



The Flightline



Volume 46, Issue 6 Newsletter of the Propstoppers RC Club AMA 1042 June 2016



President's Message

The fields are looking good and the members flying up a storm, mostly Elwyn in the mornings and Christian Academy in the evenings and weekends.

Let's have a good turnout for the meeting on Tuesday. Fly before we meet if you will then let us plan for the June Picnic scheduled for Saturday 25th.

Bring your Show & Tells too.

Dick Seiwel, President

*Agenda for June 14th Meeting At
At the Church Room, CA Field
Meeting 7:00pm till 8:30?
Flying before.*

1. Membership Report
2. Finance Report
3. Club Calendar Review
4. Picnic Plans
5. Show and Tell

Minutes of the Propstoppers Model Airplane Club May 10, 2016 at the Christian Academy meeting room

Call to order took place at 7:14 PM by Vice-President Chuck Kime

Roll call by membership chair Ray Wopatek showed 19 members and one new member present

Minutes of the April meeting as printed in the newsletter were approved

The treasurer's report was given by Pete Oetinger

Old Business:

Because of the popularity of the Brookhaven gym and low attendance at Tinicum, members decided to keep just the Brookhaven site for Saturday evenings next year. We will continue to fly at the Brookhaven gym after breakfast on Tuesdays from 10 to 12 AM when weather does not support outdoor flying.

Show And Tell:

Eric Hofberg showed a green dinosaur ornithopter. It is electric and propelled by flapping wings. After a steep learning curve he flew it in the morning for 1 1/2 minutes.



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Club Picnics

**June 25, 2016 from 3:00 PM to dusk,
and**

August 20, 2016 from 3:00 PM to dusk

Calendar of Events

Club Meetings

Monthly Meetings

Second Tuesday of the month.

Gateway Community Church at the Christian Academy. Doors open at 7:00

Next Meeting; 14th June at Church Meeting Room

Tuesday Breakfast Meeting

Tom Jones Restaurant on Edgemont Avenue in Brookhaven. 9 till 10 am. Just show up.

Flying after in the summer at CA or Elwyn Field 10 am. Weather permitting.

Indoors at the Brookhaven Gym in bad weather 10:30-11:30 See dates allowable.

Regular Club Flying

At Old Christian Academy; **Electric Only**

Monday through Friday after school till dusk

Saturday 10 am till dusk

Sunday, after Church; 12 pm till dusk

At Elwyn Field; **Gas or Electric**

Monday through Saturday 8 am till dusk

Sunday 12 pm till dusk

INDOOR Flying, see attached dates.

Special Club Flying

Saturday mornings 10 am

Wednesday Helicopter evening in summer

Thursday evenings in the summer

Tuesday mornings 10 am weather permitting after breakfast.

Check our Yahoo Group for announcements;

<http://groups.yahoo.com/group/propstoppers/>

Beginners

Beginners using due caution and respecting club rules may fly Apprentice or similar models without instructors at Christian Academy Field.

The club also provides the AMA Introductory Pilot Program for beginners without AMA insurance.



Ken Merlino showed a "Simple Soarer" foam glider from Flitetest. It has a removable propulsion pod that is interchangeable with other models.

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Adjournment took place at 8:23 PM

Dick Bartkowski Secretary

Propstoppers Picnic Saturday

25th June, 3 pm till Dusk

Food and Drinks provided

Need stand-in BBQ chef

Bring models, chairs, canopies and smiles, oh, and a jacket for the evening

Propstoppers Away

While we Propstoppers are blessed with two great fields they don't fit some of our endeavors. We SAM contest fliers fly in the vast Western Deserts, Dick Bartkowski is on his way to the Euro Champs, some fly in the Cape Cod wetlands and others the California coastal slopes. Jeff and the Schurmans fly some pretty big gas powered models at Lum's Pond State Park. Here is Jeff flying his Carden Extra 300 .91 powered aerobat <https://www.youtube.com/watch?v=9GJYsTfbAvk>



Model Retrieval Cape Cod Style

We are vastly expert in retrieval from trees hereabouts; some even bring catapults, bow and arrows and long poles to the flying field. But things are different in Cape Cod.

