INTEGRATION INTERN 23’

Jack Michaelis

STANDOFF PROJECTS

LOCATED AND CONFIRMED THE LOCATION OF STANDOFF'S INSTALLED ON SN5

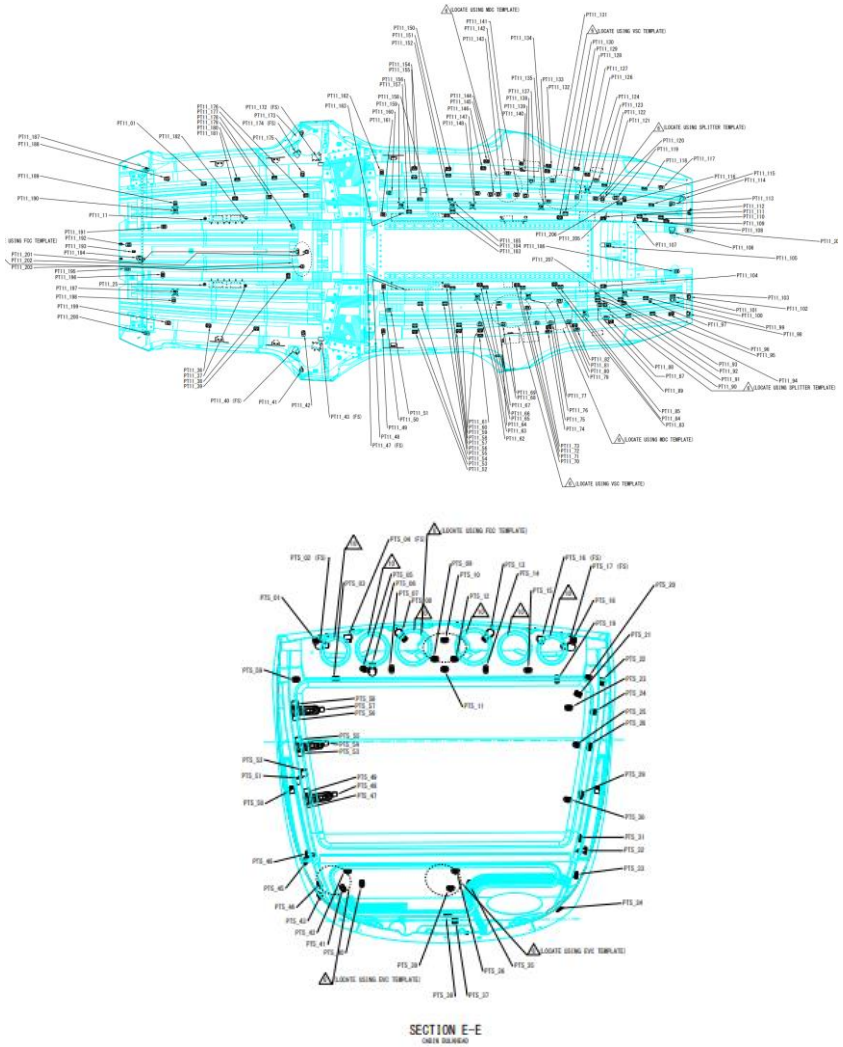
ASSISTED MEGAN WITH INSTALLING P-CLAMPS AND WIRE MANAGEMENT

MARKED STANDOFFS USING THE LASER PROJECTOR

HELPED LOCATE, IDENTIFY, AND BOND STANDOFF'S ON SN6

THINGS I LEARNED:

- How to read an interpret a drawing blueprint
- Working around other projects
- Recording the parts installed on the plane



NOSE CONE CUTOUT

- Designed a 3D printed part that would cover the hole in the nose for rollout
- Using Catia I modeled the geometry of the part and added a recessed flange

THINGS I LEARNED

The size of the cutout was too large for the 3D printer, so I needed to split it in half.

