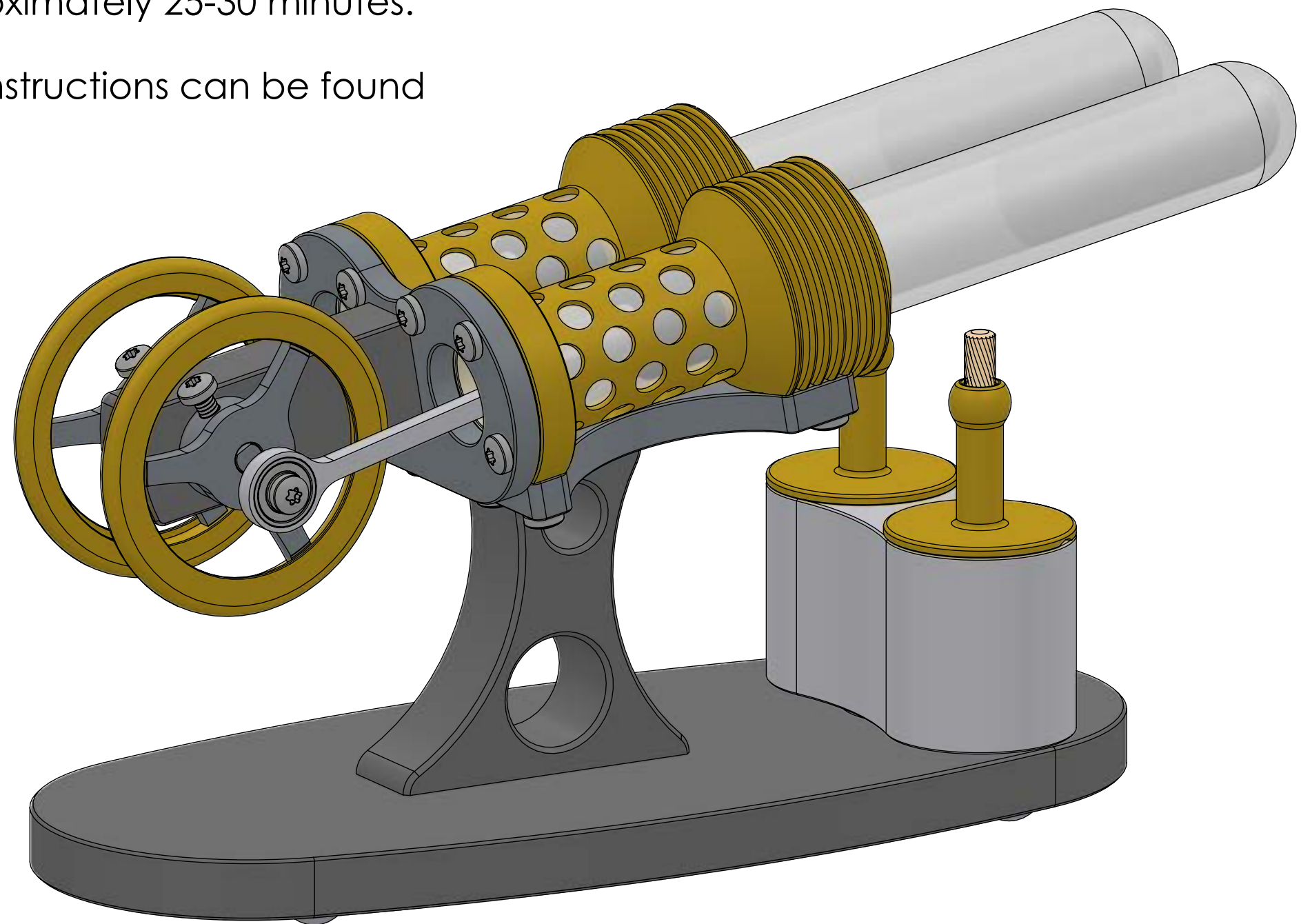


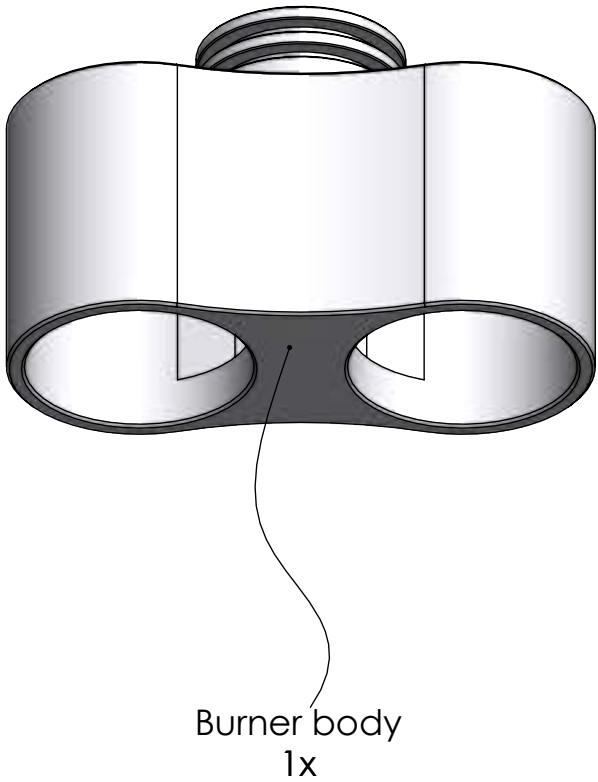
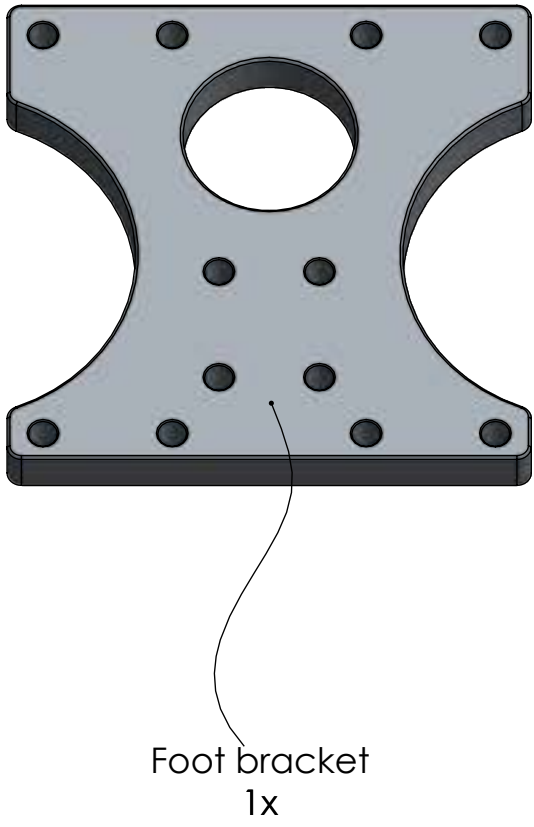
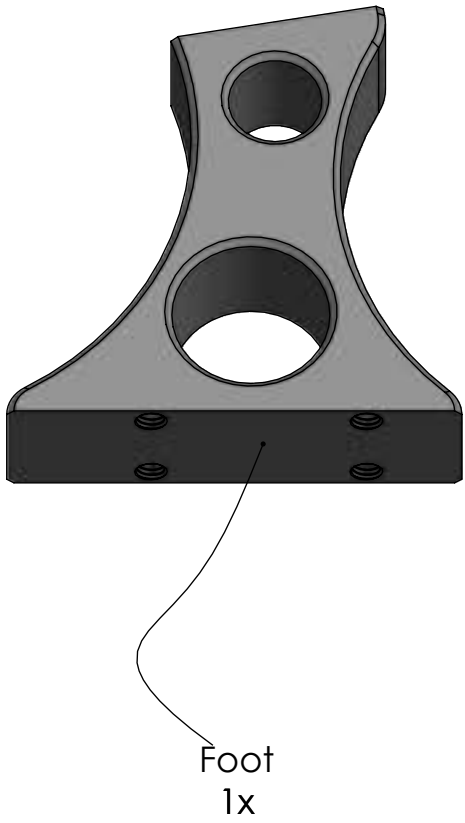
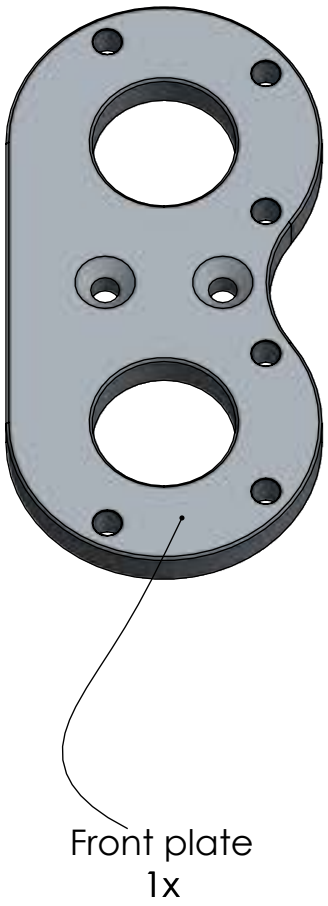
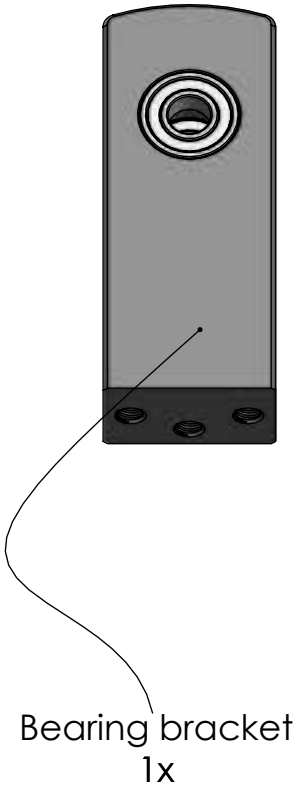
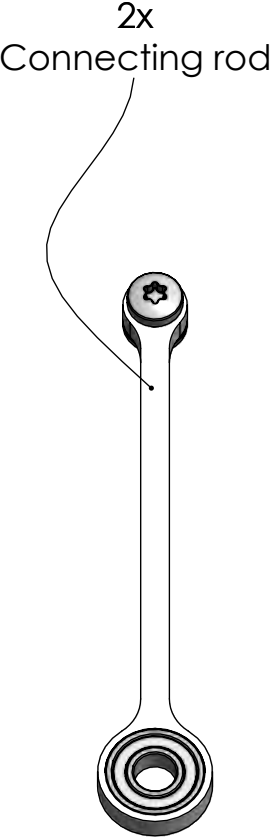
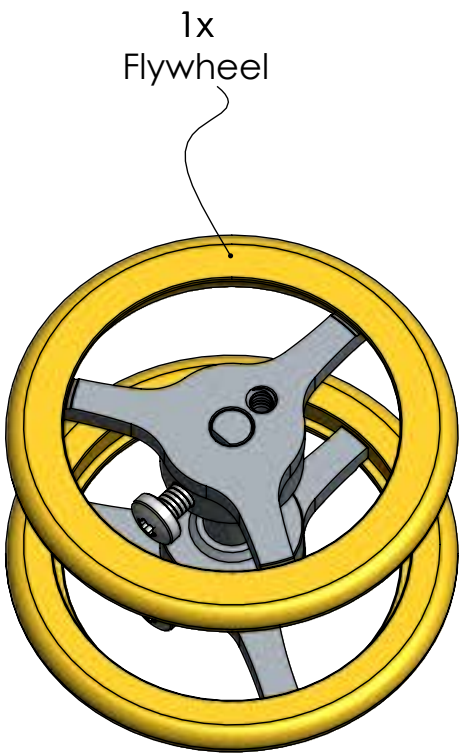
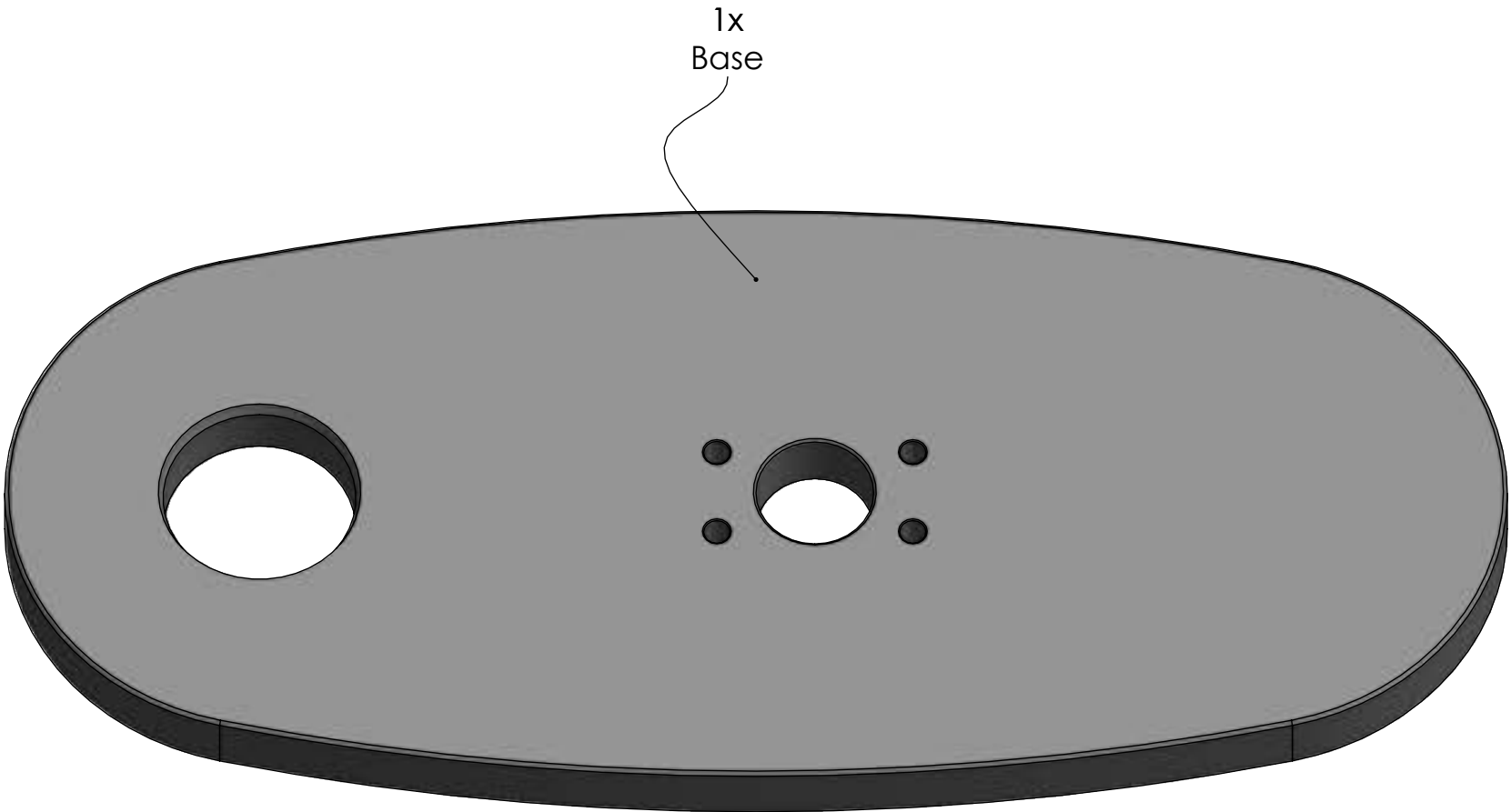
# Nano Flux Twin assembly instructions

