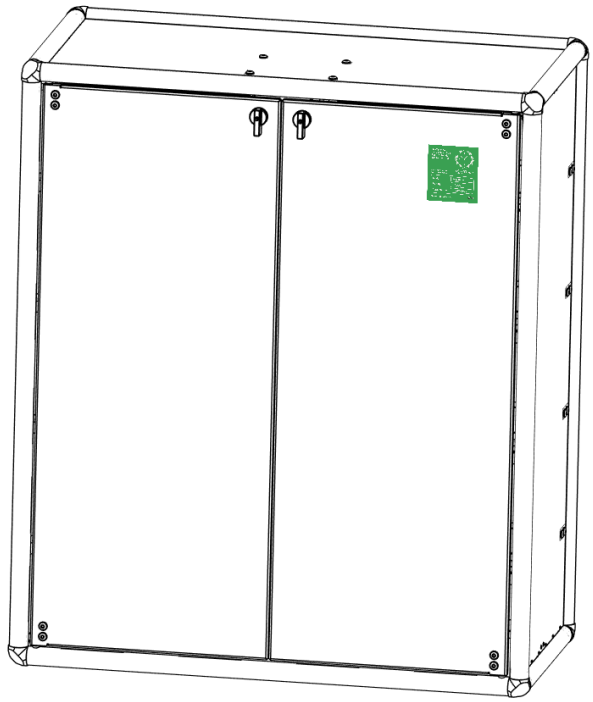
English

Assembly Instructions



The HayTimer is produced by:

Valetudo Horse products BV
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The Netherlands
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Versie 1.2, 9 Oktober 2025

Original assembly instructions.

Dear customer,

Congratulations on your purchase of the HayTimer. This manual explains how to assemble the HayTimer step by step in a logical and safe order.

Read each step carefully before performing the action. Steps marked **ATTENTION** are critical. If these steps are executed incorrectly, later assembly steps may become difficult or impossible. In several steps, features or locations are highlighted with a red circle. Make sure these features align exactly with the parts in your assembly.

Important note on stainless steel fasteners

All nuts and bolts supplied with the HayTimer are made of stainless steel to prevent corrosion over time. Stainless steel has one important characteristic you must respect during assembly. When threading a bolt into a nut:

- The bolt must thread smoothly using **fingers only**
- Thread the bolt fully by hand before using any tool
- If resistance is felt, **stop immediately**

Do **not** apply force with an Allen key or ring spanner if the bolt does not thread smoothly. Stainless steel can cold-weld when forced, causing the bolt and nut to seize permanently.

If a bolt does not thread smoothly:

- Remove the bolt
- Check that the nut is correctly aligned
- Reinsert and try again by hand

Light use of an Allen key is allowed to speed up handthreading, provided the bolt turns smoothly without resistance. Do **not** use a cordless screwdriver or power tool. The risk of seizing is too high.

Exception: lock nuts

Some connections use **lock nuts**. These nuts are thicker and contain a blue nylon insert. Lock nuts behave differently:

- The bolt will thread in smoothly for the first few turns
- After the nylon insert is reached, resistance will increase
- This resistance is normal and intended

For lock nuts:

- Thread the bolt in by hand as far as possible
- When resistance increases, continue tightening using a ring spanner or Allen key as specified
- Do not force the bolt if resistance is felt **before** the nylon insert is reached

The nylon insert provides vibration resistance and prevents the nut from loosening during operation.

Exception: camshaft blocks

The nylon parts of the camshaft behave differently:

- The bolt turns smoothly for the first few turns, then resistance increases
- This resistance is normal and intentional

For camshaft blocks:

- Turn the locking bolt one turn by hand
- When the resistance increases, continue turning with an Allen key

Extra mounting hardware

Extra bolts and nuts are included with the HayTimer. This is done deliberately so that you never have to stop during assembly, even if a bolt or nut accidentally falls or gets lost.

It is therefore completely normal for fastening materials to remain after assembling the HayTimer. This does not mean that parts are missing or that the assembly has been carried out incorrectly.
It is best to keep the remaining fastening materials with the HayTimer. This may be useful for future maintenance, relocation, or reassembly.

Support

If any assembly step is unclear, contact us at:

- Email: info@VHProducts.eu
- WhatsApp: +31 6 55 88 39 25

We aim to respond quickly and help you complete the assembly correctly.

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1. Tools to use

A limited set of tools is required to assemble the HayTimer.

Required tools:

- Allen keys: 2.5 mm, 4 mm, 5 mm
- 10 mm ring spanner

Optional tools:

- 27 mm ring spanner or adjustable wrench. Used only for tightening the door lock nuts, hand-tightening is usually sufficient.
- Six pieces of adhesive tape. Helpful during cabinet assembly to temporarily hold parts in place when assembling alone.
- Black marker. Used for marking camshaft holes during assembly of the trapdoor drive mechanism.

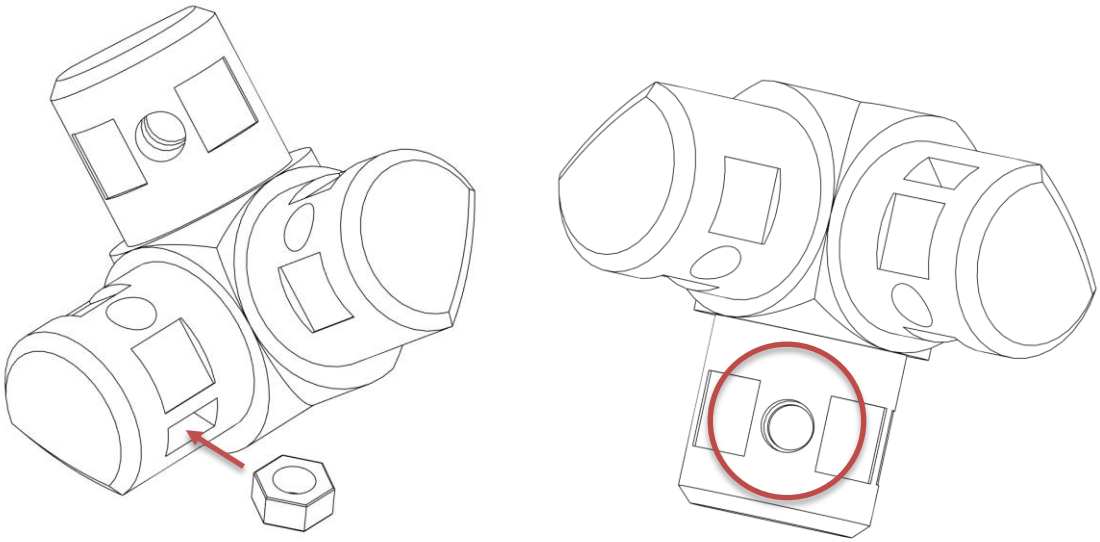
2. Cabinet top

The cabinet top is assembled from 30 mm aluminum tubes, corner pieces and an aluminum sheet.

2.1 Preparing the corner pieces

Each corner piece requires **three nuts** to be inserted before use. Slide a nut into a slot of the corner piece and press it fully inward using the tip of an Allen key. You may feel slight resistance. This is normal and caused by a small internal ledge that prevents the nut from falling out after installation. The nut is correctly positioned when the hole in the nut aligns with the hole in the corner piece. Repeat this for the remaining two nuts in the same corner piece.

Prepare all **eight corner pieces** in this way. Set **four corner pieces aside** for later use.

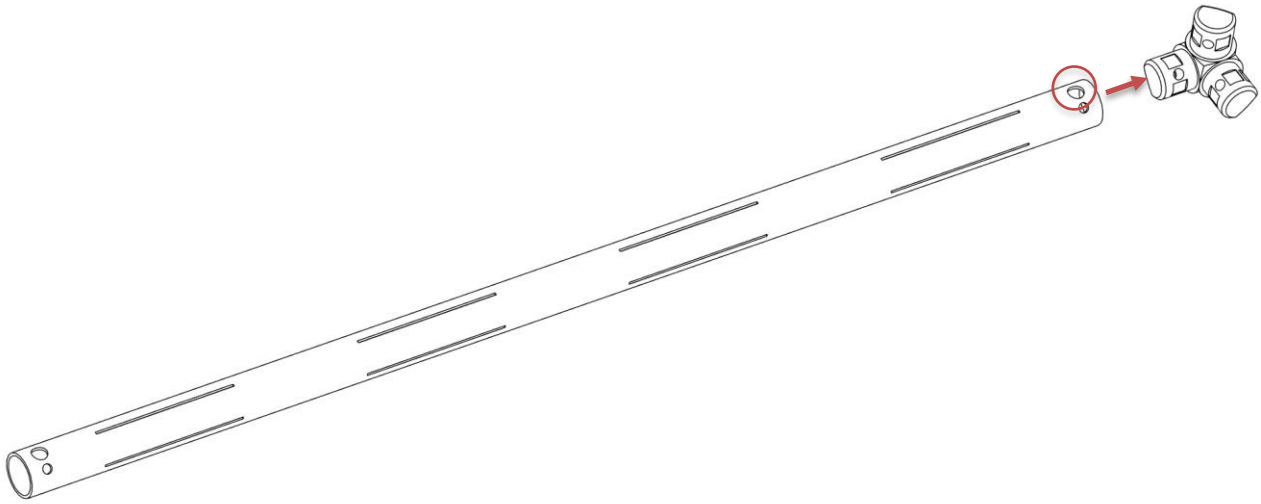


2.2 Assembling the long tubes

There are three different tube lengths. Take **two medium-length tubes** (30 mm diameter, 777 mm length). Slide one tube onto a vertical stub of a corner piece.

Orientation is critical:

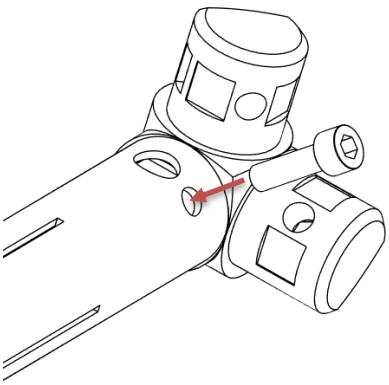
- The **largest round hole** in the tube must face **upwards**
- The first set of **horizontal slits** in the tube must face **upwards**
- The second set of slits must face the same direction as the **horizontal stub** of the corner piece

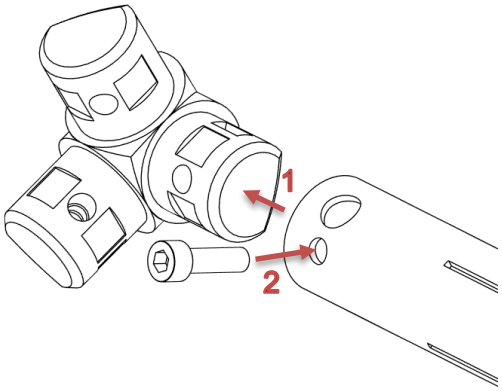


ATTENTION: Double-check the orientation of the large hole. This hole will later be used for the door hinge. Incorrect orientation will prevent door installation.

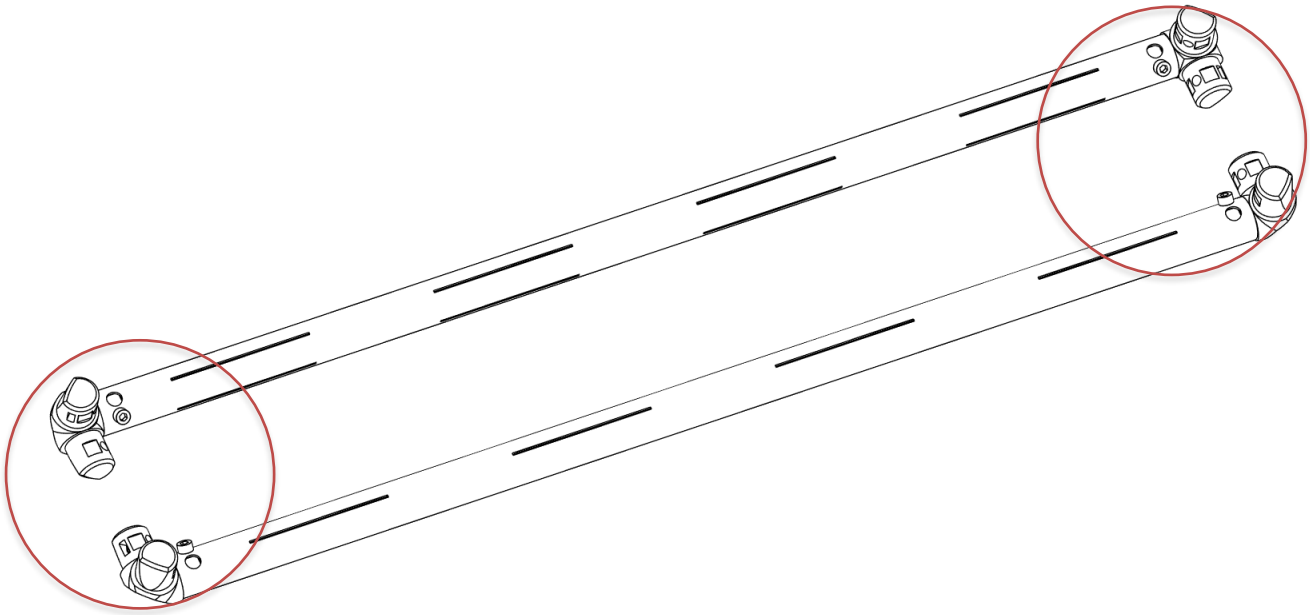
Insert an **Allen bolt, 20 mm length**, through the tube into the corner piece. Thread the bolt in lightly. Do **not** tighten.

Assemble a second corner piece onto the other end of the tube. Make sure the horizontal stub of the second corner piece points in the **same direction** as the first. Insert an Allen bolt and thread it in lightly.





Repeat this entire procedure for the **second medium-length tube**.



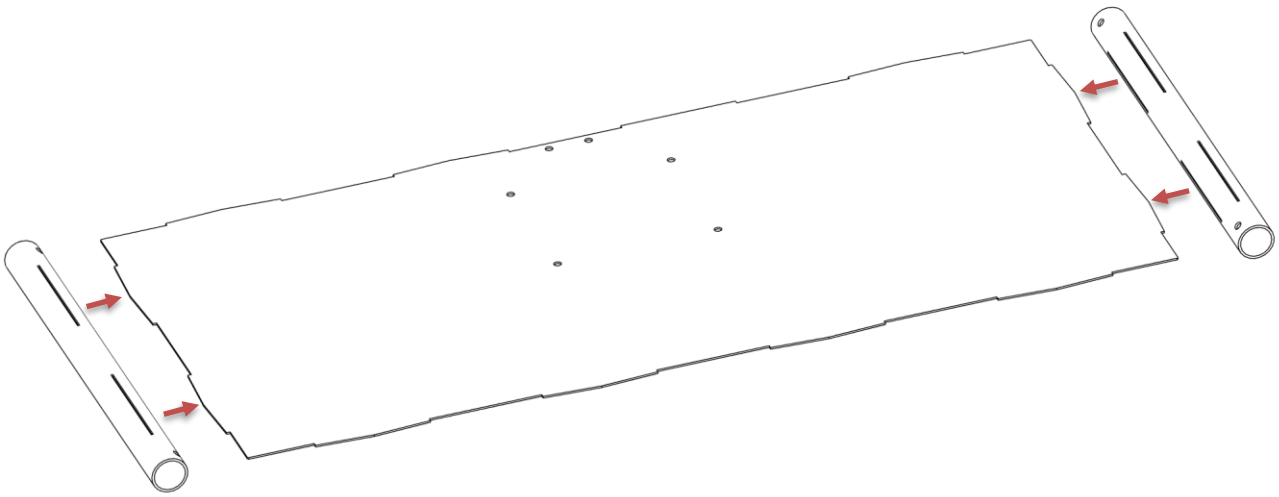
ATTENTION: When both tubes are placed opposite each other, the horizontal slits must face **towards each other**.

2.3 Installing the aluminum sheet

Take:

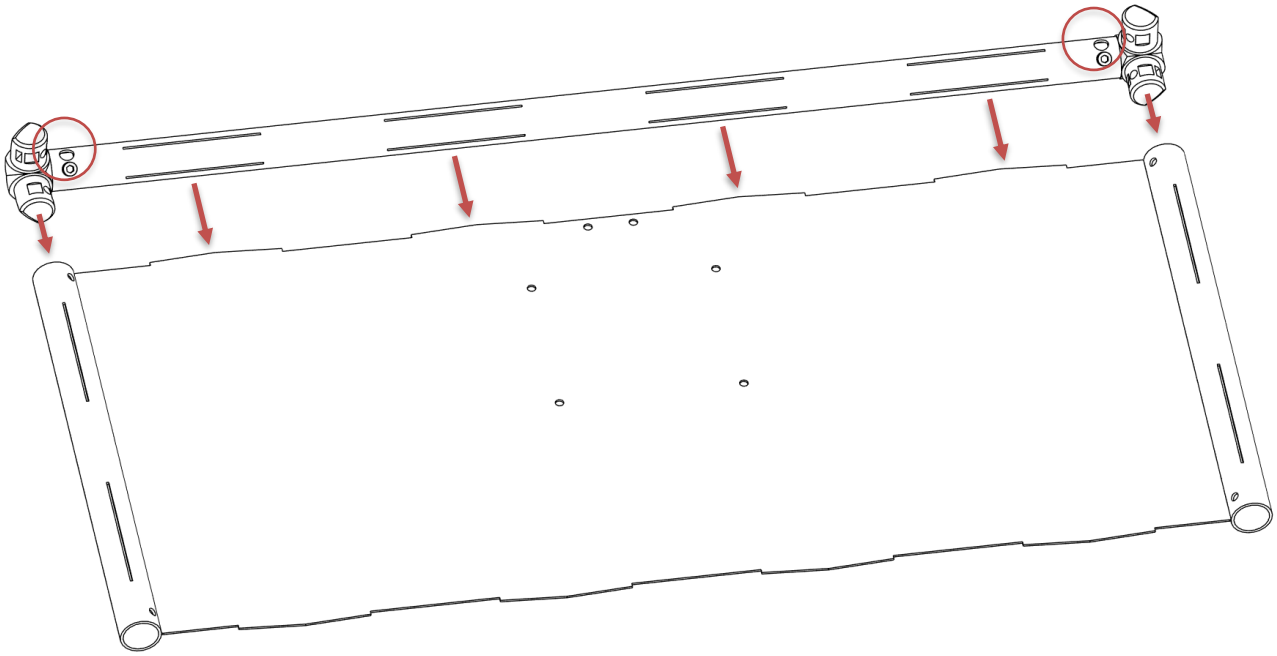
- Two **short aluminum tubes**
- One **aluminum sheet** with four holes in the center and two holes at the side

Choose the cosmetically best side of the aluminum sheet. This side must face **upwards** during assembly. Push the tongues of the aluminum sheet into the slits of the two short tubes. Make sure the remaining slits in the short tubes face **upwards**.

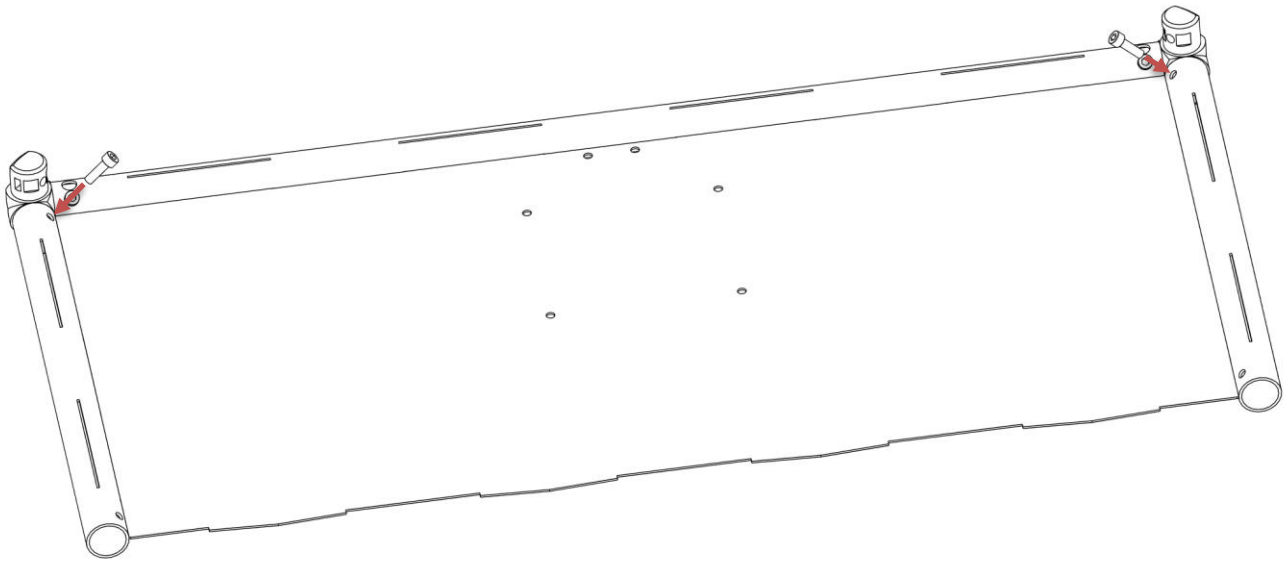


2.4 Connecting the frame

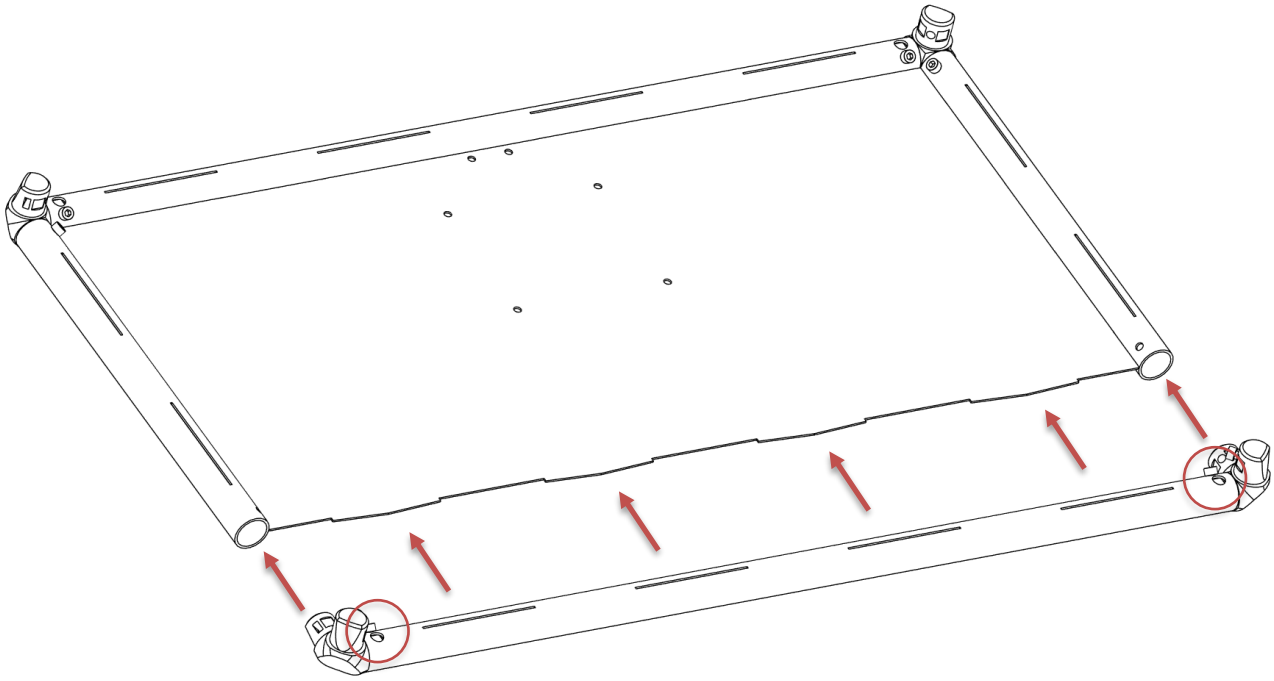
Take one of the previously assembled medium-length tube assemblies. Ensure that the large holes are facing upwards. Insert the horizontal stubs of the corner pieces into the short tubes. At the same time, guide the tongues of the aluminum sheet into the slits of the medium-length tubes.



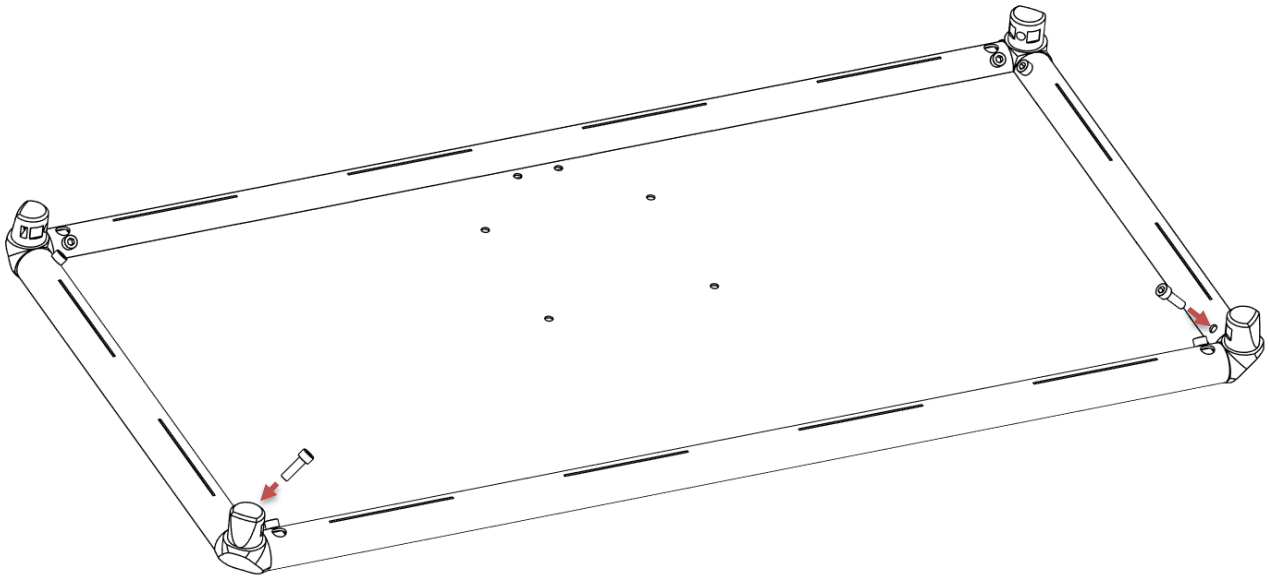
Insert an **Allen bolt, 20 mm length**, through the tube into each corner piece and thread them in lightly.



Repeat this step with the second medium-length tube assembly. Ensure that the large holes are facing upwards.

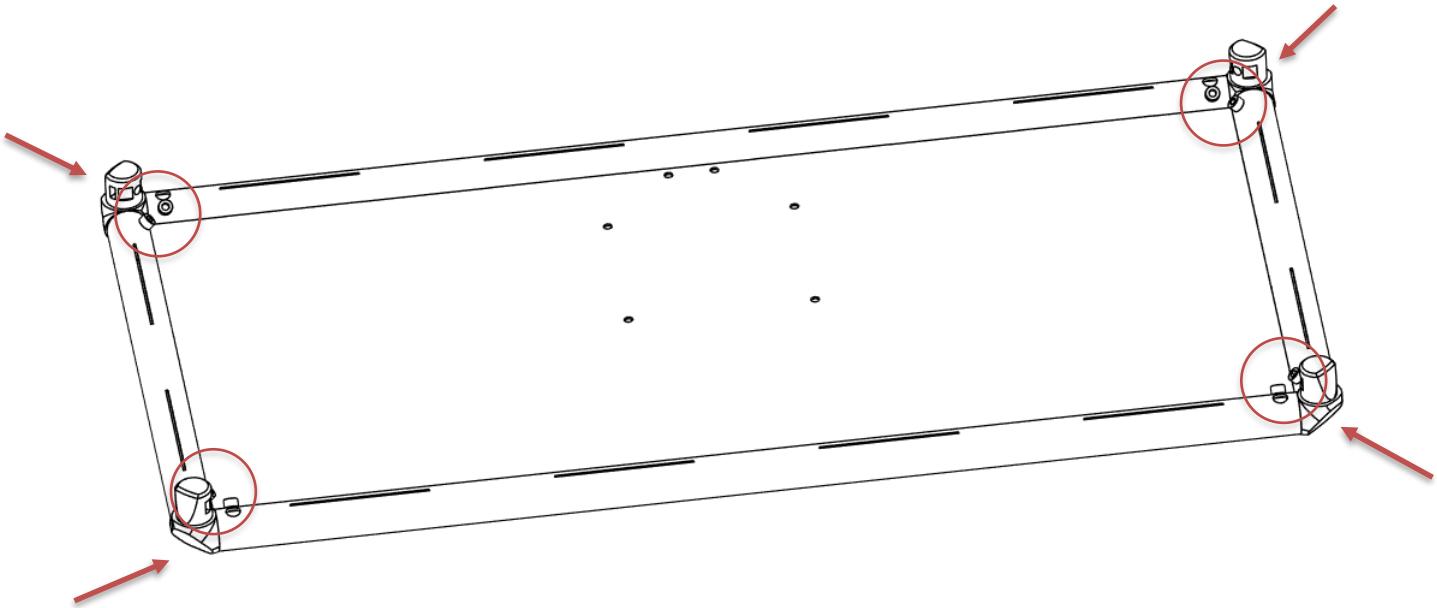


Insert an **Allen bolt, 20 mm length**, through the tube into each corner piece and thread them in lightly.



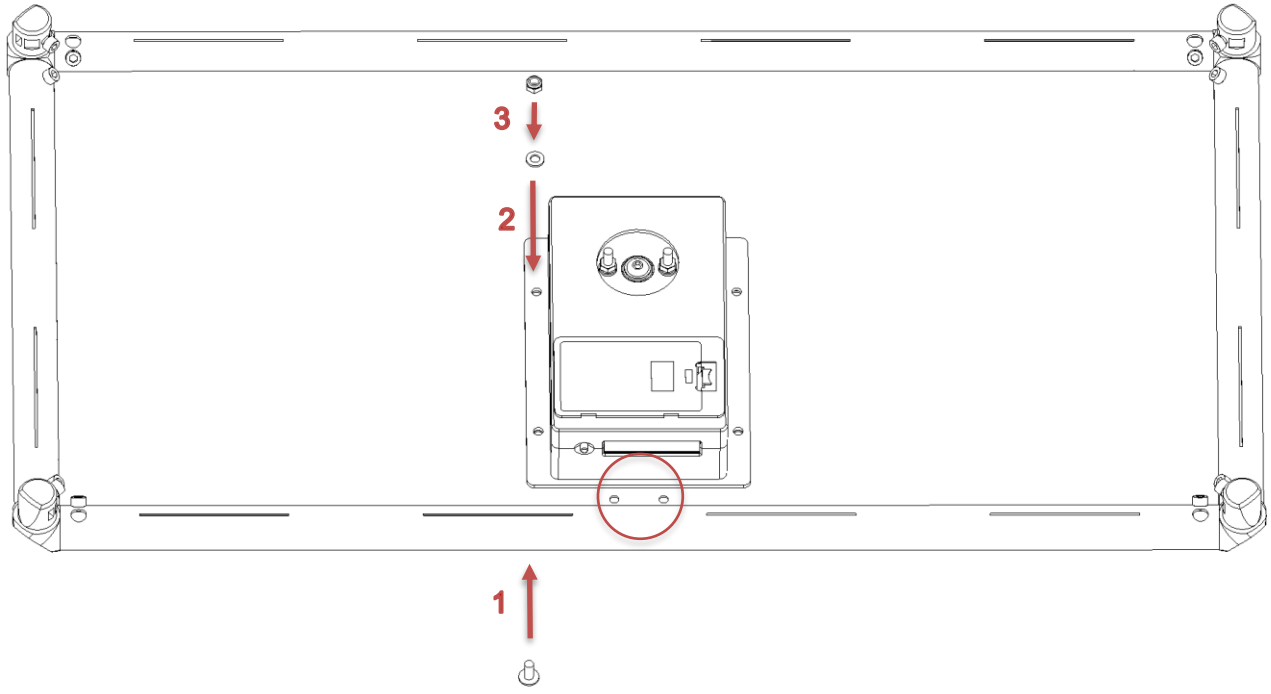
2.5 Squaring and tightening the top frame

Place the assembled frame on a flat surface. Press all tubes firmly toward the aluminum sheet so everything is fully seated. While keeping the assembly flat on the surface, tighten **all bolts securely**. Check that the frame is not warped after tightening.



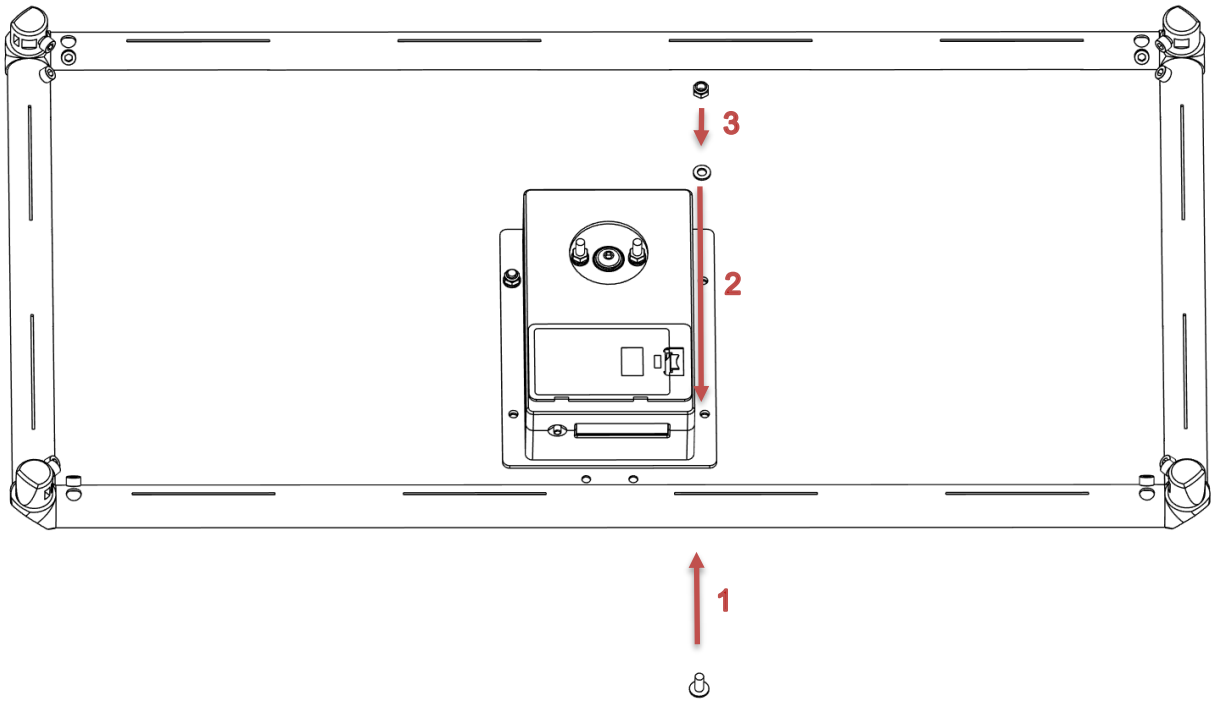
2.6 Installing the controller

Place the controller on the aluminum plate so that the mounting holes in the base of the controller are aligned with the holes in the aluminum plate. Insert **one buttonhead bolts, 14 mm length** from the back of the aluminum plate through the base of the controller. Place a washer over the bolt and insert **a lock nut** (thicker nuts with a blue nylon insert). Tighten the lock nut by hand until you feel resistance.

