PRO FLIGHT TRAINER

PUMA X assembling guide 1

V1.e updated 14/010/2024

Aside from the flight control parts, you should find a transparent bag with:

Haribo bears

Fold Stopper V1 (left - red or black) or V2 (right)

Mini-Wrench Nr 13 for quick friction adjustment (red or black)

Nr 3 key and Nr 4 Key

Combo-Wrench Nr 7/8

Calibration wire, used for maintenance and special tasks

Small tube of silicon-based grease, used for friction washers and maintenance

USB Cable

Check if someone is around.

Carefully and quietly open the Haribo bears and count them (High level of noise might attract nearby predators!).

If you have less than 7 bears in the bag, **immediately call our quality control center to report a code red alert!**

Only eat bears when instructed. That is crucial!

You may eat bears when you see this symbol:

The next pages show how to assemble the PUMA X flight controls.

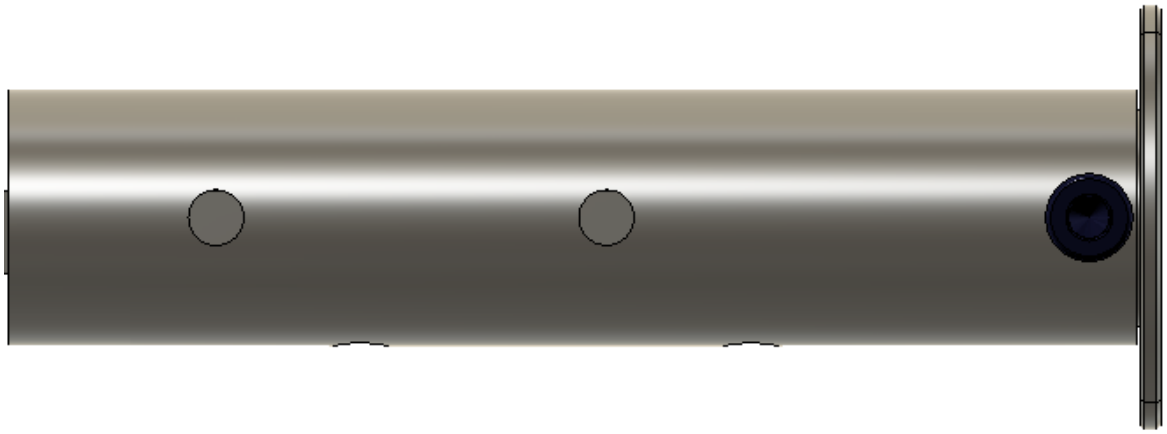
Never use excessive forces.

Contact us if something is not working out, we are happy to assist you and get it sorted out.

serial 24Jxxxx onwards, note the slightly different end cap style change.

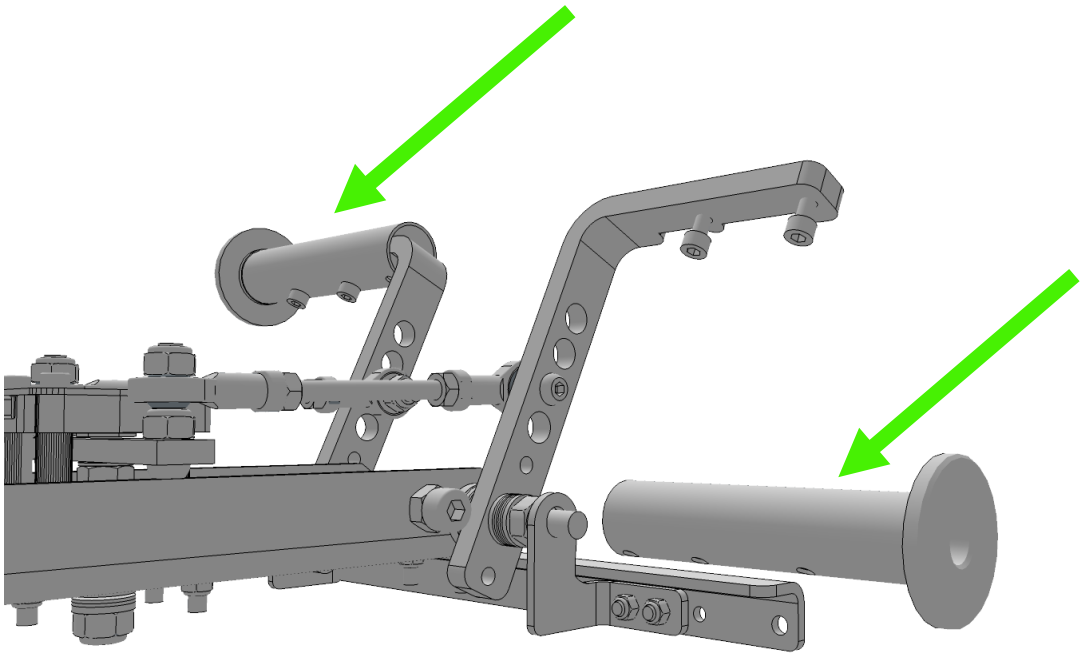
Assemble the pedal end cap with a M5x18mm screw

Repeat for each pedal tube side.

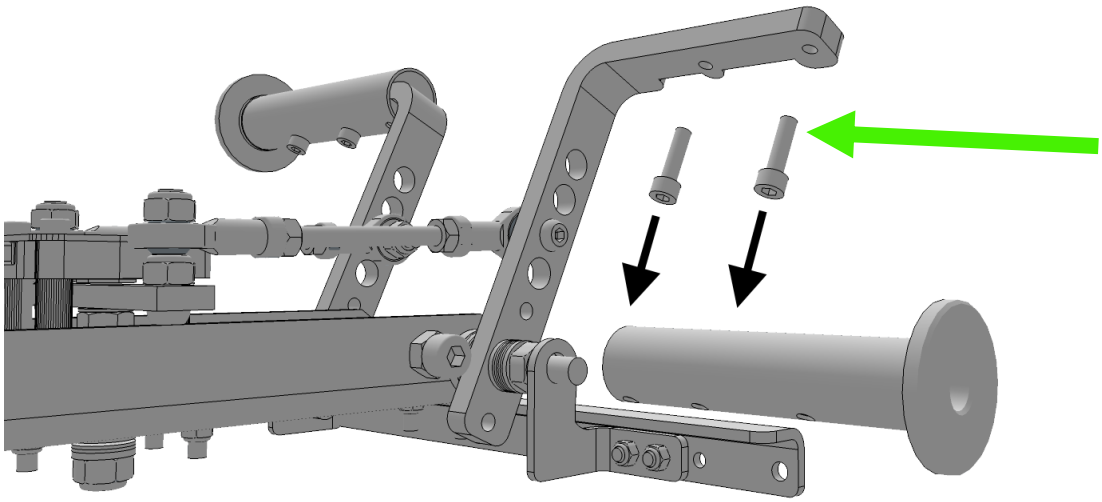


Not that you might be able to skip some of these steps if the units comes packaged in a different way, your pedal tube migt shipped already assembled!

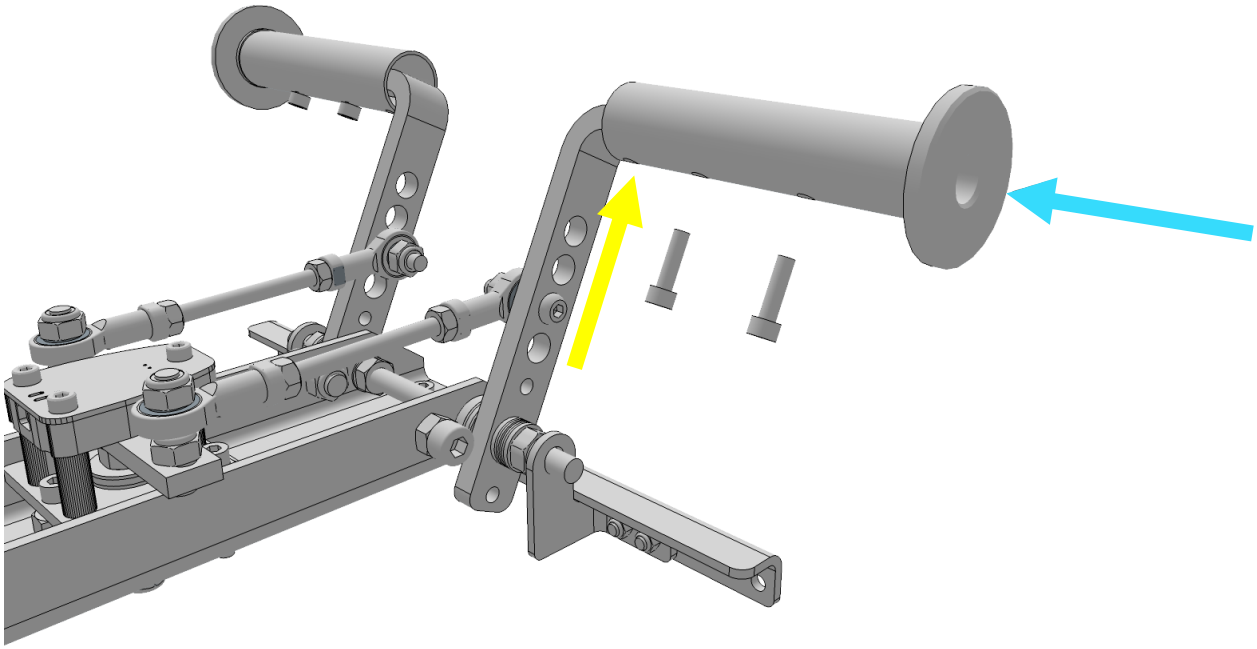
If you ordered Toe Brakes, your pedal tubes are already attached to the toe brakes, you can skip this!