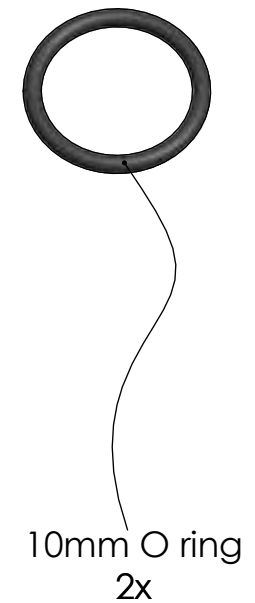
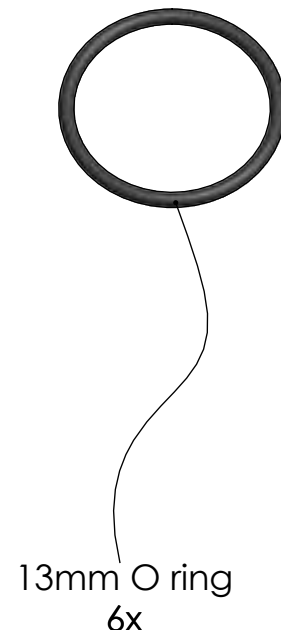
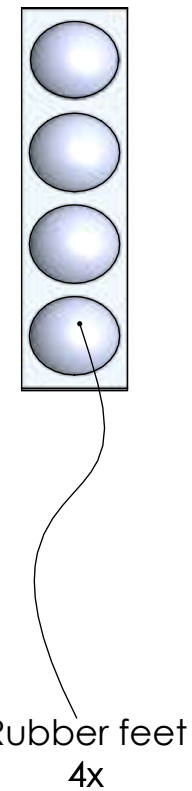
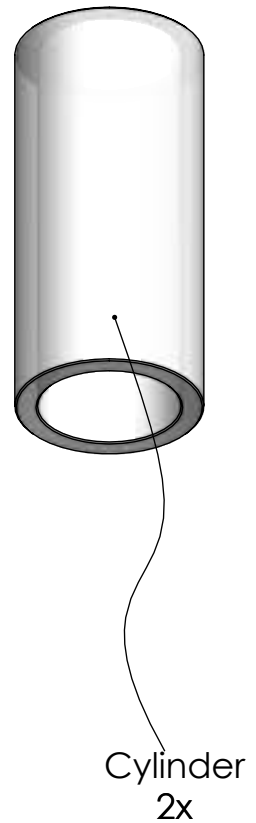
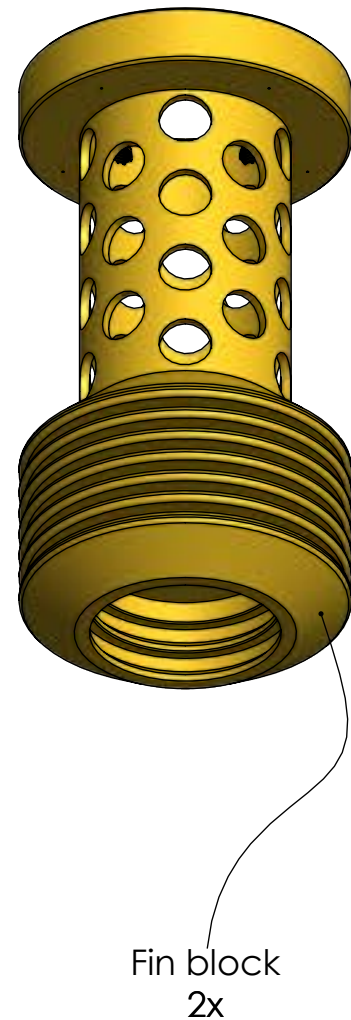
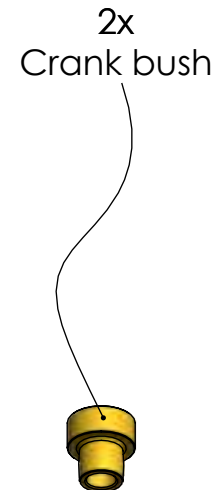
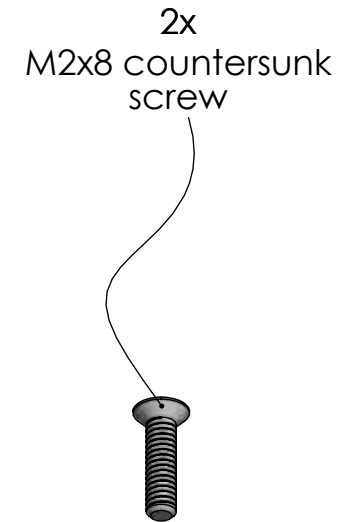
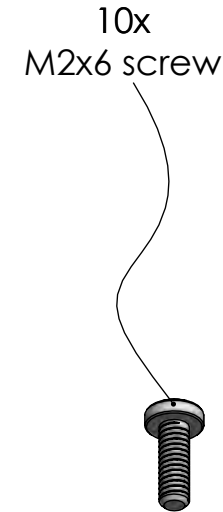
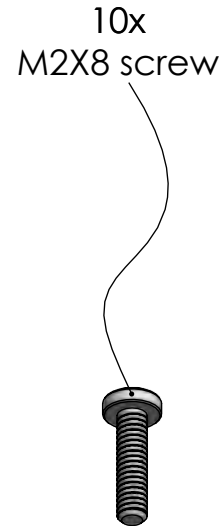
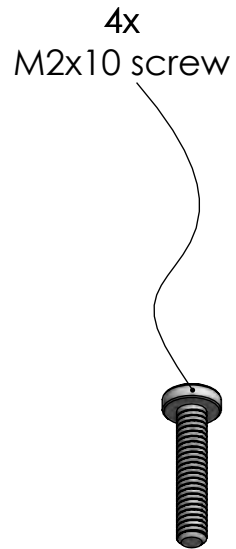
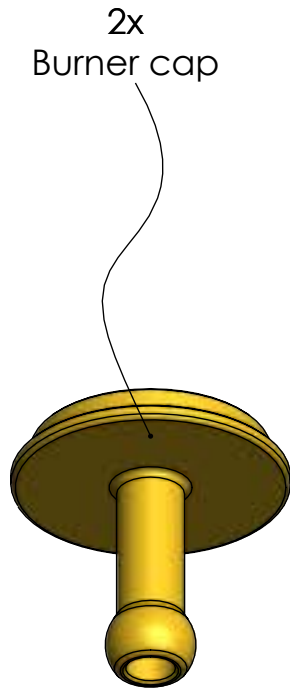
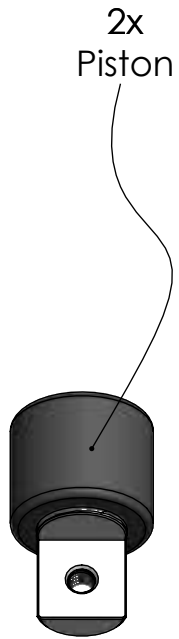
Please read all the way through the assembly instructions to familiarise yourself with the process before you start and pay close attention to the alignment of all the parts in the diagrams.

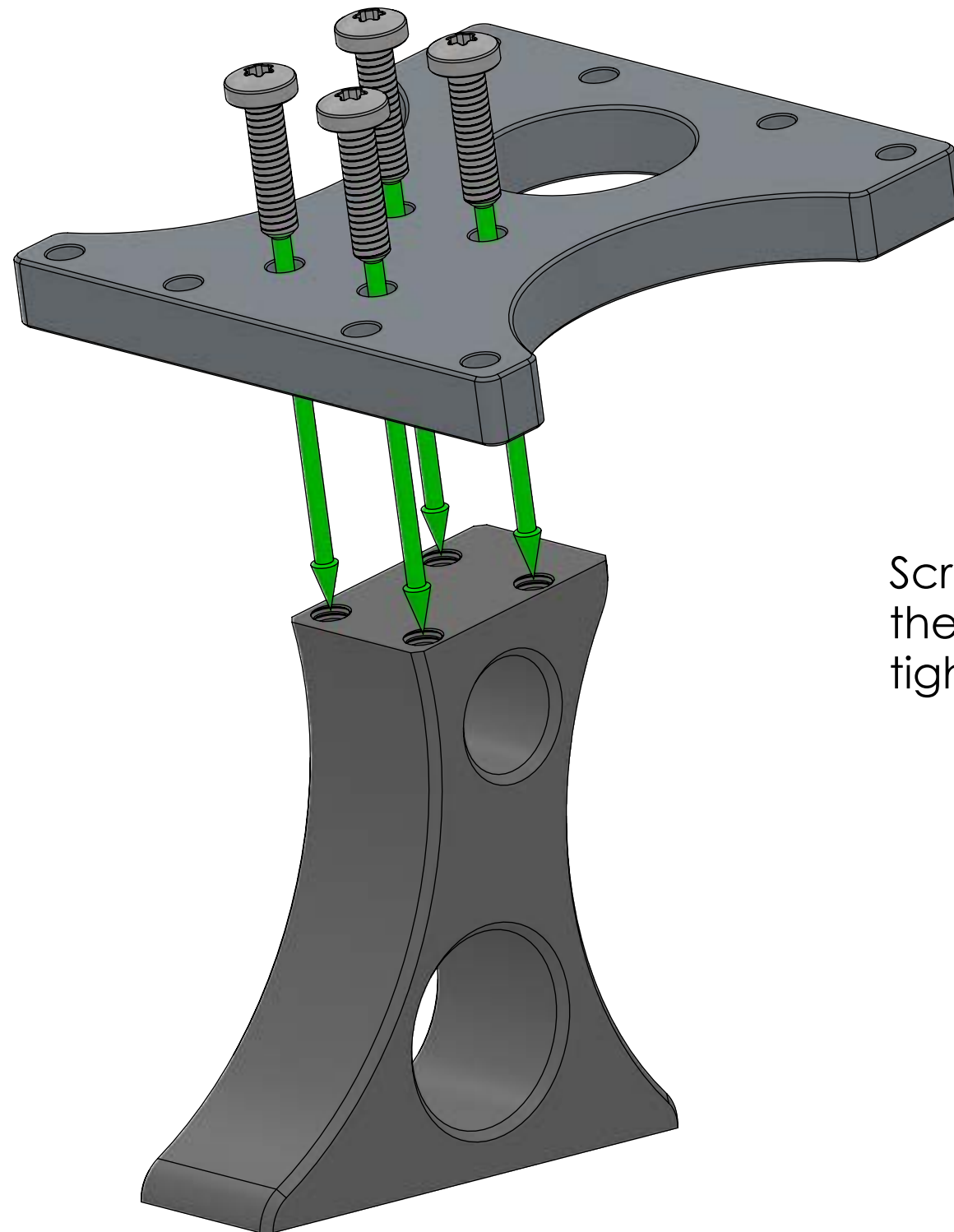
Assembly time should be approximately 25-30 minutes.

Operation and maintenance instructions can be found at the end of this document.









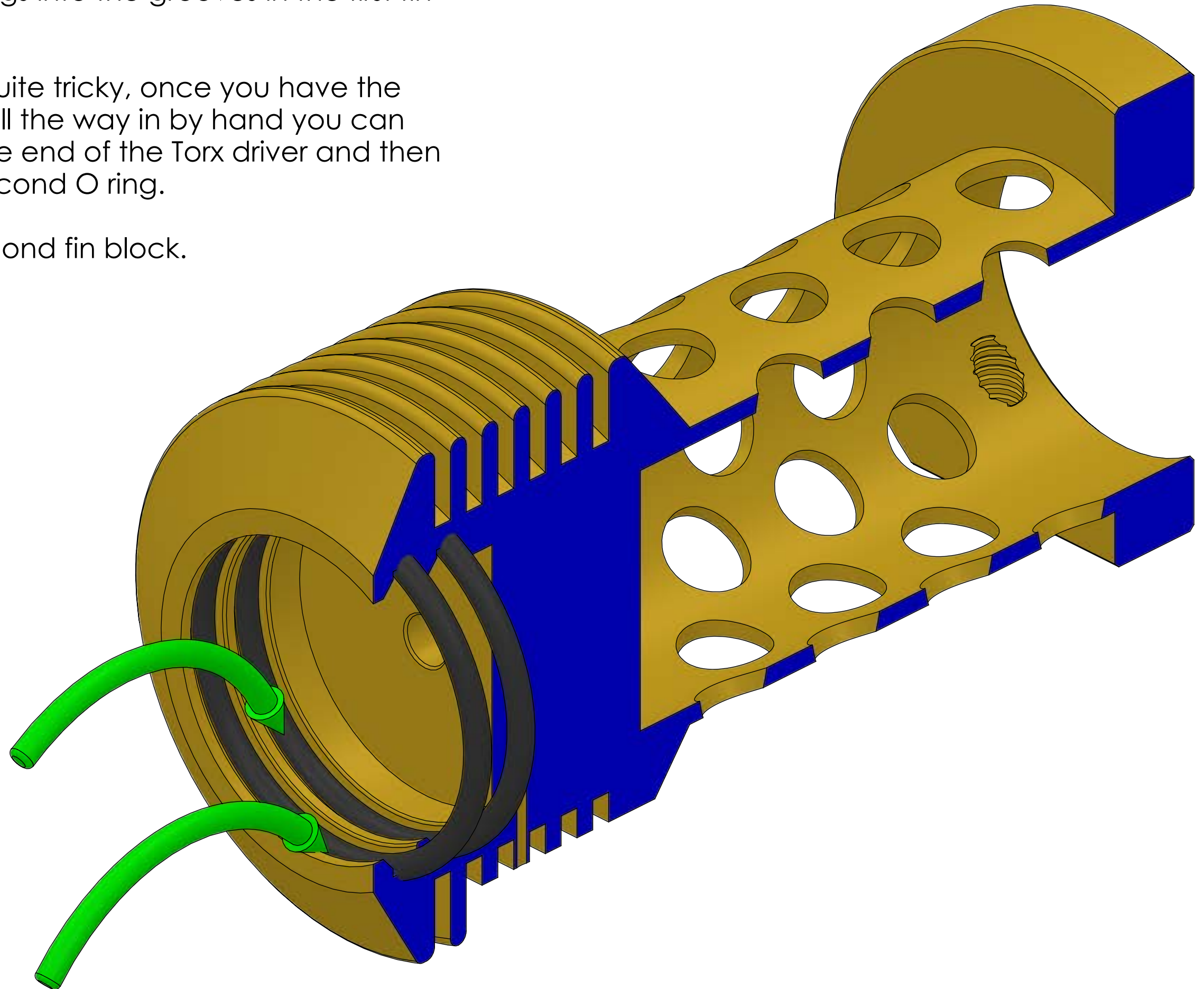
Screw four M2x8 screws through the foot bracket into the foot and tighten.



Fit two 13mm O rings into the grooves in the first fin block.

