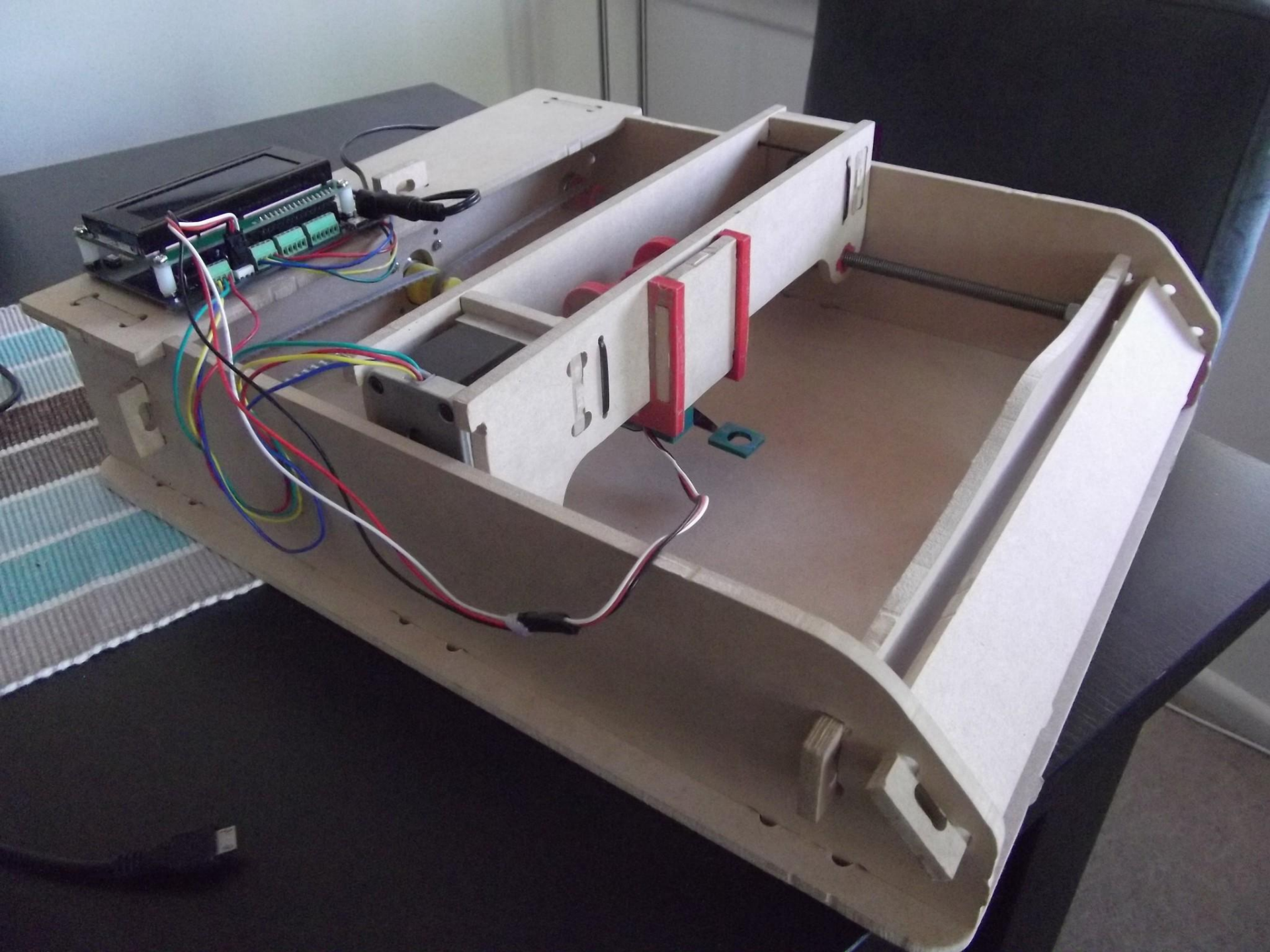
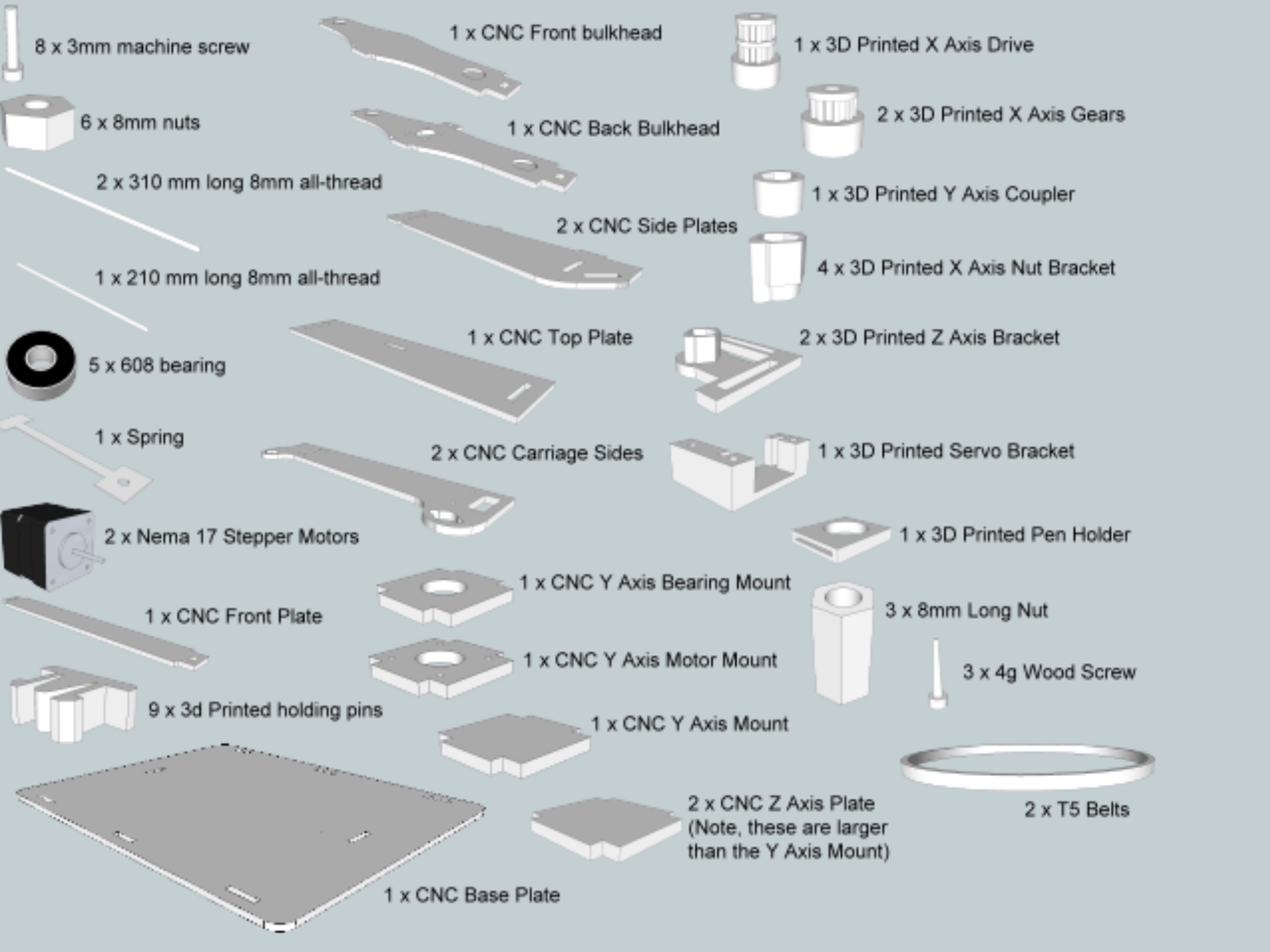
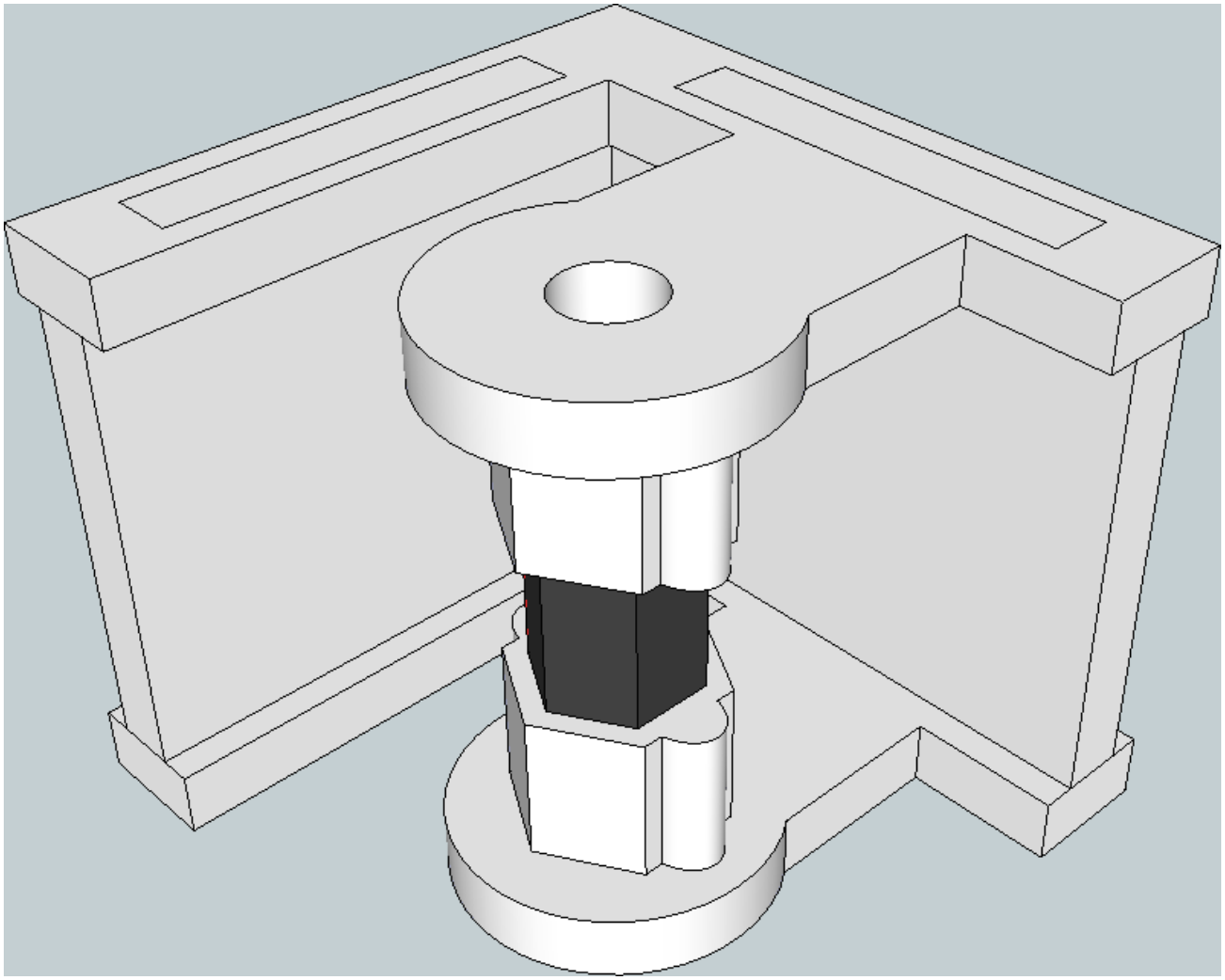
hackCNC

Frame Assembly Manual




8 x 3mm machine screw
1 x CNC Front bulkhead
1 x 3D Printed X Axis Drive
6 x 8mm nuts
1 x CNC Back Bulkhead
2 x 3D Printed X Axis Gears
2 x 310 mm long 8mm all-thread
1 x 3D Printed Y Axis Coupler
2 x CNC Side Plates
1 x 210 mm long 8mm all-thread
4 x 3D Printed X Axis Nut Bracket
1 x CNC Top Plate
2 x 3D Printed Z Axis Bracket
5 x 608 bearing
1 x Spring
2 x CNC Carriage Sides
1 x 3D Printed Servo Bracket
2 x Nema 17 Stepper Motors
1 x 3D Printed Pen Holder
1 x CNC Y Axis Bearing Mount
1 x CNC Front Plate
3 x 8mm Long Nut
1 x CNC Y Axis Motor Mount
3 x 4g Wood Screw
9 x 3d Printed holding pins
1 x CNC Y Axis Mount
2 x CNC Z Axis Plate
(Note, these are larger
than the Y Axis Mount)
2 x T5 Belts
1 x CNC Base Plate

