the display will change to “Printer halted, Press continue to resume”. Pressing “**Continue**” will resume the printing from where it stopped.

- Press continue to resume



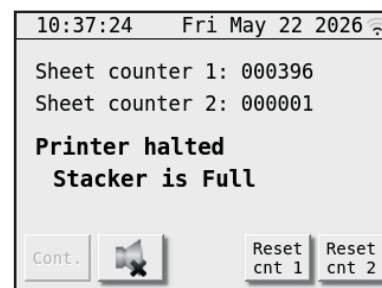
- Printer cover open

This occurs when one or more panels on the printer cover are open. When the side panels are put back, the display will change to “Press continue to resume”.



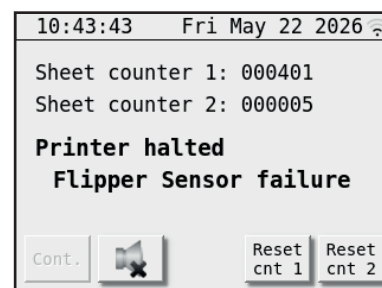
- Stacker is full

The stacker is full, and the sheets must be removed. When the sheets are removed, the stacker shelf must be returned to the upper position. See section [“8.2 Operating the CS2 Stacker” on page 131](#) for more description. Then the display will change to “Press continue to resume”.



- Flipper sensor

The sheet has not been detected by the flipper sensor in the Stacker unit within a specified time after the sheet was ejected. This may be caused by, for example, a paper jam. Correct the problem and push a sheet under the flipper sensor, and display will change to “Press continue to resume”.



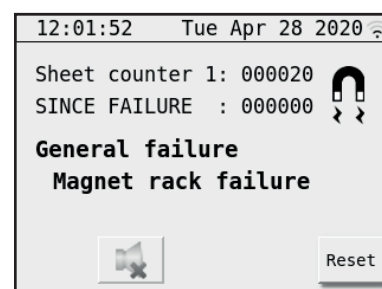
4.16 Unrecoverable errors

When an unrecoverable error occurs, the display will show a message indicating the issue, for example “General failure, Beam wheel failure”. When this type of errors occurs, the printer must either be reset or turned off and then turned on again, depending on the error. The job currently being printed must be sent again from the computer. The different unrecoverable errors are:

- Magnet failure

A defective magnet has been detected during printing. The display will show “General failure, Magnet rack failure” and a magnet symbol will appear in the upper right corner of the display. The printer will stop. Check the log for the details.

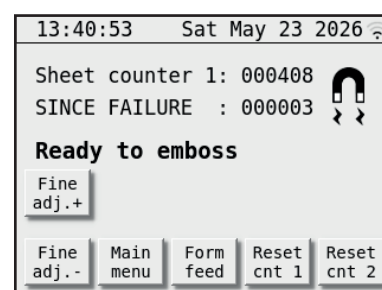
(Main Menu - Warning - Service/diagnostic - Warning - View Log)



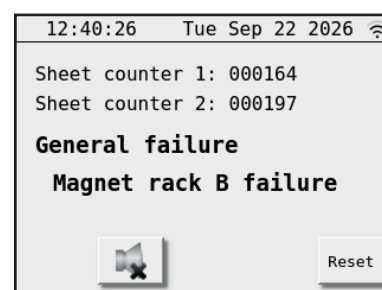
When attempting to print after a defective magnet has been replaced, the display will still show the magnet symbol in the upper right corner. This means that the magnet failure must be reset.

To reset the magnet failure, select the “**Clear magnet failure**” option. See “[Clear magnet failure](#)” on page 57 for more information.

(Main Menu - Warning - Service/diagnostic - Clear magnet failure)



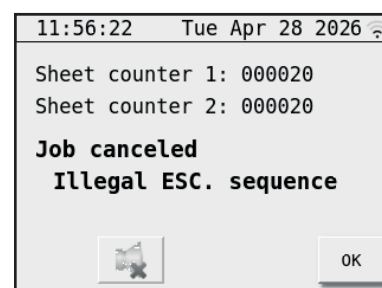
If the display shows “General failure, Magnet rack failure” without the magnet symbol in the upper right corner, it indicates that an error has been detected, for example in the data transmission between the main board and the magnet racks, or due to a blown fuse supplying power to a magnet rack.



- Illegal ESC sequence

The printer has received an ESC sequence that it does not recognize, is placed in an incorrect location on the page, or contains invalid parameters.

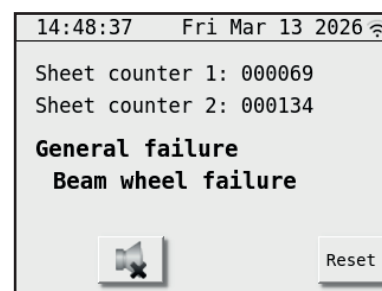
Press “OK” to continue.



- Beam wheel failure

This means that pulses from the beam wheel sensor are not registered by the electronics. This may be caused by, for example, a defective sensor, a disconnected sensor, a broken main belt, or a defective main motor. If you can hear the main motor start, the issue is likely related to the sensor. If the motor does not start, the issue is likely related to the main motor. Press "Reset" to continue. The sensor can be tested manually in:

Main Menu - Warning - Service/diagnostic - Test Sensors.



- Page self adj. failure

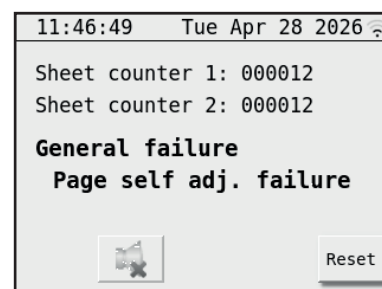
The printer has detected a position problems with the paper feed during startup or resetting. This may be caused by, for example, a defective or disconnected sensor or a defective stepping motor.

The sensors can be tested manually in:

Main Menu - Warning - Service/diagnostic - Test Sensors.

Please check the log for the details.

(Main Menu - Warning - Service/diagnostic - Warning - View Log)

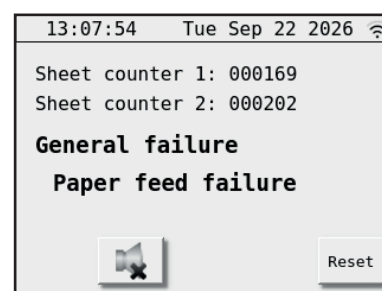


- Paper feed failure

During printing, the printer has detected that the paper position is not where the electronics expect it to be. This may be caused by, for example, the paper being stuck (causing the stepping motor to slip), a disconnected or defective stepping motor, or one of the paper feed sensors being disconnected or defective. Press "Reset" to continue.

The sensors can be tested manually in:

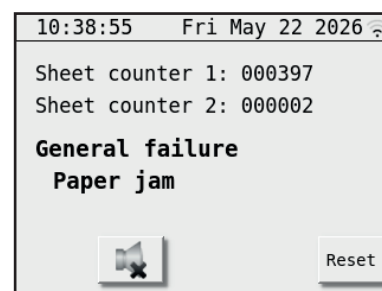
Main Menu - Warning - Service/diagnostic - Test Sensors.



- Paper jam

This can be caused by several reasons, for example:

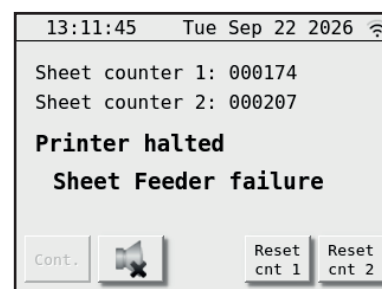
- No sheet is coming from the sheet feeder
- The paper is jammed before it reaches the paper sensor
- The sheet is using too long time through the printing mechanism



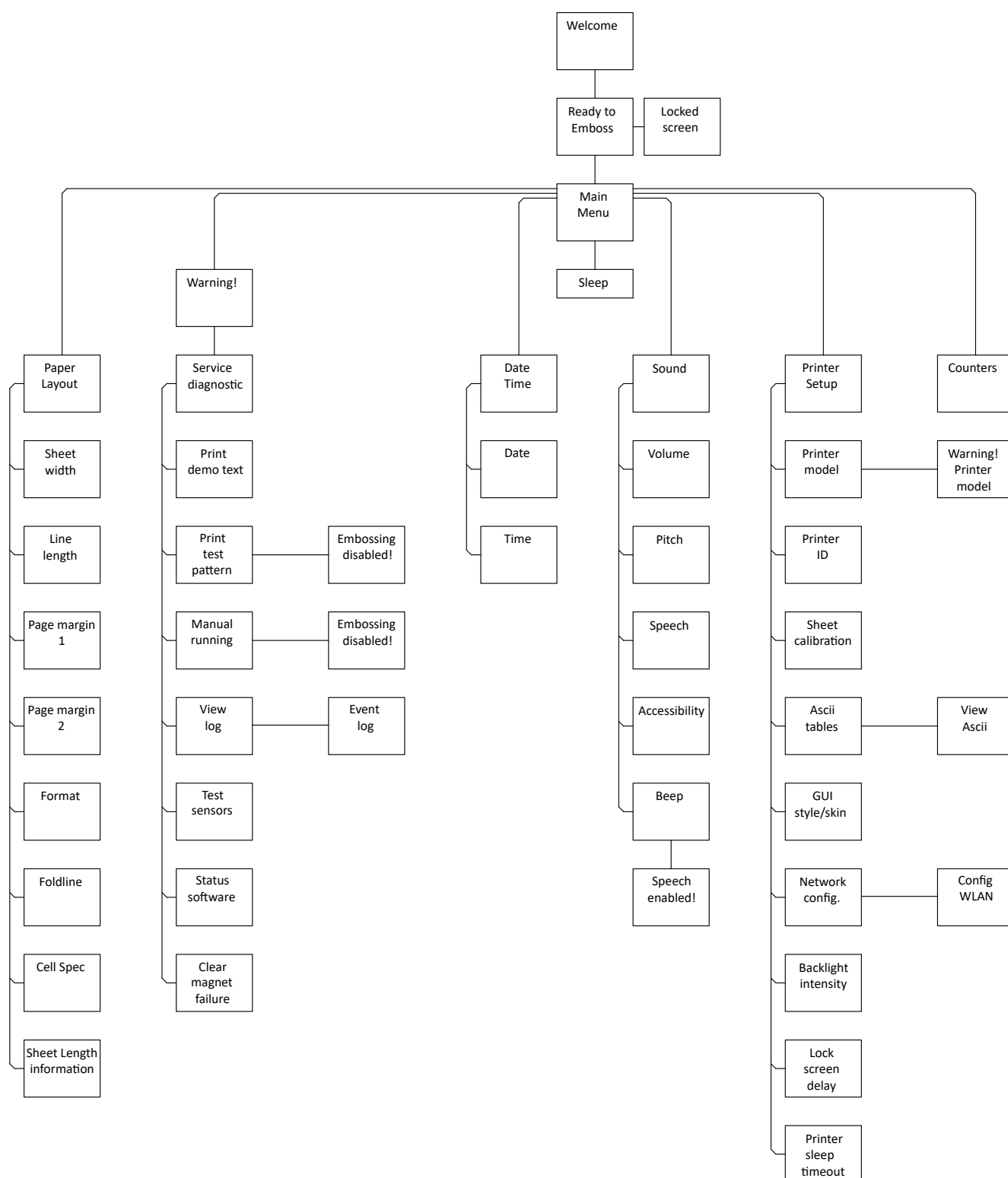
- Sheet feeder failure

If the sheet feeder has detected any problem, it sends a error message to the printer. Check the display on the sheet feeder for more details.

Note! This message will also appear if the feeder has no power.



4.17 Overview of the menu structure



4.18 Test Print

The test print program is designed to ensure that the 180 printing mechanisms function correctly.

The printer perform an electronic test on all printing mechanisms continuously during operation. However, this test does not detect mechanical issues. It is therefore recommended to print a few test pages before starting daily production.

This makes it easier to verify that all printing mechanisms are functioning mechanically.

The printer includes both single-sided and double-sided (interpoint) test print patterns.

The test print consists of four different patterns, as described below.

How to use the test print:

Print Test Pattern

Main Menu - Warning - Service/Diagnostic - Warning - Print Test Pattern

When entering this menu option, a warning window will appear. This informs the user that print jobs from the computer will not be processed while this submenu is active.

- X pattern

Prints dots in an X pattern across the sheet, useful when searching for missing dots.

- Full cell, single sided

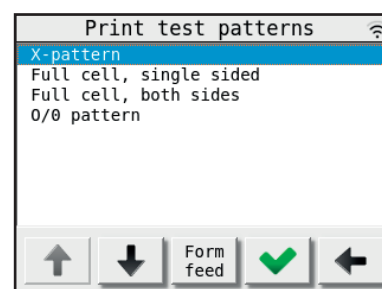
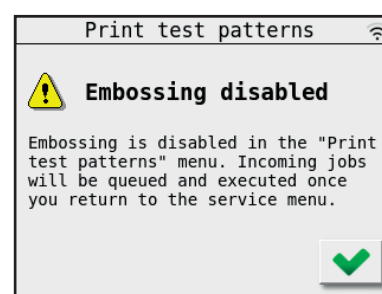
Prints all six dots for each character on one side of the sheet, useful for dot quality testing.

- Full cell, both sides

Prints all six dots for each character on both sides of the sheet, useful for testing paper quality under heavy printing.

- O/Ø pattern

Prints a test pattern consisting of dot 1, 3, and 5, and 2, 4, and 6, (single-sided), useful when searching for extra dots.



Section [“5.4 Printing principle” on page 70](#) illustrates how the printing mechanisms are arranged.

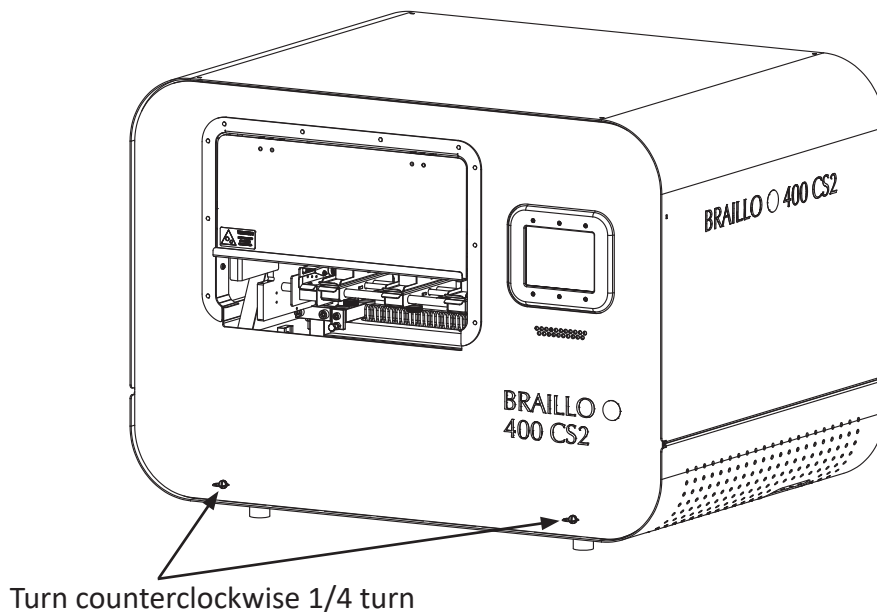
Instruction for troubleshooting are illustrated with examples in section [“5.5 Troubleshooting, incorrect braille” on page 76](#).

5. SERVICE AND MAINTENANCE

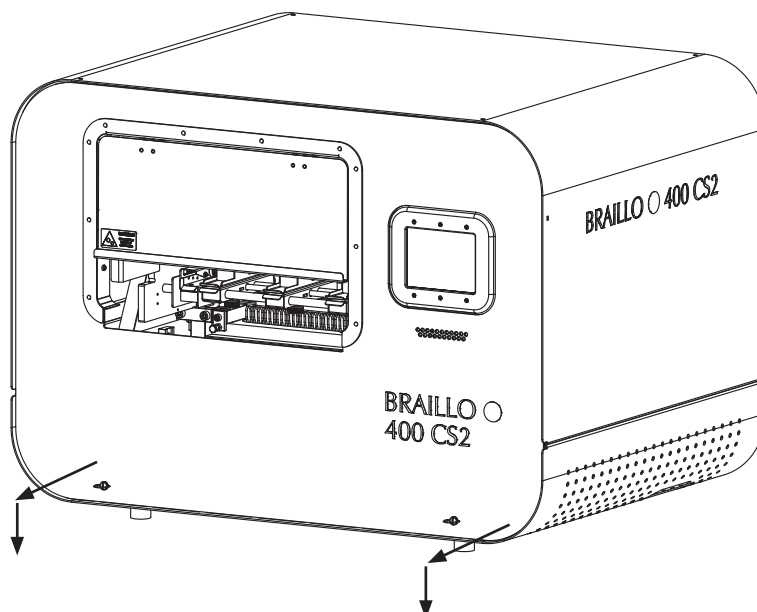
When performing minor service or maintenance tasks, it may be sufficient to remove the side plates on the cover. For more extensive work, it is recommended to also remove the top cover. See section [“5.2 Removal of the printer top”](#) on page 69 for instructions.

5.1 Removal of the printer side panels

The printer side panels can be removed by turning the quarter-turn fasteners counterclockwise.



Turn counterclockwise 1/4 turn

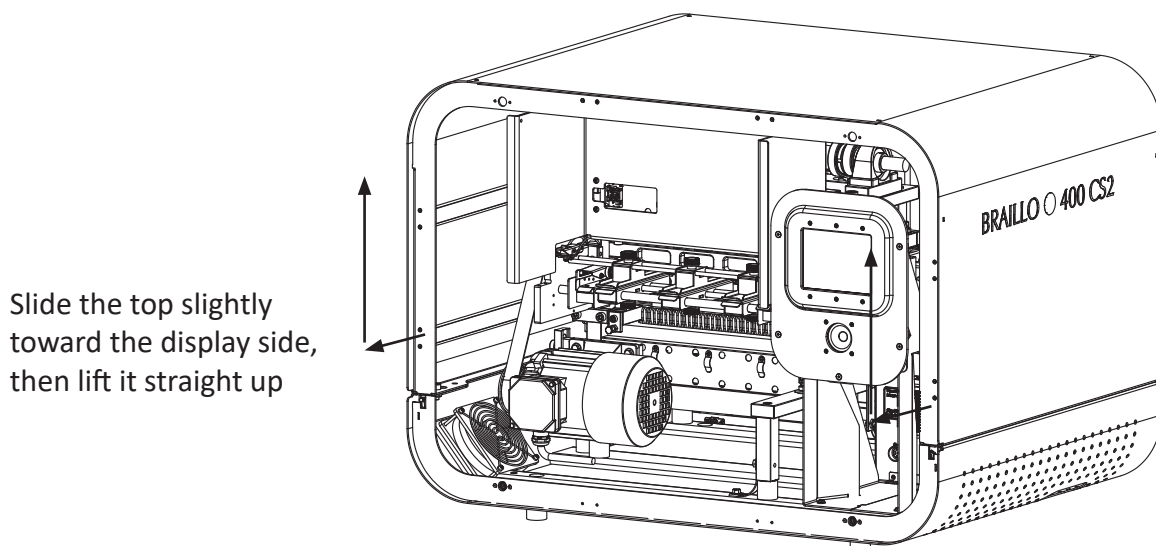
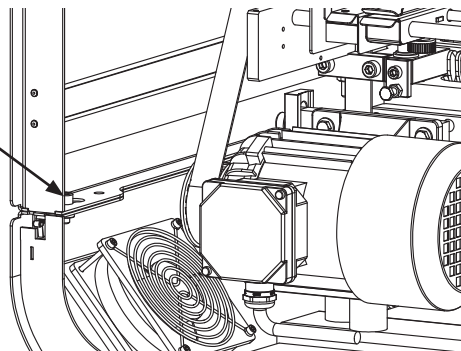
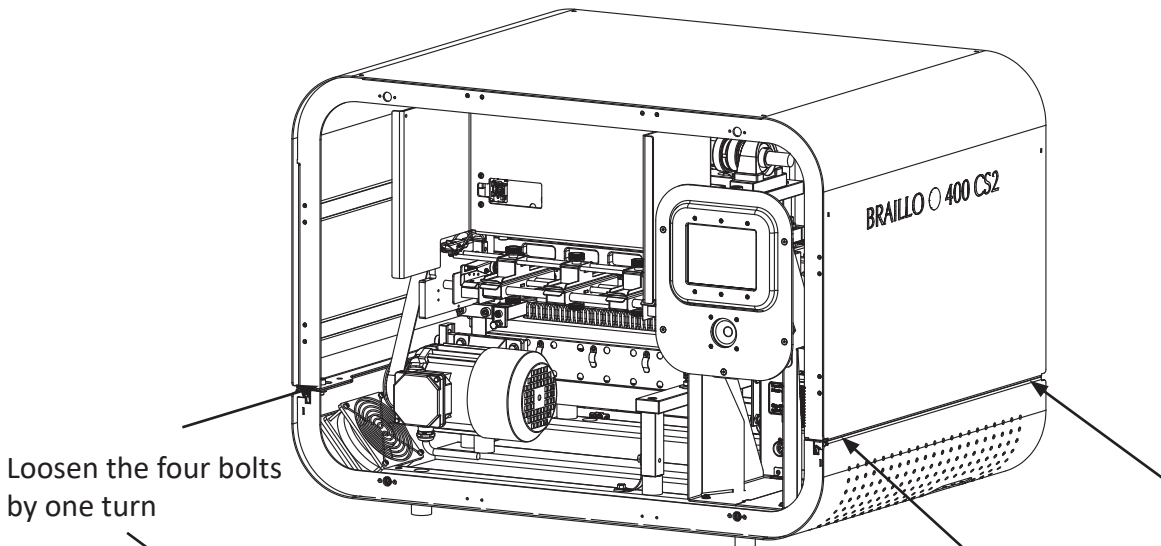


Pull the panel out, then
slightly downward

5.2 Removal of the printer top

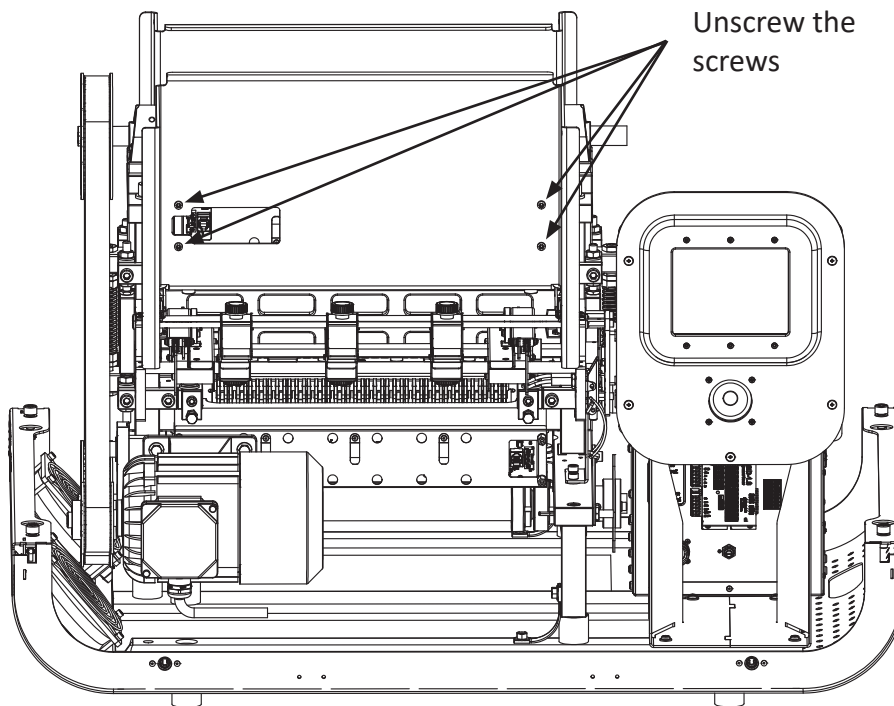
If you are performing maintenance, it may be more convenient to remove the top cover. Remove both side panels as described in section [“5.1 Removal of the printer side panels”](#) on page 68.

Loosen the four bolts by one turn, then slide the top slightly toward the operating panel side. Then lift it straight up.



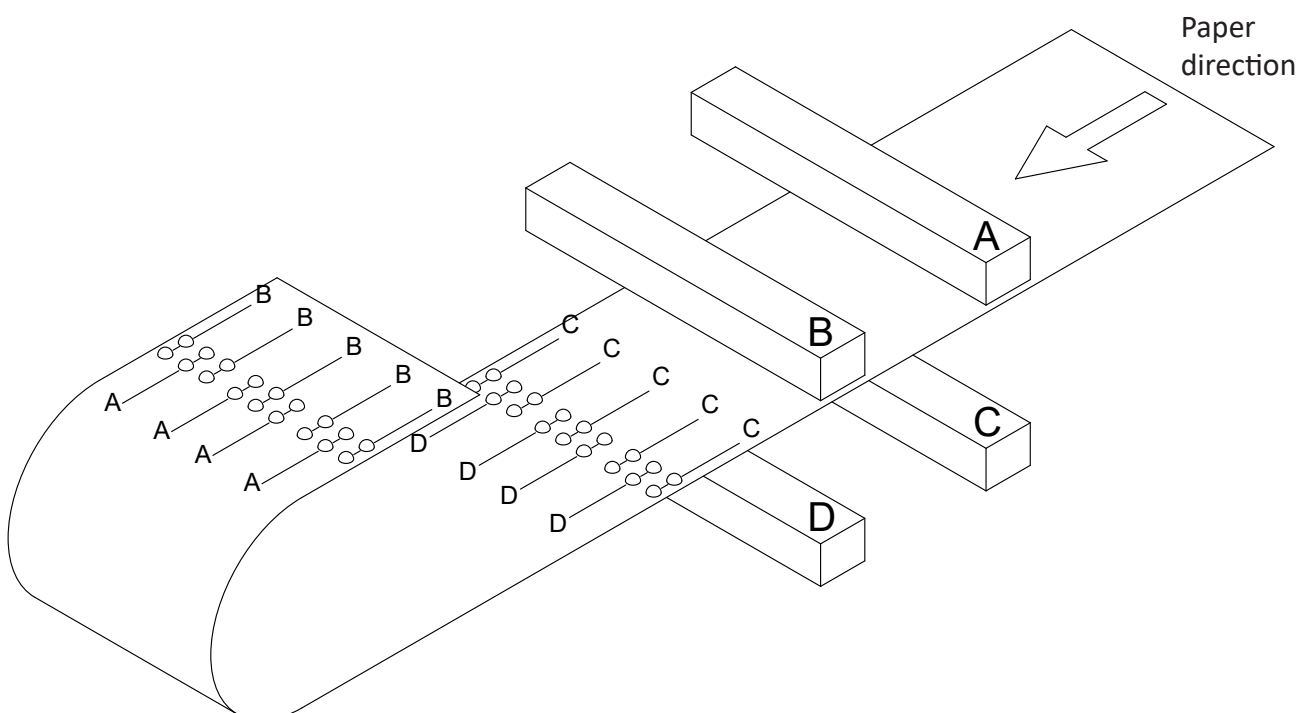
5.3 Removal of protection covers

For service and maintenance tasks, it is necessary to remove the protection covers. This is done by unscrewing the four screws on each cover and then placing the covers aside.

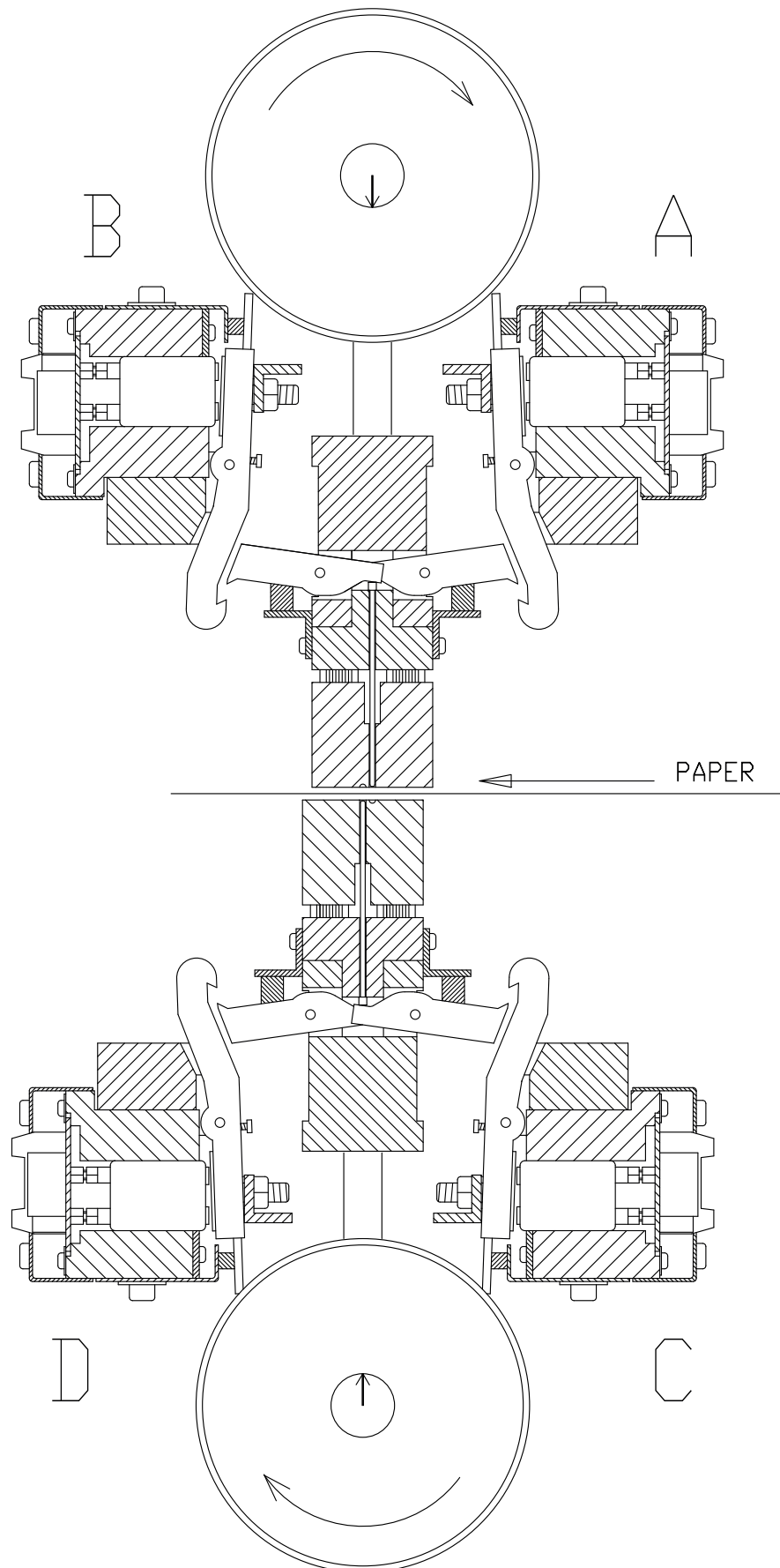


5.4 Printing principle

The figure below shows a simplified version of the printing mechanism in this printer. The four bars across the paper represent the magnet racks. The magnet racks are labeled from A to D. Magnet rack A and B create dots on the side of the paper facing downward, while magnet racks C and D create dots on the side facing upward.



The figure below is a basic outline figure showing the components inside the printing mechanism. The printer has been sectioned to illustrate additional details of its construction.

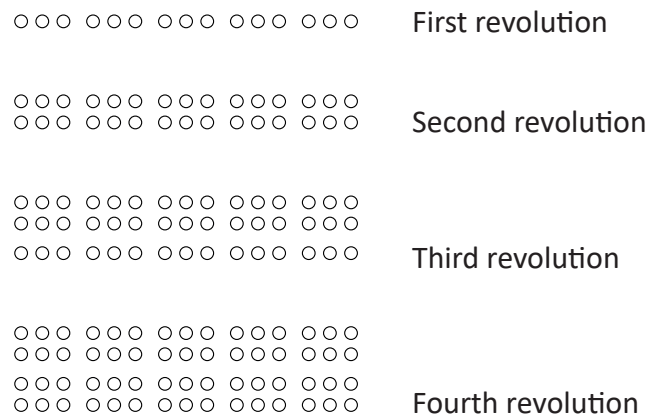


Please see the figure on the previous page.

The two shafts, one at the top and one at the bottom, rotate in synchronization. Each shaft has eccentrics that move the beams and paper shoes up and down. This movement is used both to hold the paper and to create the dots.

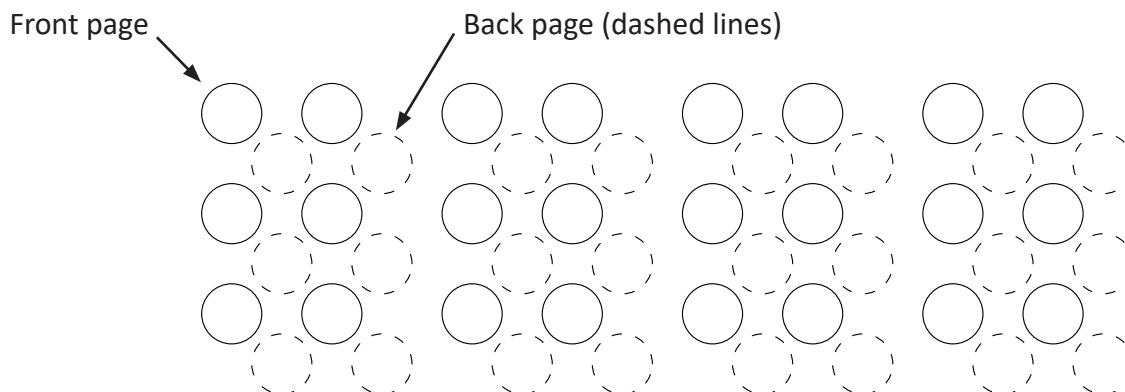
One row of dots is printed for each revolution of the shafts. The shafts must rotate twice to form a complete column of characters.

Please see figure below.



To enable interpoint printing (where both sides of paper are printed simultaneously), the back page is offset slightly to the right and downward so that the dots align between the dots on the front page on the front page.

Please see figure below.



