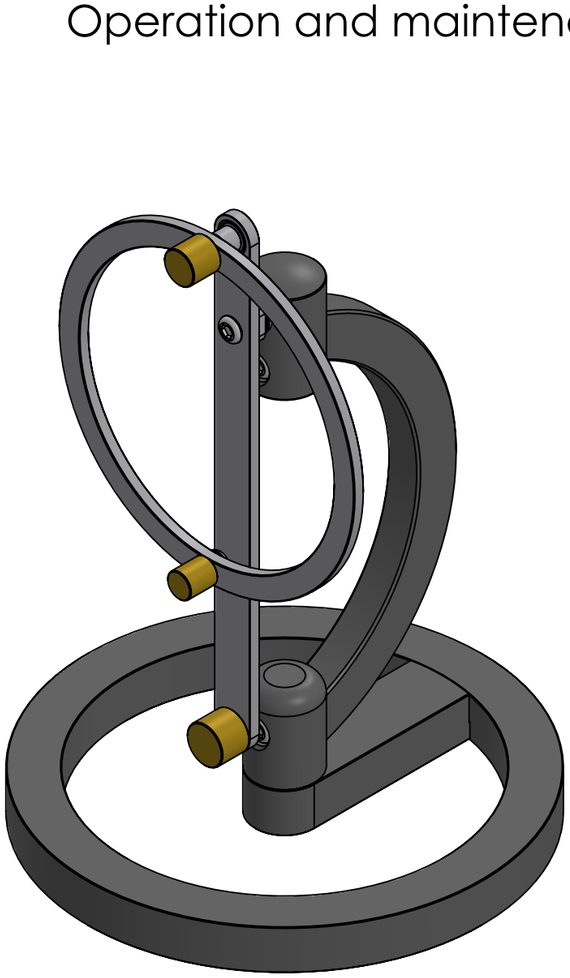
Chaos Pendulum Assembly Instructions

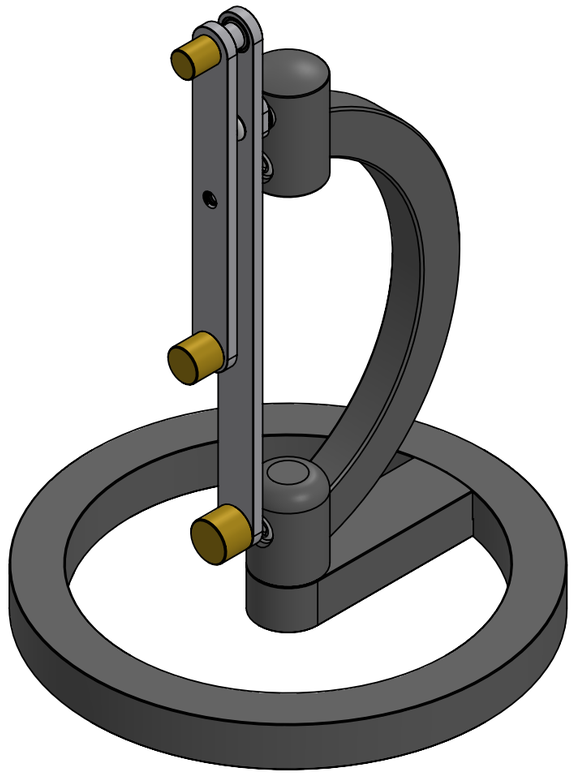
Please read all the way through the assembly instructions to familiarise yourself with the process before you start and pay close attention to the alignment of all the parts in the diagrams.

The kit contains parts to make one standard base unit which can then be adapted into four different configurations. Assembly time should be approximately 10-15 minutes for each configuration.

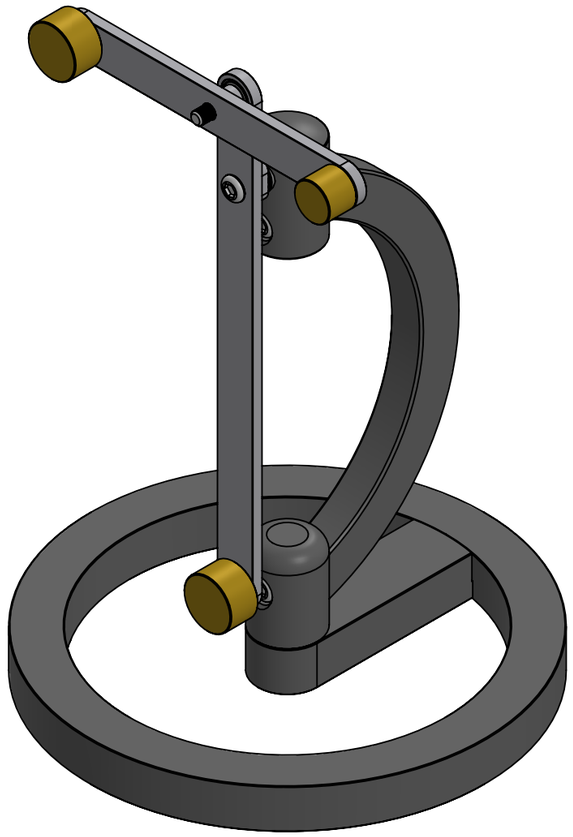
Operation and maintenence instructions can be found at the end of this document.



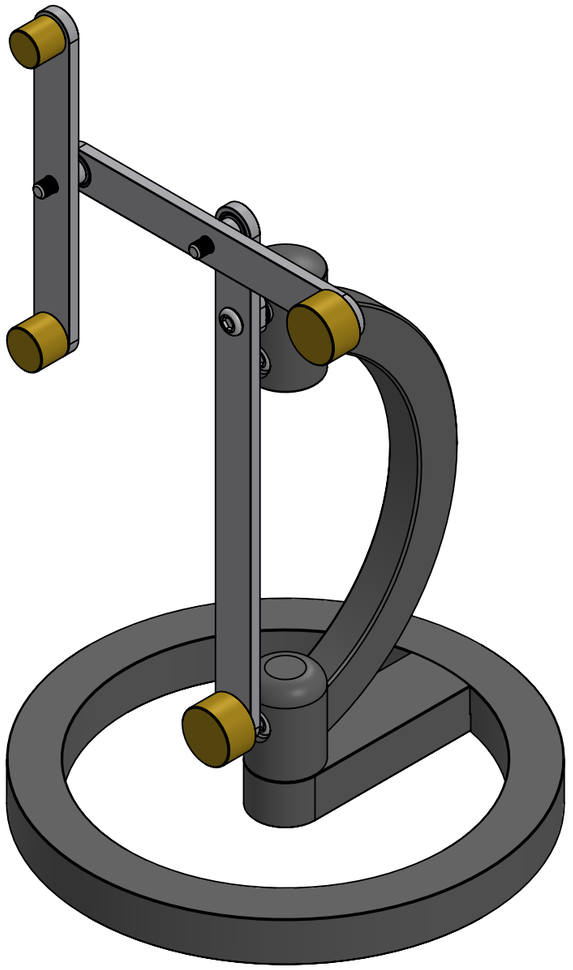
Configuration 1



Configuration 2

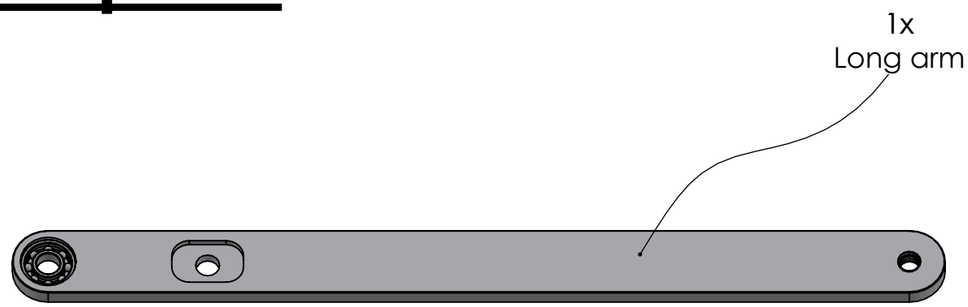


Configuration 3

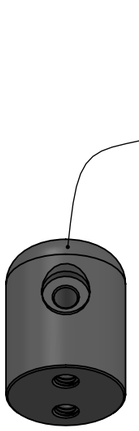


Configuration 4

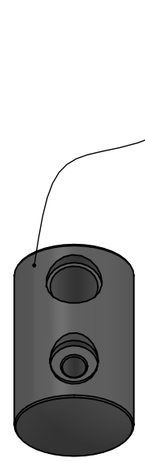
Main parts



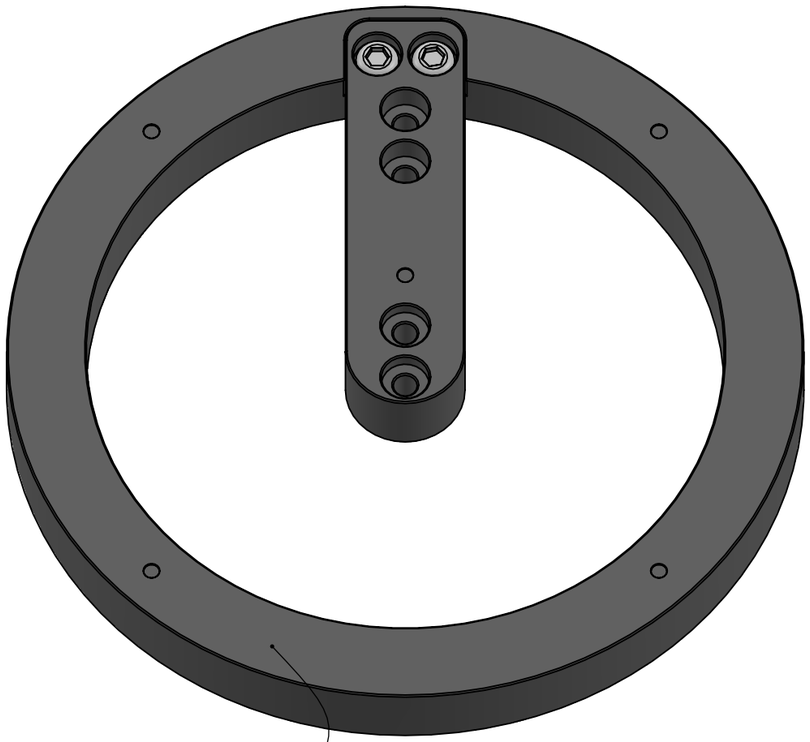
1x
Long arm



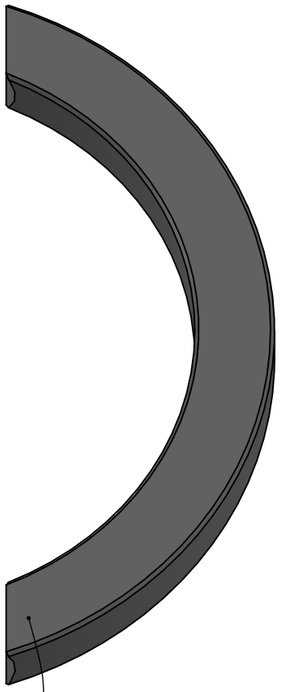
1x
Bottom pillar



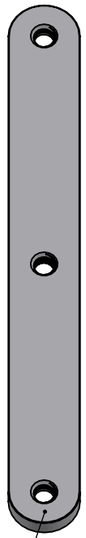
1x
Top pillar



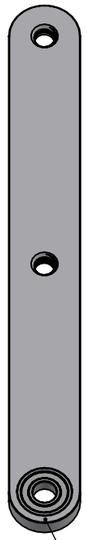
Base
1x



Arm
1x



Swivel arm
1x



Short arm
1x

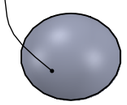
Swing ring
1x

Small parts

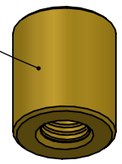
2x
Ball-race
bearing

2x
Bearing tube

5x
Rubber foot

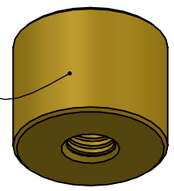


2x
Small weight
(6mm)

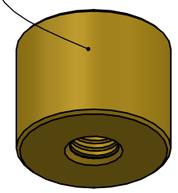


2x
Medium weight
(7.5mm)

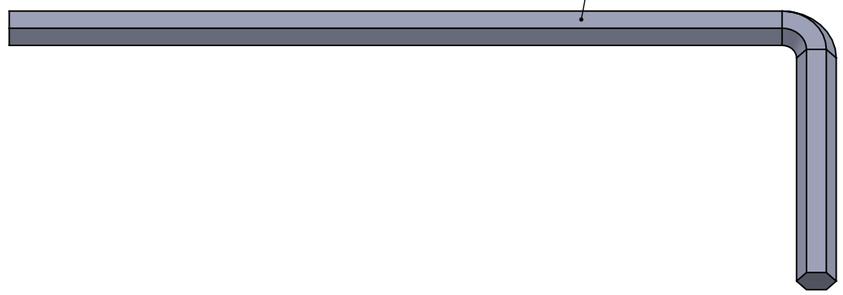
2x
Large weight
(9mm)



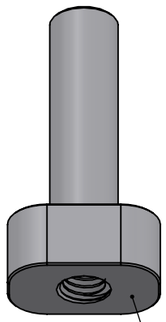
2x
Extra-large weight
(12mm)