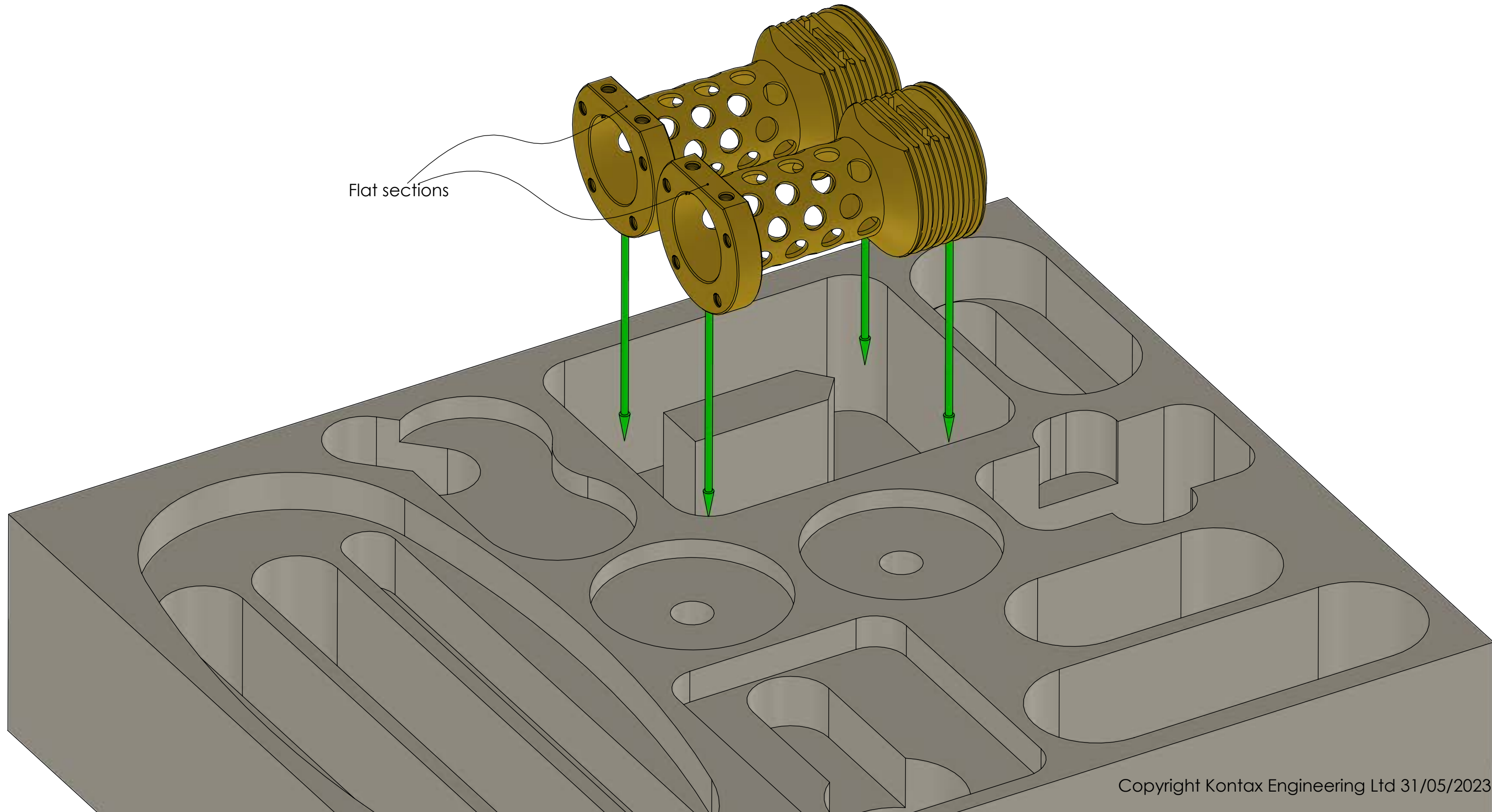
This step can be quite tricky, once you have the first O ring nearly all the way in by hand you can finish fitting with the end of the Torx driver and then proceed to the second O ring.

Repeat for the second fin block.

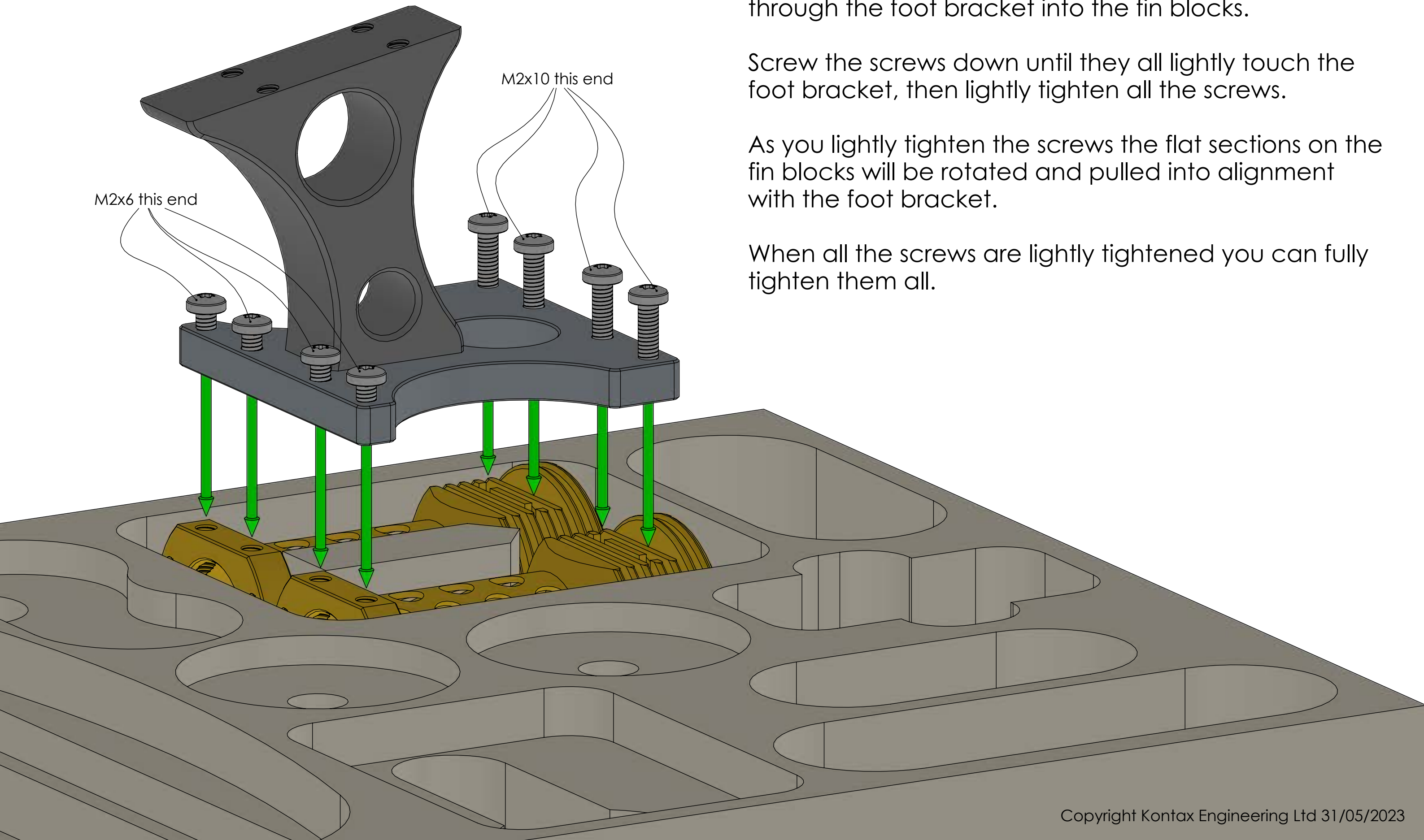


Align the flat sections on the fin blocks upwards and push them into the hole in the packing tray.

This will hold them still while you perform the next couple of assembly stages.





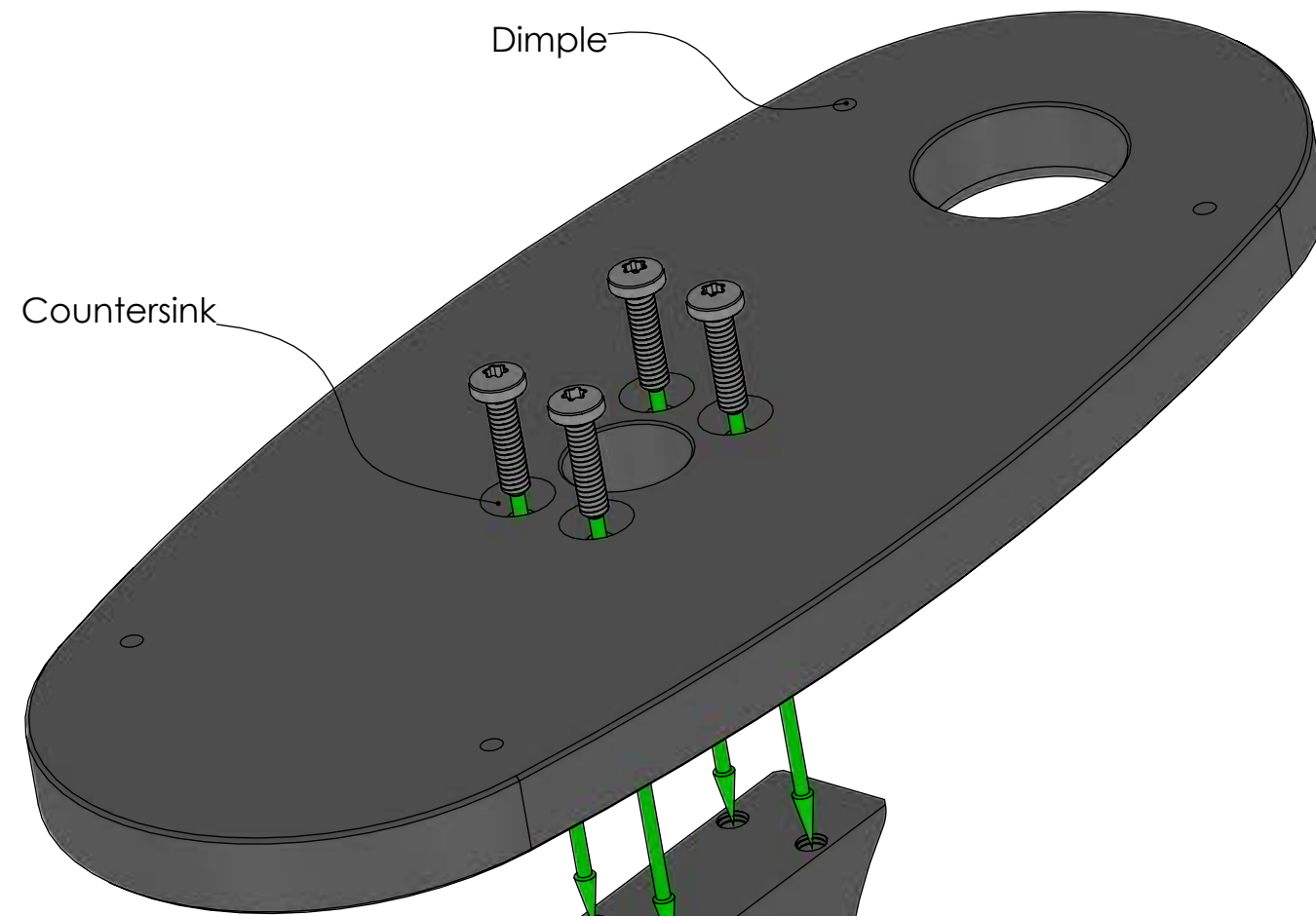


Screw four M2x10 screws and four M2x6 screws through the foot bracket into the fin blocks.

Screw the screws down until they all lightly touch the foot bracket, then lightly tighten all the screws.

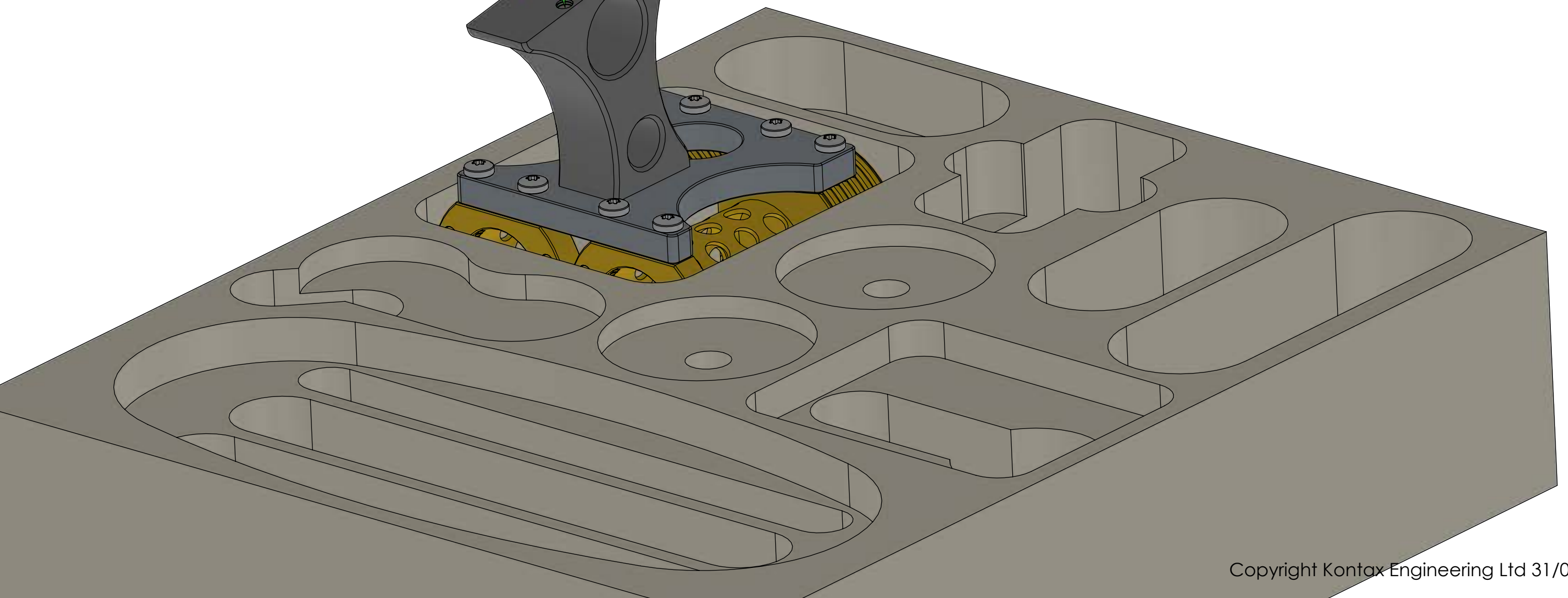
As you lightly tighten the screws the flat sections on the fin blocks will be rotated and pulled into alignment with the foot bracket.

When all the screws are lightly tightened you can fully tighten them all.



Align the base with the countersinks and dimples upwards and screw four M2x8 screws through the base into the foot and tighten.

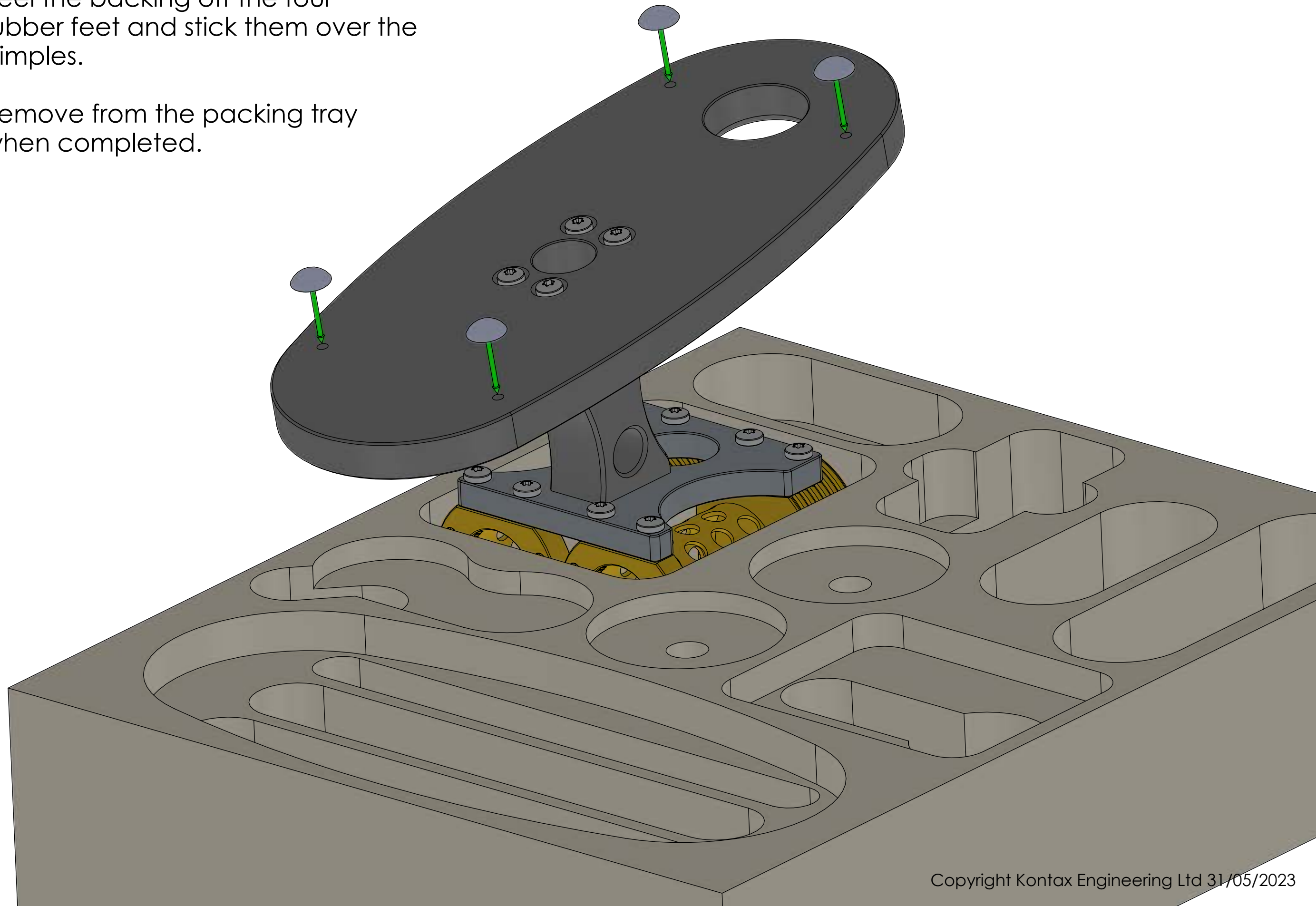
The screws will tighten halfway into the countersinks.