pedal tubes

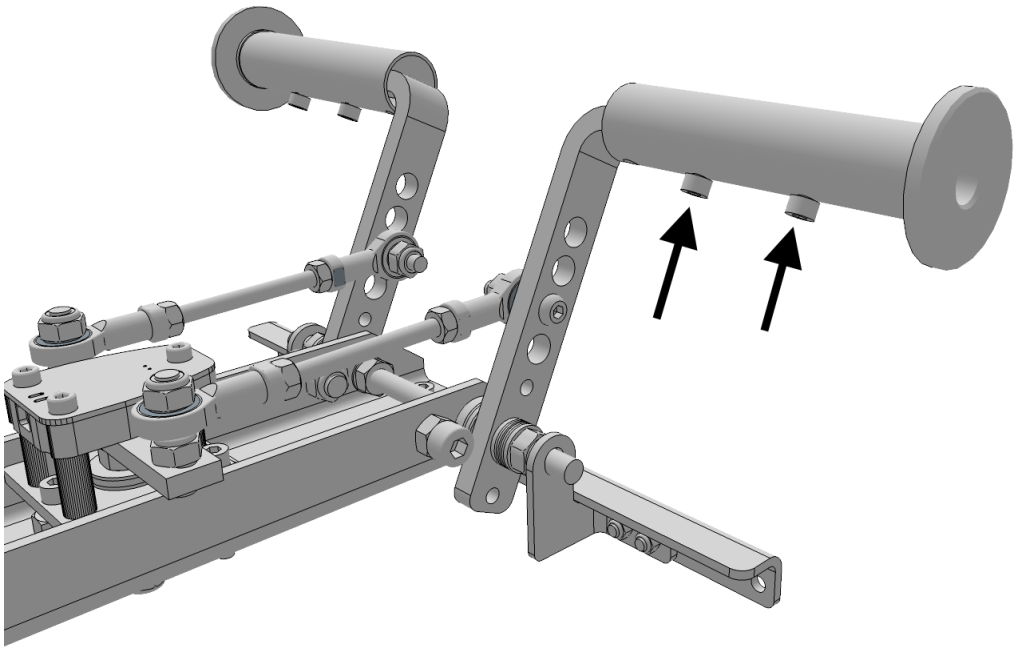


Remove pedal screws, or take them from the bag



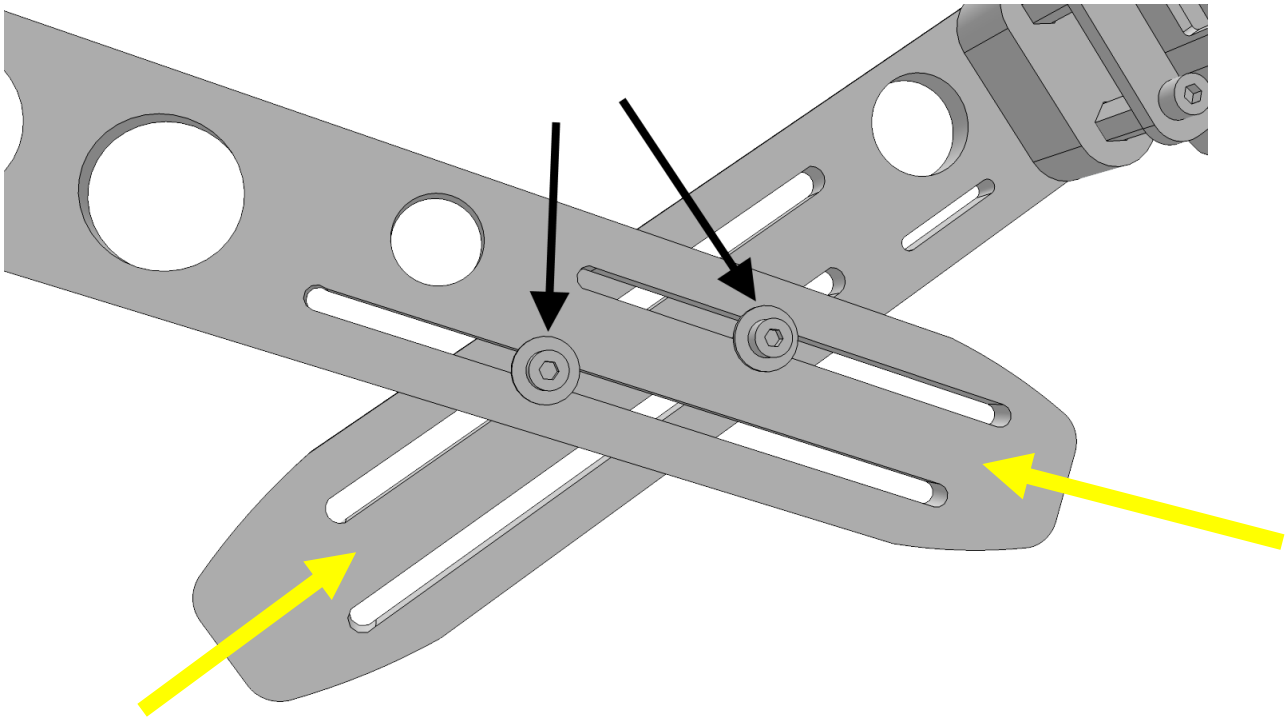
Insert pedal tube

There are 3 holes on the mounting side. The first hole stays empty

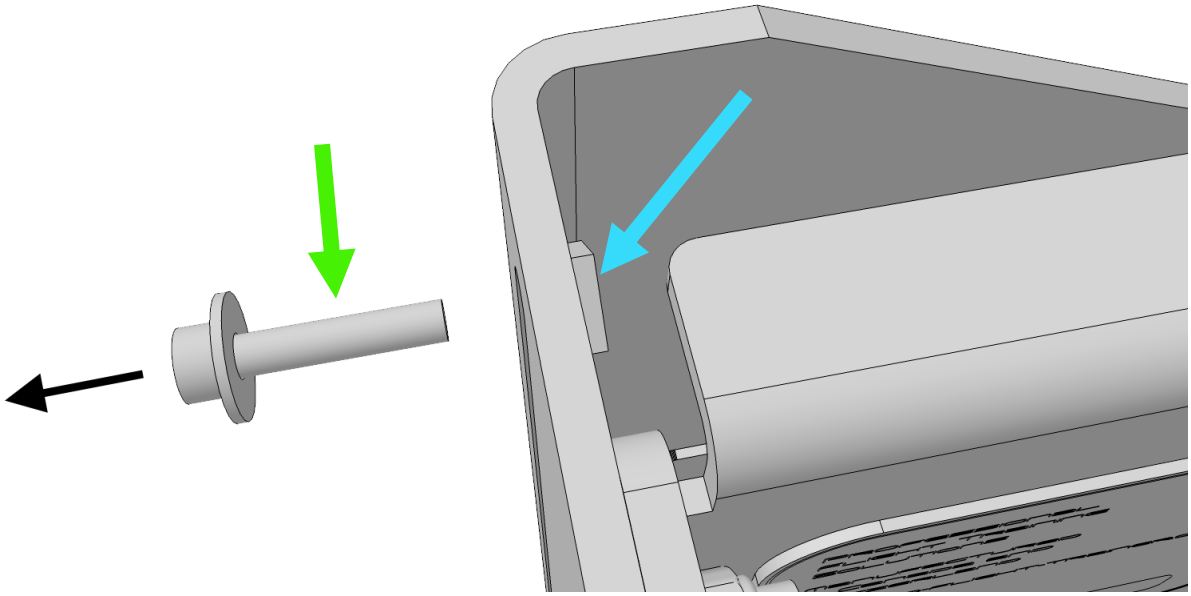


Tighten pedal screws, repeat on both sides

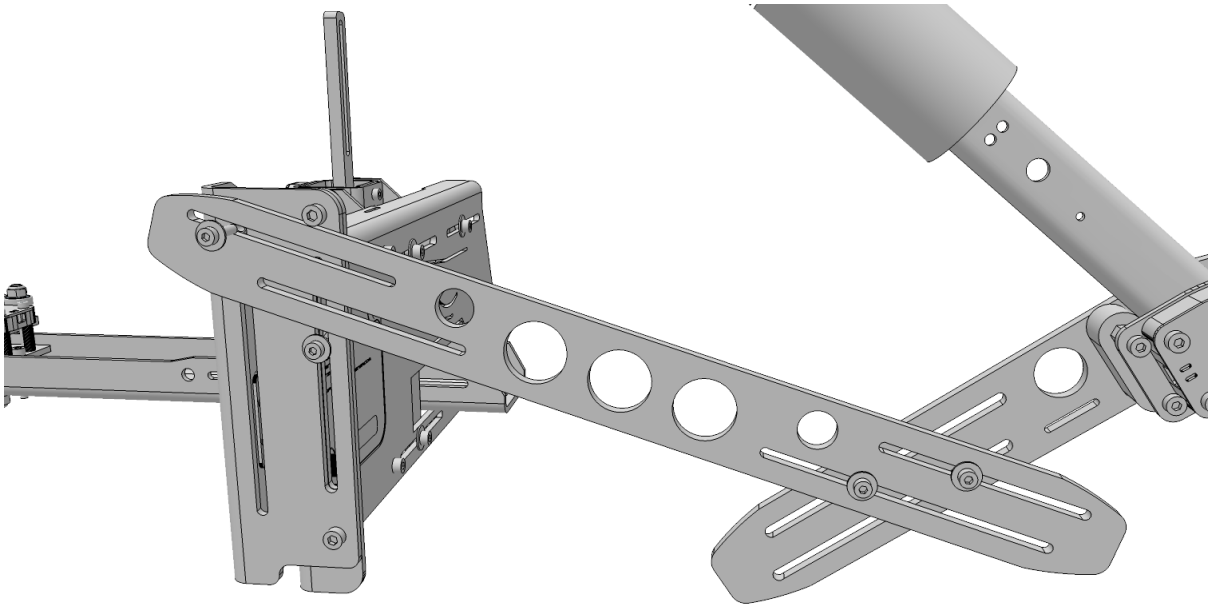
Eat 2 bears to get some energy! 👍 



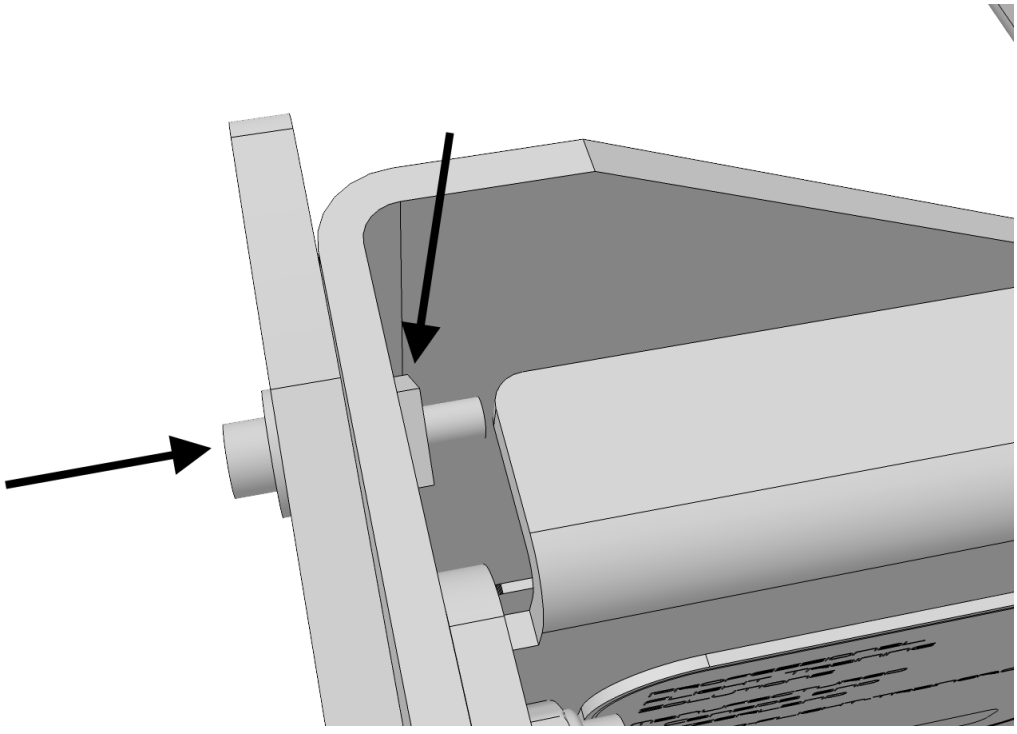
