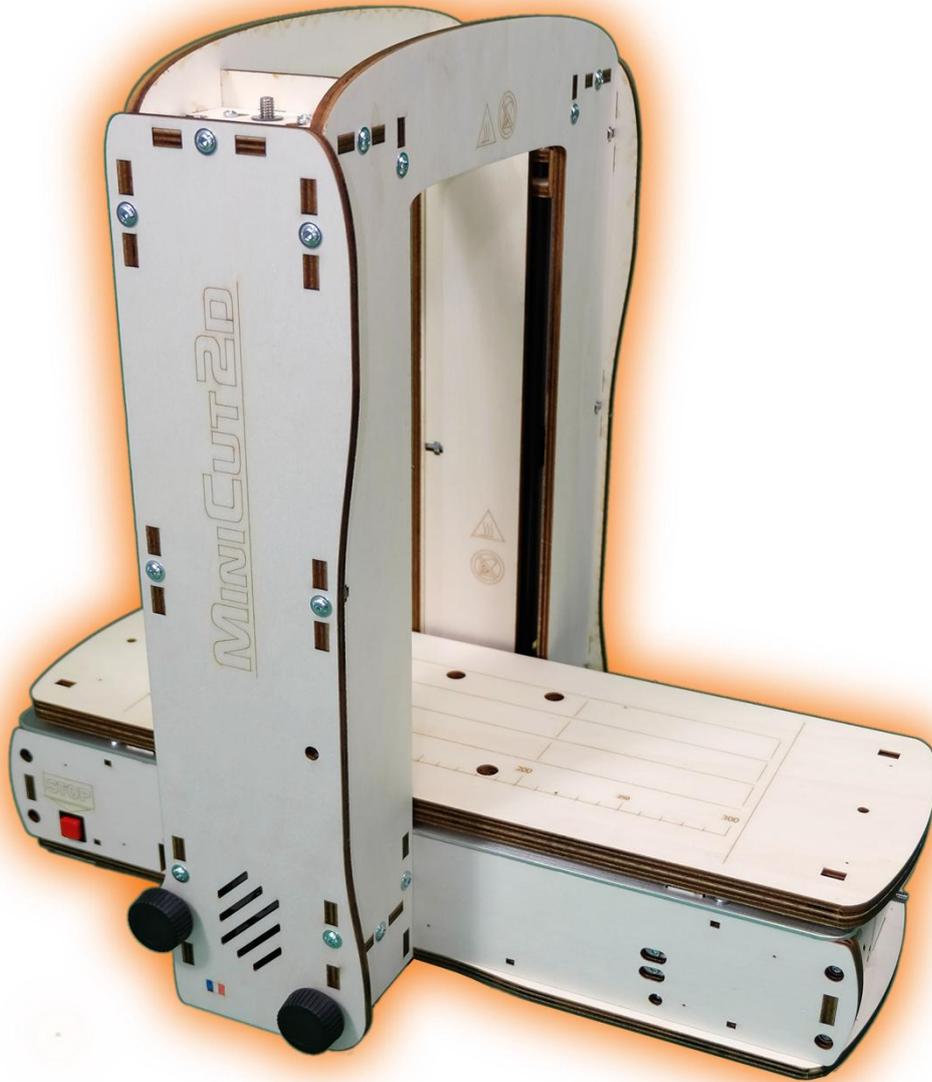


MINICUT2D

The Machine for projects



Assembly instructions of the kit

Renaud ILTIS – English Version



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The present note is for assembling the elements of the MiniCut2d. It does not detail the instructions for use.

The right way to use the MiniCut2d is detailed in the **User's guide**, downloadable from www.minicut2d.com.

Once the machine is ready as explained in this assembly manual, read the instructions for use before launching a movement (more information on page 56).

Inventory of the kit

5 bags of screws and accessories



1 cord 12V – 5A

1 power cable 110-220V

1 USB type A-B



3 carts preassembled



4 threaded rods

6 round bars



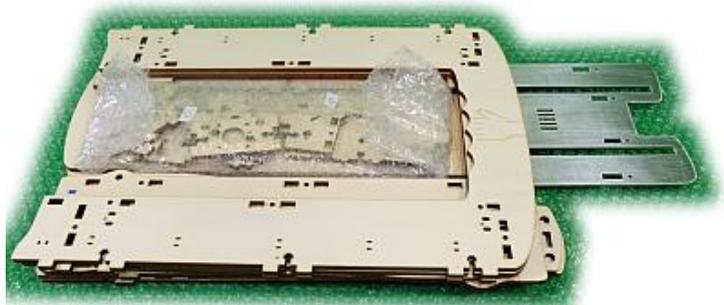
2 stepper motors-not 35x35mm (Nema14)

1 stepper motor-not 42x42mm (Nema17)



22 pieces of plywood

1 aluminum hood



1. Tools and Supplies

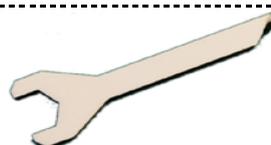
To assemble your MiniCut2d, you need:

Tools and supplies included in the kit:

2.5mm Allen key



A magnet mounted on a shaft with a wrench



The vinyl white glue



A pot of multifunction grease (with a spoon)



Tools and supplies that are not in the kit:

Phillips screwdriver midsize



A small Phillips screwdriver



Long nose pliers or a wrench 14mm



Nippers or small scissors (for cutting the ends of the plastic collars).



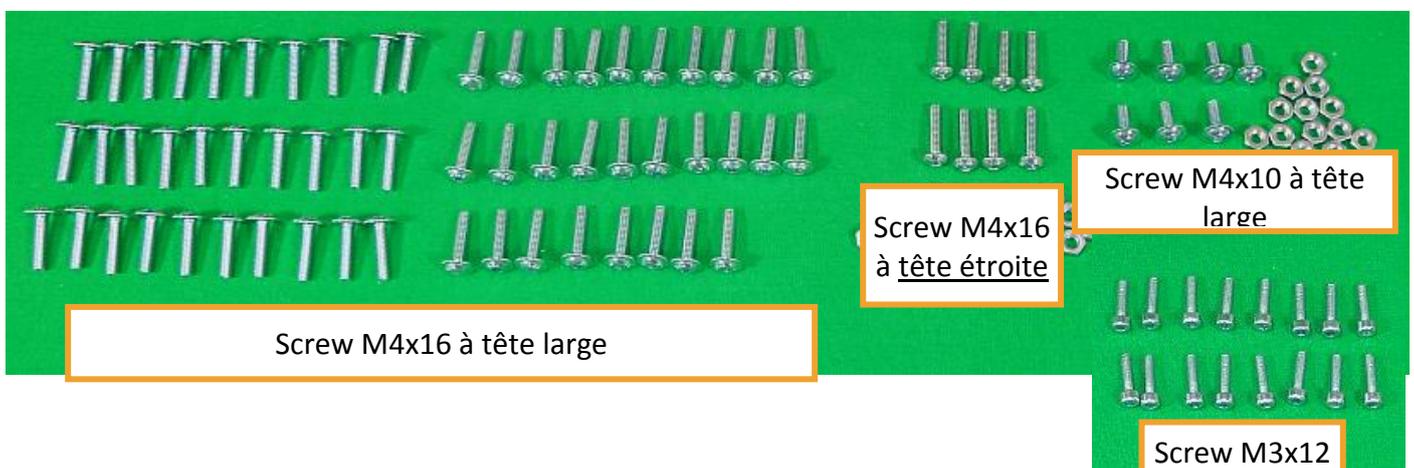
Cloth



A 30cm ruler or a tape measure.



2. Screws



3. Tips

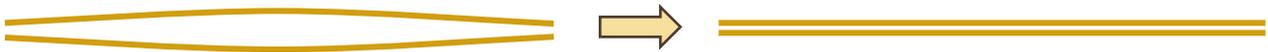
To get a good end result, make sure to work on a flat, clear surface.

Take your time! The assembly of the kit should be a pleasure that can be marred by the desire to do too much, too quickly. Work carefully and follow the instructions in order to get a fully functional machine.

No need to torture yourself on the final accuracy. The hot wire cutting is a process which does not require extreme precision in order to give good results and the theoretical resolution on MiniCut2d is 0.000625mm ...

4. Knacks

The plateau of MiniCut2d is in plywood. It is a robust but living material and it may be slightly bent in the kit. The design of the machine allows this. The assembly is expected to address the possible deformations of the plywood.



The connection between screw and nut is done by sliding the nut in the slot T-shaped and screw into the hole in the other piece.

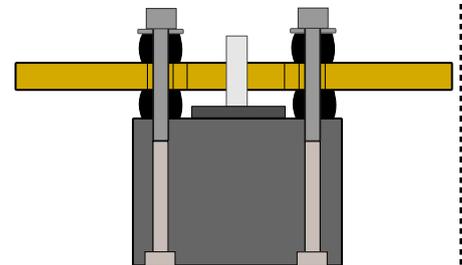
A magnet mounted on a handle (supplied in kit) will greatly facilitate the placement of some nuts.

Try different orientations of the nut on the magnet, to find one that is best suited to the situation. Push the screw to catch the nut before removing the magnet.



The engines on the MiniCut2d are mounted on silent-blocks (to reduce operating noise). The silent-blocks have a precise length, careful not to mix the different bags.

The mounting screws are tight against the cap screws of the motor.



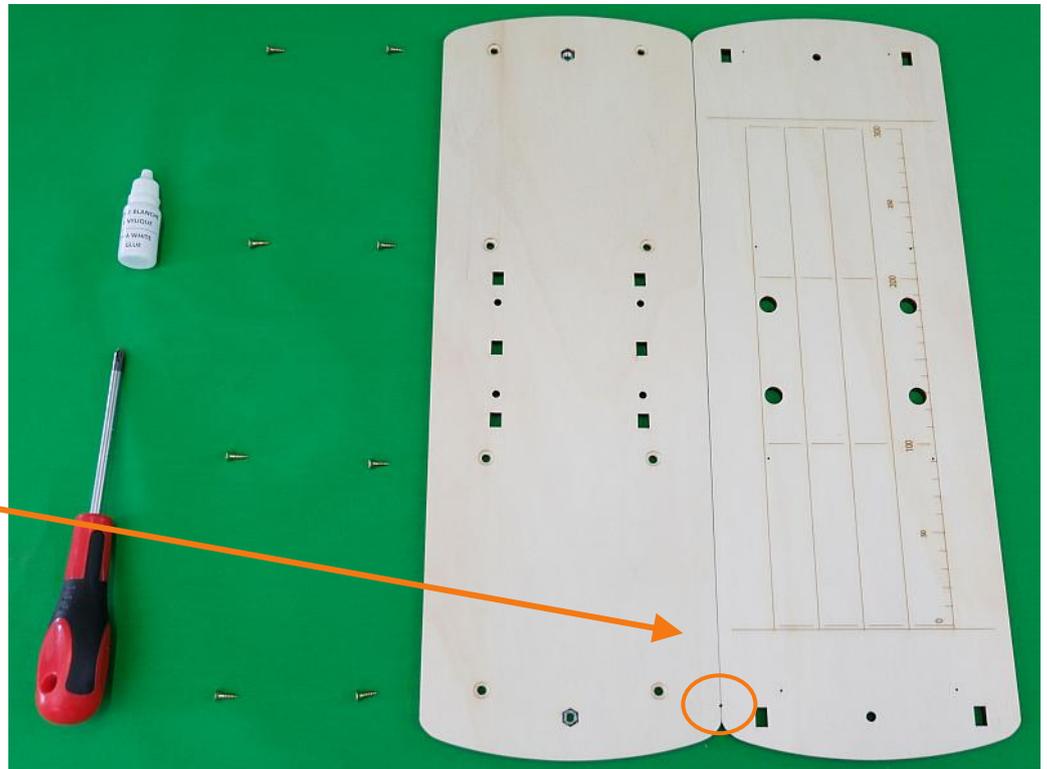
5. Montage

1.

Prepare:

- The two parts plywood shown here.
- 8 countersunk screws 3.5x11mm
- White vinyl glue
- A screwdriver
- A cloth

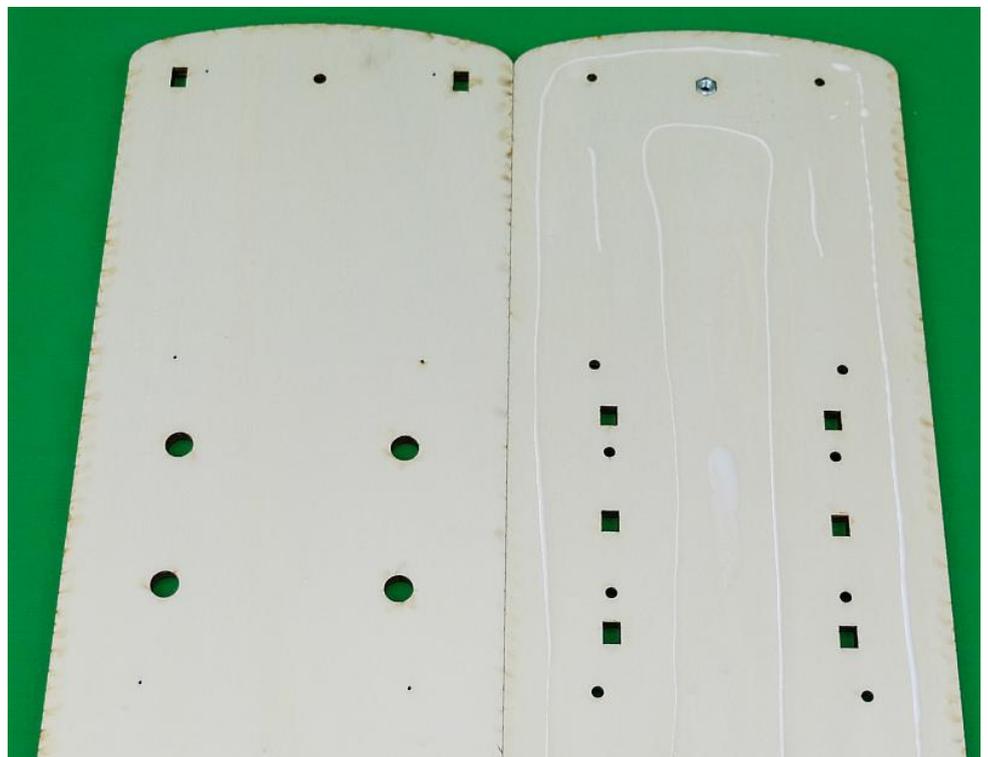
Orient the two pieces as pictured with small notches.



2.

Turn over both parts

Glue the piece that has nuts.



3.

Identify the orientation notch and press the two pieces on each other by fitting perfectly.

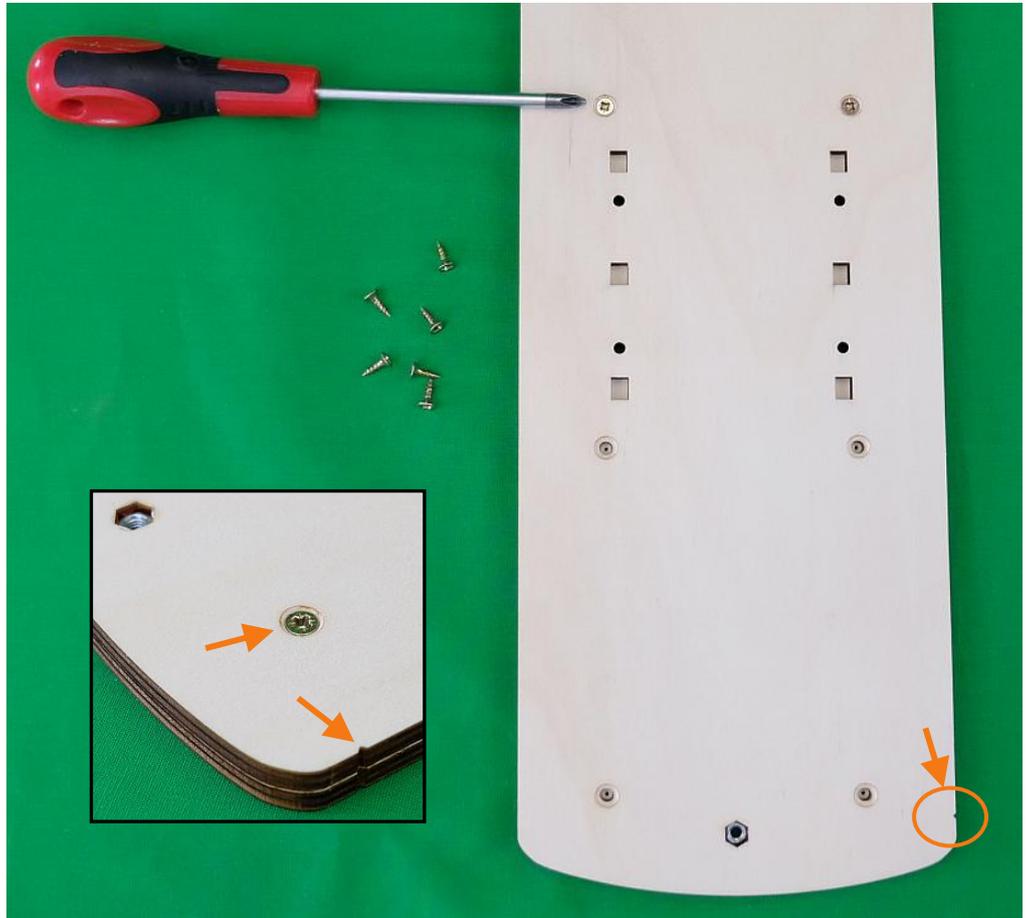
Attach the two pieces together by tightening the screws in the 3.5x11mm countersunk holes.

The screw heads must fit within the thickness of the plate.

Start with the 4 screws from the center and those at the ends.

Work perfectly flat.

The tip of the screw should not exceed the plate (unscrew if necessary).



4.

During screwing, place the tray on the edge and check the flatness to the eye or with a ruler. Use the flexibility of plywood and fastening screws for an erect plateau.

To correct a lack of flatness, unscrew the screws a little at the ends, straighten the plate by hand then tighten the screws without holding the correction.



Wipe off any glue that appears at the bottom of the rectangular holes.

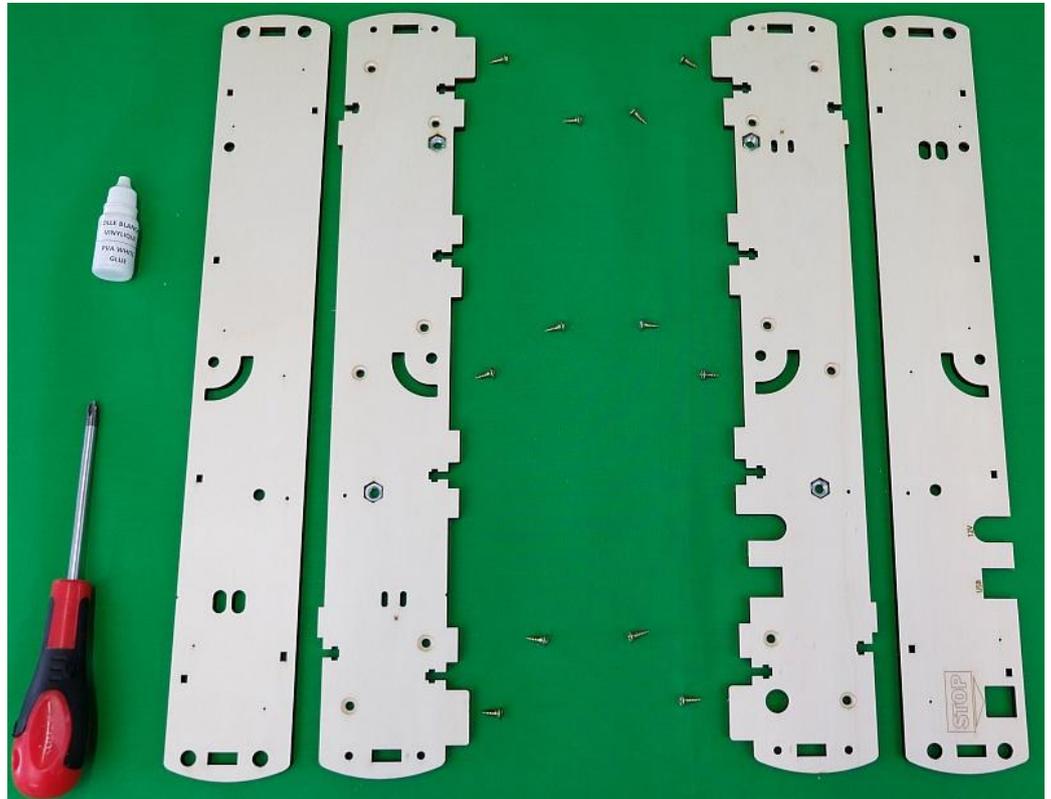
Store flat during the assembly of the rest of the machine.

5.

Prepare:

- These 4 pieces of plywood
- 12 screws 3.5x11mm
- White glue vinyl
- A screwdriver
- Cloth

Orient pieces as pictured.



6.

We begin with two pieces on the left.

Rotate both parts. Glue the one which does not have any nuts then press with the other.

Attach the two pieces together by tightening the screws in the 3.5x11mm countersunk holes. The screw heads must fit within the thickness of the plate.

Start with the 2 screws from the center and those at the ends. Work perfectly flat.



7.

Make sure the pieces are perfectly positioned one over the other and check the flatness with the ruler. If necessary loosen and adjust. The tip of the screw should not exceed (unscrew if necessary).



8.

Wipe away the glue that may have leaked into and around the holes.

Make a trial assembly (= with no screws, no glue) with the parts as shown in the photo below.

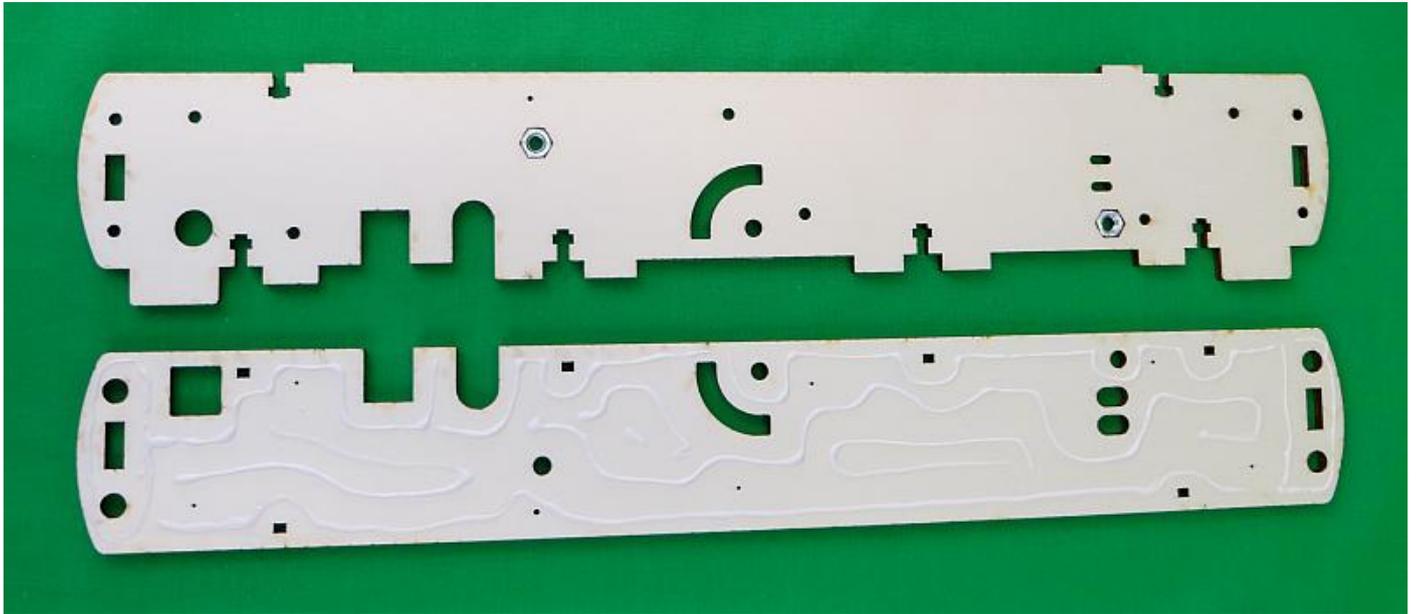


Remove and store the pieces flat.

9.

Do the same assembly with the other two parts: glue and screws, flatness control.

Wipe the glue that may have overflowed. The tip of the screw should not exceed.



10.

Make a trial assembly of the base of the MiniCut2d as pictured below. Place the bottom on a block so that the feet of the machine may exceed below.

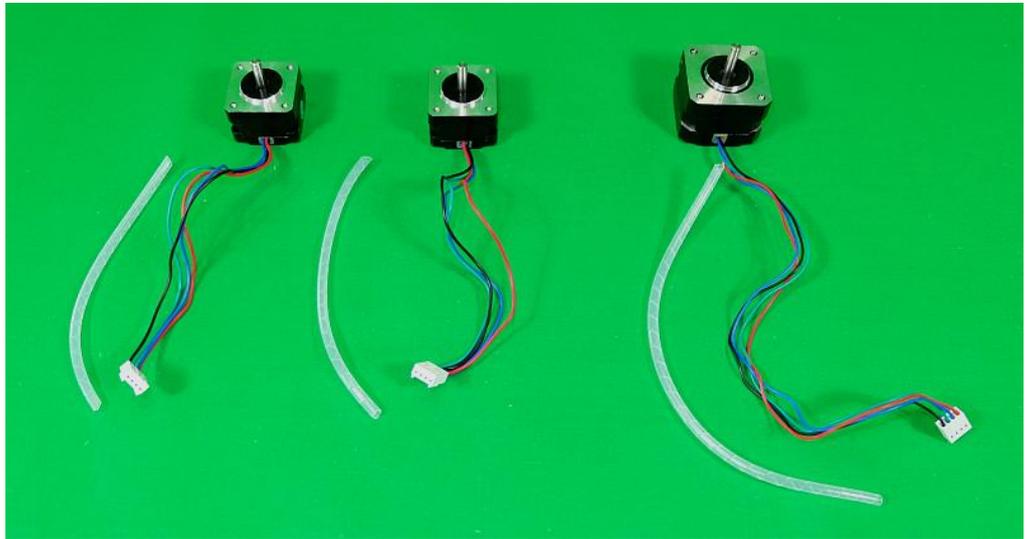


Remove and store the pieces flat.

11.

Prepare:

- The 3 engines.
- The 3 spiral pipe.



12.

Wrap the tubing around the motor cables.

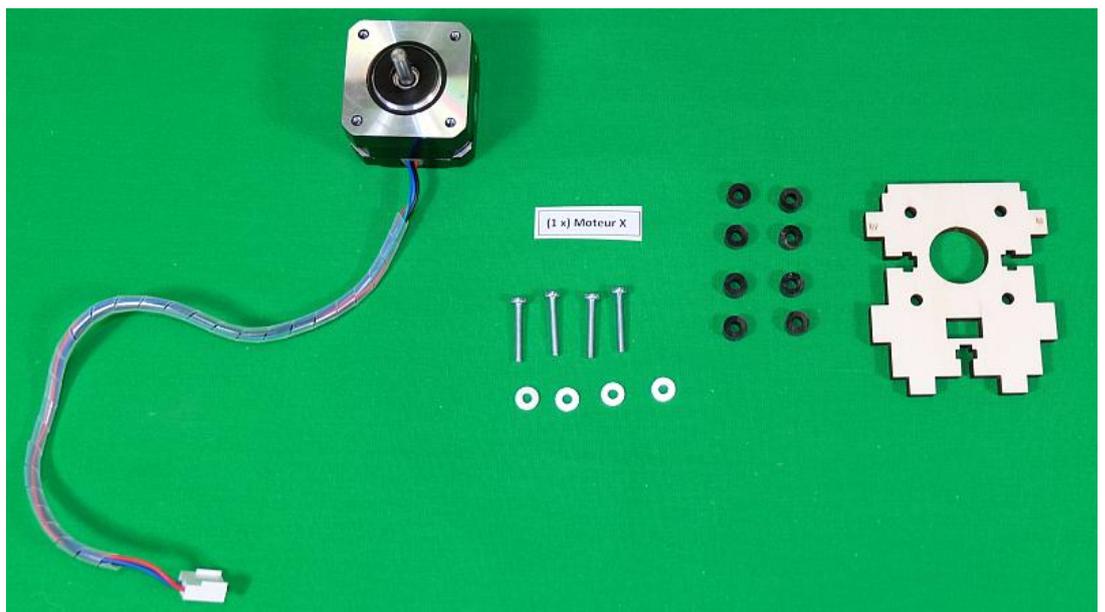
Be careful not to damage the cables.