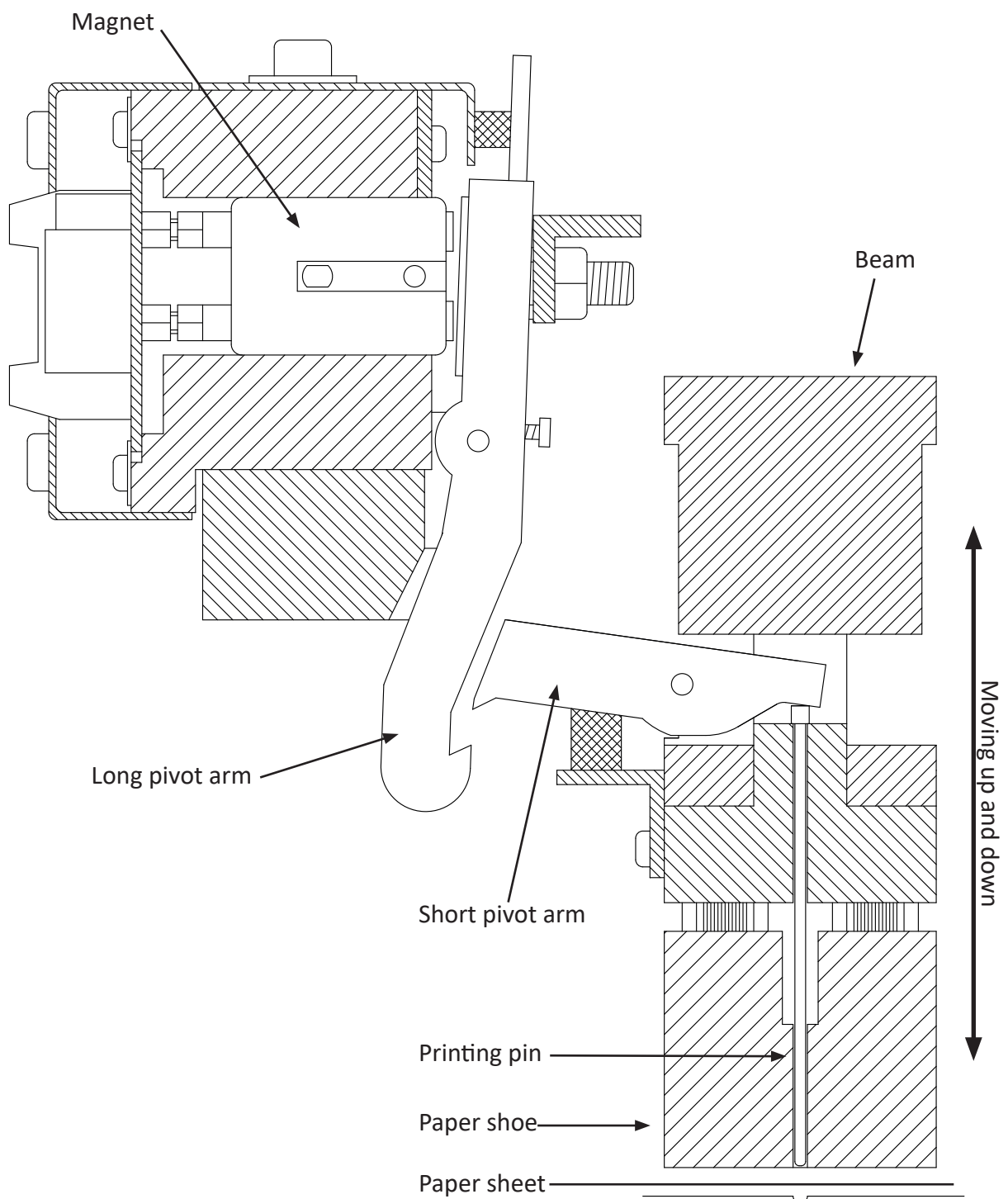
The drawing on this page is intended to help explain the basic principle of how the dots are printed. Please also refer to the drawings on the next page.

The parts in the upper left of this drawing represent one of the magnet racks. The parts in the lower right represent the beam and the paper shoes. The magnet racks themselves do not move, but the beams and paper shoes move up and down with each revolution of the eccentric shafts.

Each magnet rack contains 45 electrical magnets. These magnets control the long pivot arms.

When a dot is to be printed, the magnet is activated, and the long pivot arm is drawn toward the magnet poles.

At the same time, the beam and the paper shoe will begin to move downward, and the short pivot arm engages with the hook of the long pivot arm. The beam continues to move downward, forcing the printing pin into the paper.



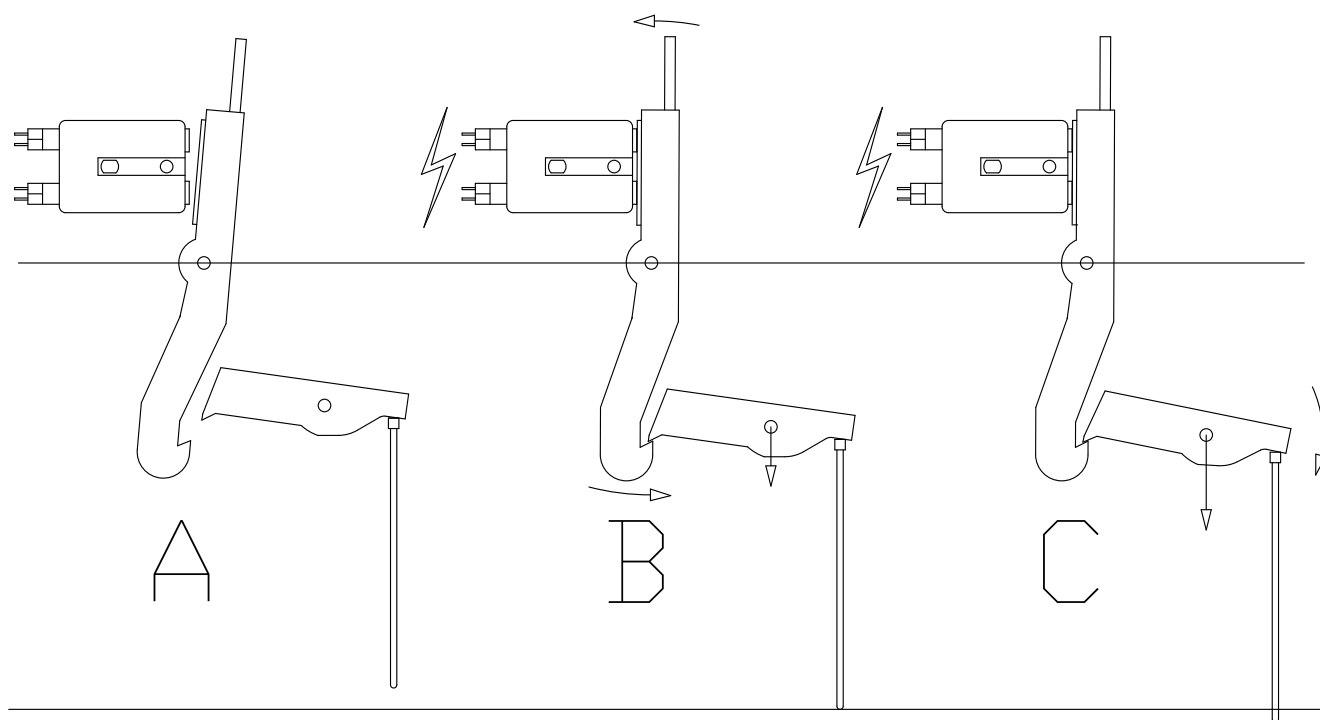


Figure A

Shows the position on the pivot arms when the printer is not printing and the magnet is not activated.

Figure B

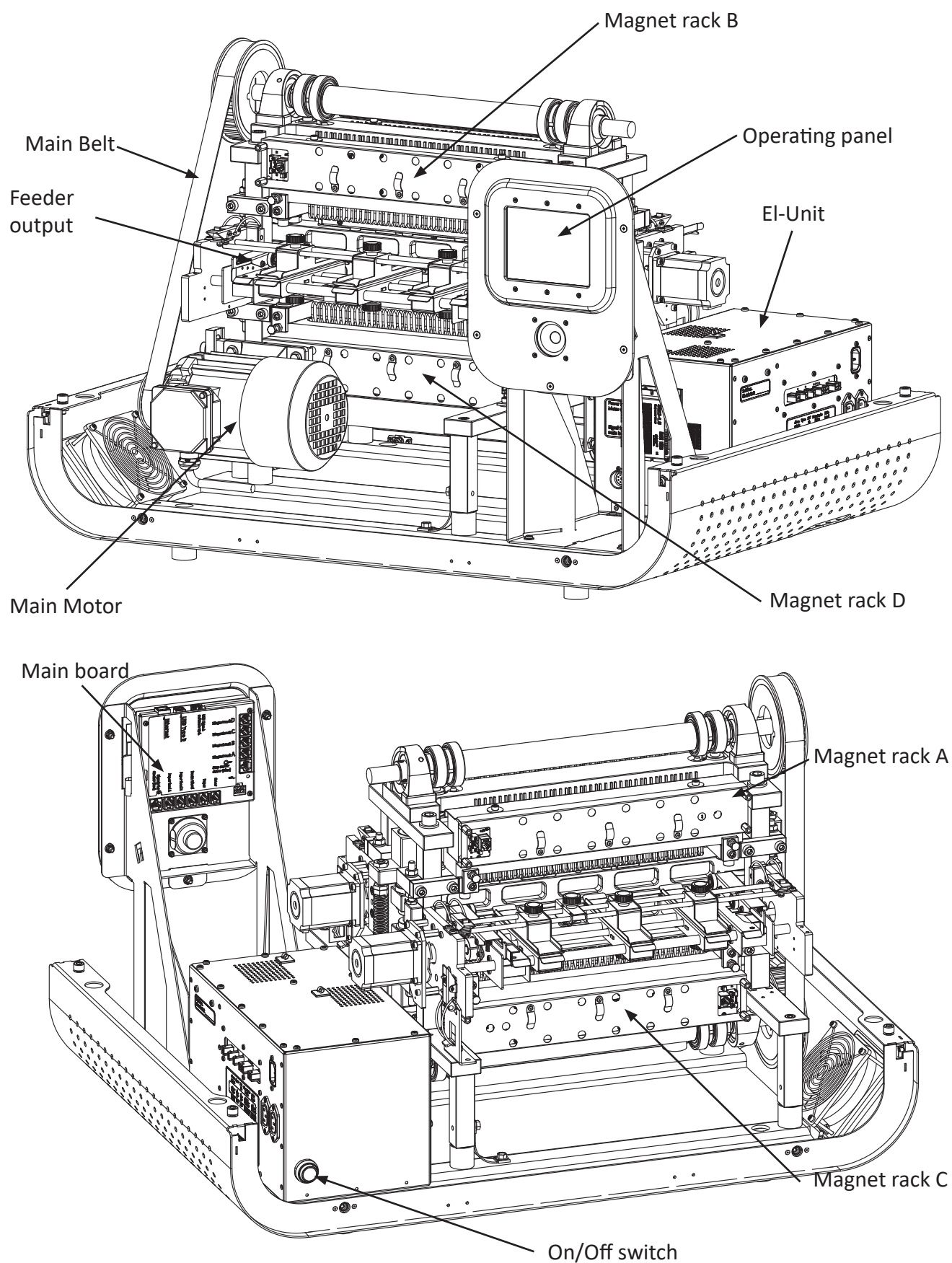
The magnet is now activated, and the long pivot arm has been pulled toward the magnet. The short pivot arm is moving downward toward the hook on the long pivot arm.

Figure C

The hook of the long pivot arm catches the short pivot arm. As the short pivot arm moves further downward, the printing pin is forced into the paper, creating the dot.

General overview

(Case and protective covers are removed)



5.5 Troubleshooting, incorrect braille

If errors are found in some of the characters during proofreading, the first step is to check the characters in the text file on the computer to determine whether the error originates from the file rather than the printer.

If the text file is correct, the problem is caused by the printer.

The errors may be caused by either an electrical or a mechanical issue. On the electrical side, the printer includes an integrated self-diagnostic system that continuously monitors the magnets during printing and triggers an alarm if electrical faults are detected.

If no alarm is triggered, the errors are most likely caused by mechanical faults or debris obstructing the moving mechanisms.

Inside the printer, there are four identical magnet racks, labeled A to D. Each magnet rack contains 45 printing mechanisms, giving a total of 180 printing mechanisms to consider during troubleshooting. See section [“Which magnet makes what dot?” on page 78](#) for more information.

If the printer has been heavily used (for example, after one year, or after 1000 printing hours, whichever comes first) errors in the characters may occur. In such cases, the printer may simply require routine maintenance. See section [“5.10 Magnet rack - cleaning” on page 88](#), and section [“5.29 Maintenance” on page 115](#).

As an initial step, run the built-in Test Print. Depending on the type of error, different test pattern should be used.

The main objective at this stage is to identify which magnet rack is causing the issue.

If dots are missing, use the X pattern to determine which magnet rack is missing the dots.

If there are extra dots, use the full cell pattern, or test pattern no. 4. The extra dots will appear in the spaces between the lines. However, the most effective test is standard text, provided a proofreader is available. To locate the faulty magnet rack(s), refer to the figures and table in section [“Which magnet makes what dot?” on page 78](#).

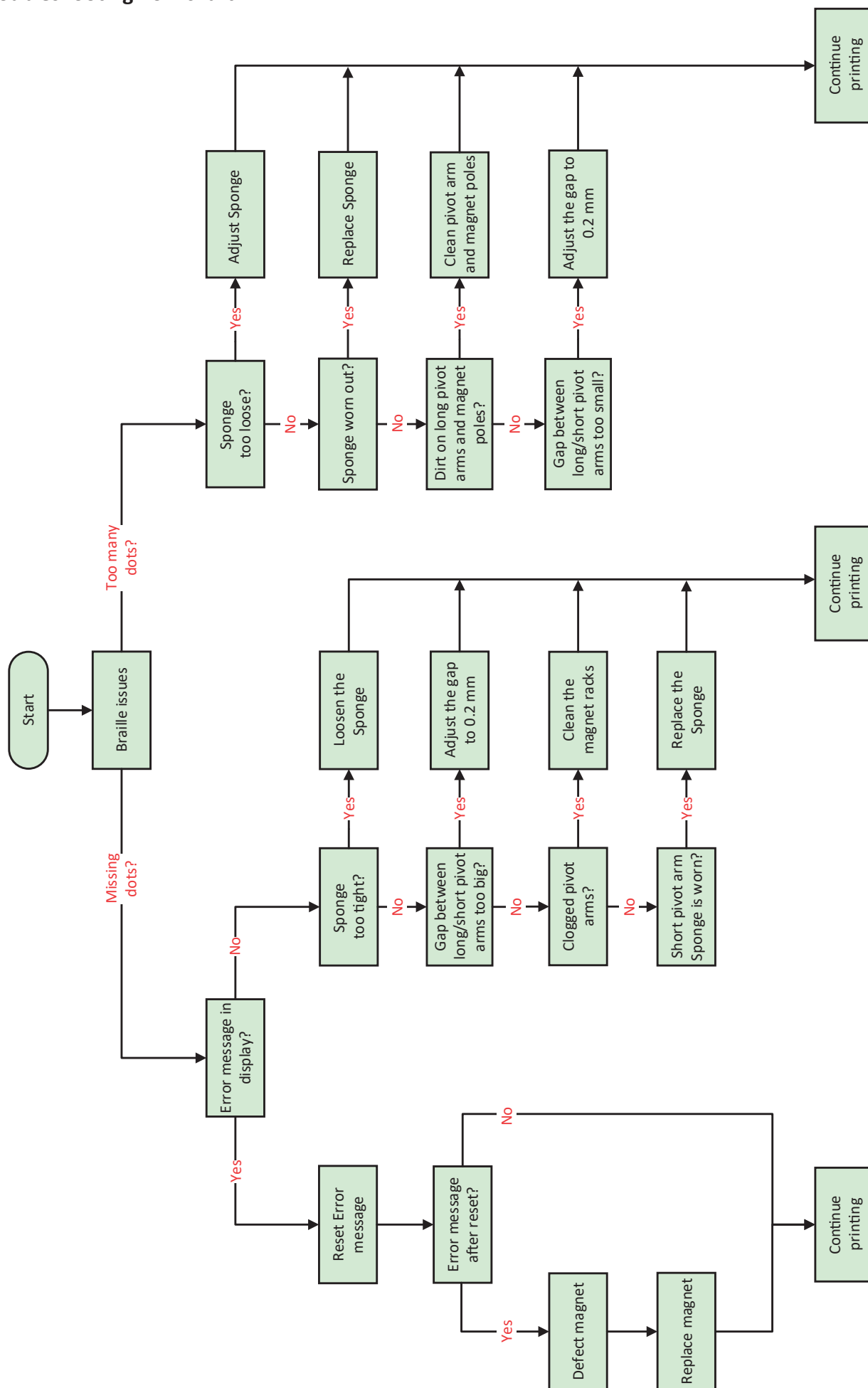
To confirm that the correct magnet rack has been identified, you can test the magnet racks using the “X pattern without motor” function in the “Manual running” menu (*Main Menu - Warning - Service/diagnostic - Warning - Manual running*). This function activates the magnets sequentially without running the rest of the printer mechanism.

If a pivot arm does not move in the same way as the others, it may be clogged, or affected by excessive pressure from the sponge. If the suspected pivot arm moves normally, the issue may be within the short pivot arm/printing pin mechanism or related to the position of the magnet rack.

To verify that the correct pivot arm or magnet mechanism has been identified, it is possible to manually pull the long pivot arm toward the magnet while the printer is embossing.

A column of dots will then appear. If this column aligns exactly with the location of the original error, the correct mechanism has been identified.

Troubleshooting flow chart



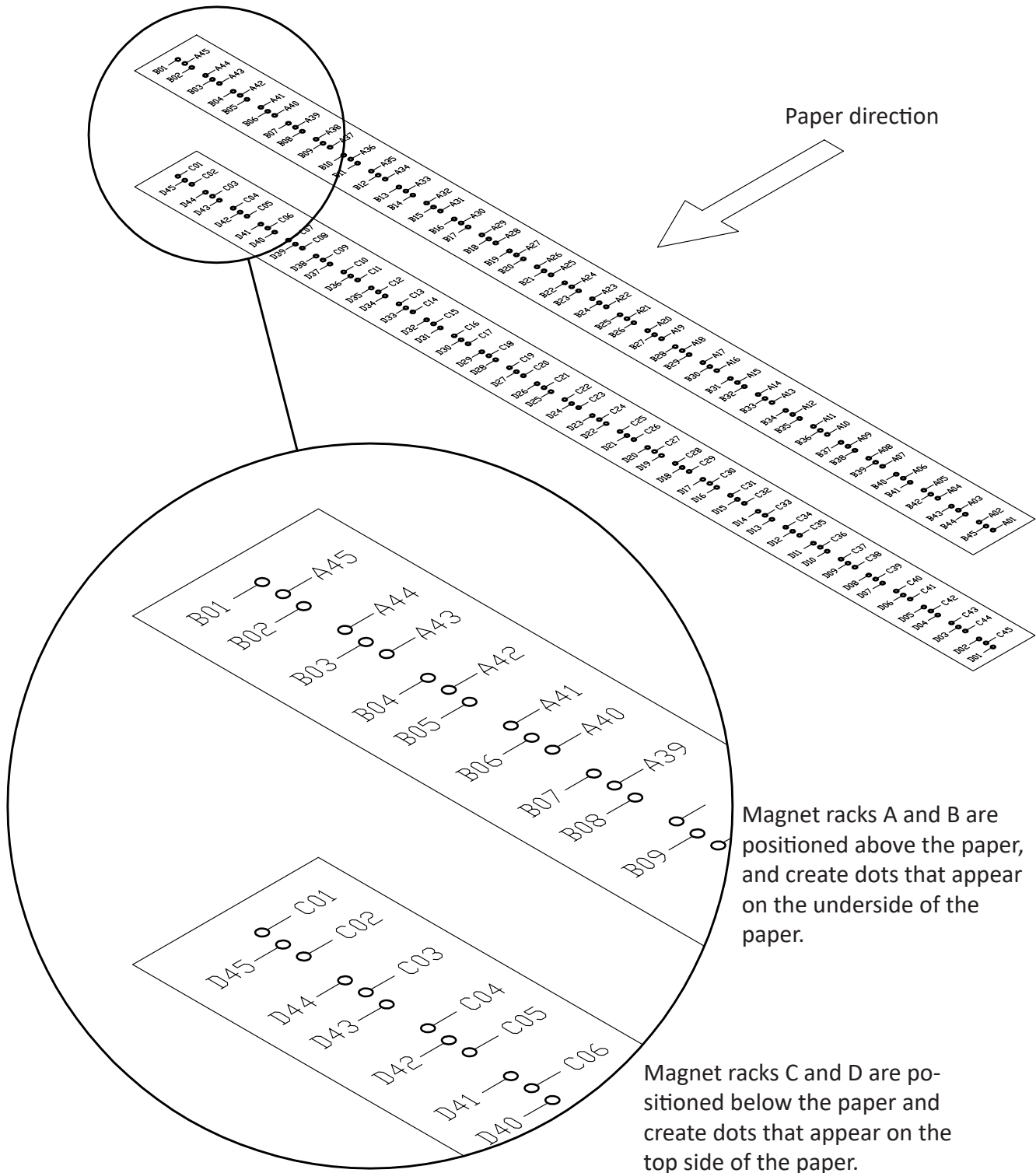
Which magnet makes what dot?

Please take time to examine the figures below and on the next page. It is important to understand how the magnets are arranged in order to understand how this printer works.

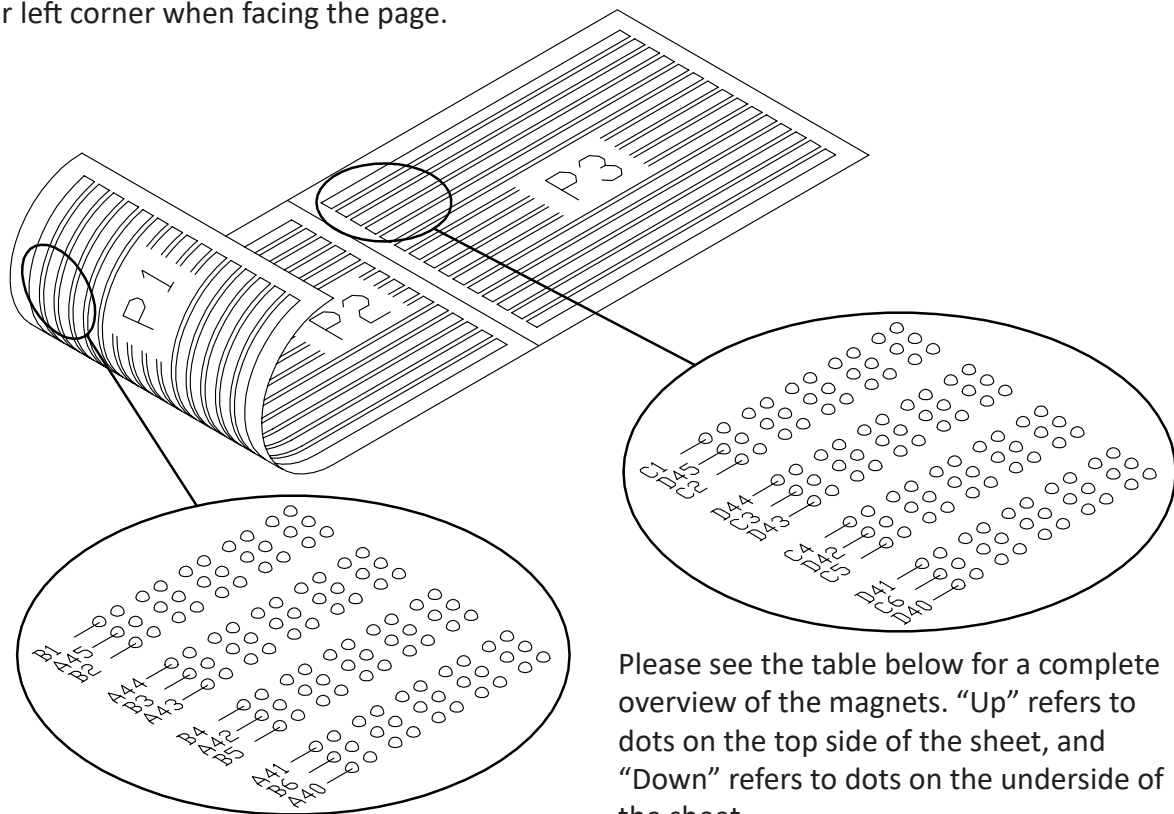
The letters and numbers on the figures indicate the following:

The letters A, B, C and D are the names of the magnet racks. The number following each letter identifies a specific magnet within that magnet rack.

(Note that the magnet numbers are always counted from the end where the connectors are located. Do not confuse this with the character, line, or column numbering).



The letter “P” represents the page. The figure shows a sheet of paper printed in “4-page mode”. The two circles indicate which magnet has created the individual dots. Line number one will be in the upper left corner when facing the page.



Please see the table below for a complete overview of the magnets. “Up” refers to dots on the top side of the sheet, and “Down” refers to dots on the underside of the sheet.

Line no.	Dot no.	Up	Down	Line no.	Dot no.	Up	Down	Line no.	Dot no.	Up	Down
1	1	C01	B01	11	1	C16	B16	21	1	C31	B31
	2	D45	A45		2	D30	A30		2	D15	A15
	3	C02	B02		3	C17	B17		3	C32	B32
2	1	D44	A44	12	1	D29	A29	22	1	D14	A14
	2	C03	B03		2	C18	B18		2	C33	B33
	3	D43	A43		3	D28	A28		3	D13	A13
3	1	C04	B04	13	1	C19	B19	23	1	C34	B34
	2	D42	A42		2	D27	A27		2	D12	A12
	3	C05	B05		3	C20	B20		3	C35	B35
4	1	D41	A41	14	1	D26	A26	24	1	D11	A11
	2	C06	B06		2	C21	B21		2	C36	B36
	3	D40	A40		3	D25	A25		3	D10	A10
5	1	C07	B07	15	1	C22	B22	25	1	C37	B37
	2	D39	A39		2	D24	A24		2	D09	A09
	3	C08	B08		3	C23	B23		3	C38	B38
6	1	D38	A38	16	1	D23	A23	26	1	D08	A08
	2	C09	B09		2	C24	B24		2	C39	B39
	3	D37	A37		3	D22	A22		3	D07	A07
7	1	C10	B10	17	1	C25	B25	27	1	C40	B40
	2	D36	A36		2	D21	A21		2	D06	A06
	3	C11	B11		3	C26	B26		3	C41	B41
8	1	D35	A35	18	1	D20	A20	28	1	D05	A05
	2	C12	B12		2	C27	B27		2	C42	B42
	3	D34	A34		3	D19	A19		3	D04	A04
9	1	C13	B13	19	1	C28	B28	29	1	C43	B43
	2	D33	A33		2	D18	A18		2	D03	A03
	3	C14	B14		3	C29	B29		3	C44	B44
10	1	D32	A32	20	1	D17	A17	30	1	D02	A02
	2	C15	B15		2	C30	B30		2	C45	B45
	3	D31	A31		3	D16	A16		3	D01	A01

Possible reasons for errors:

See the figures on the next page.

If a dot from a specific printing pin is consistently missing, the cause may be one of the following:

1. Defective magnet (the self-diagnostic system should detect this first).
2. Broken short pivot arm.
3. The long pivot arm cannot move due to dirt or debris.
4. The printing pin is stuck due to dirt, causing the short pivot arm to miss the long pivot arm.
5. Errors in the magnet rack board.

If dots from several printing pins are occasionally missing, the cause may be one of the following:

1. The sponge is applying too much pressure to the long pivot arm.
2. The gap between the two pivot arms is too large.
3. The support list has become sticky on the side against the long pivot arms, causing the long pivot arm to move improperly.
4. The sponge on the short pivot arm is so worn or compressed that it does not provide sufficient tension.

If there are too many dots on the paper, the cause may be one of the following:

1. The sponge is not applying sufficient pressure to the long pivot arm.
2. The gap between the two pivot arms is too small.
3. The magnet poles have become sticky, causing the pivot arms to stick to the magnet.
4. The long pivot arm does not move properly.

Control:

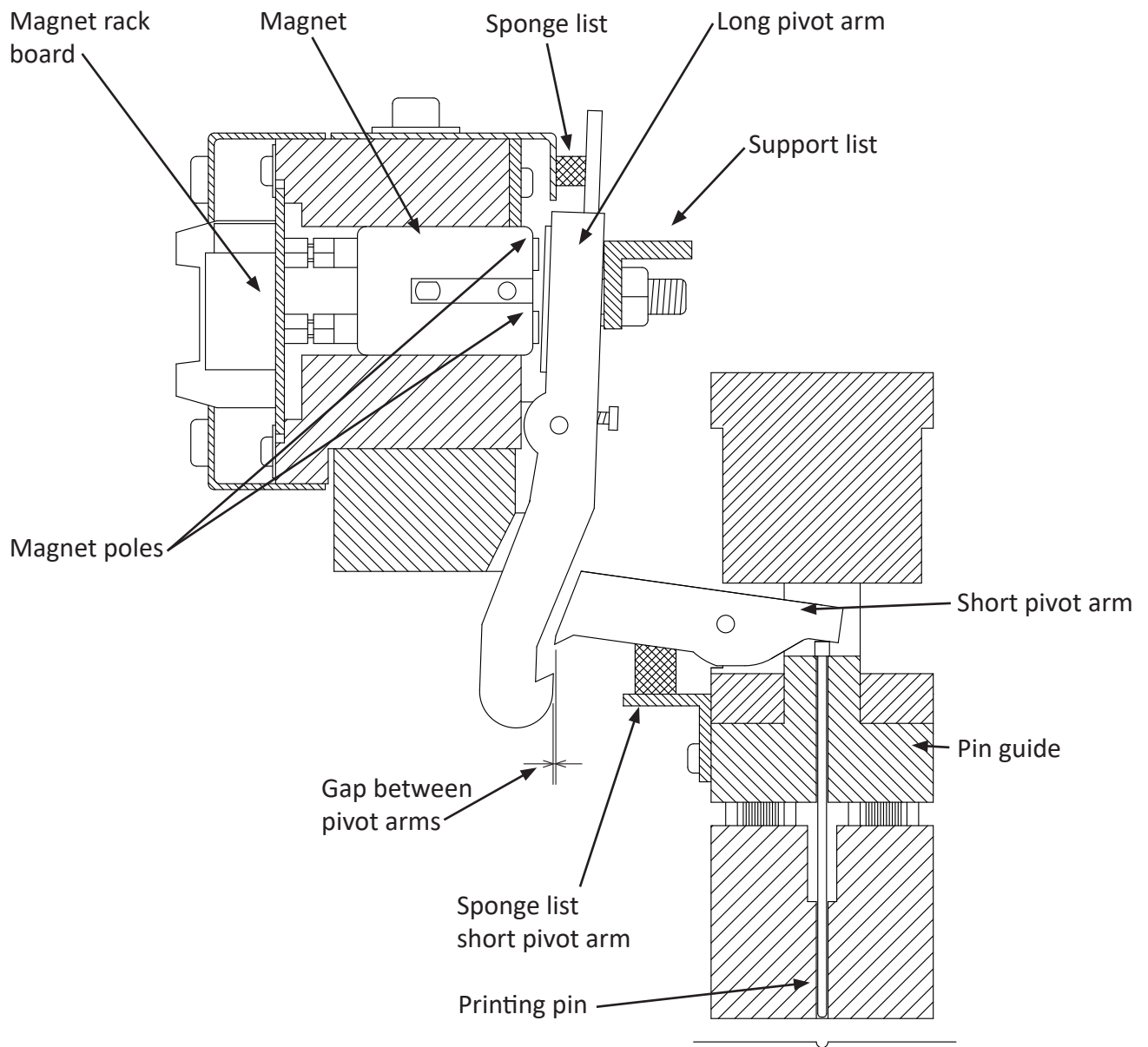
To verify that the correct mechanism has been identified after troubleshooting, perform the following test:

Carefully pull the suspected long pivot arm toward the magnet with your finger.

Note! Be careful to avoid contact (e.g. clothing, hair, beard, jewelry or any part of the body) with moving parts of the printer to prevent injury.

At the same time, run a test print. The mechanism being held, will produce a column of dots down the sheet until you release it. This allows you to verify whether the column of dots aligns with the location (and side) of the error.

Note that the same printing mechanism (magnet, long pivot arm, short pivot arm, and printing pin) creates all the dots in a column down the page.



5.6 Magnet rack - removal

Please see the figure below and the following sections:

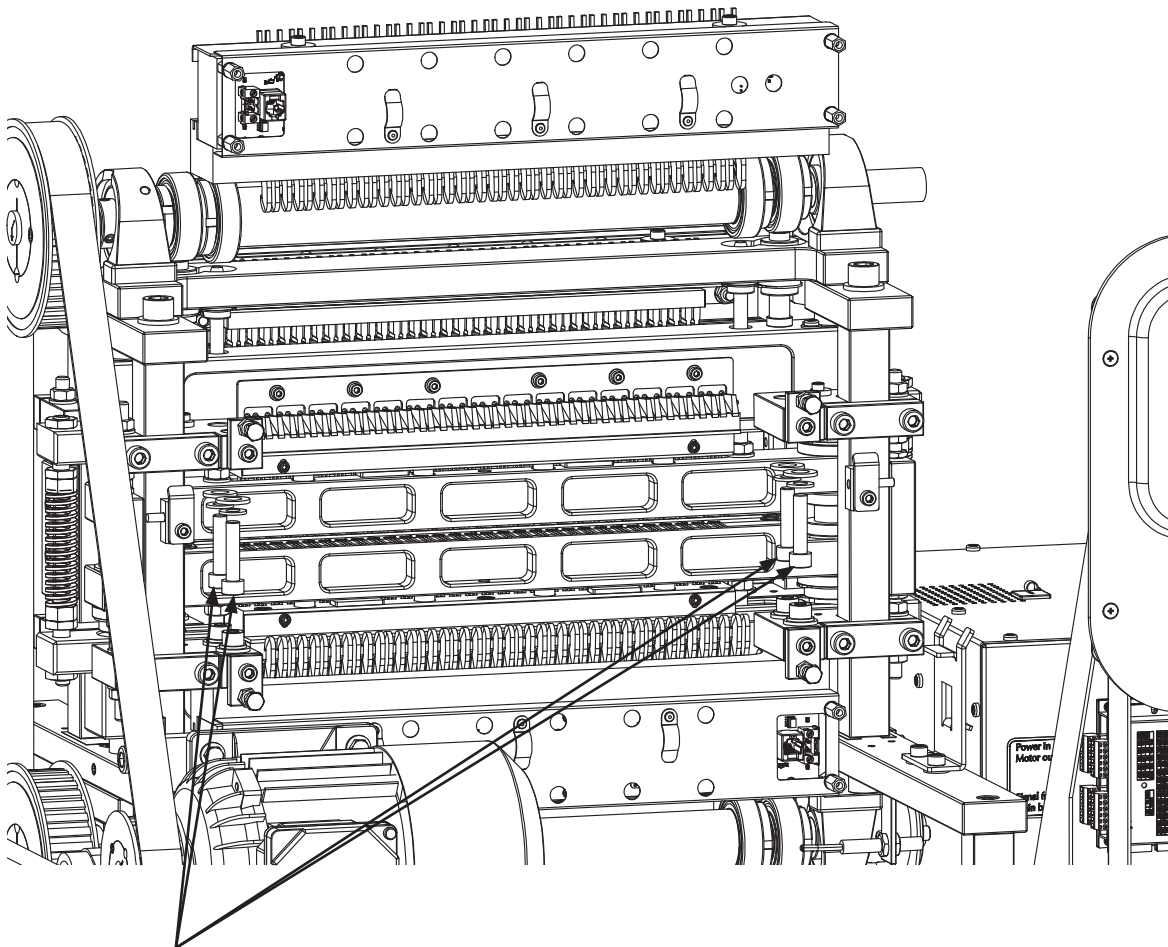
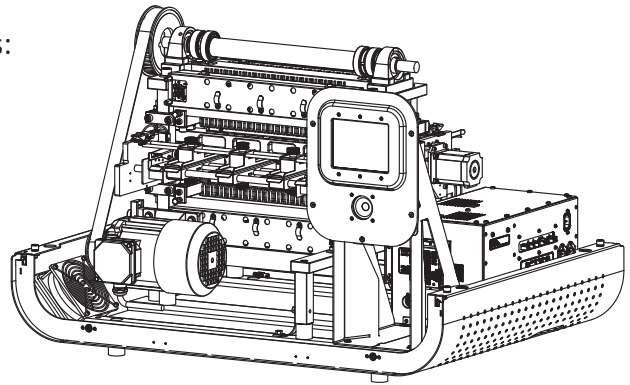
[“5.1 Removal of the printer side panels” on page 68,](#)

[“5.2 Removal of the printer top” on page 69,](#)

[“5.3 Removal of protection covers” on page 70.](#)

[“5.21 Removal of Paper feeders” on page 106 .](#)

Disconnect the two cables from the magnet rack. Remove the magnet rack by unscrewing the four screws, then carefully lift the magnet rack out as shown in the figure below.

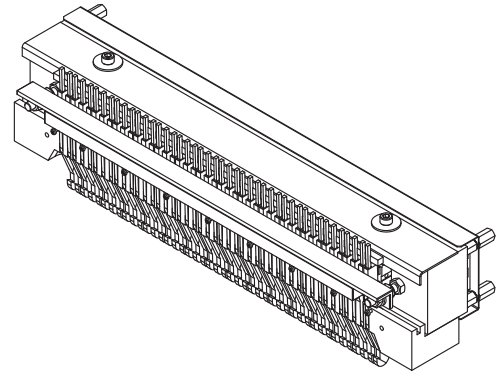


Unscrew the four bolts

5.7 Magnet rack - disassembly, step by step

There are two main reasons for disassembling the magnet rack: Replacing components, (for example, a defective magnet or a worn pivot arm) or performing regular maintenance.