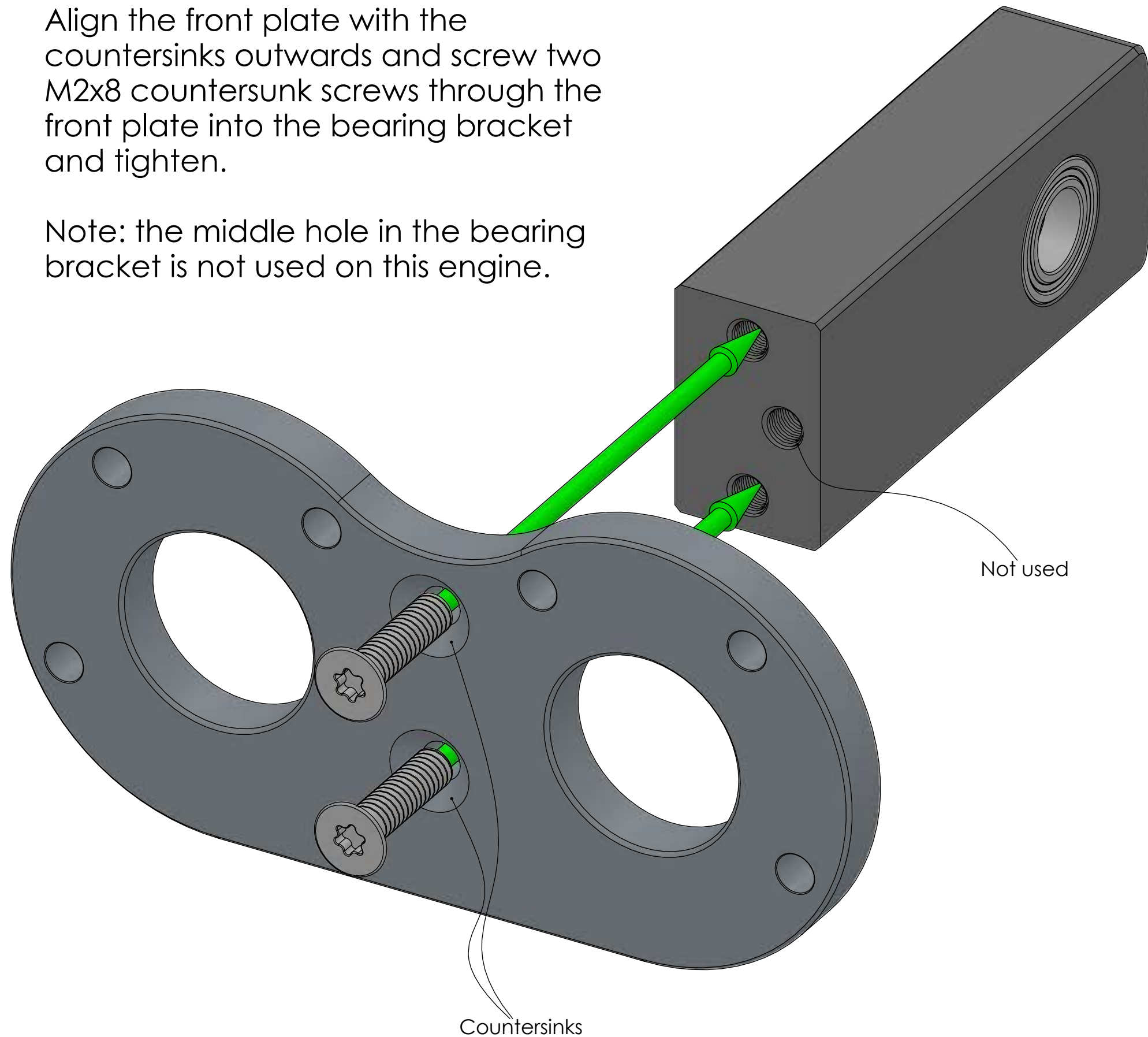
Peel the backing off the four rubber feet and stick them over the dimples.

Remove from the packing tray when completed.



Align the front plate with the countersinks outwards and screw two M2x8 countersunk screws through the front plate into the bearing bracket and tighten.

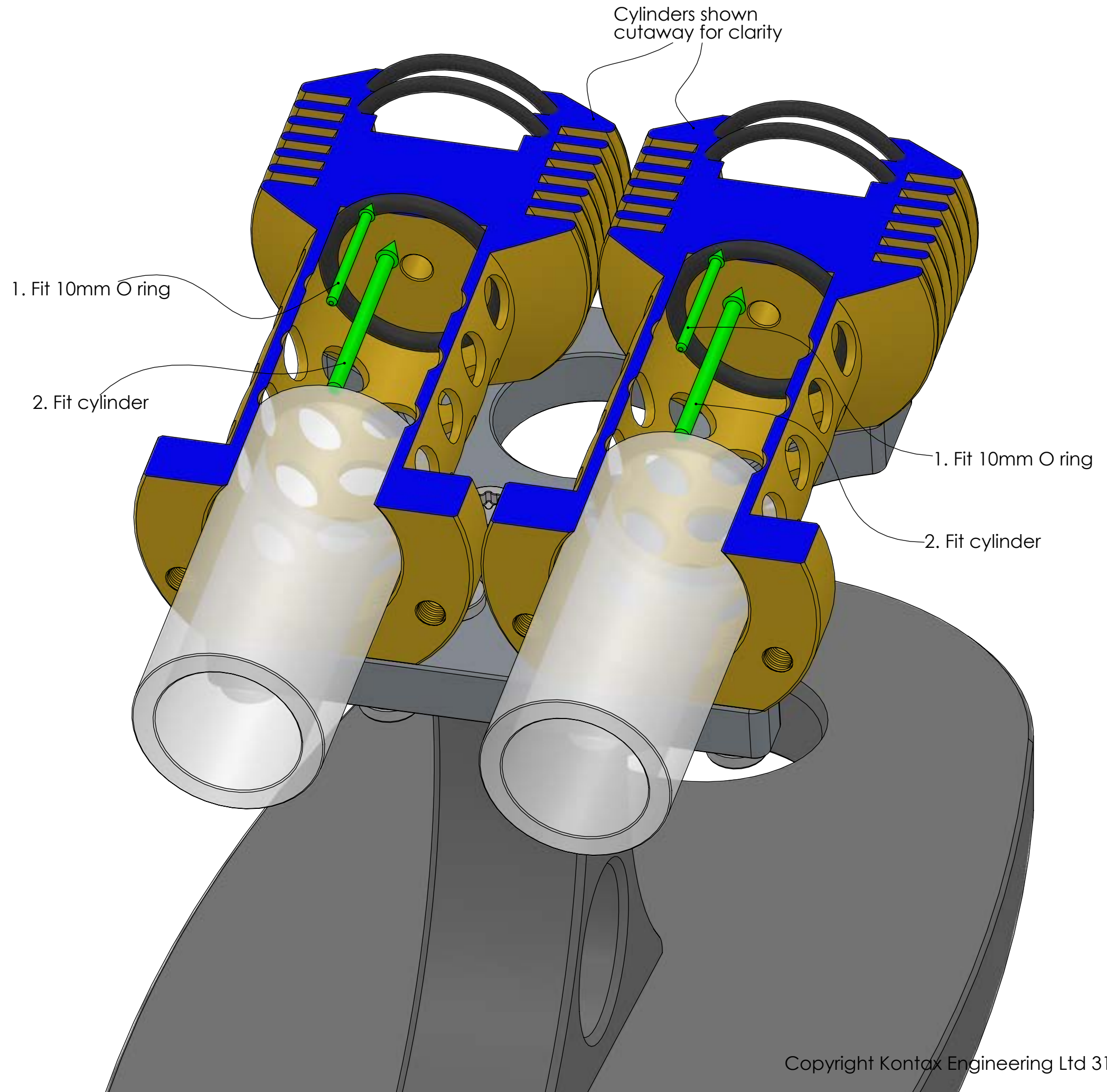
Note: the middle hole in the bearing bracket is not used on this engine.



1. Fit one 10mm O ring into the steps in the bottoms of each of the fin blocks.

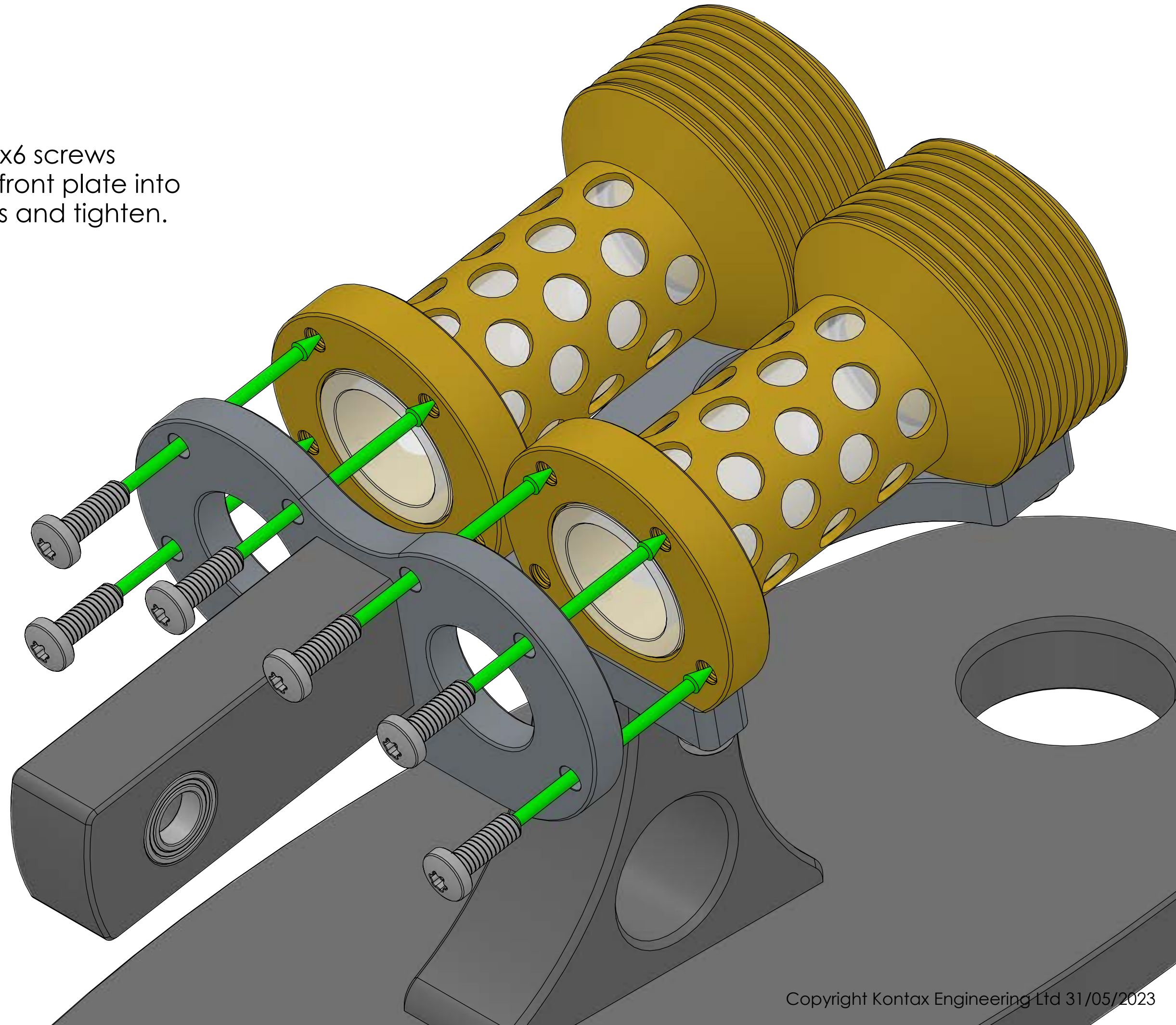
2. Fit the two cylinders into the fin blocks and slide them all the way up to the O rings.

Take care that the O rings stay seated in the bottoms of the fin blocks and do not become pinched or bunched as you slide the cylinders in.

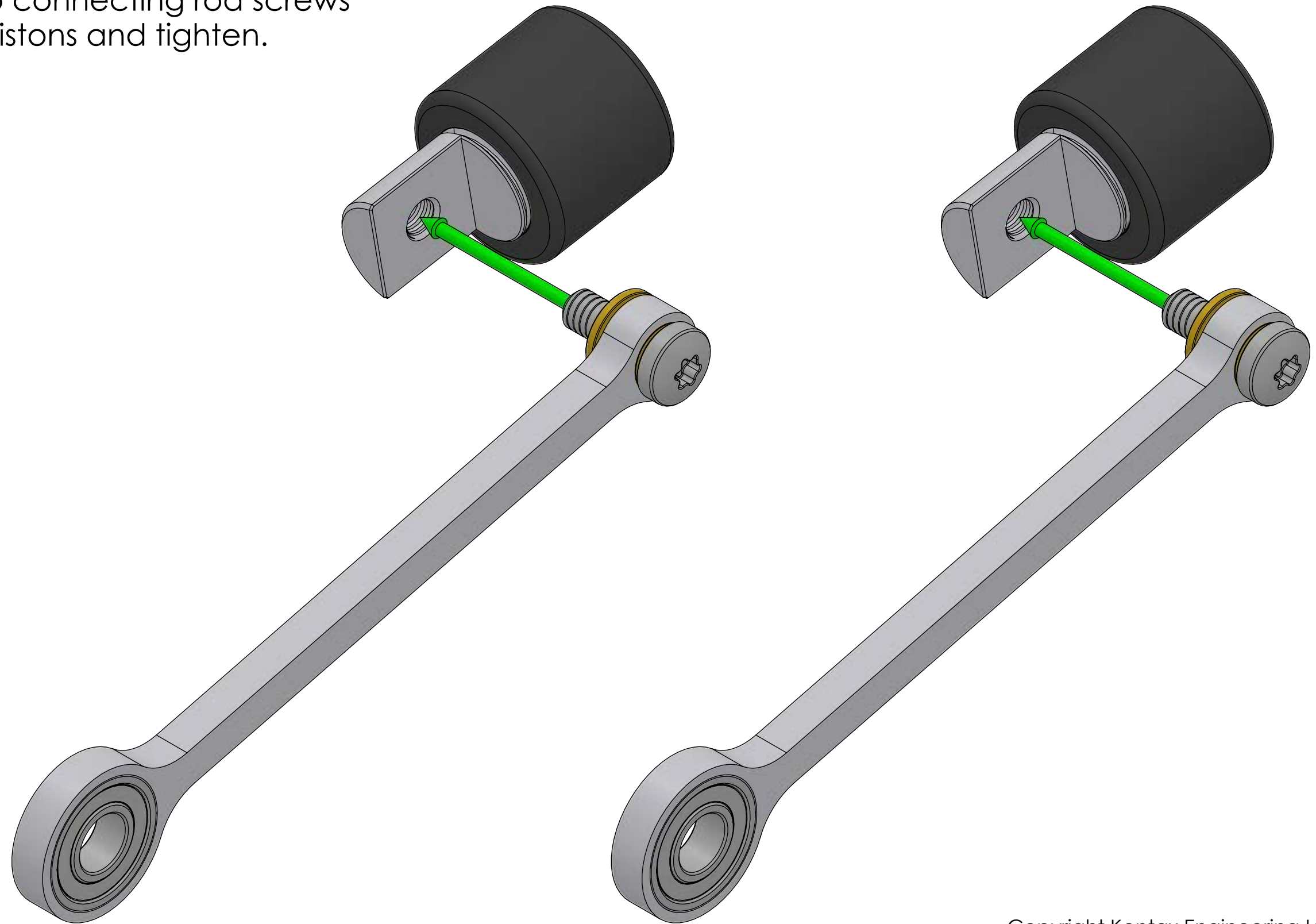




Screw six M2x6 screws through the front plate into the fin blocks and tighten.