13.

Prepare:

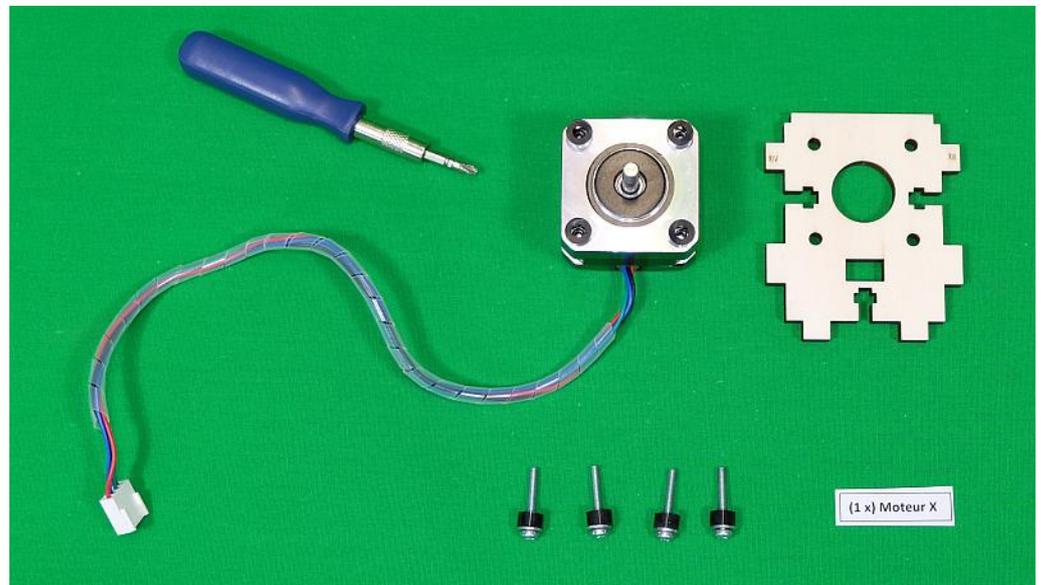
- The big motor
- (motor X)
- Contents of the bag labeled "(1 x) Moteur X"
- The part of plywood with Roman numbers XIV and XIII (see photo)
- A screwdriver.



14.

Thread a washer and a silent-block silicone on each screw.

Center the four remaining silent-blocks on the mounting holes of the engine.



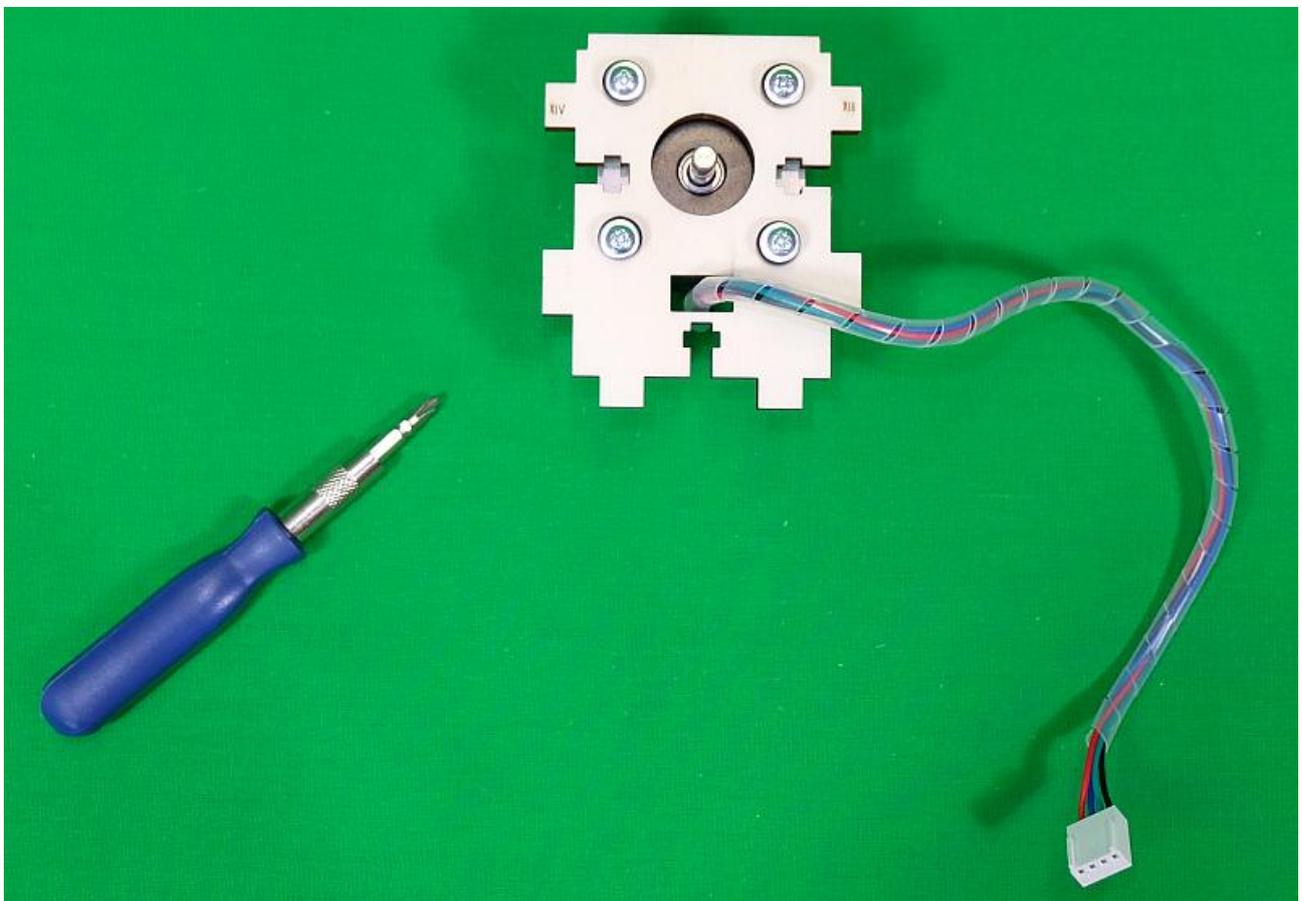
15.

Center the plywood piece on the engine slowly. Roman numerers should be visible and the axis must go out of the center of the circle. Be careful with the orientation of the cable.

Slide the screws into the holes and tighten gradually. They must come up against the cap screws of the motor.

Tighten without excess. The silent-blocks must be compressed and the engine must be attached to the bracket in plywood.

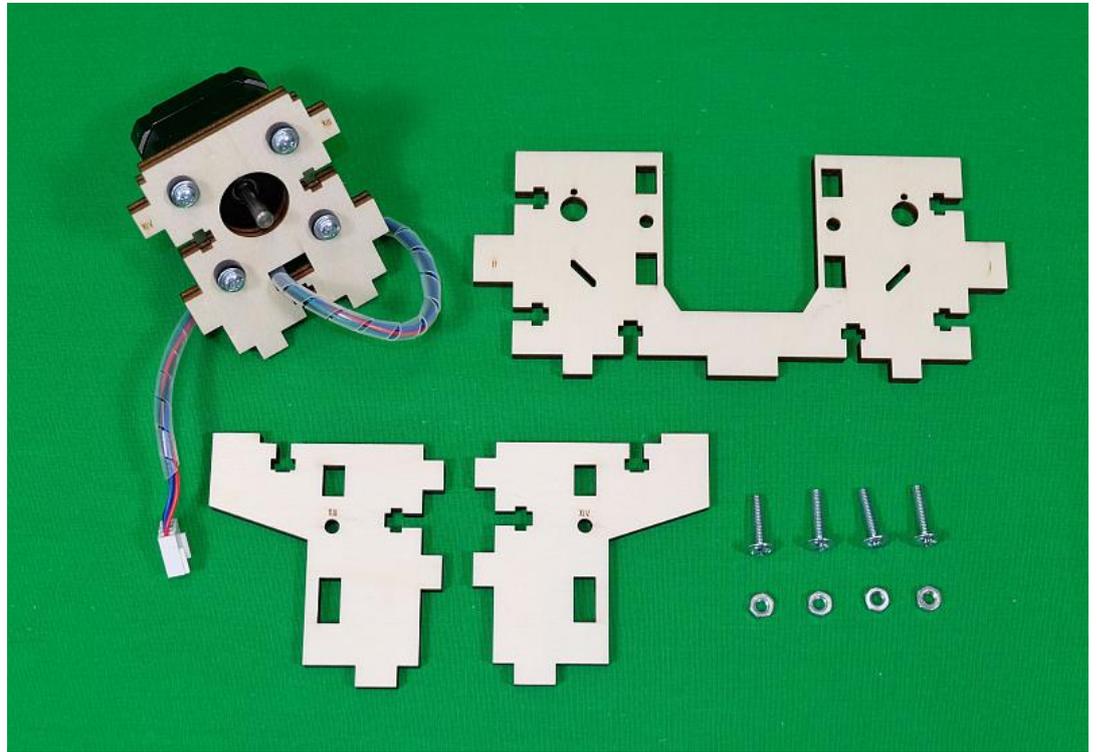
Place the motor cable into the hole provided for this purpose in the piece of plywood.



16.

Prepare:

- The big motor on its support
- Parts of plywood as shown in the photo.
- 4 screws M4x16 large head
- 4 nuts M4.

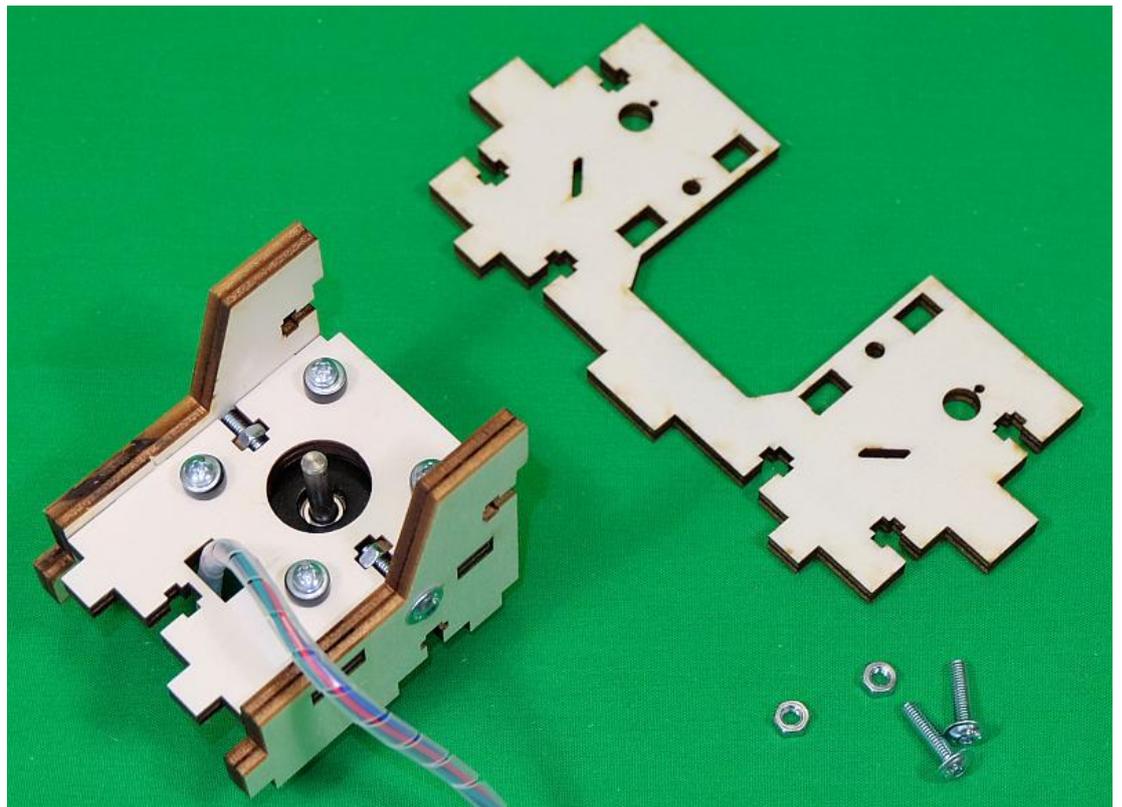


17.

Slide marked XIII and XIV pieces on the tabs of the motor mount with the same inscriptions.

Hold the pieces in place with two sets nut + screw.

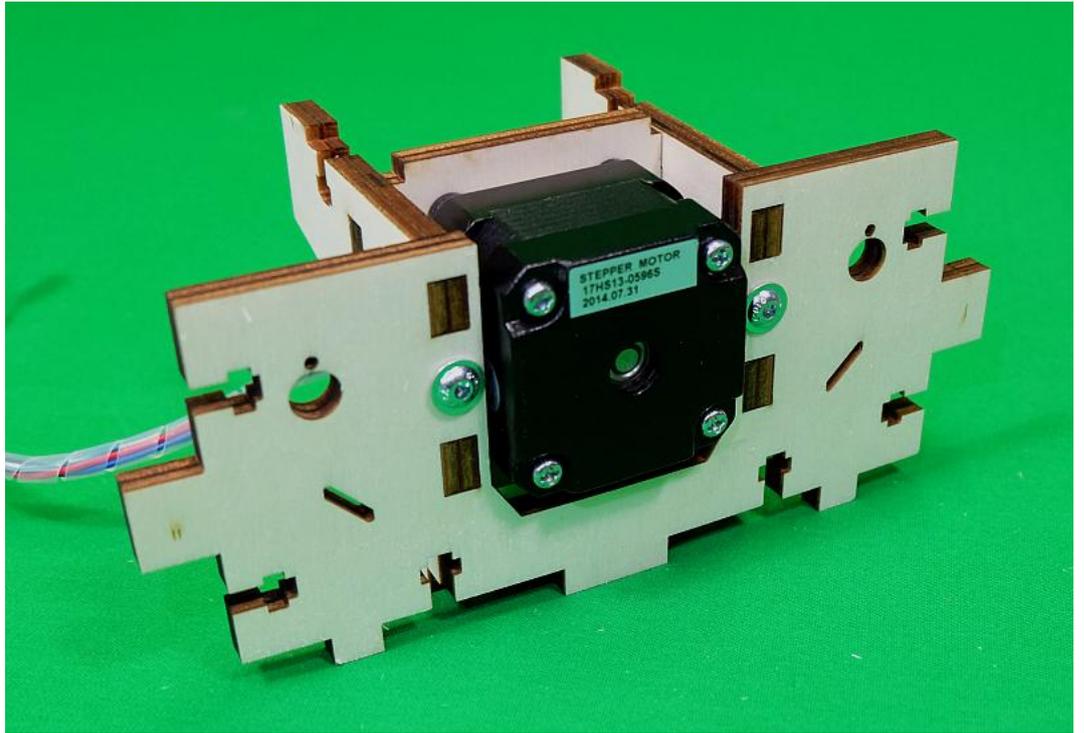
Bring the screw heads in contact with the plywood, but loosely.



18.

Similarly, attach the remaining piece with two sets of nut + screw in contact with each other, loosely.

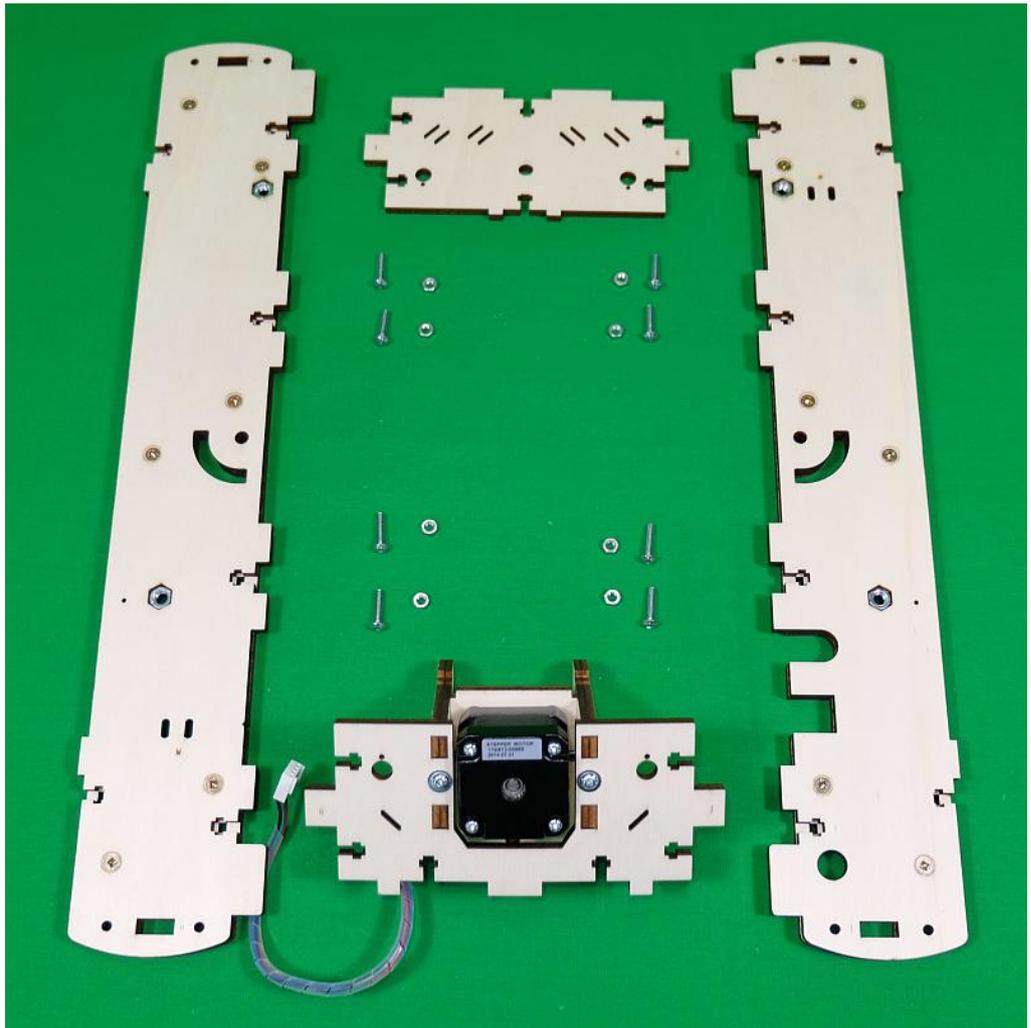
Pay attention to the orientation: Roman numbers I and II engraved on the piece must be visible when looking at the rear of the engine.



19.

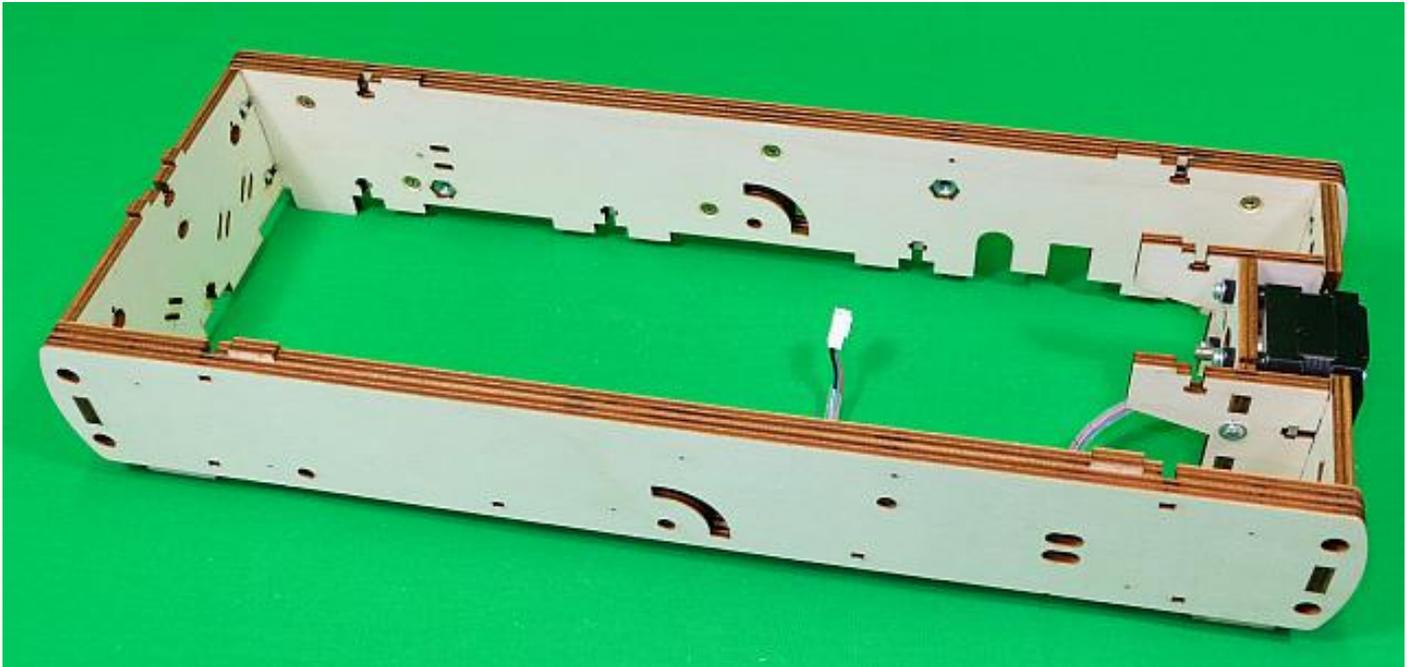
Prepare:

- The pieces of plywood shown in the picture
- 8 M4x16 screws **narrow head**
- 8 nuts M4.



20.

Assemble as shown in the picture below with the Roman numbers engraved on the coins helping you. Put the screws and nuts, screw heads in contact but not tightly.



If the screw heads do not fit, it's because you have not used the right screws. Reread paragraph 19.

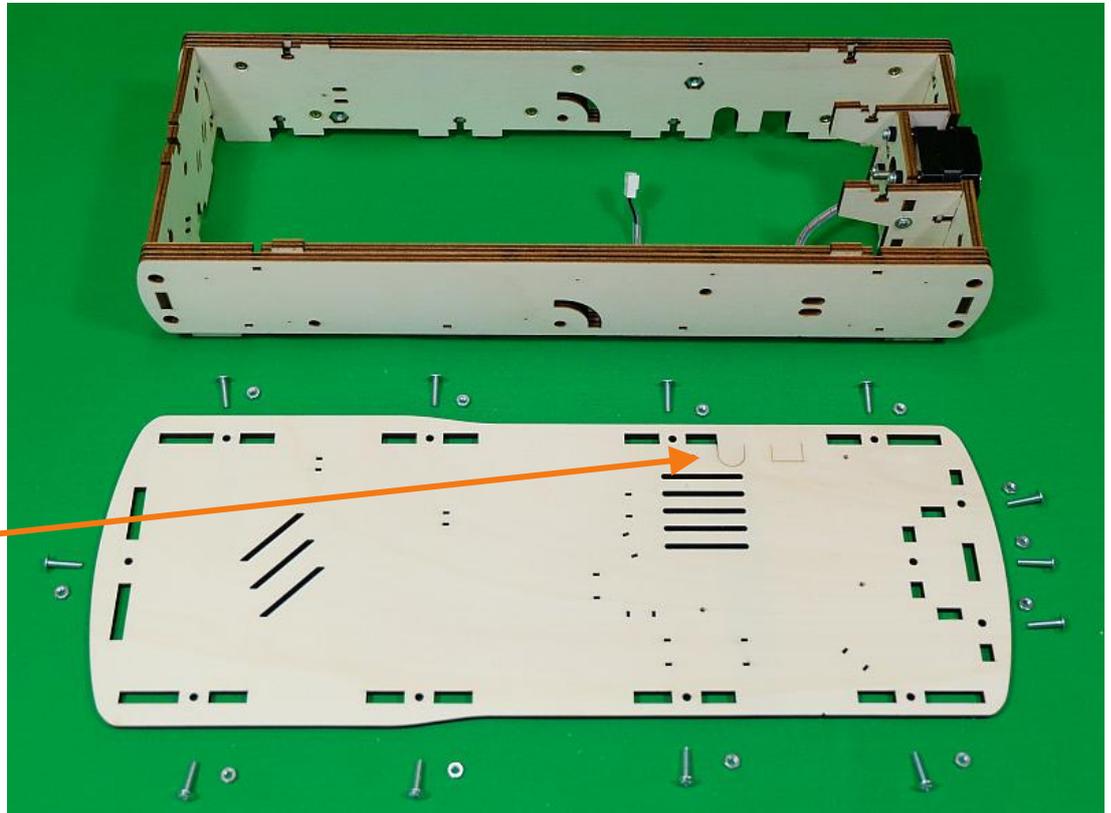


21.

Prepare:

- The previous assembly
- The large piece of plywood background
- 12 screws M4x16 large head
- 12 nuts M4.

Pay attention to the orientation of the bottom, prints must be visible.



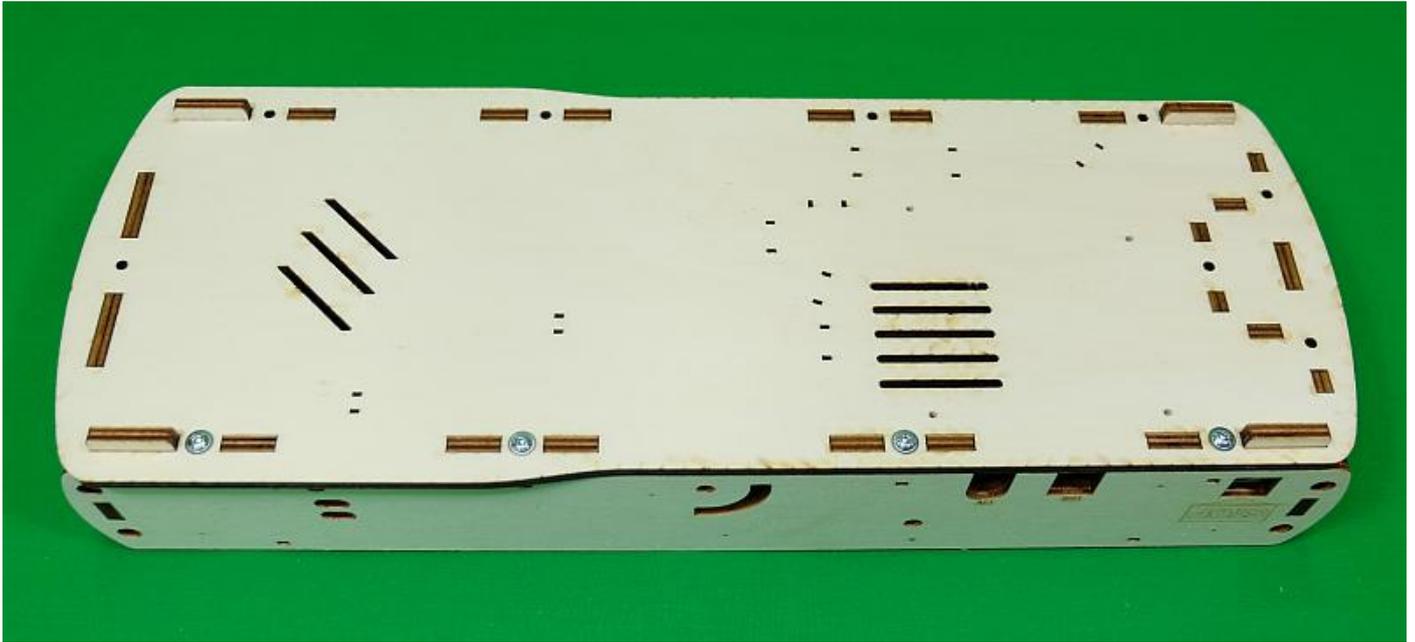
22.