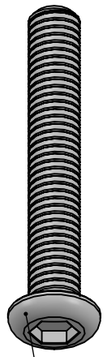
1x
2mm hex key



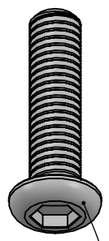
Axle
1x



Long screw
2x

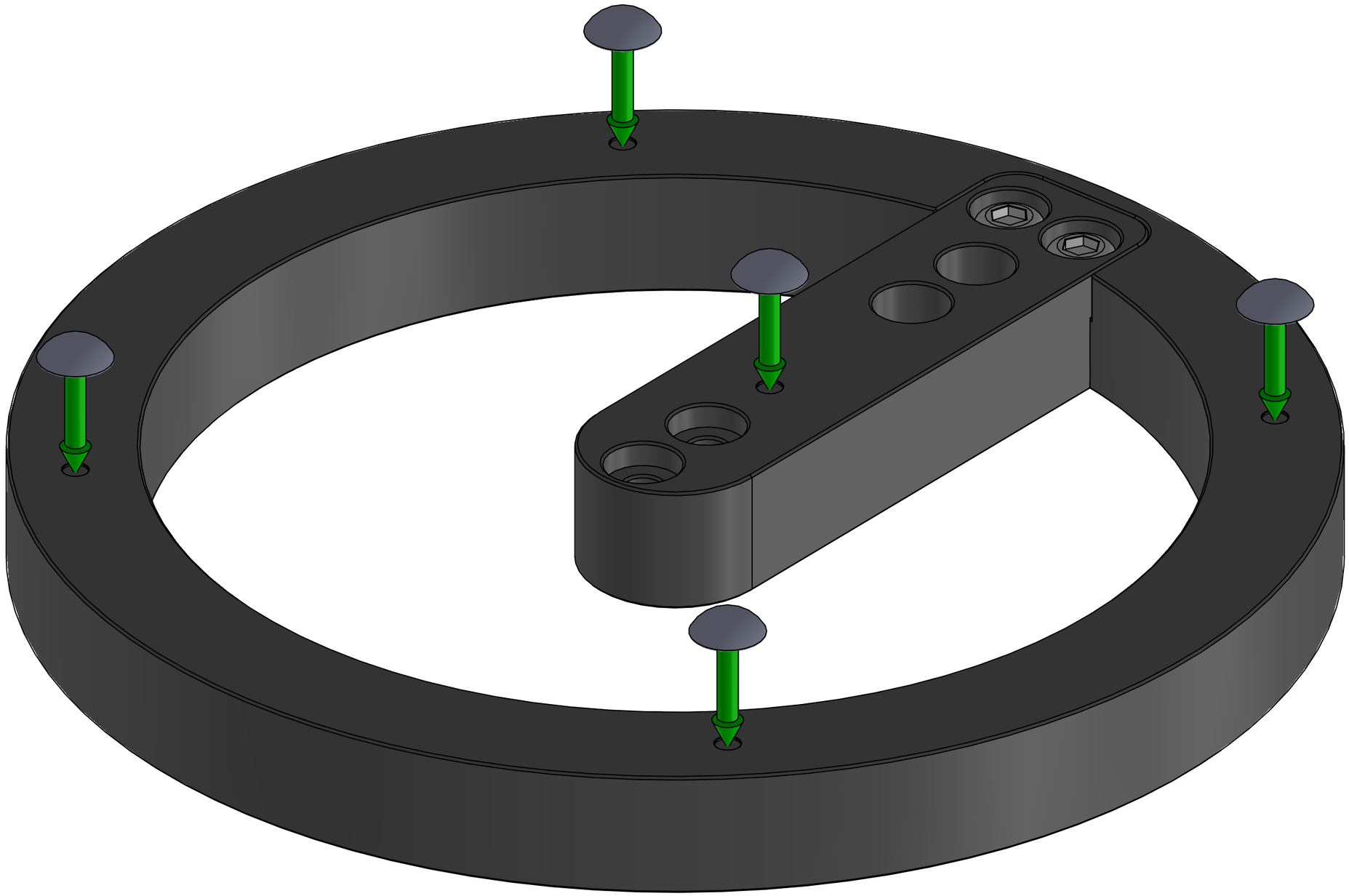


Medium screw
6x



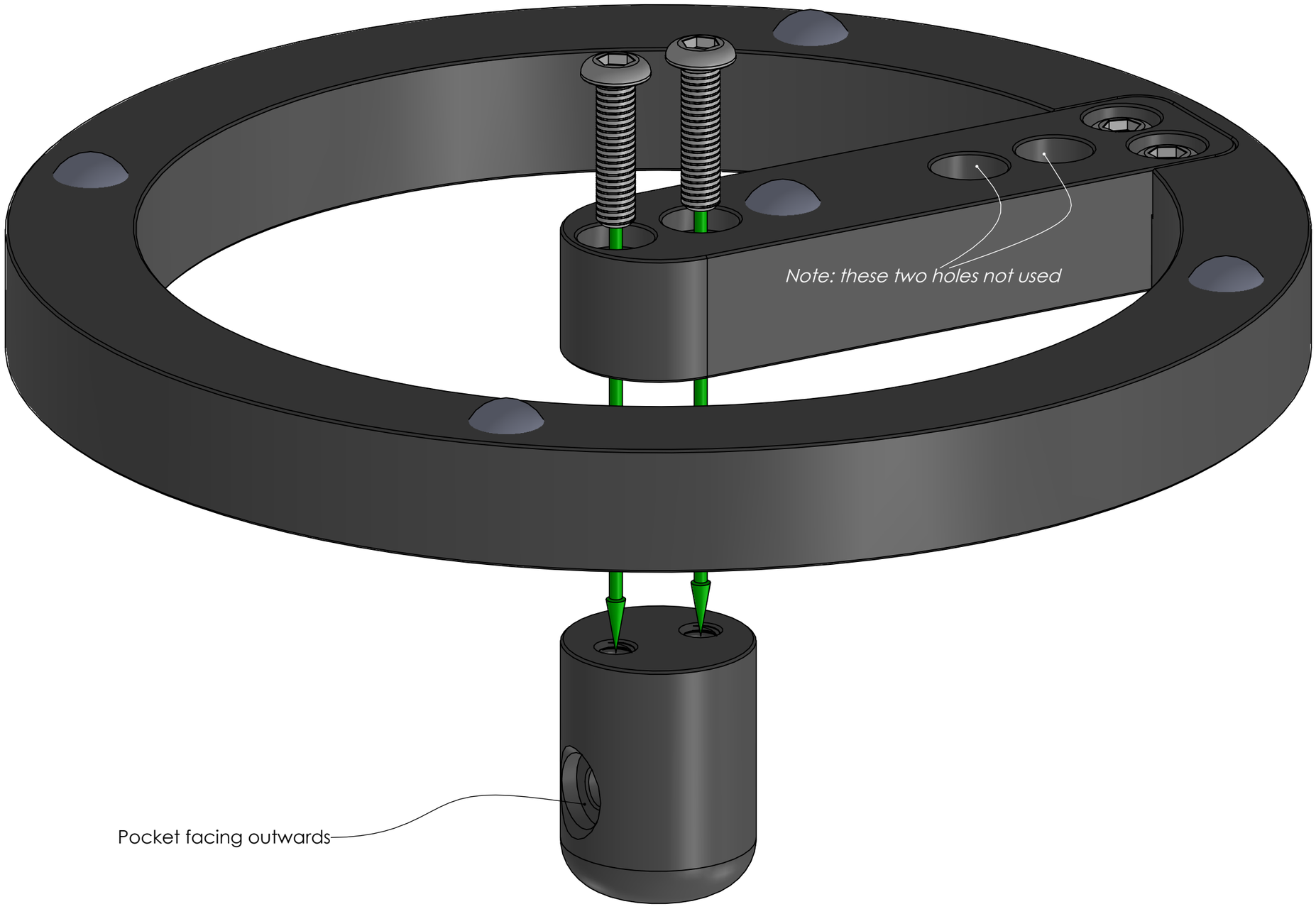
Short screw
8x

Peel the backing off the five adhesive rubber feet and stick them over the dimples on the bottom of the base.



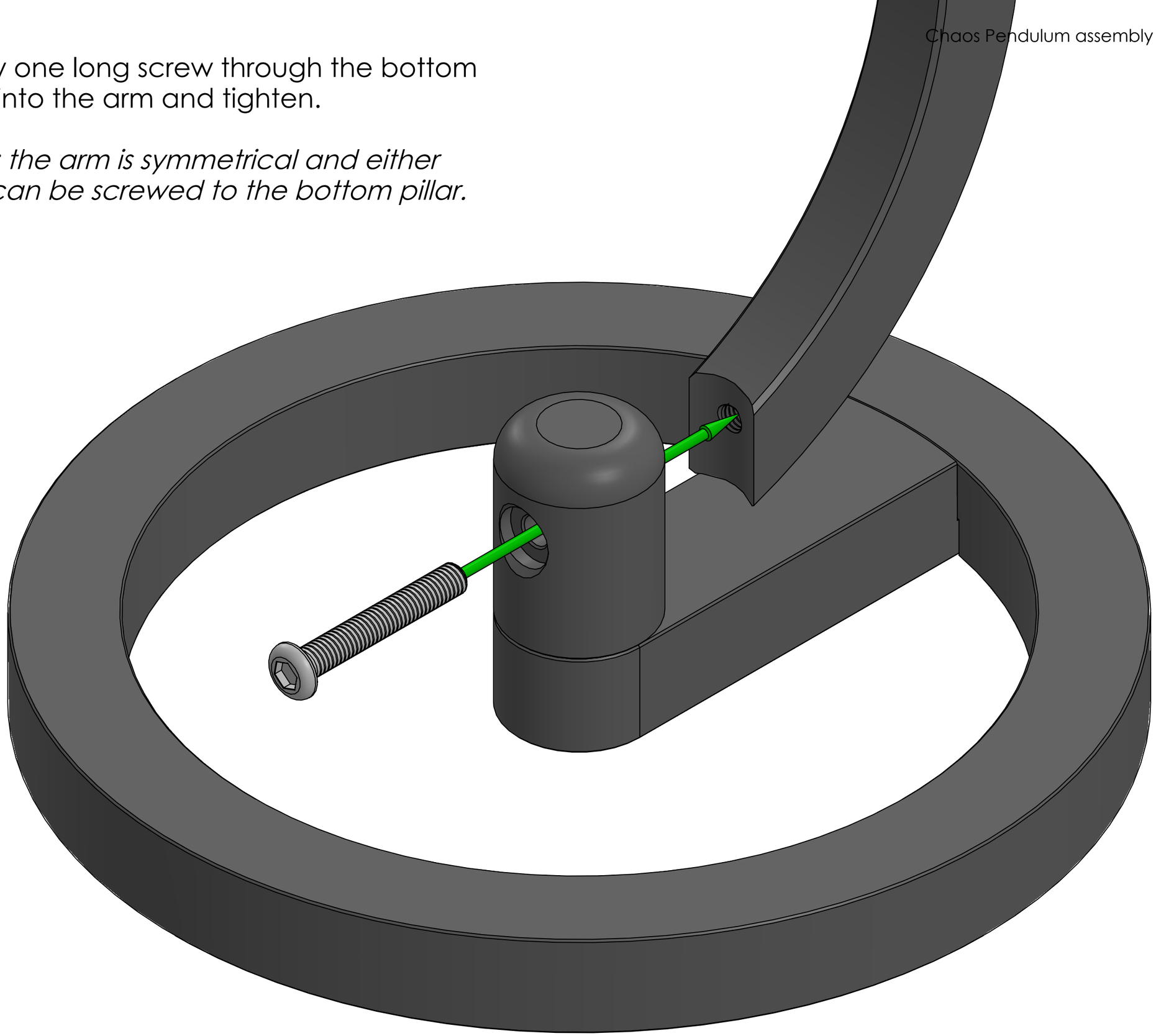
Screw two medium screws through the strut into the bottom pillar and tighten.

Note: the pocket on the pillar should face as shown.



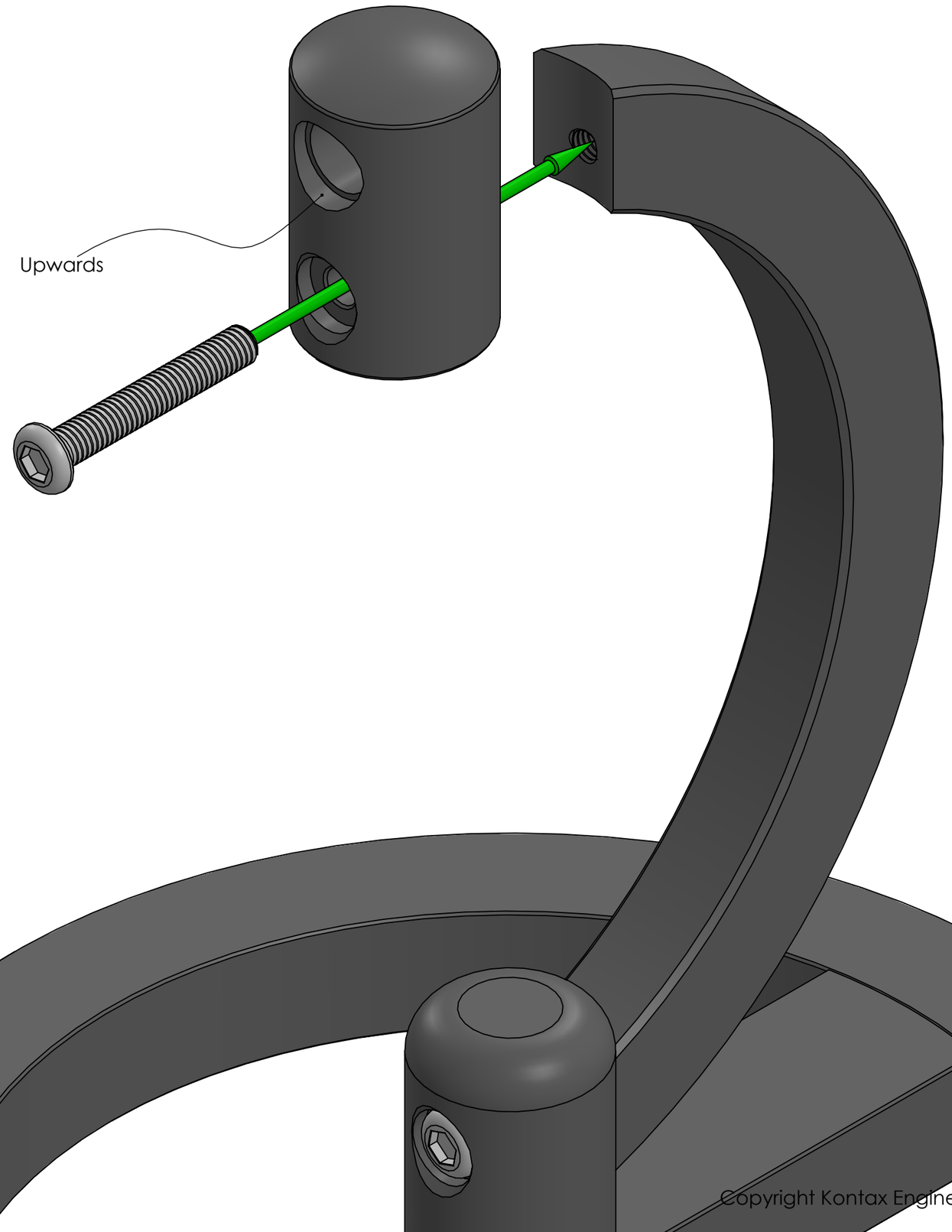
Screw one long screw through the bottom pillar into the arm and tighten.

