



3-D Aerobatic Flying

Paul Battenberg

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Important Dates To Remember

June Fun Fly: June 4th, 2005 (Rain Date: June 5th, 2005)

August Fun Fly: August 27th, 2005 (Rain Date: August 28th, 2005)

Meetings are held in the Cafetorium of the Alexander Mackenzie Senior Public School, 33 Heather Road, Agincourt, usually on the first Friday of each month, Oct to May (subject to change - check the Flypaper) Meetings start at 8:00 PM

For the latest club news, photos and other points of interest please check out our web site at:



This is not to say that one can't fly down the runway, pull vertical, perform some manoeuvres, hover for a moment, do a torque roll or tail slide, etc. and continue on his way. It only means that one must not linger at a low level in one spot, which distracts and intimidates other fliers, as well as creating a safety hazard.

defined the flight line as being an area

beginning approximately 20 feet in front of

feet further out, running parallel to the flight

stations from the east end of the field to the

west end of the field, (in other words, an

imaginary east/west runway.)

the flight stations and extending 75 to 100

Paul Battenberg



A number of members have expressed concerns about 3-D flight activity going on while other pilots are flying. The following is MAAC's Safety Code for 3-D Aerobatic flying. I have spoken to our Zone Director who has indicated that 3-D flying at either end of the field behind the flight line over the bean or corn fields is quite acceptable. According to him, other clubs are following the same sort of practice. The couple of paragraphs

R/C 3-D Aerobatics (airplanes)

3D Flight is defined as any deliberate manoeuvre where the aircraft's flying surfaces are stalled and the aircraft doesn't move in a normal flight path. (e.g. aircraft hovering, blender, harrier pass). When operating any Radio Control model aircraft performing 3D aerobatics MAAC members will adhere to the following:

1.I will not deliberately perform any 3D aerobatics without announcing my intentions to the other flying R/C Pilots.

2.1 will not perform low level (less than 10 metres) 3D aircraft aerobatics along the flight line* while other aircraft are airborne.

3.1 will follow any safety rules as established by the Scale Aerobatics committee.

President

Notes From The Membership Office

Gord Schindler

I have just returned from a beautiful week in sunny Mexico. One of the most beautiful things to watch down there are the various soaring birds cruising the coast along the beaches. It reminded me of the long sunny days at the field and why I got into this hobby in the 1st place. To see something fly -anything- just gets me all pumped. It's getting closer! Flying season that is. Have you signed up for 2005 yet? My records show that about 65% of you have (based on 2004 membership). That means that 35% may be waiting for the nice wx. Keep in mind that membership in the club runs from Jan 01 to Dec 31 each year. Even if you sign up as late as April/May or even later, you are still only legal to fly until the end of December. Don't get caught with your antenna down on the first nice flying day! The May meeting is coming up on the 6th. \$\$ Bring money \$\$

I would like to welcome new members Glen Lundrigan, Paul Moore, Marcus Jones, Andre Duta, Robert Dzimbowski, Frank Lee, Simon Lee and Barry Chiang to the club. If I missed your name, Sorry! Welcome anyway. Hope to see you out for spring flying soon! The Wings officer has asked me to pass along the following "tips":

1. Lessons start the 1st Saturday after the Beauty Show (May 7)

2. All new members with wings should try and show up on a Saturday morning or Wed evening and fly at least once with an instructor to demonstrate proficiency.

3. Members who graduated last year -esp. late last year- should fly at least once with an instructor on their 1st flight of the year. It is not unusual to be pretty nervous on that 1st flight. Better to have an extra set of fingers close by than lose your 'plane. Over my years in the hobby I have seen it happen more than once.

4. If you are an experienced flyer and see someone you havn't seen before who looks real nervous, offer to help. Don't be shy.

That's it for now folks.

Please remember if communicating with me by E-mail (gords@idirect.com) it will help me if you put "RCFCT" or "FLYING CLUB" in the "Subject" line. I filter all my E-mail and this will help me to not lose yours.