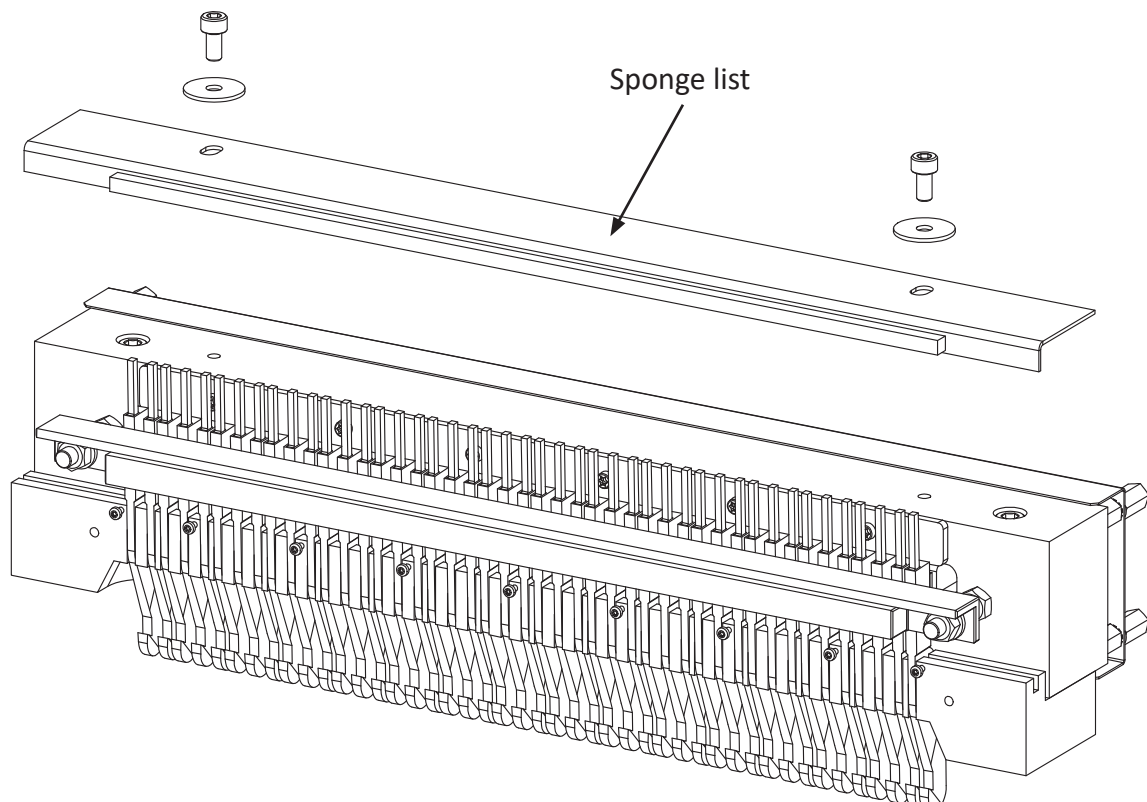
The magnet racks can be considered one of the parts of the printer with the greatest influence on dot quality, so it is important to handle them correctly.



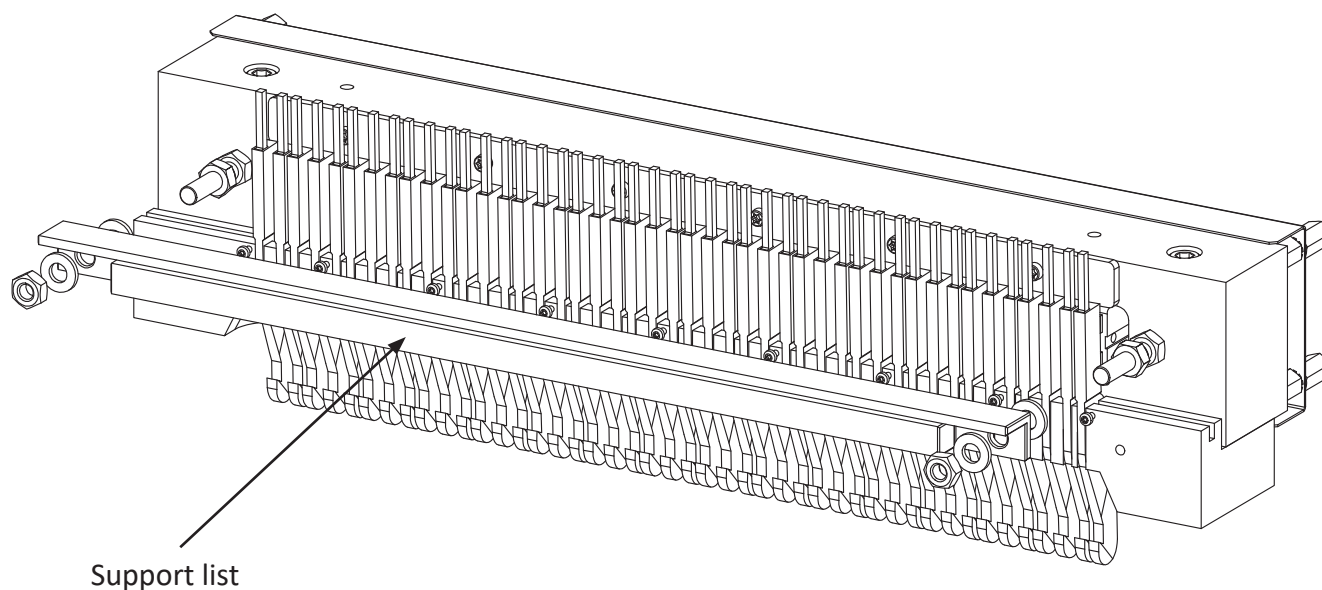
Remove the magnet rack from the printer as described in section [“5.6 Magnet rack - removal”](#) on [page 82](#).

Then follow the instructions below.

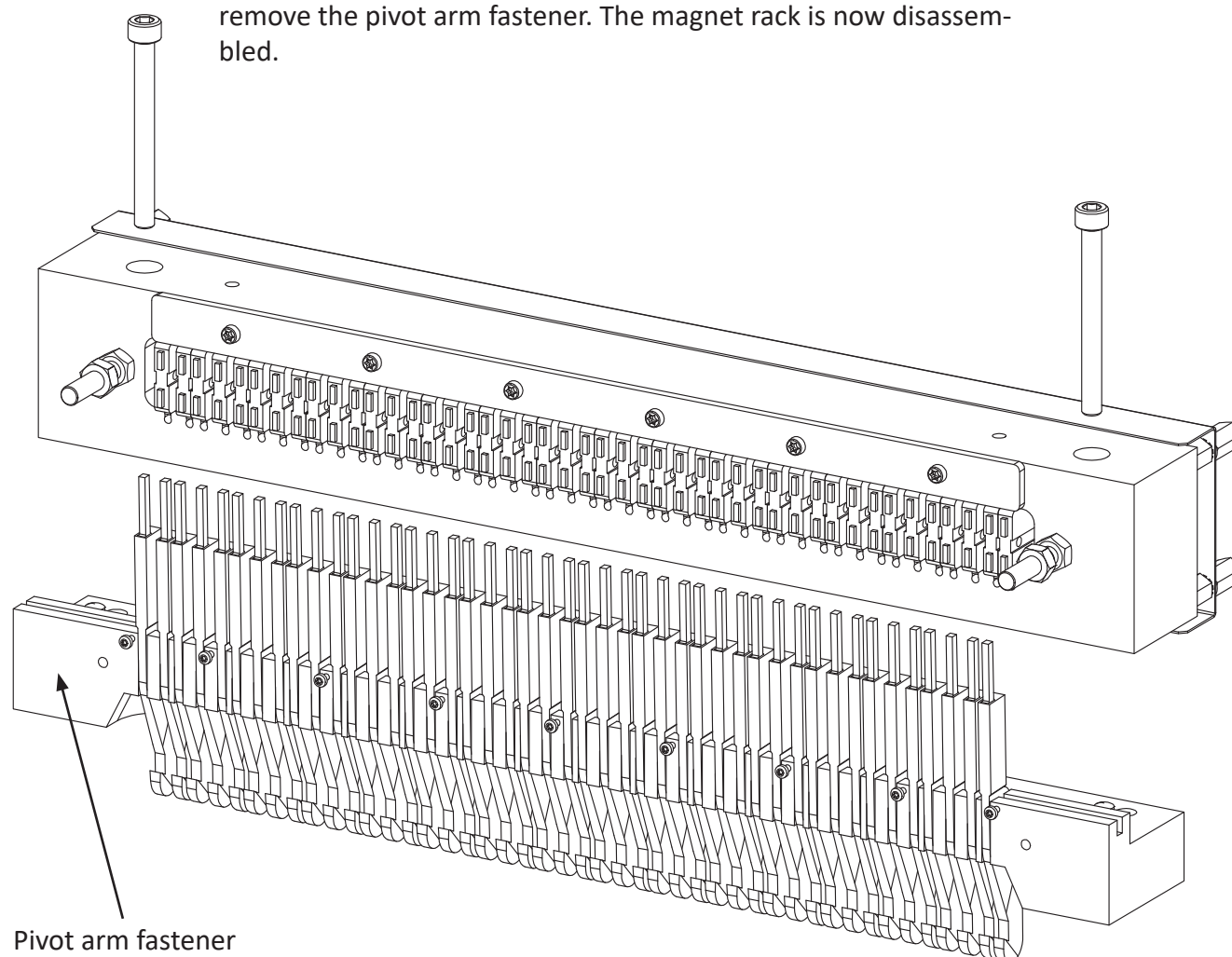
Step 1. Remove the two screws holding the sponge list, and remove the list.



Step 2. Remove the two nuts holding the support list, then remove the support list.



Step 3. Remove the two bolts holding the pivot arm fastener, then carefully remove the pivot arm fastener. The magnet rack is now disassembled.



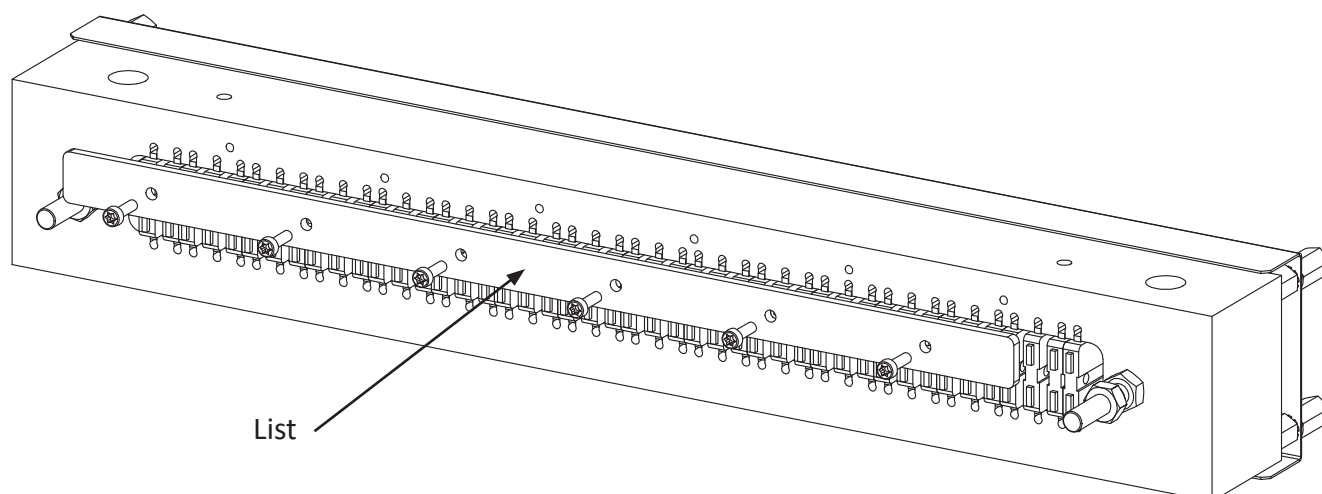
5.8 Magnet - replacement

Please note that the numbering on the magnets in a magnet rack always starts at “one” at the end where the connections are located (this does not refer to dot number, character number, or column number).

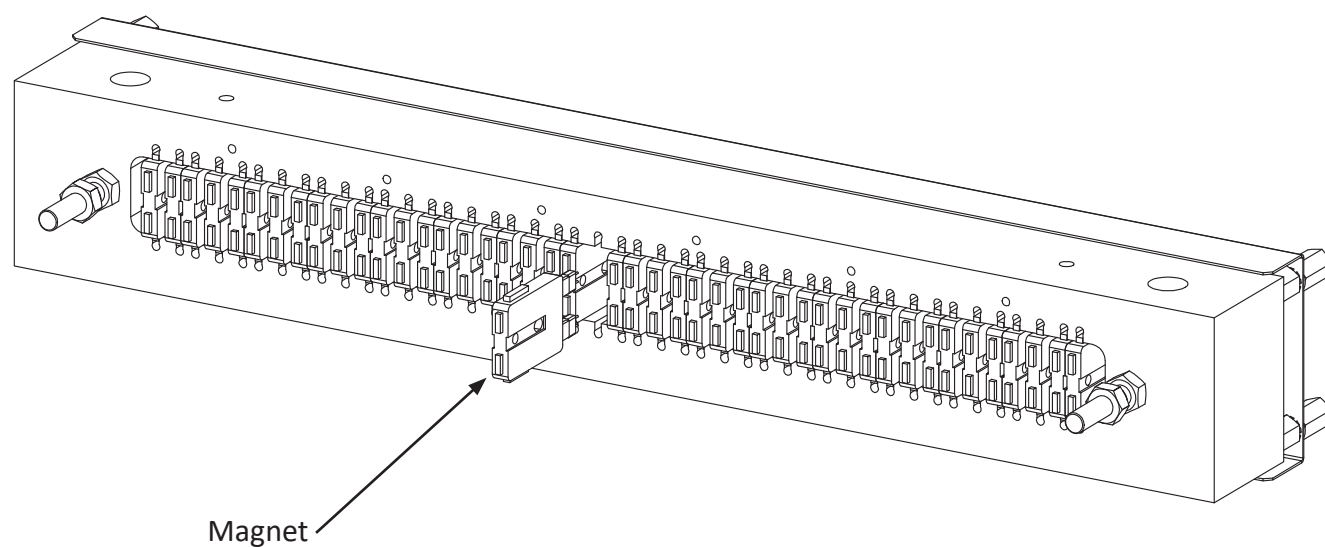
Disassemble the magnet rack as described in section [“5.7 Magnet rack - disassembly, step by step” on page 83](#).

Then follow the instructions below.

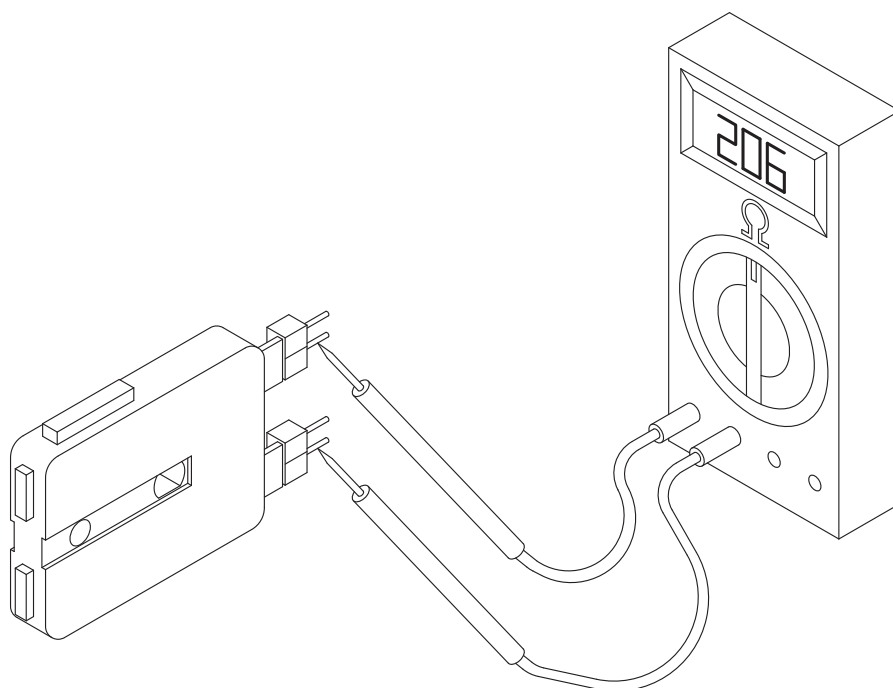
Step 1. Remove the six screws holding the list, then remove the list.



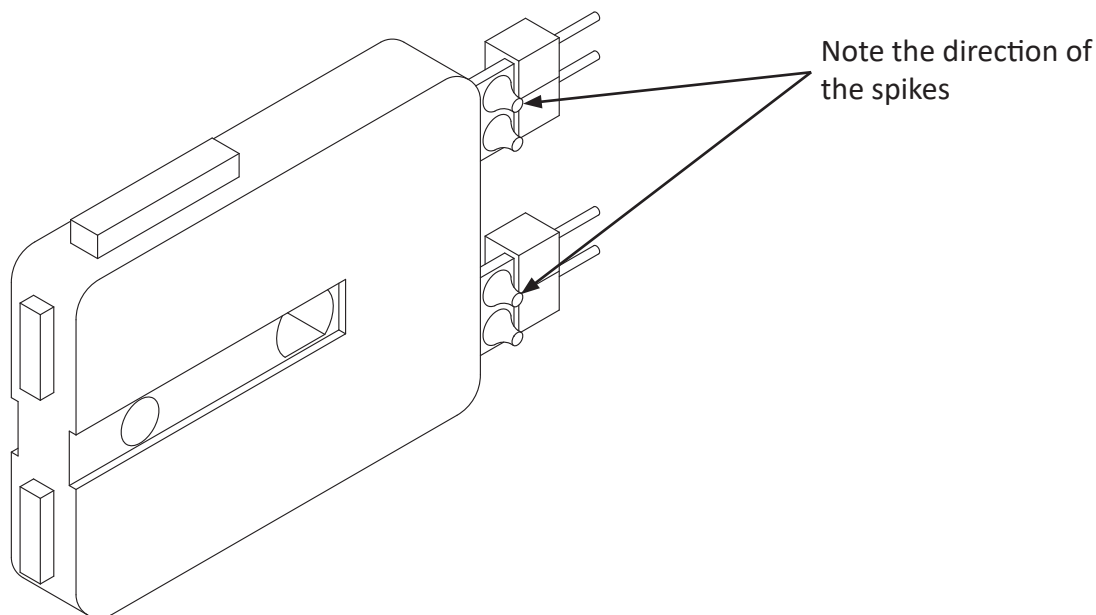
Step 2. Pull out the defective magnet using, for example, narrow needle-nose pliers.



Step 3. Check the internal resistance of the magnet if an ohmmeter is available. The resistance should be between 185 ohm and 240 ohm. Any value outside this range indicates a defective magnet.



- Step 4. Replace the defective magnet with a new magnet. Note the spikes on one side of the magnet. These spikes must be oriented in the same direction as the other spikes in the magnet rack.



5.9 Pivot arm - replacement

To remove or replace a pivot arm, first loosen the nine small screws on the pivot arm fastener. Note! Only loosen these screws by approx. one turn; do not remove them completely.

When the screws are loosened, the pivot arm shaft can be pushed sideways.

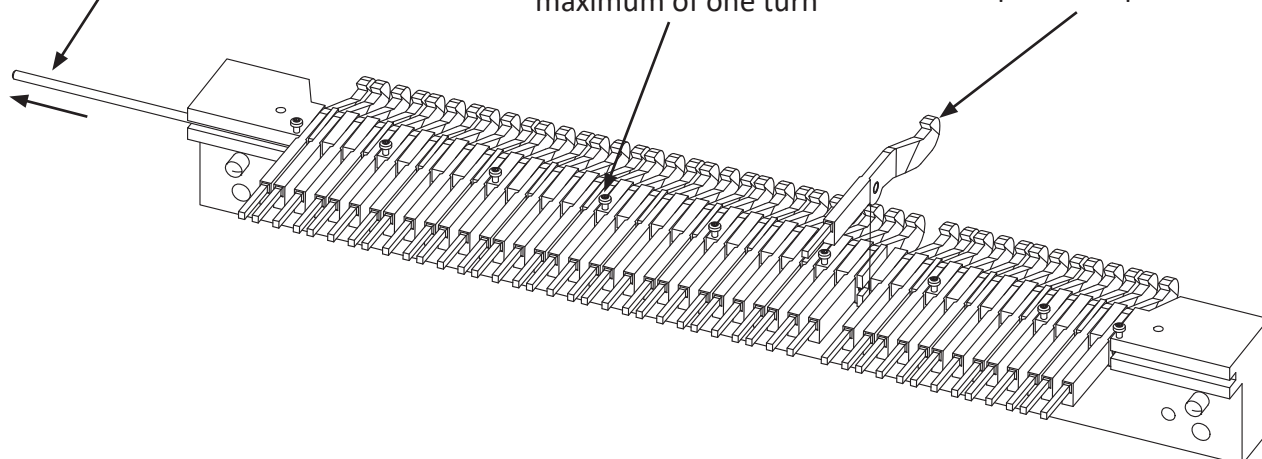
Push or pull the shaft so that the pivot arm to be replaced becomes free.

During assembly, position each pivot arm individually while gradually pushing the shaft back into place. Then carefully tighten the nine screws.

2. Push or pull the shaft sideways

1. Loosen these nine screws by a maximum of one turn

3. Replace the pivot arm



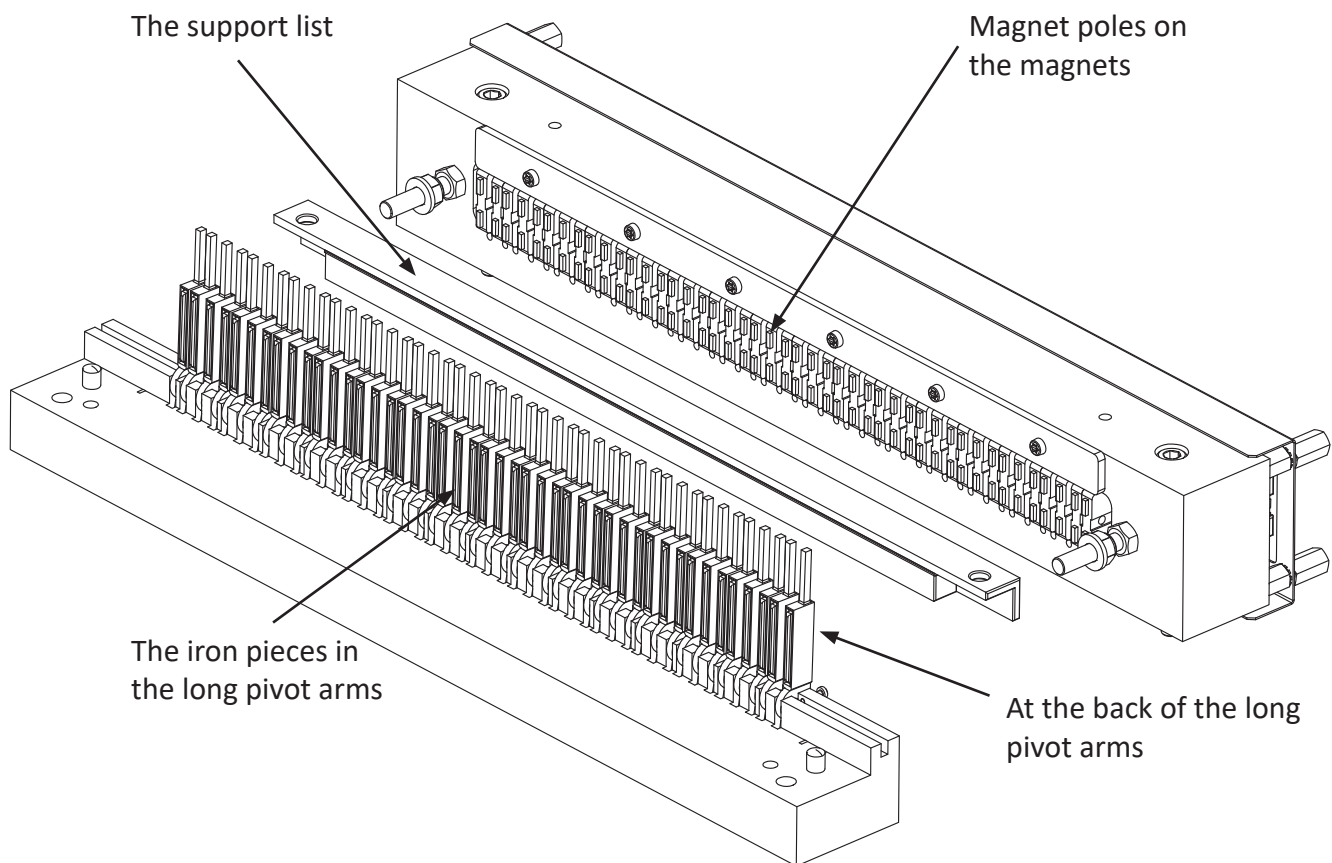
5.10 Magnet rack - cleaning

Remove the magnet rack as described in section [“5.6 Magnet rack - removal”](#) on page 82. Then disassemble the magnet rack as described in section [“5.7 Magnet rack - disassembly, step by step”](#) on page 83.

Use a damp cloth moistened with cleaning alcohol to wipe the surfaces, as shown in the figure below.



Note! Never oil, grease or lubricate any of the moving parts on a magnet rack. This will attract paper dust and may cause clogging.



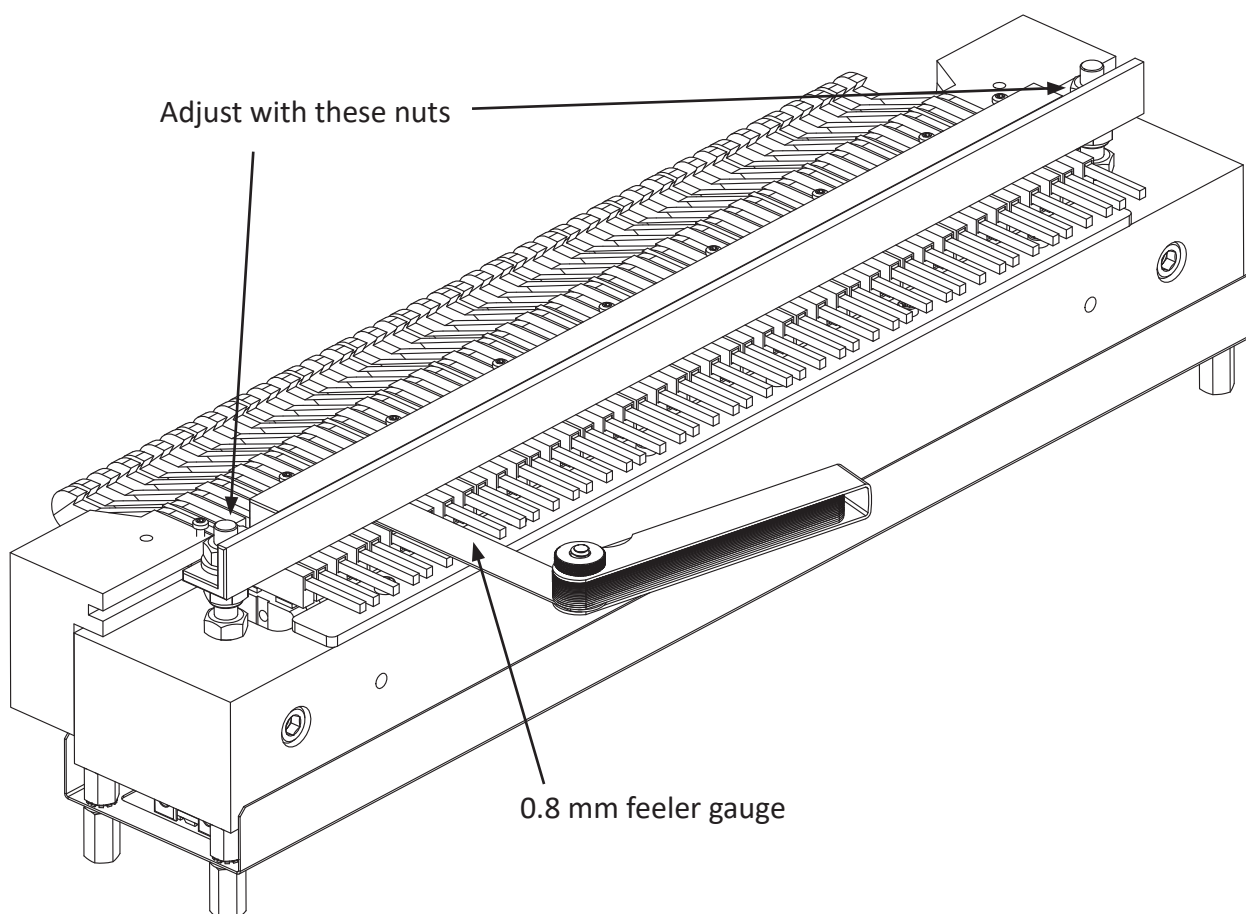
5.11 Magnet rack - adjustment

Before placing the magnet rack in the printer, two adjustments must be checked.

The first is the distance between the support list and the pivot arms. This distance defines the travel of the pivot arms and should be adjusted to approx. 0.8 mm using a feeler gauge. Adjust the nuts on both ends of the magnet rack.

If the 0.8 mm feeler gauge fits halfway in and the 0.9 mm feeler gauge does not fit at all, the adjustment can be considered correct.

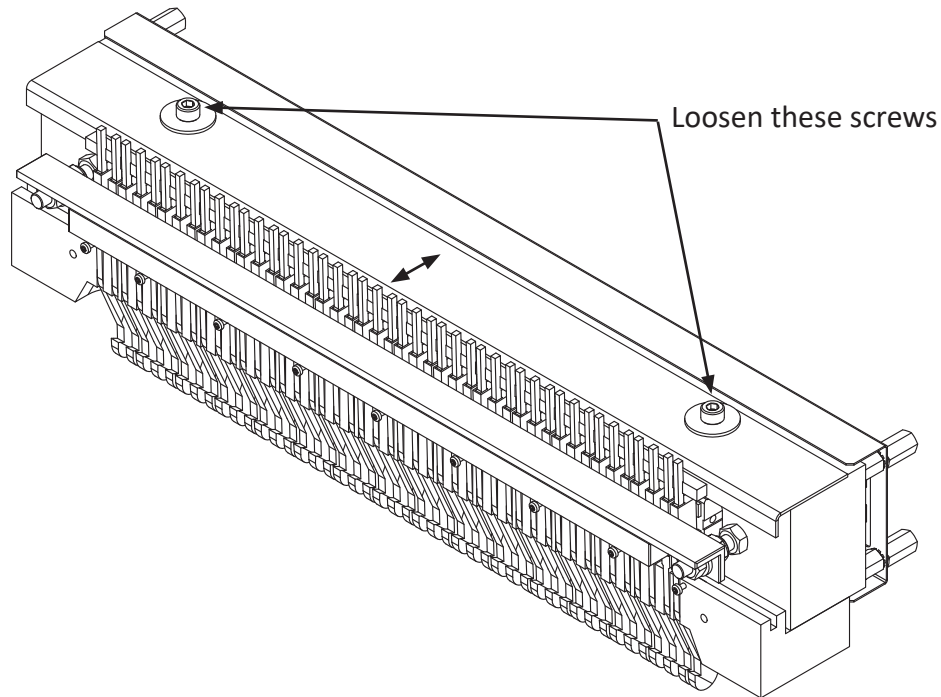
Make sure that the nuts are tightened when you are finished.



Sponge list

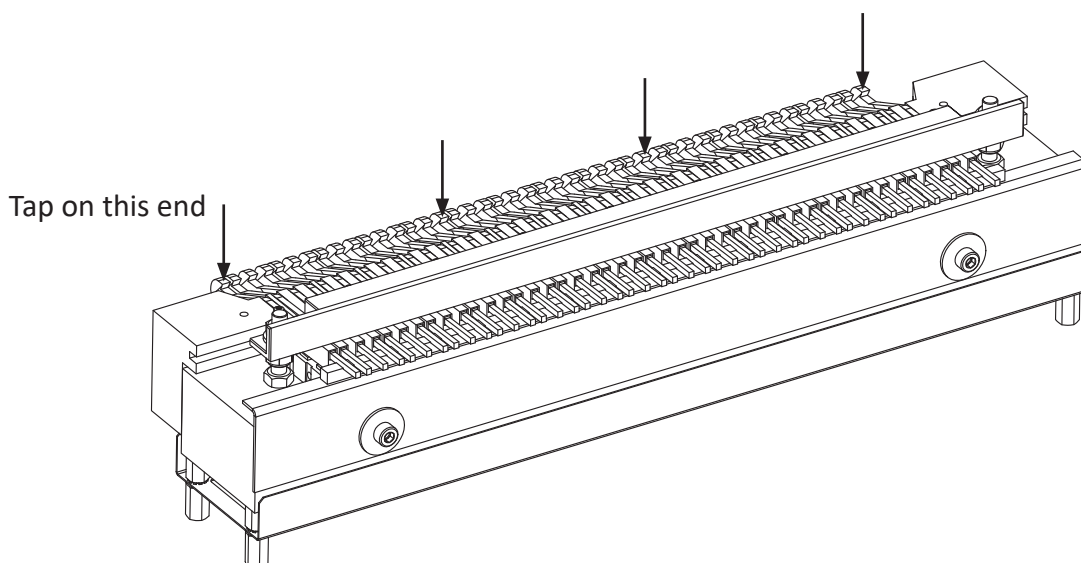
The second adjustment is the pressure applied by the sponge list to the pivot arms.

The sponge list functions as a return spring for the pivot arms. The correct adjustment is achieved when the sponge list applies slight pressure to the pivot arms while still allowing them to move freely. Use the “click-test” described below to verify that the pressure is sufficient.



The click-test

Place the magnet rack on a table as shown in the figure below. Then tap the end of the pivot arm with your fingers, as indicated by the arrows. If you hear a “click” when tapping, increase the pressure on the sponge list slightly until the “click” is no longer present.



5.12 Magnet rack - refitting and adjusting

Before reinstalling the magnet rack in the printer, ensure that it has been adjusted as described in the previous section.

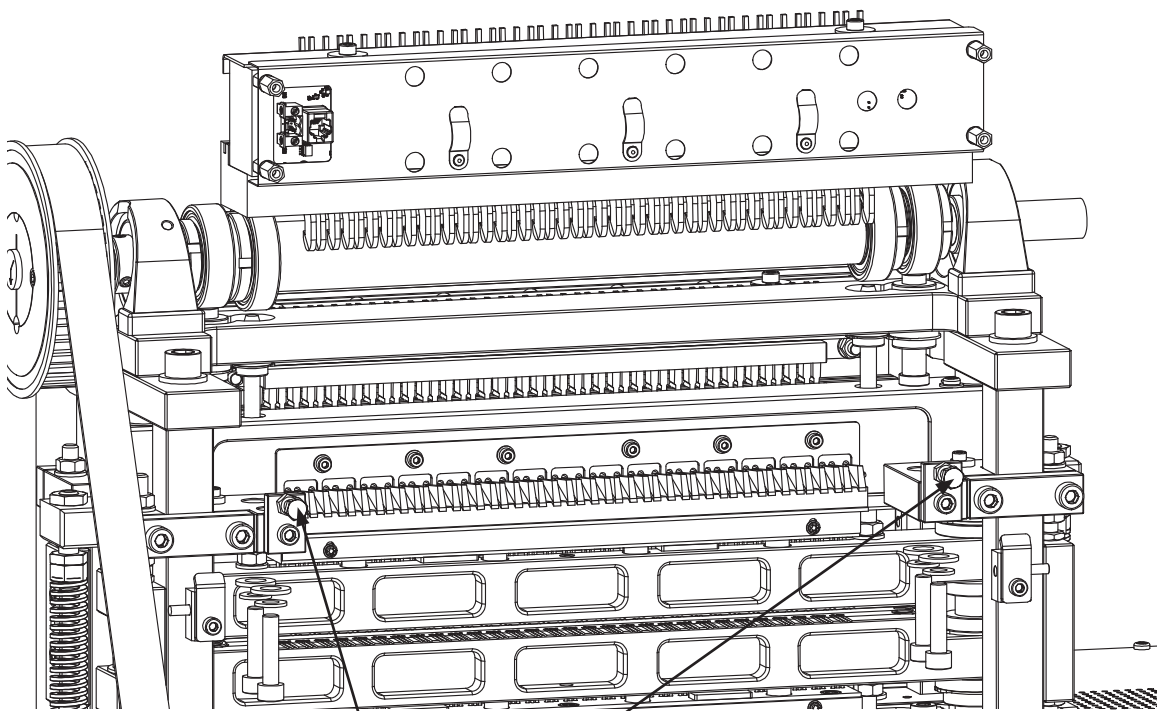
When placing the magnet rack in the printer:

Install the four fastening screws, but do not tighten them. Slide the magnet rack horizontally away from the printer until it touches the horizontal adjustment screws. This ensures that the magnet rack is positioned in the same location as before it was removed.