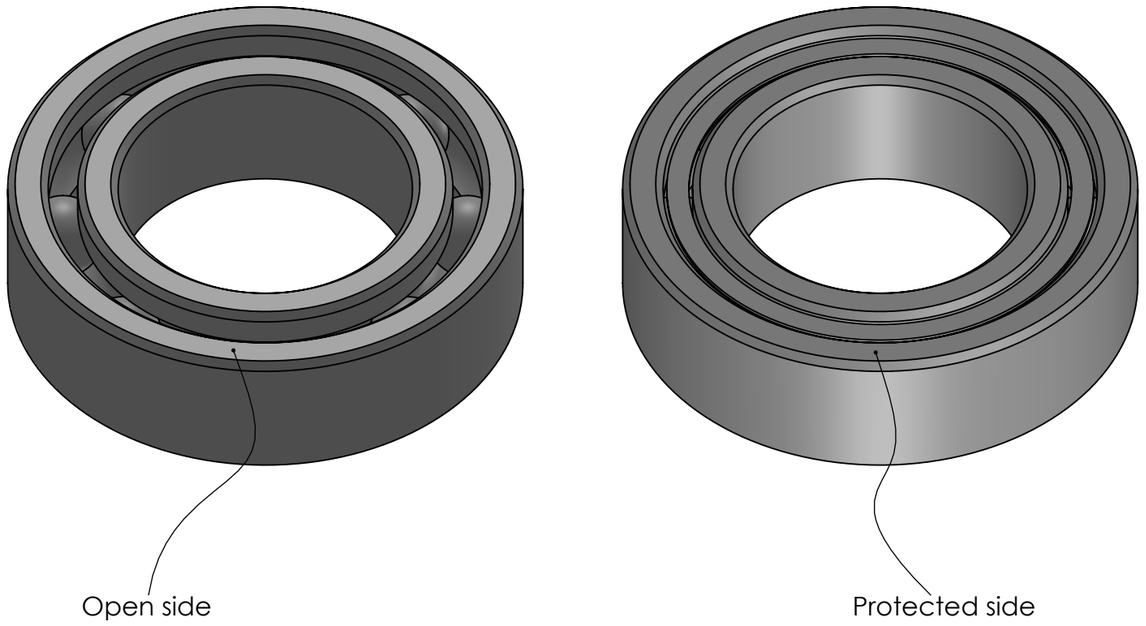
Note: the arm is symmetrical and either end can be screwed to the bottom pillar.



Screw one long screw through the top pillar into the arm and tighten.

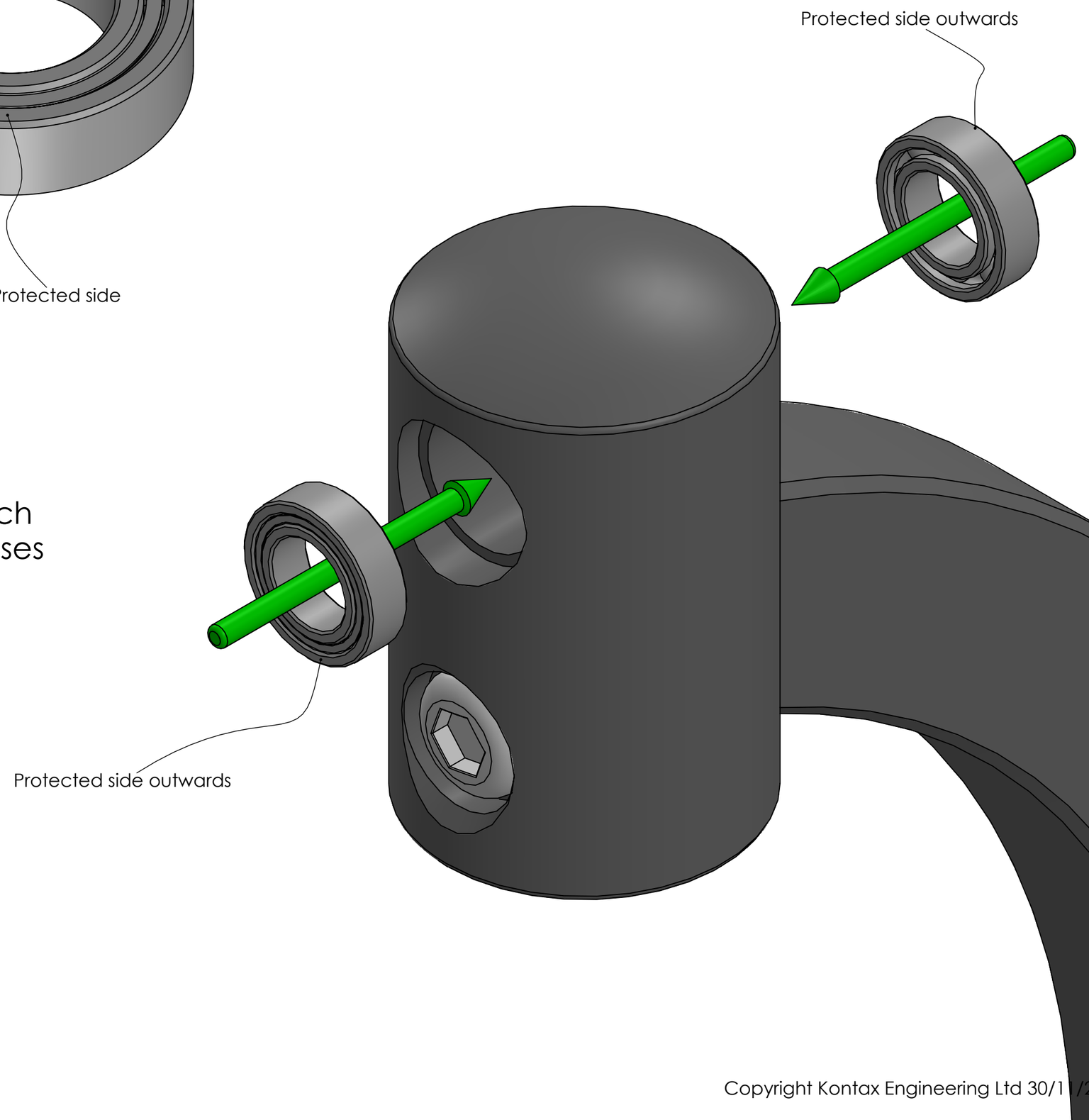
Note: the pocket in the pillar should be oriented upwards as shown.

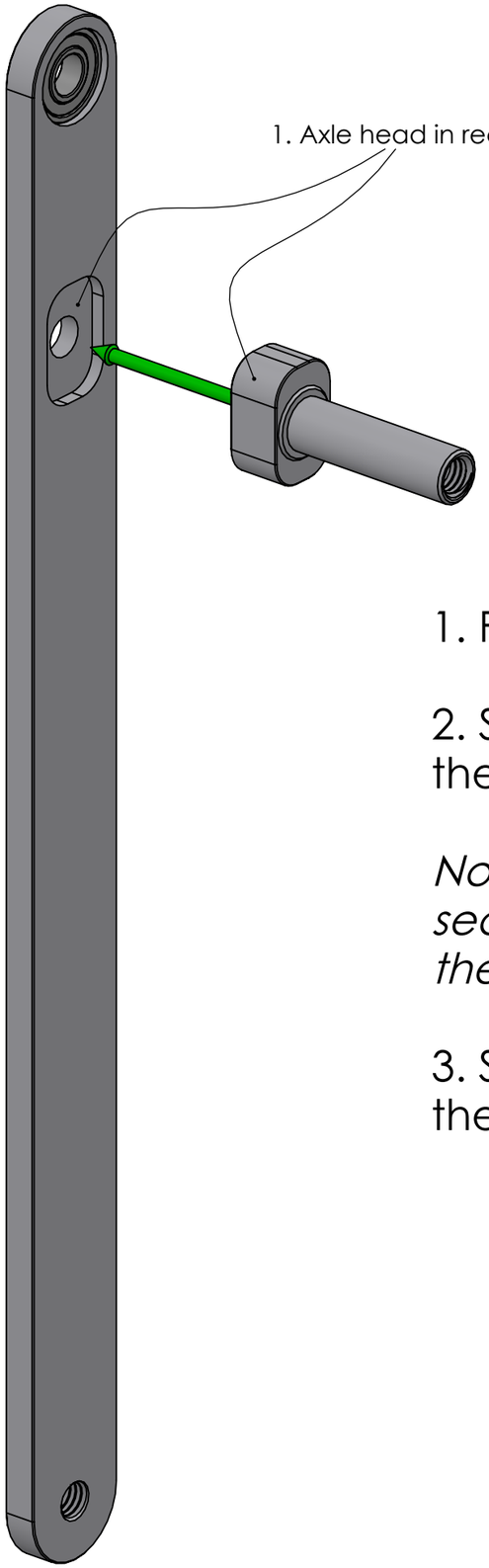


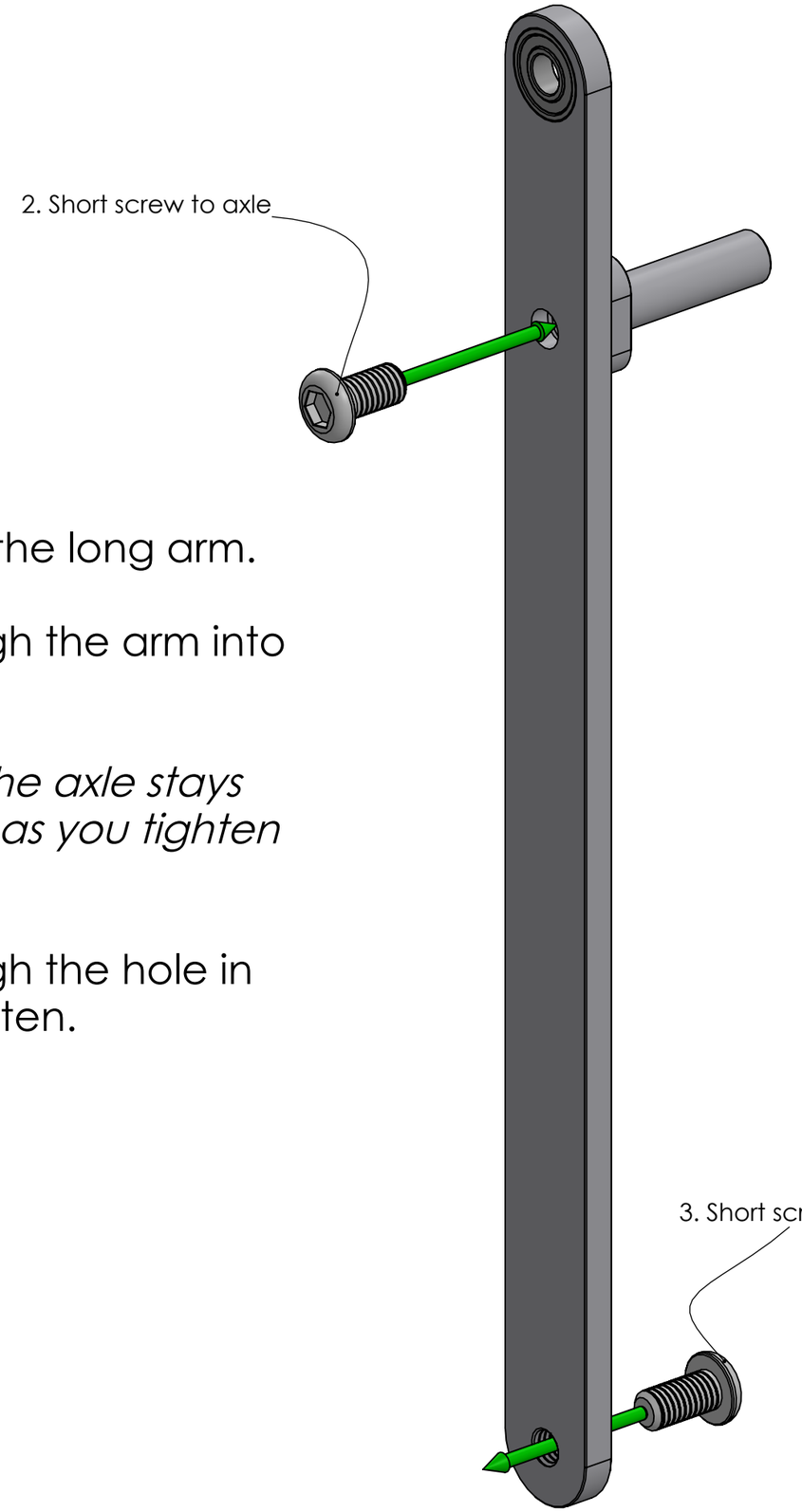


Note: the ball-race bearings have an open side and a protected side.