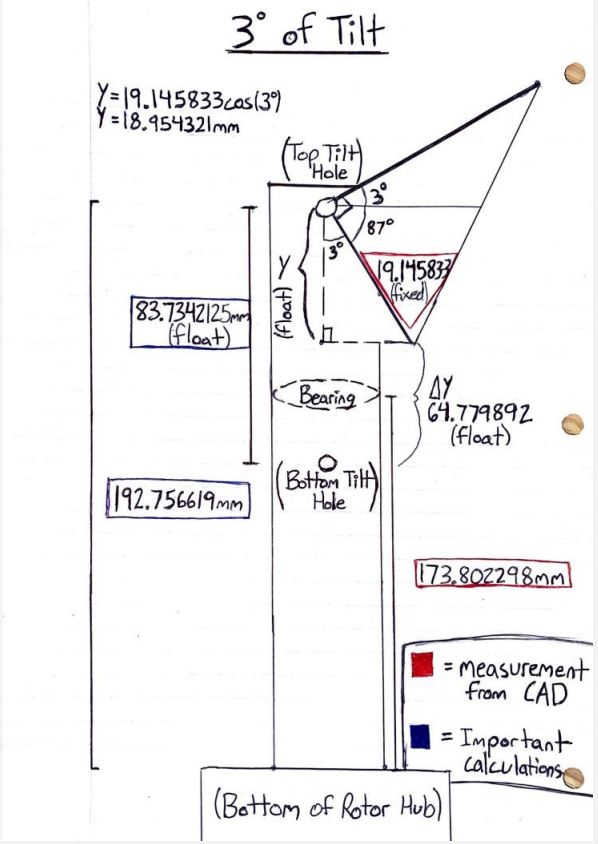
Did not consider the change in the geometry when the cone was installed on the plane

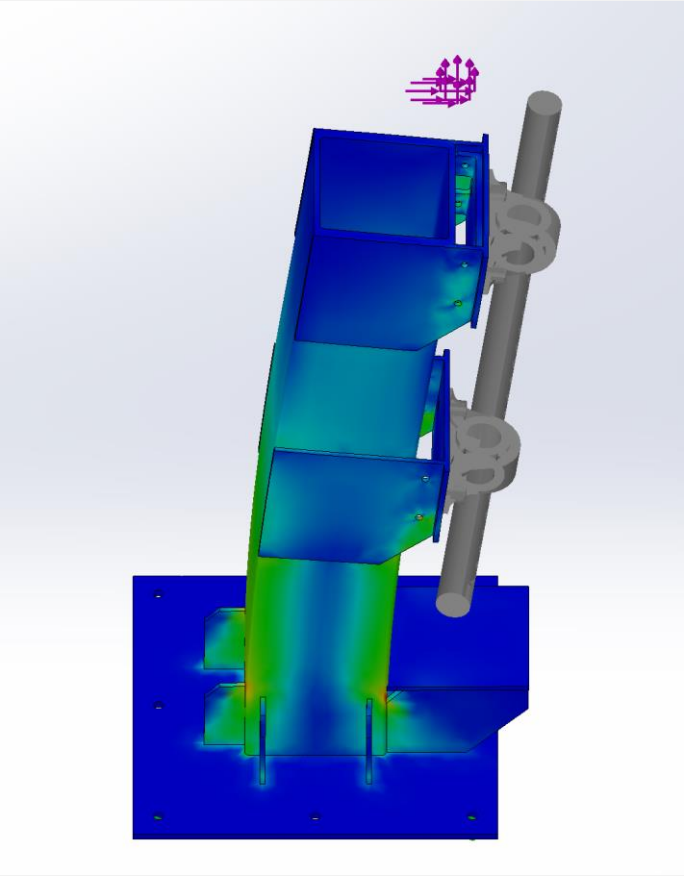
Did not consider if anything would be in the way when the nose cone was installed on the plane

Lots of sanding

MARINA PROP ATP

- Sourced different motors, VFD's, security cameras and more
- Did calculations for the tilt arm that replaces the need for a VFD
- Ran simulations on the ATP stand to ensure safety factor