Section 1 : Z Axis Carriage

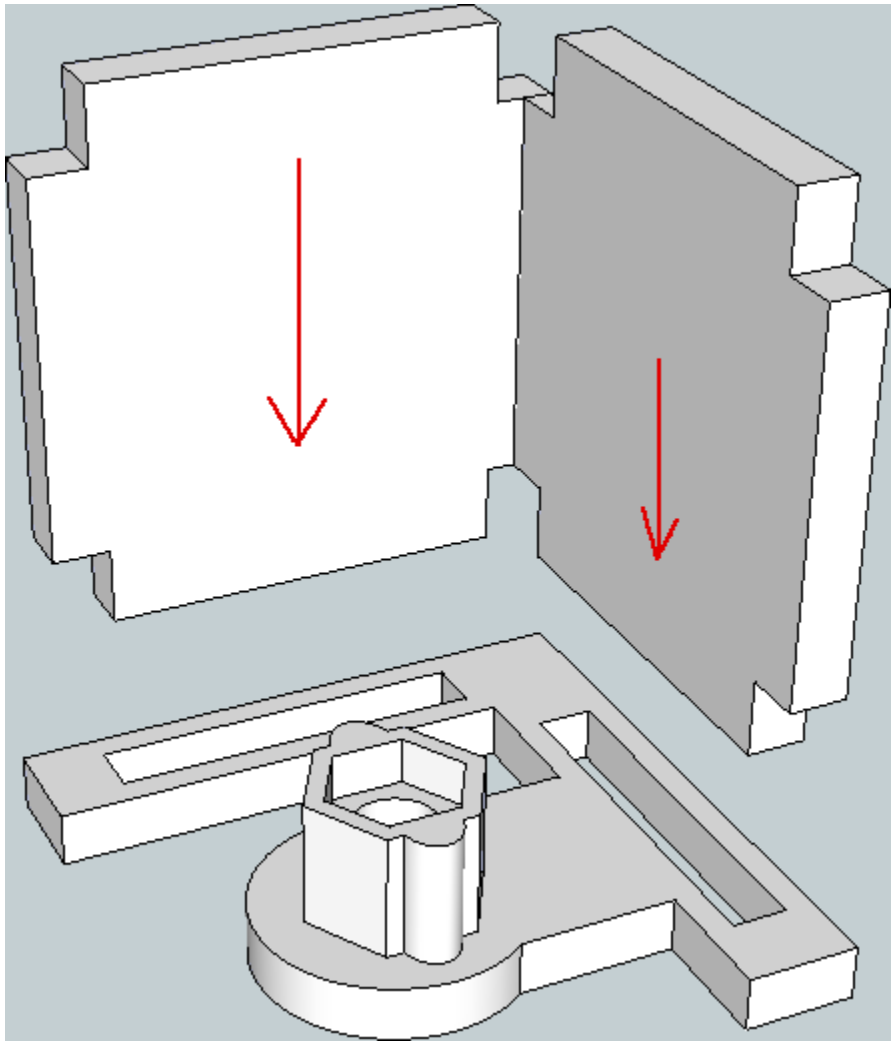


Section 1 : Step 1

Parts

1 x 3D Printed Z Axis Bracket

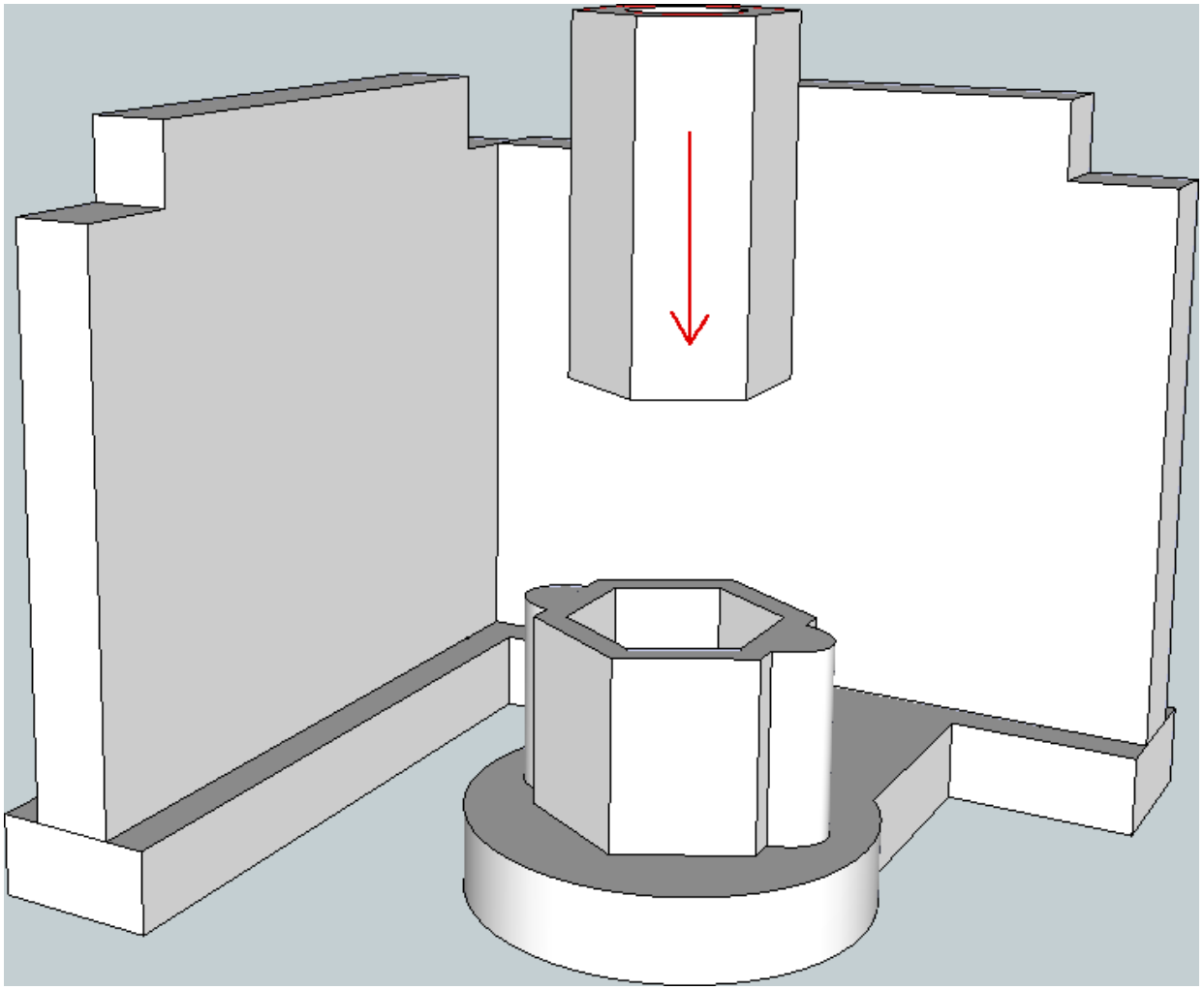
2 x CNC Z Axis Plate



Section 1 : Step 2

Parts

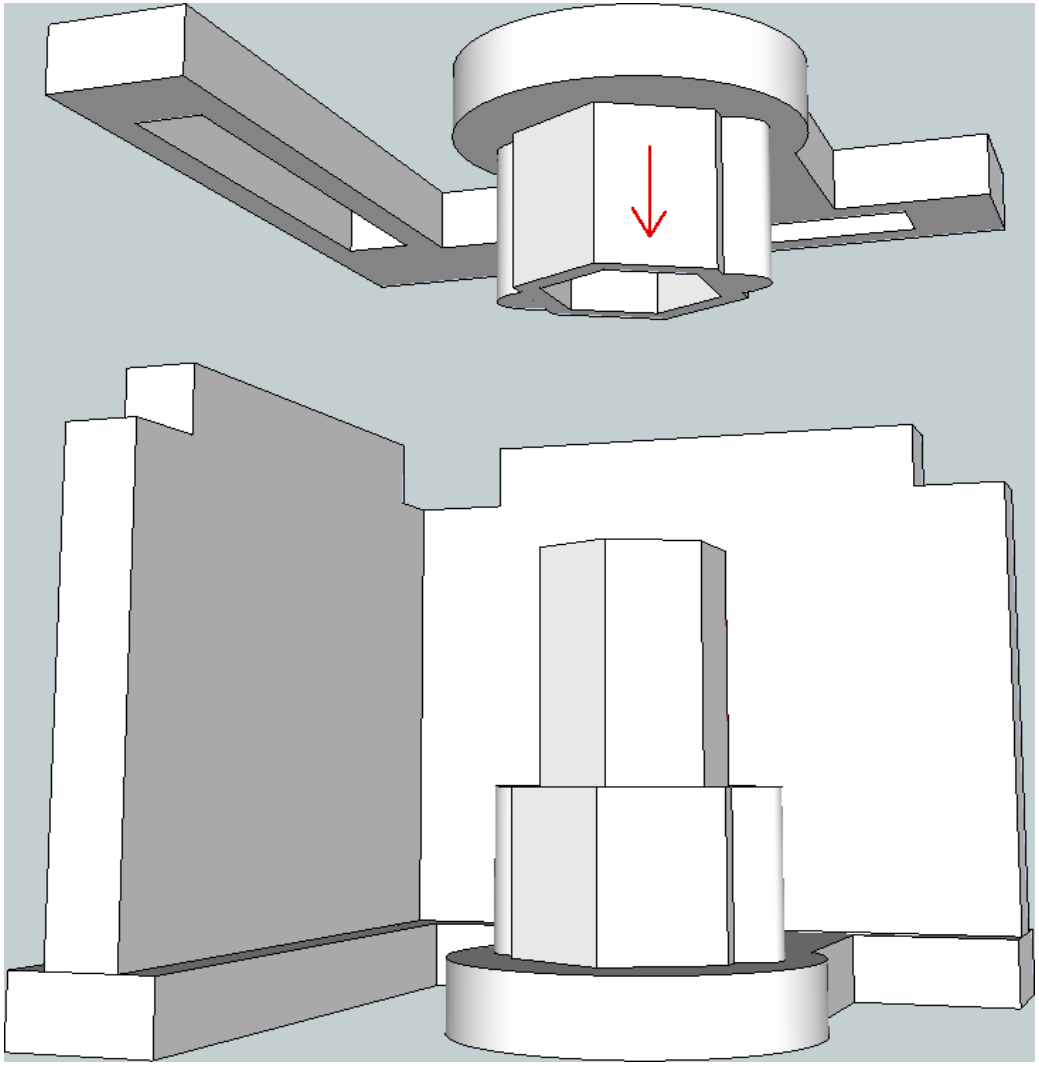
1 x 8mm Long Nut



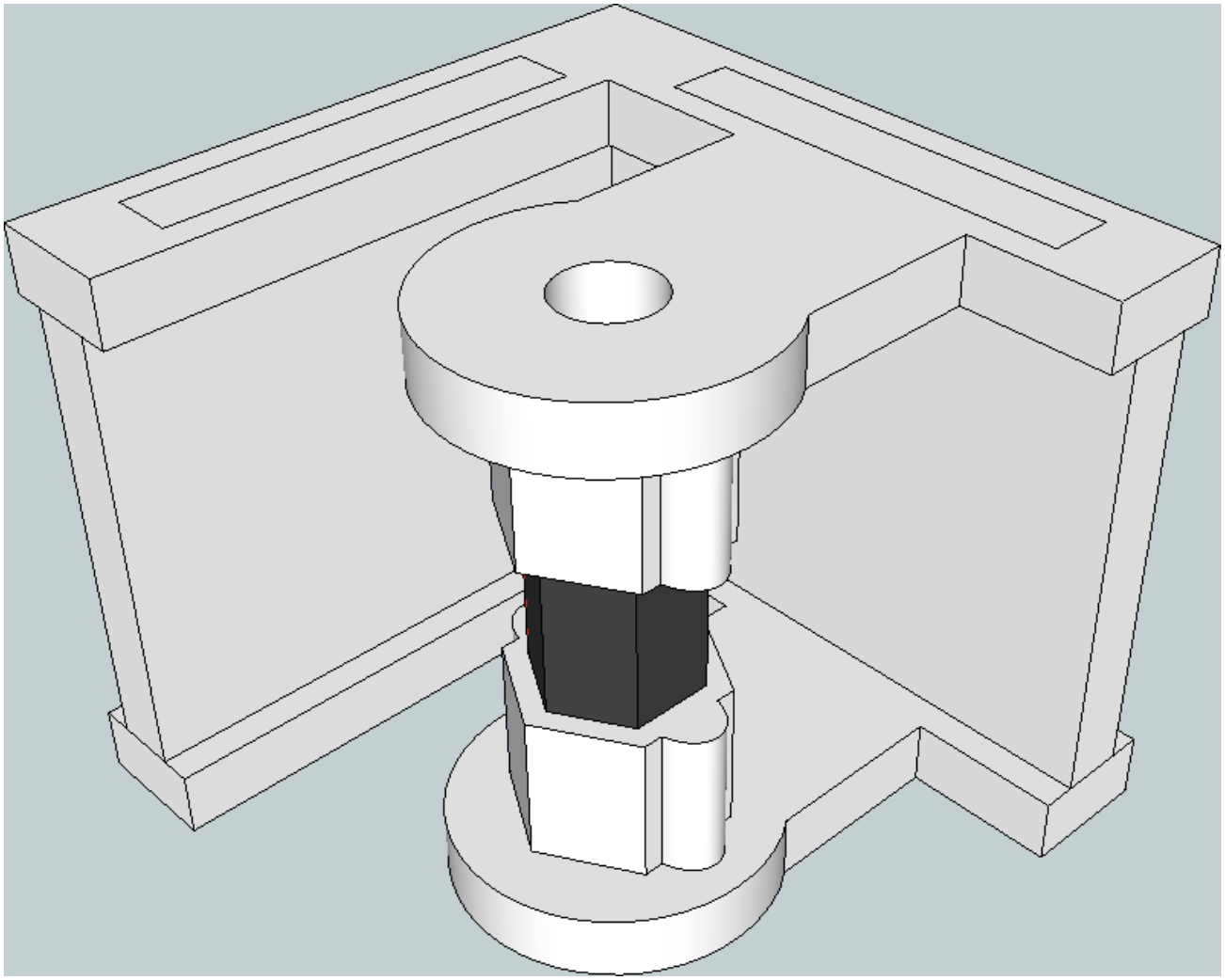
Section 1 : Step 3

Parts

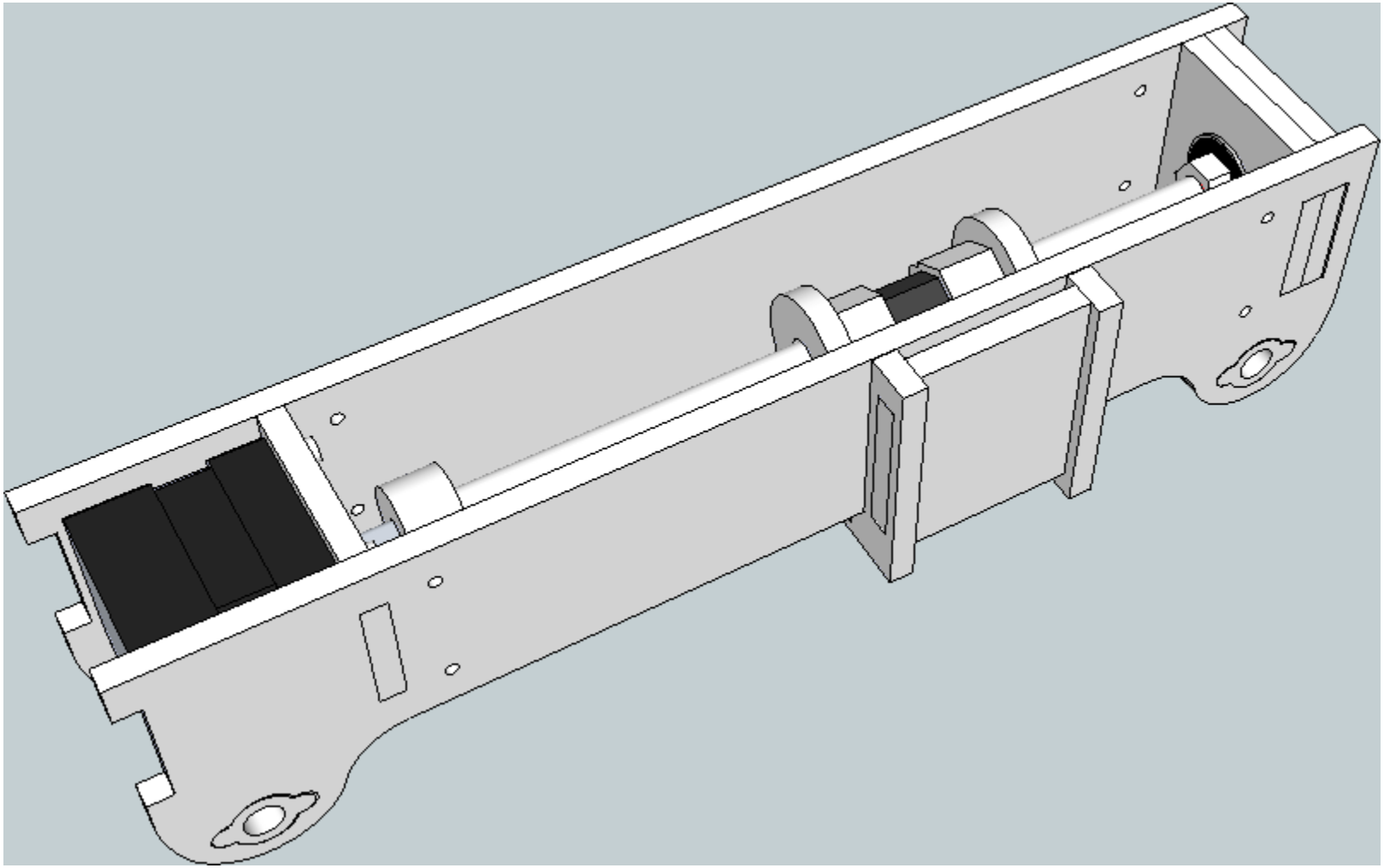
1 x 3D Printed Z Axis Bracket



Section 1 : Complete!