Return the plywood frame and put the bottom in place. Proceed slowly by moving the different pieces. Flip over the assembly and slide the four nuts on one side as on the photo below.



23.

Tighten screws corresponding to the holes, head contact, loosely.



24.

Repeat for the other screws.



25.

Turn the assembly over and slide the protective cover into place. Make it move for all locating pins protruding from the hood.

If necessary, adjust the edge lugs with a cutter to make it easier.

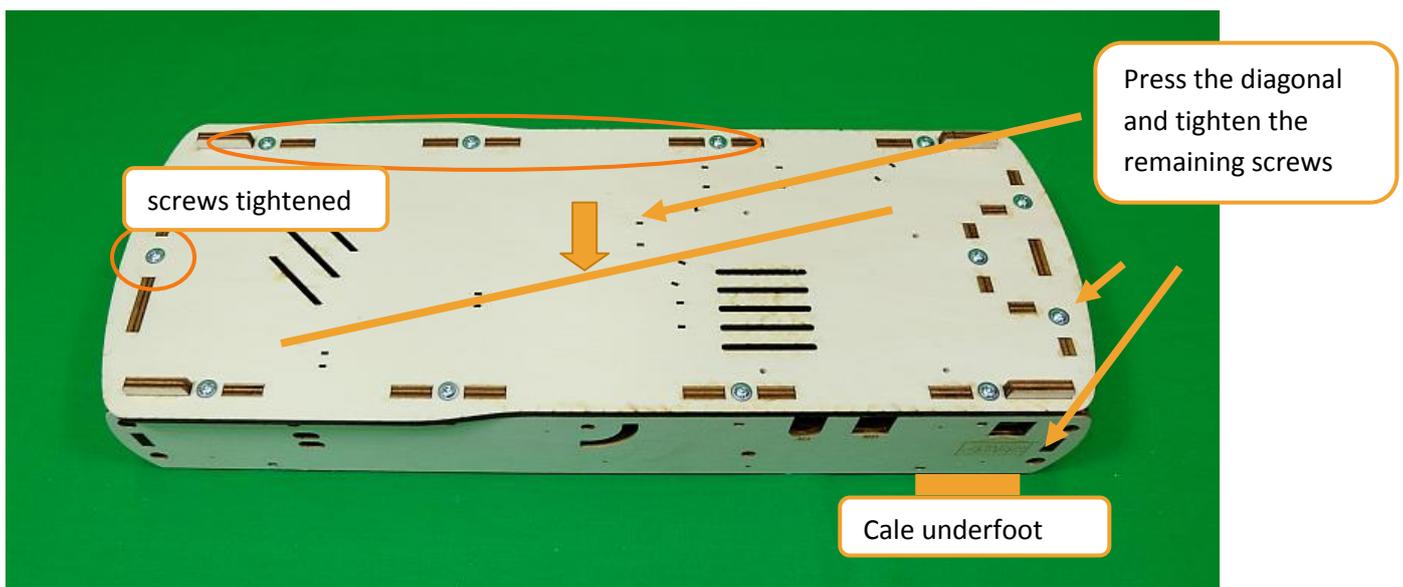


26.

Remove the protective cover. The base of the MiniCut2d is almost done. It's time to tighten the screws, ensuring the flatness of the machine. Pay attention to tighten not too much (tighten, but don't break the plywood).

Work on a flat surface. Return the base as often as necessary.

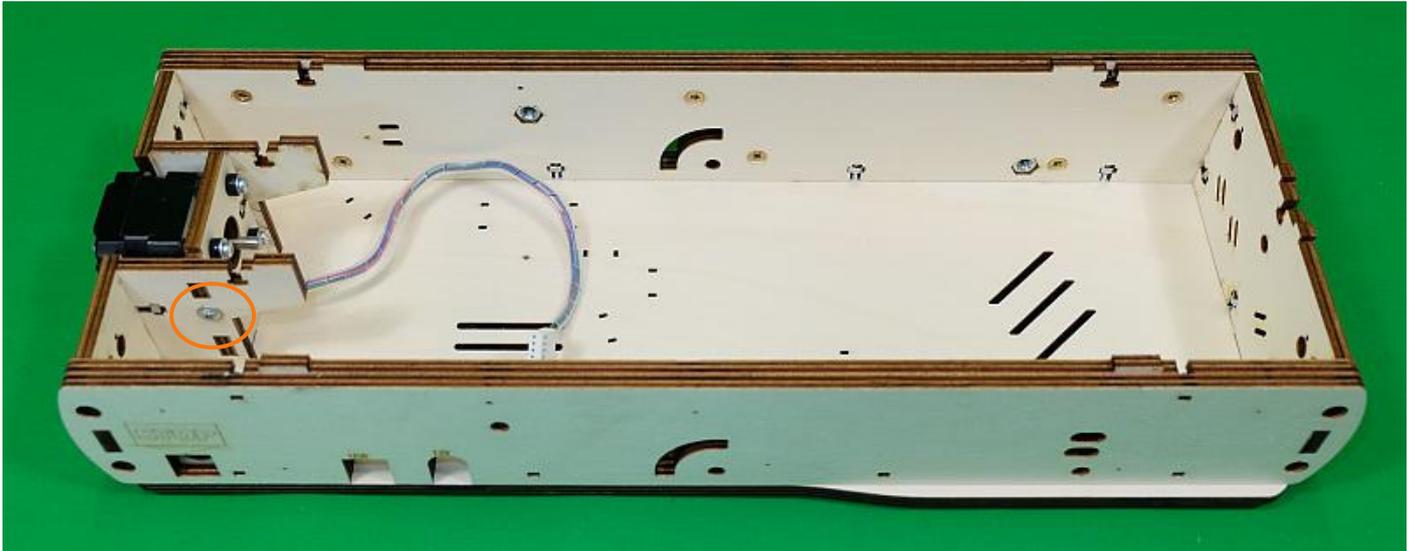
As the base has four legs, one of them could sometimes not touch the table. You must use a cale and the flexibility of the plywood and tightening gradually, to bring it up within 1mm (or less) of the table. Example below.



27.

Do not forget to tighten the screws on each side of the engine. Double-check all the screws.

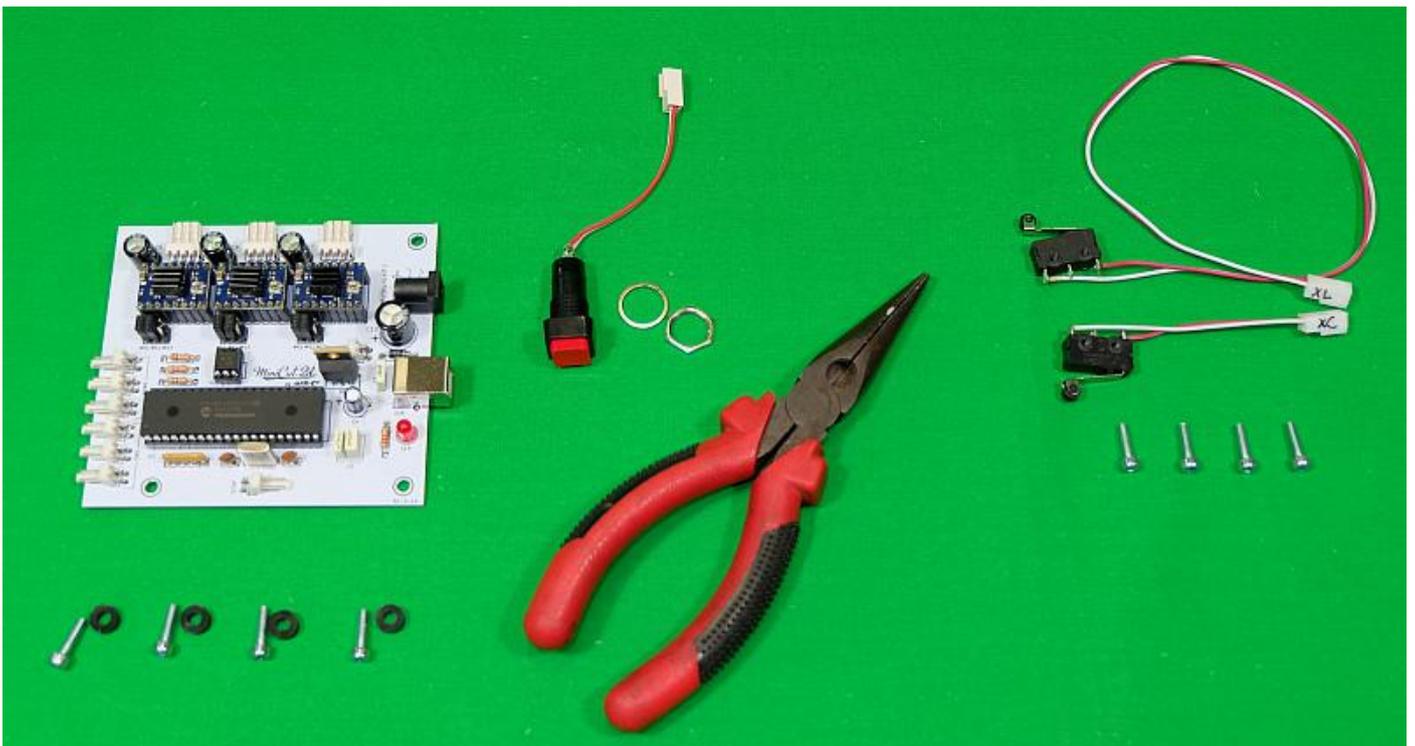
Final check of the assembly and adjust the locating pins if necessary.



28.

Prepare:

- The electronic control board which controls the motors and heat
- 4 struts on silicone
- The emergency stop button (unscrew the nut with pliers or a flat wrench)
- The limit switch marked XL
- The limit switch marked XC
- 8 screws M3x12



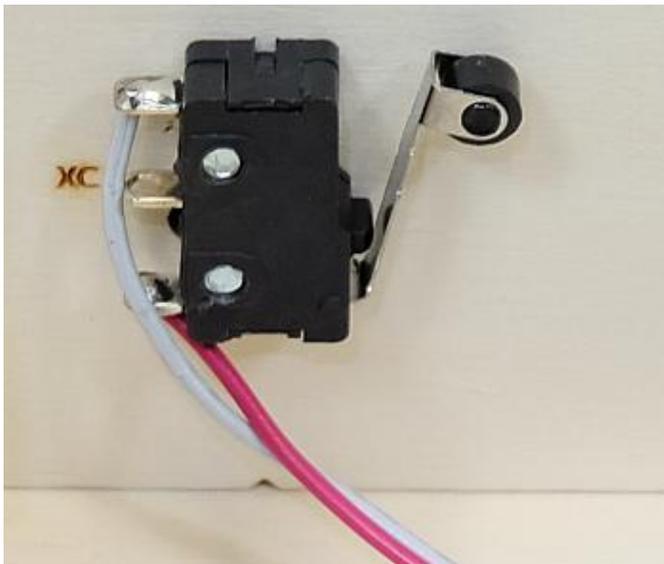
29.

Fix switches in the base, on locations marked XC and XL.

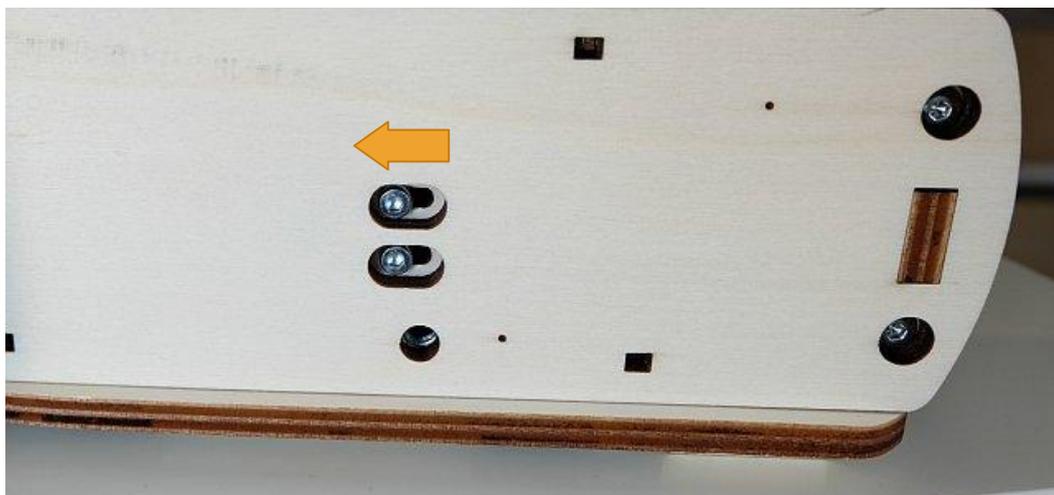
The fixing is done with screw M3x12, the screw heads on the outside of the base and the casters of the switches facing upward. (In the absence of labeling : XC is the closest from the motor, XL is the remotest, see photos of the steps 31 and 32.)

Be careful not to pinch the cables between the metal tabs switch and the wall on which it is attached.

Handle the cables gently so that you do not break them at the welds.



For **XC and XL**, place the screws **in the left position of the setting area** and tighten moderately, without marking the wood so as to be able to adjust the position later.



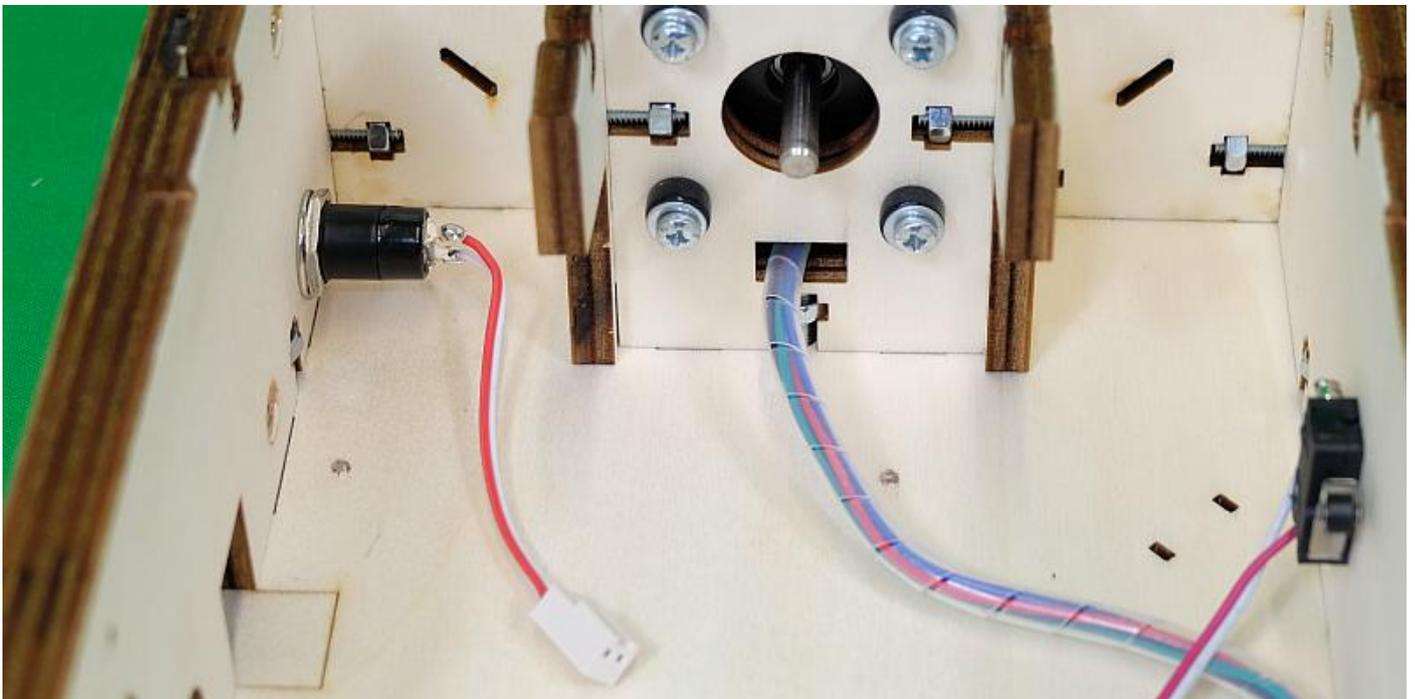
30.

Place the emergency stop push button.



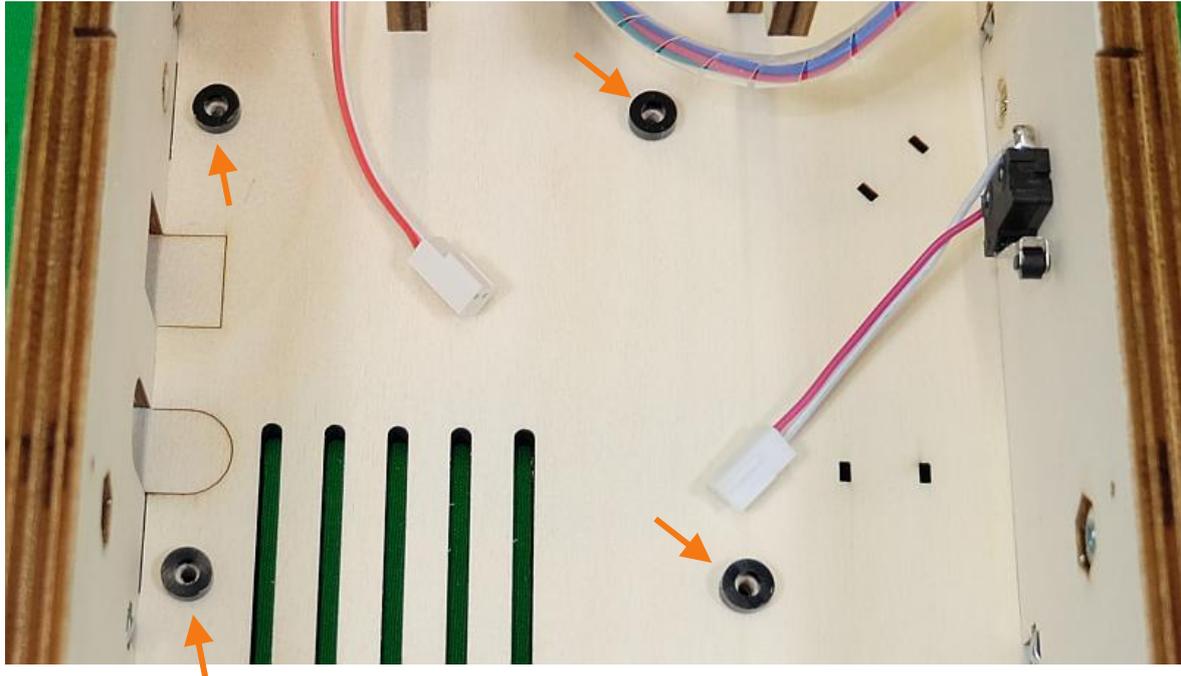
Fit the washer and tighten the nut with the flat wrench on the magnetic tool.

Beware, the thread is plastic, so moderately tighten so as not to strip it.

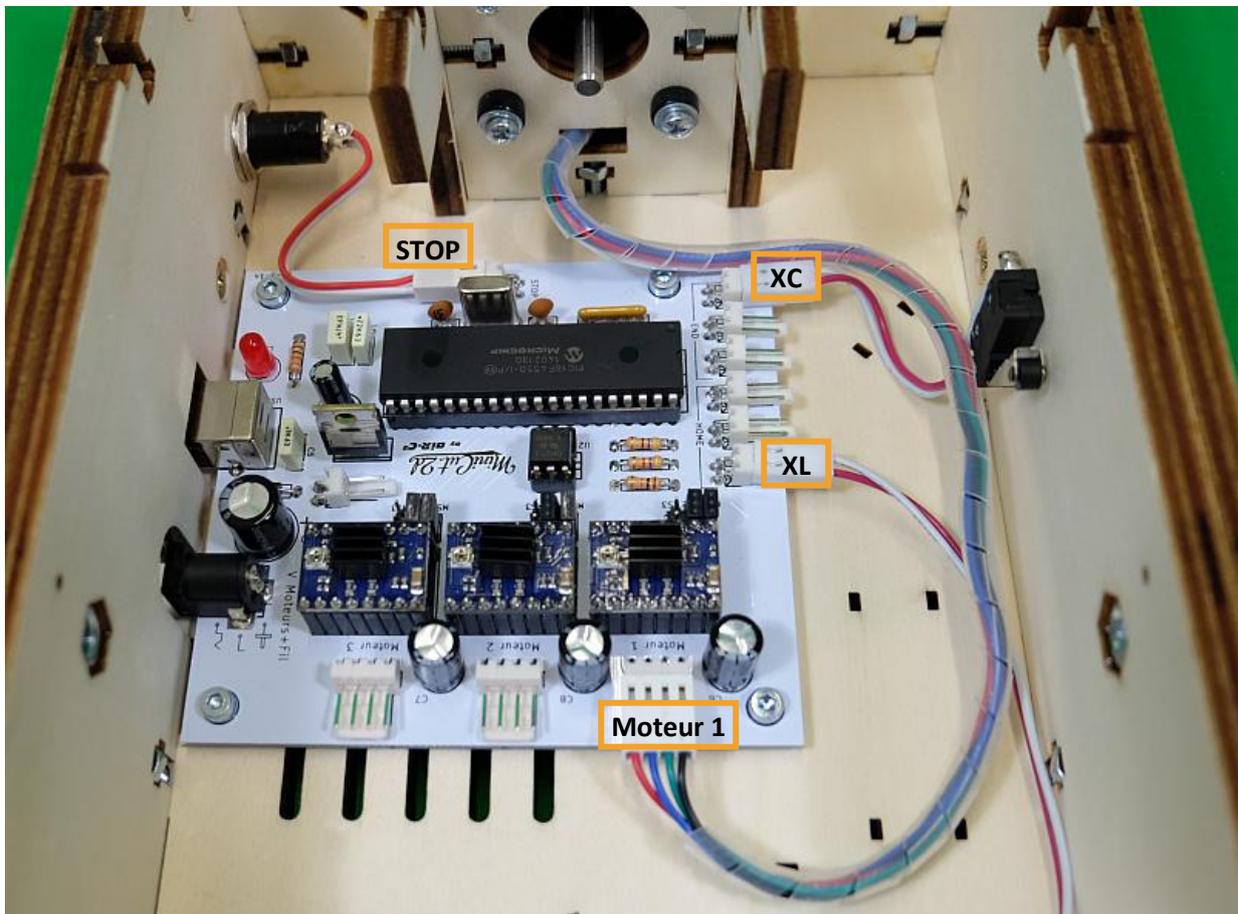


31.

Center the silicon spacers on the fixing holes of the electronic card.



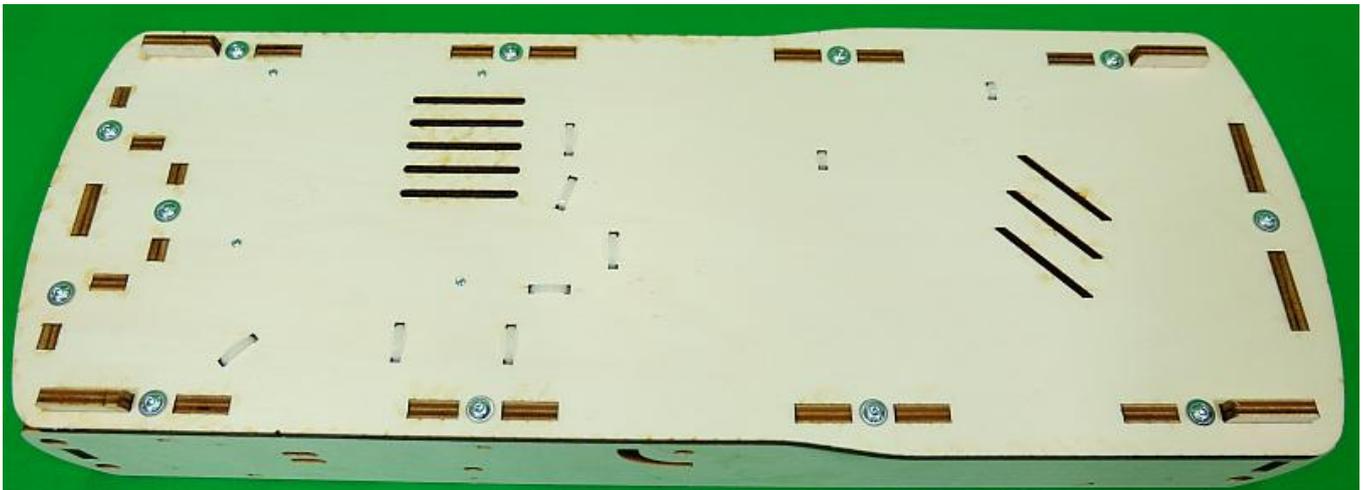
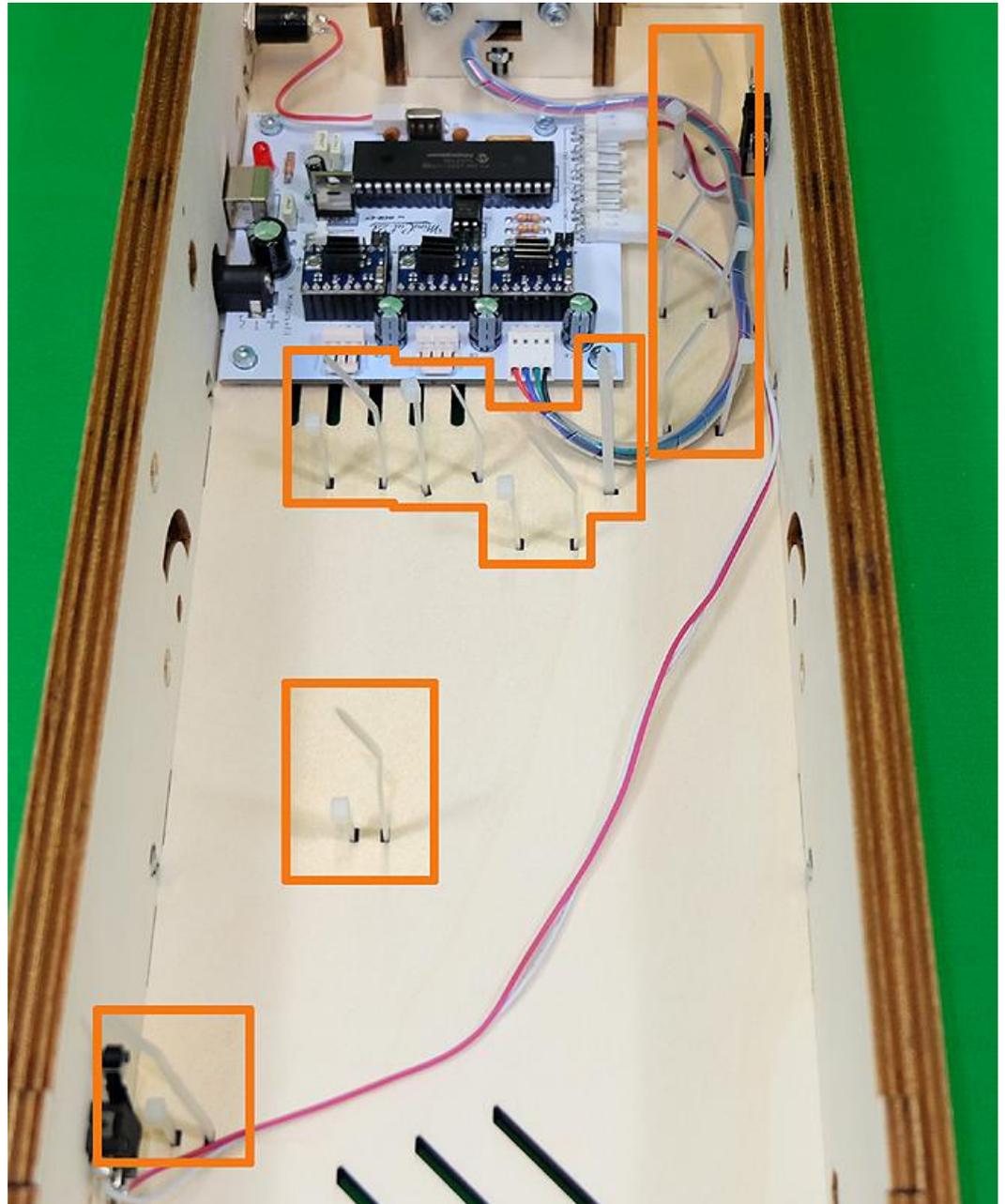
Put the card in place and tighten the M3x12 screws through the spacers. Tighten lightly.
Secure the connectors to the card as pictured below.



