



Volume 18 – 04

www.FlyingClub1.org

April 2018



The Privileged View

Steve Beste, President

Maker Faire. When something breaks, who you gonna call? If it's your car or your Cessna, you put it into the shop and get out your checkbook. But if you fly an experimental or Part 103 aircraft, it's not so simple. That's why - when newbies ask me about our sport - I find out if they're tinkerers and do-it-yourselfers. If all they bring to a problem is their checkbook, then they're better off going with the Cessna. The tinkerers and builders, though, they're my kind of people. That's why I went with Dick Martin to the annual Maker Faire at George Mason in mid-March.



I thought we'd find a modest event that focused on 3D printing for adult hobbyists, but I was *so* wrong. They had 140 exhibitors filling three buildings. With several thousand visitors, there were lines outside the buildings by mid-afternoon. Yes, they had 3D printers, but so much more. And so many kids! The focus of the event was clearly on bringing young people into the world of making stuff.

The cleverest exhibit was the one shown below. They set up four tables with junk computer gear and told kids to just take things apart. Don't worry about putting anything back together again. It's all junk! Rip it apart! See how it's made! Do it! It looked like a destruction derby, with laptops and printers and even a sewing machine being reduced to screws and plates. The exhibitors kept bringing in new junk like waiters at an all-you-can-eat buffet. What fun! Whatever it was, didn't you always want to take it apart? I sure did. I still do. Putting back together has always been optional.



Another large stand was teaching kids how to solder electronic parts. They had six stations set up with soldering guns and instructors. The kids had the same intent look that you see on the boy in the above picture.

They had a net cage where people could fly their quadcopters. Dick Martin brought his and had a fine time flying it, as you see here.



Dick Martin flies his quadcopter in the cage

I talked at length to a flier who touted the features of his \$450 DJI quadcopter. You may know nothing about quadcopters, but you'll recognize his advice. "DJI is a great brand, but if I were you, I'd spring for the next step up, the \$850 model." We always want the next step up, don't we? I'm betting that next year, Dick will have a different quadcopter, the one with the really cool *green* rotors, not these old-fashioned yellow ones.

An old flying friend of mine, Samer Najia, brought his superb flight simulator. I've never seen one so fancy. All of the gauges work. It was so popular he had to have an assistant limiting people to 5 minutes per turn.

In the picture, it's set up to run XPlane 10, simulating a Cessna 172. This young pilot is heading for Bay Bridge Airport from the northeast.

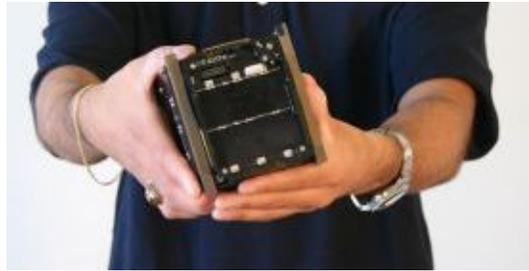
Alas, he crashed on landing. The next guy crashed on takeoff as he tried to steer down the runway using the yoke. (No, no! Use the pedals!) I hope the crashes didn't discourage them. And I hope that Samer has fewer crashes with his real students, he being a CFI.



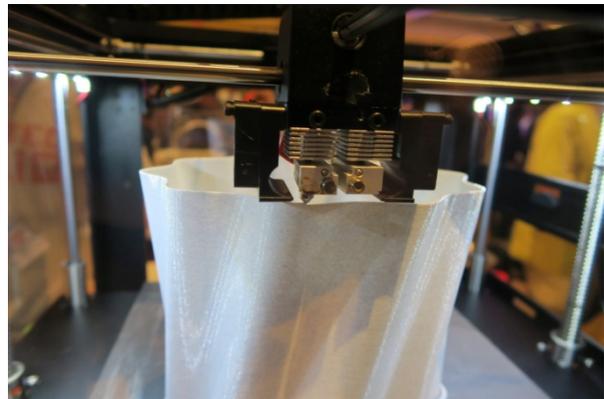
One whole building was devoted to robots at every scale. This robot submarine was made from a water bottle. Aside from this tank, they had about six arenas where people demonstrated their robots. Off to the side, some younger kids played in a pen with an enormous supply of Legos.



Not to be outdone, the students from the Thomas Jefferson High School for Science and Technology showed a mock-up of the cubesat that they will be launching into space next fall. Cubesats are small standard-size packages that changed the whole satellite business by letting small-scale operators into space - even high school students now. The TJ satellite will cost \$100,000 to launch, and they've already raised the money. For a fun introduction to cubesats, listen to the Planet Money podcasts about them. Click the **Listen** button below.



And yes, they did have 3D printers. Here's one making a vase. It turns out that even the Loudoun County Library has [a 3D printer you can use](#). The technology has become that common.



Beyond all the gizmos, though, what I loved about the Maker Faire was the message that rang from every display: *We can do stuff! Just look at the cool stuff we can do!* We are so blessed to live in a country that nurtures that idea. If you ever have any doubt, if you fear for the future of the country, come to the Maker Faire next year. You will leave reassured and inspired.

Fly safely,

Steve



P.S. This Maker Faire at George Mason is just one of 30 such events around the world. See the short video at MakerFaire.com. 200,000 people annually attend the two flagship Maker Faires in the Bay Area and New York. 50% attend the event with children.