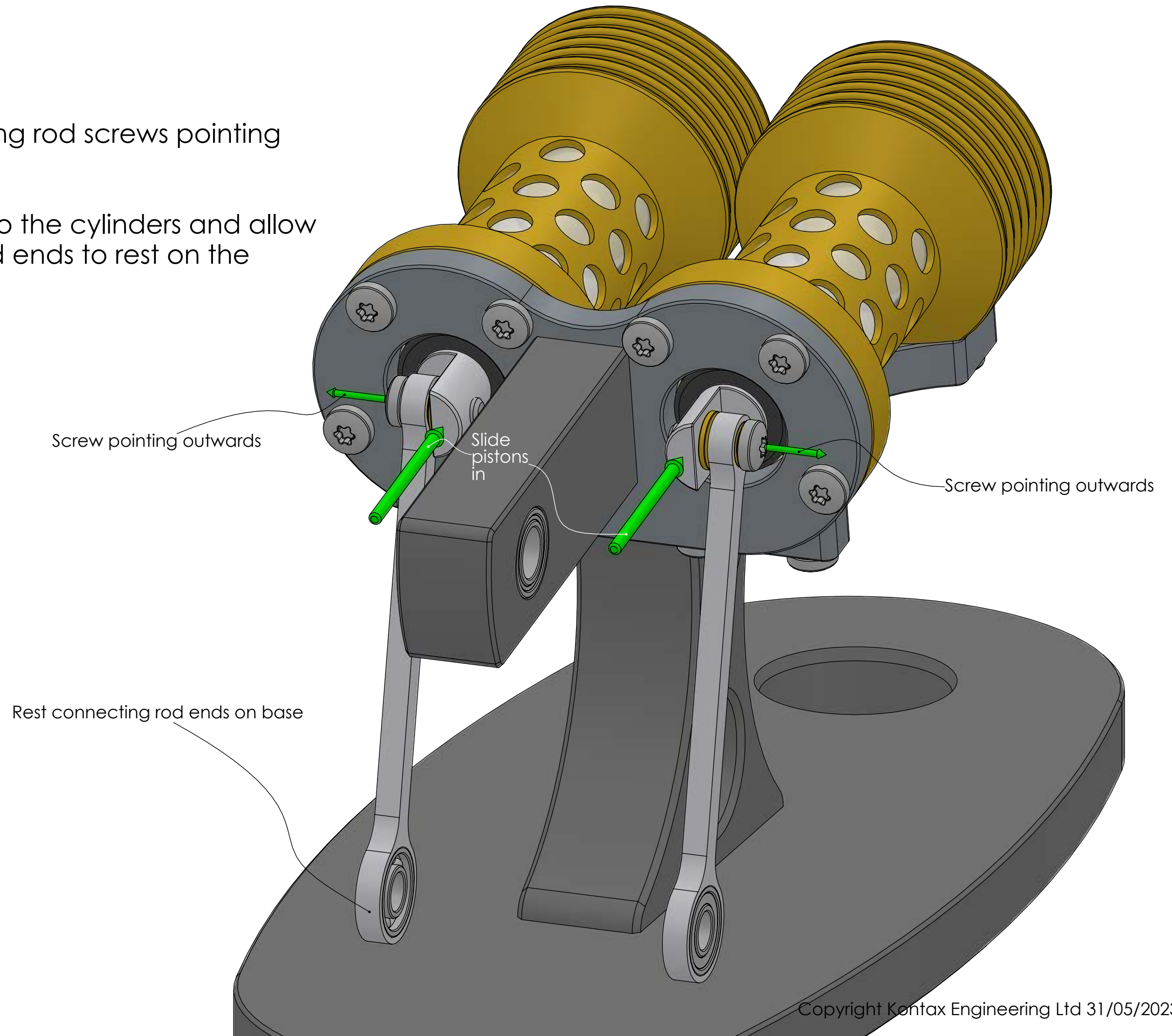
Screw the two connecting rod screws into the two pistons and tighten.





Align the connecting rod screws pointing outwards.

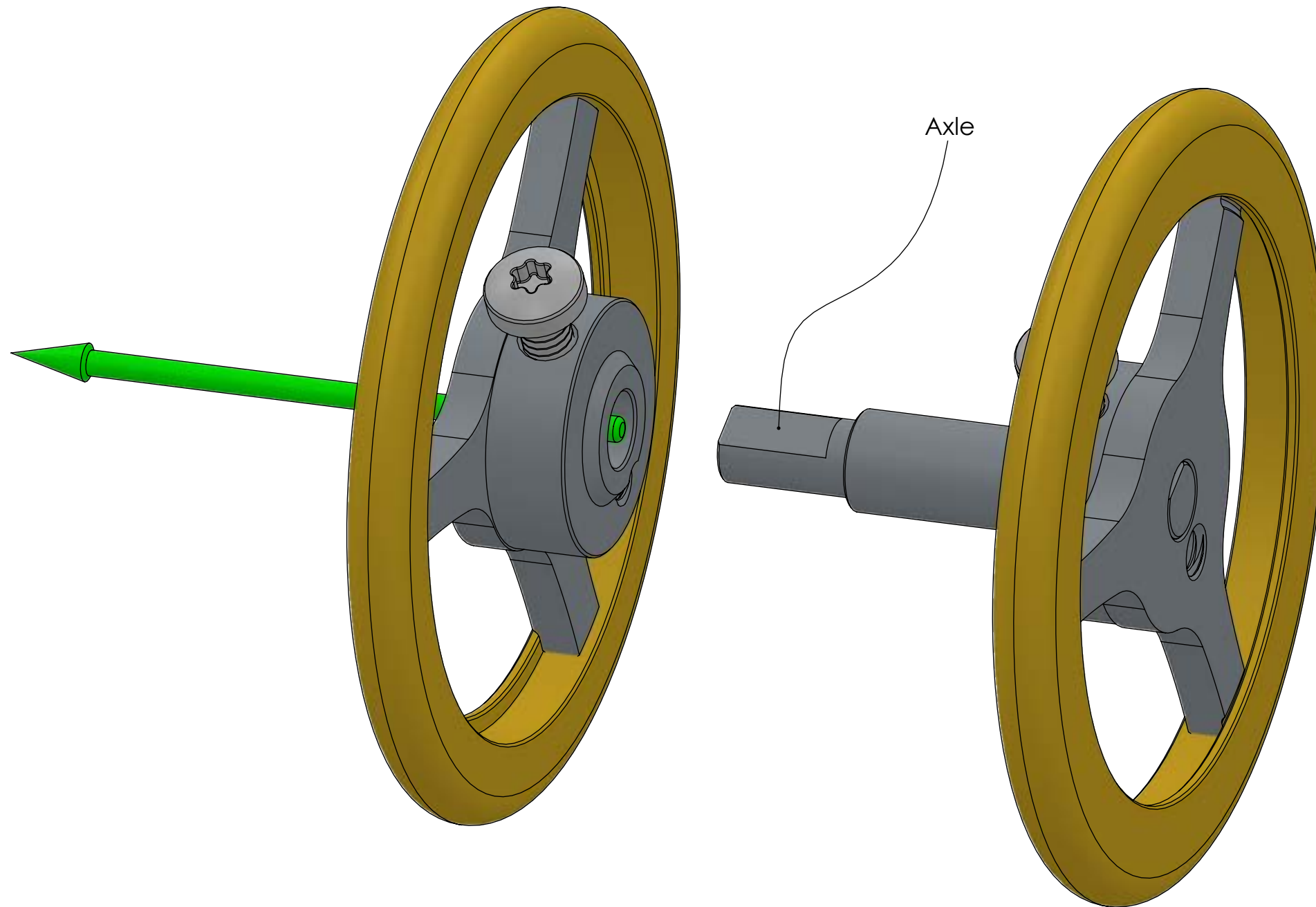
Slide the pistons into the cylinders and allow the connecting rod ends to rest on the base.

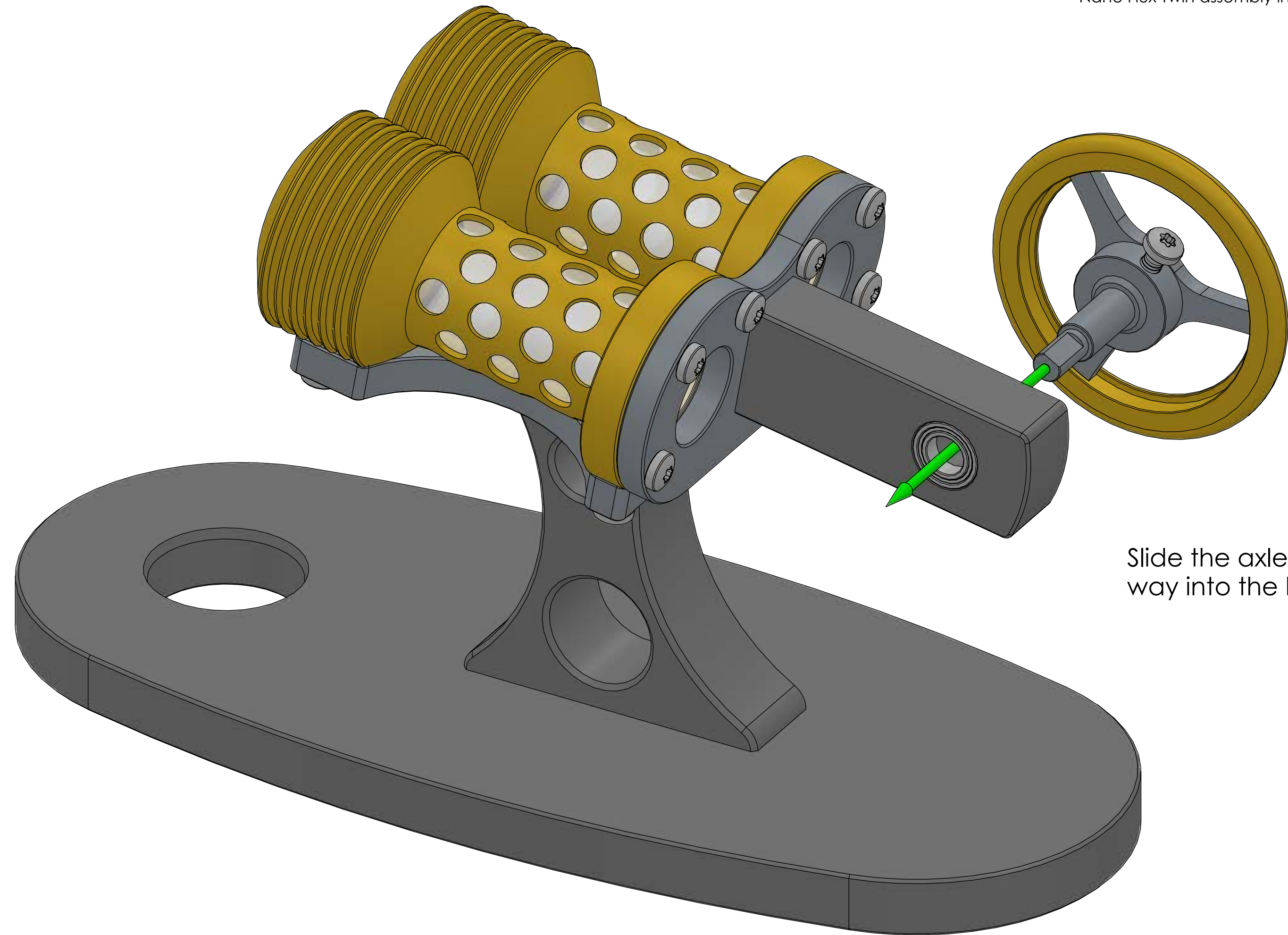




*Note: One flywheel will be loose on the axle, the other will be fixed.*

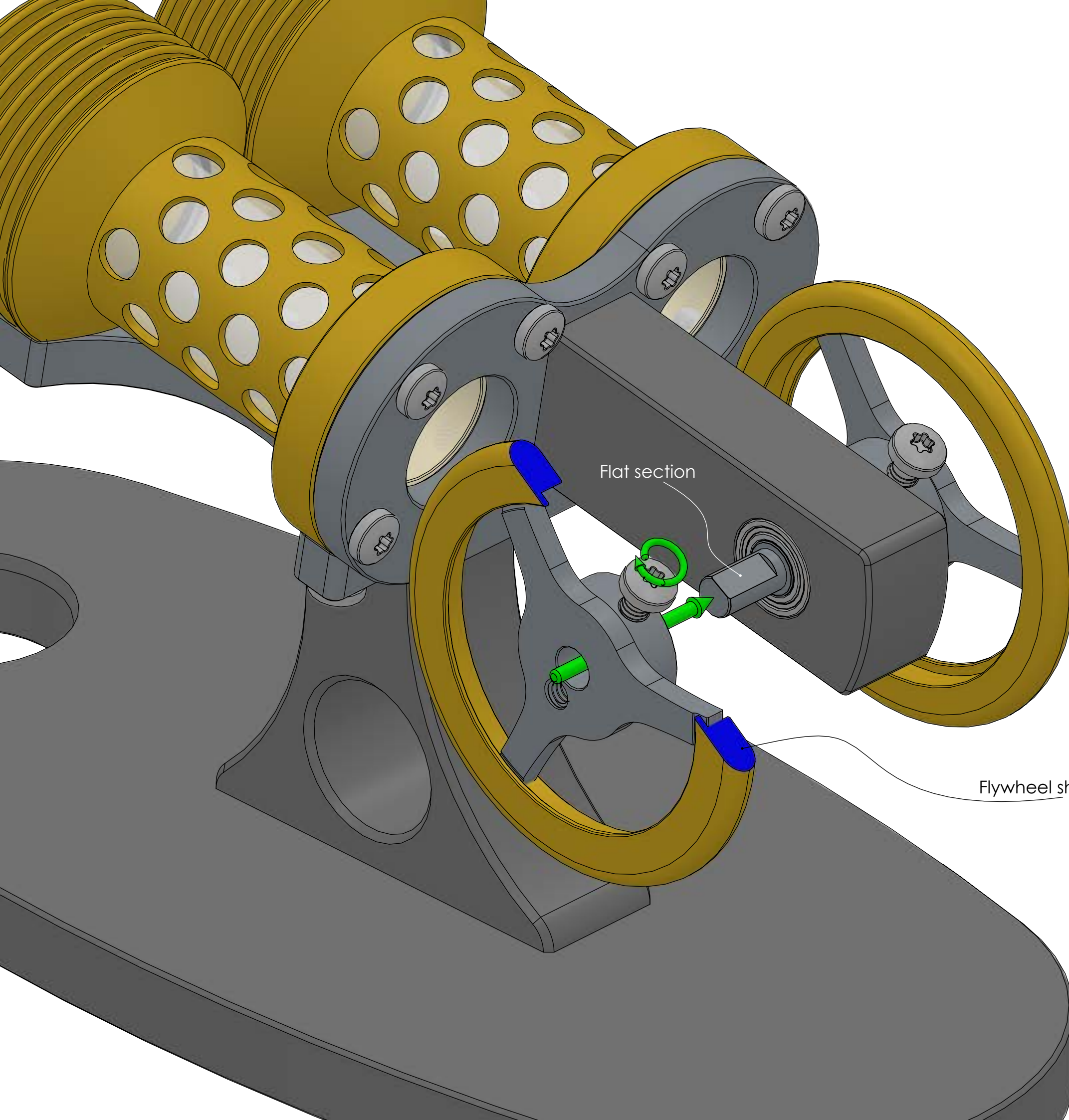
Remove the loose flywheel from the axle.