News from Crosby Beach Fly Boys.

Here in the maritime flying scene pesky trees are less apt to be a challenge than other forms of alternate landing zones.

Today I was able to observe a brilliant aircraft rescue. Joe Paul and Bill Woollen assisted Bill Scott in a harrowing rescue of his Red Biplane from the dangerous swamp. Bill fought the overpowering tide to bring back his beautiful plane from deep in the swamp. Bill's courageous launch into the unknown stunned us all.

Flying is good this week at Crosby Beach. The winds have been very tolerable and temperatures in the mid 60's. I understand you are having a bit of a heat wave in Delco. I know you are all getting up early to log those flight minutes while you can.

Happy flying,

Larry



Robin Hood, Al Tamburro at Elwyn, launches the retrieval line to snare a model in the tree. Martyn Harding with Dave's Boehle Giant does it the old fashioned way at CA field.

Model Retrieval Rose Bowl Style

Fellow SAM competitor and west coast flying buddy Dale Tower put his Winnie Davis 150 inch Big Gull into the top of a tree on the Rose Bowl lawn. Cost him \$200 to get it back but it was undamaged and he was pleased with the quick response. Lucky we could find someone to come out with expensive equipment after the end of the work day, but I guess free commerce finds its way.



Propstopper News

Propstopper Drew Resweber has received his Air Force Academy ring at the end of his third year at the Academy. Drew is a glider instructor and on completion of his fourth year will graduate as Lt. Resweber and defend our skies. His young lady friend is also a cadet.



University Support Redux ~ Continued

In the April newsletter I wrote about the status of the Drexel University Senior Engineering Student Project to compete in the SAE Aero Design International Competition. Chuck Kime and I have been attempting to support the activity of the five person team who had entered.

There are three classes of competition. They are Regular Class, the very large airplanes that carry up to 30lb of payload with 1 Kw electric power. The second is the Advanced Class which is similar to the regular but must "bomb" a target with the payload via FPV goggles.

The third class and that which this year's Drexel students entered is the Micro Class. These are small airplanes which must fit in a 6inch diameter carrying tube and can be assembled in less than 2 minutes. They are scored on the size of the case; shorter the better, and on the ratio of empty to flight gross weight; how much payload they can carry. Of course they must fly and are hand launched to fly to an upwind pylon, turn, fly to the downwind pylon, turn and land at the takeoff point.

Another requirement for this competition is the students must submit a report that predicts the performance and describes the design rational and supporting data. This report is required quite early in the process; early March. At the meet, in mid April, they make a presentation and the model receives a technical inspection. Points are lost if the design is changed from that described in the report.

Chuck Kime and I have supported these programs first at Widener and now at Drexel for about the last seven or so years. Dave Bevan had done it for very much longer. Our experiences each year are quite similar. At the beginning of the school year the Senior Engineering students must choose a project. The project lasts the whole school year so they are looking at an October to April/May duration.

Typically none of the students have flown, much less designed and built a model airplane, and none of them are aeronautical engineers but mostly mechanical engineers some electrical. So the whole process, while being engineering, is new to them. Furthermore, working as teams is usually new to them so they are faced with all the common human nature factors of working that way.

This year's Drexel team did not complete the design until the report was due in early March and then proceeded to begin construction. Of course there are delays in acquiring materials and they were held up by Drexel closing their post office during Spring Break, nevertheless the parts were coming together by the end of March. By early April they had it assembled so we made some test flights at CA field.

It was a handful to fly as the high aspect ratio wing coupled with the very short tail made it subject to tip stall a behavior which was accentuated by the low power; just sufficient for flight.