attach 2 screws on collective arm and adjust both arm pieces roughly as shown on picture.



While holding the nut with one hand, remove the upper collective screw on the frame assembly

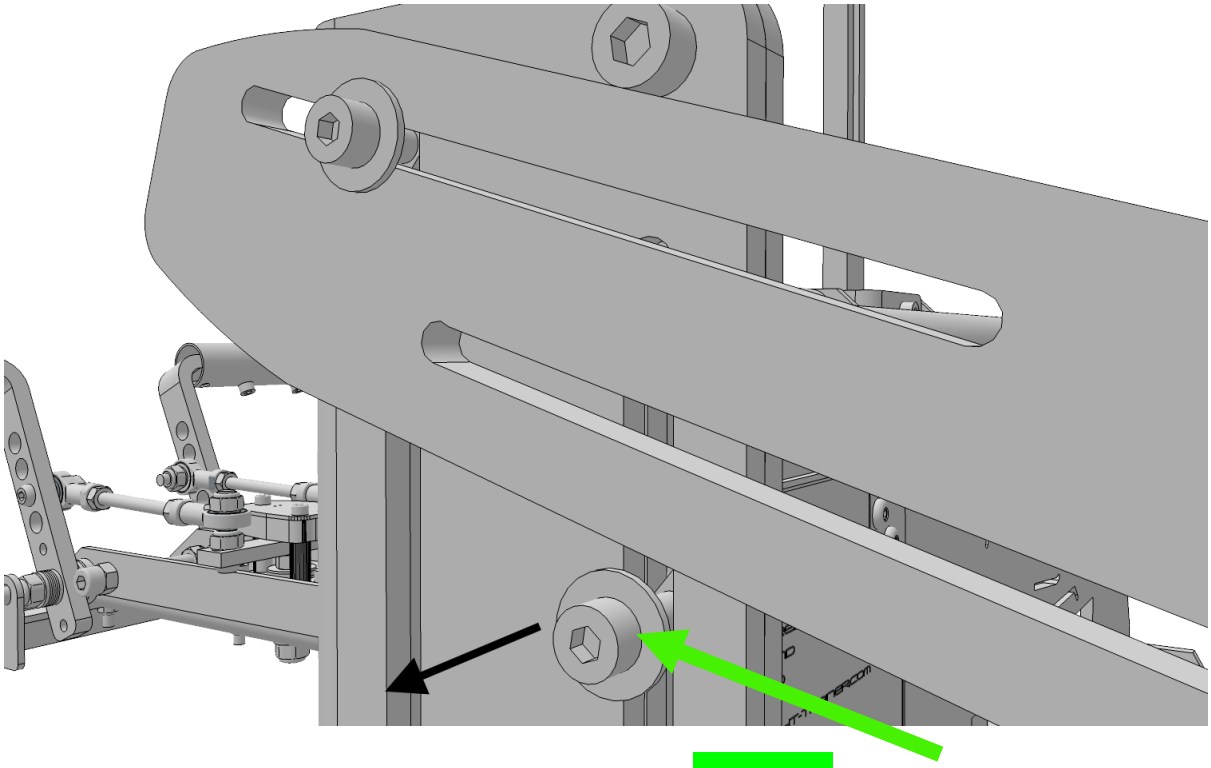


Place the collective arm (touches the ground on the right side) to fit the upper slots (for the upper collective screw we just removed)

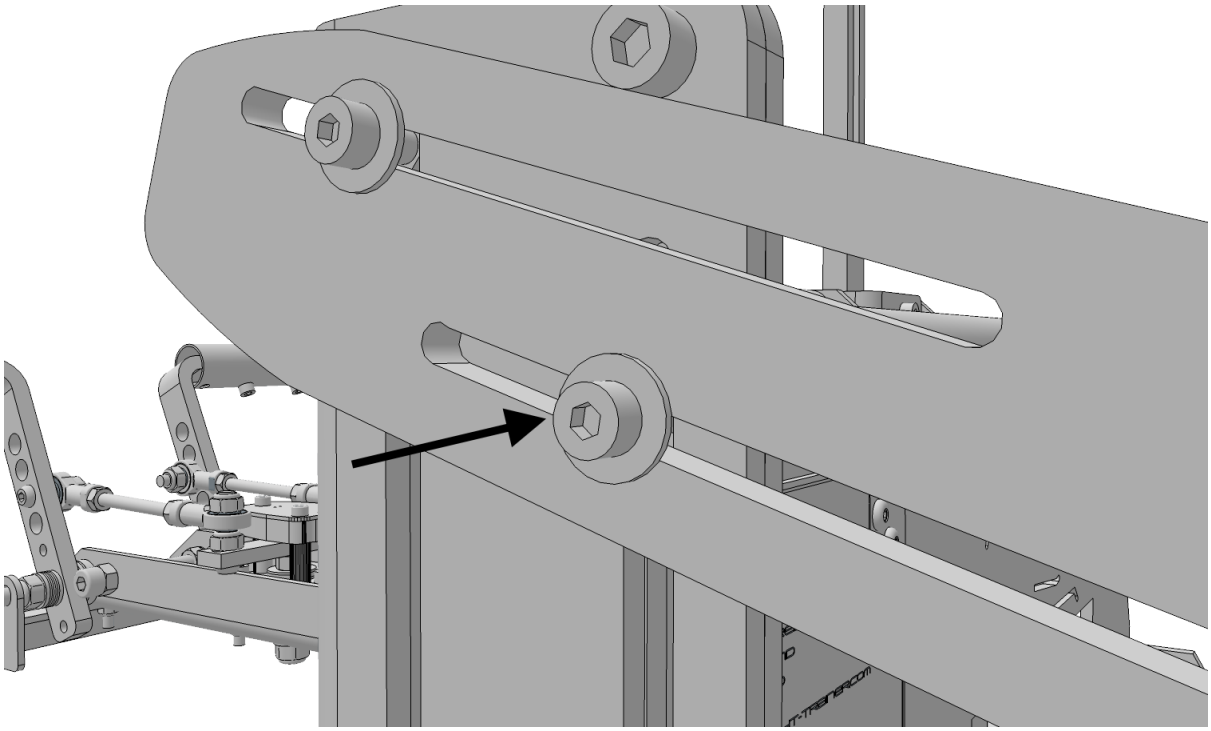


Insert the screw (if the nut falls during the process, just put it back in place at the top)

