

GreyT Turret (11" ID) - User Guide (Rev 1)

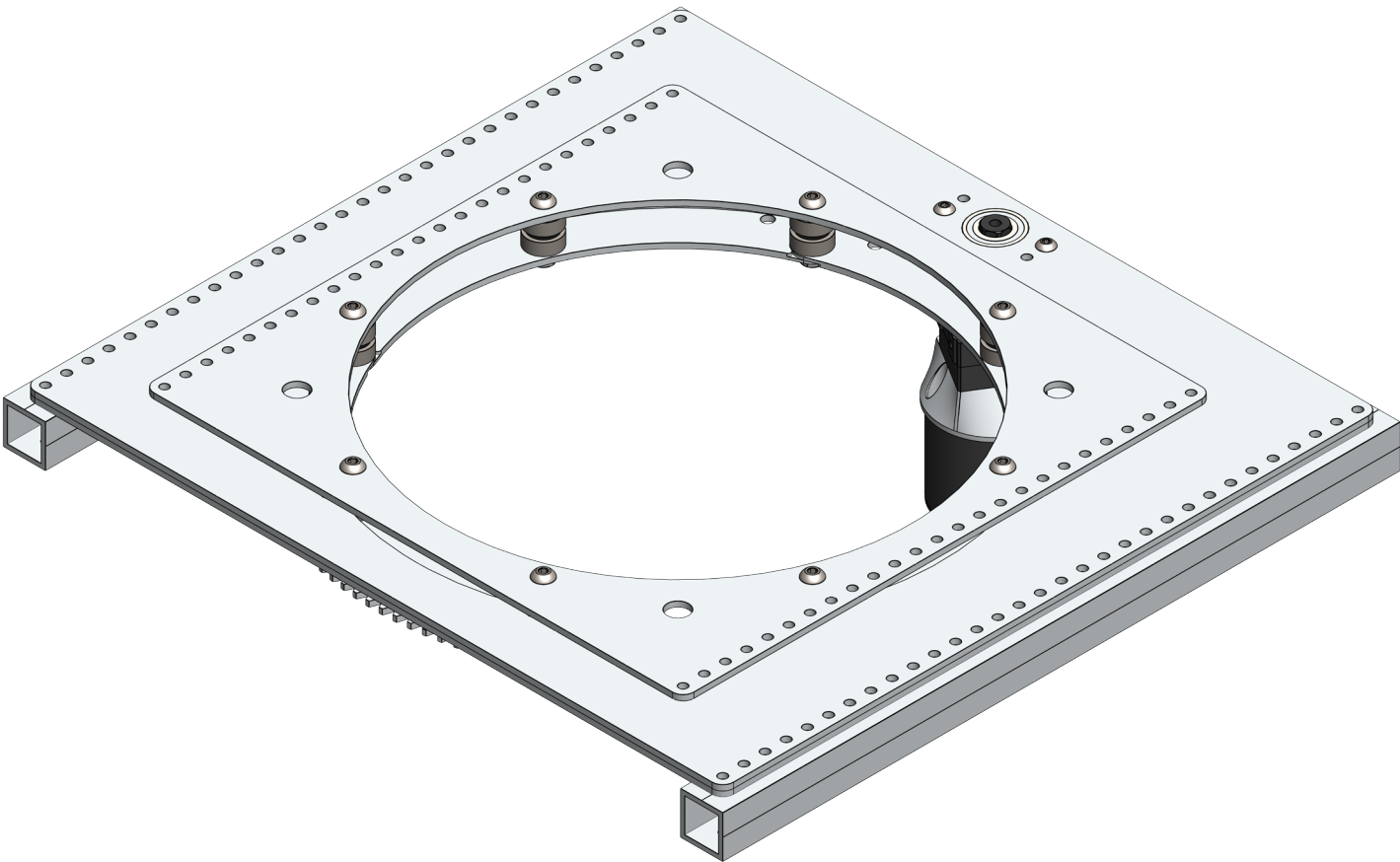




Table of Contents

What is the GreyT Turret (11" ID)?	3
GreyT Turret (11" ID) Assembly Instructions	5
Step 1	6
Step 2	7
Step 3	8
Step 4	9
Step 5	10
Step 6	11
Step 7	12
Step 8	13
Available Kits	14
KIT-0037: GreyT Turret (11)"	14
KIT-0038: GreyT Turret (11)" (Falcon, 45:1)	14
WCP-0497: GreyT Turret (11" ID)	15
FAQ	16
Revision Table	17



What is the GreyT Turret (11" ID)?

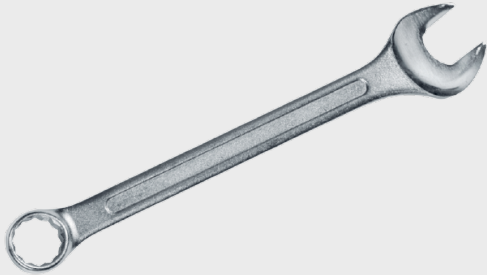

The GreyT Turret (11" ID) is the second iteration of the GreyT Turret. With this new design, there are fewer parts making the system much less complex and more robust overall. Just like the original, the new GreyT Turret (11" ID) is one of the simplest and most accessible turreting systems on the market. It can be used to aim a shooter or other mechanism in a different direction than your robot is facing. Combine with vision to get automated targeting, or control manually to point a mechanism wherever you'd like!

