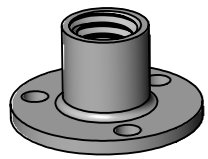


Planetary Gear Menorah v2.2 Assembly Guide

REV: 5

List of Parts - 1

Note: Colors may vary



9x

3/8"-16 T-Nut
McMaster: 90611A450



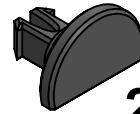
27x

6-32 x 5/16" Screw
McMaster: 91772A145



2x

Crank base connector



2x

Tilt slider peg
(1 + Spare)



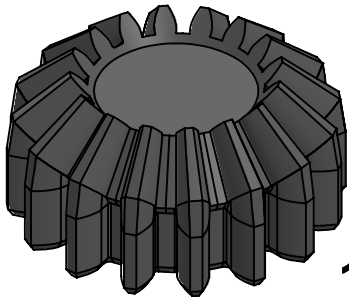
10x

Adhesive backed
rubber pad



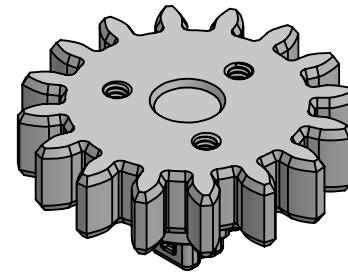
1x

Tilt pivot peg



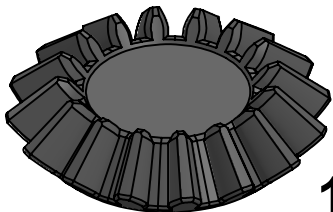
1x

Crank - Bevel + involute gear



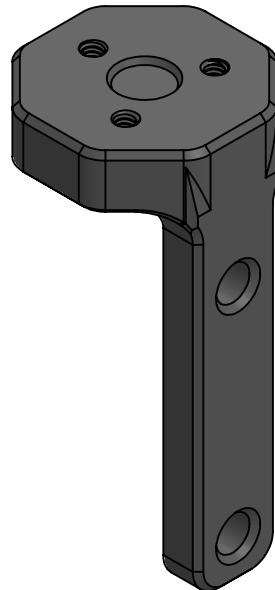
8x

White planet gear



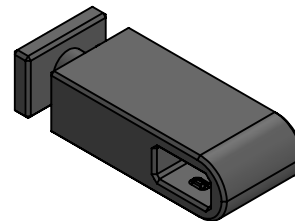
1x

Crank - Bevel gear



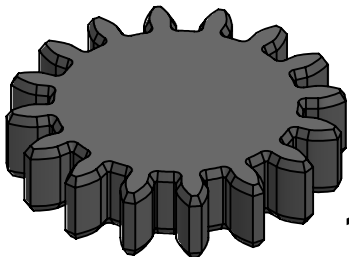
1x

Center tilt



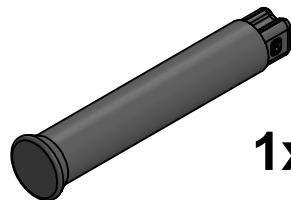
1x

Tilt slider



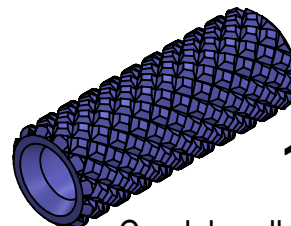
1x

Crank - Involute gear



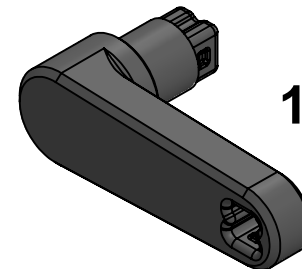
1x

Crank handle core



1x

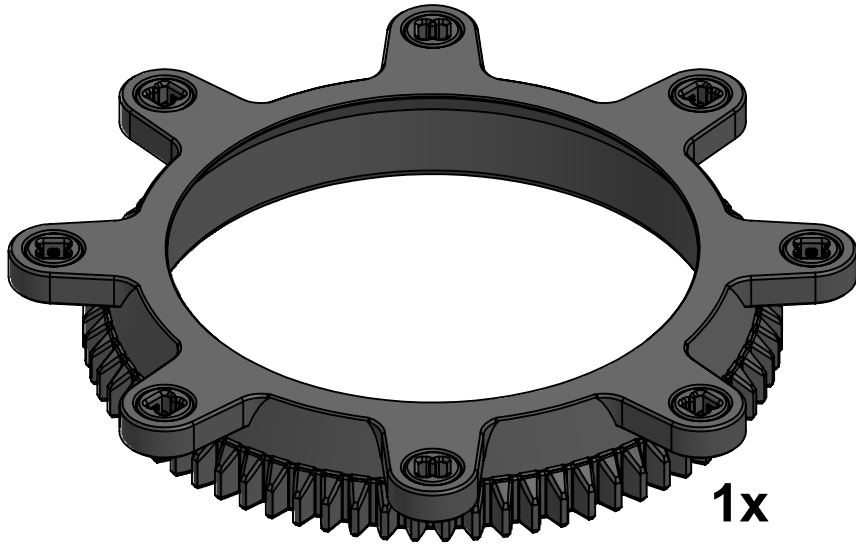
Crank handle



1x

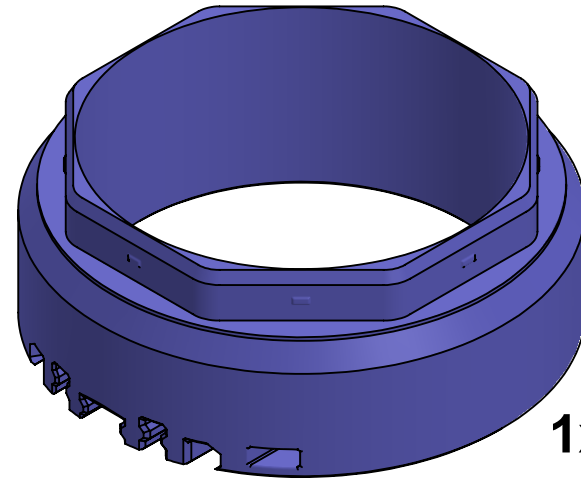