See next section for information on the correct adjustment of the magnet racks.



Note! All explanations refer to one magnet rack, but these adjustments must be performed on all four magnet racks.

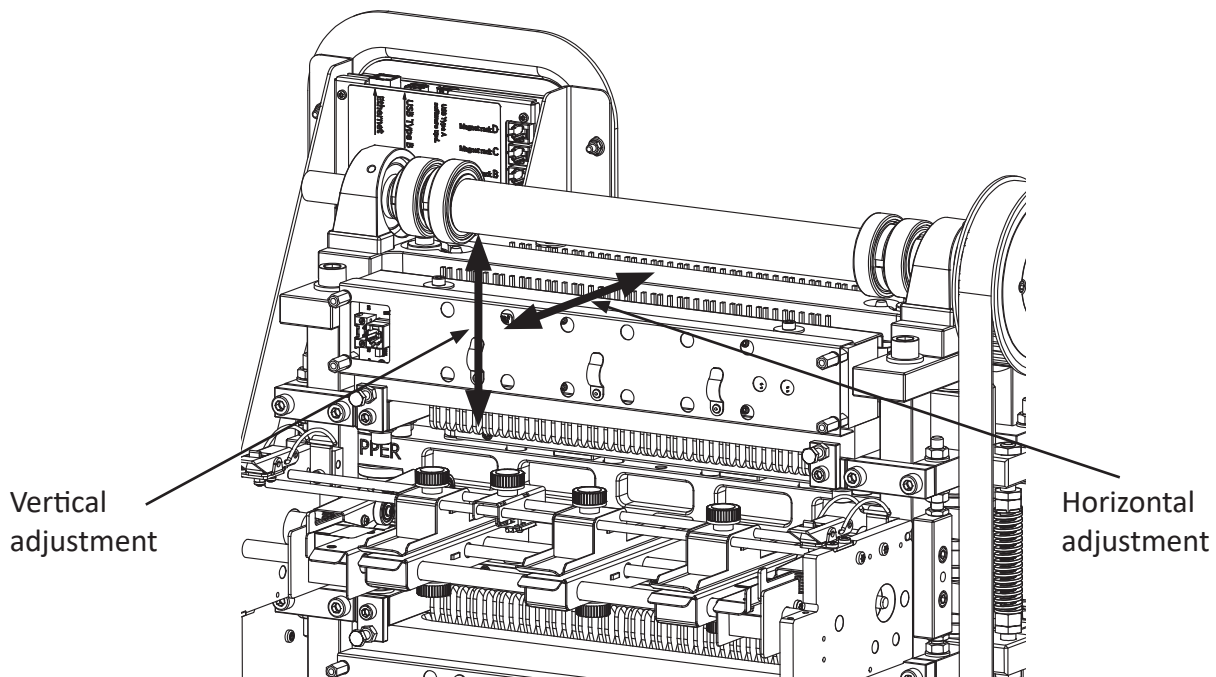


Pull back against these positioning screws on both ends

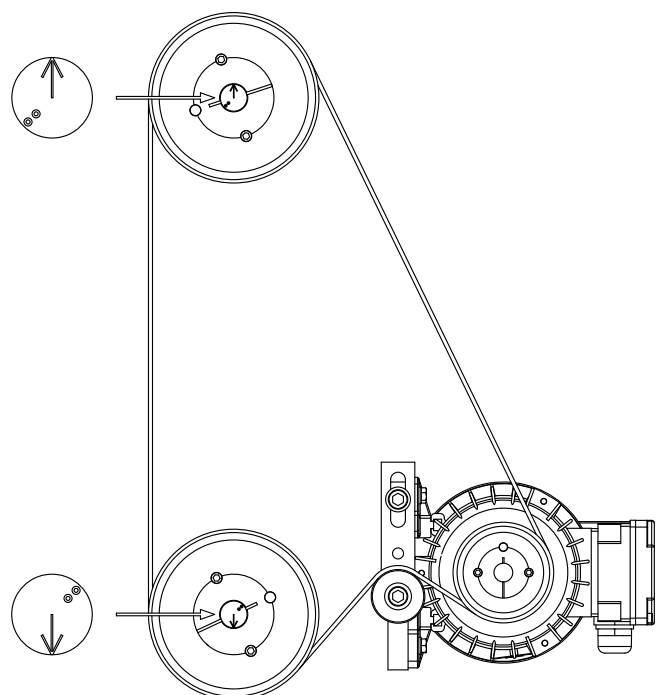
The magnet rack must be adjusted in two directions: horizontal and vertical.

The horizontal adjustment is performed first. This adjustment positions the magnet rack correctly in relation to the short pivot arms. If the printer produces too many or too few dots, the horizontal adjustment may be the cause.

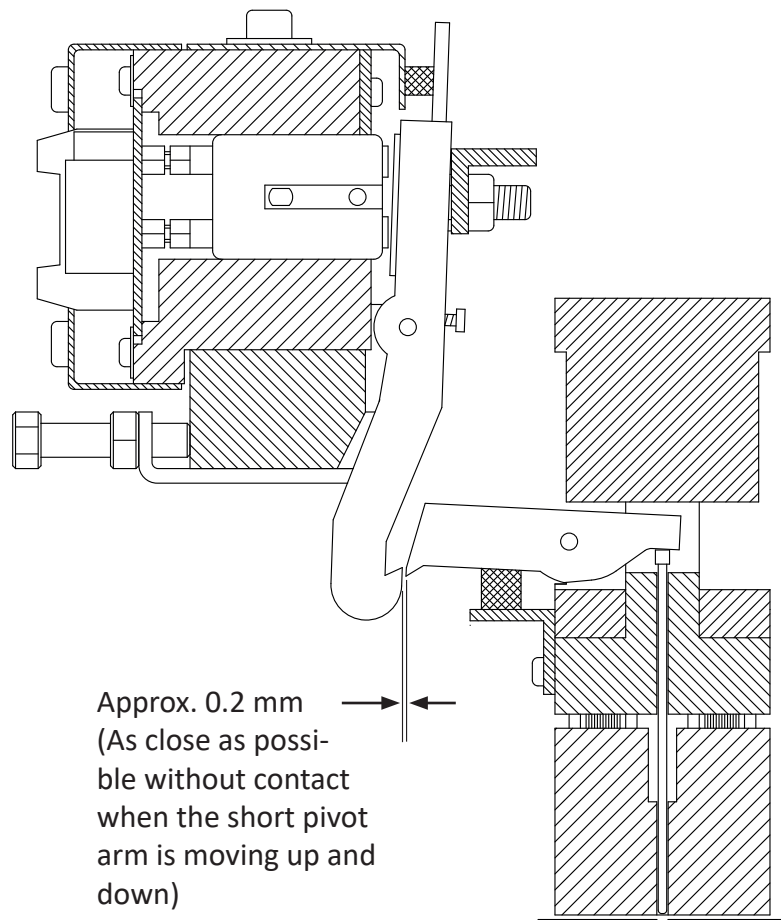
The vertical adjustment is then performed. This adjustment affects the pressure applied by the pivot arms to the printing pins, which directly influences the shape of the printed dots.



To adjust the magnet racks correctly, the printer must be set in the printing position. This is done by manually rotating the main belt until the arrows at the ends of the shafts are positioned exactly 180 degrees opposite each other. The mechanism may balance in this position, but you can also secure the shafts using, for example, self locking pliers (vice-grip pliers).



When the arrows at the ends of the shafts are pointing in the opposite directions, the short pivot arms will be approximately positioned as shown in the figure below.



The gap between the long and the short pivot arm should be approximately 0.2 mm. When adjusting this, ensure that the gap is even across all pivot arms and consistent at both ends of the magnet rack.

How to adjust:

Note that the horizontal adjustment screws do not pull the magnet rack outward; they only push it inward.

The recommended procedure is as follows:

First, loosen the four fastening bolts holding the magnet rack. Then unscrew the horizontal adjustment screws slightly. Slide the magnet rack outward from the printer until it touches the adjustment screws again.

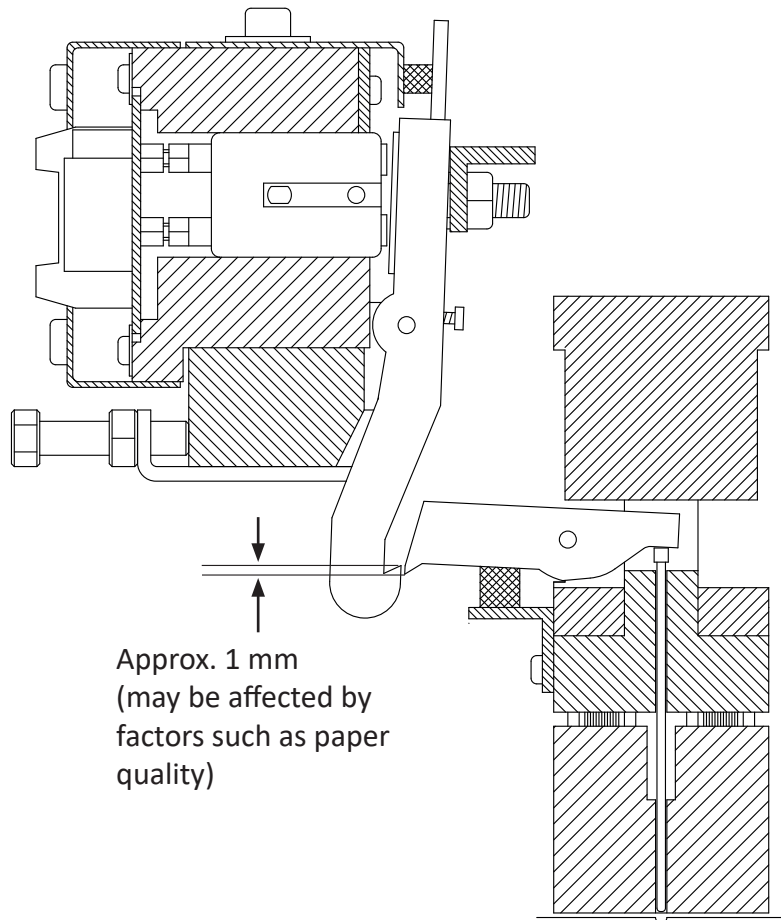
Next, lightly tighten the four fastening bolts so that the magnet rack is held in position but can still be adjusted. Use the horizontal adjustment screws to move the magnet rack gradually toward the printer.

By making small adjustments, you can observe the gap decreasing. Stop just before the long pivot arm comes into contact with the short pivot arm.

Once the correct position is achieved, tighten the four fastening bolts securely.

Next, perform the vertical adjustment.

Note! The printer must be in the printing position when checking this distance.



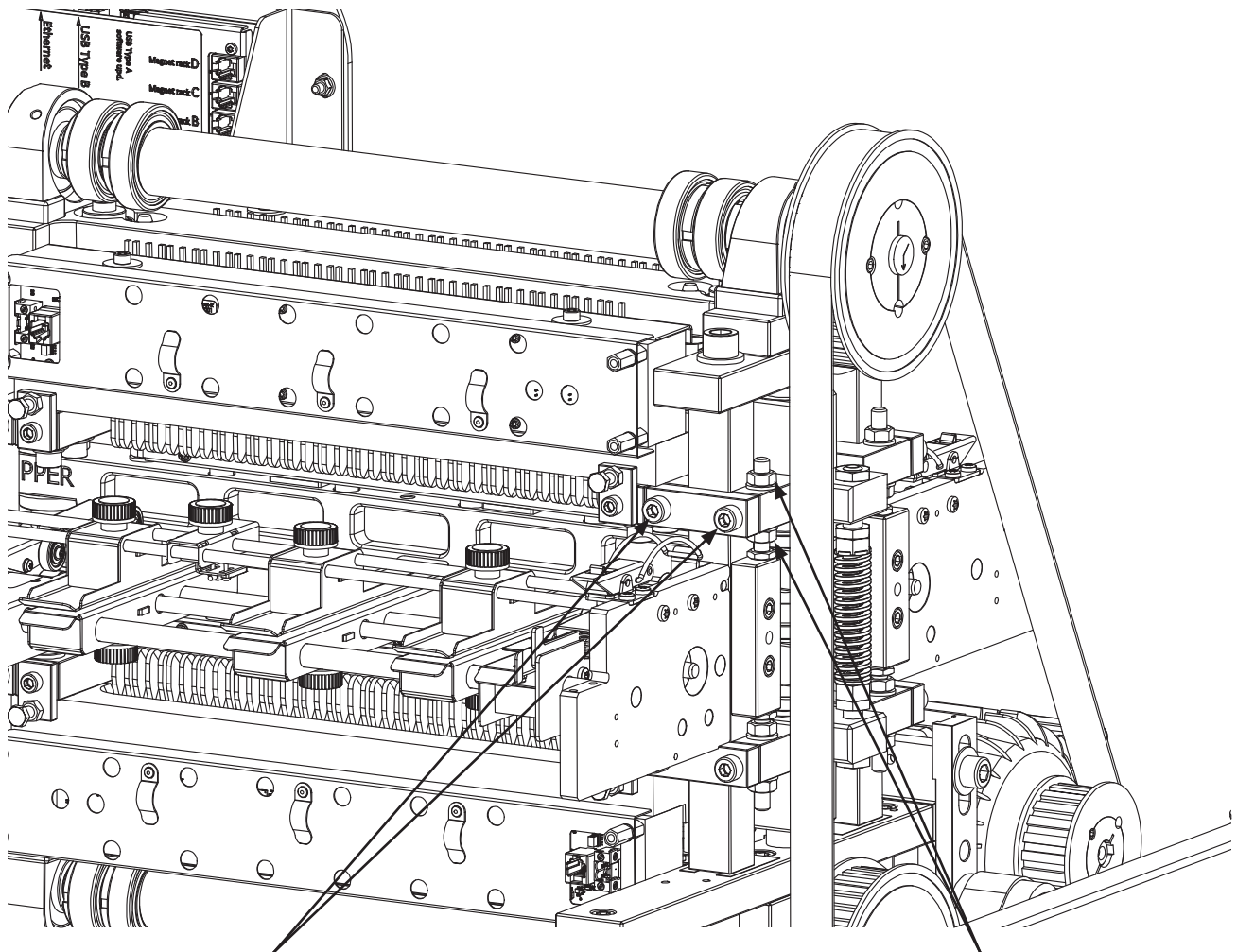
The vertical adjustment of the magnet racks sets the pressure applied by the printing pins when forming dots.

The required pressure depends on several factors. The first, and most important, is the paper quality. The second is the preferred dot quality.

The recommended method for finding the correct vertical adjustment is to first reduce the pressure until the dots become faint and weak. Then gradually increase the pressure in small steps until the dot quality is satisfactory. This ensures that the printer operates with sufficient pressure to produce good dots, without applying excessive force that may cause wear or damage.

Based on experience, the vertical adjustment is typically approximately 1 mm. However, if the braille dots are too weak, the magnet rack can be adjusted tighter in small steps (increasing the 1 mm distance).

Please see the figure on next page:



First, loosen these two screws

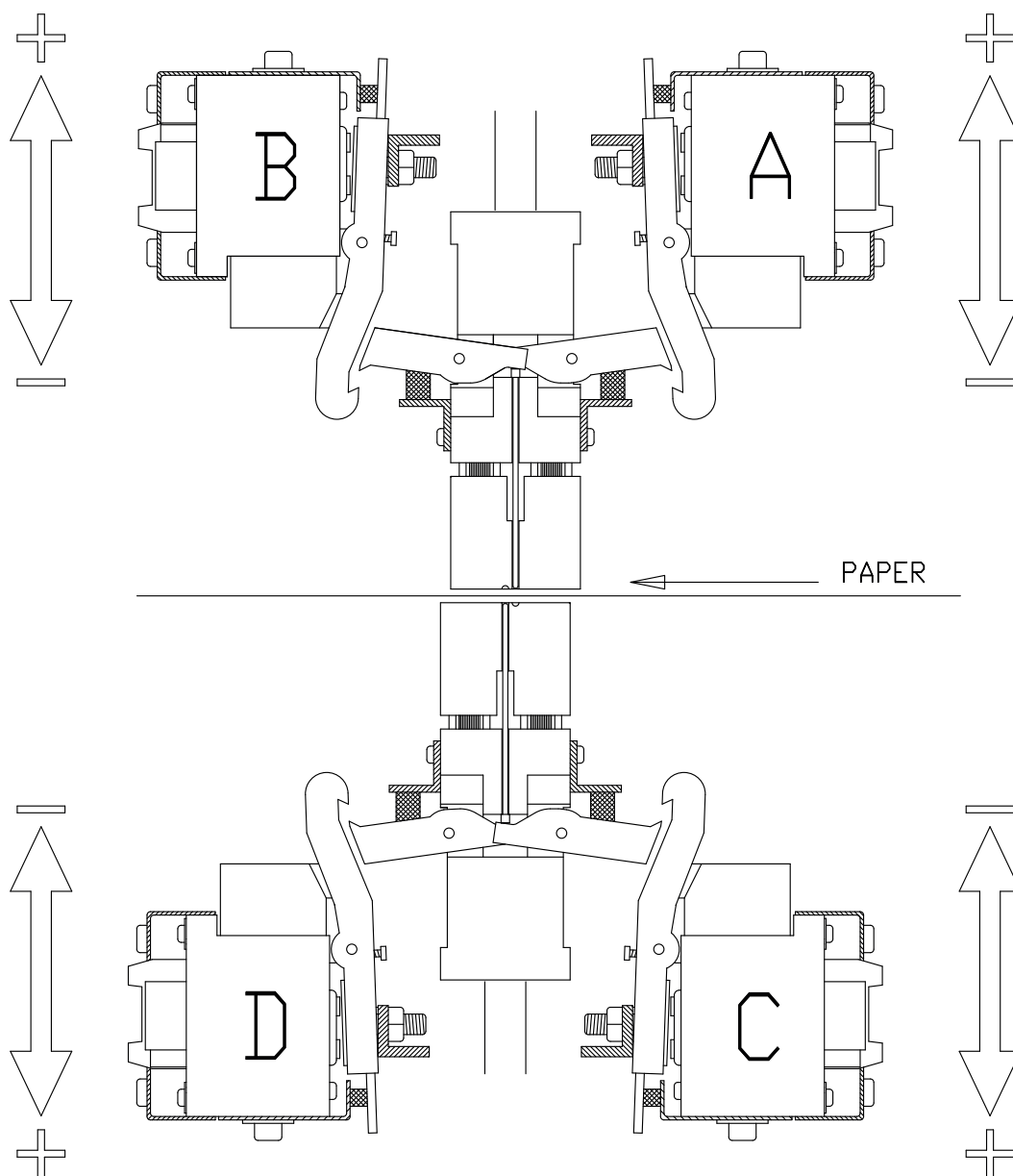
Then adjust upward by loosening the upper nut and tightening the lower nut. Perform this adjustment on both ends so the magnet rack remains level.



Note! Adjust in small steps, only 1/4 turn at a time. Then test the braille quality.

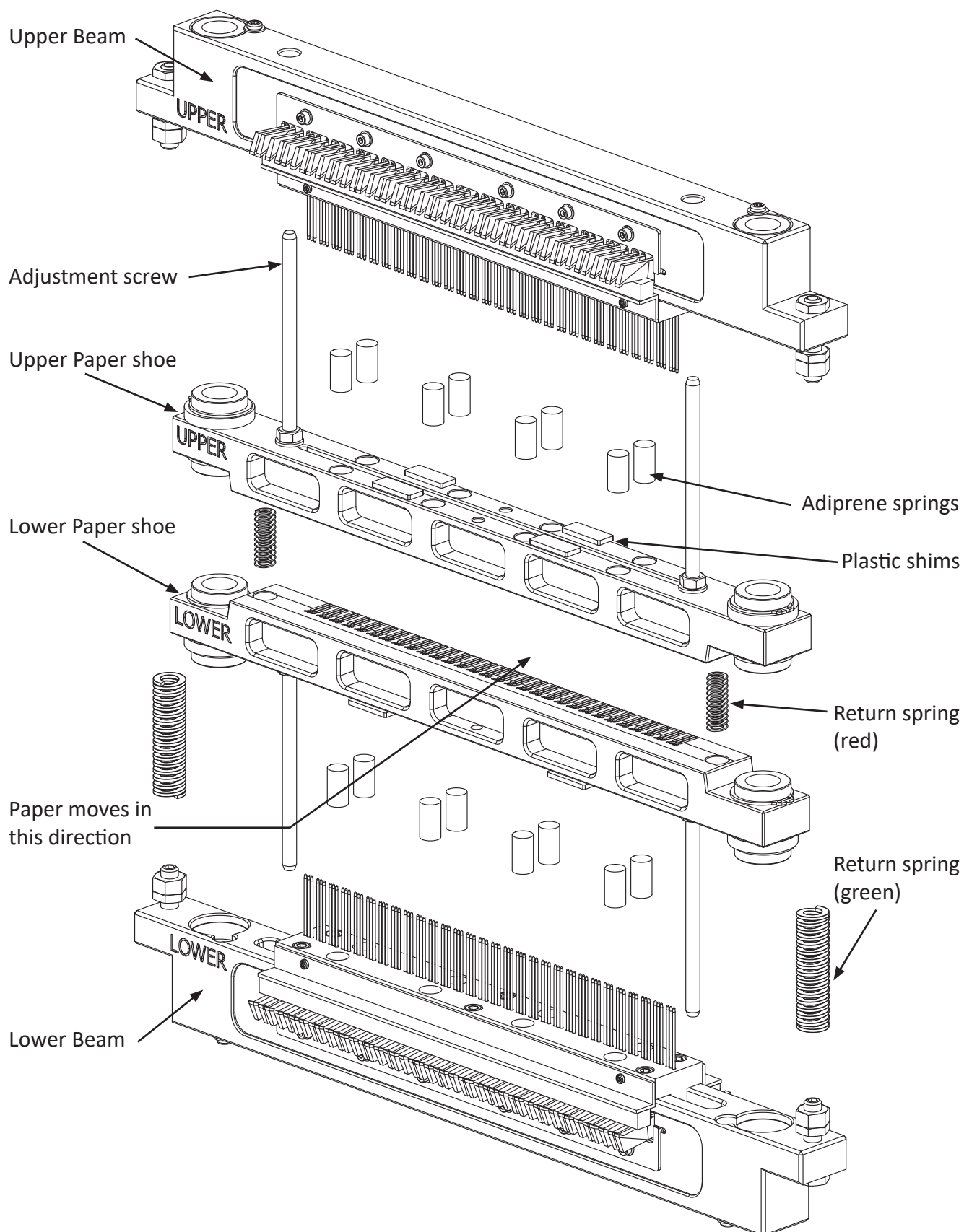


Note! When adjusting the magnet racks vertically, note that magnet racks A and B must be moved upward to increase pressure, while magnet racks C and D must be moved downward to increase pressure.
(Moving away from the paper increases pressure).



5.13 Beams and Paper shoes - overview

Please see the figures below.



5.14 Beams and Paper shoes - removal and refitting

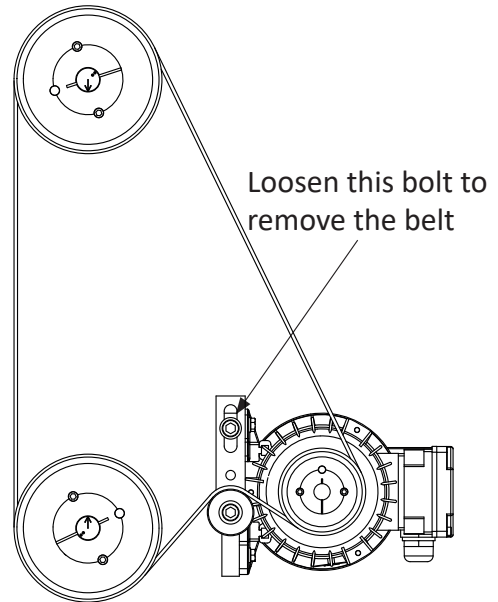
To remove the beams and paper shoes, several other components must first be removed. This must be done in the following order:

1. Remove the belt
2. Remove the input and output feeder
3. Remove the top frame with the upper shaft
4. Remove magnet racks A and B

1. Remove the belt

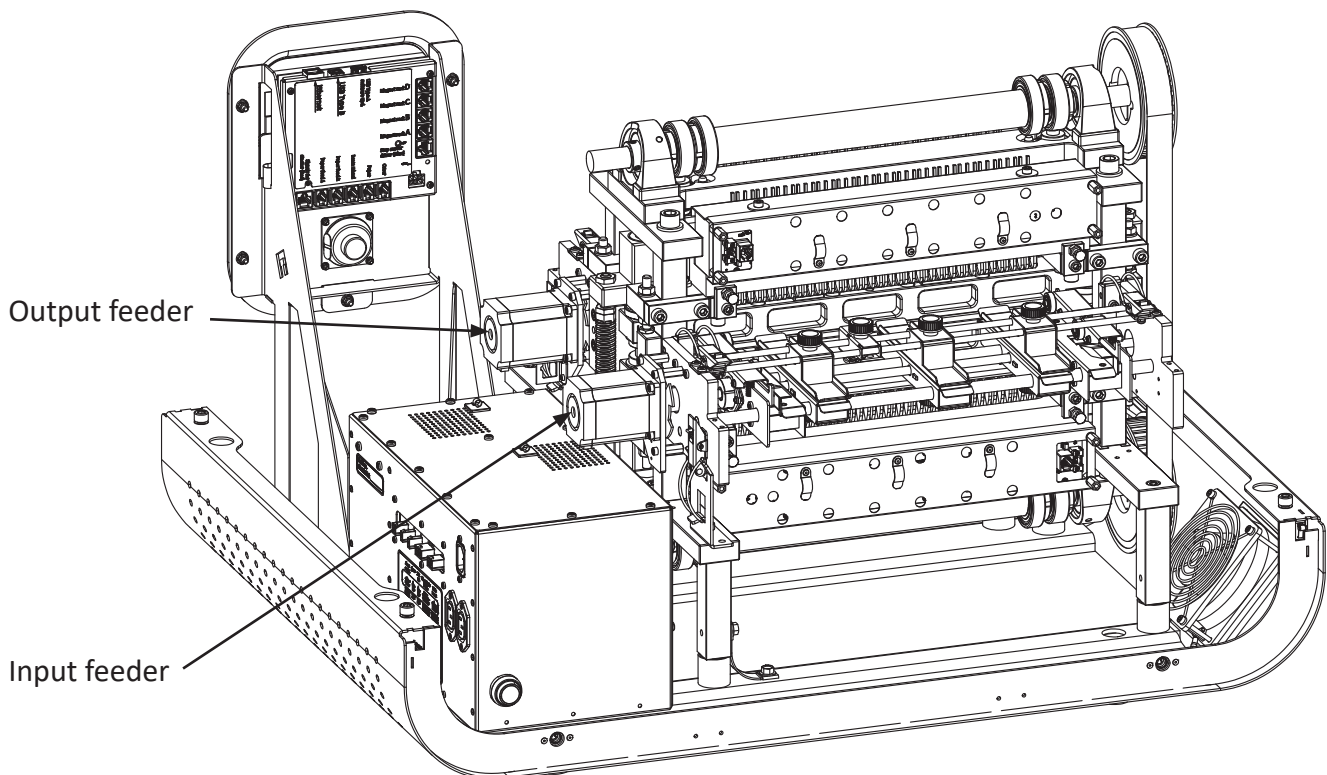
This is done by loosening the bolt on the belt tensioner. When this is done, the belt can be lifted off the upper cogwheel. Please see figure to the right.

When assembling, see [“5.18 Eccentrics adjustment, belt tension”](#) on page 103 for details.



2. Remove input and output feeder

See [“5.21 Removal of Paper feeders”](#) on page 106 for instructions on how to remove the paper feeders.



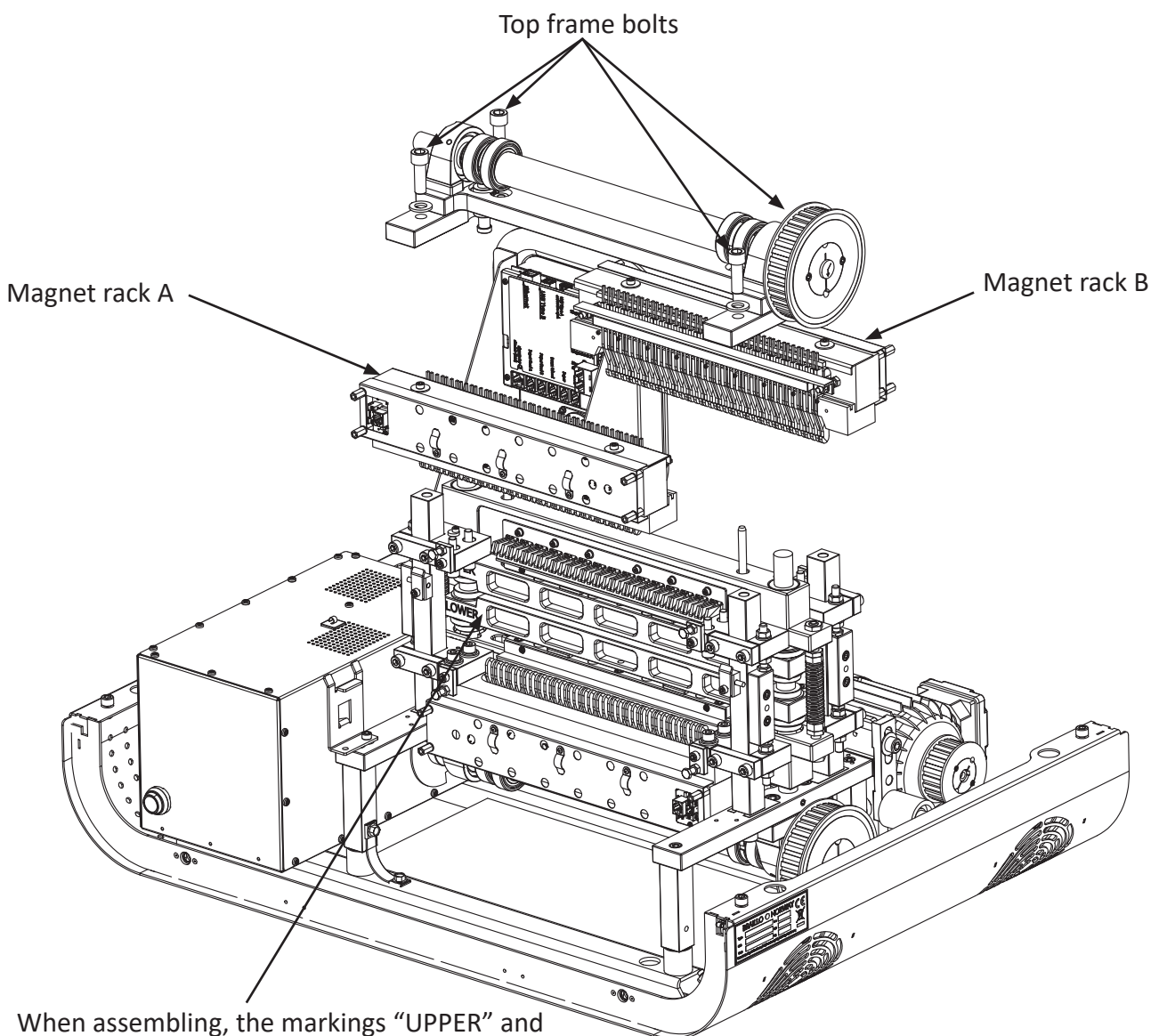
Beams and paper shoes - removal and refitting (continued)

3. Remove the top frame

Unscrew the bolts as indicated in the figure below, and carefully lift the frame upward and place it aside.

4. Remove magnet rack A and B

See section [“5.6 Magnet rack - removal”](#) on page 82 for more information.



When assembling, the markings “UPPER” and “LOWER” on the paper shoes and beams must face this side

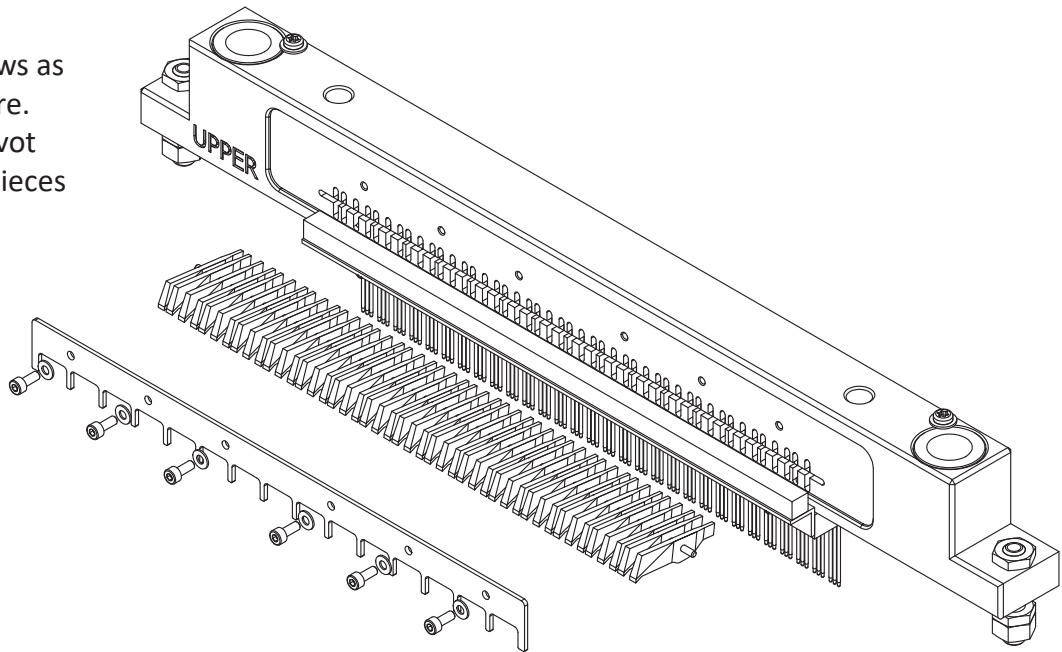
The paper shoes and beams can now be lifted carefully upward.

Assembly is performed in the reverse order. Please note that the markings “UPPER” and “LOWER” on the paper shoes and beams must face the side where the paper enters the printer.