Notable Improvements and features:

- Smooth Rotation
- Compatible with VersaPlanetary
- Compatible with GreyT Shooter (9.5")
- Easier to assemble and maintain
- Fewer parts on the bearing stack-up
- Compatible with thin section bearings
- No longer have to tension any chain



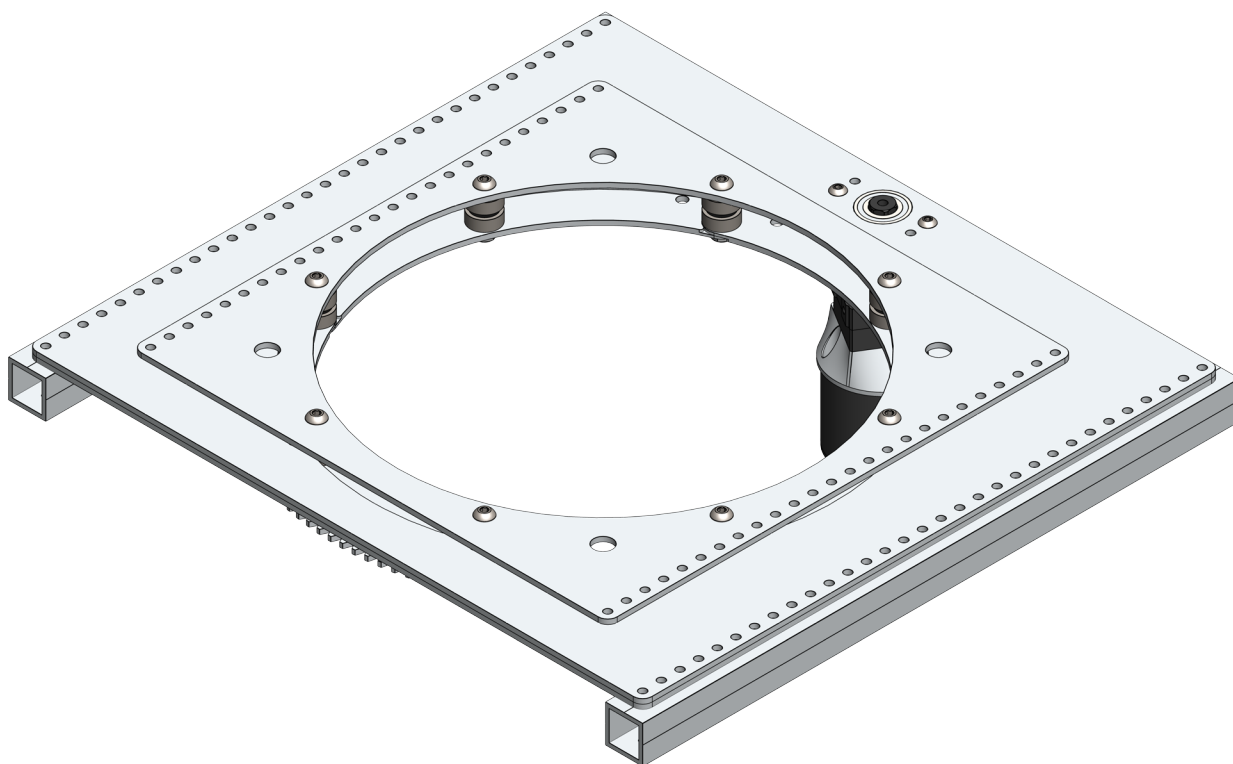
Recommended Tools

Picture	Name
	Allen Wrench Set
	7/16" Wrench



GreyT Turret (11" ID) Assembly Instructions

The following covers the basic assembly instructions for the GreyT Turret (11" ID).

