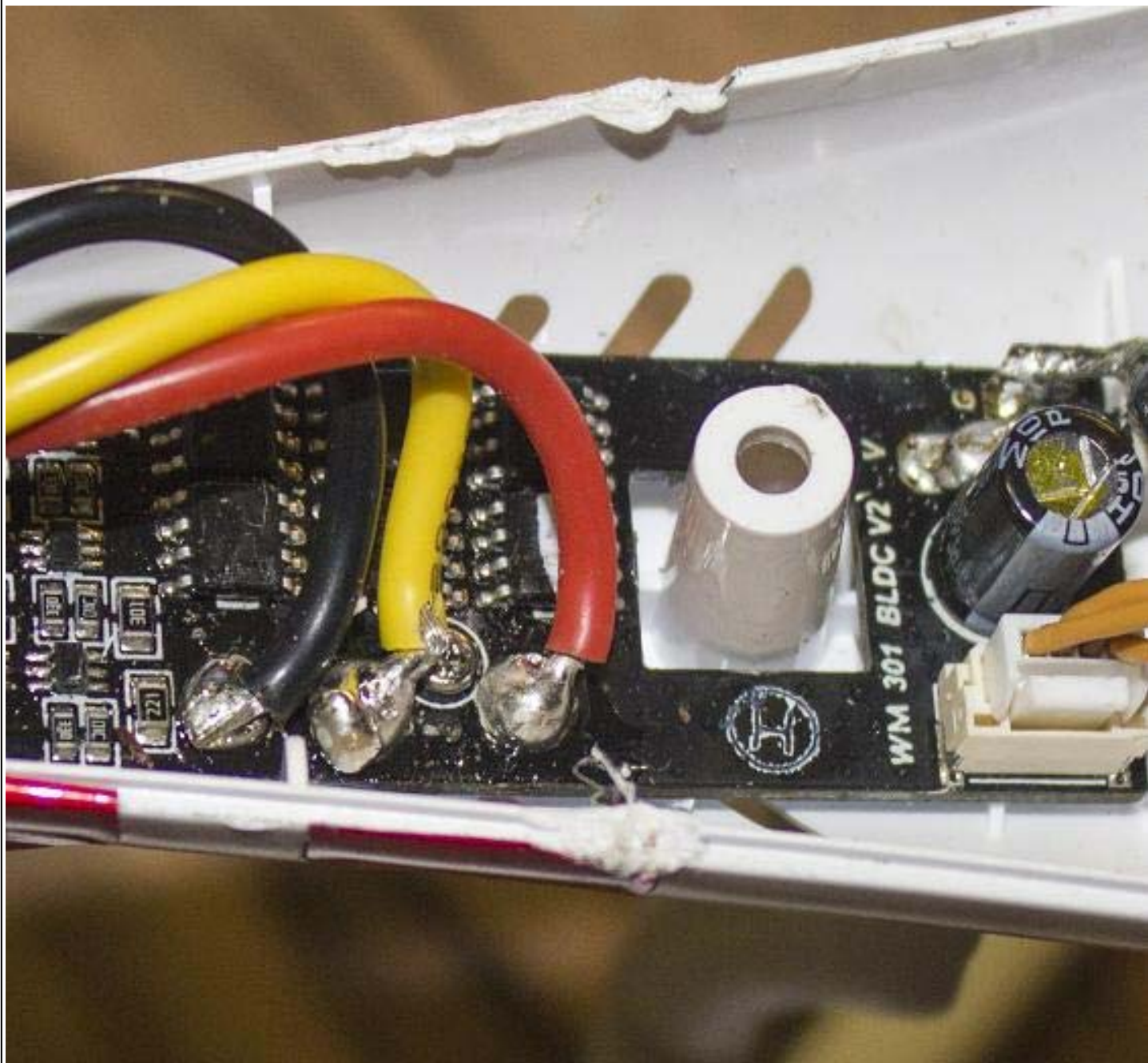


Ben Montgomery Phantom 2 Vision Plus Quadcopter

1. Ben experienced a runway flight resulting in an allision with a building. The flight controller harness had been pulled loose thus. Ben re-connected the flight controller and the craft would not respond to commands.
2. Ben brought the unit to Palafox Computers in Pensacola, Florida for repair. Palafox Computers determined the flight controller module, the forward starboard motor and the associated ESC board needed replacement.
3. The tech replaced the parts and then reported the unit checked out positive on all diagnostics and started up normally, but would not take off.
4. I communicated with the tech on several occasions to offer suggestions including reinstalling the craft and remote control software and calibrating everything. That was reportedly performed with no change in status. The tech called me and let me listen to the craft as he tried to take off. There was a slight increase in RPM, but not enough to take off.
5. Part of what I communicated to the tech was I had used the DJI Phantom Vision 2 Assistant software to reverse the functions of the left and right joysticks. When I later received the drone from Ben it was apparent the tech was using the wrong joystick to take off.
6. I received the drone from Ben on February 24, 2017 immediately after he picked it up from Palafox Computers (still reportedly not taking off due to limited motor speed).
7. Several screws were missing from the case of the craft (one later found INSIDE the unit).
8. When I took the drone out of its case, I noticed a rattling from inside the unit. I removed the cover and discovered several solder pellets in the arm in which the motor was replaced. I removed what I could, but there was still at least one trapped under the ESC board. The board would need to be removed to retrieve the pellet, but the wires soldered into place on the board by the tech blocked the access to one of the mounting screws.