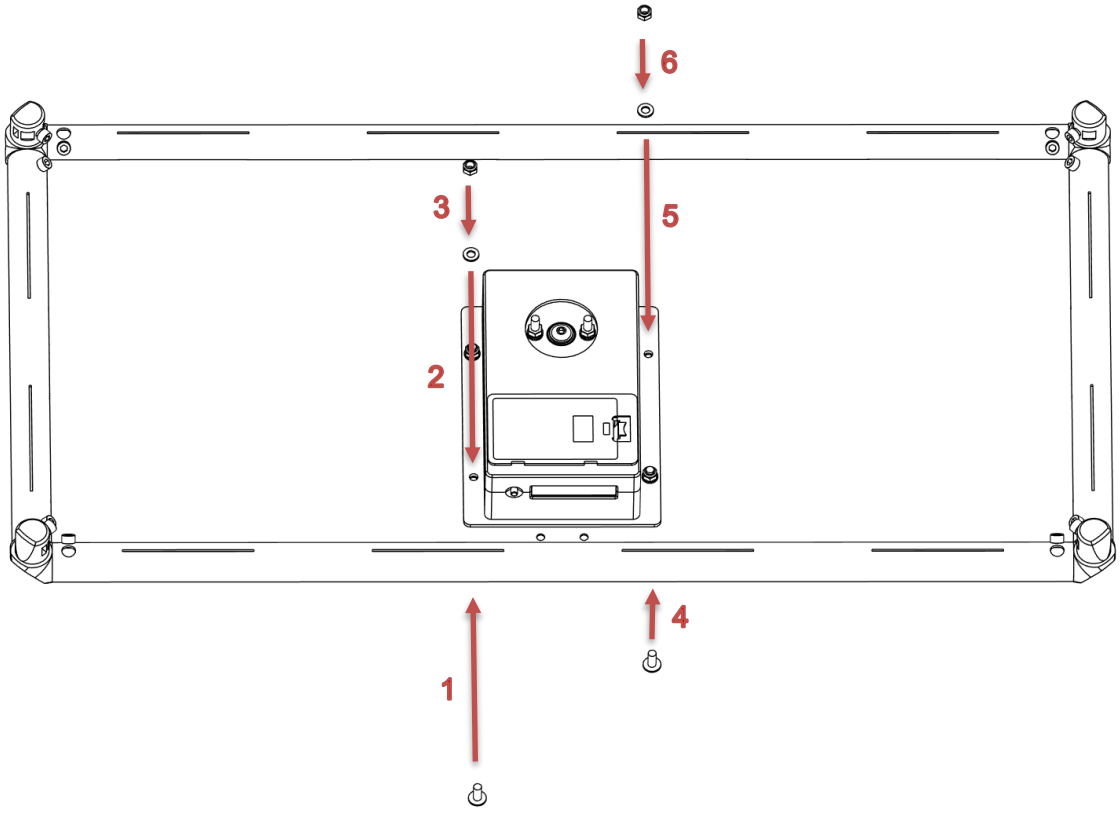


NOTE: Ensure that the controller display is facing toward you and that the display is near the two holes closest to the front tube.

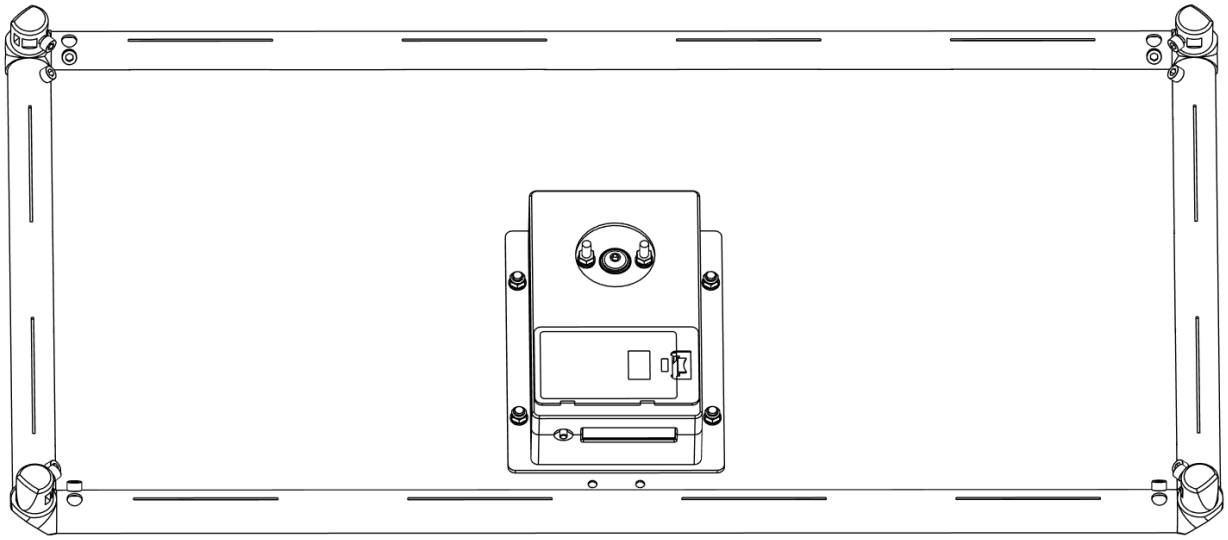
Insert **one buttonhead bolts, 14 mm length** through the base of the controller from the back of the aluminum plate. Place a washer over the bolt and insert **a lock nut**. Tighten the lock nut by hand until you feel resistance.



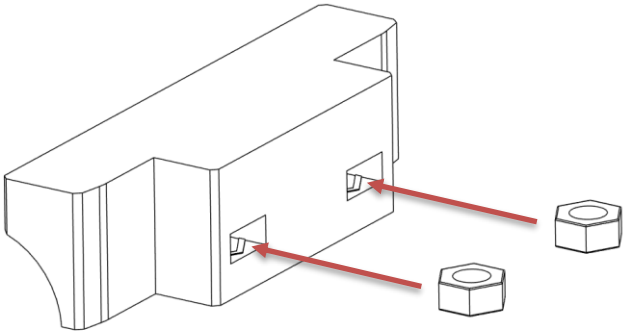
Insert **two buttonhead bolts, 14 mm length** through the base of the controller from the back of the aluminum plate. Place a washer over the bolt and insert **a lock nut**. Tighten the locks nut by hand until you feel resistance.



Tighten all nuts with an Allen key and a 10 mm ring spanner.

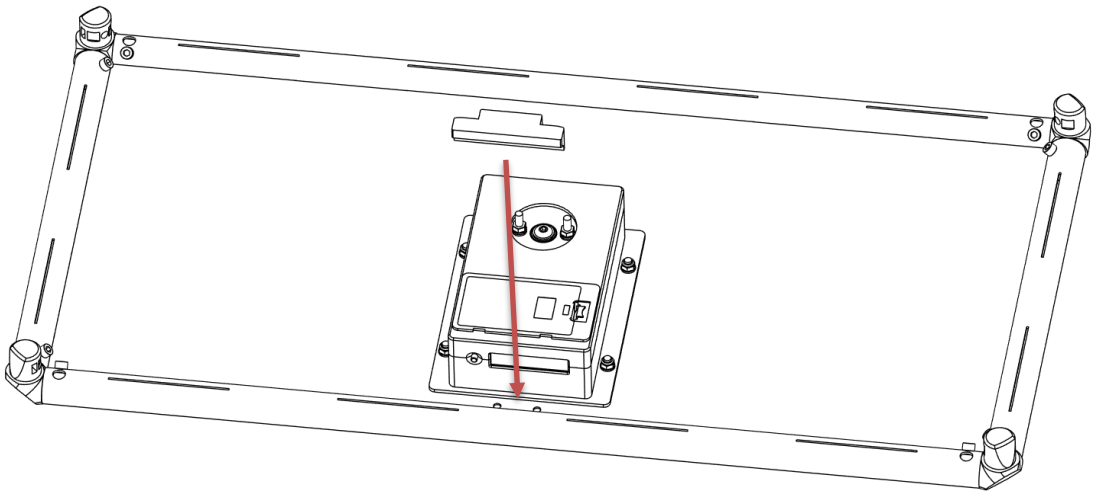


Take the plastic door stop. Insert **two nuts** into the door stop in the same manner as with the corner pieces. Press the nuts in until the holes align.

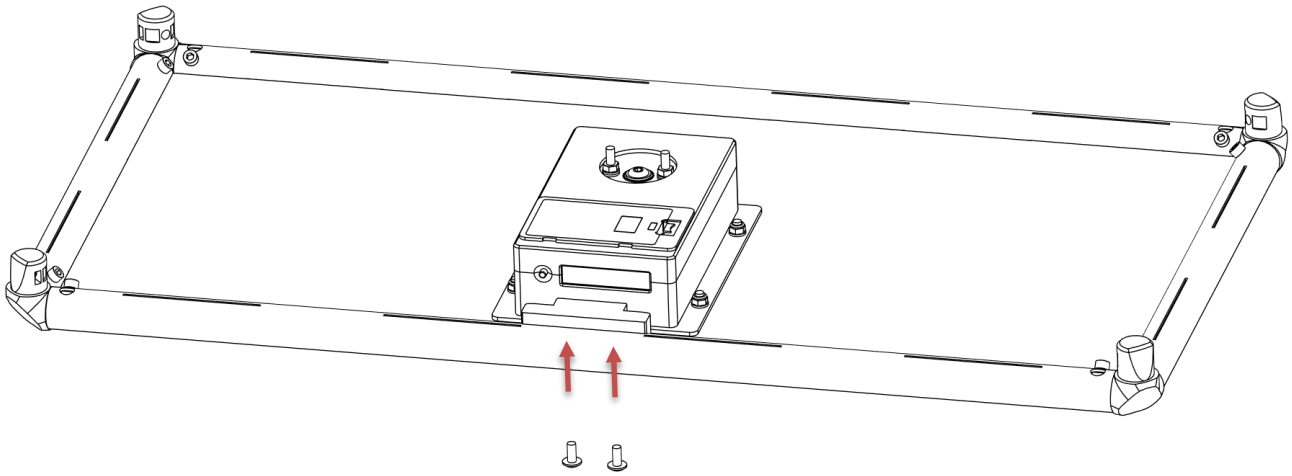


Place the door stop on the aluminum sheet:

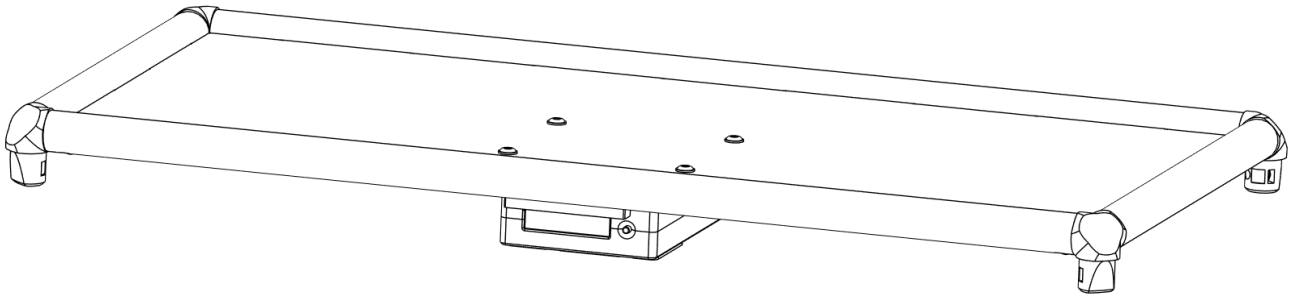
- The **round insert** of the door stop must face the **front tube**



Insert **two buttonhead bolts, 14 mm length**, from the back of the aluminum sheet and tighten securely.



The cabinet top assembly is now finished.



3. The cabinet

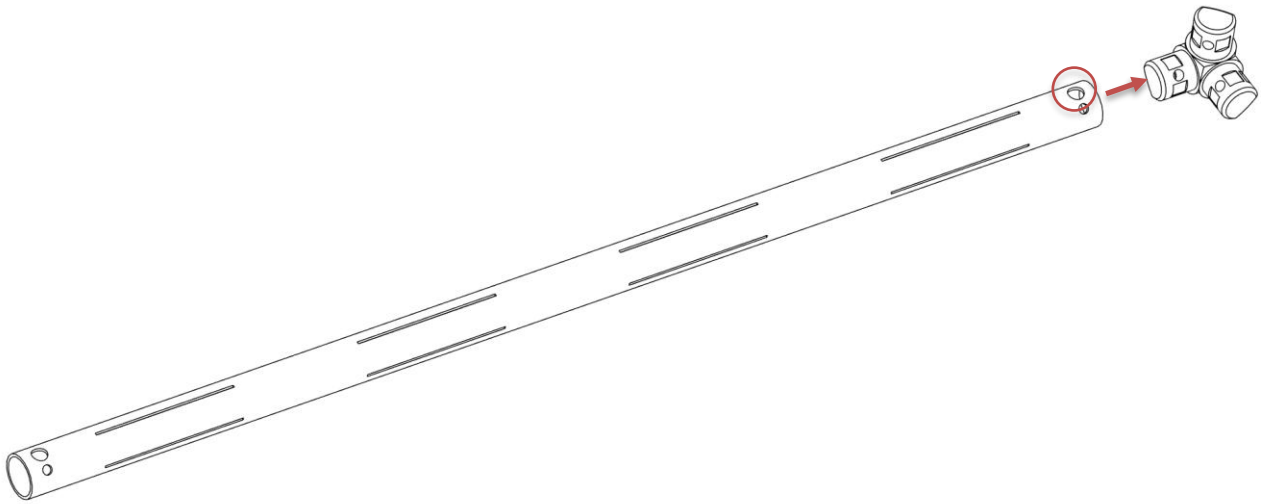
In this chapter, the cabinet frame, back panel and side panels are assembled and combined with the previously assembled cabinet top.

3.1 Preparing the medium-length tubes

Take the remaining **two medium-length tubes** (30 mm diameter, 777 mm length). Slide one tube onto a vertical stub of a corner piece.

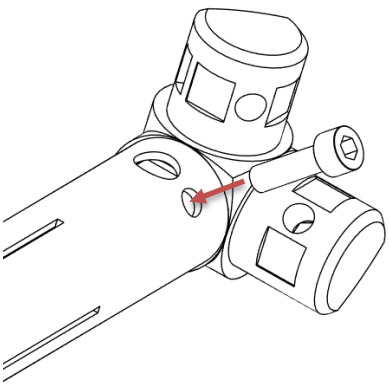
Orientation:

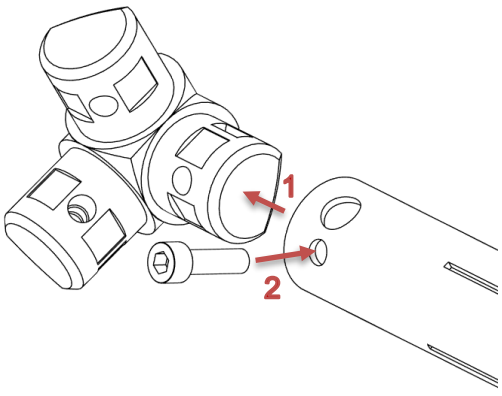
- The **largest round hole** must face **upwards**
- The first set of **horizontal slits** must face **upwards**
- The second set of slits must face the same direction as the **horizontal stub** of the corner piece



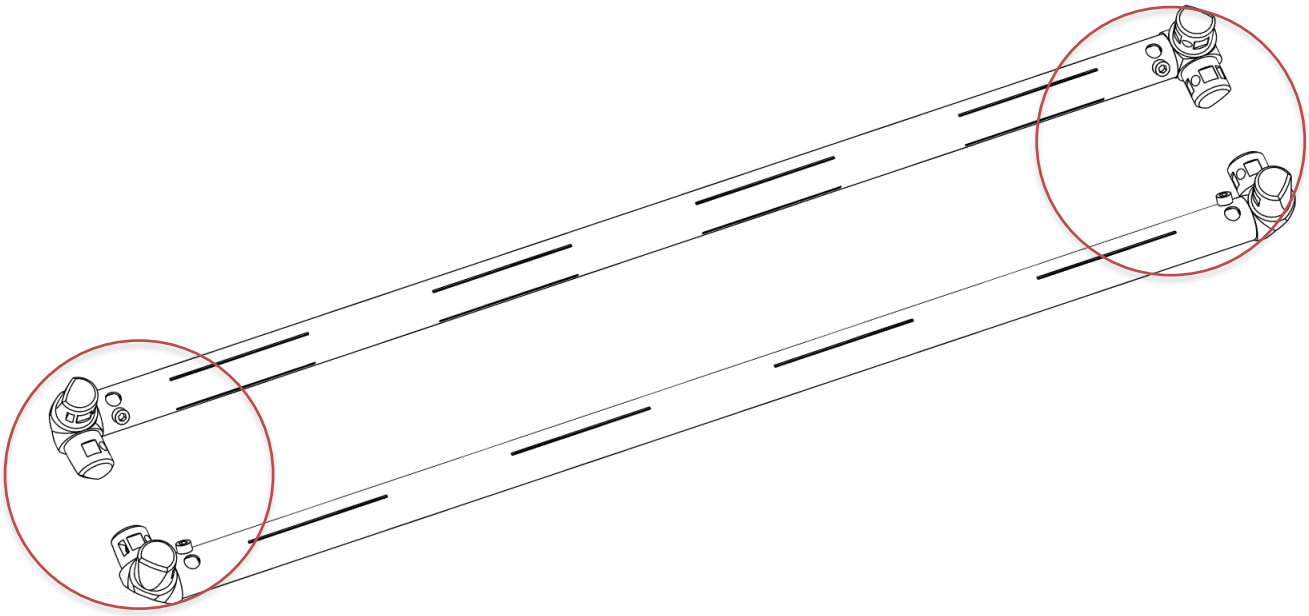
ATTENTION: Double-check the orientation of the large hole. This hole will later be used for the door hinge.

Insert an **Allen bolt, 20 mm length**, and thread it in lightly. Assemble a second corner piece on the other end of the tube. Make sure the horizontal stub of this corner piece faces the **same direction** as the first. Thread in the Allen bolt lightly.





Repeat this entire step for the second medium-length tube.



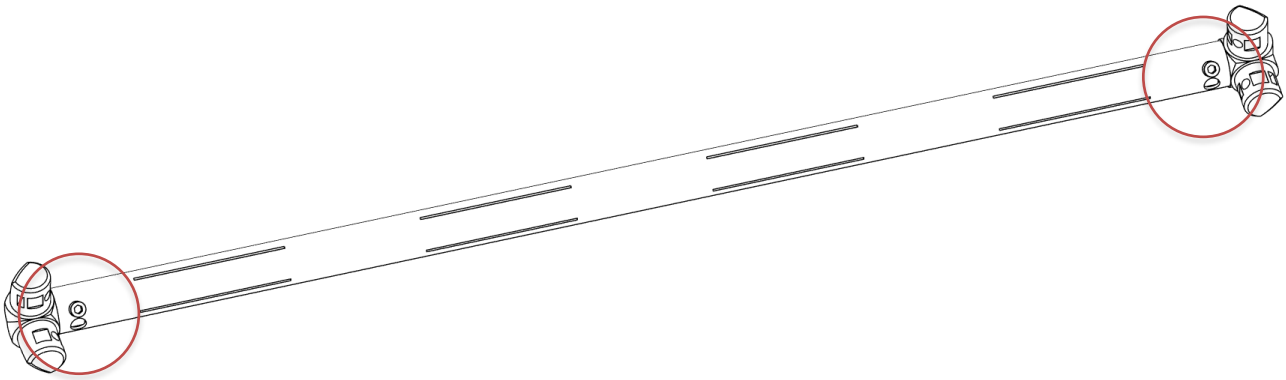
ATTENTION: When both tubes are placed opposite each other, the horizontal slits must face **towards each other**.

Set one of the assembled medium-length tubes aside.

3.2 Preparing the back panel assembly

Rotate the other assembled tube **90 degrees** so:

- The large hole faces **downwards**
- The Allen bolts face **upwards**

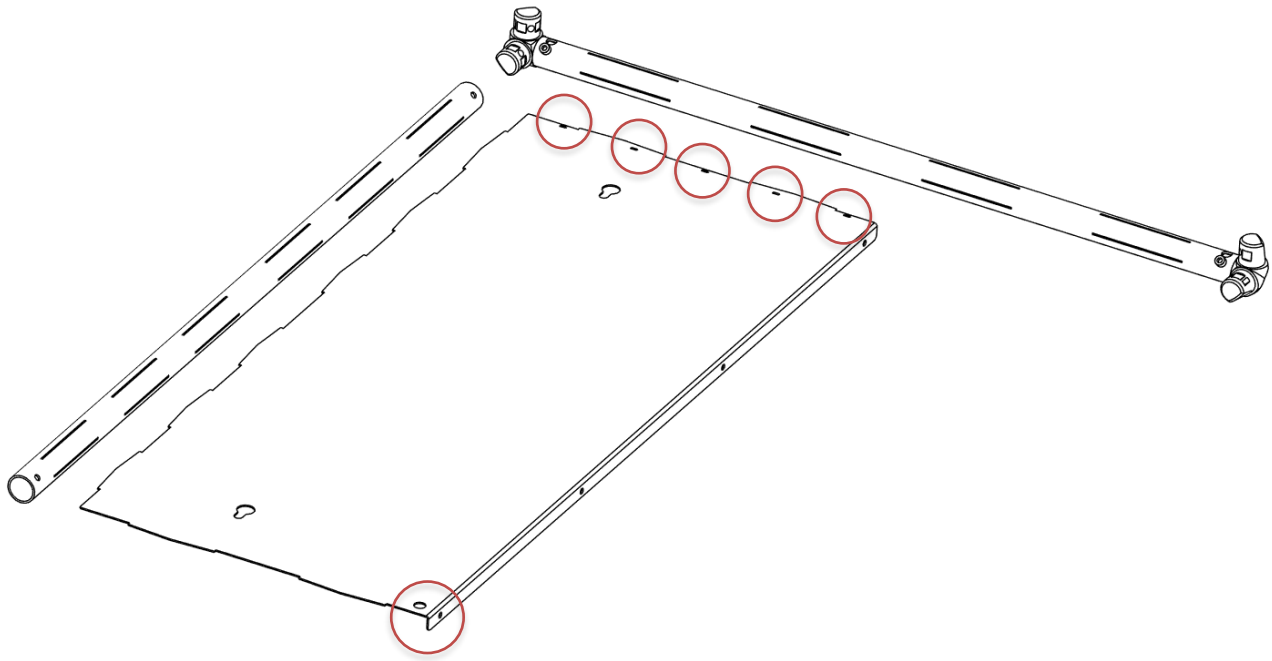


Take one **long tube** (30 mm diameter, 921 mm length). Place the tube so:

- The horizontal slits face **towards the aluminum sheet**
- The remaining slits face **upwards**

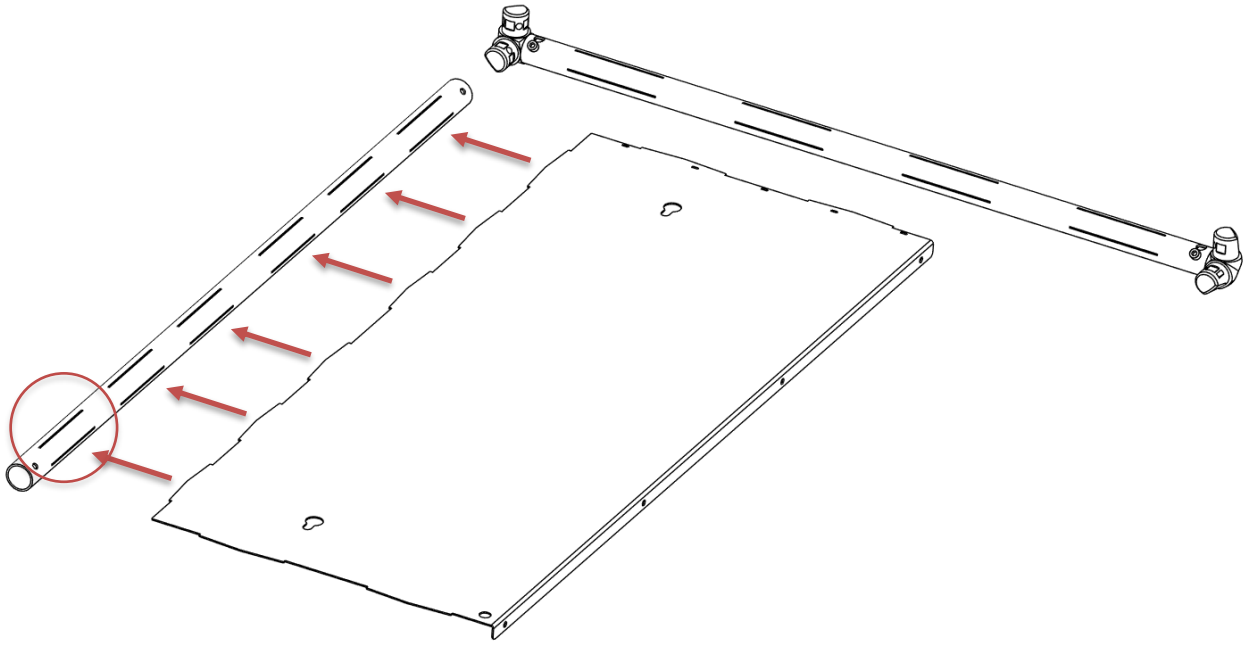
Take one of the two **back panel aluminum sheets**. The back panel consists of two symmetrical parts with keyhole-shaped slots. Select the correct part:

- The **small oval holes** must be located next to the tube holding the two corner pieces
- The **small flange** must face **downwards** when viewed from above

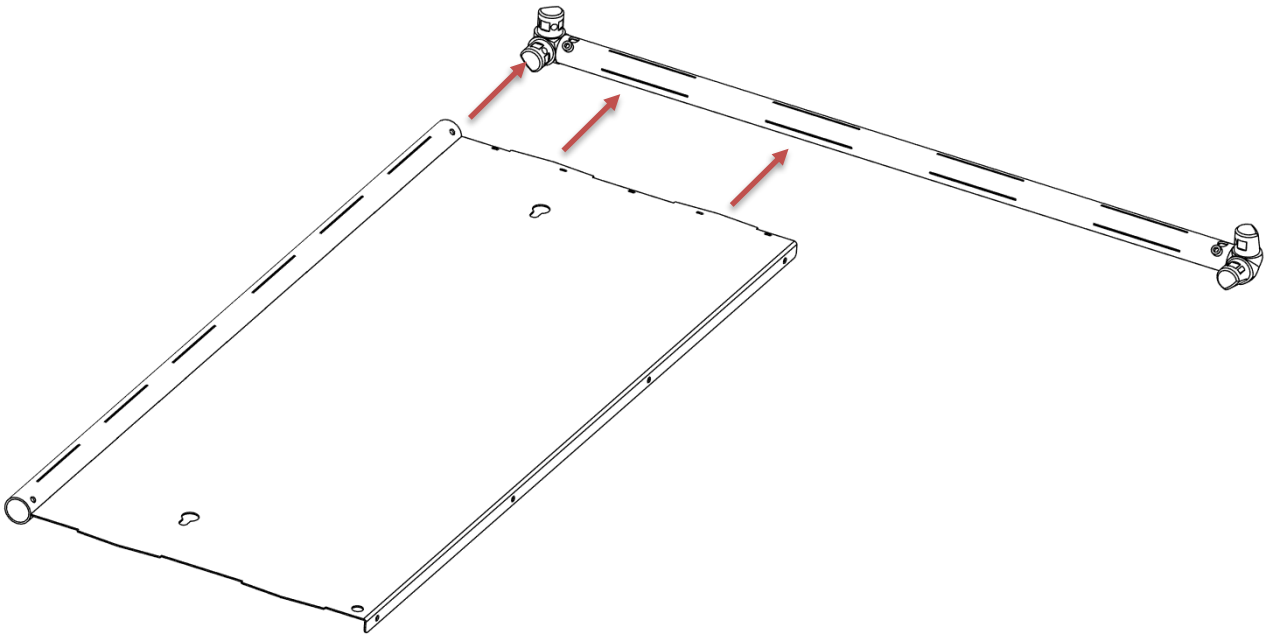


ATTENTION: If the flange faces upwards, you have the wrong back panel part. Replace it with the other one.

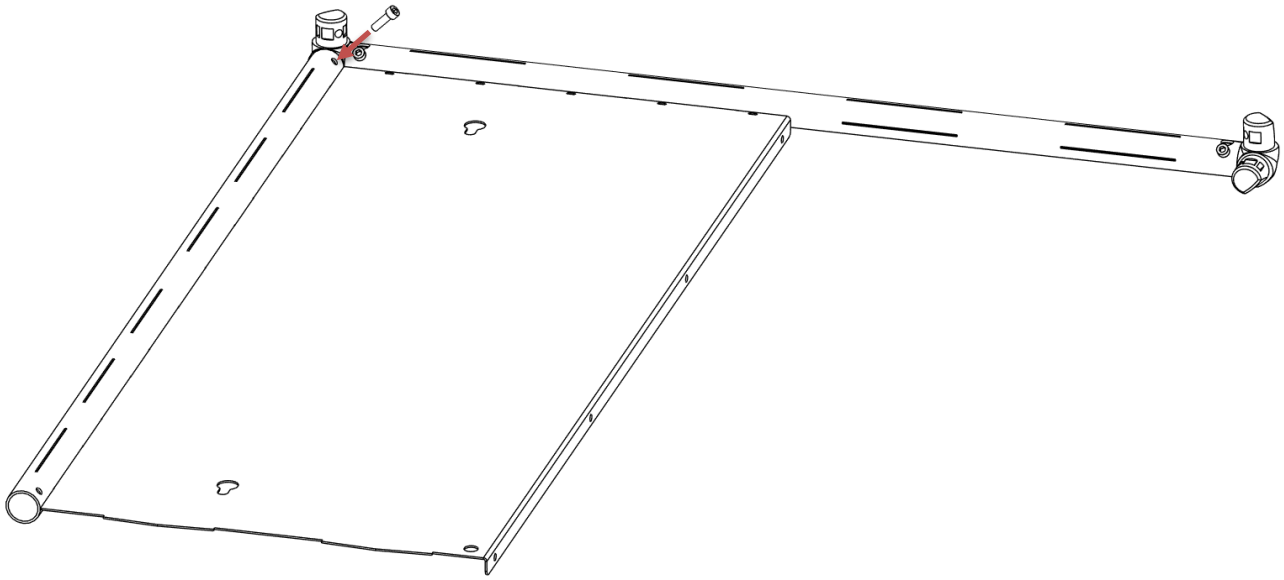
Push the tongues of the aluminum sheet into the slits of the long tube.



Now slide the long tube and aluminum sheet over the horizontal stub of the left corner piece. At the same time, guide the tongues of the aluminum sheet into the slits of the medium-length tube.



Insert an **Allen bolt, 20 mm length**, and thread it in lightly.



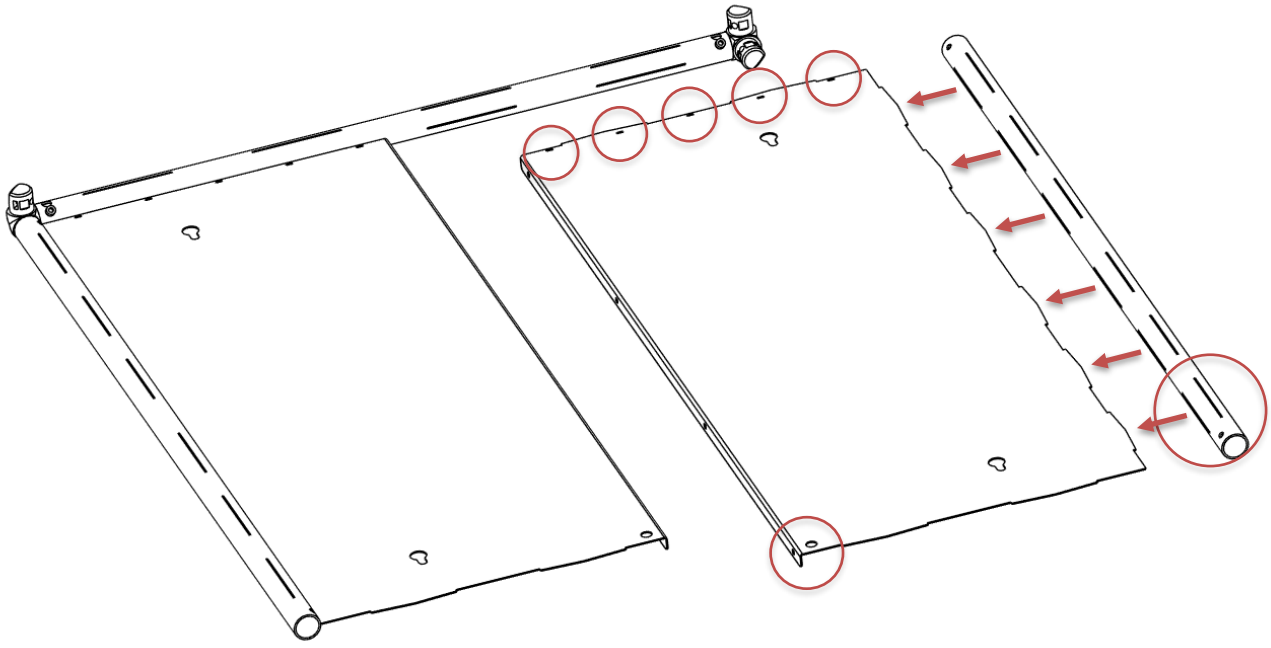
3.3 Completing the back panel

Take the second long tube and the remaining back panel aluminum sheet. Position both parts so they mirror the first half of the back panel.

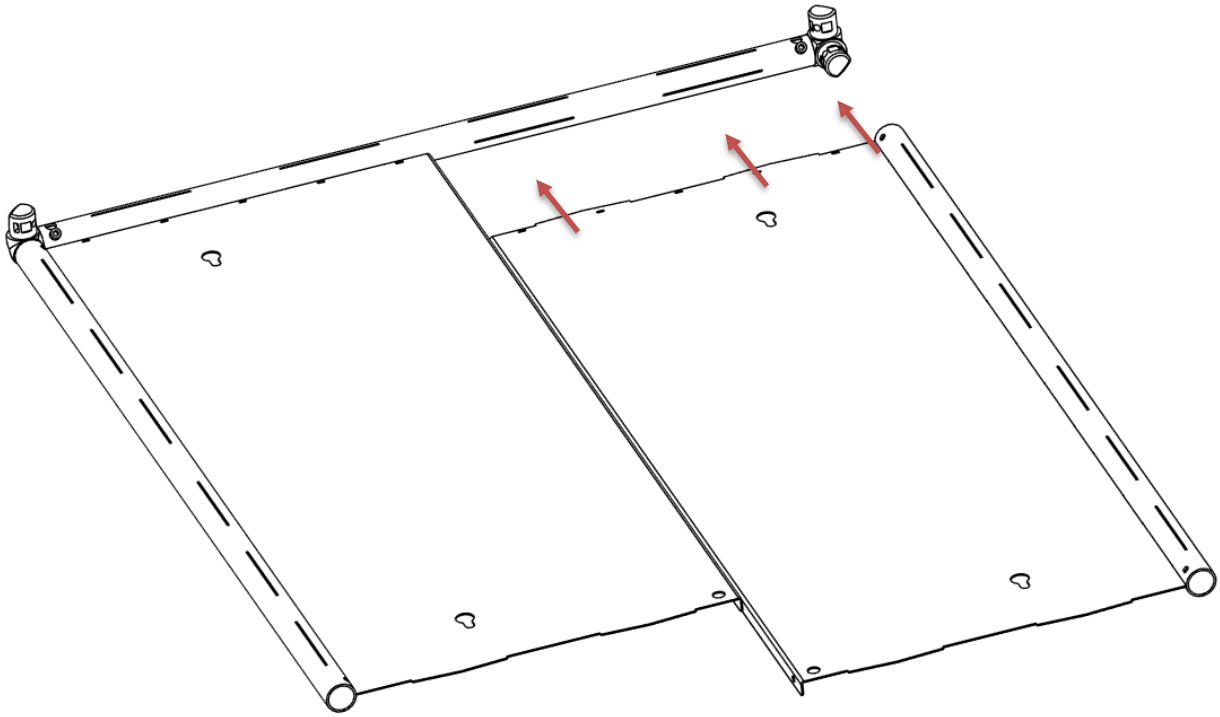
Orientation:

- Small oval holes next to the tube holding the corner pieces
- Small flange facing **downwards**

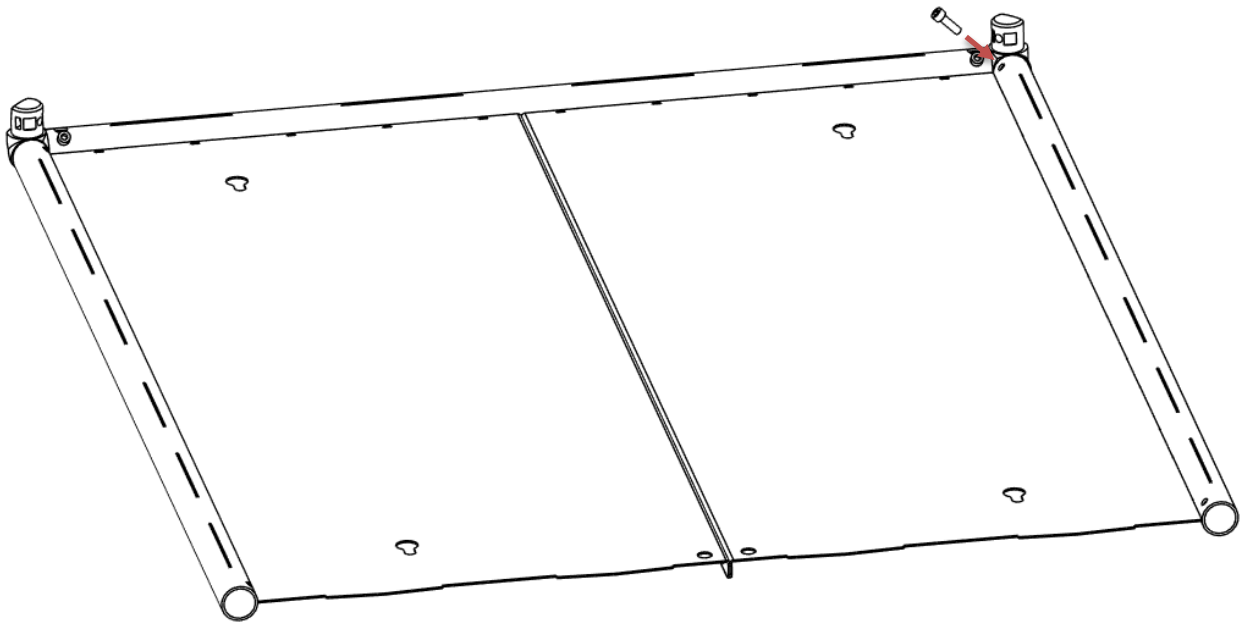
Push the tongues of the aluminum sheet into the slits of the long tube.