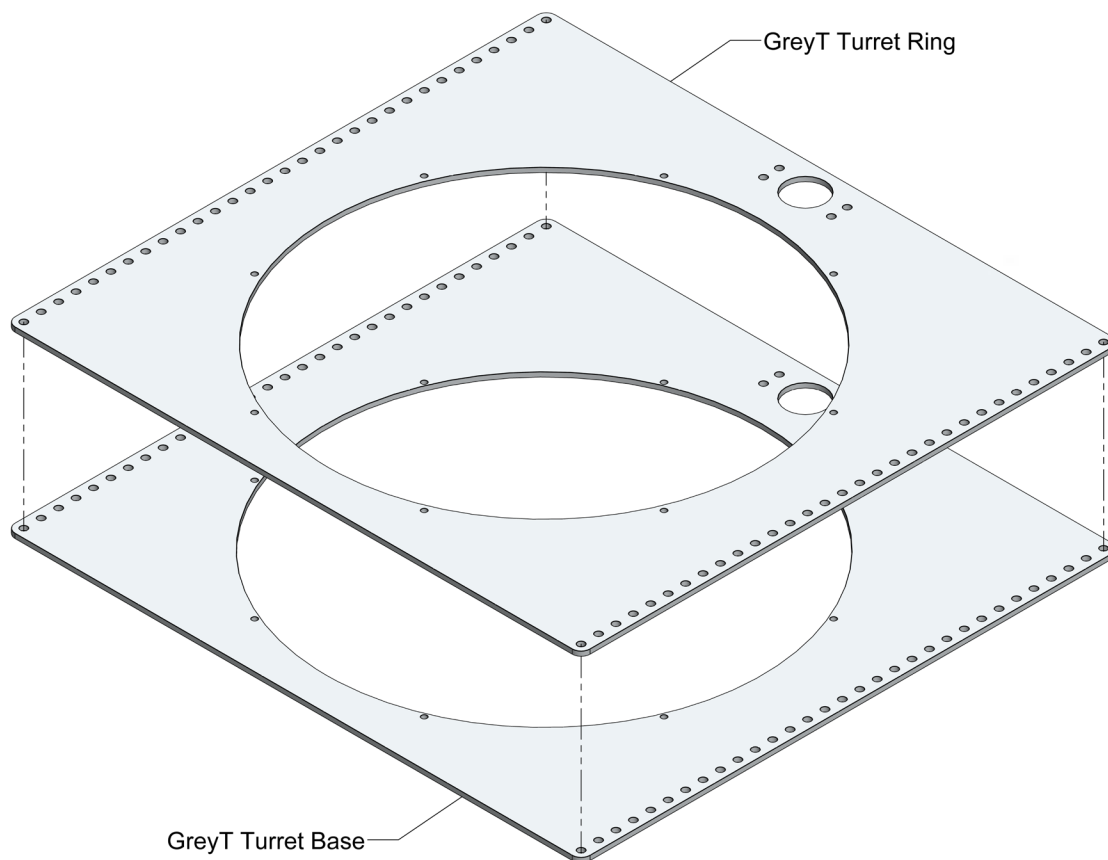




Step 1

Bolt the GreyT Turret Ring and the GreyT Base plates together. The plates can be bolted to whatever tubes the turret is mounted to, if desired.

Note: The Turret Ring plate has a smaller turret hole than the Turret Base. Make sure that the turret is assembled with the plates oriented correctly.

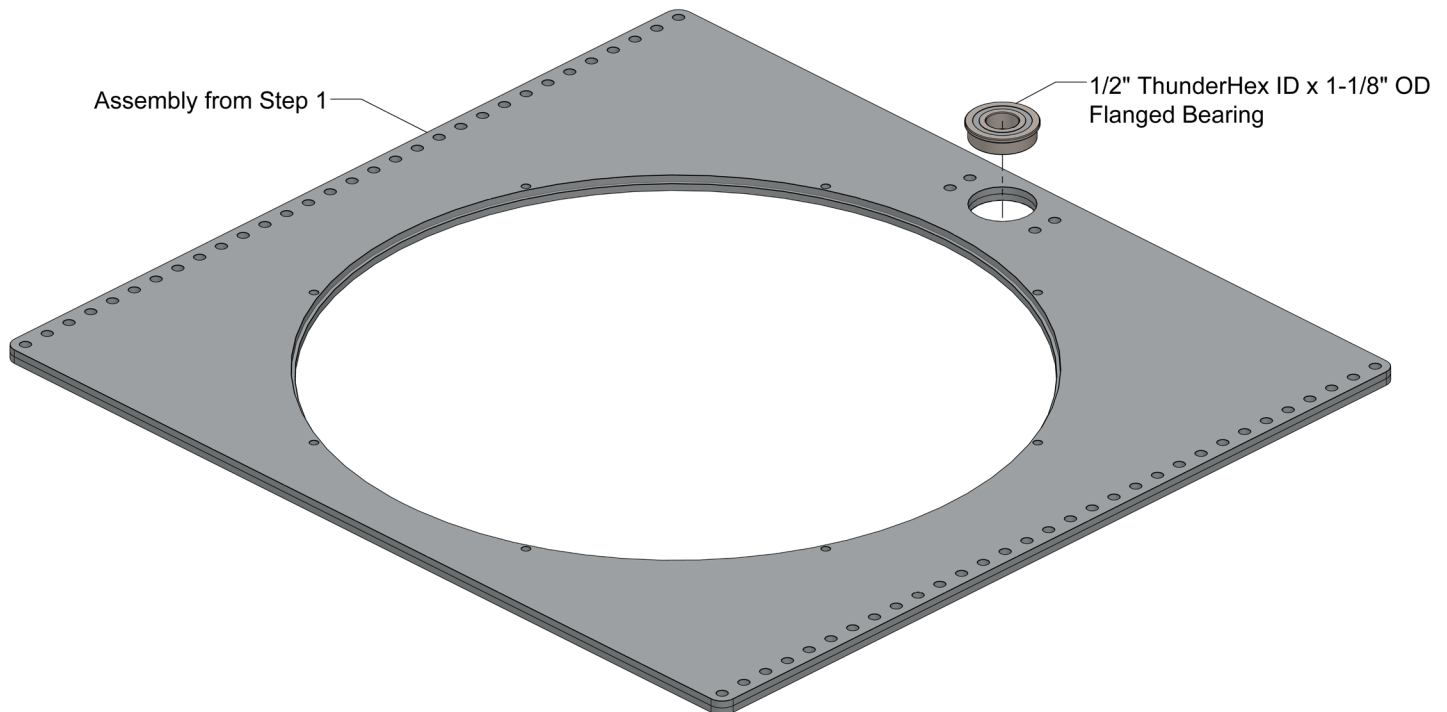




Step 2

Press the 1/2" ThunderHex ID x 1-1/8" OD Flanged Bearing in to the assembly from Step 1. For this turret, the bearing must be pressed in from the bottom of the assembly.