Gord Schindler

Notes From The Treasurer

Guy (Groundhog) O'Reilly

On Saturday April 16, 2005, I had the pleasure of going flying for the first time in 2005. I also had many other first that day:

- First flight of a SPAD, .15 size ugly thing.
- First flight of a reasonably good .15 size combat plane.
- FIRST COMBAT CLEAN-KILL OF THE YEAR!
- First dead-stick that was immediately followed by numbers 2 and 3.
- First broken propeller.
- First time being late for an appointment because I was having so much fun flying toy planes that I did not see the time pass.
- First time in the dog house... well you know when you are late...

All this to say: what a great hobby!

On the following Sunday I was in Vancouver for 2 weeks and managed to once again visit the Radio Control Flying Club of British Columbia (RCFCBC for short!). The weather was perfect, only thing missing was a plane I could fit in my luggage so I could go flying.

Visit their site at: http://www.rcfcbc.com/

The RCFCBC also has a web-cam. It is used by members to see current weather conditions at the field: http://www.rcfcbc.com/web_ cam.php

I am off to Calgary for one week and I do not know if I will have time to catch any action out there, but I will try.

I acquired an ARF: The Ultimate Trainer 40 (TUT-40). I put it together with some modifications not called for in the instruction booklet (such as fiberglass on the centre section, changing the pushrods for flexible Nyrods, etc.) I decided on a trainer because I want to relax when I fly ... except in combat mode of course! Also I want to try float flying and these could be added easily to a high wing trainer.

Finance:

Let's talk at the club meeting of call or email... I am always happy to be of service.

The Treasurer, Guy (Groundhog) O'Reilly

This Month In Aviation History...

May 1, 1942

...Squadron No. 588 of the Soviet Air Force, an allwoman night-bombing unit equipped with Polikarpov Po-2 biplanes, is formed in the USSR.

May 3, 1907

...The Wright brothers are elected honorary members of the Vienna Aviation Club, Austria.

May 4, 1924

...The first helicopter flight in a closed circle is made in France by Etienne Oehmichen's helicopter No.2. The previous month, it established a world record by flying 1,182 feet (360 meters).

May 19, 1934

...The first flight of the Russian Tupolev Ant-20 Maxim Gorkii, at this time the largest aircraft in the world. Powered by eight engines, capable of carrying 80 passengers, it is used mainly as a mobile propaganda office.

May 25, 1905

...Ferdinand Ferber makes his first aerial tests in Chalais-Meodon, France with his No.6 bis glider fitted with a 12-hp Peugeot motor.

May 26, 1923

...Lieutenant H. G. Crocker lands at Gordon, Ontario, to complete a non-stop transcontinental south/north flight from Houston, Texas, of 11 hours, 55 minutes.

Don't Colour Me Gone

Dr. Robert Suding

All R/C fliers have gotten that "I can't tell which way it's going" feeling when learning to fly R/C. Several simple color trimming steps can help you fly your airplane better, whether you are a beginner or top dog in Pattern.

Most planes, especially ARFs, are covered or painted to look good in the store or pits. But in the air it's a different story. The situation is very simple: If you can't see it, you can't fly it.

To successfully fly an R/C aircraft, the pilot must have good orientation and distance perception. The human eye/brain estimates aircraft orientation based on the perceived position of the model's outer edges, and the relationship of these outer edges to the edges of any discernible trim markings on the plane's wings or fuselage. Distance perception, in turn, depends on a combination of one's perception of the aircraft's outside edges and its estimated orientation.

After you have located your airplane and estimated how far away it is, you must immediately recognize several attitude orientations:

- Is it flying toward me or away from me?
- Is it upright or inverted?
- Are the wings flat, vertical, or tipped?
- Is it flying horizontal, upward or downward?
- Is it flying parallel to the runway or vectored?
- Is it flying perfectly vertical or skewed sideways or fore/aft?