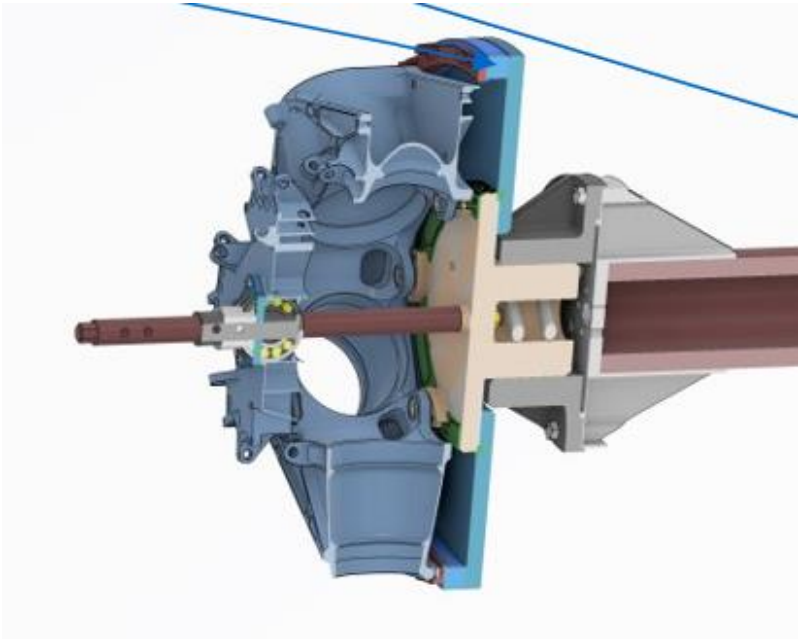


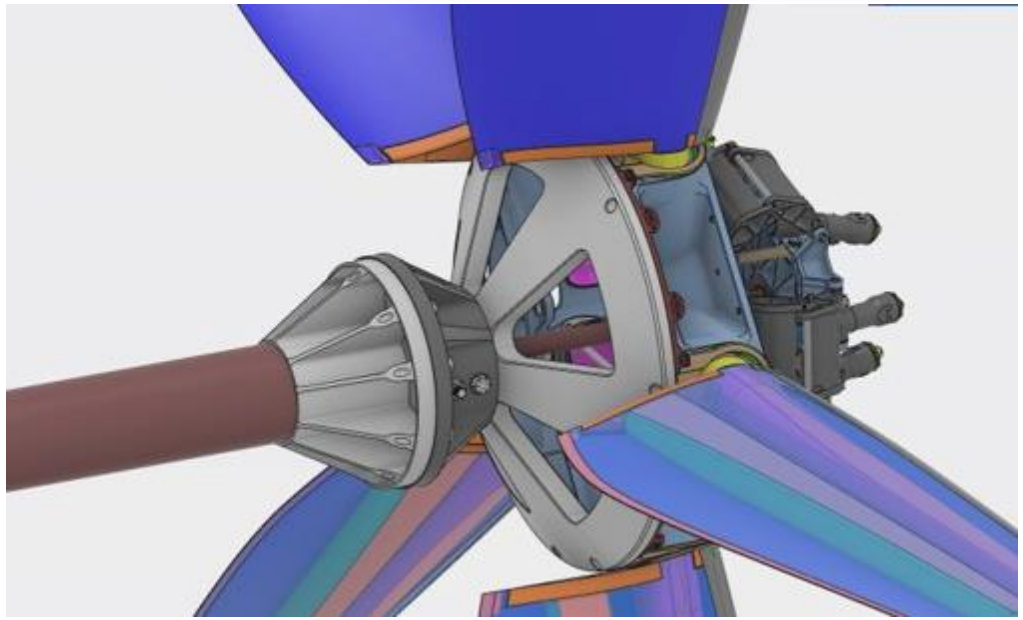
‘STEERING-WHEEL’ ATP DESIGN

- Used idea from CST-9533 2.1 Propeller Acceptance Testing TRR. PowerPoint Link