Note: If you plan on using the turret with a compatible thin section 12.5" OD bearing (SA120XPO), the Turret Base and Ring plates will have to be tapped together. This will allow you to use #10-32 x 3/8"L Bolts (WCP-0252) to constrain the thin section bearing.





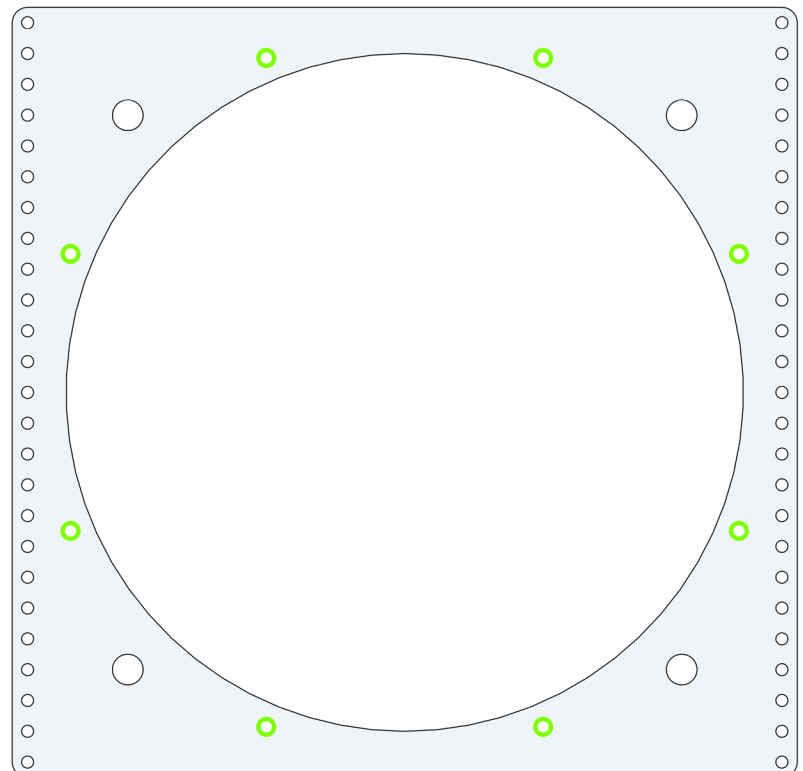
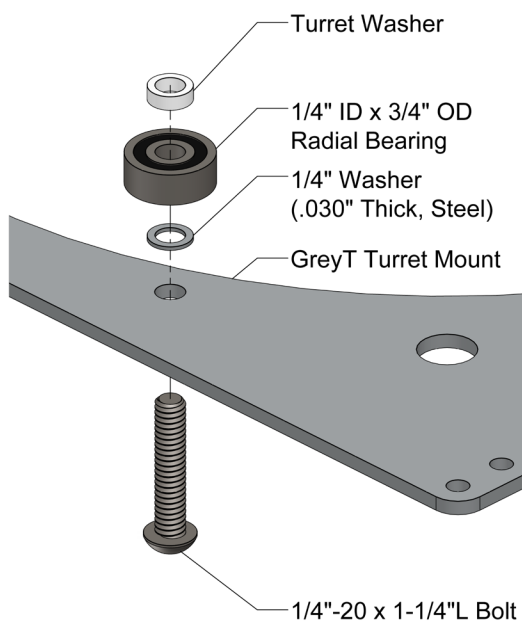
Step 3

Slide the 1/4"-20 x 1-1/4"L Bolts through the holes marked in green below. Slide all components on to the bolt as shown in the image below. Make sure there is one 0.03" thick Steel Washer between the plate and each 1/4" ID x 3/4" OD Radial Bearing.

Repeat this step for the remaining seven bearing bolt holes.

While assembling the parts in this step, use a piece of tape to hold the head of the bolt in place so that the bolt does not fall out. This will also help in future steps.