This Month's Fly-In Destinations

To encourage all of us to get in the air more, the following is a list of fly-ins I found within (about) 100 NM of the Warrenton Airpark which are occurring in the next month. Sources are: The [EAA Calendar of Events](#), [www.flyins.com](#), [www.socialflight.com](#) and the [Virginia Department of Aviation Calendar of Events](#).

Date	Event Description	Location	Distance from 7VG0
Sat, Apr 7 / 9-11:30AM	Lancaster Airport Fly-in Breakfast and Presentation. Breakfast until 10:30AM. Presentation 10:30-11:30AM (Aerospace Engineer Jerry Lockenour).	Lancaster Airport (KLNS)	112 NM
Sat, Apr 7 / 7:30-10:30AM	Fly-in breakfast social	Suffolk Executive Airport (KSFQ)	131 NM
Sat, Apr 14 / 10AM-2PM	Annual fly-in breakfast and lunch	Tappahannock-Essex County Airport (KXSA)	64 NM
Sat, Apr 14 / 8-10:30AM	EAA 518 Fly-in Drive-in Breakfast	Mifflin County Airport (KRVL)	121 NM
Sat, Apr 21 / 11AM-12:30PM	EAA Chapter 1563 Monthly Meeting	Gordonsville Municipal Airport (KGVE)	35 NM
Sat, Apr 28 / 8:30-10:30AM	EAA Chapter 339 and Commemorative Air Force Old Dominion Squadron Fly-in pancake breakfast	Franklin Municipal Airport (KFKN)	125 NM
Sun, Apr 29 / 9AM-1PM	EAA Chapter 426 Fly-In (Breakfast, Young Eagles Flights)	Greater Cumberland Regional Airport (KCBE)	73 NM

Also, EVERY Saturday and Sunday through April 29, the Ocean City Aviation Association (KOXB - 127 NM from the Airpark) has hot, cooked-to-order breakfasts from 9AM until noon. Requested donation is \$8, which goes to fund their activities. See <http://www.oceancityaviationassn.org/hot-breakfasts.html>.

Debunking the Misconceptions in Flying Part 3

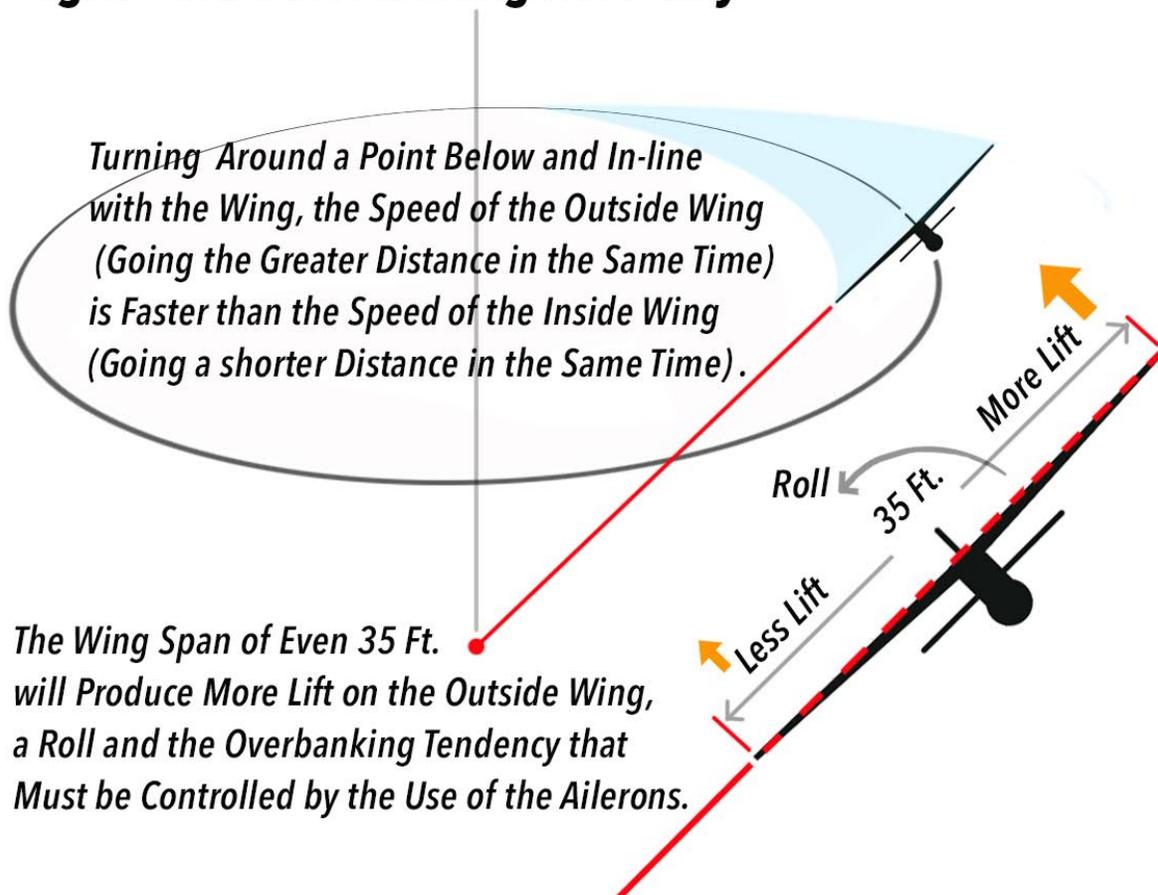
By Jim Heidish

This is the continuation of articles that have appeared in the past months' newsletters: *Debunking the Misconceptions in Flying*. Through writing and illustrating, I am presenting some of the stand-out misconceptions and stating what is wrong. Then I will present what I see as the correct concept/principles and how they apply to our everyday flying. This month is about one of our basic maneuvers, the banked turn and how some aircraft designs have a tendency to over-bank.