- Interfaces with female fan boat quick release part. Link

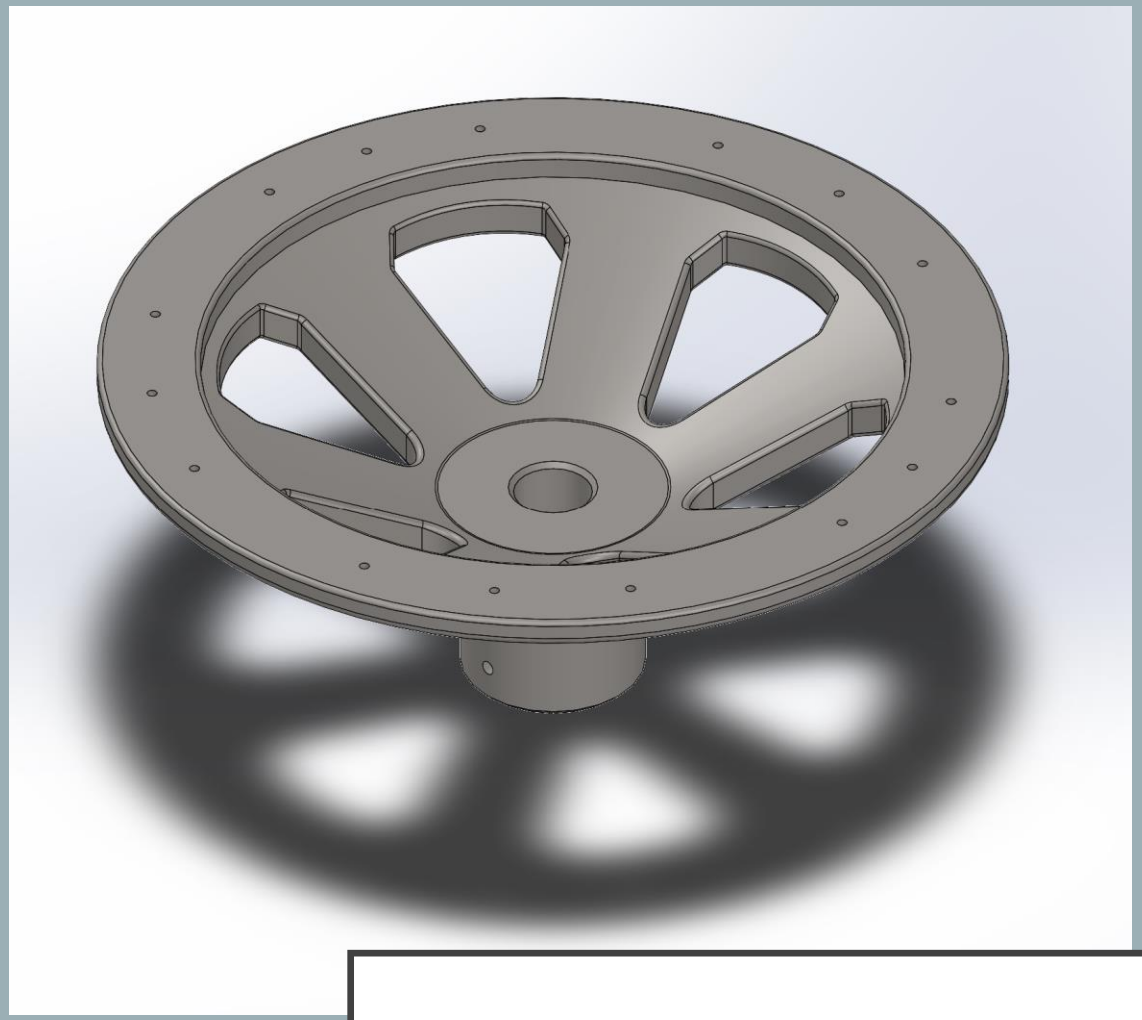
- Replaces the need for male fan boat quick release part. Link