Crank shaft

List of Parts - 2
Note: Colors may vary



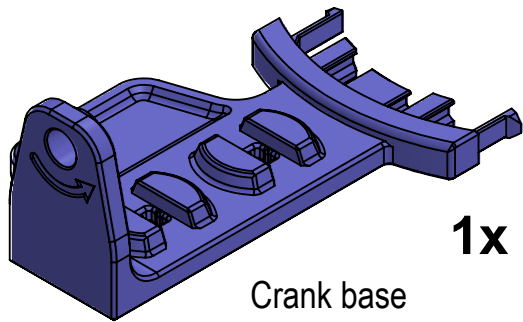
Carrier

1x



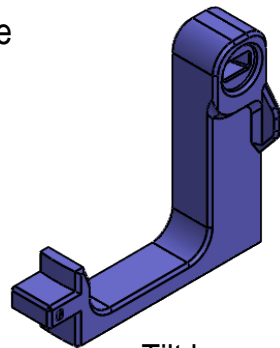
Sun base

1x



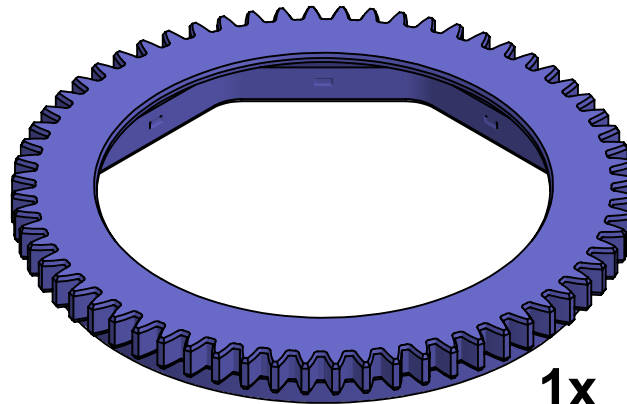
Crank base

1x



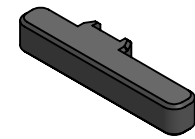
Tilt base

1x



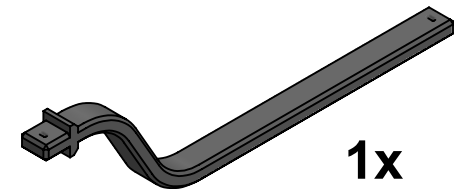
Sun gear

1x



Tilt handle

1x



Tilt arm

1x

Required Tools:



2 Phillips Screwdriver

Maintenance Tools:



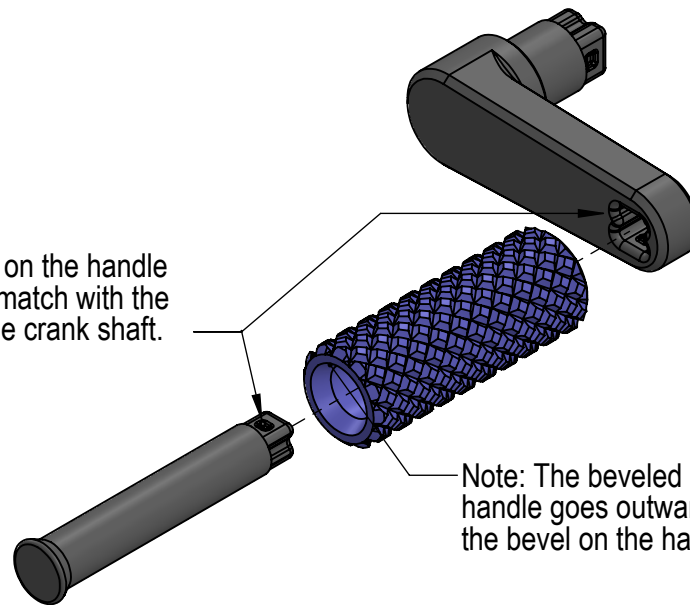
Pliers / Needle-nose Pliers

Crank Handle



1.

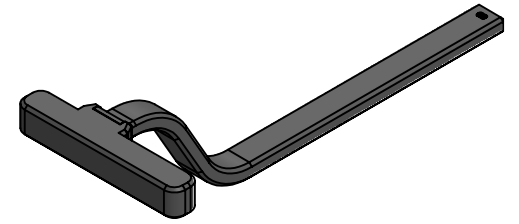
The notches on the handle core should match with the notches in the crank shaft.



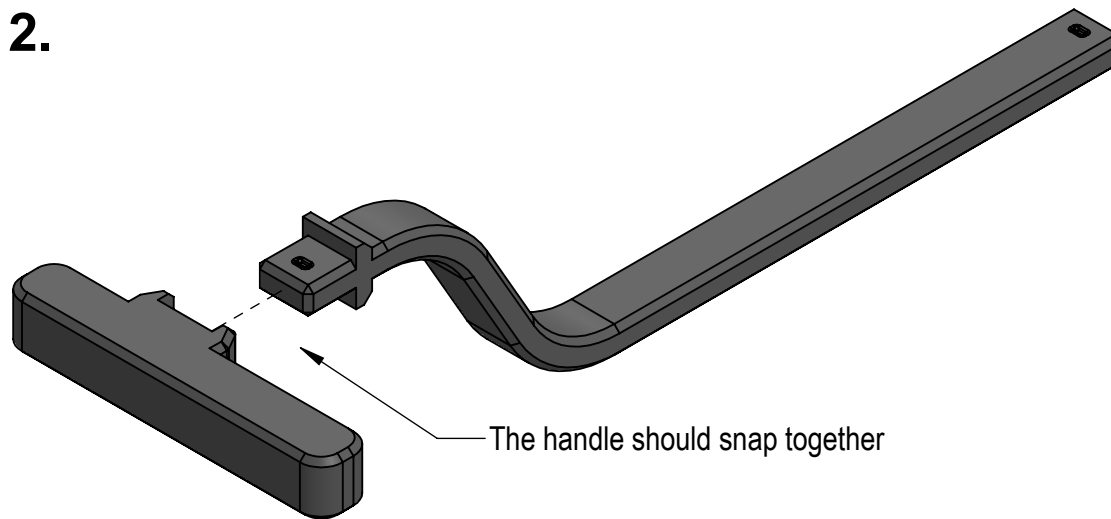
Note: The beveled edge of the handle goes outward to match the bevel on the handle core.

Note: It may require some force to snap the crank handle core into place

Tilt Handle

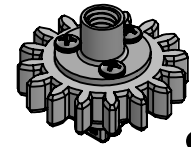


2.



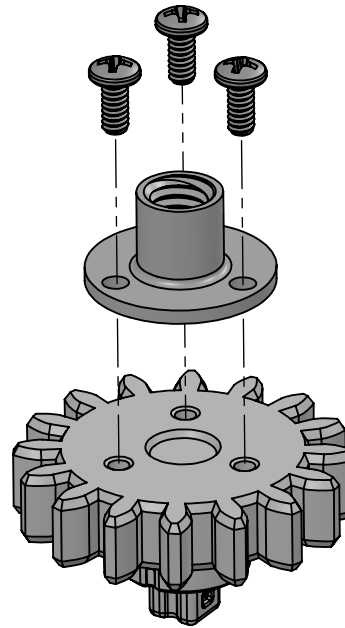
The handle should snap together

Planet Gear



8x

3.