NOTE, these are my conclusions based on years of study and knowledge acquired through experimenting and flying experience. If one does not agree or understand, it should always be questioned and/or made clear! Never take it for granted!

Over Banking Tendency (OBT)

Fig. A The Overbanking Tendency



Over Banking Tendency (OBT) Misconception

The reason for this tendency appears in many FAA and published training manuals, online articles, books by aviation experts and is taken for granted by most pilots as true. It states that the reason for over banking in a turn is because the aircraft is turning around a point below and in line with the wing span. As it turns around this point the speed of the outside wing is faster and creating more lift (it travels a greater distance in the same time) than the slower inside wing creating less lift (it travels a shorter distance in the same time) and produces a roll and the over banking tendency that must be countered by the pilot with use of the ailerons. Also, it is stated by some that there is a horizontal centrifugal force component in flying a banked turn. (See Fig. A)

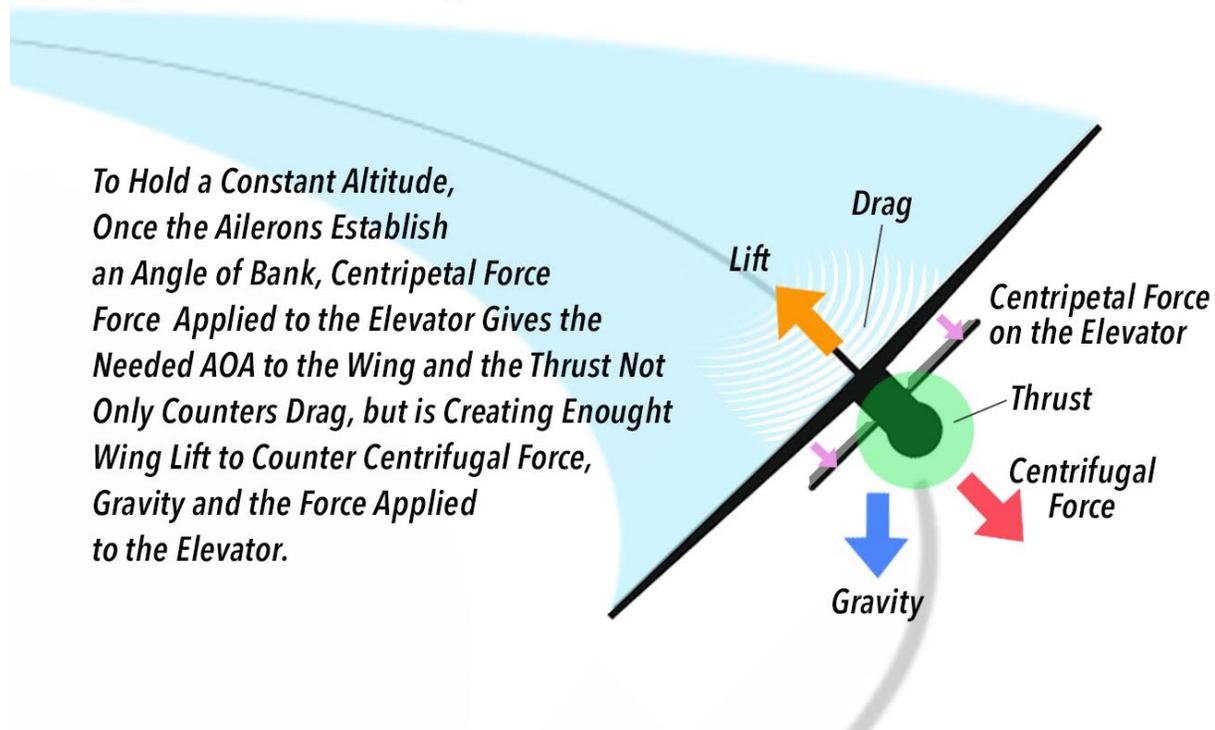
FALSE!

Yes, many aircraft over bank, but this is NOT the reason!

We do not turn around a point on the ground! Flying an aircraft is not like driving a car! A car is in the 2-dimensional world where turning around a point, like stated above, would apply. Also, there is NO horizontal centrifugal force component in flying a banked turn.

So what is happening? First we need to look closer at the banked turn.