I had offered to go with them to Los Angeles for the competition but was concerned that they might not be ready so, as reported in April, I made a "strawman" model to further test the flying qualities. I took it to Elwyn and had "Magic Hands" Al Tamburo fly it. Of course he made it look easy and it did validate the design was flyable, albeit with an expert pilot. See the video here; <https://www.youtube.com/watch?v=BKVOes7UY8c> The SAE meet allows and indeed supplies expert pilots, but just to make sure I called an old friend, one of the best flyers in LA.

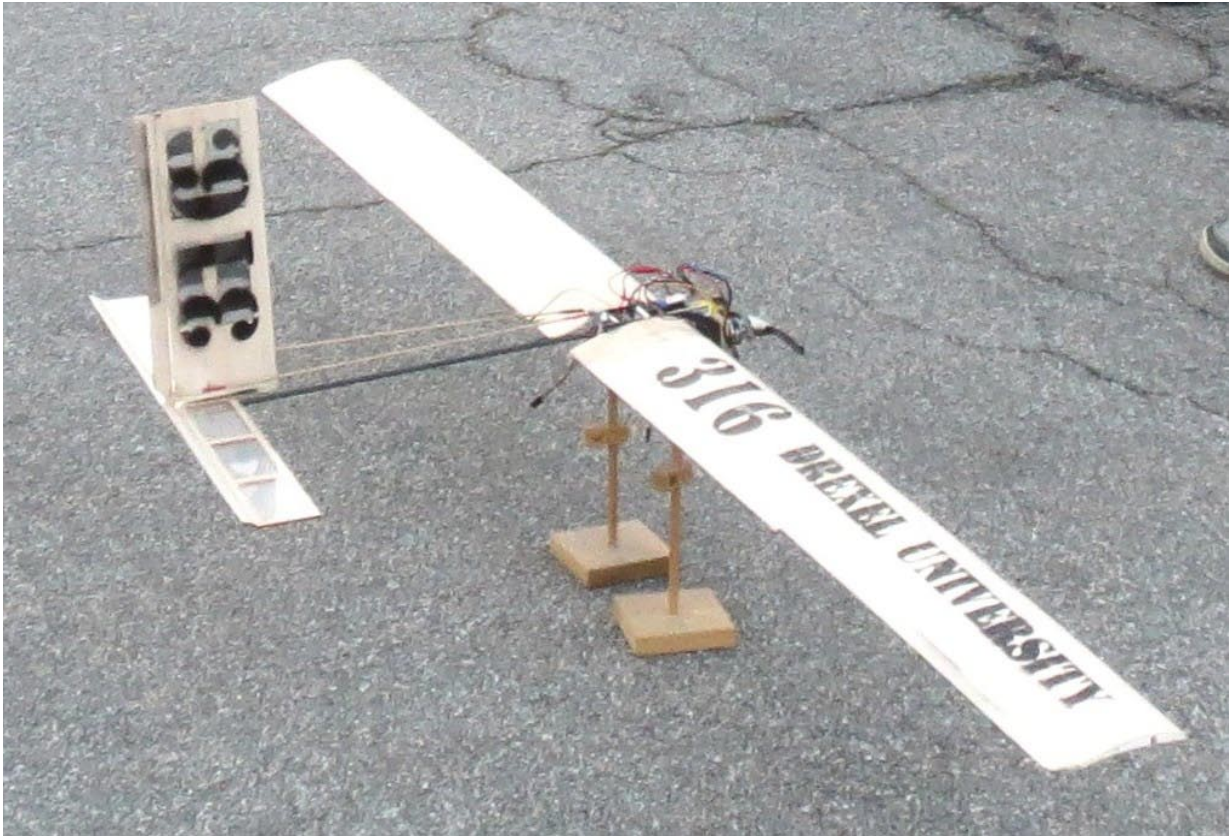


The meet was scheduled for Tech Inspection and briefings on Friday and contest flying Saturday and Sunday morning. The Drexel team flew to LA on the Thursday arriving at noon. They still had not made a satisfactory flight so I suggested they bring the model and all their equipment directly from the airport to the Rose Bowl lawn. Its large flat grassy area is ideal for test flying (except the no long grass) and I suggested it might be possible to make some test flights to further sort out the model. However when they arrived the winds were really high and the probability of breaking the model offset the possibility of improved flying performance so they waived off on that plan. However, they were missing some parts and needed to do some more work on the model so my West Coast Eating Drinking and Flying friend Mike Myers offered to host them at his house and workshop. So we all repaired to Glendale to spend a couple of hours fixing things.



Mike lives high in the Verdugo hills and his three car workshop faces south at the end of a cul-de-sac overlooking Los Angeles.





On the Friday the team made their briefing then proceeded to set up for the tech inspection.



I had arranged for my friend Tony Nacarrato to fly their plane. Tony is one of the best fliers in LA. He and his family ran the best model shop in Burbank for decades; <https://www.youtube.com/watch?v=6JoDVL1UWNk>

So the first thing Tony did was to make a thorough examination of the model, including watching some video of my test flights to examine the flying qualities challenge. He set up the transmitter with coupled aileron to rudder. And declared the model satisfactory and himself ready for action on Saturday morning.



Saturday dawned with 14 mph winds and the forecast was for them to continue all day. But there was no choice; the organizers said the event would proceed so the model was prepared for the first flight and the bonus points that would accrue in setting it up in the shortest time. This they did in the exceptional time of one minute.