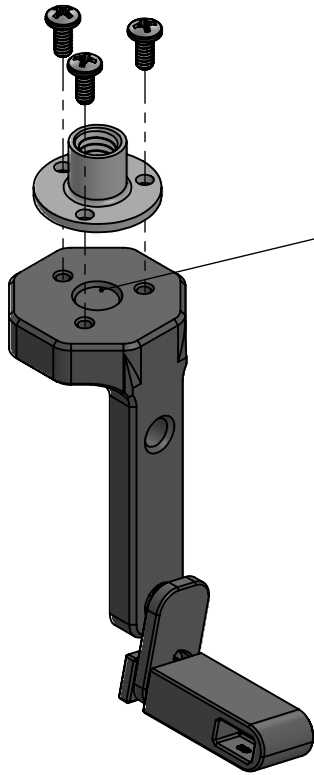


8x

- Insert and slightly tighten one screw before inserting the other two. Tighten all three screws evenly.
- When tightening the screws, there may be a snapping/cracking sound. This is alright and is to be expected.
- Do not overtighten the screws; just make sure the T-nut is mostly flat against the surface of the gear

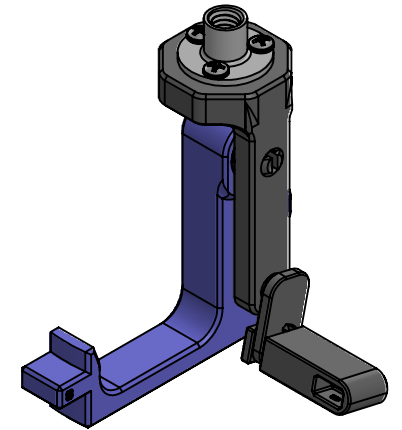
Center Tilt

4.

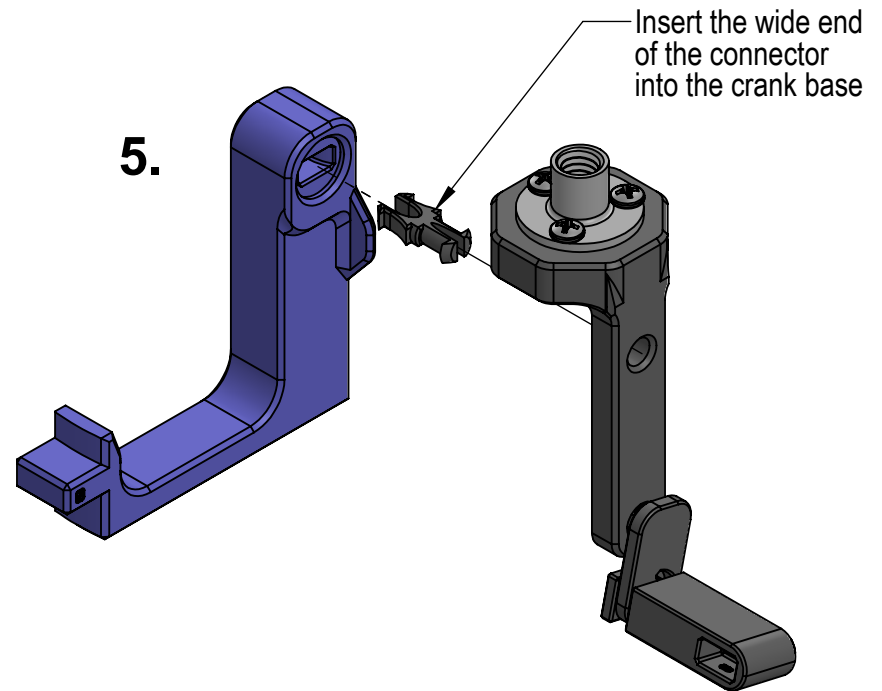


As with the gears in the previous step, some crackling should be expected when tightening the screws.

Also, it is easier to insert and gently tighten one screw before inserting the other two.



5.



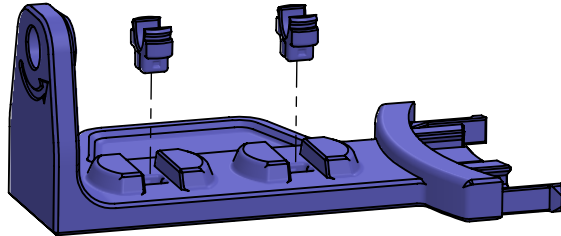
The peg may take a bit of force to snap into place. Make sure it is inserted fully.

Note: The piece is fragile, especially if you try to remove it by pushing it out the back, so there is an extra one included. If you must remove it, carefully squeeze the tabs together with needlenose pliers and push it out.

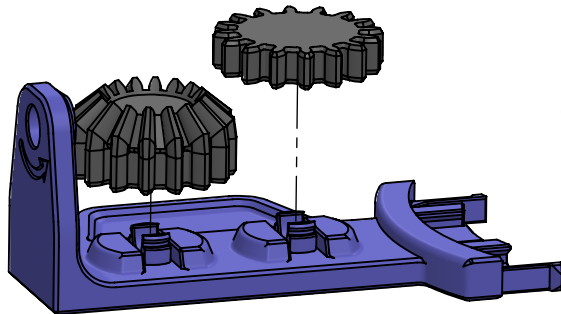
Crank Base

6.

Make sure all connectors are snapped in fully. It may take some force, but they should be flat.

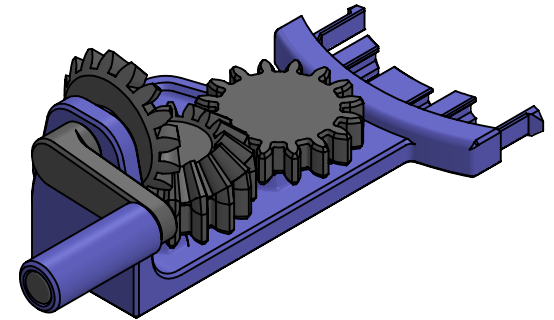
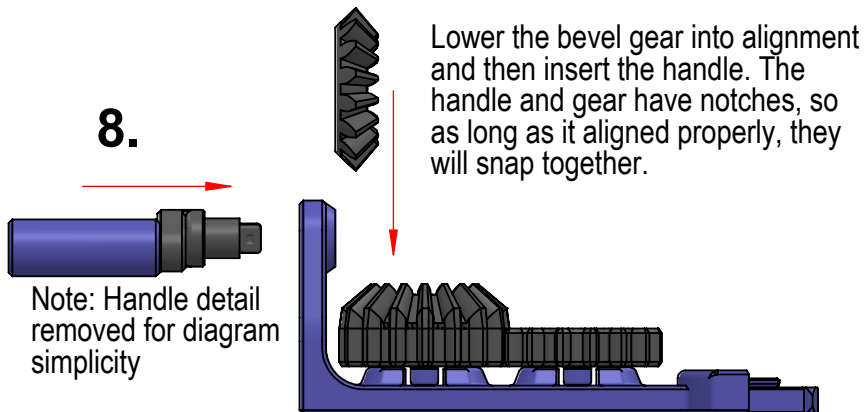


7.

