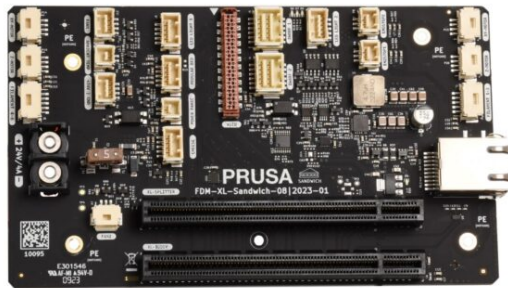


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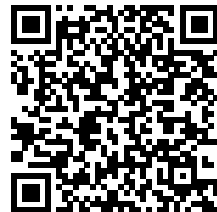
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# How to replace the Sandwich Board (XL)

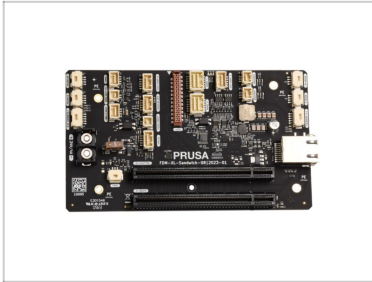


[help.prusa3d.com/g650957](https://help.prusa3d.com/g650957)

Scan the QR code to display the latest version of this chapter.

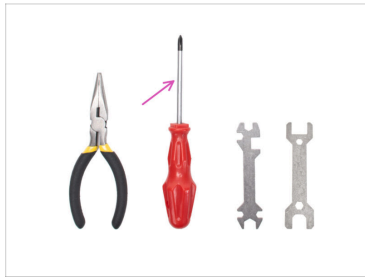
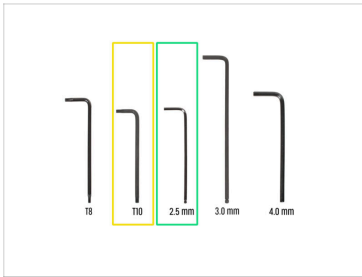


## STEP 1 Introduction



- ◆ This guide will take you through the replacement of the **Sandwich Board** on your **Original Prusa XL**.
- ⓘ The following instructions are compatible with all Original Prusa XL versions.
- ◆ All necessary parts are available in our eshop.
- ⓘ Note that you have to be logged in to have access to the spare parts section.

## STEP 2 Necessary tools



● For the next steps, please prepare:

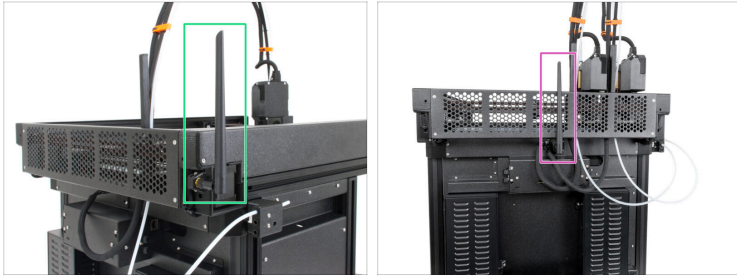
- T10 Torx key / screwdriver
- 2.5 mm Allen key
- Philips (PH2) screwdriver (1x)

## STEP 3 Preparing the printer



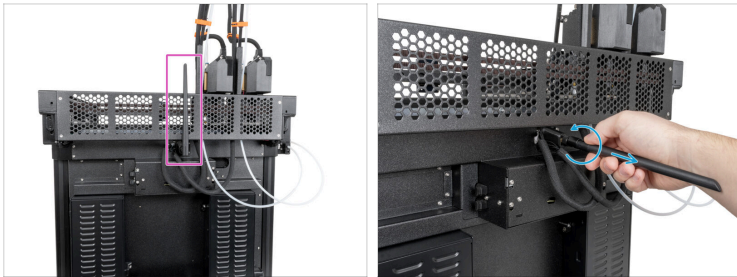
- From the rear side of the printer, turn the power switch OFF (symbol "O").