But to get these points you had to make a successful flight so an attempt was made. But the model had insufficient power to fly upwind. Two more attempts were made but none of them made the required loop. However Tony did a magnificent job of flying in these difficult conditions although a gust just before landing resulted in some wing damage, but it was replaced by a spare. They were ready to fly again on Sunday.



On Sunday morning the winds had subsided and the flying conditions ideal. There would be only one round this day, the model flew perfectly and Tony even landed it at the judges' feet. video: <https://www.youtube.com/watch?v=Ts3-yJtomE8>



One of the really interesting parts of this competition is the Global nature of it. This year there were multiple teams from India, Canada, Mexico, Poland and teams from Egypt, Turkey, Brazil and China. You can examine all their models during the Friday tech inspection at the host hotel. Here is the winning Micro from the Warsaw Institute of Technology, in Poland.



After the meet the Chinese team gave their model to the Drexel team as they didn't want to take it back with them. What a beautiful model. Exquisitely designed and optimized it placed third in flight performance. This will represent a standard challenge for next year's Drexel team.

So the Drexel team was finally able to show their design would fly successfully around the course. But with more time for development and more power to handle the wind and higher payloads they would have competed for a higher position.

They finished eighth, a best ever for a Drexel Team.

The team then went on to compete in the Drexel University Mechanical Engineering and Mechanics Department Senior Projects competition where they won Third Place out of about fifty other projects.



But wait, there is another Drexel Senior Project we supported; The Rocket Glider

This team of three was assigned the task to design and demonstrate a rocket powered glider to be launched and sniff the air above nuclear power stations under emergency conditions. Here is the vehicle sitting on the launch pad. Note the wings fold alongside the rocket tube. When it reaches altitude they release to a position with ten degrees of sweep. The lower of the three fins is rejected along with the exhausted motors and part of the body. So it ends up as a high aspect ratio glider with a V tail.