Section 2 : Y Axis Carriage

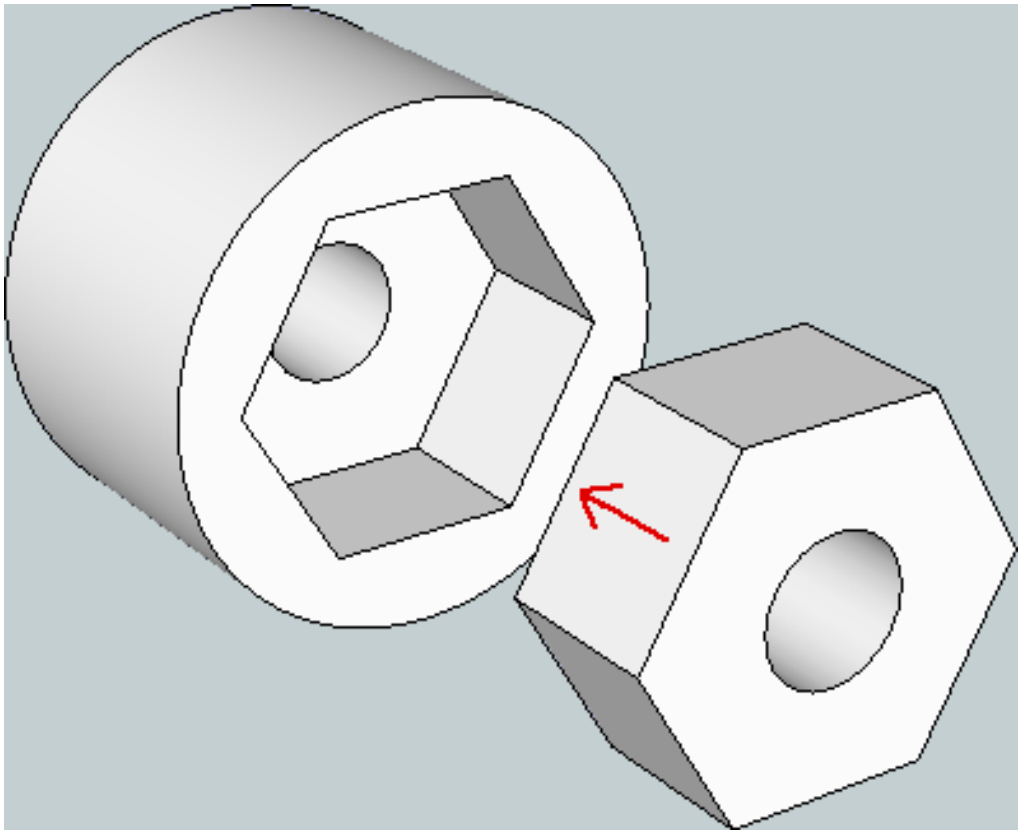


Section 2 : Step 1

Parts

1 x 3D Printed Y Axis Coupler

1 x 8mm nut



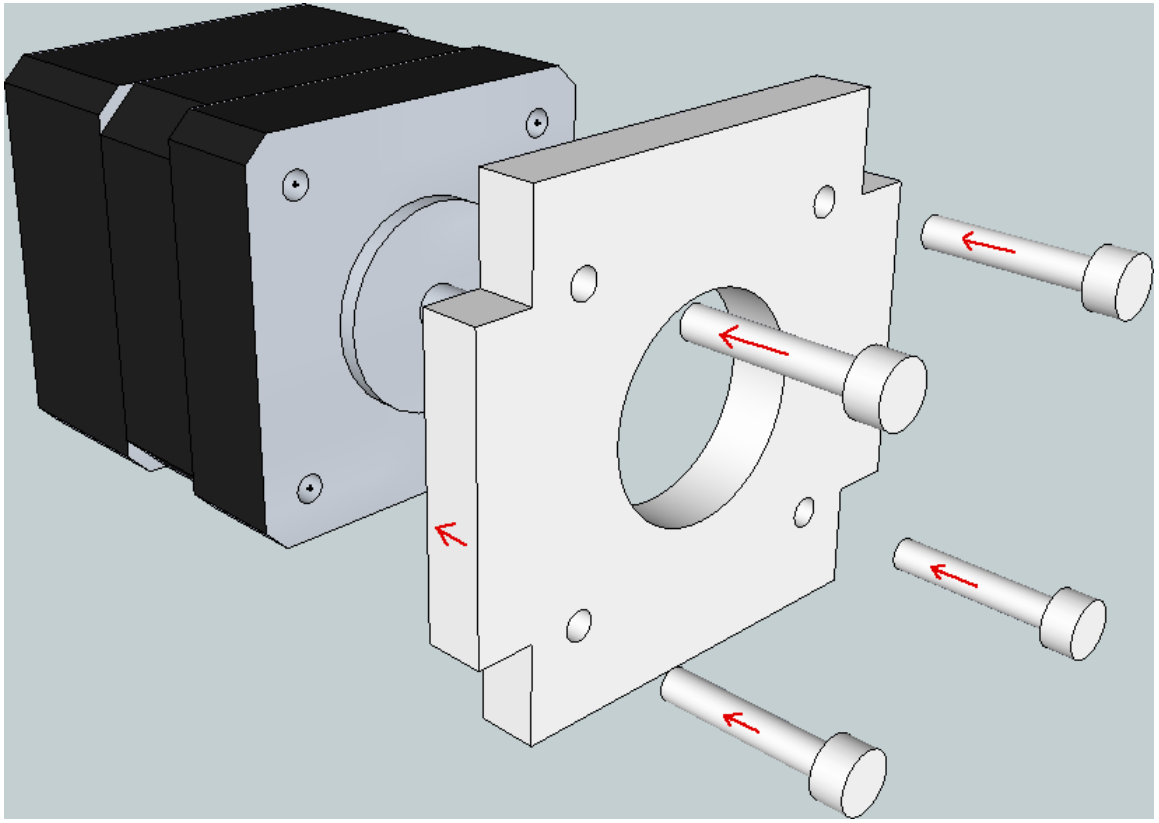
Section 2 : Step 2

Parts

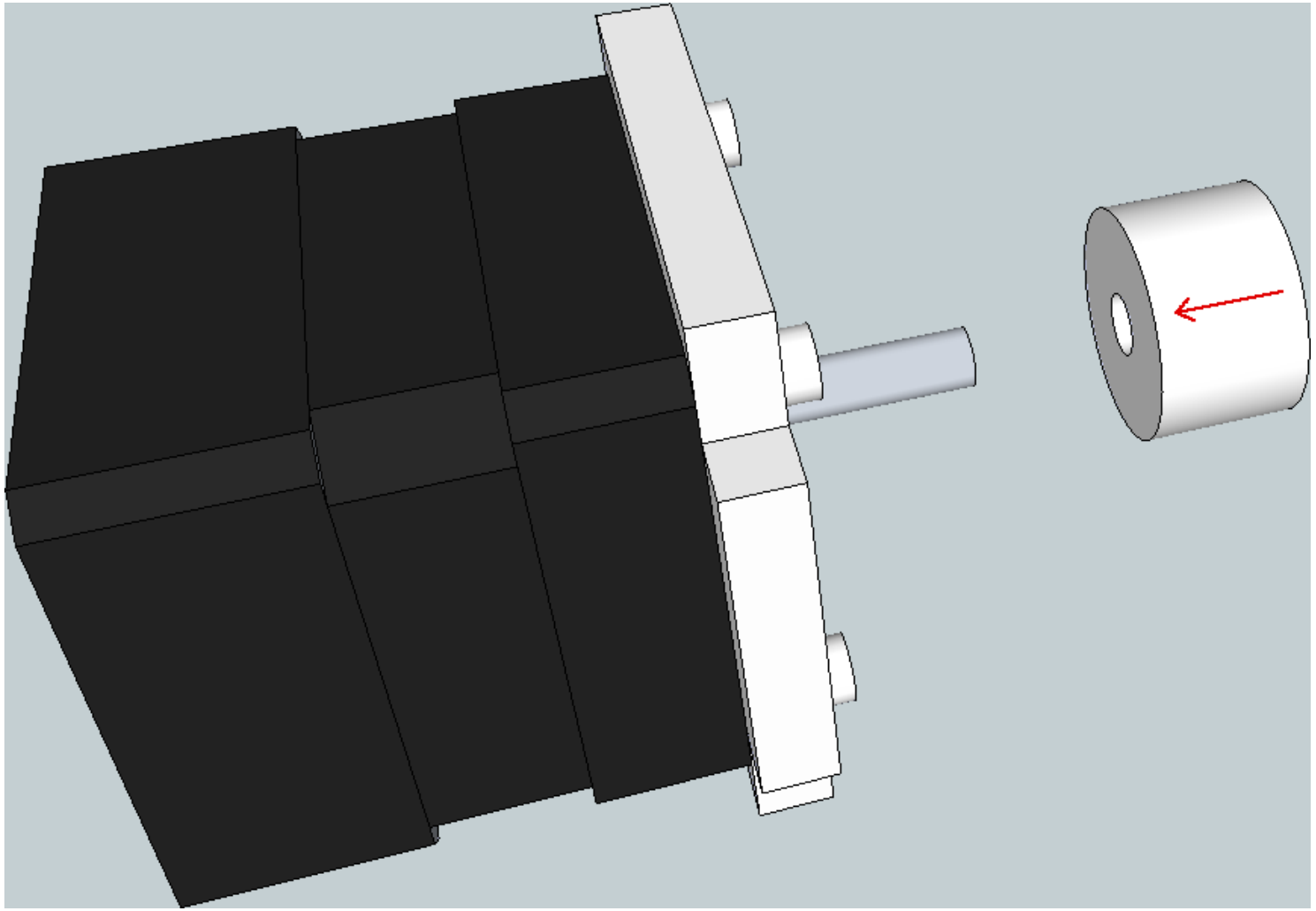
1 x Nema 17 Stepper Motors

1 x CNC Y Axis Motor Mount

4 x 3mm Machine Screws



Section 2 : Step 3

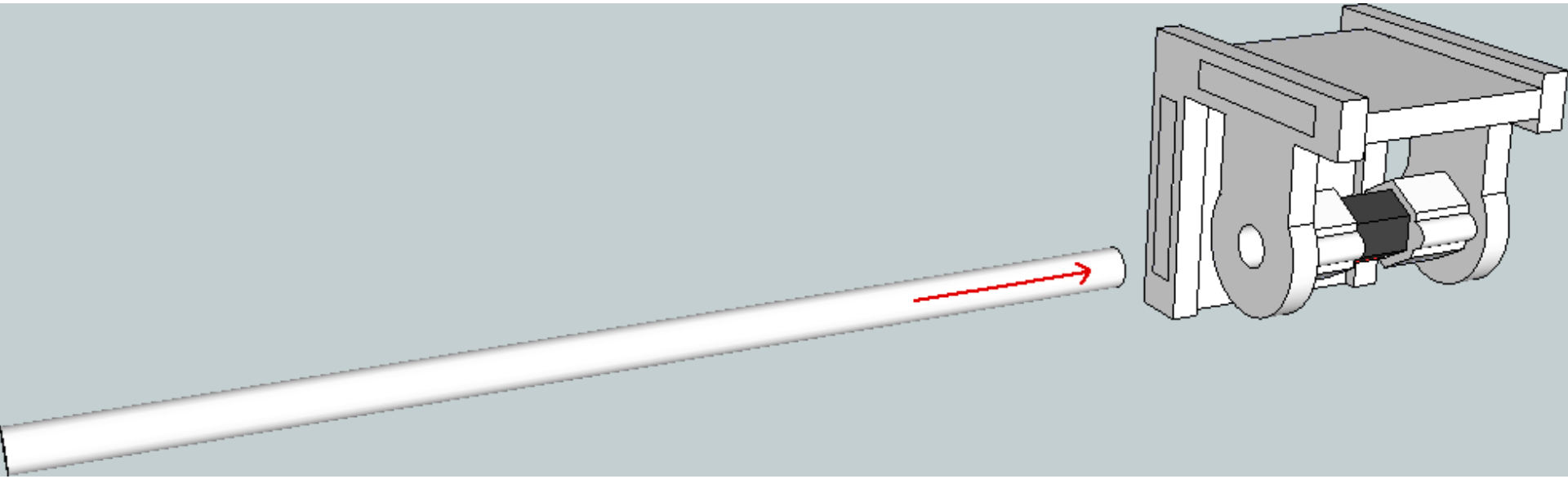


Section 2 : Step 4

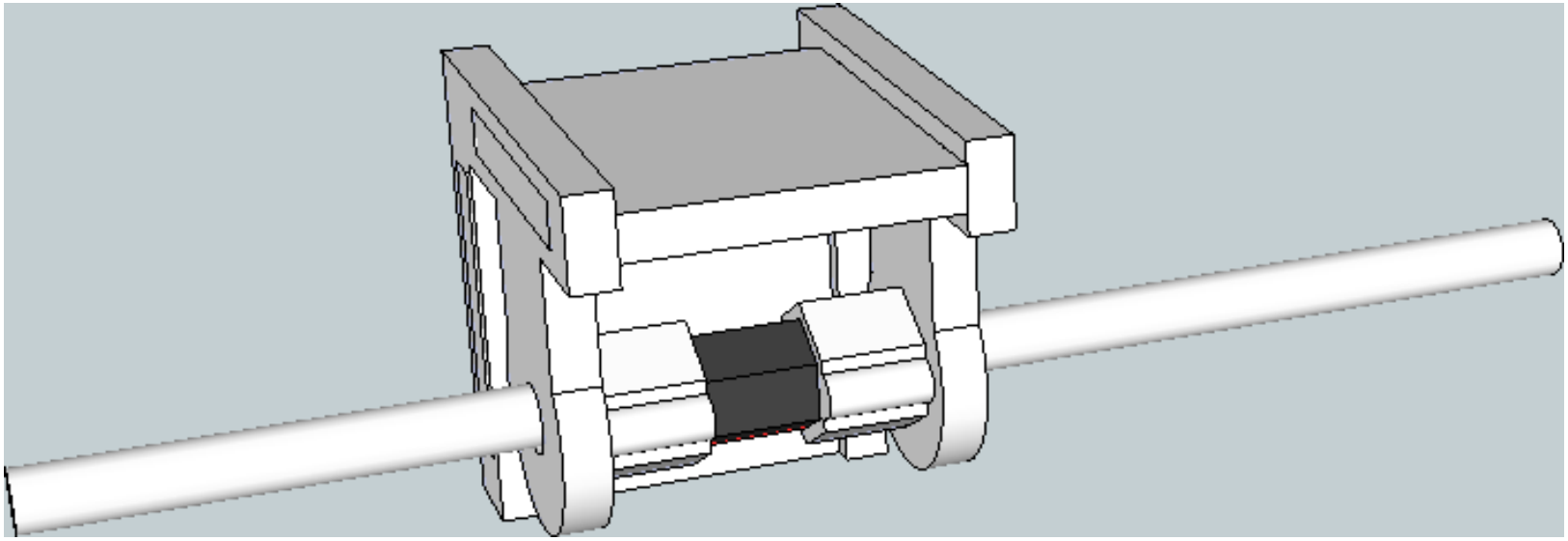
Parts

1 x 210 mm Long 8mm all-thread

Part from Section 1



Section 2 : Step 4 - complete

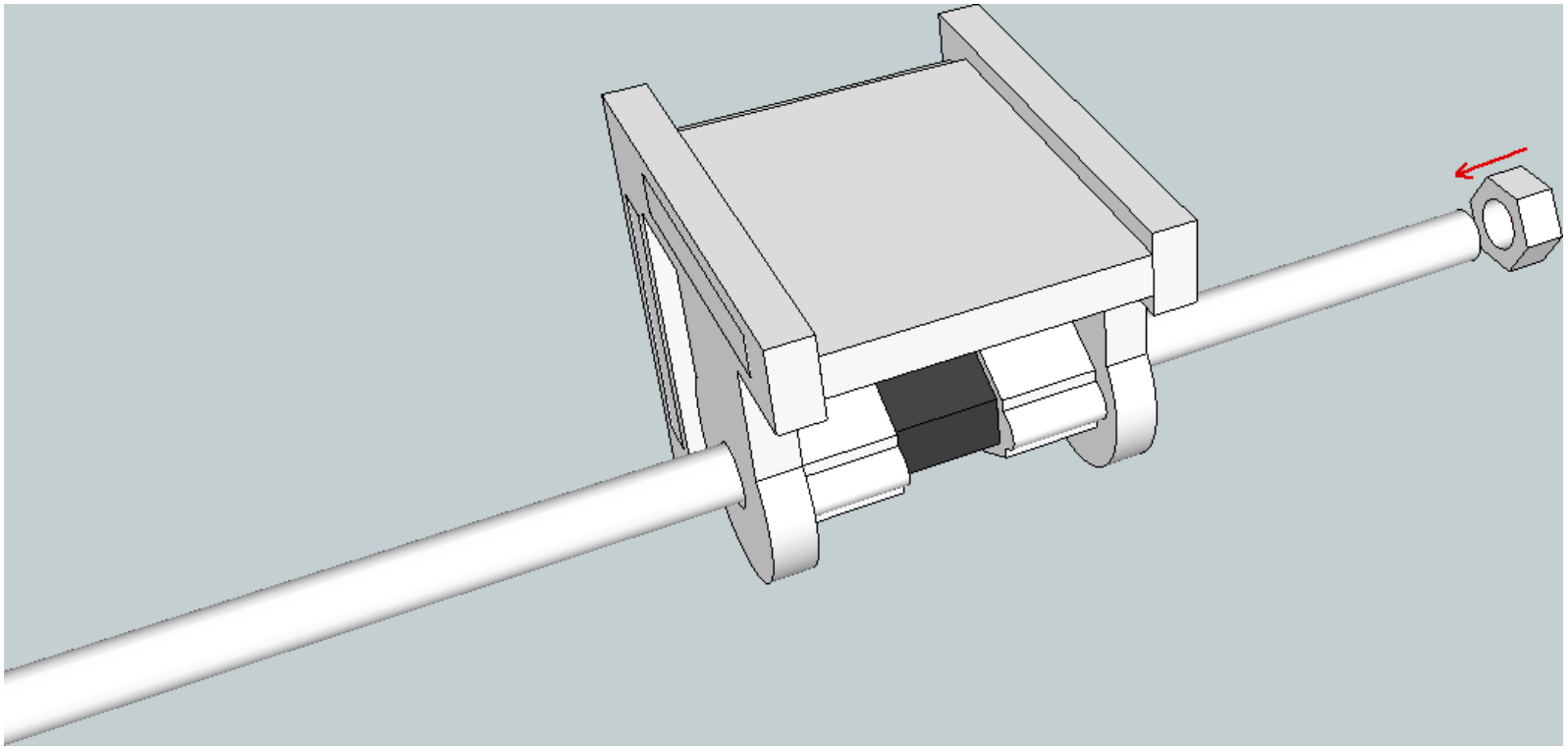


Section 2 : Step 5

Parts

1 x 8mm nuts