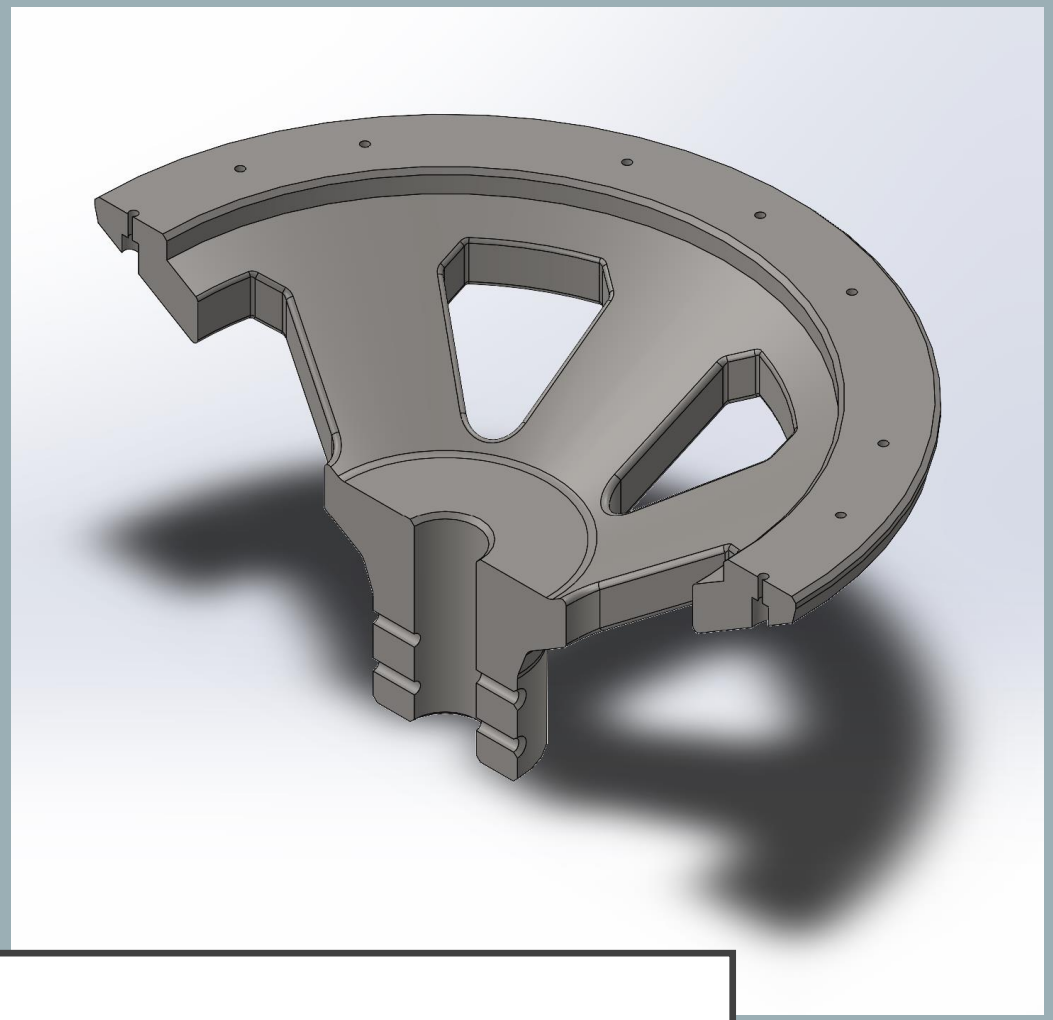




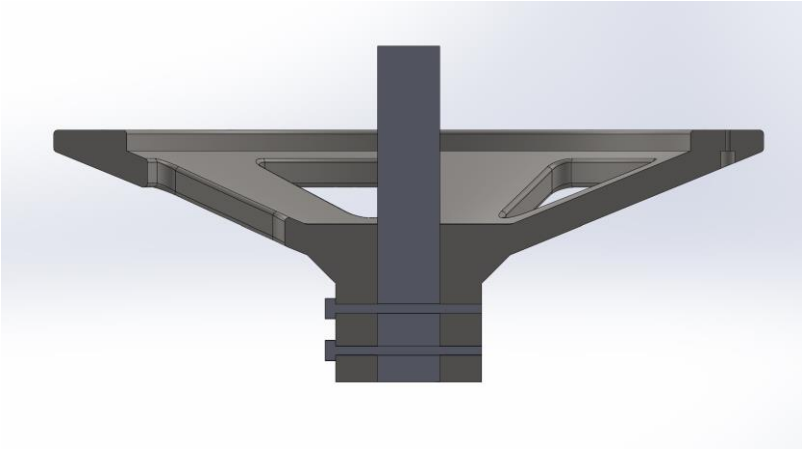
- Cuts down on material and total weight of the part