With the protected side outwards for each ball-race bearing, fit them into the recesses in the top pillar.





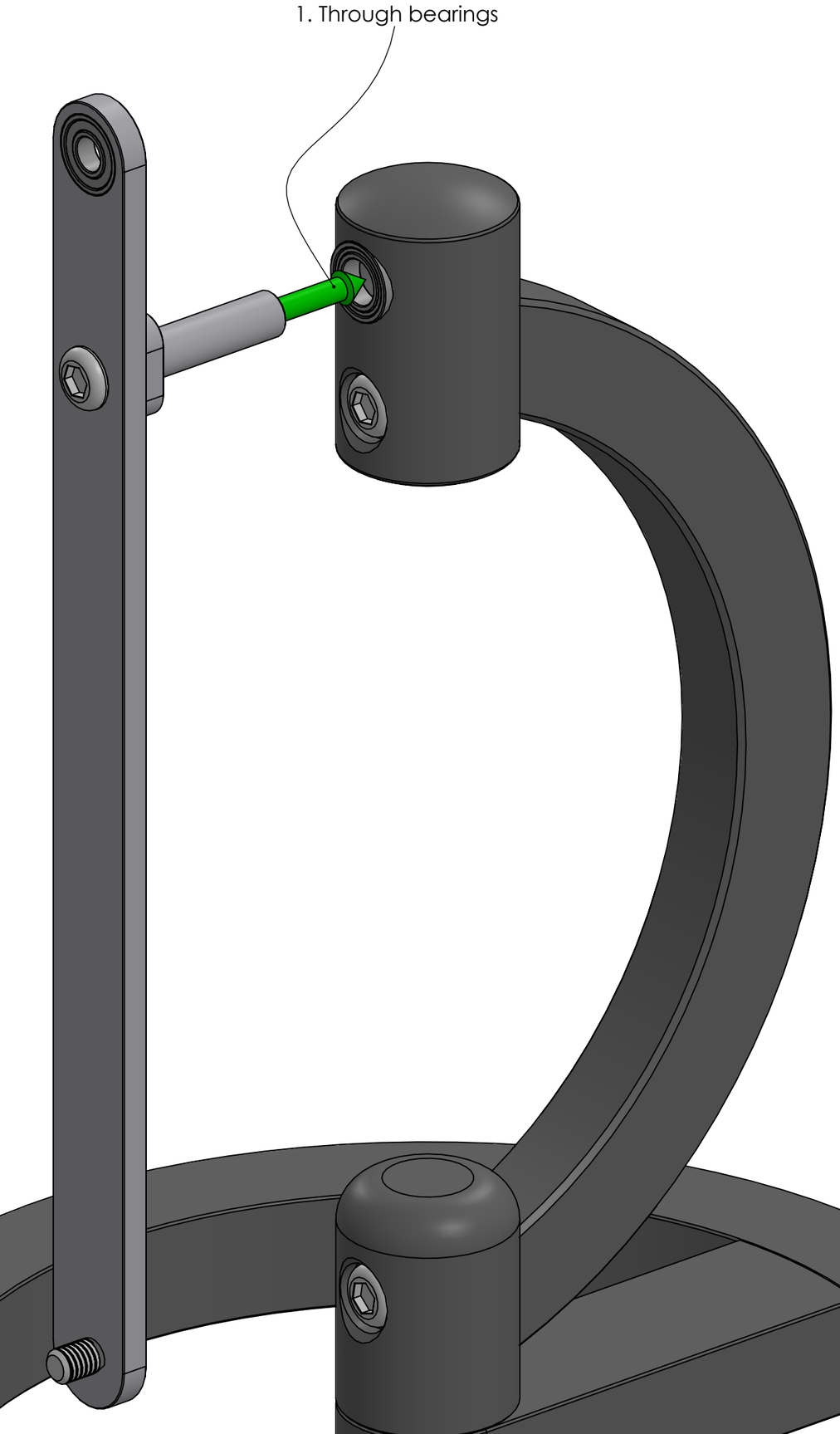


1. Fit the axle into the recess in the long arm.

2. Screw one short screw through the arm into the axle and tighten.

Note: Make sure the head on the axle stays seated in the recess in the arm as you tighten the screw.

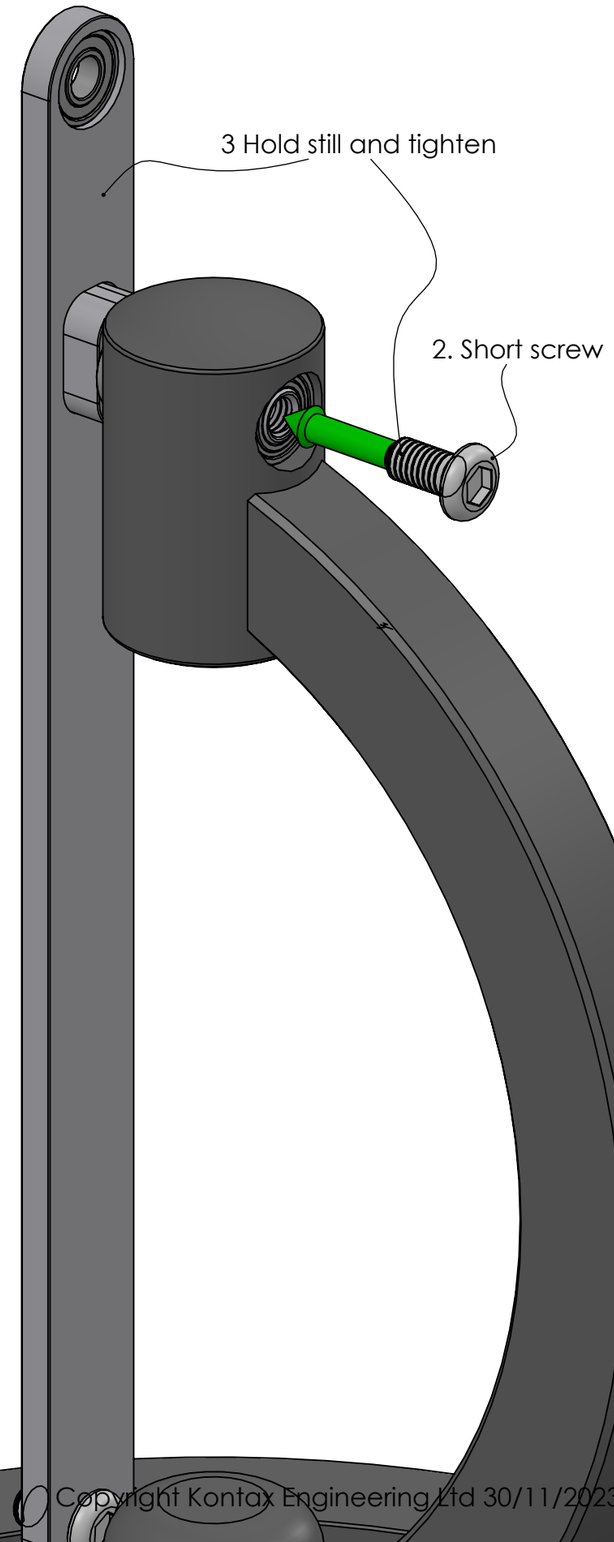
3. Screw one short screw through the hole in the bottom of the arm and tighten.



1. Fit the axle throught the ball-race bearings.

2.Screw one short screw into the end of the axle.

3. Hold the swing arm still and tighten the screw.



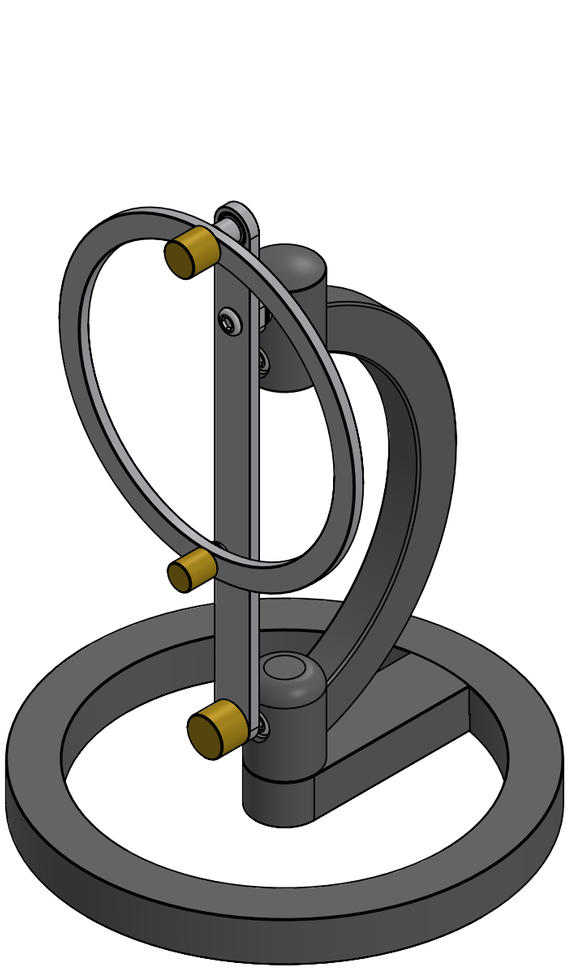
Base unit complete

Your Chaos Pendulum base unit is now complete.

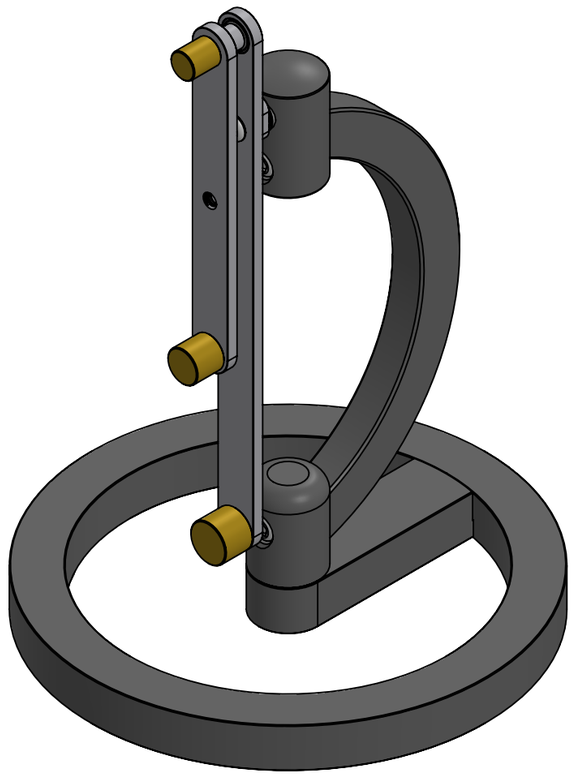
The base unit can be configured in many ways, four standard arm/weight configurations are shown on the next few pages.

Configurations

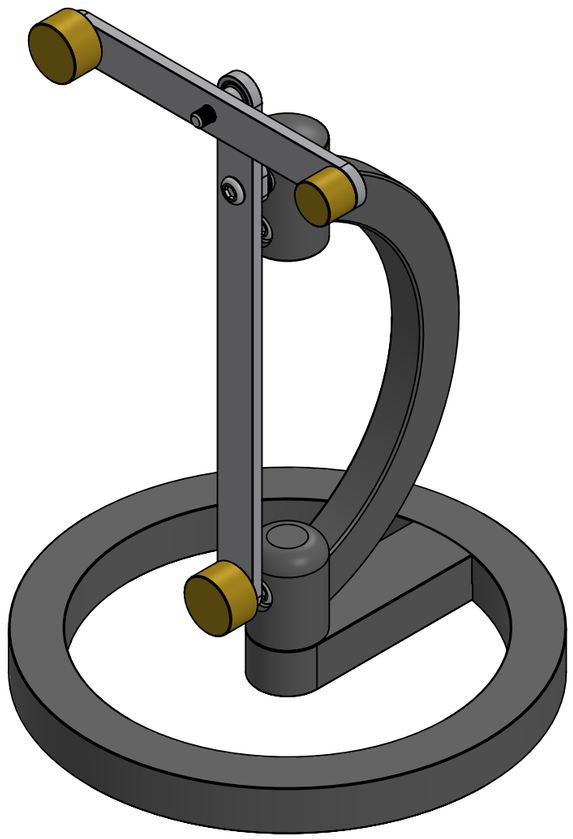
The Chaos pendulum can be configured in many ways, four standard arm/weight configurations are shown here. These are good starting points, but the kit of parts allows for a small omount of experimentation with the placement of the ring and arms, and a lot of experimentation with the placement of the four different weights.