Press both back panel sheets together so the small flanges meet. Slide the tube and sheet over the horizontal stub of the right corner piece. Guide the tongues of the sheet into the slits of the medium-length tube.

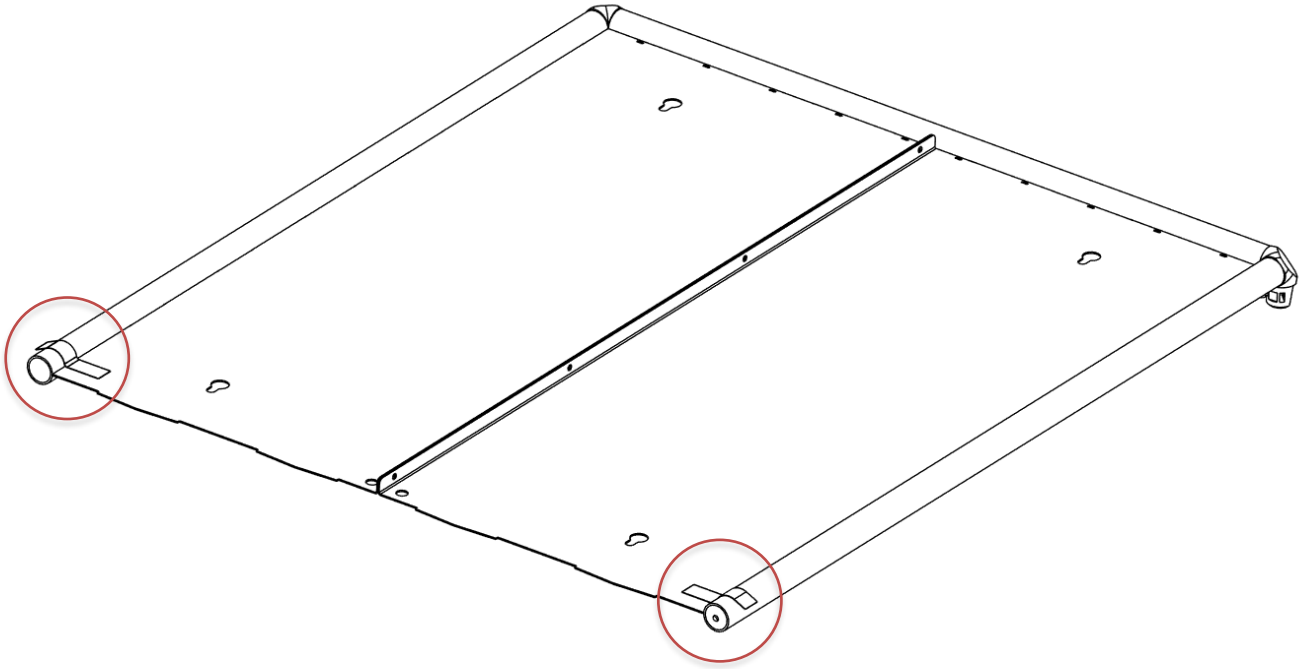


Insert an **Allen bolt, 20 mm length**, and thread it in lightly.

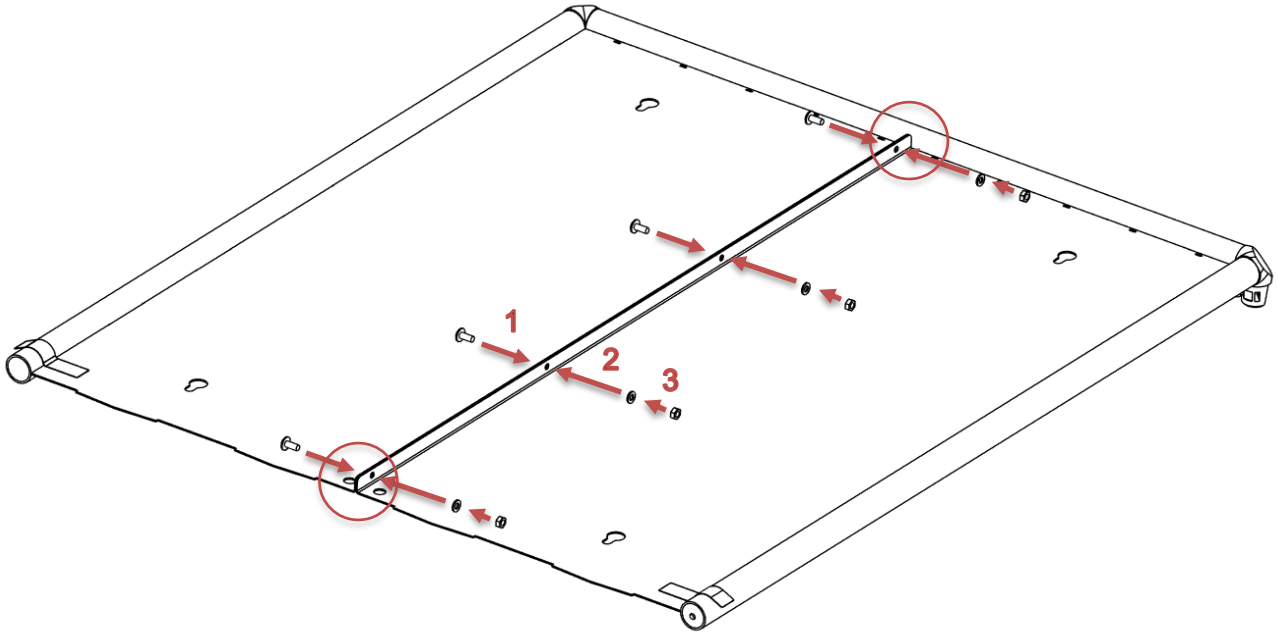


3.4 Securing the back panel flanges

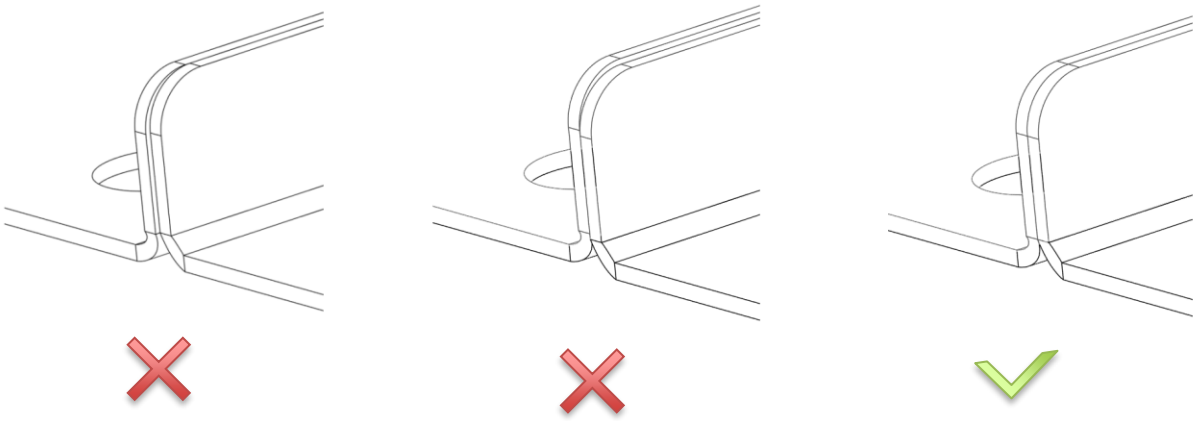
Hold the top ends of both long tubes with both hands. Press the aluminum sheet firmly into the tube using your thumbs. Rotate the assembly over the medium-length tube. Temporarily secure the ends of the long tubes to the aluminum sheets using **adhesive tape**. This keeps the assembly stable during the next steps.



Insert **four buttonhead bolts, 14 mm length**, through the holes in the short flanges of the back panels. Add a washer and nut to each bolt. Align the edges of both flanges accurately.



ATTENTION: The flanges must be aligned accurately, with no overlap horizontally or vertically.



Tighten all bolts using an Allen key and a **10 mm ring spanner**. Set the back panel assembly aside in this position.

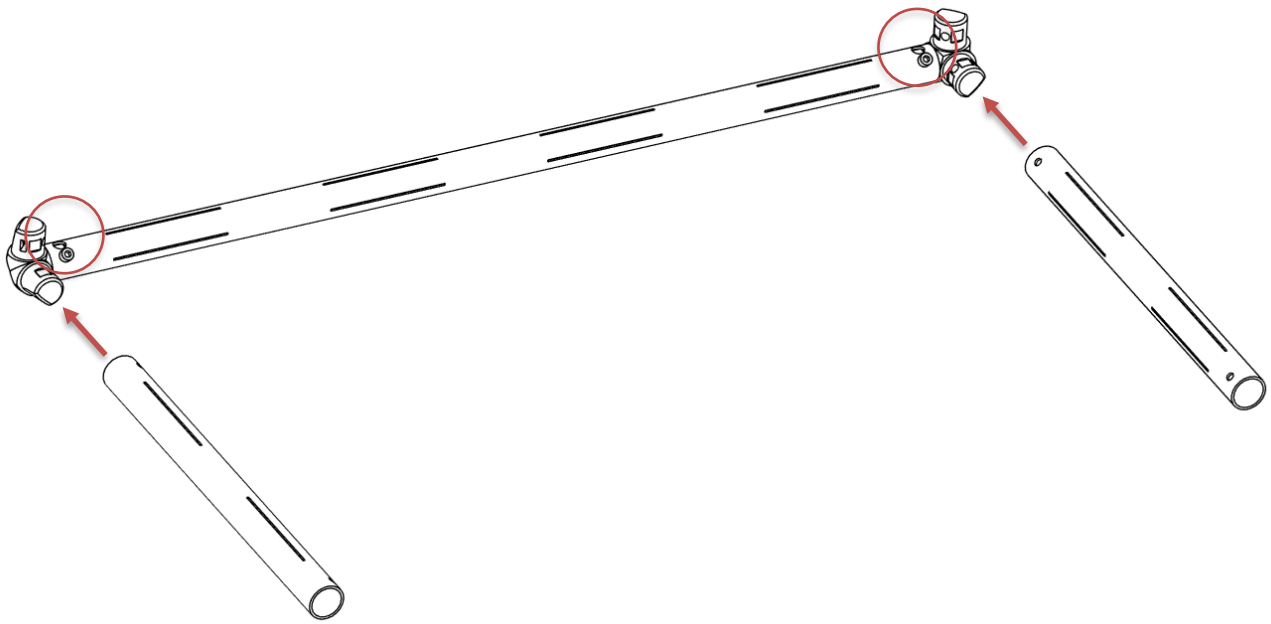
3.5 Preparing the side panel frame

Take the previously assembled medium-length tube with corner pieces. Position it so the **large holes face upwards**. Take the **two remaining short tubes**.

Place them so:

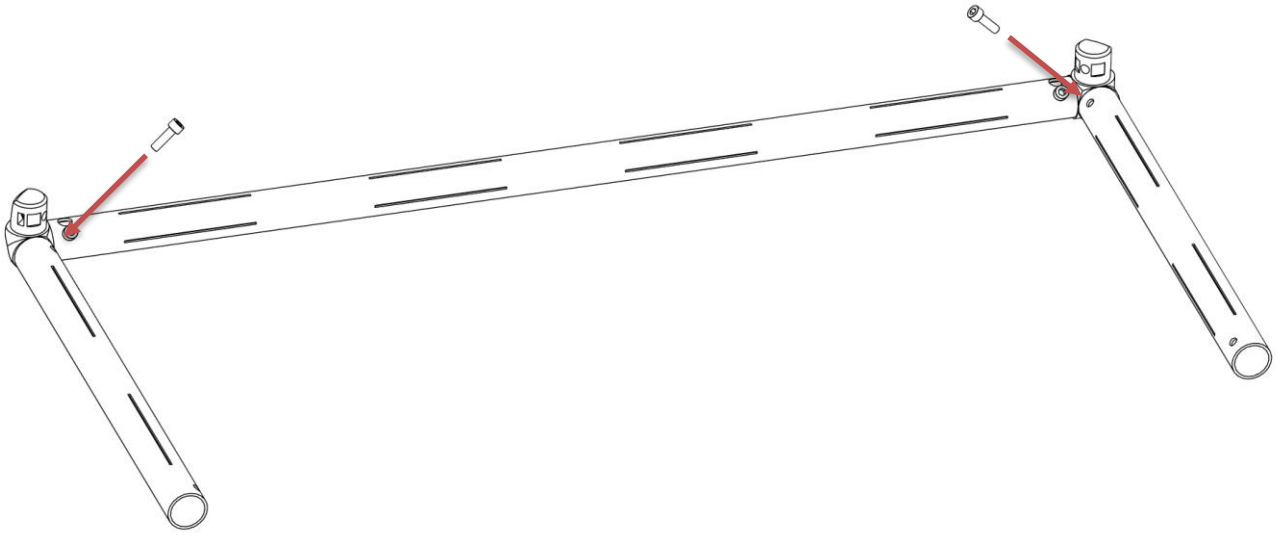
- The slits face **upwards**
- The slits face **towards each other**

Slide the short tubes over the horizontal stubs of the corner pieces.



ATTENTION: Double-check the orientation of the large hole. This hole will later be used for the door hinge.

Insert **two Allen bolts, 20 mm length**, and thread them in lightly.



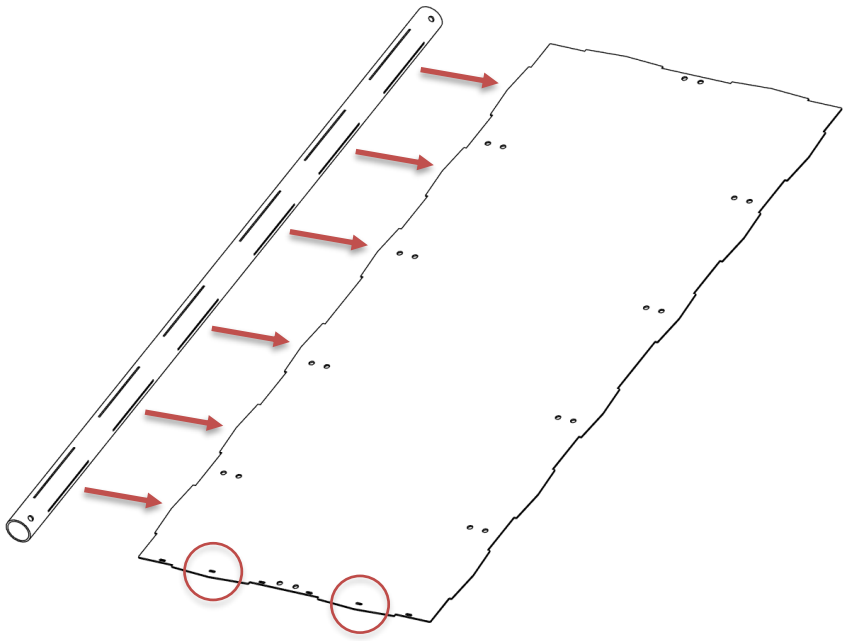
3.6 Installing the side panels

Take one **long tube** and one **side panel aluminum sheet**.

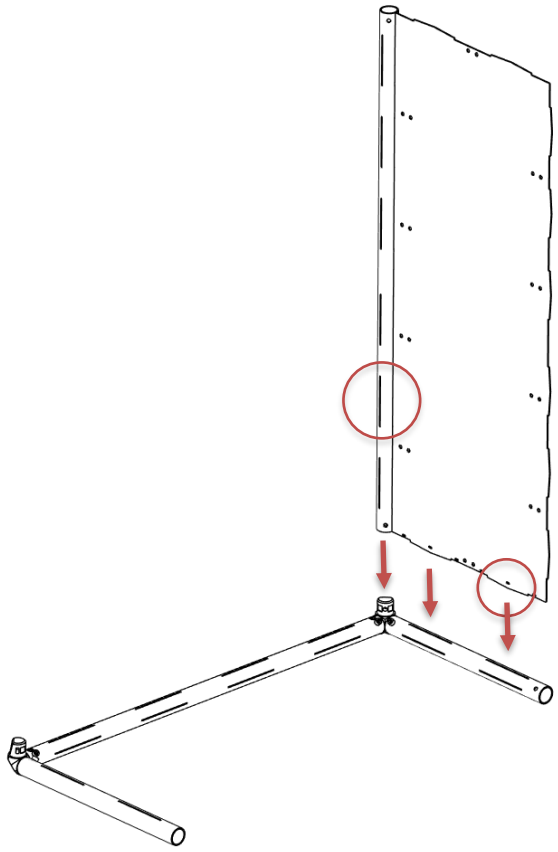
Orientation:

- Long tube on the left
- Horizontal slits facing the aluminum sheet
- Other slits facing **upwards**
- Small oval slots in the aluminum sheet must be at the **bottom**

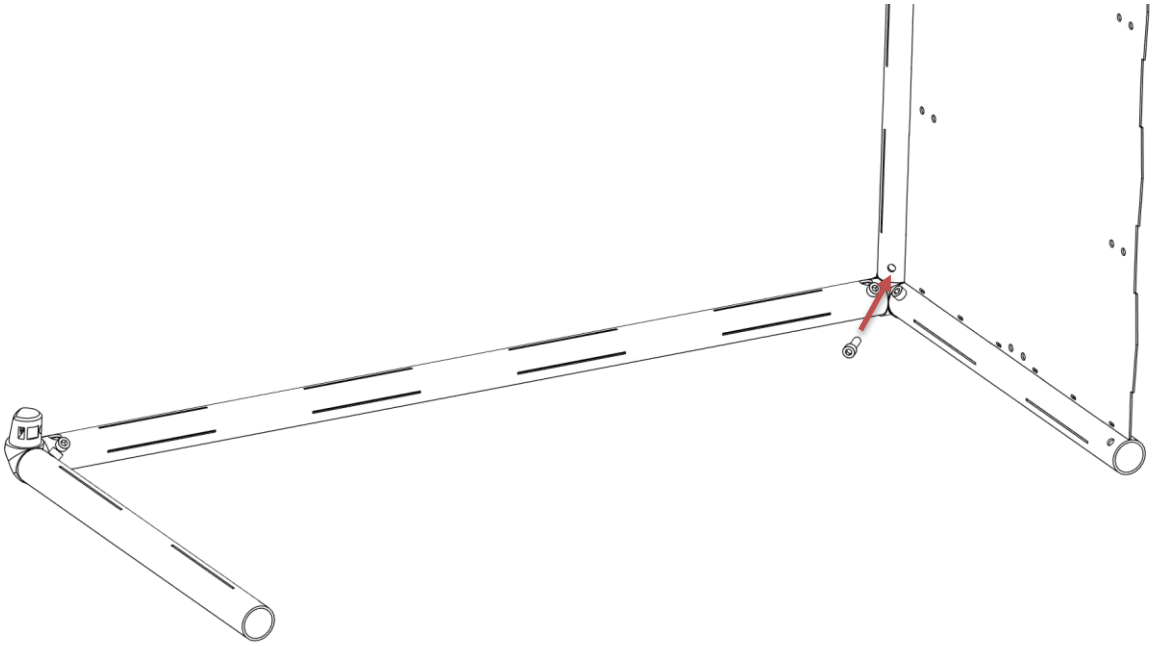
Choose the cosmetically best side of the sheet. This side must face **outwards**. The visible side during assembly will be the inside of the cabinet. Push the tongues of the aluminum sheet into the slits of the long tube.



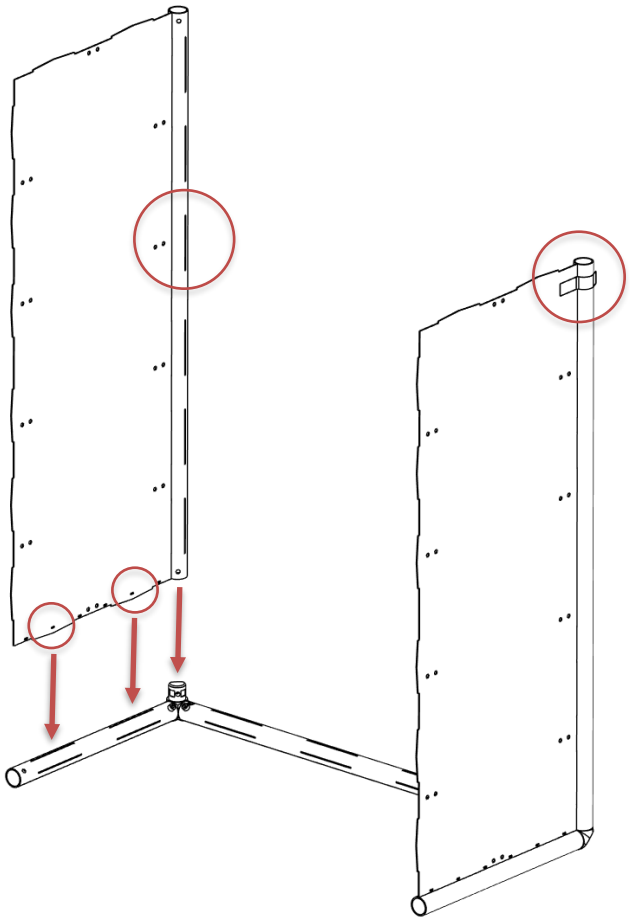
Slide the tube and sheet over the vertical stub of the right corner piece. Guide the tongues of the sheet into the slits of the short tube.



Insert an **Allen bolt, 20 mm length**, and thread it in lightly.



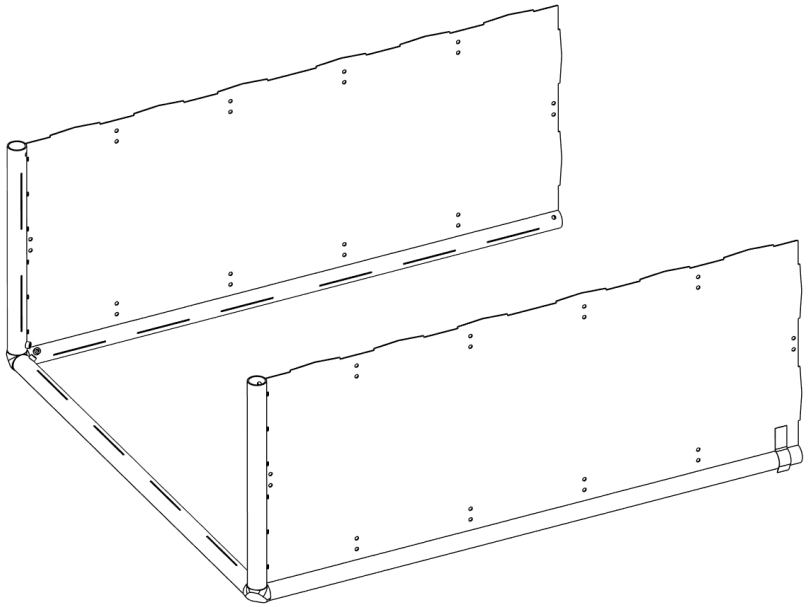
Temporarily secure the end of the long tube to the aluminum sheet using adhesive tape. Repeat this procedure for the **other side panel**.



ATTENTION: Make sure the small oval slots are at the bottom and any unused slits face inwards, toward the opposite corner piece.

3.7 Combining side panels and back panel

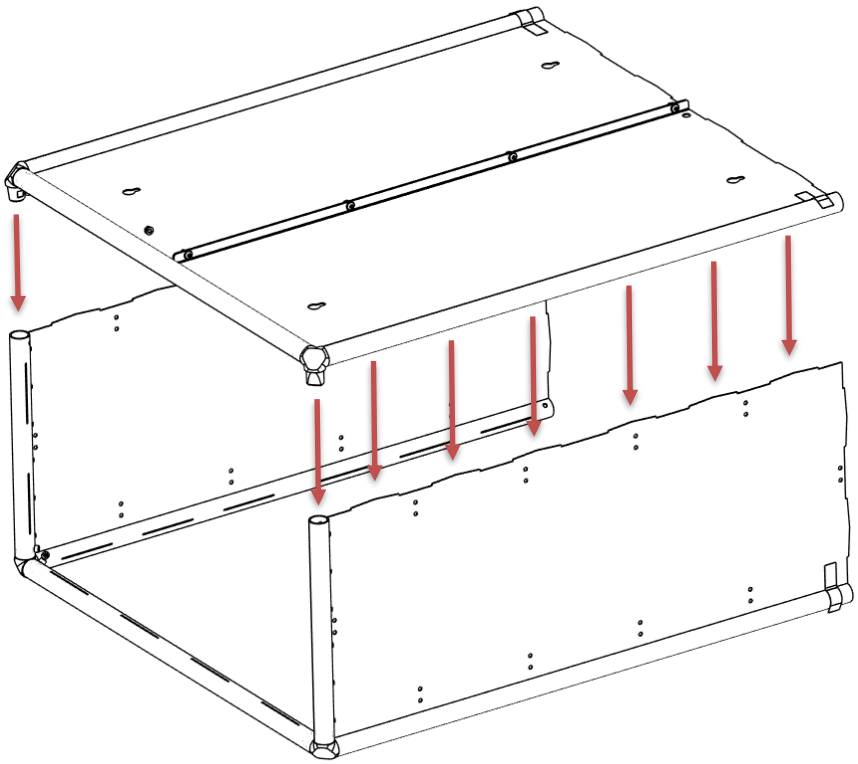
Hold the top ends of the long tubes near the adhesive tape. Rotate the assembly over the bottom long tube so the long sides of the side panels face upwards.



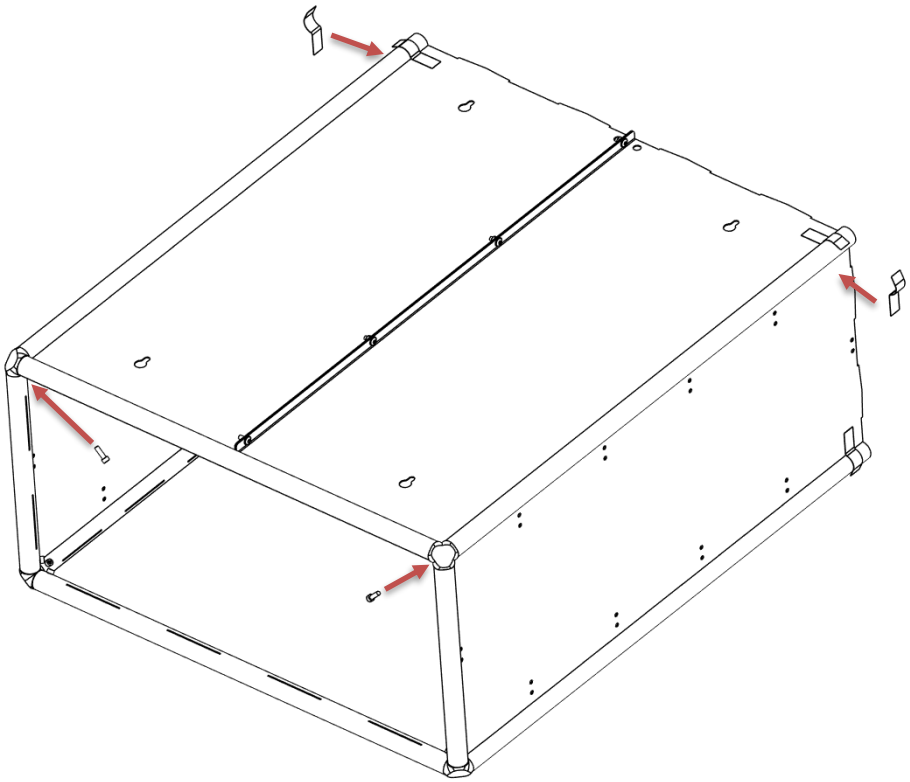
Pick up the back panel assembly. Lower it carefully onto the side panel assembly:

- First insert the corner piece stubs into the short tubes
- Then guide the tongues of the back panel sheets into the slits of the long tubes, start at the corner pieces and work towards the tape.

Wiggle gently until all tongues engage correctly.



Insert **two Allen bolts, 20 mm length**, and thread them in lightly. Secure the ends of the long tubes to the side panels using adhesive tape.



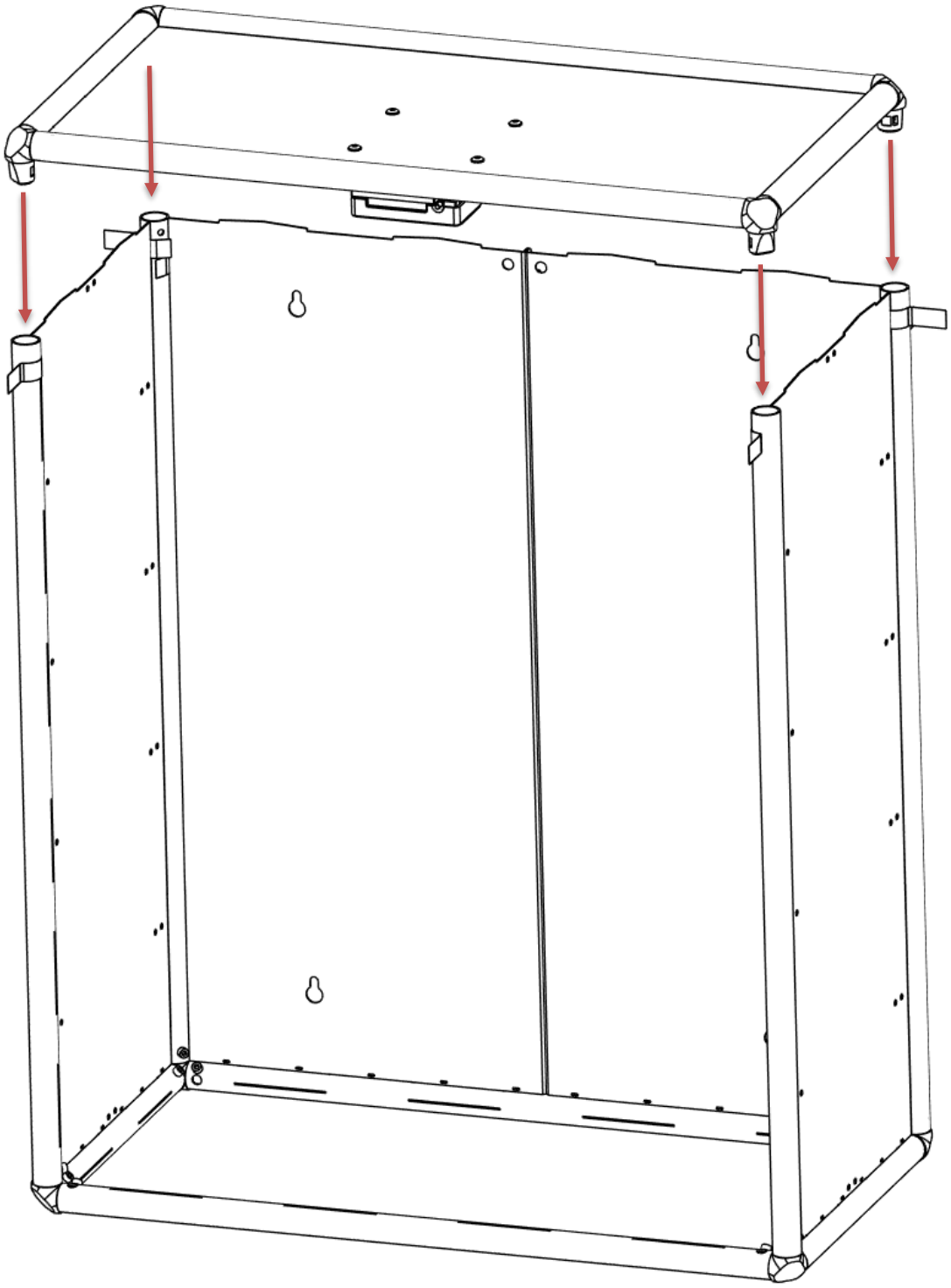
3.8 Installing the cabinet top

Rotate the cabinet assembly upright. Pick up the previously assembled **cabinet top**.

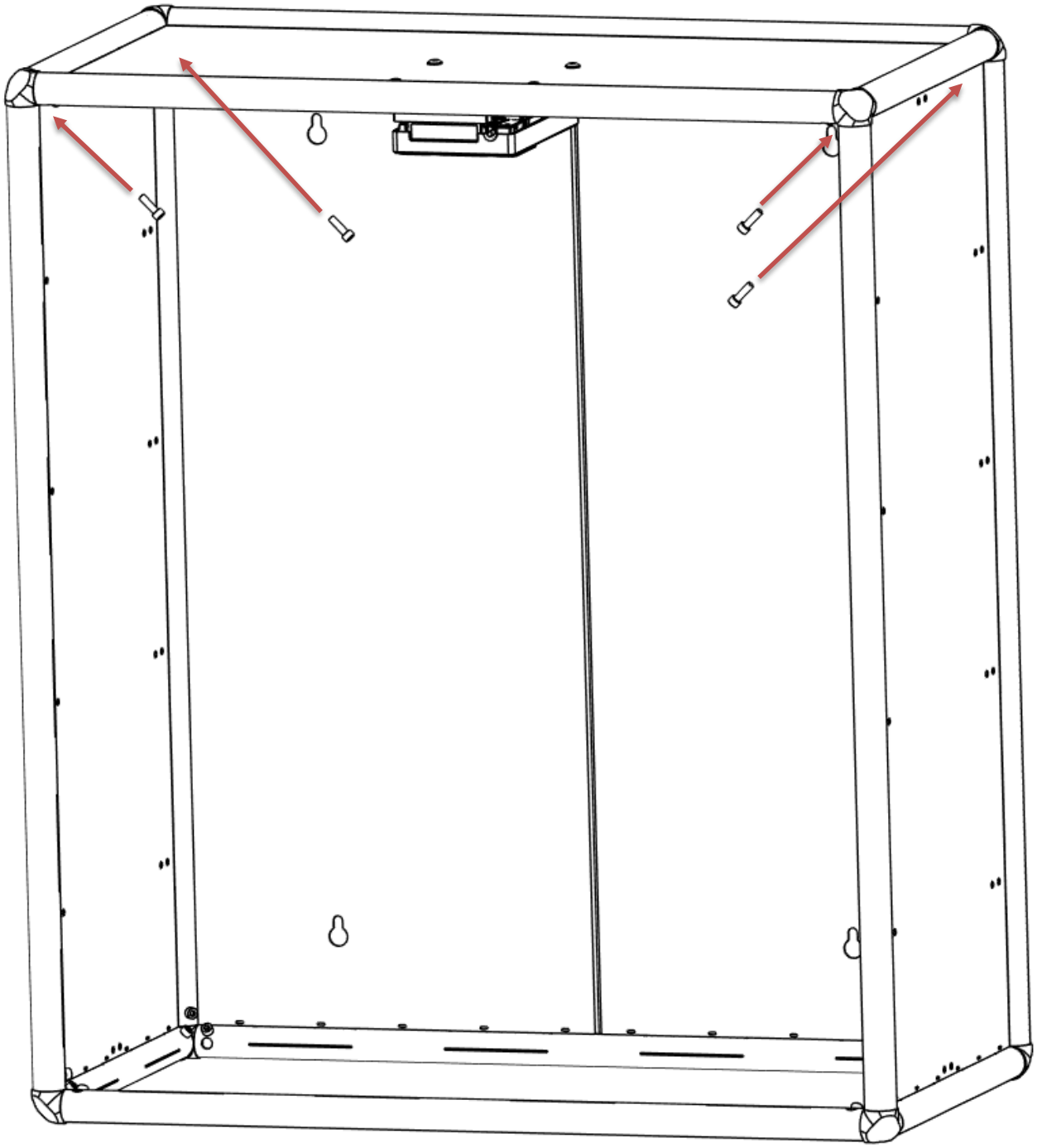
Lower it carefully onto the cabinet:

- Insert the corner piece stubs into the long tubes
- Guide all tongues into their matching slits, start at the rear corner pieces and work your way forward.