9. The (5) solder locations performed by the tech were poor and resulted in heat damage to the ESC board and the insulation on several conductors was found to be burned off. The wire bundles for the repaired motor arm were not tied together as recommended by DJI.
10. That evening I powered the craft up and attempted to take off (using the correct joystick). The motors gained their normal speed without issue until the craft started to take off and then flipped itself tail over nose onto the ground.
<https://youtu.be/ew8nU47sXks>
11. I disassembled the craft again and found the motor that had been replaced was wired incorrectly, resulting in the motor turning clockwise instead of counter clockwise. This resulted in (3) clockwise props and (1) counter clockwise prop, creating the imbalance that forced the craft over on takeoff.
<https://youtu.be/DMuGuv5TaFQ>
12. After rewiring the motor, the craft still flipped over on takeoff. I disassembled the craft again to check the replaced flight controller and found the motor harness had been connected backward, resulting in the craft trying to compensate on the wrong motors.
13. The camera issue was not addressed by the tech. The impact from the collision resulted in damage to the gimbal motor drive shaft to camera interface. I opened the gimbal to access the drive and shifted the shaft to level the camera and correct the problem. <https://youtu.be/KgV3QIjz24M> and <https://youtu.be/I9QKQHcqoEs>
14. After my corrections to the faulty repair and after performing further repairs, the craft is flying again.

PHOTOGRAPHS



Poor solder joints - burned insulation - heat damage to new circuit board - heat damage to case - circuit board screw blocked by soldered wire - motor wired backward.jpg

PHOTOGRAPHS



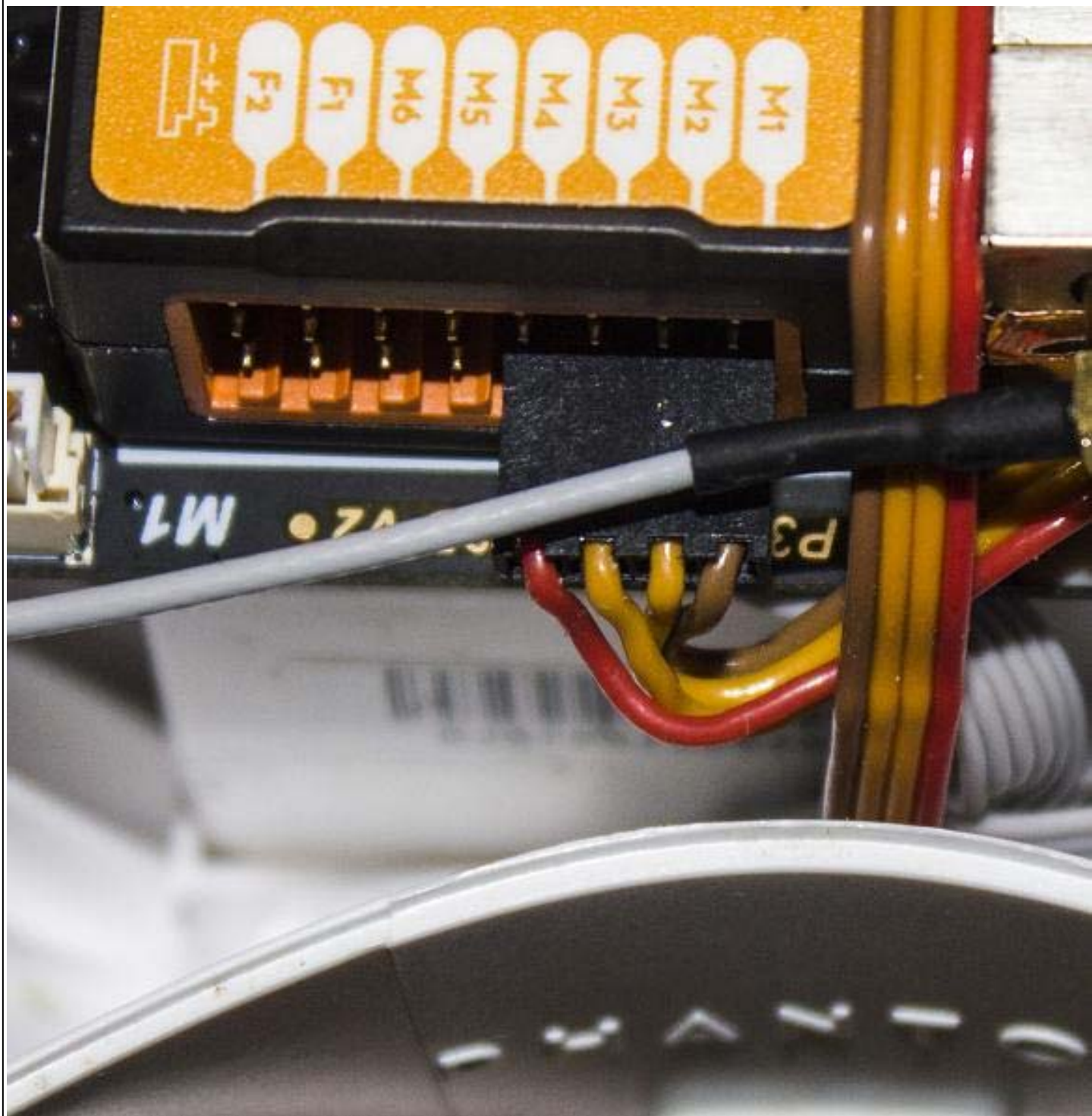
Poor solder joints - burned insulation - widespread heat damage to new circuit board.jpg

PHOTOGRAPHS



Poor solder joints - heat damage to case from soldering iron.jpg

PHOTOGRAPHS



Motor control cable installed backward on new Flight Controller.jpg