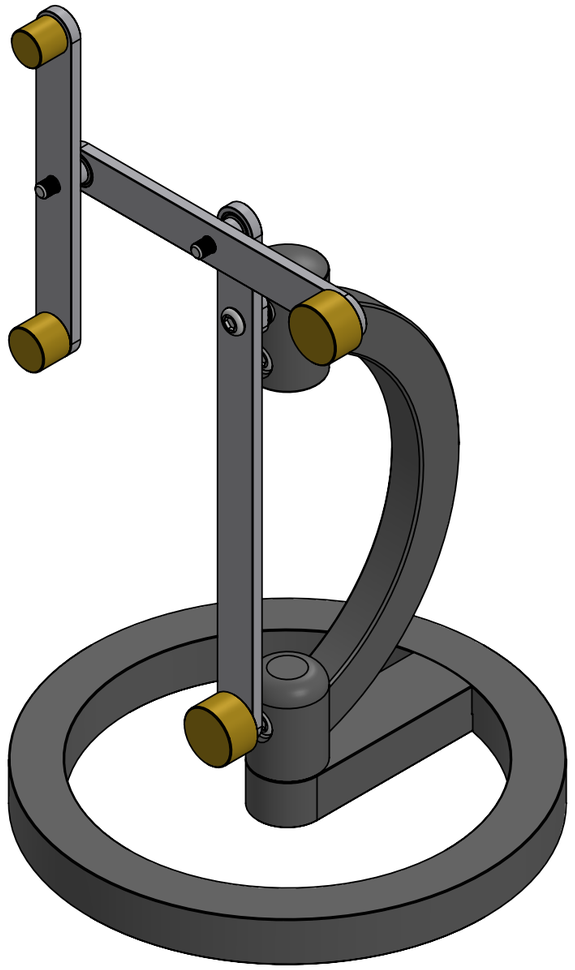
Configuration 1



Configuration 2



Configuration 3



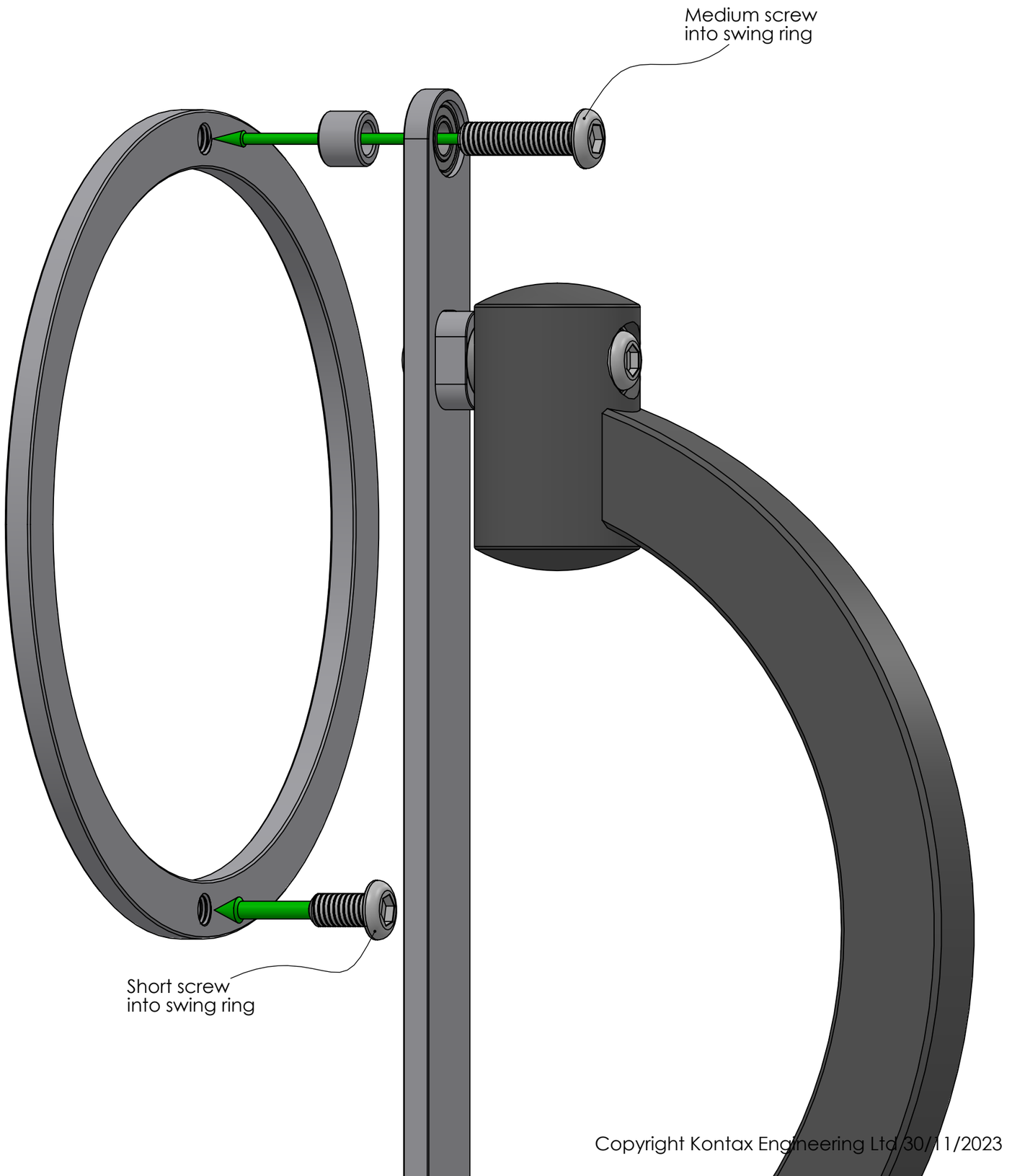
Configuration 4

Configuration 1.1

1. Fit one medium screw through the bearing in the top of the long arm, through a bearing tube, into the swing ring and tighten.

2. Screw one short screw into the swing ring and tighten.

Note: the swing ring is symmetrical and either hole can be use to attach it to the long arm.



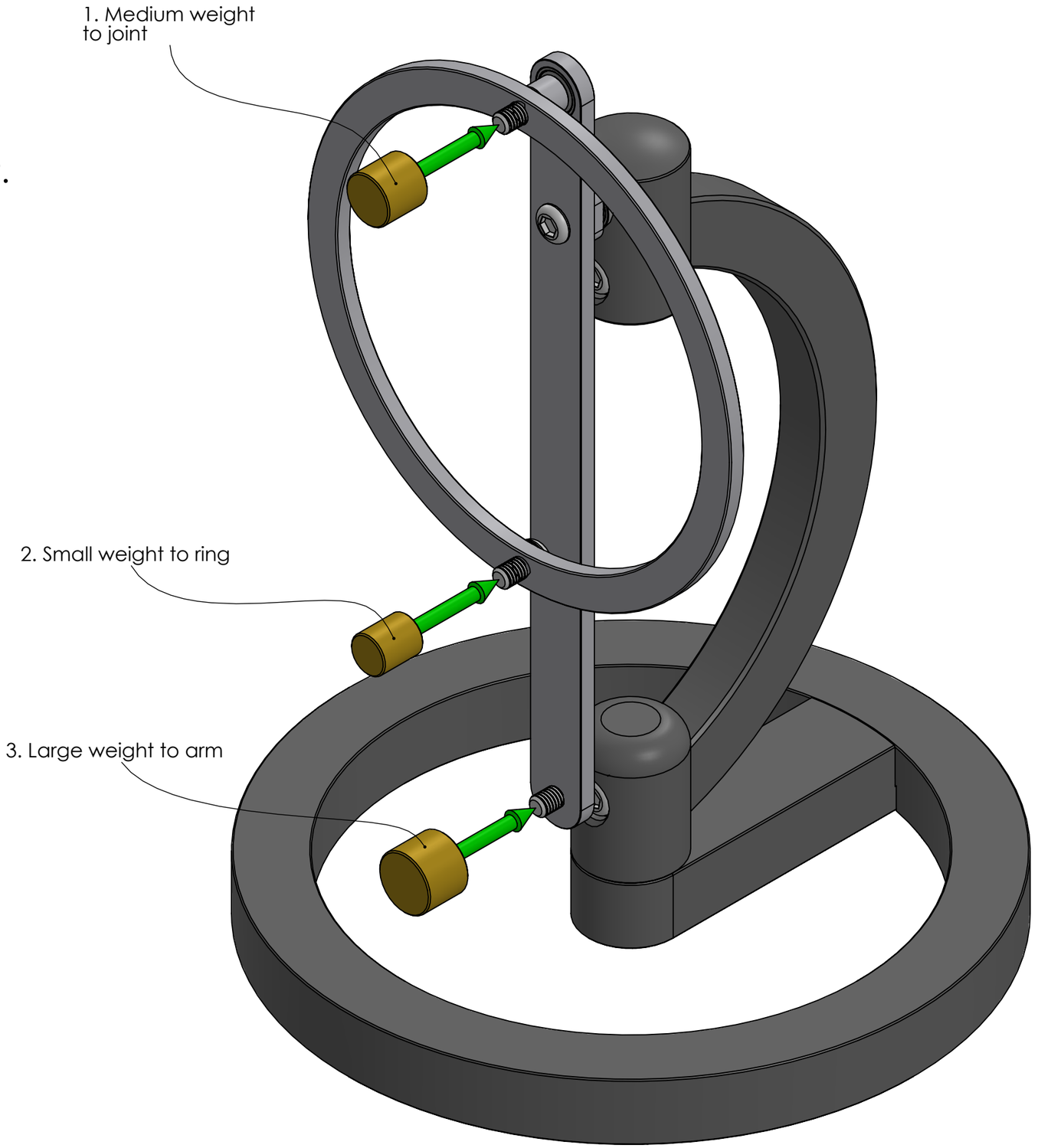
Configuration 1.2

1. Screw one medium weight to the arm/ring joint.

2. Screw one small weight to the swing ring.

3. Screw one large weight to the long arm.

This completes your configuration 1 Chaos Pendulum. Instructions for configurations 2, 3 and 4 can be found on the next few pages.

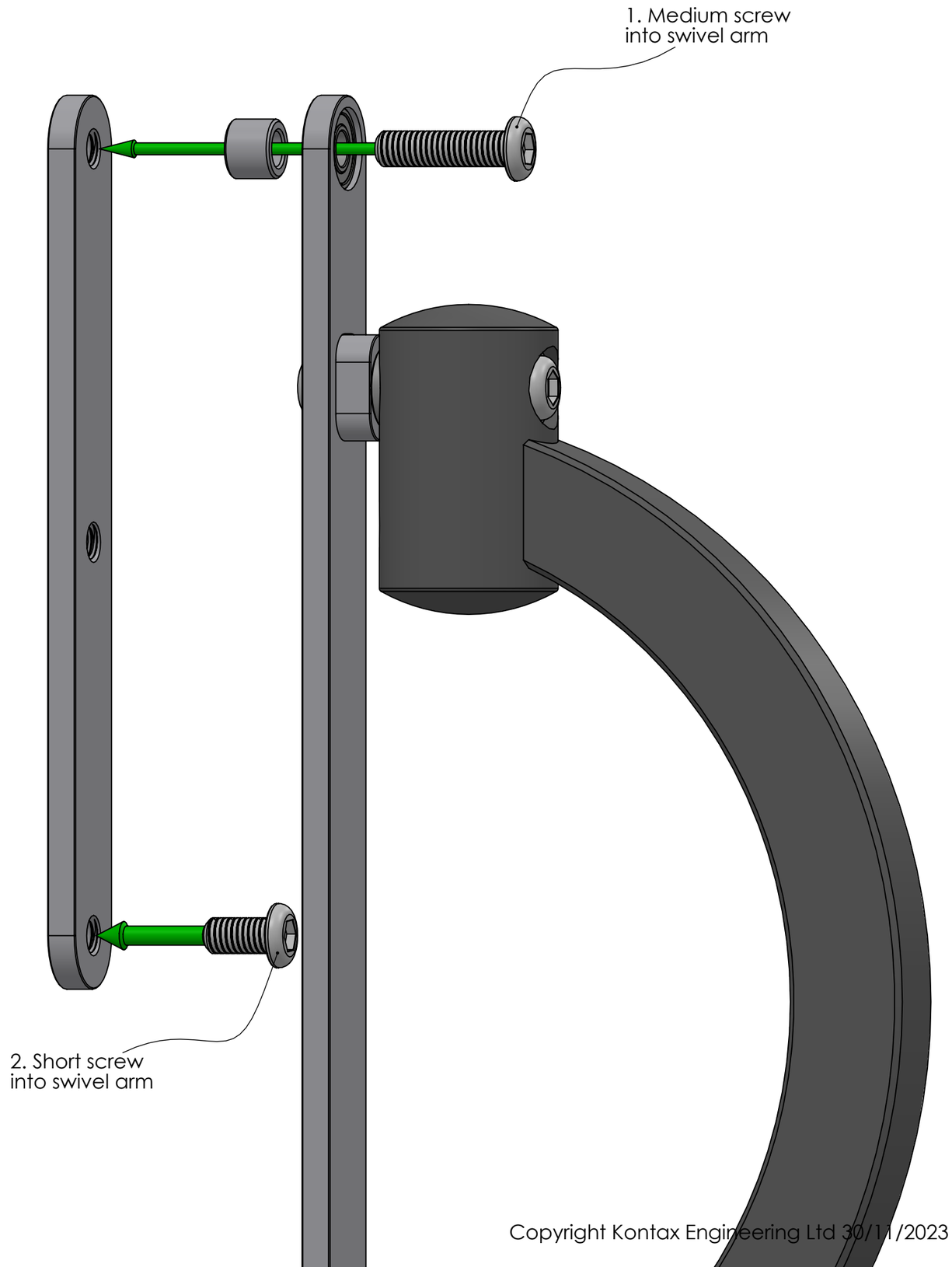


Configuration 2.1

1. Fit one medium screw through the bearing in the top of the long arm, through a bearing tube, into the swivel arm and tighten.