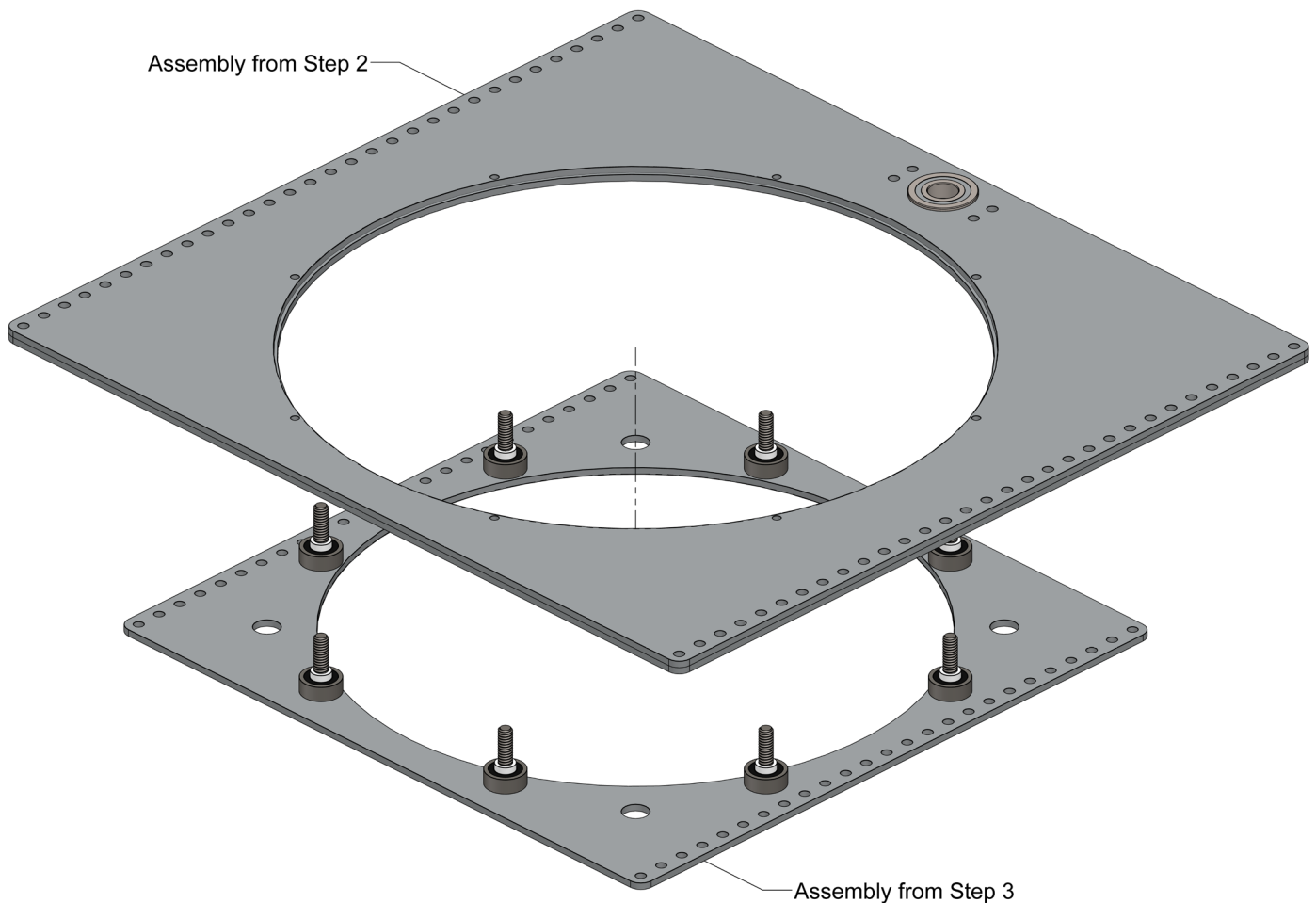
Warning: Failure to install the washers will greatly increase the friction in the system and may result in the turret not being able to rotate.





Step 4

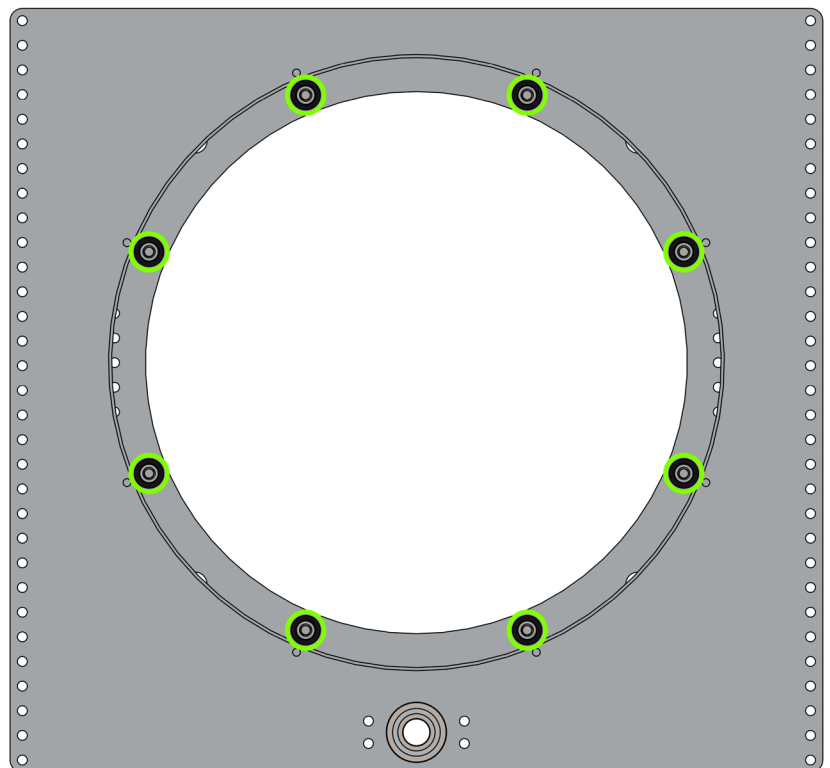
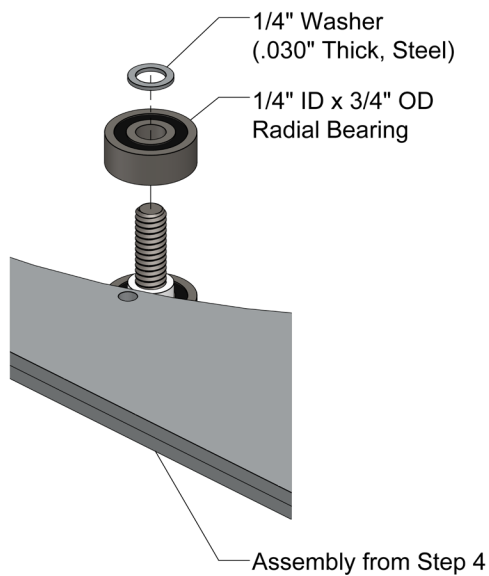
Rest the assembly from Step 2 on top of the 1/4" ID x 3/4" OD Radial Bearings installed in Step 3. This step is assembled upside down, meaning that the Turret Ring plate will be the plate that rests on the 1/4" ID x 3/4" OD Radial Bearings.