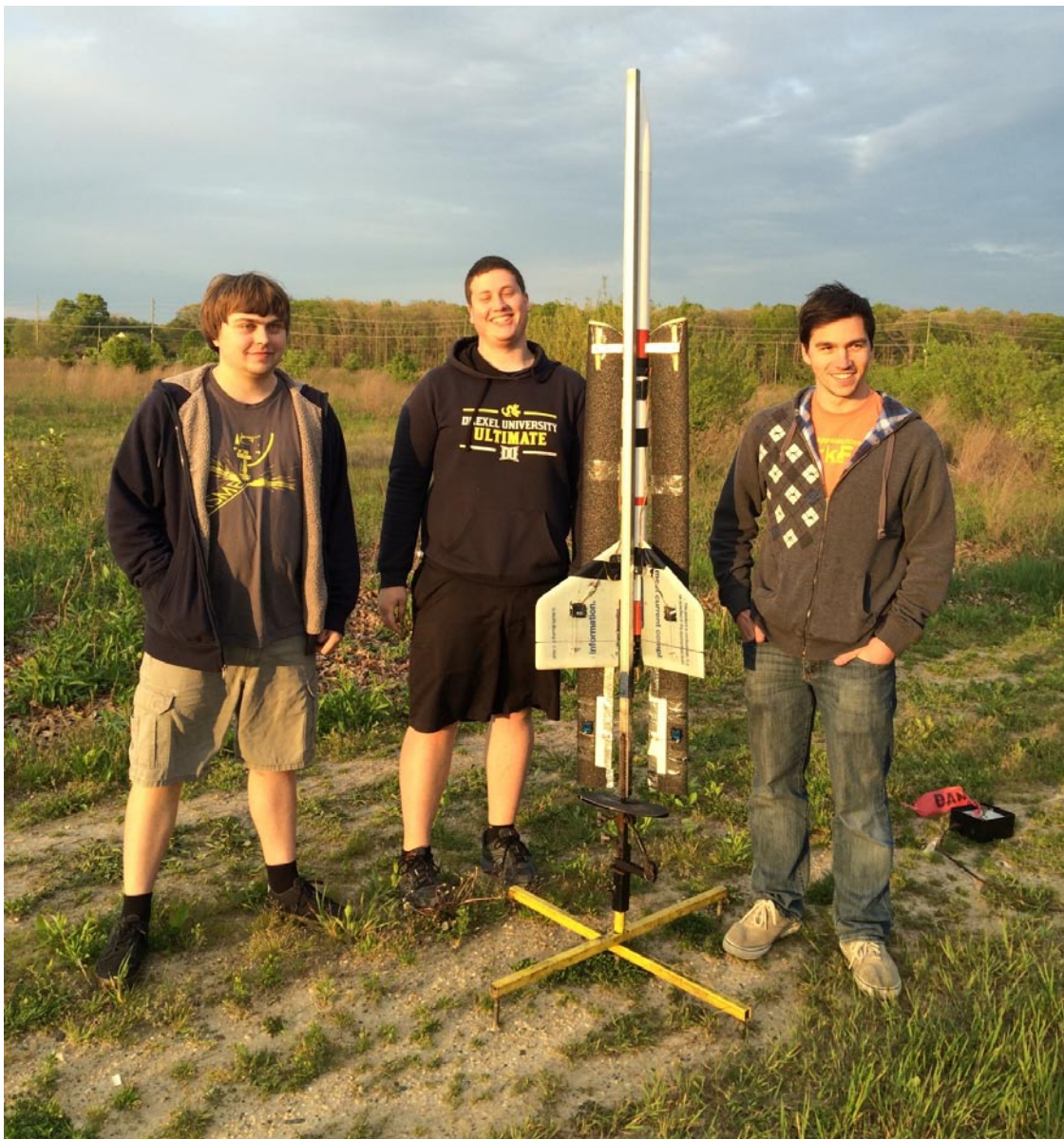
The students had developed a design and conducted a series of sub-scale tests:

Original unstable flight video - <https://www.youtube.com/watch?v=Xb49tRMPHUs&feature=youtu.be>

Thursday's first stable rocket launch - <https://www.youtube.com/watch?v=Fxr1LODSHnk>

Saturday's stable rocket launch with glide - <https://www.youtube.com/watch?v=99uuWhUMxbc>

At that time they asked for advice on the airplane side of the design and we helped them with wing design and construction. They already had a first rate rocket consultant.