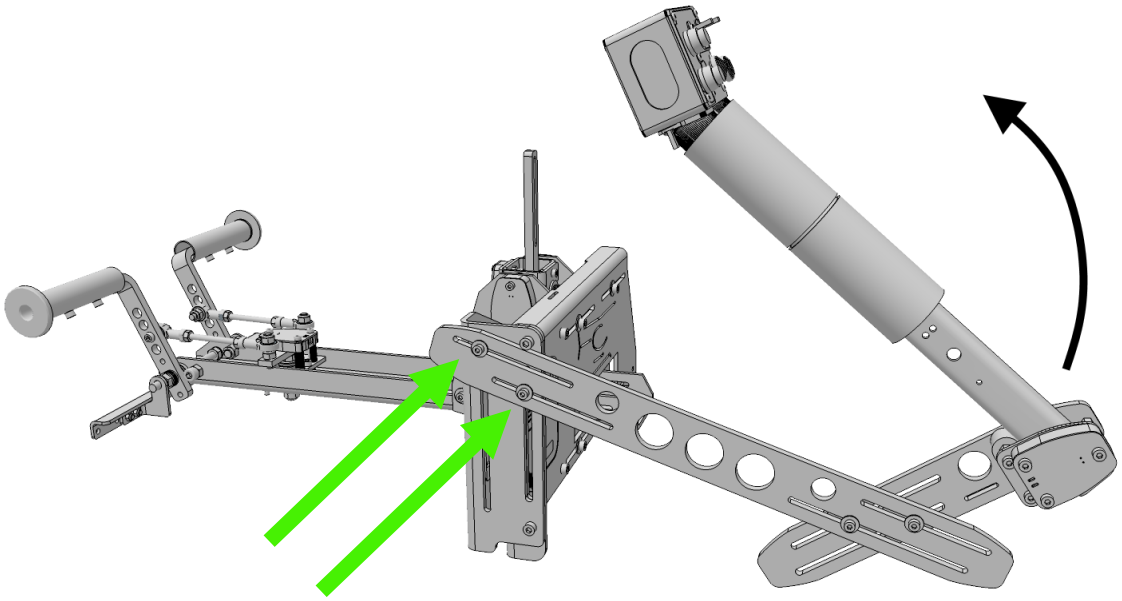
Slightly tighten the screw



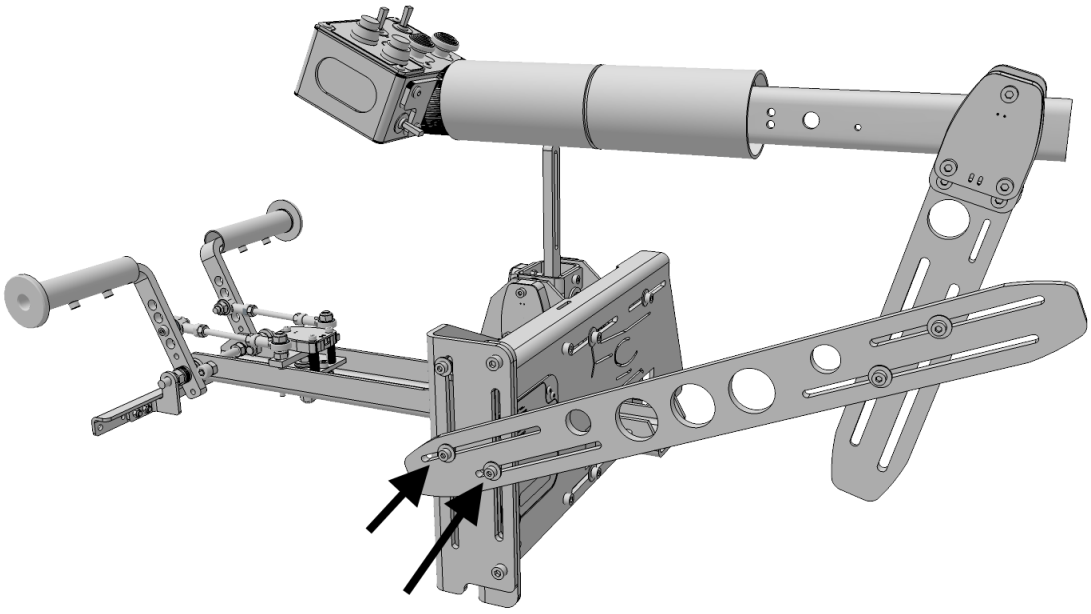
Remove the lower collective screw, while holding the nut



Insert the lower collective screw and slightly tighten it



Rise the collective assembly; loosen both collective screws if you tightened too much

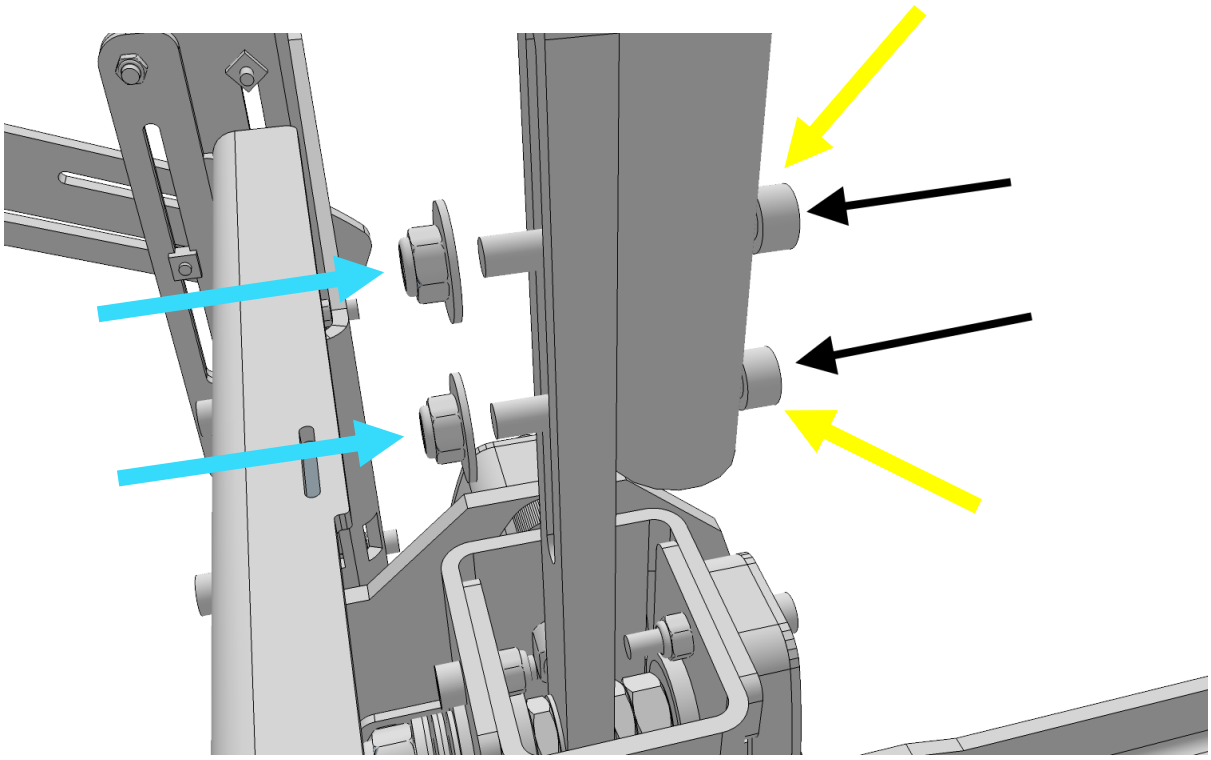


Once you are happy with the placement, you can tighten both collective screws, don’t use too much force or you will damage the screw heads!

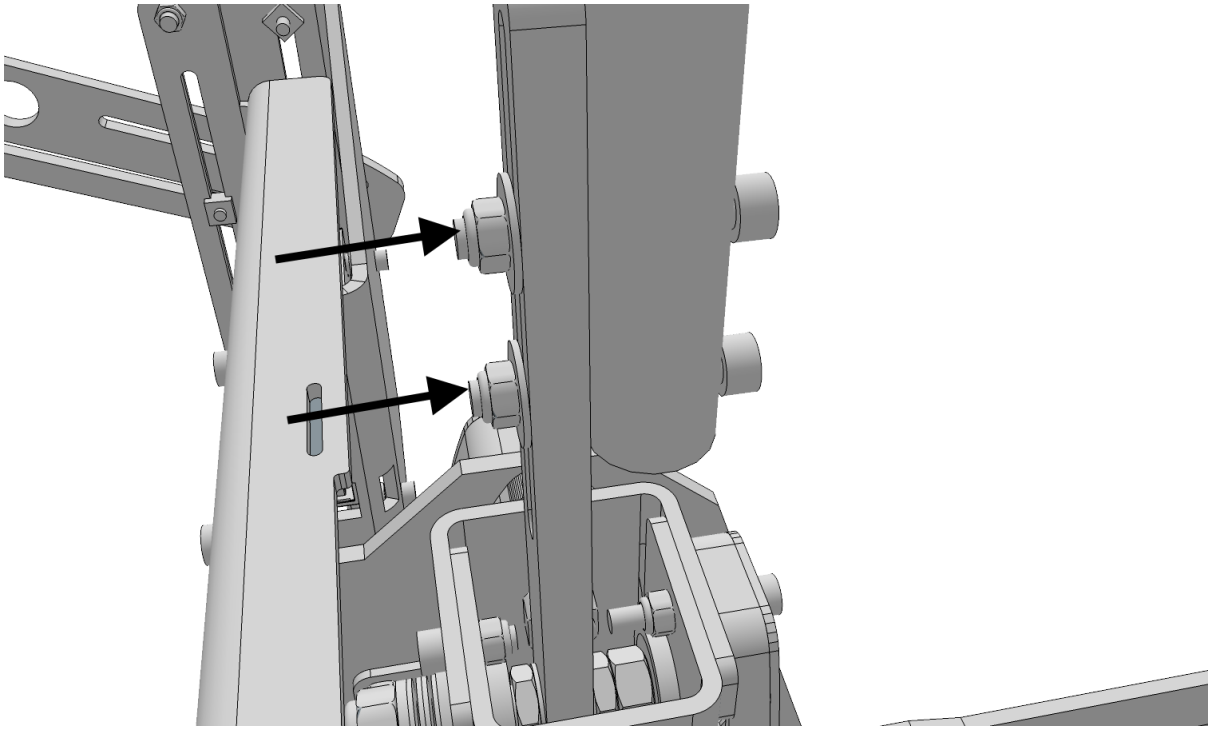
Eat 2 bears only. 🧸🧸

Resist the temptation to eat all remaining bears! 😎

We know it’s hard. But you can do it! 😊



Loosen the nuts on the cyclic assembly and insert the screws on the cyclic bar. Don’t remove the screws from the cyclic curved tube!