Wiggle gently until fully seated.



Insert **four Allen bolts, 20 mm length**, and thread them in lightly. Remove all adhesive tape.



3.9 Final tightening

Place the complete cabinet on a flat surface. Make sure:

- Both side panels are square
- The back panel is square
- The cabinet is not twisted or warped

Tighten **all 24 Allen bolts**, three in each corner piece. Double-check every bolt. The cabinet is now fully assembled.

4. Back trapdoors

Each of the four floors in the HayTimer consists of **two trapdoors**, resulting in **eight trapdoors** in total. In this chapter, only the **back trapdoors** are assembled and installed. The front trapdoors will be installed later, after the trapdoor drive mechanism has been mounted.

Each trapdoor is supported by **two hinges**, one on each side. Every hinge consists of two parts:

- A **cabinet hinge part**, mounted to the cabinet
- A **trapdoor hinge part**, mounted to the trapdoor

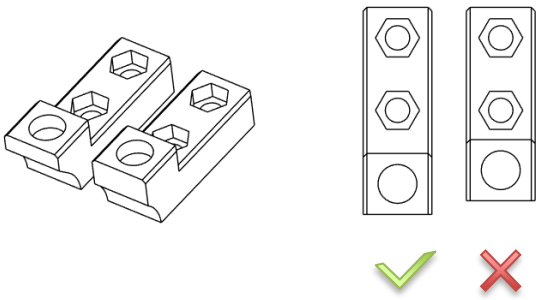
4.1 Sorting the cabinet hinge parts

Collect all **sixteen cabinet hinge parts**. Although they look similar, there are **two different lengths**.

Sort them into:

- **Eight long cabinet hinge parts**: used for the back trapdoors
- **Eight short cabinet hinge parts:** used later for the front trapdoors

Set the **short hinge parts aside** for now.



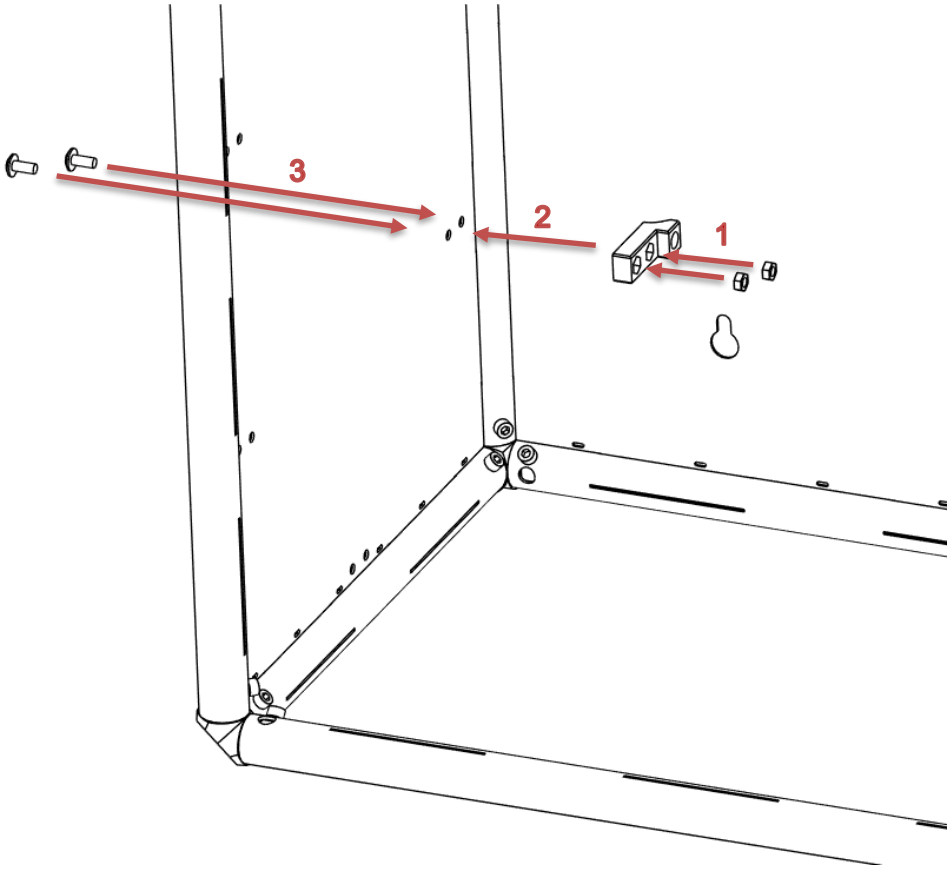
4.2 Installing the cabinet hinge parts

Each cabinet hinge part is mounted using:

- Two nuts
- Two **buttonhead bolts, 14 mm length**

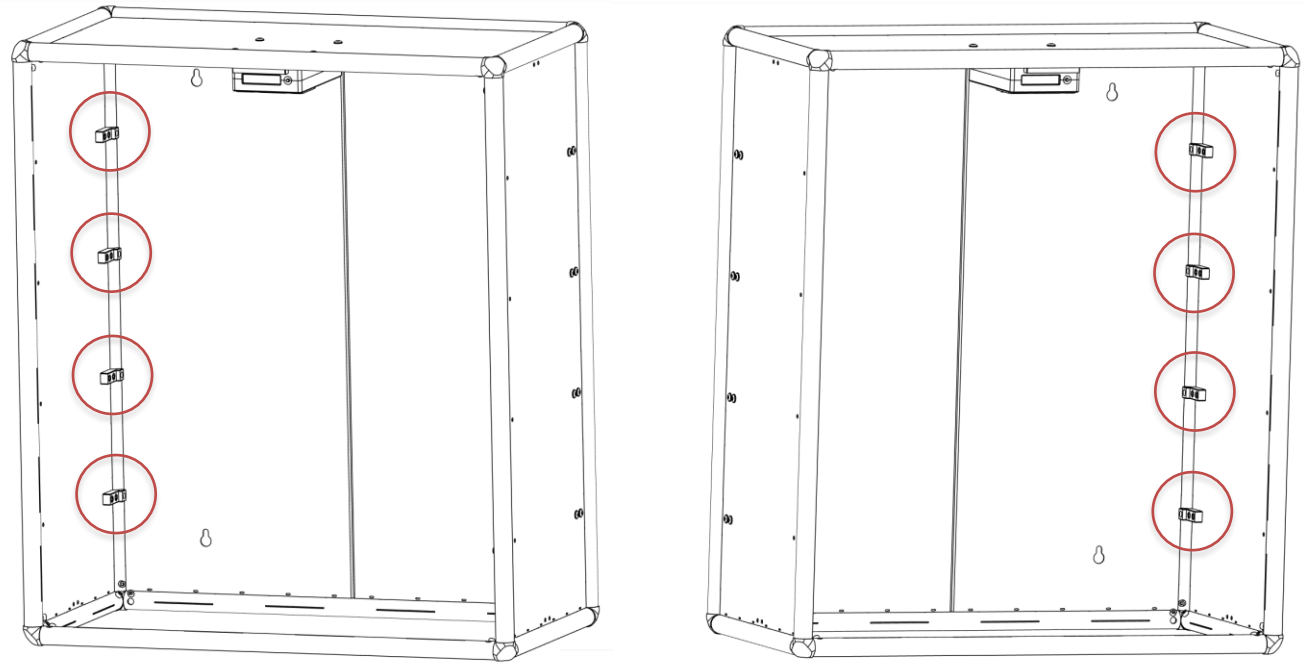
Insert the two nuts into the hinge part. Position the hinge part at its mounting location on the cabinet. Hold it in place with one finger, keeping pressure on the nuts so they do not fall out. Insert the first buttonhead bolt through the cabinet wall into the hinge part and thread it in as far as possible. Insert the second buttonhead bolt and thread it in.

Press the hinge part **towards the back panel** so it aligns correctly on the aluminum tube. Tighten both bolts securely using an Allen key.



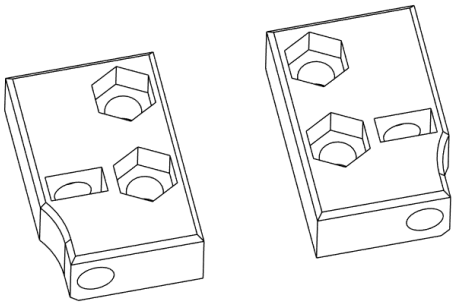
Repeat this procedure until:

- Four cabinet hinge parts are installed on the **left side**
- Four cabinet hinge parts are installed on the **right side**



4.3 Preparing the trapdoor hinge parts

The second hinge part is used for both trapdoors and cabinet doors. You will find **twenty identical-looking hinge parts**, which are mirrored left and right.

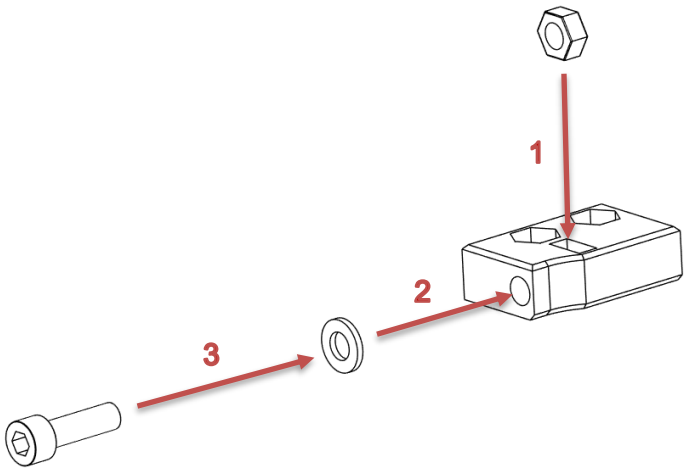


Set aside **two left and two right** hinge parts; these will be used later for the doors.

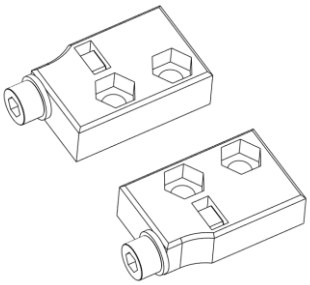
For the **remaining sixteen** hinge components:

- Insert one nut into the vertical slot
- Place a washer on an **Allen bolt, 20 mm length**
- Insert the bolt through the side of the hinge and thread it in

Tighten the bolt securely.



Repeat this for all **sixteen hinge parts**. Sort them into **two stacks of eight**.

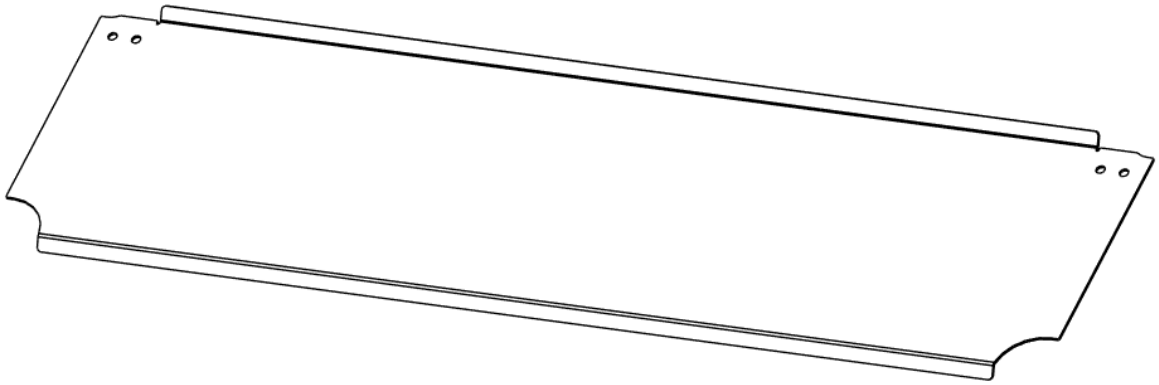


4.4 Identifying the back trapdoors

Sort the eight trapdoors into:

- **Back trapdoors**
- **Front trapdoors**

The **back trapdoor** is identified by two bend lines and two flanges.

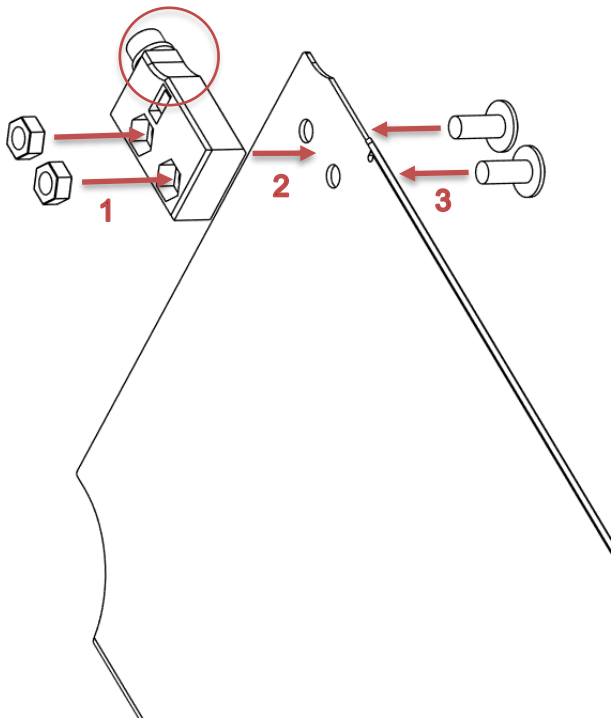


4.5 Assembling hinges to the back trapdoors

Take a back trapdoor.

4.5.1 Left hinge

Select the hinge part with the **circular cut-out in the upper left corner**. Insert two nuts into the hinge. Position the hinge on the **upper left corner** of the trapdoor. Insert **two buttonhead bolts, 14 mm length**, thread them in and tighten securely.



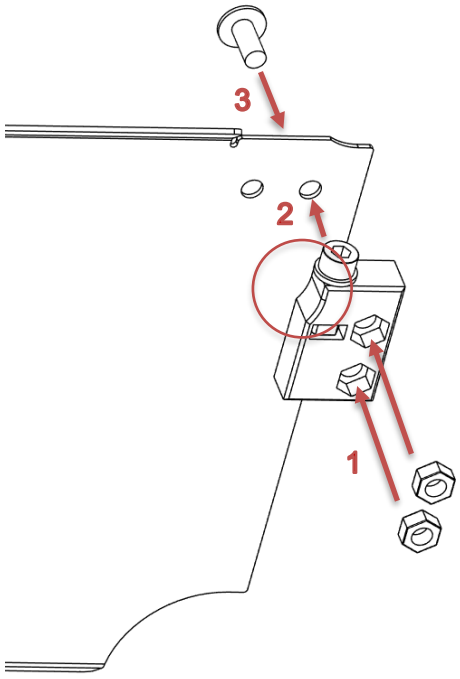
4.5.2 Right hinge

Select the mirrored hinge part with the **circular cut-out in the upper right corner**. Insert two nuts into the hinge. Position the hinge on the **upper right corner** of the trapdoor so the **outermost hole** aligns with the outermost hole of the trapdoor. Insert **one buttonhead bolt, 14 mm length** only.

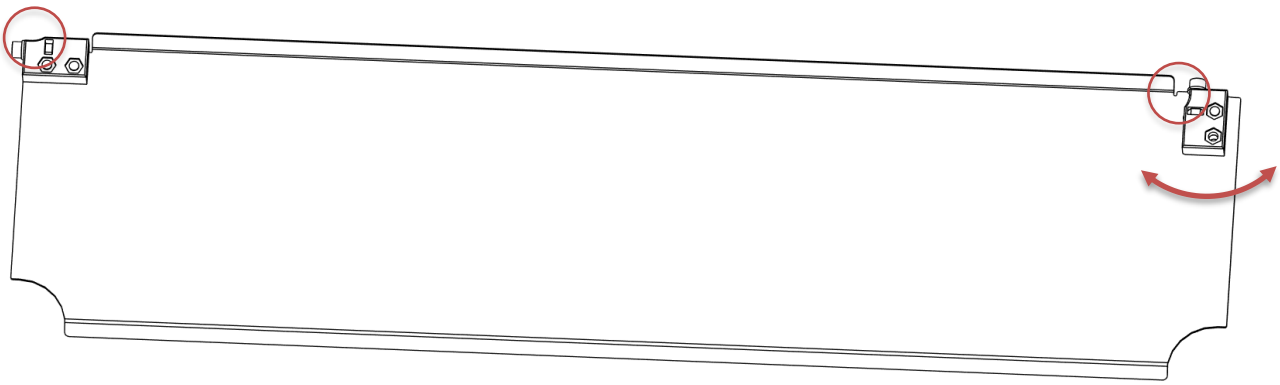
Tighten this bolt just enough so:

- The hinge can still rotate
- The hinge holds its position when released

If the unused nut falls out, set it aside. It will be reinserted during installation.



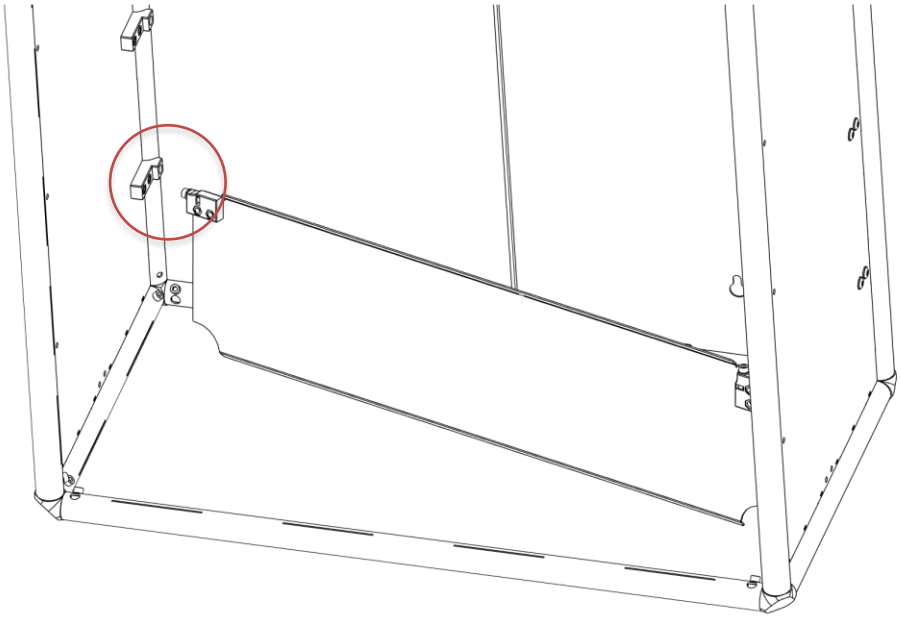
The assembled trapdoor should match the reference image. Repeat this procedure for the **remaining three back trapdoors**.



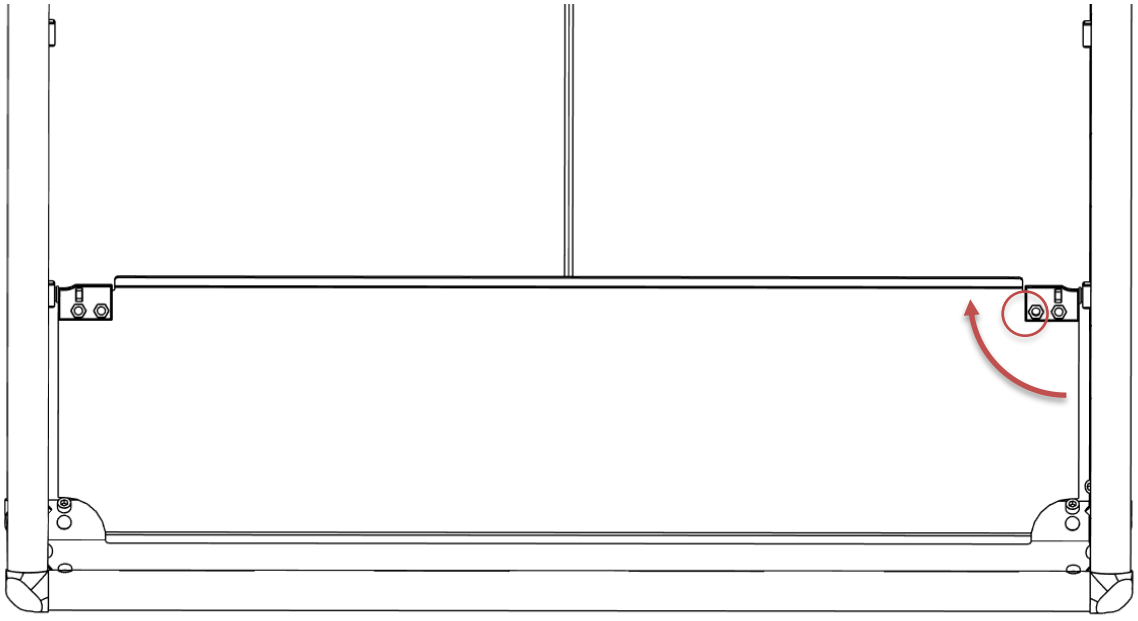
ATTENTION: Double-check that the circular cut-outs are positioned exactly as shown. Incorrect orientation will prevent correct operation.

4.6 Installing the back trapdoors in the cabinet

Trapdoors must be installed **from bottom to top**. Take one trapdoor and hold it with the hinges facing **towards you**. Insert the **left trapdoor hinge** into the hole of the cabinet hinge part on the left side of the cabinet.



Move the right side of the trapdoor close to the right cabinet hinge. Rotate the trapdoor hinge **clockwise** until it locks into the cabinet hinge and the hole behind the unused nut aligns with the hole in the trapdoor.



Rotate the trapdoor upward until it is horizontal. If the second nut was removed earlier, reinsert it now. Hold the nut in place with one finger and insert a **buttonhead bolt, 14 mm length**, through the trapdoor into the hinge. Thread in the bolt and tighten securely.

Repeat this entire procedure for the remaining **three back trapdoors**, working from bottom to top.

5. Trapdoor drive mechanism

The trapdoor drive mechanism consists of **two camshafts**, one on the left side and one on the right side of the cabinet. Each camshaft controls the opening and closing of the trapdoors using camblocks.

Correct orientation of all components in this chapter is essential. If the camshafts are assembled incorrectly, the trapdoors will not open or close in the correct order.

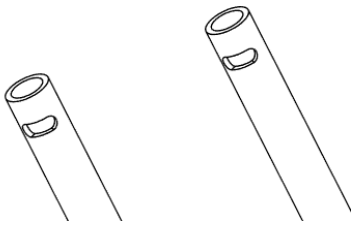
5.1 Identifying the camshaft tubes

Take the **two stainless steel tubes**:

- Diameter: 15 mm
- Length: 884 mm

Each tube contains multiple holes. One end of each tube has a **slotted hole**. Throughout this chapter:

- The end with the slotted hole is referred to as the **top**
- When installed, this end will face **upwards** in the cabinet



5.2 Marking the camshaft holes

Place both stainless steel tubes horizontally on a table in a **V-shape**. The red circle marks the location of the slotted hole. Orientation:

- The **slotted holes face downwards**
- The **slotted holes face away from you**

In this orientation, the tube that appears on the **left side in the image** will later become the **right camshaft** when installed in the cabinet. The tube that appears on the **right side in the image** will later become the **left camshaft**. This orientation is intentional. By positioning the tubes this way:

- All holes **that will be used** are clearly visible
- The mirrored holes **that are not used** are hidden from view
- The correct hole pattern is easier to recognize and mark

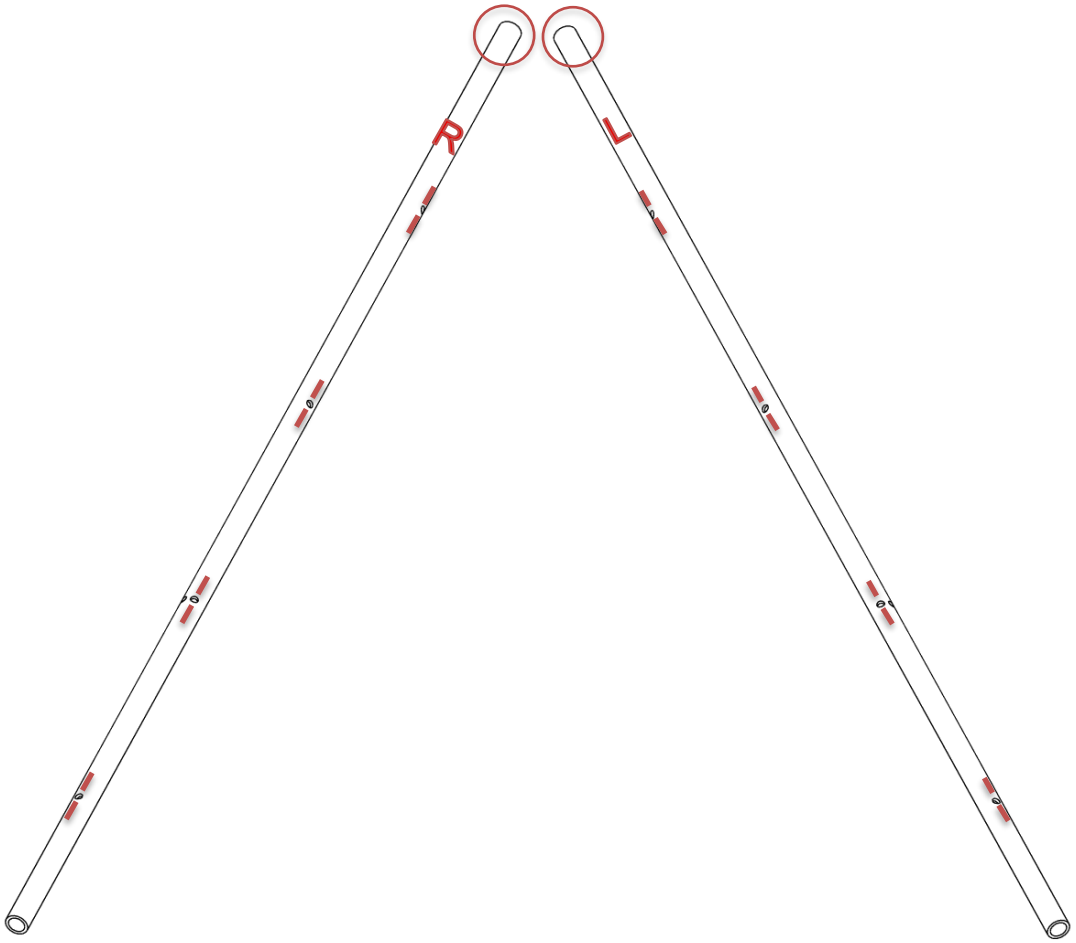
Mark the tubes as follows:

- Mark the tube shown on the **left** with an “R”
- Mark the tube shown on the **right** with an “L”

Using a black marker, mark the holes that will be used for the camblocks:

- The **bottom hole** is the same on both tubes
- The **three upper holes** are mirrored between the left and right camshaft

Mark each selected hole with a short line, approximately 20 mm long.

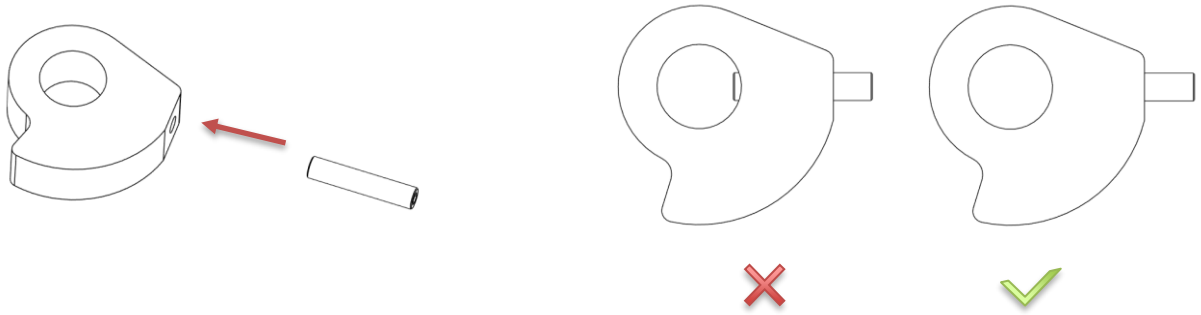


5.3 Preparing the camblocks

There are **eight camblocks**, two for each trapdoor. For each camblock:

- Take one **set screw, 25 mm length**
- Thread the set screw into the camblock until it becomes visible inside the camblock hole
- Reverse the direction and thread it back until the set screw is **no longer visible**

This ensures the camblock can slide freely onto the camshaft. Repeat this for all eight camblocks.

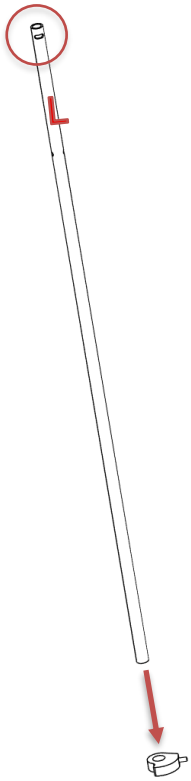


5.4 Assembling the left camshaft

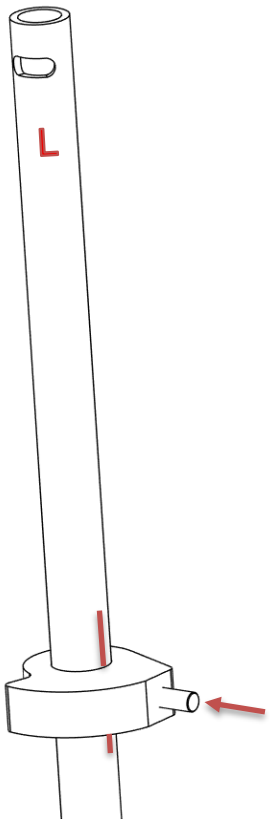
Take the stainless steel tube marked **L**. Place a camblock on the table in the orientation shown in the reference image. Hold the camshaft vertically with:

- The **slotted hole at the top**

Insert the bottom end of the tube into the camblock. If the tube does not slide in easily, check that the set screw is threaded back far enough.



Slide the camblock upward until it reaches the **top marked hole**. Align the set screw with the marked hole in the stainless steel tube.

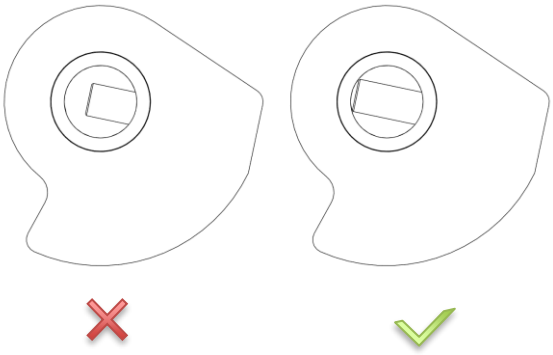


Thread the set screw inward. If resistance is felt before the set screw is fully seated:

- Unthread the set screw approximately **1/8 turn**
- Slightly rotate or shift the camblock
- Continue threading until the set screw fully enters the hole

When properly installed:

- The set screw is completely recessed in the camblock
- Looking down the tube from the top, the set screw presses against the **opposite inner wall** of the tube

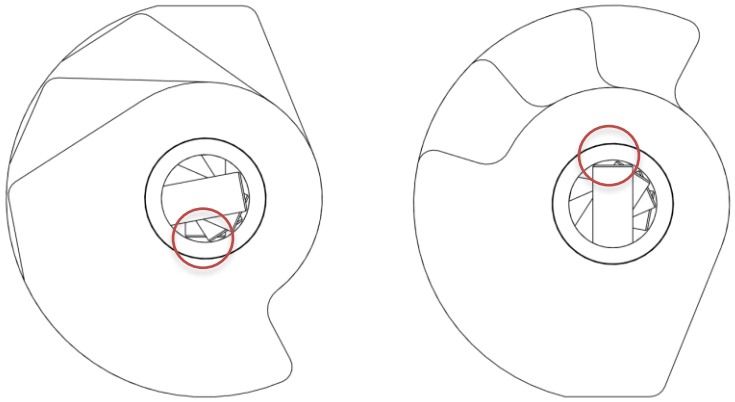


Repeat this procedure for the **remaining three camblocks** on the left camshaft.

5.5 Verifying camblock orientation (left camshaft)

The red circle marks the location of the slotted hole.

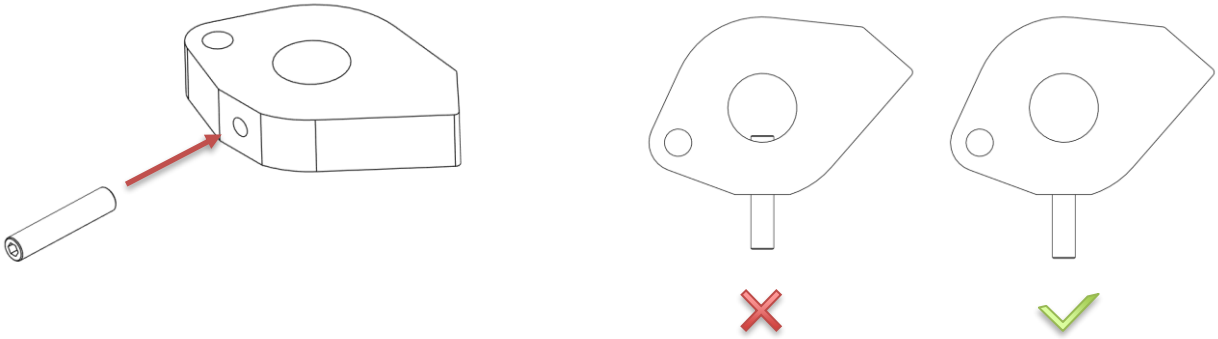
- Viewing from the **top**, the camblocks must match the reference image
- Viewing from the **bottom**, the camblocks must match the mirrored reference image



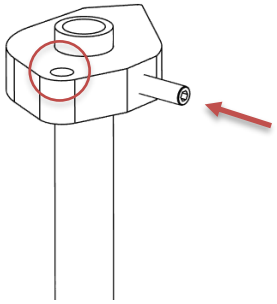
ATTENTION: Triple-check this orientation. If the camblocks are installed incorrectly, the trapdoors will not operate correctly and the camshaft must be rebuilt.

5.6 Installing the drive block (left camshaft)

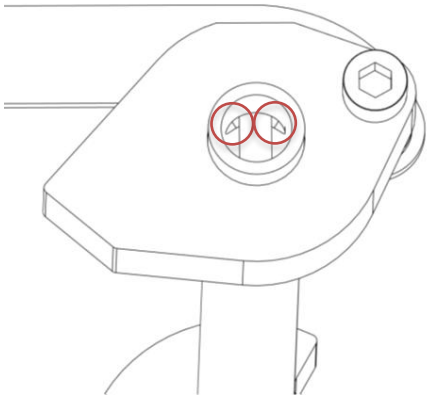
Take one **drive block** and one **set screw, 25 mm length**. Thread the set screw into the drive block until visible, then thread it back until it is no longer visible inside the hole.