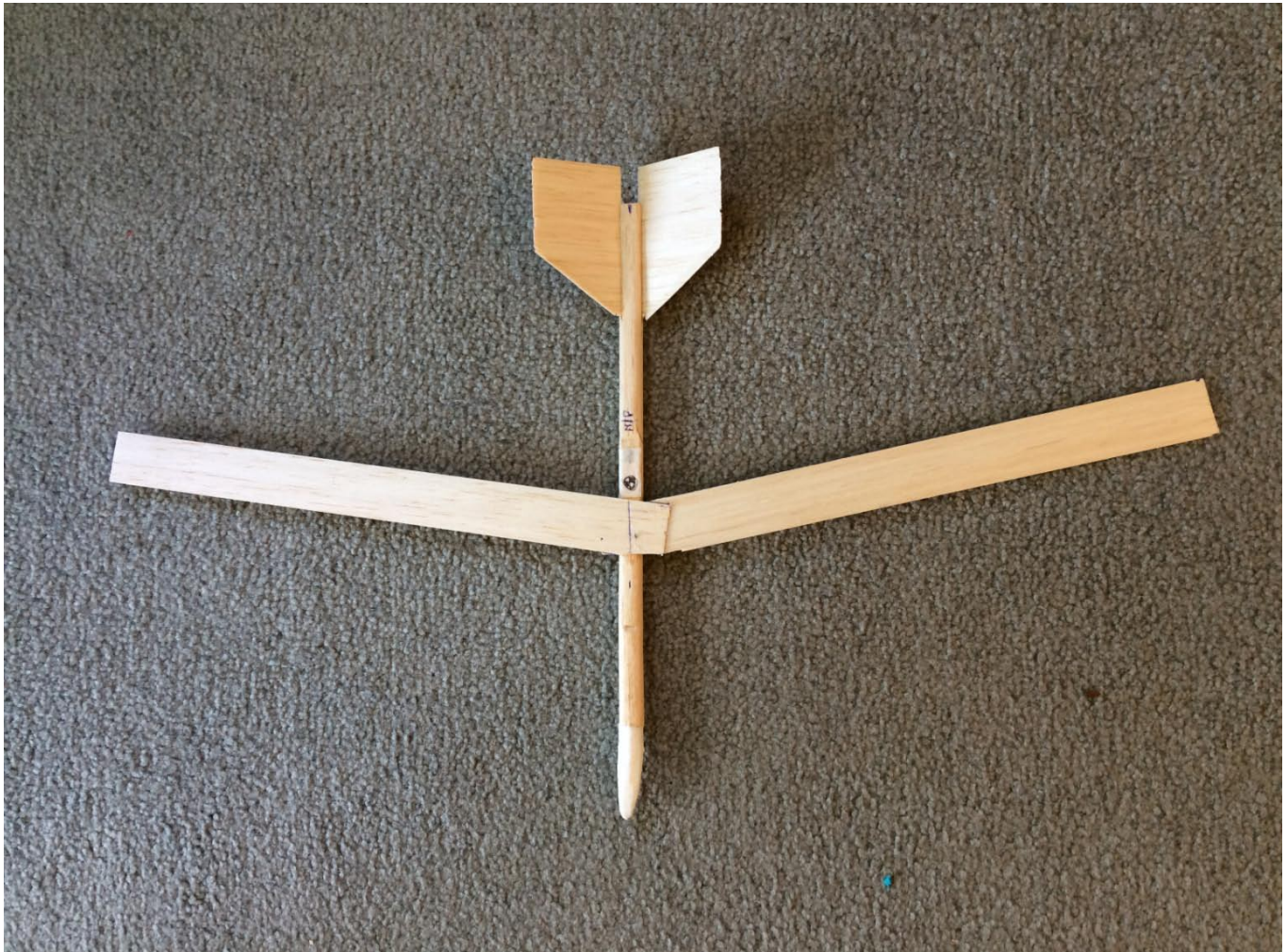
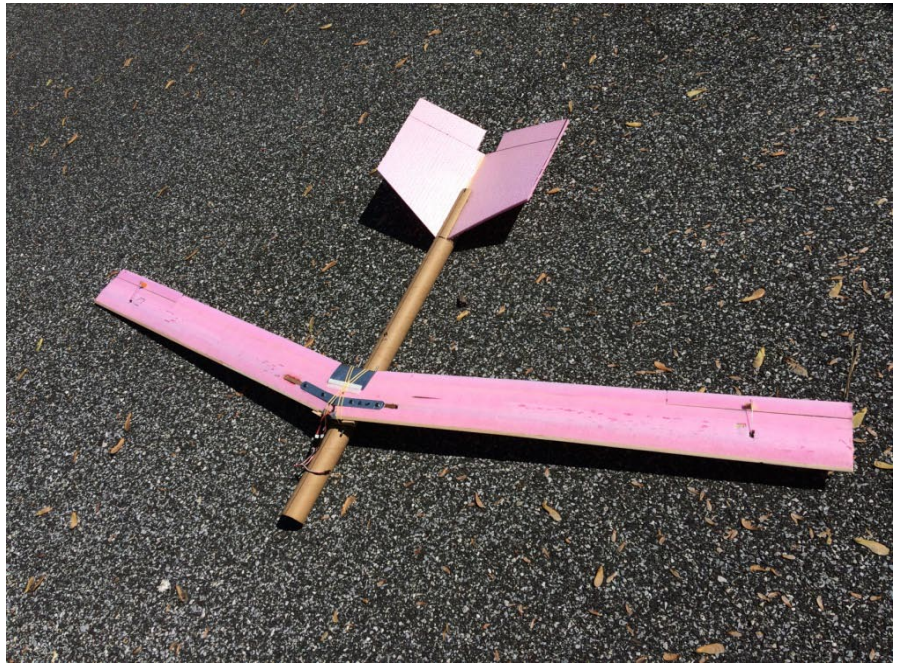