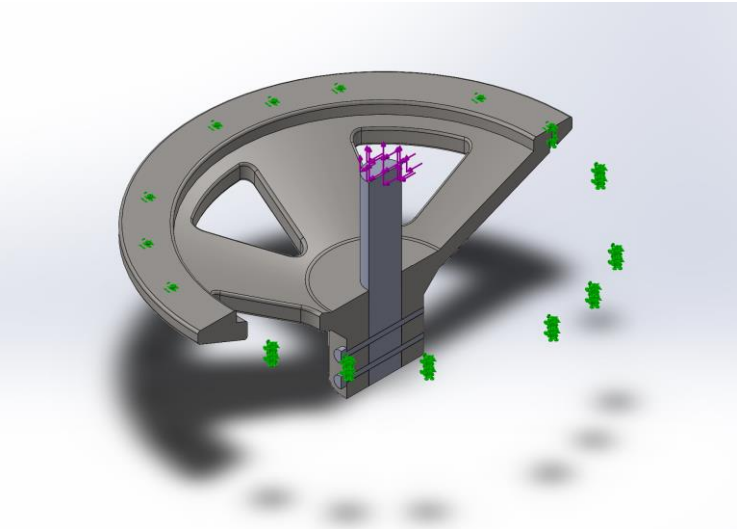
- Provide a stronger connection between the motor hub and axel