The following suggestions will help you with distance and attitude perception. Visual acuity and contrast perception diminish with age, but by using correct color concepts, even senior fliers will find that visual orientation of their aircraft can be consistently and reliably achieved.

Solid-Colored Aircraft

R/C airplanes are flown in all kinds of weather and background conditions. A solid-colored aircraft will sooner or later fly into a condition where it blends into the background, resulting in a complete loss of location and orientation since no edges can be perceived. The absolute worst, in my opinion, is a silver Mustang in a heavily overcast sky. Yellow cubs are tough to see when back lit by the sun. I had a dark green plane that would disappear when I landed with a background of green trees. Red Stiks and dark blue planes go invisible in late evening and storm conditions. A solid colored airplane is easier to cover, but it won't do you any favors up in the sky.

Wing & Horizontal Stabilizer Shades

The top of the wing and horizontal stabilizer is normally lit by sunlight. The bottom of the wing and horizontal stabilizer is shadowed. Coloring the top lighter and the bottom darker keeps this same relationship even in changing lighting conditions.

ARFs are classic blunders in coloring. Either they have identical top & bottom wing colors, or they put some token color on the top of the wings and leave them white underneath. They look good in the store, but don't help the beginner at all. I always recommend that beginners cover the bottom of the wing and the bottom of the horizontal stabilizer with dark blue contact paper before the next flight.

When flying at a distance of 500 feet or more (depending on the size of the model and lighting conditions) you can't see colors, because the cones of your eyes that do the color perception are 2,000 times less sensitive than the rods, which perceive illumination. In these circumstances, your gray-scale vision (your perception of lightness and darkness in a black-andwhite image) provides your orientation and depth perception, not color. Any series of adjacent colors on your aircraft that are intended to facilitate orientation should therefore be gray-scale opposites. For example, a series of bands consisting of red, yellow, blue, and then white is desirable. Don't assume a series of "color opposites" such as red, green, blue and black will be effective These all have the same dark gray-scale shade and will show an equal tendency to disappear in a deep blue or heavily overcast sky.

If you use the wrong series of color bands, you won't know how far away your aircraft is, and you won't even know which way it's heading to bring it pack. Also, don't rely on intricate patterns. They blend together to form edge-less fuzz approximately 100 feet away. You can test potential color schemes for gray-scale perceptibility by video taping and playing back alternative color schemes on a black & white TV or on a color TV with the color control turned down.

Actual Patterns to Use

The best color scheme for beginners that I have found is a combination of large starburst patterns on top of the wing and horizontal stabilizer, and a solid dark color underneath the wing and horizontal stabilizer. Beginners consistently become perceptually disorientated when flying at a distance, especially when the airplane flies at a 45 degree angle away or towards the pilot, since the aircraft silhouette is identical. With the starburst pattern, all the beginner has to do is slightly roll the wings towards himself, and the starburst pattern becomes an arrowhead, pointing in or out, the direction of flight.

Start by covering the bottom of the wing and horizontal stabilizer with any dark color. The exact color could be black, deep red, dark blue, or green, it doesn't matter; they will be the same gray-scale color at a distance. Then put a 2" strip of some light color along the leading edge of the bottom. Do the same for the bottom of the horizontal stabilizer, only making the light strip about 1" wide.

The base color of the top of the wing must be a very light color such as white, yellow or some other very light color The starburst pattern starts out at the center of the wing, from 3/8" under the wing leading edge to about 1" back from the leading edge at the top. Then it is a large "pie slice" to the wing tip, where it extends from 3/8" under the wing leading edge to the trailing edge on the top. A second pie slice of a different dark color extends from the center of the wing to points 1/3 and 2/3s out on the wing. Both sides of the wing are colored like this as is the top of the horizontal stabilizer.