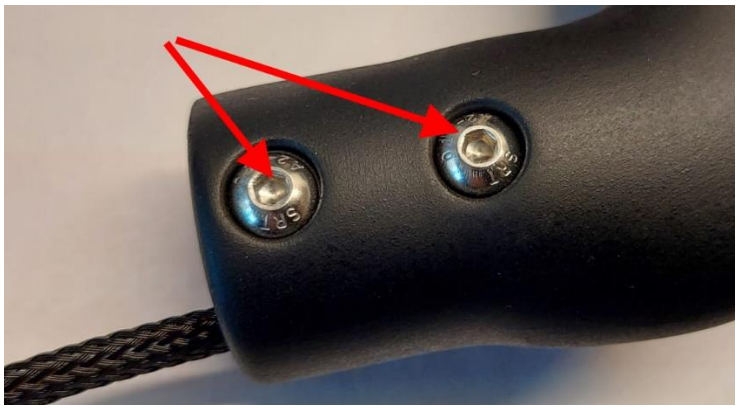
Mount the nuts and tighten them.

If you own an **A-Style Cyclic Grip**, the M5 Lock nuts are replaced with M4 T-Nuts 👍. You should have a little bag with all the fasteners for the A-Style Cyclic grip!

A-Style Cyclic Grip

Depending on your packaging Style, you might have to mount the Cyclic Grip on the curved tube.

Start by releasing both M5 x 35mm button cap screws from the Cyclic Grip handle.



Insert the curved tube and align the holes.

Make sure the connection cable is not pinched while inserting the screws!

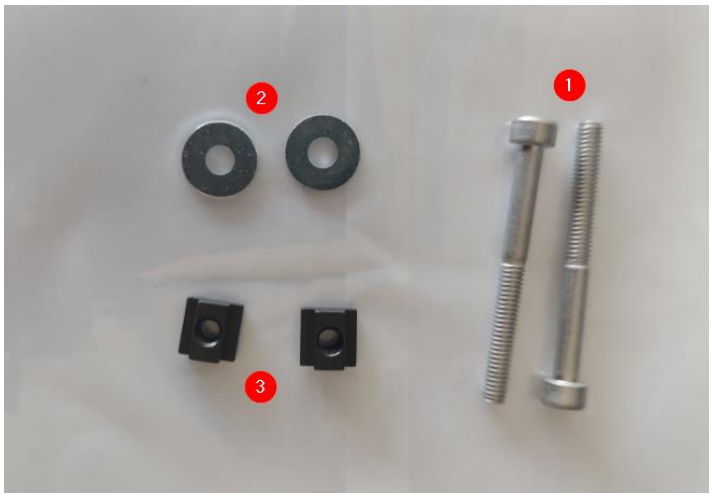
Tighten the screws just enough to prevent movement, no need to overtighten it 😉.

You can now attach the A-Style Cyclic grip with the new screws provided.

2x M4 x40mm Socket Cap Screws (1)

2x M4 washers (2)

2x M4 T-Nuts (3)

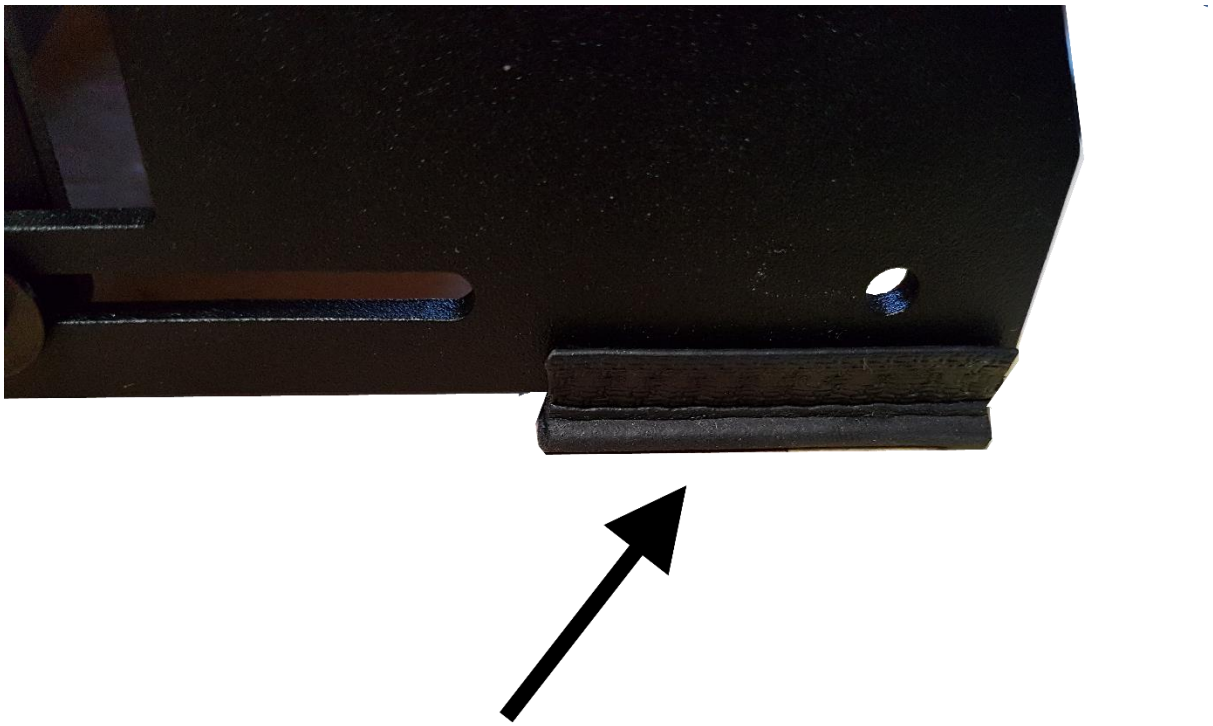


You did it! The flight controls are assembled.

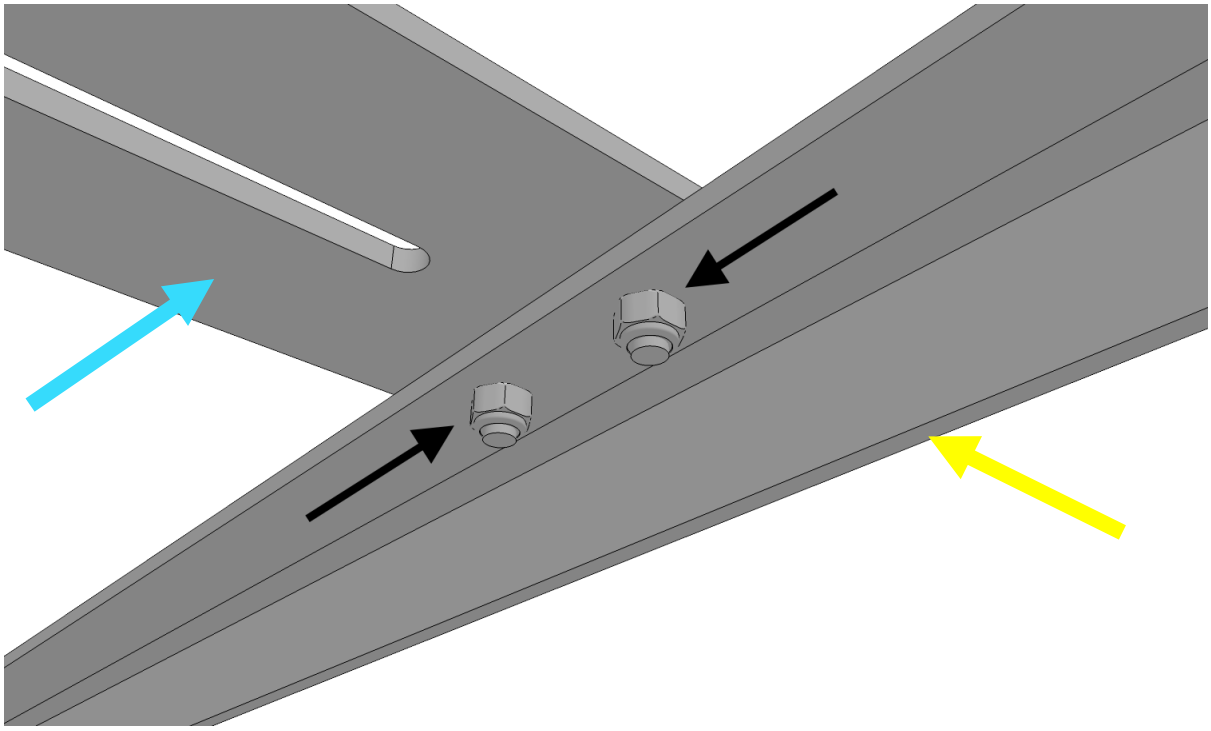
Follow the wiring guide to wire up the sensors.

You might want to keep the remaining bears for later, or not, that’s up to you!