## STEP 4 Wi-fi antenna holder versions



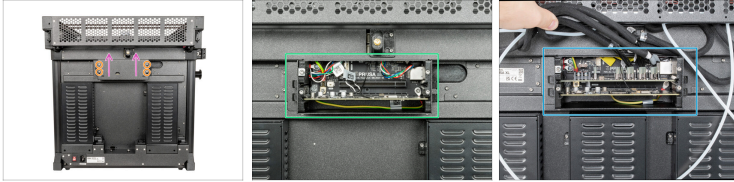
- i** The upcoming steps will vary based on the location of the Wi-Fi antenna on your printer.
- Check the position of the antenna on your printer and follow the corresponding instructions:
    - **Side mount:** If the Wi-Fi antenna is on the left side of the printer (viewed from the front), proceed to Disconnecting the 1st and 2nd Nextruder cables
    - **Rear mount:** If the antenna is located at the top center on the back of the printer, proceed to the next step Detaching the Wi-Fi antenna

## STEP 5 Detaching the rear Wi-Fi antenna



- i** This step is specific to printers equipped with a **Wi-Fi antenna located on the back of the device**. If you have a version of the printer with an antenna on the side, skip this step.
- ◆ Turn the printer, so the back side of the printer is facing you.
  - ◆ Locate the Wi-Fi antenna connector in the middle of the printer.
  - ◆ Loosen the Wi-Fi antenna from the antenna connector and set it aside.

## STEP 6 Removing the electronics cover (rear antenna)



This step is necessary only for printers equipped with a Wi-Fi antenna located on the back of the device.



Turn the printer, so the back side is facing you.



Using a T10 Torx key, loosen four screws securing the electronics cover.



It is not necessary to fully remove the screws.



Remove the electronics cover by sliding it upward.



After open the electronics box, you can see one of the electronics options depending on the variation of your XL printer:

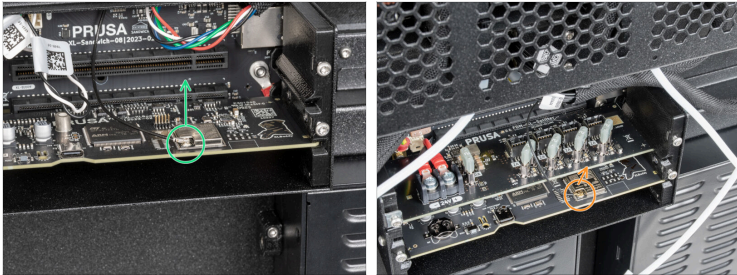


**Single-Tool | Dual-Head** - single board electronics.



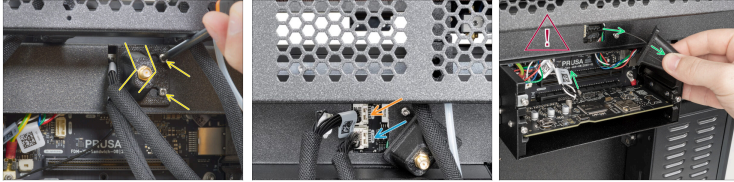
**Five-Head** - there is an extra board for 3rd, 4th and 5th Nextruder cables.

## STEP 7 Disconnecting the antenna cable



- ◆ Locate and carefully unplug the Wi-Fi connector.
- ◆ **Single-Tool | Dual-Head**
- ◆ **Five-Head** - connected on the bottom electronics board.

## STEP 8 Disconnecting the 1st and 2nd Nextruder cables (rear antenna)



Proceed with this step for the printer version with rear antenna. If your printer has the antenna on the side, skip to step 8.



**Be careful, do not damage the Wi-Fi antenna cable.**



**Each connector has a safety latch. It is necessary to press the latch before disconnecting. Otherwise, the connector may get damaged.**



Loosen the two screws on the cover slightly. There's no need to completely remove them. Slide the cover to the right and take it off from the printer.



