

Phantom 3 Drone Repair / Diagnosis

1 Overview

User reports drone is unable to sync to mobile phone. Upon testing drone, I find that the gimbal is not able to get a proper level base. It continuously moves around.

2 Work Log

Unfortunately a lot of my work is not in notes, although I thought I had written it down, but in any case... I've looked at this drone a bit. The issues are likely in the camera / gimbal assembly. The price of a new assembly is \$200 on ebay, and extremely expensive. The drone used is about \$240 or \$300 on ebay now (Jan - June 2019).

The pin connector that goes to the gimbal board from the drone is about 10 pins. Not bad. The ribbon connector on the gimbal, that goes to the camera is some obscene 50+ pin, double stacked monster. Not easy to decipher without schematics. There are a few motors on the camera board, which all seem to work. The issue is with the self test, at which point the drone never stabilizes. The user reported that he had a crash, but he also reported that he replaced the gimbal board.

2.1 Open Bench Logic Sniffer

Looking at this device in detail, it relies on a mobile phone app to work with the drone. This app doesn't work on my old phone. I tried an Ipad model one, and that didn't work either. The only phone I was able to get the app to work on was a more recent apple phone (that I do not own). So, right away we are having trouble interfacing to this device. The future doesn't bode well for this drone. What will 10 years in the future be like?

I've somewhat given up on any interest in repairing this. It's a black box, and cheaply made. Instead, I'm going to tap into the 8 wires going between the drone and the gimbal and just take a look. I've needed an excuse to use my Logic Analyzer for a while, and here's a good one. Let's see what / if we can learn, if anything.

2.1.1 Open Bench Logic Sniffer Setup

First off, I need a case for this board. It's exposed. I found two on thingiverse. Let's fire up the 3d printer and get one of those made.