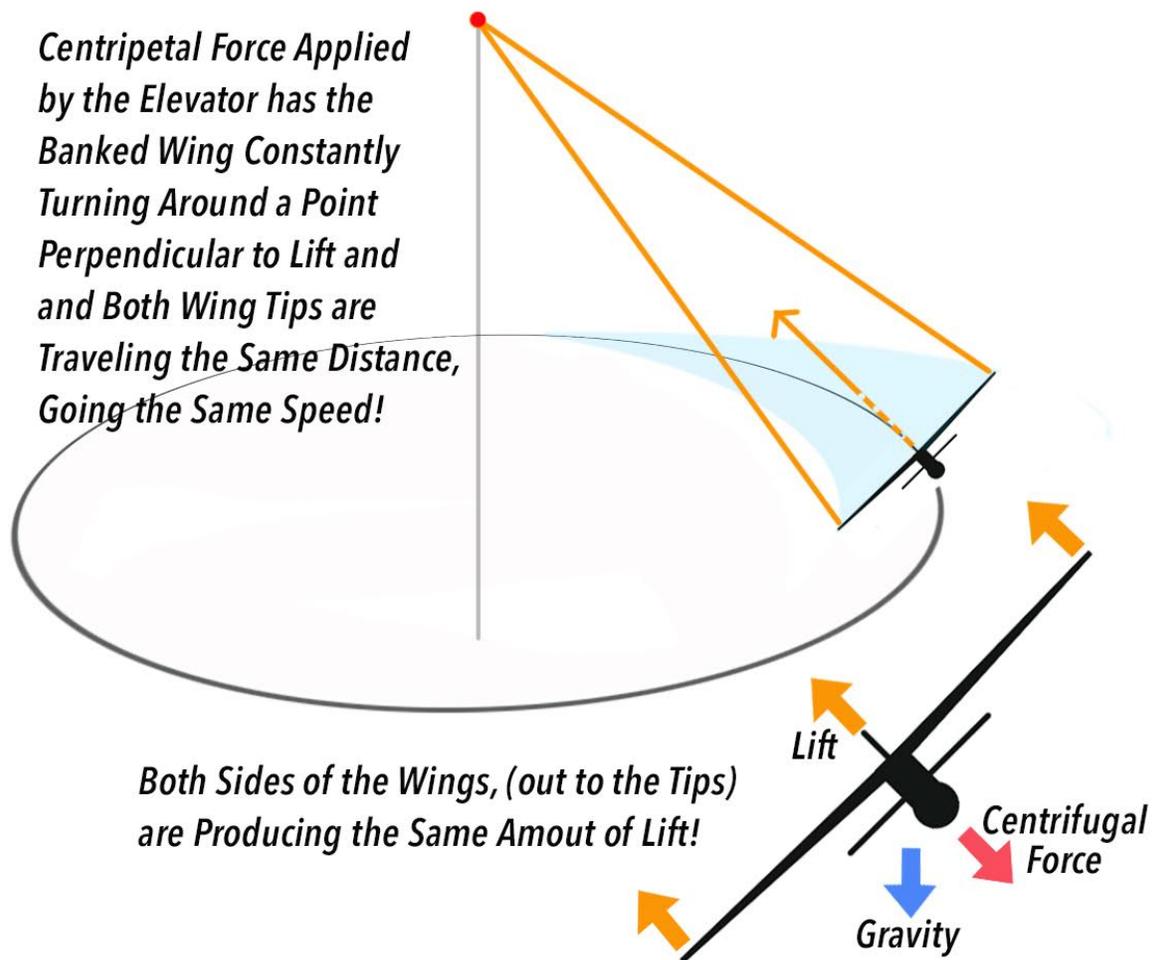
Fig. B Forces Acting on a Aircraft in a Banked Turn



What is Happening in a banked Turn?

We fly with our wings in a 3-dimensional world of air. Wings produce lift within the dynamic/dimensional environment of gravity, thrust, drag, control loads, and centrifugal forces. A lot is going on in a banked turn. Even though we experience forces in level flight, when maneuvering or changing direction we encounter centripetal force (*towards center*) on the elevator and its resulting and stronger centrifugal force (*away from center*) on the total airframe. Once banked, the centripetal force applied by the elevator has the banked wing constantly turning and at the same time the wing is lifting to counter centrifugal force, gravity, and the elevator force itself. A banked turn is a constant change of direction with centrifugal force as a major force, but many other forces are in play. (See Fig. B)

Fig. C Aircraft in a Banked Turn



Wings in a banked turn.

Because we constantly need lift to fly, and know lift is perpendicular to the top of the wing, in any banking turn, the center will always be above the wing. Each side of the wing is the same distance

from that center, traveling the same speed and producing the same amount of lift. Lift is not only countering gravity but also the centrifugal force, and that centrifugal force is lined up with and 180 degrees opposite the direction of lift. The only time it would ever be considered a horizontal centrifugal force component would be flying a 90 degree very, very high G and high stall speed banked turn where the wing span is vertical. (See Fig. C)