Step 5

Install the 1/4" ID x 3/4" OD Radial Bearings and 0.03" thick Steel Washers as shown in the image below. They will be installed on all eight bearing stack ups marked in green in the image below.



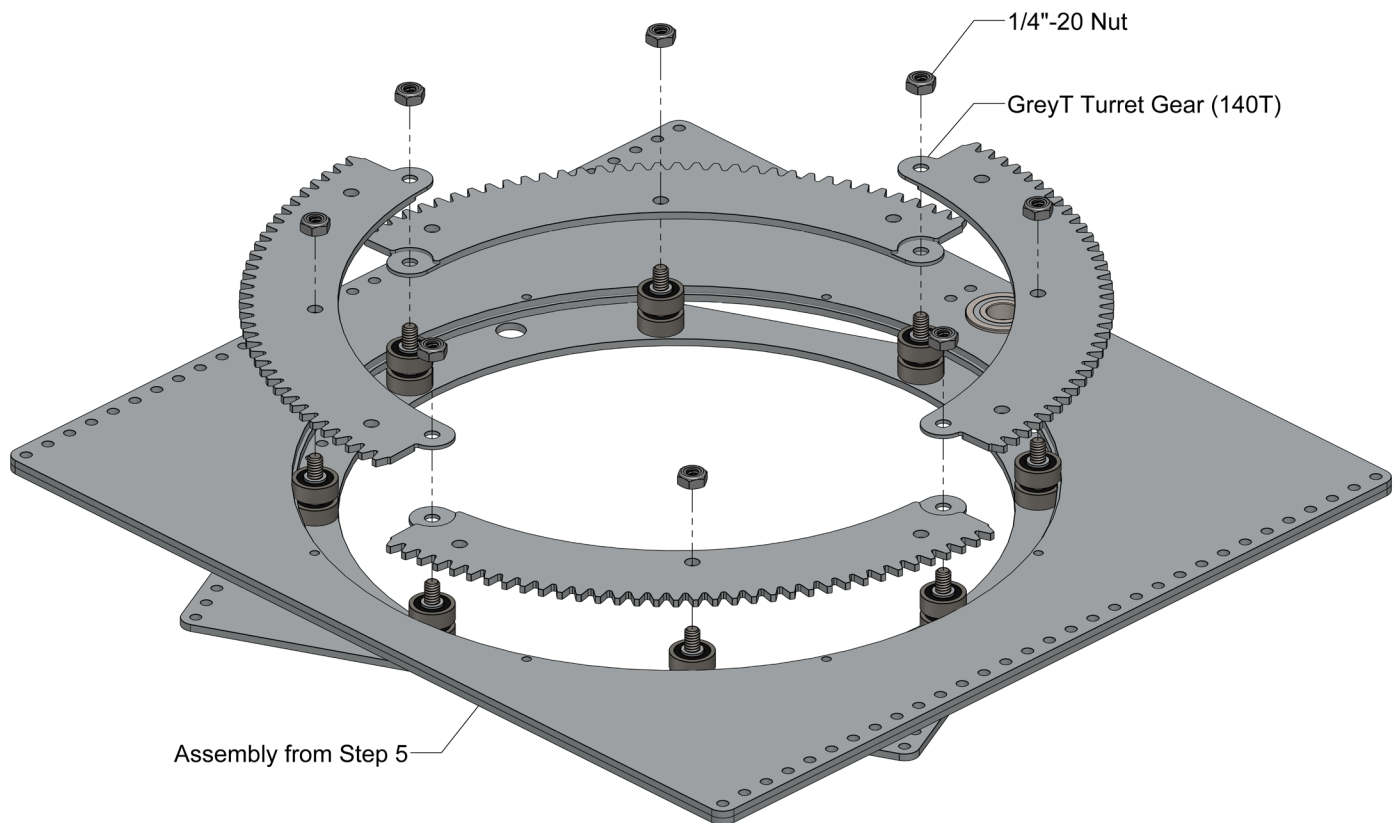


Step 6

Install the Turret Gear (140T) sections as shown in the image below. The c-bores on the gear sections should slot together making the gear a single, flat 1/8" thick plate when bolted down.

Once the gear sections are fully seated, tighten the nuts until there is no wiggle in the bolts.

Note: Make sure not to overtighten the 1/4"-20 Nuts as this may cause the bearings to clamp the Turret Ring plate, creating unnecessary friction in the assembly.