Push the safety latch and disconnect the first Nextruder cable from the upper slot labeled DWARF 1.

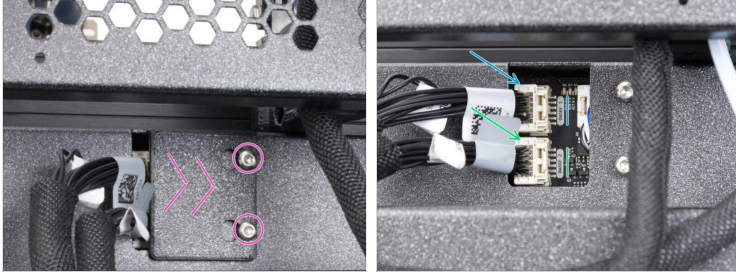



Push the safety latch and disconnect the second Nextruder cable from the lower slot labeled DWARF 2.







Push the cover to the right and remove it from the printer.

## STEP 9 Disconnecting the 1st and 2nd Nextruder cables (side antenna)

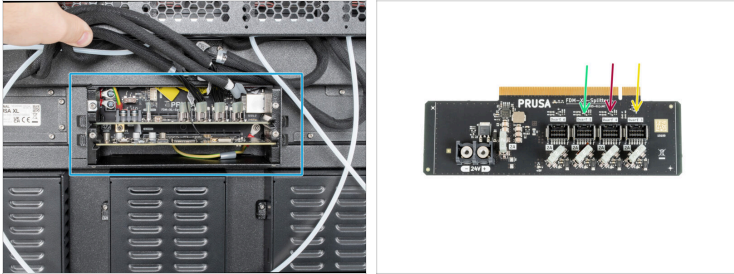


 Proceed with this step for the printer version with the side antenna. **If you have removed the antenna on the back of the printer**, go to Disconnecting the 3rd, 4th, 5th Nextruder cables (five-tool).

 **Each connector has a safety latch. It is necessary to press the latch before disconnecting. Otherwise, the connector may get damaged.**

-  Loosen the two screws on the cover slightly. There's no need to completely remove them. Slide the cover to the right and take it off from the printer.
-  Push the safety latch and disconnect the first Nextruder cable from the upper slot labeled DWARF 1.
-  Push the safety latch and disconnect the second Nextruder cable from the lower slot labeled DWARF 2.

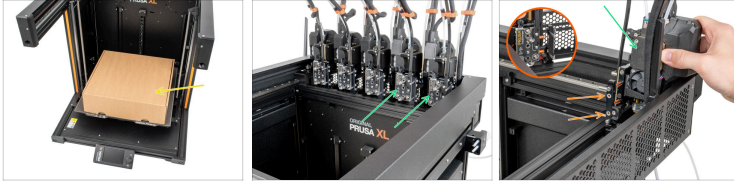
## STEP 10 Disconnecting the 3rd, 4th, 5th Nextruder cables (five-tool)



**⚠ This step is intended for the XL Five-Head only.**

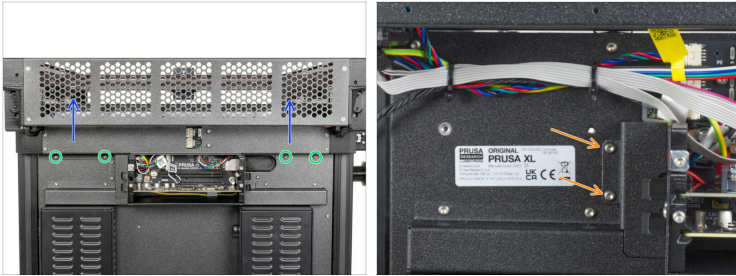
- Locate the XL\_splitter (electronics board to which three cables from the Nextruders are connected).
- **Carefully disconnect all three Nextruder cables in the following order:**
  - ⚠ Each connector has a safety latch. It is necessary to press the latch before disconnecting. Otherwise, the connector may get damaged.
  - Third Nextruder cable
  - Fourth Nextruder cable
  - Fifth Nextruder cable