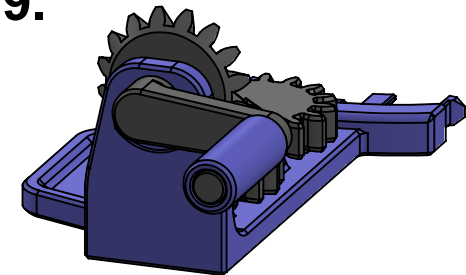


The gears should turn freely. Make sure they are snapped properly in place.

8.

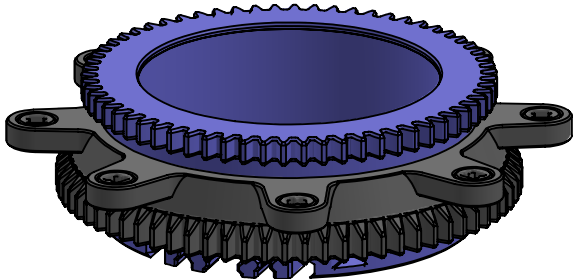


9.



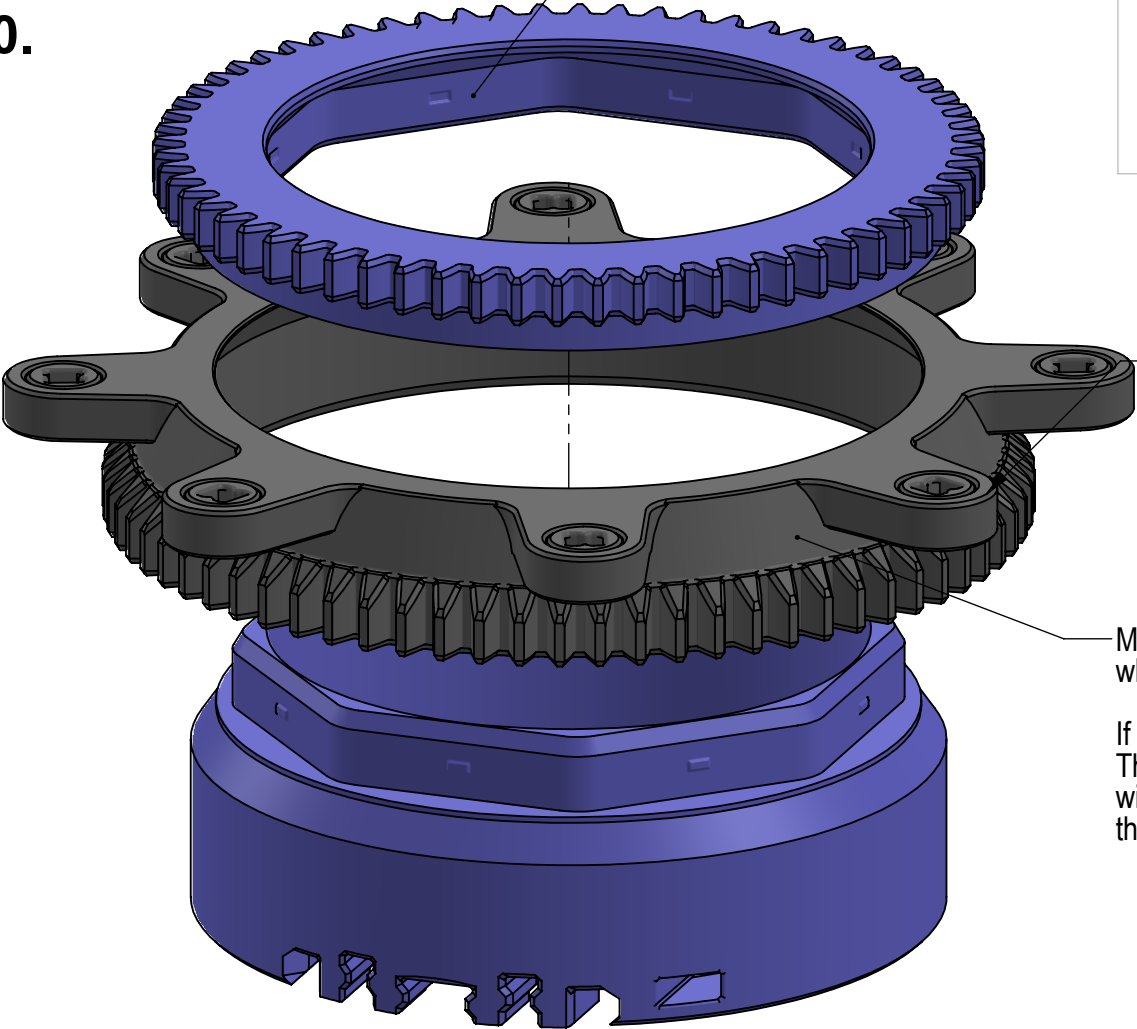
Make sure the crank, gears and tilting mechanism move freely before progressing

Sun Gear and Carrier



10.

There are 8 tabs on the inside of the sun gear to firmly lock it to the sun base. It should go in with a snap.



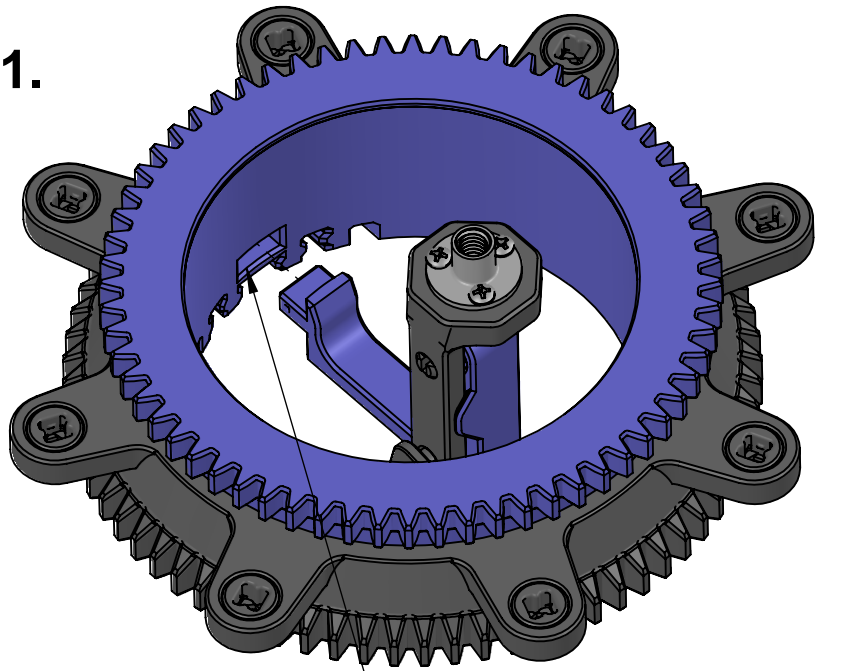
Make sure all 8 bearings can rotate freely

Make sure the carrier can rotate freely when the three pieces are assembled.