2. Screw one short screw into the swivel arm and tighten.

Note: the swivel arm is symmetrical and either end hole can be use to attach it to the long arm.



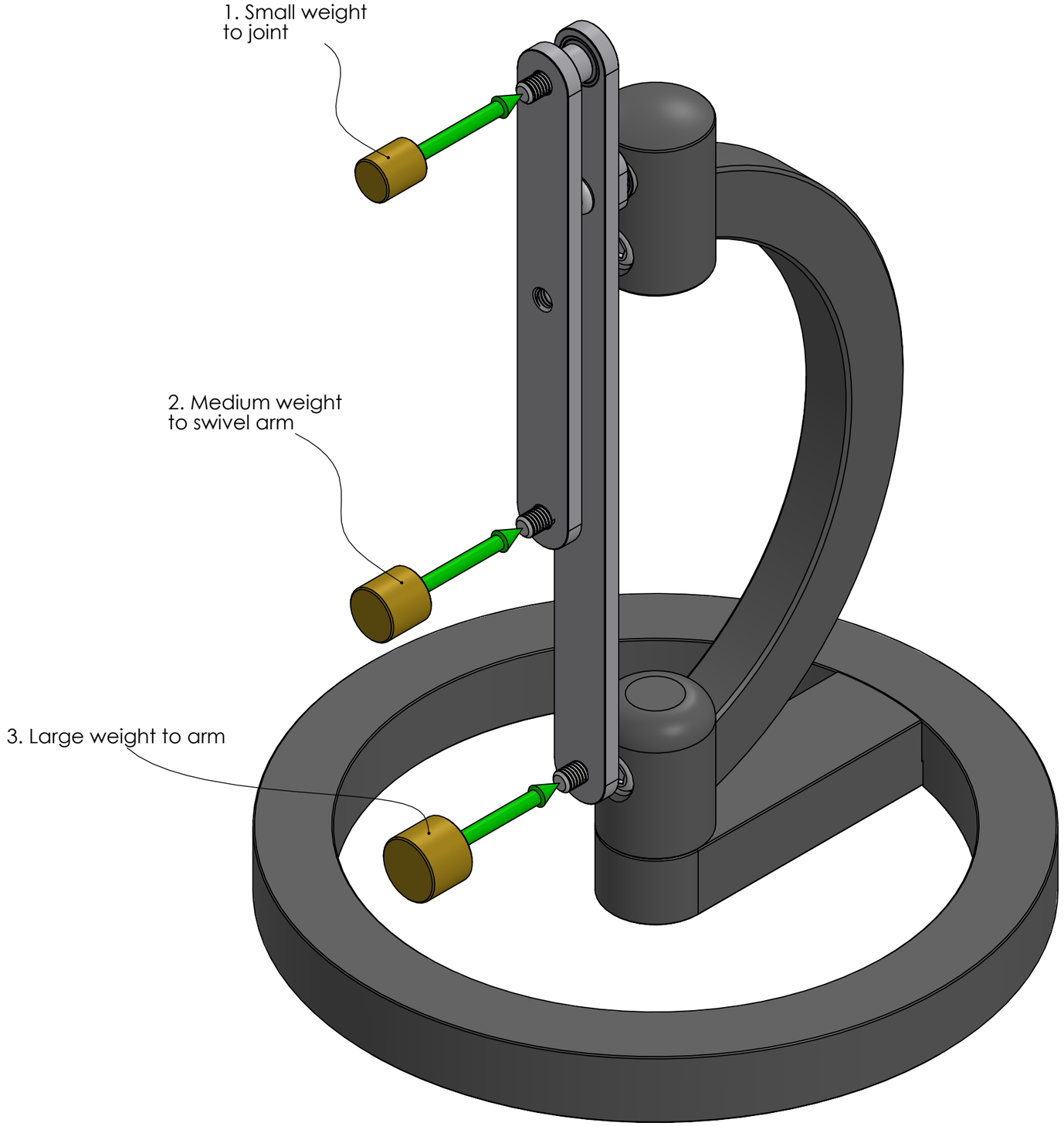
Configuration 2.2

1. Screw one small weight to the long arm/swivel arm joint.

2. Screw one medium weight to the swivel arm ring.

3. Screw one large weight to the long arm.

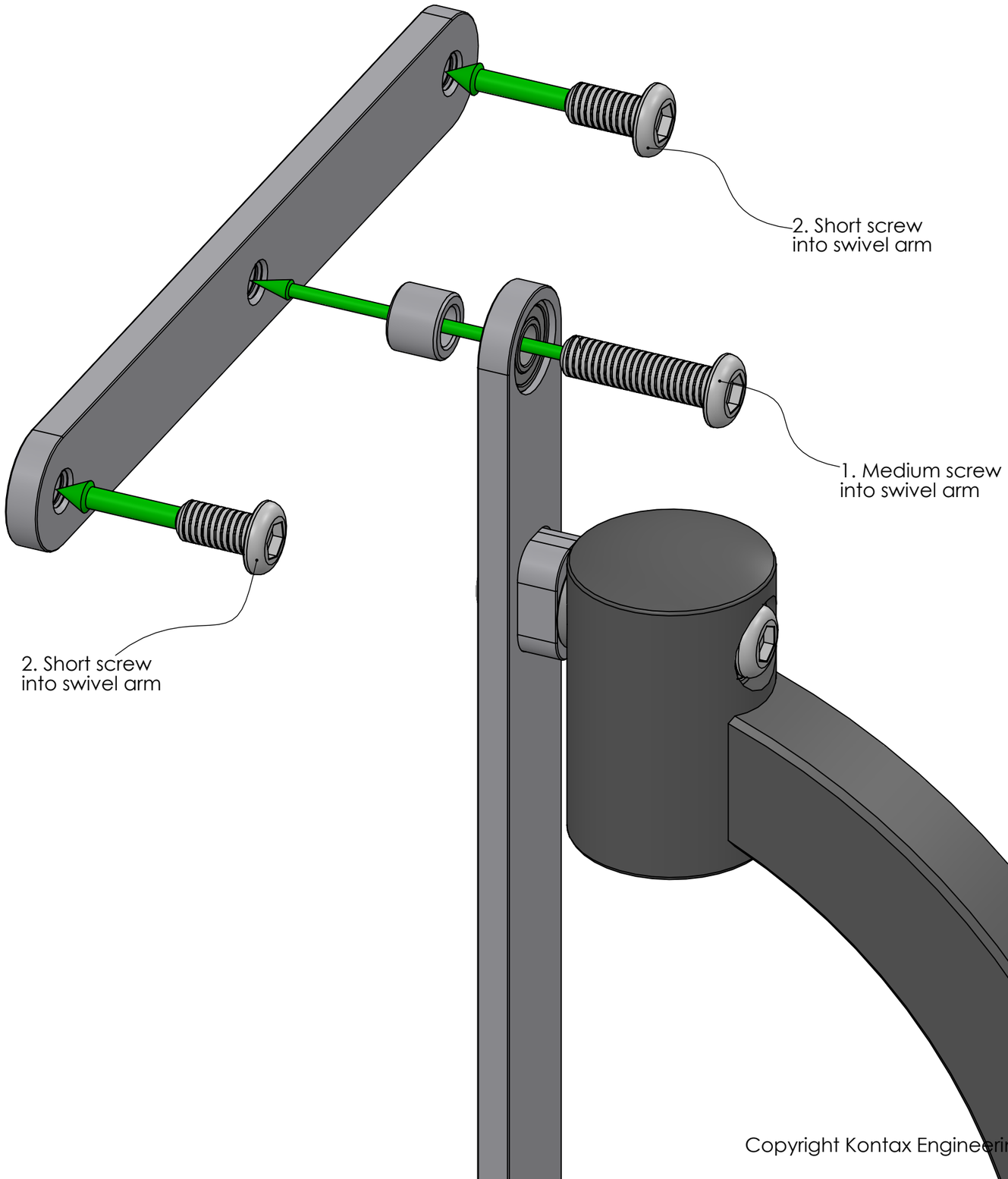
This completes your configuration 2 Chaos Pendulum. Instructions for configurations 3 and 4 can be found on the next few pages.



Configuration 3.1

1. Fit one medium screw through the bearing in the top of the long arm, through a bearing tube, into the swivel arm and tighten.

