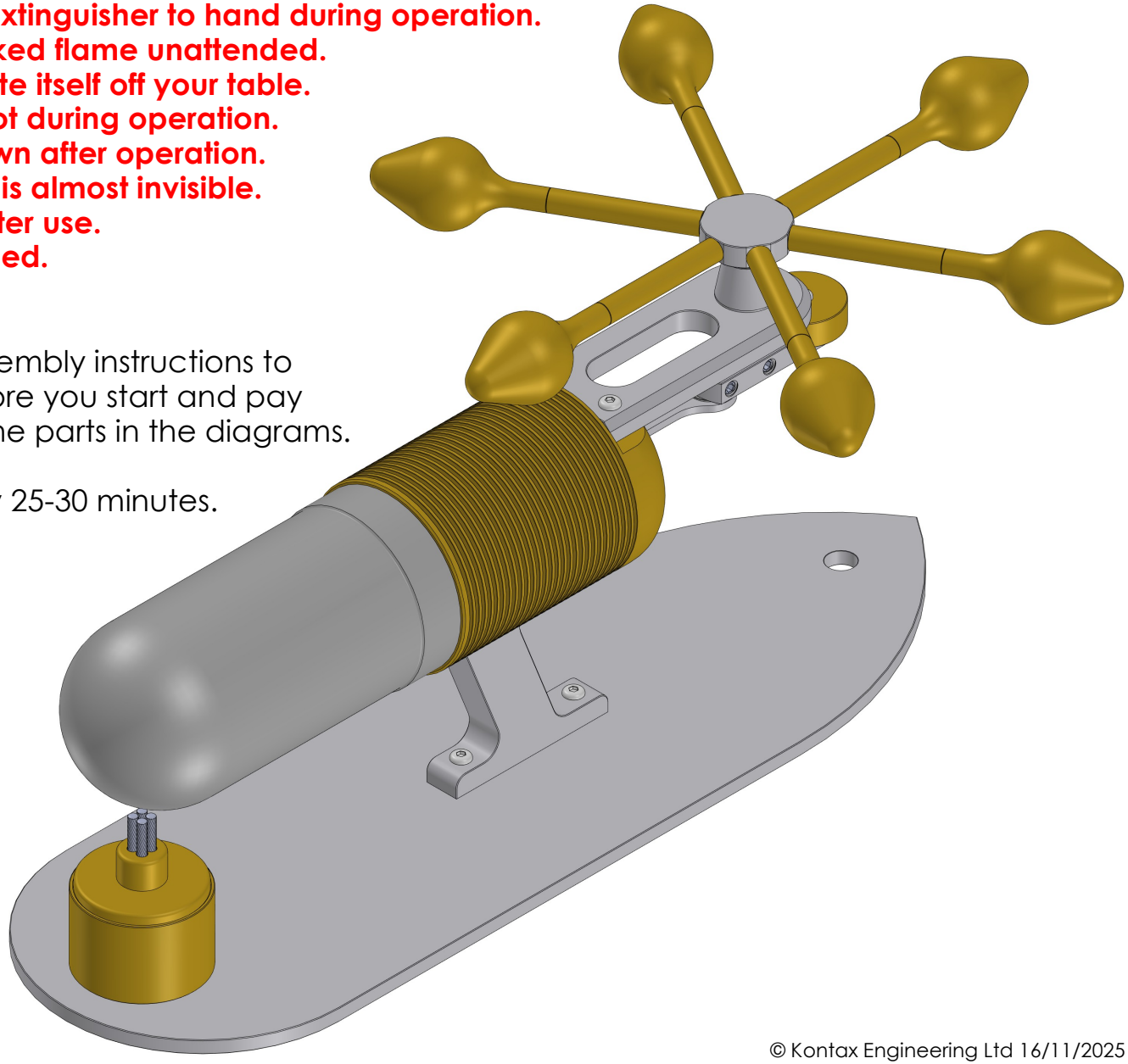
Kontax Flame Pod assembly and operation instructions

- **Make sure you have a suitable fire extinguisher to hand during operation.**
- **Never leave a running engine or naked flame unattended.**
- **Take care the engine does not vibrate itself off your table.**
- **All parts of the engine will be very hot during operation.**
- **The engine will take time to cool down after operation.**
- **The flame produced by a steel wick is almost invisible.**
- **Ensure burner is fully extinguished after use.**
- **Make sure children are fully supervised.**



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.

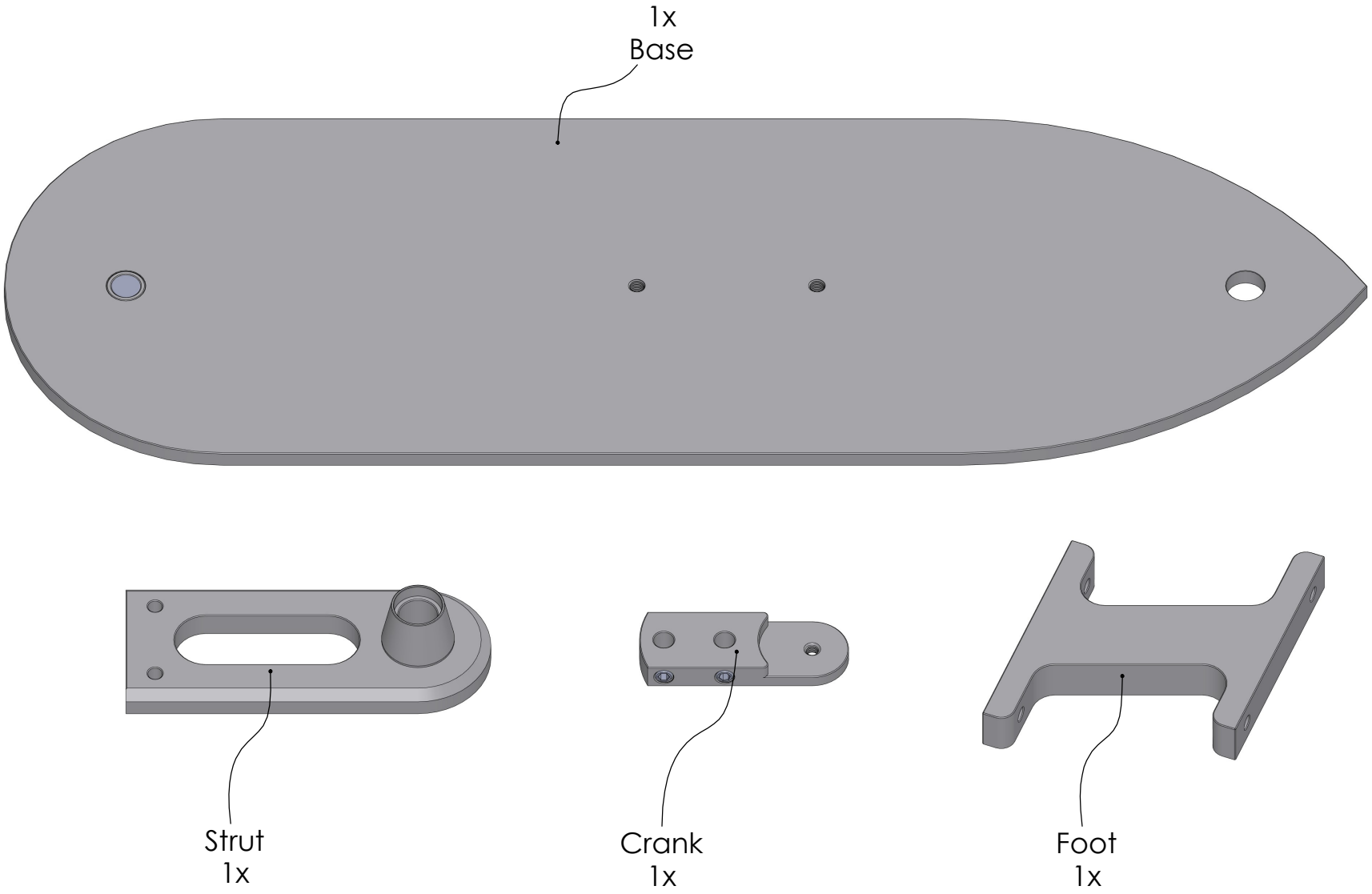
Assembly time should be approximately 25-30 minutes.

Please take great care when opening the bags of small parts! It is recommended to remove the packing tray from the box and open the bag over the box to catch dropped parts.

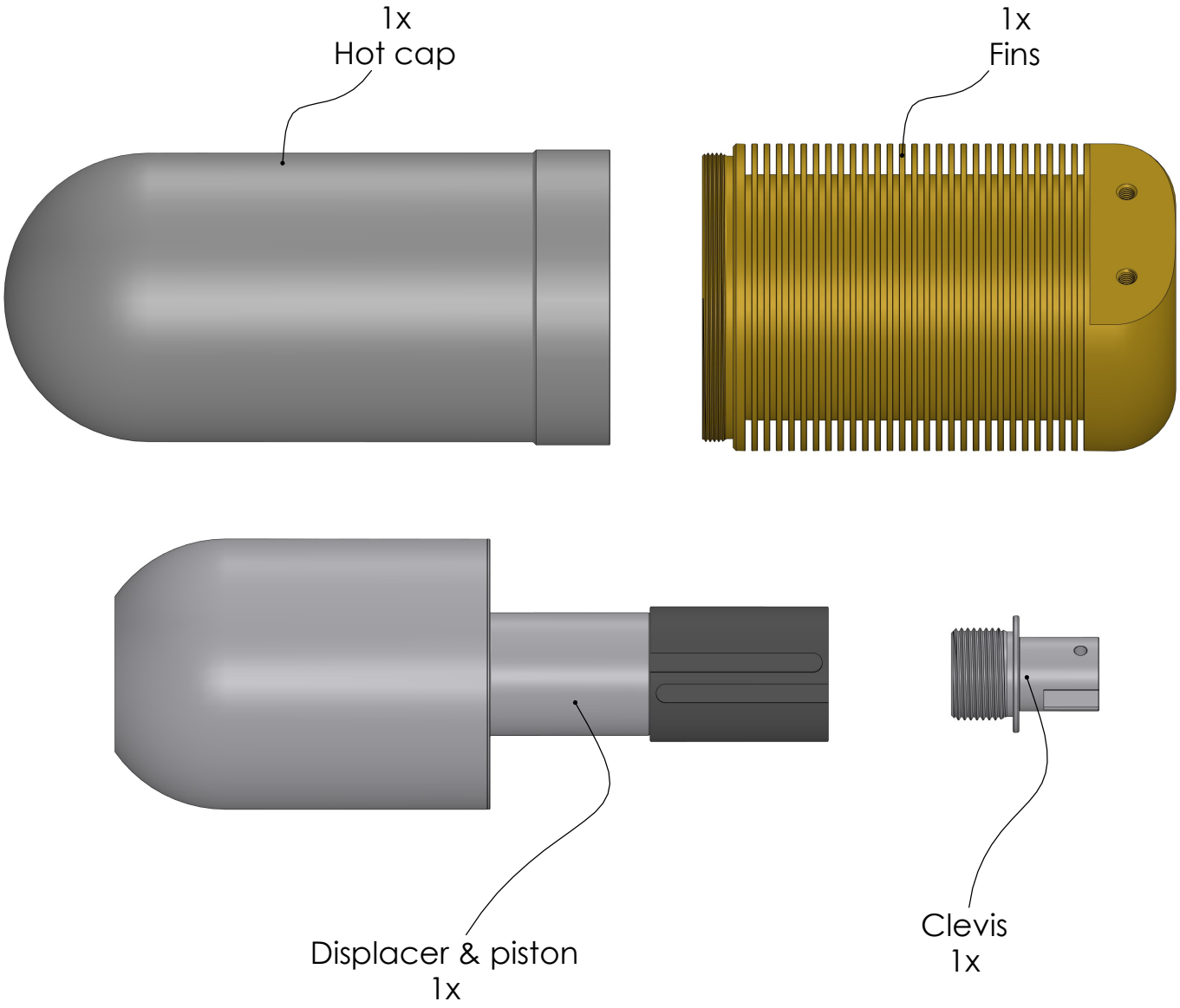
The engine parts list starts on the next page.

Maintenance and operation instructions can be found at the end of this document.