Part from Section 2 : Step 4

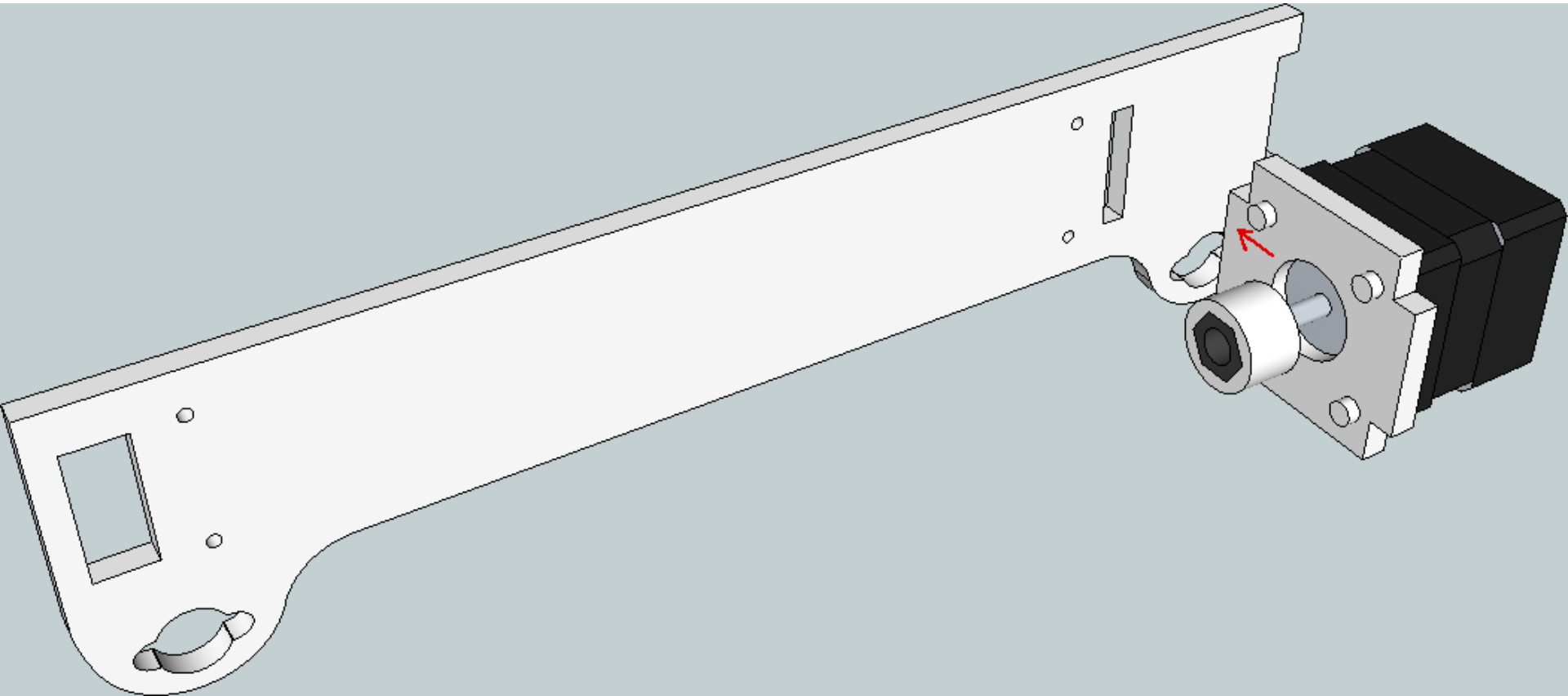


Section 2 : Step 6

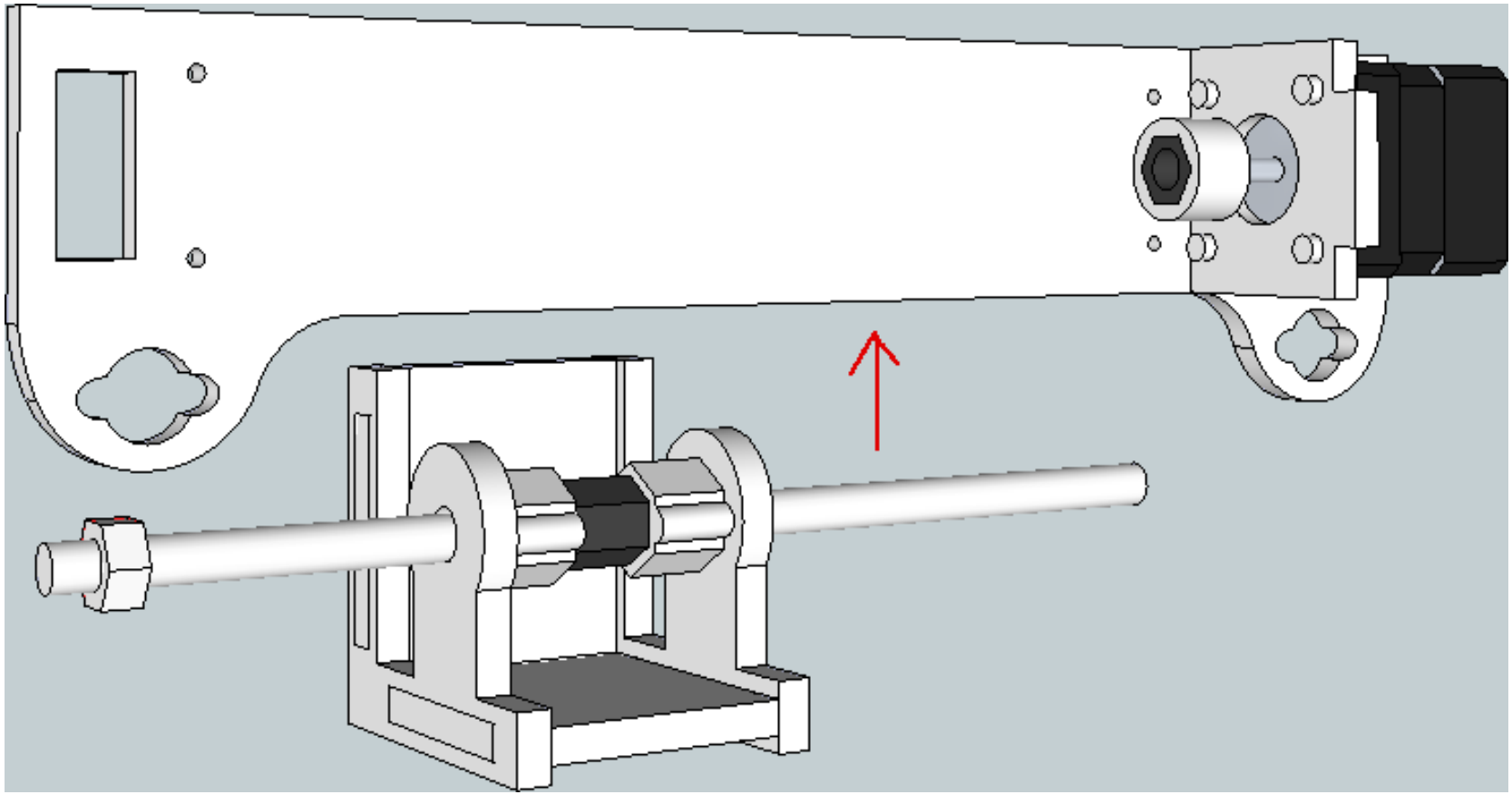
Parts

1 x CNC Carriage Side

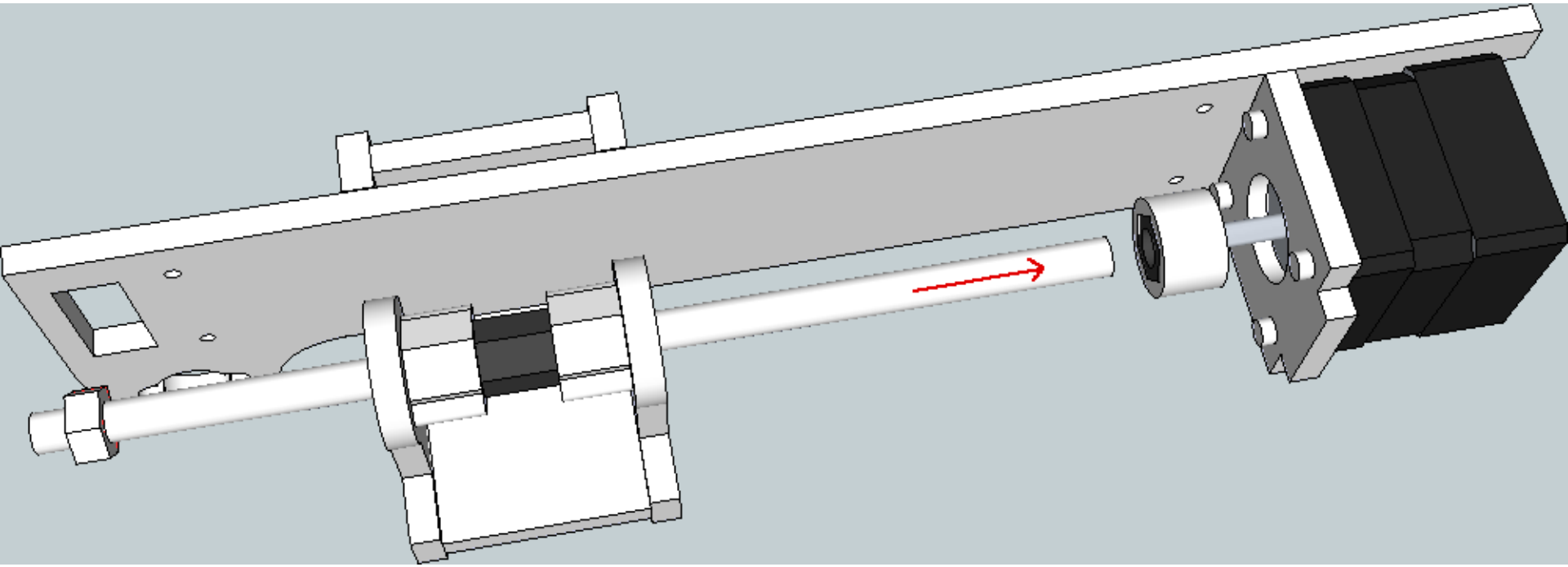
Part from Section 2 : Step 3



Section 2 : Step 7



Section 2 : Step 8

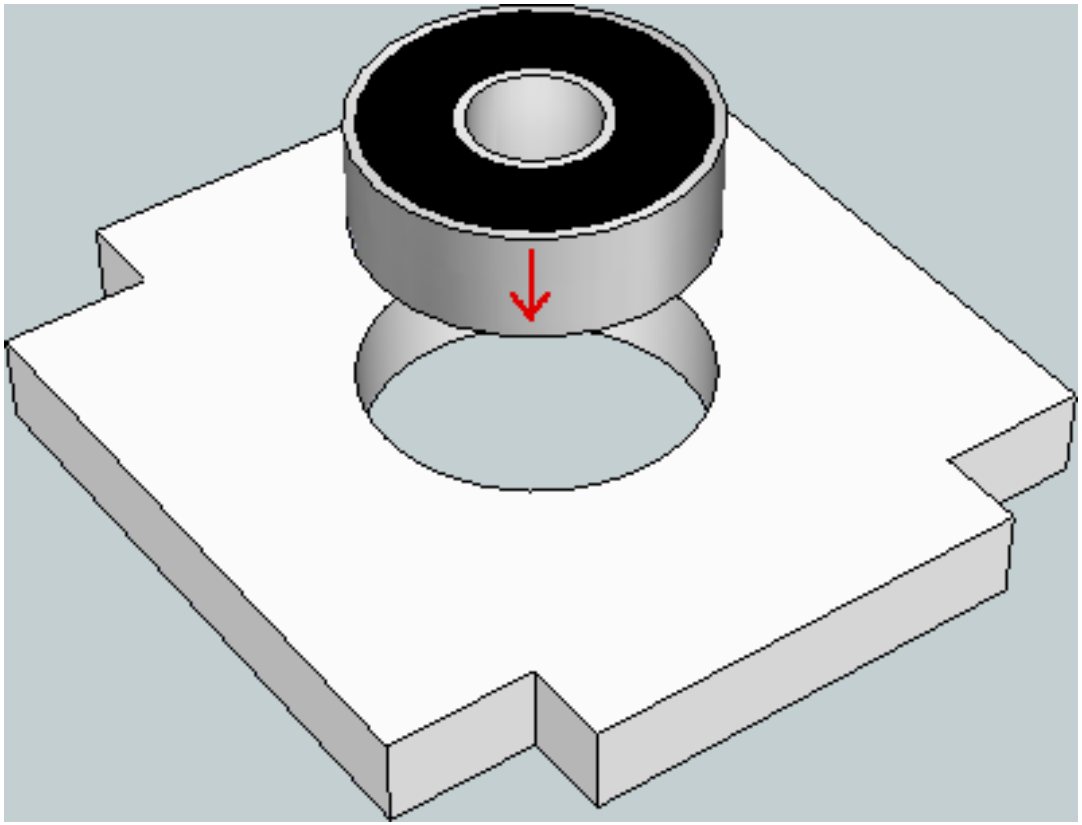


Section 2 : Step 9

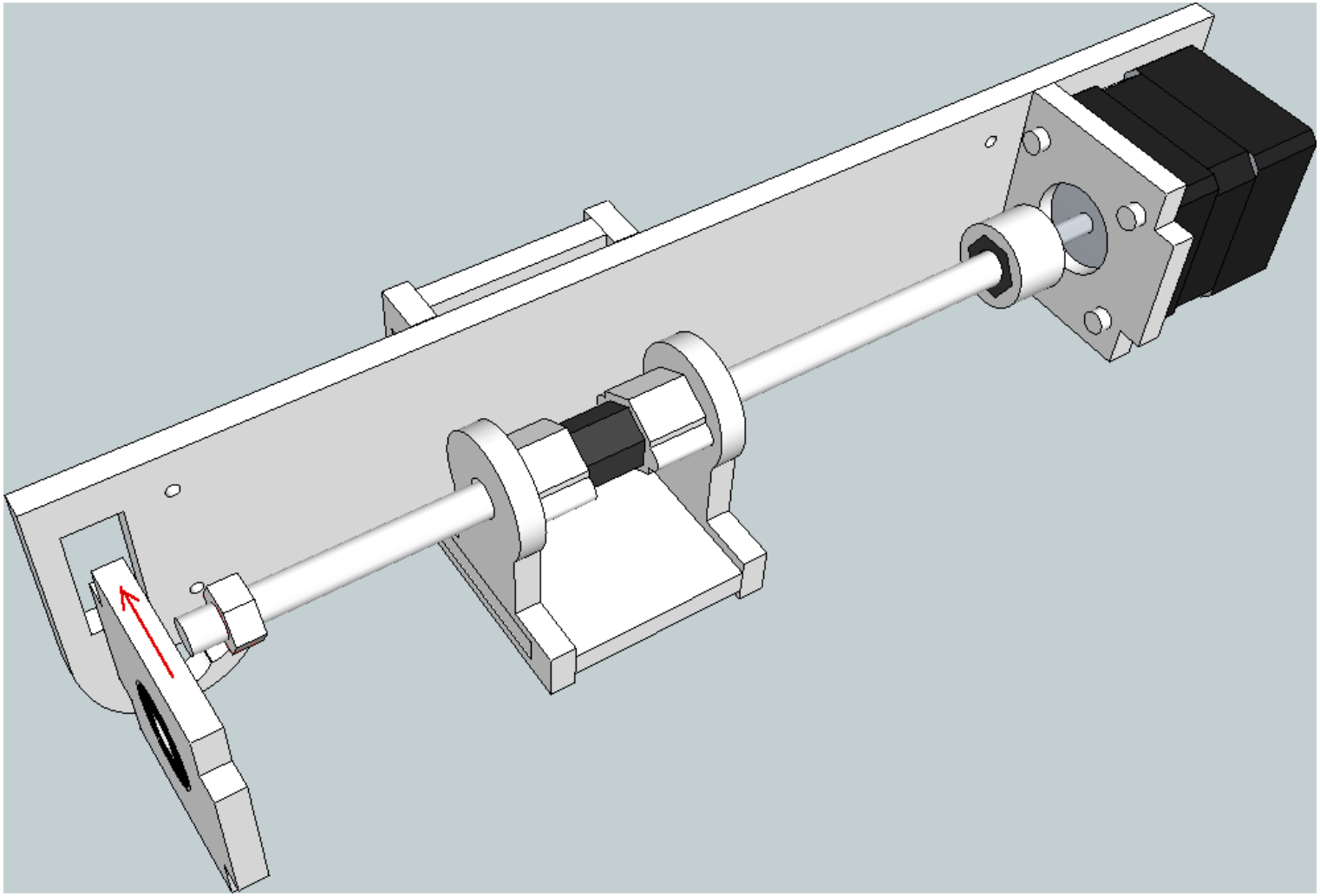
Parts

1 x CNC Y Axis Bearing Mount

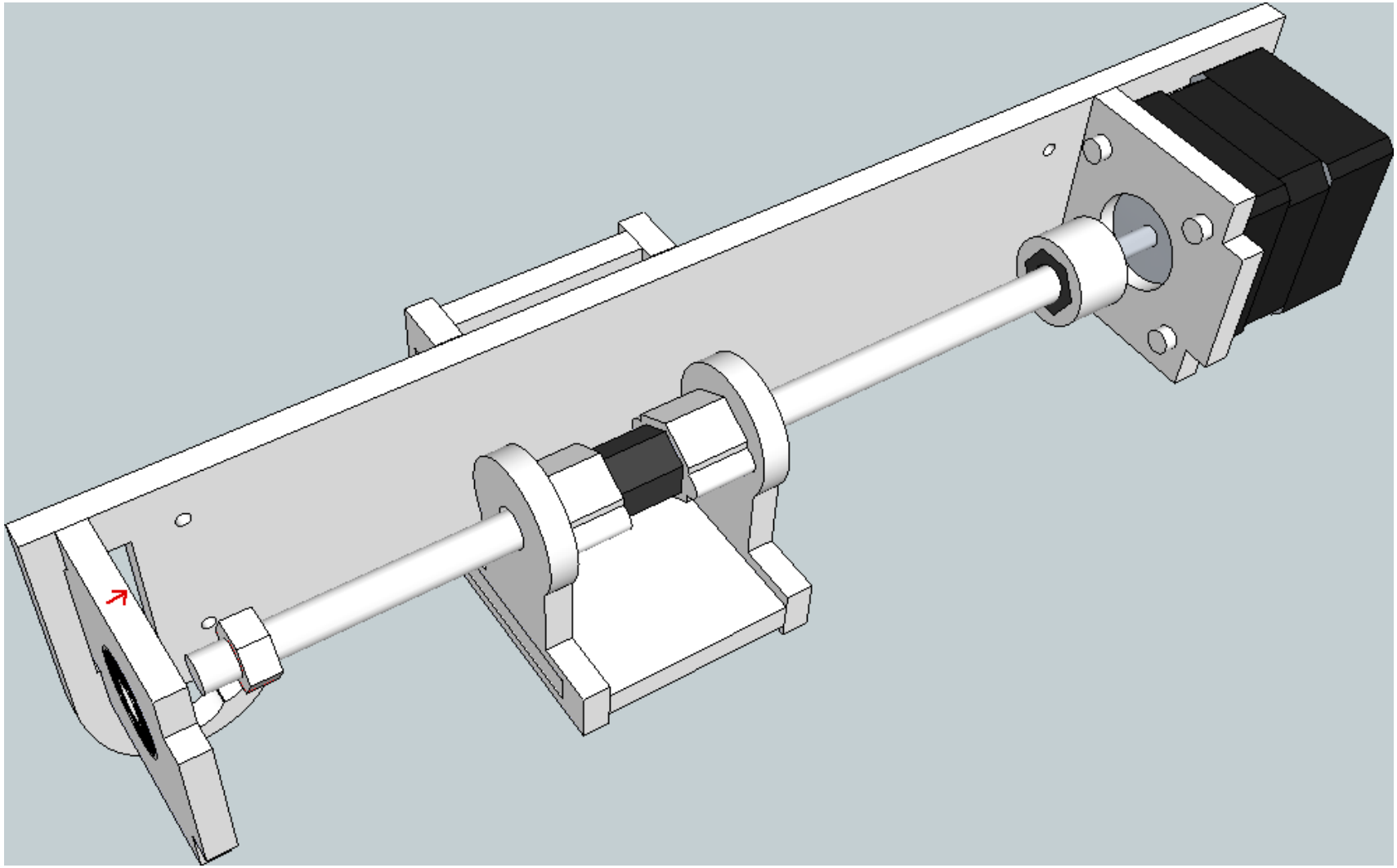
1 x 608 bearing



Section 2 : Step 10



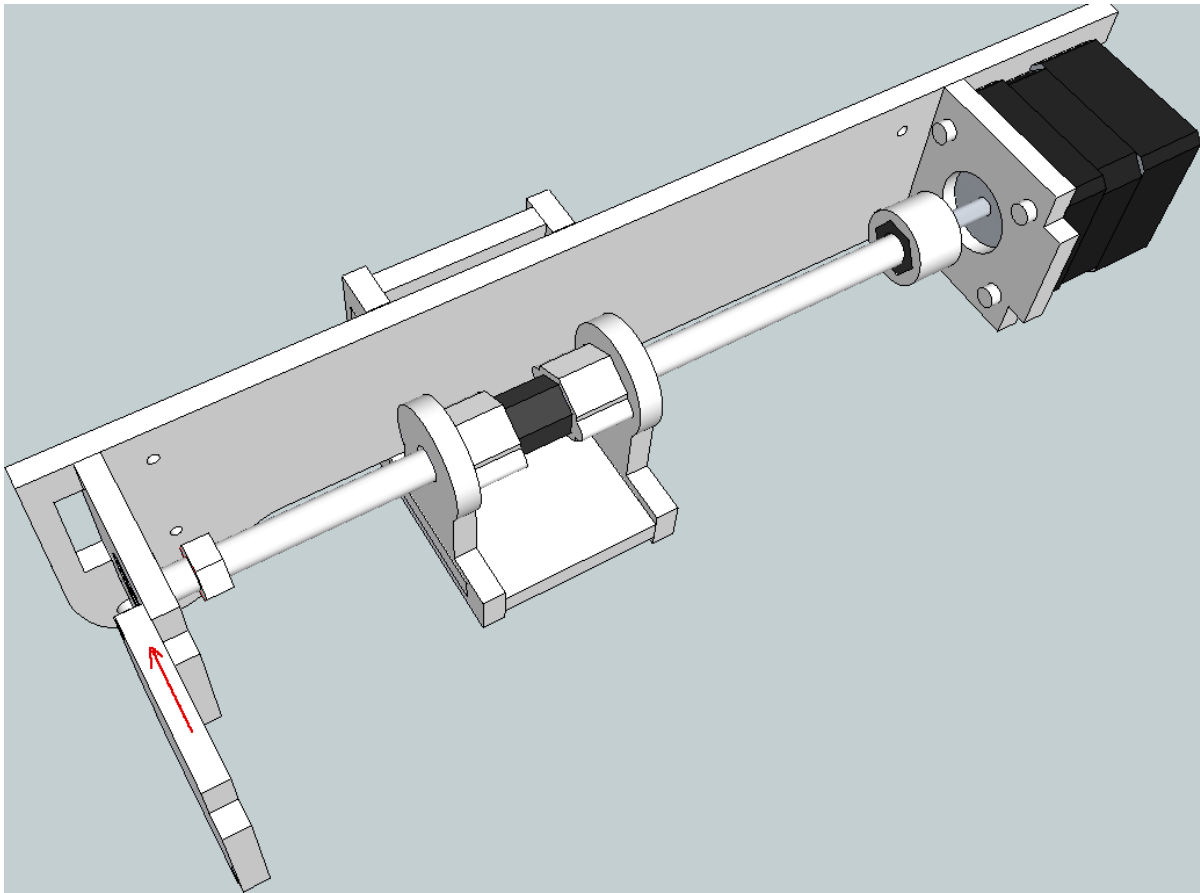
Section 2 : Step 11



Section 2 : Step 12

Parts

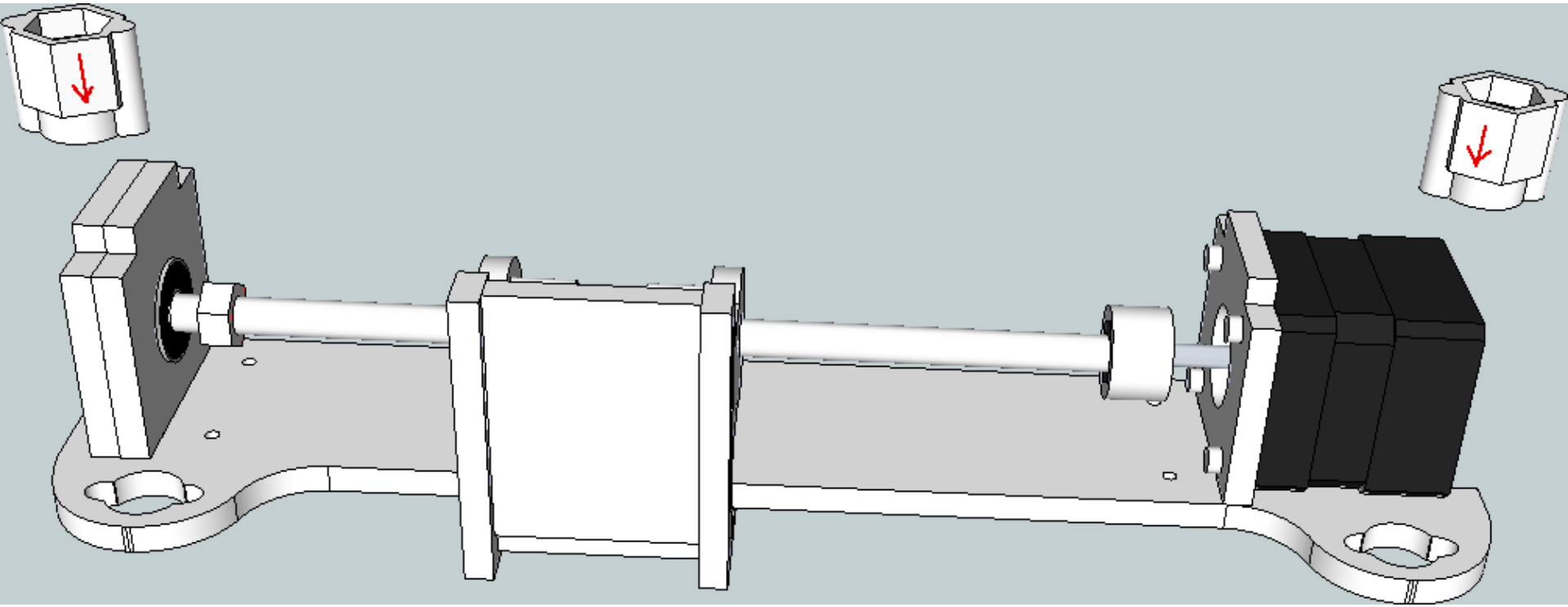
1 x CNC Y Axis Mount