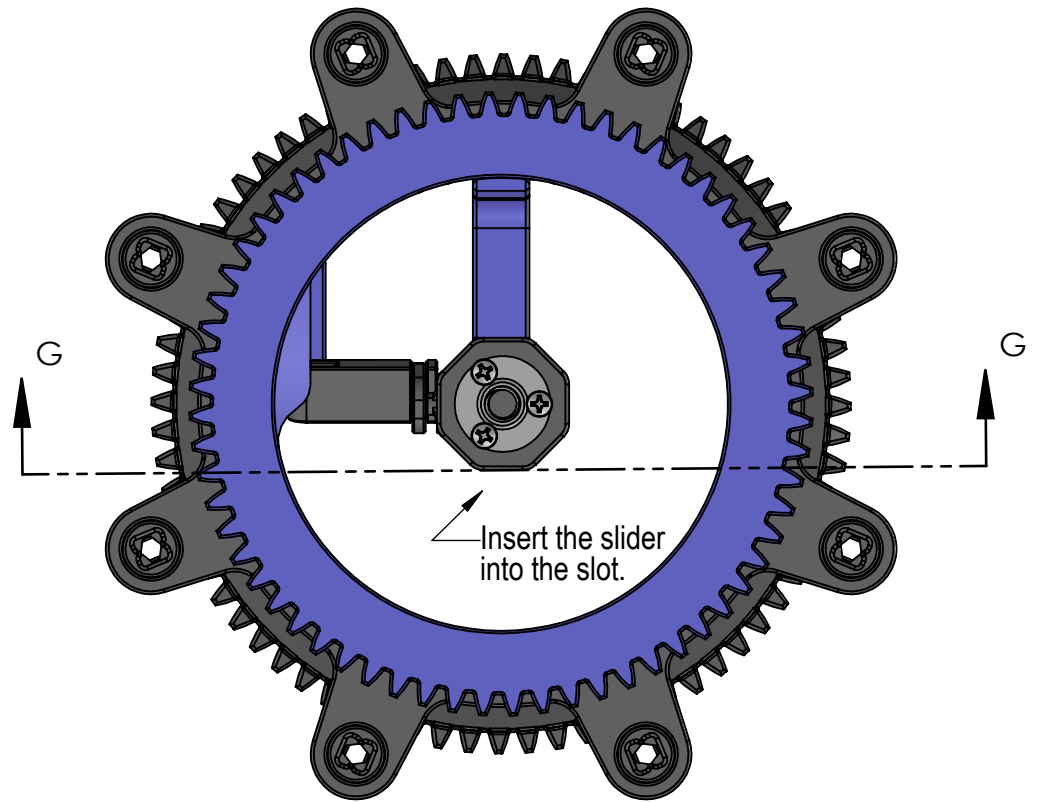
If it does not, spin it by hand several times. Then, remove the sun gear and carrier and wipe any dust or buildup from the inside of the carrier or outside of the sun base.

The crank base will attach here.

11.

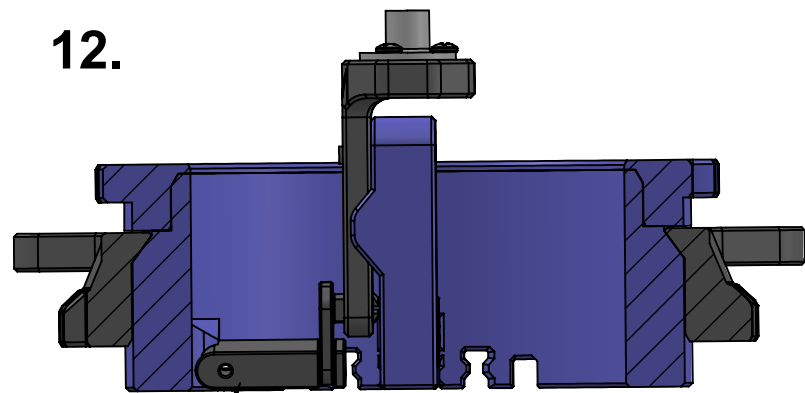


Snap the tilt base into rectangular socket at the front of the sun base



Insert the slider into the slot.

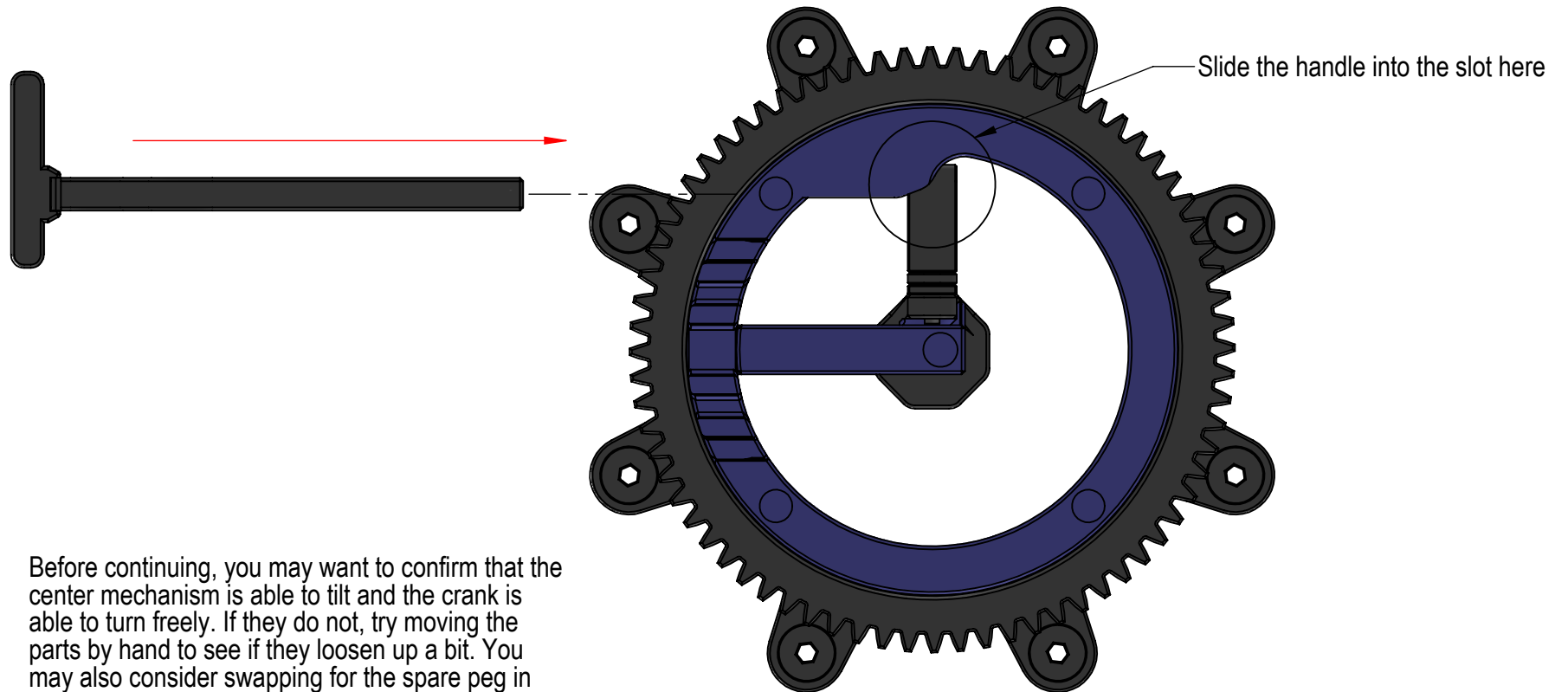
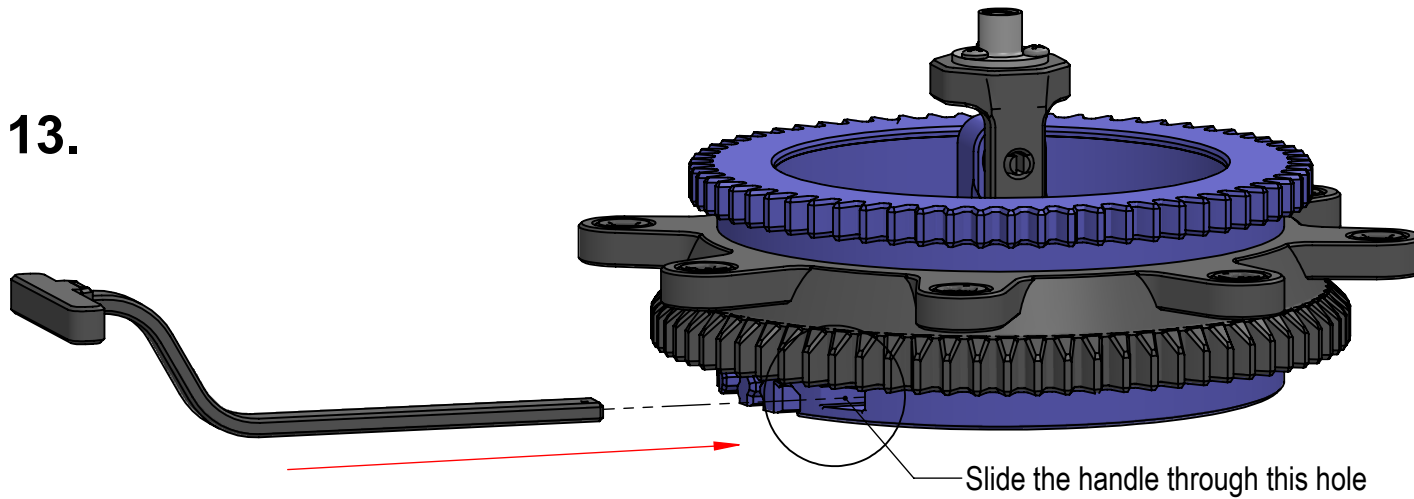
12.