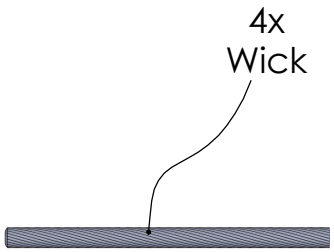
Parts 1



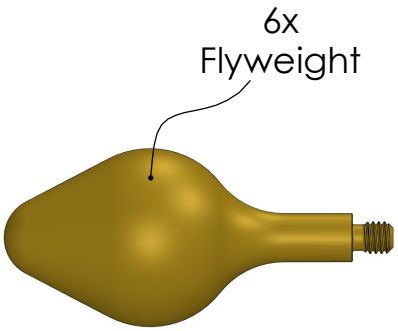
Parts 2



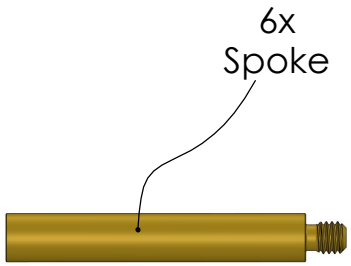
Parts 3



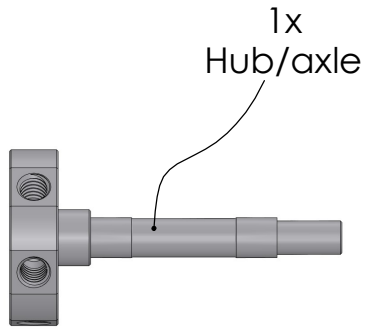
4x
Wick



6x
Flyweight

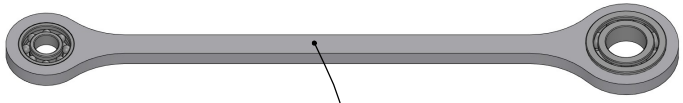


6x
Spoke

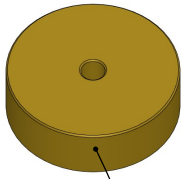


1x
Hub/axle

Burner
1x



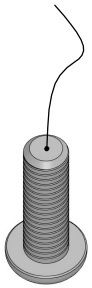
Conrod
1x



Counterweight
1x

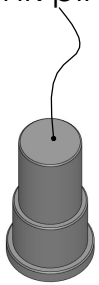
Parts 4 & tools

7x
M3x10 screw

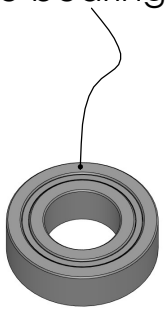


1x
M2x12 screw

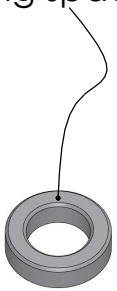
1x
crank pin



2x
Axle bearing



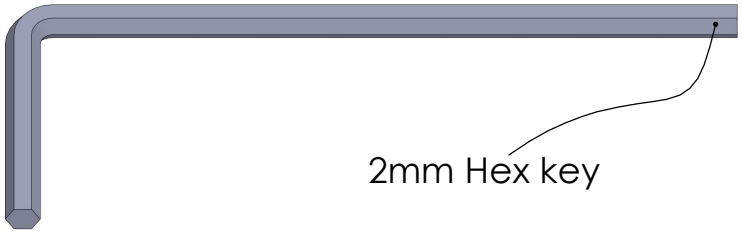
1x
Bearing spacer



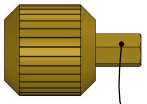
5x
Rubber foot

1x
Clevis bush

T6 Torx driver

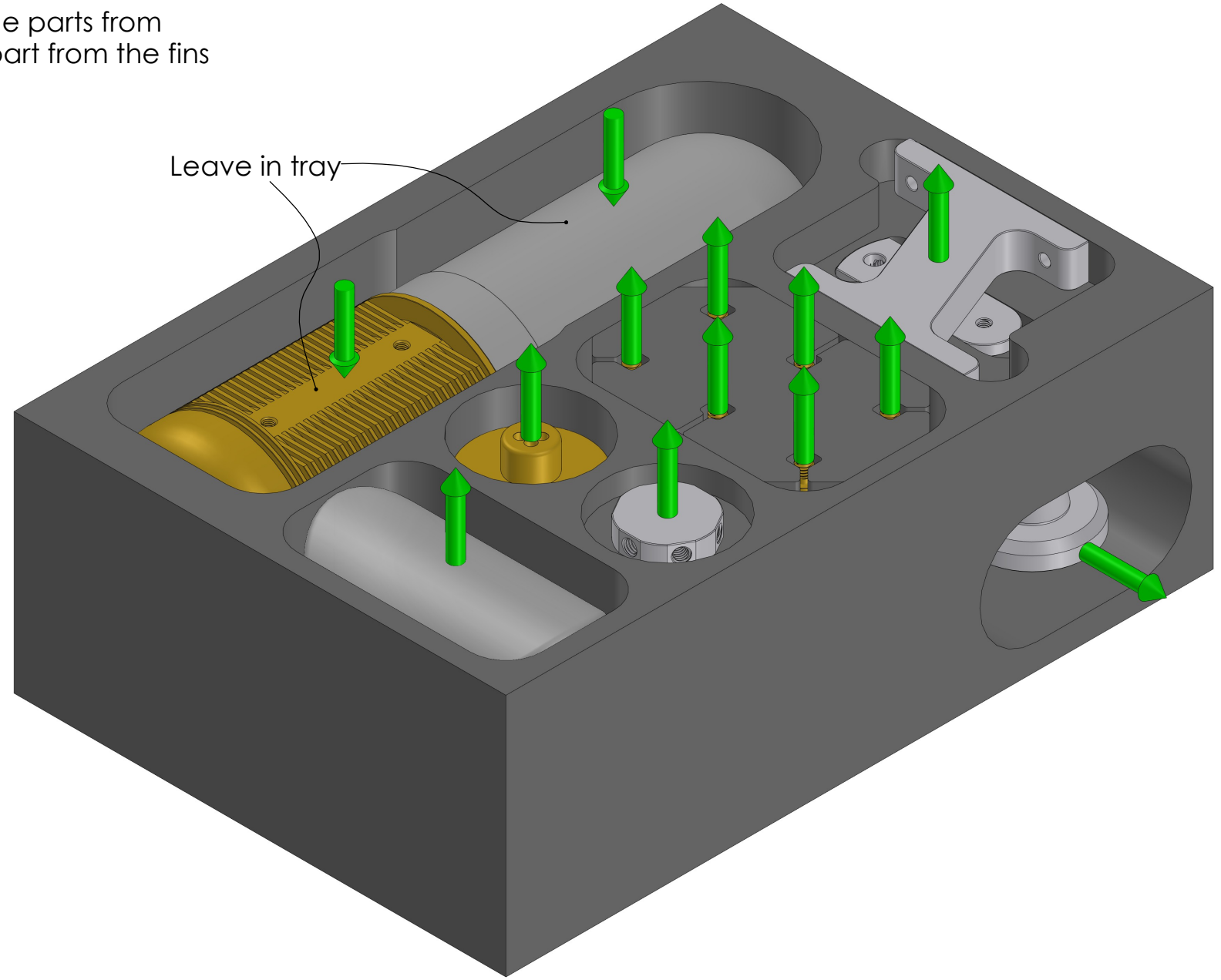


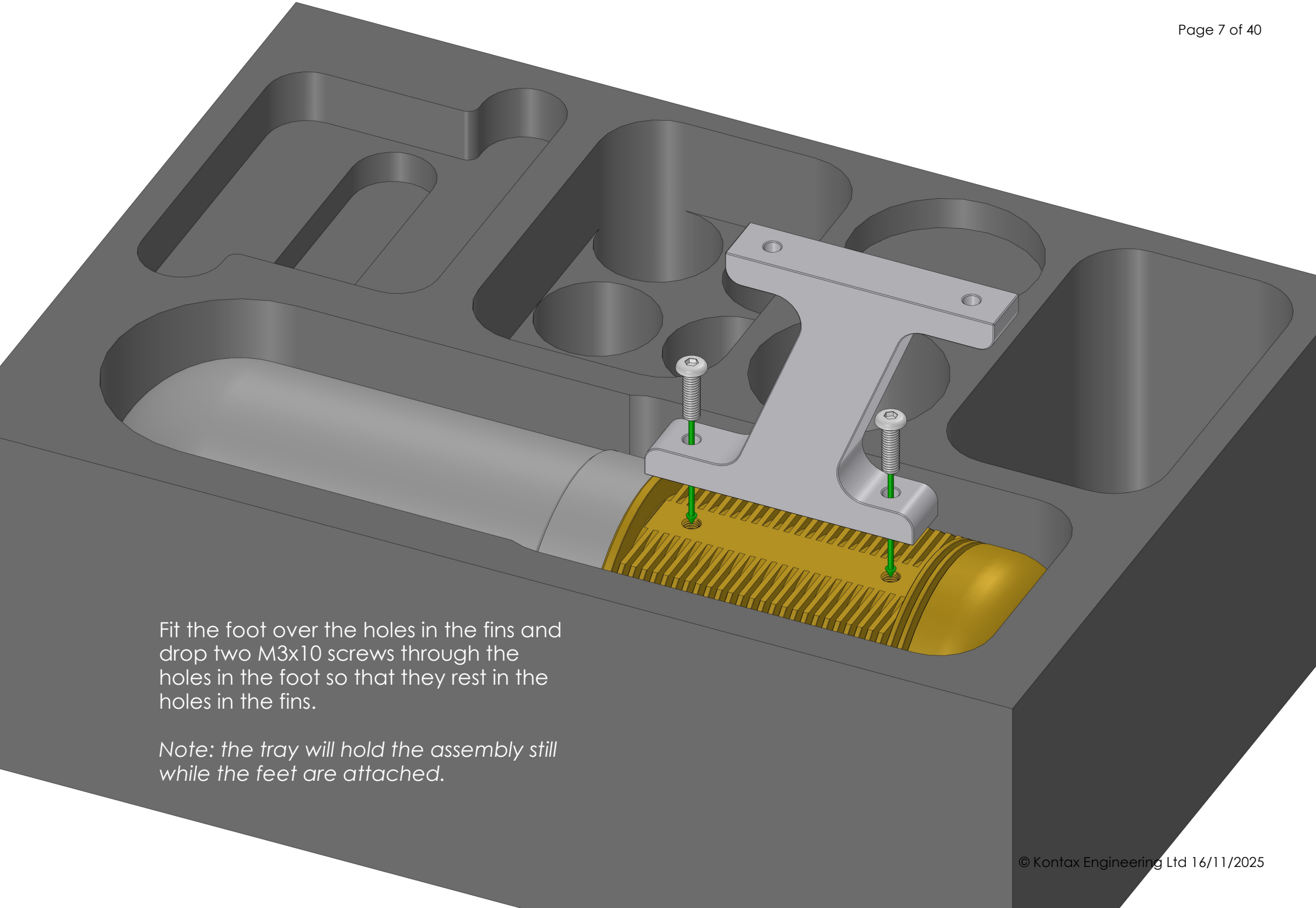
2mm Hex key



2mm Hex spinner

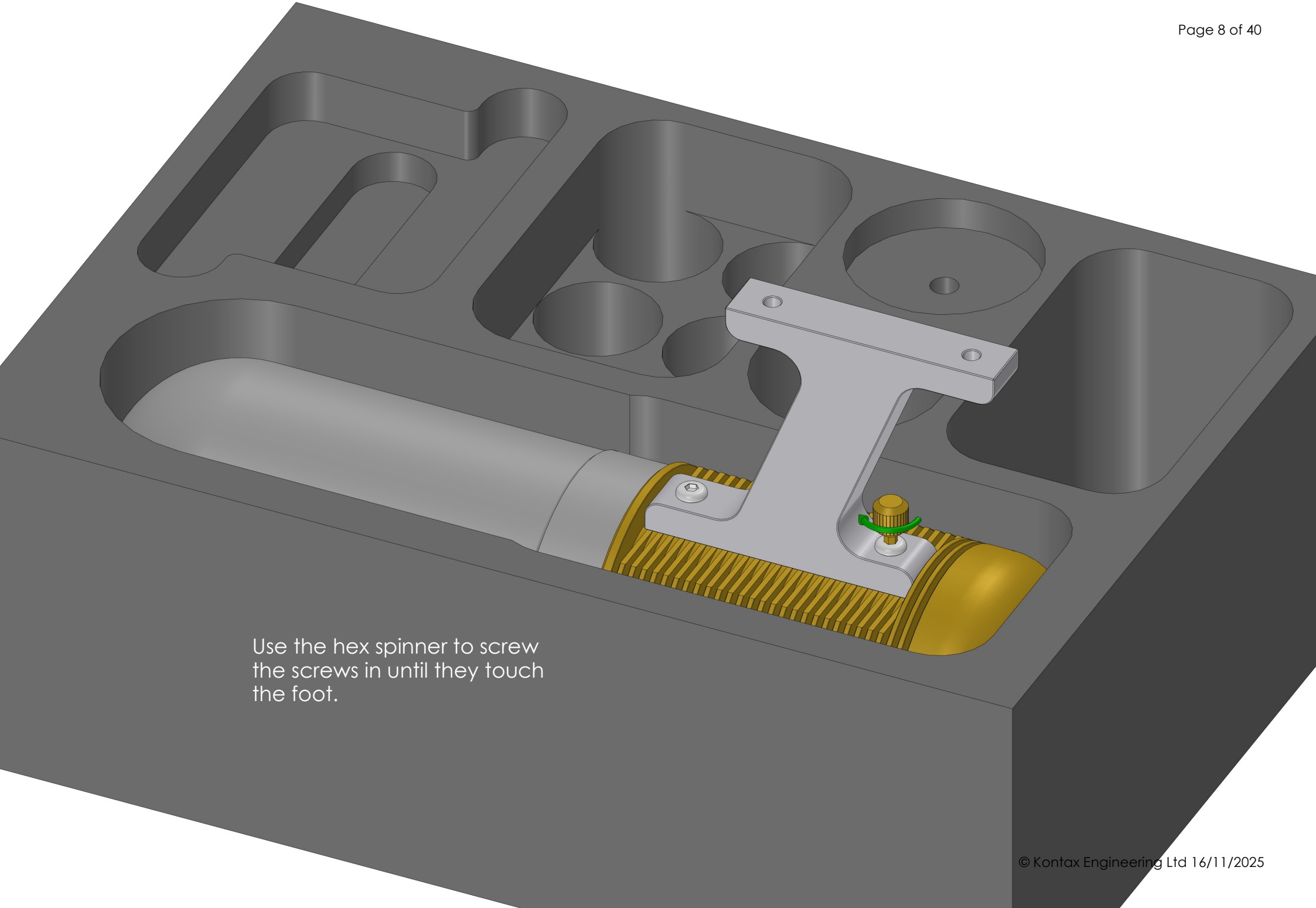
Remove all the parts from the kit tray apart from the fins and hot cap.



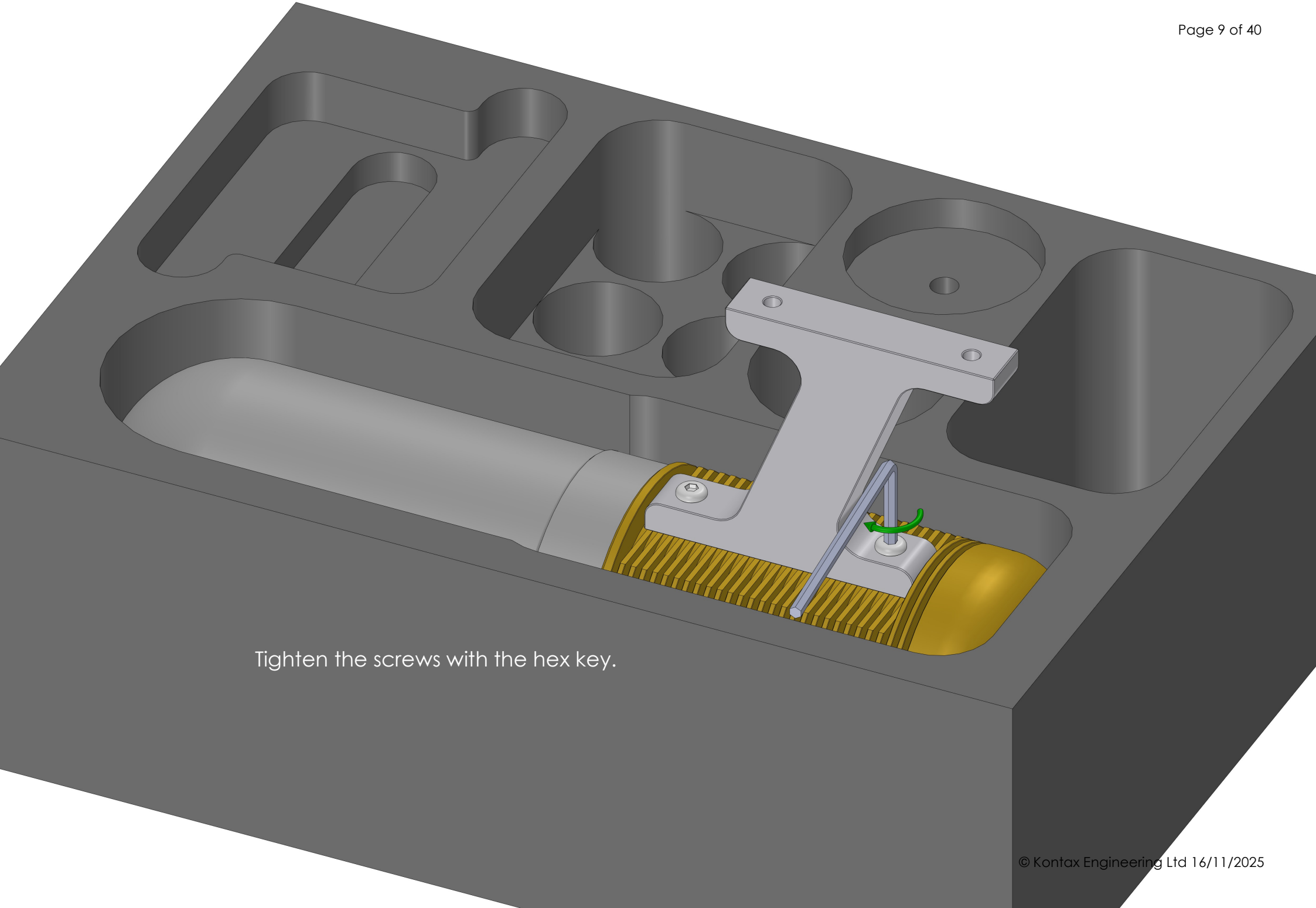


Fit the foot over the holes in the fins and drop two M3x10 screws through the holes in the foot so that they rest in the holes in the fins.

Note: the tray will hold the assembly still while the feet are attached.

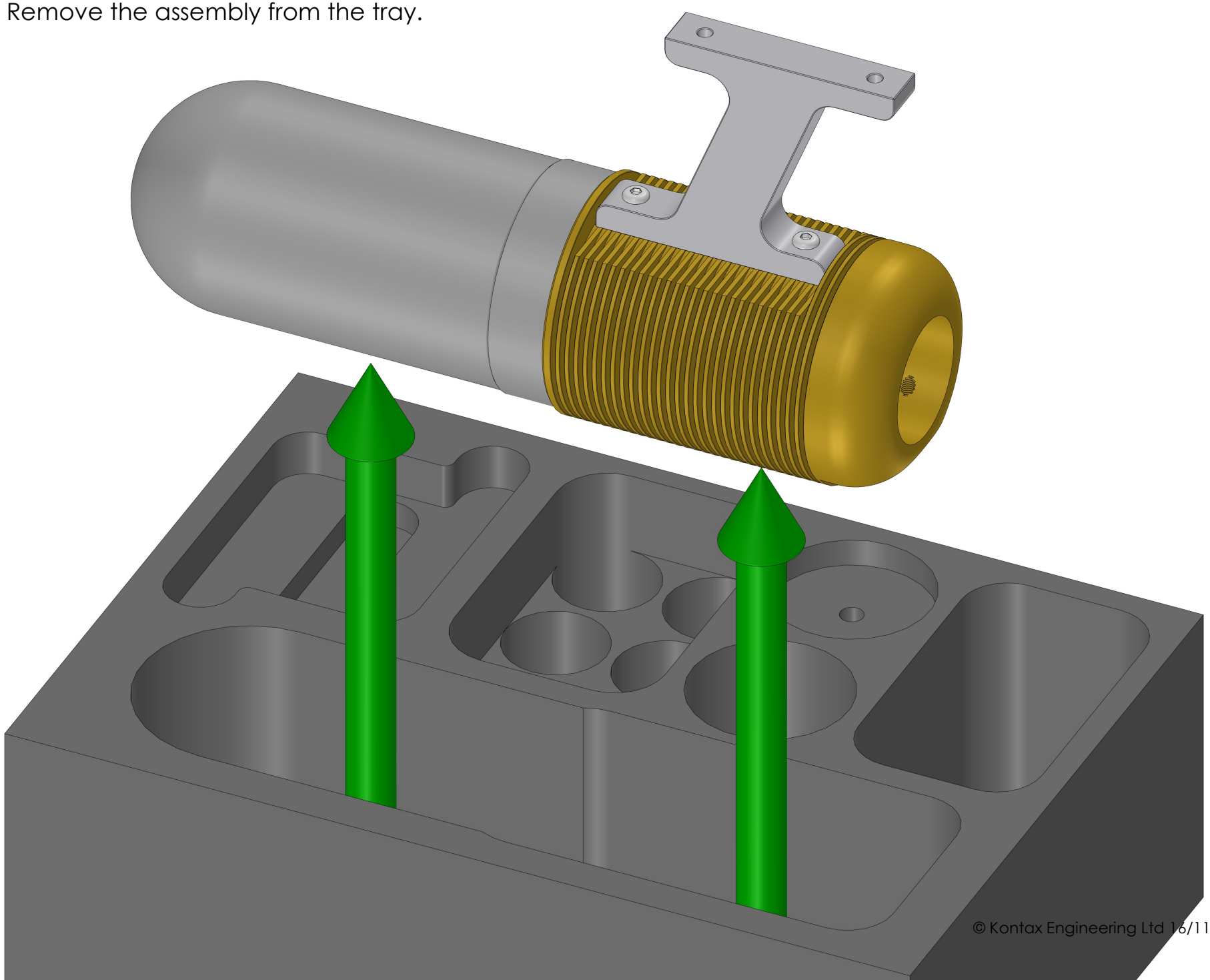


Use the hex spinner to screw the screws in until they touch the foot.

