

## Bench Test/Swing Test

### G-Wiz LC and LC Deluxe 400/800

To 'bench test' an LC/LC Deluxe, it must be swing-tested. The inertial G force of rotating the flight computer will trigger the launch detect algorithm. I use the following process to swing test the LC/LC Deluxe 400/800 flight computers:

- 1) Connect LEDs to each of the pyro channels. Be certain to observe LED polarity and the LED's maximum current rating. I use a series 330 ohm resistor with each LED. Reference the schematic provided below.
- 2) While testing with LED's, it's OK to use the single battery configuration.
- 3) Connect a 9 VDC battery to the battery clip on LC/LC Deluxe.
- 4) Observe that all 5 (LC) or 7 (LC Deluxe) LEDs flash in unison. Note the intensity of the LEDs connected to the pyro channels. While powered up and idle, the 'pyro charge simulation' LEDs glow from the continuity test current. When the pyro channel actually 'fire', the simulation LED's will glow much brighter. Also, when a pyro channels fires, the corresponding continuity test LED will be extinguished.
- 5) While firmly holding the flight computer and battery in your hand, swing your arm in a circle (like your winding up for a baseball pitch). The nosecone arrow, silkscreened on the PCB, MUST point toward the center of the circle, formed by your swing. You'll only need to do ~4 revolutions to adequately test the unit.
- 6) If configured for clusters, the Pyro 1 LED will glow extra bright starting at ~1/2 second after you start swinging the unit. If configured for staging the Pyro 1 LED will glow extra bright immediately upon stopping the swing rotation. This extra bright glow will last for ~1 second.
- 7) After stopping the inertial swing, immediately orient the nosecone arrow, silkscreened on the PCB, toward the ground. After a few seconds the Pyro 2 LED will glow extra bright (indicating apogee detection/deployment).
- 8) If this inertial test was applied to an LC, the computed inertial altitude will be flashed out on the Status LED. If testing an LC Deluxe, Pyro 3 LED will glow extra bright ~1/16 of a second after Pyro 2 LED fires (apogee detection). In this test Pyro 3 fires immediately AFTER Pyro 2 because the computer is below the predetermined AGL threshold (400 or 800 feet).
- 9) The LC Deluxe will flash out an altitude of 0 (zero) feet. LC Deluxe captures and flashes out peak **barometric** altitude, based on inertial apogee. Apogee detection is based solely on the accelerometer (inertial apogee). However, the LC Deluxe reads the barometric sensor only after it has determined that inertial apogee has been reached. We believe this 'hybrid' approach is the most accurate method for computing true altitude at apogee.

10) This concludes the test. If desired, the test can be repeated as soon as battery power is cycled.

**Test Setup Wiring to  
LC/LC Deluxe Terminal Block**