32.

Slide 9 plastic collars (zip-ties) in the slots provided for this purpose.

Move base side during assembly of the gantry.



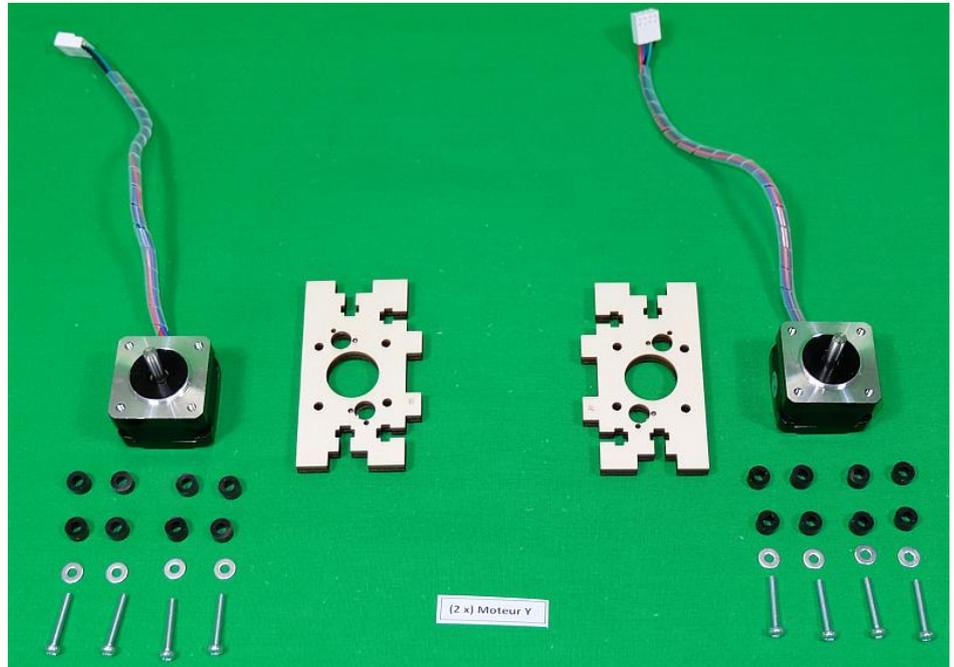
33.

Prepare:

- The 2 small motors (motors = Y)
- The two pieces of plywood visible in the photo, with the engravings on top
- The bag of fasteners labeled "(X 2) Engine Y"

Guide engines and parts as pictured. (The left piece is marked III, the right is marked IV.)

Attention : the screw heads on the motor mounting blocks are under the mounting blocks (they will face the motors).



34.

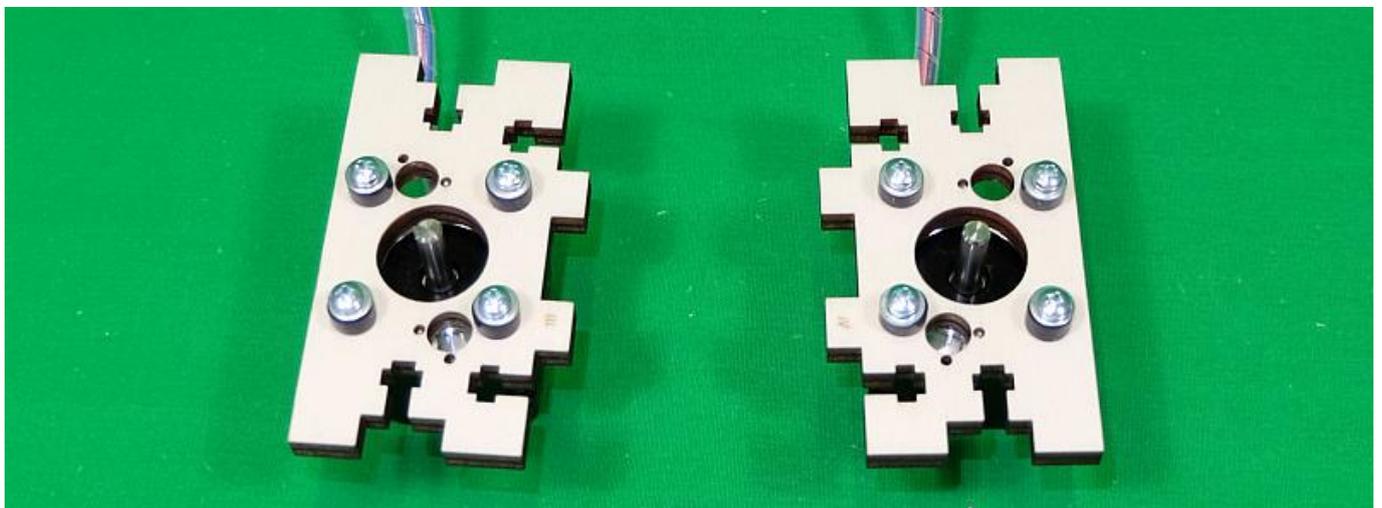
Thread a washer and a silent-block silicone on each screw.

Centering the remaining 8 silent-blocks on the engine mounting holes.



Center the plywood piece on the engine slowly. Roman numerals should be visible and the axis must protrude from the center of the circle. Attention! The engines are slightly skewed to the edge parts of the plywood.

Slide the screws into the holes and tighten gradually. They must come up against the cap screws of the motor. Tighten without excess. The silent-blocks must be compressed and the motors must be attached to their plywood supports.

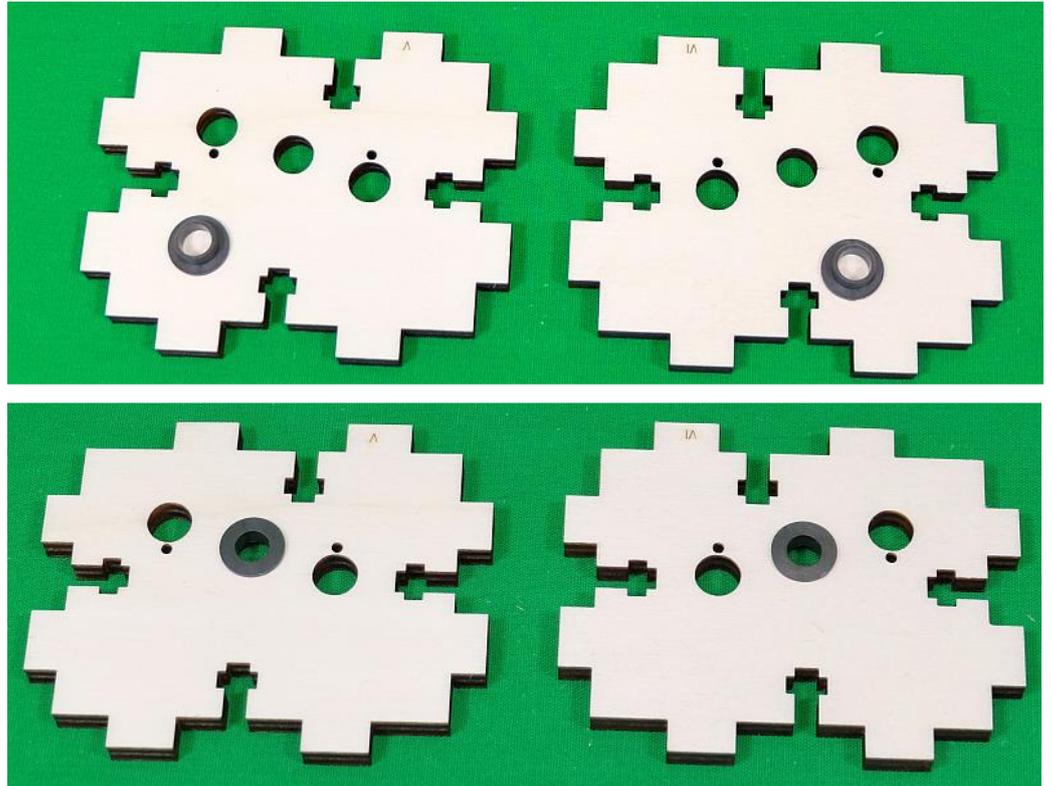


35.

Prepare:

- Pieces in this picture with the visible Roman number markings V and VI
- The gray hard plastic rings.

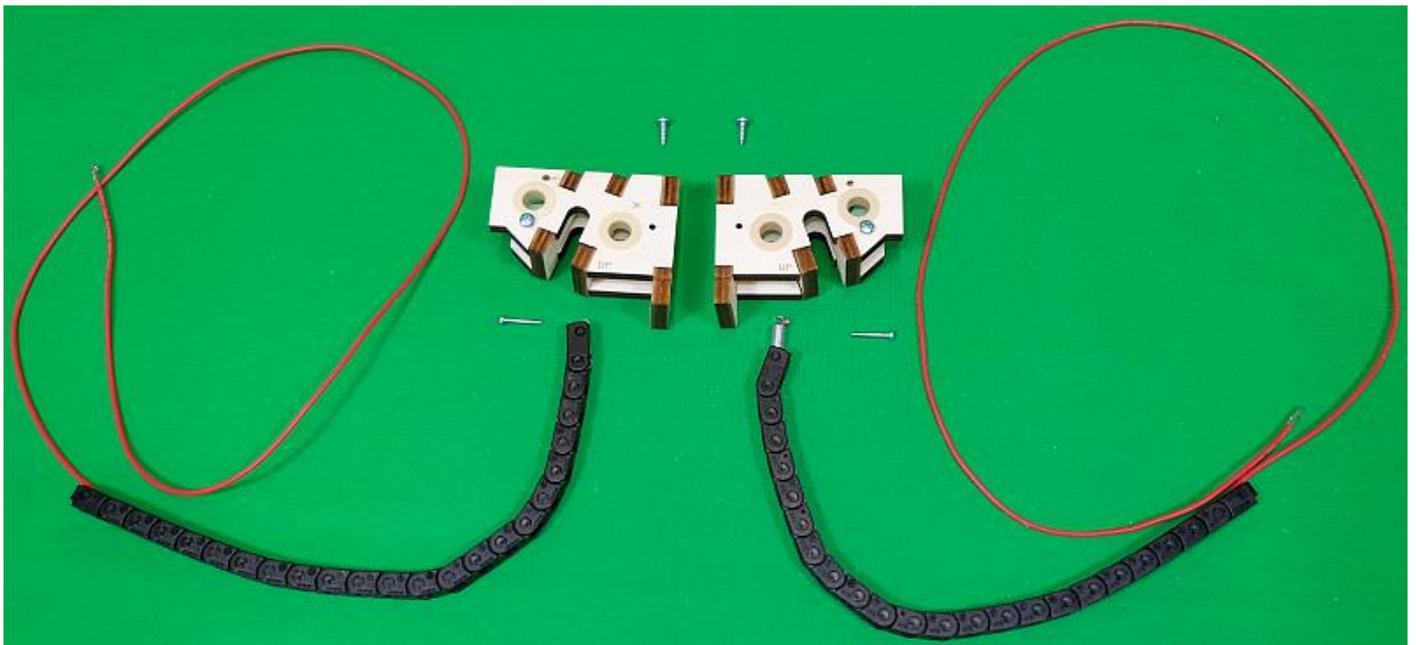
Push the rings in the center hole by pressing with your thumbs until the flange touches the plywood.



36.

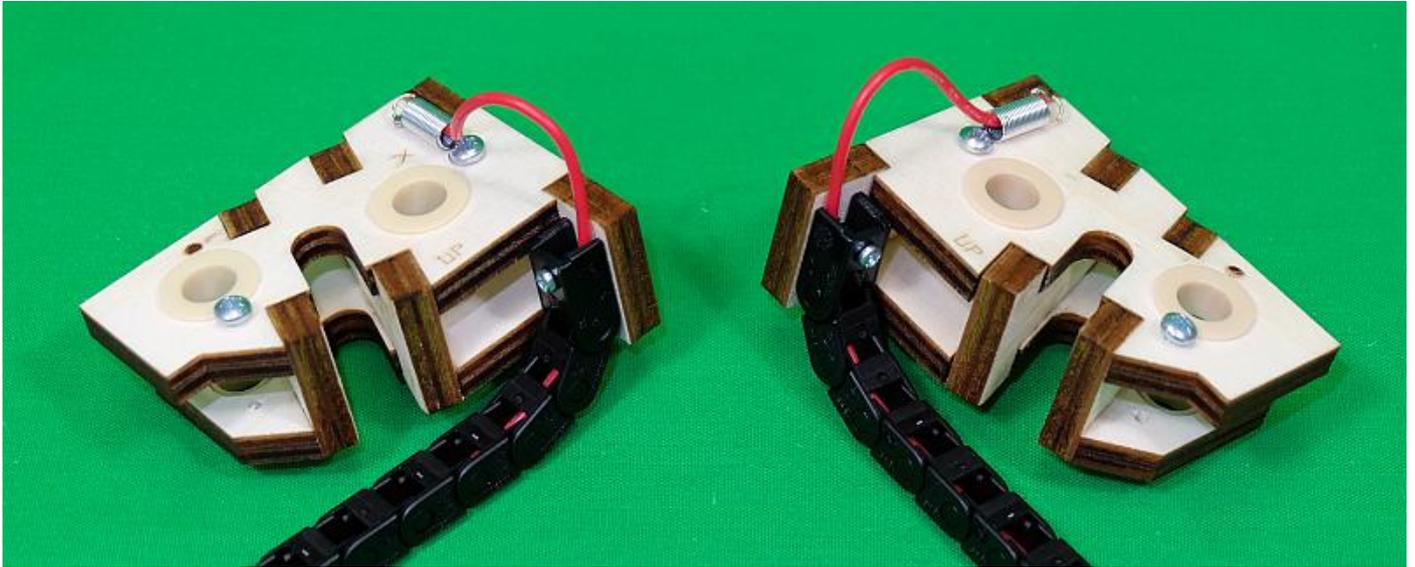
Prepare:

- Carts Y visible in the picture below, with the UP marking on top
- The cable carrier chains with cable wire feed
- 2 screws 2.9x9.5mm
- 2 screws 2.2x14mm



Assemble the various elements as shown in the picture below: springs with 2.9x9.5mm screws and chains with 2.2x14mm screws.

Leave a good handle cable between the chain and spring. Test the extension of the spring: the cable must follow without tender.



37.

Prepare:

- grease and cloth
- two threaded rods of 347mm
- 4 brass nuts
- 2 silicone sleeves

Screw two nuts on each rod on the side marked with a blue or green dot.
Screw one sleeve on each shaft on the side opposite to the nuts, on a length of 10mm.



Grease the threaded rods and make the nuts circulate from one end to another in order to spread the grease. Wipe away the excess grease. You just need the nuts to turn smoothly. The grease will continue to be distributed over the entire length of the rods during the initial use of the MiniCut2d. You can use an electric screwdriver to accelerate this process.



38.

Now, grease the 4 round bars 351mm long.

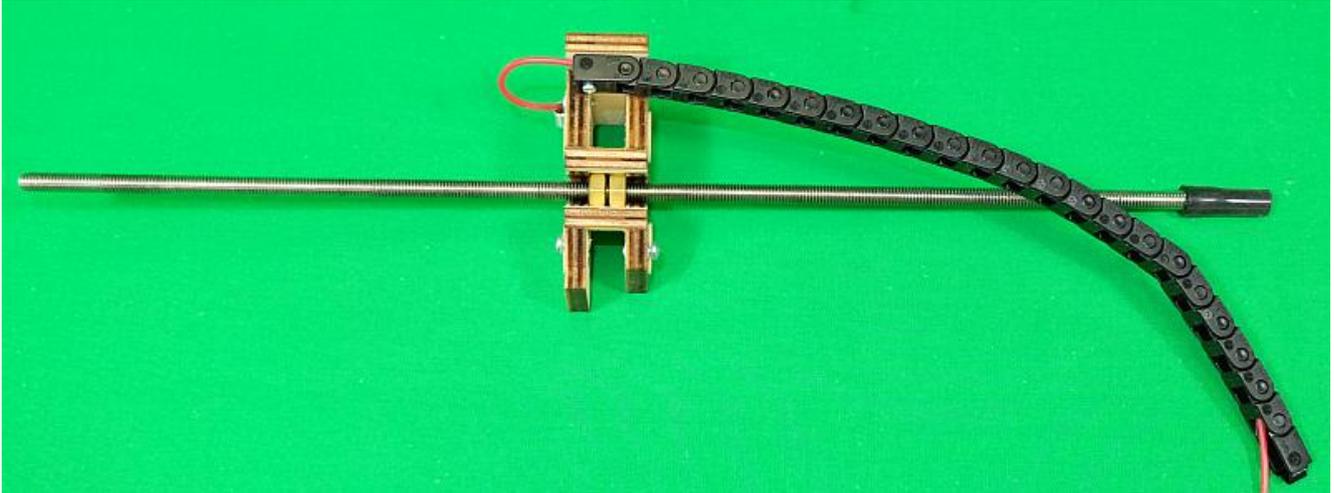


Spread the grease with a cloth, a thin film is sufficient.

Note: The greasing operations are important. They facilitate the sliding carts and limit noise.

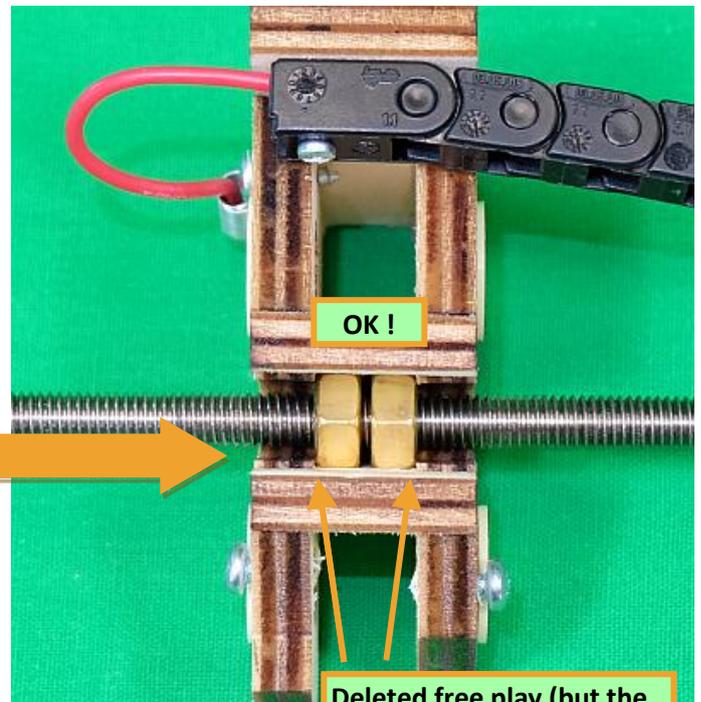
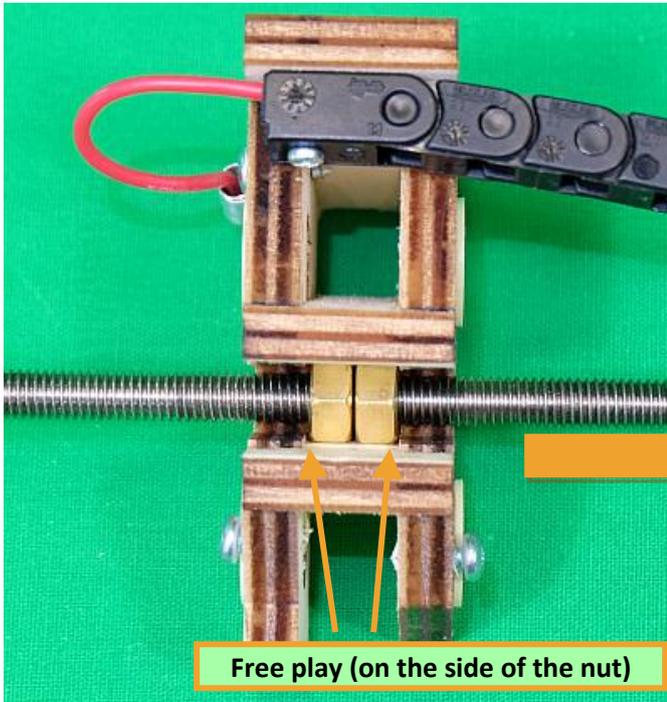
39.

Fit the threaded rods into the trucks as shown in the picture below.

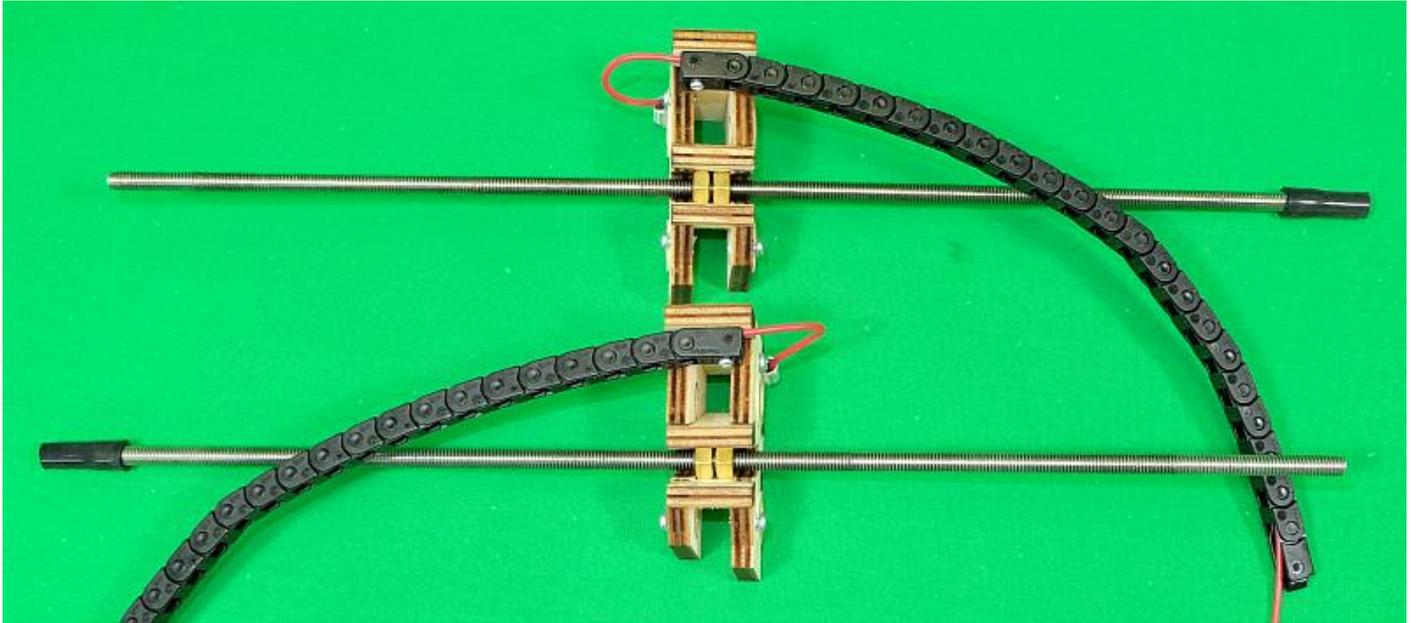


Limit the free play as much as possible, but not so much that the rotation of the threaded rod becomes hard.

To do this, spread the nuts until it no longer fits, then back off by one or two notches.



Do the same for the symmetric cart.



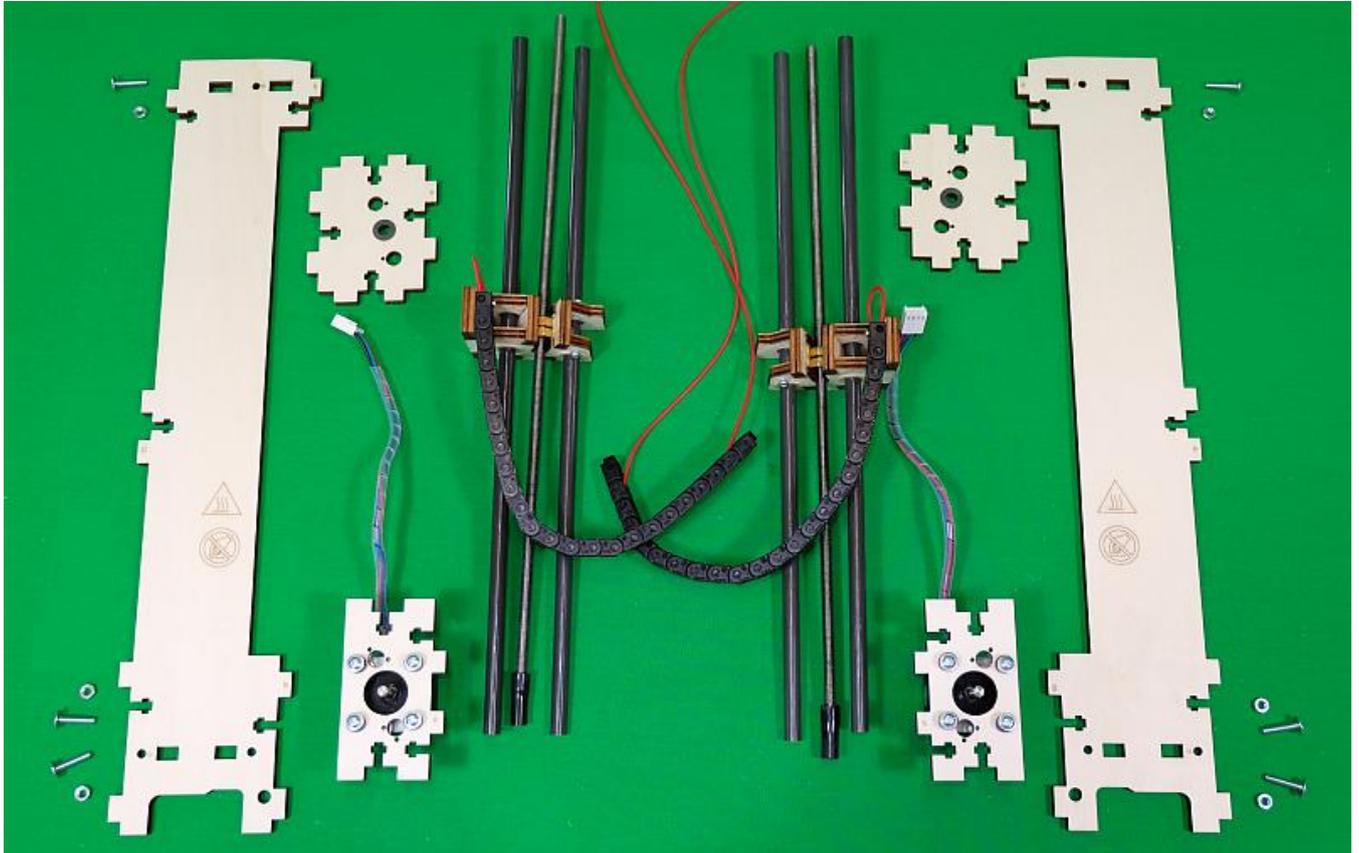
Then gently slide the round bar into the rings carts.



40.