Section 2 : Step 13

Parts

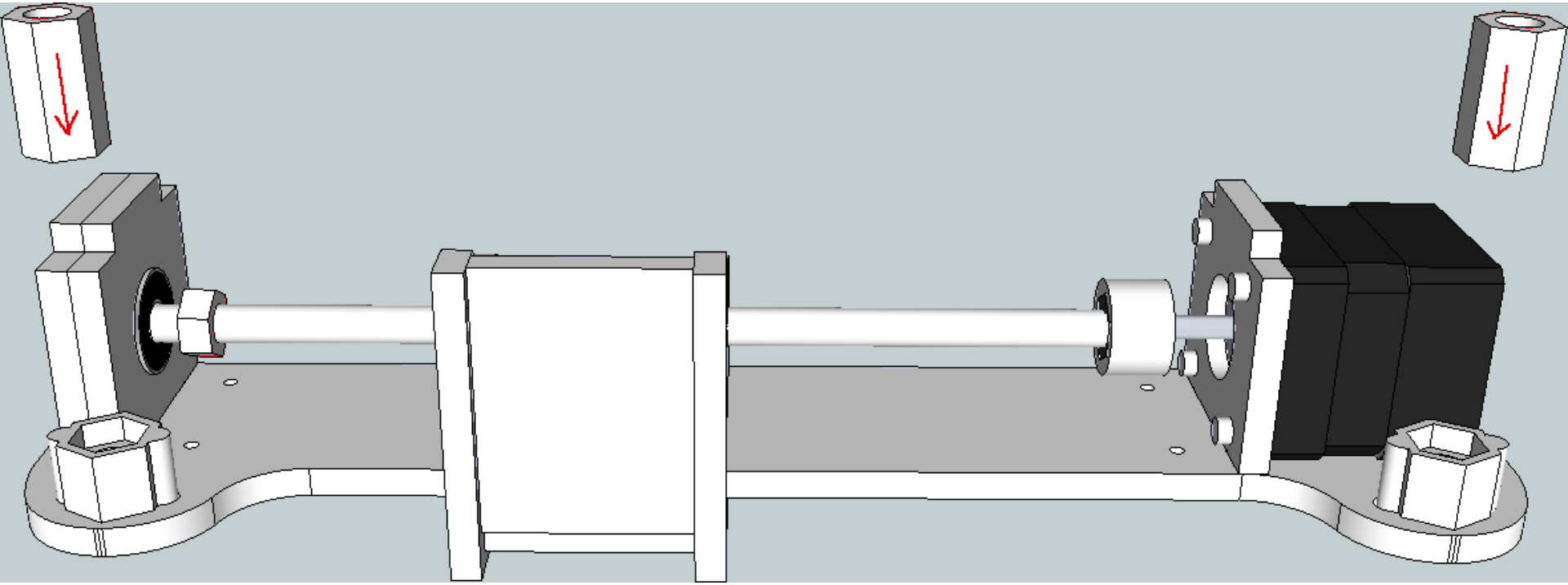
2 x 3D Printed X Axis Nut Bracket



Section 2 : Step 14

Parts

2 x 8mm Long Nut

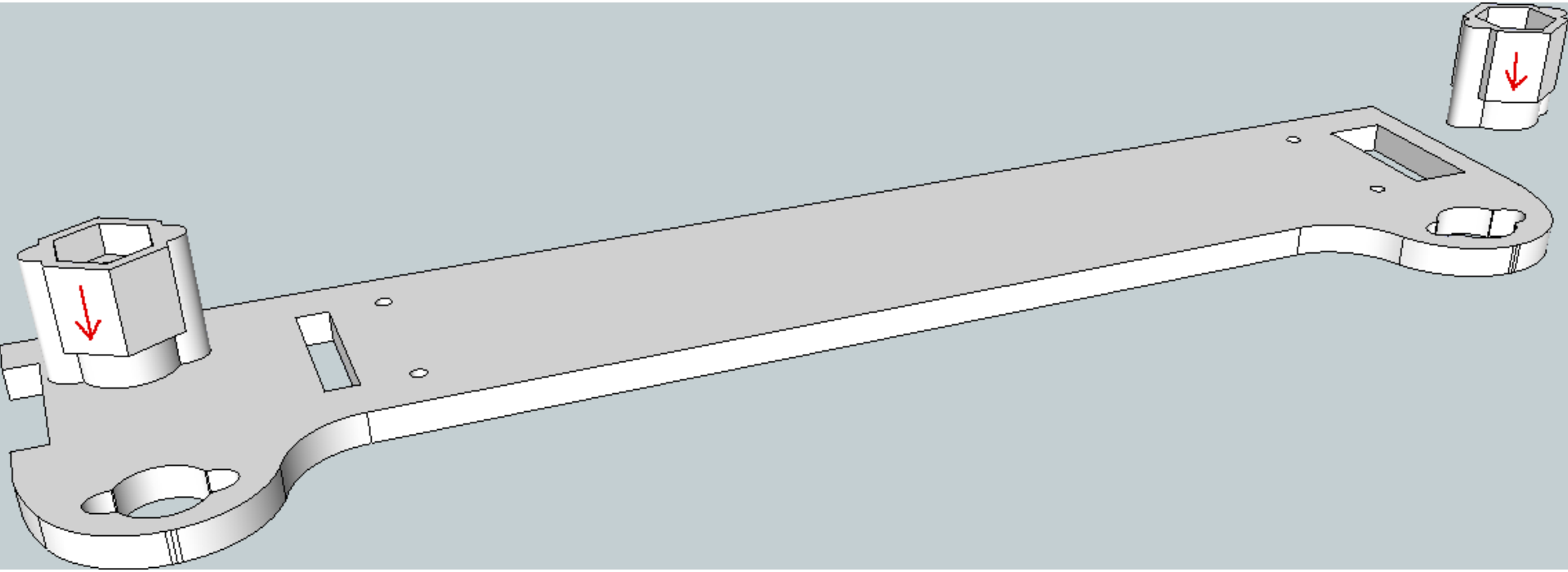


Section 2 : Step 15

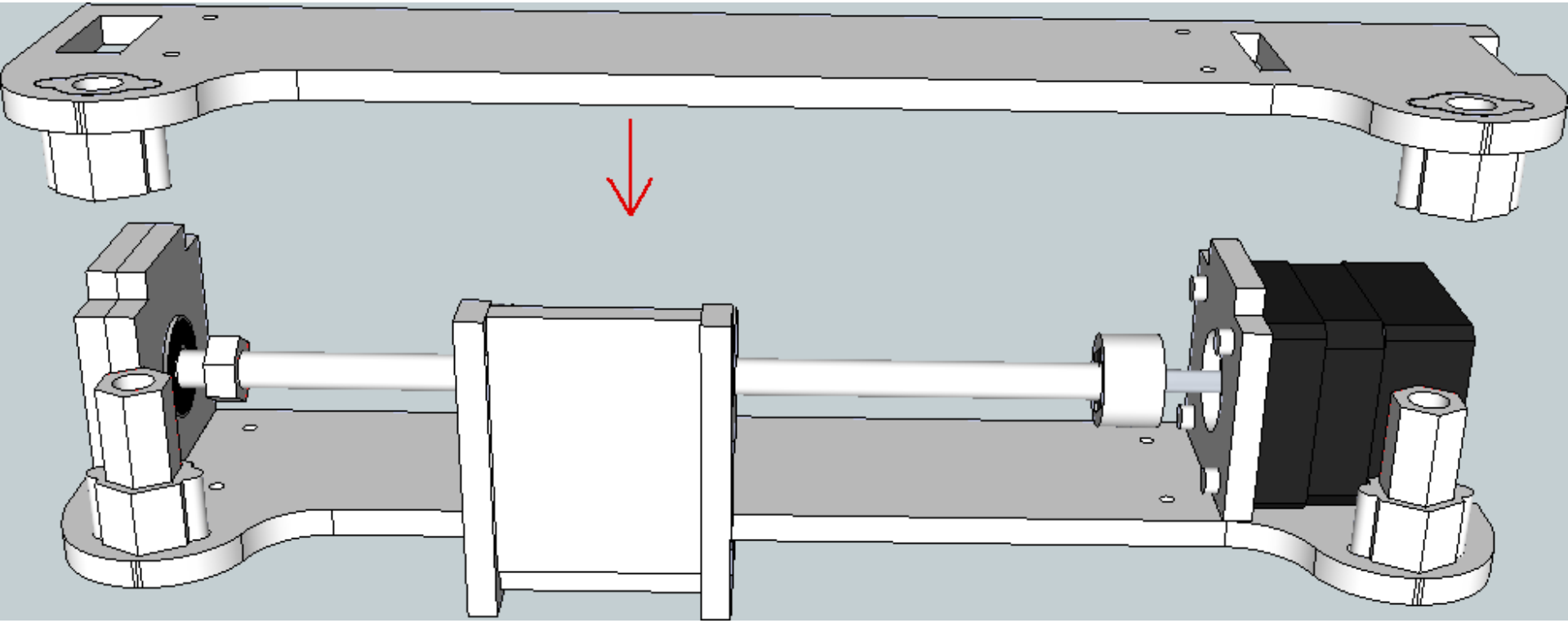
Parts

1 x CNC Carriage Side

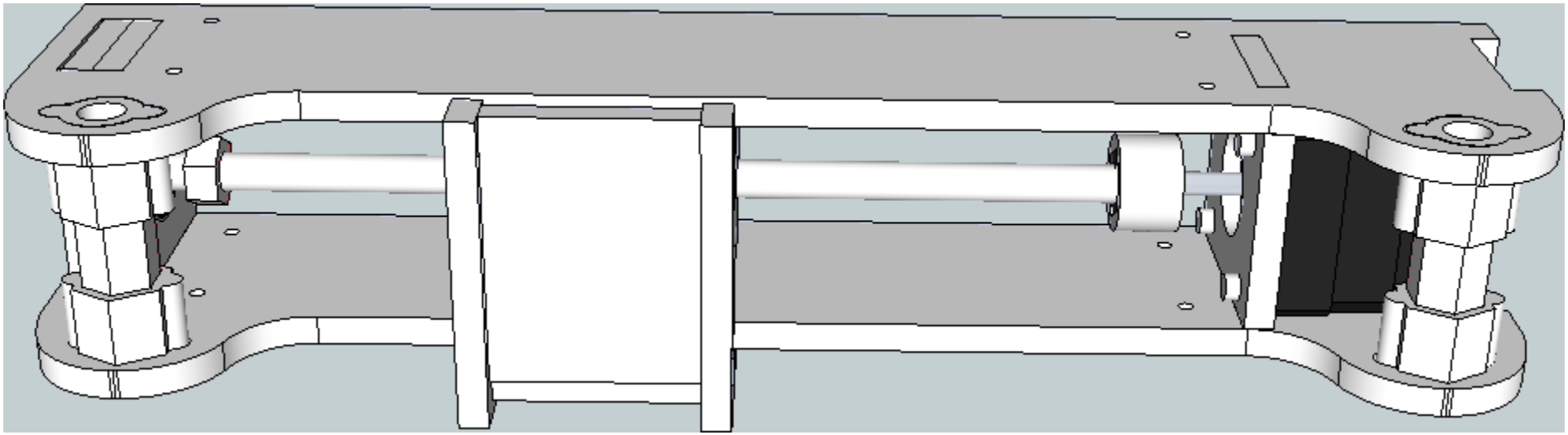
2 x 3D Printed X Axis Nut Bracket



Section 2 : Step 16

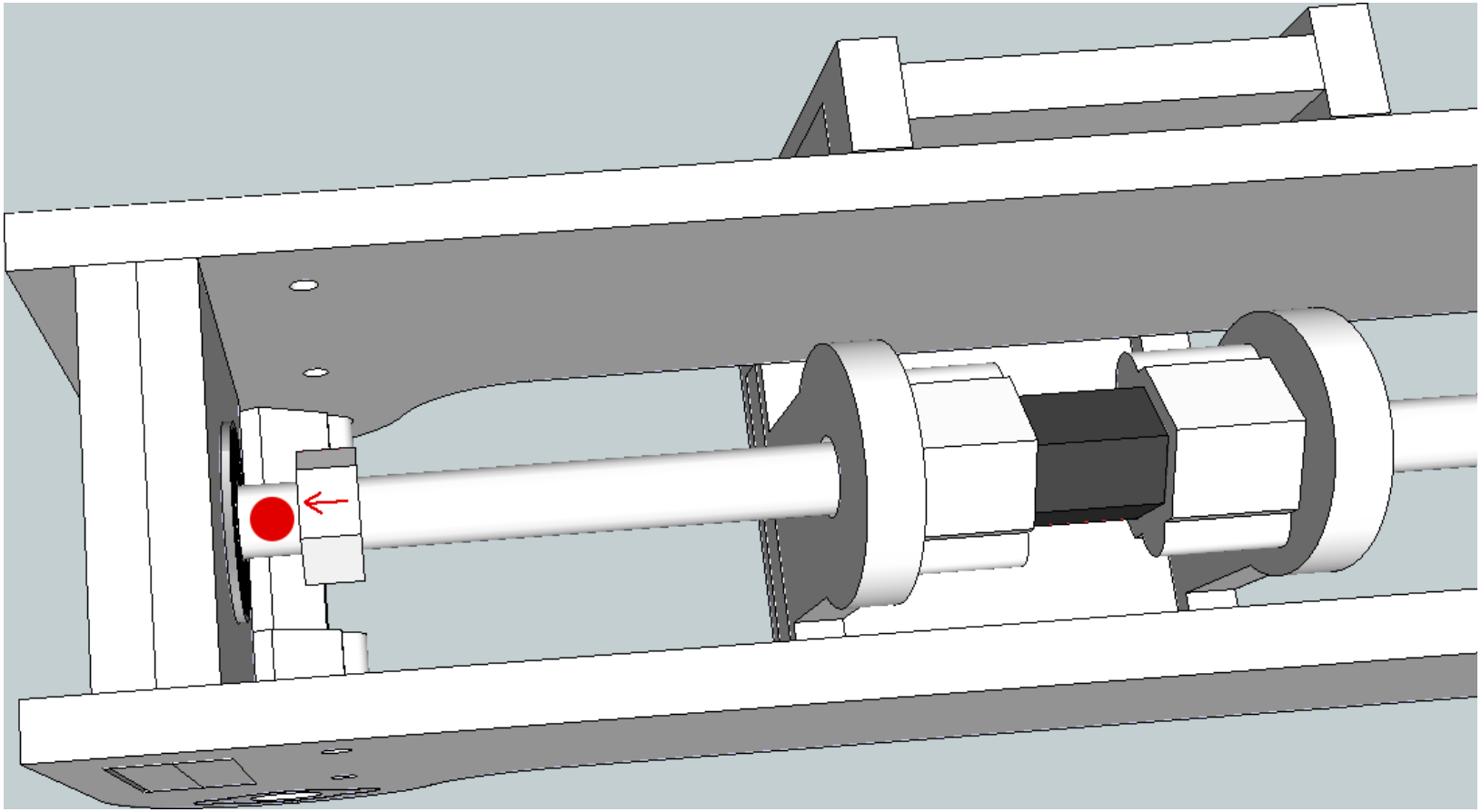


Section 2 : Step 16 - Complete

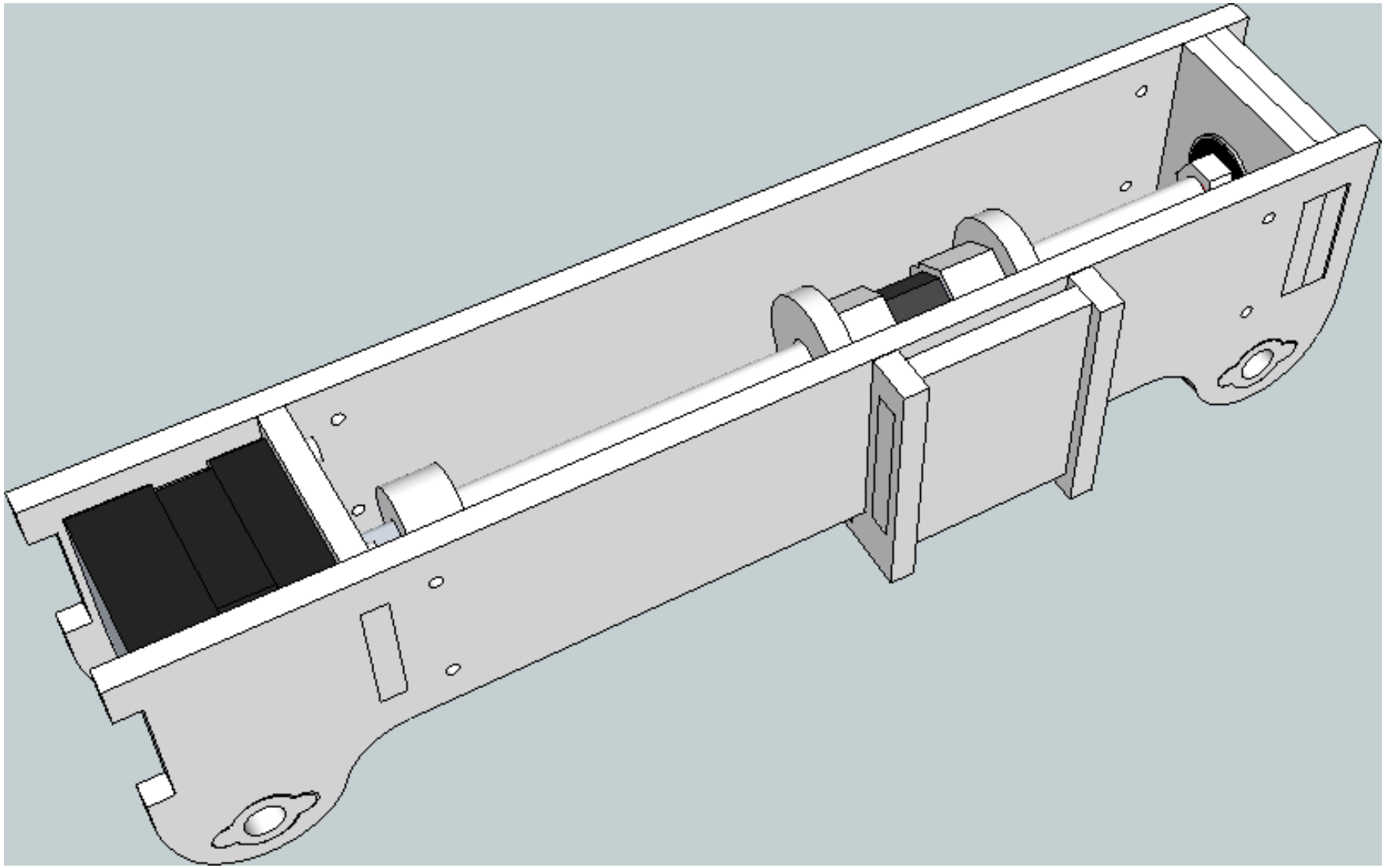


Section 2 : Step 17

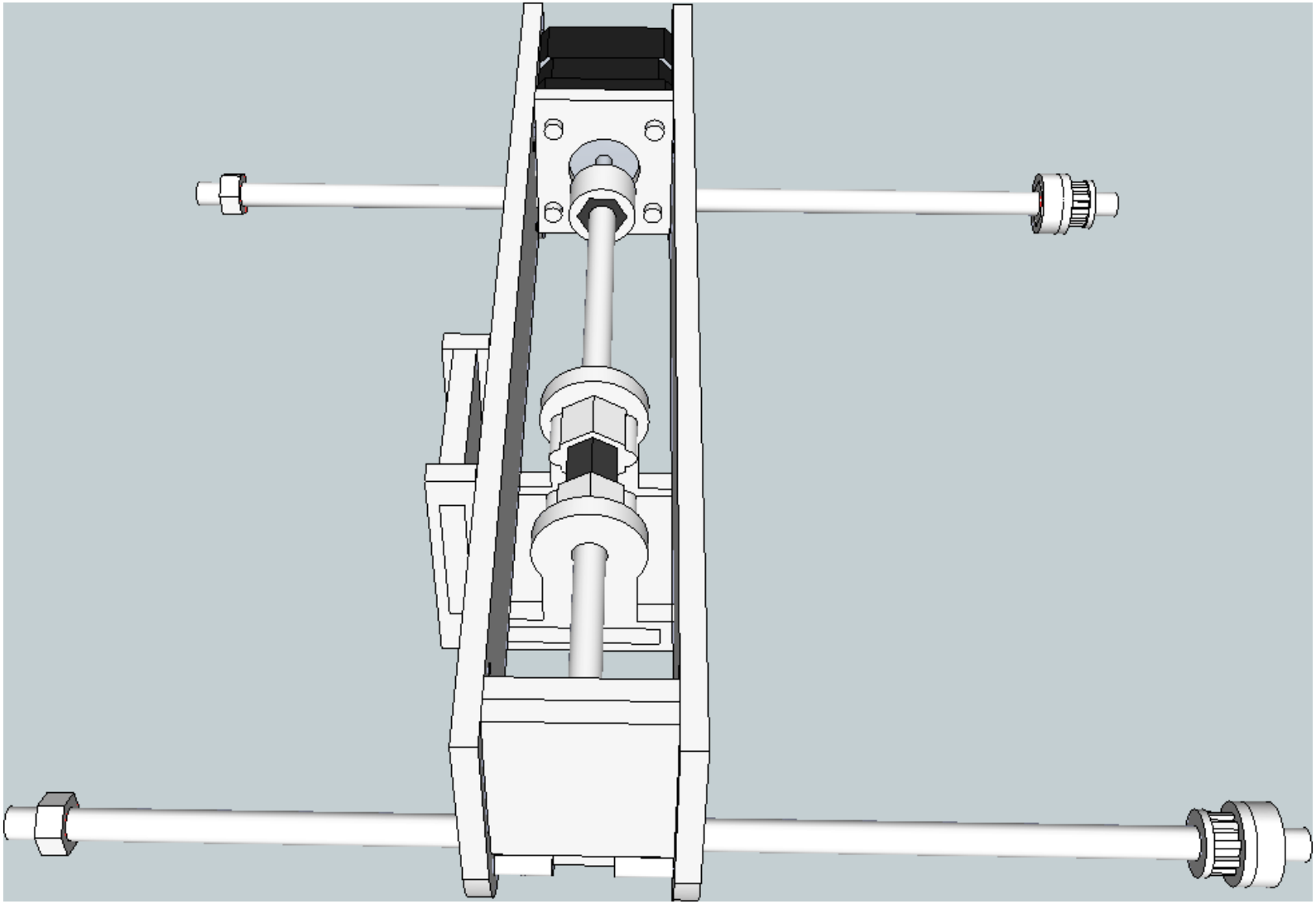
Put a dob of glue before turning the nut



Section 2 : Complete!