## STEP 11 Undocking the 4th and 5th Nextruders (five-tool)



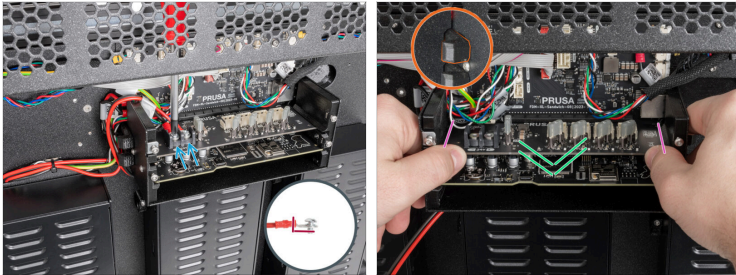
- i** Before you proceed, it is recommended to protect the heatbed.
  - Make sure the heatbed is cooled down to ambient temperature, and the printer still turned off. Place the empty cardboard box approximately to the front center part of the heatbed.
  - Remove the 4th and 5th tool heads from the dock:
    - Remove the tool head, by pulling it outwards from the metal inserts.
  - i** Although a small resistance is expected, as the metal inserts are magnetic, use moderate force.
  - Carefully place the removed Nextruders on the cardboard box.

## STEP 12 Disassembling the back covers



- ◆ Using a T10 Torx key, remove four M3x4rT screws from the covers.
- ◆ Gently remove the rear-cable-management-upper and rear-cable-management-lower. Be aware of the cables.
- ◆ Using a T10 Torx key, remove two M3x4rT screws holding the rear-cable-management-base and remove it.
- ⓘ Removing the rear-cable-management-base is not strictly necessary, but it will help with cable management especially on a 5-tool XL.

## STEP 13 Removing the XL\_Splitter

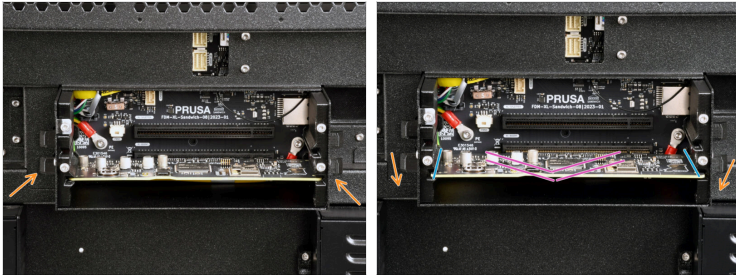






**i** The following step is necessary only for five-head XL. The single-tool and dual-head are not equipped with the XL\_Splitter.

**!** Touch any electronic board by its edges. Avoid damaging the board components.

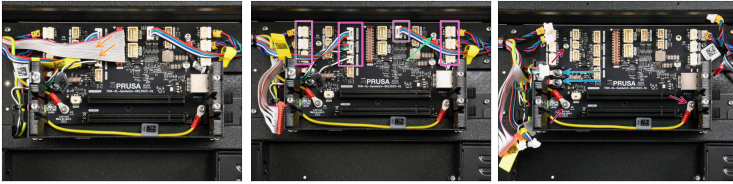
- Using the Philips screwdriver, release two terminal screws and disconnect both power cables.
- Locate the ejectors on both sides of the electronics box. From these, locate the upper pair.
- There are prepared grooves on the electronics box.
- Slide out the XLSplitter. Push the ejectors so the board disconnects from the Sandwich board and then slides out using the side rails.

## STEP 14 Removing the XL\_Buddy



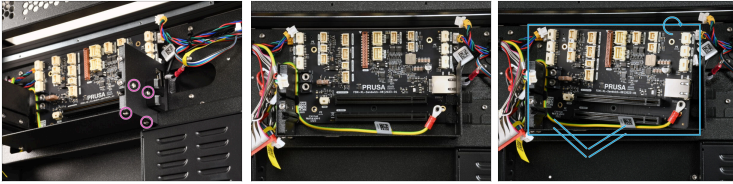
-  **Touch any electronic board only by its edges. Avoid damaging the board components.**
-  Locate the two lower ejectors.
-  There are prepared grooves on the electronics box.
-  Slide out the XL\_Buddy. Push the ejectors so the board slides out from the rails.

