

Design of a Mini Gimbal Triaxial Compass

PAN, Oct 29, 2023

1. Introduction

This Mini Gimbal Triaxial Compass shows the direction of magnetic field lines in a complex structure of strong permanent magnets. See video Mini Gimbal in action:

<https://ufo-doctor.ch/?select=Mini%20Gimbal%20Compass>

Easy to manufacture with ABS 3D printing.



Fig.1: Magnetic field line view

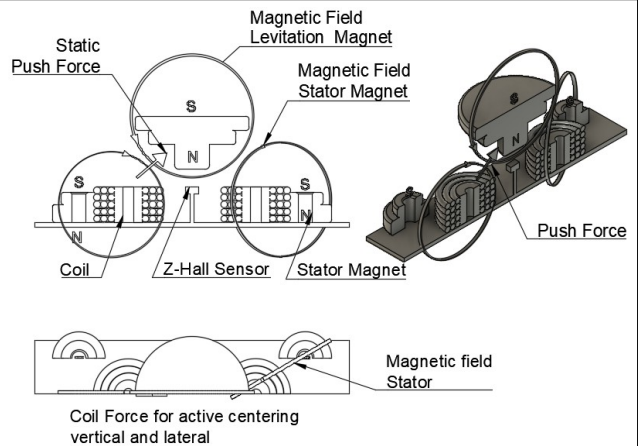


Fig.2: China Levitation System

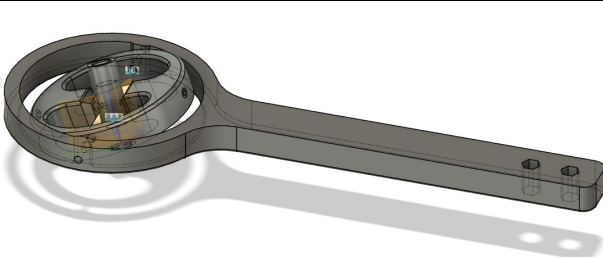
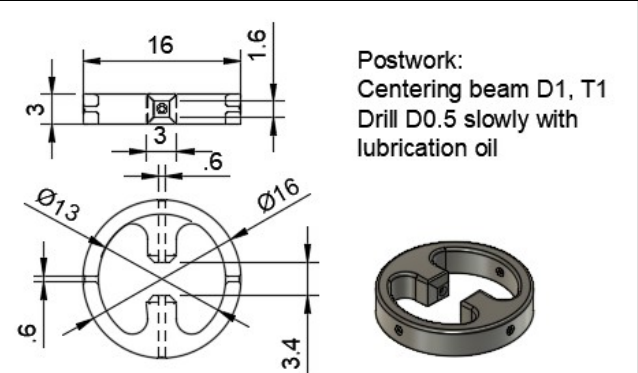
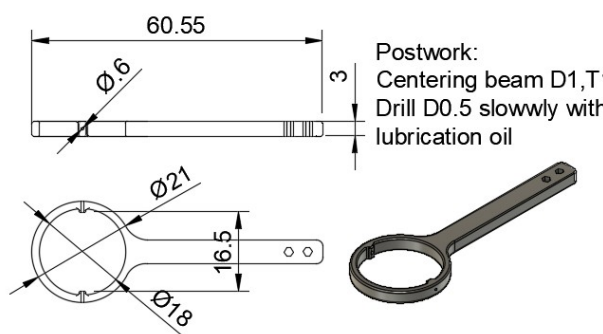


Fig.3: Mini Gimbal Triax Compass



Postwork:
Centering beam D1, T1
Drill D0.5 slowly with
lubrication oil

Fig.4: Center Gimbal



Postwork:
Centering beam D1, T1
Drill D0.5 slowly with
lubrication oil

Fig.5: Outer Gimbal

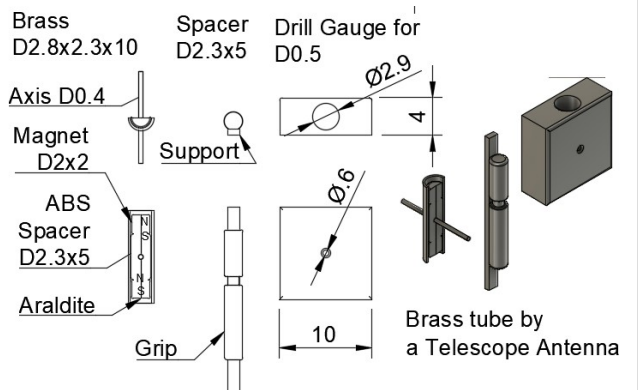


Fig. 6 : Detail Center Compass

The axis are silver coated Cu wires D0.4mm, fixed with Aralidite Standard in both Gimbals