5.15 Beam - replacement of short pivot arm

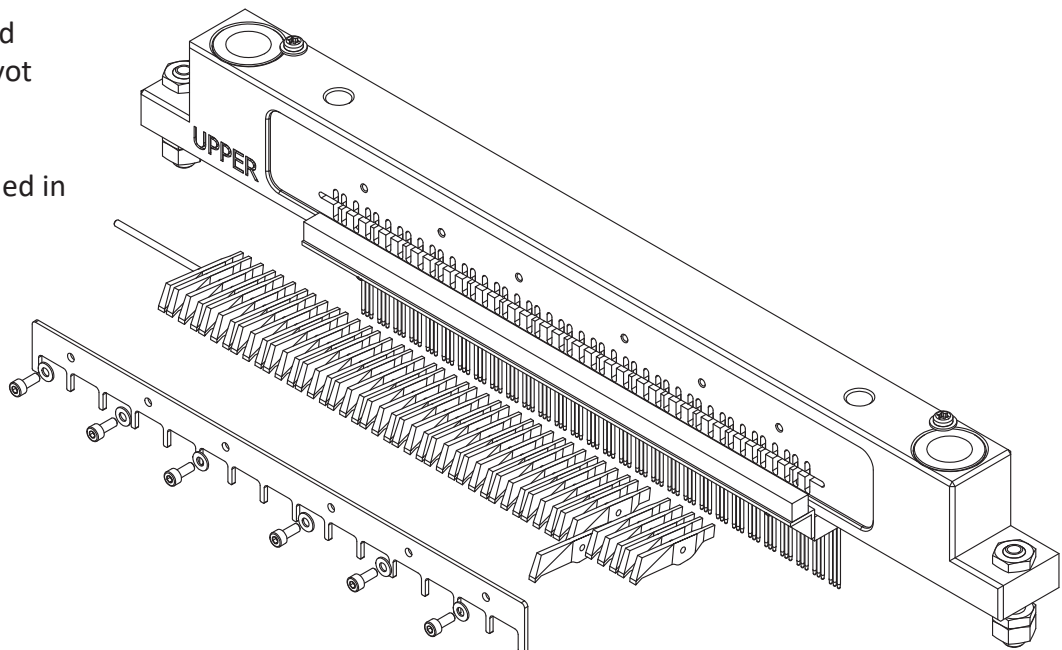
See the figures below.

Remove the six screws as indicated in the figure. Pull out the short pivot arms; there are 45 pieces on each side.



Pull out the shaft and replace the short pivot arm(s).

Assembly is performed in reverse order.



Note! When reinstalling the short pivot arms in the beam, make sure that the printing pins are hanging vertically, as shown in the figure. This ensures that there is sufficient space for the short pivot arm.

5.16 Beam - replacement of printing pin

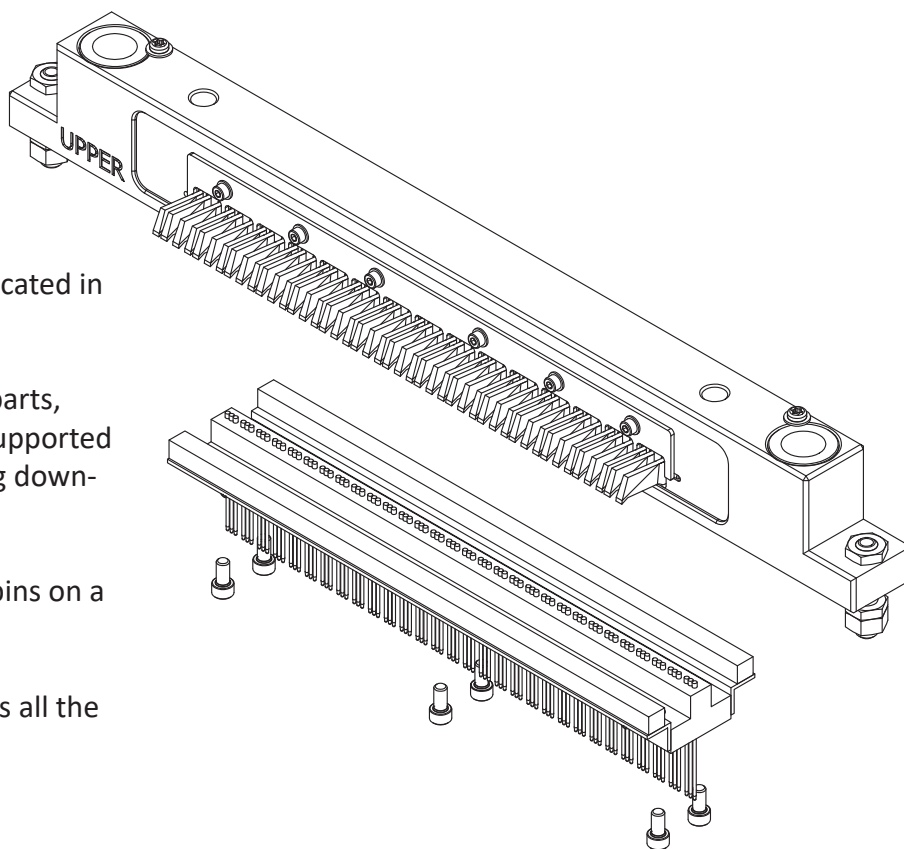
See the figures below.

Remove the six screws as indicated in the figure.

Note! Before separating the parts, make sure that the beam is supported with the printing pins hanging downward.

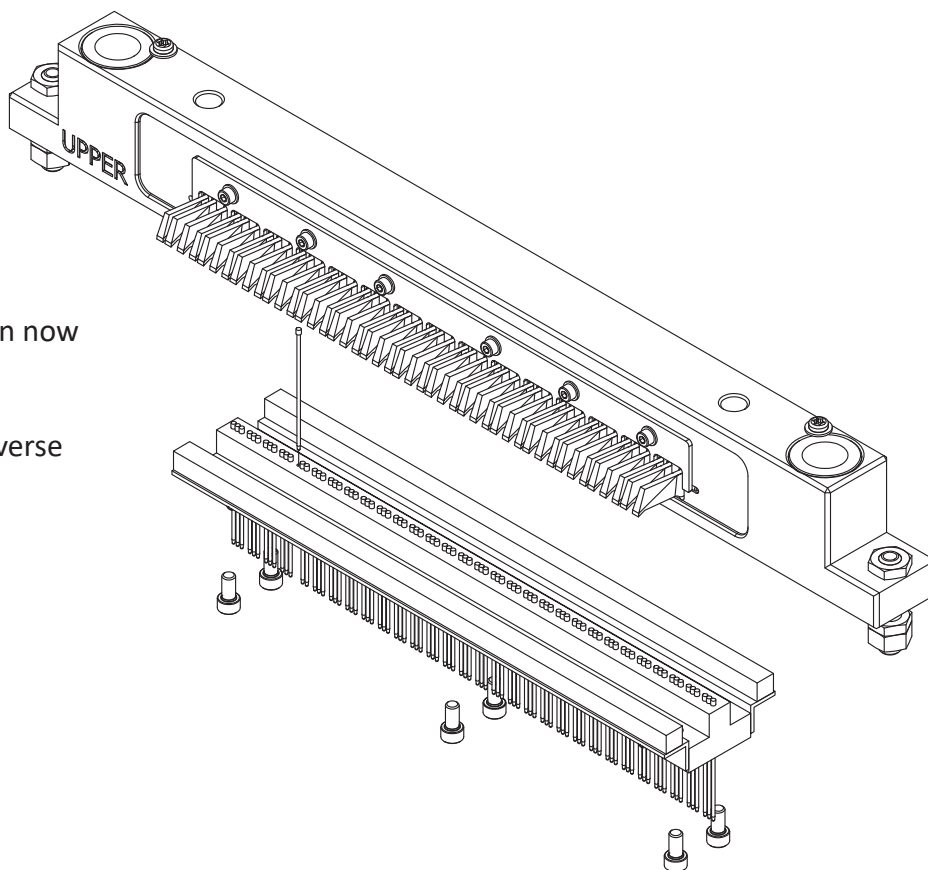
Place the pin guide with the pins on a table.

Do not turn it upside down, as all the pins will fall out.



The defective printing pin can now be replaced.

Assembly is performed in reverse order.



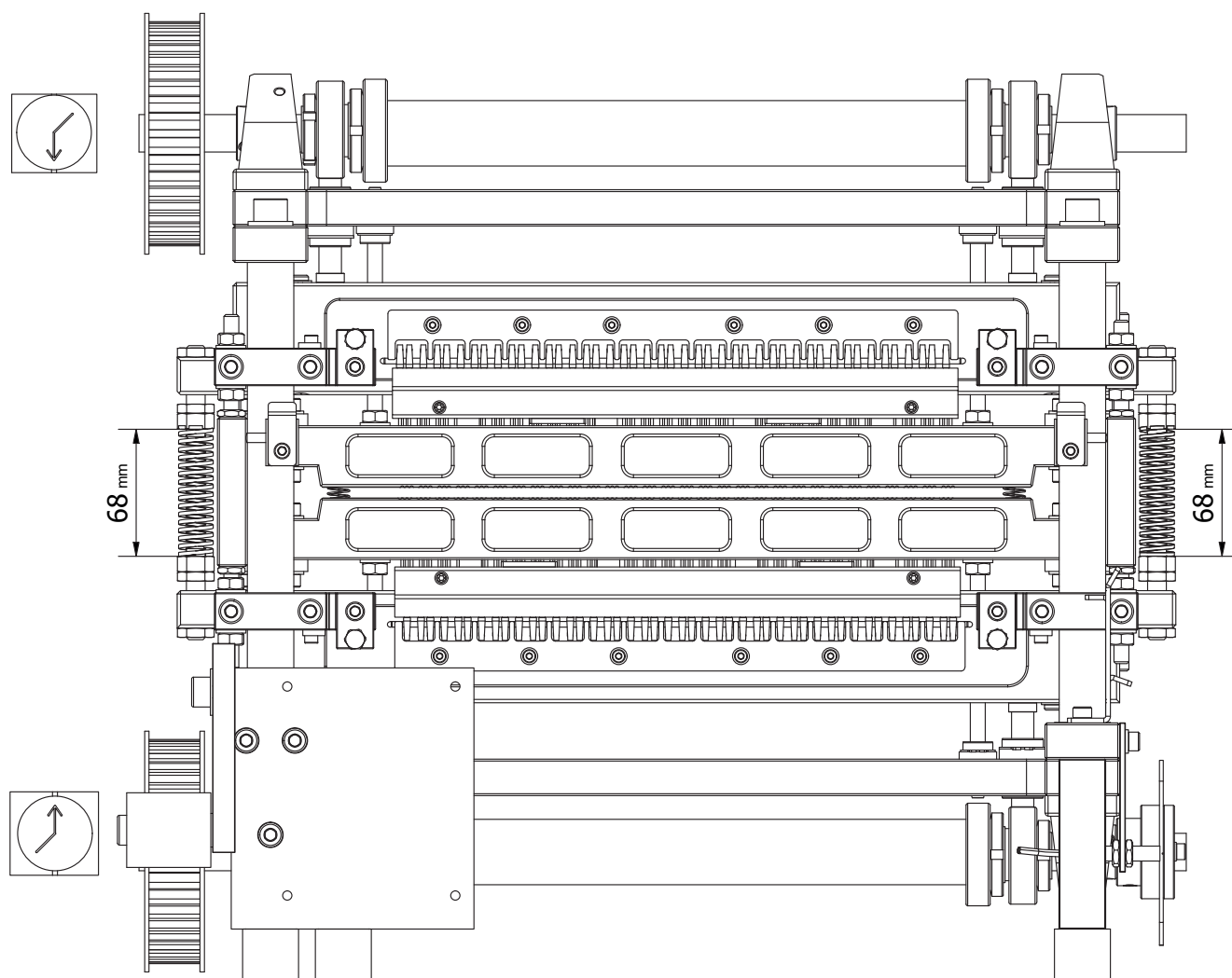
5.17 Return spring adjustment

Before performing this adjustment, make sure that the shafts are positioned correctly. Check the markings at the ends of the shafts; the arrows must point directly toward each other, as shown in the figure below.

The springs can then be adjusted to the correct length, i.e. 68 mm.



Note! It's critical that the length of these two return springs is 68 mm.

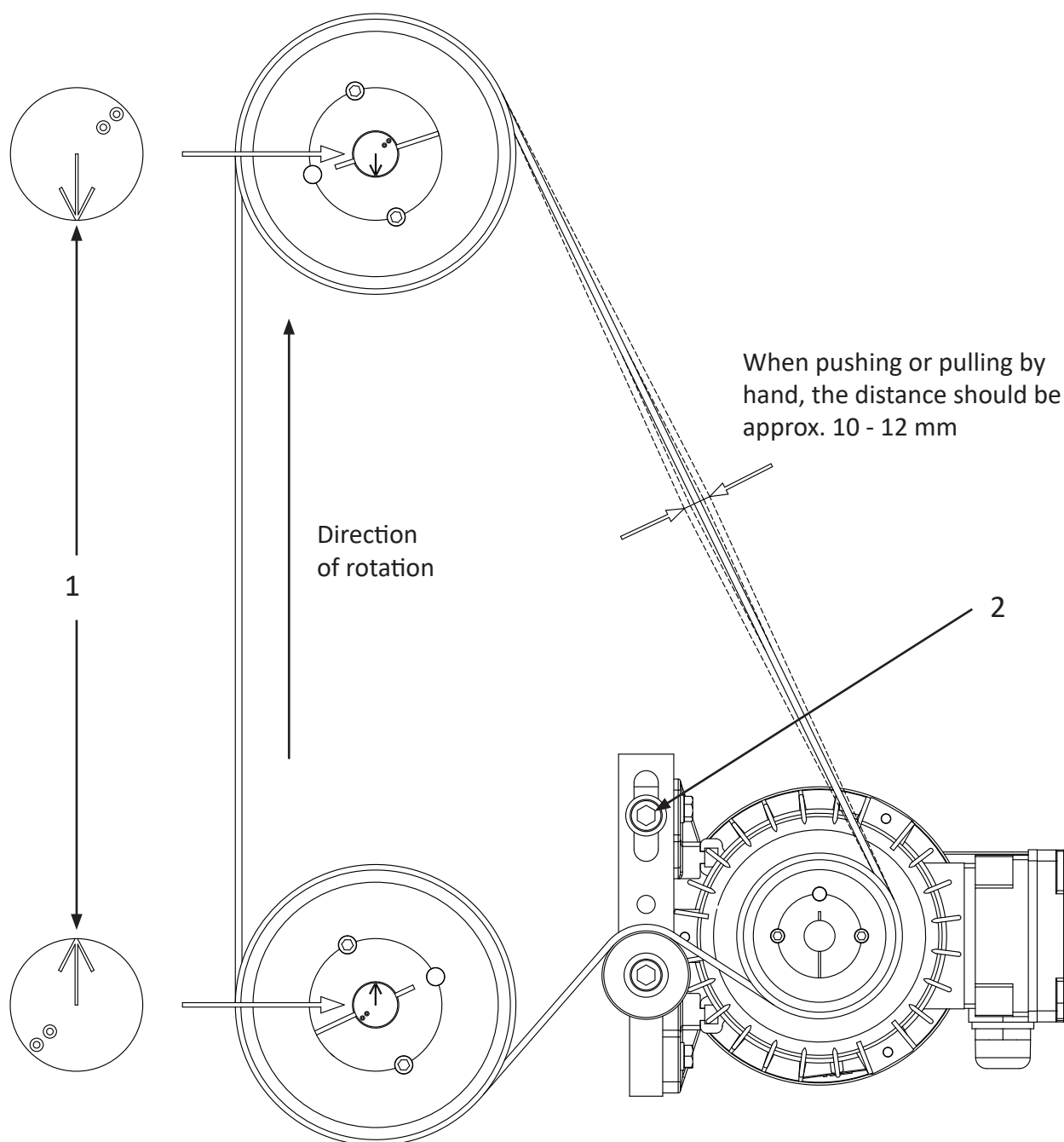


5.18 Eccentrics adjustment, belt tension

After removing the belt, it is necessary to align the eccentrics.

Reinstall the belt, tighten it using the belt tensioning wheel (2), and check that the arrows at the ends of the shafts (1) are pointing toward each other, as shown in the figure below.

If the markings are not aligned as shown in the figure, it may be necessary to move the belt one or two notches on one of the wheels. To do this, loosen the belt tensioning wheel (2) again, then lift the belt off the main wheel and shift it one notch on the wheel. Then tighten the belt.



5.19 Paper shoes - adjustment

Place a sheet of paper between the paper shoes (P).

Turn the belt so that the two points (6) at the ends of the shafts (2) are pointing toward each other, as shown in the figure below.

Lock the shafts in this position using , for example, vice-grip pliers, at the end of the shaft (2).

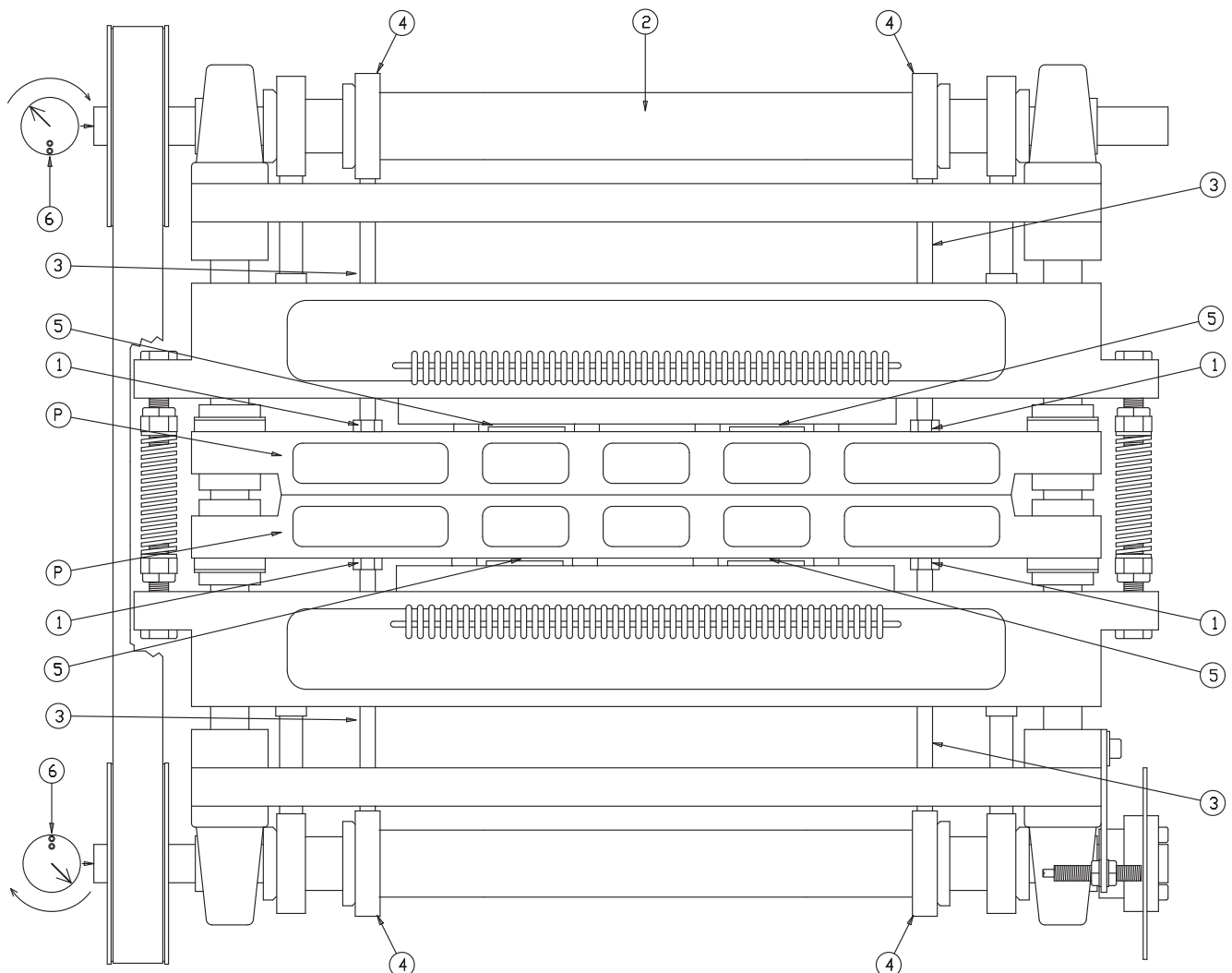
Loosen the locking nuts (1), then adjust the push rods (3) by turning them. Adjust the push rods against the inner eccentric bearing (4) until the paper shoes (P) apply light pressure to the paper. Check that the gap (5) between the press plates and the beams is equal for both upper and lower units.

Secure the push rods (3) by tightening the locking nuts (1).

Make sure that the shafts can rotate freely by turning the belt by hand.



Note! The function of the bearings (4) is to reduce the noise generated by the printer during operation. A common misunderstanding is that the pressure on the paper shoes can be increased by adjusting the push rods. This does not affect the dot quality.



5.20 Main sensor wheel - adjustment

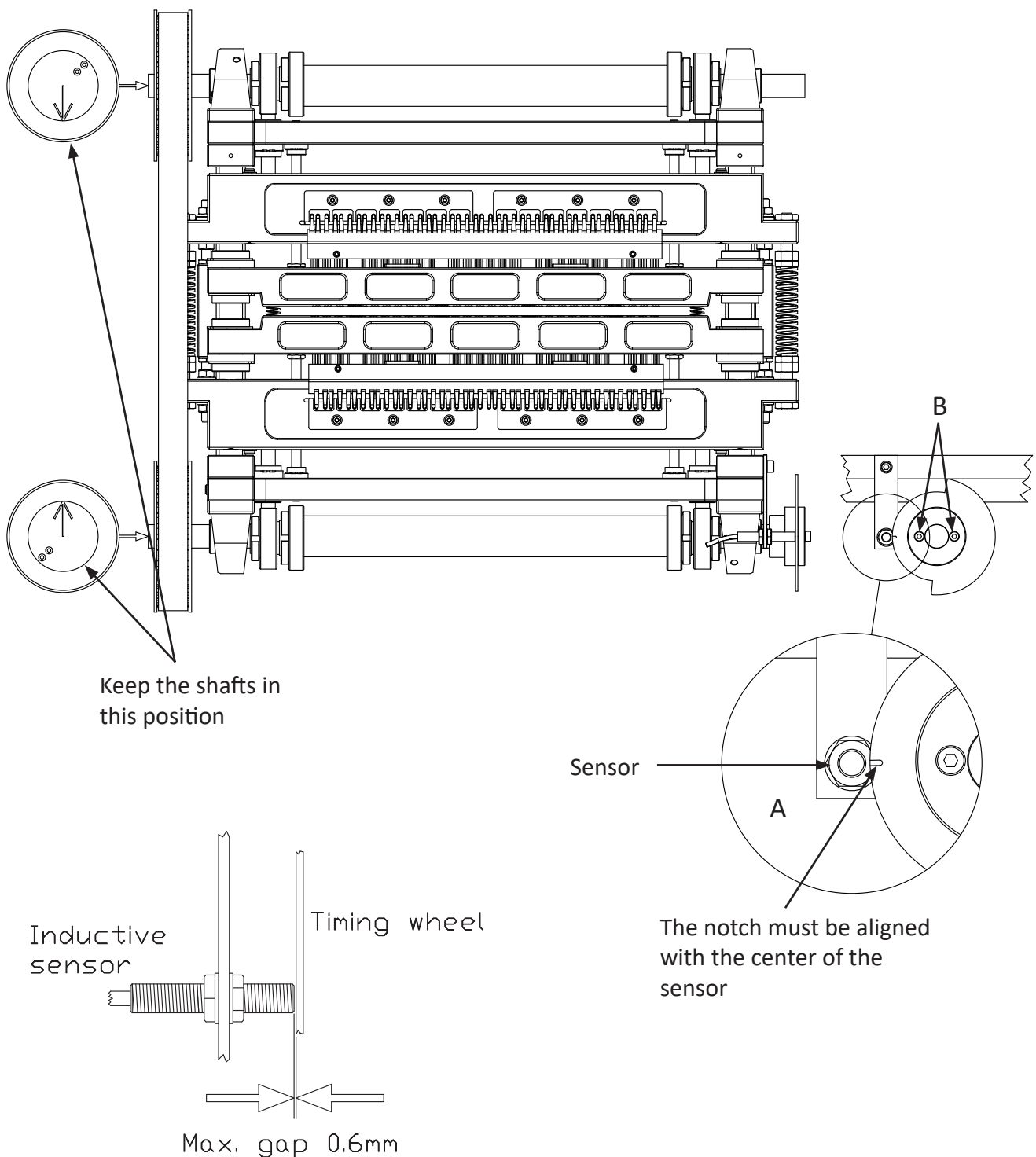
The main sensor wheel is located on the lower shaft, on the opposite end from the belt.

The shafts must be in the position indicated to the left in the figure below.

The timing wheel should be positioned exactly as shown in position (A) in the figure below. The mark in the center of the opening in the wheel must be aligned directly with the sensor.

If the timing wheel is not correctly positioned, it must be adjusted.

Keep the shafts in this position while loosening the screws (B) that hold the timing wheel. Turn the timing wheel until the inductive sensor is aligned with the mark in the center of the opening in the wheel. Then tighten the screws again.

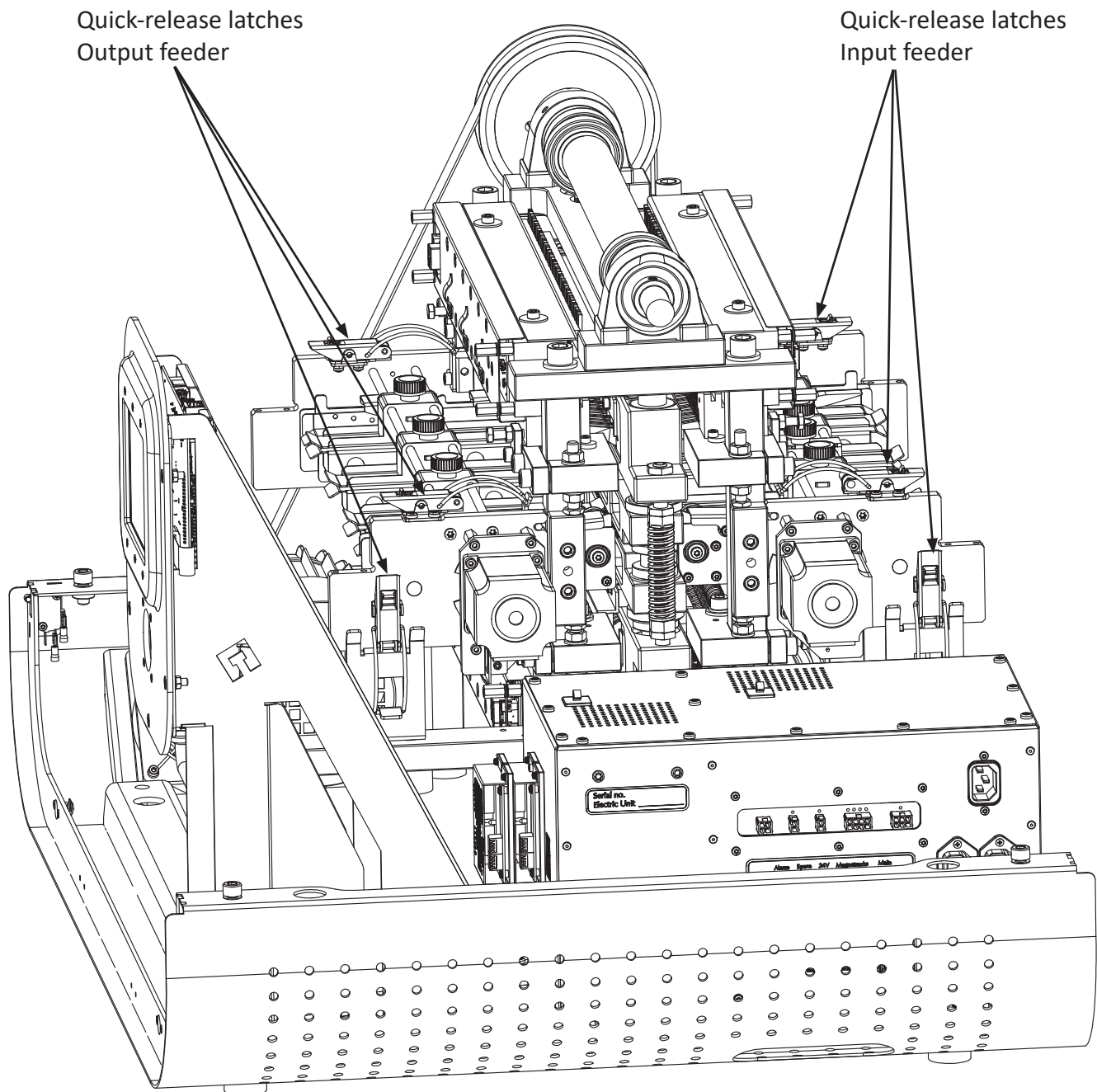


5.21 Removal of Paper feeders

To remove the paper feeder assemblies, disconnect the stepper motor connectors near the stepper motors. On the output feeder, the sensors must also be disconnected from the main board.

The paper feeder assemblies can then be removed by releasing the three quick-release latches on each unit.

Carefully lift the assemblies up and out.

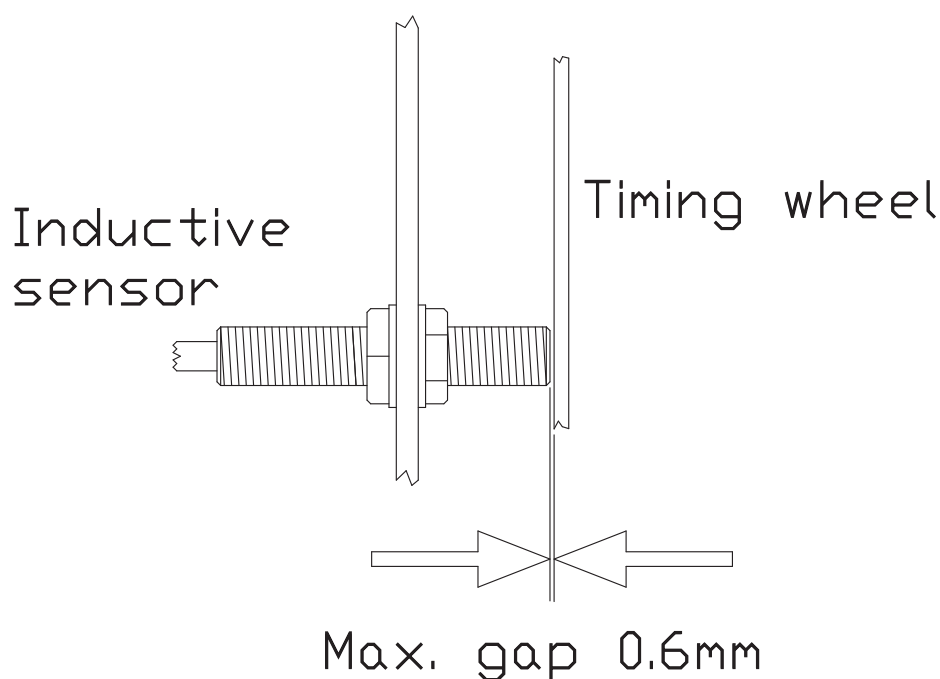


5.22 Inductive sensors - adjustment

This printer uses inductive sensors in three locations: One for the main timing wheel on the lower shaft and two that control the movement on the paper feed mechanism.

It is possible to check whether the inductive sensors are functioning by observing the rear end, where the cable enters the sensor. Inside the sensor, there is a small LED indicator that lights up when a metallic object is in front of the sensor. With the power on, and while turning the shafts, the light should turn on and off.

When replacing or adjusting the sensors, the gap between the timing wheel and the sensors must not exceed 0.6 mm. Check this clearance throughout the entire rotation of the timing wheel. See the figure below.



5.23 Sheet sensor - replacing

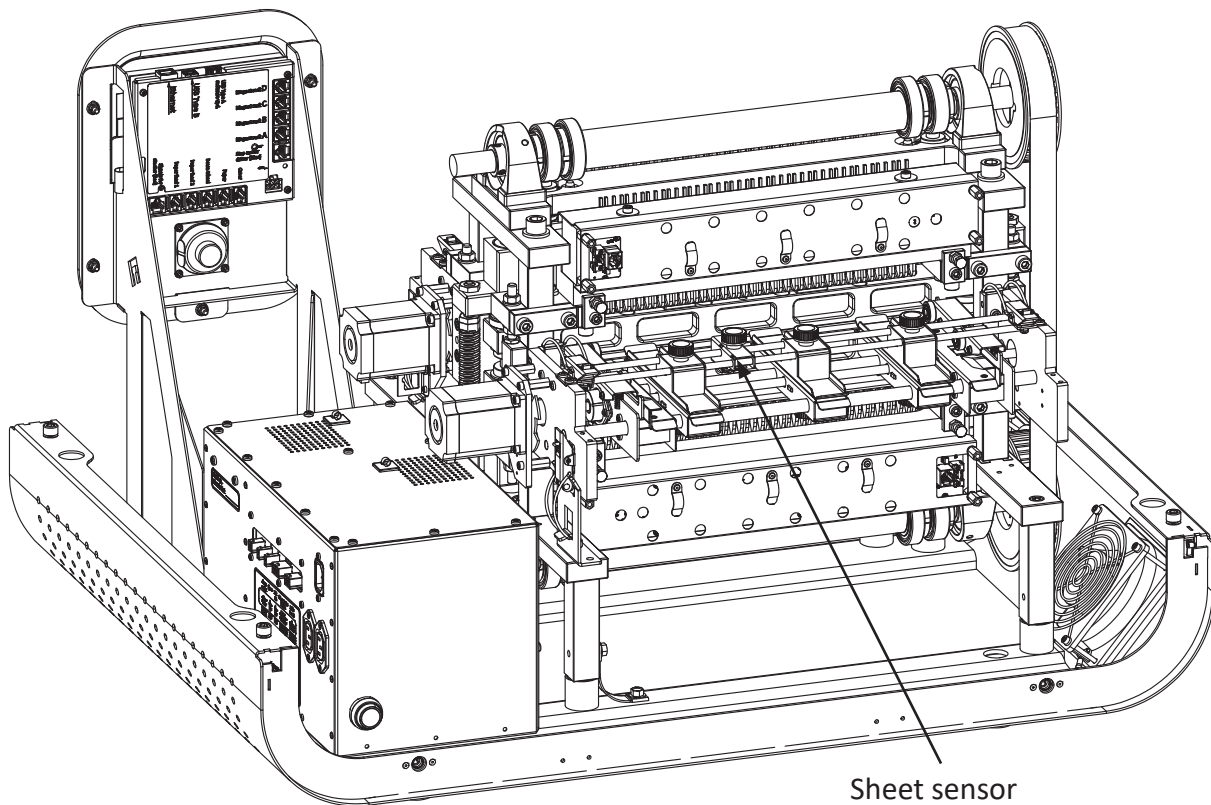
This printer uses a sensor to detect the edges of the sheets as they enter the printer.

This sensor is located on the Input feeder.

The sensor is an infrared reflective type. It operates by emitting infrared light downward; when paper is present, the light is reflected back and detected by a phototransistor.

If the sensor needs to be replaced, proceed as follows:

Remove the Input feeder from the printer and place it upside down on a table. See section [“5.21 Removal of Paper feeders”](#) on page 106 for instructions. Then unscrew the two screws holding the sensor.