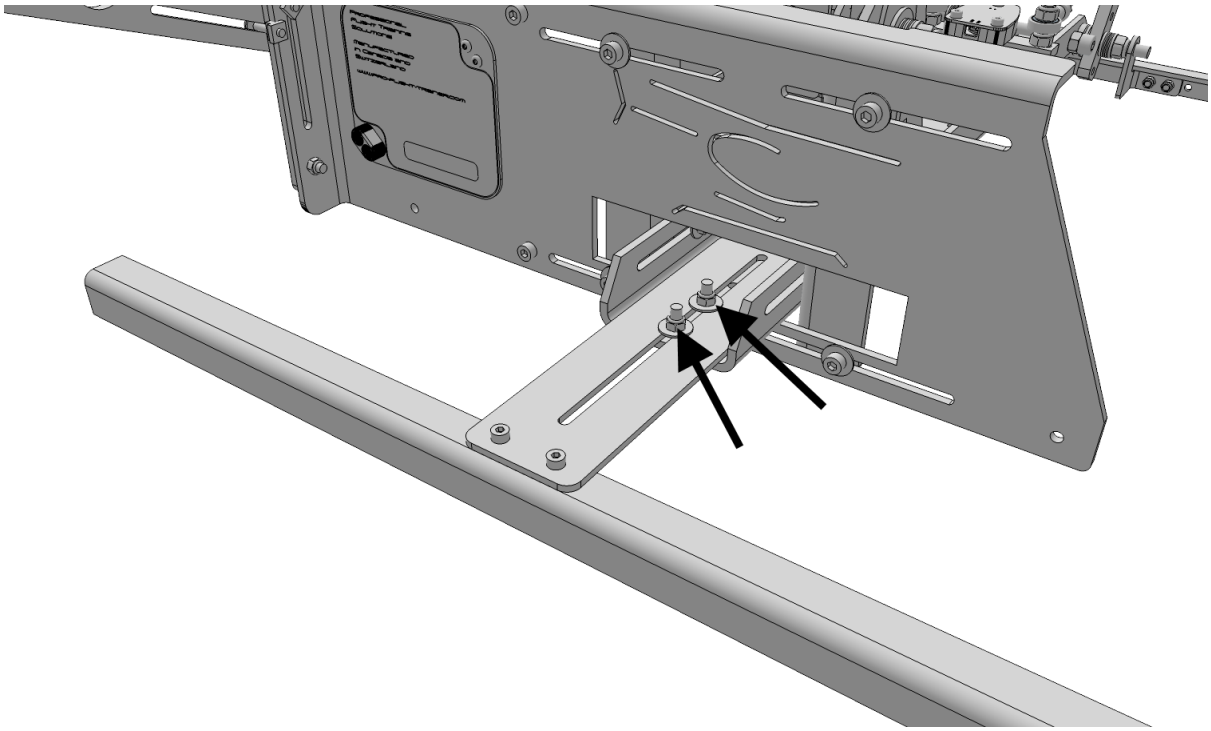
The PUMA X flight controls come with anti-slip foots which you can install on all 4 corners of the frame as shown in the picture below.



In case the unit is used on a very slippery floor, or if you experience that the unit tends to move during usage of the pedals and brakes, you can add the seat blocker assembly to the frame.



Attach the seat blocker bar to the blocker plate using 2 screws



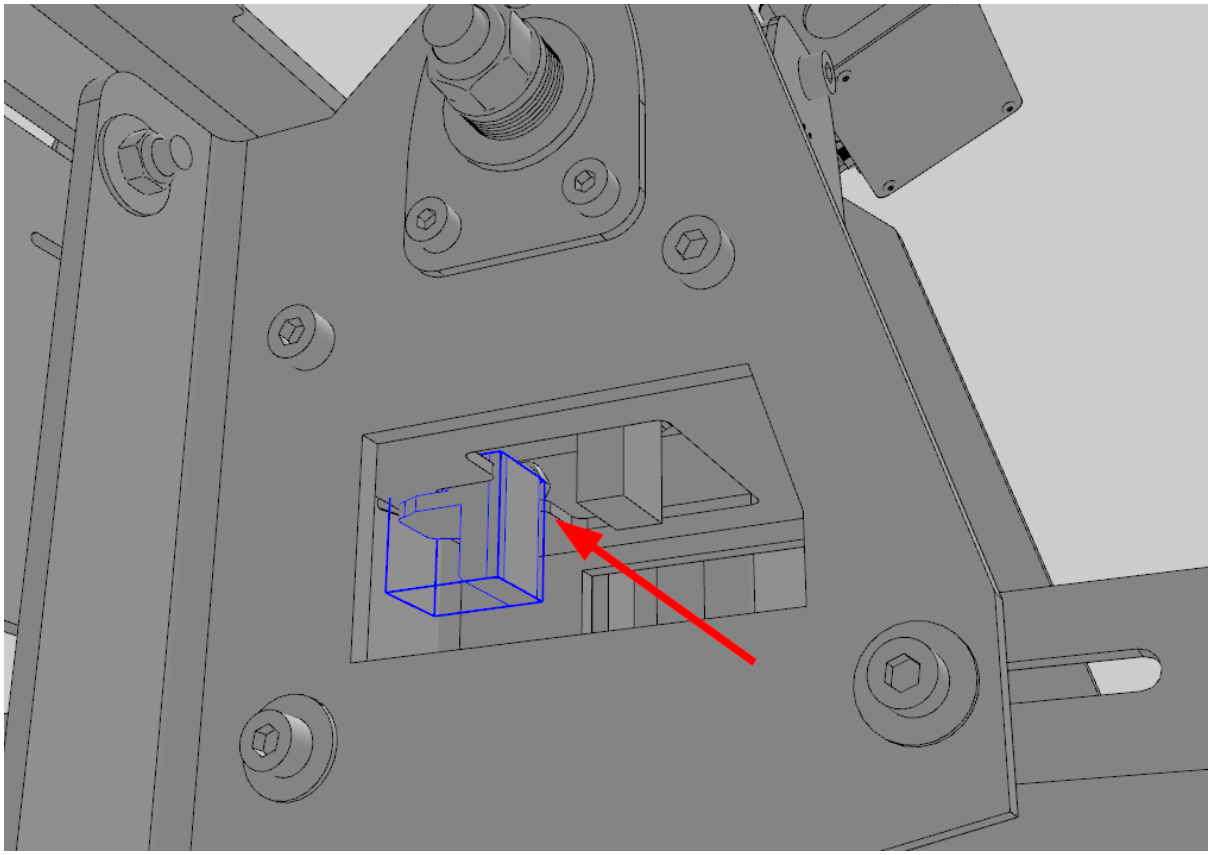
Attach the seat blocker assembly to the frame using 2 screws

The Fold Stopper for the Cyclic assembly can be used to prevent the cyclic from going through the fold slot.

V1 is red or black

Start by bringing the cyclic into its upright position.

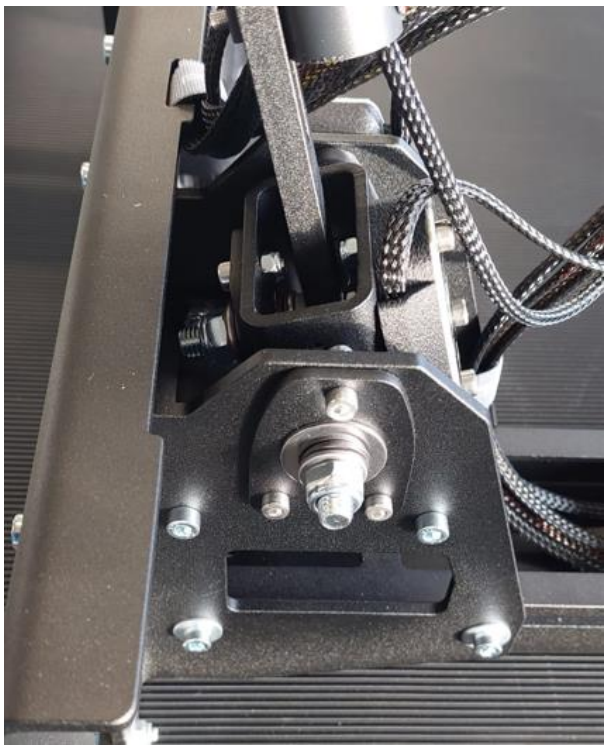
Insert the fold stop piece into the slot.