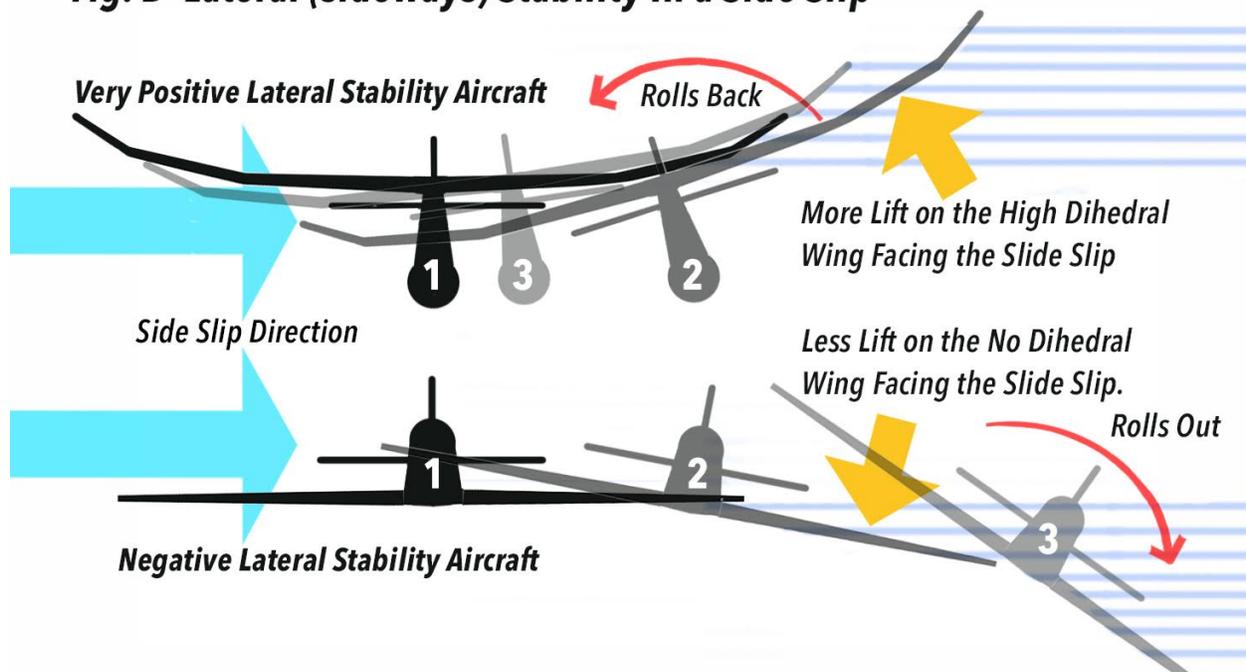
Note: In a slipping or skidding uncoordinated turn the centers are off a little, but still considered almost perpendicular to the wing, as shown in Figure F below.

Reasons for the Over Banking Tendency (OBT)

There are many reasons and combinations of conditions that tend to over bank an aircraft. Some aircraft designs do not over bank and others will come out of a bank if not held by the controls. This article is more about the designs that have the over banking problem which has to be corrected by pilot input on the controls.

OBT from Stability Compromises

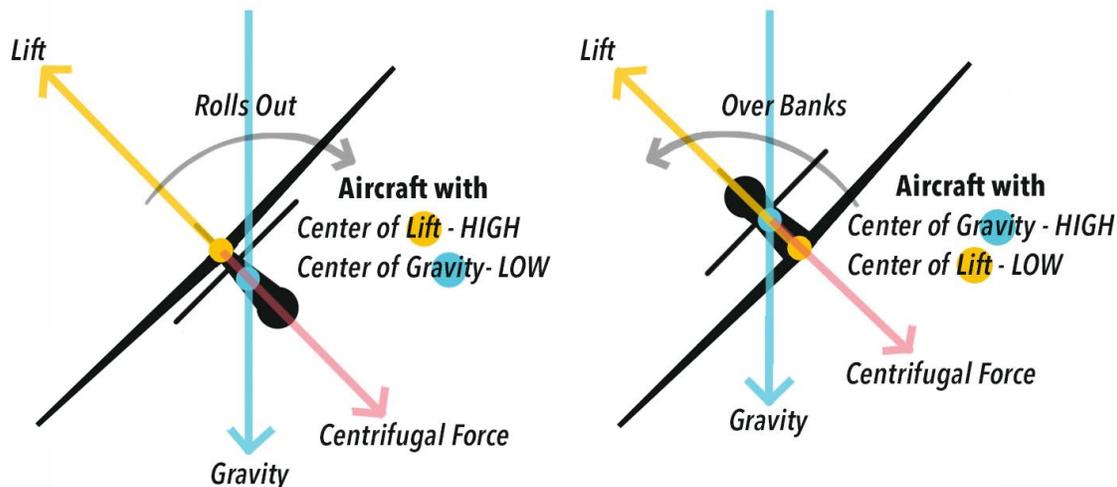
Aircraft stability is the ability of the aircraft to stay on the course. Most aircraft are designed for positive stability in cruise, where they spend the most time, the exceptions being aerobatic planes and military fighters. Even though a lot of time is spent on certified aircraft to achieve stable flight characteristics, compromises are needed to ensure the plane is not so stable that it is hard to change directions. Any change in direction always needs forces applied by control surfaces to the relative wind, and this change in direction in any axis should not be hard to do. Even though any disturbance in the air, like turbulence, can cause loads and movement in any axis, that control input can be adjusted or damped out in a stable design, but lateral stability is unique. There is no control device to stop this lateral (sideways) movement. Positive lateral stability is mostly achieved with some dihedral (wing tips higher than roots) that tends to roll the aircraft back on course in a side slip.

Fig. D Lateral (sideways) Stability In a Side Slip

For instance: (See Fig. D) An aircraft can be built with very positive (high) lateral (sideways) stability. This aircraft would have a very high angle of dihedral wing and a high center of lift combined with a very low center of gravity. This would make it almost impossible to sideslip, or to roll or bank on its own. If it was banked, it would be hard to do and the aircraft would come right out if not held in the bank. Some call this the *pendulum effect*. On the other hand, one can design a low wing aircraft with negative lateral stability. This aircraft would have no dihedral or even anhedral. It could easily roll in the direction of a side slip and into a spiral dive without constant control inputs. Because we fly in all three axes (pitch, yaw and roll), some positive stability may need to be reduced to make maneuvering the aircraft easier. This comes with trade-offs in some designs, over banking being one of them. Note, dihedral is used on many low wing aircraft designs not only for lateral stability, but to bring the center of lift up closer to the center of gravity.