Insert the slider into the slot.

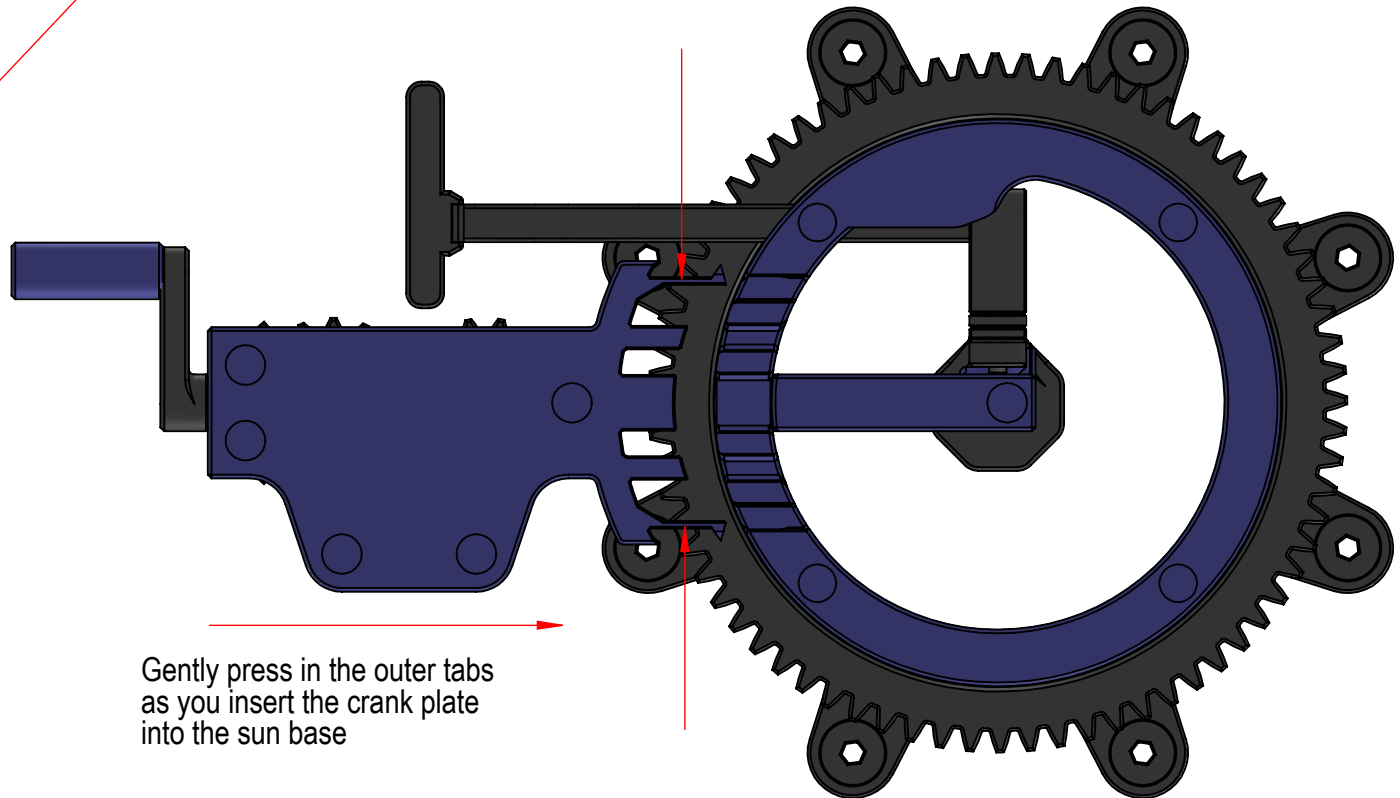
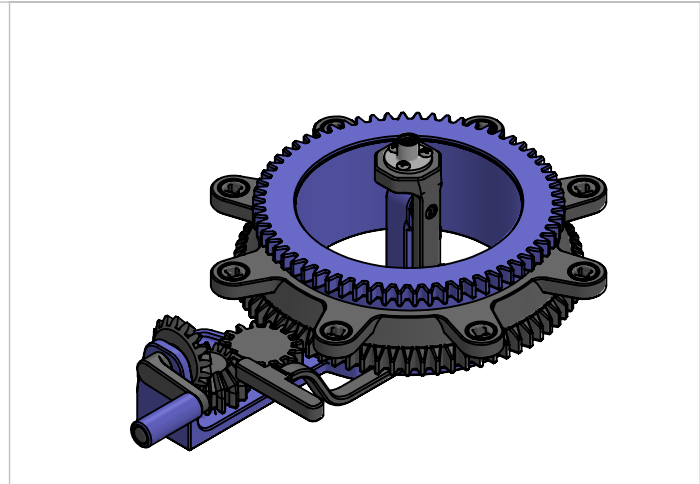
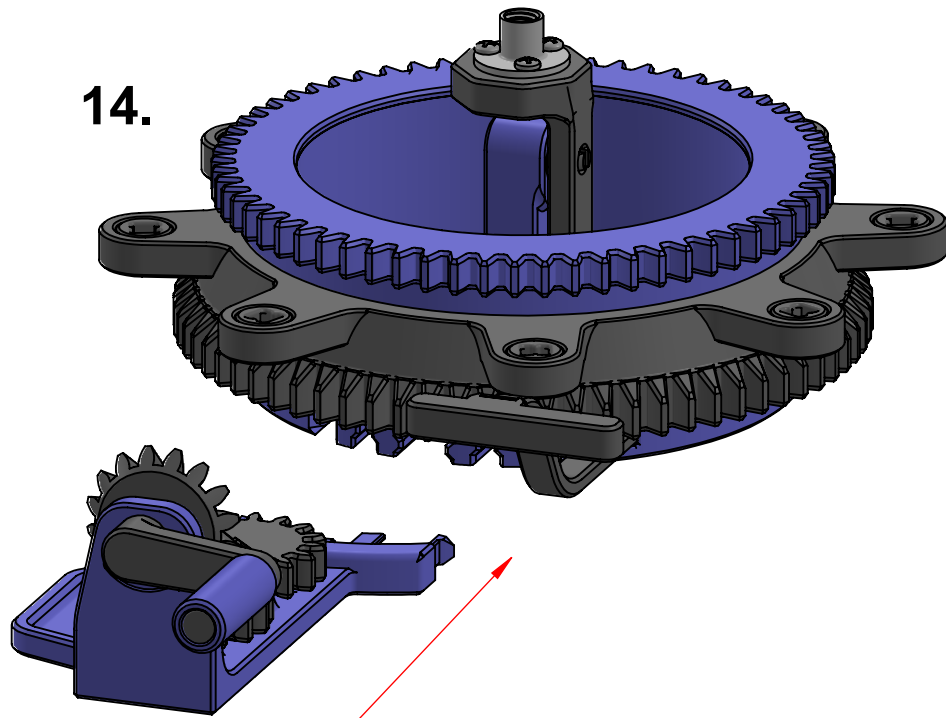
Cross Section