## STEP 15 Removing the Sandwich cables



- ⚠ The Molex connectors (white) have a safety latch. It is necessary to press the latch while disconnecting. Otherwise, the connector may get damaged.
- ⬢ Carefully disconnect the xLCD cable. **Do not pull on the cable!**
- ⬢ Disconnect all cables with Molex connector.
- ⬢ Using the 2.5mm Allen key, disconnect the top-right PE cable.
- ⬢ Using the Philips screwdriver, release two terminal screws and disconnect the power cables.
- ⬢ Using the 2.5mm Allen key, disconnect the bottom PE cables, and loosen the top-left M3x6 screw.

## STEP 16 Removing the Sandwich board



- i** In order to remove the Sandwich board, it is necessary to remove the xl-electronics-case-rail.
- Start from the right side of the electronics, remove four screws using the T10 Torx screwdriver. Two screws are on the side and two are on the bottom of the box. Remove the xl-electronics-case-rail.
- !** Touch any electronic board only by its edges. Avoid damaging the board components and touching its connectors.
- Slightly tilt the Sandwich board. Then, carefully remove it from the electronics box.

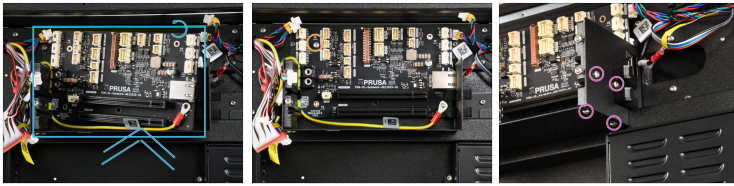
## STEP 17 Replacing the Sandwich board: parts preparation



● **For the following steps, please prepare:**

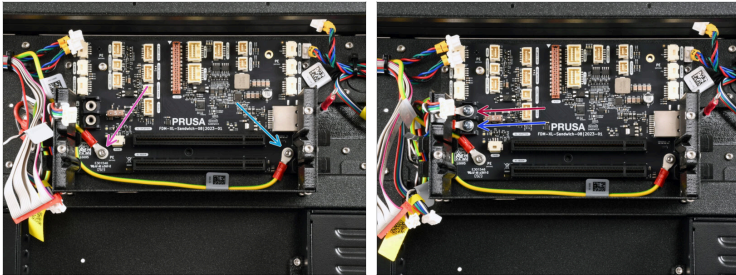
- Replacement Sandwich board (1x)
- M3x8rT screw (4x)
- M3x6 screw (4x)
- XLBuddy (1x)
- XL\_Splitter (1x), only for the five-head version.

## STEP 18 Installing the new Sandwich board



- ⚠ **Touch any electronic board only from its edges. Avoid damaging the board components and touching its connectors.**
- ⬢ Place the replacement Sandwich board at a slight angle, then rotate it slightly to position it parallel to the rear of the printer.
- ⬢ Using the 2.5mm Allen key, tighten one M3x6 screw.
- ⬢ Using the T10 screwdriver, tighten 4 M3x8rT screws, two on the side and two on the bottom of the box, to install the xl-electronics-case-rail.