Their design featured fully automatic flight controls that would be activated when the rocket reached its apogee and the speed had dropped to a certain level. The matching of a full autopilot to unknown aerodynamic and dynamic properties seemed like a big risk to me. But since their wing was almost exactly like the SAE Micro design I decided to make my own "strawman" for this project too, using the wings from the Micro test article.

Here is the first part of the construction. To this I added a motor and radio gear all mounted on top of the tube fuselage so I could adjust the CG.

But, although I could do a rough analysis of the neutral point it was going to be inaccurate because of the difficulty in assessing the very low aspect ratio tail. So

I needed another means of checking for it and the best CG location. This 1/6 scale hand launched glider worked perfectly.



The next task was to fly the full up model, and this we did at CA field. This was two days before the final all-up system launch. It flew exceptionally well giving some confidence of the design.

But they had to fix another set of wings first.

The launch site was just off the Cross Keys Road in New Jersey. A very attractive site that is mostly used for the rocket club.

Assembling the vehicle was quite a complex task and took a good while. When that was all done the control volumes and couplings set in the autopilot system.



The CG had to be set and checked and the autopilot tumbled through all axes many times to set the range of motions. Then it had to be set level for a few seconds to establish "UP".



Finally it was ready to launch and the range safety officer did his thing and count-down.



A magnificent sight but unfortunately it came to grief. Just before shut down the wings unlatched prematurely and fluttered. This caused the nose section to become loose and then tip down giving a large nose down moment. This caused the rocket to pitch over into a vertical dive whereupon the wings fluttered again separating the nose portion, then fluttering to ground.

The team actually achieved 99% of their objectives. The rocket was stable in the climb. The fin and motors separated to plan and the separate aerodynamic test article proved the vehicle aerodynamically sound in performance and stability.

You can see the video of this flight here; <https://www.youtube.com/watch?v=1qjBQIFJHel>