Too much dihedral in some designs also causes a yaw in the opposite direction of the roll (the extra drag on the lifting wing is causing the yaw). This small but annoy roll and yaw is called a *Dutch Roll* because it resembles the swinging rear end of an ice skater (it is said the Dutch invented ice skating). Some high performance aircraft and most swept wing jets (swept wings have a notorious dihedral effect) have very expensive automatic/auto-pilot yaw dampers on the rudder to correct this, but general aviation and simple designs mostly work with the amount of dihedral for lateral control and the size of the vertical stabilizer/rudder for directional control, trade-offs and compromises. These trade-offs give easy banking, no dutch rolling and leaves the little tendency to over bank up to the pilot to correct, but if not corrected (especially in IFR flying) it can develop into a deadly spiral dive.

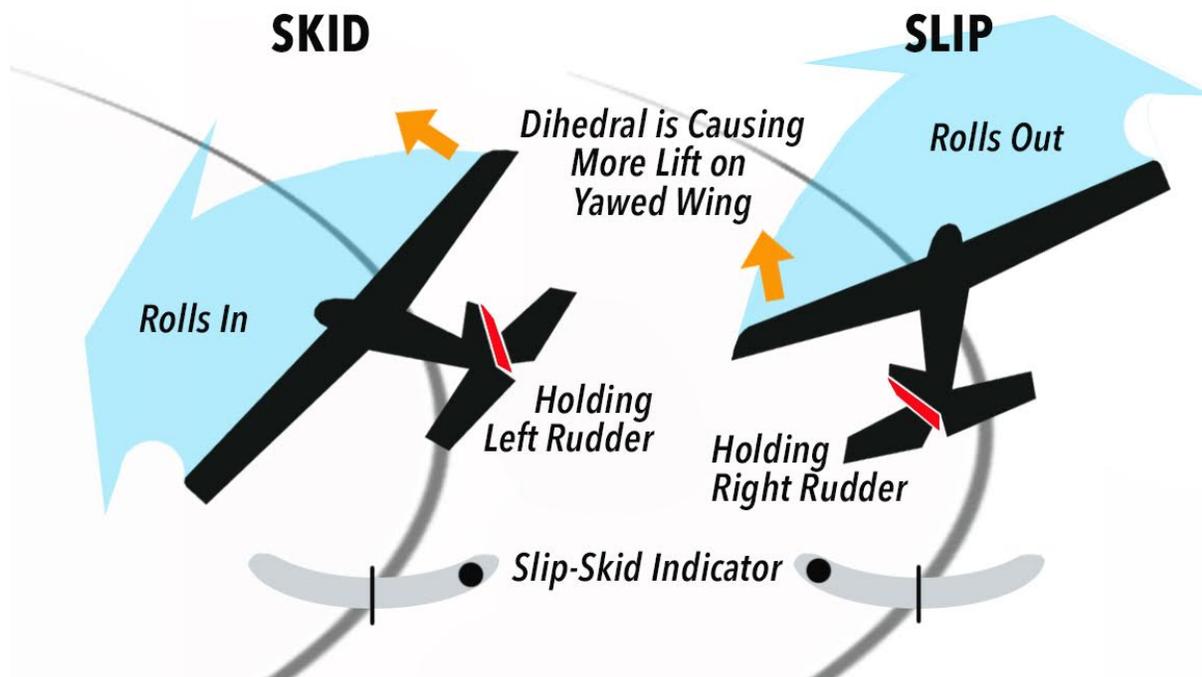
Fig. E Misaligned Forces Can Cause Rolling Out or Over Banking



OBT from the Dynamic/Dimensional Effect

A lot is going on in a banked turn. Once banked, the centripetal (*towards center*) force applied by the elevator has the banked wing constantly turning and at the same time the wing is lifting to counter centrifugal (*away from center*) force and gravity. With gravity always pulling us down, some aircraft designs are more affected by a dynamic/dimensional effect of gravity and centrifugal forces misaligned with the center of lift and center of gravity when in a banked turn. We know longitudinally the center of gravity is always forward of the center of lift for positive stability in pitch. In level flight, climbs and descents the centers of lift and gravity of most aircraft designs are lined up laterally. But when some aircraft are banked the two can be separated quite a distance laterally and in different directions on low and high wing aircraft. (See Fig. E) In a banked turn, centrifugal force is pulling down perpendicular to the wing at the center of lift and inline with the center of gravity laterally, but gravity itself, perpendicular to the earth, is still pulling down on the center of gravity of the total airframe. Even though lift is countering centrifugal force and gravity, if the center of gravity is misaligned with the center of lift laterally, the constant pull of gravity will tend to gently roll the aircraft into more bank or out of bank. It all depends on what side the misalignment is on. We could also call it a *weight shift effect*.

Fig. F Uncoordinated Rudder (Yaw) in a Left Turn



Pilot Induced OBT

Changing directions always causes forces and loads that a pilot has to manage. We know for each aircraft design to perform a perfect executed constant altitude turn, there is an ideal speed for each angle of bank, just the right amount of thrust and AOA, requiring a true coordination of controls by the pilot. In a banked turn, if the pilot does not keep the center of lift lined up with the center of gravity laterally on a stable aircraft, they soon feel centrifugal forces pushing right or left (the so called in the seat of your pants feel) and a classic slip or skid develops (slip - aircraft yaws towards outside of turn; skid - aircraft yaws towards inside of turn) and in designs with some dihedral, this can cause a roll in the same direction. (See Fig. F) A very simple cause of some over banking is uncoordinated control input by the pilot. A slip or skid can develop if riding the rudder (yawed) and that can lead to over banking or rolling out of a bank. In an aircraft with the old style ailerons that create a lot of yaw, coordination of rudder (yaw control) is a must with use of the ailerons. A skidding banked turn at slow speed (high AOA) can cause the inside wing to stall first and produce the classic pattern stall/spin. Even in aircraft designs where the tendency to over banking is left to the pilot to correct with ailerons, it should be coordinated with rudder. The same can be said for any uncoordinated controls, including varying the thrust.

