

Avionics and RockSim FNL Workshop

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Agenda

- Avionics
 - Common Failures
 - Switch Types
- (RockSim/OpenRocket)
 - Common Simulation Errors
 - Example

Avionics: Common Failures

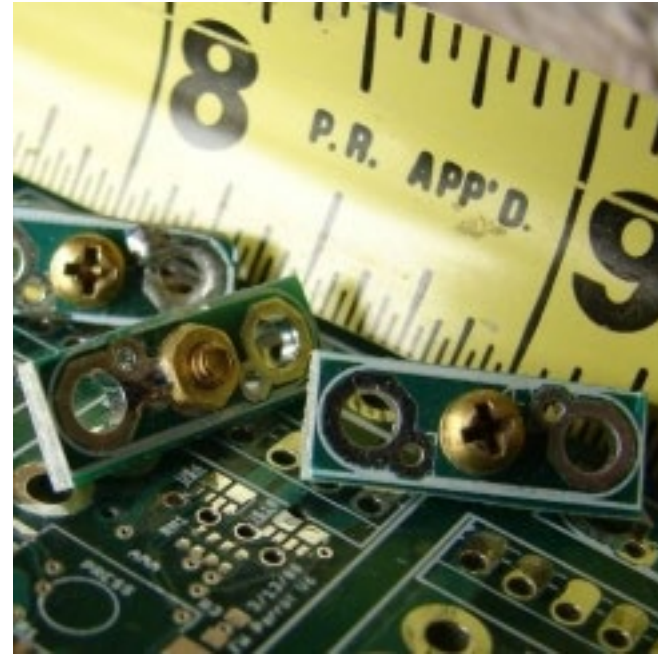
- Switch failure
- Not knowing how to program altimeter
- Shoddy wiring, connections crossed, incorrect wire gauge
- Not testing altimeter (not knowing its defective)
- Hardware failures (G-forces move/disconnect battery, pull wire)
- Blocking altimeter's baro sensor (not using standoffs)

Avionics: Switch Types

- Key Switch



- Screw Switch

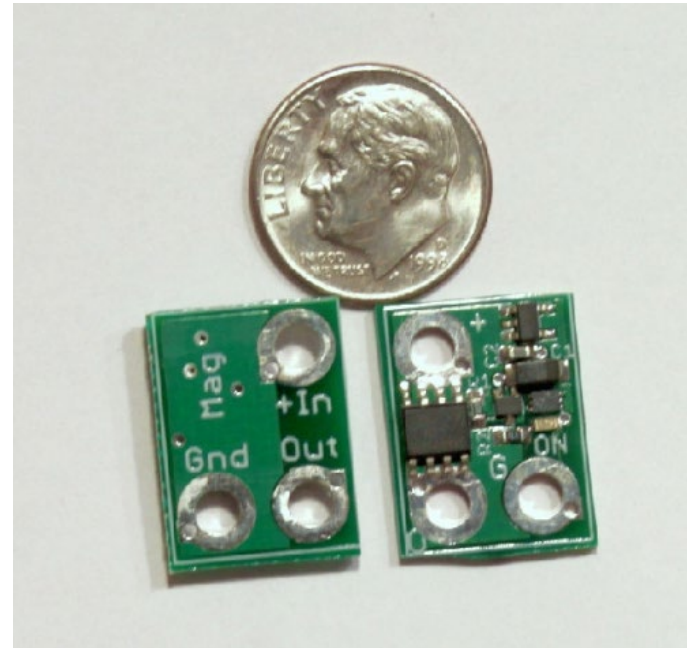


Avionics: Switch Types

- Rotary Switch



- Magnetic Switch



Source: <https://aeroconsystems.com/cart/switches/>
https://www.featherweightaltimeters.com/store/p4/Magnetic_Switch.html

Avionics: Switch Types

- Twist & Tape
 - No switch used
 - Feed switch wires out through vent hole
 - On pad, twist & tape them together to arm avionics
 - Stuff wires back through vent hole

Simulations: Common Errors

- Rail guide length incorrect
- Mass overrides are unknowingly on
- Parachute deployment (flight events) configured incorrectly
- Not accounting for:
 - All weight and components
 - Rail button
 - Surface finish
- Not understanding that simulations have a margin of error in them
 - Weight, thrust, drag, stability effects on performance

Simulation Programs

- RockSim vs. OpenRocket
 - Since FNL have gone virtual for the time being, OpenRocket (free) seems to be more feasible for all team members to use
- OpenRocket Example