Place the camshaft vertically with the slotted hole at the top. Slide the drive block onto the camshaft, aligning the set screw with the slotted hole. Thread in the set screw.

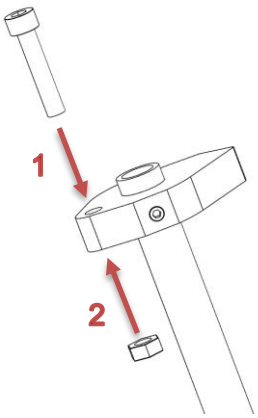


Position the drive block so that the set screw is located **approximately in the center of the slotted hole.** This is the neutral position and will work correctly in most cases. Thread in the set screw until it almost clamps the drive block onto the camshaft. The camshaft must be able to rotate with light hand force. Final tightening will take place later during the fine adjustment of the camshaft.

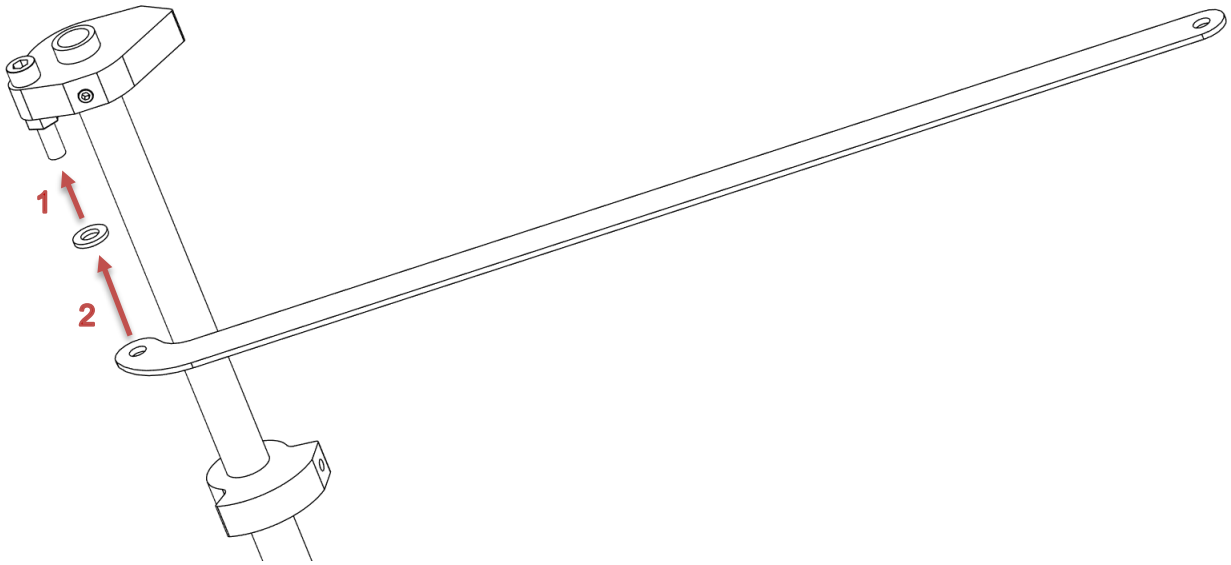


5.7 Connecting the linking plate (left camshaft)

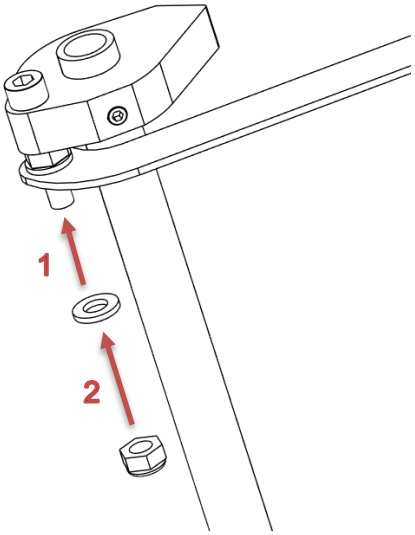
Insert an **Allen bolt, 30 mm length**, into the drive block and thread on a nut. Do **not** use a washer at this location. Tighten the nut securely using an Allen key and a **10 mm ring spanner**.



Place a washer on the Allen bolt. Install the **stainless steel linking plate** onto the bolt using the hole in the **bent end** of the plate. Make sure it matches the reference orientation.

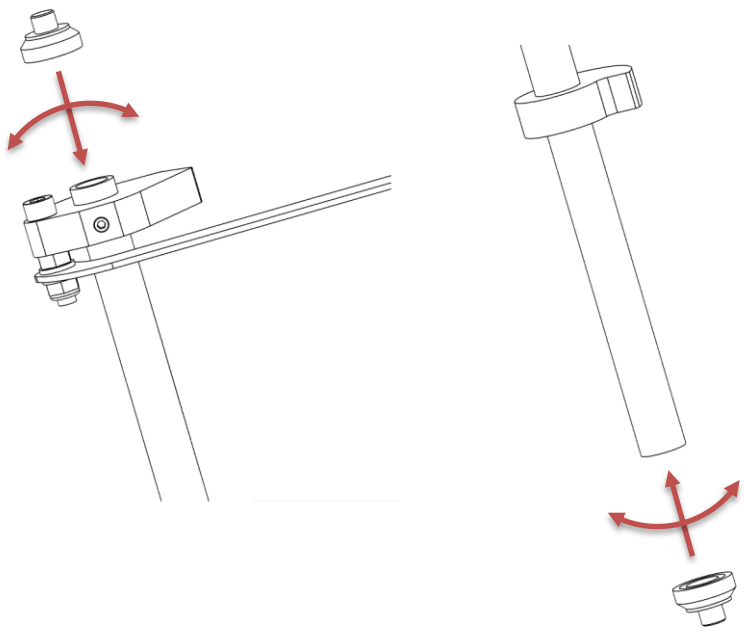


Place a second washer on the bolt. Thread on a **lock nut** (with blue nylon insert). Tighten the lock nut until resistance is felt, then loosen it approximately **1/8 turn**. The linking plate must rotate freely with minimal axial play.

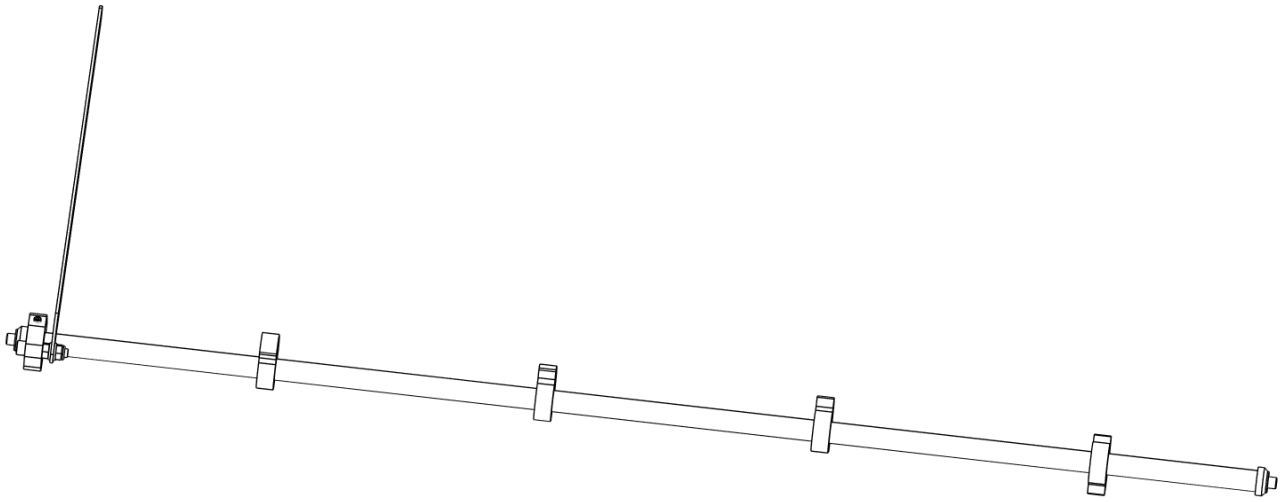


5.8 Installing the end caps (left camshaft)

Press one end cap onto each end of the camshaft. If needed, twist the caps slightly while pressing to ensure proper seating.

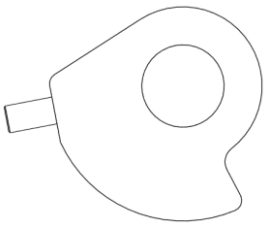


The **left camshaft** is now complete.



5.9 Assembling the right camshaft

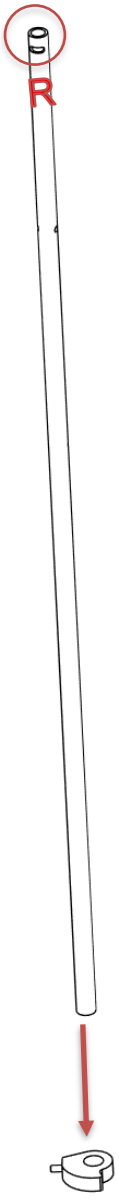
Take the stainless steel tube marked **R**. This tube will become the **right camshaft** when installed in the cabinet. Place a camblock on the table so it matches the orientation shown in the reference image for the right camshaft.



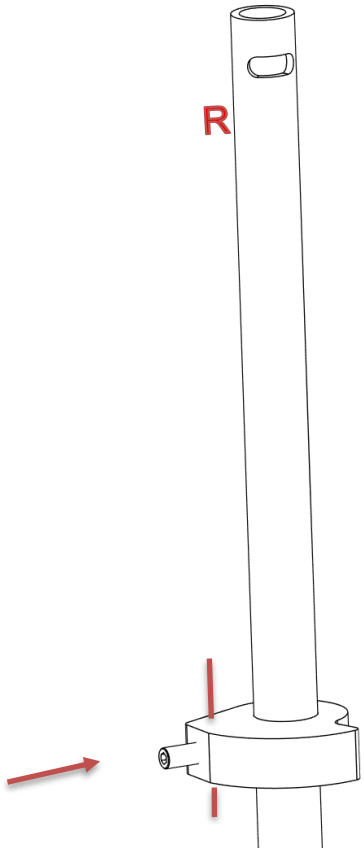
Hold the camshaft vertically with:

- The **slotted hole at the top**

Insert the **bottom end** of the stainless steel tube into the camblock. If the tube does not slide in easily, check that the set screw is threaded back far enough.



Slide the camblock upward until it reaches the **top hole that was previously marked**. Align the set screw with the marked hole in the stainless steel tube.

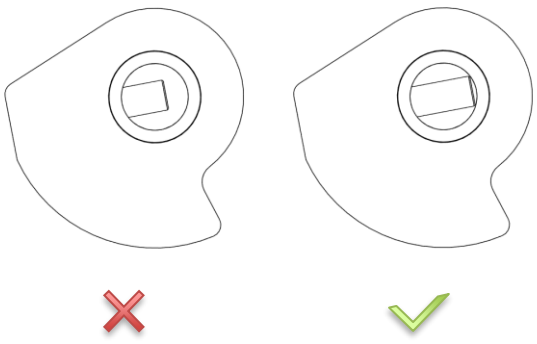


Thread the set screw inward. If resistance is felt before the set screw is fully seated:

- Unthread the set screw approximately **1/8 turn**
- Slightly rotate or shift the camblock
- Continue threading until the set screw fully enters the hole

When correctly installed:

- The set screw is fully recessed inside the camblock
- Looking into the tube from the top, the set screw presses against the **inner wall opposite the hole**

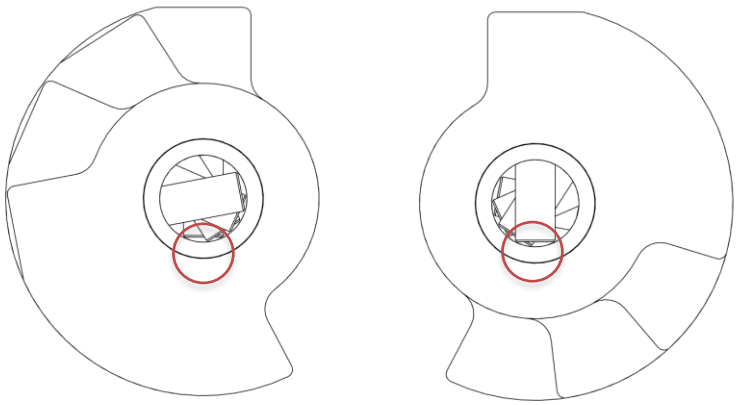


Repeat this procedure for the **remaining three camblocks** on the right camshaft.

5.10 Verifying camblock orientation (right camshaft)

The red circle marks the location of the slotted hole. Hold the camshaft so the **slotted hole faces you**.

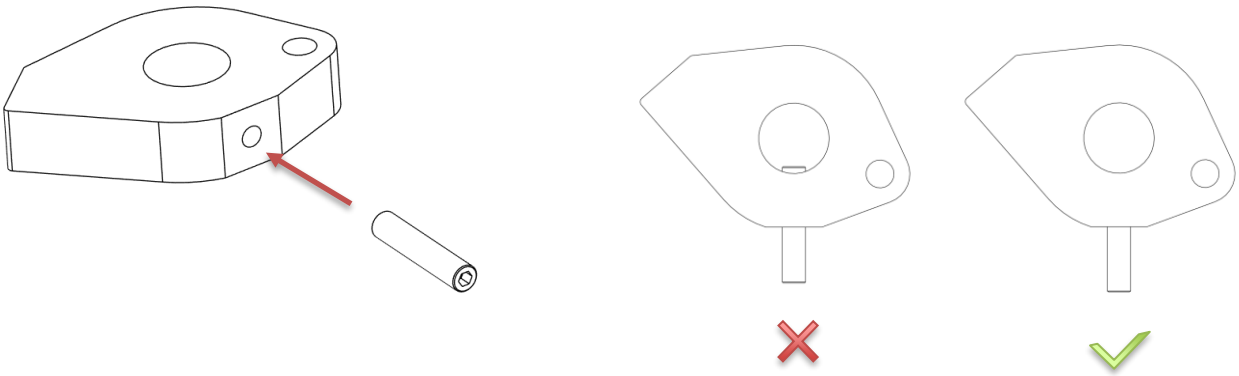
- Viewed from the **top**, the camblocks must match the reference image for the right camshaft
- Viewed from the **bottom**, the camblocks must match the corresponding bottom-view reference image



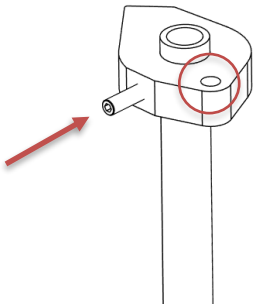
ATTENTION: Triple-check the orientation from both top and bottom. If the camblocks are installed incorrectly, the trapdoors will not open in the correct order and the camshaft must be disassembled and rebuilt.

5.11 Installing the drive block (right camshaft)

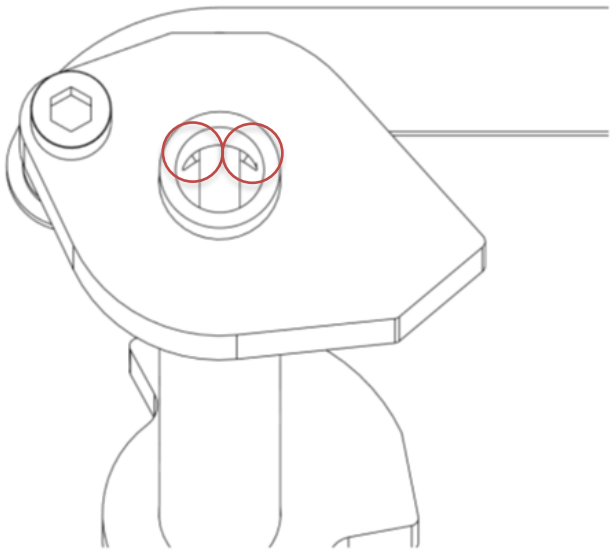
Take one **drive block** and one **set screw, 25 mm length**. Thread the set screw into the drive block until it becomes visible inside the hole. Then reverse the direction and thread it back until the set screw is **no longer visible** inside the hole.



Place the camshaft vertically with the slotted hole at the top. Slide the drive block onto the camshaft. Move the drive block down slightly until the set screw aligns with the **slotted hole** in the tube. Thread in the set screw.

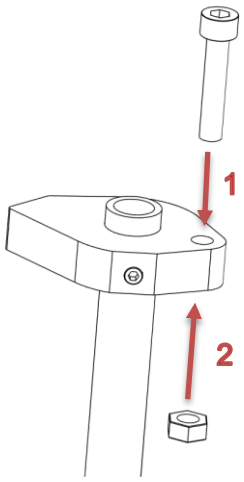


Position the drive block so that the set screw is located **approximately in the center of the slotted hole.** This is the neutral position and will work correctly in most cases. Thread in the set screw until it almost clamps the drive block onto the camshaft. The camshaft must be able to rotate with light hand force. Final tightening will take place later during the fine adjustment of the camshaft.

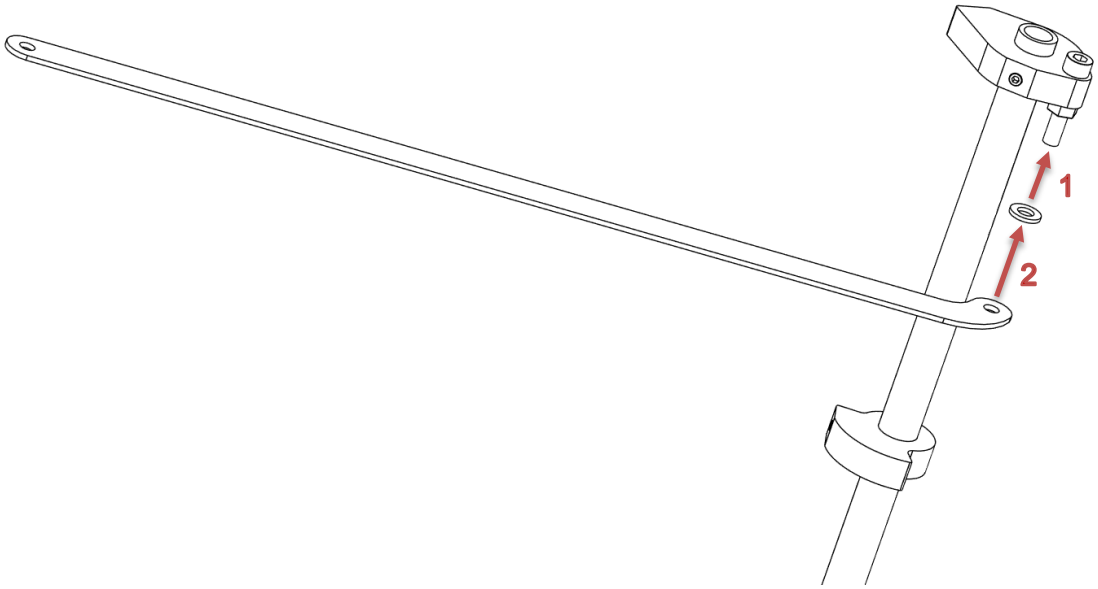


5.12 Installing the linking plate (right camshaft)

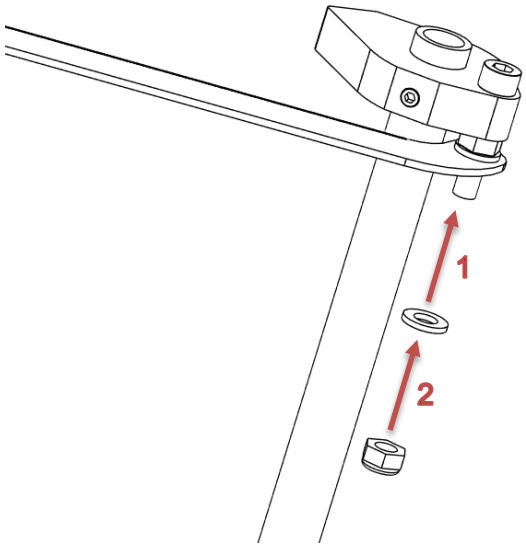
Insert an **Allen bolt, 30 mm length**, into the drive block and thread on a nut. Do **not** install a washer at this location. Tighten the nut securely using an Allen key and a **10 mm ring spanner**.



Place a washer onto the Allen bolt. Install the **stainless steel linking plate** using the hole in the **bent end** of the plate. Make sure the linking plate is oriented as shown in the reference image.

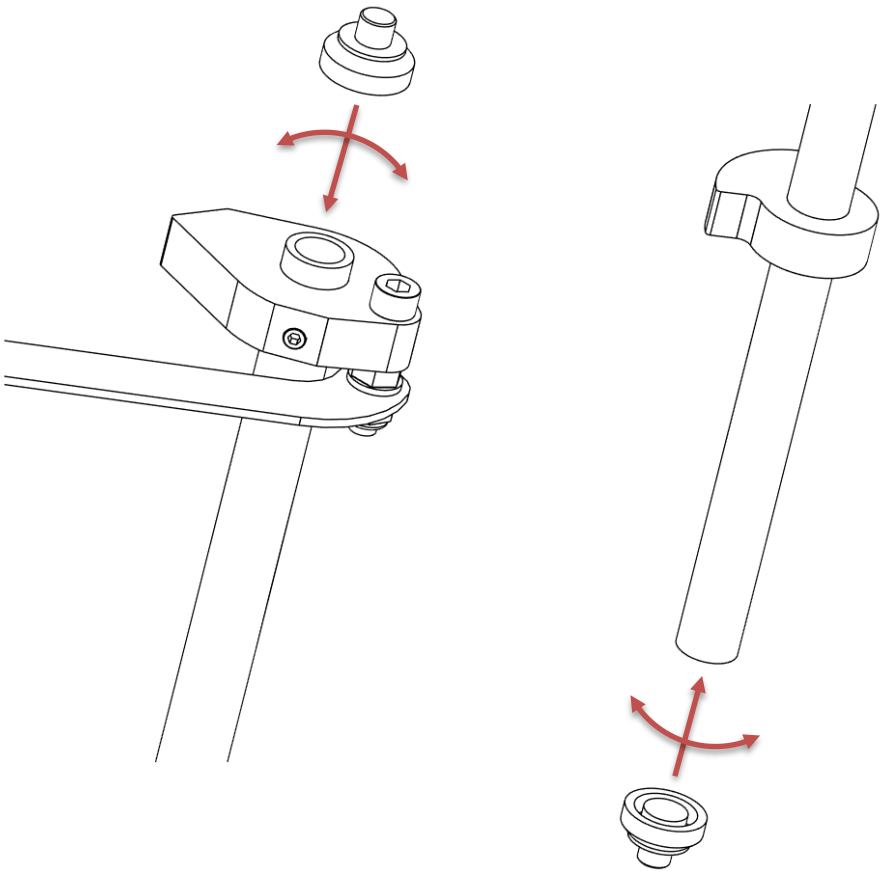


Place a second washer on the bolt. Thread on a **lock nut** (with blue nylon insert). Tighten the lock nut until resistance is felt, then loosen it approximately **1/8 turn**. The linking plate must be able to rotate freely, with minimal axial play between the washers.

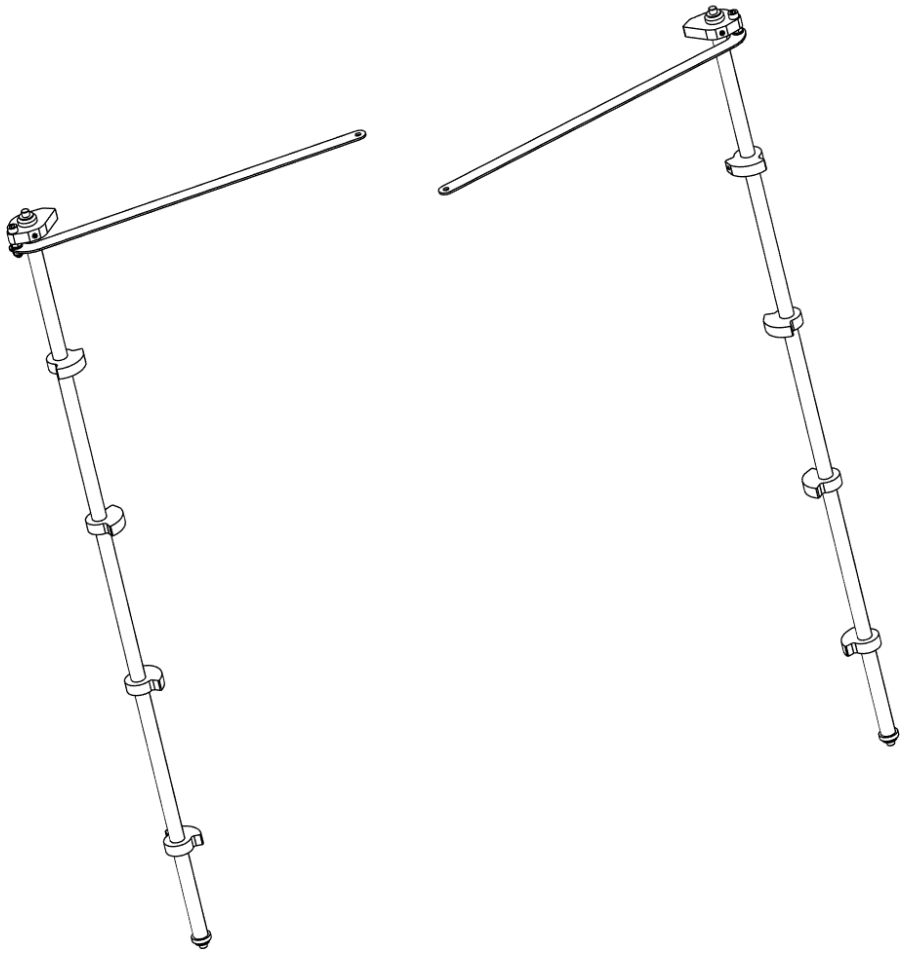


5.13 Installing the end caps (right camshaft)

Press one end cap onto each end of the stainless steel tube. If needed, twist the end caps slightly while pressing to ensure they seat fully and align with the tube.

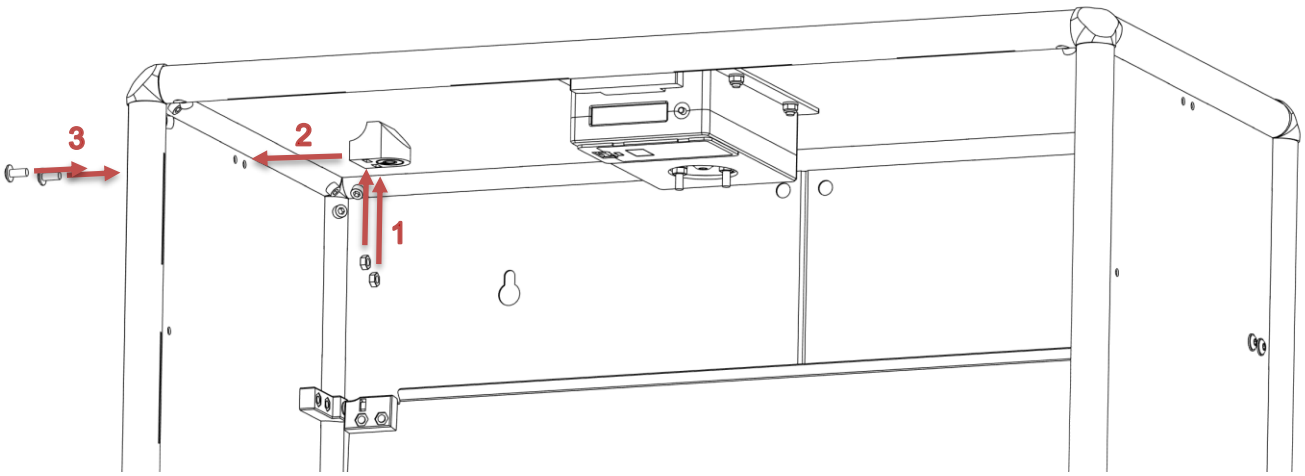


Both camshafts are now fully assembled and ready for installation in the cabinet.



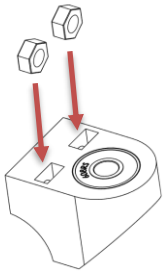
5.14 Installing the upper bearing block (left)

Each camshaft is supported by **two bearing blocks**. Take one bearing block and insert **two nuts** into its slots. Position the bearing block at the **upper left** inside of the cabinet. Insert **two buttonhead bolts, 14 mm length**, and tighten securely.

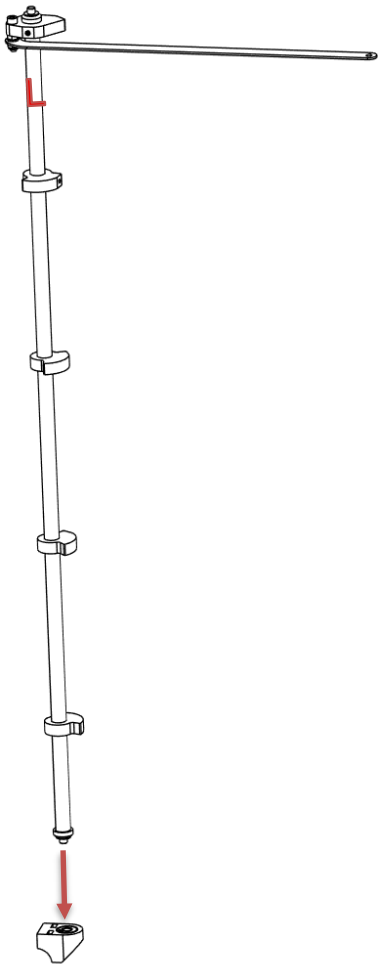


5.15 Installing the camshaft (left)

Prepare the second bearing block by inserting two nuts in the slots of the bearing block.

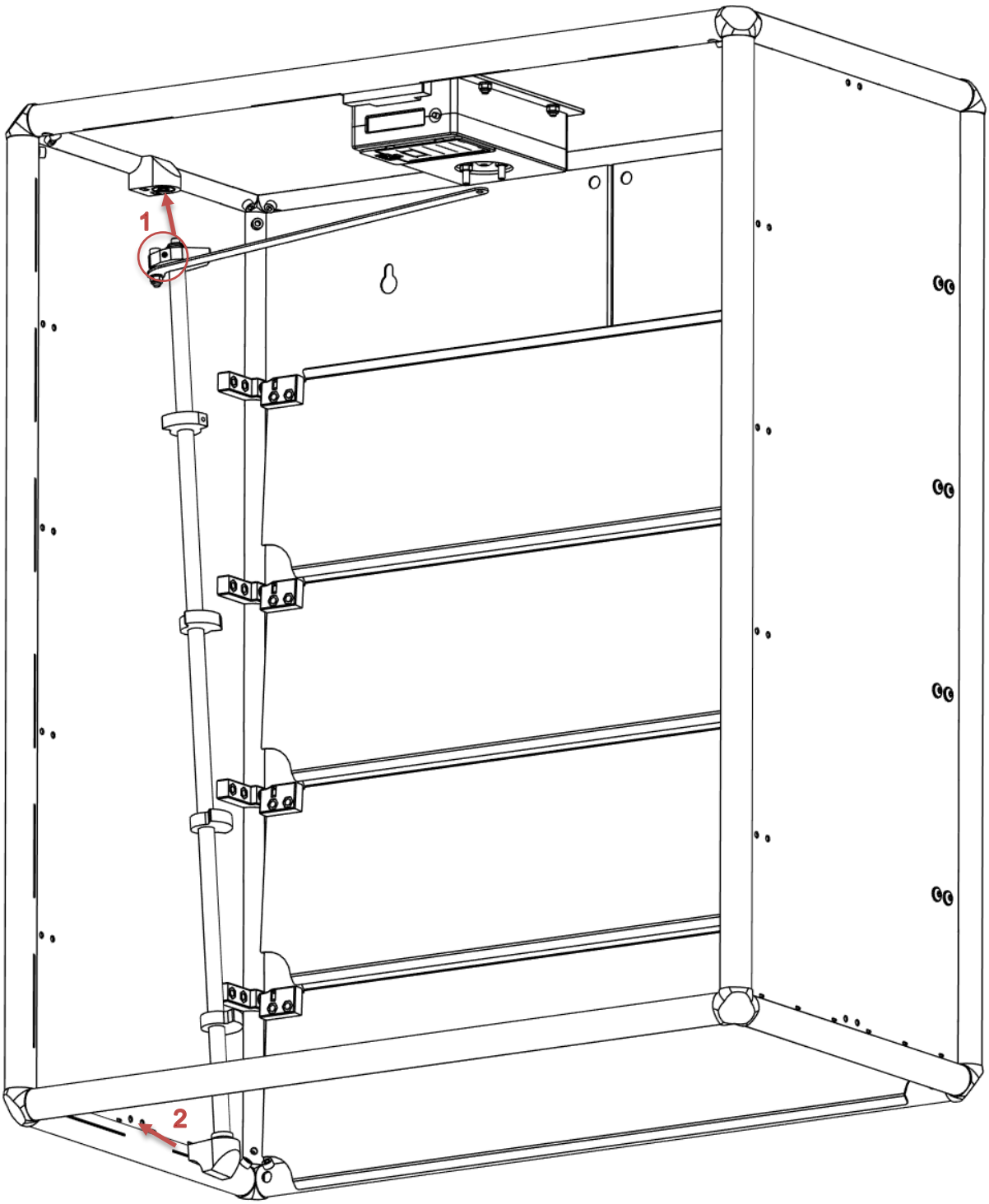


Insert the lower end cap of the left camshaft into the lower bearing block.