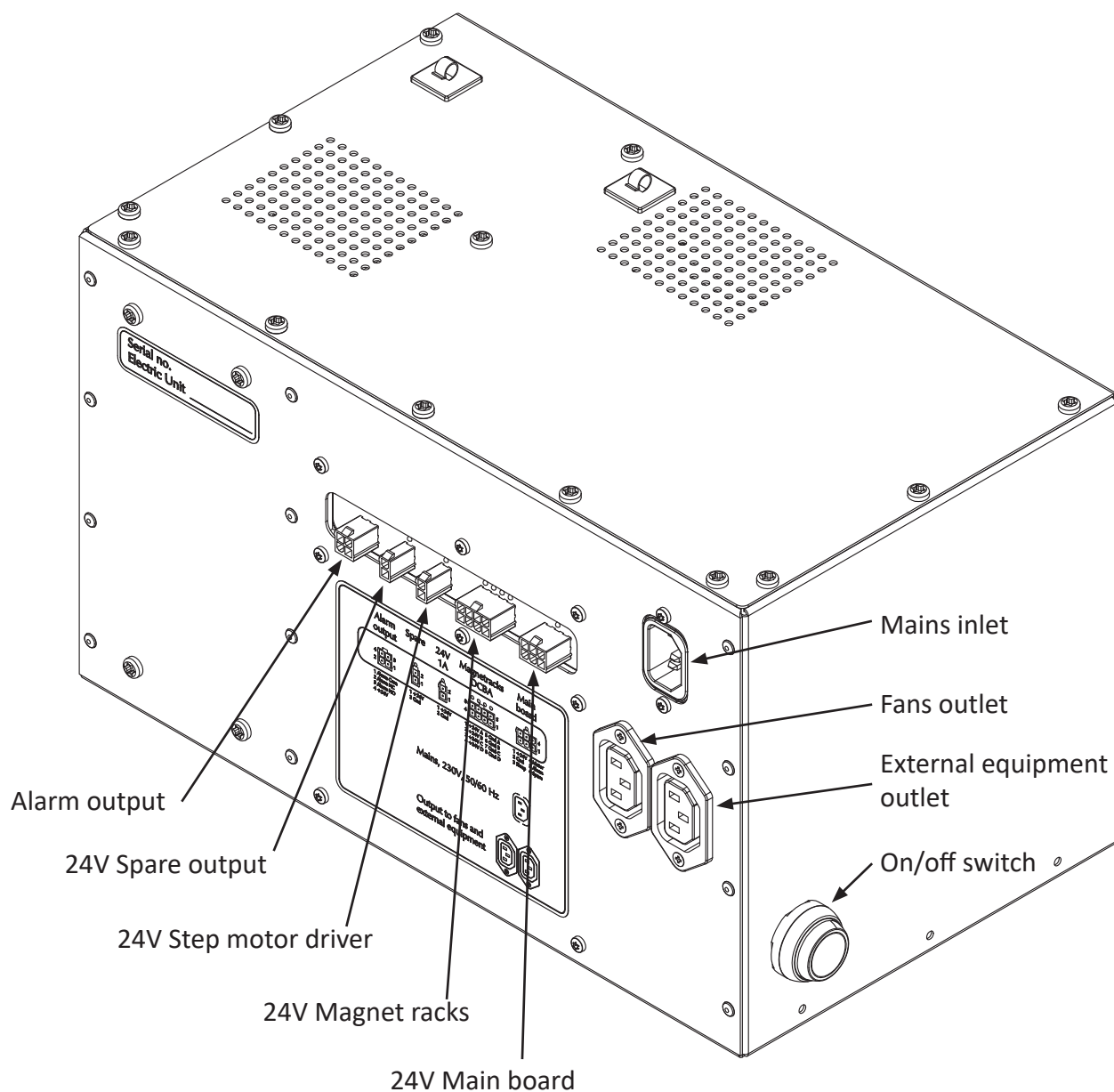


5.24 El-Unit - overview

The El-Unit contains connections, fuses and the power supply.



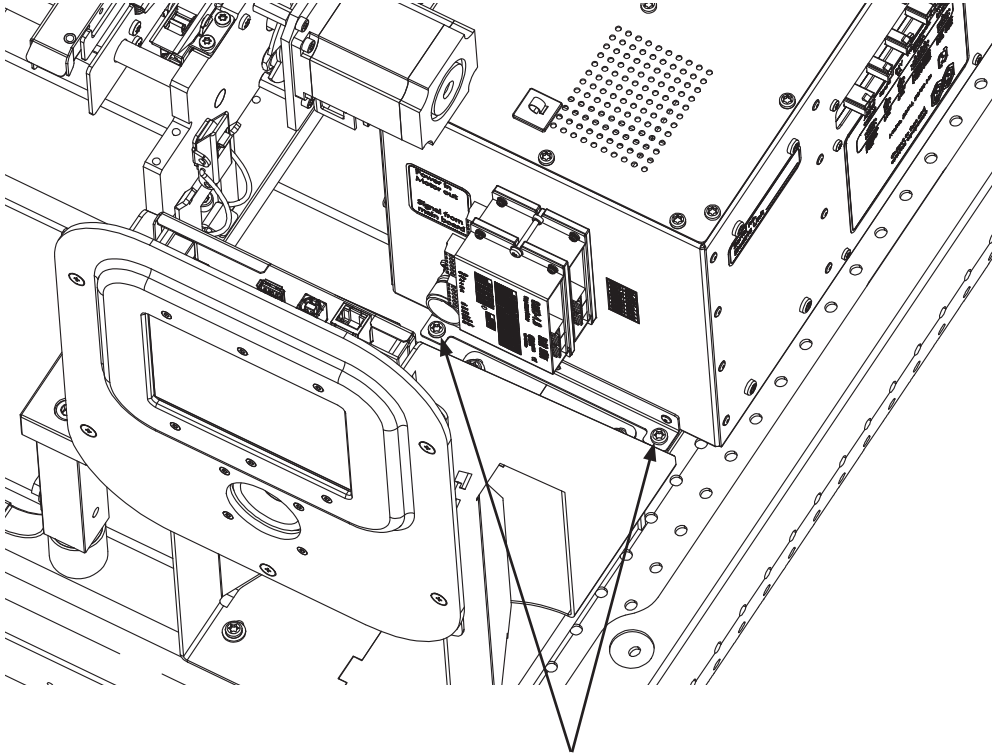
Note! Disconnect the mains power when working on this unit.



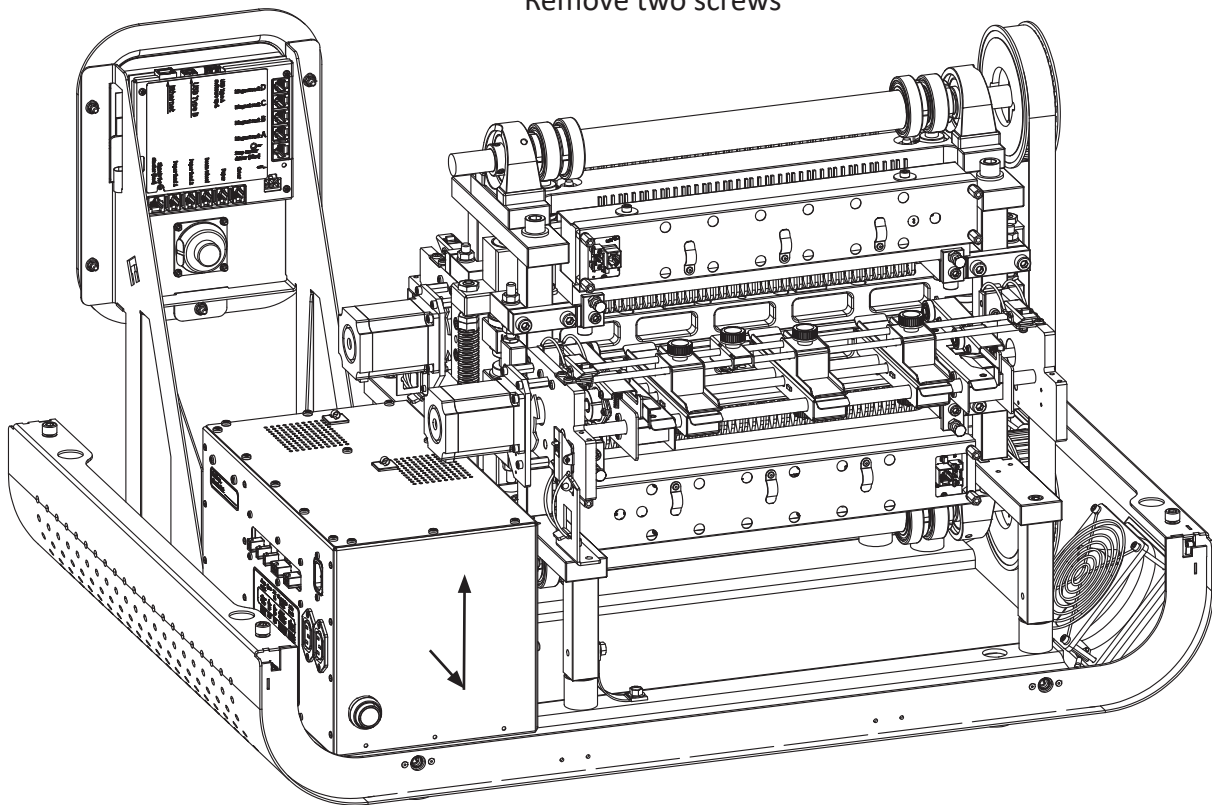
5.25 Disassembly of the EI-Unit

Disconnect all cables connected to the EI-Unit.

The EI-Unit can be disassembled by removing the two screws at the end, then sliding the unit approx. 10 mm backward before lifting it upward. See the figures below.



Remove two screws

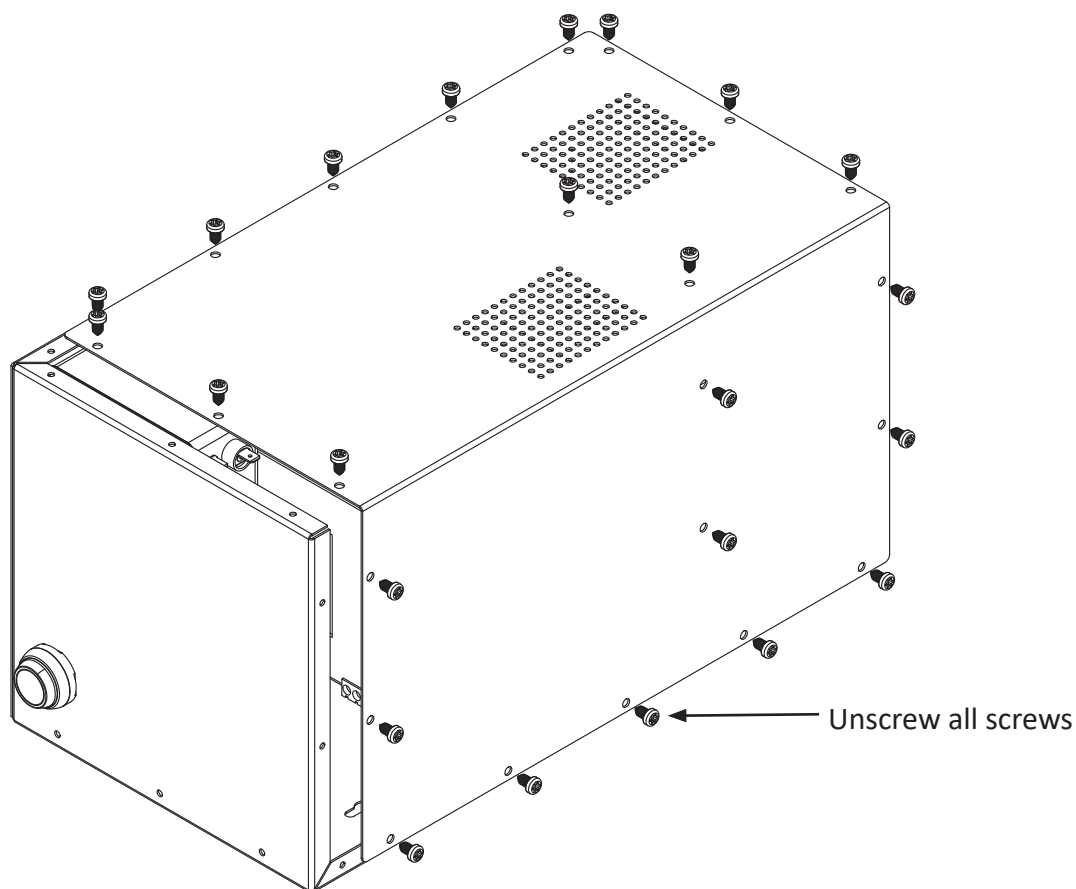


Slide the EI-Unit slightly backward, then lift it upward

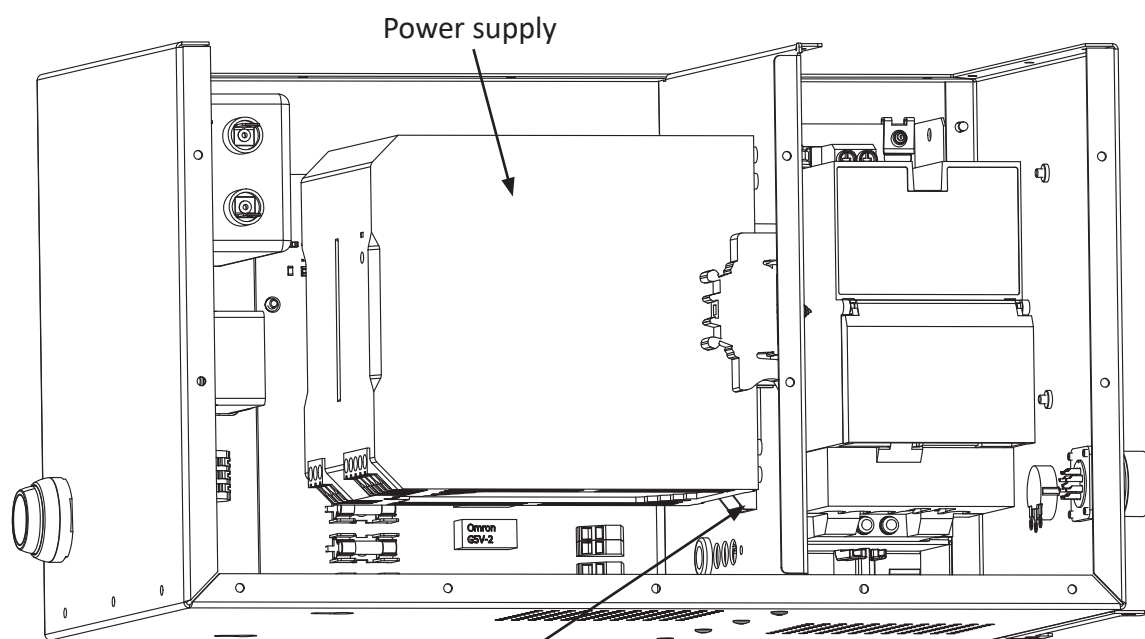
5.26 El-Unit - replace fuses

The fuses are located on a PCB inside the El-Unit. See the figures below for instructions on how to open the unit, and figure on the next page for the fuse locations.

Note! Always disconnect the mains power cable before replacing the fuses.



To provide better access for inspecting and replacing the fuses, it is recommended to move the power supply slightly out of the way. This can be done without disconnecting the wires. See the figure below.

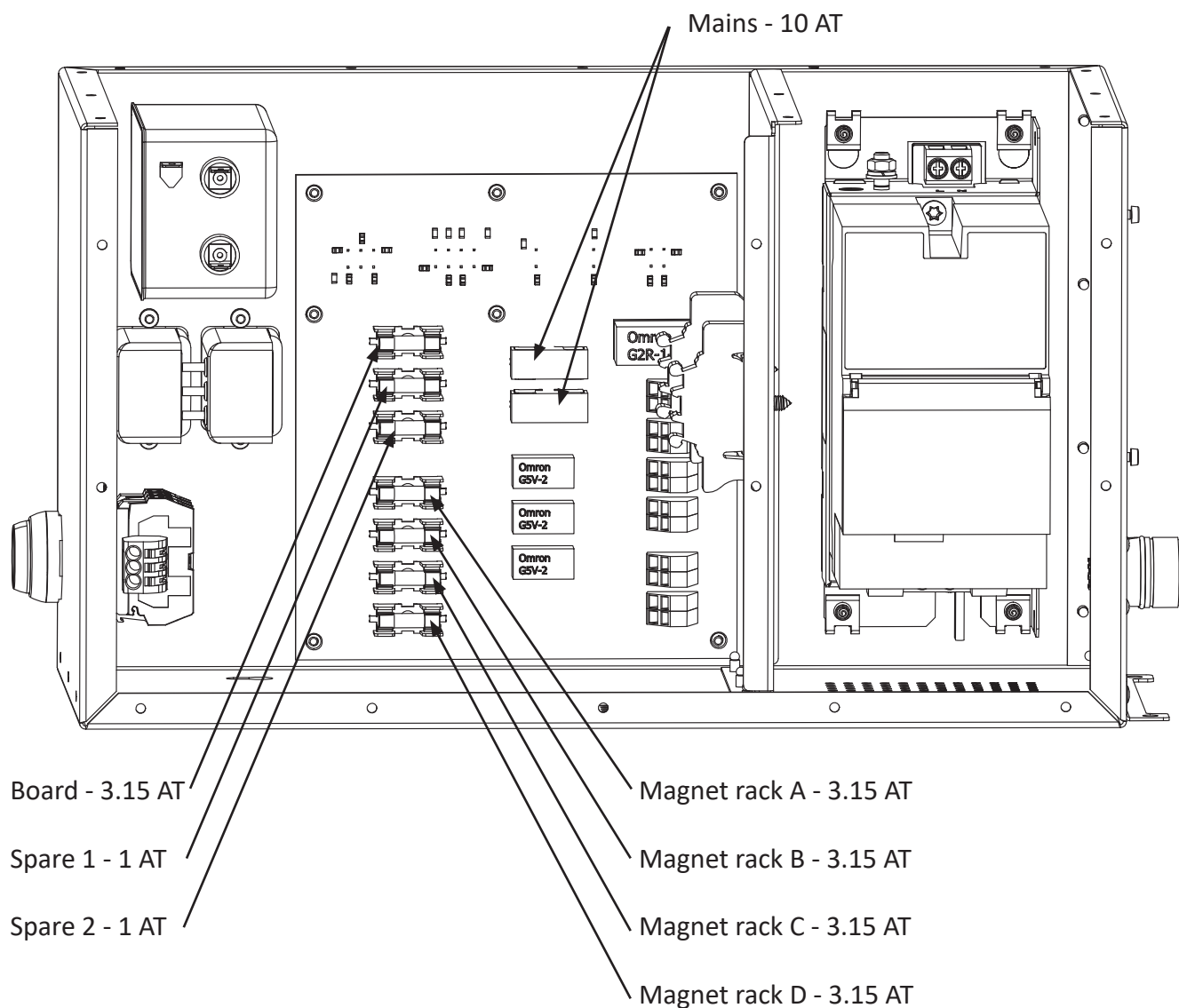


To release the power supply, place a screwdriver here and pull the latch downward

The fuses

Note that the two mains fuses are located under transparent covers. All fuses are 5 x 20 mm and may be of either glass or ceramic type.

Note! The two fuses marked "Spare 1/2" are not replacement fuses, but fuses for the 24V outlets on the outside of the EI-Unit.

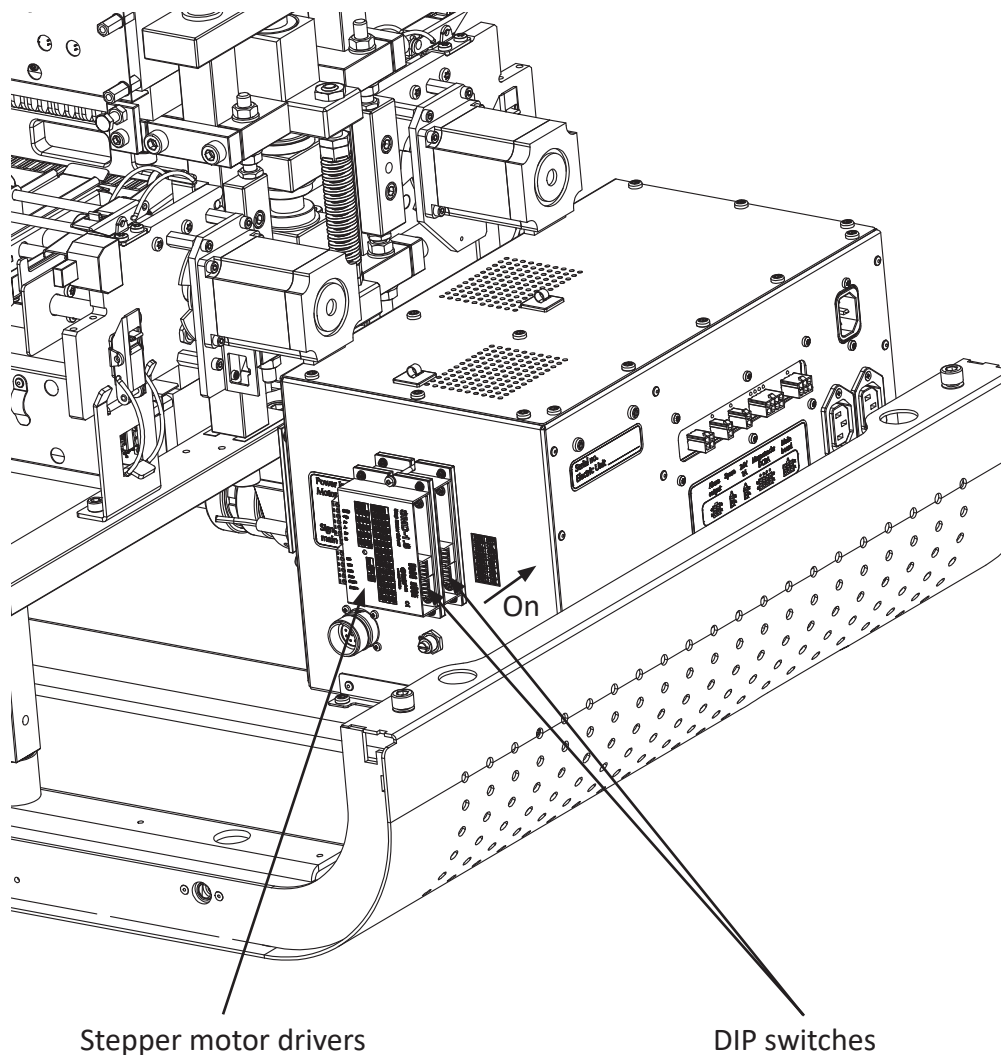


5.27 Step motor drivers, Dip switches

The stepper motor drivers are configured using DIP switches located on the side of the drivers. Switch number 1 is at the bottom, and switch number 8 is at the top. The switches are in the “On” position when the lever is pushed inward toward the EI-Unit.

Default DIP switch settings for both drivers:

Switch 8	Off
Switch 7	On
Switch 6	Off
Switch 5	Off
Switch 4	On
Switch 3	On
Switch 2	On
Switch 1	On

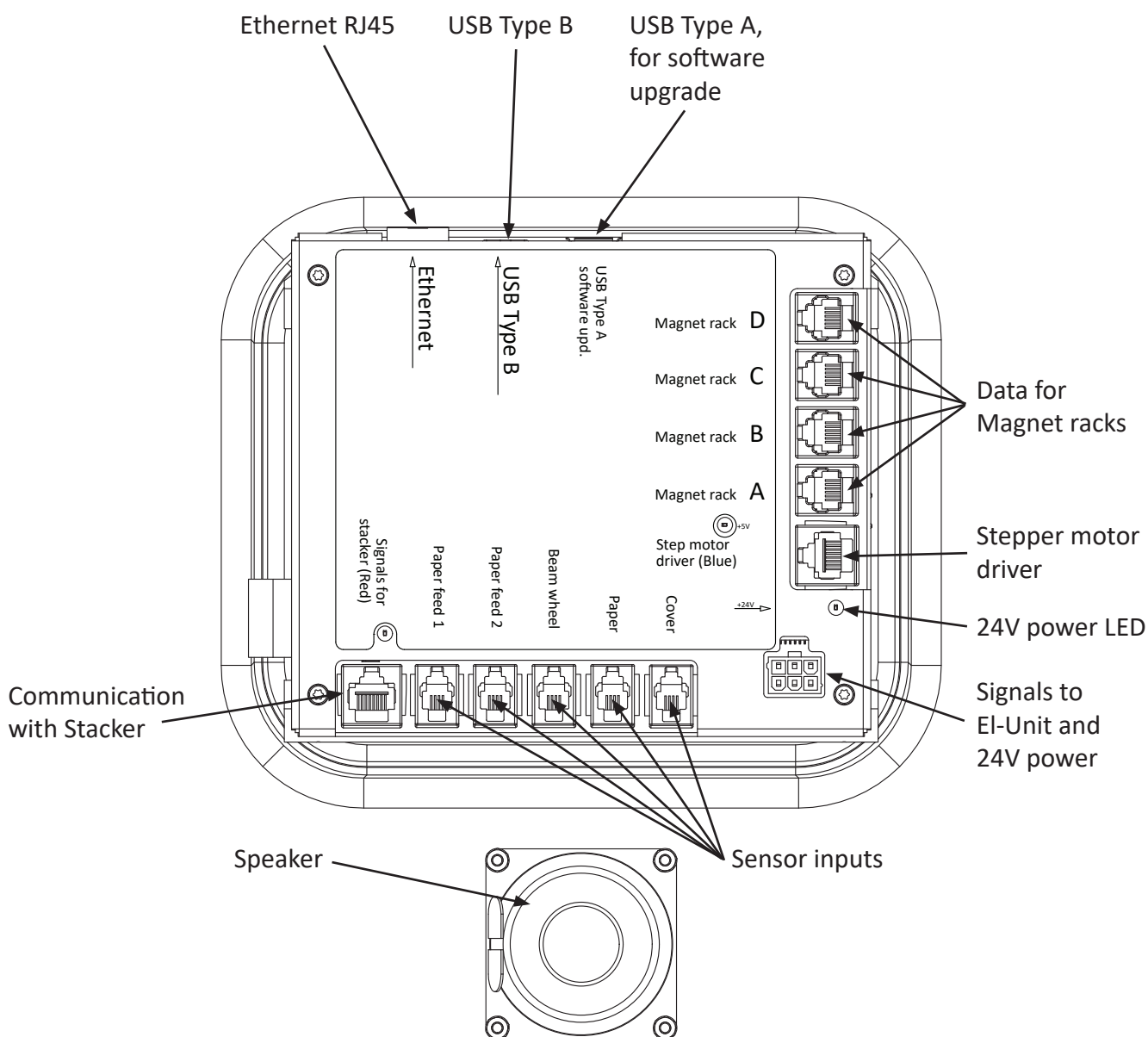


Stepper motor drivers

DIP switches

5.28 Main board - connections

The main board is located just behind the operating panel



5.29 Maintenance

Weekly (without removing the cover)

Does the printer produce correct braille?

What is the braille dot quality like?

Check for any damage to the exterior of the cover.

Is the operating panel functioning correctly?

Do the fans operate properly, and are they clean?

If there is dust from the paper on the paper guides, remove it using a vacuum cleaner.

Every 250 hours or six months

Perform all weekly maintenance tasks.

Is the printer mechanism, EI-Unit, base plate, etc. clean? Use a vacuum cleaner to remove the dust.

Check the main belt for wear, damage, cracks, and correct tension.

Check the belts inside the feeders for wear, damage, and cracks.

Clean the magnet racks.

Check the sponge list for the long pivot arms on all four magnet racks. The sponge list should keep long pivot arms pressed against the support list.

When reinstalling the magnet racks, verify all magnet rack adjustments.

Check whether the printing pins move freely. If not, clean the printing pin guide.

Every 500 hours or twelve months

Perform all 250-hours or six months maintenance tasks.

Check all four sponges for the short pivot arms. The sponge should keep the short pivot arms fully extended to the end of its travel.

Check wear on the push rod (12 x 56). Measure with a caliper; the length must be between 55.90 and 56.00 mm.

Inspect the paper shoes for wear. If braille dot quality is poor, worn paper shoes may be the cause.

Check the length of the printing pins. Measure with a caliper; the length must be between 64.40 and 64.50 mm.

Lubricate all stroke ball bearings using a universal grease with molybdenum disulfide.

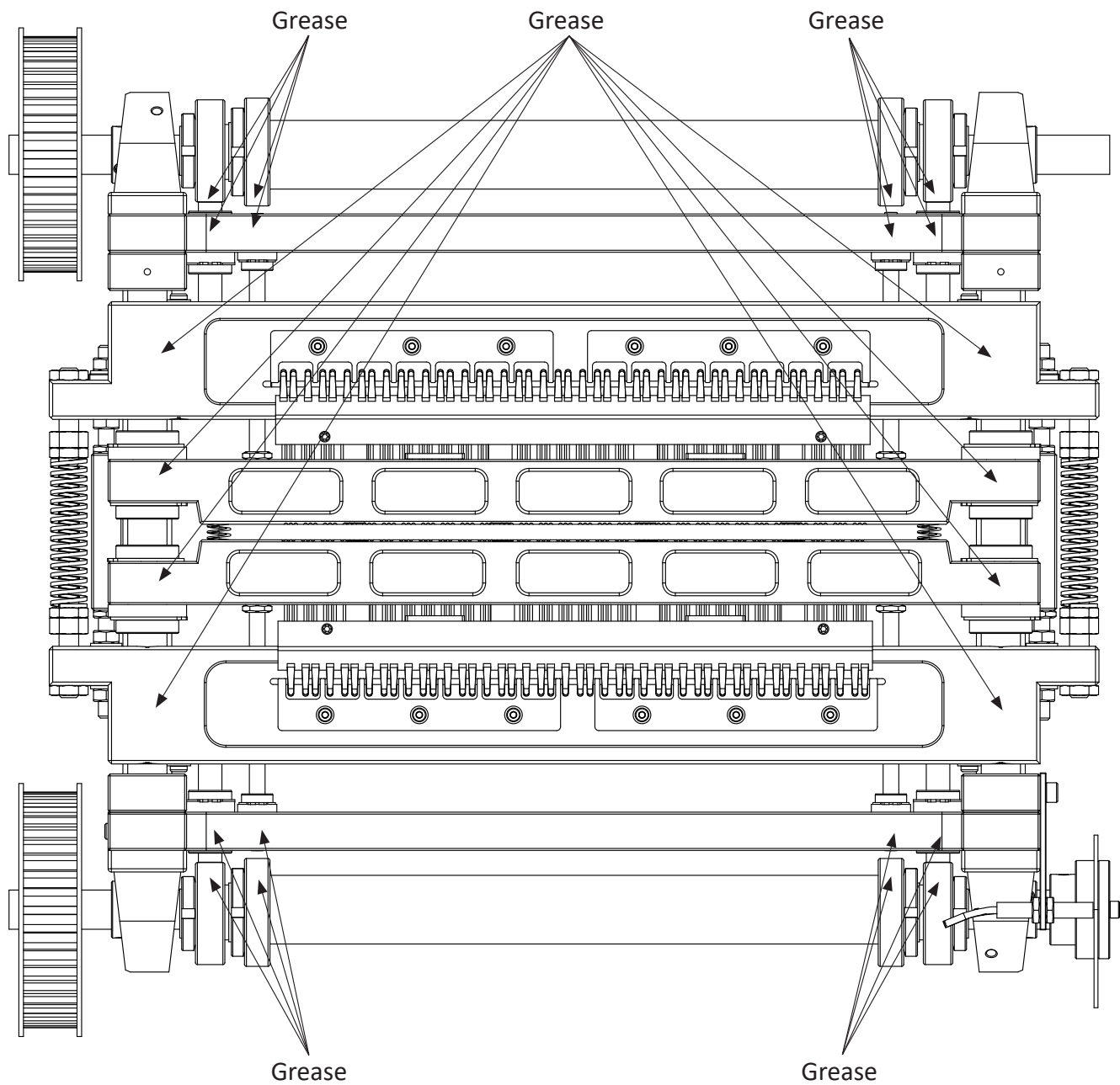
Lubrication should be carried out as shown in the figure on the next page.

Lubrication

This should be performed every 500 operating hours, or approximately once a year.

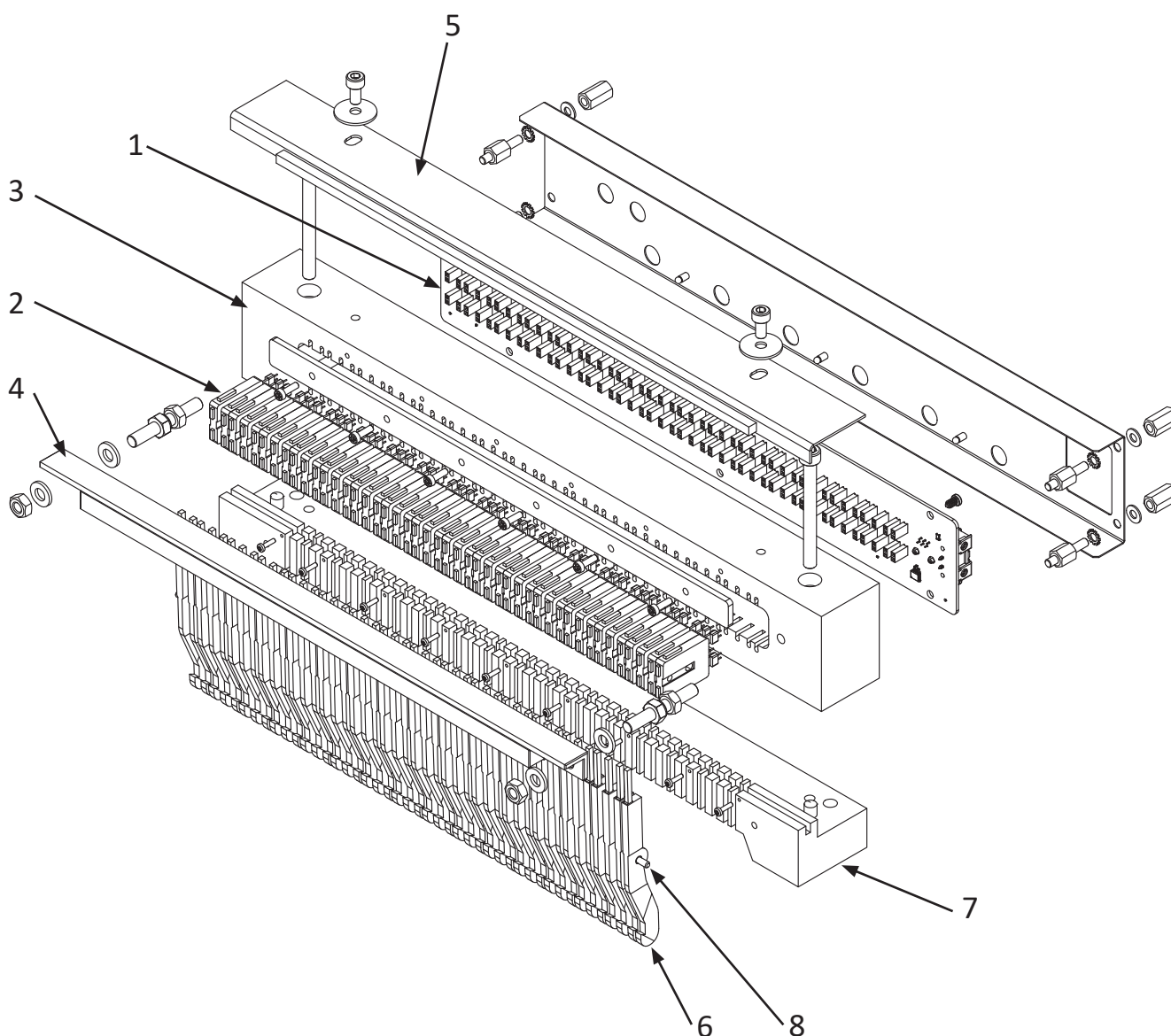
Lubricate all components marked "Grease" in the figure below (these are the only locations in the printer where grease may be applied).

Use a universal grease with molybdenum disulfide.