Section 3 : X Axis Rails



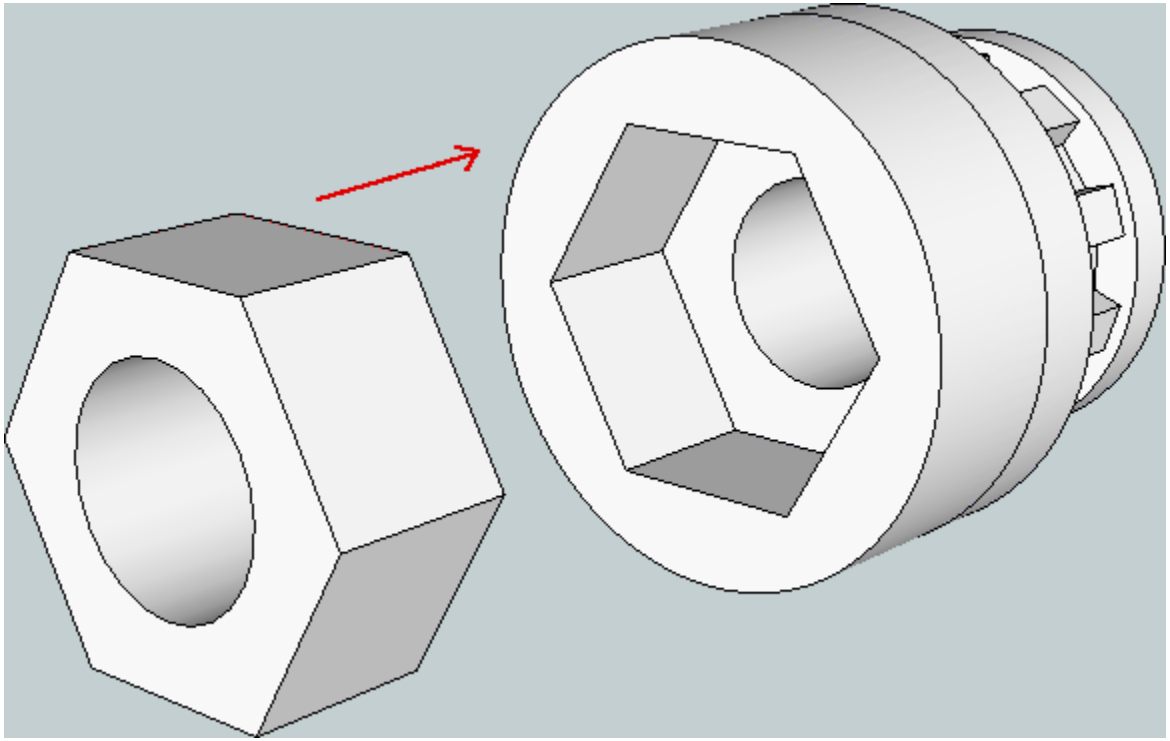
Section 3 : Step 1

Parts

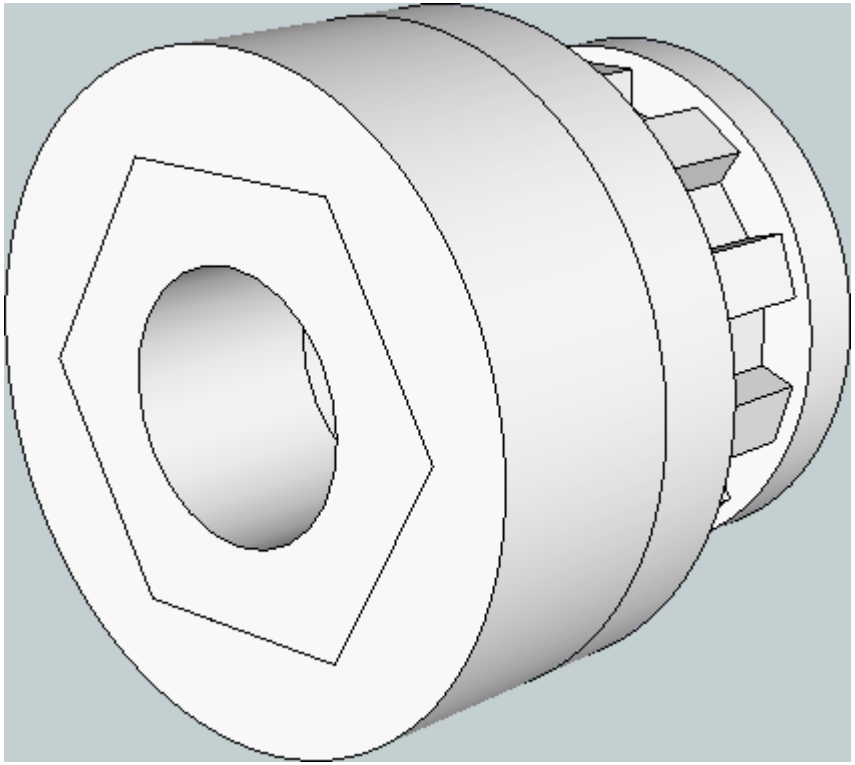
2 x 8mm nuts

2 x 3D Printed X Axis Gears

X 2



Section 3 : Step 1 - Complete



Section 3 : Step 2

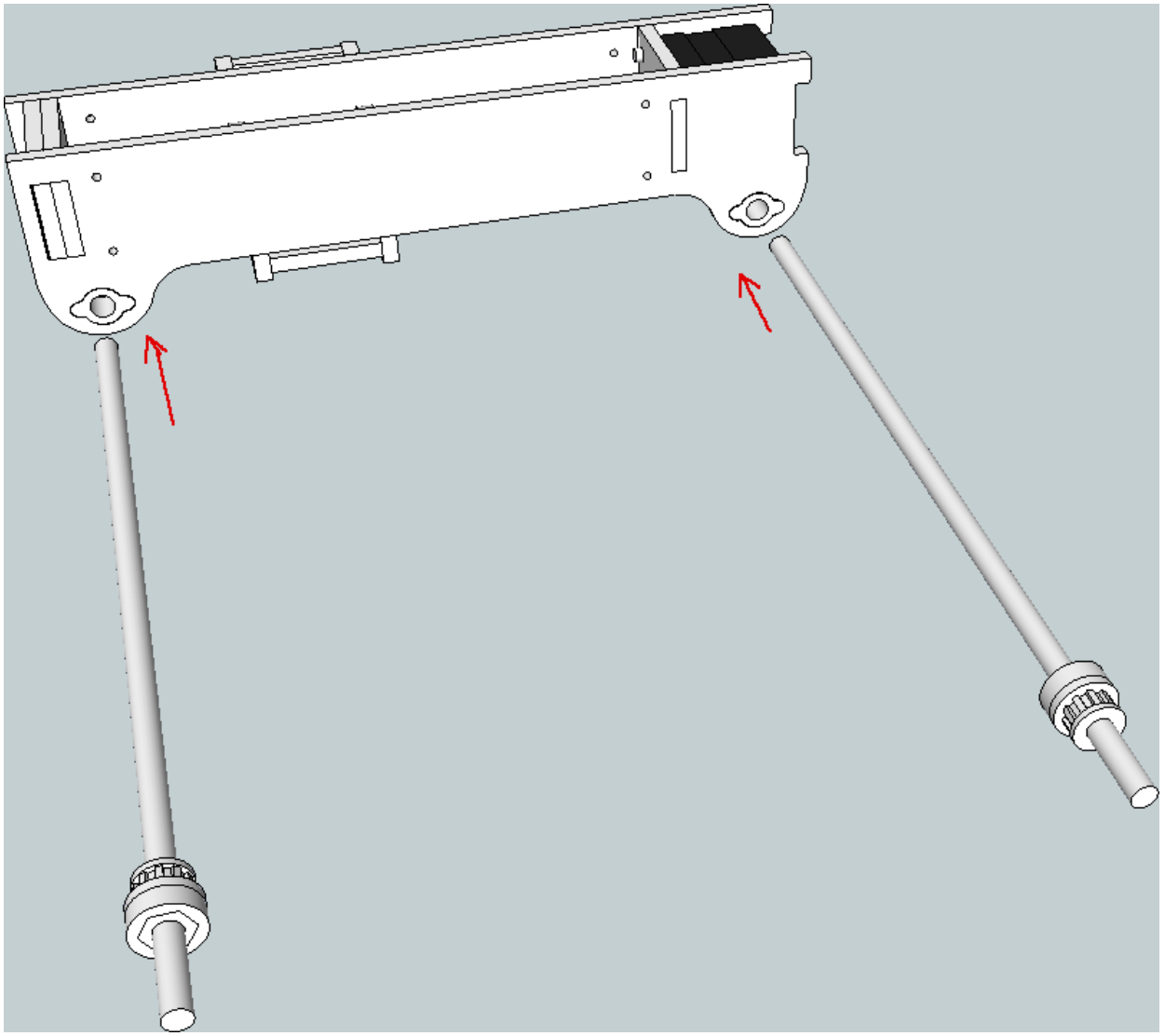
Parts

2 x 310mm long 8mm all-thread

Section 3 : Step 3

Parts

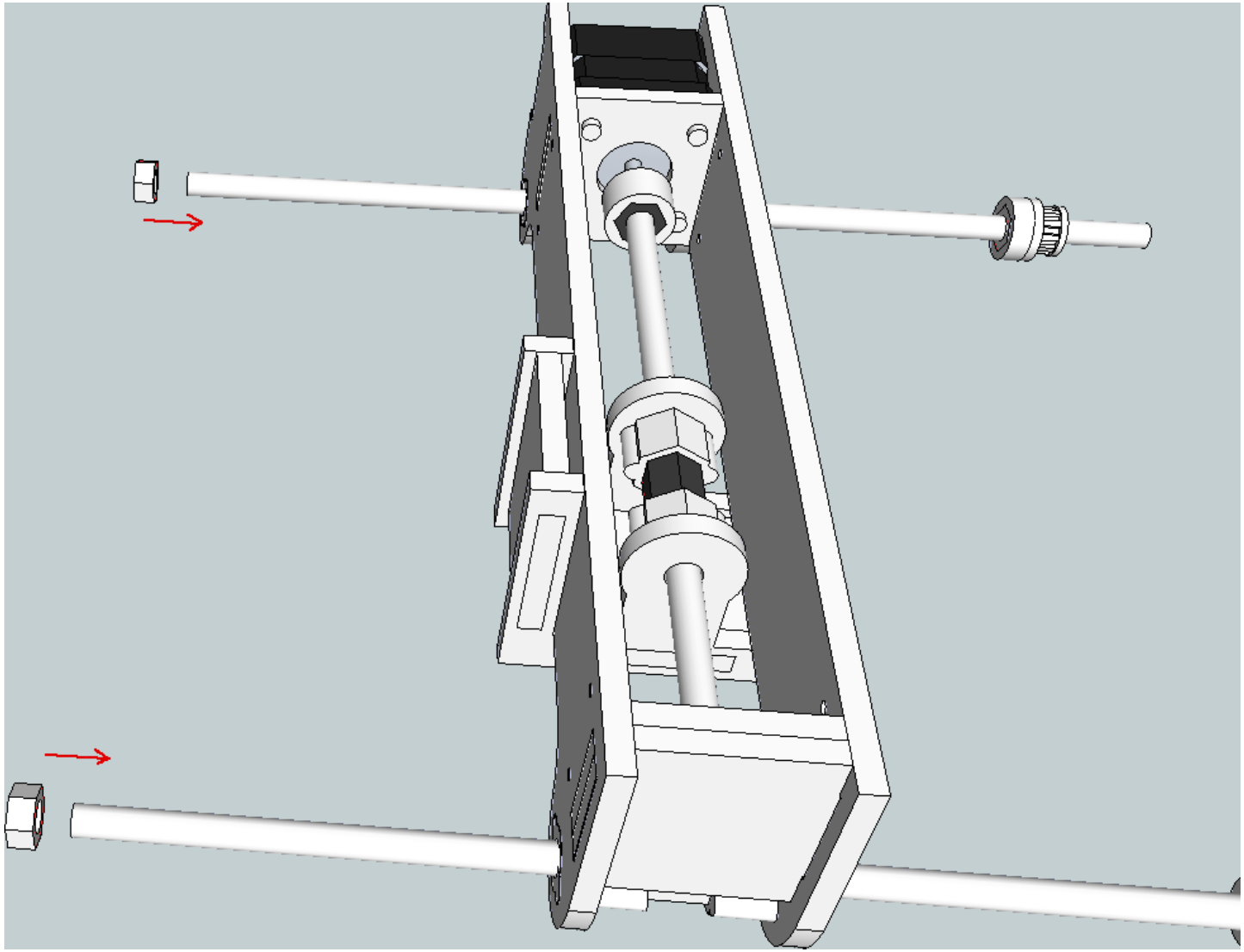
Part from Section 2



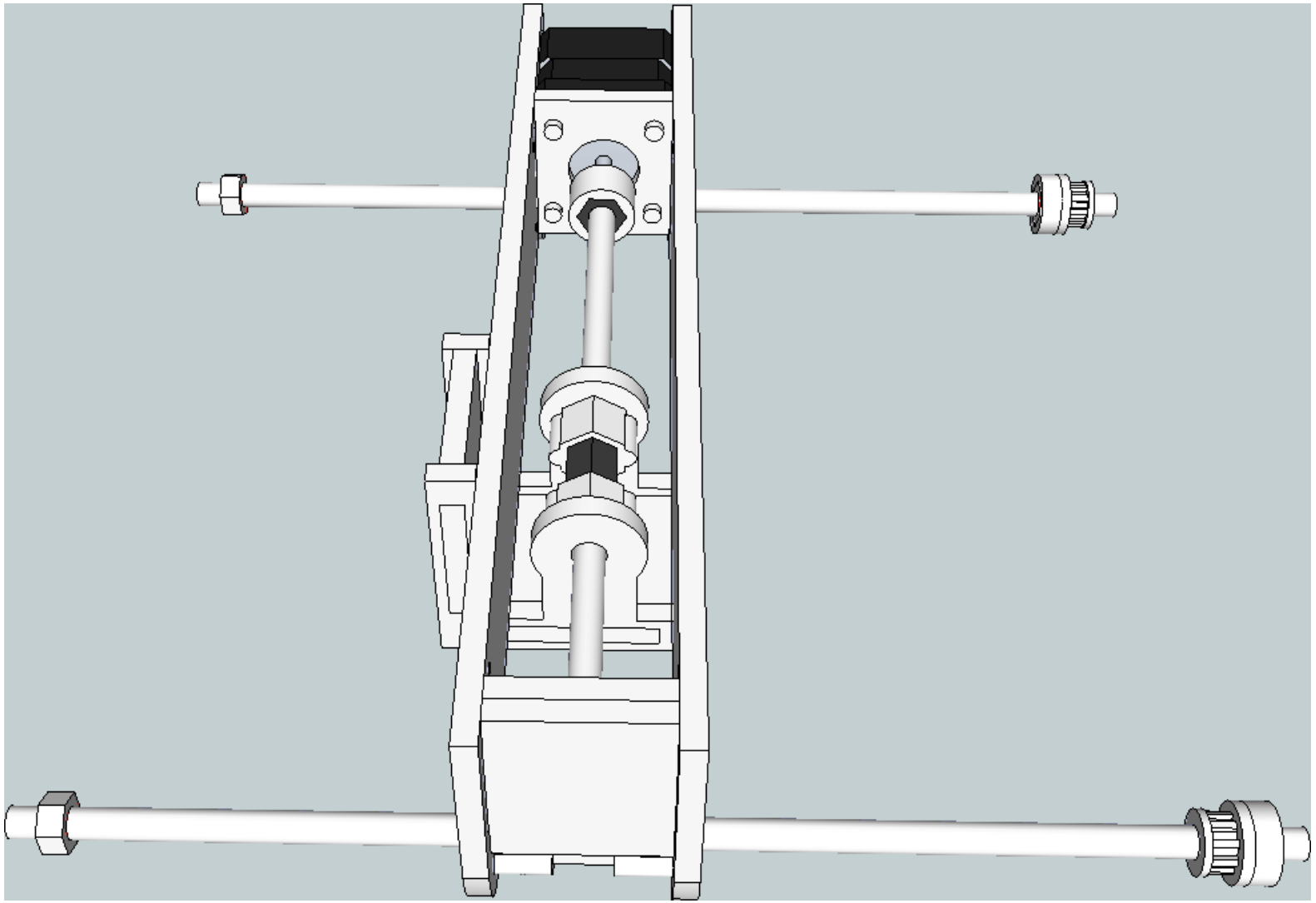
Section 3 : Step 4

Parts

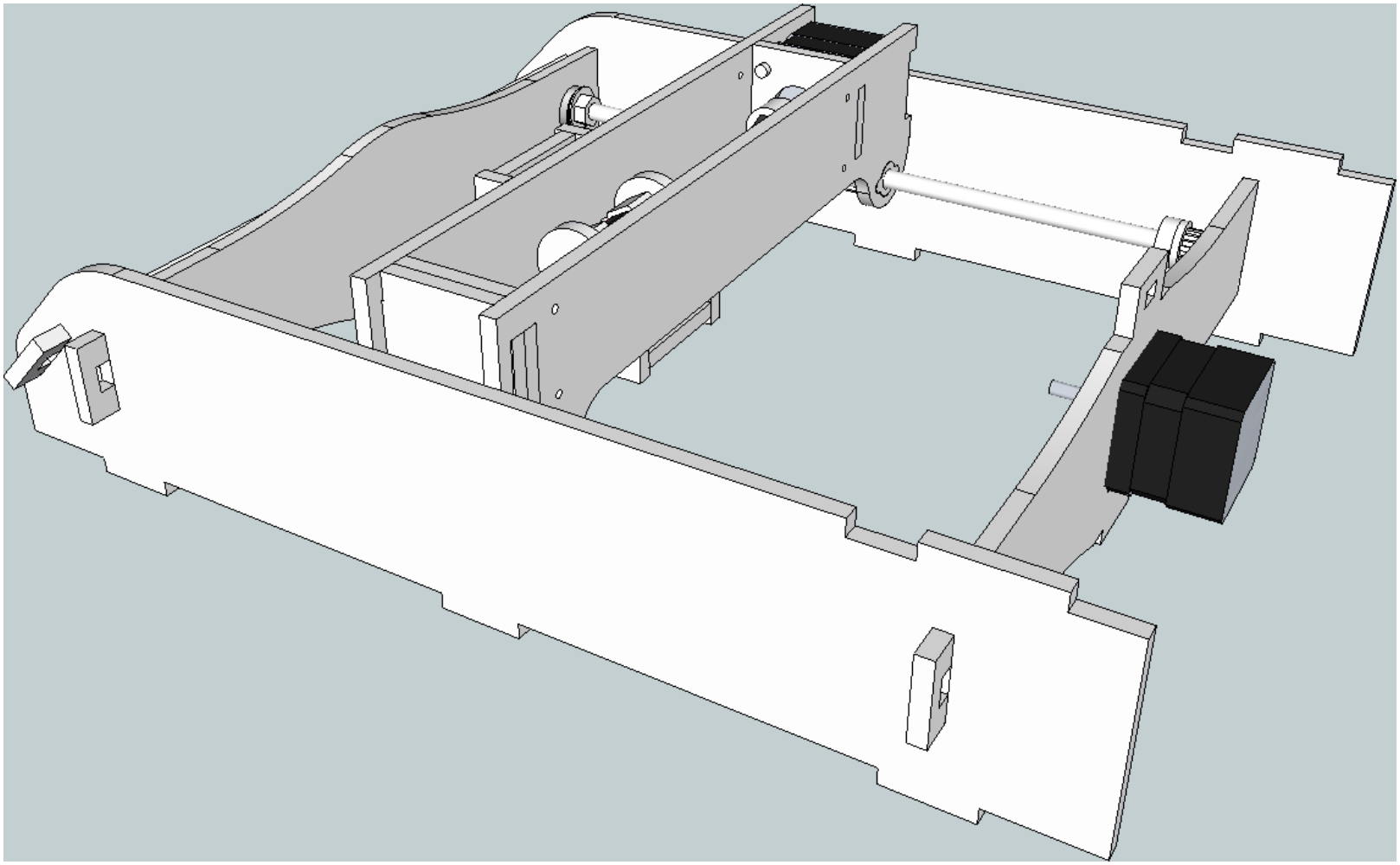
2 x 8mm nuts



Section 3 : Complete!



Section 4 : Top Frame



Section 4 : Step 1

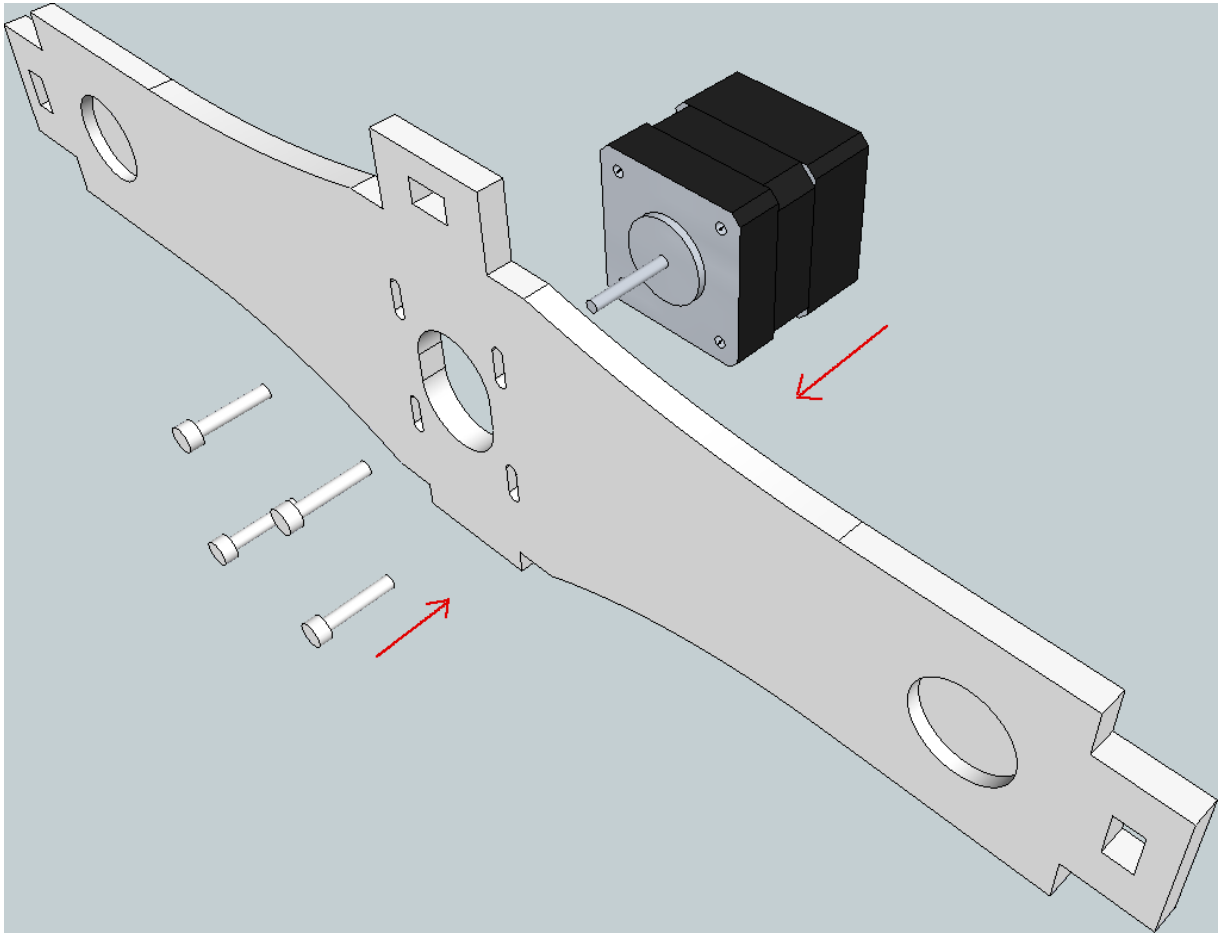
Parts

1 x Nema 17 Stepper Motor

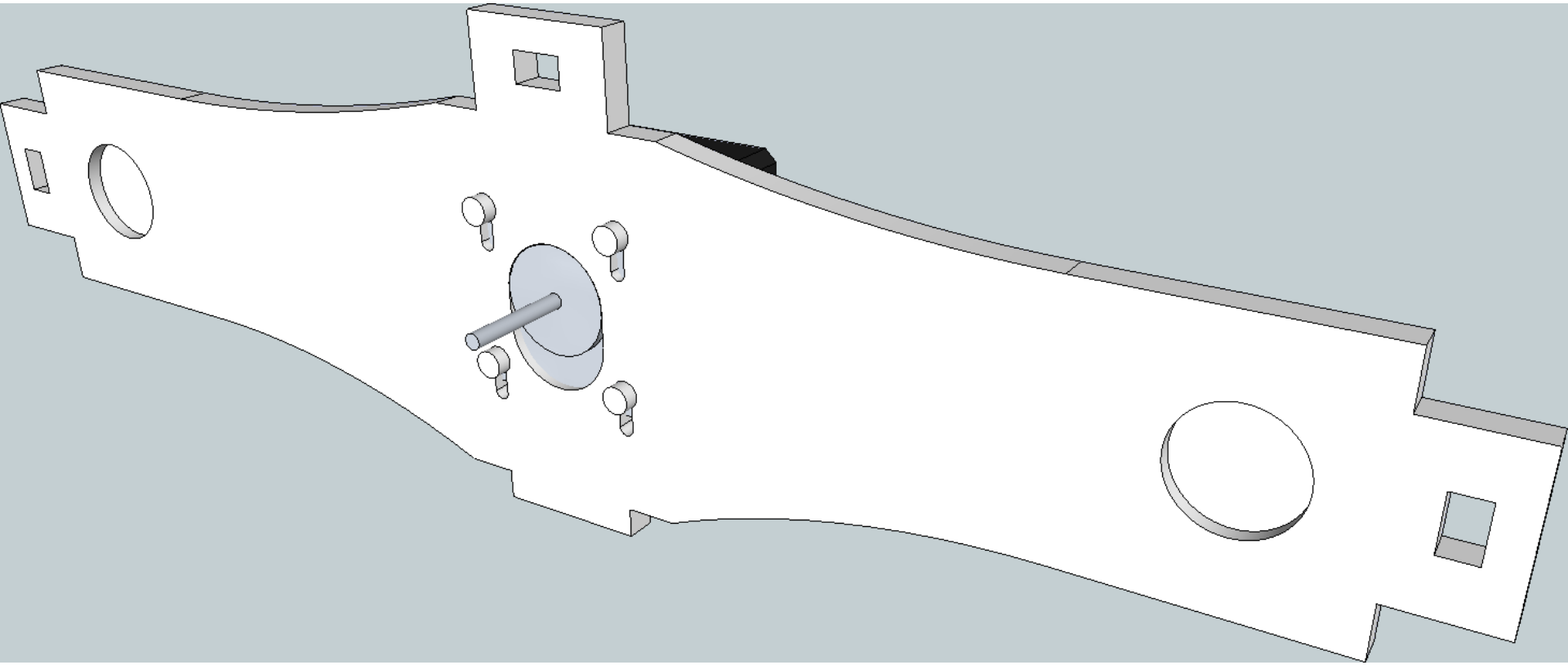
4 x 3mm machine screws

1 x CNC Back Bulkhead

These should be somewhat loose.