Landing Considerations

Landing requires keeping your wings flat and knowing where you are in the landing approach. You are generally close to the airplane during the later stages of the landing approach, so your color perception is improved, but the wings will be edge on to your line of sight. The leading edges should be should be very prominent against any background such as blue sky, white clouds, dark overcast, distant mountains, or green trees. All of these items have spectral lines toward the higher frequency blue or green region, so a very simple solution would be to have a low frequency color such as red or orange on your wing and horizontal stabilizer leading edge. At the field that I fly at in Colorado, ARFs with blue wing edges are almost invisible when a low approach from the West dips the plane visually below the mountains, resulting in very klutzy landings by beginners.

The leading edge red or orange pie slice is wrapped around the leading edge so that it has the maximum area of visibility when

Don't Colour Me Gone

continued...

edge on. The 2" strip of white on the bottom of the wing near the leading edge will become visible during the landing flare, aiding in precision landings.

I prefer a white background on the top of the wing & horizontal stabilizer, with a bright red leading edge pie slice and a metallic blue inner pie slice on trainer airplanes. The same metallic blue under the wing looks nice, but any dark color works fine

Fuselage and Rudder Coloring

The same coloring rules apply to the fuselage. Keep the top of the fuselage light, and the bottom dark.

The sides of the fuselage should aid you in flying horizontal passes. A solid color fuselage is very difficult to keep straight and level because all the aircraft reference lines are curved. Light blue and white fuselages (a favorite ARF color scheme) blend in with the sky and clouds too well and will become invisible under some lighting conditions.

Draw a line along the thrust line of your aircraft, roughly splitting the top & bottom of the sides in half. Make the top half of your fuselage sides a light color. Make the bottom half a dark color, usually one of the wing pie slice colors.

Analyze how you fly. Beginners, and experts who fly inverted much of the time, should make the fuselage line color demarcation exactly follow the thrust line. Beginners fly airplanes with lifting flat bottom wings, so the aircraft fuselage side flies a straight line. The expert flies an airplane with symmetrical wings, so he flies in a slightly raised attitude to maintain level flight, whether upright or inverted. Therefore he should also have the fuselage line color demarcation exactly following the thrust line, and when doing a horizontal pass he should maintain an equal rising thrust line sight picture whether upright or inverted.

The interesting situation is the beginning aerobatic pilot. His routines do not include horizontal inverted passes, but his maneuvers do include many horizontal flight components. He will usually be flying an aircraft with symmetrical airfoil wings, so the aircraft will be moving through the air with a slight upward orientation. He should offset the fuselage side color demarcation upwards at the tail of the aircraft, by about an inch. Now he can practice his horizontal passes by keeping the fuselage side lines parallel with flat ground.

The vertical stabilizer and rudder should

have very wide horizontal bands of color. Make the top of the horizontal stabilizer the same color as the wing tips. Then put a light colored band, and below this a dark colored band, usually the same color as the inner pie slice on the top of the wing. The base color of the vertical stabilizer and rudder should be the same light color of the wing.

Another variant for the vertical stabilizer and rudder that works well on trainers with very big tails, such as the Kadet series, is a starburst pattern like on the top of the wing. This aids the beginner in determining the direction of travel when flying at a distance, when the tail starburst pattern becomes an arrowhead pointing out the direction of flight.

Looping

Consider what the usual looping problem always is for the beginning aerobatic pilot. The pilot does not begin the loop with his wings flat, and corkscrews in or out. Proper coloring of his low wing or mid wing airplane can be a major help. Make the wing tips stand out. I usually make the outer 2" of each wing and 1" of each horizontal stabilizer the same bright red that I color the leading edge. If you follow my advise above on the wing bottom and the fuselage sides, the wing tip can be visually correctly placed for a perfect loop. If the wing tip is too high, resulting in a corkscrew out, the pilot will see the dark wing bottom. If the wing tip is too low, resulting in a corkscrew in, the pilot will find that the wing tip blends too well with the bottom of fuselage side. The correct sight picture will be the wing tip cleanly placed against the upper lightly colored fuselage side. Look at the IMAC or Pattern airplane pictures in R/C magazines. They always have a dark color on the top half of the fuselage side, into which the wing tip blends, causing looping problems.

