

BF-P

Procedure:

Purpose- to measure air pressure at altitude and load on motor

List of Equipment-

- Gondola
- Logger pro
- Dc motor propeller device
- Balloon
- Helium tank
- Rope
- Laptop
- Data log

Payload- 1 logger pro, 1 dc motor with attached propeller, power source for logger pro, power source for dc motor

Weight-

Pre-flight

- Set up base for flight
- Prepare all remote data receivers and devices
- Check all power supplies (batteries)
- Remote test on ground (to see if every thing is working)
- Fix any problems and repeat test
- Run experiment on ground to make baseline
- Make sure everything is attached and secure
- Attach regulator to tank
- Attach rope to balloon
- Attach gondola to balloon
- Begin filling balloon
 1. $(P_o = 2300 \text{ psi} \cdot g + 15 \text{ psi} \times V_o = 1.80 \text{ cu ft})$ 4200
 2. $(P_i = ? = 4200/125 \times V_i = 125 \text{ cu ft})$ 4200
 3. $(P_f = 0 + 15 \text{ psi} \times V_f = 284 \text{ cu ft})$ 4200
 4. Lift: $4.0 \text{ kg} - 1.8 \text{ kg} = 2.2 \text{ kg}$ payload

Flight Procedure:

- Fill balloon until it begins to lift gondola unassisted
- Pinch end of balloon and detach helium line
- Ceil balloon and check for any potential problems in rope or gondola attachments (again)
- Begin letting out line at as steady a pace as possible
- Be prepared to stop at each 200ft line mark

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- At each 200ft mark measure the angle (if there is any) and measure true altitude
- Making angle and position measurements will also serve as a plateau for the measurements
- Continue filling data log
- Once at 1000ft stop and begin retracting the line
- While retracting continue stopping at every 200ft to take place measurements

Data recovery- once on ground attach logger pro to comp. and remove collected data

Data analysis- we will use our place measurements to determine the true altitude at diff. times. Compare this with the load on dc motor at same times. Compare data to see any differences in resistance at different altitudes.