Slide the axle all the way into the bearings.





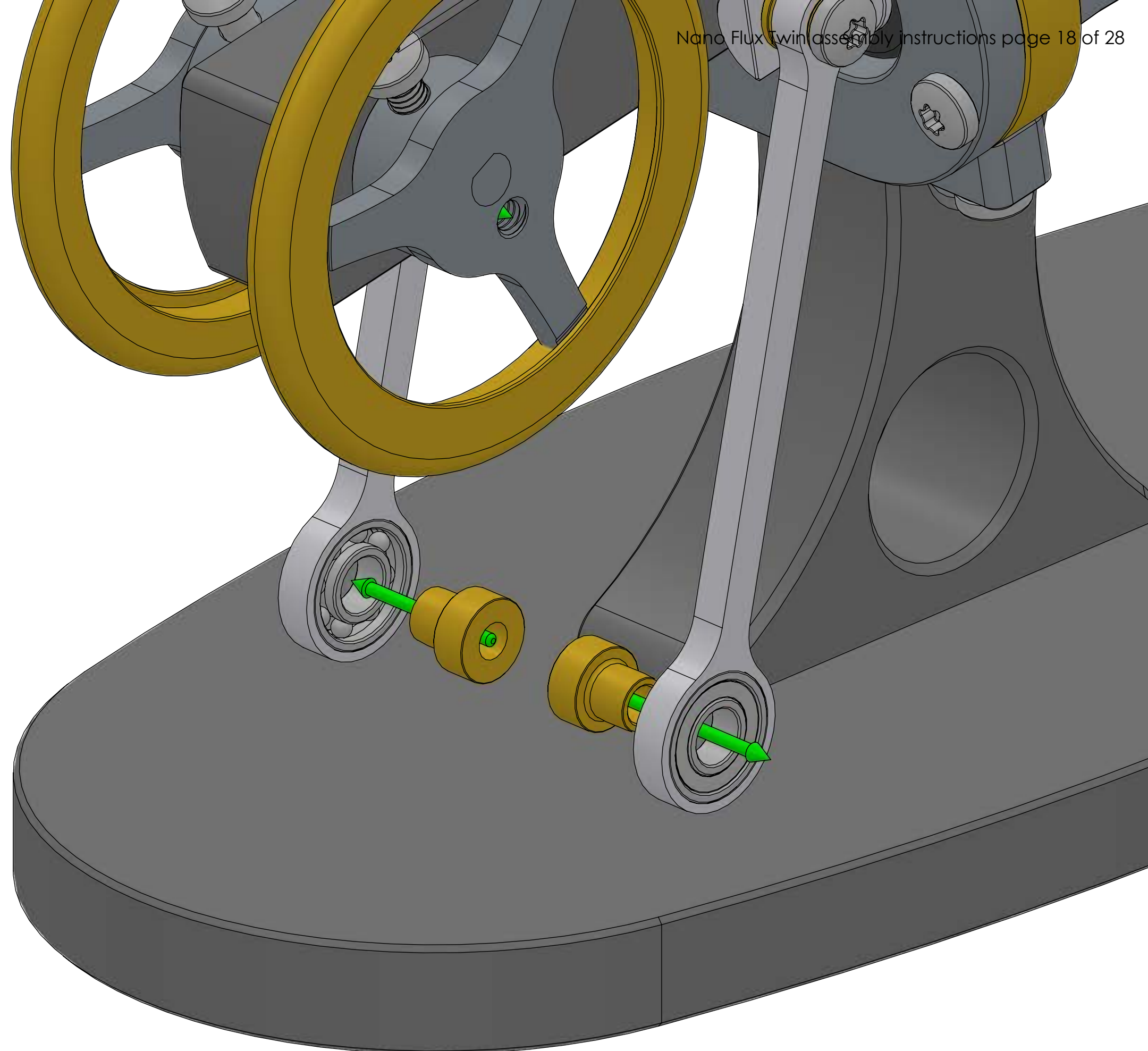
Flat section

Fit the loose flywheel onto the axle.

Align the screw in the flywheel with the flat section on the axle and tighten.

Flywheel shown cutaway for clarity





Fit the crank bushes into the connecting rod bearings.

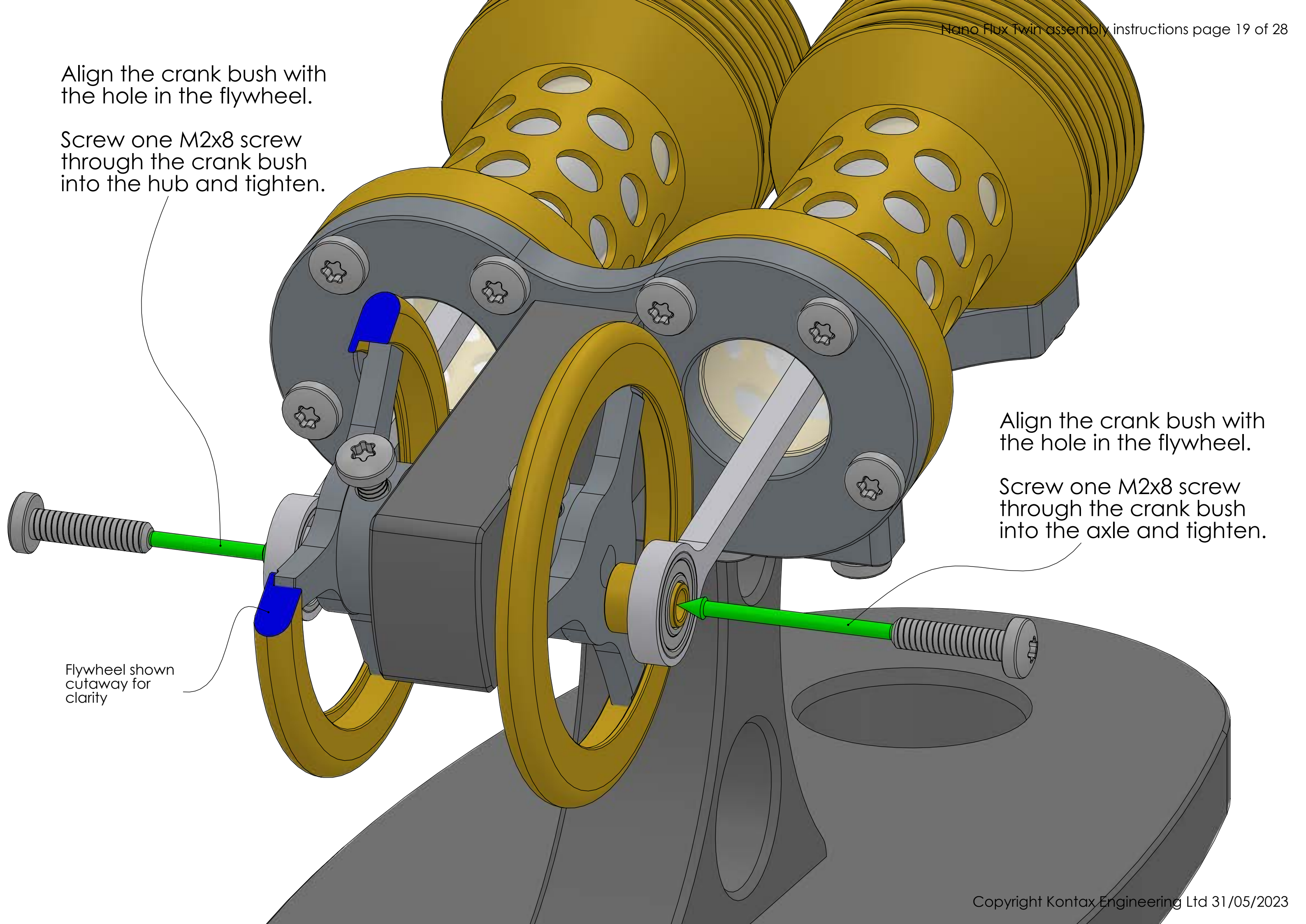
Align the crank bush with the hole in the flywheel.

Screw one M2x8 screw through the crank bush into the hub and tighten.

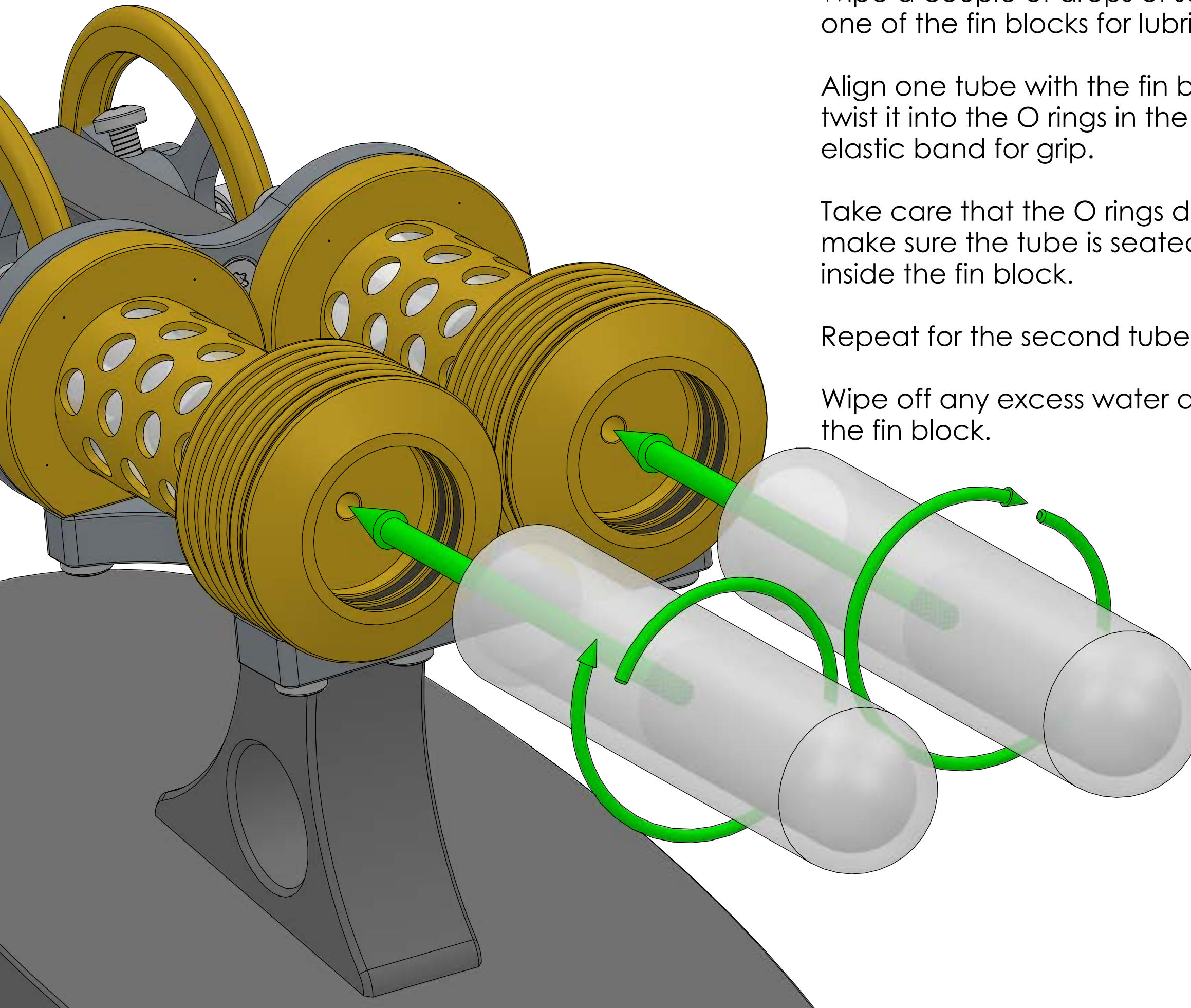
Align the crank bush with the hole in the flywheel.

Screw one M2x8 screw through the crank bush into the axle and tighten.

Flywheel shown cutaway for clarity







Wipe a couple of drops of soapy water on the O rings in one of the fin blocks for lubrication.

Align one tube with the fin block and gently push and twist it into the O rings in the fin block. You may need an elastic band for grip.

Take care that the O rings do not become pinched, and make sure the tube is seated completely flat on the step inside the fin block.

Repeat for the second tube.

Wipe off any excess water afterwards to prevent stains on the fin block.



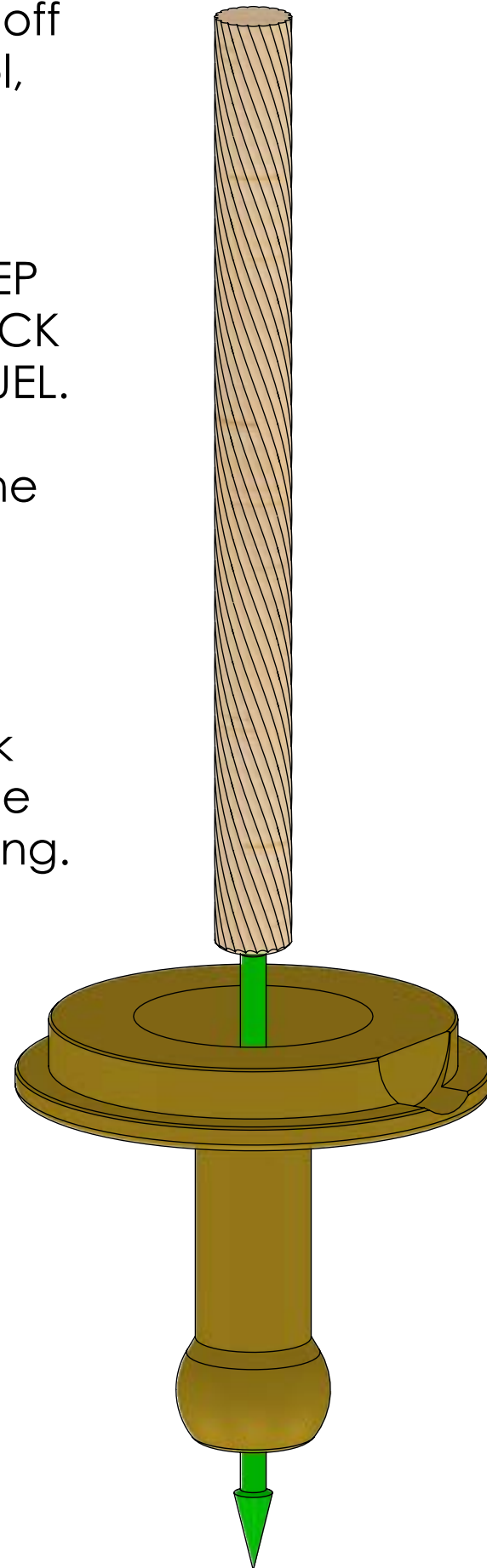
If the top end of the wick is frayed you will need to burn off the loose fibres, allow to cool, and then roll the end into a blunt point.

ONLY EVER PERFORM THIS STEP ON DRY WICK, NEVER ON WICK THAT HAS BEEN SOAKED IN FUEL.