Geometric Shapes

Humans can recognize different geometric shapes about 1/10th of a second faster than colors. I use this phenomenon to help me with the vertical rolls performed in advanced aerobatics. Instead of a solid dark color on the bottom of my wing & horizontal stabilizer, I put 4 large circles on the bottom of the wings and 2 large circles on the bottom of the horizontal stabilizer. The noticeably faster recognition of the round shape vs the line shape aids me in nailing the vertical rolls.

A number of people at my field have copied my bottom circles without knowing the reason why I use them. The solid colored bottom is preferred unless you are doing vertical rolls.

Sunglasses

Several years ago I flew with some expensive Serengetti Driver sunglasses. These had a red tint to them, I guess to cut down on the ultraviolet region. I lost visual perception on a solid dark blue airplane during a landing approach and crashed. Fortunately they were stolen at a hobby store about a week later, and I got some RayBan aviator sunglasses with a blue-gray tint. What a difference!

Red is at the low frequency part of the visual spectrum, and blue is at the high frequency part of the spectrum. Red or Yellow tinted sunglasses reduce all colors to high contrast shades of gray, making your aircraft in the air appear completely different from the appearance of your aircraft at home or in the pits. Grey, light blue or light green tinted sunglasses make the airplane in the air look just like the plane in the pits, and because your vision is extended into the high frequency part of the visible spectrum, you will have twice the visual perception range!

Final Thoughts

- Evaluate color schemes for visibility first, beauty second. Dark colored airplanes are more difficult to see in overcast skies and in the evening.
- Scale planes are a special problem. War birds were colored to avoid detection, just the opposite of R/C planes. Avoid flying scale colored planes until you a very experienced flier.
- Avoid dark colors on the fuselage where your battery & receiver is located. The heat buildup can result in loss of battery capacity and premature radio failure.
- Don't fly when someone with a plane identical to yours is already flying. ARFs and yellow Cubs are particularly susceptible to this problem. Several years ago two fliers were flying with identical ARFs. When one of the models landed, both modelers went out to get the plane. Much to the entertainment of the folks in the pits, one modeler discovered the his plane had crashed out in the field 5 minutes previously because he had lost track of which airplane was his, and he was "flying" the wrong one.

Dr. Robert Suding - Designer & Manufacturer of the Ultimate Charger II

Beauty Show Info

Flypaper

It is time again for our Annual Beauty Show, which takes place during the May General Meeting. Business is kept to a minimum so that most of the time is spent admiring the new models for the upcoming season.

The following information is for those people who have not attended or entered a plane in our Beauty Show before, and also as a reminder to the rest of you.

Any club member may bring their newest creation to display at the show. After admiring all the entries, we vote on the aircraft of our choice. During the break we get to sample some of Gerry Steckling's special Black Forest Cake.

Rules for entering a model are as follows:

- Any paid-up member may enter as many aircraft as they wish. There are no entry fees.
- 2) All aircraft must be constructed from a kit, from plans or scratch built by the person entering the model. No ARF's (Almost Ready to Fly) or ARC's (Almost Ready to Cover) allowed.
- An aircraft from a previous year may be entered as long as it did not win any standing in any previous year.
- The categories are the same as last year. There is no differentiating between Sport and Scale
- 1) Engine size .50 cu. in. or less First, Second & Third place *
- 2) Engine size .51 to 1.00 cu. in. First, Second & Third place *
- 3) Engine size Over 1.00 cu. in. First, Second & Third place *
- 4) Best Unfinished First only
- 5) Best of Show Obviously only one

* The number of places may change depending upon the number of entries.

Prizes will consist of a plaque and possibly a cash award. Good luck to everyone.