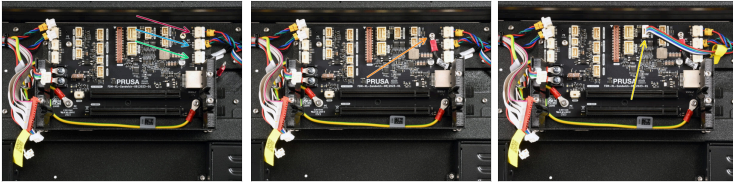
## STEP 19 Connecting the Sandwich cables (part 1)



- ◆ Using the 2.5mm Allen key, tighten the M3x6 screw to connect the bottom-right PE cable.
- ◆ Using the 2.5mm Allen key, tighten the M3x6 screw to connect the bottom-left PE cable.
- ◆ Using the Philips screwdriver, connect the power cables.
  - ◆ Positive (+)
  - ◆ Negative (-)
- ⚠ **Double-check the correct polarity (positive-negative) of the above cables**
- 🔩 Ensure that all screw-attached connectors are completely tightened.

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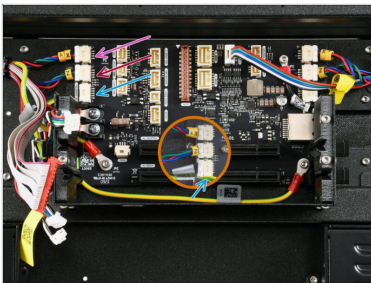
## STEP 20 Connecting the Sandwich cables (part 2)



- ◆ Connect the following cables from the right side:
  - ◆ XY-left motor
  - ◆ Z-left motor
  - ◆ Side filament sensor (left, tools 1-3)
- ◆ Using the 2.5mm Allen key, tighten a M3x6 screw to connect the top-right PE cable.
- 🔧 Ensure that all screw-attached connectors are completely tightened.
- ◆ Connect the LED light cable 2.

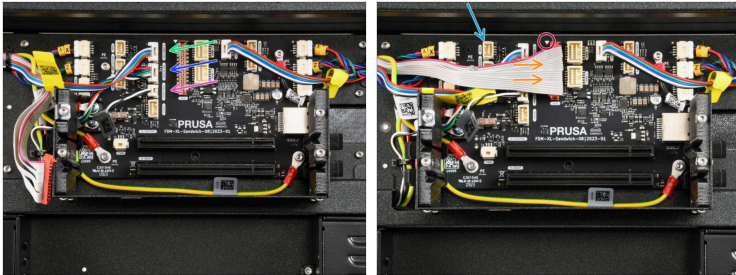
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## STEP 21 Connecting the Sandwich cables (part 3)



- ◆ Connect the following cables from the left side:
  - ◆ XY-right-motor
  - ◆ Z-right-motor
  - ◆ Side filament sensor (right, tools 4-5)

## STEP 22 Connecting the Sandwich cables (part 4)



● Connect the rest of the cables from the left side:

- LED Lights 1
- Modular Bed
- Power panic



Double-check the LED lights and the Modular Bed connections by verifying their cable colors.



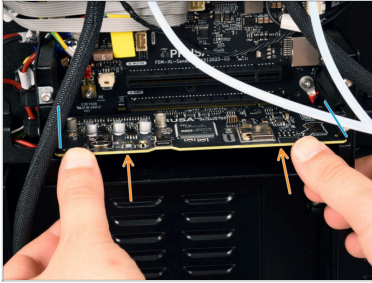
The xLCD cable connector has a locking latch that has to face the red triangle near the xLCD connector.

● Connect the xLCD cable

● Original XL Enclosure owners:

● Connect the Enclosure FAN cable to the FAN1 connector.

## STEP 23 Installing the XLBuddy



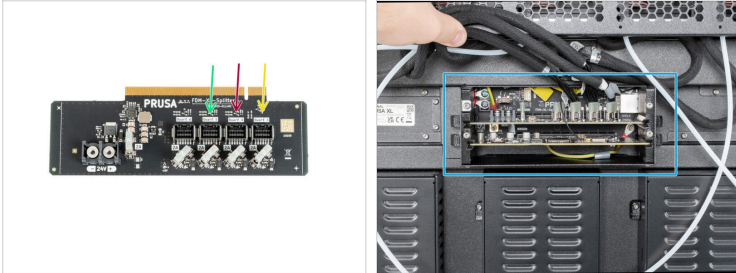
- ⚠ **Be careful, don't pinch any cables!**
- ⚠ **Touch any electronic board only from its edges. Avoid damaging the board components.**
- 🔵 There are prepared guide grooves on the sides of the XL-buddy-box.
- 🟠 Using both hands, insert the XL-Buddy into the slot in the XL-sandwich-board.