13.



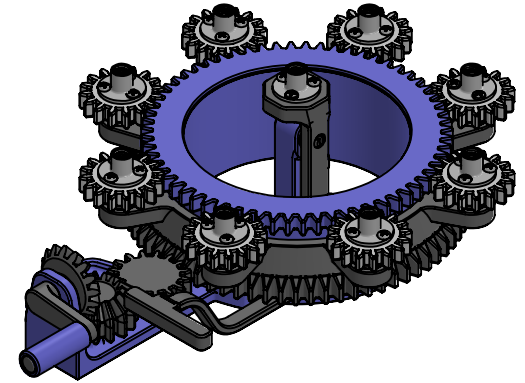
Before continuing, you may want to confirm that the center mechanism is able to tilt and the crank is able to turn freely. If they do not, try moving the parts by hand to see if they loosen up a bit. You may also consider swapping for the spare peg in step 4 or applying a small amount of dry lubricant, such as graphite powder.

14.

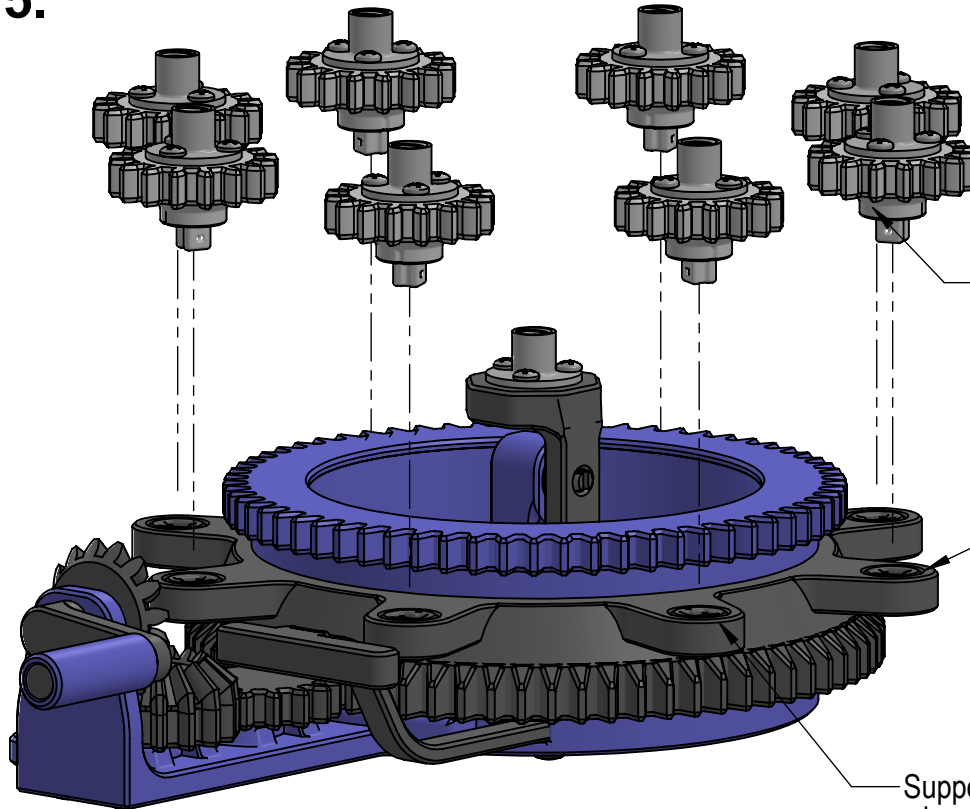


Gently press in the outer tabs
as you insert the crank plate
into the sun base

Menorah



15.