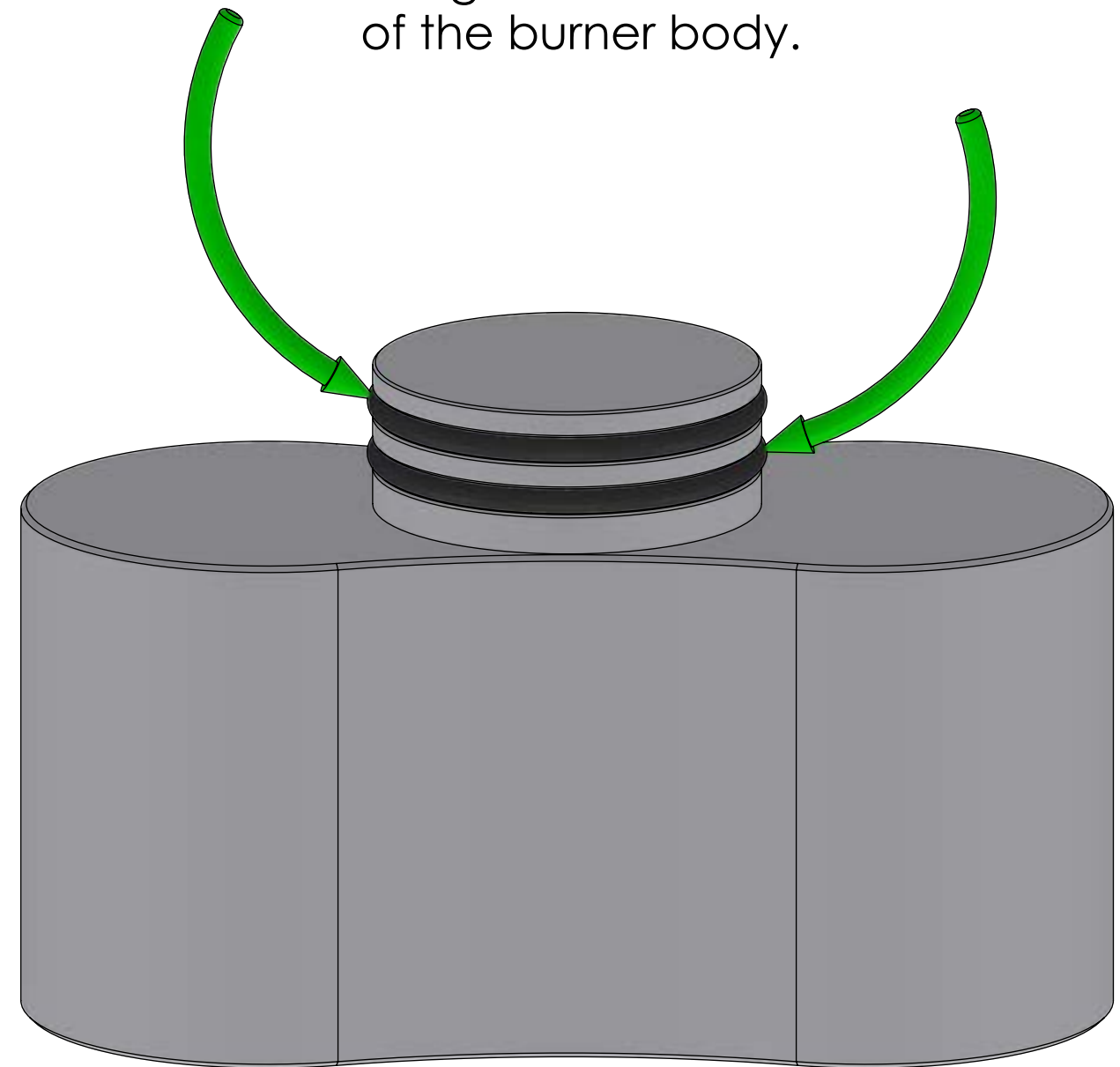
Insert the prepared end of the wick into the burner cap, a pushing and twisting motion works best.

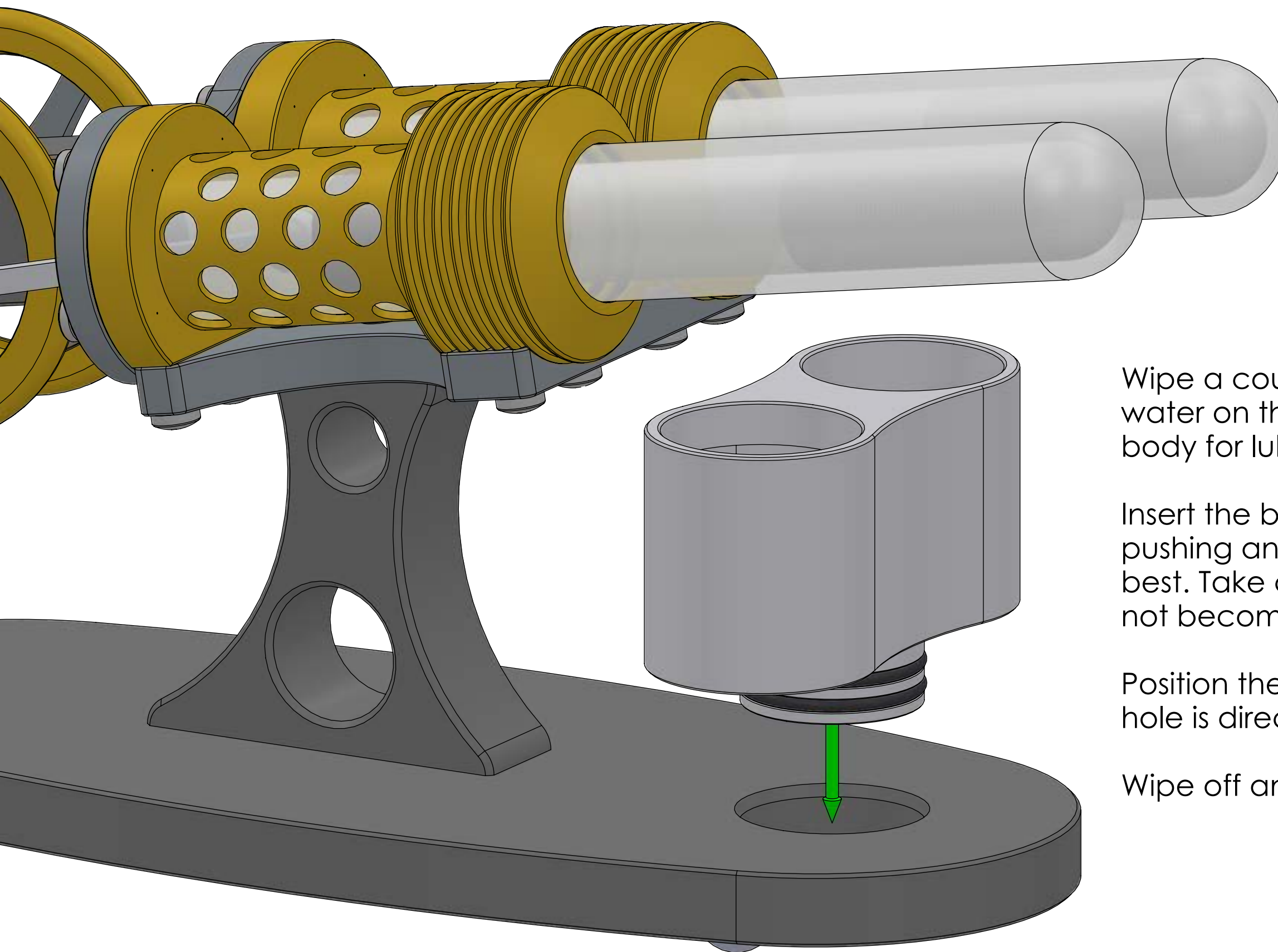
There must be 3-4mm of wick protruding from the top of the burner cap for efficient running.

Repeat for the second wick and burner cap.



Fit two 13mm O rings into the grooves in the bottom of the burner body.



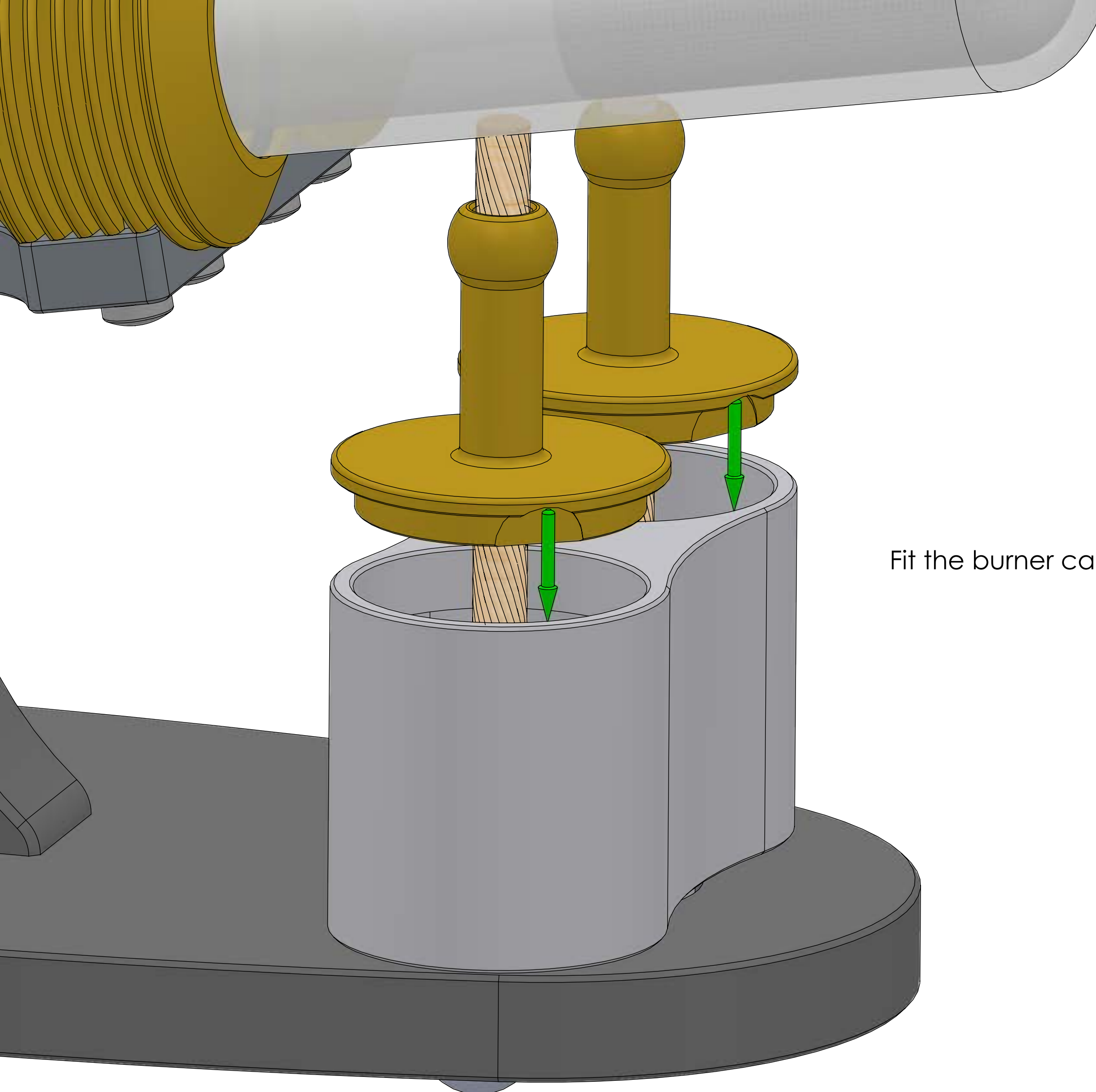


Wipe a couple of drops of soapy water on the O rings in the burner body for lubrication.

Insert the burner body into the base, a pushing and twisting motion works best. Take care that the O ring does not become pinched.

Position the burner body so that each hole is directly underneath each tube.

Wipe off any excess water afterwards.



Fit the burner caps into the burner bodies.

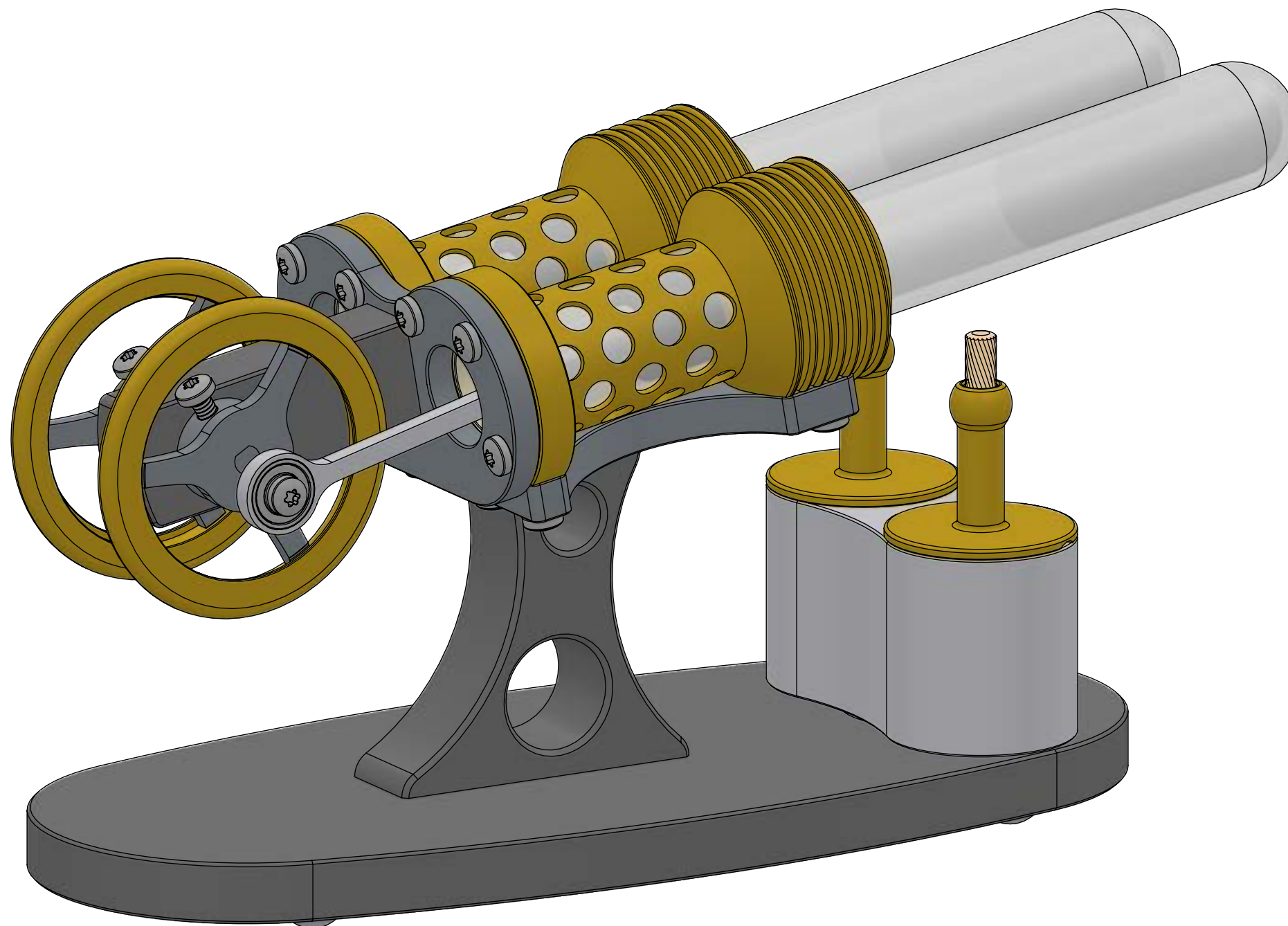


Your Nano Flux Twin engine is now fully assembled.

Operation and maintenance instructions can be found on the next couple of pages.

If you need further help with your engine that is not covered in the operation and maintenance instructions you can email us at:

[support@stirlingengine.co.uk](mailto:support@stirlingengine.co.uk)



The engine uses Methylated Spirits or Denatured Alcohol as fuel.

Remove the burner caps from the burner body and trim the wicks to 4mm protruding from the top and 15mm-30mm from the bottom. Any more than 4mm from the top could cause the engine to run too fast.