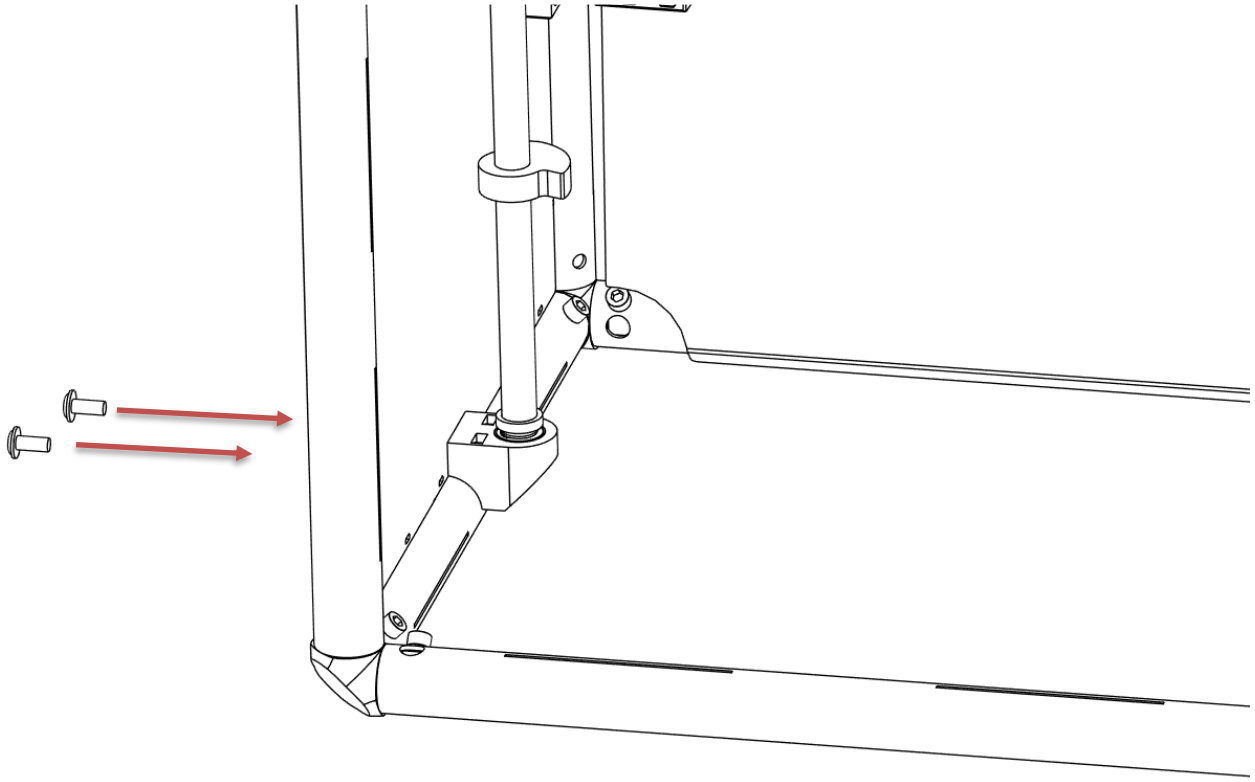


At a slight angle:

- Check whether the lock nut is visible.
- Insert the top end cap into the upper bearing block
- Move the lower bearing block into position at the bottom of the cabinet



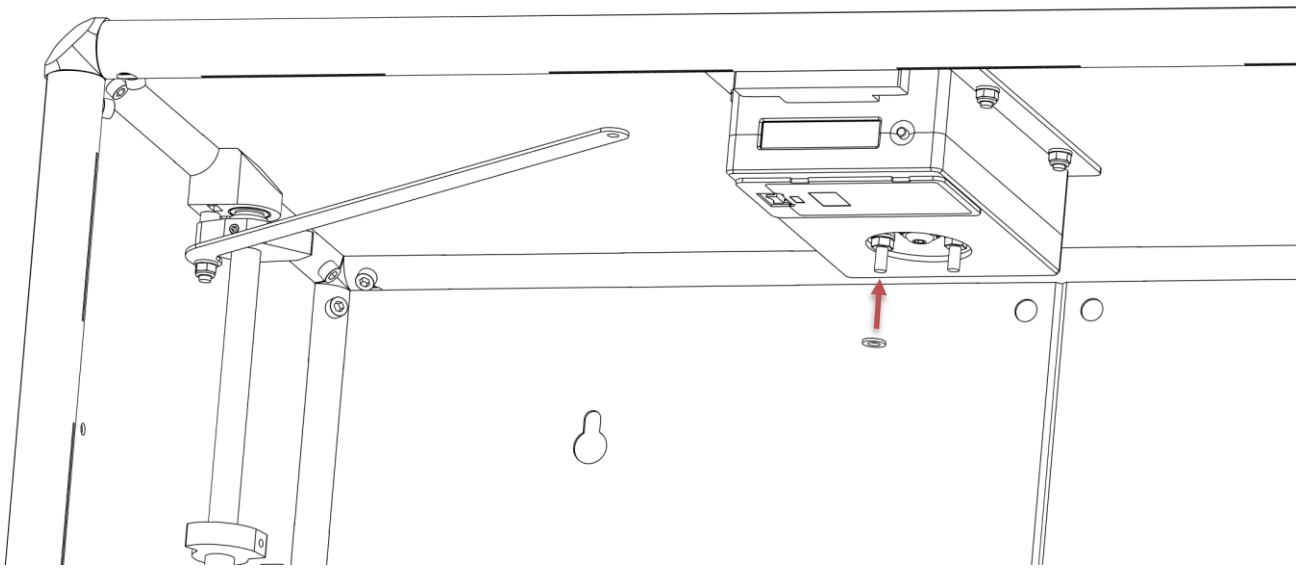
Secure the lower bearing block using **two buttonhead bolts, 14 mm length**.



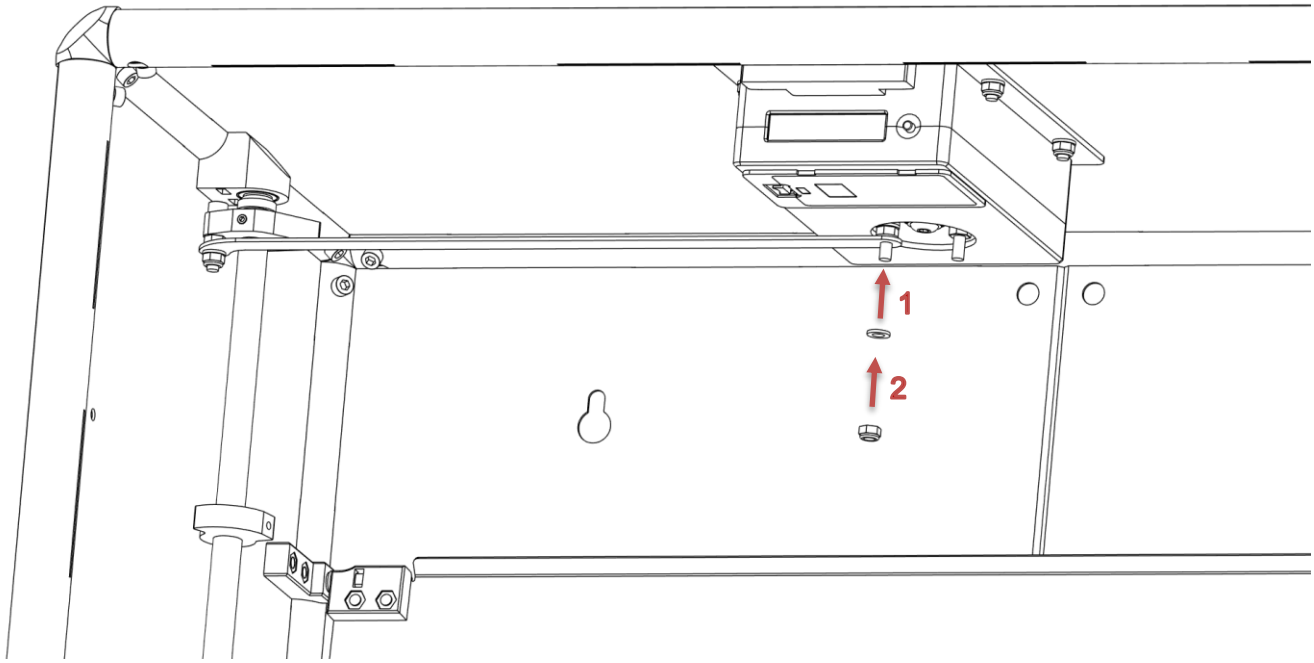
5.16 Connecting the camshaft to the controller (left)

To prepare, place two washer and a **lock nut** (with blue nylon insert) in the cabinet in front of you.

Place one washer on the **left bolt of the controller**.



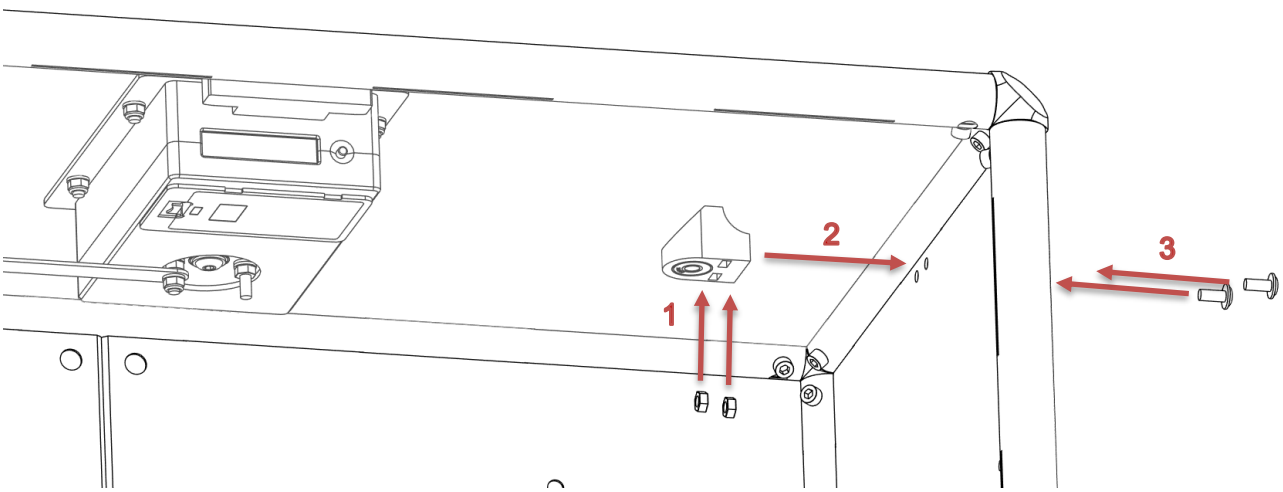
Pull the linking plate slightly downward and place it over the left bolt of the controller. Add a second washer and thread on a **lock nut** (with blue nylon insert).



Tighten until resistance is felt, then loosen approximately **1/8 turn** so it can rotate freely without much play between the washers.

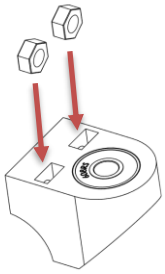
5.17 Installing the upper bearing block (right)

Take one bearing block and insert **two nuts** into its slots. Position the bearing block at the **upper right** inside of the cabinet. Insert **two buttonhead bolts, 14 mm length**, and tighten securely.

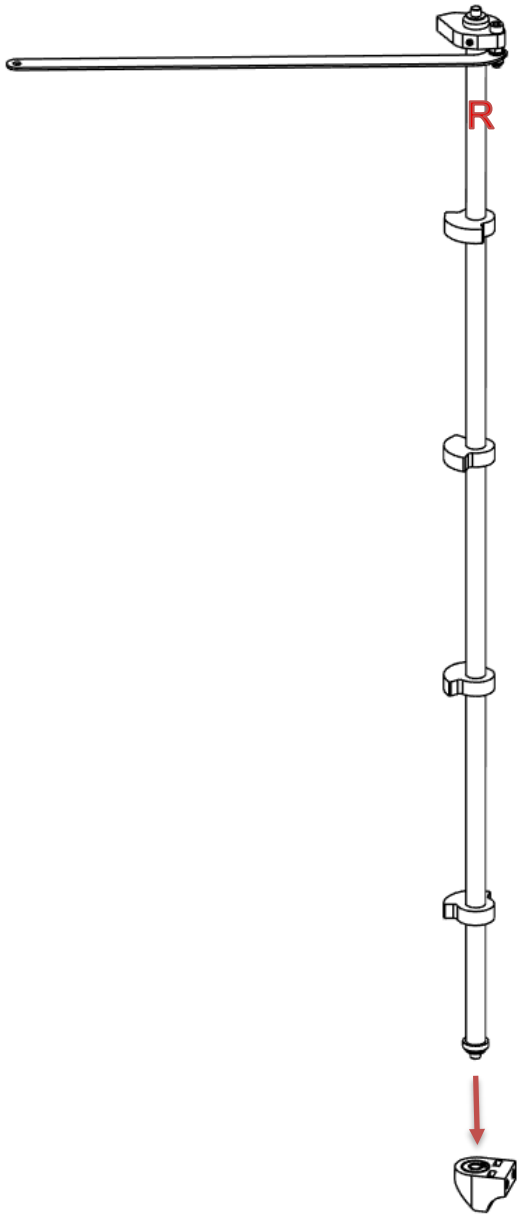


5.18 Installing the camshaft (right)

Prepare the second bearing block by inserting two nuts in the slots of the bearing block.

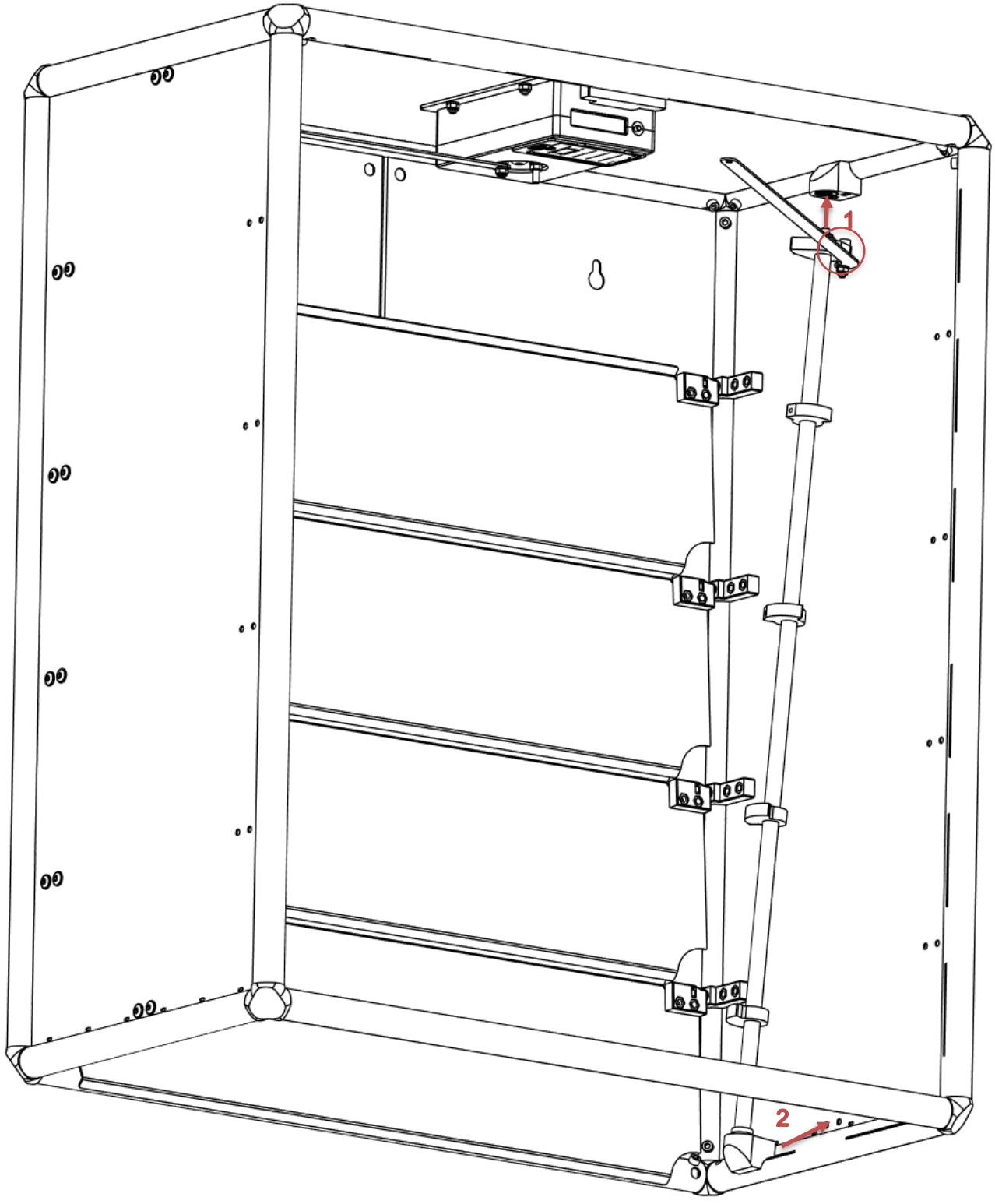


Insert the lower end cap of the right camshaft into the lower bearing block.

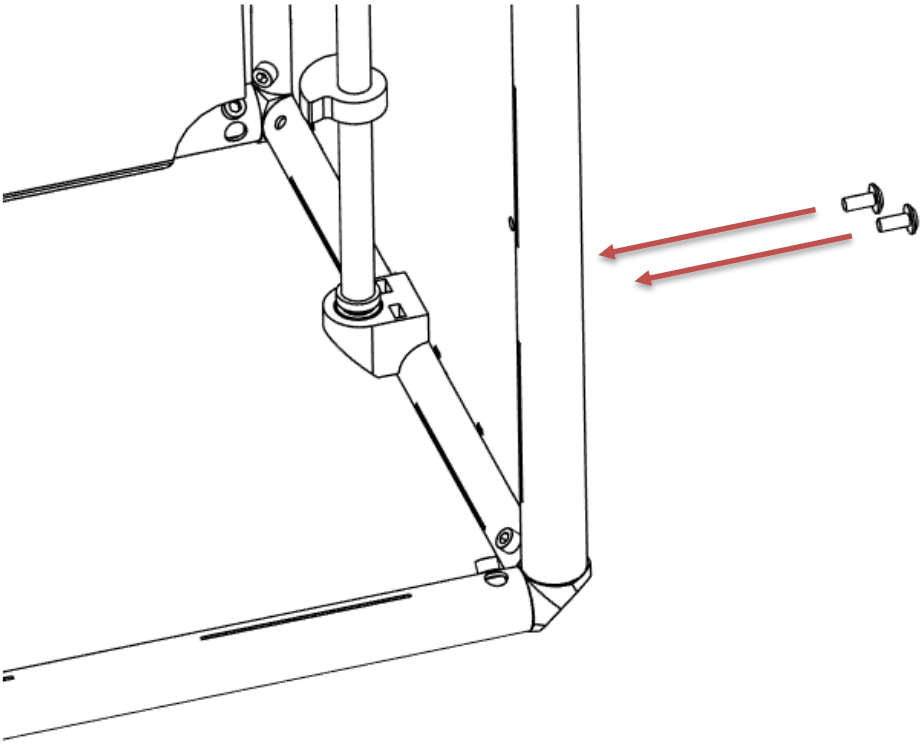


At a slight angle:

- Check whether the lock nut is visible.
- IInsert the top end cap into the upper bearing block
- Move the lower bearing block into position at the bottom of the cabinet



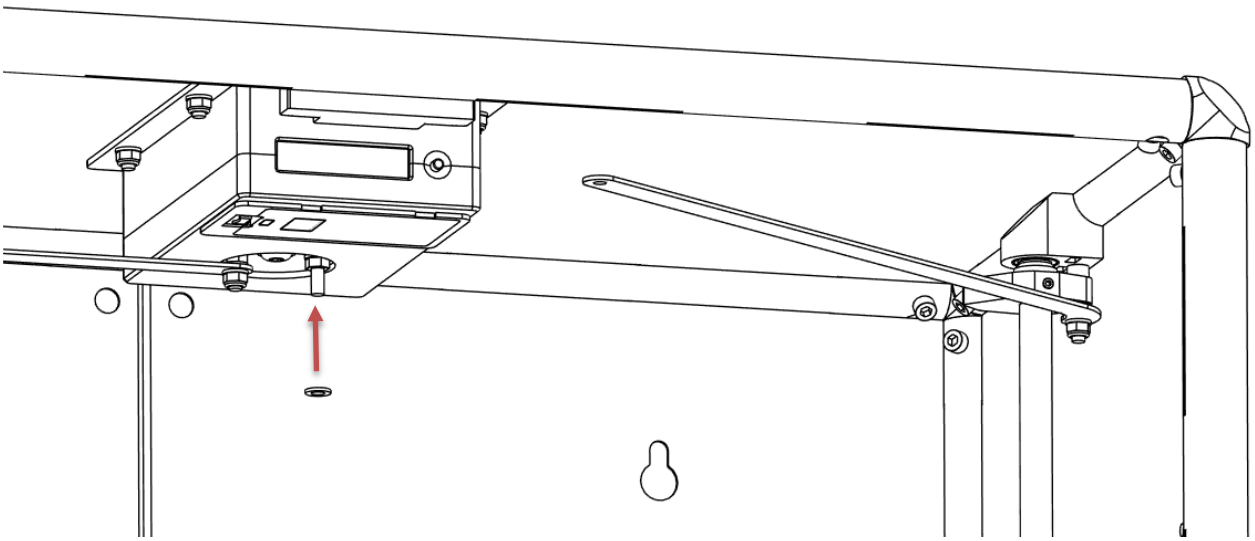
Secure the lower bearing block using **two buttonhead bolts, 14 mm length**.



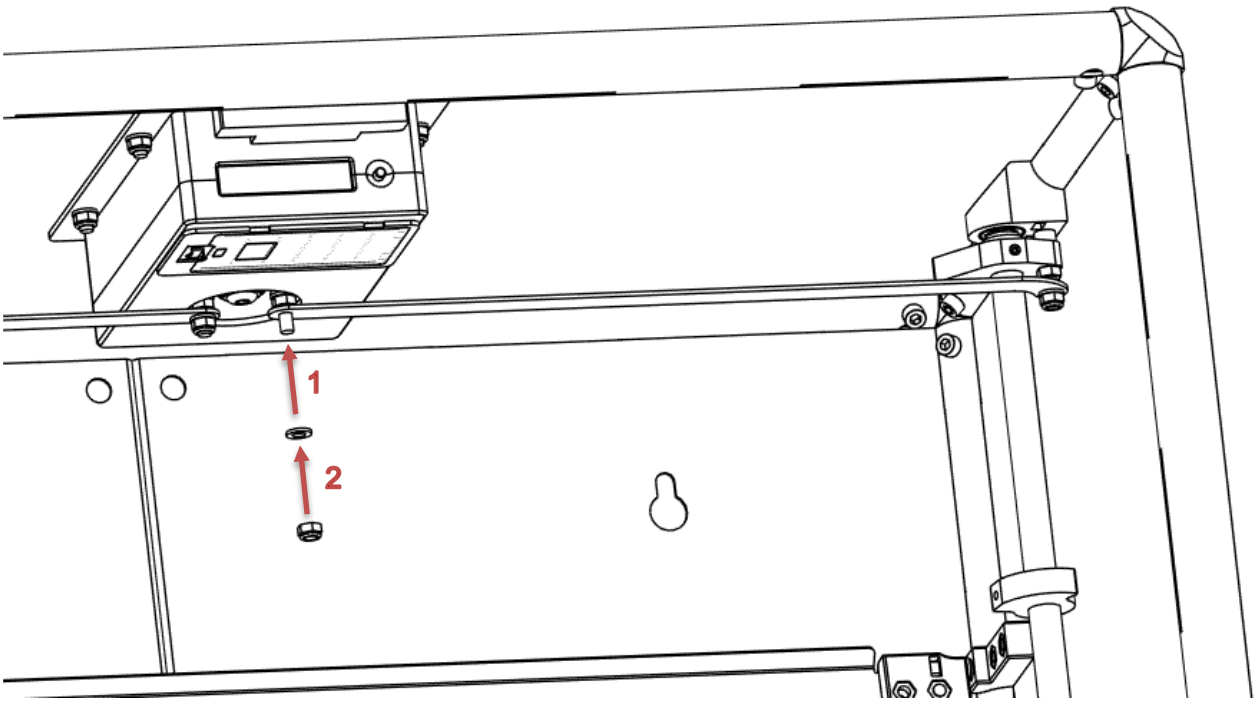
5.19 Connecting the camshaft to the controller (right)

To prepare, place two washer and a **lock nut** (with blue nylon insert) in the cabinet in front of you.

Place one washer on the **right bolt of the controller**.



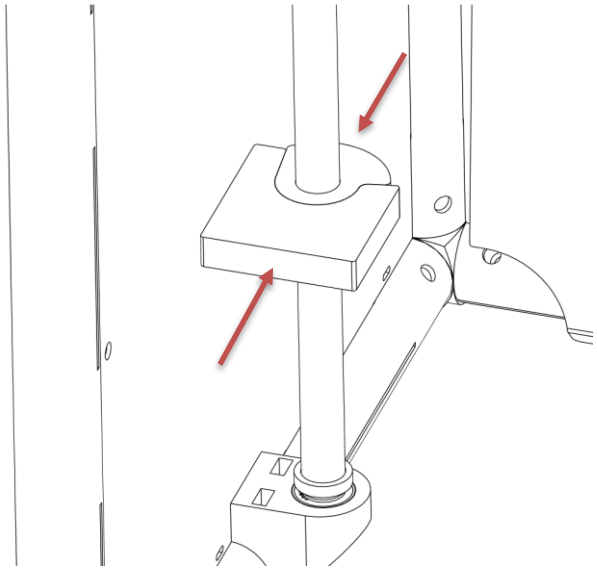
Pull the linking plate slightly downward and place it over the right bolt of the controller. Add a second washer and thread on a **lock nut** (with blue nylon insert).



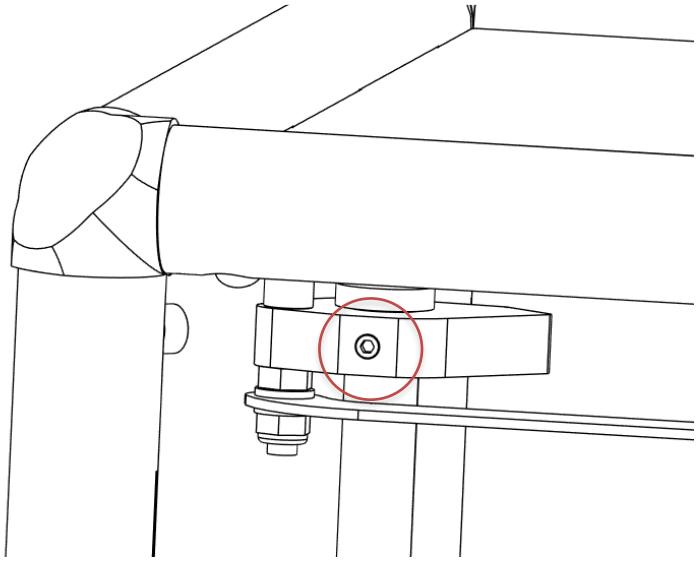
Tighten until resistance is felt, then loosen approximately **1/8 turn** so it can rotate freely without much play between the washers.

5.20 Adjusting the camshaft (left)

Place the camshaft adjustment block around the lower left cam block, ensuring that the adjustment block rests smoothly against the side of the housing. Press the adjustment block and the cam block firmly together without turning the camshaft.

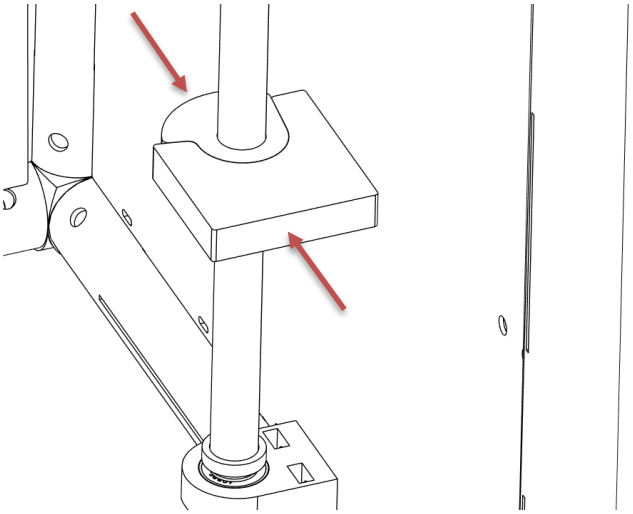


Now tighten the locking bolt securely in the drive block.

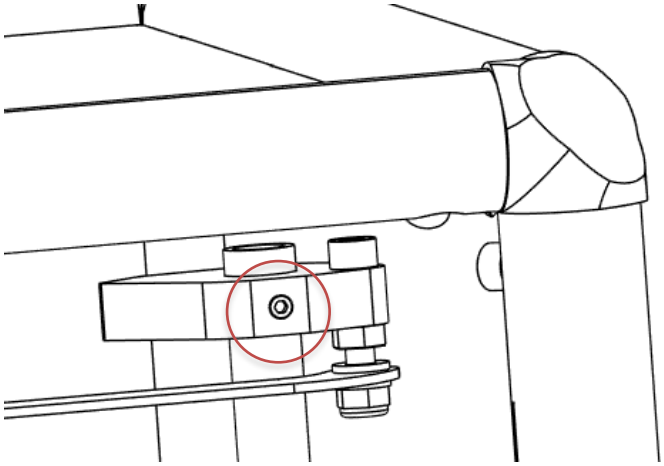


5.21 Adjusting the camshaft (right)

Turn the camshaft adjustment block over and place it around the lower right cam block, ensuring that the adjustment block lies flat against the side of the housing. Press the adjustment block and the cam block firmly together without turning the camshaft.



Now tighten the locking bolt securely in the drive block.



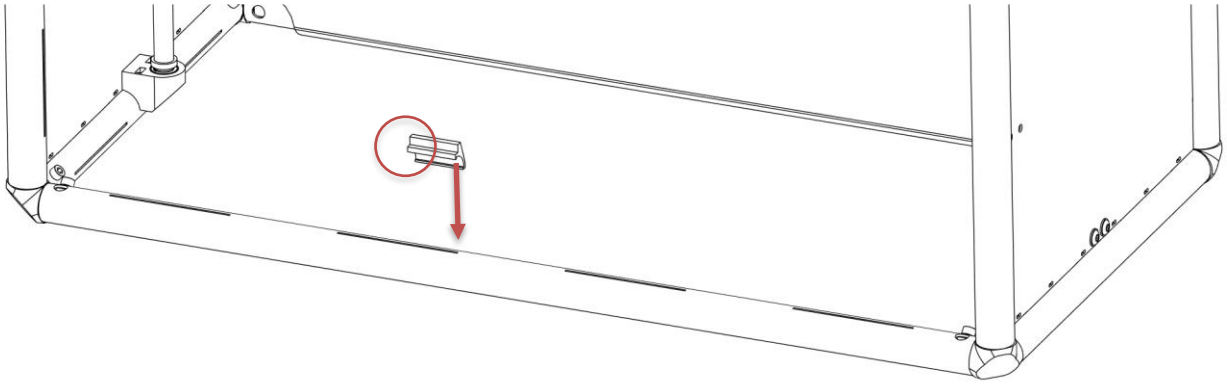
6. Front trapdoors

Before installing the front trapdoors, the **lower door stops** must be installed.

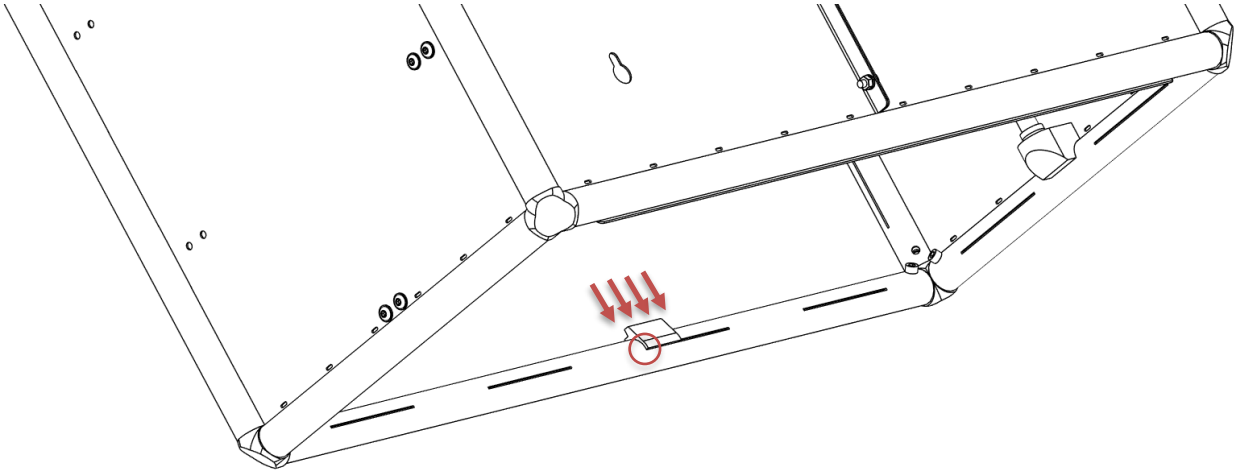
6.1 Installing the lower door stops

The door stops are snapped onto the **lower front tube** of the cabinet. Take the first door stop. Position it so:

- The **upper ridge** of the door stop aligns with the **end of the second slit** in the front tube



Place the palm of your hand on the door stop and press it **firmly downward** until the **lower ridge snaps into place**.

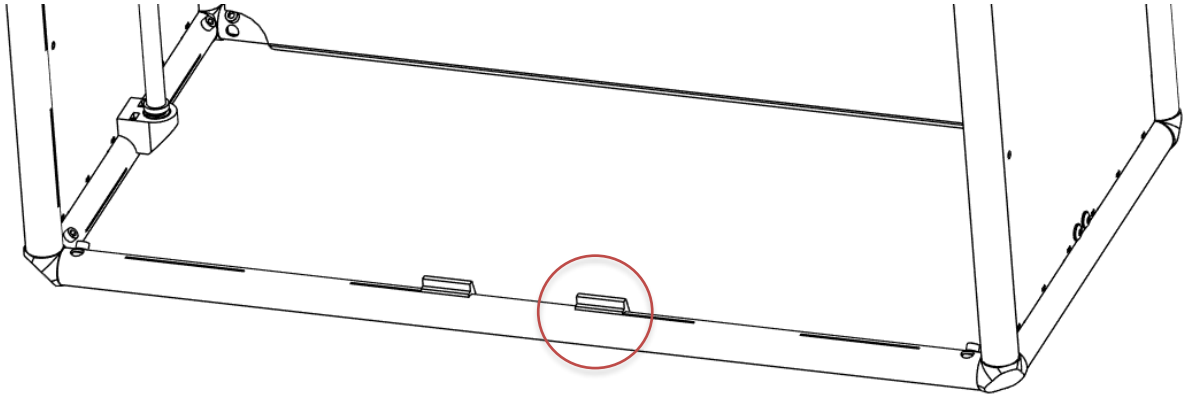


Take the second door stop.

Position it so:

- The upper ridge aligns with the **beginning of the third slit** in the front tube

Press it down firmly until it snaps into place.



6.2 Installing the cabinet hinge parts (front)

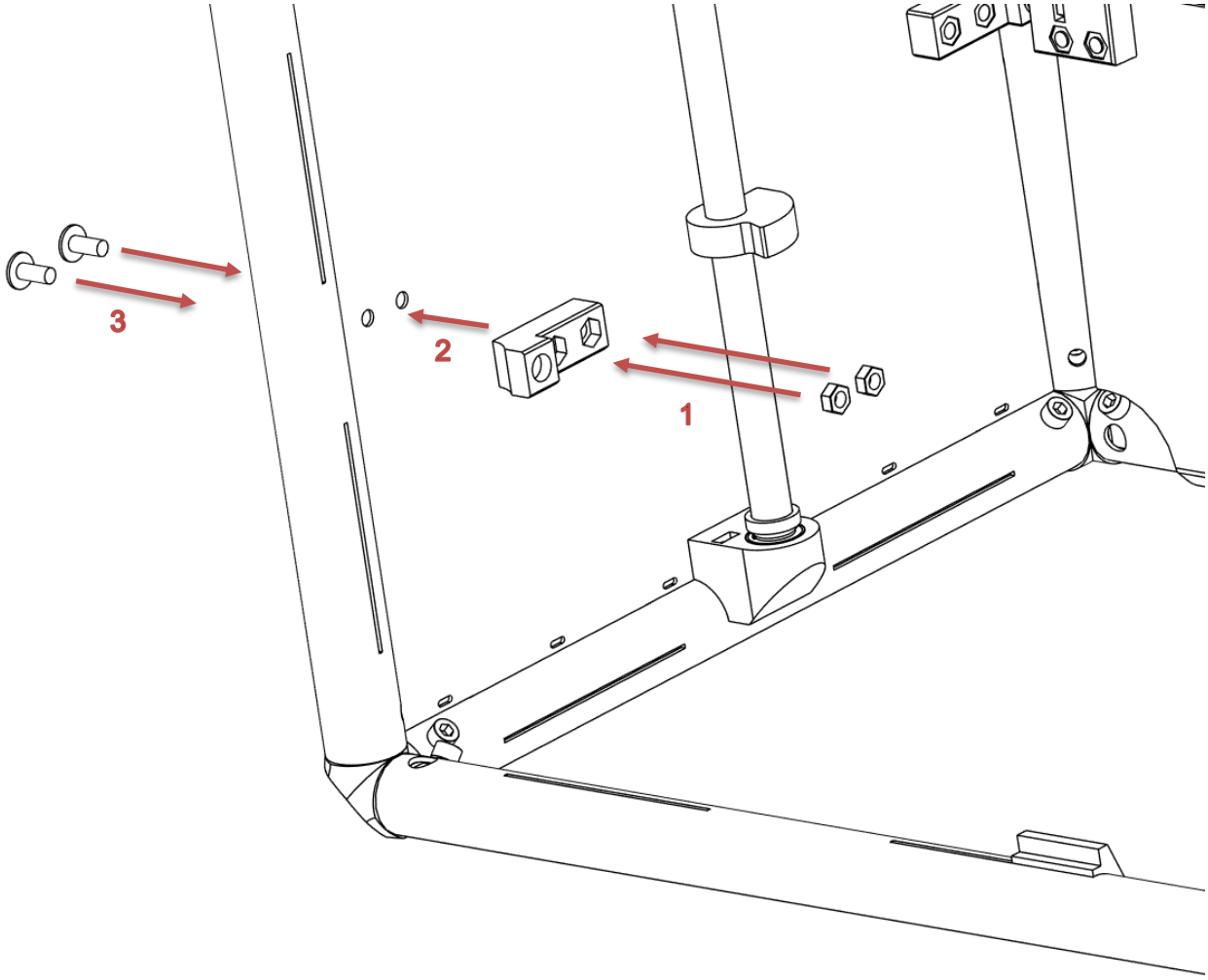
Take the **sixteen short cabinet hinge parts** that were set aside earlier. Each cabinet hinge part is mounted using:

- Two nuts
- Two **buttonhead bolts, 14 mm length**

Insert two nuts into a hinge part. Position the hinge part at its mounting location on the **front side** of the cabinet. Hold it in place with one finger, keeping pressure on the nuts.

