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Subject: 2010 Flt Test Prgm - 27 Sailplane's First Test Flights

### *2010 Flight Test Program*

Just as on my previous trips out to the Planesmen's airfield, I arrived this morning around 7:10 a.m. where George Grant, Pruitt Benson, and one other club member were waiting. The first order of business was to range check the Sailplane's 2.4 GHz radio as shown below. That is Pruitt on the left of the picture.



The Walston receiver was tuned and then the prop nut and spinner was tightened as shown below. Notice that the cowl and exhaust extension has been removed for these first flights.



The tank was filled and the original Series 20 McCoy 60 was fired up. The needle valve was adjusted to a fast four-cycle and the engine was then stopped. The wing was put on and the tank refilled with fuel. The moment of

truth was at hand as shown below!



The elevator was trimmed down for launch and the engine started. George released the Sailplane and off it went. It broke ground nicely and started up in the power climb right in the groove with no "Tuck Under" or "Dutch Roll" tendencies at all that I had been warned about. However, at 25 seconds into the power climb the engine sagged and quit (*the boogie man is always waiting for you, but then that is why we do these test flights*). The transition to a glide was quick and a gentle right turn was initiated. Response to elevator deflection was appropriate. I had been warned earlier that the Sailplane was very sensitive to elevator so I had limited the elevator deflection to about 75%. The Sailplane seemed a little slow to respond to rudder deflection, but really not that bad. I can not increase the rudder deflection without interfering with up elevator as can be seen in the above picture. The landing was very smooth, but quite long as the Sailplane is a real floater and slow to give up, even in dead air.

We did a series of static engine runs on the ground. We noticed considerable air bubbles in the fuel line to the spray bar, which is probably not normal for a crankcase pressurized fuel system. A new V-2 spark plug was put in just in case, but of course that didn't help. Thinking maybe the tank's fill and overflow tube caps were leaking air pressure, they were changed out, but that didn't help either. This is the original Series 20 McCoy 60 that I was flying in the Bomber at 2008 SAM Champs and it ran great. However, now it will not needle well at all causing the engine to fail to achieve max rpm. It almost has to be something with the Sailplane's new fuel tank.

I noticed a 2-56 washer laying in the grass under the Sailplane during this time. After I got home I found that one of the four 2-56 screws and washers that hold the tank in place as shown below was gone. It was probably lost due to engine vibration or maybe it wasn't very tight in the first place.



I just had to put in one more flight before quitting for the morning. So the engine was tuned up to run as best as it would and the Sailplane launched, but it quit again during the power climb on this second flight. The in flight

pictures are not very good because I really never got a good flight for George to take some pictures of. He did take the picture below of the Sailplane coming in on final, but is pretty far out.



He also got this picture of the Sailplane just floating along close to the ground. Again, the landing was very smooth and actually fun to do, but was way too long just as before. In order to land closer in, I will need to come in lower and go further down wind before turning on final because of the Sailplane's floating tendency.



George took this picture on my way back from retrieving the Sailplane from a long overshoot landing.



Lets see, what did we learn this morning? Base on the morning's two limited flight tests, the results show that the Sailplane (1) climbs in the groove quite well with no "Tuck Under" or "Dutch Roll" tendencies, (2) is balanced properly with a CG of 62%, (3) is stable, but responsive to control (*although a little slow to turn*), (4) transitions from power climb to gliding flight very smoothly, (5) is a real floater, and (6) lands like a dream. I feel certain that the Sailplane is going to be competitive in the Class C Ignition event after I bench mount the engine and get its fuel problem (*or what ever it is*) worked out. However, this still has to evaluated and proven in yet a second set of flights that will take place as soon I can get the engine running good again.....Tandy