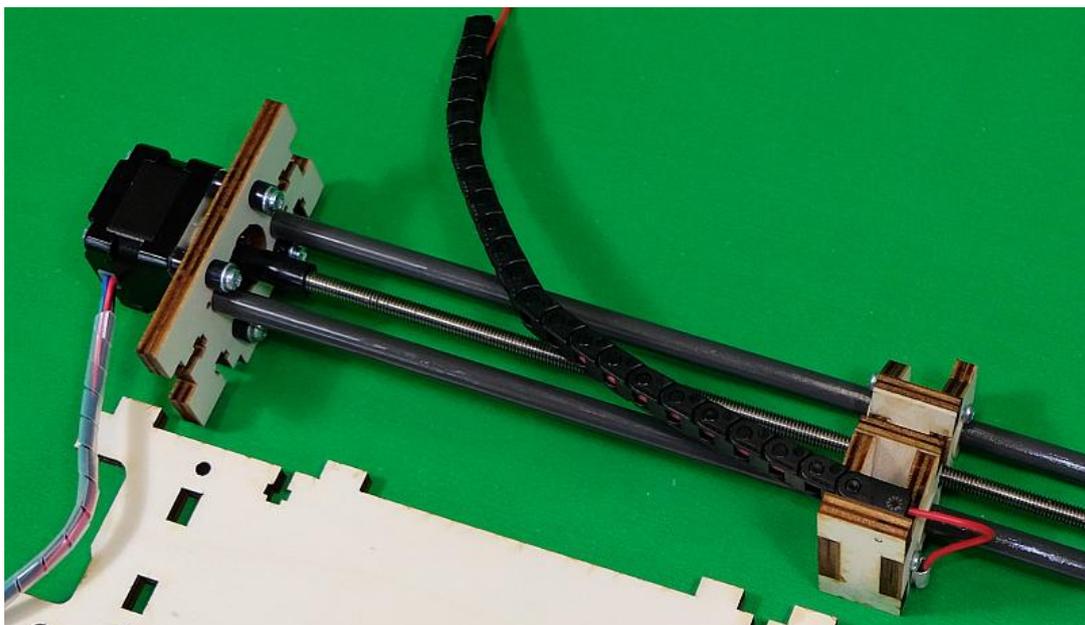
Prepare:

- All elements in the picture below by combining the pieces with Roman numbers engraved on them (III, IV, V and VI).
- 6 screws M4x16
- 6 nuts M4



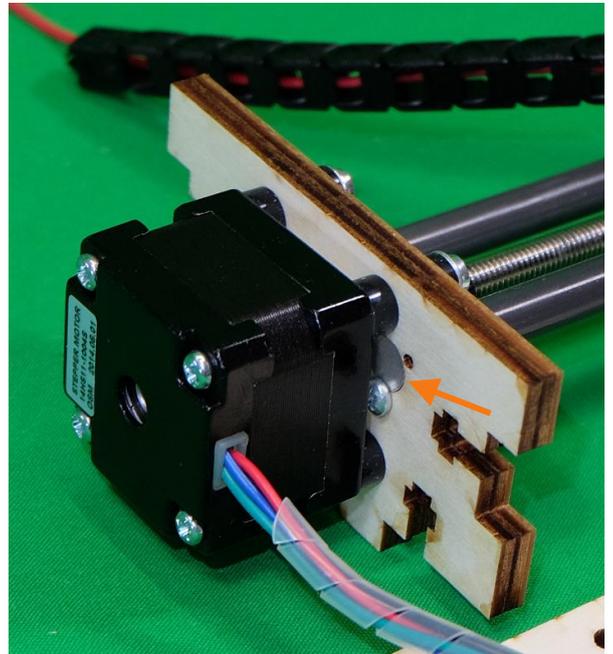
41.

Threading the silicone sleeve of the threaded rod to the bottom of the motor axis and the aluminum bars into the holes on either side of the motor.



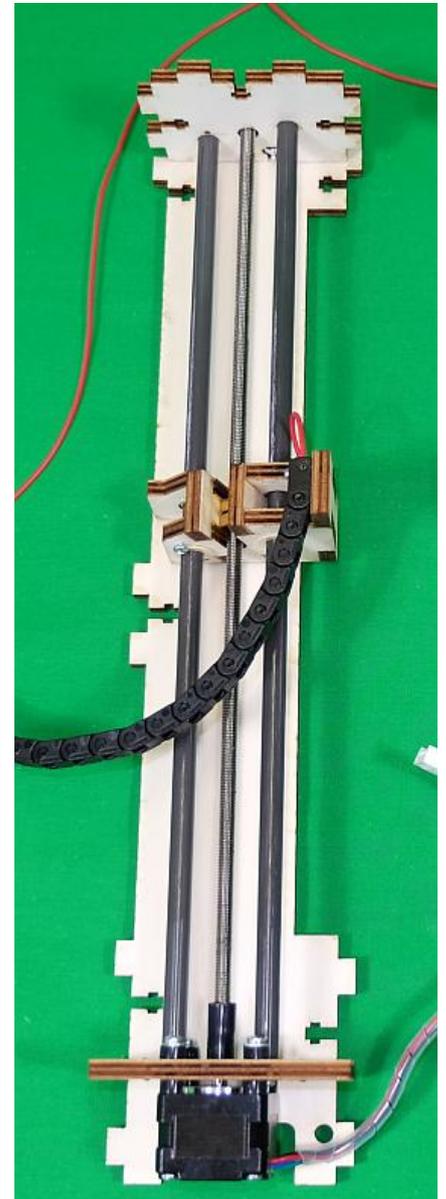
Make sure the bars touch the stop screws (already mounted on the plywood piece to receiving the kit).

If this is not the case, make them go forward, turning slowly.

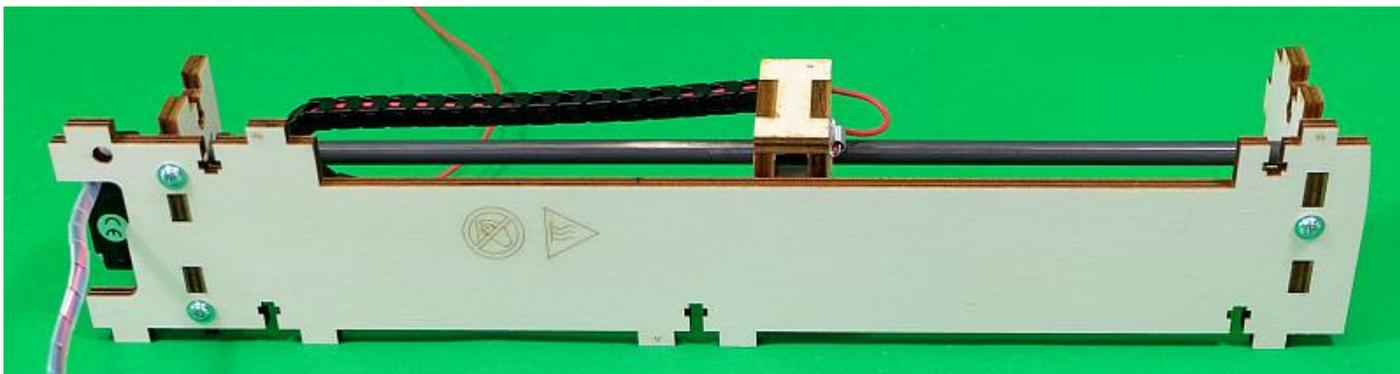


Put the other end of the plywood, the numerals engraved oriented towards the free end of the threaded rod.

Slide everything into the notches of the large piece of plywood (check the matching Roman numerals).



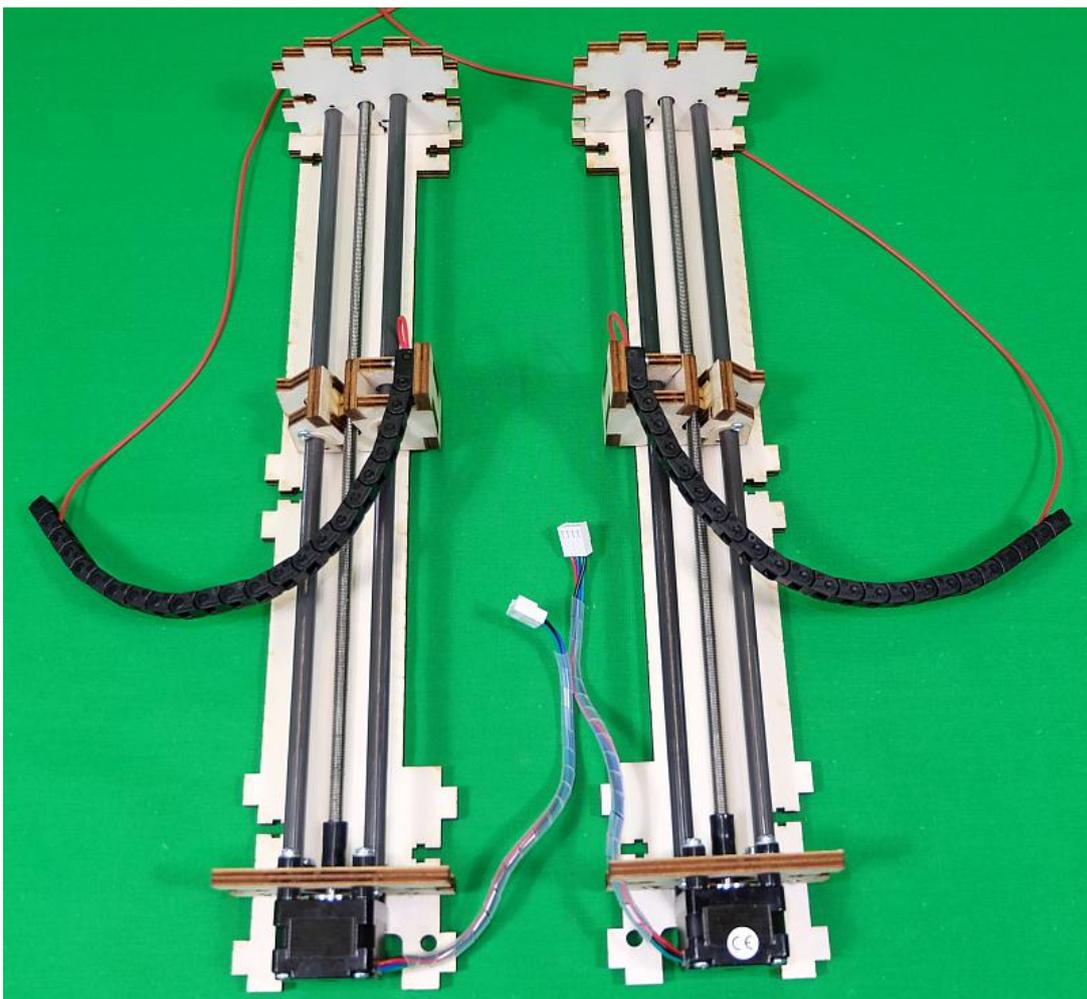
Secure the assembly with the three screws + nuts, head contact, loosely.



Make sure that both sets are symmetrical.

Rotate the threaded rods by hand to check the alignment with the motor shaft.

Adjust the flexibility of the silicone sleeve to align at best (a slight misalignment is normal).

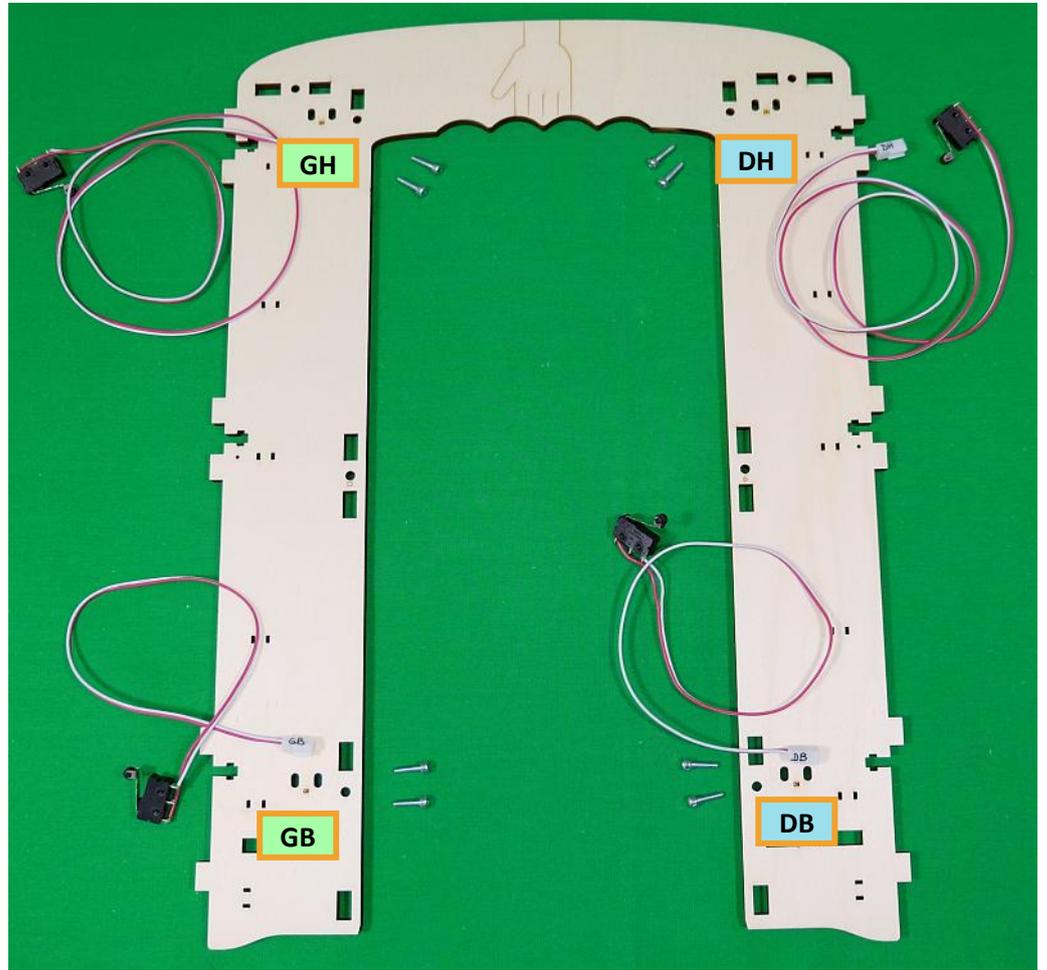


42.

Prepare:

- The large plywood piece with hand engraved (shown at the top)
- The 4 switches that remain
- 8 screws M3x12

Identifying inscriptions on plywood: GH, GB, DH, DB and put them together with the corresponding switch (with the same inscription on its connector).

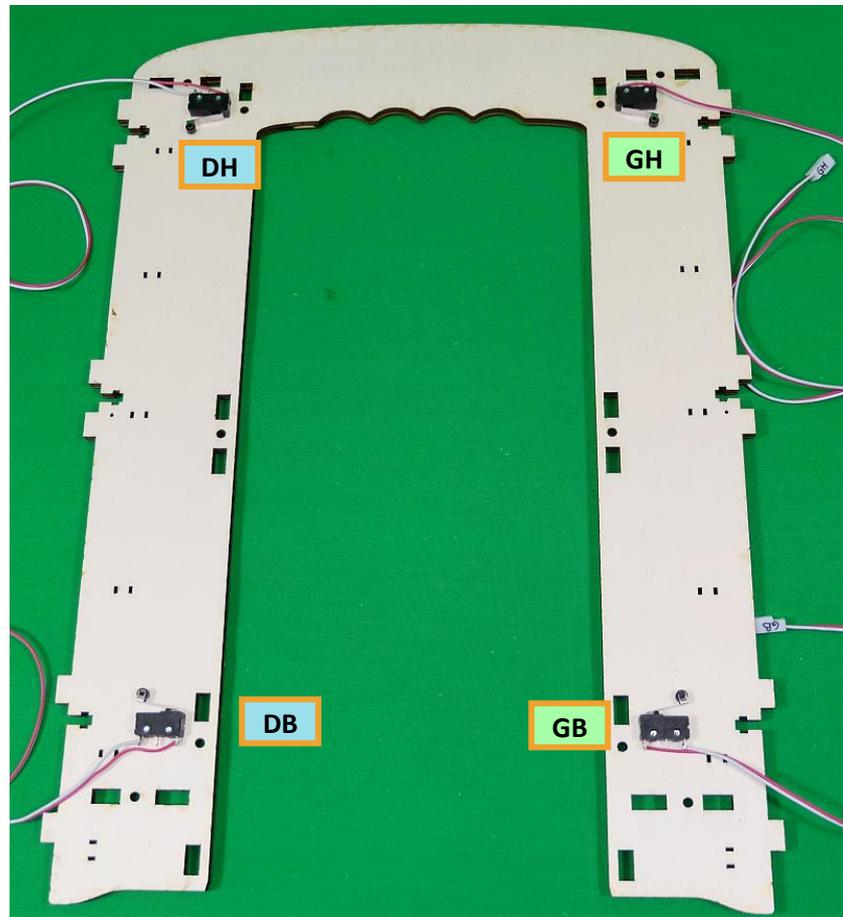


43.

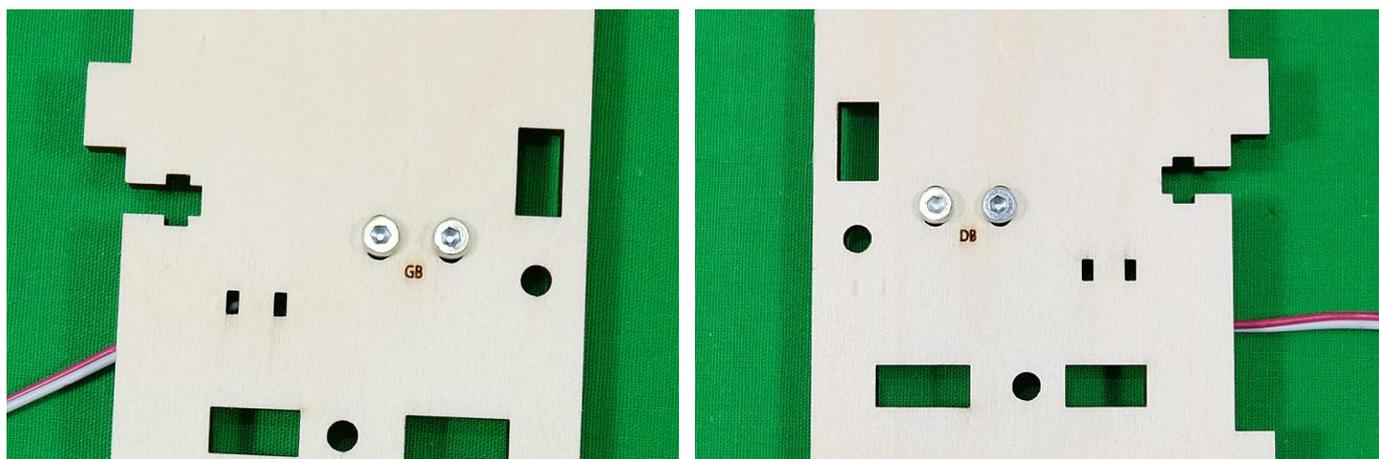
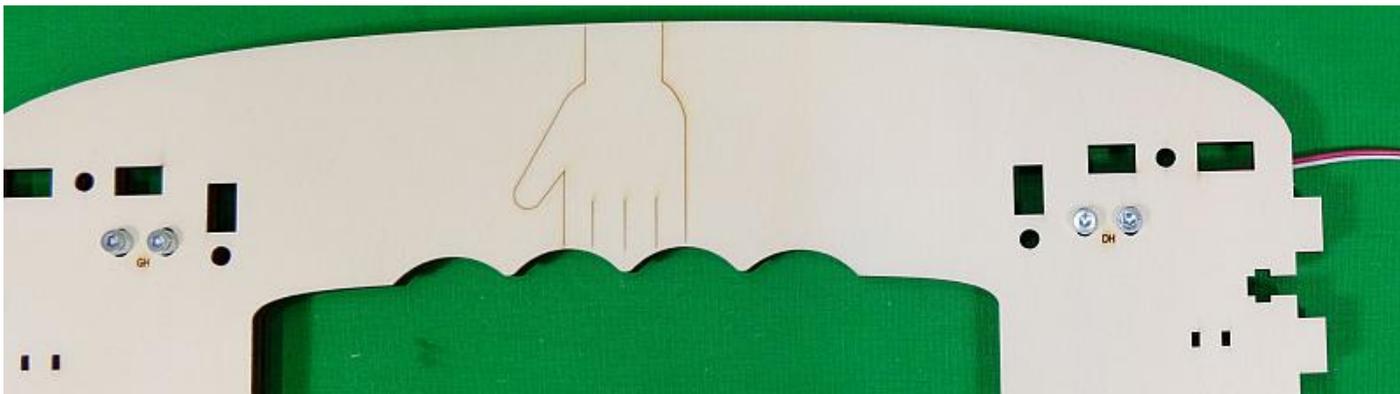
Turn over the piece of plywood and set the switches with screws, as shown (oriented) in this picture.

Be careful not to pinch the cables between the metal legs of the switch and the part to which it is attached.

Handle the cables gently so as not to break the welds.



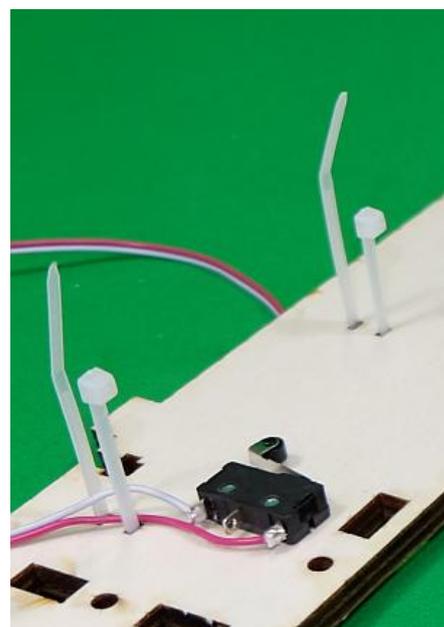
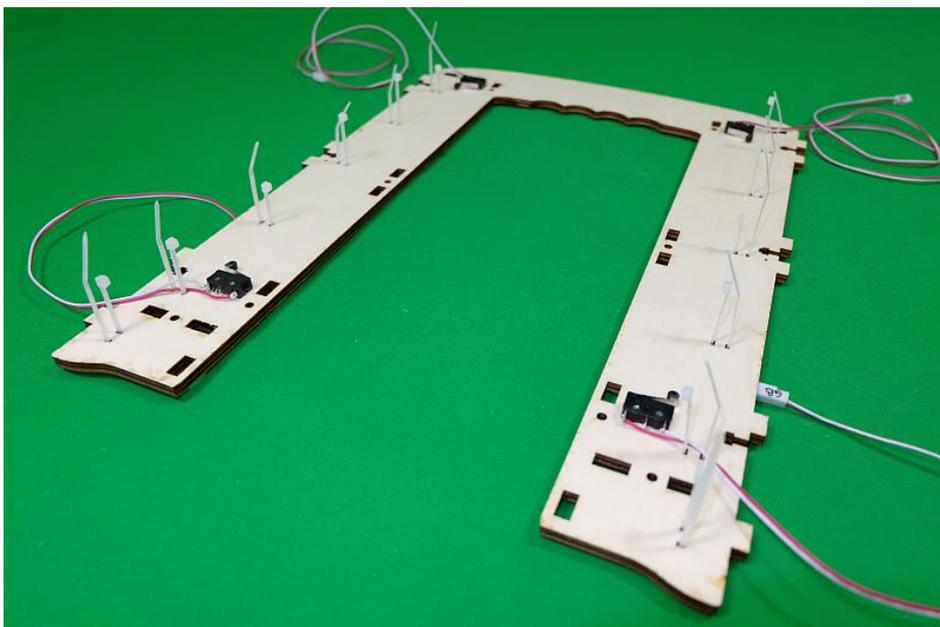
Place the screws in the middle of their range of adjustment and tighten moderately, without marking the wood much so as to be able to adjust the position later if needed.



44.

Thread the twelve plastic collars (zip-ties) in the slots provided for this purpose.

Be careful to observe the orientation of the collars: the heads should be towards the inside of the plywood piece, with the tip outward.



Tighten the two collars around the top of the DH and BH cables and cut the excess plastic with a wire cutter or small scissors, low to the head of the collar.

Be careful not to tighten the cables at the switches, to be able to move the switches in final adjustments.

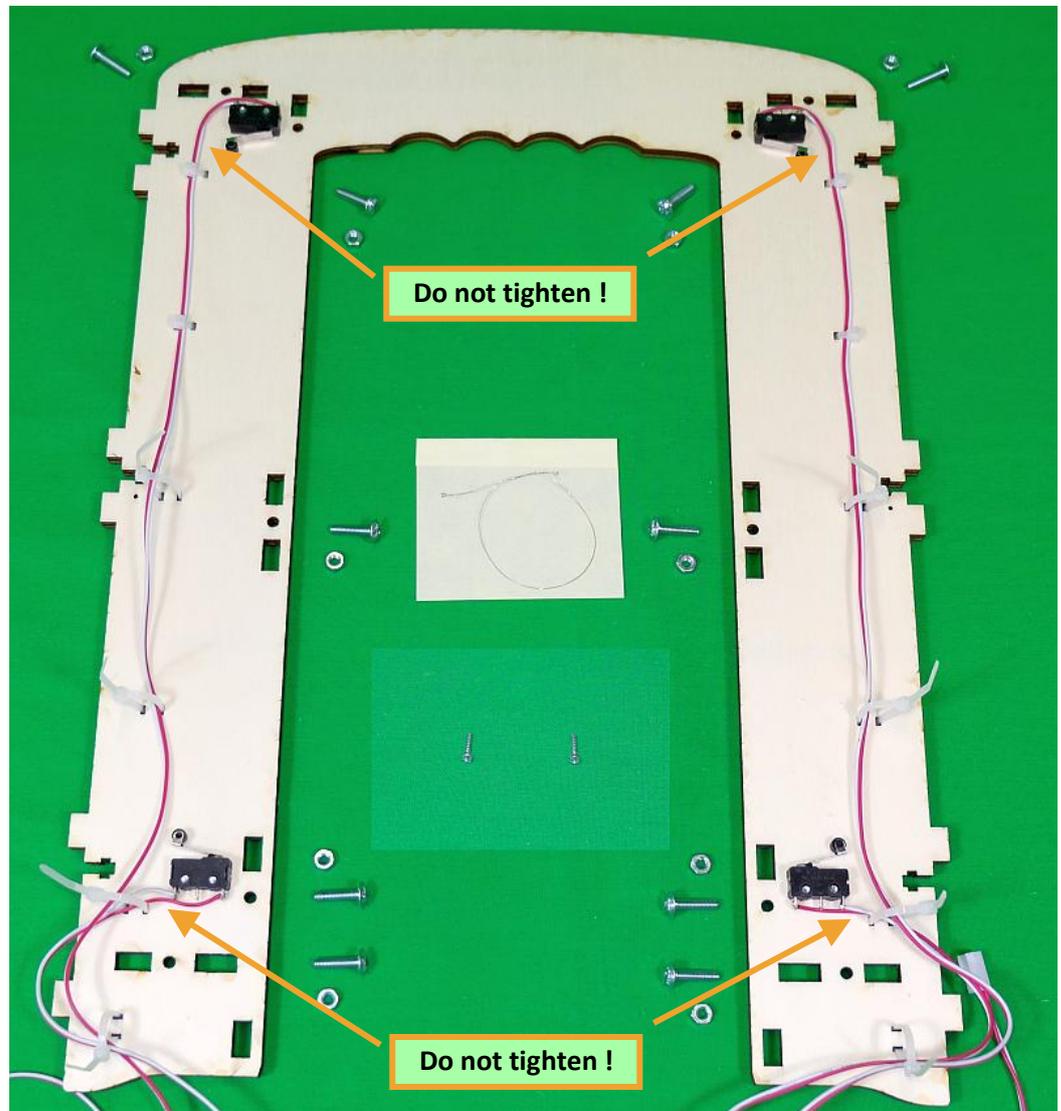
Make sure the cables are not twisted. Untwist them gently if necessary.

Flatten the collars by pressing them to the back of the piece.

45.