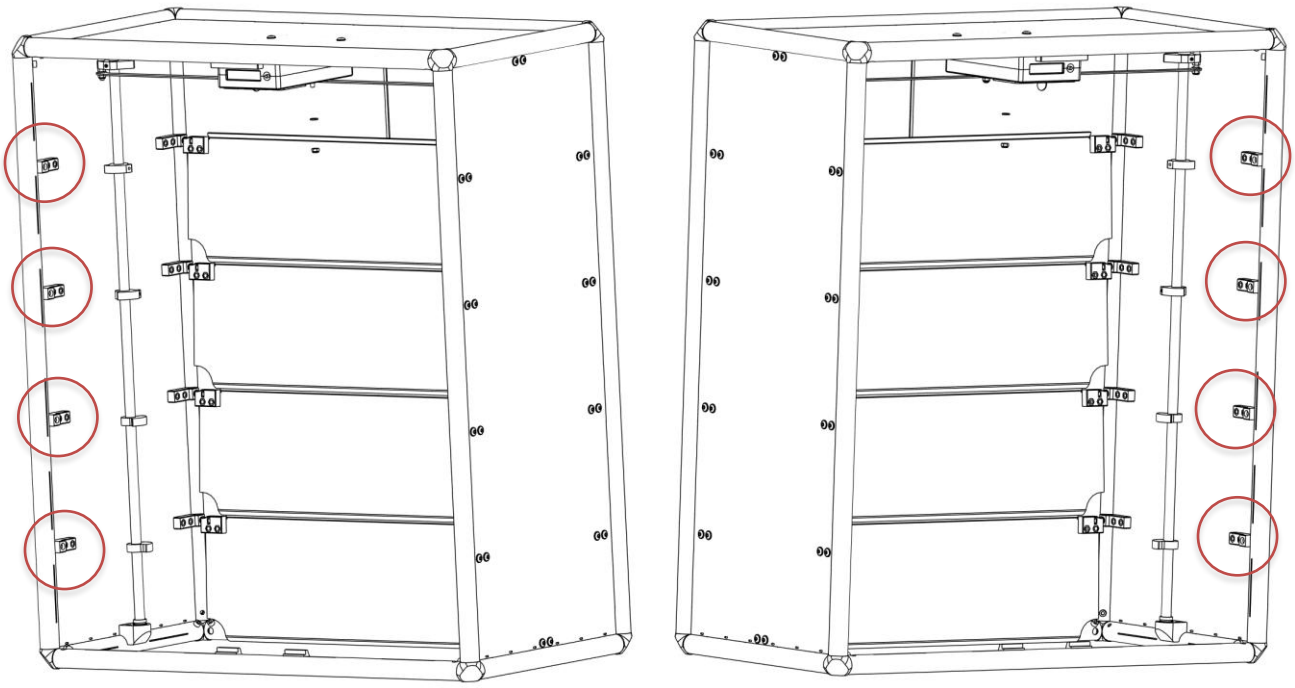
Insert the first buttonhead bolt through the cabinet wall into the hinge and thread it in. Insert the second buttonhead bolt and thread it in.

Press the hinge part **towards you** so it aligns correctly on the aluminum tube. Tighten both bolts securely using an Allen key.



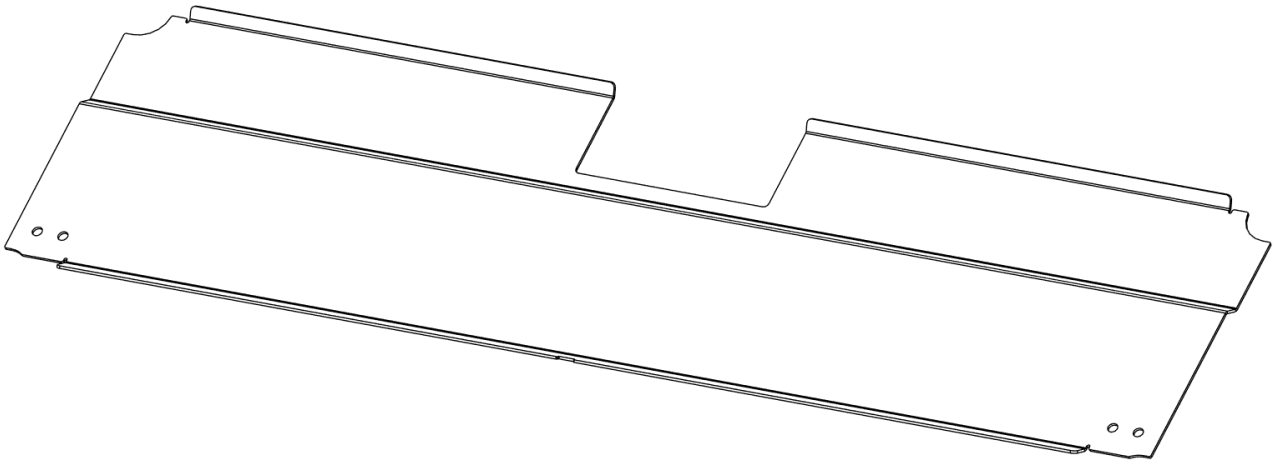
Repeat this procedure until:

- Four cabinet hinge parts are installed on the **left front side**
- Four cabinet hinge parts are installed on the **right front side**



6.3 Preparing the front trapdoors

Take the **eight remaining hinge parts** that were prepared earlier. Identify the **front trapdoors**. These differ from the back trapdoors by their bend geometry and the large missing part in the center.

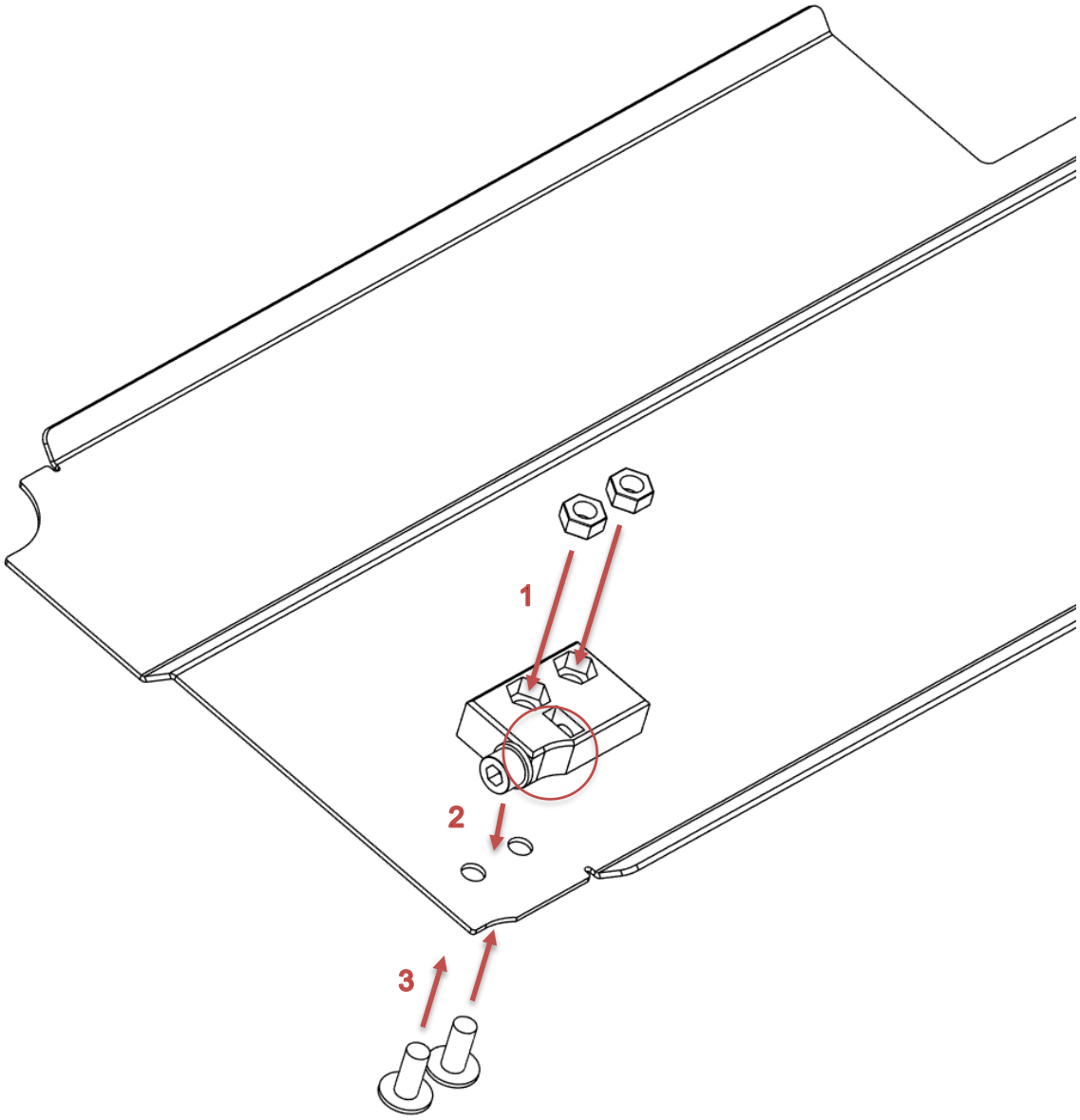


6.4 Installing hinges on the front trapdoors

Take one front trapdoor.

6.4.1 Left hinge

Select the hinge part with the **circular cut-out in the upper left corner**. Insert **two nuts** into the hinge. Position the hinge on the **lower left corner** of the trapdoor. Insert **two buttonhead bolts, 14 mm length**, thread them in and tighten securely.



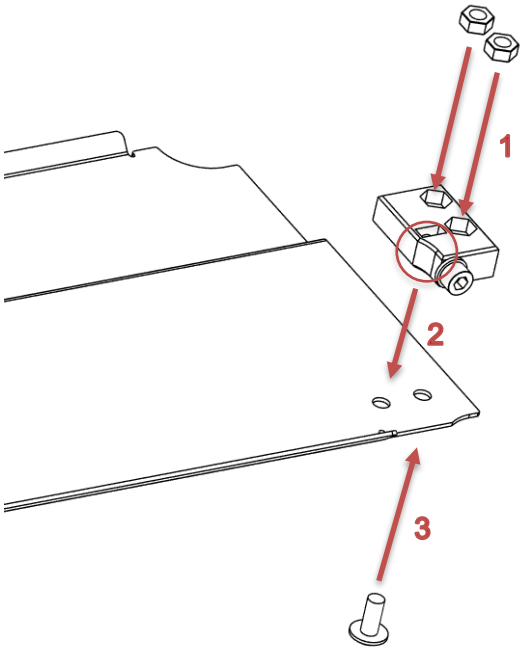
6.4.2 Right hinge

Select the mirrored hinge part with the **circular cut-out in the upper right corner**. Insert two nuts into the hinge.Position the hinge on the **upper right corner** of the trapdoor so the **outermost hole** aligns with the outermost hole of the trapdoor. Insert **one buttonhead bolt, 14 mm length** only.

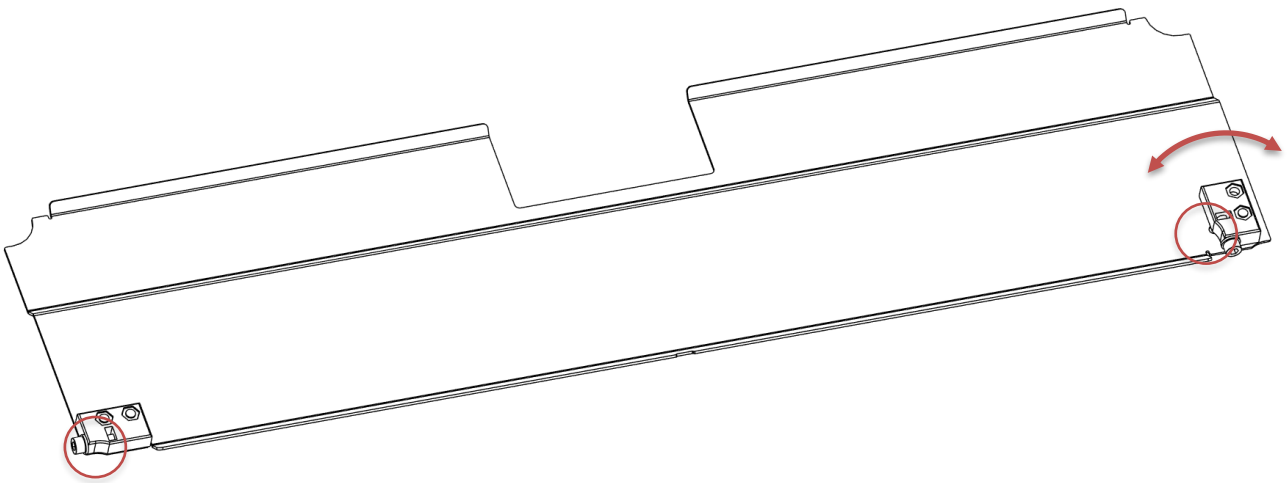
Tighten this bolt just enough so:

- The hinge can still rotate
- The hinge remains in position when released

If the unused nut falls out, set it aside. It will be reinserted during installation.



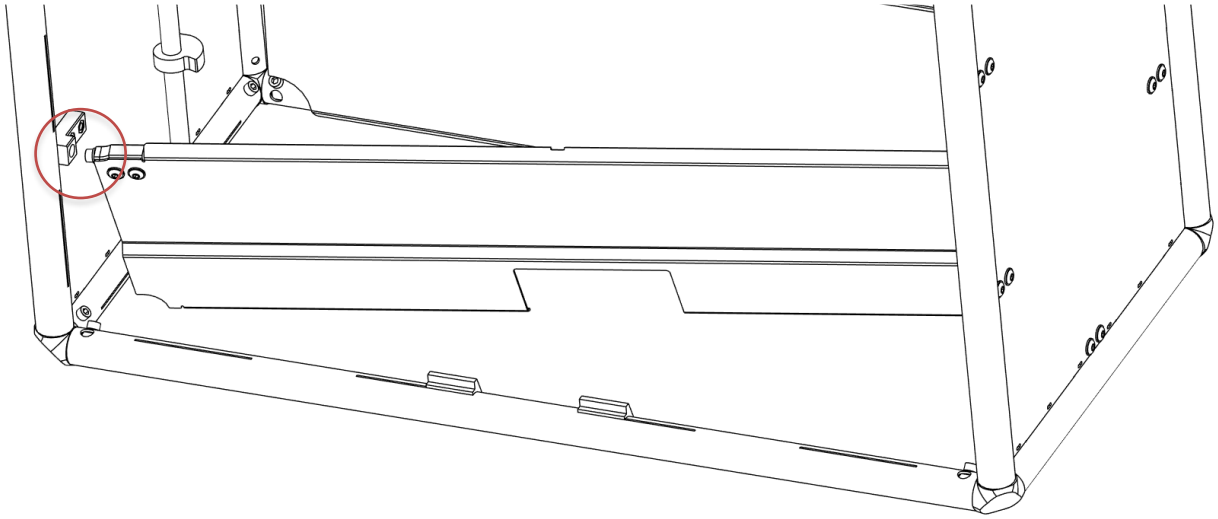
The trapdoor should look like the image below. Repeat this procedure for the **remaining three front trapdoors**.



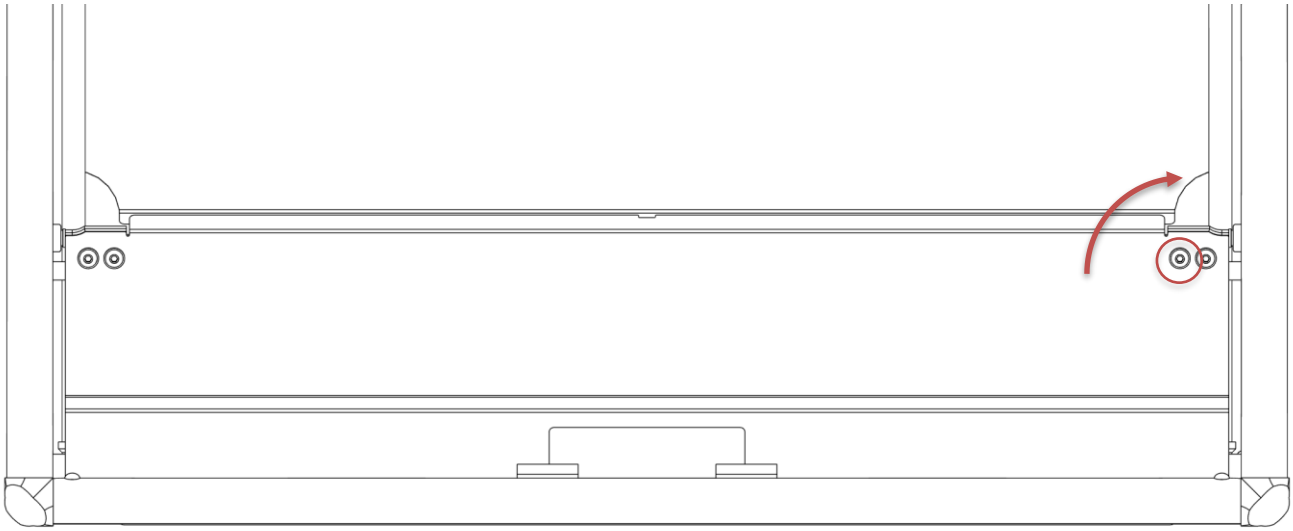
ATTENTION: Double-check that the circular cut-outs are positioned exactly as shown in the reference image. Incorrect orientation will prevent correct operation.

6.5 Installing the front trapdoors in the cabinet

Front trapdoors must be installed **from bottom to top**. Take one trapdoor and hold it with the hinges facing **away from you**. Insert the **left trapdoor hinge** into the hole of the cabinet hinge part on the left front side of the cabinet.



Move the right side of the trapdoor close to the right cabinet hinge. Rotate the trapdoor hinge **clockwise** until it locks into the cabinet hinge and the hole behind the unused nut aligns with the hole in the trapdoor.



If the second nut was removed earlier, reinsert it now. Hold the nut in place with one finger and insert a **buttonhead bolt, 14 mm length**, through the trapdoor into the hinge. Thread in the bolt and tighten securely using an Allen key.

Repeat this entire procedure for the remaining **three front trapdoors**, working from bottom to top.

7. Doors

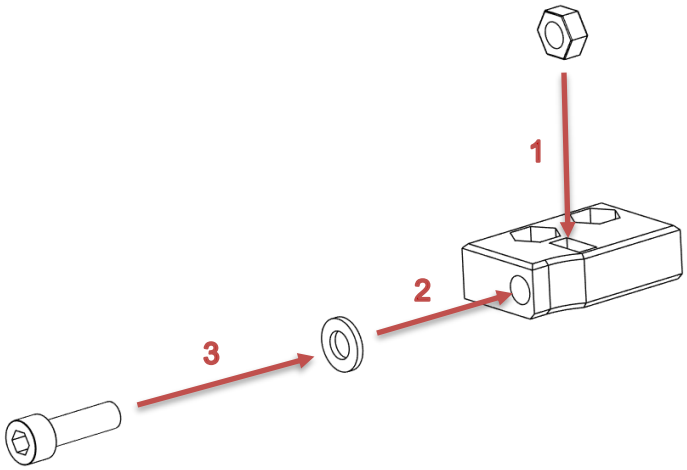
In this chapter, the **left and right cabinet doors** and their **locks** are installed.

7.1 Preparing the hinge parts

Take one left and one right hinge part:

- Insert one nut into the vertical slot
- Place a washer on a **20 mm long hex bolt**
- Insert the bolt through the side of the hinge and tighten it

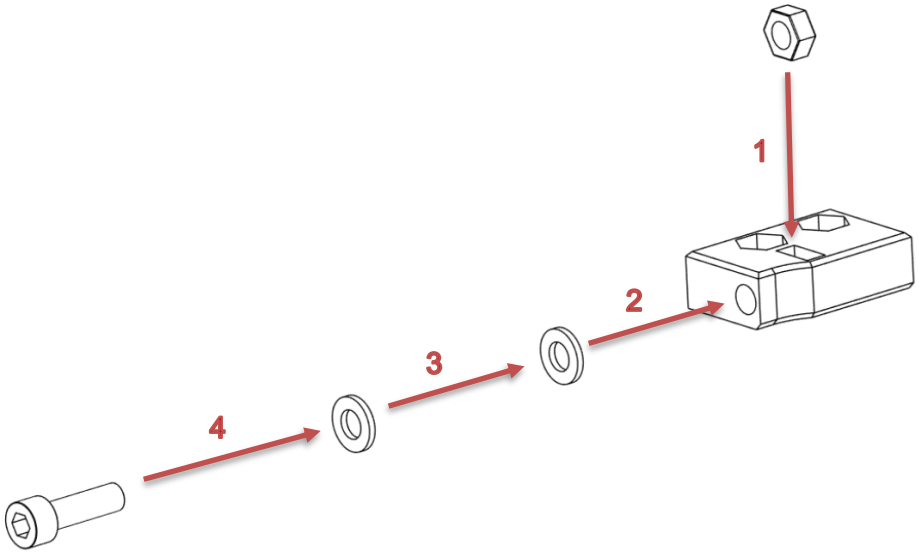
Tighten the bolt securely. These are the hinge parts for the **top** of the door.



Take the last left and last right hinge parts:

- Insert one nut into the vertical slot
- Place **two washers** on a **20 mm long hex bolt**
- Insert the bolt through the side of the hinge and tighten it

Tighten the bolt securely. These are the hinge parts for the **bottom** of the door.

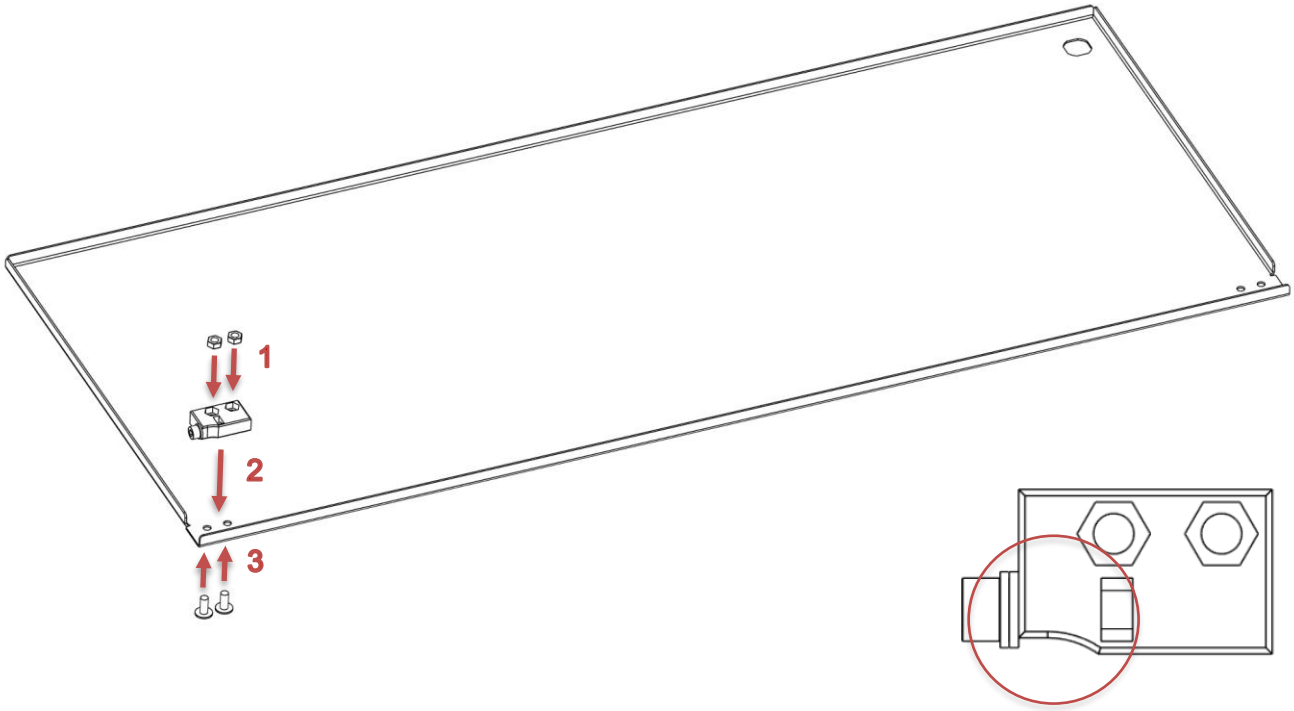


7.2 Identifying the left door

If the flanges point away from you and the octagonal hole for the lock is in the upper right corner, this is the left door.

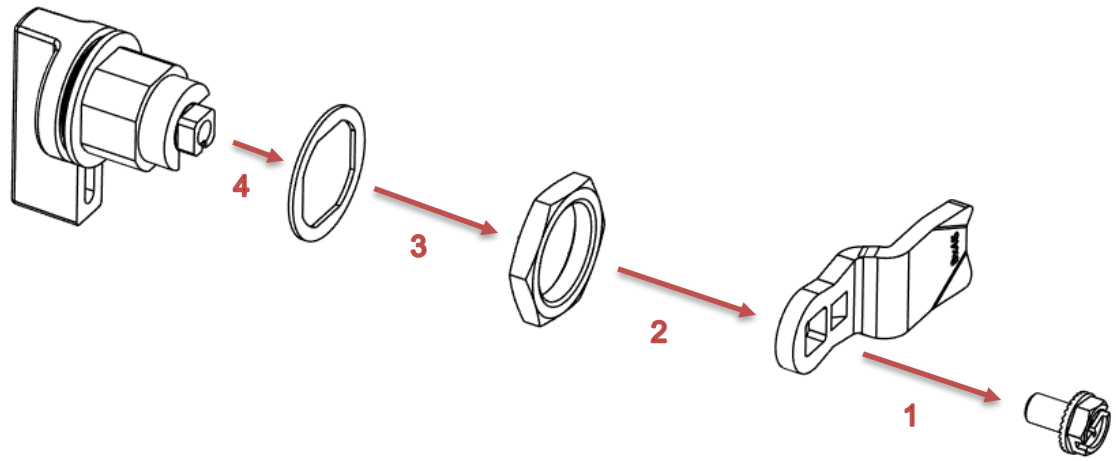
7.3 Installing the lower hinge on the left door

Take a lower hinge part that matches the reference image, recognizable by the **round recess** and **two rings**. Insert **two nuts** into the hinge. Position the hinge on the **lower left corner** of the door. Insert **two buttonhead bolts, 14 mm length**, thread them in and tighten securely using an Allen key.



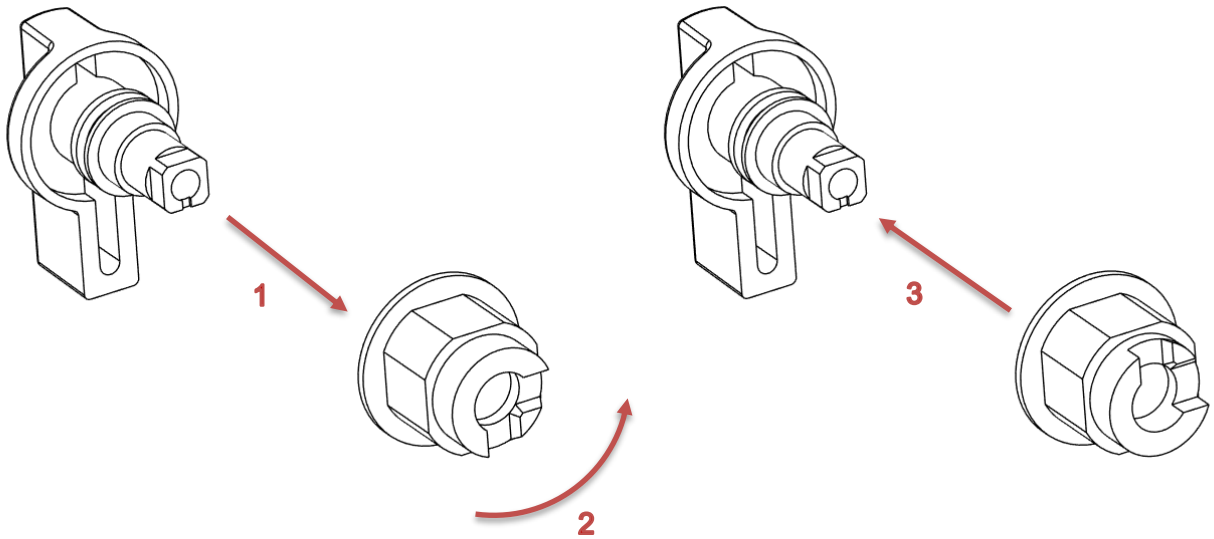
7.4 Installing the door lock on the left door

Using a **10 mm ring spanner**, unthread the bolt from the door lock. Remove the bolt, lock tongue, nut and washer.

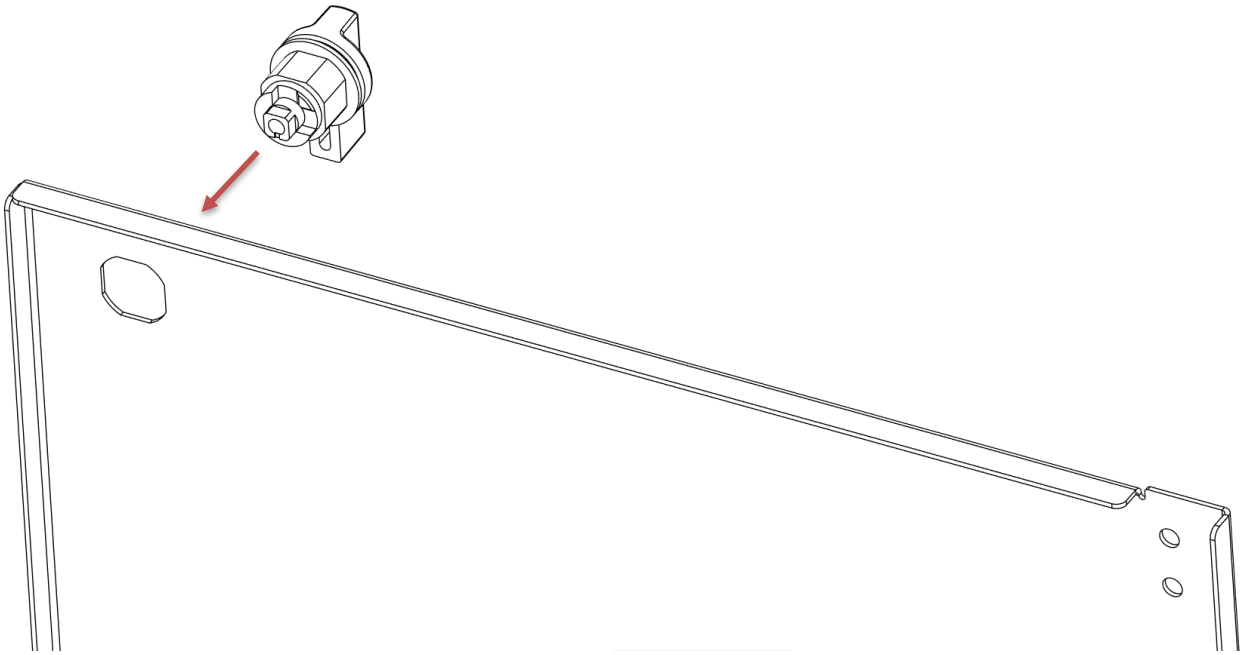


Check the orientation of the **two slots** in the lock body. If the orientation does not match the reference image:

- Hold the knob firmly
- Pull the lock body off the knob
- Rotate the lock body until it matches the correct orientation
- Push the lock body back onto the knob



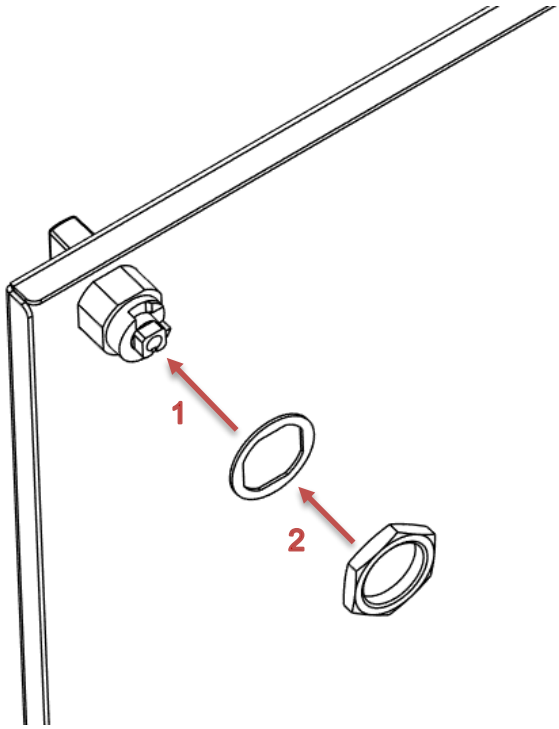
Insert the knob and lock body into the octagonal hole.



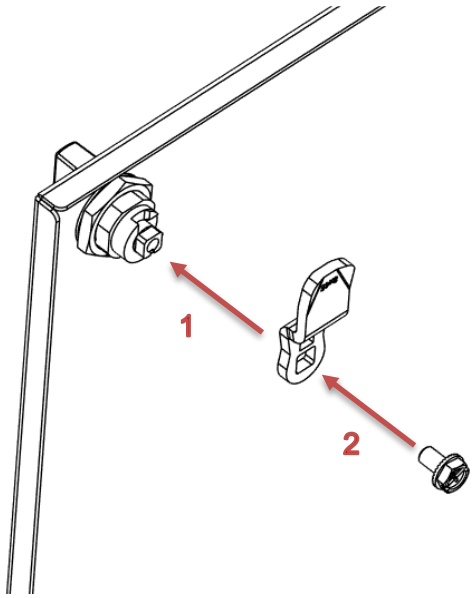
ATTENTION: Make sure the knob points **downwards** and the two slots in the lock body are oriented exactly as shown in the reference image.

Place the washer over the lock body. Thread the nut onto the lock body and tighten:

- By hand, or
- Using a **27 mm ring spanner** or an adjustable wrench

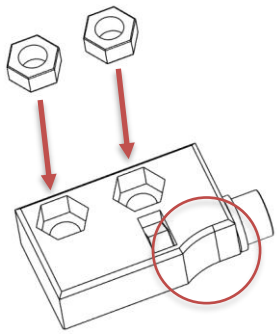


Make sure the knob is pointing downwards and position the lock tongue so it points **upwards**. Insert the bolt and tighten securely using a **10 mm ring spanner**.