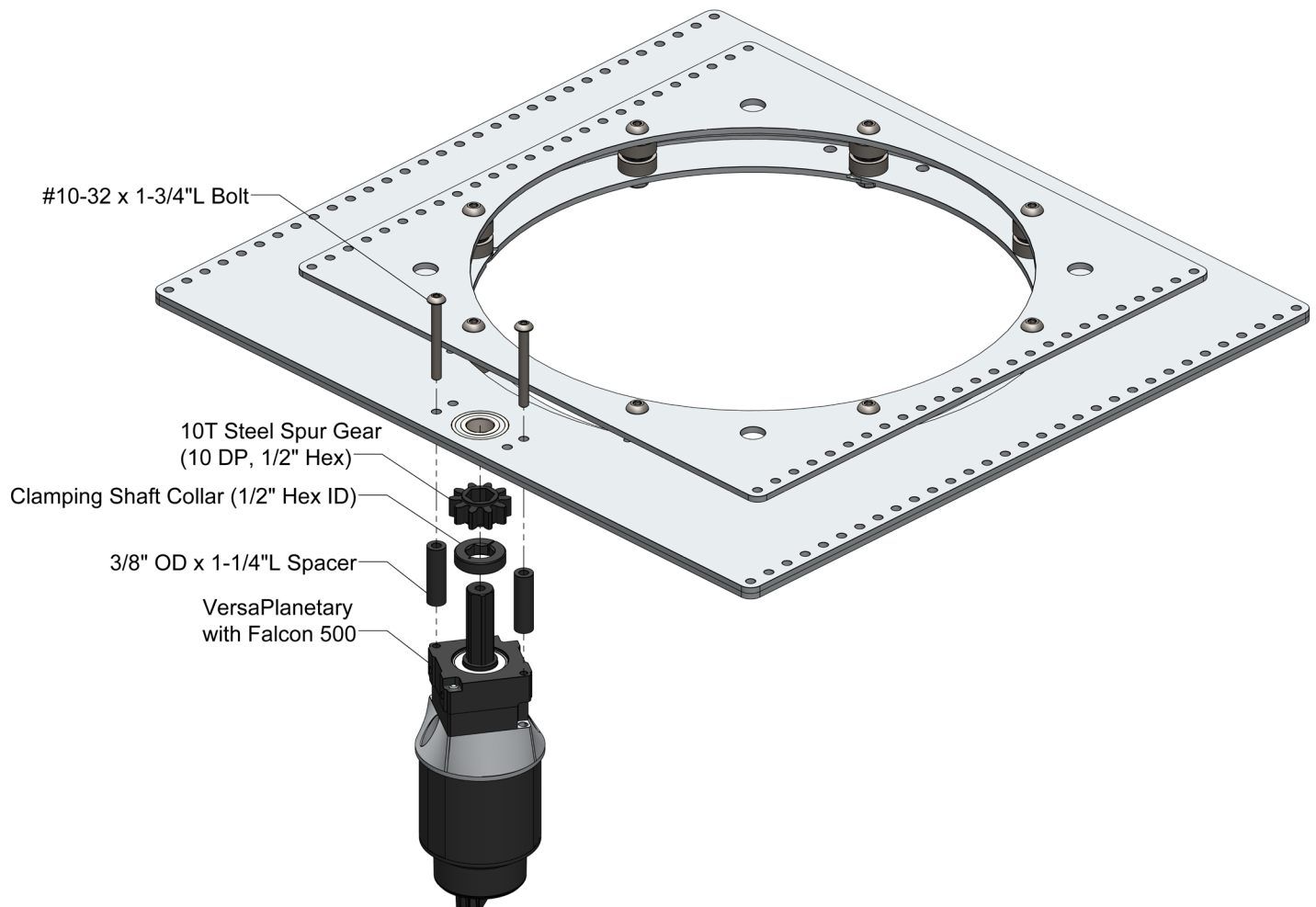


Step 7

Slide the 10T Steel Spur Gear and Clamping Shaft Collar onto the VersaPlanetary with Falcon 500. Then bolt the VersaPlanetary to the assembly from Step 6 using the 3/8" OD x 1-1/4"L Spacers and #10-32 x 1-3/4"L Bolts.

Slide the Clamping Shaft collar and 10T Steel Spur Gear up until the spur gear is resting against the ThunderHex bearing installed in Step 2. Tighten the Clamping Shaft Collar to keep the gear in place.

Note: The 10T Steel Spur Gear must mesh with the gear sections installed in Step 6.