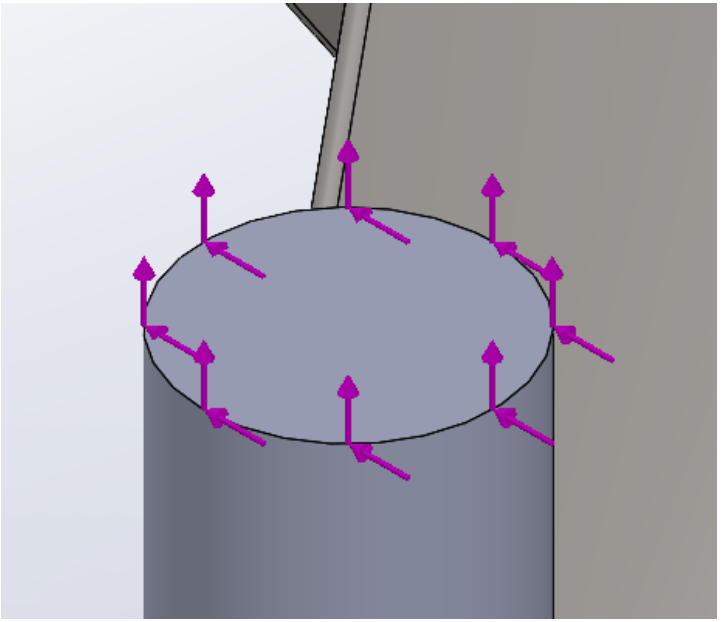




‘STEERING-WHEEL’ DESIGN





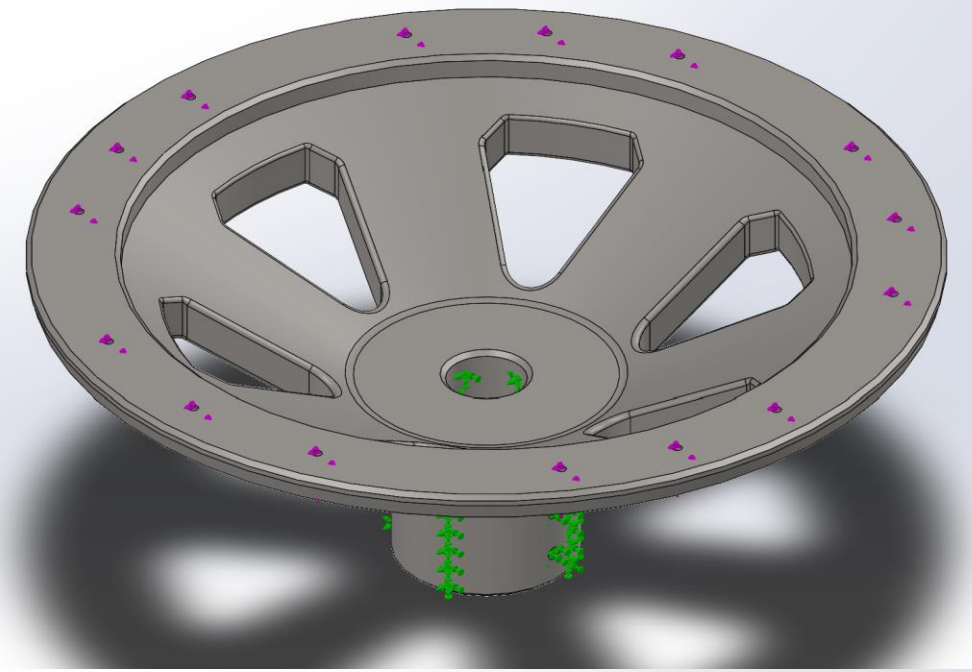


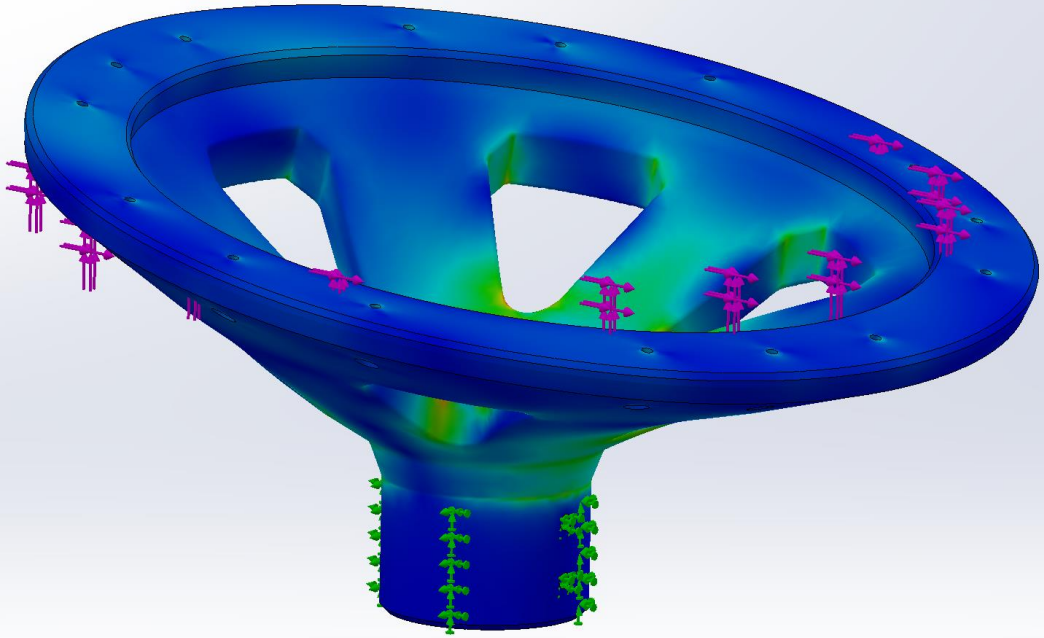
TEST #1

Factory of Safety: 3.80

24.3 KN Horizontal force

7 KN Vertical force





TEST #2

Factor of Safety: 0.30

24.3 KN Horizontal force (applied to all attachment holes)

7 KN Vertical force (applied to all attachment holes)

Bottom cylinder is fixed

WHAT I LEARNED