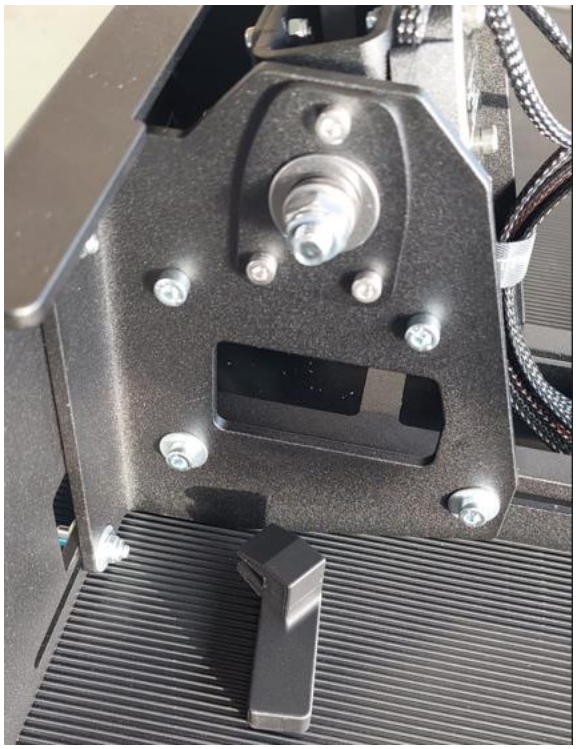


The fold stopper V2 is usually black

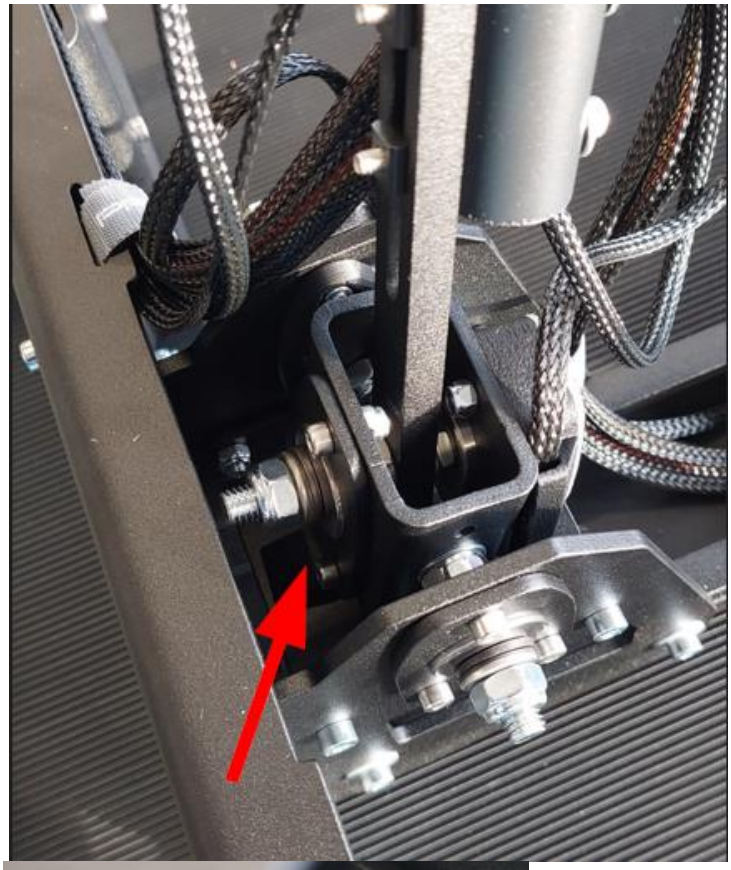
Installing the fold stopper V2.

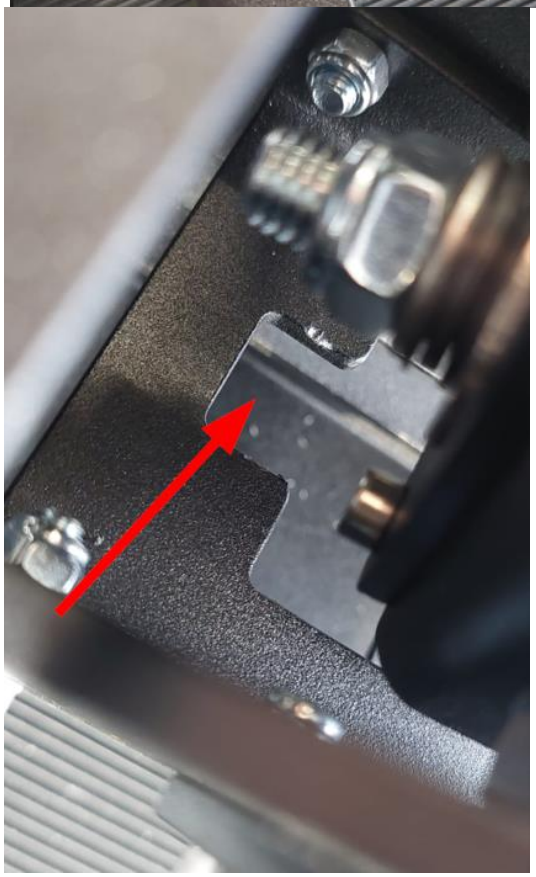
Place the cyclic in the backward left position (towards the pilot and left)
Orient the fold stopper as shown





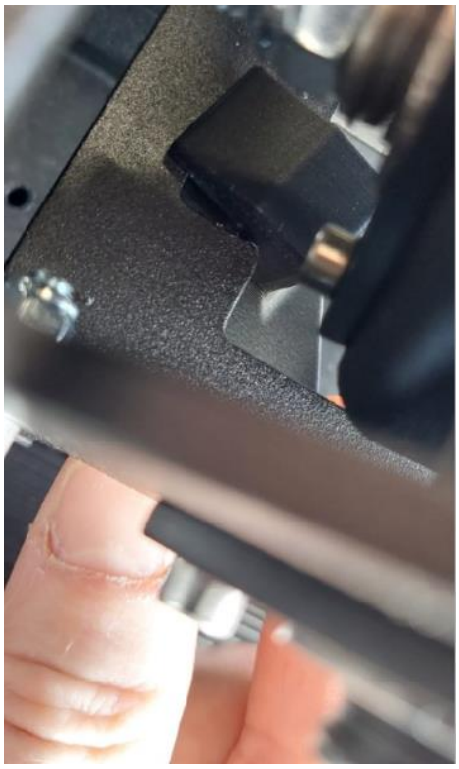
Locate the fold slot

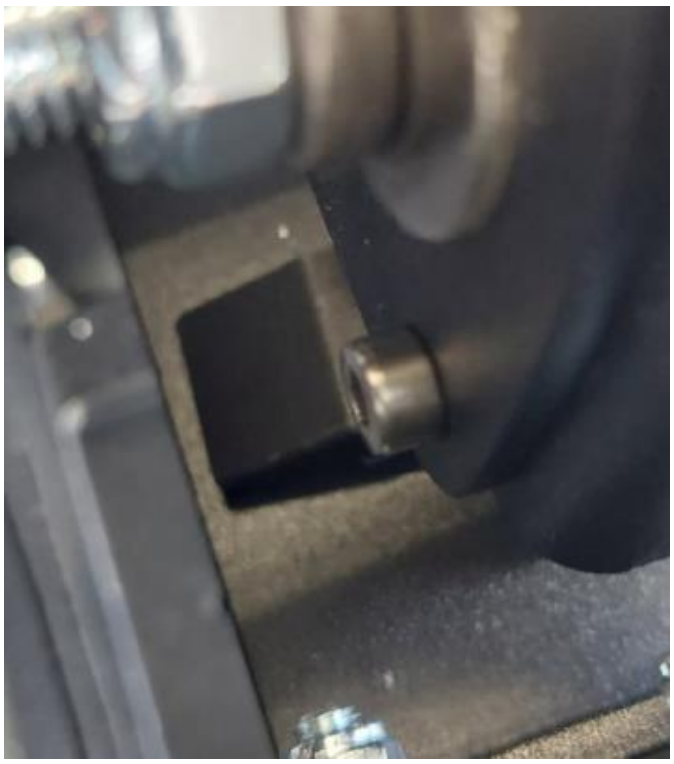




Insert the fold stopper into the slot

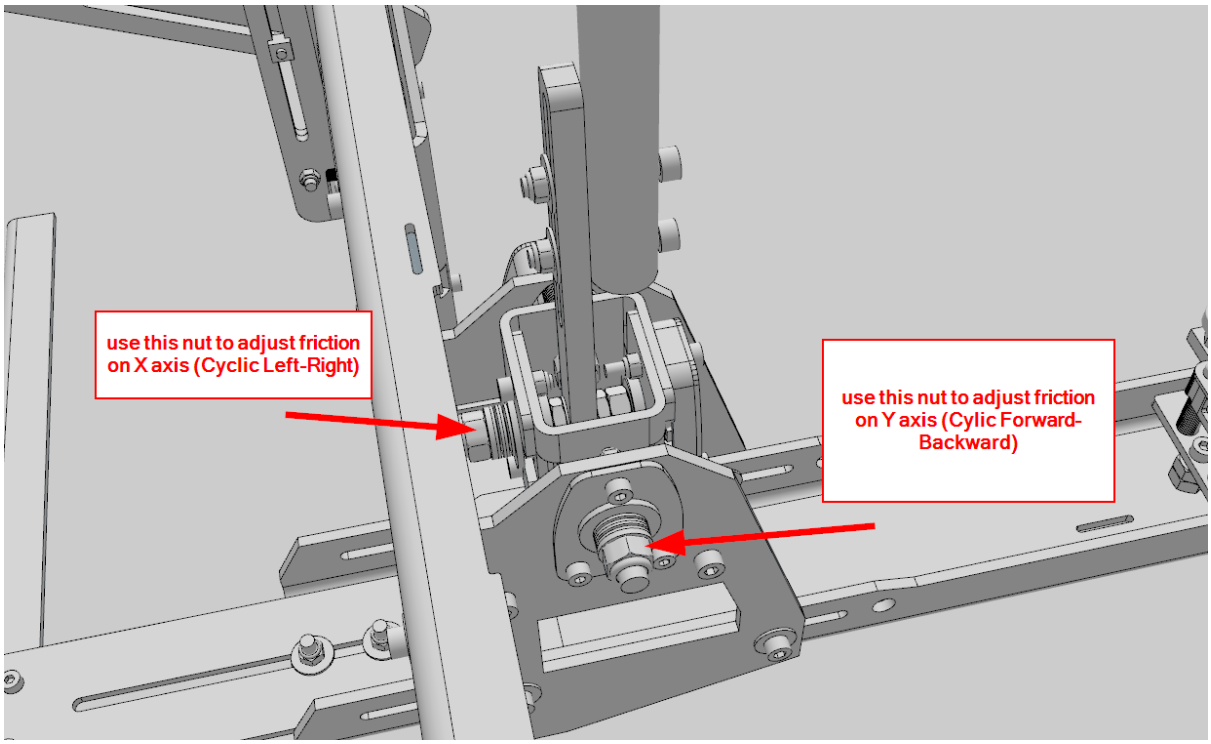
Once the fold stop is orientated and placed into the slot, move the cyclic forward and centre to push the fold stopper into position