## STEP 24 Installing the XL\_splitter (five-head)



- i** The following step is necessary only for five-head XL. The single-tool and dual-head are not equipped with the XL\_Splitter.
- !** **Be careful, don't pinch any cables!**
- !** **Touch any electronic board only from its edges. Avoid damaging the board components.**
- There are prepared guide grooves on the sides of the XL-buddy-box.
- Using both hands, insert the XL-splitter into the slot in the XL-sandwich-board.
- Take the power cable and turn it around the left side of the XL-buddy-box.
- Place the black cable on the left terminal and secure it with the terminal screw.
- Place the red cable on the right terminal and secure it with the terminal screw.
- !** **Note the correct orientation of the power cable connectors.**

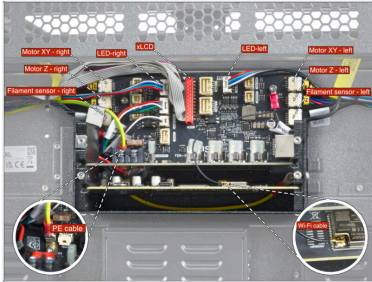
## STEP 25 Connecting the 3rd, 4th, 5th Nextruder cables





- i** Do not take the XL-splitter board out of the printer, the photo is only a tool for connecting the Nextruder cables.
- Connect the Nextruder cables to the splitter in the following order:

  - Third Nextruder.
  - Fourth Nextruder.
  - Fifth Nextruder.
- XL-splitter with connected Nextruders has to look like this.

## STEP 26 Overview of electronics wiring











 **Before proceeding to the next step, check the cable connections according to the picture.**

 **Double-check all the connections before proceeding to the next step.**

## STEP 27 Covering the electronics: parts preparation



-  XL-buddy-box-cover (1x)
-  Rear-cable-management-upper (1x)
-  Rear-cable-management-base (1x)
-  M3x5rT screws (4x)
-  M3x4rT screws (2x)
-  Either of the following two parts depending on the antenna mount position:
  -  Antenna-holder with antenna cable (1x), rear-antenna version
  -  Rear-cable-management plug (1x), side-antenna version

## STEP 28 Covering the electronics (part 1)



**Be careful, don't pinch any cables.**



From the left side, attach the rear-cable-management-base and secure it with two M3x4rT screws using a T10 Torx key.

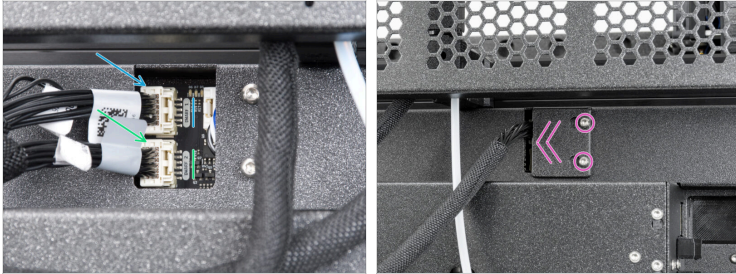
## STEP 29 Covering the electronics (part 2)