2. Screw one short screw into each end of the swivel arm and tighten.



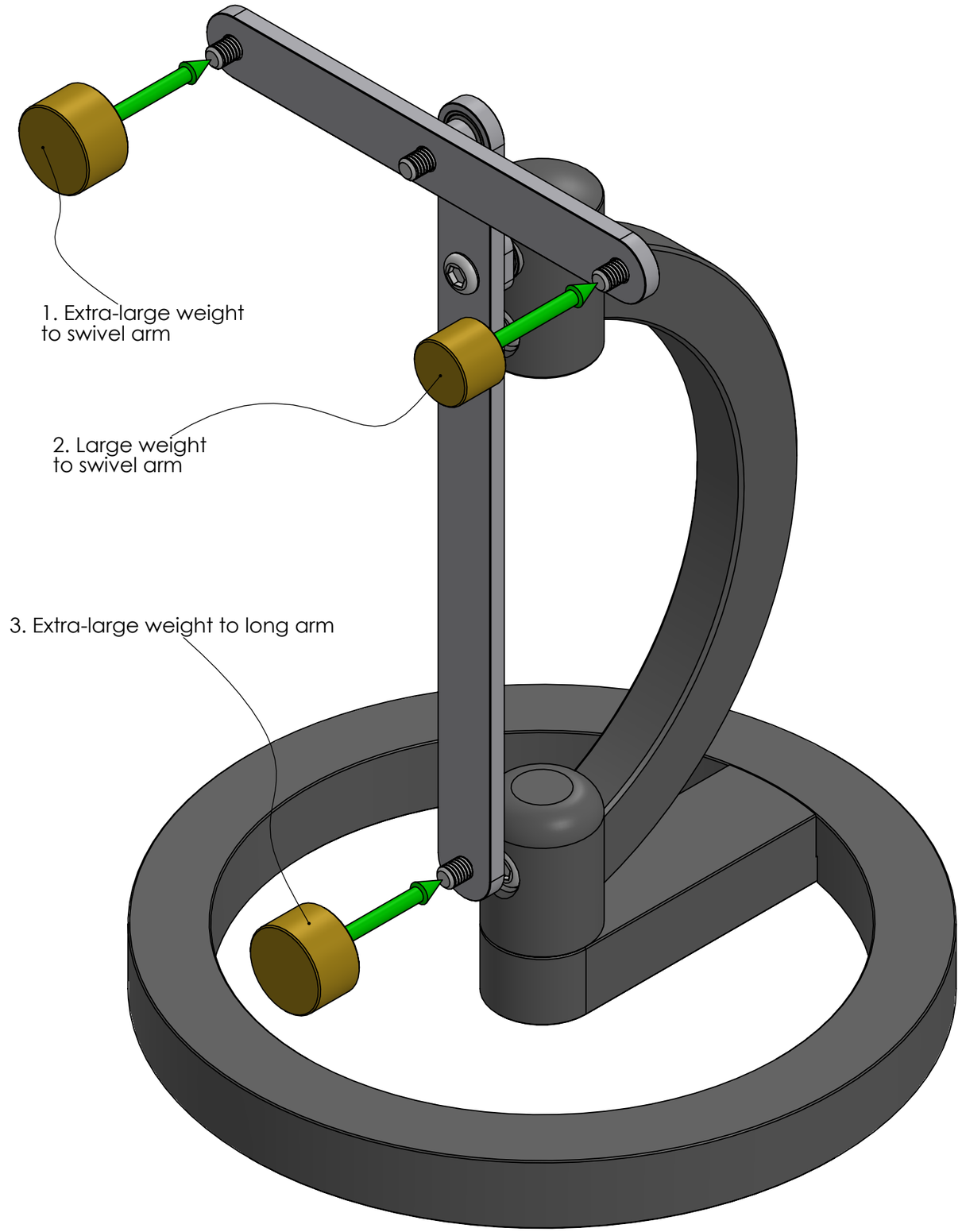
Configuration 3.2

1. Screw one extra-large weight to one end of the swivel arm.

2. Screw one large weight to the other end of the swivel arm.

3. Screw one extra-large weight to the end of the long arm.

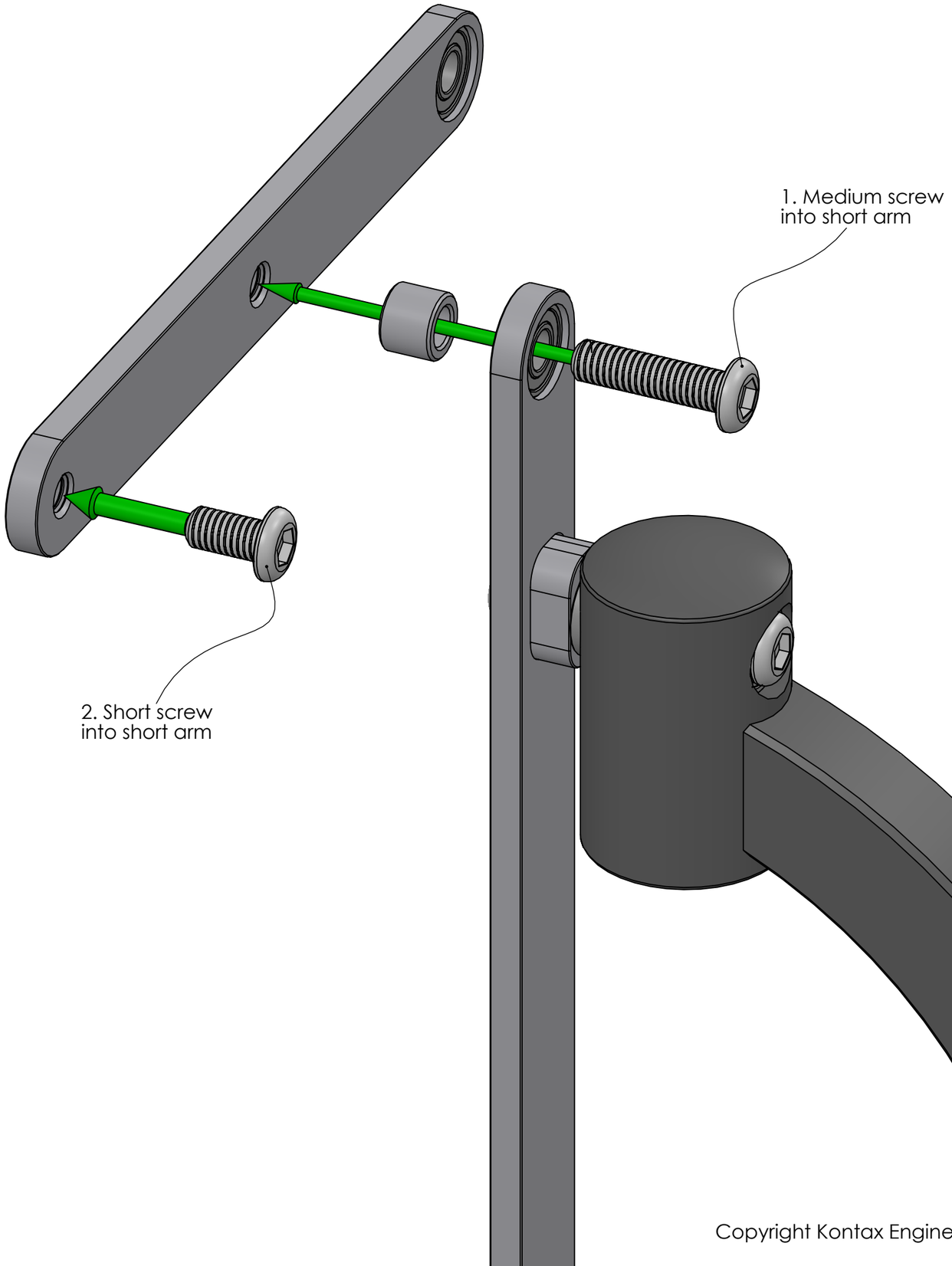
This completes your configuration 3 Chaos Pendulum. Instructions for configuration 4 can be found on the next few pages.



Configuration 4.1

1. Fit one medium screw through the bearing in the top of the long arm, through a bearing tube, into the short arm and tighten.

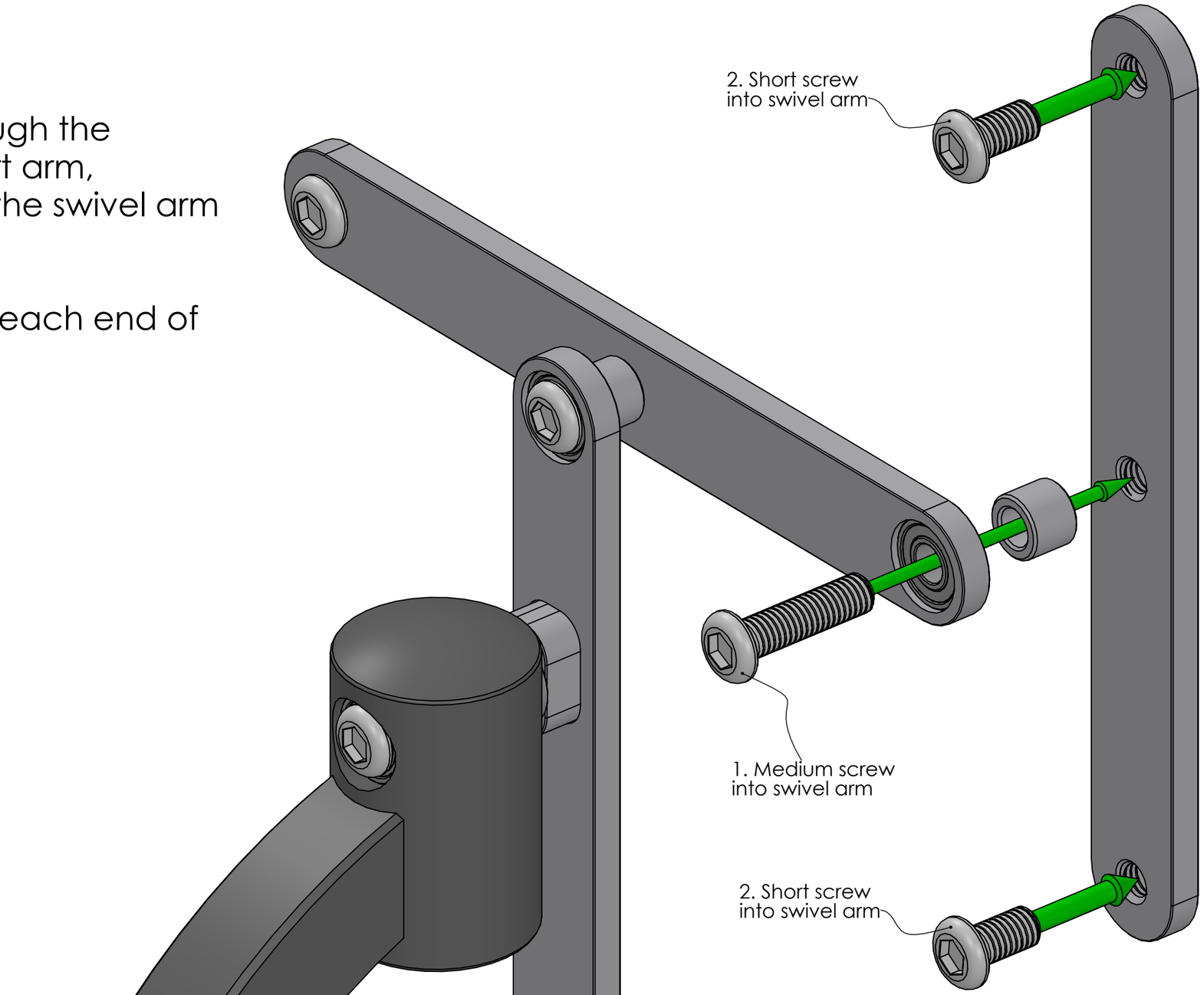
2. Screw one short screw into the end of the short arm and tighten.



Configuration 4.2

1. Fit one medium screw through the bearing in the end of the short arm, through a bearing tube, into the swivel arm and tighten.

2. Screw one short screw into each end of the swivel arm and tighten.



Configuration 4.3

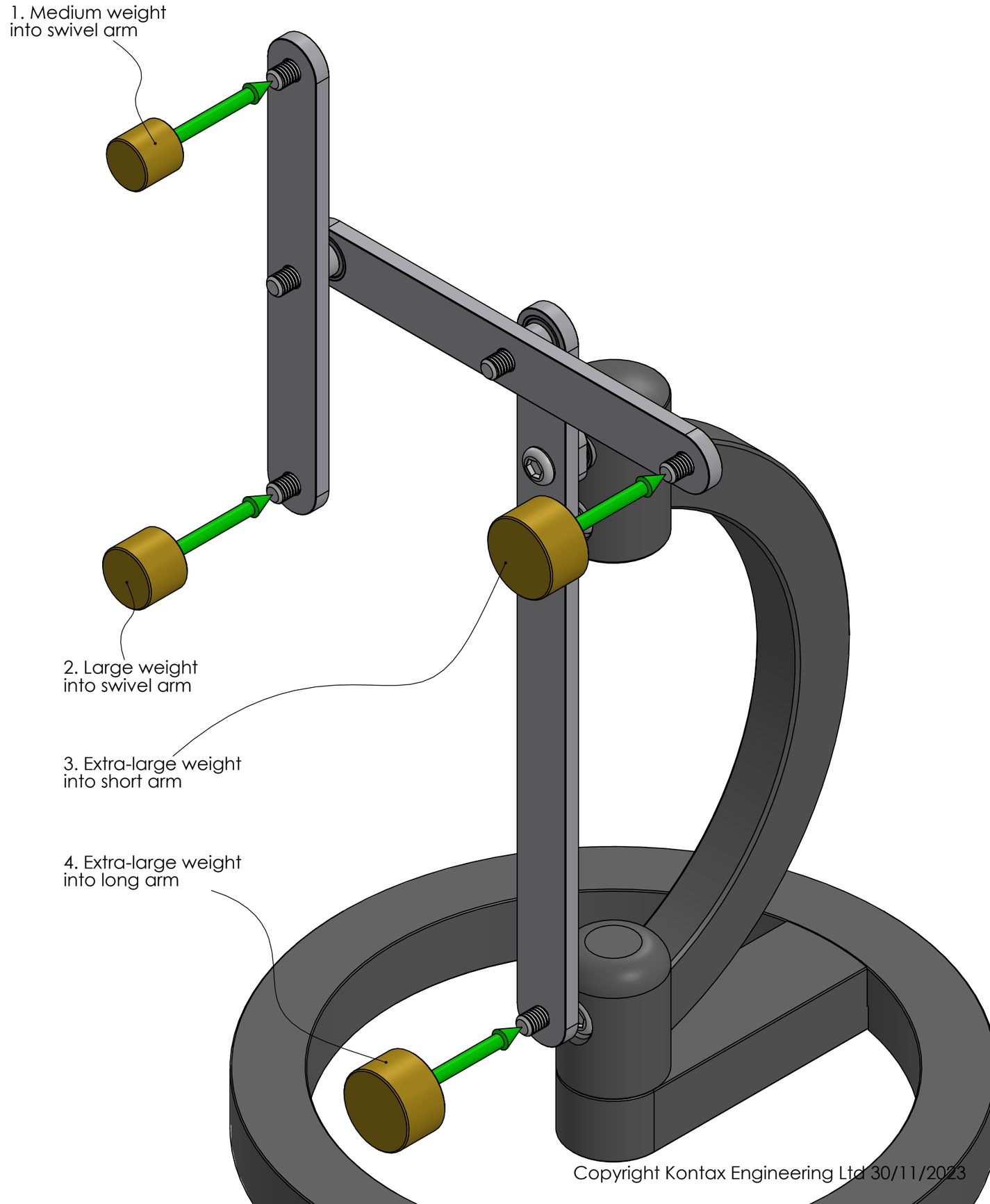
1. Screw one medium weight to one end of the swivel arm.

2. Screw one large weight to the other end of the swivel arm.

3. Screw one extra-large weight to the end of the short arm.

4. Screw one extra-large weight to the end of the long arm.

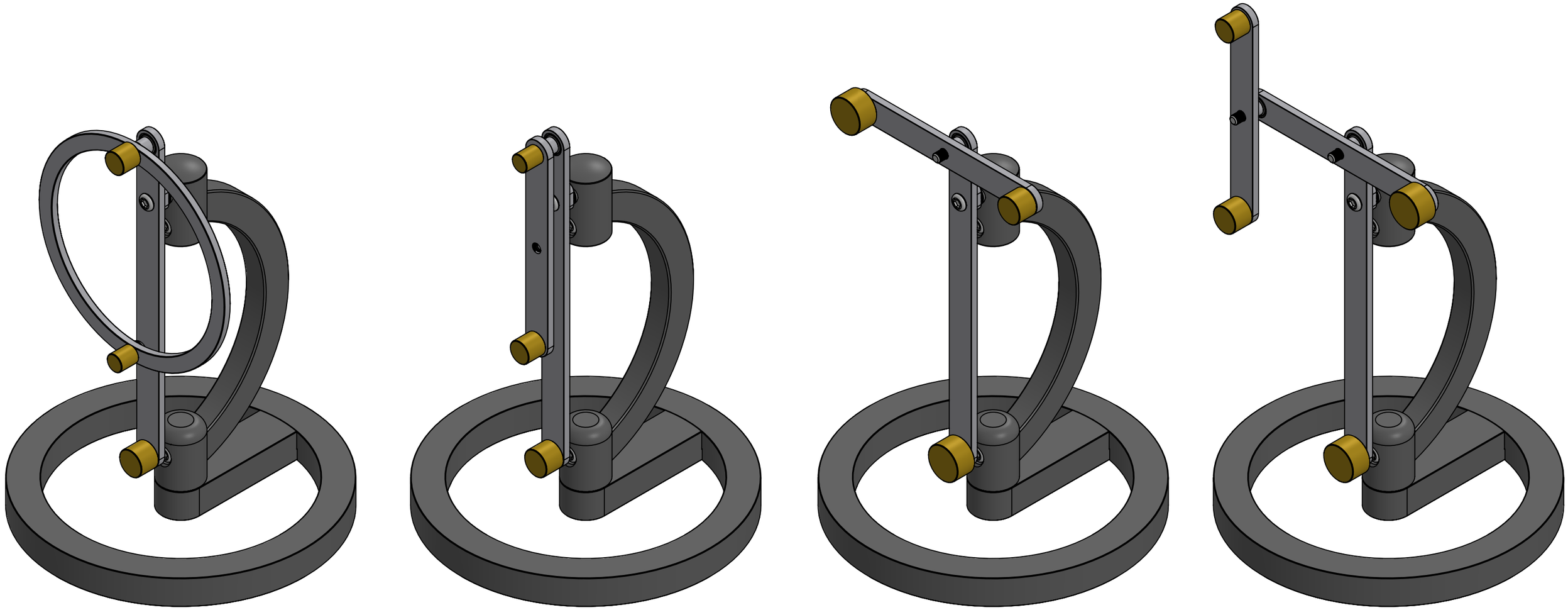
This completes your configuration 4 Chaos Pendulum.