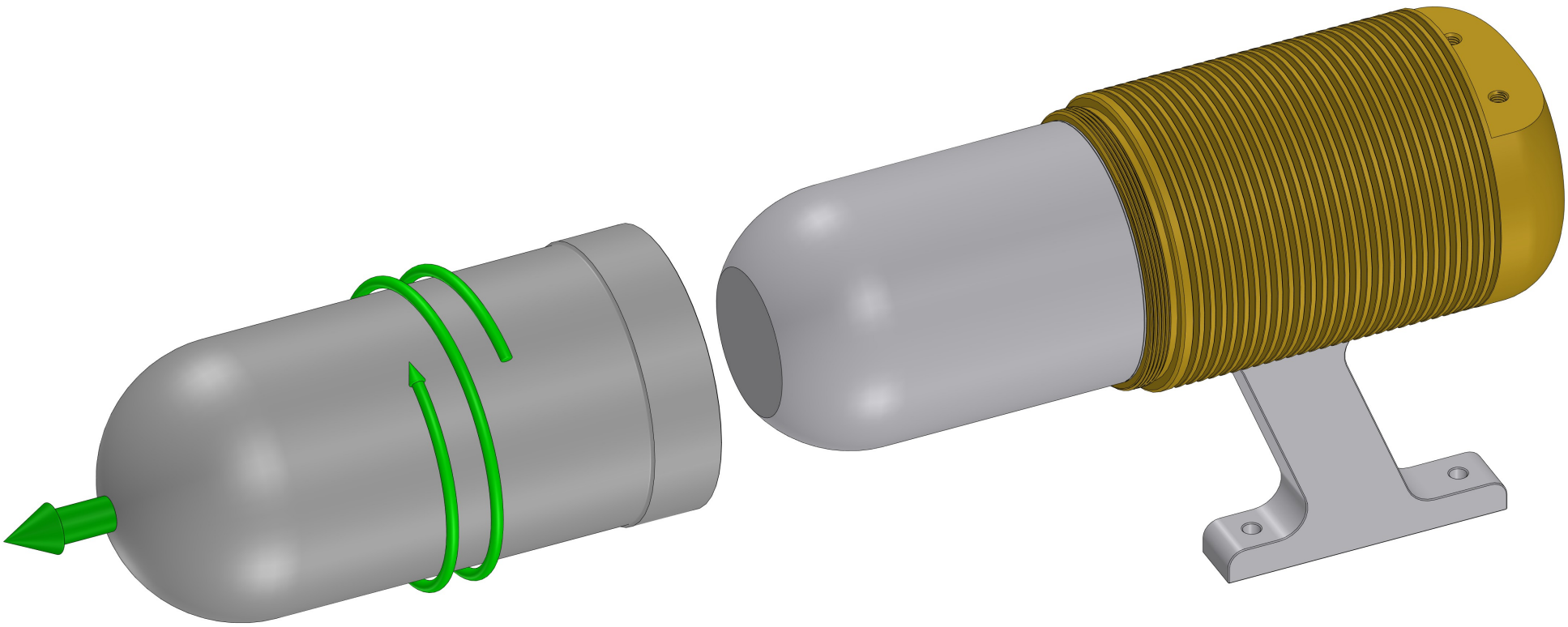


Tighten the screws with the hex key.

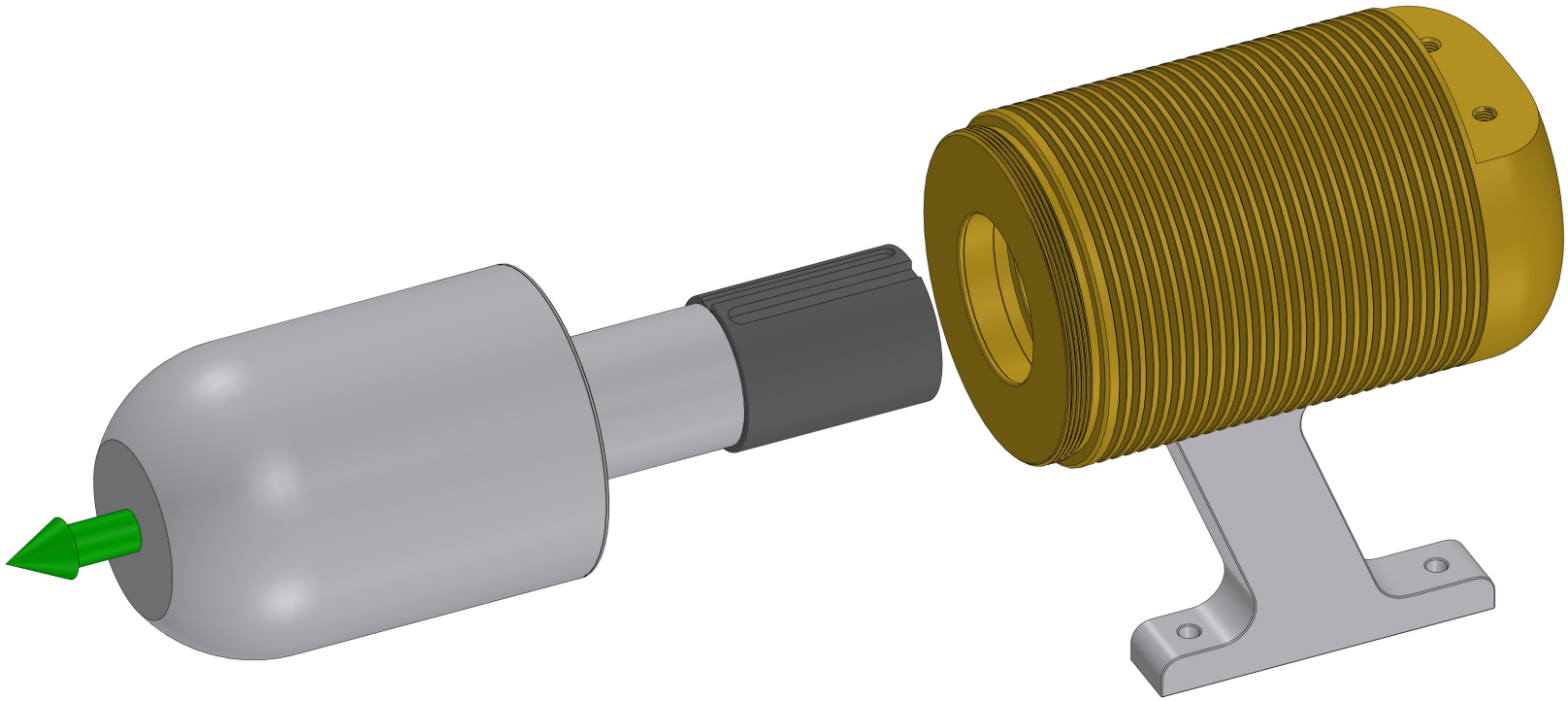
Remove the assembly from the tray.



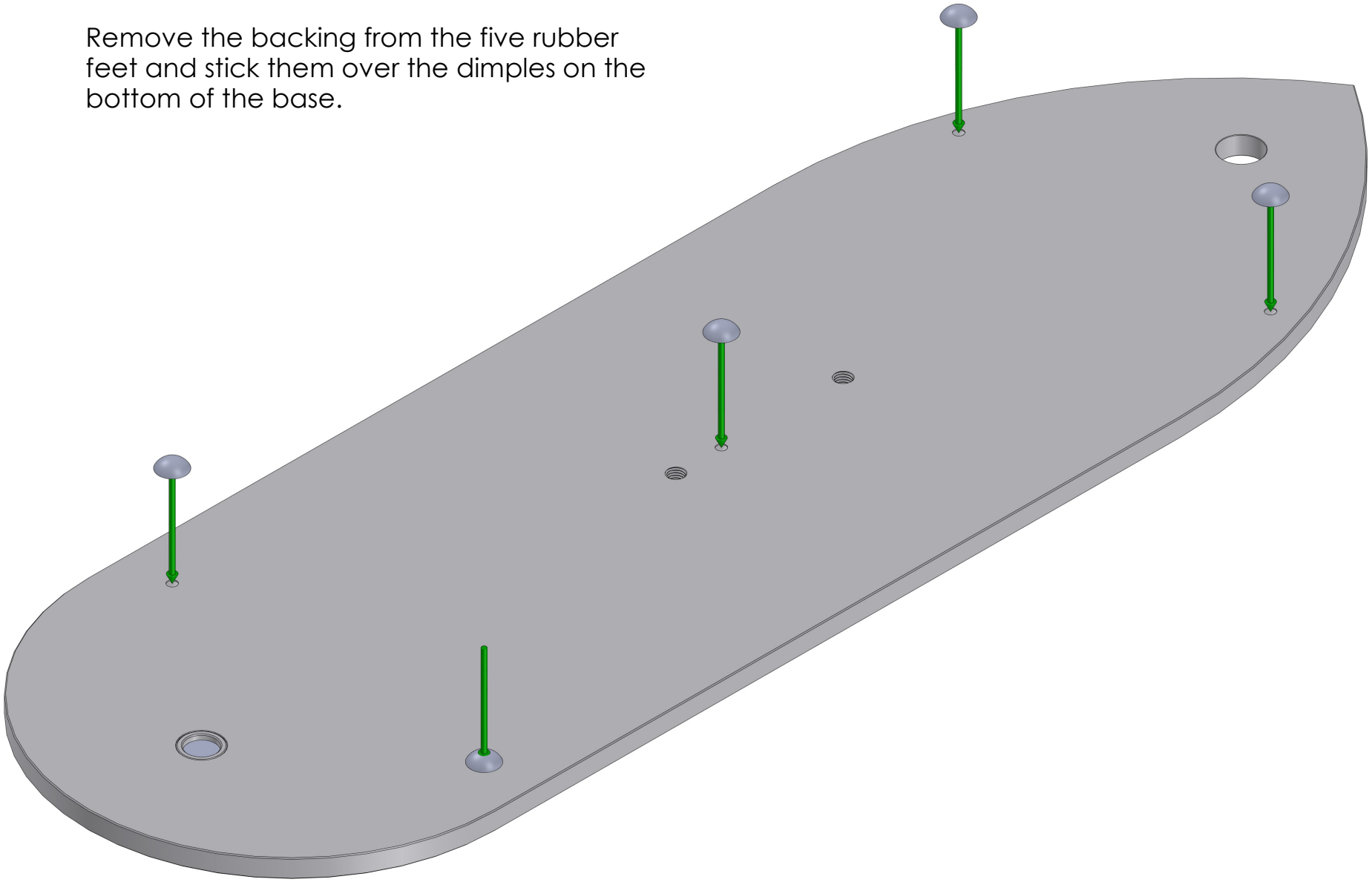
Unscrew the hot cap from the fins and remove the wadding from the inside.



Remove the displacer and piston from the fins.

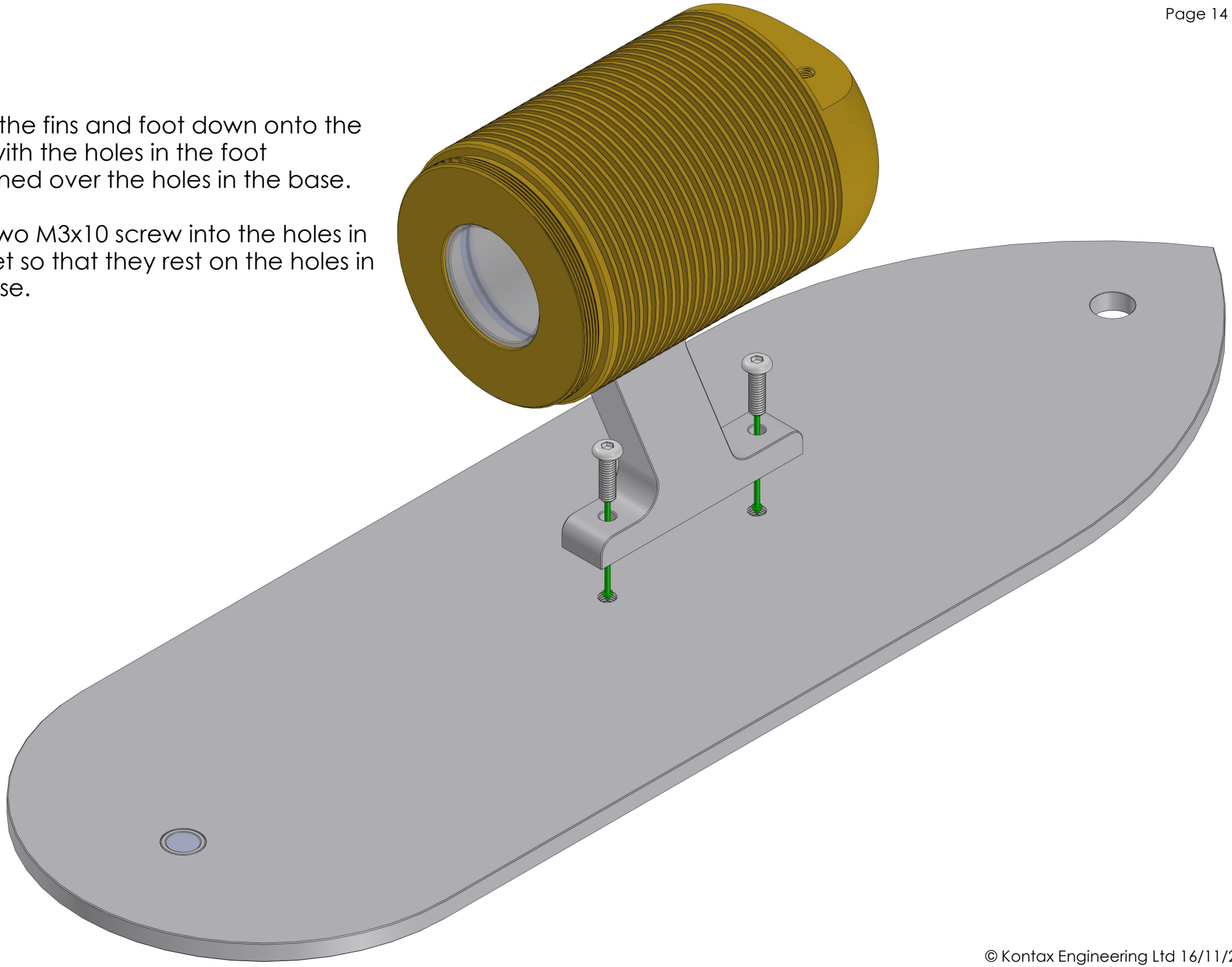


Remove the backing from the five rubber feet and stick them over the dimples on the bottom of the base.

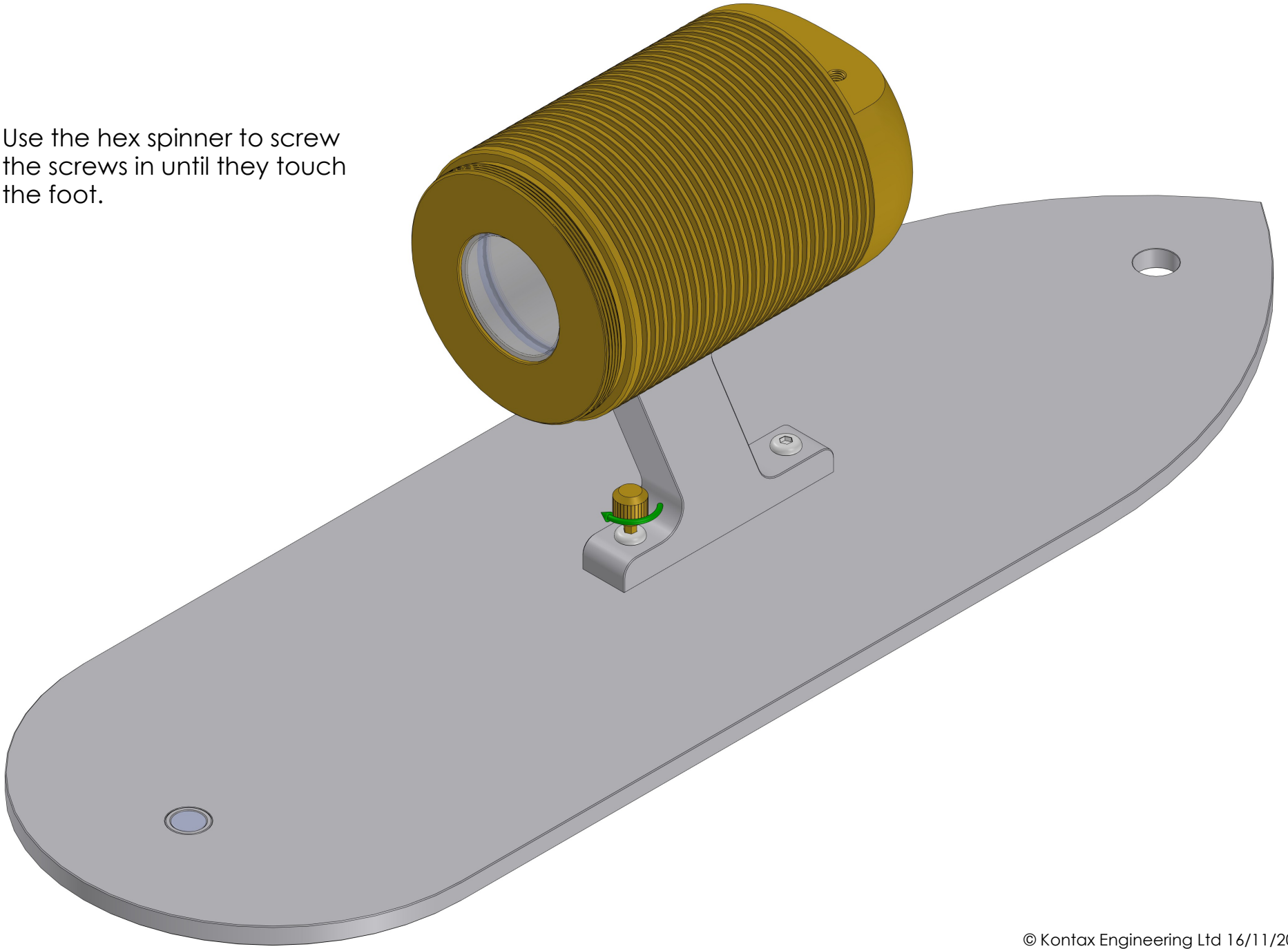


Lower the fins and foot down onto the base with the holes in the foot positioned over the holes in the base.