Prepare:

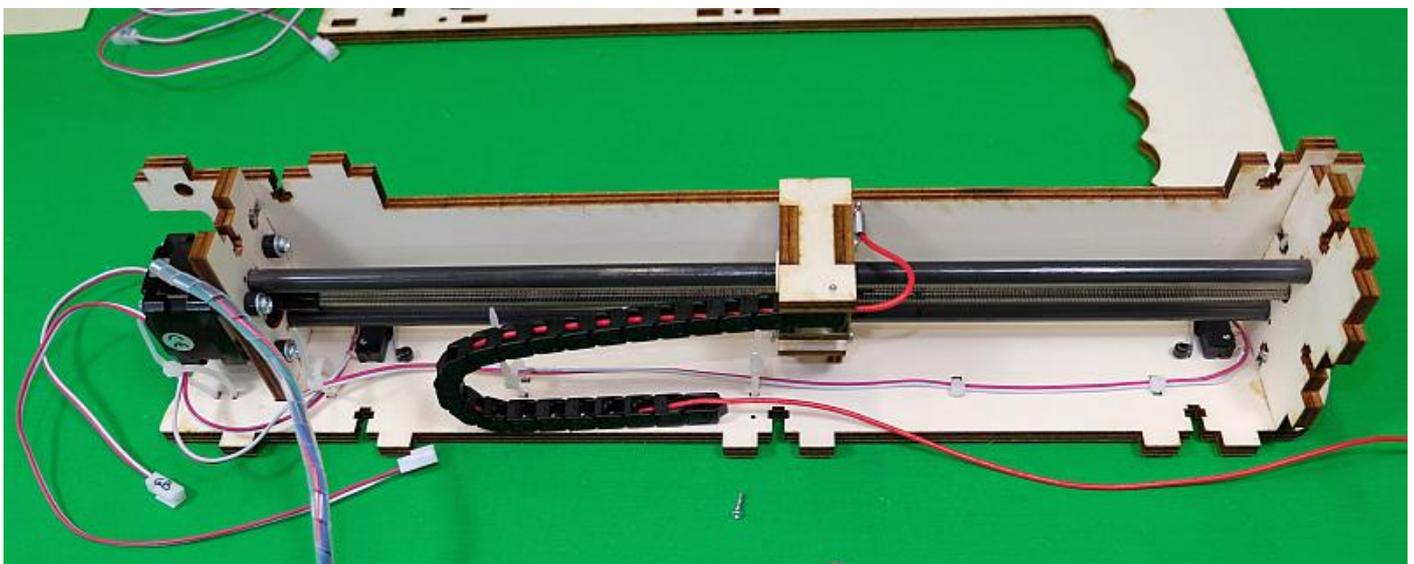
- 10 screws M4x16
- 10 nuts M4
- 1- resistive wire
- 2 screws 2.2x8mm



46.

Start closing all the plastic collars, but do not tighten, just snap by one or two notches.

Set up the motor as pictured below and keep it up in place with the M4x16 screws + nuts (head contact, loosely).



47.

Attach the cable chain with 2.2x8mm screws.

Run the cables through the plastic collars and tighten. Press the back to flatten well. Cut the excess plastic collars low to the heads.

Be careful not to pull on the wires, always leave a little slack.

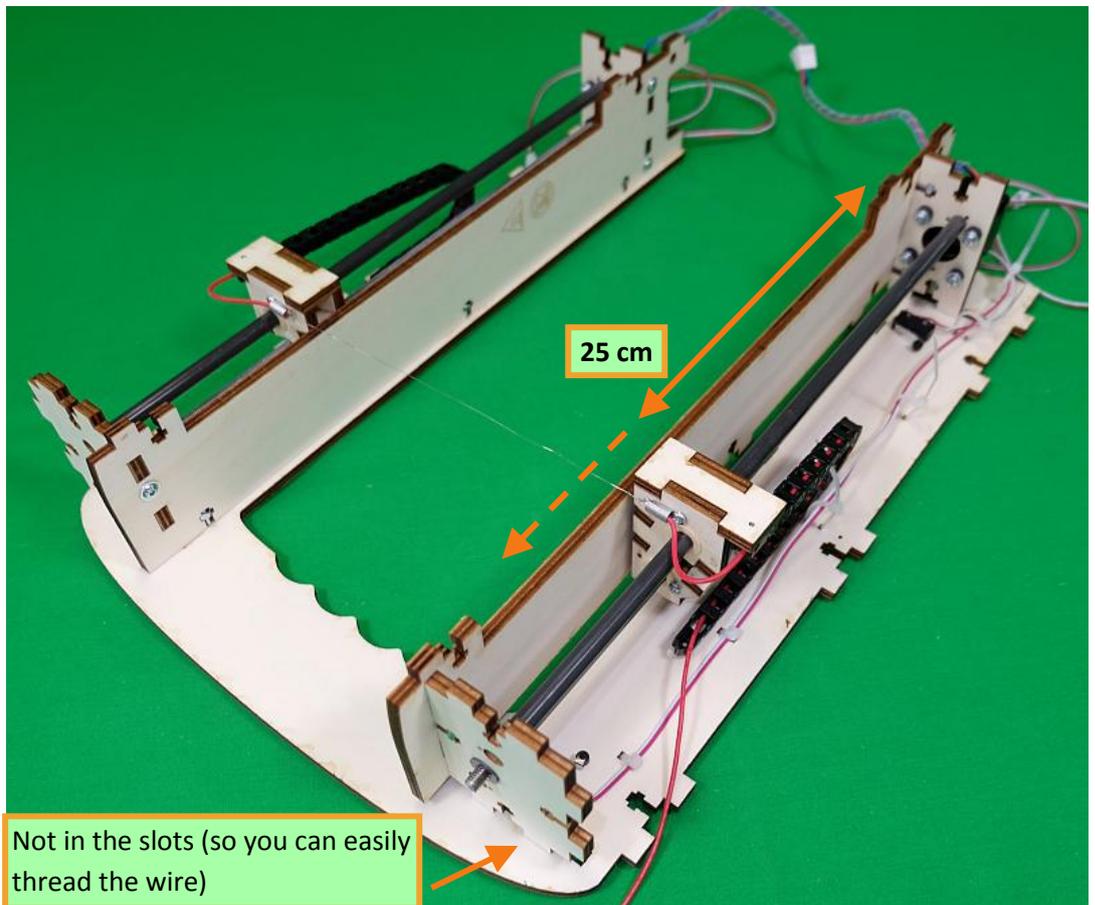
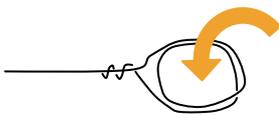


48.

Present the second motor assembly opposite the first, but not in the slots.

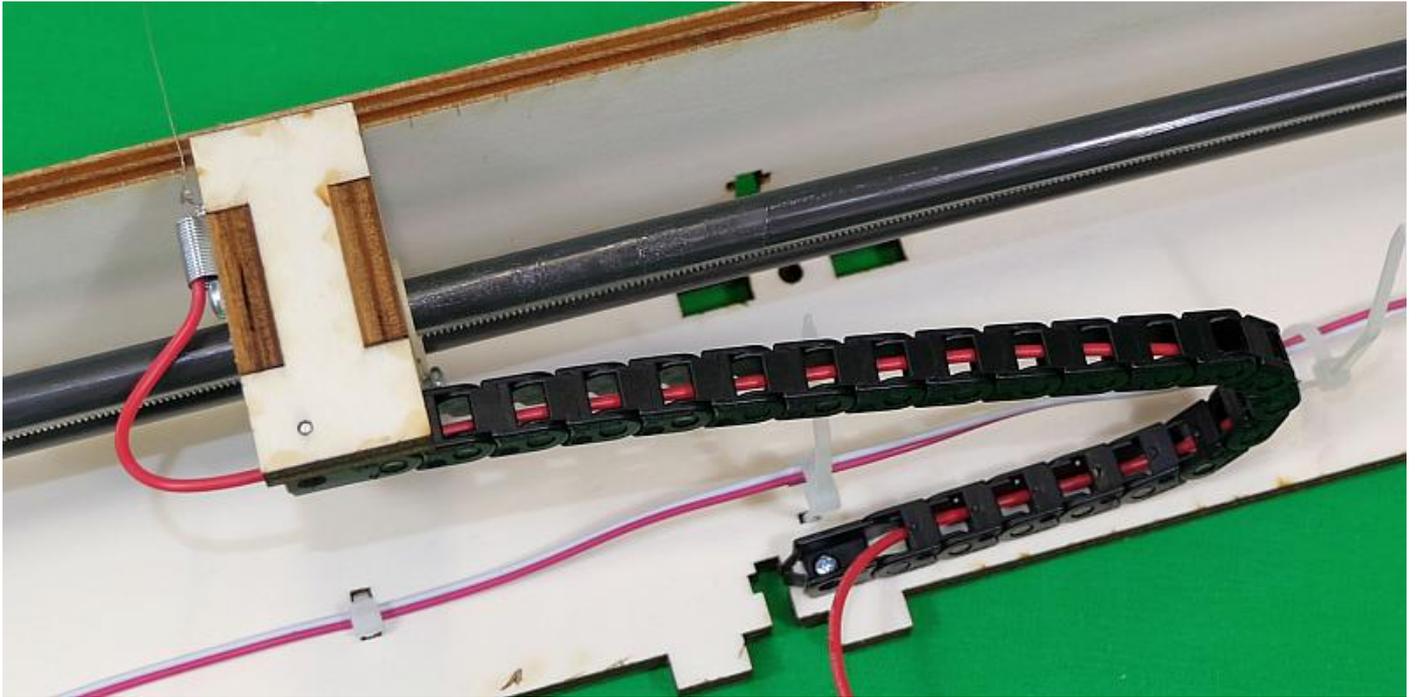
Turn the threaded rods by hand to move carriages from motors at least 25cm.

Thread the ends of the wire on the springs. Attention, you must slide the hooks of the spring in the center of the double loops:



49.

Attach the cable chain with plastic screw 2.2x6mm.

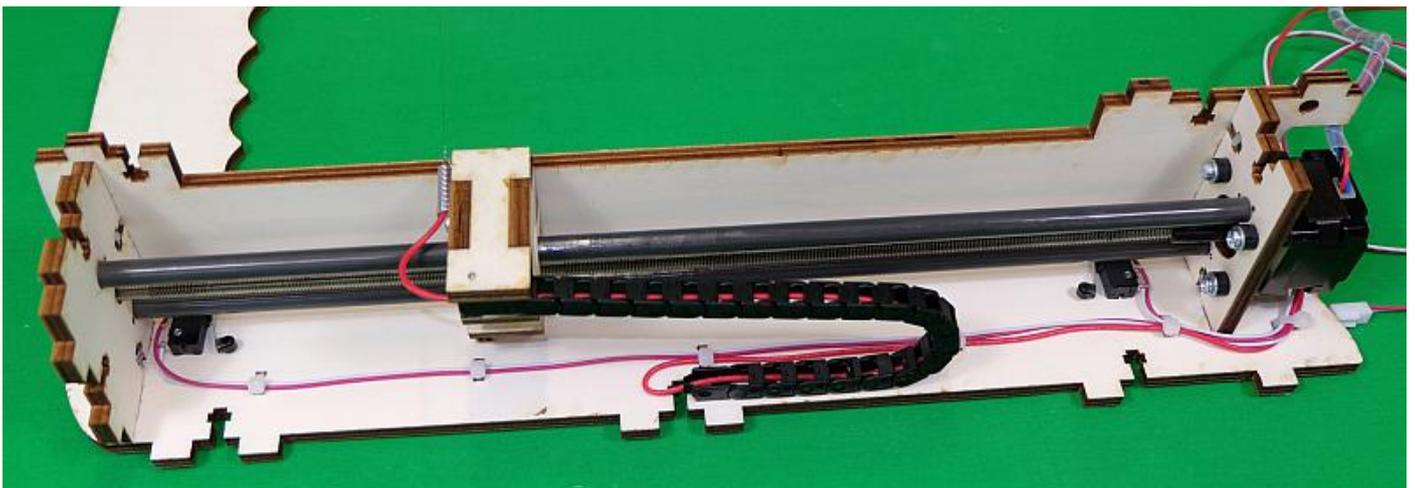


Then slide the motor assembly into the notches which will tense the wire and springs.

Secure with 5 screws M4x16 and the 5 remaining nuts (head contact, loosely).

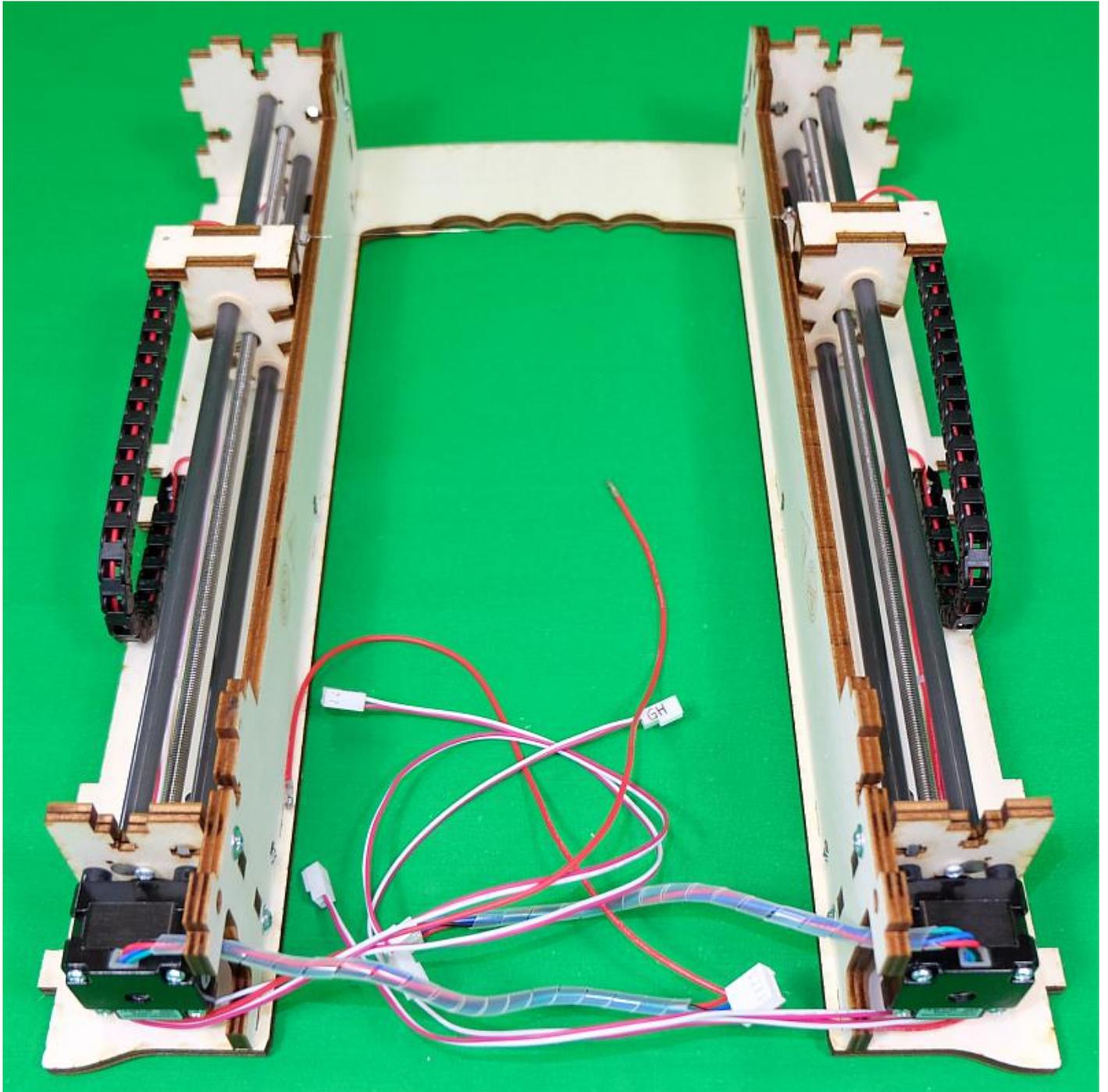
Route the cables in plastic collars, leave some slack and tighten the collars. Although flatten back.

Check that the two cable carriers are parallel to the edge of the plywood piece.



Below the assembly result of the gantry is shown.

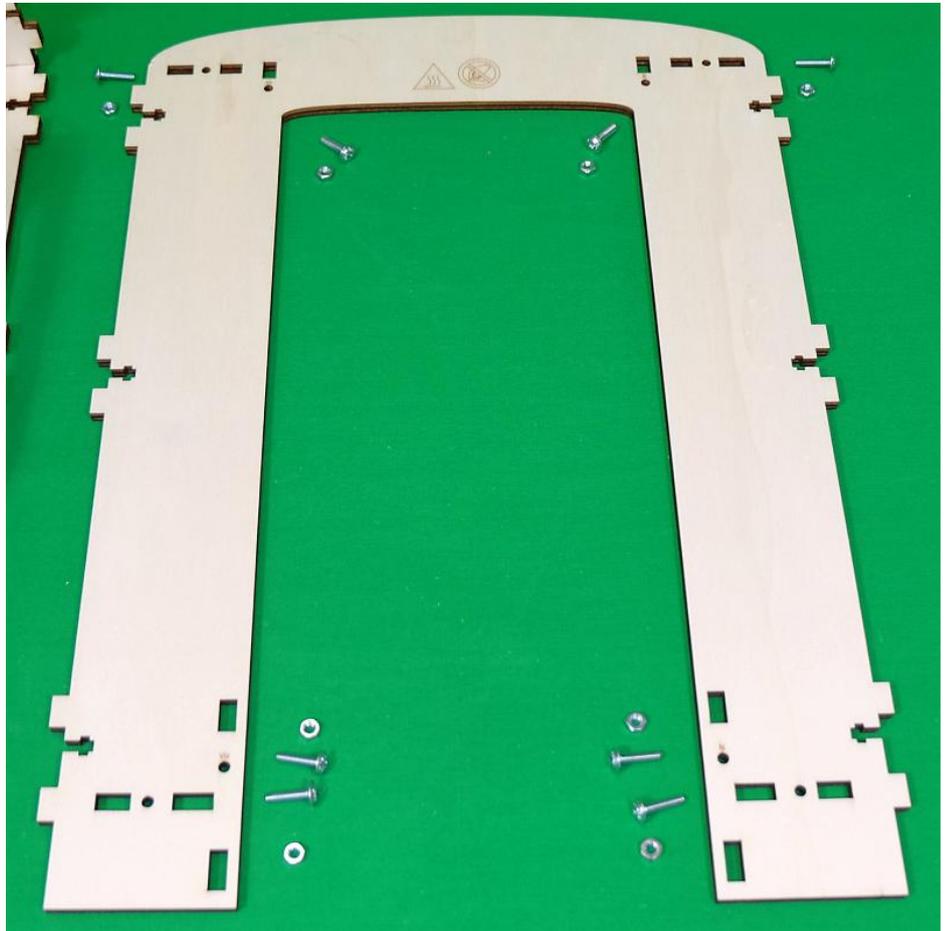
The wires pass on either side of the motor.



50.

Prepare:

- The front of the plywood gantry
- 8 screws M4x16
- 8 nuts M4.
- 4 screws 2.9x6.5mm (they are not on the picture)



Thread the plywood piece on the previous set.

Set up all the screws and nuts (head contact, loosely).

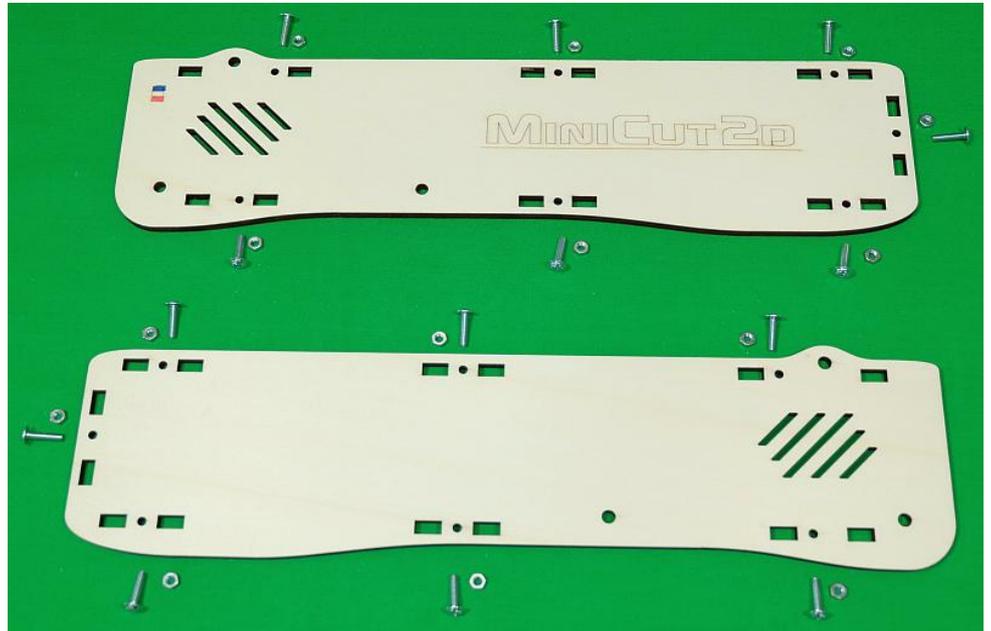
Block the rods with the 2.9x6.5mm screws.



51.

Prepare:

- The two sides of the plywood gantry
- 14 screws M4x16
- 14 nuts M4



Put the two sides up, fixing with screws + nuts, head loosely in contact.

Tighten all screws on the front panel.

Tighten all screws on the rear panel.

Tighten all screws inside the frame.

Tighten all screws sides of the gantry.

Take a break...

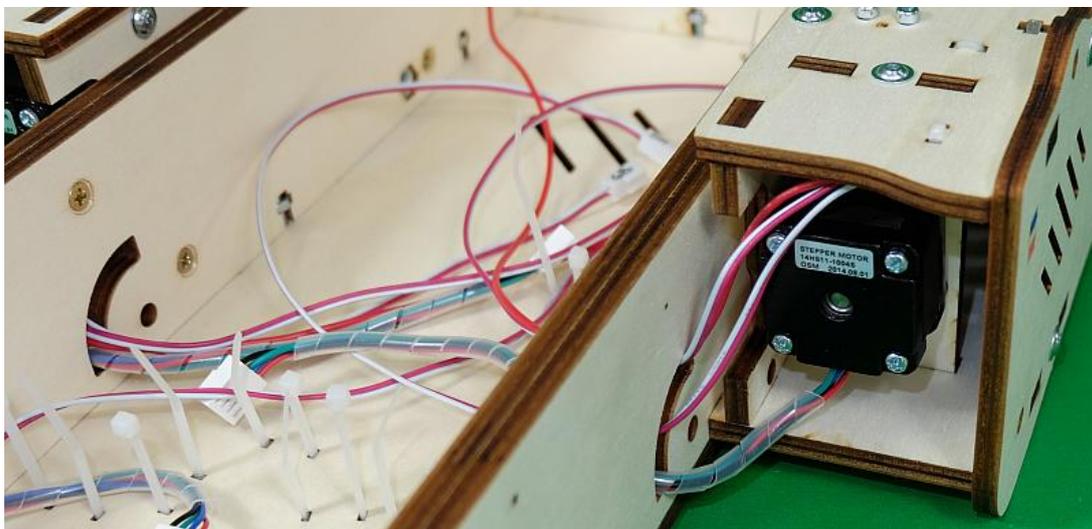
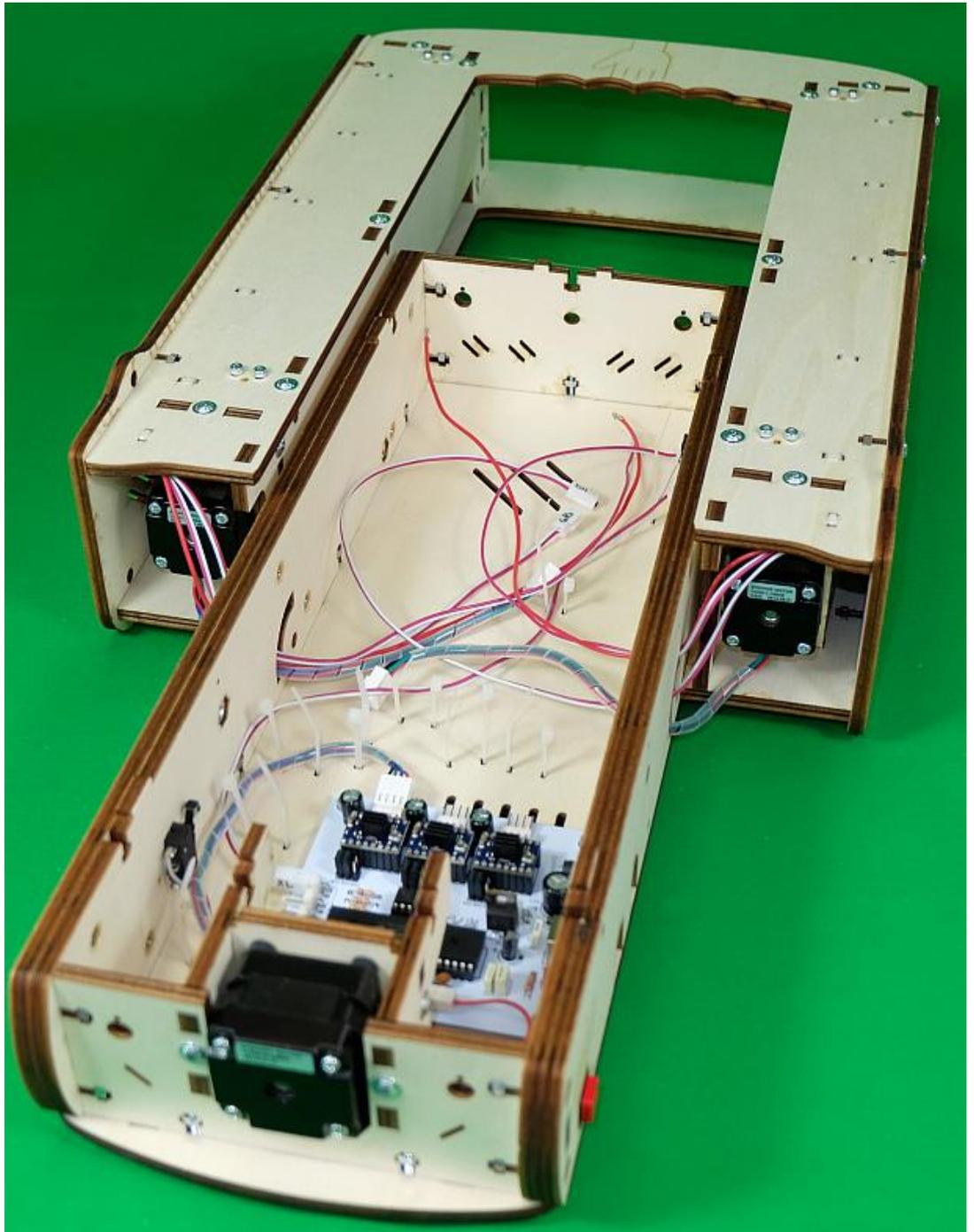


52.

Lay down the gantry with the hand engraved facing up and slide it around the base of the MiniCut2d.

(It can require finesse and light force to go on.)

Run the cables through the quarter circle holes, as shown in the picture.



53.

