



The Transmitter

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

AMA CHAPTER 640

August 2017

<http://www.suburbanrcbarnstormers.com>

Coming in August and September

August 13th, Interclub Fun Fly, Springbrook Field, 9:00am trim, 10:00am start

August 14th, Member Meeting, Itasca Public Library, 7:00pm

August 20th, Open House, Pratt's Wayne Woods, 9:00am trim flights, 10:00am first flights

September 11th, Member Meeting, Itasca Public Library, 7:00pm

September 17th, Fun Fly #4, Pratt's Wayne Woods, 9:00am trim flights, 10:00am first flights

September 25th, Board Meeting, Itasca Public Library, 7:00pm

Interclub Fun Fly Sunday August 13th

Come Fly With Us!

By Scott Taylor

This coming Sunday, August 13th, is the date of our Annual Interclub Fun Fly with the PropMasters. This year the event will be held at their field in Naperville at the Springbrook flying field. Since they are hosting the event, we get to choose the event.

Initially, we thought a Limbo event would be fun, but after discussing the event with the PropMasters, it was decided the risk of hitting poles or the ground was too high. Instead, we decided on an old classic (for the Barnstormers anyway) the Whiffle Ball Touch and Go!

This event involves attaching about a 25 foot string to your airplane with a plastic whiffle ball tied to the other end. The idea is to pass over the runway and have the ball touch on a box marked off on the runway. Each pilot will have 4 passes. If the pilot can touch the ball inside the box, they will be award 3 points. If they touch anywhere else on the runway, they will earn 2 points, and if they touch anywhere else on the field, they will get 1 point. The first spot where the ball touches on a pass is the basis for the score.

After the whiffle touch, there is still a chance to earn a few extra points. Similar to the ball touch, on the landing, touching the wheels first in the box gets you 3 points, on the runway 2, and anywhere else on the field 1 point. Hopefully, no one will get less than 1 point!

If you were paying attention, that means you could earn a maximum of 15 points for a perfect run.

We need to have a good pilot turnout from our club to help us be competitive, so get out to the field and get practicing! There are balls available in the field box.



Bits and Pieces Related to Our RC Model Airplane Hobby

By: Bob Sarley

Welcome to the second issue of the “Final Approach”. This is the second in a series of articles that are intended to provide additional information and insight into our RC model airplane hobby. I hope you find the articles informative and useful (suggestions for topics are welcome, by the way).

The topic for this issue is **The Convergence-VTOL . . . A new breed of aircraft?**



Those readers that were at the June meeting of the Barnstormers will recognize this aircraft model (left).

It was described and demonstrated at the meeting, and is also the aircraft pictured in this publication’s logo at the top of the page.

It is the Convergence-VTOL from E-Flite and distributed by Horizon Hobby.

Arguably the most notable VTOL aircraft is the Bell Boeing V-22 Osprey (right). This design collaboration between the Bell Helicopter and Boeing Rotorcraft Systems companies first flew in March of 1989 and was delivered to the United States Marine Corps and Air Force in June of 2007. The V-22 Osprey is a multi-mission, tiltrotor military aircraft with both vertical takeoff and landing (VTOL), and short takeoff and landing (STOL) capabilities. It is designed to combine the functionality of a conventional helicopter with the long-range, high-speed cruise performance of a turboprop aircraft.



Some attempts have been made to duplicate this unique aircraft in the RC scale model arena, but when flying it, much skill was required to make the transition from VTOL “Helicopter” mode to horizontal “Airplane” mode and many an unsuccessful attempt resulted in the demise of the model.

I submit for your consideration the Convergence-VTOL® from E-Flite and Horizon Hobby. This model is a foam and plastic park flyer that can be purchased for \$249.00 for the bind and fly version and powered with a ubiquitous 3S-2200 mAh size battery. The only “assembly” required is the attachment of the vertical fins to the fuselage with the supplied screws (no glue needed). Get a battery, set up your transmitter, bind it and you are good to go. The dual characteristics of a tri-copter and twin motor airplane in a single aircraft have been placed within easy grasp of the interested RC pilot . . . but can it fly?



The Convergence-VTOL uses a delta-wing design with three brushless motors - two rotating motors on the wing and a fixed-position motor in the tail. In multirotor (helicopter) mode the wing-mounted motors are rotated up to the vertical position to provide lift and flight control along with the motor in the tail (emulating a tri-copter configuration). In airplane mode, the wing-mounted motors are rotated down to

the horizontal position, the tail motor is shut down and the aircraft's elevons take over pitch and bank control. There is no rudder (only two angled stationary fins) so yaw control in airplane mode is accommodated by differential thrust from the wing-mounted motors. This kind of dual functionality requires precise coordination among several aspects of flight control.



Advanced On-Board Controller to the Rescue: In my last newsletter article we explored the capabilities and application of on-board electronic stabilization units (controllers) to RC aircraft. Those capabilities have been expertly tuned by designer, Mike McConville, to the degree that almost any RC pilot can experience the fun of VTOL flight. After take-off, the transition between multirotor helicopter and traditional airplane flight modes (the most difficult task when flying a tiltrotor aircraft) is as simple as flipping a switch on your transmitter. The flight controller smoothly rotates the two wing-mounted motors into the correct flight attitude and activates the rear motor as needed.

Stability and Acro (Aerobatic) Flight Modes: Whether flying as a helicopter or as an airplane, two flight modes are at your disposal: Stability Mode and Acro mode, which are also controlled by a switch on the transmitter. While in helicopter persona, Stability Mode will limit pitch and bank angles and work to keep the model level when the sticks are released. The pilot is still responsible for vertical control via the throttle, but Stability Mode allows you to take off and land with confidence even with little or no multirotor flying experience (like me). Stability Mode automatically engages during the transition between helicopter and airplane flight and seamlessly maintains self-leveling and angle limits during the transition from one type of flight to the other. While in airplane persona, Stability Mode will keep the Convergence-VTOL flying level and limits the amount of pitch and bank angles to approximately 40 degrees. Throttle management and air speed is still the responsibility of the pilot.

In Acro Mode there are no angle limits or self-leveling in either of the flight genres. During multirotor flight, the model will behave like a conventional multirotor that pitches and banks in whatever degree and direction you want it to fly. It can flip and roll like other multirotor aircraft, if you have the nerve. During airplane flight, Acro Mode lets you perform a wide range of aerobatic maneuvers.

Power is ample and I seldom find myself past half throttle. As such, 5 to 6 minute flight times are a given. If you lose track of time, the controller will automatically revert the Convergence back to helicopter mode if it is in airplane mode when the battery is approaching low voltage cutoff levels. You then have about 30 seconds to lower it to the ground for a gentle touchdown (just like Neil Armstrong).

Here are some of the stats.

Flying Weight: 1.7 lbs. (771g)

Wingspan: 25.6 in (650mm)

Wing Area: 291 sq in (1883 sq cm)

Length: 26.9 in (680mm)

Motor Size: 2210-1450Kv Main, 2730 - 1550Kv tail

Recommended Battery: 2200-3000mAh, 3S 11.1V LiPo (not included)

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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.

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

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