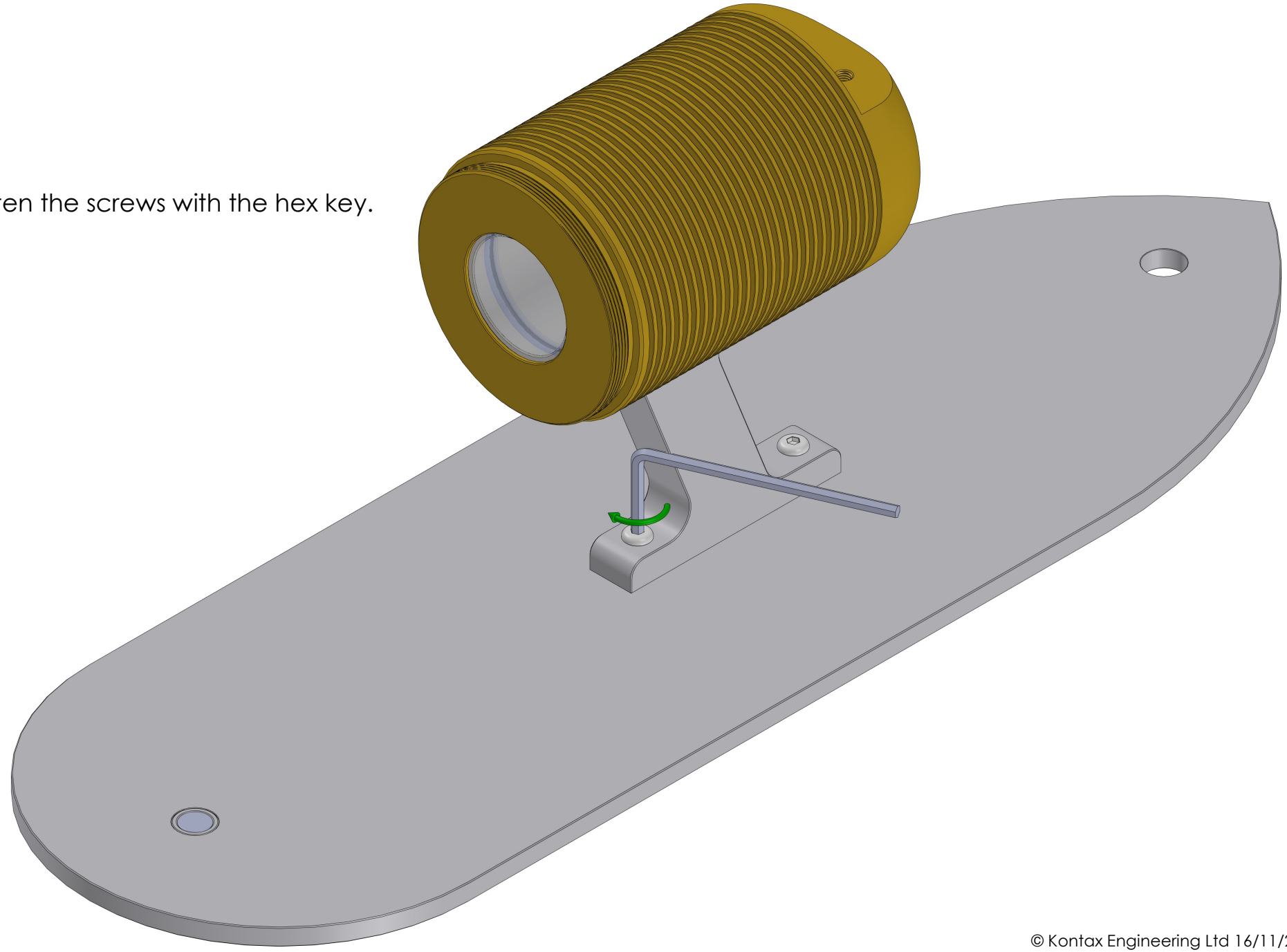
Drop two M3x10 screw into the holes in the feet so that they rest on the holes in the base.



Use the hex spinner to screw the screws in until they touch the foot.

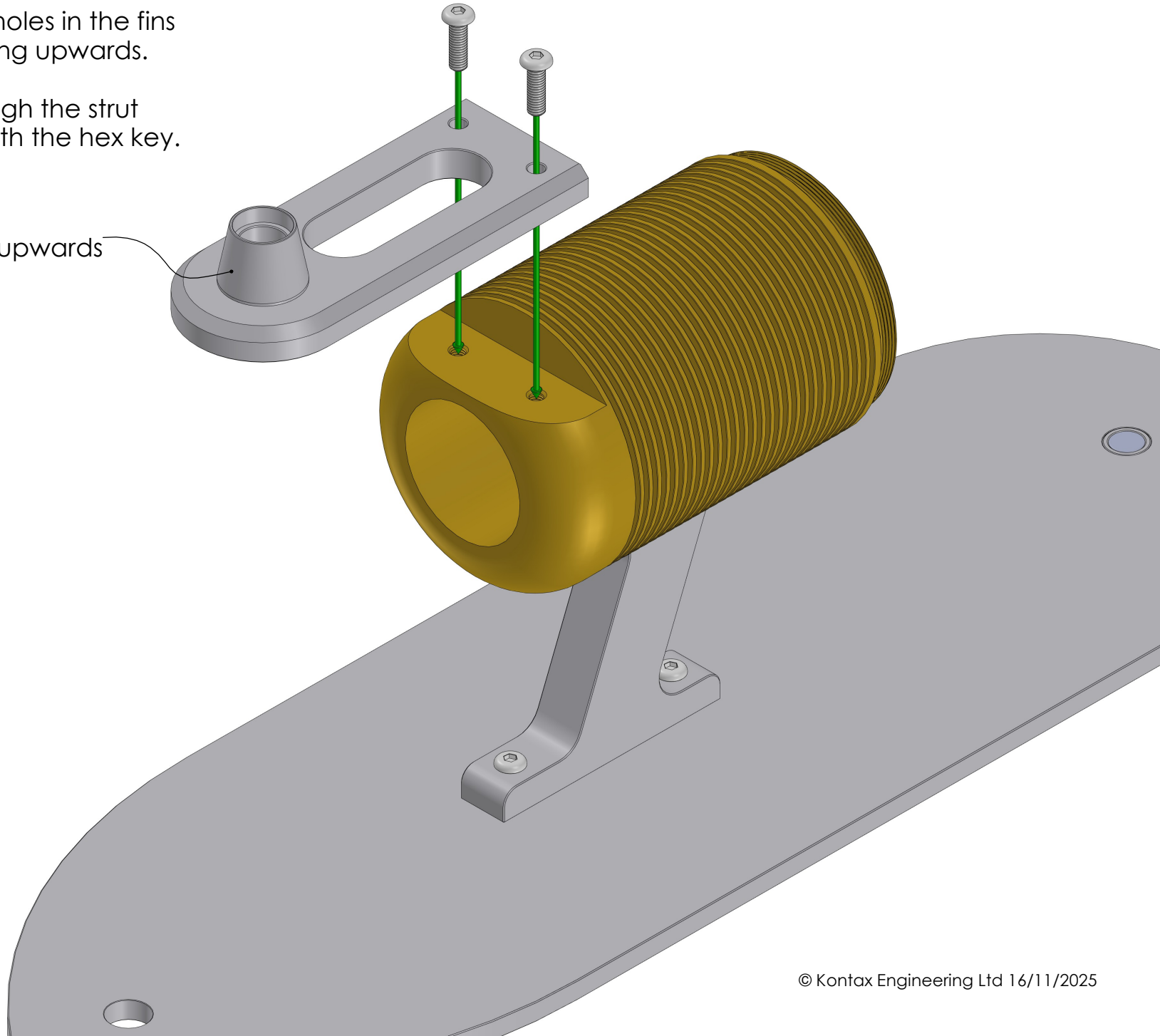


Tighten the screws with the hex key.



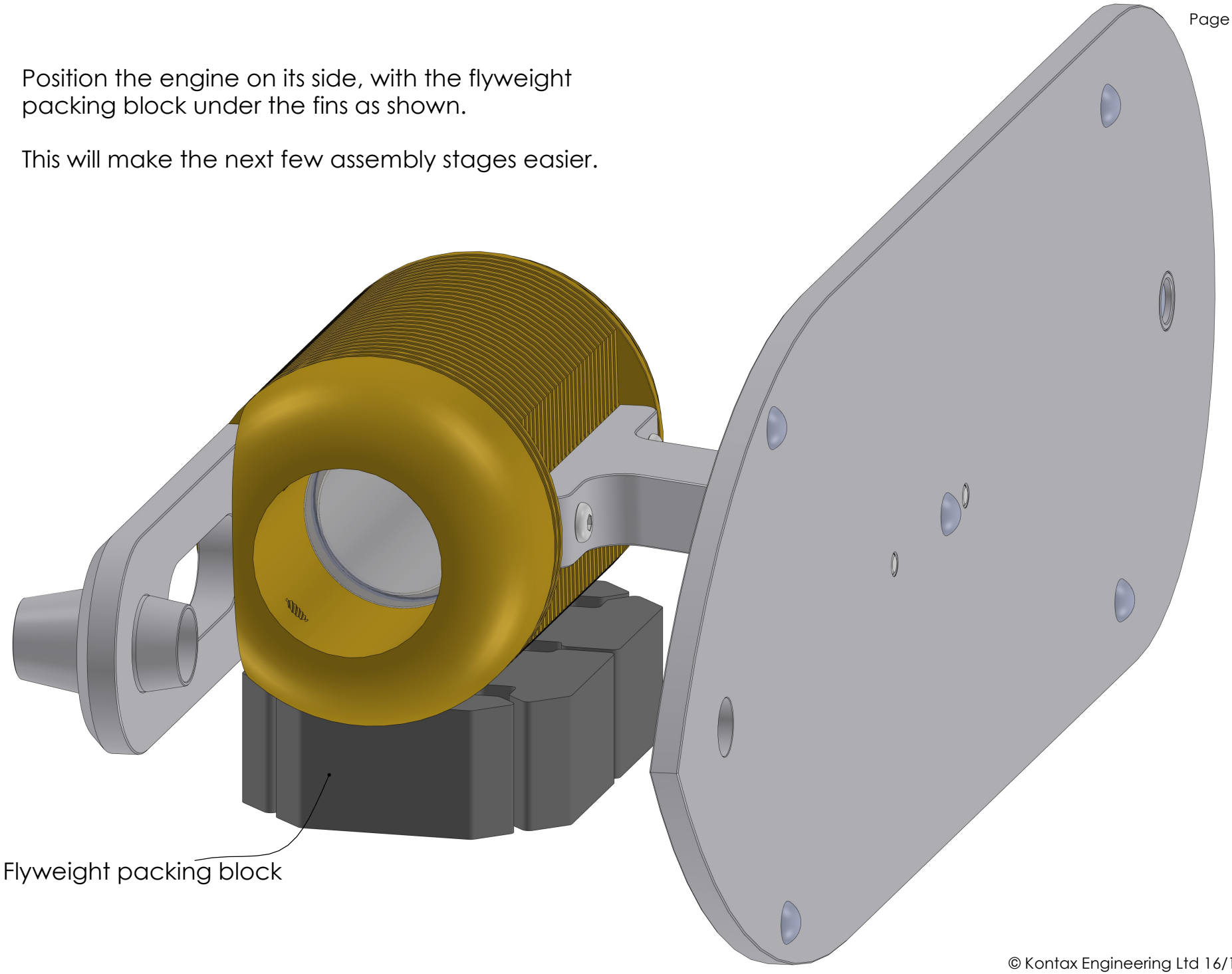
Position the strut over the holes in the fins with the longer spigot facing upwards.

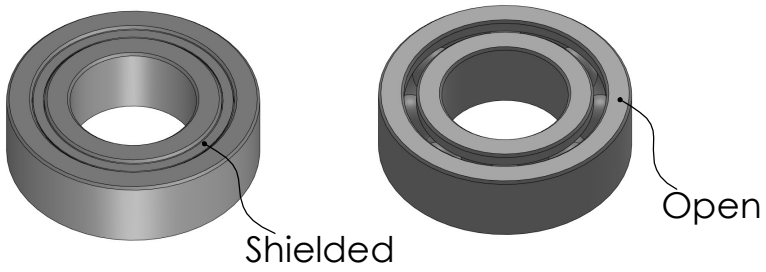
Fit two M3x10 screws through the strut into the fins and tighten with the hex key.



Position the engine on its side, with the flyweight packing block under the fins as shown.

This will make the next few assembly stages easier.





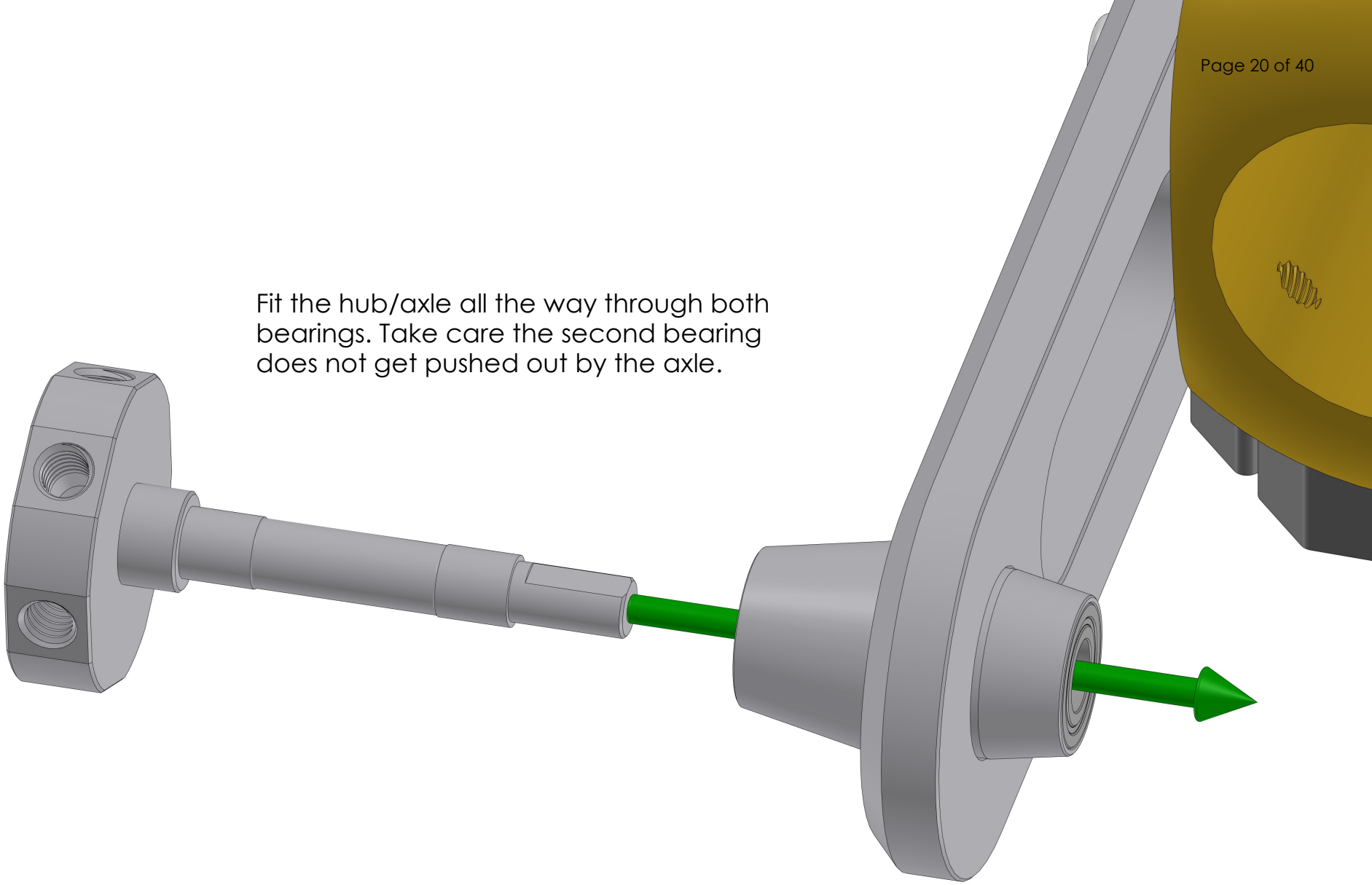
The axle bearings have an open side and a shielded side.

The open sides should face inwards when inserted to help prevent ingress of dust.