6. PARTS - EXPLODED VIEWS

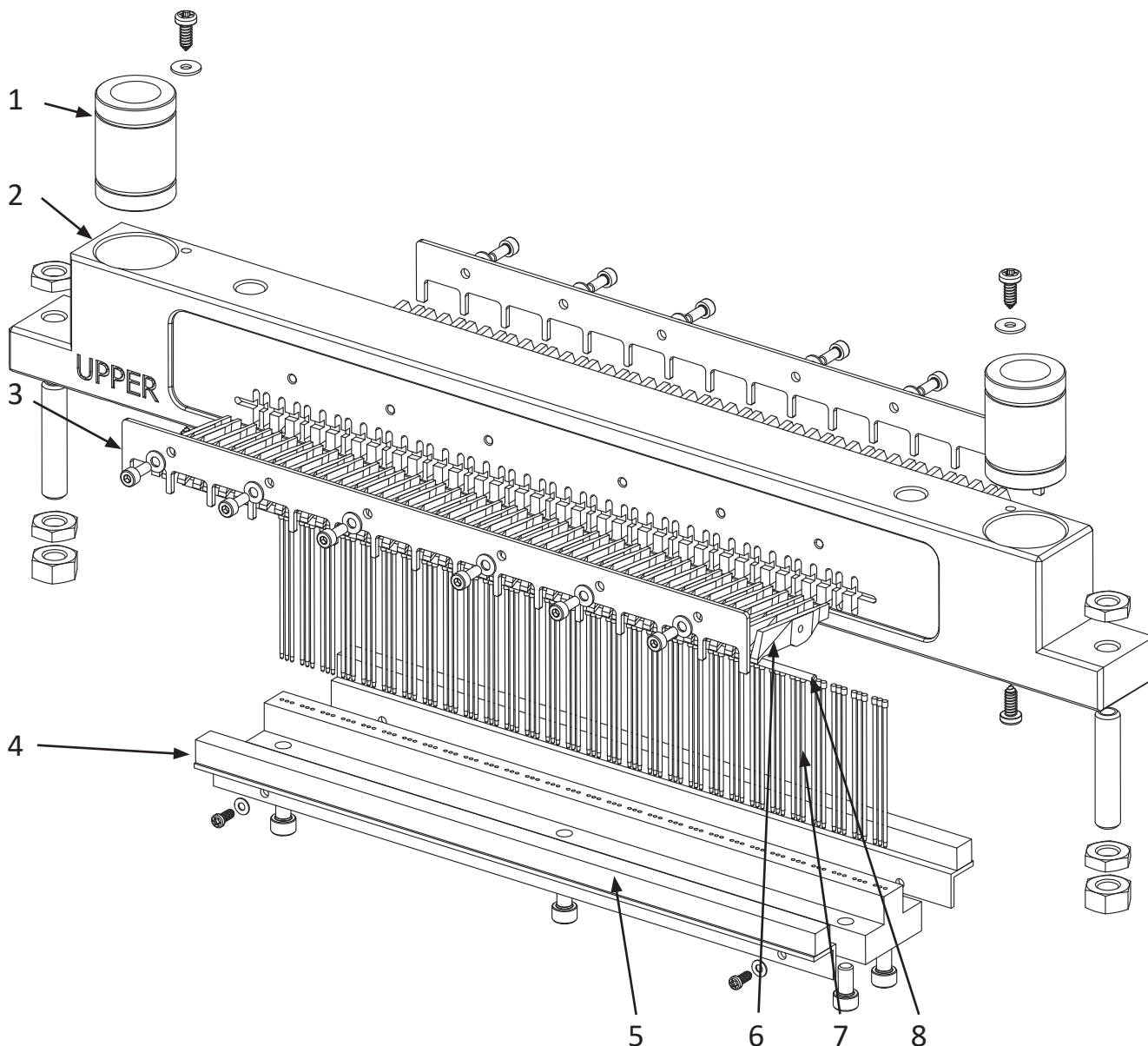
6.1 Magnet rack



SW985-40893, Magnet rack 45 2.1 assembly

Pos.	Part no.	Name	Quantity per. rack
1	60-60373	Magnet rack board 45 2.1	1
2	B3985-30191	Magnet ver. 3, 2600 turn, tested	45
3	SW985-40882	Magnet rack 45	1
4	SW985-40886	Support list, magnet rack 45	1
5	SW985-40885	Sponge 5x5 with plate M.rack 45	1
6	B3985-40690	Pivot arm, Long, type F, Green	45
7	SW985-40881	Guide list 45 for pivot arms	1
8	SW985-40815	Shaft $\varnothing 3 \times 309$ H6, long pivot arm	1

6.2 Beam

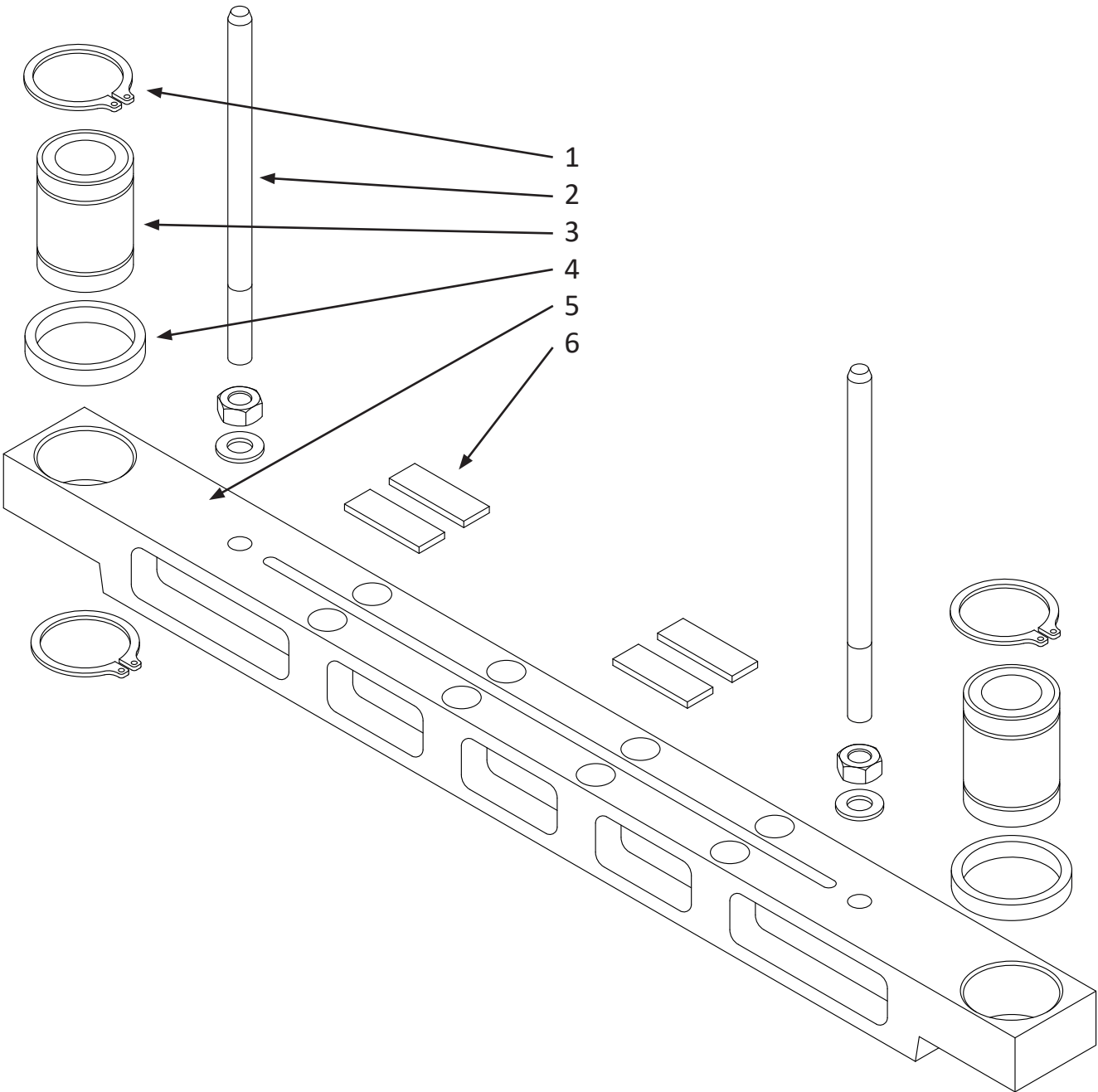


SW985-40819, Beam upper assembly

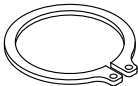
SW985-40810, Beam lower assembly

Pos.	Part no.	Name	Quantity per. beam
1	MA500-50001	Linear bearing $\varnothing 20$ LME-20UU	2
2	SW985-40811	Beam, Upper 45	1
2	SW985-40812	Beam, Lower 45	1
3	SW985-40813	Fastener for short pivot arm shaft	2
4	SW985-40817	Sponge 10x10 w holder, Beam 45	2
5	60-65628	Pin guide 45	1
6	B3985-4016E	Pivot arm, Short, type E, Green	90
7	B3985-40150	Printing pin, length = 64.5 mm	90
8	SW985-40815	Shaft $\varnothing 3 \times 309$ H6, long pivot arm	2

6.3 Paper shoe

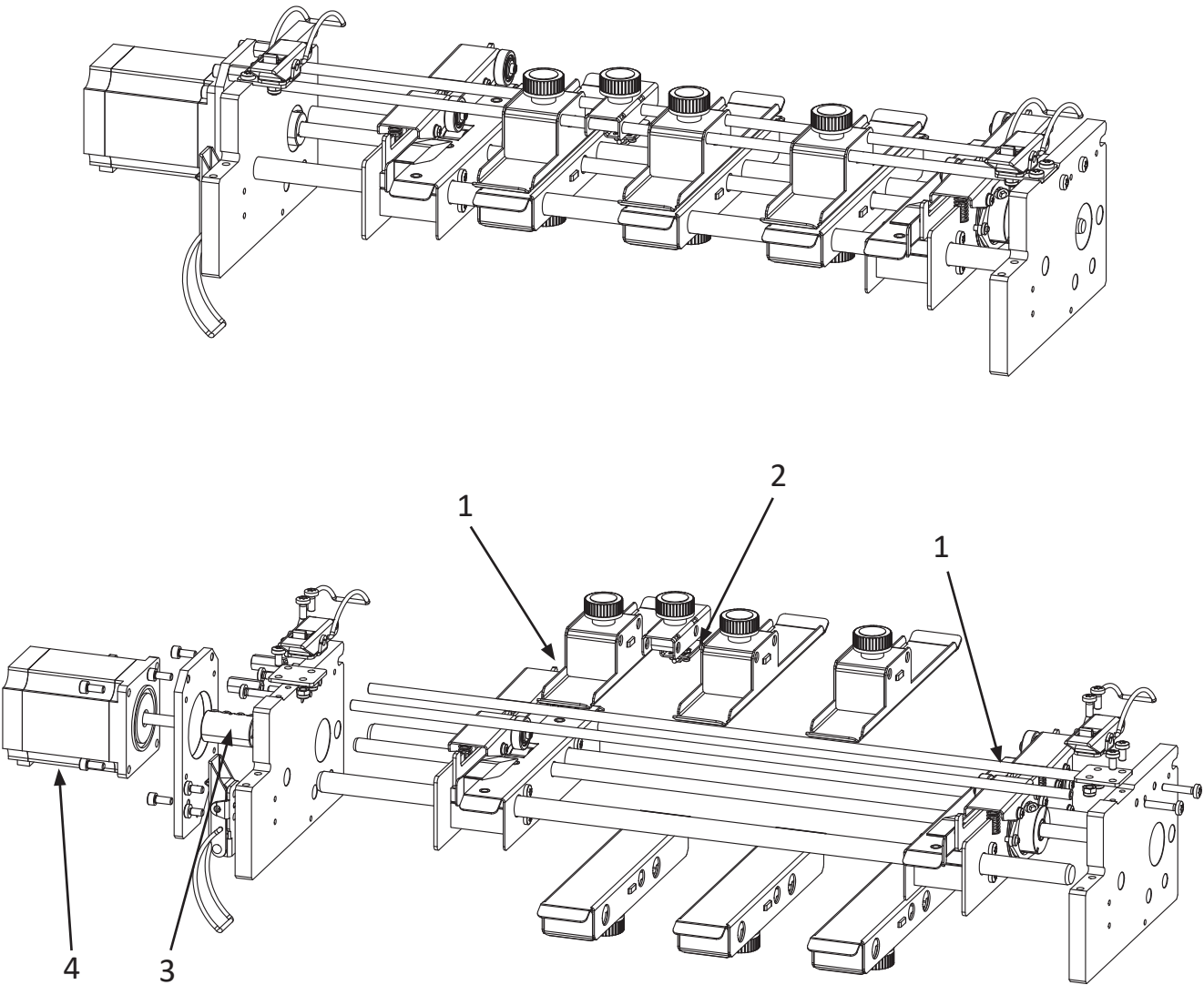


60-65629, Paper shoe Upper w bearings 45, assembly
60-65630, Paper shoe Lower w bearings 45, assembly



Pos.	Part no.	Name	Quantity per. shoe
1	MA510-10003	Retainer Spring A32 DIN 417	4
2	B3985-40720	Push rod, paper shoes ø8x140mm	2
3	MA500-50001	Linear bearing ø20 LME-20UU	2
4	B3985-40913	Spacer ø40 for linear bearings	2
5	60-65627	Paper shoe upper 45	1
5	60-65626	Paper shoe lower 45	1
6	B3985-40722	Plastic shims	4

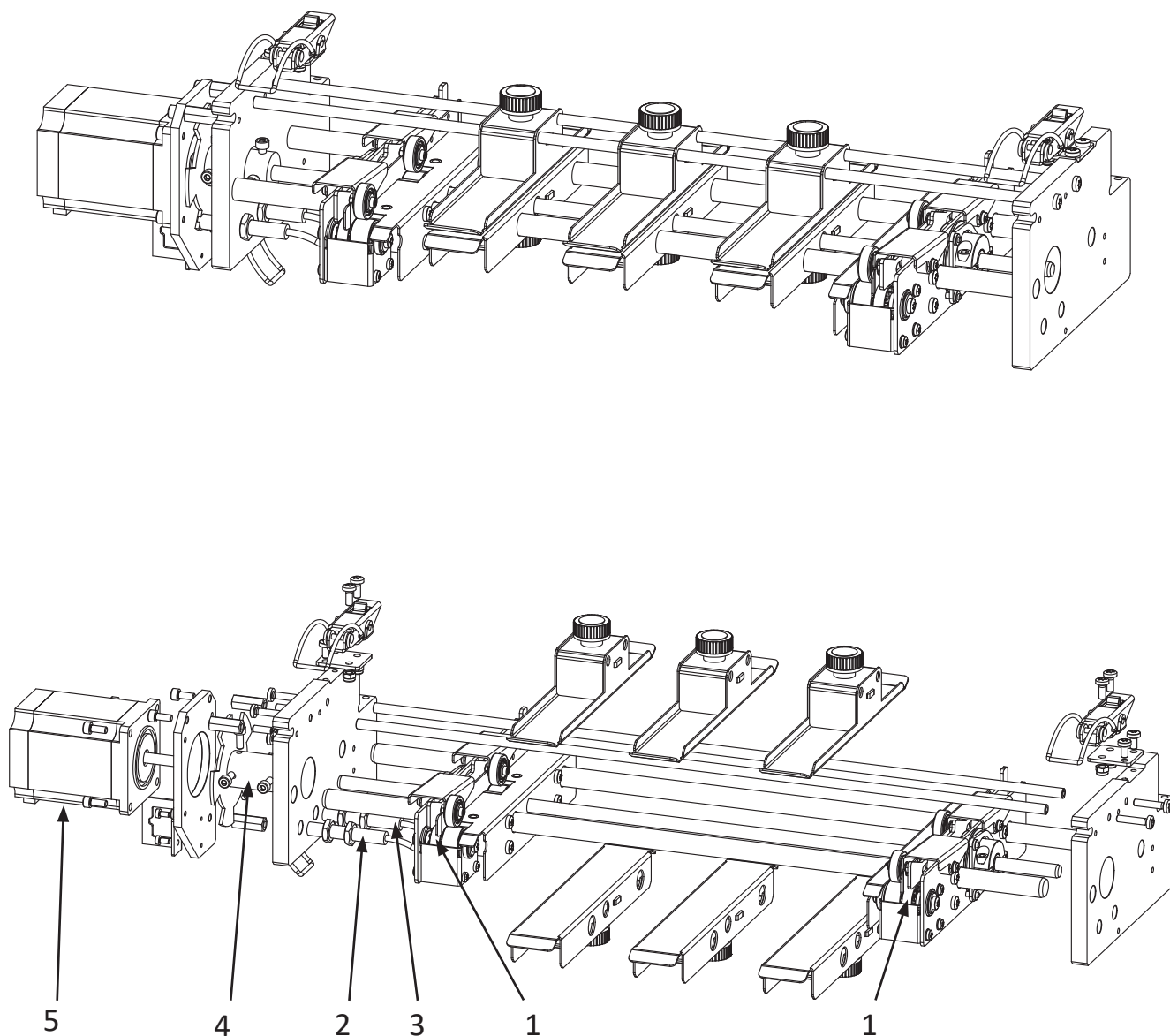
6.4 Input paper feeder



40-76200, Input feeder CS2, assembly

Pos.	Part no.	Name	Quantity
1	MA505-20011	Timing belt 6T5/215 (not visible in the figure)	2
2	10-64562	Paper sensor 85 cm S2.1	1
3	40-76363	Shaft coupling $\varnothing 6.35 - \varnothing 8$	1
4	EA185-00025	Stepper motor	1

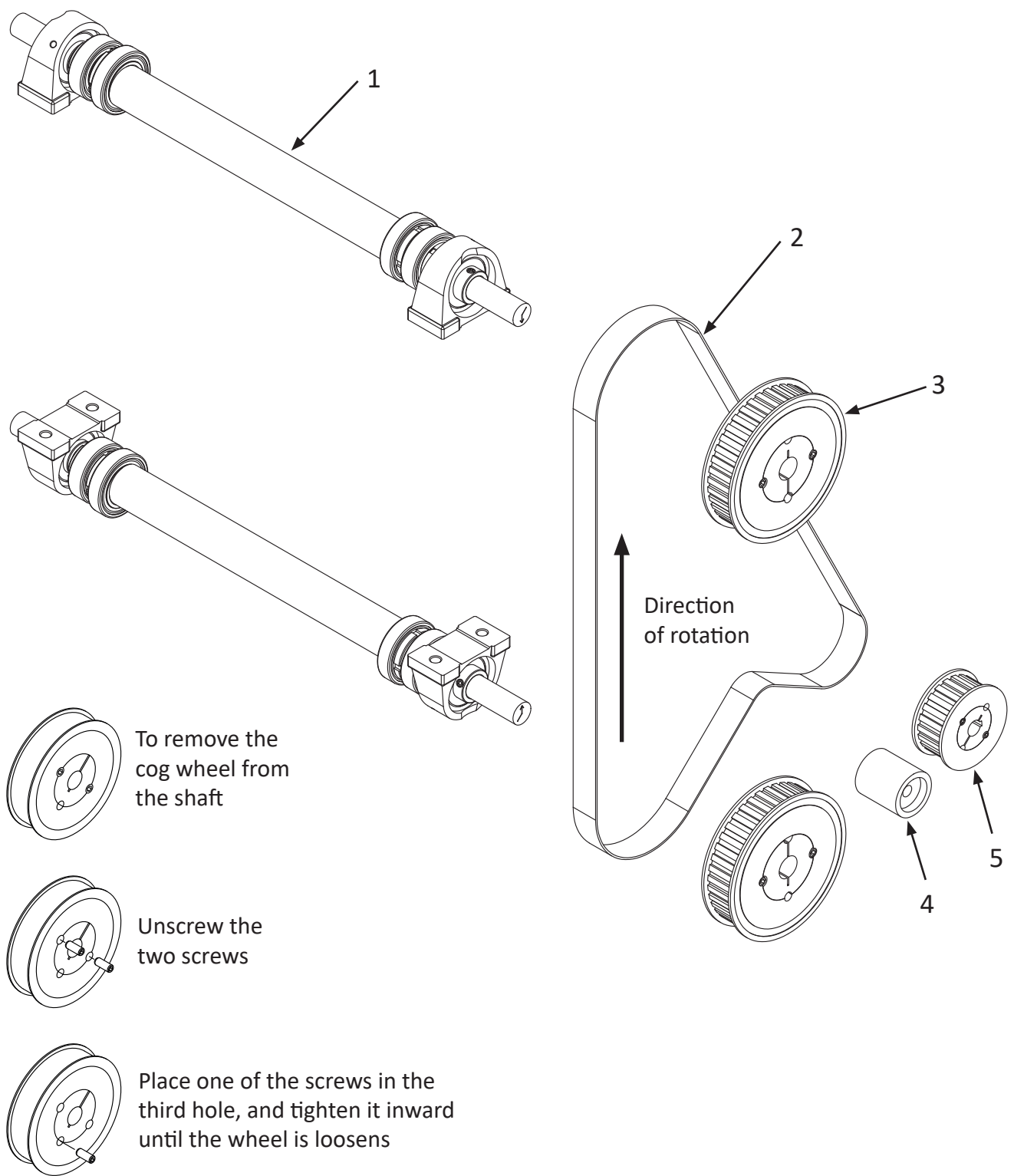
6.5 Output paper feeder



40-76201, Output feeder CS2, assembly

Pos.	Part no.	Name	Quantity
1	MA505-20011	Timing belt 6T5/215	2
2	10-61966	Paper feed sensor no. 1	1
3	10-61967	Paper feed sensor no. 2	1
4	60-51250	Timing wheel with hub	1
5	EA185-00025	Stepper motor	1

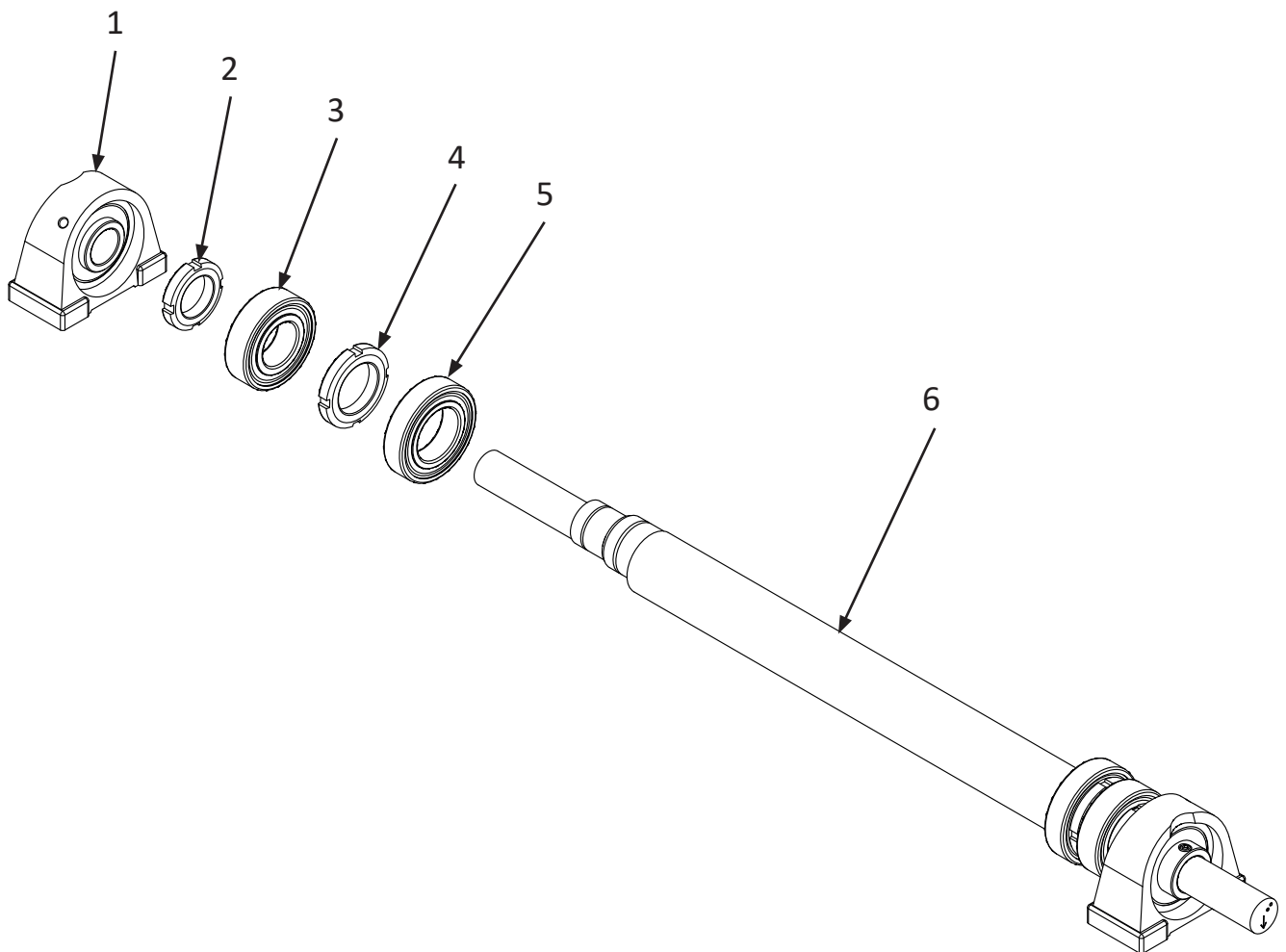
6.6 Shafts, belt



Parts shaft, belt

Pos.	Part no.	Name	Quantity
1	60-65623	Main shaft with bearings 45	2
2	MA505-20003	Belt 540 L100	1
3	MA505-10004	Cog wheel 40 L100	2
4	MA505-40001	Tensioning roller R-15/18	1
5	MA505-20008	Cog wheel 22 L100	1

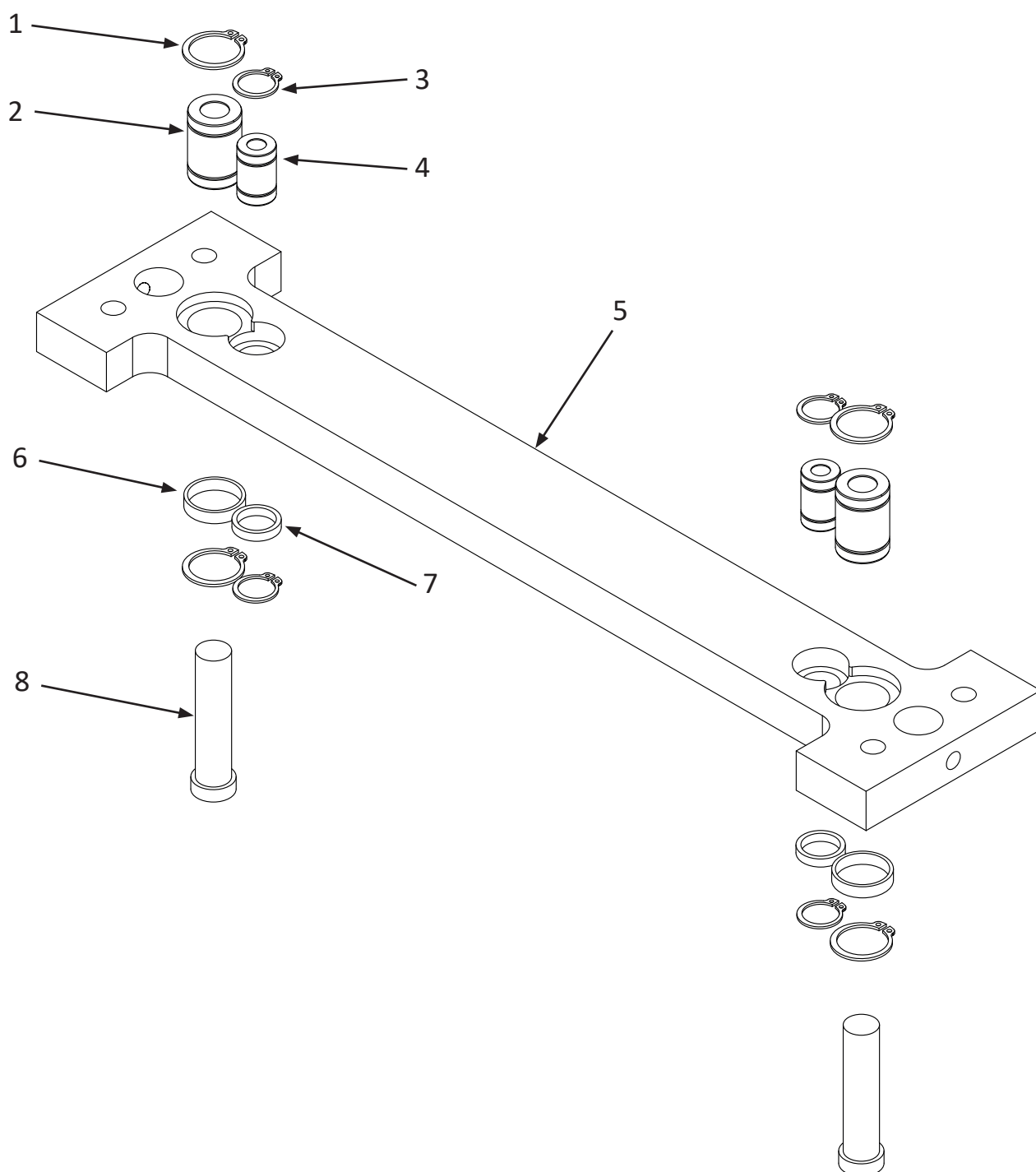
Shaft, exploded view



60-65623, Main shaft w bearings 45, assembly

Pos.	Part no.	Name	Quantity per. shaft
1	MA500-20002	Block bearing UCPA 204 (not part of 60-65623)	2
2	MA443-30001	Nut KM5 M25x1.5	2
3	MA500-10002	Bearing 6205 2Z 25x52x15 (outer eccentrics)	2
4	MA443-30002	Nut KM6 M30x1.5	2
5	MA500-10001	Bearing 6006 2Z 30x55x13 (inner eccentrics)	2
6	60-65620	Main shaft 45	1

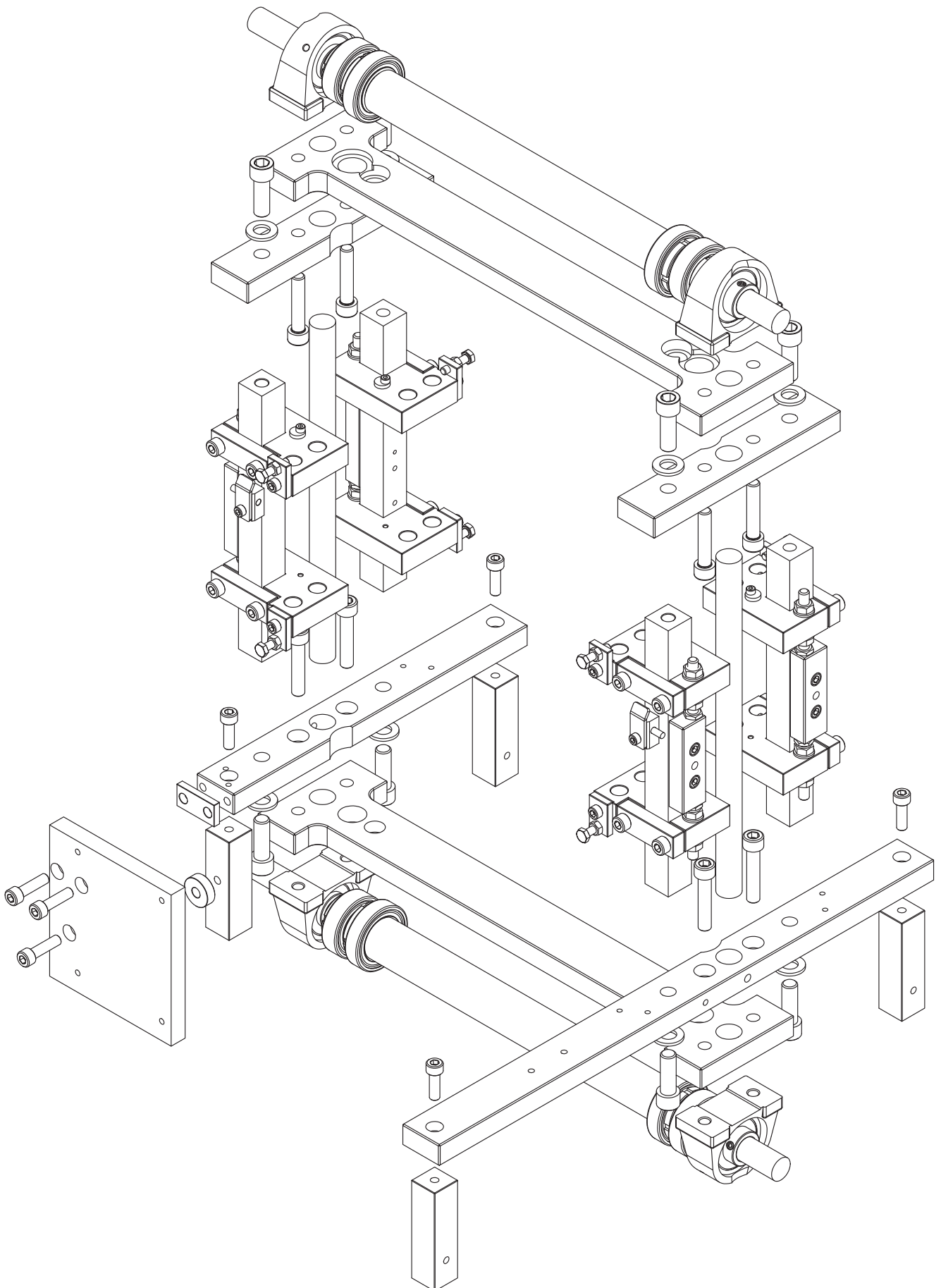
6.7 Top and bottom frame



60-65624, Frame bar 45 with bearings (top and bottom frame), assembly

Pos.	Part no.	Name	Quantity per. frame
1	MA510-10002	Retainer Spring A22 DIN 417	4
2	MA500-50002	Linear bearing $\varnothing 12$ LME-12UU	2
3	MA510-10001	Retainer Spring A16 DIN 417	4
4	MA500-50003	Linear bearing $\varnothing 8$ LME-8UU	2
5	60-65621	Frame bar 45	1
6	B3985-40912	Spacer $\varnothing 25$ for linear bearings	2
7	B3985-40911	Spacer $\varnothing 20$ for linear bearings	2
8	10-60032	Push rod $\varnothing 12 \times 56$ Ceramic (not part of 60-65624)	2

Frame, complete



7. CS2 SHEET FEEDER

7.1 Description of function

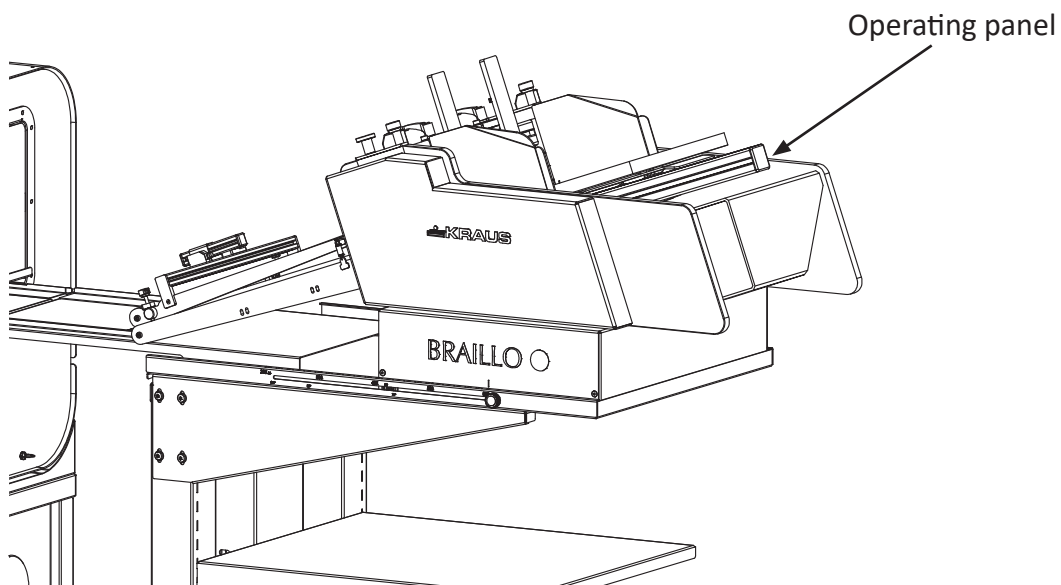
The main function of the sheet feeder is to pull one sheet at a time from a stack of paper and send the sheet to the printer when requested. At the same time, it pulls out the next sheet and places it in the output belts, ready to be ejected.

