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# The Transmitter

Suburban RC Barnstormers - P.O. Box 524, Bloomingdale, IL 60108

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**AMA CHAPTER 640**

**September 2018**

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<http://www.suburbanrcbarnstormers.com>

## **Coming in September and October**

September 10<sup>th</sup>, Member Meeting, Itasca Public Library, 7:00pm

September 16<sup>th</sup>, Fun Fly, Pratt's Wayne field, 9:00am Trim, 10:00am First Contestant

September 22<sup>nd</sup>, Interclub Fun Fly, Pratt's Wayne field, (Sat) 9:00am Trim, 10:00am First Contestant

September 24<sup>th</sup>, Board Meeting, Itasca Public Library, 7:00pm

October 8<sup>th</sup>, Member Meeting, Itasca Public Library, 7:00pm

October 22<sup>nd</sup>, Board Meeting, Itasca Public Library, 7:00pm

## **Details on Barnstormer vs Propmasters Fun Fly**

*By Scott Taylor*

We will be continuing our long running annual tradition to have a Fun Fly fly-off with one of our other local clubs, the Propmasters. The date for the Interclub Fun Fly will be Saturday September 22<sup>nd</sup>. This will give us an opportunity to practice at our next fun fly on September 16<sup>th</sup> for the event.

Since we will be hosting the event this year, we will be flying at our field, Pratt's Wayne Woods. Our guests gets to pick the event and the Propmaster's picket the infamous washer bomb drip.

Details for the event are as follows...

The pilot will take off and make at least one circuit around the field. The pilot

will then approach the drop zone to drop his washer.

The drop can be servo assisted or done by shaking the washer off of skewer attached to the aircraft. Your choice. After the drop, land in the center of the runway as near the marked spot as possible. The two distances are combined. The lowest combined score of the 5 best performers from each team will be judged the winner.

We will explore some potential mechanical drop devices at the next meeting.

Let get out there and practice on the 16<sup>th</sup>. See you there!

# Notes of the Suburban RC Barnstormers Membership Meeting

August 20, 2018

## ATTENDANCE

There were 12 members present and 3 possible new members visiting at the meeting held at the Itasca Public Library.

## OFFICER REPORTS

**President: Hector Rivera** – Welcome everyone. We have 3 possible new members Joe, Michael, and Dave.

Maywood Sportsman's gun club Thank you for the invitation we had lots of fun. Thank you, **Marty Schrader** for putting it all together.

On a sad note **Tom Jennings** passed on August 12<sup>th</sup>, we will miss you always.

Next meeting on August 10<sup>th</sup> and Board meeting on August 24<sup>th</sup>.

Fun fly's left

- 19 of August
- 29 of September with The Prop Masters

**Scott Taylor** said he was encouraged to see 3 visitors at our meeting. He was also encouraged by a visit to home depot where he had two employees ask him about the RC plane he had in the car. They proceeded to ask questions about flying and our flying club. This is a great reason to make sure we carry our club business cards, so we can share them with interested people.

**Vice President: Paul Kramer- Door Prizes-** carbon fiber, plug charger, parts washer, clamps, electric nut drivers and some miscellaneous item and freebees.

Maywood Sportsman's Picnic, we thank you Marty for developing the contest and designing the "Chucky".

Tom Jennings he was our early planner was schedule to come but he passed away, He will be well missed. Tim and Frances Crowe stayed all day. Also, thanks to all that came and helped: Hector and Ofelia Rivera, Scott Taylor and Gerry F. Even with the rain the park was full of families and the kids had some fun building their planes and entering the contests. It was a Great time for all. Thank you, Sportsman's.

**Treasurer: Bob Vance:** Bank balance we have \$6040. Nothing in and nothing out, we have business cards help your selves.

**Secretary: Ofelia Rivera-** nothing

## COMMITTEES

**Safety Chairman:** Need a new safety chairperson.

**Fun Flys:** Scott said for this passed fun fly Leno was there me and Paul we discussed bomb drop techniques and I won the contest.

**Entertainment:** Paul brought in a two-part RC Plane landing techniques video. Good show I leave you with the turkey winner Paul Lund and Ofelia for the rollover. Thank you all. Congrats to all the winners.



# Bits and Pieces Related to Our RC Model Airplane Hobby

by: Bob Sarley

Welcome to this issue of the “Final Approach”. These articles are intended to provide additional information and insight into our RC model airplane hobby. I hope you find the articles informative and useful (questions or suggestions for topics are always welcome).

The topic for this issue is: **Autonomous Flight – An Incident Worth Documenting**



My last “Final Approach” article described my Carbon Cub model from Hobby Zone and its intrinsic “Autonomous Flight” capabilities. I was intrigued by the technology and the way it was integrated into the relatively inexpensive model of the renowned Piper Cub deviate. I have subsequently logged many flights with the Carbon Cub and have exercised all of its autonomous features many times.

After experiencing an incident that occurred while flying the Carbon Cub at the Suburban RC Barnstormer’s flying field in Pratt’s Wayne Woods, I felt compelled to share the event with all of you.