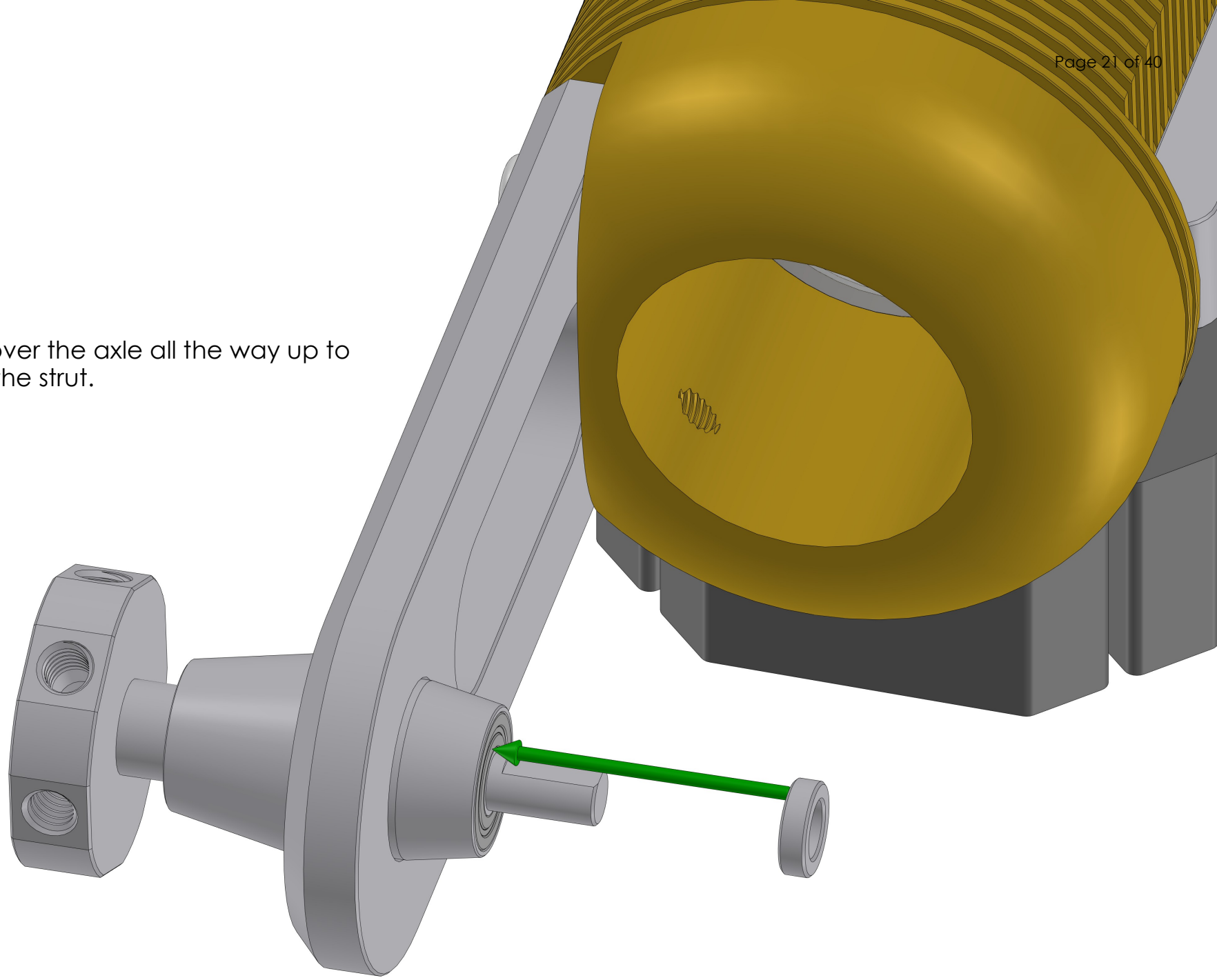
Note: the bearings are pre-oiled and do not need any further oil.

Fit the two axle bearings into the strut.

Fit the hub/axle all the way through both bearings. Take care the second bearing does not get pushed out by the axle.

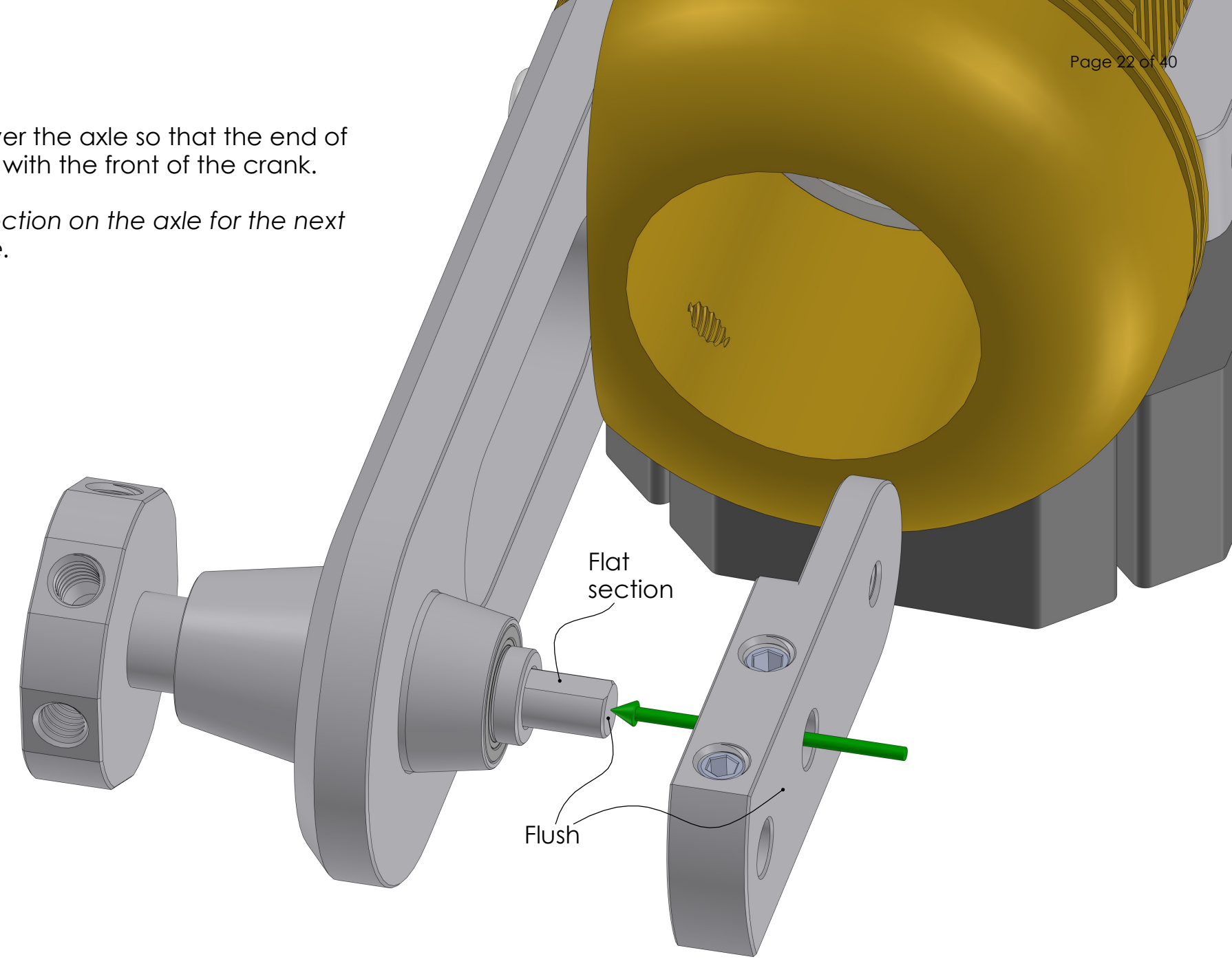


Fit the spacer over the axle all the way up to the bearing in the strut.

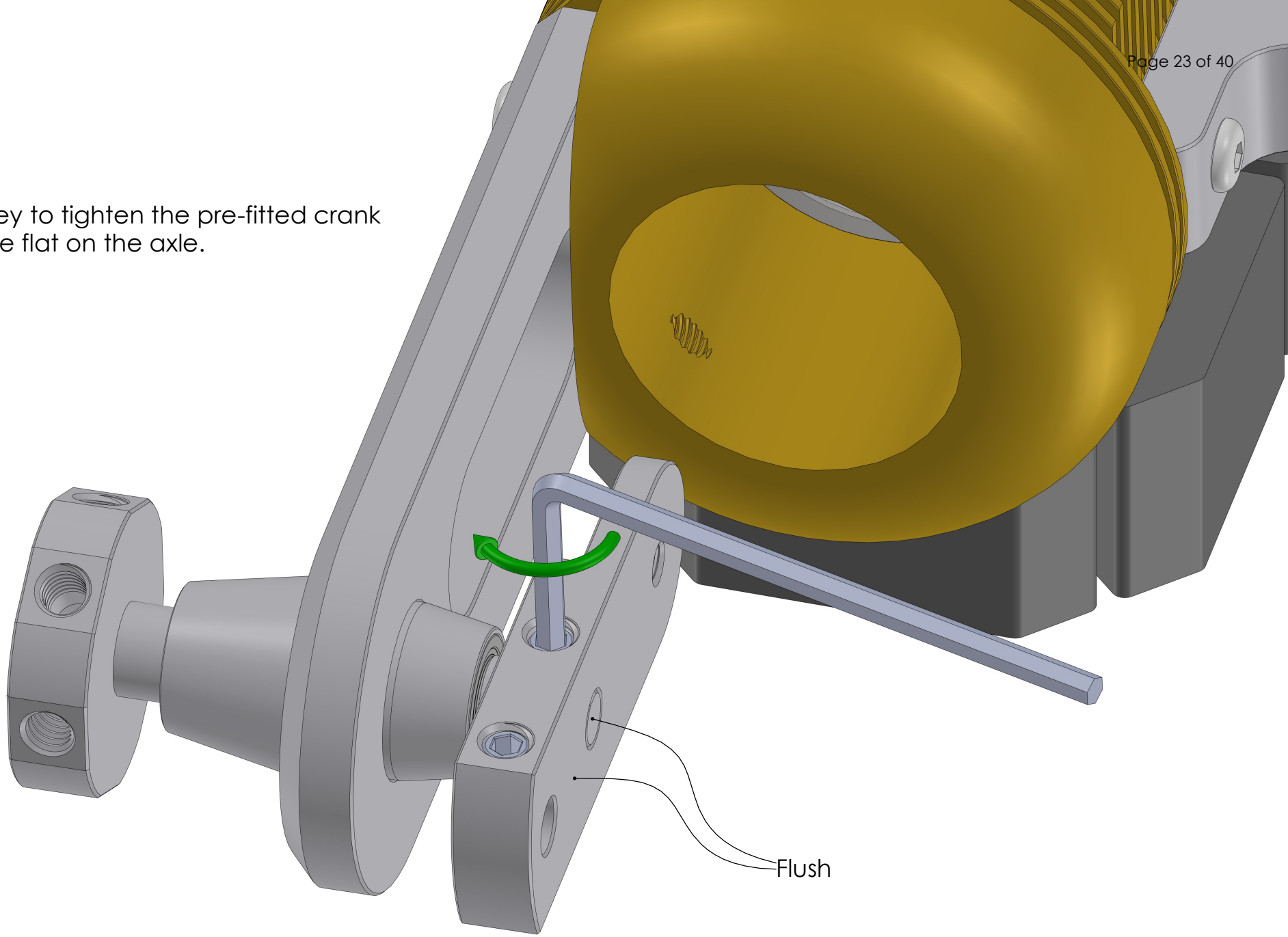


Fit the crank over the axle so that the end of the axle is flush with the front of the crank.

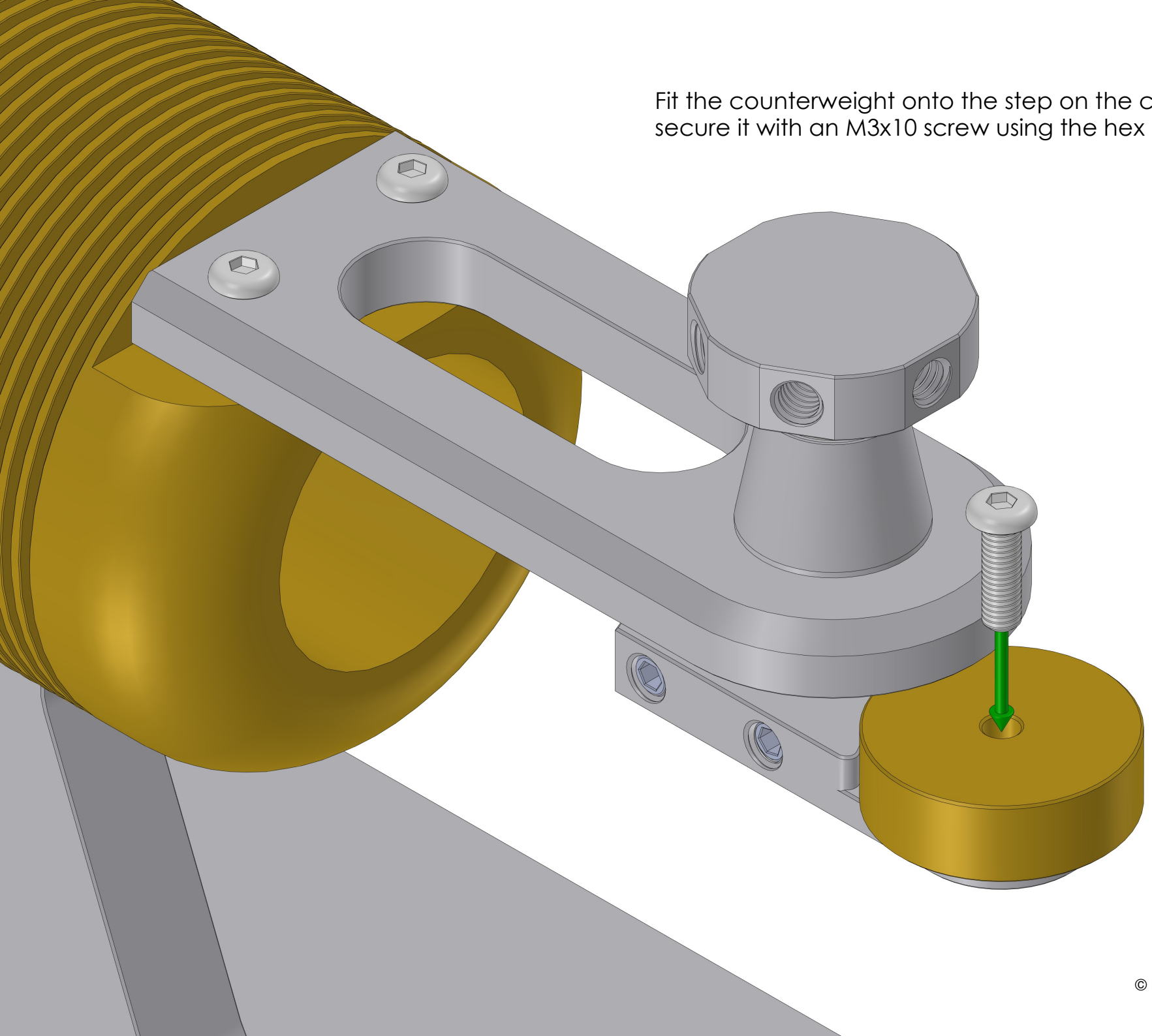
Note the flat section on the axle for the next assembly stage.



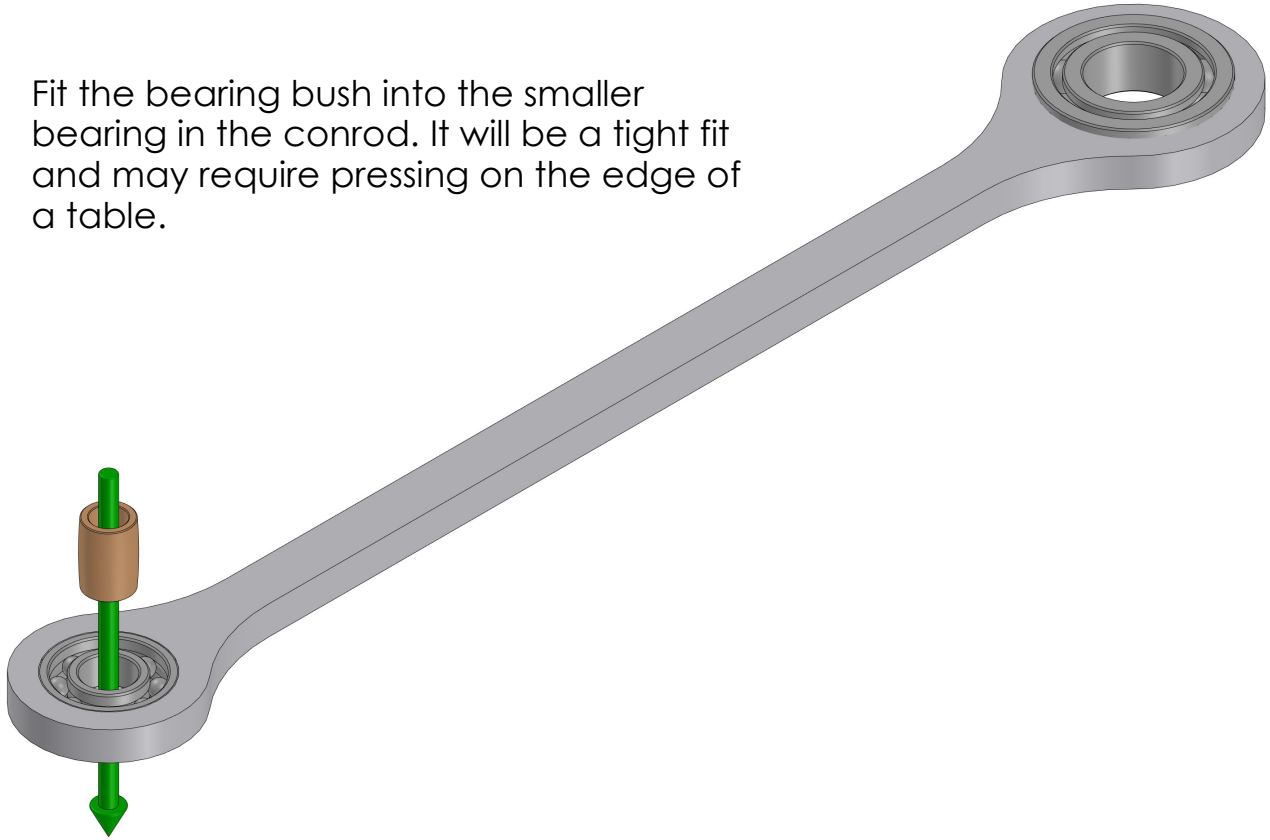
Use the hex key to tighten the pre-fitted crank screw onto the flat on the axle.

