



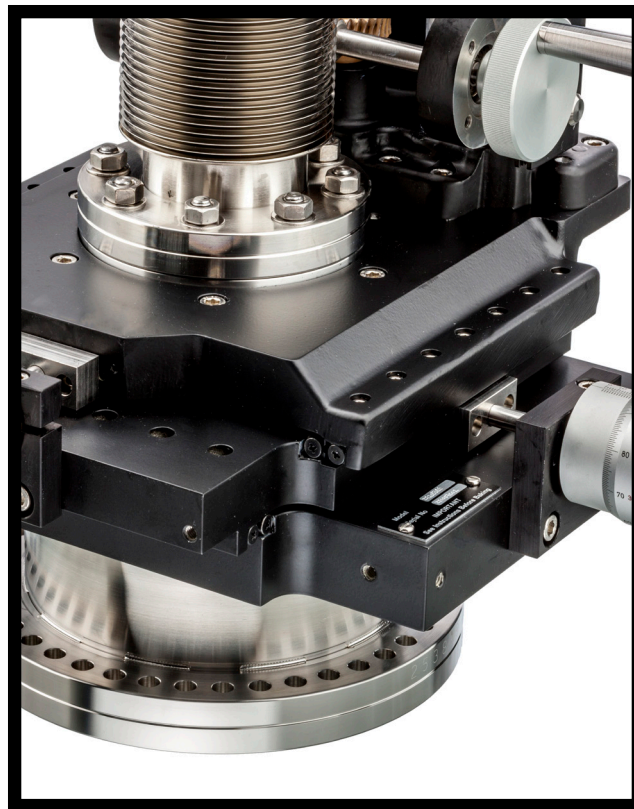
VACGEN

# Assembly Guide

## Omniax Worm & Wheel

### AS0019

VGS03-02T19



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Revision	Date	Comment	Initials
1	31/03/2020	New Document	DM
2			
3			

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## Omniax Worm & Wheel - Replacing the Drive Gear

This can be done while the manipulator is under vacuum, but GREAT CARE is required not to damage the bellows or the sample end.

### Stage One

If this is done under vacuum, then the "Z" will need to be lowered (via the "Z" drive) onto a support between the two "Z" bellows flanges.

1. Once this is secure, remove the two large screws holding the top bellows flange to the knee. NOTE: Once these are removed, the knee and bellows top flange may still not be free. This is because some are single dowel pinned at the back of the flange. This can be seen if you look down at the back of the chamber assembly. At the back of the flange is where you will see the pin, between the knee and the bellows flange.
2. You will require a lever (Large blade screw driver) to prise these apart. Take very great care not to hit the bellows.
3. At the base of the "Z" slide assembly you will find 8 cap head screws, these hold the base of the "Z" slide to the X & Y table, remove these.
4. At least two people required for the following.
5. The "Z" slide is now located in position by two dowel pins, so hold the X & Y in place, wiggle the "Z" to release.

### Stage Two

With the "Z" free of the bellows assembly

1. Working on the cross shaft that has the Worm, remove the circlips from both sides, which are holding the bearings/shaft in place and remove shaft assembly.
2. On the worm shaft release the grub screw in the adjuster then unscrew the knurled nut and remove the worm gear components.
3. Working at the top of the "Z" slide.
4. Remove the cover plate off the top of the "Z" slide, held on by two cross head screws.
5. Undo, but do not completely remove the clamp bolts (23/24)



6. On the top plate, remove grub screws that grip the pillars, see drawing.
7. Remove the top plate with the drive shaft and knee as one part.
8. You now have the drive screw assembly free from the "Z" slide.
9. Working at the top of the "Z" remove the Index Knob, (10/12) held on by a grub screw.
10. Remove the grub screw holding the lower index scale on, see drawing
11. You will now see a Circlip holding the bearing, remove this clip.
12. The shaft and bearing will push out.
13. Remove the circlip holding the bearing to the shaft.
14. Wind the shaft out of the safety nut.
15. Working on the drive screw, remove the worm wheel as follows.

NOTE: BEFORE you remove the worm wheel from the main drive shaft, mark the shaft so that the WORM fits in the same place. See sheet with setting jig, which should be printed out on A4 card and cut out, checking size is correct at 57.5mm.

16. Remove the grub screws in the worm wheel.

NOTE: The Wheel is also held on by a Woodruff Key in the slot and if the unit has been baked a lot, this can be very hard to remove. Heating can help and tapping off with a soft-headed hammer!

Refit parts in reverse noting the WORM cross shaft set up below.

17. The adjuster is in two parts, locked by a grub screw, so the set up is as follows.
18. Refit the WORM to its original position.
19. Screw the adjuster up to its shortest length.
20. Fit adjuster on to the shaft loose.
21. Fit shaft assembly.
22. Fit bearings and circlips.
23. Adjust the adjuster to remove the backlash, BUT only FINGER TIGHT by doing up the knurled nut until all the back lash is gone.
24. Fit locking grub screw.

### Fitting Safety Nut

1. Clean off all old grease.
2. Try new nut on shaft before fitting
3. Lubricate shaft with CarboFlo
4. When fitting drive screw into the safety nut, there should be a 4mm gap.