Section 4 : Step 1 - Complete



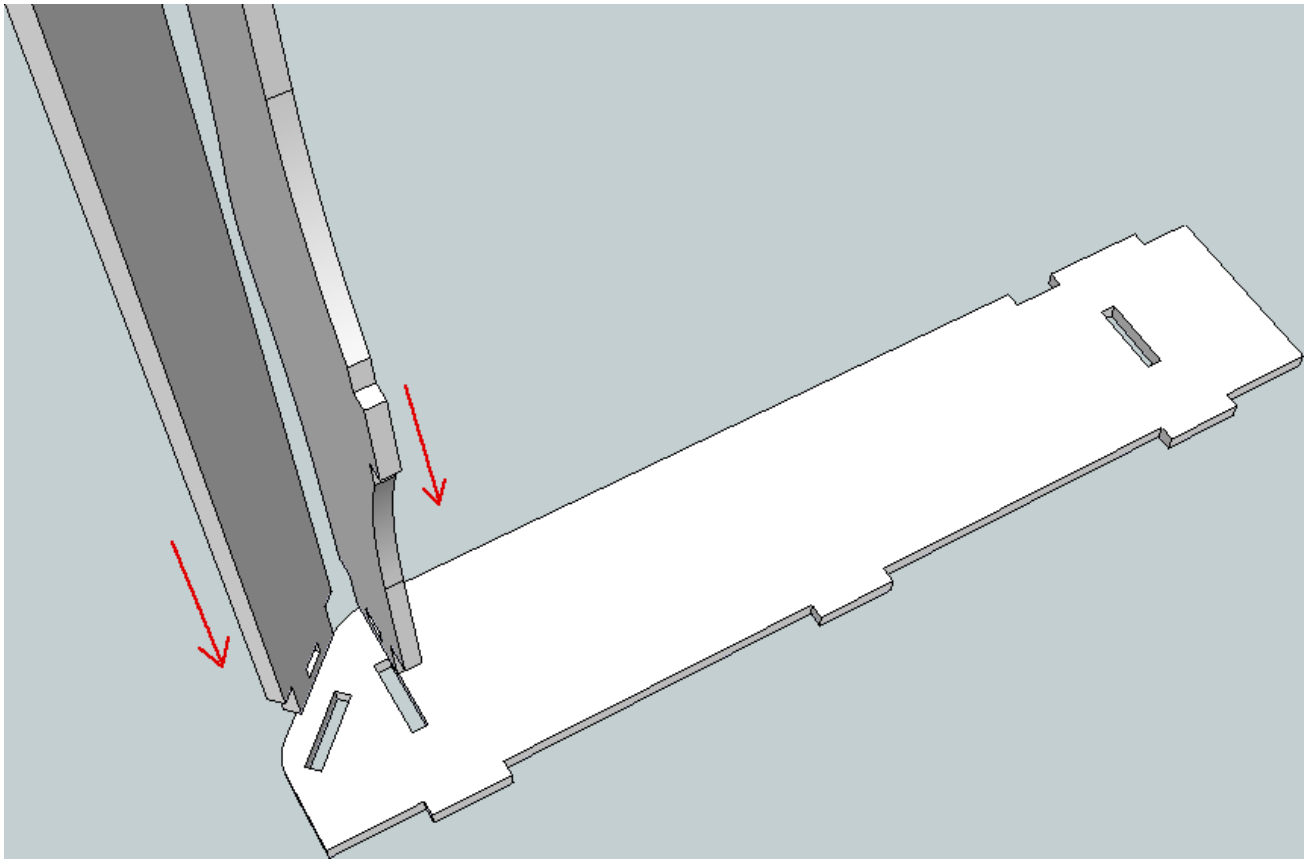
Section 4 : Step 2

Parts

1 x CNC Front Bulkhead

1 x CNC Side Plate

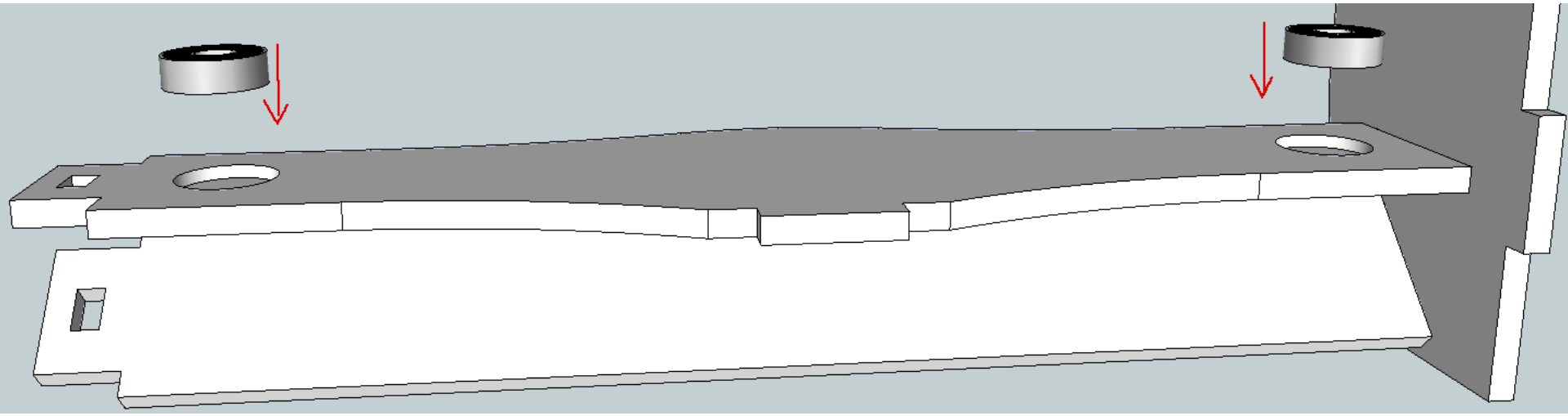
1 x CNC Front Plate



Section 4 : Step 3

Parts

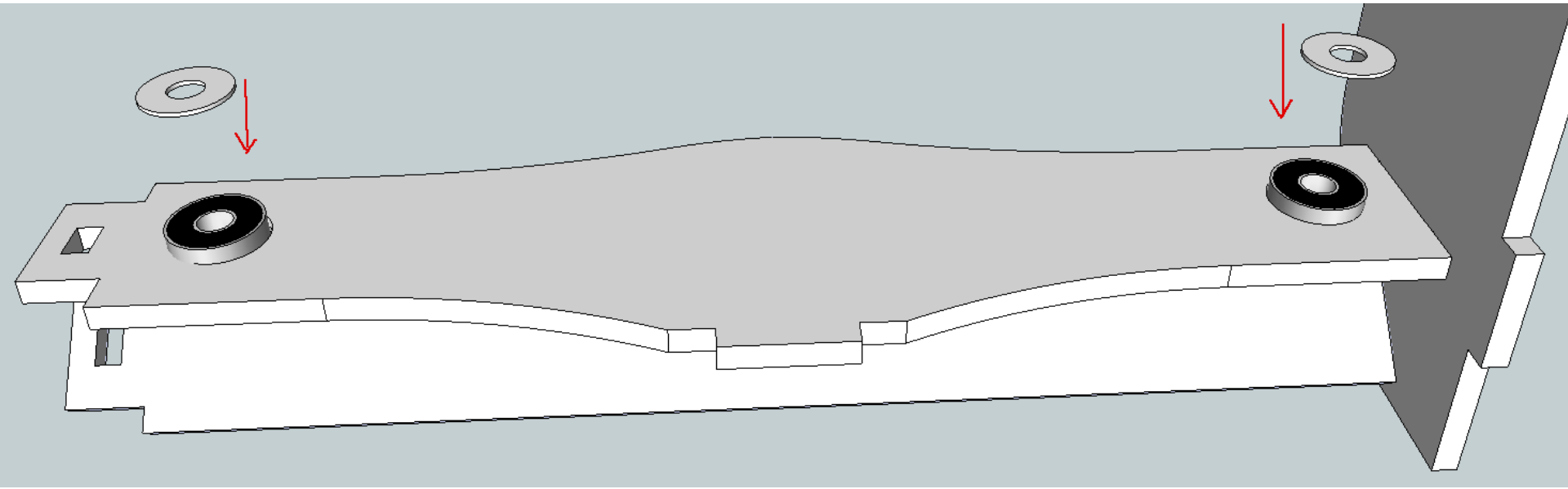
2 x 608 bearings



Section 4 : Step 4

Parts

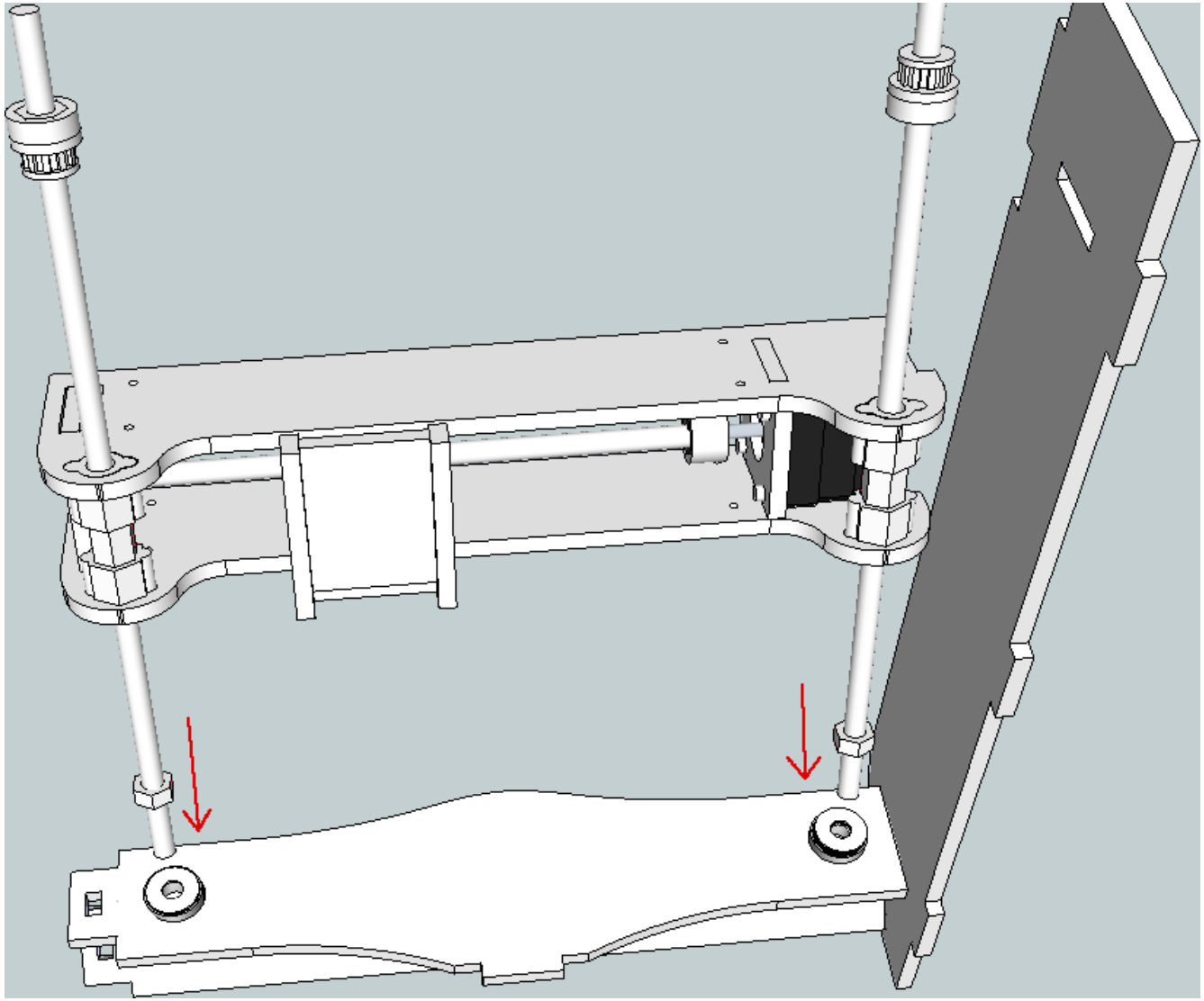
2 x 8mm Washers



Section 4 : Step 5

Parts

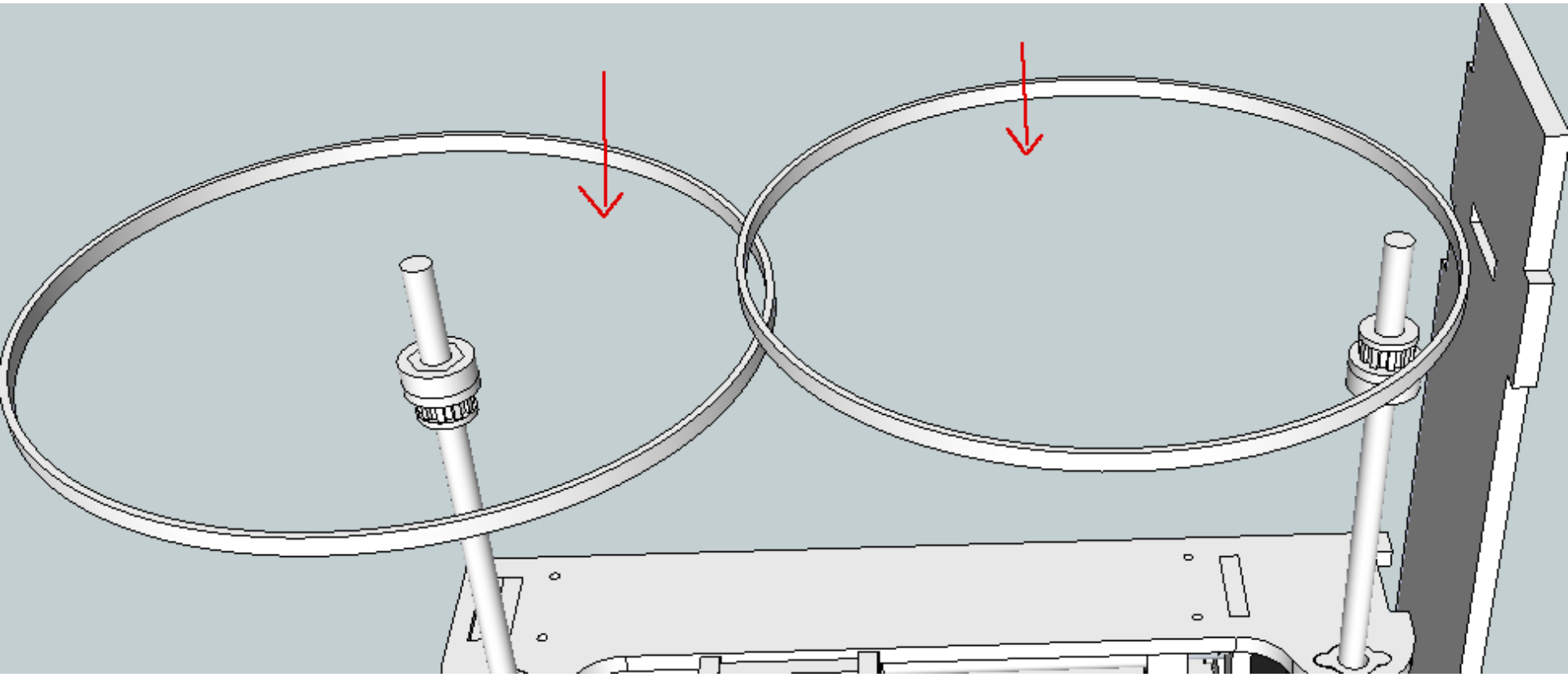
Section 3



Section 4 : Step 6

Parts

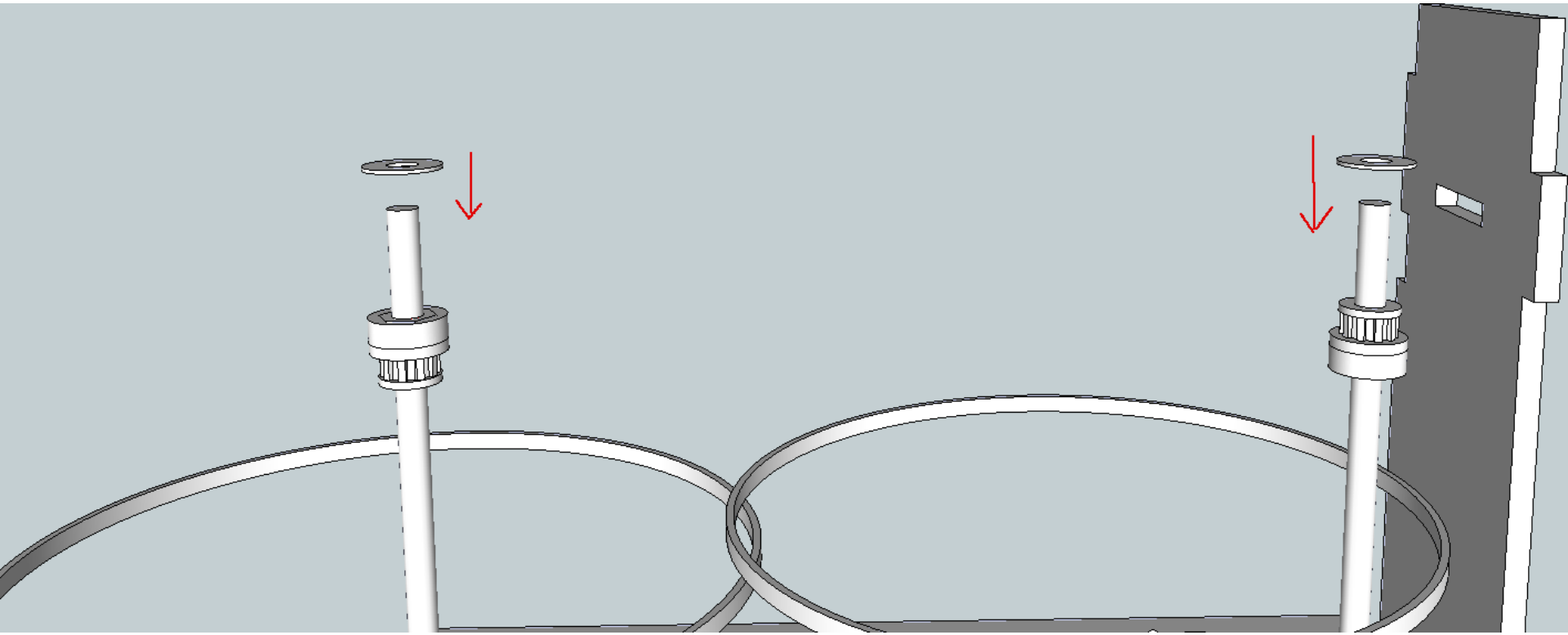
2 x T5 Belts



Section 4 : Step 7

Parts

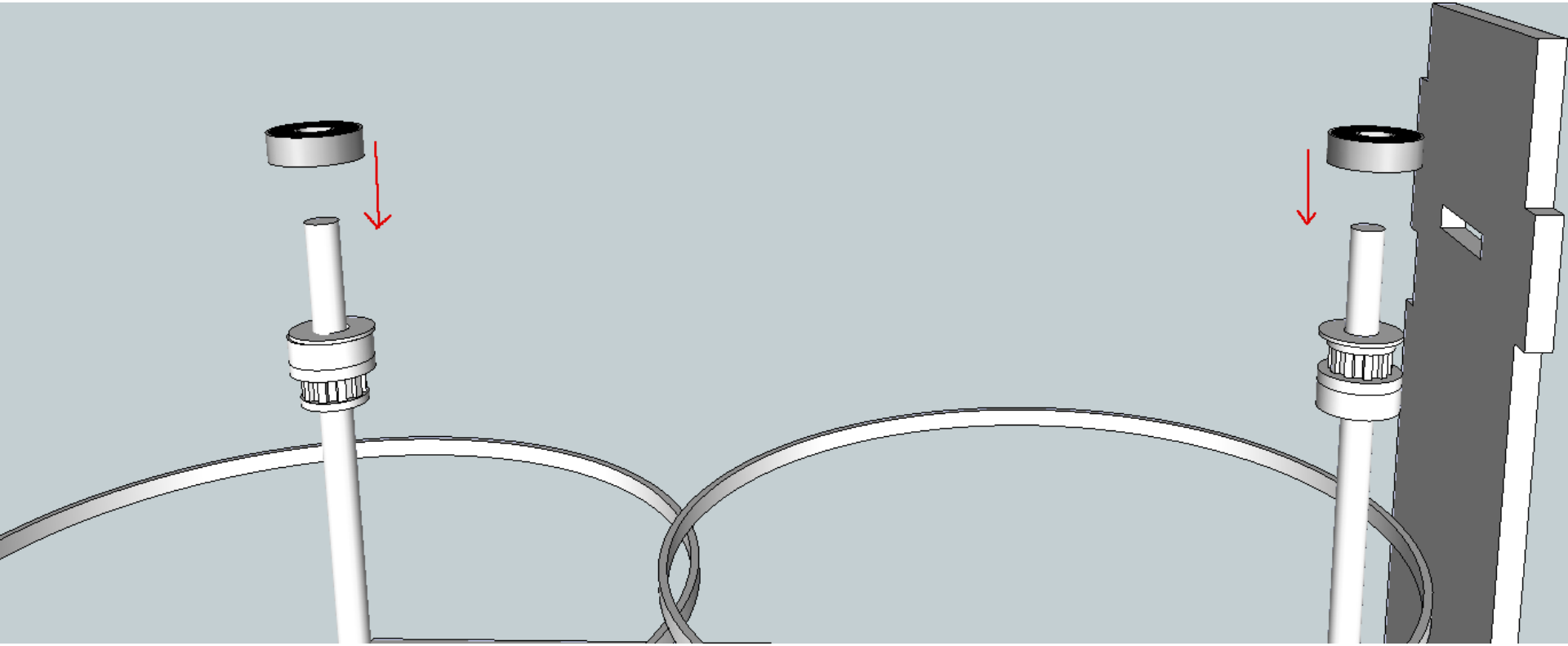
2 x 8mm Washers



Section 4 : Step 8

Parts

2 x 608 Bearings

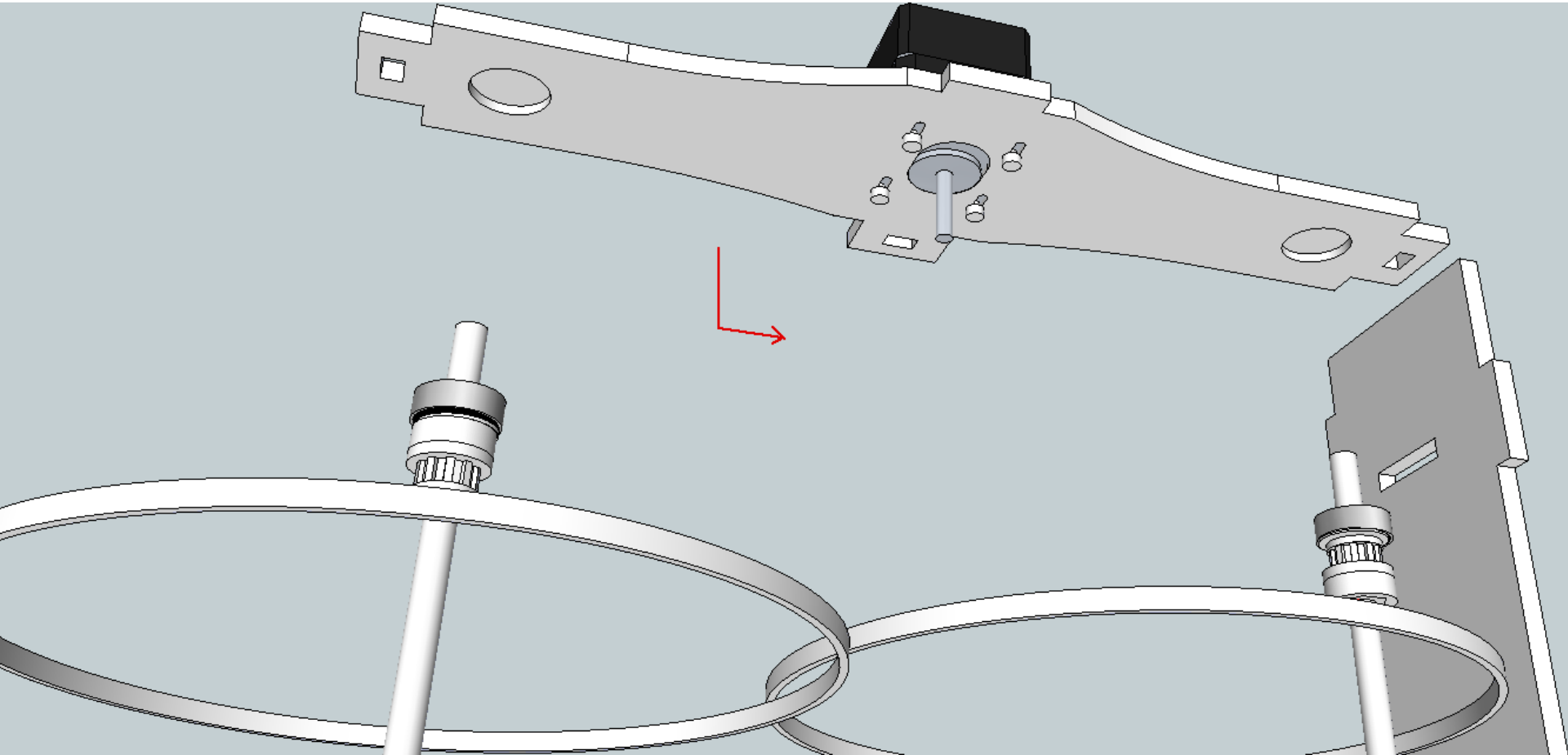


Section 4 : Step 9

Parts

Section 4 : Step 1

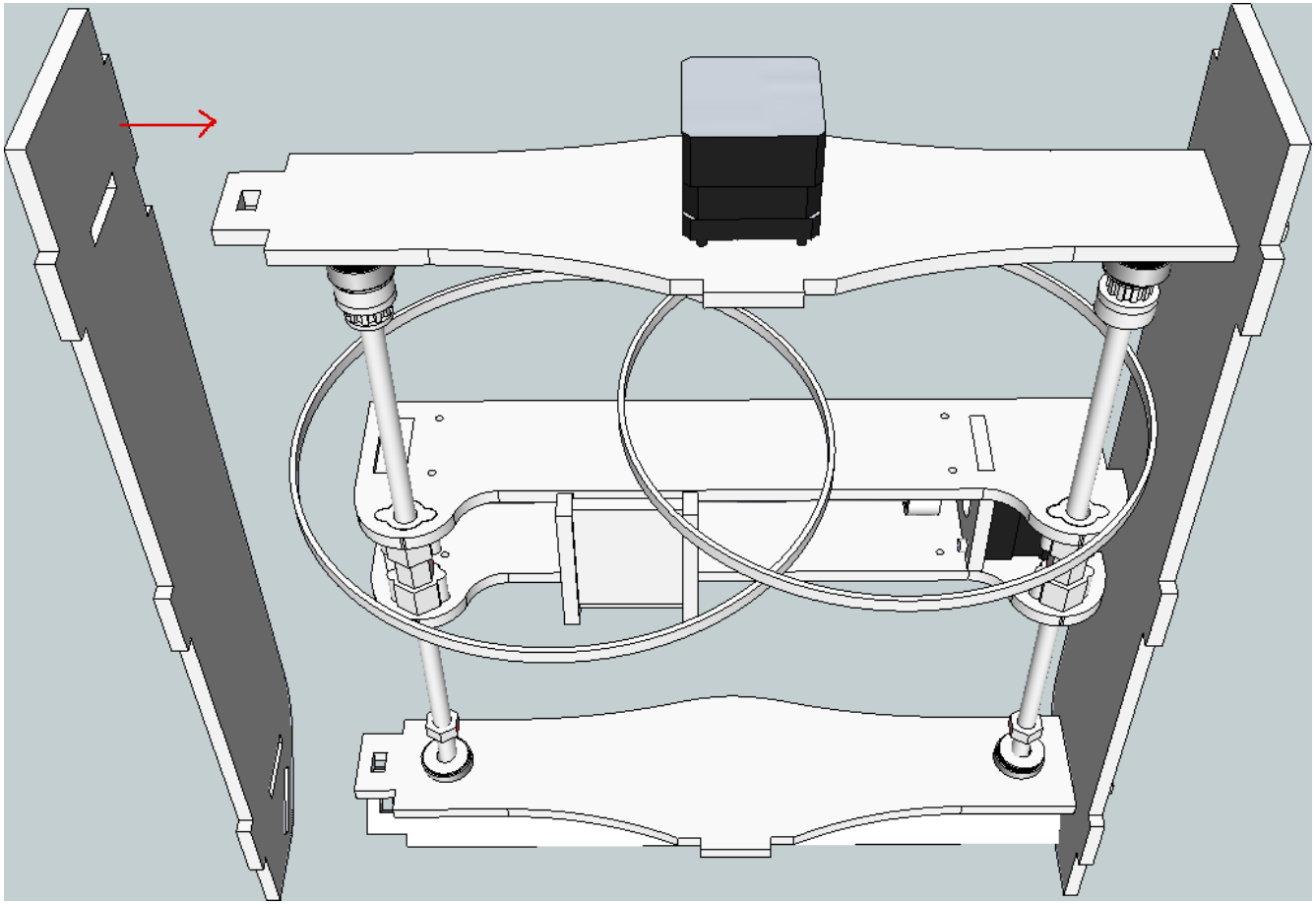
You will need to wiggle these together a bit



Section 4 : Step 10

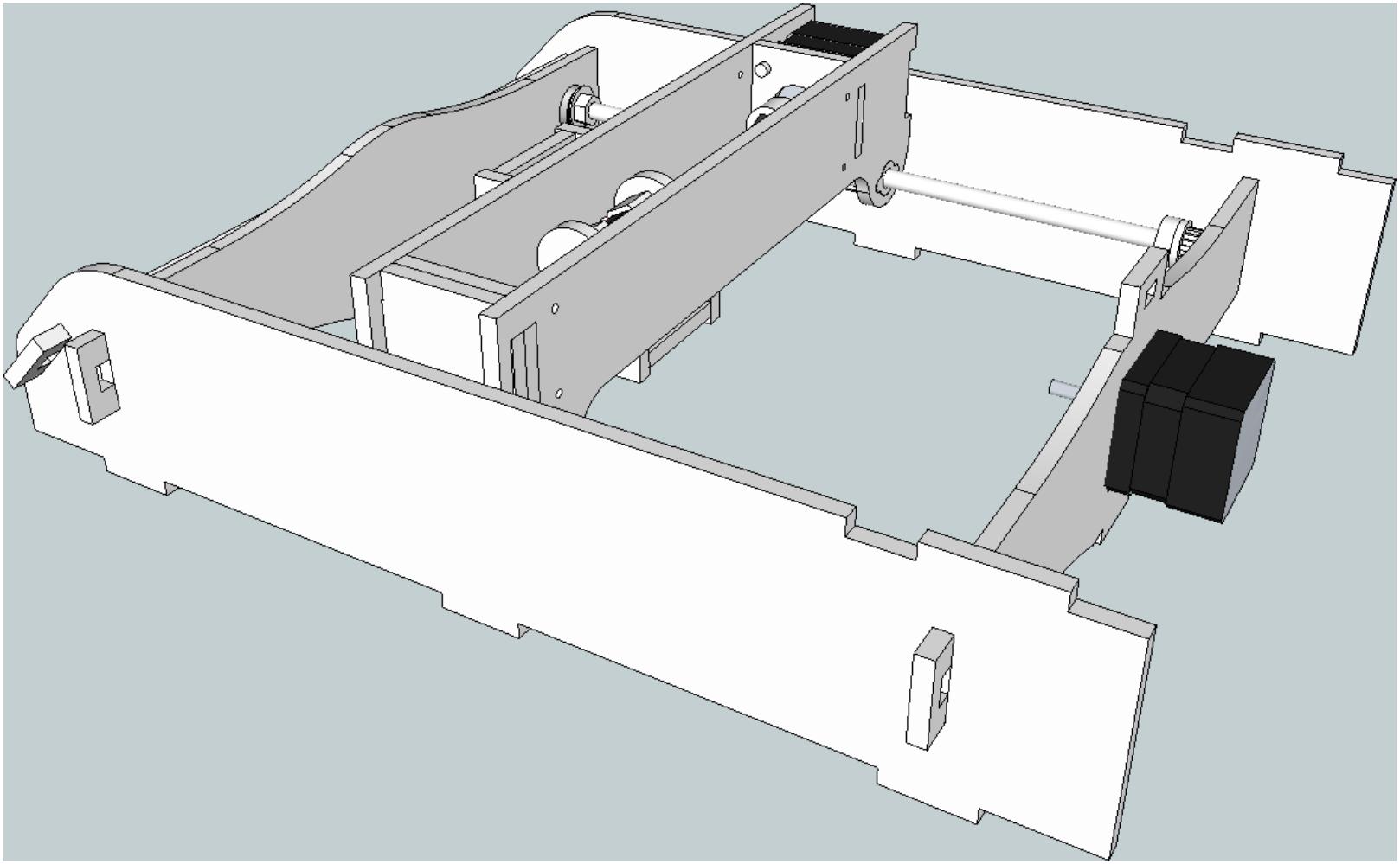
Parts

1 x CNC Side Plate



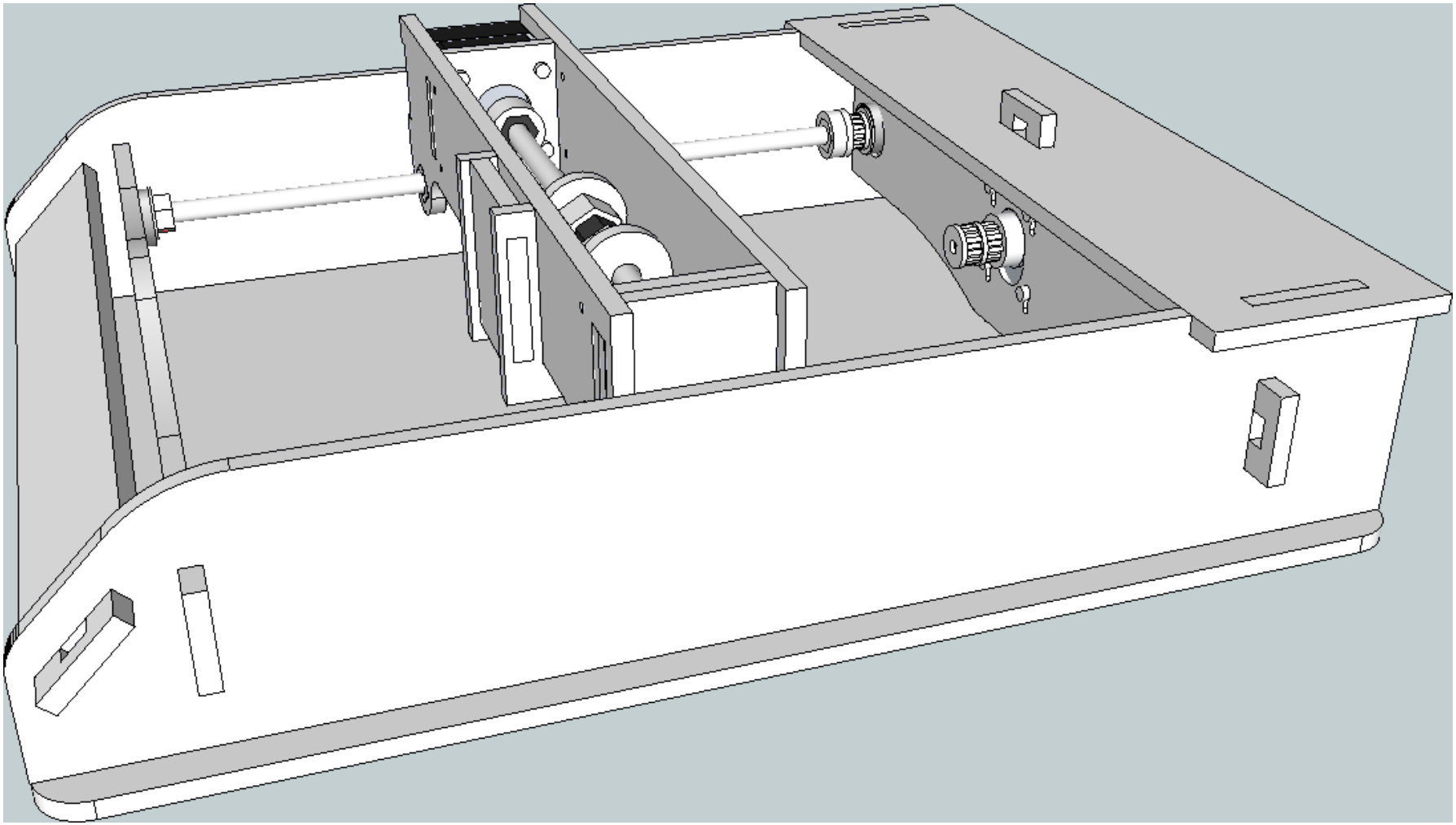
Section 4 : Complete!

(Belts removed from view)



Section 5 : The Whole Frame

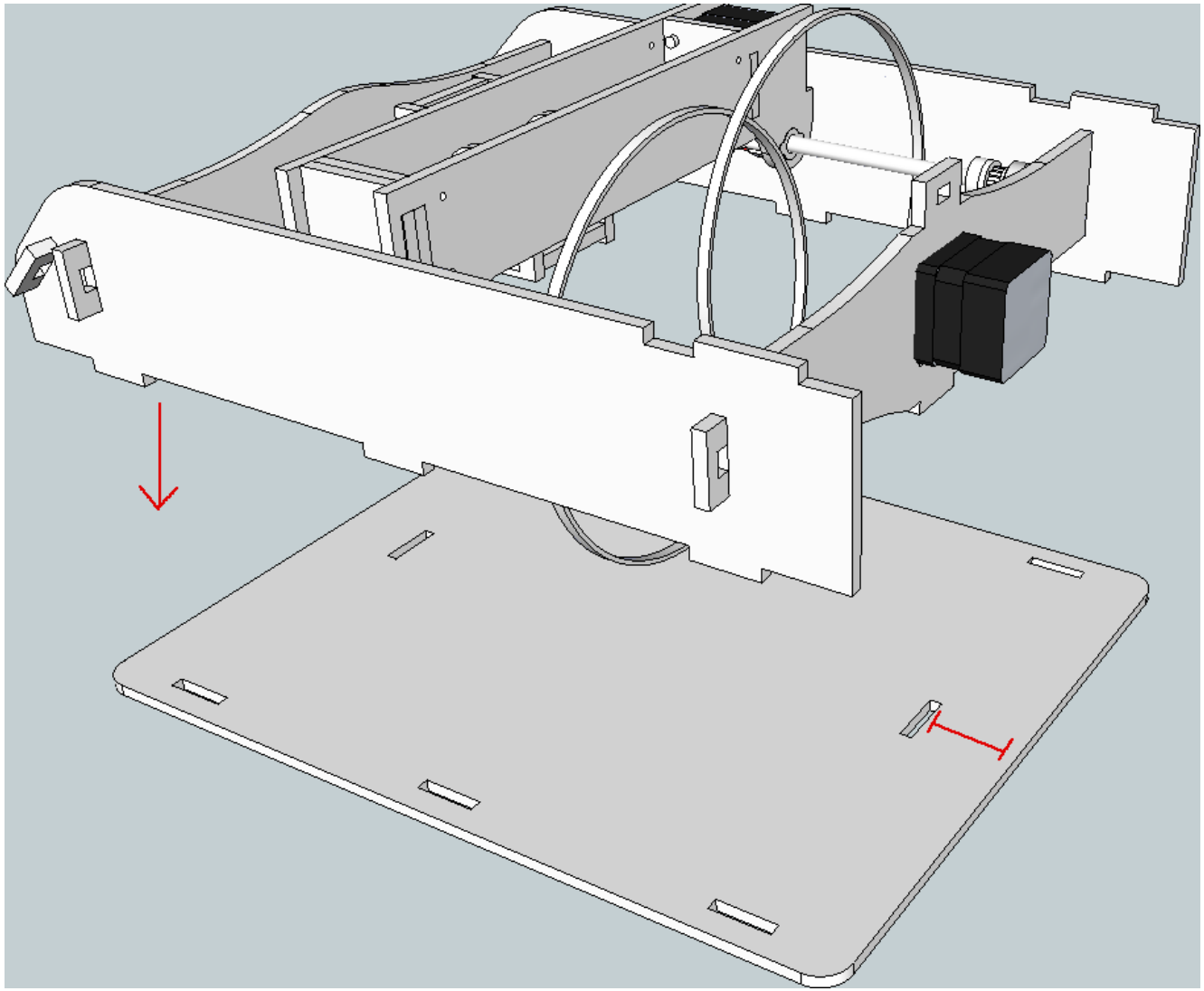
(Belts removed from view)