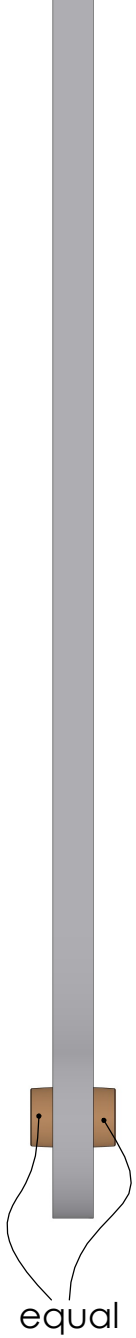


Fit the counterweight onto the step on the crank and secure it with an M3x10 screw using the hex key.



Fit the bearing bush into the smaller bearing in the conrod. It will be a tight fit and may require pressing on the edge of a table.

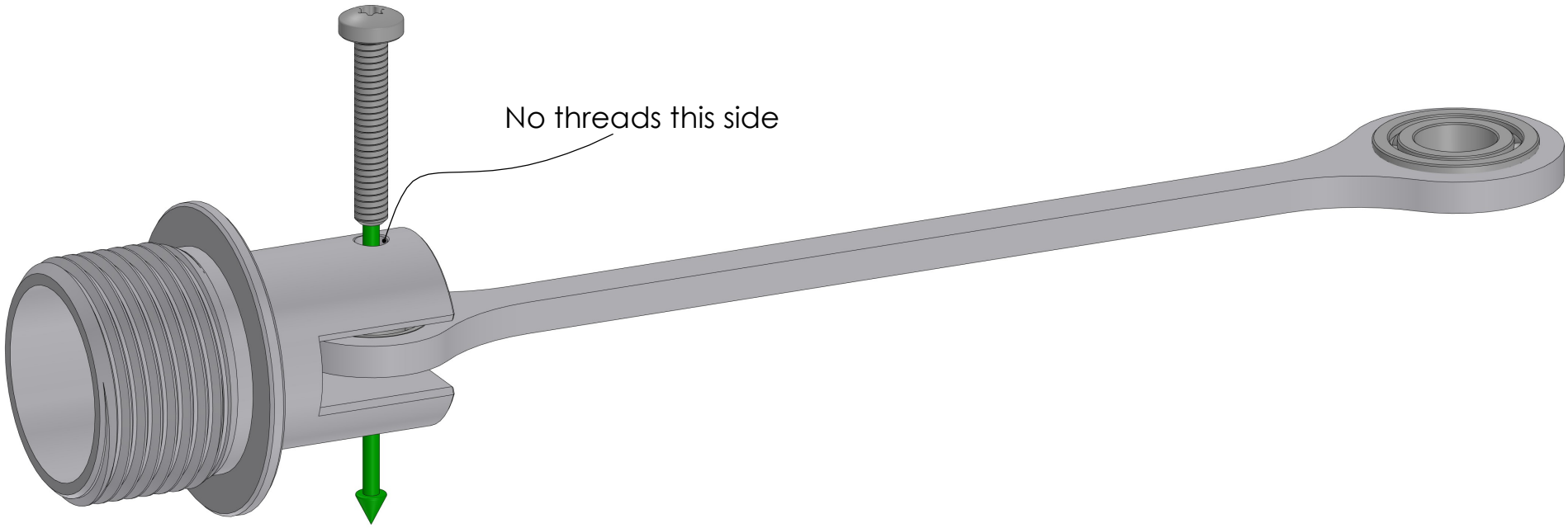




The bush should be positioned so that it is centralised on the bearings.

Fit the conrod and bearing bush into the slot in the clevis so that the bush lines up with the hole in the clevis. Fit the M2x12 screw into the clevis, through the bush and tighten with the T6 driver.

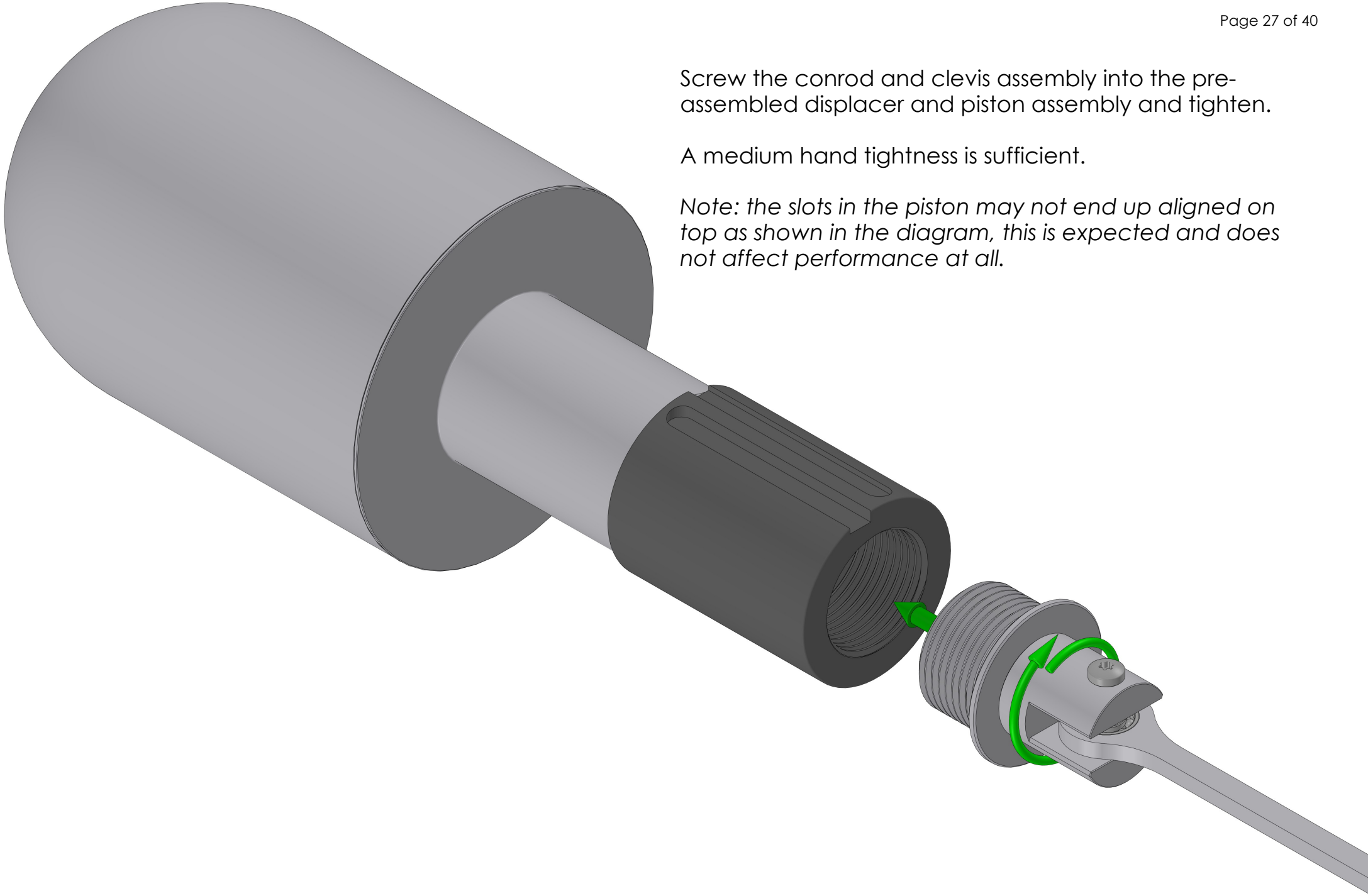
Note: one side of the clevis has no threads, the screw should be fitted through from this side.



Screw the conrod and clevis assembly into the pre-assembled displacer and piston assembly and tighten.

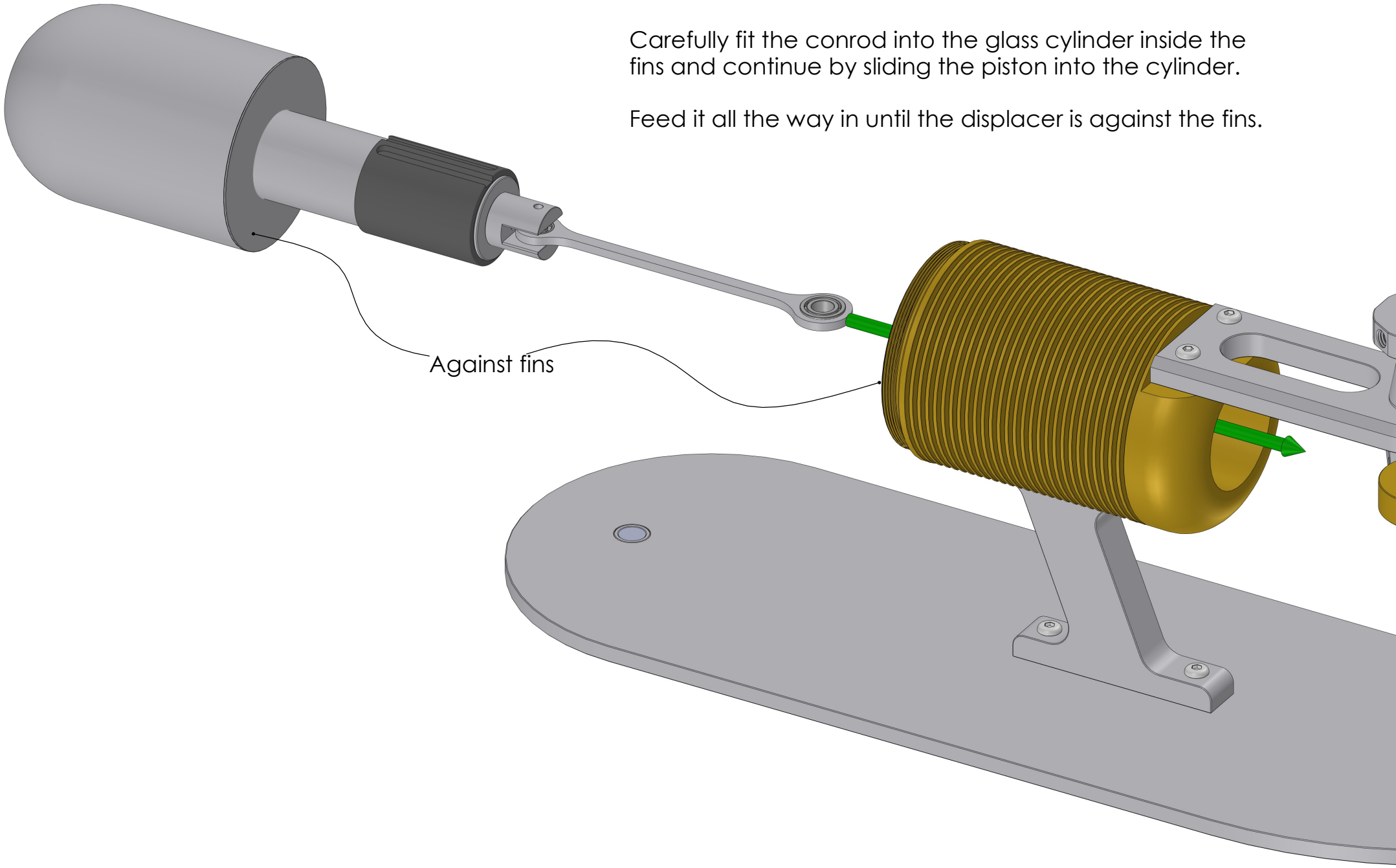
A medium hand tightness is sufficient.

Note: the slots in the piston may not end up aligned on top as shown in the diagram, this is expected and does not affect performance at all.



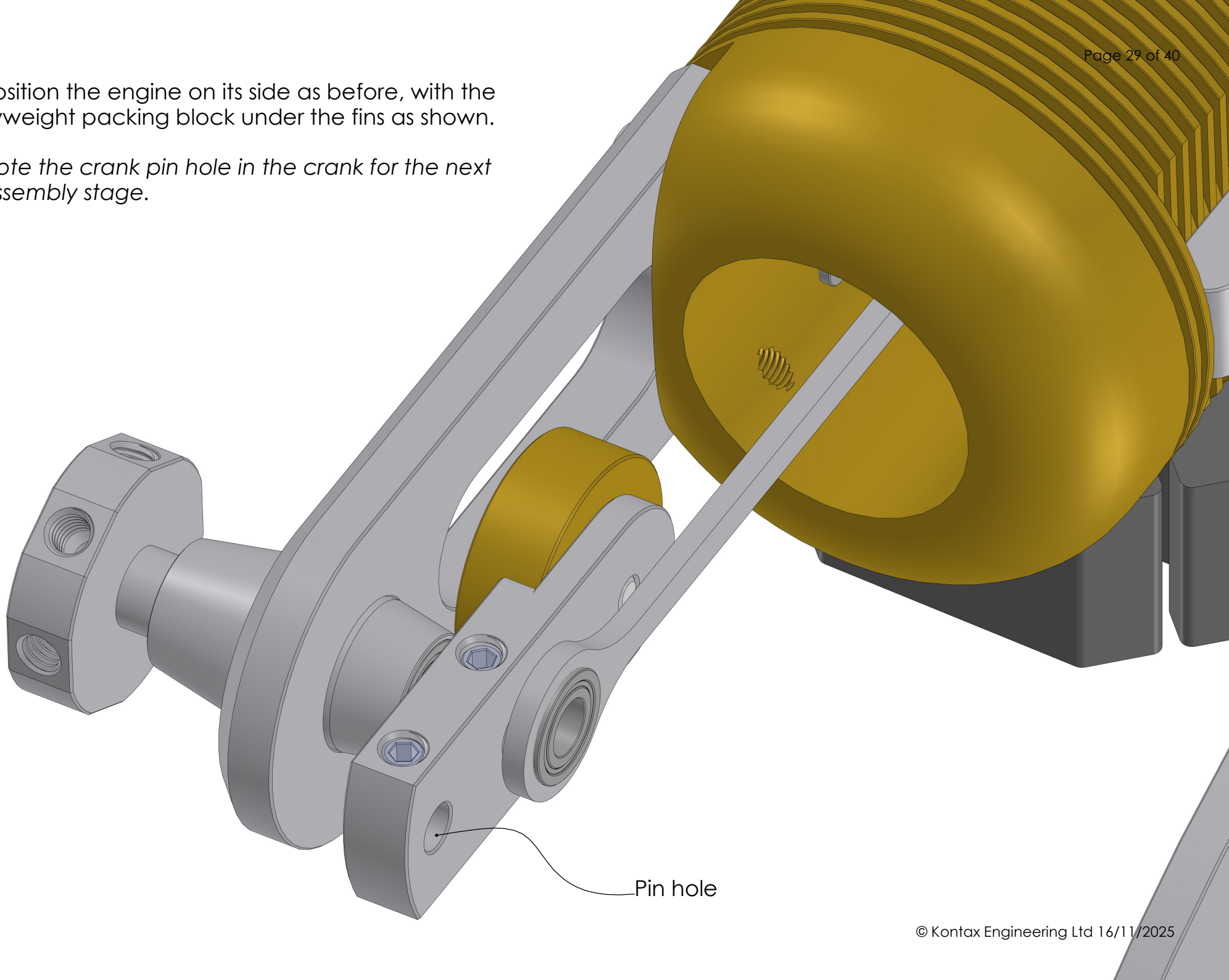
Carefully fit the conrod into the glass cylinder inside the fins and continue by sliding the piston into the cylinder.

Feed it all the way in until the displacer is against the fins.



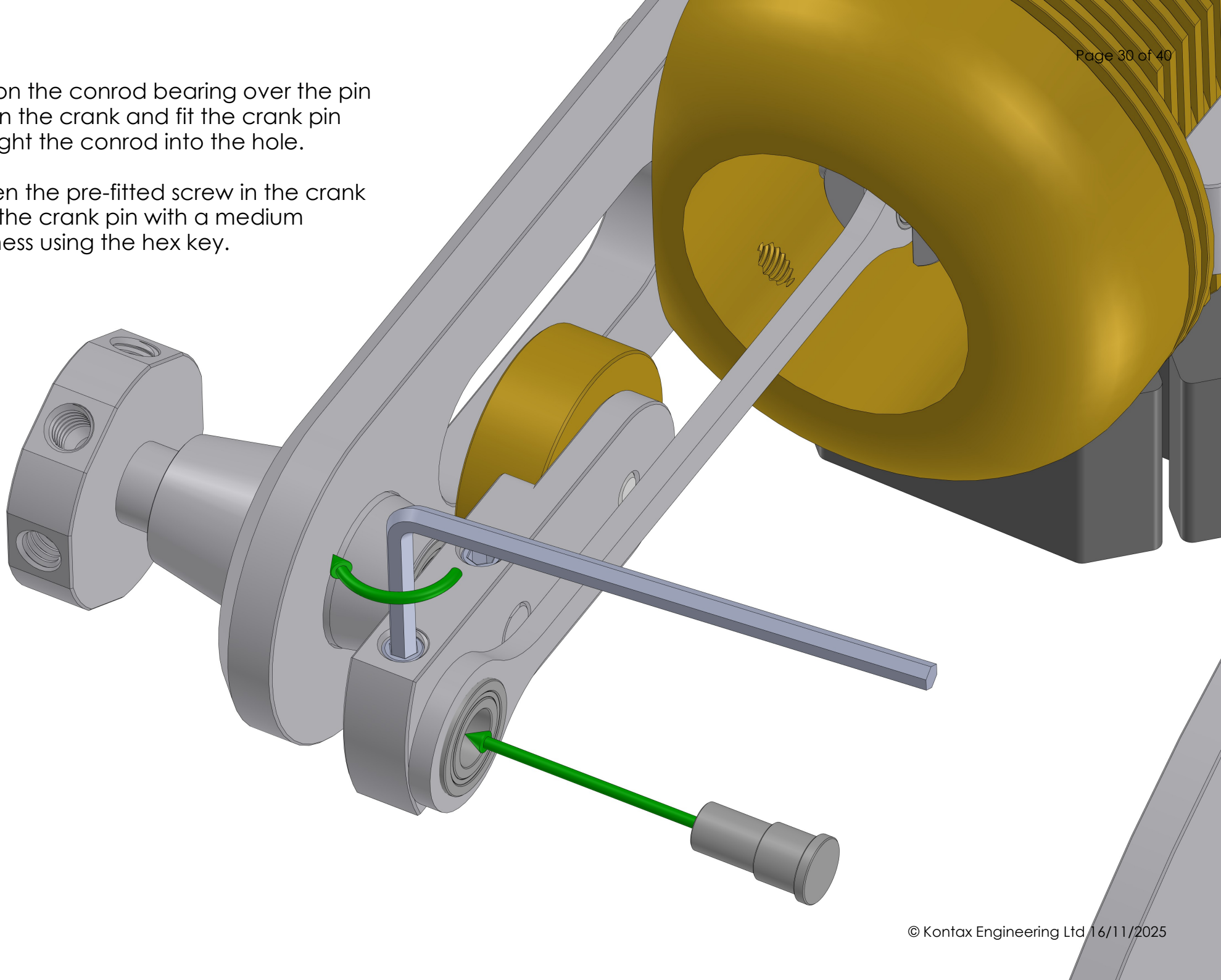
Position the engine on its side as before, with the flyweight packing block under the fins as shown.