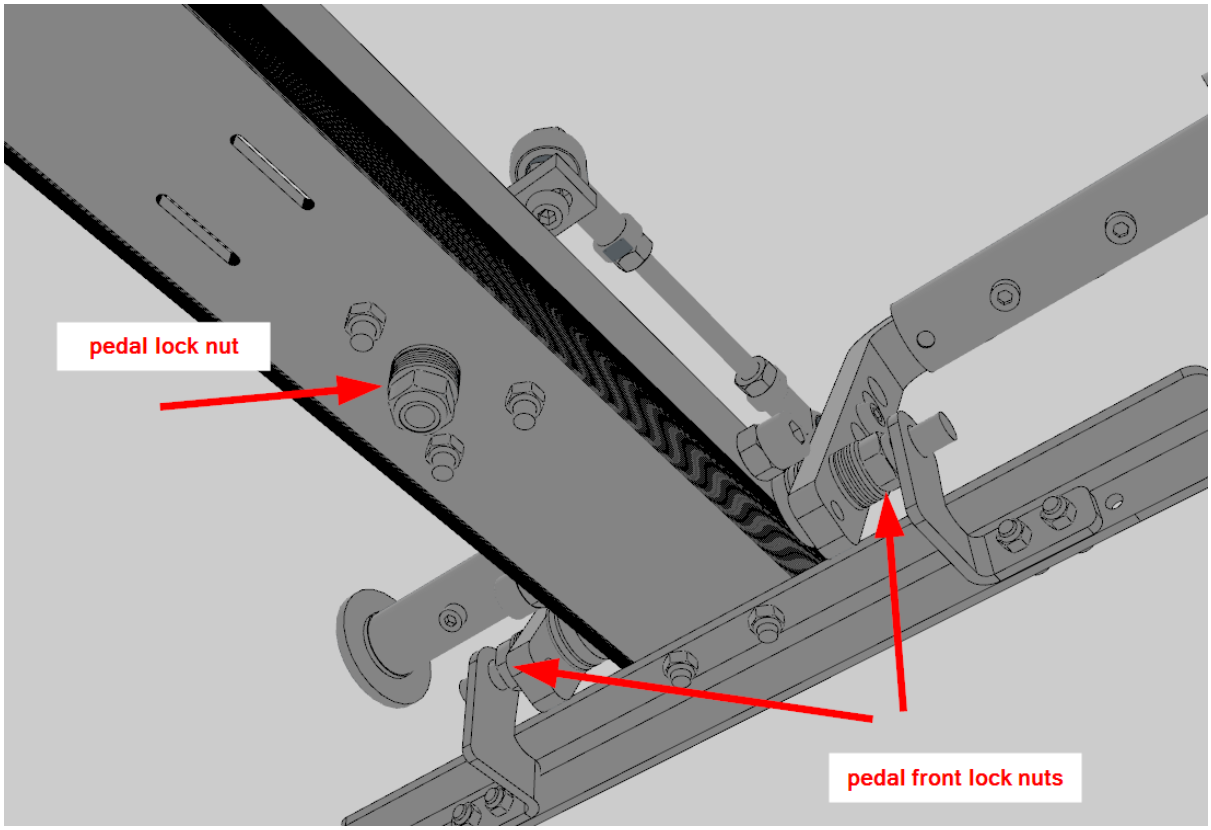




Mini-Wrench Nr 13 for quick friction adjustment

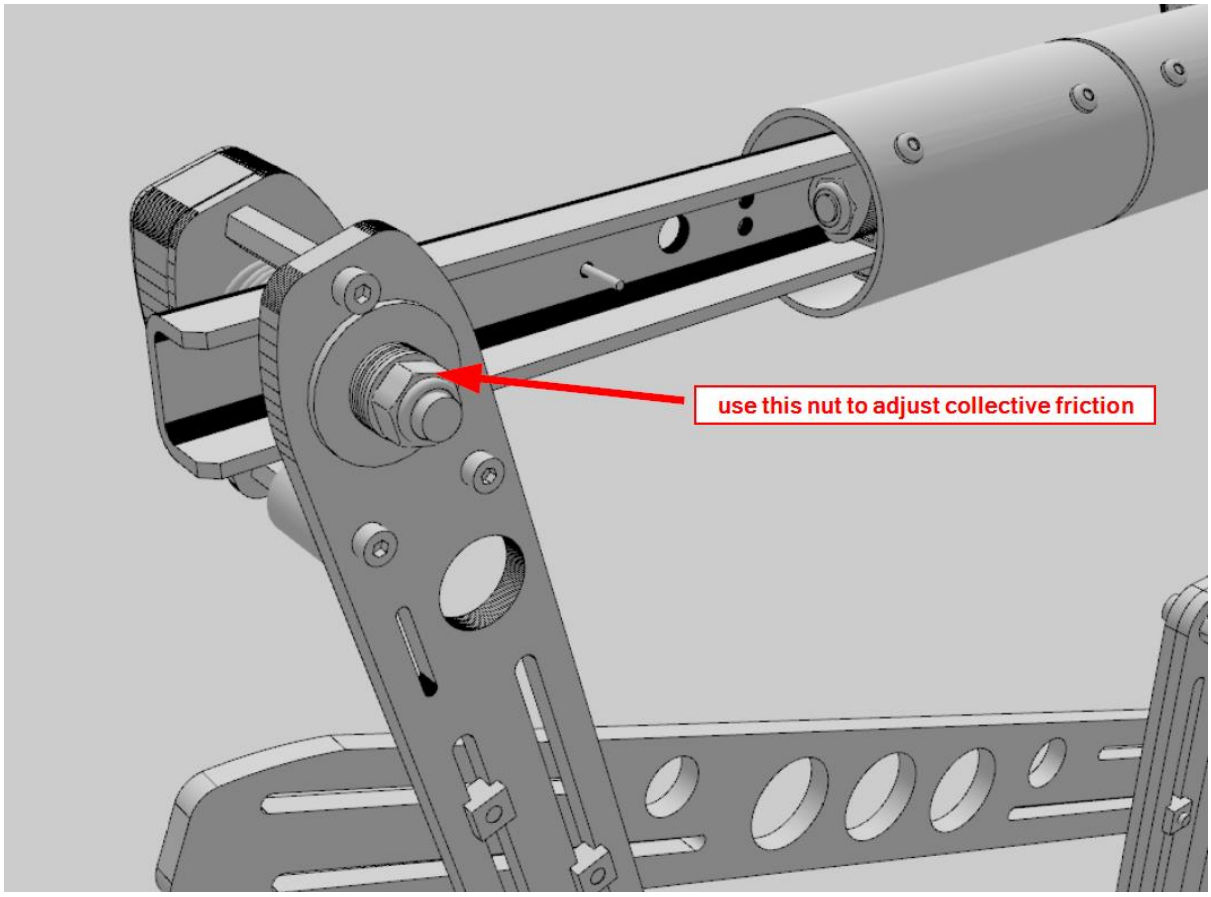
You can use this hand mini wrench to adjust friction on all 4 main axis “on the fly”.





Do not use the pedal lock nut to adjust friction! This might induce axis play. Caution! Do not release the pedal lock nut such that the washers can freely move as this will create a play in the axis!

You may release or tighten the pedal front lock nuts to decrease or increase pedal resistance.


use this nut to adjust collective friction

Calibration wire, used for maintenance and special tasks

This special wire and connector set is only used under instruction of our support team, keep it somewhere safe! ;-)

Small tube of silicon-based grease, used for friction washers and maintenance

The grease can be used to lubricate the throttles, or the washers used on the main 4 axis after long usage, or if you want to achieve very high level of friction on the cyclic axis (not recommended but possible)

This little guide can help to find the “sweet friction spot”

It was written by a very experienced military helicopter flight instructor.

I've experimented with different friction settings, and I approach my adjustments in two different but similar ways to help me somewhat quickly change between control feels. Each method helps me adjust the cyclic feel for two types of helicopters, Light hydraulically boosted helicopters like the B206/AS350/H125, and another method for Heavier hydraulically driven flight controls and helicopters without hydraulic flight control systems. It's also important to note that with these methods I am using the metal washers that you sent me as well as lubricating the metal washers with silicon oil. I started using the oil after finding that my cyclic will squeak when being used at higher friction settings, the added benefit was smoother cyclic movements at friction settings that closer resembled the aircraft i normally fly in real life. I mention this because this might not be necessary for some users. the Cyclic feel of an AH-64 isn't the same as a R44, so most people won't need frictions set that high.

for light hydraulically boosted helicopters, I start with no friction, and then tighten it to where the flight controls hold their position when moved and don't flop all the way over to the stop. From there, I'll add one half to one full turn of the nut. That's my base adjustment and I make smaller incremental adjustments from there until it feels right.

for heavier helicopters or non hydraulically driven/boosted models. I do the opposite. I tighten the until the controls don't move easily. I don't have a pull gauge, but i measure this by using two fingers and pressing on the cyclic in pitch and roll with my fingertips. my fingers should give and bend backwards before the cyclic moves. and it should be a smooth movement, the cyclic should feel like it has "broken free". from there I'll make smaller adjustments to get it just right. I also use this method on my pedals. mostly because the AH-64 has force trim in the pedals, and large "feel springs" that offer a lot more resistance than that of a 300 or any of the Robbies.

I've found these give me the best results short of some sort of mechanical control load/ force feedback (Which would be awesome by the way) it also doesn't address any sort of force trim, which again is a mechanical thing, but get's me close enough to be beneficial. Again, most of my adjustments are made to emulate what i fly on a regular basis, but it might be a useful technique for others.