To review the technology: The autonomous flight capability of the Carbon Cub S+ comes in three forms: 1) Holding Pattern, 2) Virtual Fence and 3) AutoLand. Holding Pattern, puts the airplane into a GPS-guided circular flight path approximately 35 meters (120 feet) above the GPS initialization take-off point. Virtual Fence creates an invisible boundary that when encountered, the plane will automatically turn around and fly back toward the GPS initialization point. AutoLand maneuvers the plane to an upwind stabilized approach to autonomously land near the GPS initialization point (plus or minus 3 meters).

**The setting:** It’s a warm Thursday night at the Suburban RCS Barnstormer’s flying field at Pratt’s Wayne Woods. The air is relatively calm with an occasional gentle breeze out of the Southwest. The Barnstormer’s club president, Hector Rivera, is there along with flight instructor Steve Thill and Merv, a student pilot. After initializing all the GPS settings on the Carbon Cub, I place it on the runway and input the location of the field and direction of the take-off roll via transmitter commands to the onboard GPS module. The Cub signals back that it is ready to take off via a wag of its control surfaces. I take off and start my climb-out and first turn.

**The Incident:** As I make my second counter-clockwise lap around the West to East flight pattern I switched to “Holding Pattern” just for kicks. I noticed the Cub did not immediately enter the circular flight pattern that it normally would when placed in that mode. I then realized I also had no control of the aircraft (when placed in the holding pattern mode, flight is fully autonomous and the pilot has no control of the airplane).

I began executing different switch settings in an attempt to regain control of the Cub that was now making a gradual turn into the wind coming from the South (the Cub is light and weathervanes in the direction of even the slightest breeze). I watched the Cub head towards the power lines and tree line that is South of the field.

The Cub was at approximately 150 feet and the SAFE® system kept it flying level at that altitude as it continued its unguided Southbound journey.

I announced (loudly) that I had no control of the model. Hector heard me and came over to assist if he could. By this time (approximately 3 minutes into the flight) the Carbon Cub was so far South of the field that it flew below the horizon established by the tree line and was out of sight (still flying at altitude) – YIKES!

Hector started to interrogate the map app on his I-Phone for roadways into the Southwest portion of the forest preserve so we could possibly retrieve the wayward model. Realizing the futility in trying anything else with the

radio, I turned off my transmitter and placed it on the bench. Our backs were to the flying field as we continued facing Southward.

**The revelation:** Steve Thill was busy flying the club trainer with Merv on the buddy box when he announced, "Hey Bob, your plane just landed!"

Hector and I spun around and to our amazement saw the Carbon Cub upside down on the flying field about 10 meters (30 feet) North of the runway! It had found its way back to the point of departure and landed in the grass (and then did a ground loop, as usual).

**Forensic Analysis of the Event:** Evidence suggests that the GPS module in the Cub had lost reception from one or more of the four satellites needed to determine its position (possibly due to interference from the power lines being approached on the Eastern leg of the pattern I was flying). Since the Cub was already in an autonomous mode, the receiver was ignoring commands from the transmitter. The receiver was isolated from commands from the ground and no longer getting guidance from the GPS module, so SAFE® just kept maintaining the model in a level attitude at the altitude it was at. The tendency to weathervane into the breeze coming from the South accounted for the gradual turn and subsequent heading in that direction.

The Spektrum GPS module is always searching for signals from four satellites when powered on, so one must assume that four satellite reception was re-established at some point during its Southbound voyage.

One of the safety features of the Carbon Cub is that when no RF signal is detected by the receiver, the controller switches into "Autoland" mode.

With the Cub's position now known by the GPS module and the home position still stored, the controller was able to direct the model back to the take-off point and execute an autonomous landing.

**Feeling Lucky:** What I thought to be the last I would ever see of my Carbon Cub model turned out to be an interesting exercise in GPS equipped airplane capabilities. Fortunately, during the extent of this excursion, the flight battery (3S-2200) had enough capacity at 50% throttle to bring the wayward Cub all the way home. I estimate the total flight time as somewhere between 6 and 7 minutes. I was too enthralled by the return of my model to remember to check the battery voltage upon its return, however, it did not go into low voltage cutoff.

Since this "adventure" I have made several flights with the Carbon Cub at parks with no problems. I have no way of verifying the cause of the alleged GPS failure, but will fly again soon at the Pratt's Wayne Woods flying field so I can possibly rule out the power lines as the cause.

We shall see . . .

End

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## The Transmitter

This newsletter is published monthly by the Suburban RC Barnstormers, Inc.

We reserve the right to edit all information forwarded to us. Permission is hereby given to reprint any article that we publish as long as proper credit is given.

Material can be submitted for publication: (1) at a meeting, (2) by mailing to Suburban RC Barnstormers, Inc., P.O. Box 524, Bloomingdale, IL 60108, (3) sending it to the email of the editor, Scott Taylor, at [taylorstr@core.com](mailto:taylorstr@core.com)

Articles must be received by the 4<sup>th</sup> Saturday of the month to be included in the following month's newsletter.

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