Note the crank pin hole in the crank for the next assembly stage.



Position the conrod bearing over the pin hole in the crank and fit the crank pin throught the conrod into the hole.

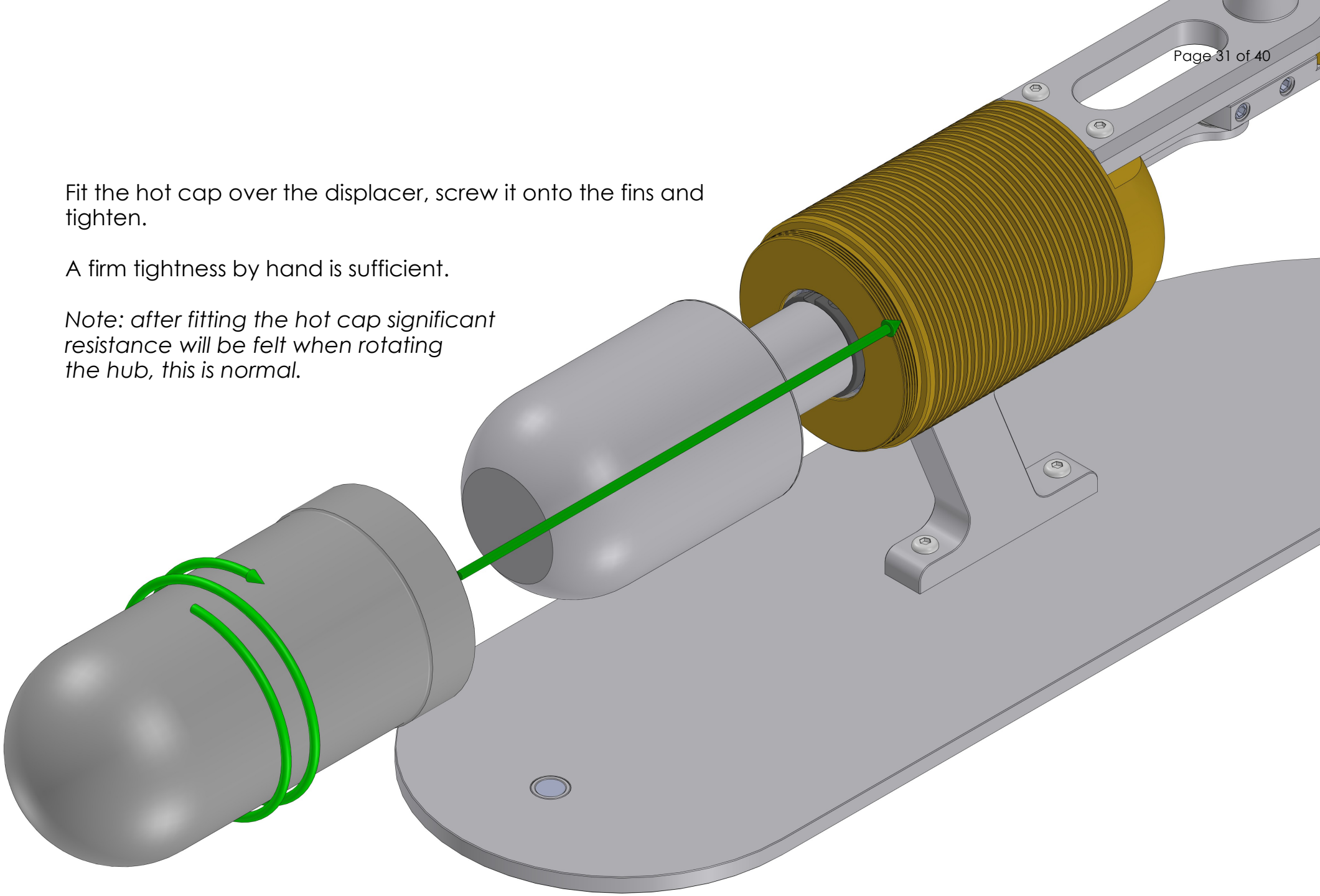
Tighten the pre-fitted screw in the crank onto the crank pin with a medium tightness using the hex key.

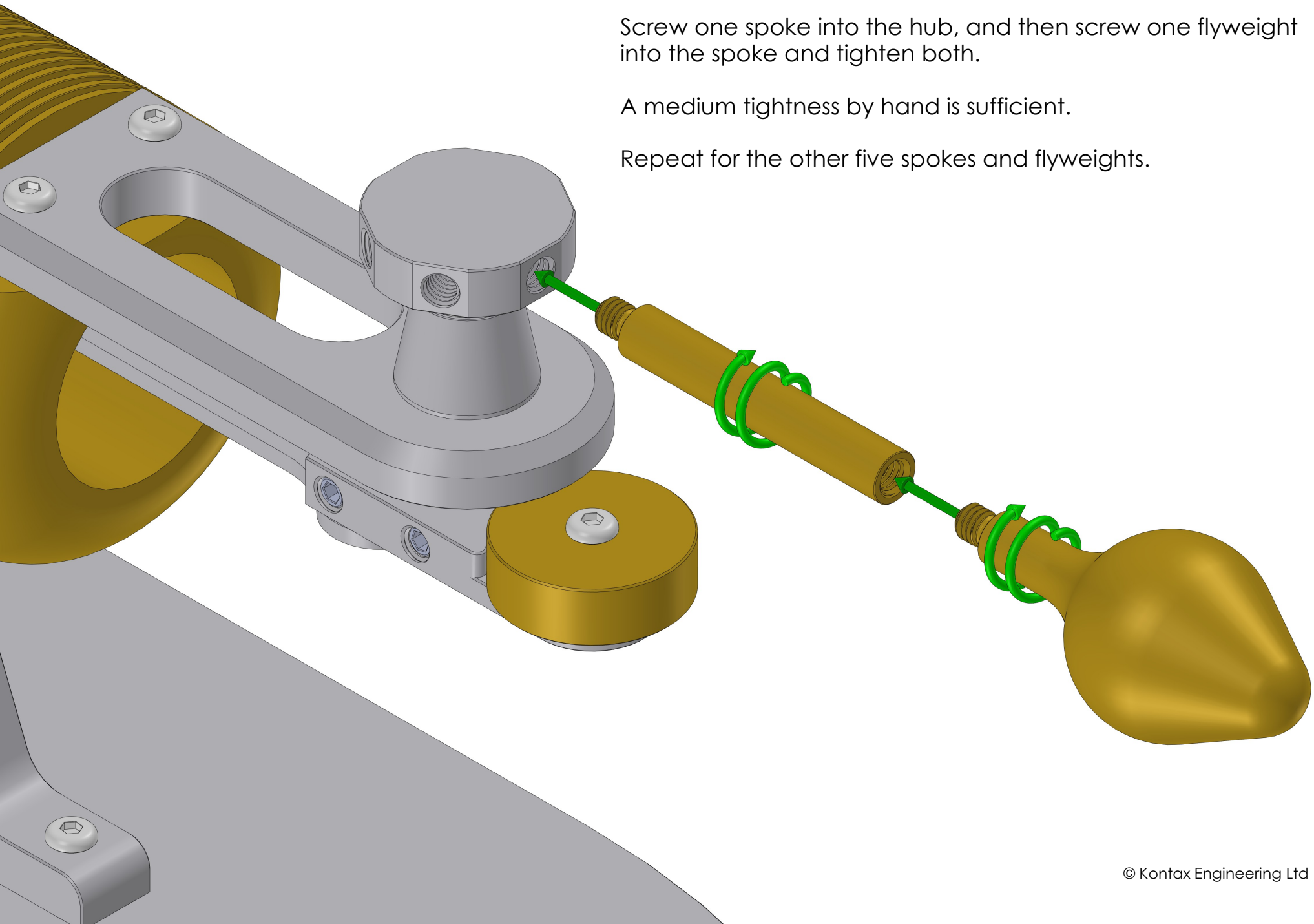


Fit the hot cap over the displacer, screw it onto the fins and tighten.

A firm tightness by hand is sufficient.

Note: after fitting the hot cap significant resistance will be felt when rotating the hub, this is normal.

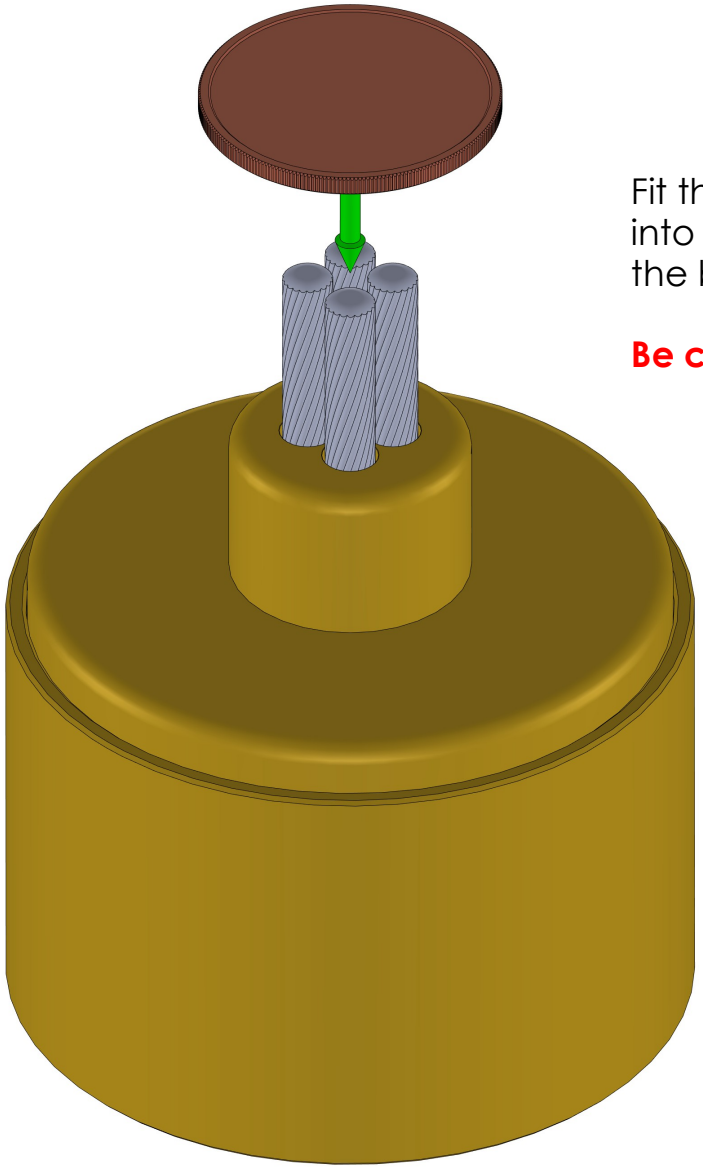




Screw one spoke into the hub, and then screw one flyweight into the spoke and tighten both.

A medium tightness by hand is sufficient.

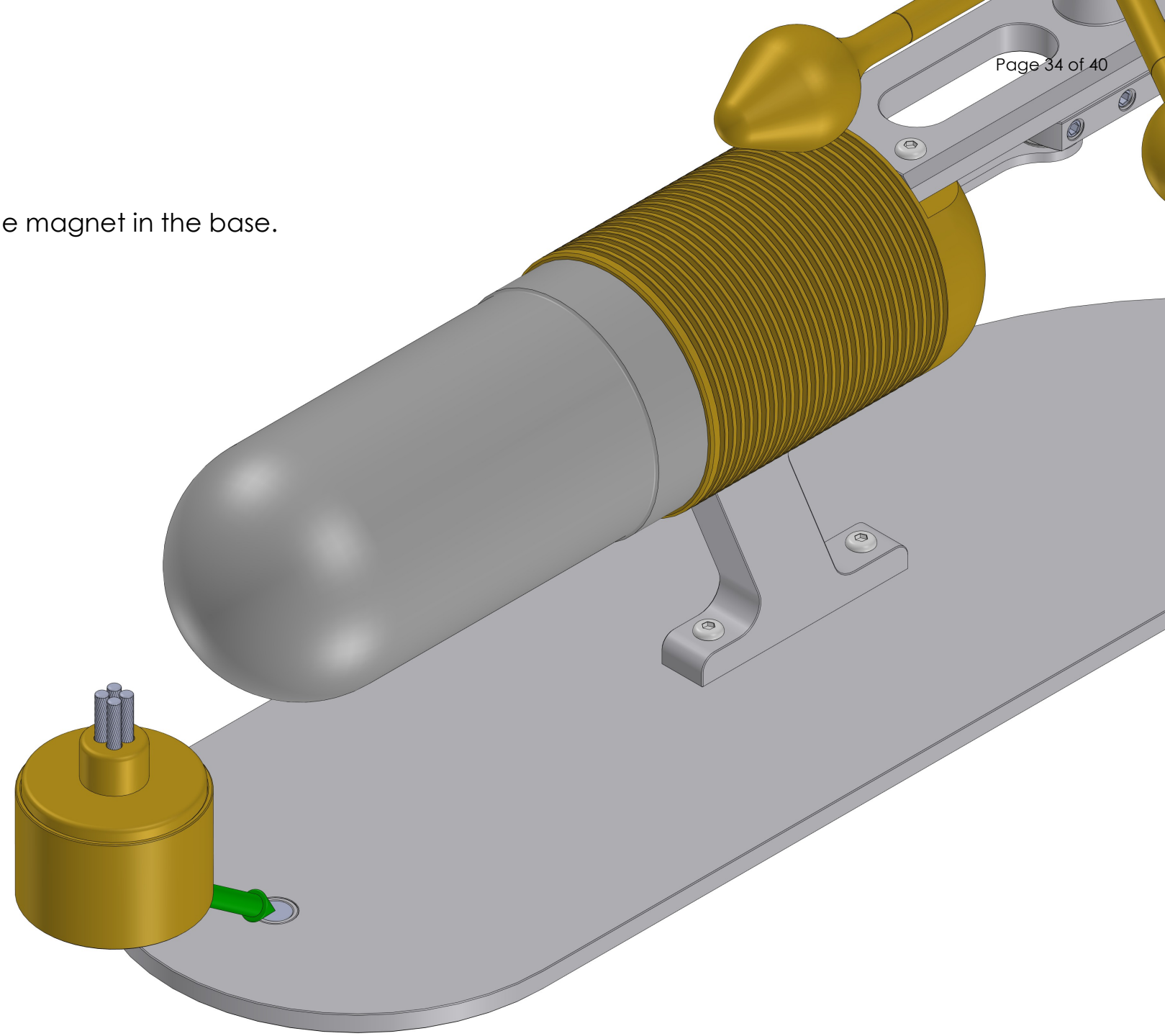
Repeat for the other five spokes and flyweights.



Fit the burner cap into the burner and then fit the wicks into the cap. Use a coin to push the wicks all the way into the bottom of the burner body.

Be careful of sharp strands on the wicks!