**⚠ Be careful, don't pinch any cables.**

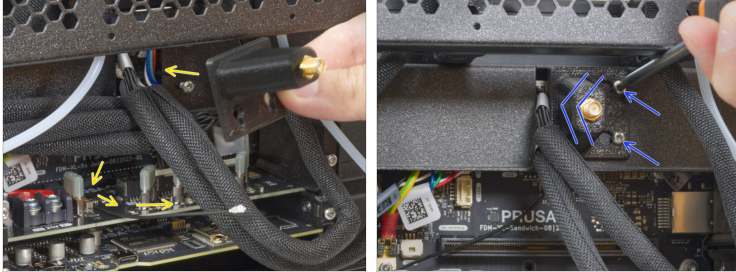
- Gently attach the Rear-cable-management-upper on the rear side.
  - Make sure that no cable is pinched in the plastic covers.
  - Make sure that the metal cover does not pinch the motor cable.
- Secure it with four M3x5rT screws using a T10 screwdriver.
- ⓘ If your printer has its antenna on the side, check if the XL-rear-cable-management-plug is installed.
  - Loosen two bolts using the T10 screwdriver, and remove the XL-rear-cable-management-plug.

## STEP 30 Connecting the 1st and 2nd Nextruder cables



- Connect the **first Nextruder** cable to the upper slot labeled **DWARF 1**.
- Connect the **second Nextruder** cable to the lower slot labeled **DWARF 2**.
- ⓘ If your printer had the **antenna located on the side**, proceed with the following point.
  - Attach the cover (xl-rear-management-plug) onto the screws. Push the cover all the way to the left and tighten the screws.
- 📌 If your printer had the antenna located on its rear side, proceed to the next step.

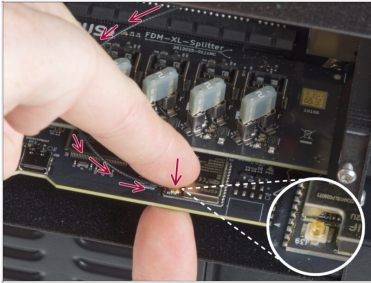
## STEP 31 Installing the Wi-Fi antenna cover (rear antenna)



- i** This step is valid only if your printer has its **Wi-Fi antenna on the back of the printer**. If you have the antenna on the side of the printer, proceed to the next step.
- Push the antenna cable through the opening in the cable cover (metal sheet) and guide it behind the cover to the electronics box.
  - Attach the antenna-holder on the screws and push the cover to the left and tighten the screws.

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## STEP 32 Connecting the Wi-Fi antenna



- Connect the antenna to the appropriate slot on the XL Buddy board.

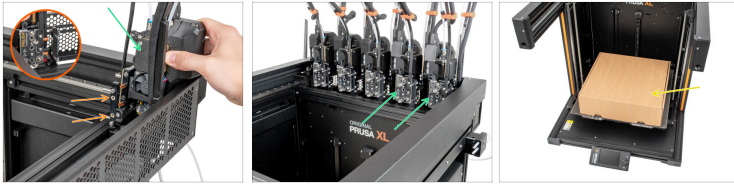
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## STEP 33 Covering the XL buddy box



- ⚠ **Be careful, do not pinch any cables!**
- Put the XL-buddy-box-cover back on the printer.
- On the five-head XL, check the Nextruders cables, they have to be inside the cutout in the cover.
- With a T10 key tighten the four screws.

## STEP 34 Docking the 4th and 5th Nextruders (five-tool)



**i** Before you proceed, it is recommended to protect the heatbed.



Dock the 4th and 5th Nextruders.

- ◆** Take the Nextruder and place it carefully next to the dock.
- ◆** Place the two metal inserts through the white holes in the dock. The magnets will help you dock the Nextruder.
- ◆** Remove the previously placed cardboard box from the printer heatbed.

## STEP 35 Performing the Calibration Wizard



- After the printer starts up, the screen prompts for the printer test and setup wizard.
- ① The wizard will test all important components of the printer. The whole process takes a few minutes. Some parts of the wizard require direct user interaction. Follow the instruction on the screen.
- ⚠ **NOTE: While testing the axes, make sure that there is nothing in the printer that is obstructing the movement of the axes.**
- ⚠ **WARNING: Do not touch the printer during the wizard unless prompted! Some parts of the printer may be HOT and moving at high speed.**
- Follow the steps in the dedicated manuals, specific for your version of Original Prusa XL.
  - Single-tool
  - Dual-tool
  - Five-tool



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