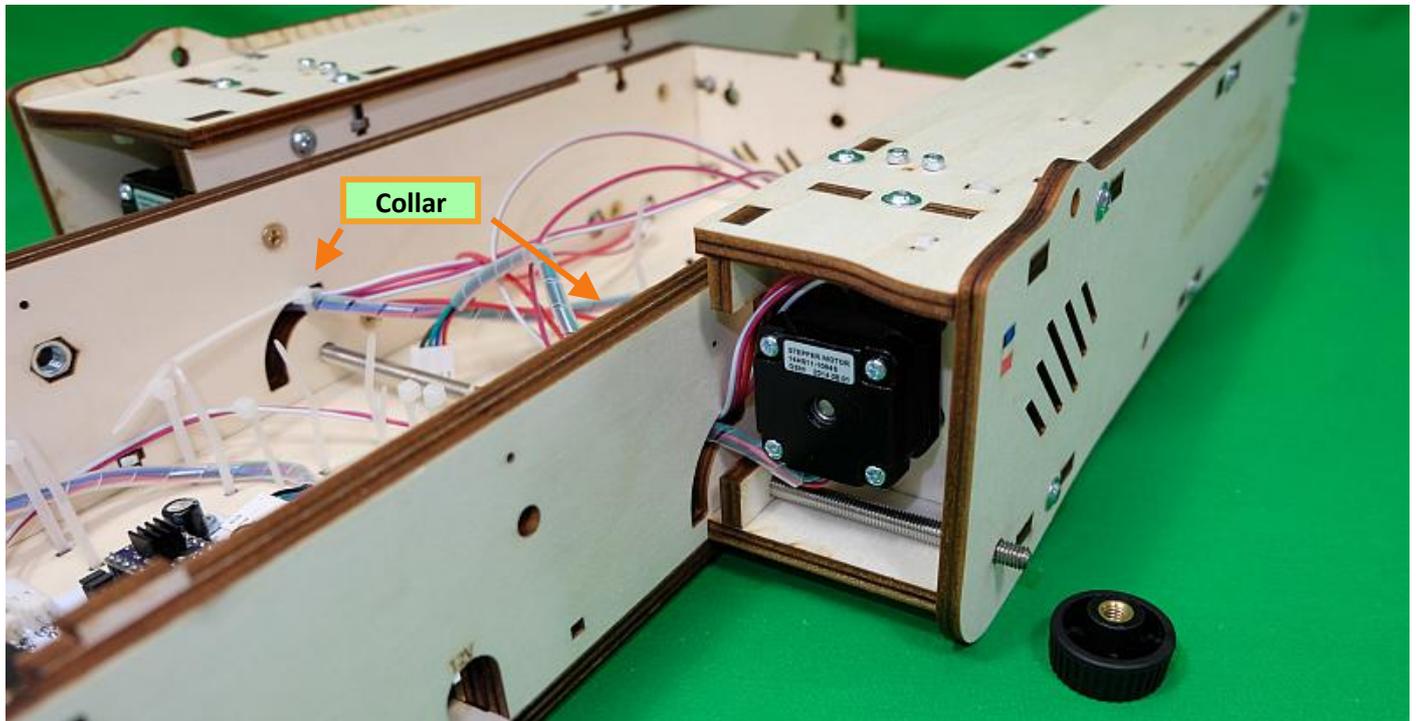
Slide the gantry to align all the holes of 6mm diameter and pass through the threaded rod 315mm long which is the axis of rotation.

In the base, the threaded rod has to be passed over the cable to the switch XL.

Push well the cables on either side of the engine, up to quarter circle holes.

Screw the 2 black plastic knobs on the ends of the threaded rod, in contact but not tightly.

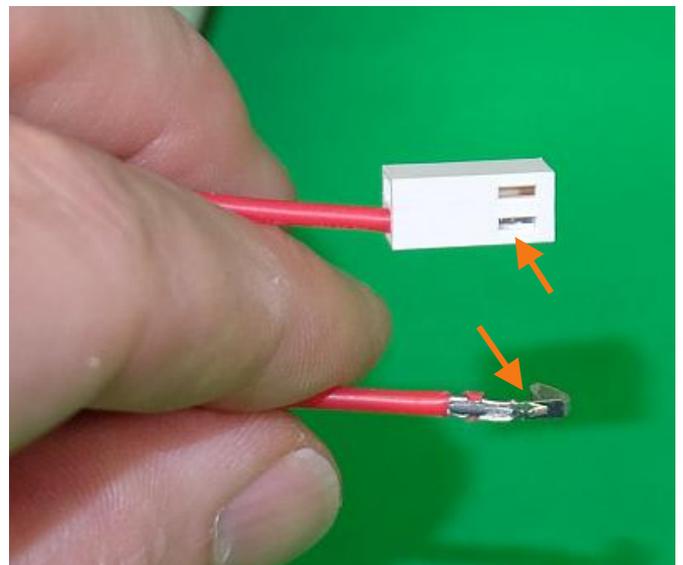
Bundle the cables inside the base with a plastic collar on each side.



54.

Prepare the white plastic connector and slide the two power cables from the hot wire inside.

The lugs on the ends of these cables must be clipped in small rectangles of the connector to prevent the cables from coming out when you pull on it. If necessary, push the connector with a pin.



55.

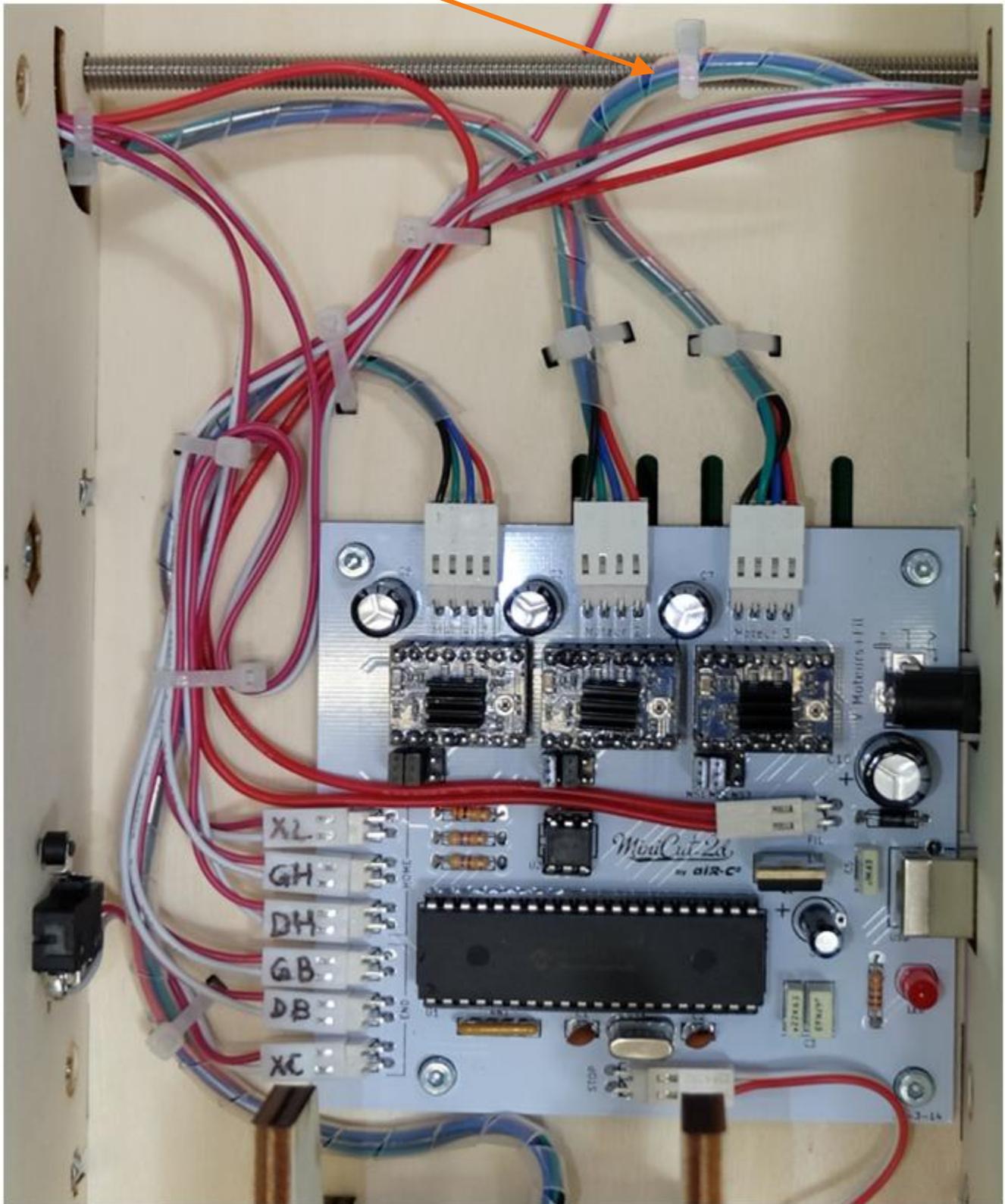
Then connect all the cables to the interface shown in the picture below.

Then use the plastic collar to secure all cables, like in the picture below.

Be careful not to tighten the XC and XL cables at the switch (to be able to move the switches at the end settings).

Attention! The cables of the switches GH and DH must make a round trip between two collars.

Add a collar around the threaded rod.

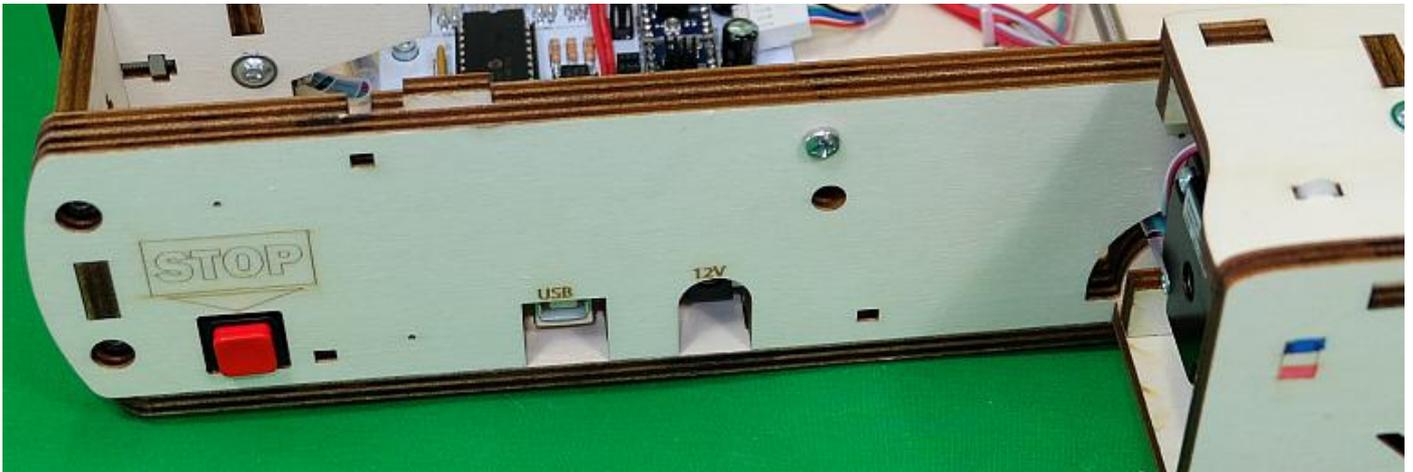


56.

Prepare 2 screws of 3.5x10mm. You will need a screwdriver.



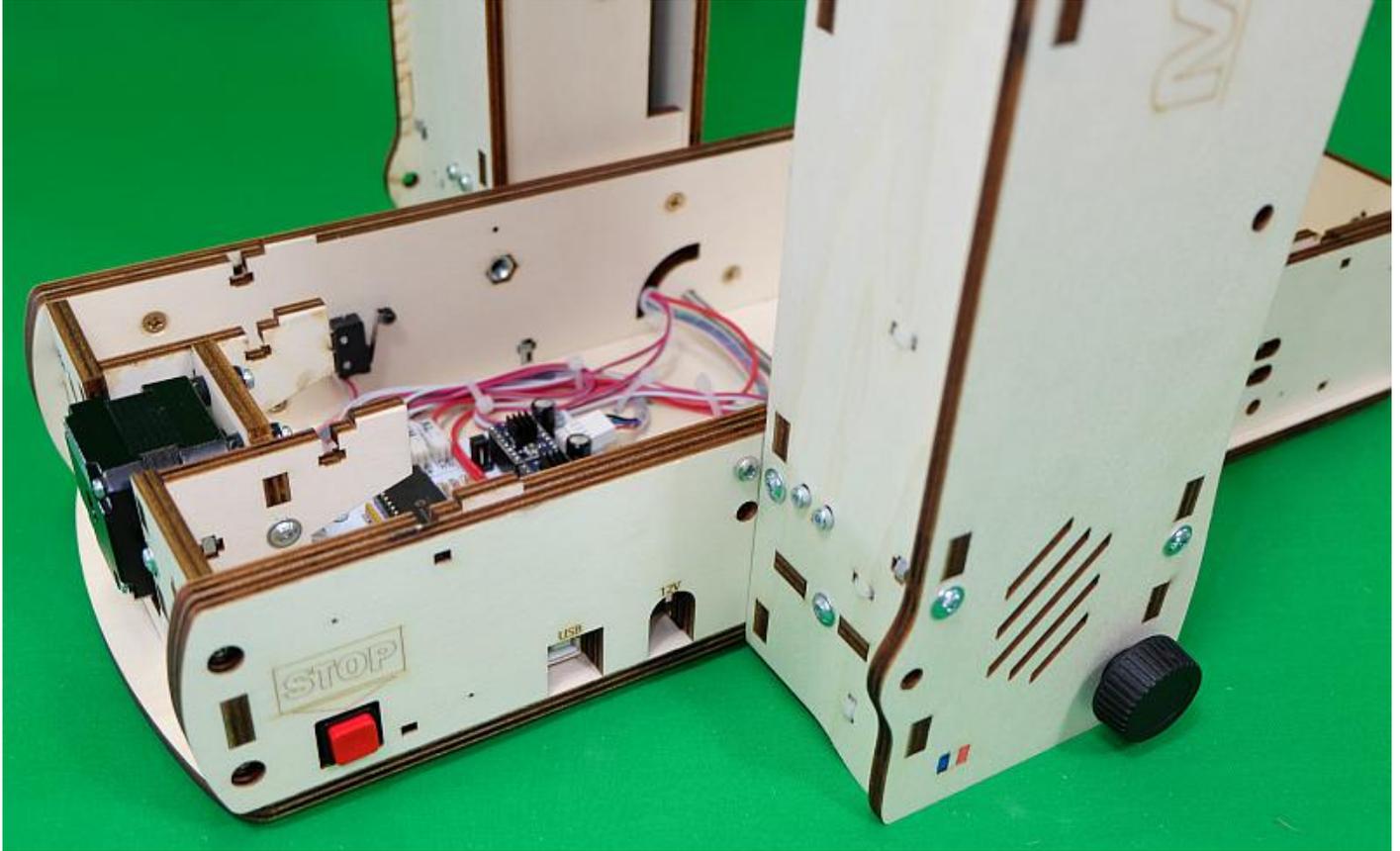
Screw the sides of the base, as shown in the photo below.



57.

Loosen the black knobs and straighten the gantry. Check that the cables do follow the movement in the base. Perform several movements of folding-unfolding to check that all is going well and that the cables do not stick in the quarter circle holes.

During the movement, the gantry will rub a little on the base, which is normal.



58.

Prepare the large black knobs screws and screw them in place in the holes of 6mm. Moderately tighten the four black knobs to lock the gate.



59.

Prepare:

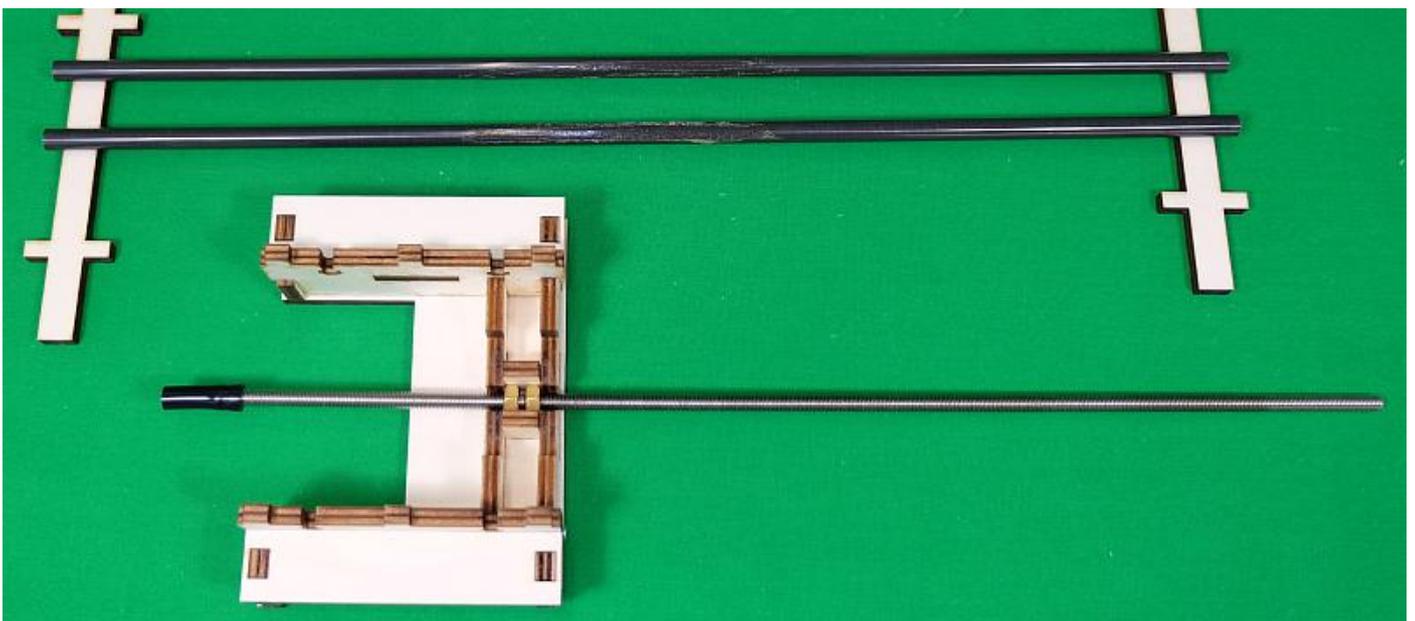
- The large horizontal plywood carriage fitted with its plastic bearings.
- 4 screws 2.9x6.5mm
- 1 silicone sleeve
- 2 brass nuts
- the remaining 2 round bars
- the remaining threaded rod
- the grease



As with the threaded rods of the gantry, screw in the nuts on the side marked in blue or green and screw the sleeve on the opposite side 10mm. Lubricate the threaded rod, spread the grease with the nuts and remove the excess.

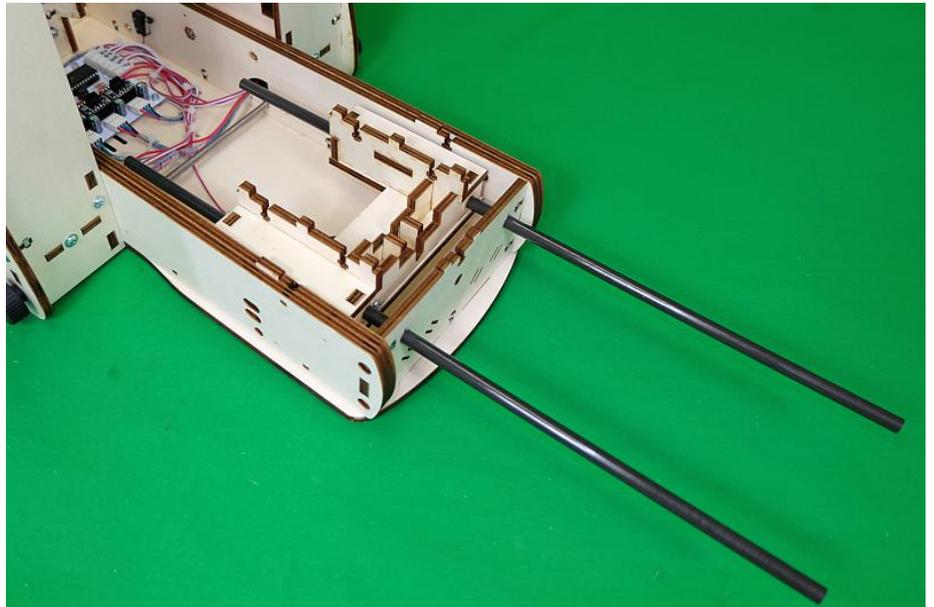
Slide the nuts in the carriage as shown in the picture and adjust the play of the nuts of the gantry.

Grease the round bars, and spread the grease with a cloth (a thin film is sufficient).

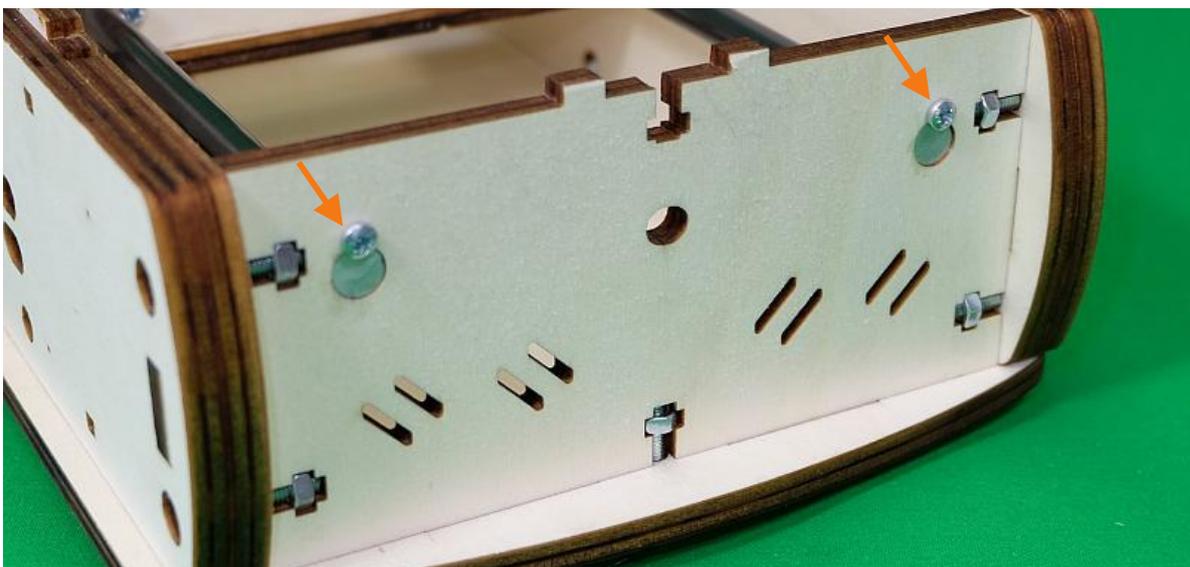
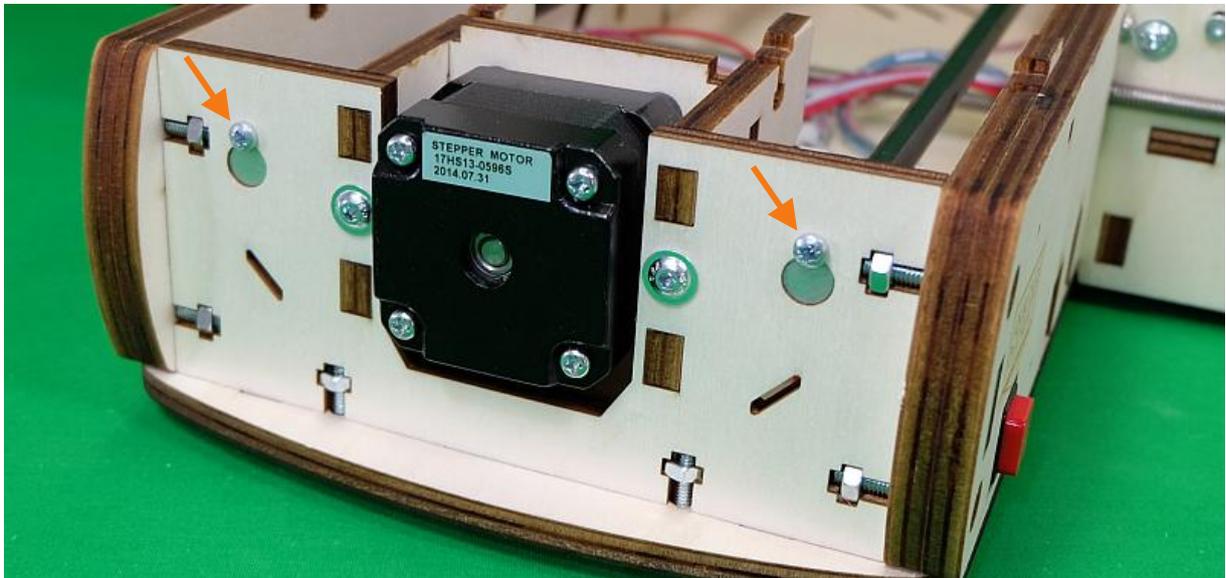


60.

Slide the bars into the holes in the base and then pass them into plastic bearings carriage.

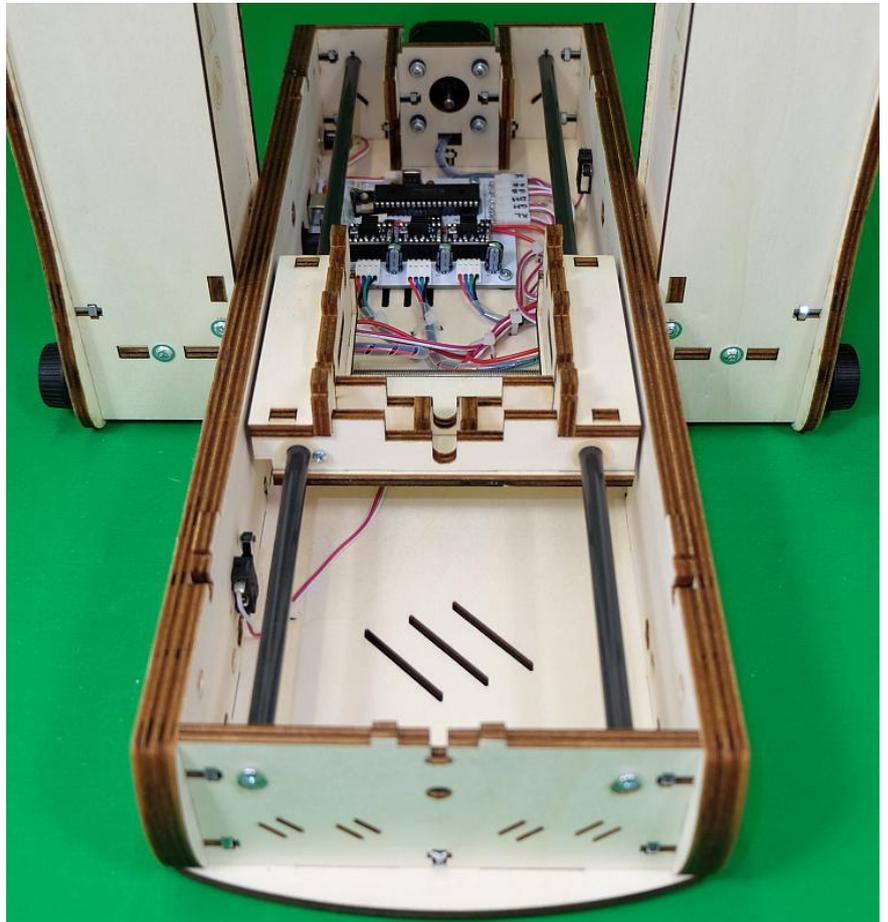


Push the bars fully in the plywood holes and secure them with 2.9x6.5mm screws on both sides.



Slide the truck several times from one end to the other of the bars to lubricate the plastic bearings.

Be careful : make sure the cables, and the electronic board, are off the carriage during its movement.