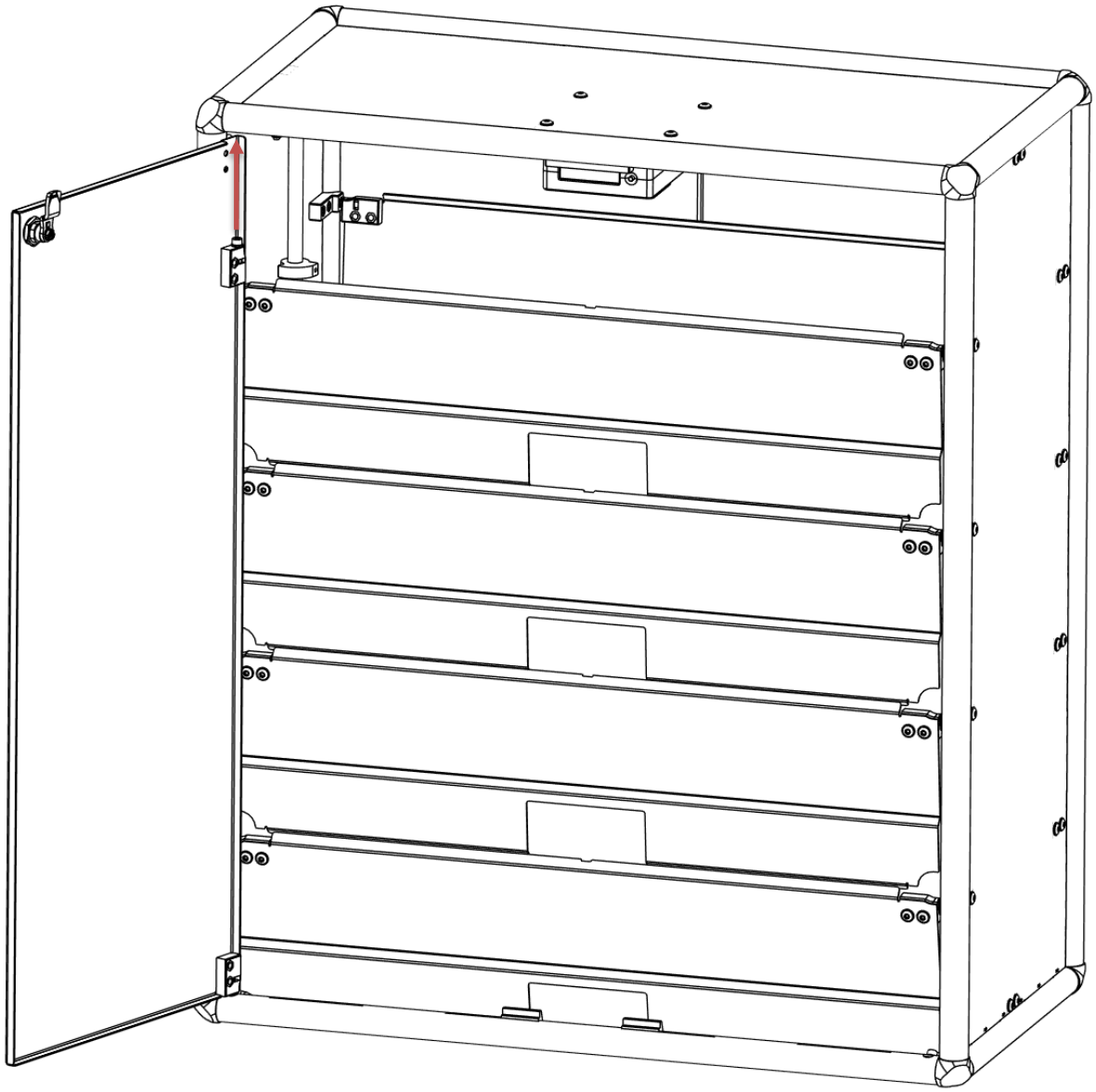


7.6 Installing the upper hinge on the left door

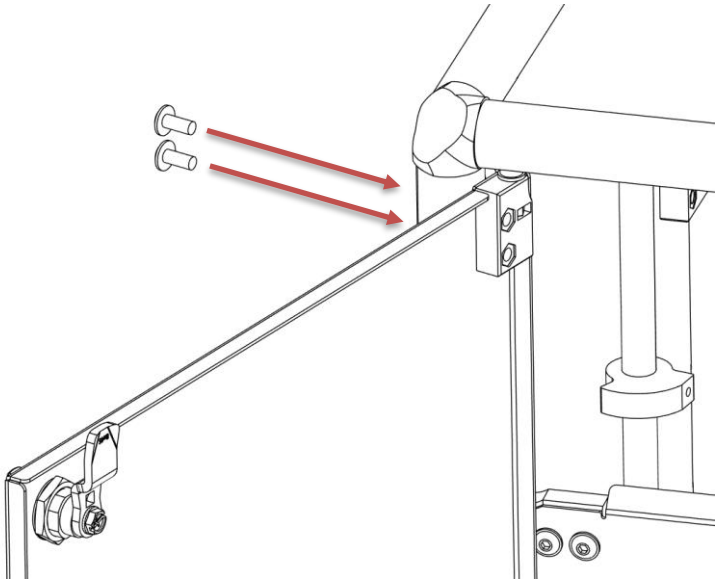
Take an upper hinge part that matches the reference image, recognizable by the **round recess** and **one ring**. Place **two nuts** in the hinge. Place the hinge and **two 14 mm long buttonhead bolts** within reach.



Pick up the left door. Insert the **lower hinge pin** into the **large hole** in the lower horizontal tube of the cabinet. Hold the door vertically. Slide the upper hinge into position and insert it into the **large hole** in the upper horizontal tube of the cabinet.

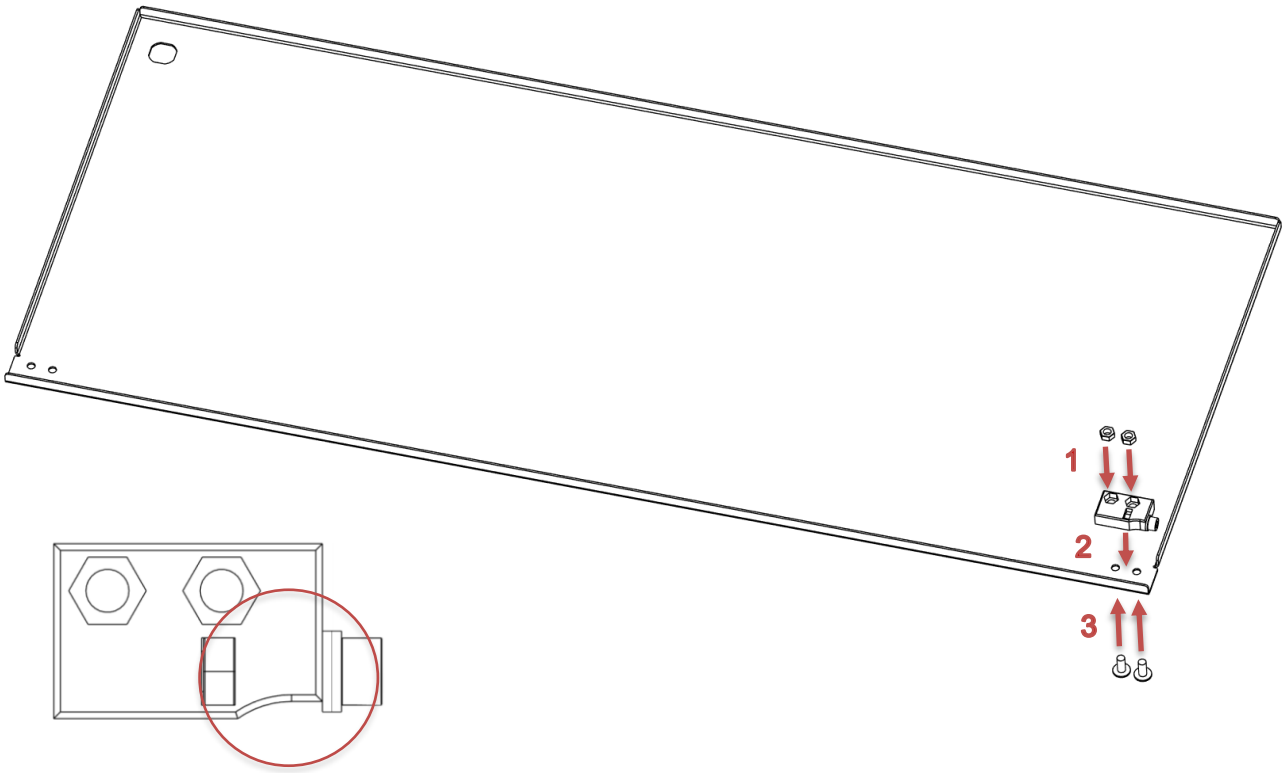


Hold the hinge in place, keeping pressure on the nuts. Insert both buttonhead bolts through the door into the hinge. Thread them in and tighten securely using an Allen key.



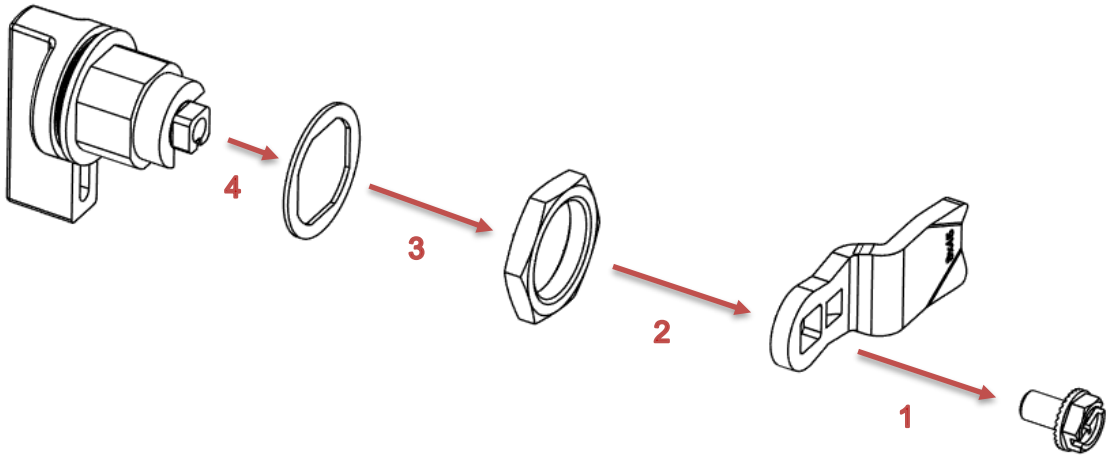
7.6 Installing the lower hinge on the right door

Take a lower hinge part that matches the reference image, recognizable by the **round recess** and **two rings**. Insert **two nuts** into the hinge. Position the hinge on the **lower left corner** of the door. Insert **two buttonhead bolts, 14 mm length**, thread them in and tighten securely using an Allen key.



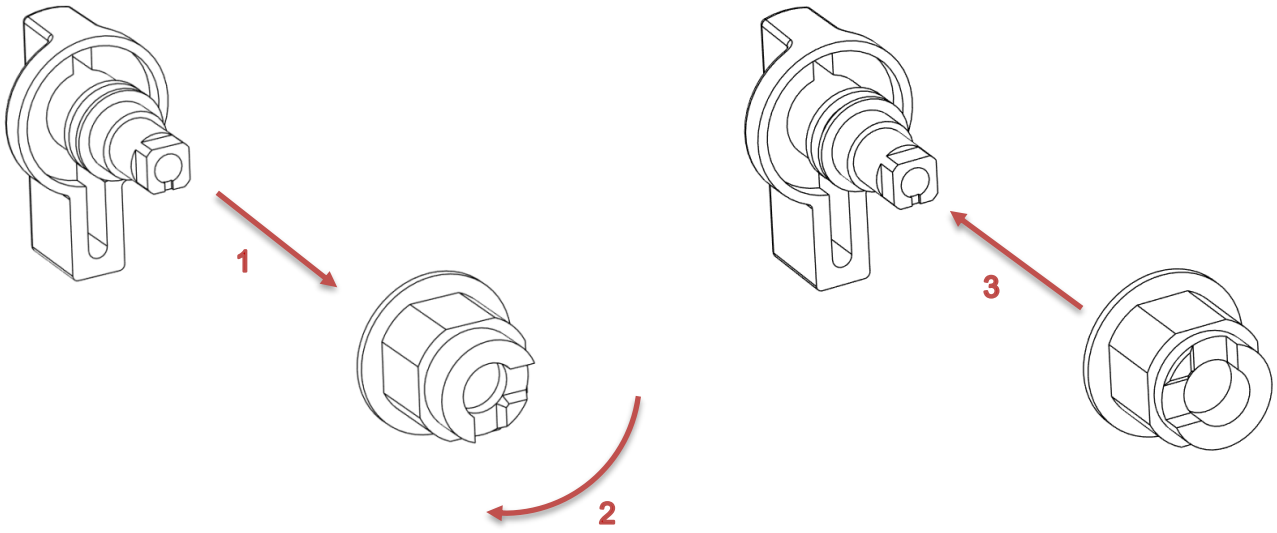
7.7 Installing the door lock on the right door

Remove the bolt, lock tongue, nut and washer using a **10 mm ring spanner**.

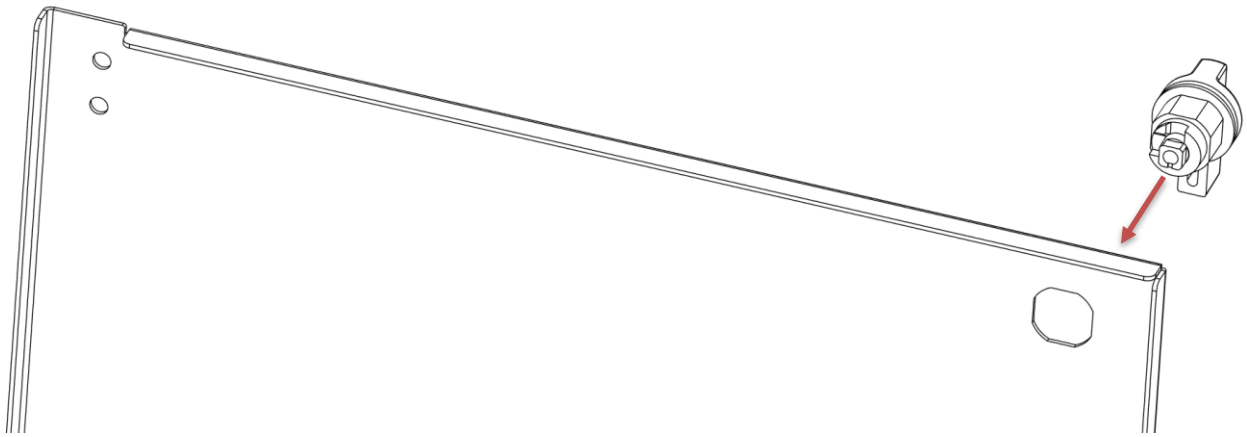


Check the orientation of the two slots in the lock body. If necessary:

- Pull the lock body off the knob
- Rotate it until it matches the reference image
- Push it back onto the knob

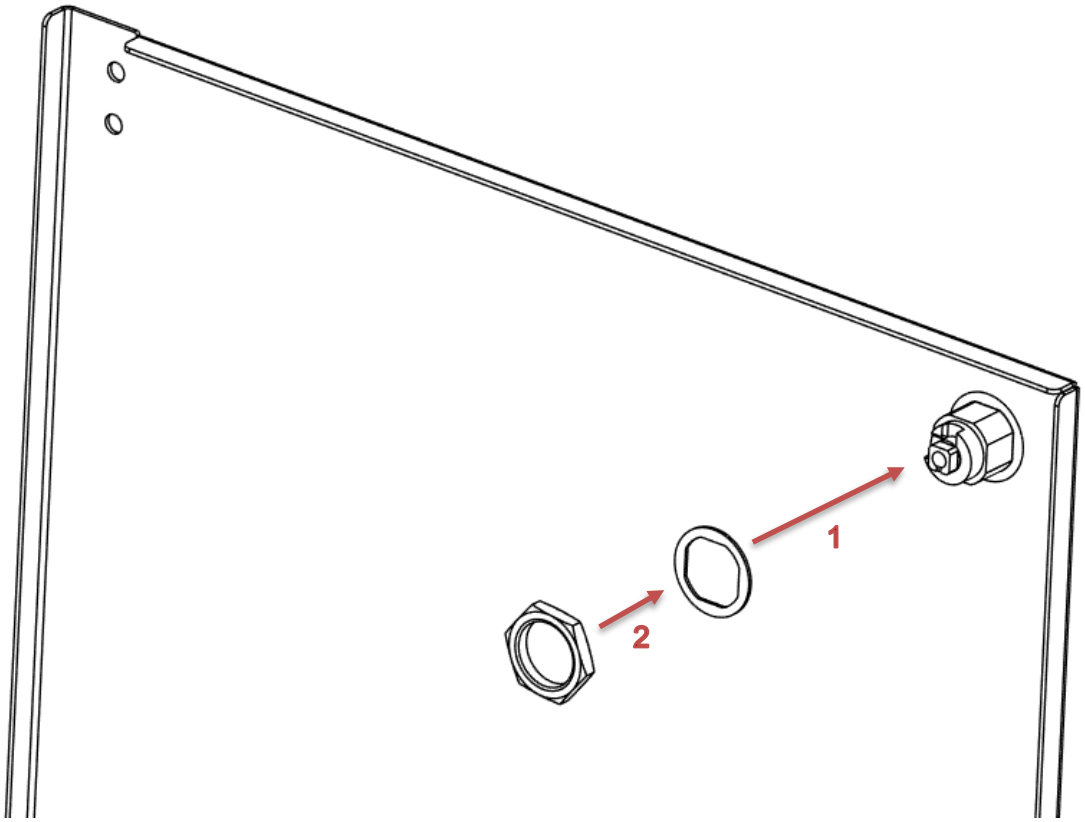


Insert the knob and lock body into the octagonal hole.

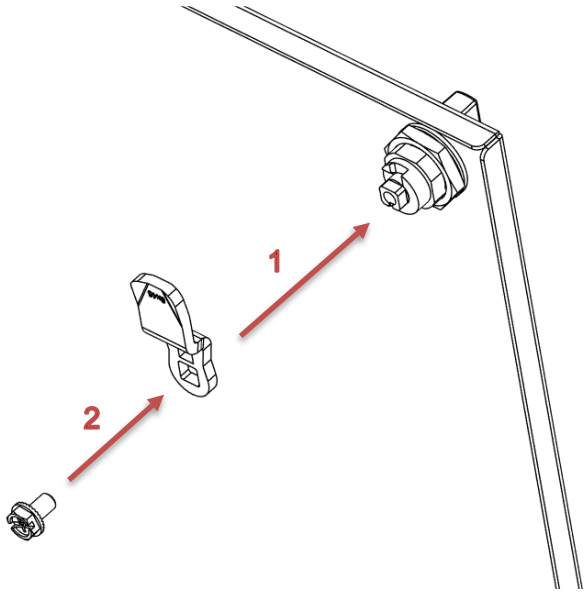


ATTENTION: Make sure the knob points **downwards** and the lock body slots match the reference image.

Install the washer and nut. Tighten the nut by hand or using a **27 mm ring spanner** or adjustable wrench.

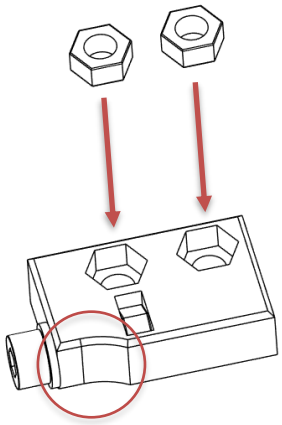


Make sure the knob is pointing downwards and position the lock tongue **upwards**. Insert the bolt and tighten securely using a **10 mm ring spanner**.

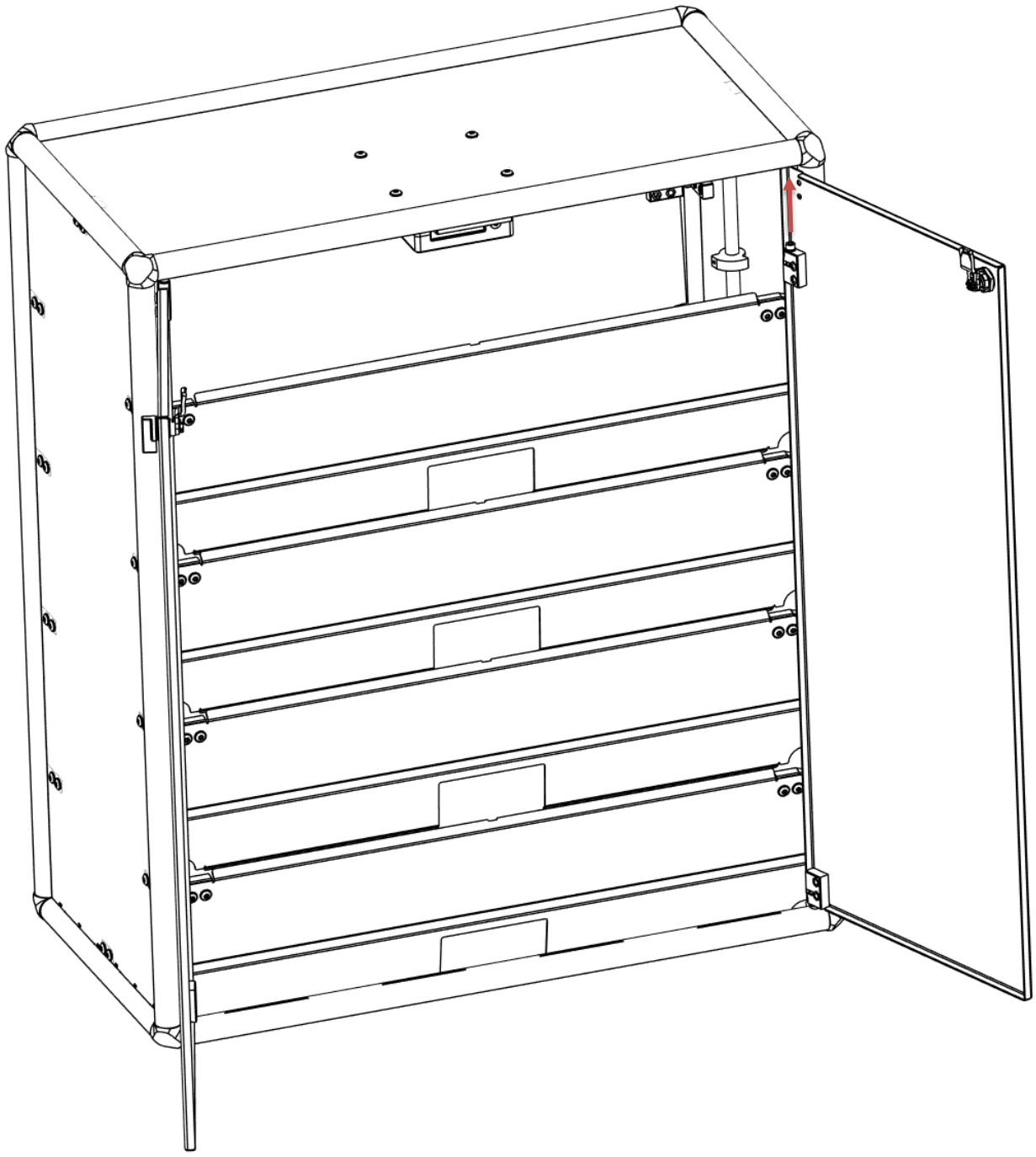


7.8 Installing the upper hinge on the right door

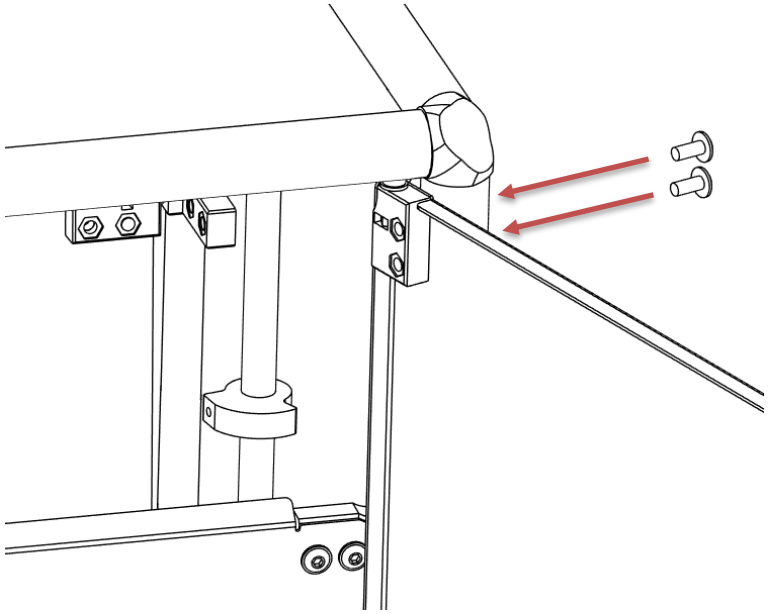
Take an upper hinge part that matches the reference image, recognizable by the **round recess** and **one ring**. Place **two nuts** in the hinge. Place the hinge and **two 14 mm long buttonhead bolts** within reach.



Pick up the right door. Insert the **lower hinge pin** into the large hole of the lower horizontal tube. Hold the door vertically. Slide the upper hinge upward and insert it into the large hole of the upper horizontal tube.



Hold the hinge in place, keeping pressure on the nuts. Insert both buttonhead bolts. Thread them in and tighten securely using an Allen key.

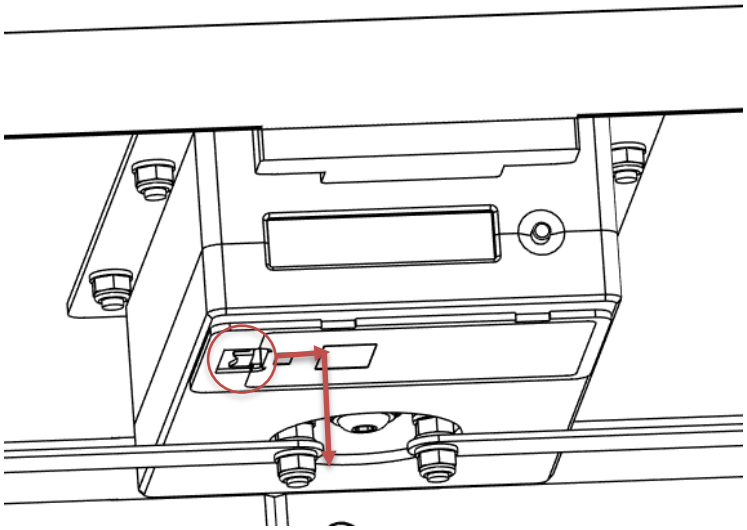


8. Power up and camshaft adjustment

This chapter describes how to power up the HayTimer for the first time.

8.1 Installing the batteries

The battery compartment is located at the **bottom of the controller**. Push the **locking clip** of the battery cover to the **right** and pull the battery cover **downwards**.Slide the battery cover to the **left** to remove it completely.



Insert **six AA batteries** into the battery holder. Allowed battery types:

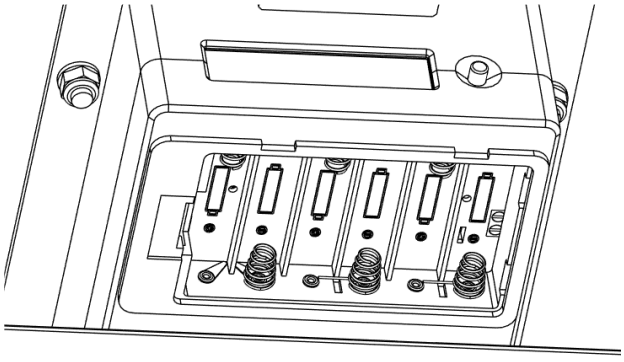
- Alkaline batteries
- Rechargeable NiMH batteries

Because the battery life exceeds one year, **alkaline batteries are recommended**.

Do not mix:

- Different battery types
- Old and new batteries

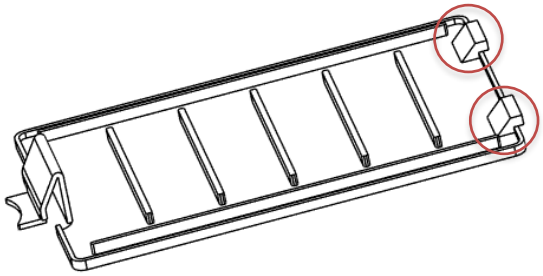
All batteries must come from the **same set**. Insert the batteries in the **correct orientation** as shown in the reference image. The negative pole of the battery (the flat end) should be in contact with the spring. The order of the batteries does not matter.



When the last battery is inserted, the HayTimer will automatically power up and the display will switch on.

Reinstall the battery cover:

- First insert the small hooks on the **right side**
- Then press the locking clip into place until it snaps in



8.2 Setting the current time

Immediately after power-up, the cursor will flash at the **hour** setting (default is 0).

To set the hour:

- Press and release the button briefly to advance the hour
- If you overshoot, continue pressing until the correct hour appears. The hour value will roll over from 23 back to 0

When the correct hour is displayed:

- Press and **hold** the button
- After approximately 2 seconds, the hour is stored
- The cursor will move to the **minutes**

To set the minutes:

- Press and release the button briefly to advance the minutes
- If you overshoot, continue pressing until the correct minutes appear. The minute value will roll over from 59 back to 0

When the correct minutes are displayed:

- Press and **hold** the button
- After approximately 2 seconds, the minutes are stored
- The main menu is displayed

After a few seconds of inactivity, the display will switch off automatically.

8.3 Button operation

Before using the menu options, familiarize yourself with the button operation.

- **Short press.** Press and release the button. This activates the display or advances to the next menu option.
- **Select.** Press and hold the button until the function is executed or the next step is displayed.

If the button is not used for **3 seconds**, the display will switch off automatically.

8.4 Initial positioning of the trapdoors

Before the HayTimer can be used, all trapdoors must be positioned correctly.

Short press the button to activate the display. The first menu option shown is **Reload**. Short press repeatedly until **Drop floor** is displayed. Press and hold the button. When the menu option **Floor 1** is displayed, short press repeatedly until **Floor 4** is displayed. Press and hold the button.

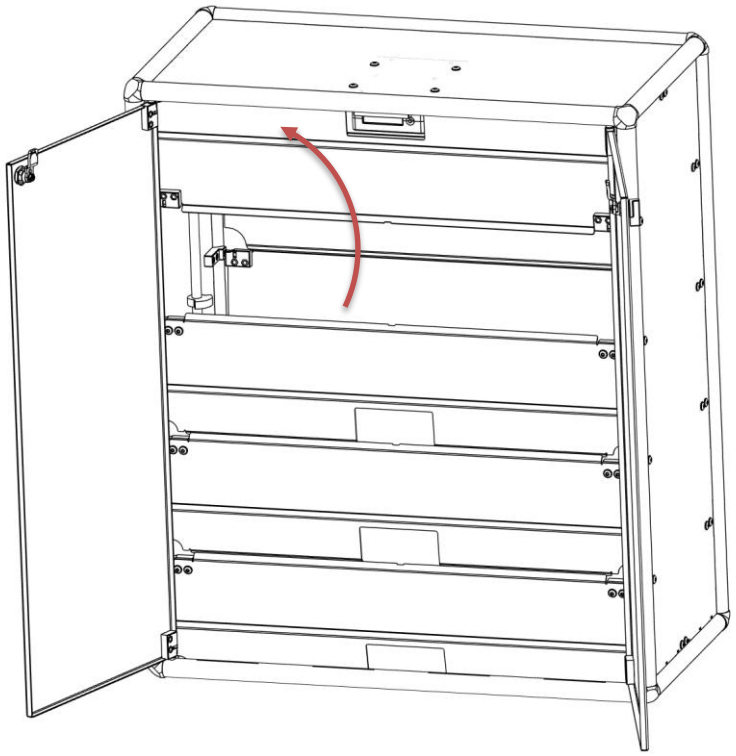
After approximately 2 seconds, the controller will drive the camshafts and release all trapdoors. Release the button. Wait until the controller has finished and the display has switched off.

8.5 Positioning the front trapdoors

Place all **front trapdoors in the upright position**. Start with the **top trapdoor**:

- Push it slightly inward
- Rotate it upward into the vertical position
- Hold the trapdoor vertically with your left hand.

Repeat this step with your right hand for the remaining front trap doors, working from top to bottom. These trap doors remain vertical.



8.6 Reloading the trapdoors

Hold the top trapdoor vertically with your left hand. Briefly press the button with your right index finger to activate the display. The menu option **Reload** will be shown. Press and hold the button.

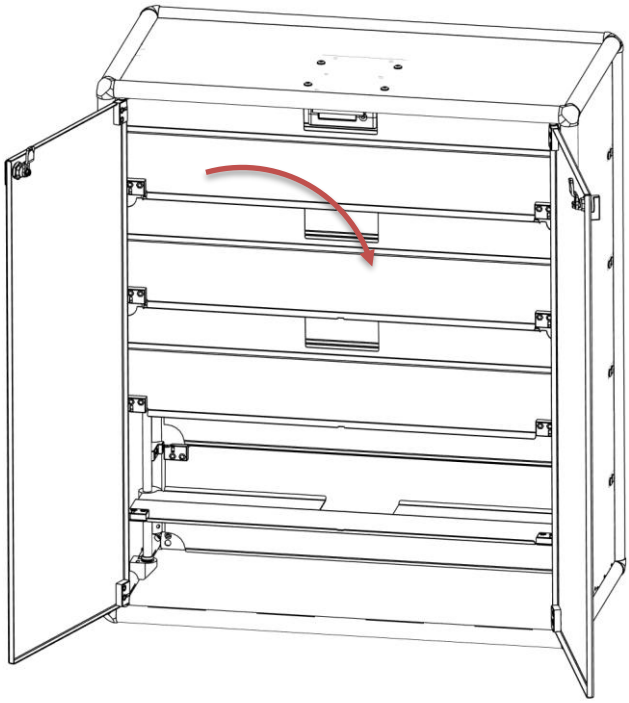
After approximately 2 seconds, the controller will drive the camshafts. Release the button. Wait until the controller has finished and the display has switched off.

8.7 Lowering the front trapdoors

Turn the top trapdoor down until it rests on the cam blocks. Then start with the **trapdoor below**:

- Push it in slightly
- Turn it down until it rests on the cam blocks

Continue with the next trapdoor below and work your way down.



8.8 Positioning the back trapdoors

Insert your hand between the **first and second front trapdoor**. Lift the **top back trapdoor** by its front edge. Rotate it upward until it touches the top front trapdoor.

Push it slightly further upward. This will also lift the top front trapdoor momentarily. When the front trapdoor falls back onto the camblocks, lower the back trapdoor until it rests on the front trapdoor.

Repeat this procedure for all back trapdoors, working from **top to bottom**.

8.9 Testing the trapdoors

To test whether all trapdoors can be operated properly, they can be opened separately.

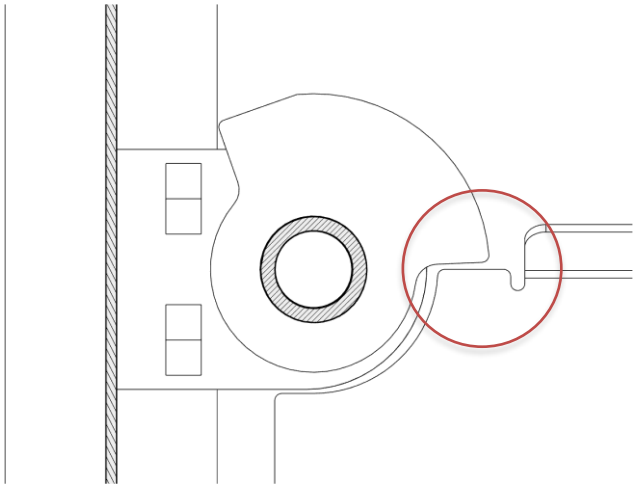
Short press the button to activate the display. The first menu option shown is **Reload**. Short press repeatedly until **Drop floor** is displayed. Press and hold the button. When the menu option **Floor 1** is displayed, press and hold the button.

After approximately 2 seconds, the **bottom trapdoors are commanded to fall**. Depending on the current camshaft adjustment:

- The trapdoor may fall correctly
- The trapdoor may remain hanging on **one camblock**
- The trapdoor may remain hanging on **both camblocks**

Manually lift the **front trapdoor** and hold it in the **horizontal position.** Observe the camblocks on both sides. When correctly adjusted:

- The side face of each camblock runs **nearly parallel** to the side edge of the trapdoor, maintaining an **even gap of approximately 2 mm**
- This condition must be met on **both the left and right side** (the image shows the left side)



If the trapdoor does not open correctly, the camshaft must be adjusted. Loosen the locking bolt in the drive block by two turns counterclockwise. Then turn the camshaft until it matches the image above. Next, tighten the locking bolt again.

When the trapdoor opens correctly, this operation can be repeated by selecting the **Drop Floor** function in the menu again and choosing the next trapdoor. If all four trapdoors open correctly, the camshaft is correctly adjusted.

8.10 Final steps

Turn both door lock knobs to the **horizontal** position. Close both cabinet doors. Turn the door lock knobs to the **vertical** position to lock the doors.

Clean the **upper right corner of the right door** using alcohol or a degreaser. Apply the sticker containing:

- Contact information
- Product serial number

If you contact support, the serial number allows us to identify your HayTimer version and assist you more efficiently.

Congratulations! Assembly and initial setup are complete. Your HayTimer is now ready for use!