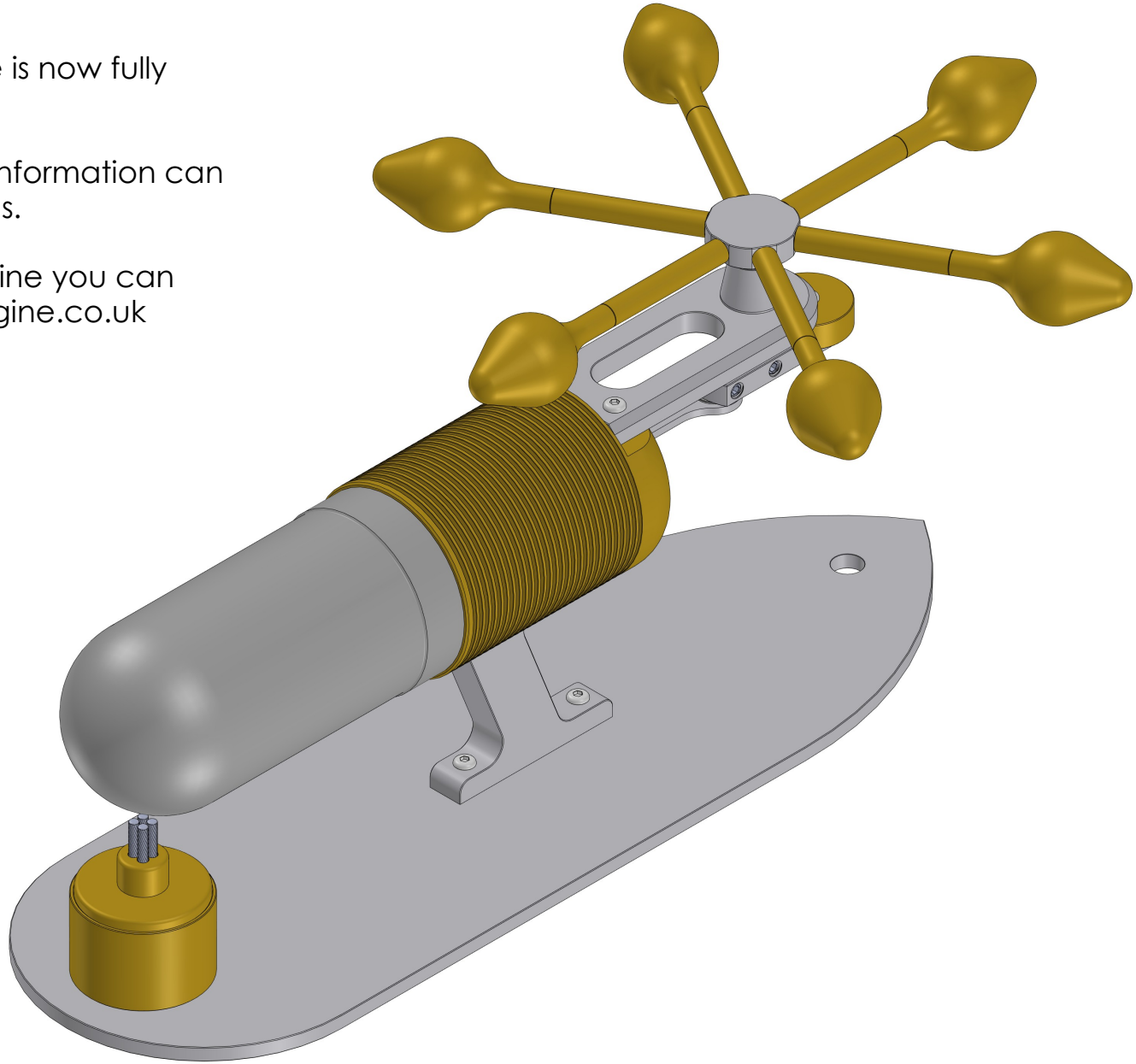
Attach the burner to the magnet in the base.



Your Kontax Flame Pod engine is now fully assembled.

Operation and maintenance information can be found in the next few pages.

If you need help with your engine you can email us at: support@stirlingengine.co.uk



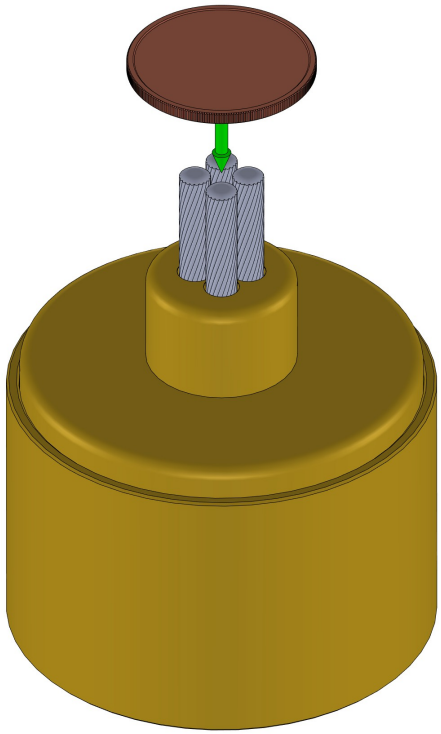
SAFETY NOTICE:

- All parts of the engine will be very hot while in operation and will take time to cool down after running.
- The flame produced by a steel wick can be almost invisible, ensure burner is extinguished after use.
- Make sure you have a suitable fire extinguisher to hand in case of emergencies.
- Never leave a running engine or naked flame unattended.
- Make sure children are fully supervised.

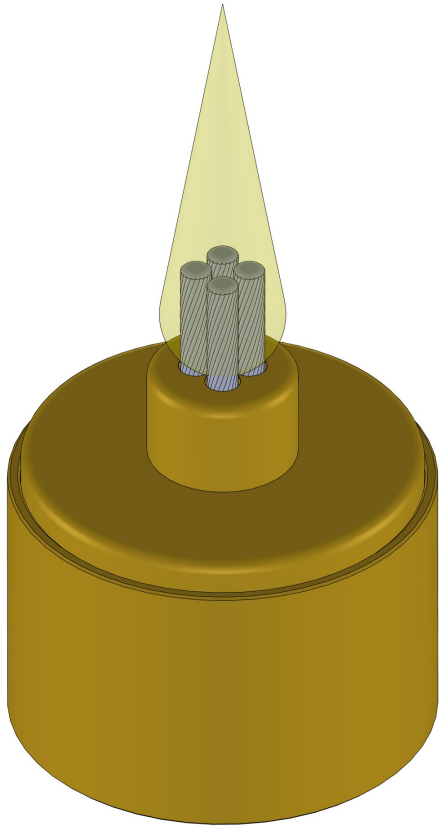
The engine uses Methylated Spirits or Denatured Alcohol as fuel.

Remove the burner cap and wicks from the burner body and fill the body with fuel to the fill line.

DO NOT FILL HIGHER THAN THE FILL LINE!



Fit the burner cap back into the burner body and press the wicks with a coin to make sure they are the correct length.



Wait 10-15 seconds for the wicks to draw up some fuel and then light them.

You should get a flame about 20-30mm high.

Operation

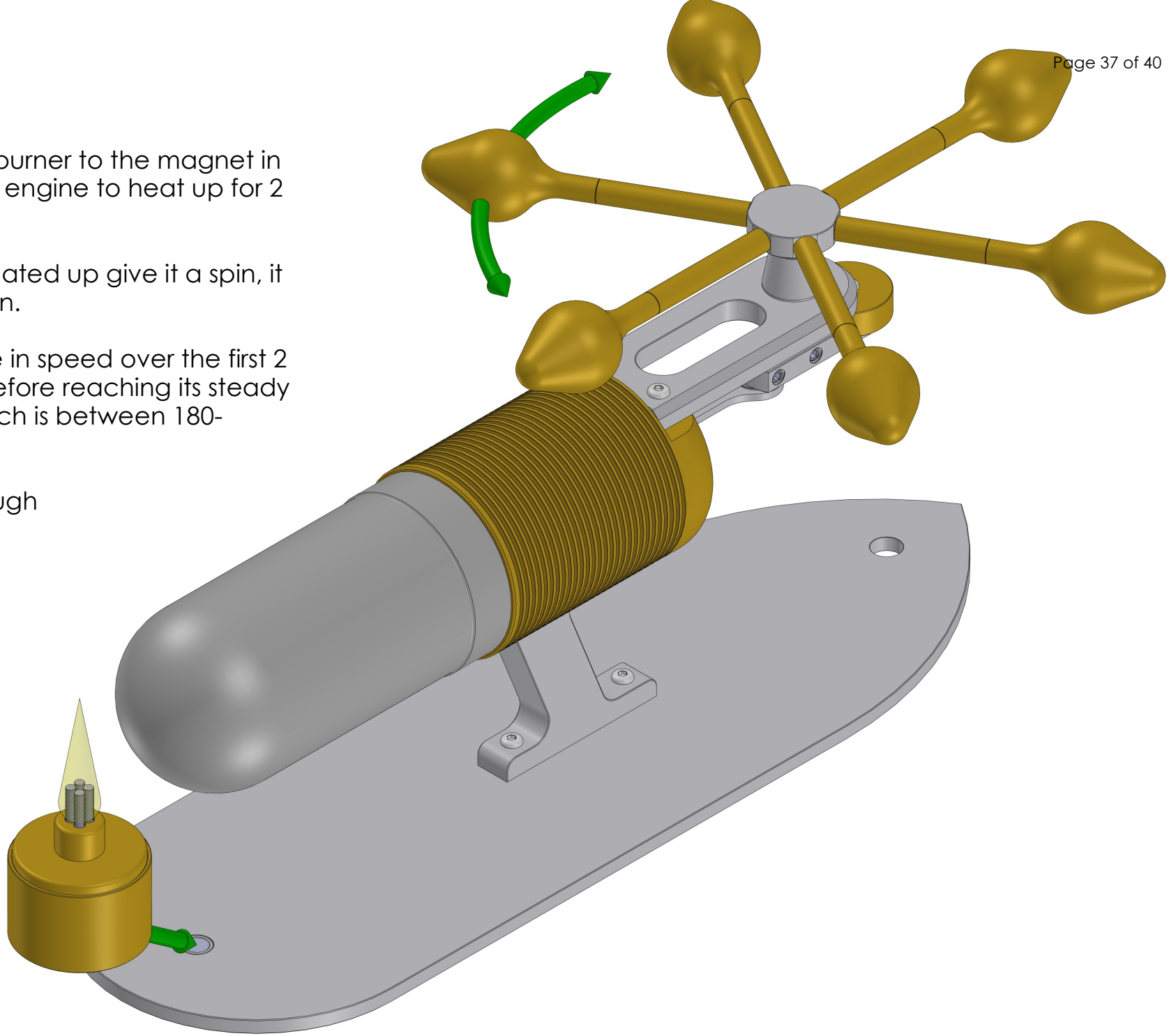
Carefully attach the lit burner to the magnet in the base and allow the engine to heat up for 2 minutes.

After the engine has heated up give it a spin, it will run in either direction.

The engine will increase in speed over the first 2 minutes of operation before reaching its steady operational speed, which is between 180-250rpm.

The fuel should be enough for a 10 minute run.

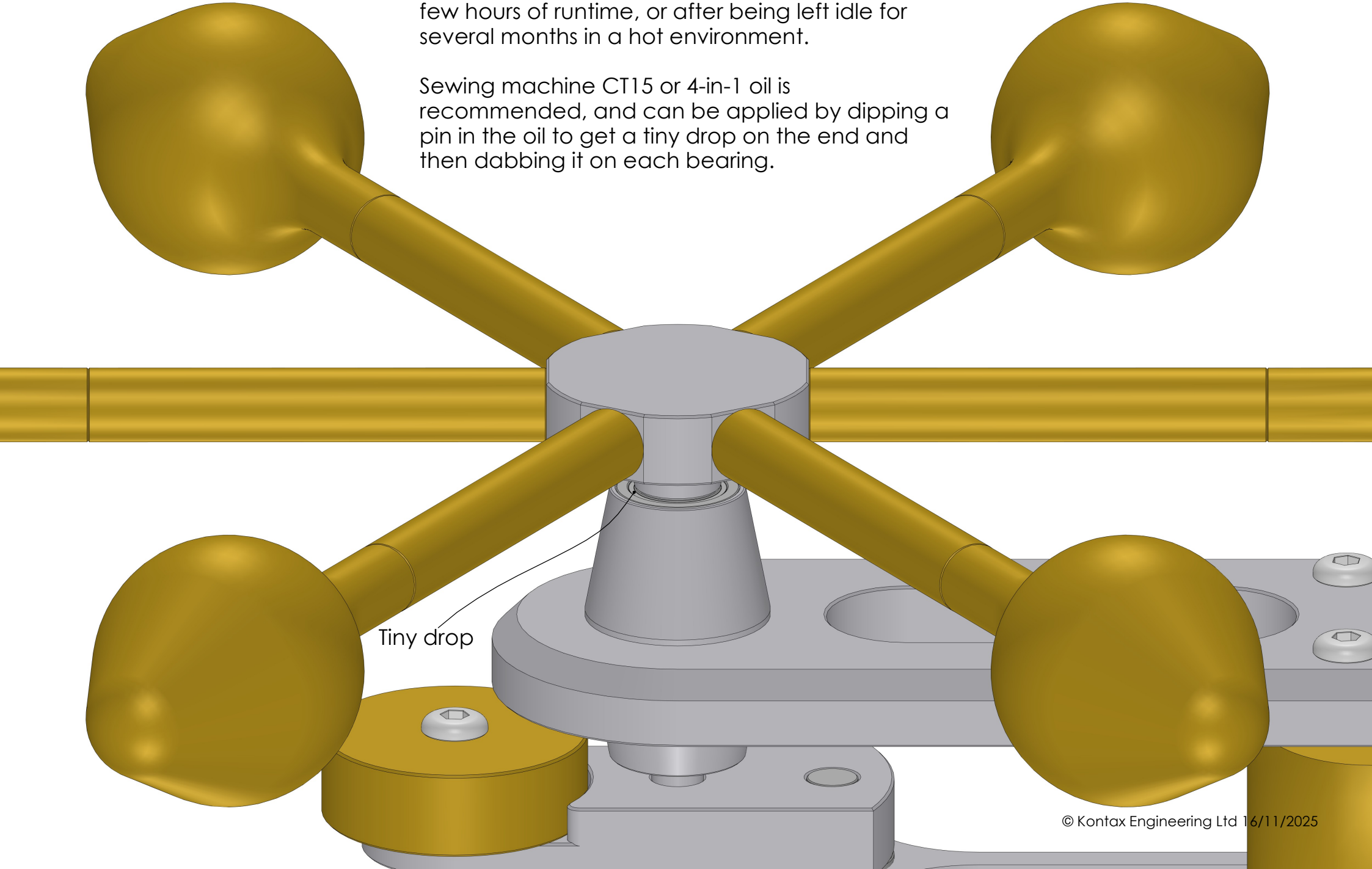
Ensure burner is fully extinguished after use!

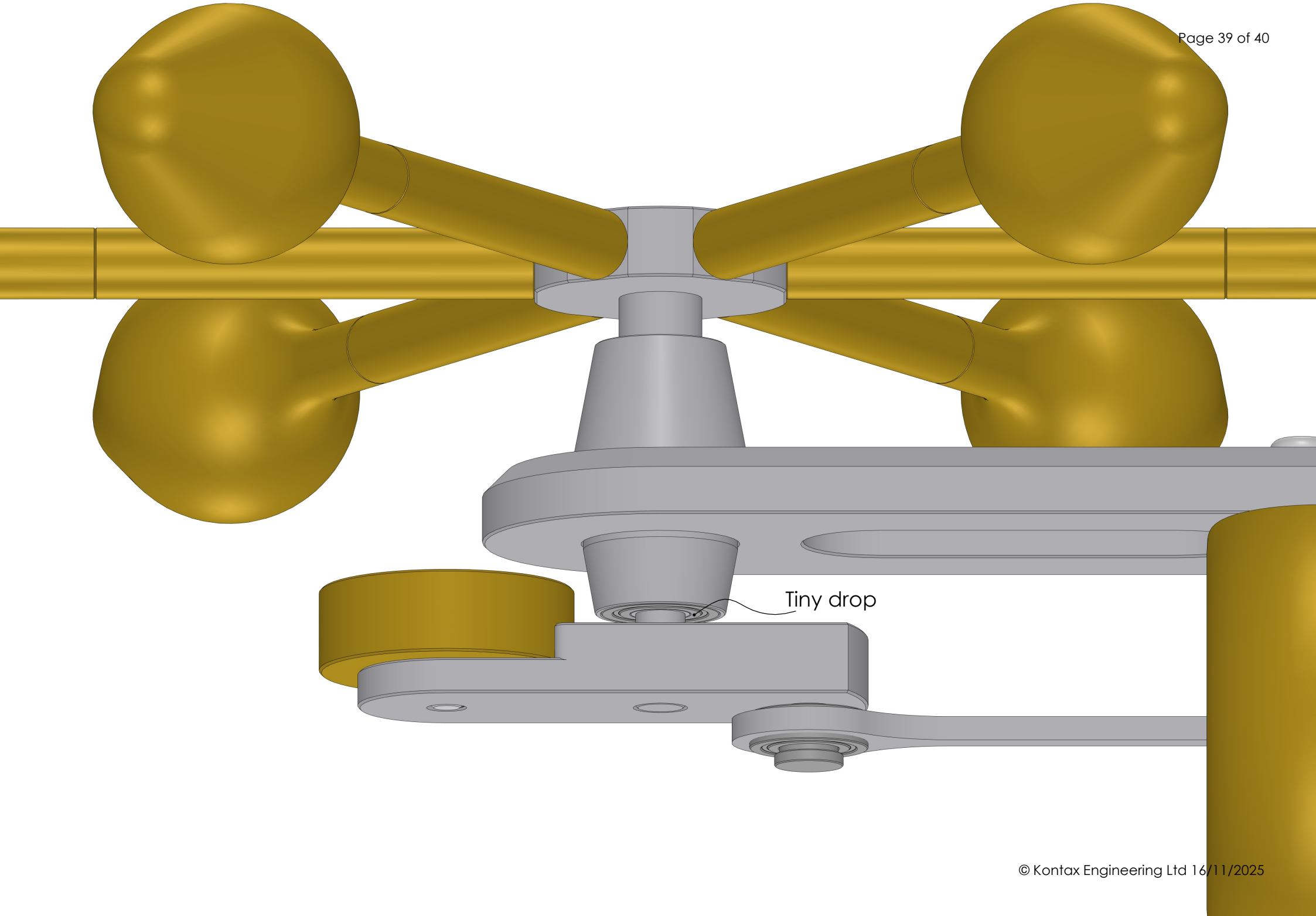


Maintenance

The engine is designed to be as maintenance-free as possible, requiring only a tiny drop of oil every few hours of runtime, or after being left idle for several months in a hot environment.

Sewing machine CT15 or 4-in-1 oil is recommended, and can be applied by dipping a pin in the oil to get a tiny drop on the end and then dabbing it on each bearing.





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