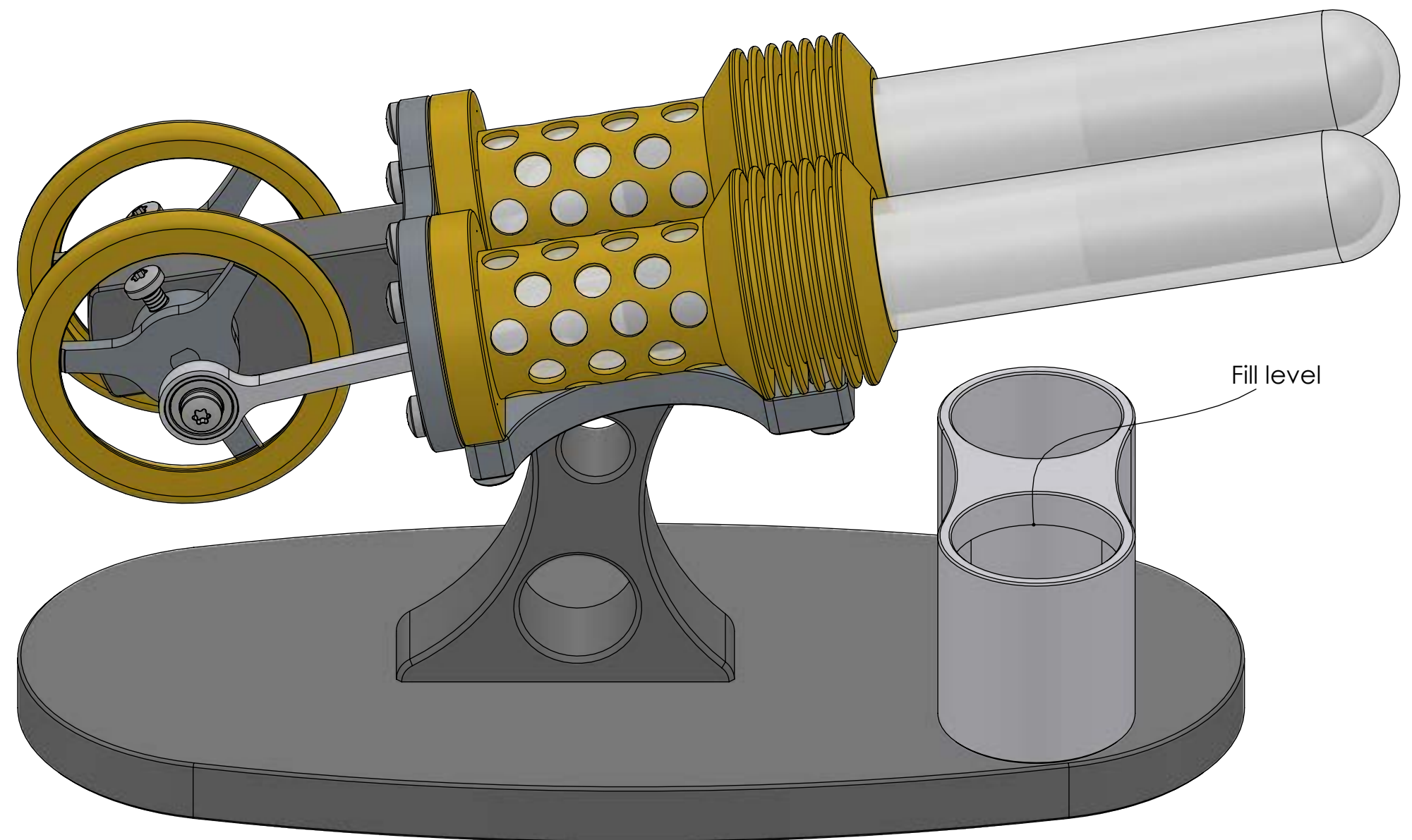
Fill the burner body with fuel to the fill level AND NO MORE.

Fit the burner caps back in the burner body and wait a minute for the wick to soak up the fuel.

Light the wicks and allow 3-4 minutes for the engine to warm up. Hold the base firmly down and give the flywheels a sharp spin in either direction. It may take several sharp spins to get the engine going. The engine should start up and run for about 10-15 minutes before the fuel runs out.

It is best to extinguish the flames before the fuel runs out completely to save the wicks from smouldering down to the top of the burner cap.

**Make sure you have a suitable fire extinguisher to hand in case of emergencies. Never leave a running engine or naked flame unattended. Parts of the engine will be very hot while in operation and will take time to cool down. Make sure children are fully supervised. Ensure burner is extinguished after use.**



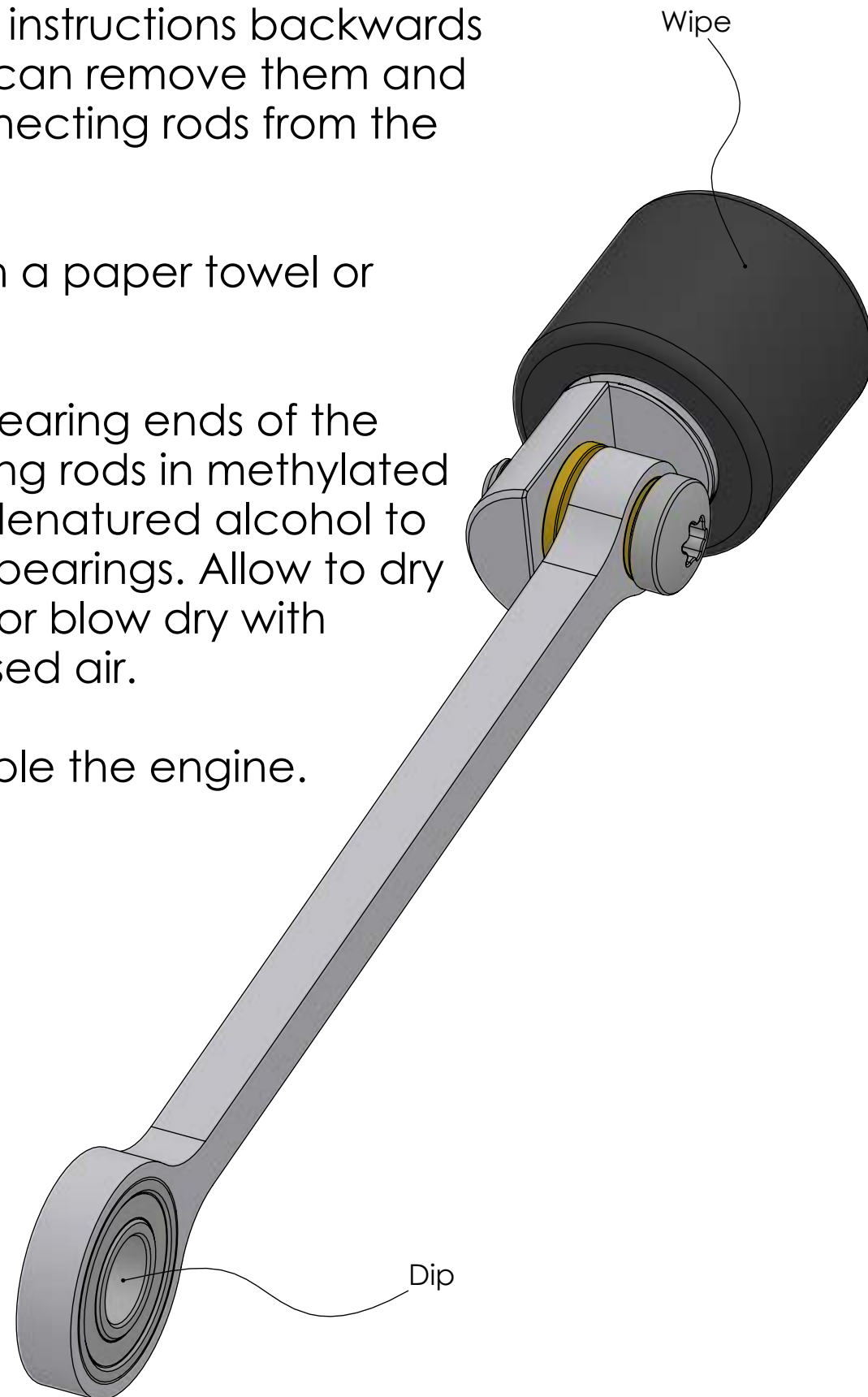
If the engine runs slowly the pistons or bearings might need cleaning.

To clean the pistons disassemble the engine by following the assembly instructions backwards until you can remove them and their connecting rods from the engine.

Wipe with a paper towel or tissue.

Dip the bearing ends of the connecting rods in methylated spirits or denatured alcohol to soak the bearings. Allow to dry naturally or blow dry with compressed air.

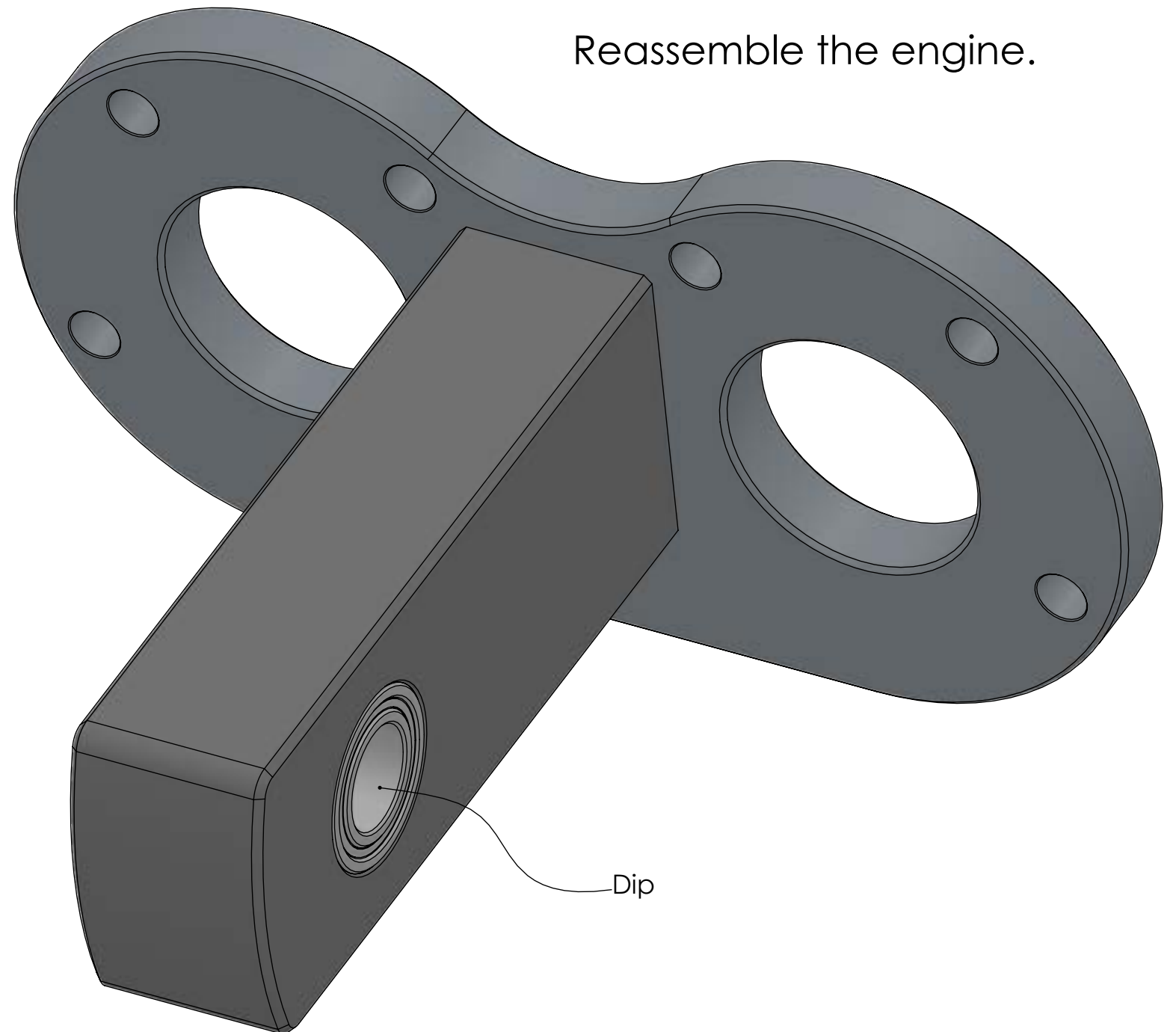
Reassemble the engine.



To clean the bearings disassemble the engine by following the assembly instructions backwards until you can remove the bearing bracket and front plate from the engine.

Dip the end of the bearing bracket in methylated spirits or denatured alcohol to soak the bearings. Allow to dry naturally or blow dry with compressed air.

Reassemble the engine.





After several hours of running the wire wool regenerators might need replacing.

Make sure the engine is **completely cooled down** and remove the tube from the engine.

Remove the old regenerators from the tubes using long tweezers.

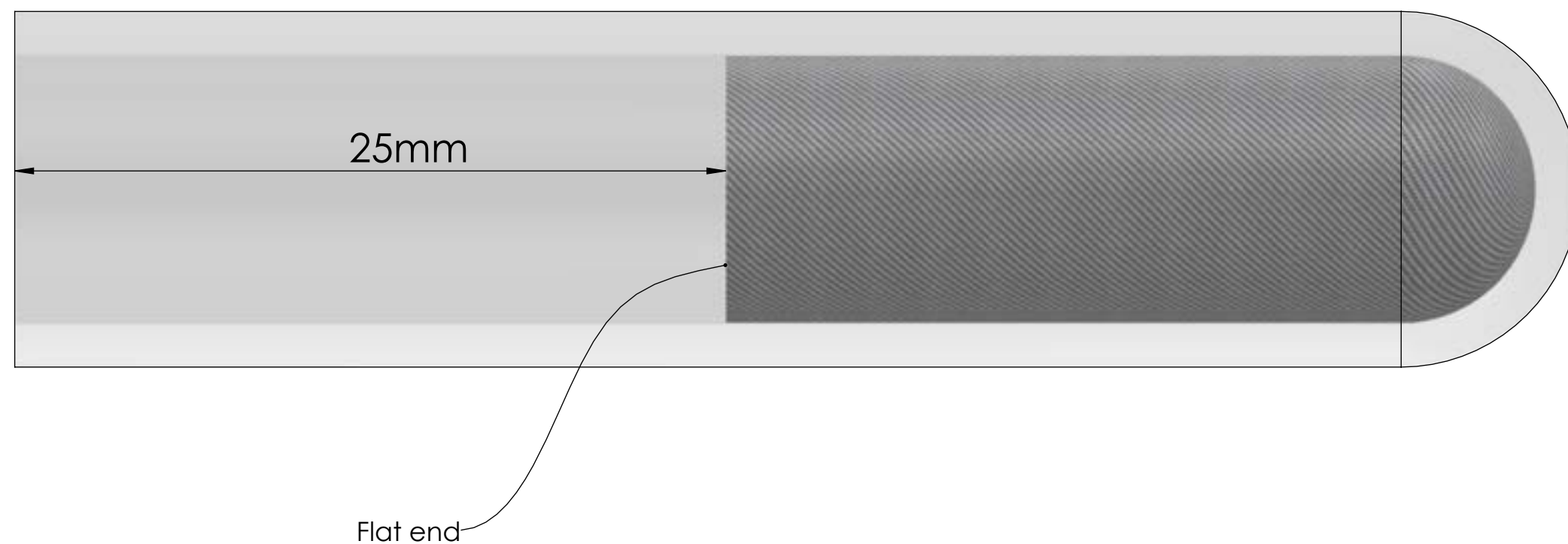
The insides of the tubes can be cleaned with a small brush if they are dirty.

The regenerator material is "very fine 000" grade steel wool.

Form the spare regenerator into a cylinder with a flat end and insert into a tube. Push it in with the flat end of a pencil until it is 25mm inside the tube.

It is important that the end of the regenerator is flat and 25mm from the end of the tube. Tamp the end with the pencil if needed.

Repeat for the 2nd tube and refit both tubes to the engine.





Our workshop is located in the Thames Valley, United Kingdom and is staffed by a skilled team of 9 designers, machinists and assemblers. We have 4 CNC mills, 3 CNC lathes and 3 CNC mill-turn centres.