You can find operation and maintenance instructions for your Chaos Pendulum on the next few pages.

If you need help with your pendulum you can email us at:

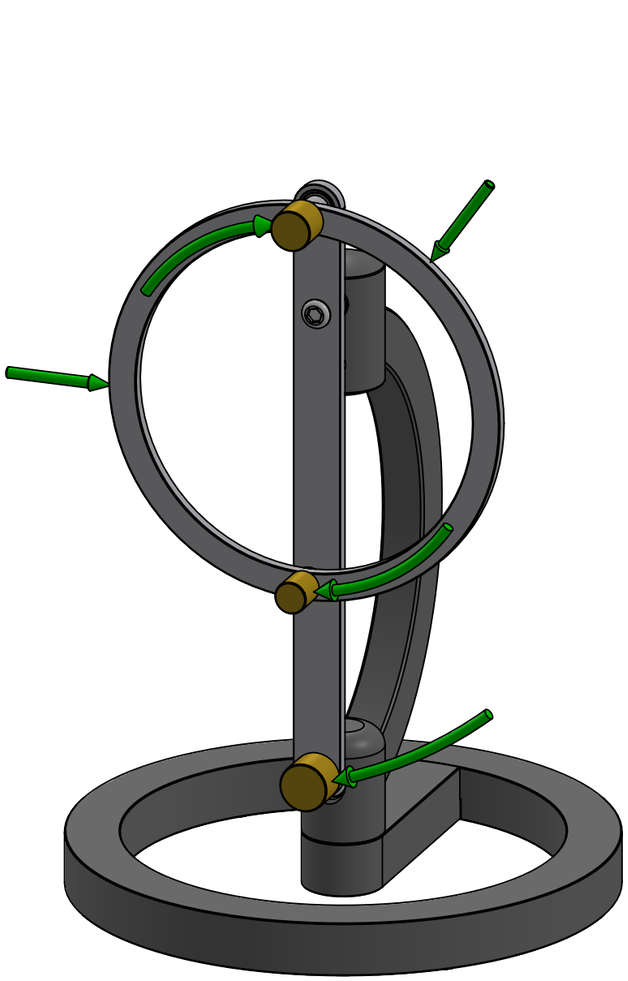
support@stirlingengine.co.uk

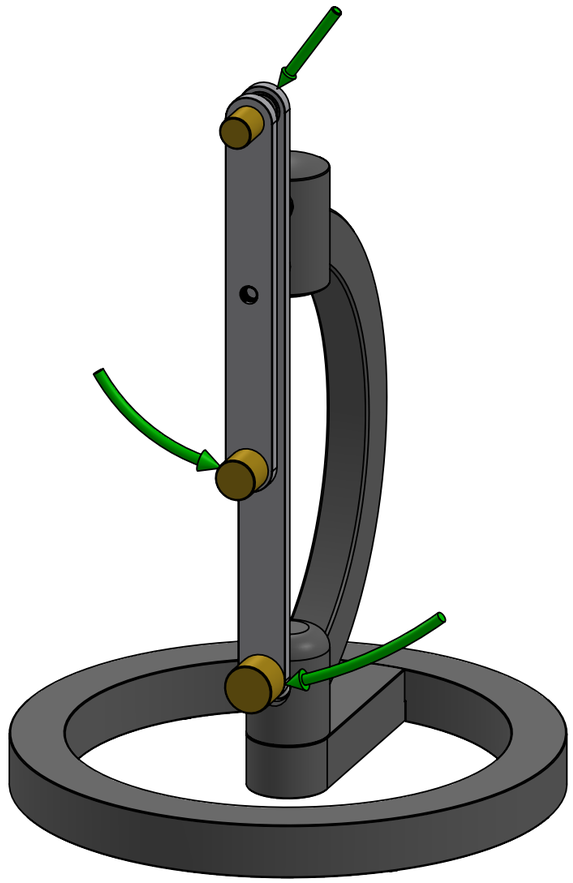


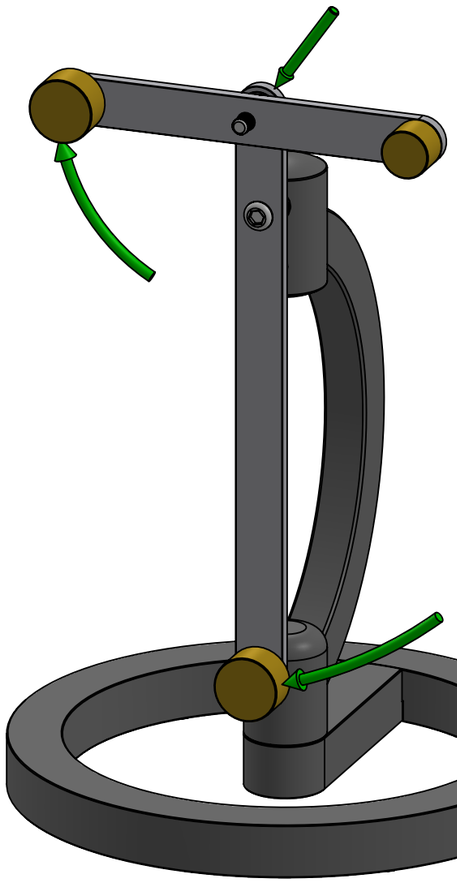
The Chaos Pendulum demonstrates classic chaotic behaviour when set in motion, when the initial force is applied the pendulum will spin and rotate with what appears to be completely random and chaotic motion.

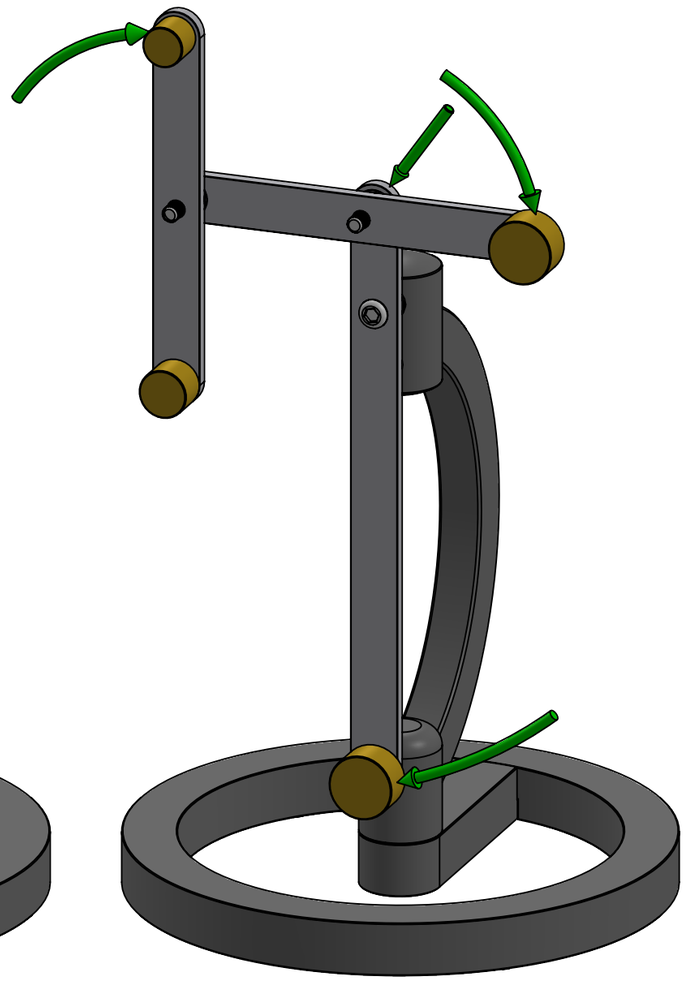
But with repeated spins using the same initial forces you will notice that the pendulum will exhibit broadly similar motion each time, a pattern can be seen in the chaos.

Suggested methods of spinning are indicated for each of the four standard configurations.









Maintenance

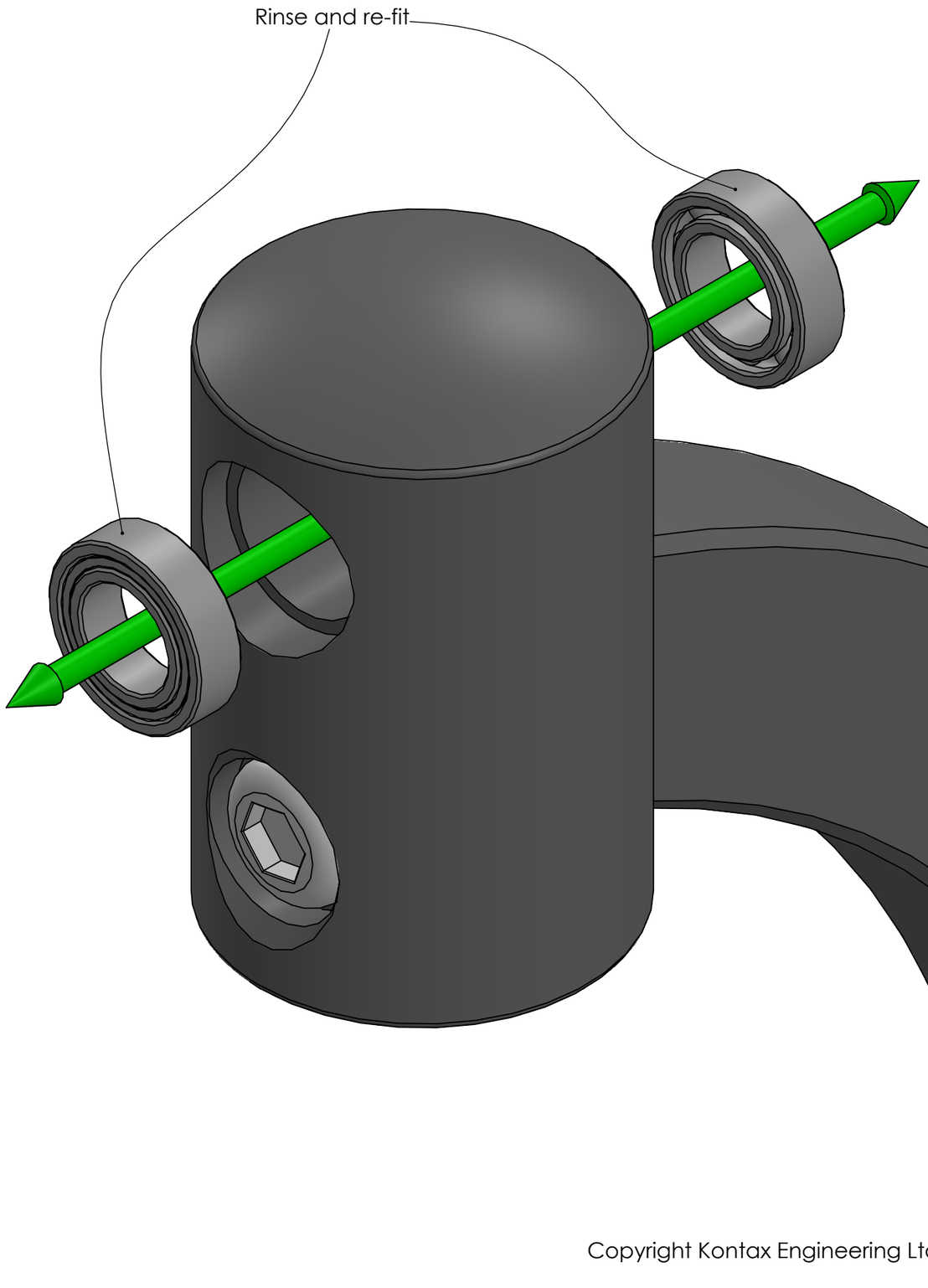
If your Chaos Pendulum does not perform as expected or seems to stick in certain positions the ball-race bearings in the arms and top pillar might need cleaning.

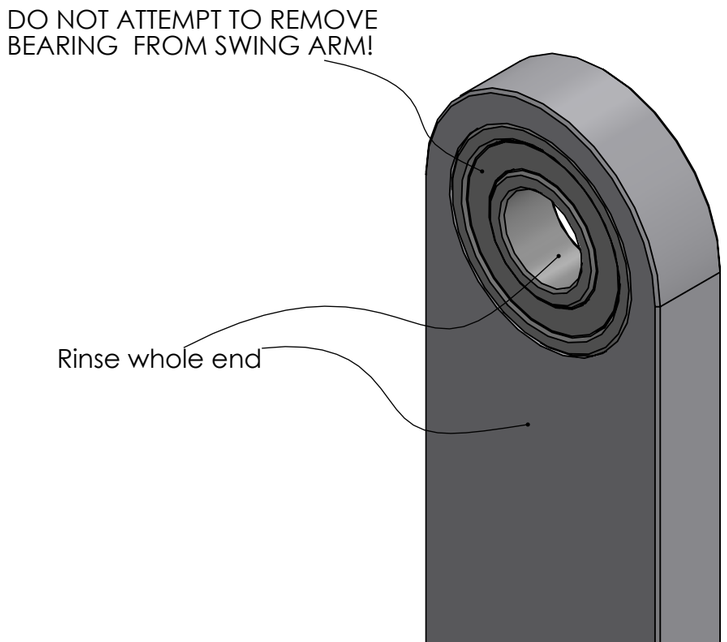
Remove all the parts from the long and short arms.

DO NOT attempt to remove the ball-race bearings that are pre-fitted in the arms.

Remove the two ball-race bearings in the top pillar.

Rinse the whole end of the long and short arms and the two top pillar bearings in Methylated Spirits or Denatured Alcohol to remove debris and re-fit everything.





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.