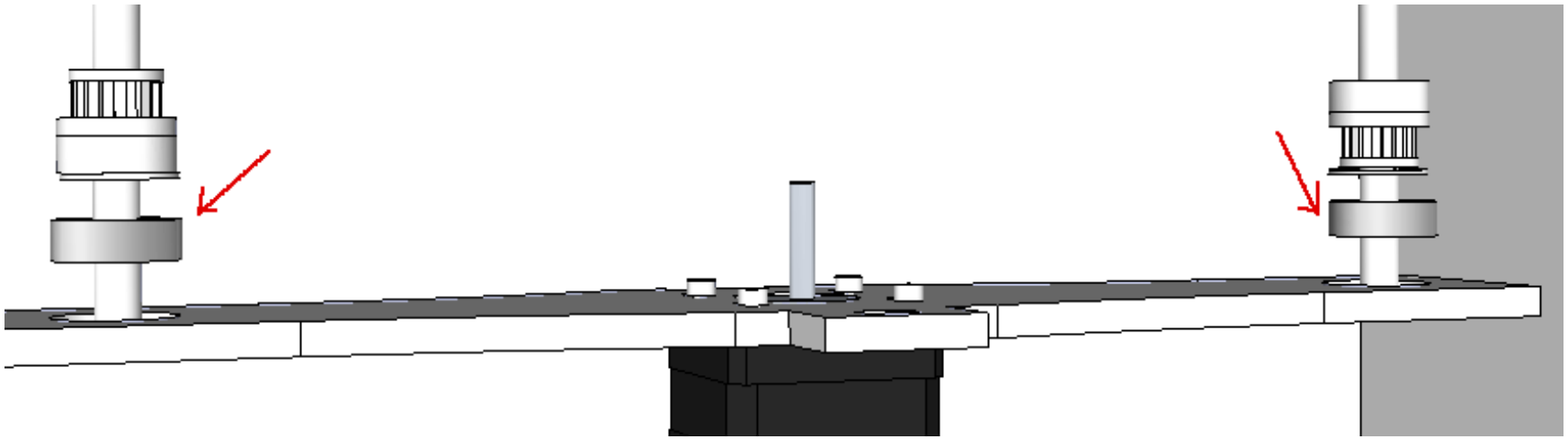
Section 5 : Step 1

Parts

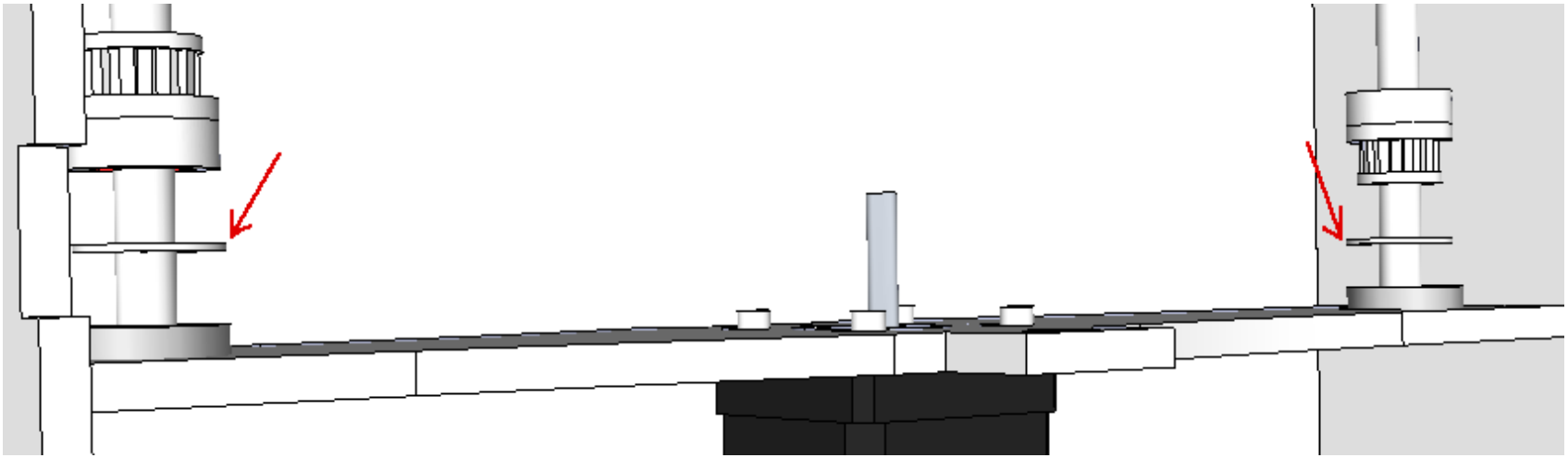
1 x CNC Base Plate



Section 5 : Step 2

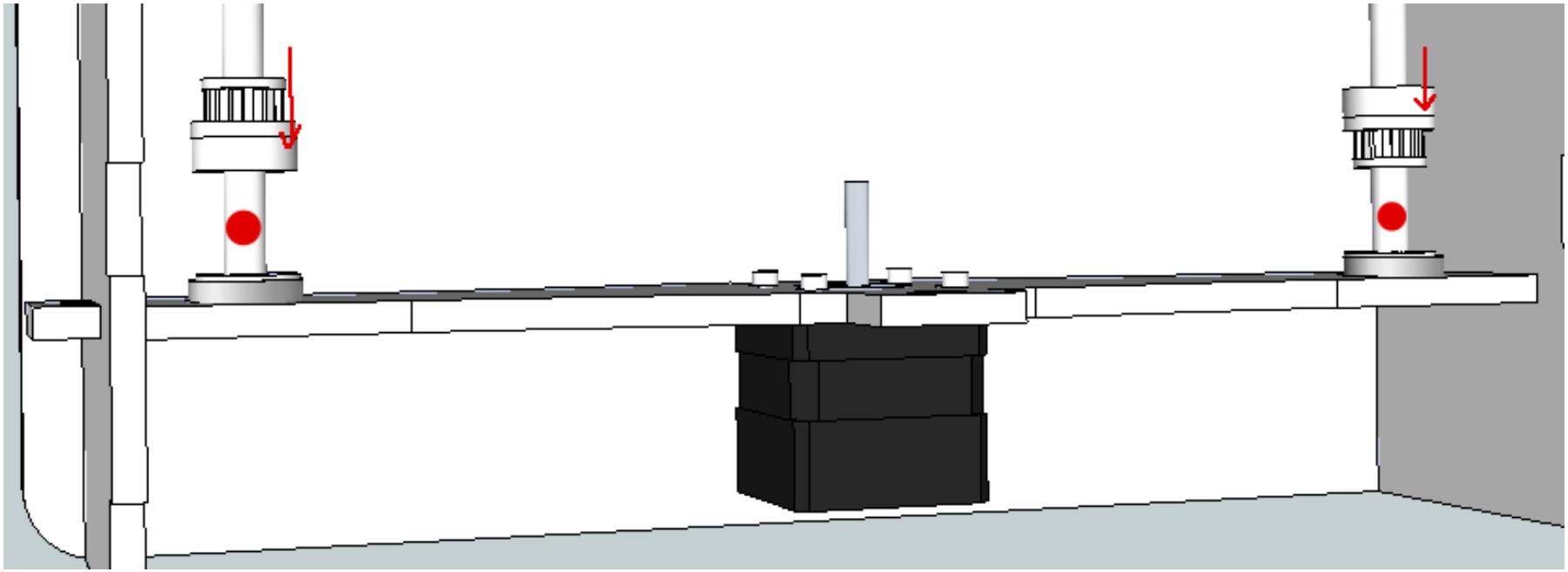


Section 5 : Step 3



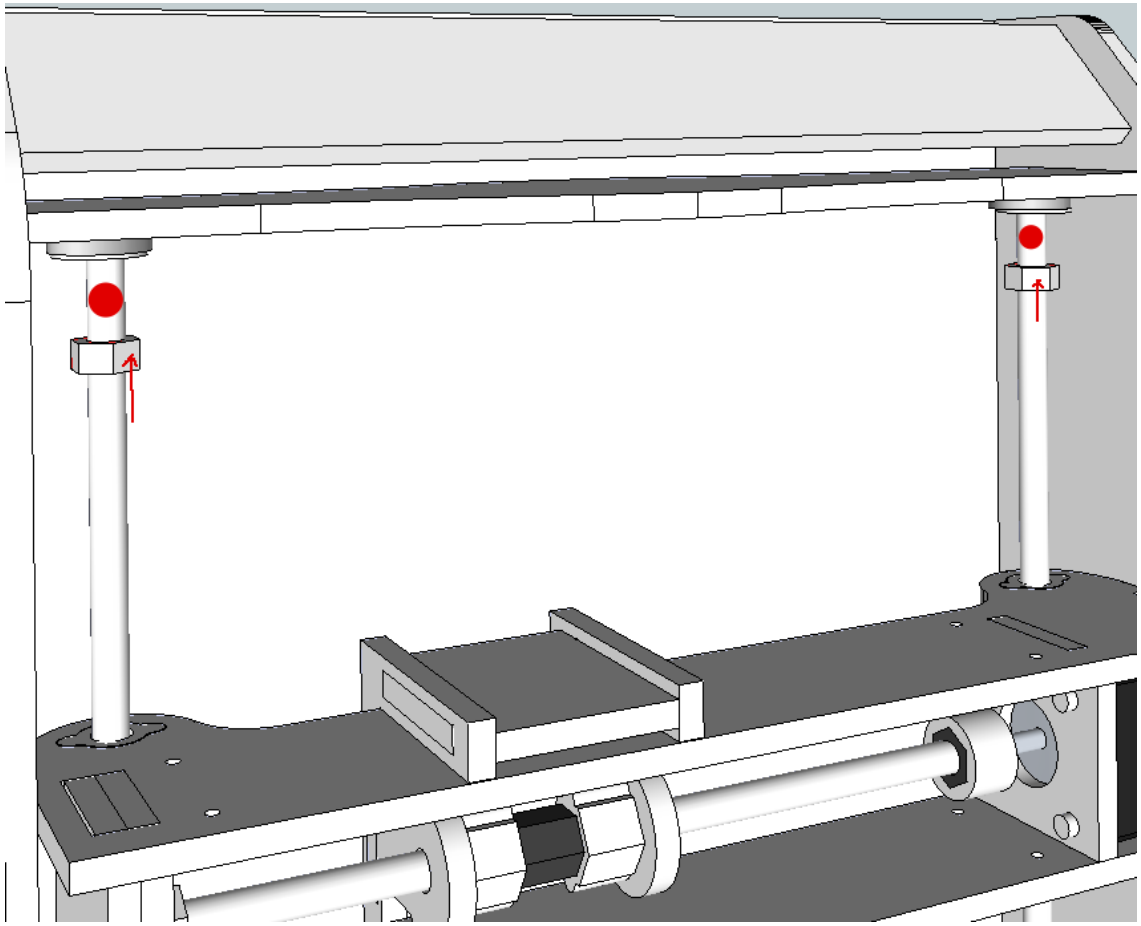
Section 5 : Step 4

Small dob of glue before doing up



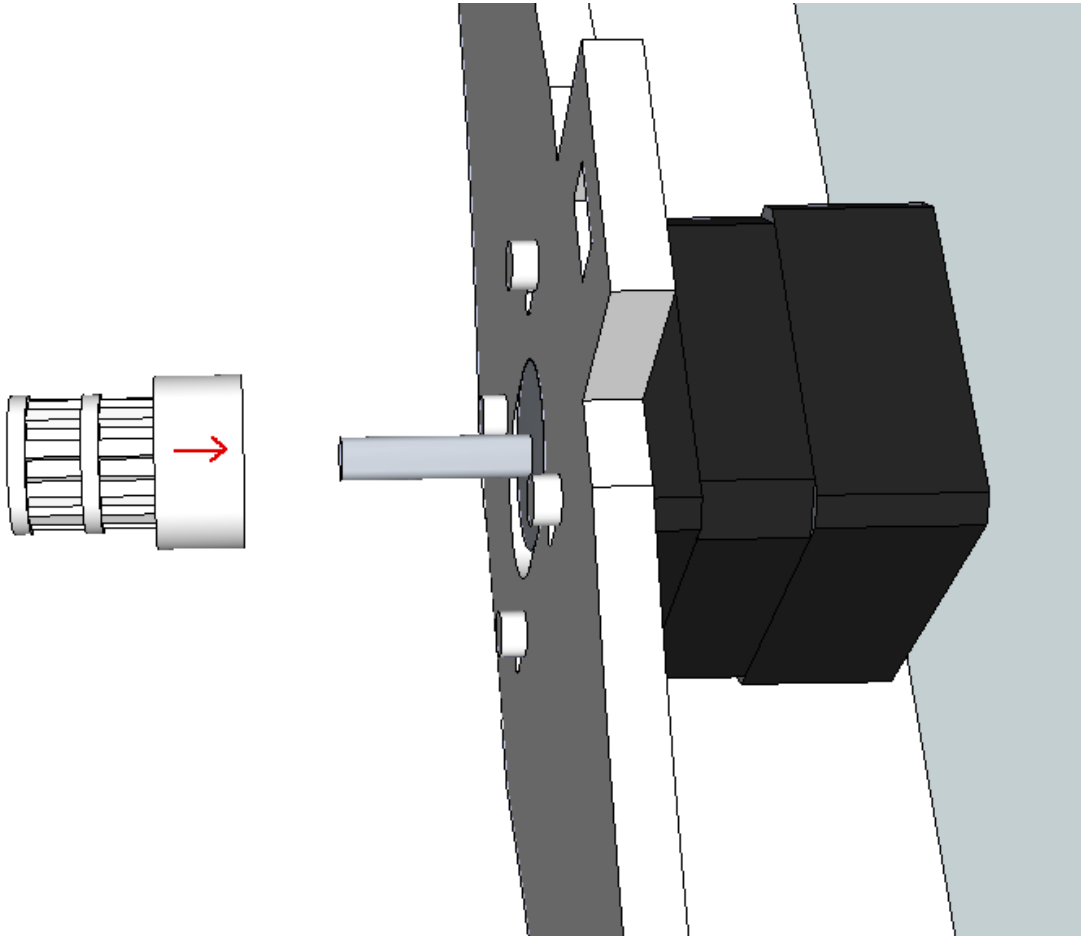
Section 5 : Step 5

Small dob of glue before doing up
There should be no slop, but the all-thread should move smoothly.



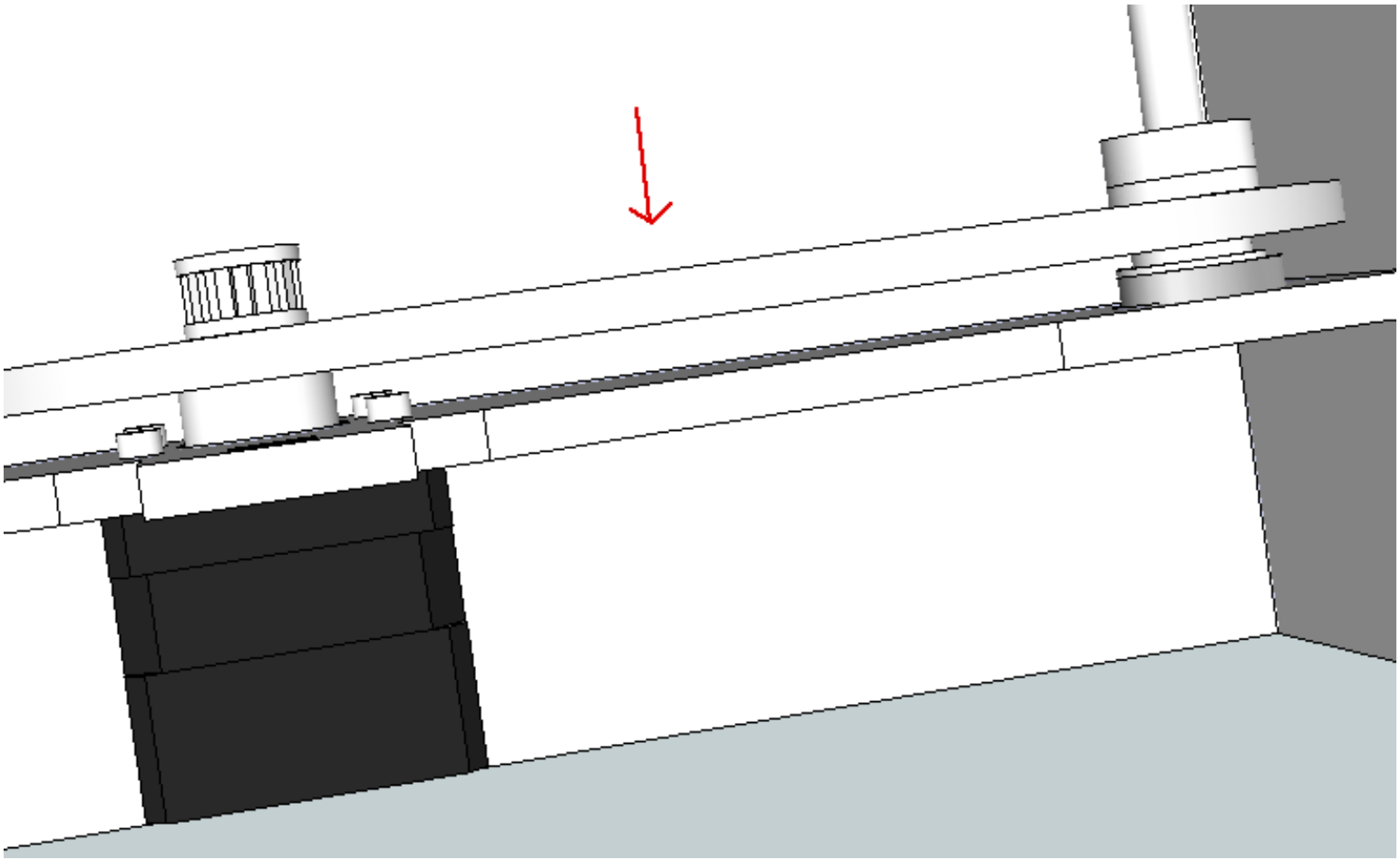
Section 5 : Step 6

Line up the teeth with the ones on the all-thread



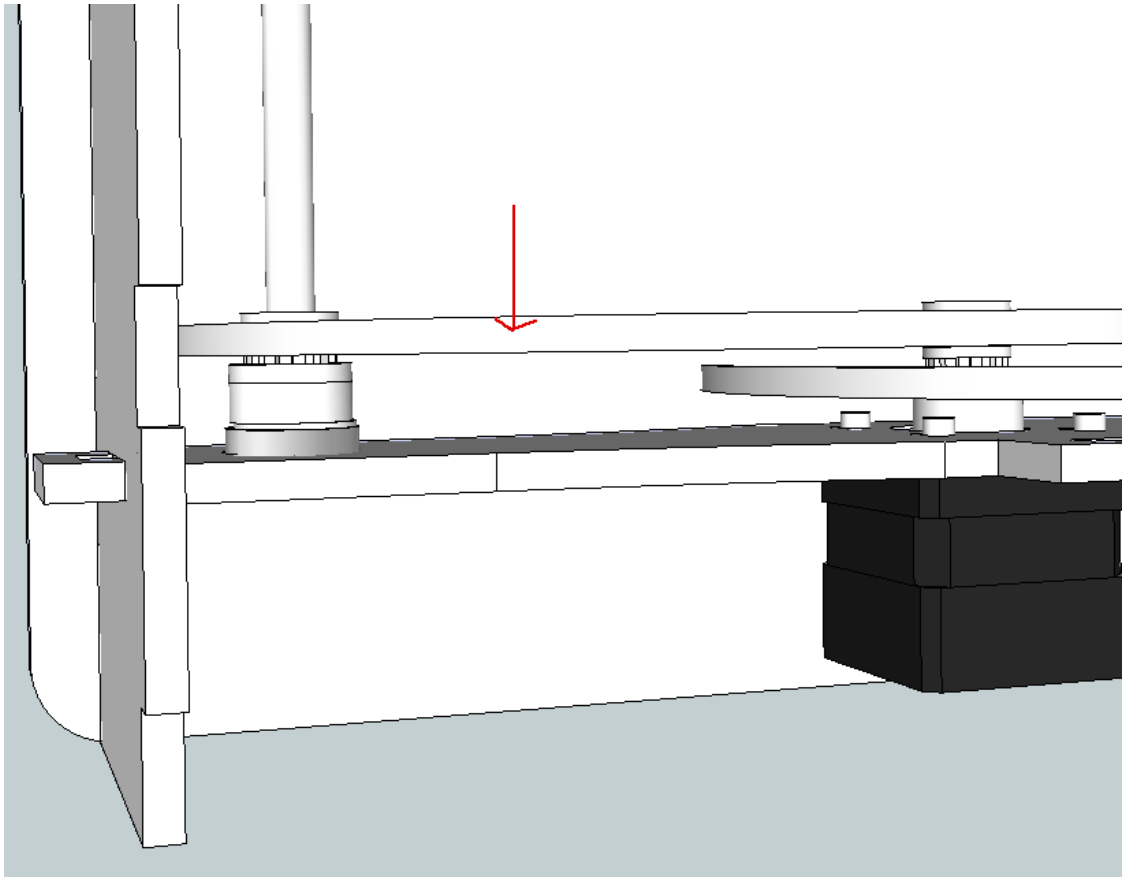
Section 5 : Step 7

You will have to turn the belt on.



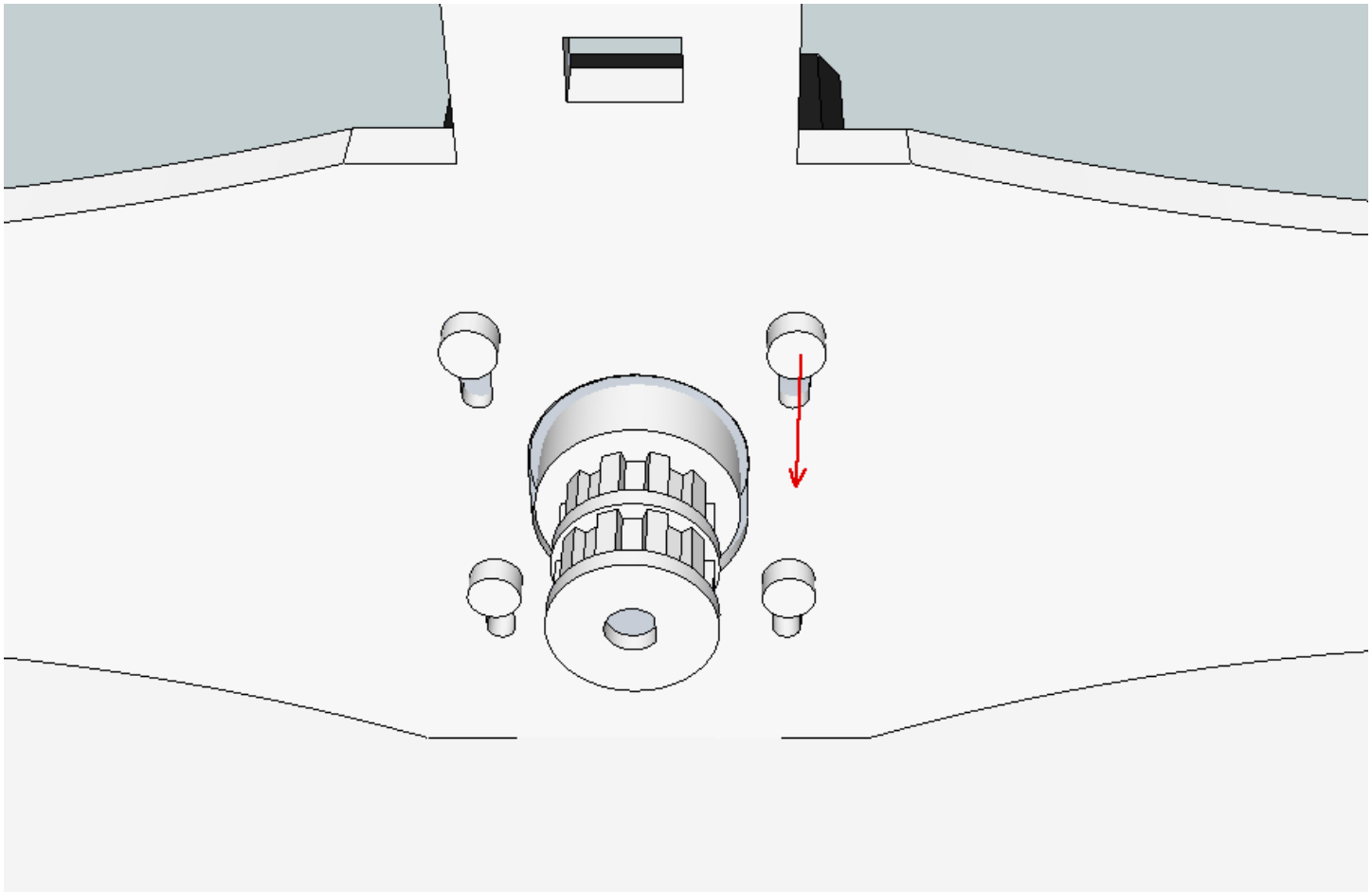
Section 5 : Step 8

This belt will need turning on too. Before turning on, try to get the gantry level by rotating the all-thread. Turn on by rotating the stepper.



Section 5 : Step 9

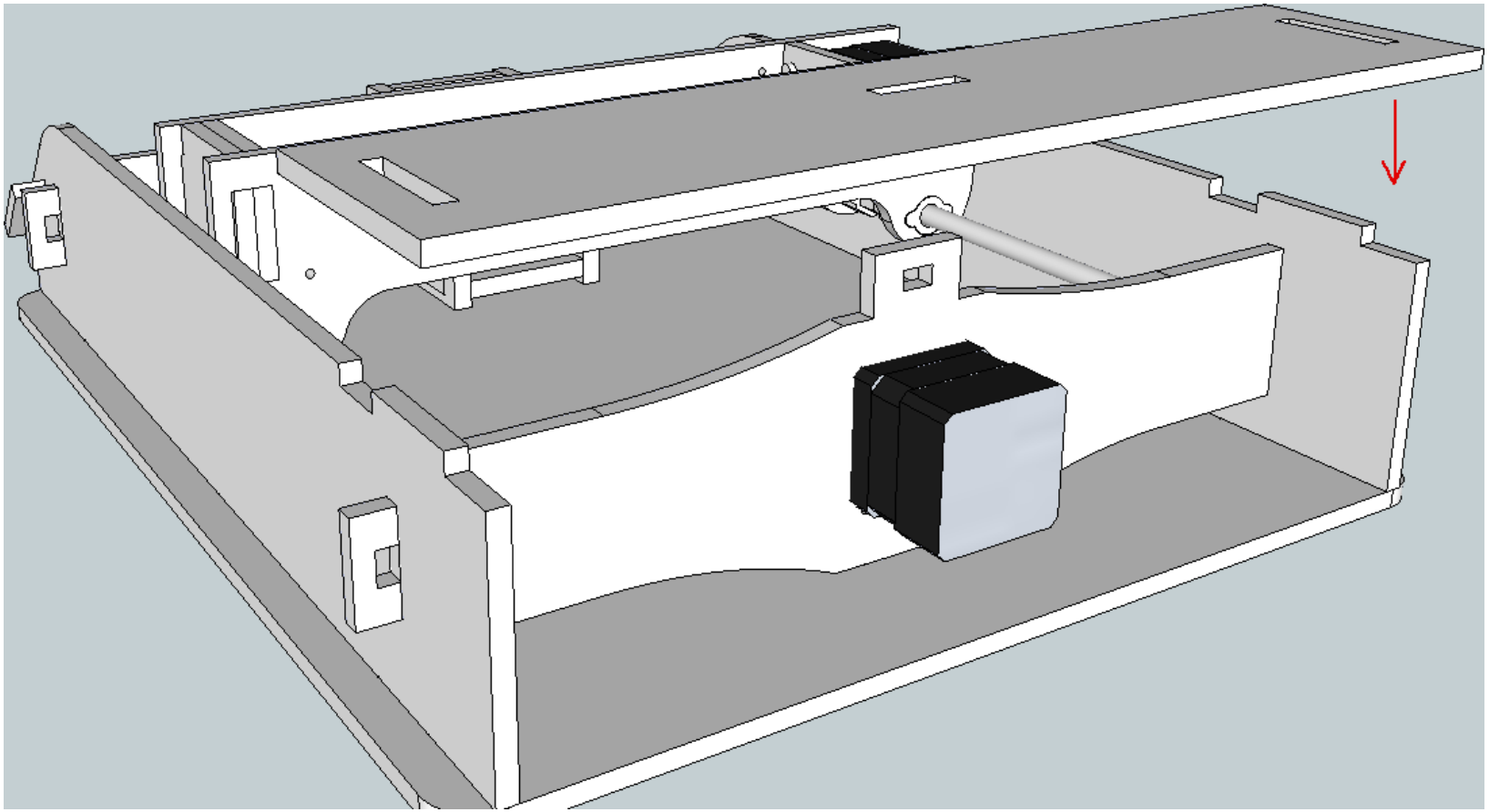
(Belts magically invisible!)
Slide the stepper down to increase the tension on the belts.



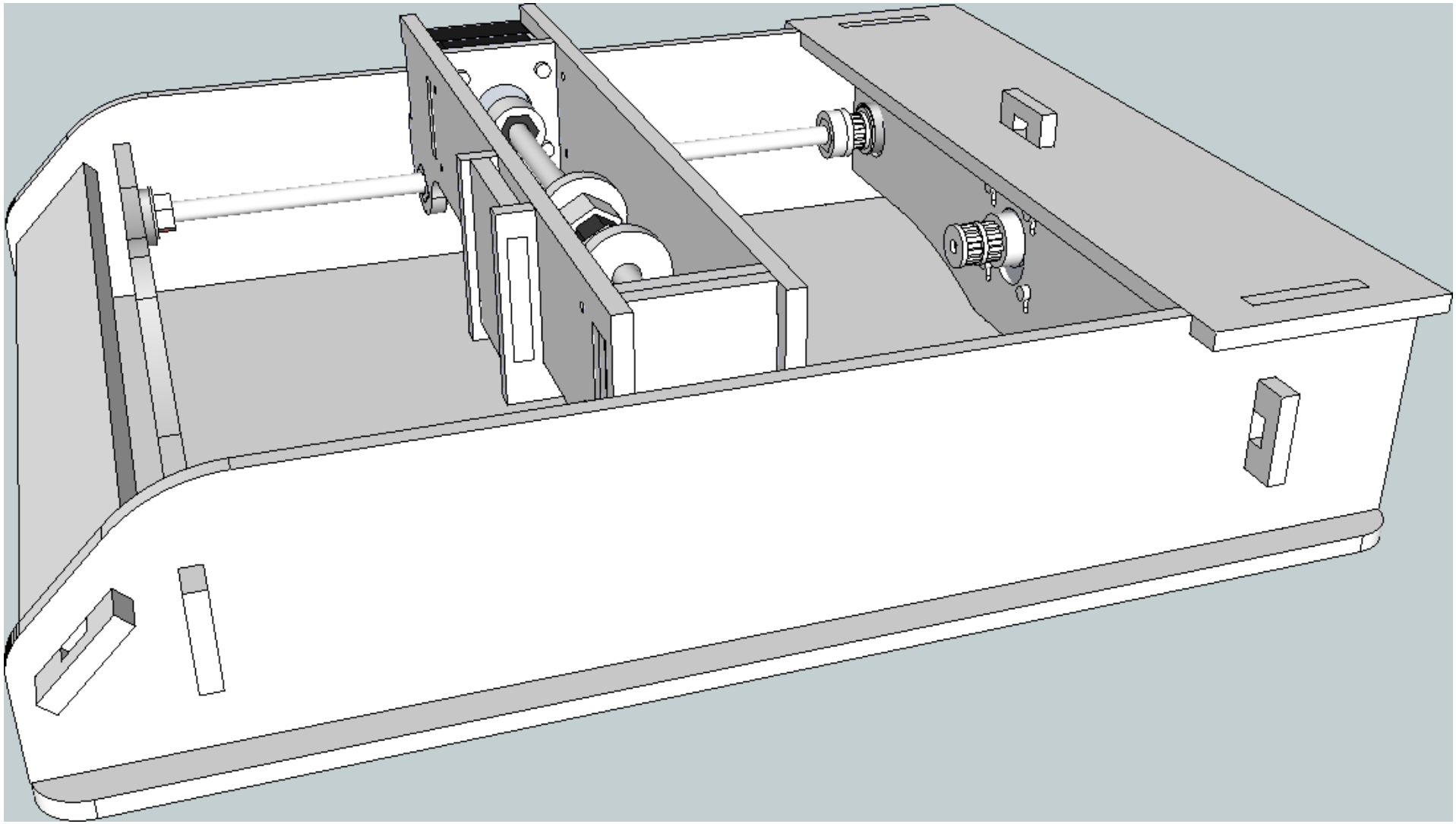
Section 5 : Step 10

Parts

1 x CNC Top Plate.



Section 5 : Complete!



Frame Complete!

Now to Assemble the Electronics.

Thank You

A big thank you to everyone who helped develop this project.
Without everyone's contribution, it simply wouldn't be possible.

Andy Geleme
Jon Oxer
Shane Rogers
John Bosua
Dave Chanter
Rob Brittan
Bob Powers
Michael Sullivan
Stuart Young
Luke Weston

And all the crew at CCHS.