OBT from Airframe Misalignment and Rigging Problems

If an aircraft seems to hunt a lot (dropping a wing, slip and sliding, or just wandering in any axis) in level flight, it will definitely show up in a banked turn. If the center of gravity is out of limits

it could cause some of this, but if OK, it is mostly airframe misalignment and rigging problems. Even though certified aircraft come from the factory fine tuned, one that has been in an accident and bent can be way out of line. Kit built aircraft are notorious for airframes out of alignment and improper rigging because of the lack of building jigs and forms as well as the lack of very precise measuring points and tools.

Meeting Minutes

March 2018

Flying Club One Meeting

Thursday, March 1, 2018
Centreville Regional Library
Centreville, VA

Call to Order

President Steve Beste called the meeting to order at 7:30 P.M.

13 members present.

CONNECTIONS

Visitors & New Members

Nicholas Loe is 18 years old and looking into what it takes for a career in aviation. We gave him some connections that can help and also can help him set up flying time in a “2 seat ultralight”.

Steve Cypher said he flew a first generation Ultralight a few times years ago and now is interested in learning to fly PPGs.

Old Members

Windy and cold winter weather is keeping most of the members on the ground, but some still brave the elements. **Dick Martin** said he had a great flight in his LSA. **Jim Hill** and **Allen Whatley** said they left some tail wheel marks on soft fields as they made a few short flights around the area.

REGULAR REPORTS

Secretary: Jim Heidish reported that the February Minutes were published in the March Club Newsletter and they were approved as published.

Treasurer: Jim Birnbaum reported that February income was \$90.00, expenses were \$180.04 and the check book balance is \$2687.69.

President: Steve Beste reminded the members that starting next month (April) our warm weather meetings will be held at the Warrenton Airpark, but unlike past years it will be held the second Saturday of the month at 11AM. It was moved from the first Saturday to the second because members pointed out that many summer holiday weekends are the first of the month.

Steve also talked about the Virginia Department of Aviation’s *Ambassador Program* that promotes pilots to fly and land at all the public airports in Virginia. If you make them all, you get a free leather jacket with special WWII-looking patches. Like the \$100 hamburger, it becomes the \$200 jacket! Steve is participating in the program and has already flown to some of the airports. He said most have been very friendly, but one was almost like flying into an enemy camp and there were problems with the FAA at one big airport. We will look for him dressed in the jacket one of these days!

Membership Director: Jim Birnbaum reported that 2018 dues are slowly coming in. Are you paid up? He reminded members to look at the monthly email roster, where paid up members are always listed with (2018) after their name.

Warrenton Airpark Owner: Tom Richards - not at meeting

Events Coordinator: Robert Doak - not at meeting

Old Business

None

New Business

None

MONTHLY PROGRAM

Steve Beste presented a video about an aviation company that is working on developing an aircraft based on the same principles that the small multi-engine, multi-propeller drones use. Like the small drones, it is electric battery powered, but the prototype that is flying is large enough to hold one pilot. From the images it looks quite stable even though, like most battery powered things, has short flight endurance.

Adjourn

President, Steve Beste adjourned the meeting at 8:50 P.M.

Submitted by **Jim Heidish**, *Secretary*

Service Providers

Recap our standing list of service providers:

- **PPG instructor and dealer:** Michael O’Daniel, 540-270-8855
- **Aircraft instructor - CFI:** Pete Bastien, 703-568-5778
- **Trike instructor:** Pat Tyler, 202-746-4687
- **Aircraft instructor - light sport and seaplane:** Chuck Tippett, 540-905-5091
- **Ultralight (Part 103) instruction:** Tom Richards’ Grass Roots Flyers, 703-568-3607
- **Machinist:** Luther Taylor, 540-222-3927
- **Welder:** Luther Taylor, 540-222-3927
- **A&P mechanic/IA (not at Airpark):** JD Ingram, 513-388-6312
- **Light Sport Condition Inspections, Rotax Certified:** Tim Loehrke, 703-618-4005

Activities

Flying Club 1 Activities Schedule

Designated Club meetings will be held the first Thursday of each month in the Centreville Regional Library, 14200 St. Germain Drive, Centreville, VA, at 7:30 PM. Others will be held at 11:00 AM at the Warrenton Airpark as shown in the 2018 schedule. Changes in time or location will be posted in this newsletter and on the Club website.