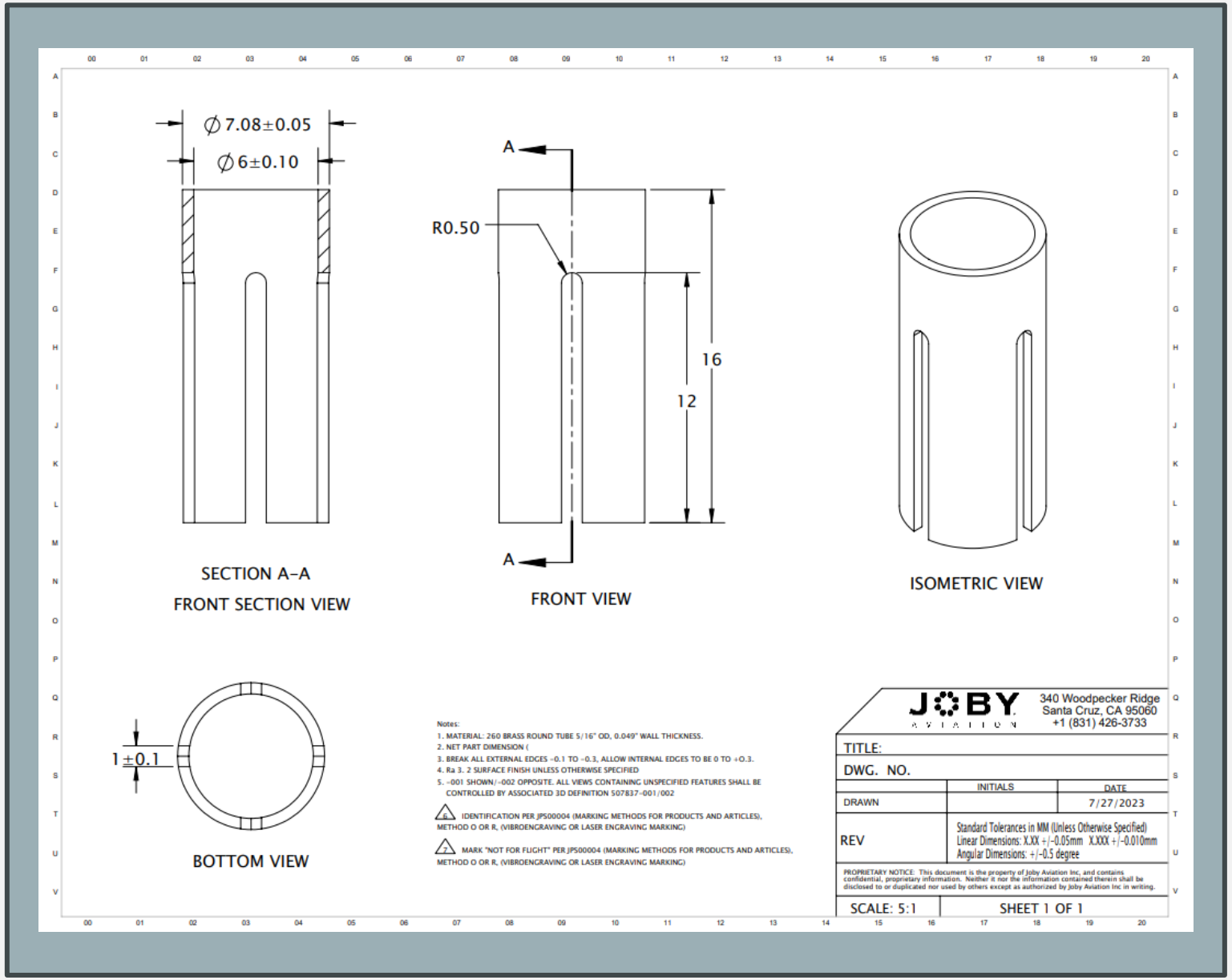
LOTS OF DIFFERENT SOLIDWORKS TRICKS AND TOOLS

DESIGNING A RELIABLE SIMULATION

EVALUATING THE ACCURACY OF SOLIDWORKS SIMULATION RESULTS

LOTS OF DESIGN (SOLIDWORKS AND CATIA)

- Offset cutouts for the antennas in the nose air data boom
- Designed different supports for the ATP stand to ensure safety factor is greater than 3
- Modeled and dimensioned a copper bushing for making HV cables



QUESTIONS?

THANK YOU