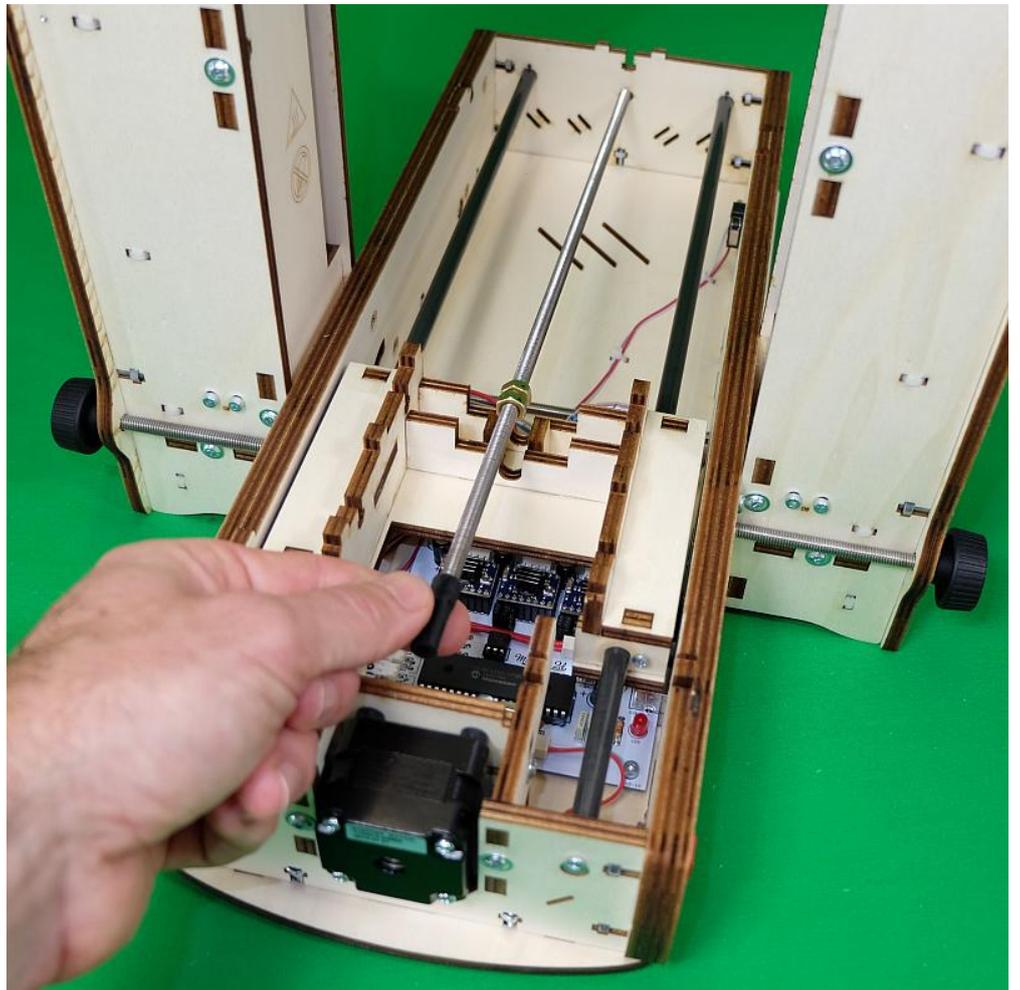
61.

Bring the nuts near the sleeve.

Bring the carriage close to the motor.

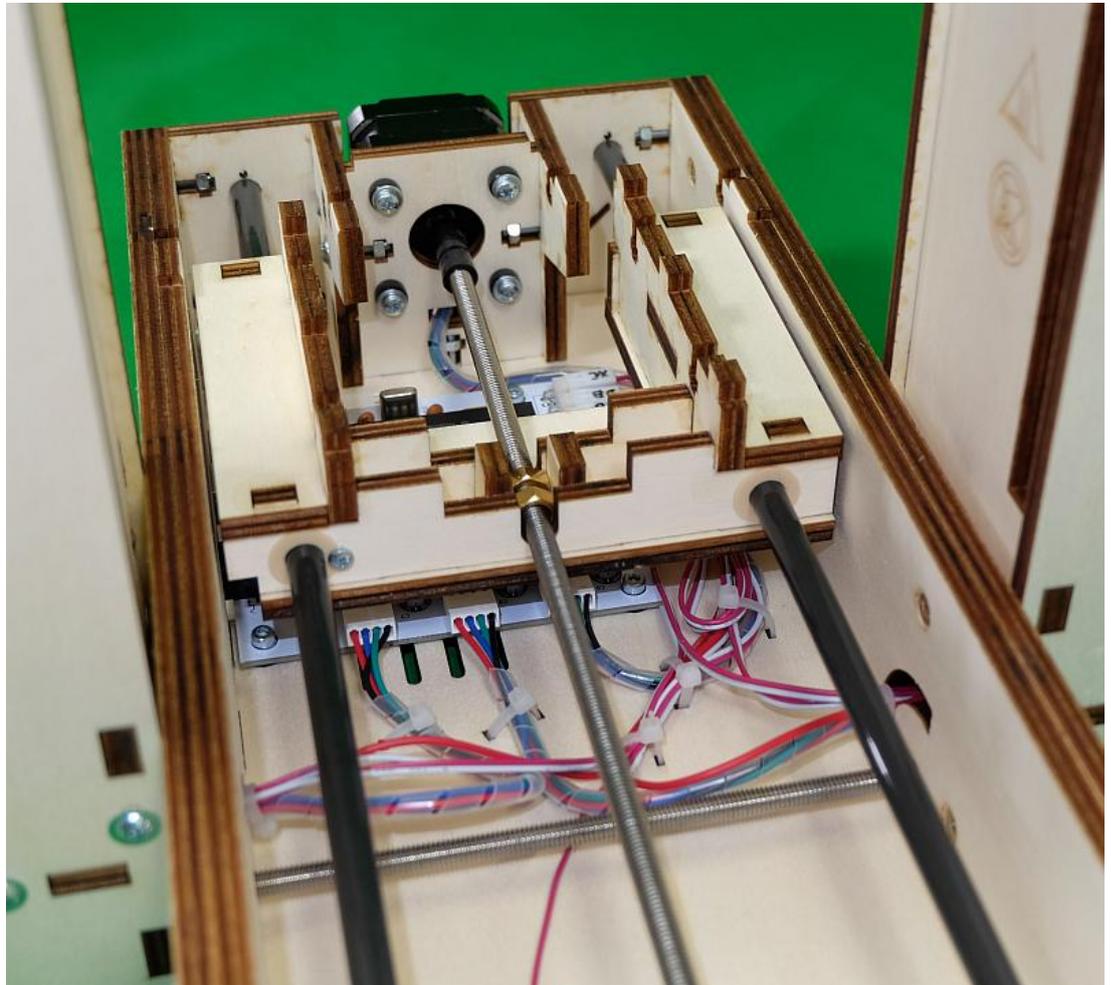
Slide the threaded rod into the hole as shown in the picture, gently. If necessary perform a screw motion to pass in front of the motor.

Lower the threaded rod by sliding the nuts in the carriage.



Depress the silicone sleeve to the motor axis by holding the motor (rear).

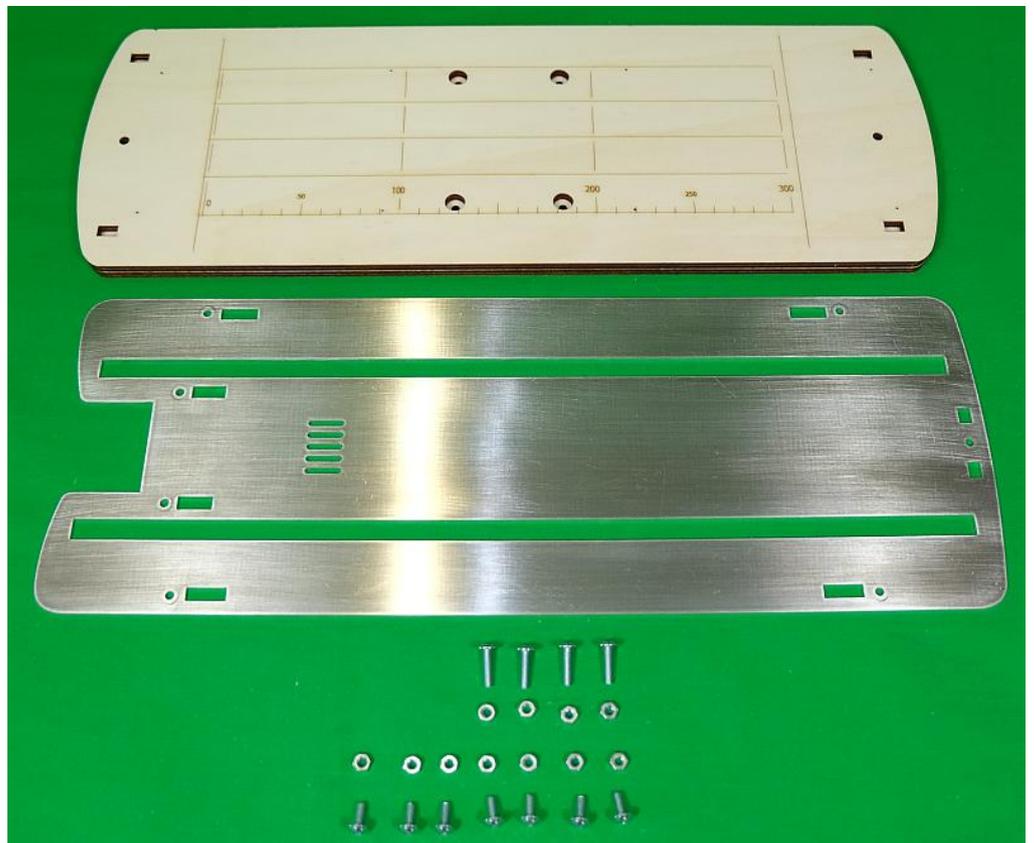
Rotate the threaded rod and adjust its alignment with the axis of the motor by varying the flexibility of silicone. (A slight misalignment is normal.)



62.

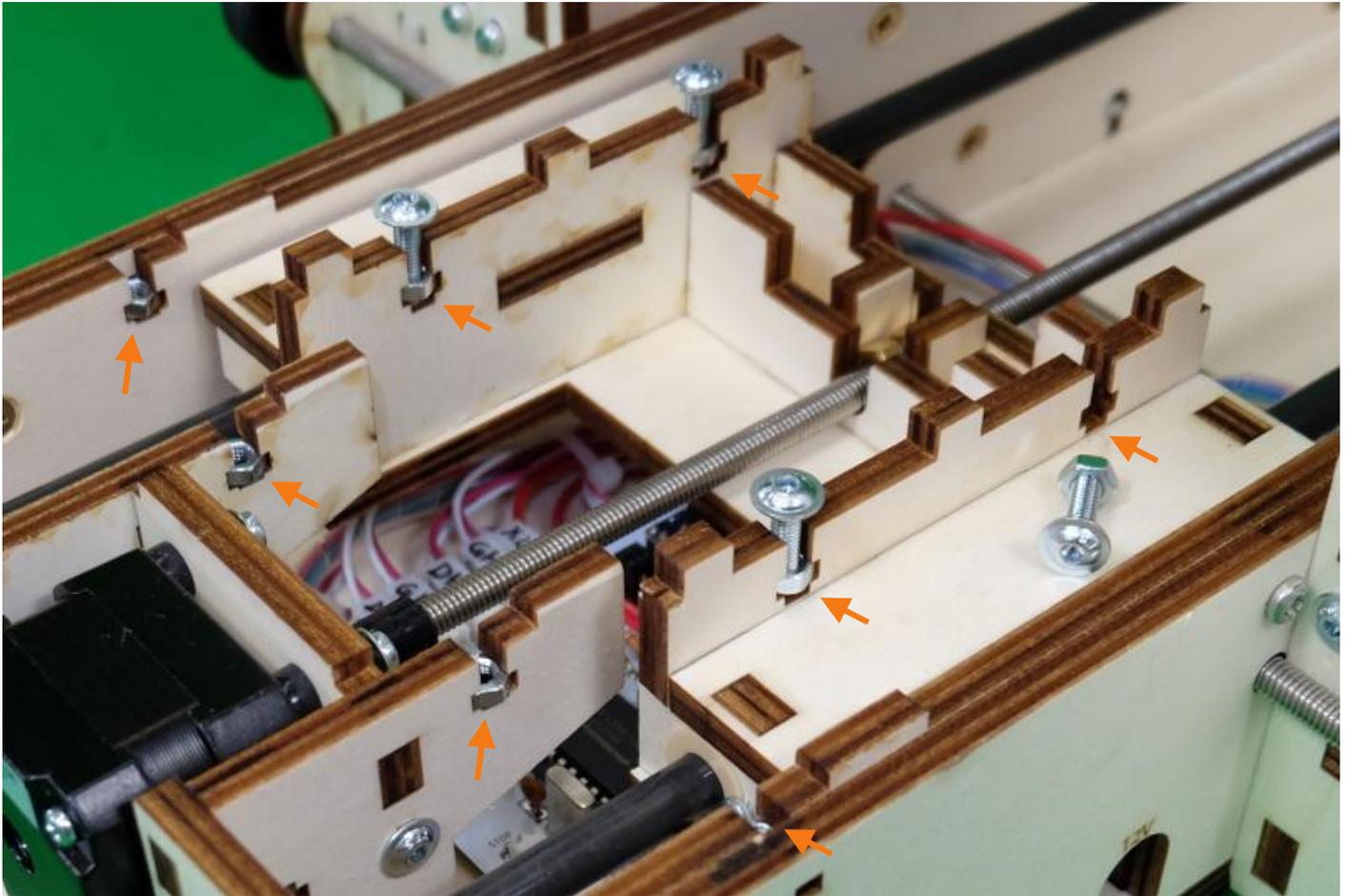
Prepare:

- The CTP plate of MiniCut2d
- The aluminum hood
- 4 screws M4x16
- 7 screws M4x10
- 11 nuts M4.

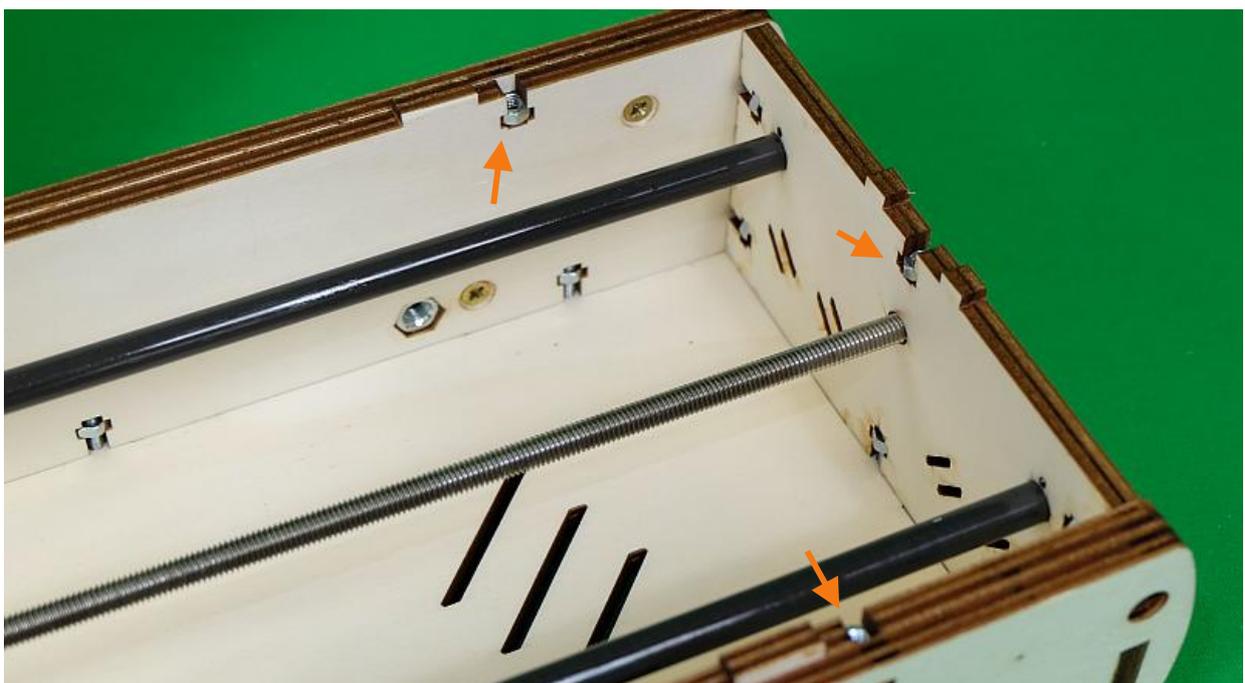


63.

Screw the nuts onto the end of the screws M4x16 and set them up on the carriage. Hand-tighten to immobilize. Put M4 nuts into the slots around the base to fix the cover.



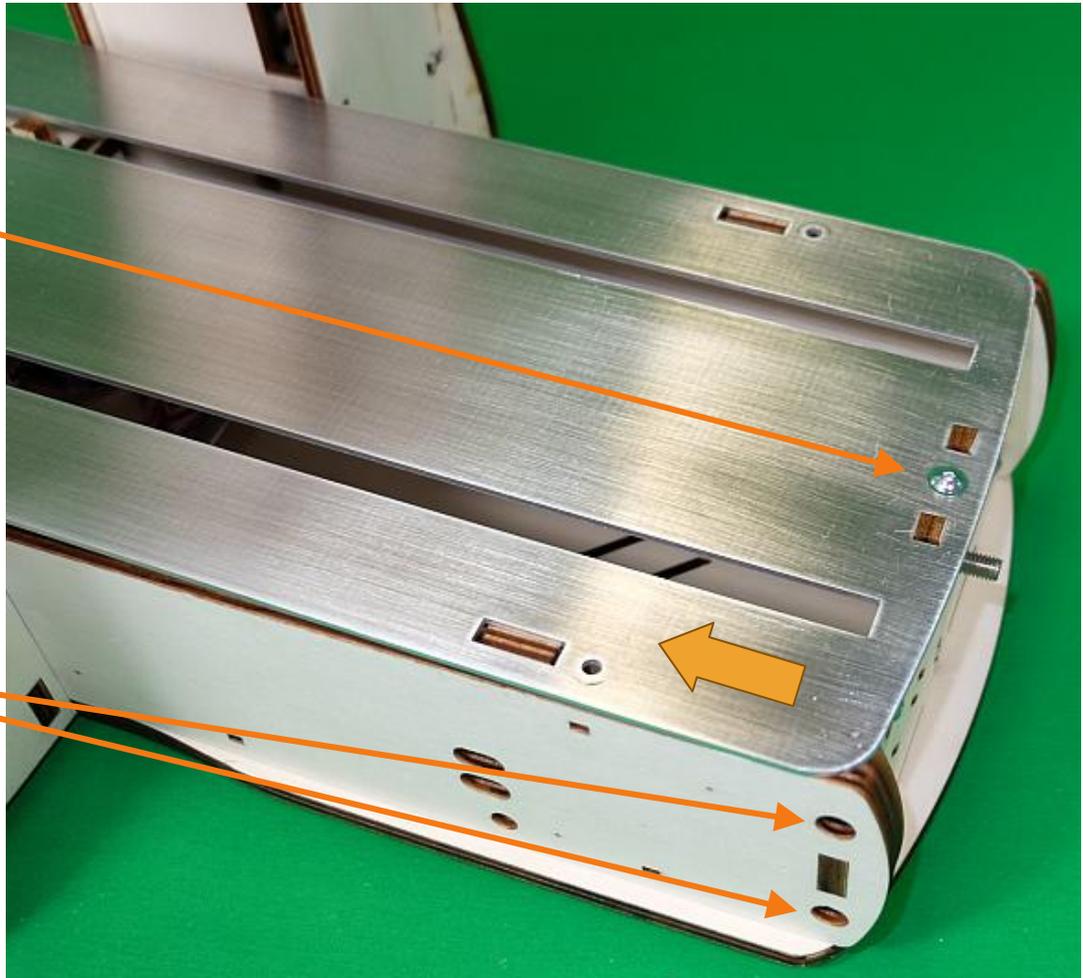
Take care not to drop the nuts into the base.



Gently put on the aluminum cover and loosely tighten the end screws M4x10.

If the other holes in the hood are not in front of the nuts, unscrew (both sides) the two side panels of the end to allow the cover to slide.

Slide the cover face to the nuts and tighten the screws.



Screw all the M4x10 for fixing the housing and tighten them but without excess.



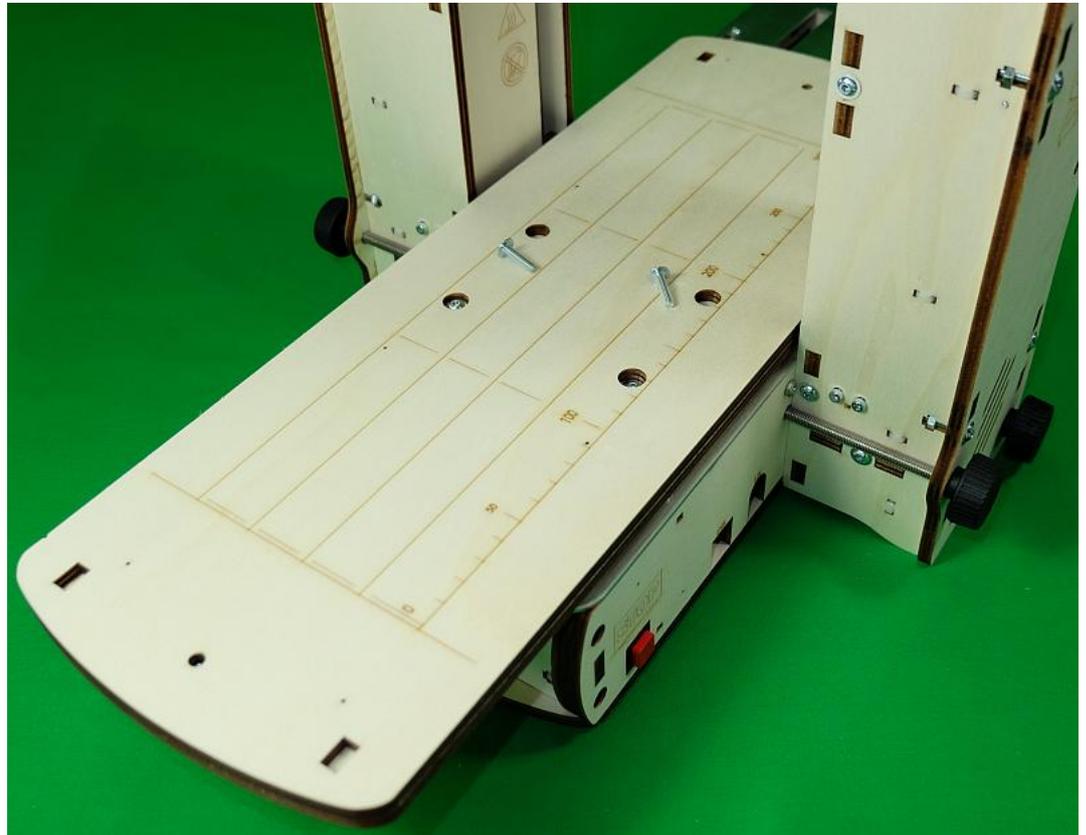
64.

Unscrew the 4 screws M4x16 (without dropping the nuts).

Gently slide the slots in the tray on the pegs.

Screw the screws into their homes.

Align the board with the edge of the base and tighten the four screws without excess.



Tada !

Well done ! Your MiniCut2d is done !

You deserve another break ...



You have just to adjust the switches...



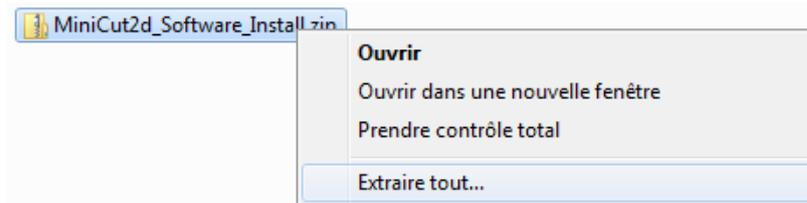
6. Software installation

To test, adjust, and use your MiniCut2d, you must use its software, and a PC computer with Windows (not included in kit).

The software is called MiniCut2d Software. It runs on Windows XP, Vista, Seven, and 8, in 32 or 64 bits. Installation and operation have been successfully tested on these operating systems.

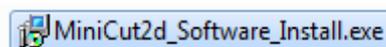
Download MiniCut2d Software on the website www.minicut2d.com

The file is an archive named "MiniCut2d_Software_Install.zip" and needs to be decompressed by clicking the right mouse button and selecting "Extract All ..." from the menu that appears and then click "Extract"



Attention: ensure that you have administrator rights on the computer to install the software.

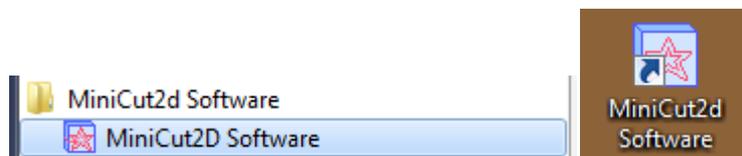
Double-click the executable file:



The installer starts. Follow the onscreen instructions.

Note that on some versions of Windows, an error message recording a library may appear. Click on "Ignore" and allow the installation to continue. If the software runs correctly then it means that everything went well.

Once installed, MiniCut2d Software is available from the Start menu or a shortcut on the desktop:



Potential problem during the installation	Solution
Appearance of a recording library error message.	Click on "Ignore" and allow the installation to continue. If the software runs correctly then it means that everything went well.
On 64-bit versions of Windows, it may happen that the software does not find the file « vb6fr.dll. »	Search the file "c:\Windows\System32" and copy it to "c:\Windows\SysWOW64".

7. And now...

The MiniCut2d is assembled.

To ensure proper operation, adjust switches

Download the **Adjustment Instructions** on www.minicut2d.com.

Use it to adjust the position of the origin and limit switches.

Switches of MiniCut2d are set.

Download the **User Guide** at www.minicut2d.com.

Cut a simple project with letters of the MiniCut2d Software's Library

Use MiniCut2d, download, create and share projects on www.filchaud.com.

8. Tips from the boss

- Do the switches adjustment (With the "Adjustment instructions" manual). It's pretty fast and it will help you better understand the machine and the software.
- For your first cut, use expanded polystyrene and cut just a word with the letters of the software's library, by double-clicking on the letters.
- To cut the thin sheets of polystyrene, it must stand vertically on the board. The ideal is to slip it into a comb which will be established outside of the area covered by the wire.
- Video explanations of combs are available on the www.minicut2d.com site.
- An example of the comb cutting file is provided in the library of the software.
- A project of comb is downloadable on www.filchaud.com (use the search with the word "peigne").
- It is also possible to attach the end of the sheet on a thicker polystyrene block. With pins for example. Be very careful that the wire does not touch the pins.

9. Cuttable materials

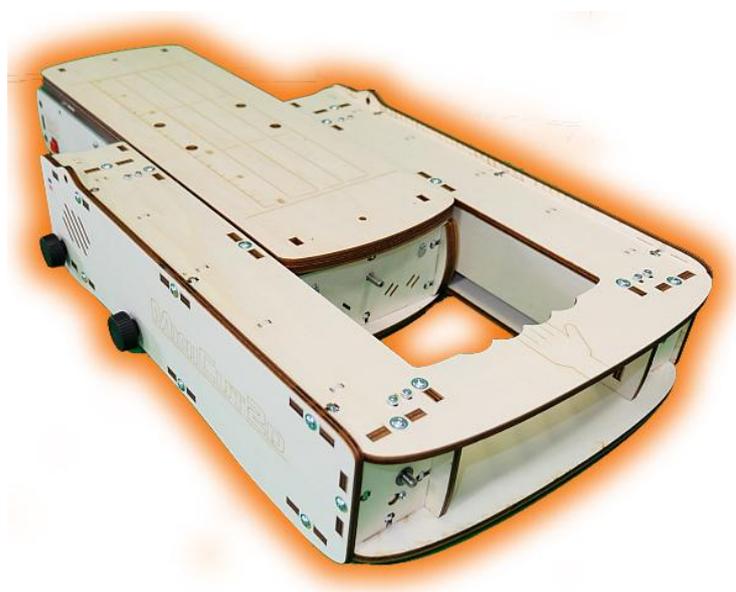
The MiniCut2d is expected to cut polystyrene:

- Extruded polystyrene (styrofoam)
- Polystyrene sheets (dépron)
- And expanded polystyrene (bearings).

Polystyrene must not contain inclusions (wood fibers ...), or glue.

Polystyrene can be found in DIY stores, department of building materials for the extruded/expanded foam and paint and wallpaper department for the sheets.

Good polystyrene will be available soon on the website www.minicut2d.com.



MINICUT2D

Help, tutorials, and information available on www.minicut2d.com.

Projects, ideas, creativity, sharing on www.filchaud.com

The latest news is available on the page [FaceBook.com/MiniCut2d](https://www.facebook.com/MiniCut2d)

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