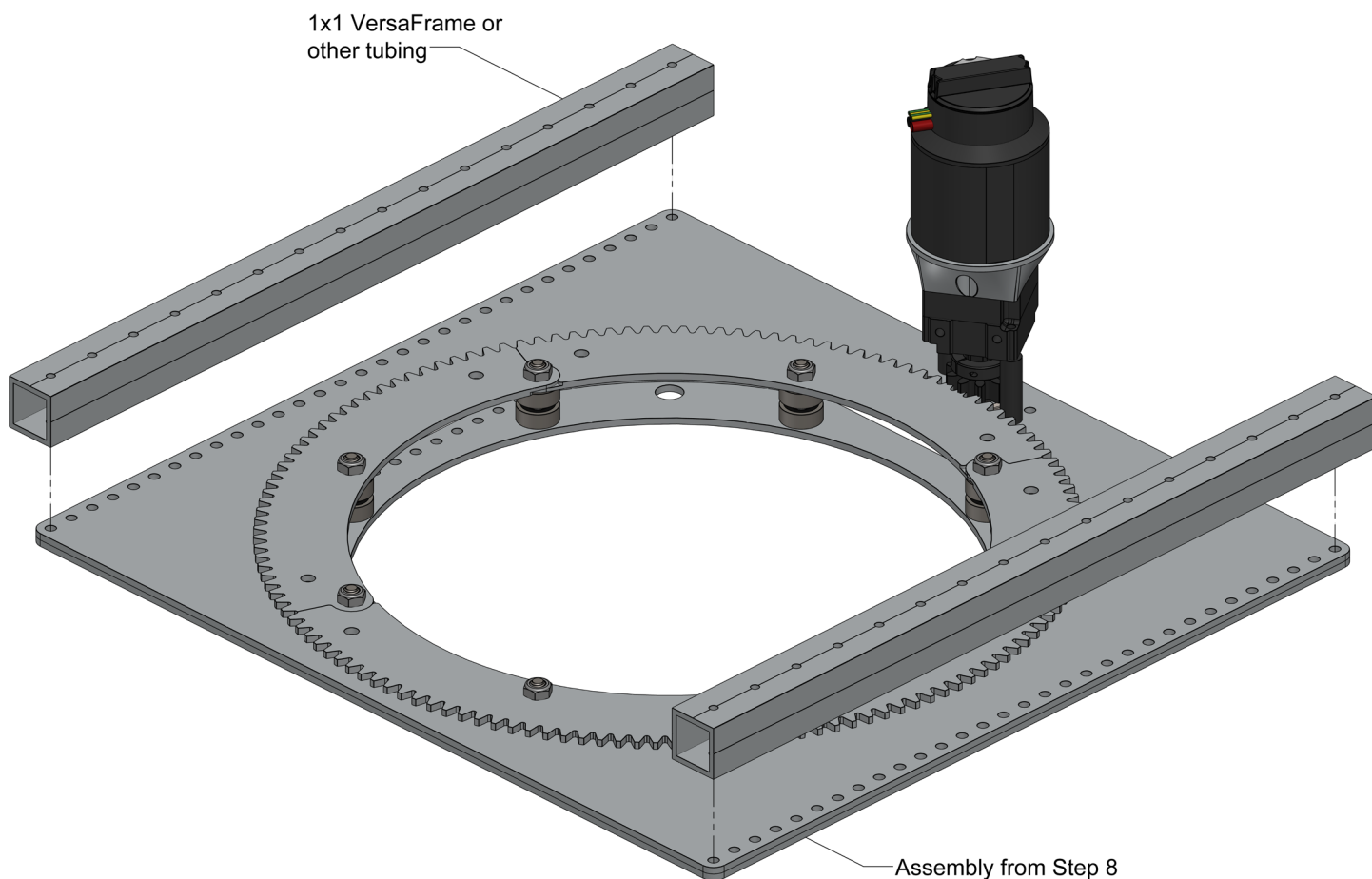




Step 8

If you did not do so previously, bolt the Turret to the mounting tubes or other support structure you will be using.

Note: The image below is from the bottom of the turret.



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Available Kits

Kit Number	Name
KIT-0037	GreyT Turret (11)"
KIT-0038	GreyT Turret (11)" (Falcon, 45:1)

KIT-0037: GreyT Turret (11)"

Part Number	Name	QTY
WCP-0497	GreyT Turret (11" ID)	1
WCP-0212	0.250" ID x 0.750" OD x 0.282" WD (Radial Bearing)	16
217-4006	1/2" ThunderHex ID x 1.125" OD x 0.313" WD (Flanged Bearing)	1
WCP-0198	1/4" Washer (.031" Thick, Steel) (20-Pack)	1
217-2737	Clamping Shaft Collar - 1/2" Hex ID	1
217-8036	10T Steel Spur Gear (10 DP, 1/2" Hex)	1

KIT-0038: GreyT Turret (11)" (Falcon, 45:1)

Part Number	Name	QTY
217-4973	VersaPlanetary v2 Base Kit, 1:1, 1/2" Hex Output	1
217-4018	VersaPlanetary v2 CIM Adapter	1
217-2816	VersaPlanetary Ring Gear	2
217-2819	VersaPlanetary 5:1 Gear Kit	1
217-3106	VersaPlanetary 9:1 Gear Kit	1



WCP-0497: GreyT Turret (11" ID)

Part Number	Name	QTY
WCP-0497-001	Turret Ring	1
WCP-0497-002	Turret Base	1
WCP-0497-003	Turret Gear (140T)	4
WCP-0497-004	Turret Mount	1
WCP-0497-005	Turret Washer	8
WCP-0258	#10-32 x 1.75"L BHCS (Steel, Black Oxide)	2
WCP-0222	Aluminum Spacers (.196" ID x 3/8" OD x 1-1/4" WD)	2
~	1/4"-20 x 1.25"L BHCS (Steel, Black Oxide)	8
~	1/4"-20 Nuts	8



FAQ

Q: Are the 3D printed washers between the bearings needed?

A: Yes, these washers are required. They prevent the bearings from rubbing against each other. This may cause the turret to not rotate or be hard to rotate, even by hand.



Revision Table

Revision Date	Revision #	Description
1/10/2022	1.0	First revision created.