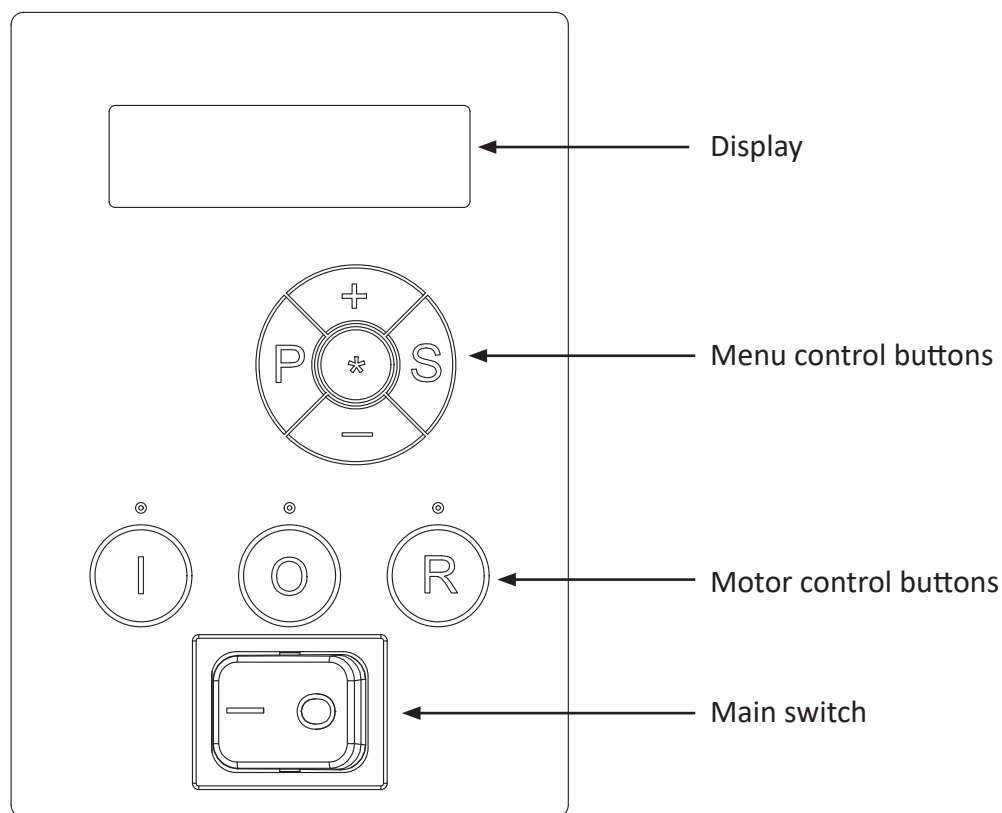
7.2 Operating the Sheet feeder

This chapter describes the basic functions of the Kraus Sheet feeder.

For more detailed information on usage and troubleshooting, refer to the Kraus Sheet feeder manual.

7.3 Sheet feeder operating panel





The main switch turns the unit on or off but can normally be left in the “On” position, as the power is controlled by the printer.

The everyday operation of the sheet feeder is carried out using the motor control buttons:

- Green button, marked “I”: Starts sheet feeding. The first sheet moves forward to the sensor and waits for the “new sheet” signal from the printer. The LED lights up while running.
- Red button, marked “O”: Stops sheet feeding. The LED lights up when the feeder is stopped.
- Yellow button, marked “R”: Used to reset internal error messages in the sheet feeder. The orange LED lights up when an error is present.

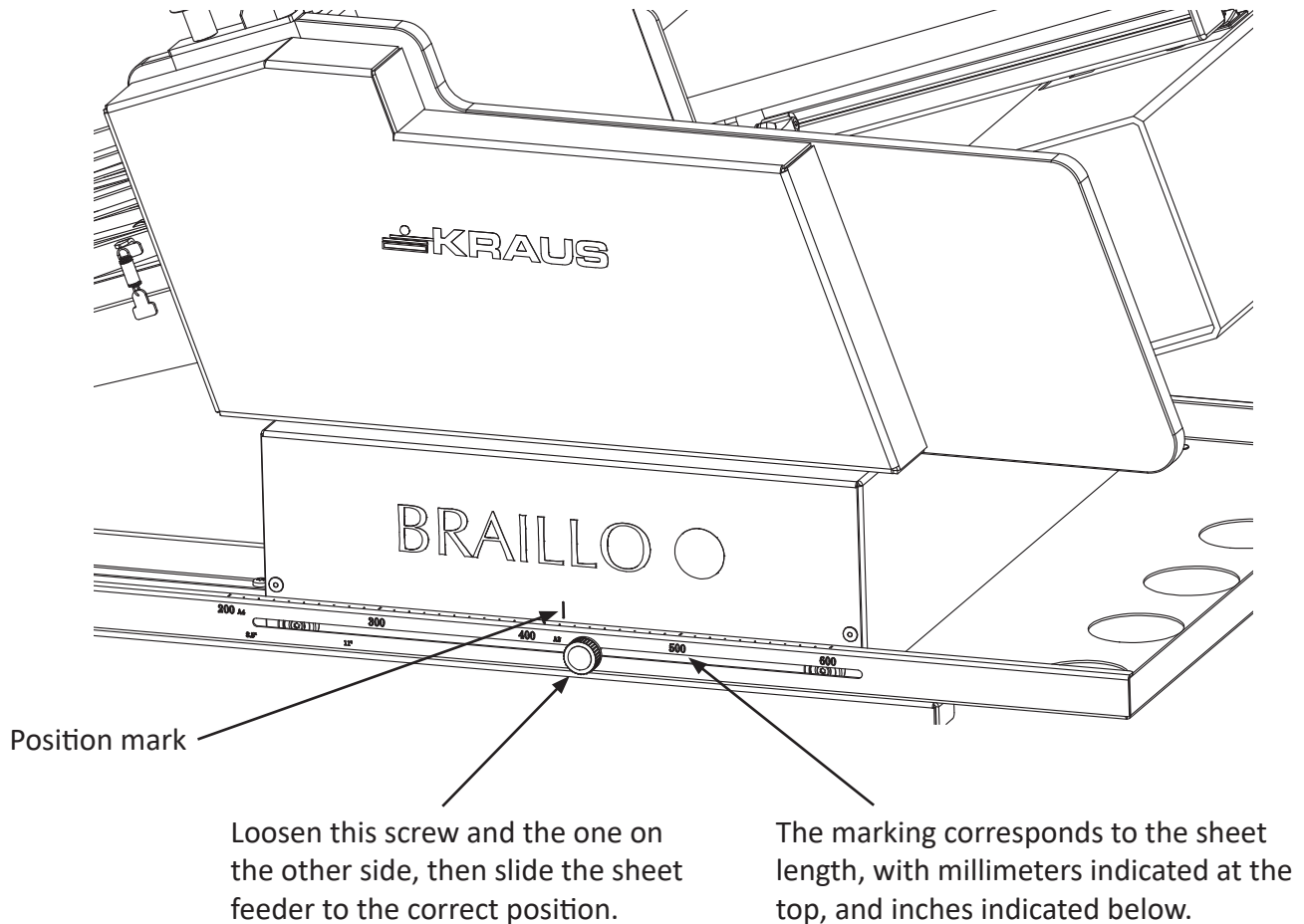
7.4 Setting the sheet length on the sheet feeder

There are two adjustments that must be made when changing the sheet length.

By sheet length, we mean the length measured along the paper in the direction of travel.

First, set the sheet length (product length) in the parameter setting of the Kraus feeder.

Second, adjust the position of the sheet feeder physically, as described below.



The correct distance between the sheet feeder and the printer is achieved when the ejected sheet just reaches the friction rollers that pull the sheet into the printer, while at the same time being released from the belts on the sheet feeder.

If you experience problems with this, experiment with small adjustments forward or backward.

7.5 Inserting paper in the sheet feeder

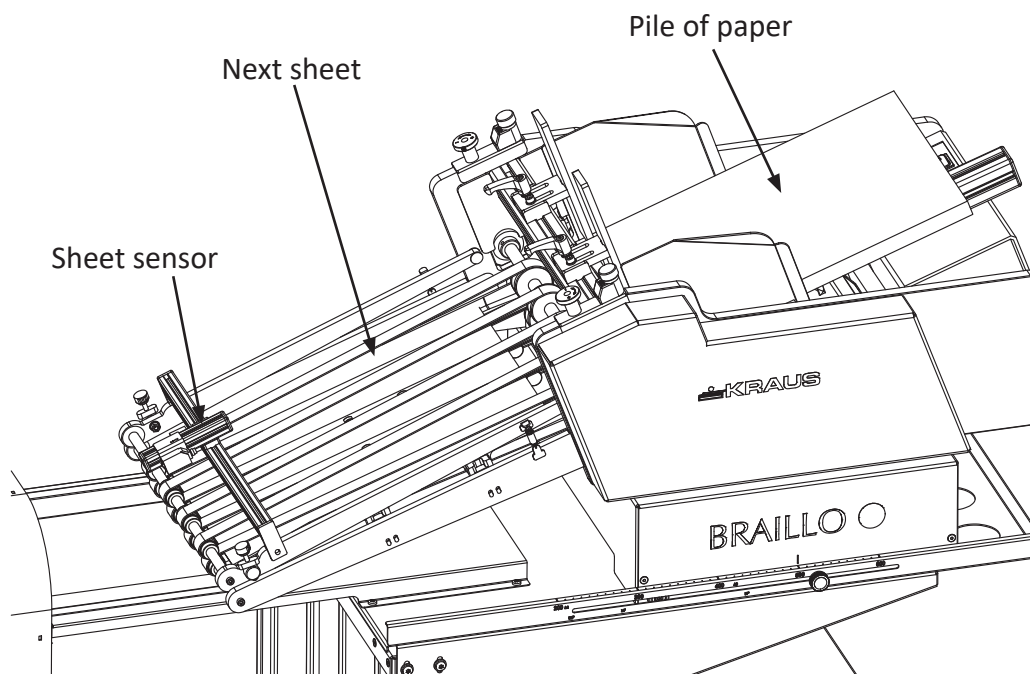
If the sheet feeder is not set to the correct sheet format, it must be adjusted. This mainly involves adjusting the width of the guides and belts, as well as the sheet thickness. See the Kraus sheet feeder manual for the adjustment procedure.

Loading paper:

Place the stack of paper in the tray of the correctly adjusted sheet feeder.

Press the green start button, and the first sheet will be pulled from the bottom of the stack. The sheet will move forward until it reaches the sensor near the end of the belts. The feeding will then stop, and the sheet feeder will wait for a signal from the printer to eject the sheet.

Depending on the sheet length, more than one sheet may be queued in the output belts.



7.6 Correcting errors on the sheet feeder

If the sheet feeder detects an error, for example an out of paper condition or a paper jam, it will stop feeding. The orange indicator next to the yellow button on the operator panel will light up.

You should then:

- Check the display for the error message
- Identify the issue
- Correct the issue
- Press the yellow reset button
- Press the green start button

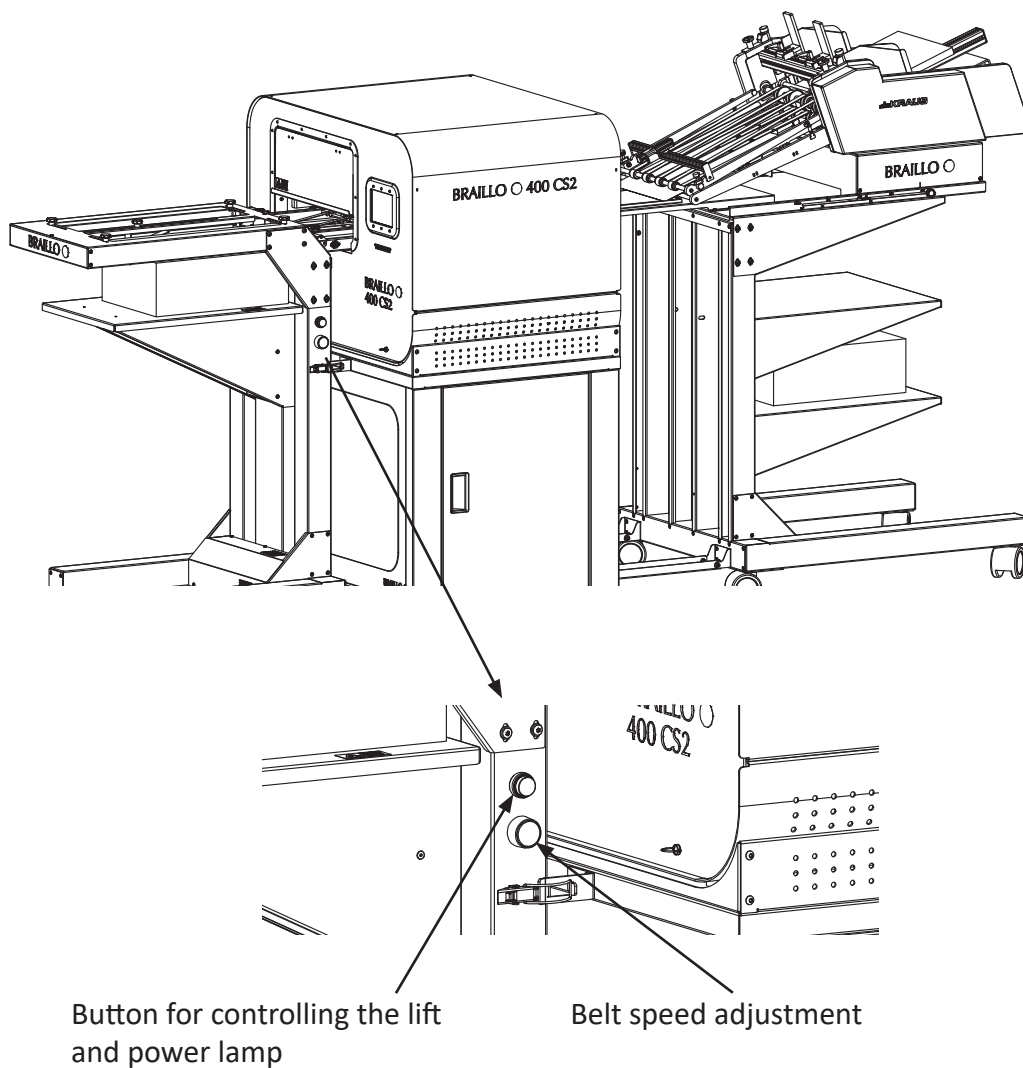
8. CS2 STACKER

8.1 Description of functions

The main function of the CS2 Stacker is to receive printed sheets from the printer and push the sheets into the flippers. When a sheet reaches the flipper sensor, the flippers open, and the sheet falls onto the stack. If, for any reason, the sheet does not reach the flipper sensor within the specified time, the printer will stop and display the error message "Paper jam".

As sheets are added to the top of the stack, the paper shelf moves downward accordingly, maintaining a constant distance below the flippers. If the shelf reaches its lower limit, the printer will stop and display the error message "Stacker is Full".

In both situations, the green power lamp will flash to indicate an error situation.



8.2 Operating the CS2 Stacker

- Lift control

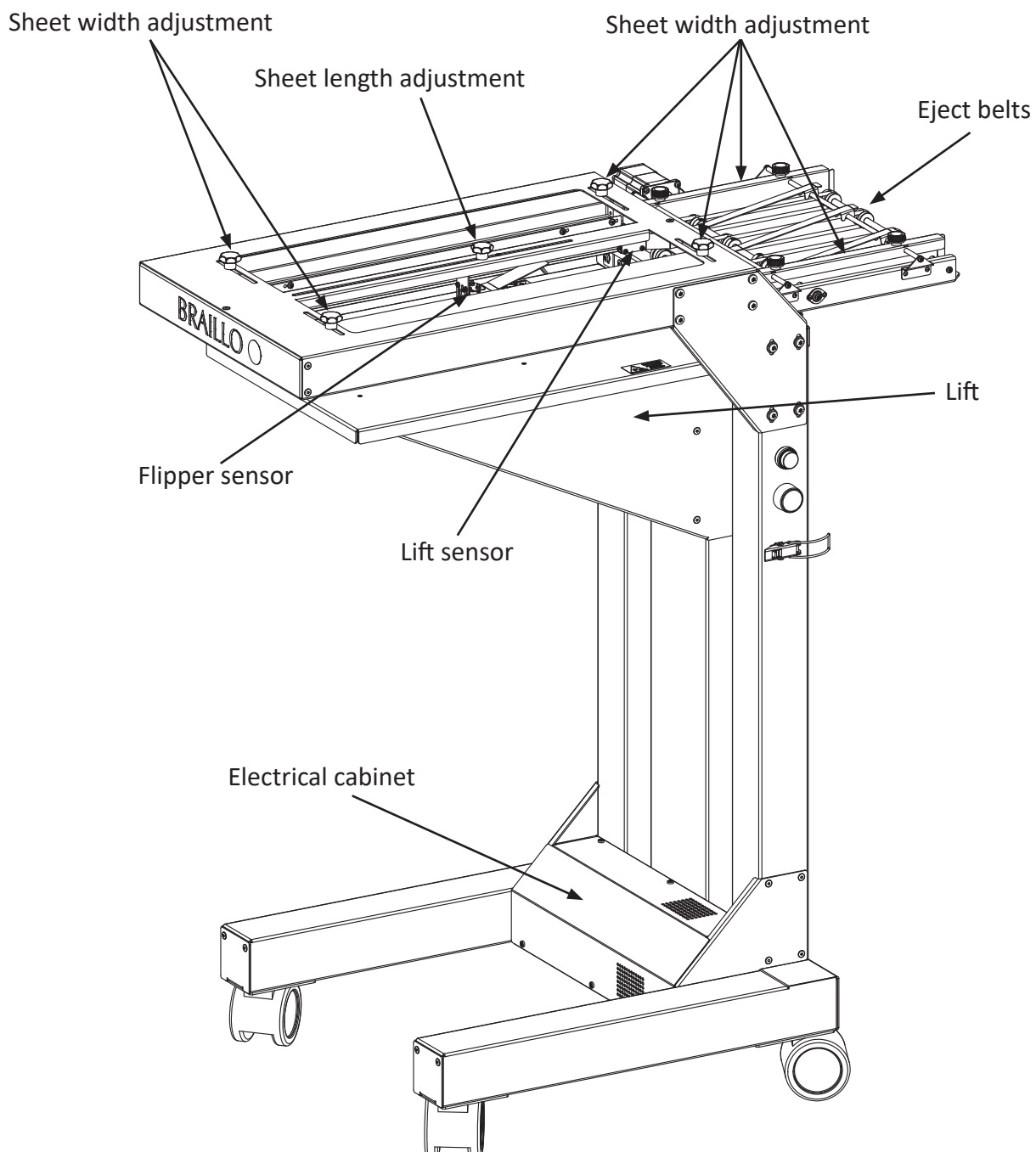
When the stack of printed material is removed from the lift, you can press this button to return the lift to its starting position. If the button is held for more than three seconds, the lift will move downward.

- The green button indicator:

- Steady light = Power is on, everything is functioning correctly
- Flashing light = An error has been detected, either in the stacker itself or in the sheet feeder.
See the printer operating panel for details.

- Eject belt speed adjustment

The speed of the eject belts can be adjusted here. It is recommended to adjust the speed so that the sheets have sufficient velocity to slide into the flippers and reach the flipper sensor.



9. TECHNICAL SPECIFICATIONS

9.1 Technical specifications

Format

Sheet width:	(Top to bottom) Min. 150 mm (5.9 inches), max. 330 mm (13 inches)
Sheet length:	(Left to right) Min. 200 mm (16.4 inches), max. 585 mm (23 inches)
Line length:	Min. 10, max. 44 characters
Printing mode:	Single or Inter point
Margins:	Inner and Outer, min. 12.7, max. 50.8 mm (0.5 - 2 inches)
Page height:	Max. 30 lines per page
Braille cell:	Standard medium 6-dot
Line spacing:	Fixed at 5 mm
Paper weight:	Min. 120 g/m ² - max. 180 g/m ² , Recommended 150 g/m ²

Printing Speed

Characters/sec.:	Up to 400 char/sec.
Pages/hour:	The numbers of pages per hour depends on the page format

Electrical

Voltage:	Single phase 230 V (± 10%), 50/60 Hz
Current:	Approx. 4.3 A max.
Power:	Approx. 1000 W max.
Fuse in printer:	10 AT
Leakage current:	4.6 mA

Communication

USB
Ethernet
WLAN

Environment

Temperature:	15° - 30°C (60° - 86°F)
Relative humidity:	40 - 60%

Measurements

Height:	1552 mm
Width:	912 mm
Length:	2993 mm
Weight:	345 kg

9.2 Escape-sequences

What is an escape-sequence?

An escape sequence is a command sent from the computer to the printer to change the parameters that control how the printer operates. All parameters that can be set via the operating panel can also be changed using escape sequences.

This makes it possible to store different commands (escape sequences) within a document. When the document is sent to the printer, these commands are sent first, allowing the printer to automatically configure the correct mode and format.



Note! When the printer receives an escape sequence, it has priority. This means that, regardless of previous settings or the operating panel configuration, the most recent escape sequence takes precedence.



Note! Escape sequences should be placed at the beginning of the first page on the sheet. However, a software form feed can be placed where needed. Commands on other pages will be ignored.

All page formatting applied on the front page will also be applied to the back of the same sheet.

An overview of the different escape-sequences:

ESC A n	- Sheet Width	n can be 0 (2-page mode) or 1 (4-page mode).
ESC B nn	- Line length	nn can be from 10 to 44 characters.
ESC D nn	- Margin 1	nn can be from 0.5" to 2.0"
ESC E nn	- Margin 2	nn can be from 0.5" to 2.0"
ESC G n	- Page 1 up or down	n can be 0 (page 1 up) or 1 (page 1 down).
ESC H n	- Print format	n can be 0 (single-sided) or 1 (interpoint).
ESC P nn	- No. of sheets	nn can be from 01 to 99 sheets
ESC 0	- Soft reset	
ESC 1	- Soft form feed	
ESC 4	- Add the printer ID on the last line on the sheet	



Note! The escape sequences are executed immediately if the printer is not running. If the printer is running, the escape sequences are processed in the order they appear in the document and will be executed when the corresponding page is printed.

Also note that any page formatting command must be placed on the front page of a sheet. The command will then affect both the front and back of the sheet (i.e. one sheet). If page formatting commands are placed on the back page, they will be ignored.

Please see the explanations below for how to combine different values to form the various escape sequences.

Sheet Width

ESC A n - Sheet width.

n can be 0 or 1, 2-page mode (0) or 4-page mode (1).

Page mode	ASCII	HEX
2-page	027 065 048	1B 41 30
4-page	027 065 049	1B 41 31

Default is 4-page.

35	027 066 051 053	1B 42 33 35
36	027 066 051 054	1B 42 33 36
37	027 066 051 055	1B 42 33 37
38	027 066 051 056	1B 42 33 38
39	027 066 051 057	1B 42 33 39
40	027 066 052 048	1B 42 34 30
41	027 066 052 049	1B 42 34 31
42	027 066 052 050	1B 42 34 32
43	027 066 052 051	1B 42 34 33
44	027 066 052 052	1B 42 34 34

Default is 42 characters per. line.

Line length

ESC B nn - Line length.

nn can be from 10 to 44 characters.

Char	ASCII	HEX
10	027 066 049 048	1B 42 31 30
11	027 066 049 049	1B 42 31 31
12	027 066 049 050	1B 42 31 32
13	027 066 049 051	1B 42 31 33
14	027 066 049 052	1B 42 31 34
15	027 066 049 053	1B 42 31 35
16	027 066 049 054	1B 42 31 36
17	027 066 049 055	1B 42 31 37
18	027 066 049 056	1B 42 31 38
19	027 066 049 057	1B 42 31 39
20	027 066 050 048	1B 42 32 30
21	027 066 050 049	1B 42 32 31
22	027 066 050 050	1B 42 32 32
23	027 066 050 051	1B 42 32 33
24	027 066 050 052	1B 42 32 34
25	027 066 050 053	1B 42 32 35
26	027 066 050 054	1B 42 32 36
27	027 066 050 055	1B 42 32 37
28	027 066 050 056	1B 42 32 38
29	027 066 050 057	1B 42 32 39
30	027 066 051 048	1B 42 33 30
31	027 066 051 049	1B 42 33 31
32	027 066 051 050	1B 42 33 32
33	027 066 051 051	1B 42 33 33
34	027 066 051 052	1B 42 33 34

Margin 1

ESC D nn - Margin 1.

nn can be from 0.5" to 2.0"

Margin 1	ASCII	HEX
0.5"	027 068 048 053	1B 44 30 35
0.6"	027 068 048 054	1B 44 30 36
0.7"	027 068 048 055	1B 44 30 37
0.8"	027 068 048 056	1B 44 30 38
0.9"	027 068 048 057	1B 44 30 39
1.0"	027 068 049 048	1B 44 31 30
1.1"	027 068 049 049	1B 44 31 31
1.2"	027 068 049 050	1B 44 31 32
1.3"	027 068 049 051	1B 44 31 33
1.4"	027 068 049 052	1B 44 31 34
1.5"	027 068 049 053	1B 44 31 35
1.6"	027 068 049 054	1B 44 31 36
1.7"	027 068 049 055	1B 44 31 37
1.8"	027 068 049 056	1B 44 31 38
1.9"	027 068 049 057	1B 44 31 39
2.0"	027 068 050 048	1B 44 32 30

Default is 1.0".

Margin 2

ESC E nn - Margin 2.
nn can be from 0.5" to 2.0"

Margin 1	ASCII	HEX
0.5"	027 069 048 053	1B 45 30 35
0.6"	027 069 048 054	1B 45 30 36
0.7"	027 069 048 055	1B 45 30 37
0.8"	027 069 048 056	1B 45 30 38
0.9"	027 069 048 057	1B 45 30 39
1.0"	027 069 049 048	1B 45 31 30
1.1"	027 069 049 049	1B 45 31 31
1.2"	027 069 049 050	1B 45 31 32
1.3"	027 069 049 051	1B 45 31 33
1.4"	027 069 049 052	1B 45 31 34
1.5"	027 069 049 053	1B 45 31 35
1.6"	027 069 049 054	1B 45 31 36
1.7"	027 069 049 055	1B 45 31 37
1.8"	027 069 049 056	1B 45 31 38
1.9"	027 069 049 057	1B 45 31 39
2.0"	027 069 050 048	1B 45 32 30

Default is 1.0".

Number of sheets

ESC P nn - Number of sheets
nn can be 01 to 99 sheets.

Sheets	ASCII	HEX
01	027 080 048 049	1B 50 30 31
02	027 080 048 050	1B 50 30 32
03	027 080 048 051	1B 50 30 33
04	027 080 048 052	1B 50 30 34
05	027 080 048 053	1B 50 30 35
06	027 080 048 054	1B 50 30 36
07	027 080 048 055	1B 50 30 37
08	027 080 048 056	1B 50 30 38
09	027 080 048 057	1B 50 30 39
10	027 080 049 048	1B 50 31 30
11	027 080 049 049	1B 50 31 31
12	027 080 049 050	1B 50 31 32
13	027 080 049 051	1B 50 31 33
14	027 080 049 052	1B 50 31 34
15	027 080 049 053	1B 50 31 35
16	027 080 049 054	1B 50 31 36
17	027 080 049 055	1B 50 31 37
18	027 080 049 056	1B 50 31 38
19	027 080 049 057	1B 50 31 39
20	027 080 050 048	1B 50 32 30

Page 1 up or down

ESC G n - Page 1 up/down.
n can be 0 (up) or 1 (down).

Page 1	ASCII	HEX
Up	027 071 048	1B 47 30
Down	027 071 049	1B 47 31

Default is Page 1 Up.

Print Format

ESC H n - Print Format.
n can be 0 (single-sided) or 1 (interpoint).

Print Format	ASCII	HEX
Single-sided	027 072 048	1B 48 30
Double-sided	027 072 049	1B 48 31

Default is Double-sided.

Software Reset

ESC 0 - Soft Reset.

This command is used to reset the printer. It is sent from the computer and has the same effect as pressing the RESET PRINTER button. The Software Reset should be used with caution. If the printer has not finished printing, the remaining text in the buffer will be lost, and the printer will assume a new paper position. For this reason, the command should only be used after a software form feed has been executed and the printer has come to a complete stop.

	ASCII	HEX
Software Reset	027 048	1B 30

Software Form Feed

ESC 1 - Soft Form Feed.

This command should be used after all text in one volume has been transmitted to the printer. If the printer receives text corresponding to fewer than two pages, or an odd number of pages, and this is not followed by a form feed (FF) on the last page, the printer will wait for additional text or an FF command. As a result, the last page may remain in the printer. This behavior is due to the printer's double-sided printing process. The command forces the printer to print the remaining text. After execution, the paper position will be the same as it was before the current volume of text was started. This ensures that page 1 of the next volume begins in the correct position. There will always be at least one blank sheet between volumes when each volume is completed with a software form feed.

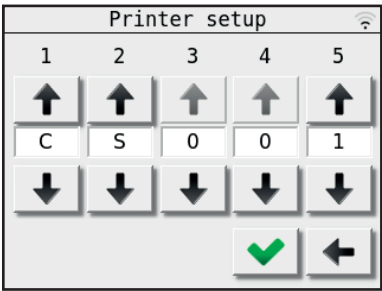
	ASCII	HEX
Software Form Feed	027 049	1B 31

Print Printer ID

ESC 4 - Adding the printer ID.

When multiple braille printers are used to produce the same material, it may be difficult to determine which printer produced a specific book. To address this, it is possible to add a printer ID to the last line of a sheet. Regardless of where the escape sequence is placed on the page, the ID will always be printed on the last line. This means that if the escape sequence is included on the last page of each print job, the printer ID will be printed on the last line of the final page. The printer ID is a 5-digit code that must be set in the menu:
Main menu – printer setup – printer ID.

See the figure below.



9.3 Warranty

This product leaves the factory in good working condition, in accordance with the technical specifications and carries a 3-year warranty on parts, valid from the date of delivery from Braillo Norway AS.

Braillo offers an additional 1-year extension to the standard warranty when using Braillo or American Thermoform (ATC) braille paper with your printer. The use of low-quality braille paper can cause excessive wear and tear on the printer, leading to premature failure of parts. Using Braillo or ATC's specially formulated braille paper helps minimize these risks.

This extends the total warranty to 4 years, or up to 10,700 operating hours, corresponding to approx. 20.8 million braille pages.

The warranty includes:

- Replacement of defective parts.
- Shipping cost for the replacement parts.

The warranty excludes:

- On-site part replacement (labour, travel and accomodation expenses for a service engineer).
- Shipping costs for returning faulty parts back to Braillo Norway AS (see below).
- Product that has been modified (unless authorized by Braillo Norway AS) or not installed or maintained in accordance with Braillo Norway's instructions.
- Customs duties and taxes.
- Incidents involving force majeure (for example, flooding, earthquakes, or similar events causing damage to the product).

If a replacement part is required, send an email to service@braillo.com including the following information:

- Which part is defective (include photos if you are unsure of the correct part number or name).
- Description of the problem (as detailed and accurate as possible).
- Printer model and serial number.
- Hour and sheet counters
- Contact person, including email address and phone number.

Once Braillo receives your request, a response will be provided and the replacement parts will be shipped as soon as possible.

Handling defective parts:

If approval has been given by the service department, it is not necessary to return the defective parts to Braillo Norway AS.

In all other cases, the parts must be returned as soon as possible. If the parts are not received by Braillo Norway AS within 2 months from the date the replacement parts were delivered, the case will no longer be considered a warranty issue, and an invoice will be issued.

9.4 Legal notices

Liability disclaimer

Braillo Norway AS reserves the right to make changes to the product without prior notice in order to improve reliability, function, or design. Braillo Norway AS assumes no liability arising from the use of the product described herein.

All information contained in this document reflects the product at the time of publication. Braillo Norway AS reserves the right to make corrections, enhancements, and other changes to this document without notice. While reasonable care has been taken in preparing this document, it may contain technical inaccuracies, omissions, or typographical errors. Please contact Braillo if you identify any information that requires correction or clarification.

RoHS and REACH statement

Braillo Norway AS products comply with the requirements of Directive 2011/65/EU of the European Parliament and of the Council on the Restriction of Hazardous Substances (RoHS 2) and with the requirements of the REACH regulation (EC 1907/2006) on Registration, Evaluation, Authorization and Restriction of Chemicals.

WEEE

This product must not be disposed of with general household waste. Instead, it must be returned to a designated collection point for the recycling of electrical and electronic equipment.



Copyright notice

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9.5 Declaration of conformity Printer

EU Declaration of Conformity

This Declaration of Conformity is issued under the sole responsibility of the manufacturer.

Manufacturer: Braillo Norway AS

Address: Wessels veg 100
7502 Stjørdal
Norway

Applicable Directive(s):

2014/30/EU	EMC Directive
(EU)2023/1230	Machinery Directive
2014/35/EU	LV Directive
2011/65/EU	RoHS Directive

Object of the Declaration:

Product: Braille printer B400

Model Number: CS2.1

Serial Numbers: 415001

Applied Standards:

Reference and Date	Title of Standard
BS EN 61000-6-4:2019	Electromagnetic compatibility (EMC) – Generic Emissions standard for industrial environments
BS EN 61000-6-2:2019	Electromagnetic compatibility (EMC) – Generic Immunity standard for industrial environments.
BS EN 55035:2017+A11:2020	Electromagnetic compatibility (EMC) – of multimedia equipment – Immunity requirements.
BS EN 55032:2015+A1:2020	Electromagnetic compatibility (EMC) – of multimedia equipment – Emission requirements.
BS EN 62368-1:2020	Audio / video, information and communication technology equipment.

I hereby declare that the object of the declaration complies with all of the applicable Essential Requirements of the Directive(s).

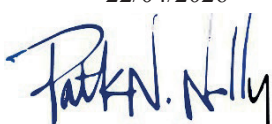
Signed for and on behalf of: Braillo Norway AS

Name: Patrick N. Nunnelly

Position: Managing director

Place of Issue: Wessels veg 100, 7502 Stjørdal, Norway

Date of Issue: 22/04/2026

Signature: 

9.6 Declaration of conformity Stacker

EU Declaration of Conformity

This Declaration of Conformity is issued under the sole responsibility of the manufacturer.

Manufacturer: Braillo Norway AS

Address: Wessels veg 100
7502 Stjørdal
Norway

Applicable Directive(s):

2014/30/EU	EMC Directive
(EU)2023/1230	Machinery Directive
2014/35/EU	LV Directive
2011/65/EU	RoHS Directive

Object of the Declaration:

Product: CS2 Stacker

Model Number: -

Serial Numbers: 555001

Applied Standards:

Reference and Date	Title of Standard
BS EN 61000-6-4:2019	Electromagnetic compatibility (EMC) – Generic Emissions standard for industrial environments
BS EN 61000-6-2:2019	Electromagnetic compatibility (EMC) – Generic Immunity standard for industrial environments.
BS EN 55035:2017+A11:2020	Electromagnetic compatibility (EMC) – of multimedia equipment – Immunity requirements.
BS EN 55032:2015+A1:2020	Electromagnetic compatibility (EMC) – of multimedia equipment – Emission requirements.
BS EN 62368-1:2020	Audio / video, information and communication technology equipment.

I hereby declare that the object of the declaration complies with all of the applicable Essential Requirements of the Directive(s).

Signed for and on behalf of: Braillo Norway AS

Name: Patrick N. Nunnelly

Position: Managing director

Place of Issue: Wessels veg 100, 7502 Stjørdal, Norway

Date of Issue: 22/04/2026

Signature: _____



9.7 Address and phone number

Braillo Norway AS

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7502 Stjørdal
Norway

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Email sales: sales@braillo.com

Web: www.braillo.com