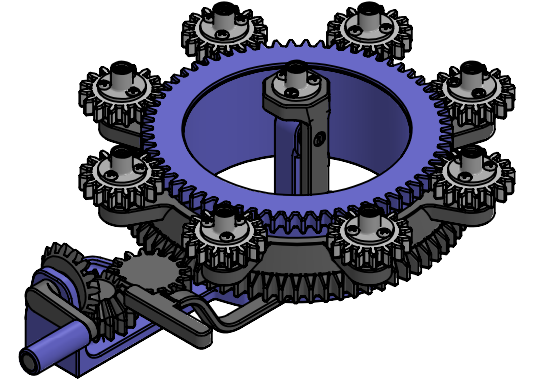
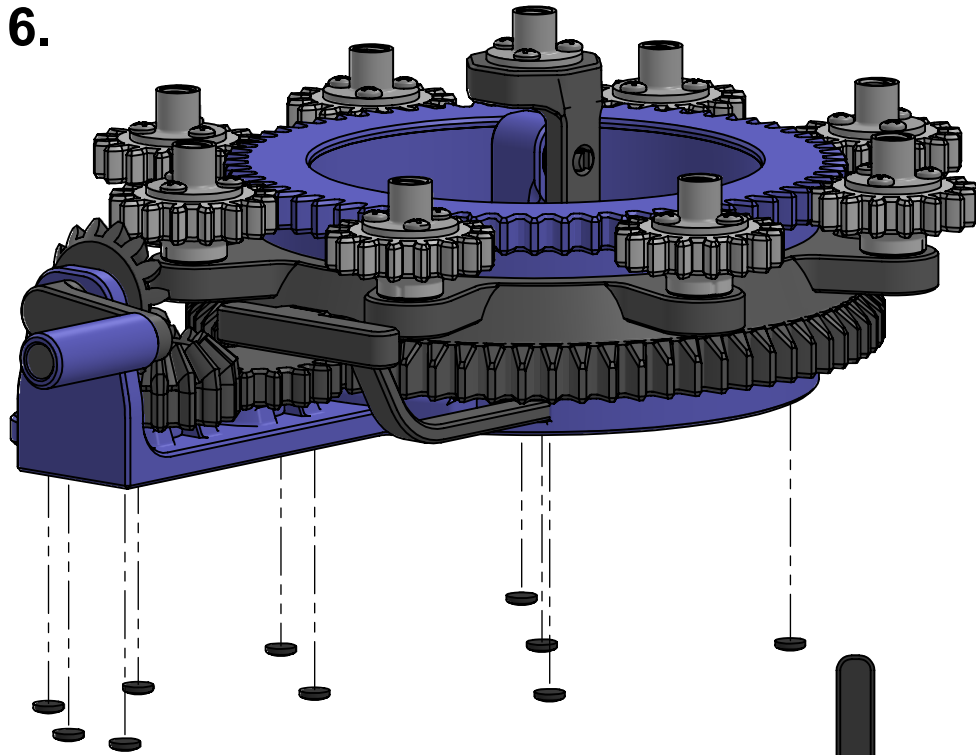
Insert each gear into the carrier. It may require a small amount of force, but there should be a click

If the bearings do not turn before inserting the planet gears, the menorah will not work

Support the bearings from below when inserting the planets

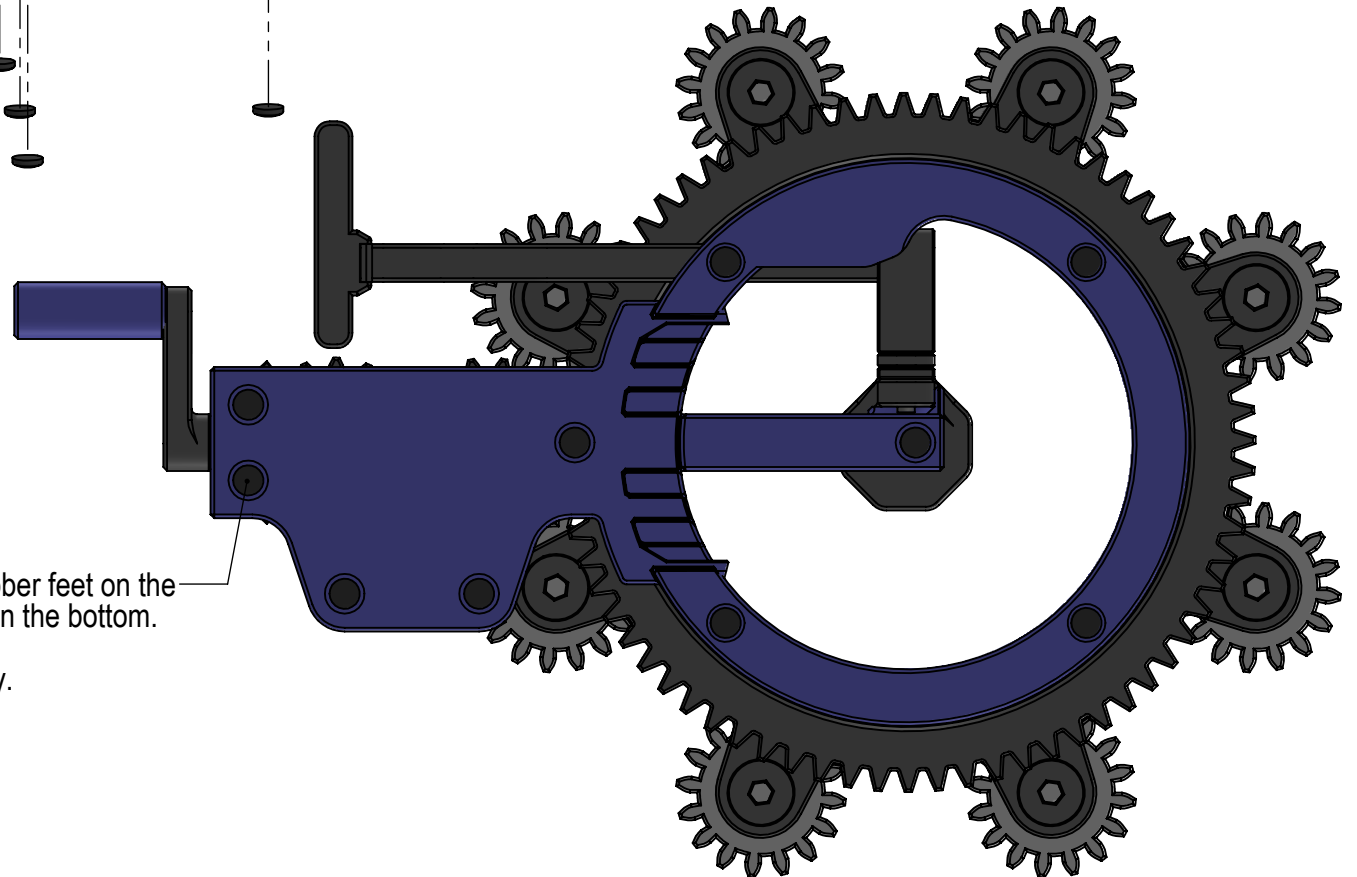
16.

Rubber Pads



Add the 10 rubber feet on the circular pads on the bottom.

Color may vary.



Planetary Gear Menorah Instructions:



<https://antyos.org/pgm2-manual/>

Note: the PDF may have trouble displaying
on mobile

If you have any questions, comments, or
concerns, feel free to reach out to me at:
andrew@glickfamily.org