2. Post work and assembly instructions

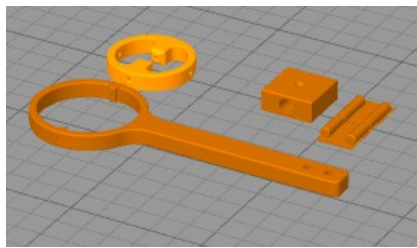


Fig. 7: STL file read for ABS-3D printing



Fig. 8: Check spacer dimensions D2x5

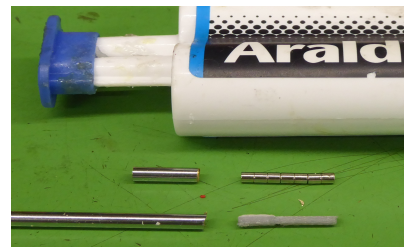


Fig. 9: Ready to insert and glue spacer and magnets

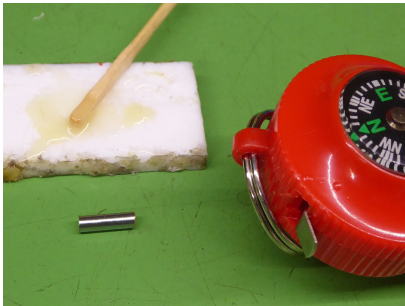


Fig. 10: Apply glue at the top ends of the compass needle and check the Polarity!

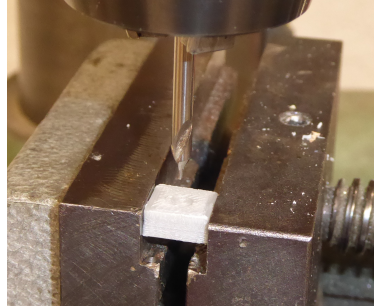


Fig. 11: Insert Compass into the drill gauge and clamp it for beam centering drilling

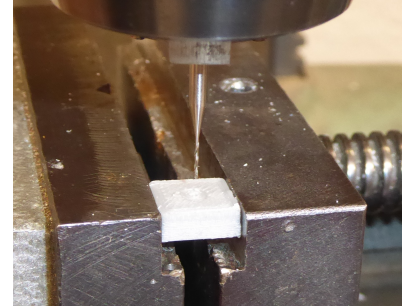


Fig. 12: Drill D0.5 into the Compass brass tube and spacer carefully

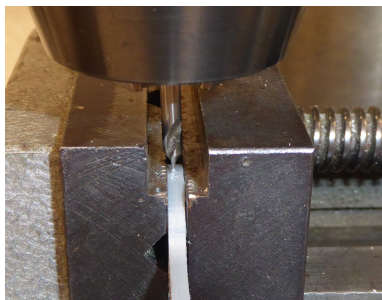


Fig. 13: Clamp Outer Gimbal for beam centering drill D1x1 at +/- 180 Degree

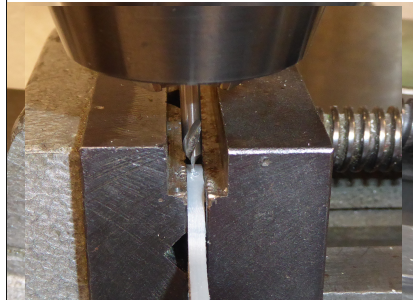


Fig. 14: Clamp Inner Gimbal for beam centering drill D1x1 at +/- 90 Degree



Fig. 15: Clamp both gimbals and drill all 6 D0.5 mm bearings

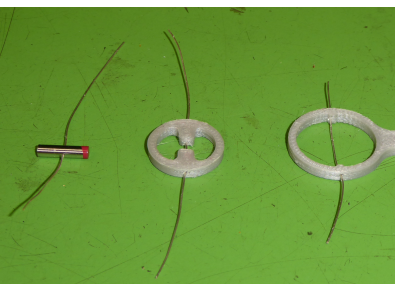


Fig.16: North at compass colored with red nail polish. Check all D0.5 bearings with D 0.4 Cu-wire axis

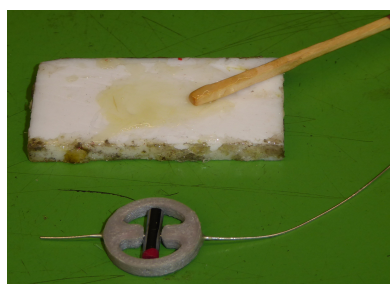


Fig. 17: Apply Araldite on the central axis at the inner Gimbal, later the same on the outer gimbals

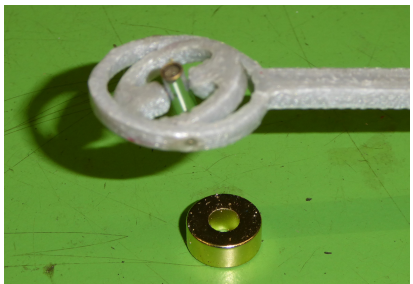


Fig. 18: Final Mini Gimbal in action at strong magnets

Note: With 3D printing the layers are fragile in z-directions!
 Horizontal drilling is only possible with clamping the object in a vice and careful drilling D1 centering beam and D0.5 slowly with lubrication oil.