Date	Activity	Location
Sat, April 14th, 11 am	Club meeting, fly-in and cookout at Warrenton Airpark	Airpark
Sat, May 12th	Club meeting, fly-in and cookout at Warrenton Airpark	Airpark
Sat, June 9th, 8:00 am	Poker Run	Airpark
Sat, June 9th, 11:00 am	Club meeting, fly-in and cookout at Warrenton Airpark	Airpark
Sat, July 14th, 11 am	Club meeting, fly-in and cookout at Warrenton Airpark	Airpark
Sat, August 11th, 11 am	Memorial table, monthly meeting, fly-in and cookout at Warrenton Airpark	Airpark
Sat, September 8th, 11 am	Club meeting, fly-in and cookout at Warrenton Airpark	Airpark
Sat, October 13th	Club meeting, fly-in and cookout at Warrenton Airpark	Airpark
Sat, October 24th	Club 1 Color Run Fly-out	Airpark
Thu, November 1st, 7:30 pm	Conversation, club business meeting and program	Centreville Regional Library
Sat, December 8th, 5 pm - 8 pm	Monthly meeting and Holiday Party	Airpark Club House

Classifieds

Ads will be run twice and then dropped unless resubmitted, or renewed by telephone or e-mail. Please advise the editor: **Lucy Ooi** (Ooi.Lucy@gmail.com) when the ad is no longer needed.

Owner/Builder of Fisher Celebrity (biplane)

Looking for a Co-Owner

All wood construction, Grove one-piece spring-aluminum main gear

Powered by Rotec R2800, 7-cylinder radial engine, 100 horsepower

A tandem 2-place open cockpit biplane, cruises ~80 MPH

Qualifies as light sport

Construction site & hangar, Warrenton Airpark (7VG0)

Project is ~80% complete

Project includes Grove Gear, Rotec R2800, Instruments, Flying Wires and all other major components. Total value ~\$35,000

A current co-owner is offering his half of this beautiful project
(Entire aircraft sale – may be considered)

Call for additional info or to make an appointment to see this beautiful Taildragger!

Gil Coshland - (703) 618-3422

Asking \$17,500 for his co-ownership

Jim T. Hill - (703) 659-8336 (Co-owner)

Weight-Shift Enthusiasts - Your prayers have been answered! A very nice up-scale trike at an affordable price...

Specifications: NorthWing Navaho (strut braced - no king-post), 2-seat Tandem

Engine: Rotax 582 blue head with C- Gear-Box and just under 300 hours total time (never overhauled)

Well-maintained - dacron fabric and everything else looks brand new.

Many extras including Radio, GPS, Landing Lights, wheel pants, hydraulic disc brake system, wide tires, 3-blade IvoProp, 2017 Virginia License, 1,050-lb BRS parachute for safety and extra parts.

Photo below was taken at Shannon Airport. This Trike is owned by Kiho Bae, and has recently moved to Warrenton Airpark. Kiho Has asked me to advertise this at an asking price of \$18,500. Incidentally, Kiho is an experienced pilot who flew C-46 Commanders in the Korean Air Force, and now flies a Robinson R-44 Helicopter and single-engine fixed-wing as well as weight-shift aircraft. He would be happy to take you for a demonstration ride. Kiho is willing to fly it to your location.



Special Price \$18,500

Call Tom Richards (703) 568-3607 or Kiho at (703) 314-6262

Airfield and house for sale. Dr. Bob Karmy has long been a friend of the Club, letting us fly into Karmy's (67VA) for years. He's now retired and is selling the place. It includes a large house, with a hangar and an 1,800' grass strip just south of Woodstock in the valley. This would make a great training field. And do notice the hot tub in its own little house. The listing and pictures are [here](#). Asking \$899,000.

Contact the realtor, Shirley French. Shirley@funkhousergroup.com 540-325-4444.



Membership Dues Policy

The period of membership follows the calendar year - January through December. The renewal period starts on 1 October with regular dues at \$20.00 and family at \$25.00. Members who have not paid their dues by the end of February will be dropped effective 1 March and will not receive the Newsletter or Membership Roster. New members joining after 1 October will be charged \$20.00 or the family rate, if applicable and will be credited with full membership for the following calendar year. Please mail payments to Flying Club 1, 8570 King Carter Street, Manassas, VA 20110. Payment can also be made at the regular monthly meeting. Please include the Membership Application form with your payment. This will be used to ensure that our records are current. A copy of the membership application is attached and also printed at the end of the Newsletter.

Jim Birnbaum
Flying Club 1
Membership Director, Treasurer

MEMBERSHIP APPLICATION



Type of membership: New, Renewal, Regular, Family membership

Name(s): _____

Name To Go On Your Name Tag: _____

Street or PO Box: _____

City: _____ State: _____ Zip: _____

Telephone, Home: _____ Cell: _____ Work: _____

Spouse's Name: _____

Emergency Contact: Name: _____ Phone: _____

E-mail Address: _____

Aircraft Liability Insurance through: _____

Aircraft make and model: _____ N-Number (if any): _____

Pilot rating(s): _____

Club Activities or Services for Which You Volunteer: _____

Information from this application will be in the club's membership roster which goes only to members.

Instructions:

1. FILL OUT THE ABOVE FORM.
2. ENCLOSE A CHECK FOR \$20 (\$25 FOR A FAMILY) MADE OUT TO **“FLYING CLUB 1”**.
3. SEND THE FORM AND CHECK TO:
Jim Birnbaum, Treasurer
8570 King Carter Street
Manassas, VA 20110-4888

To join the national USUA, go to <http://www.usua.org>

To join the national USPPA, go to <http://www.usppa.org>

Flying Club 1 General Information

The Flying Club 1 is a nonprofit, recreational club dedicated to the sport of ultralight and light sport aircraft flying.

2018 CLUB OFFICERS AND DIRECTORS

President: Steve Beste 703-321-9110

Vice President: Dick Martin 703-242-2367

Secretary: Jim Heidish 703-524-5265

Treasurer: Jim Birnbaum 703-361-7478

Events Coordinator: Robert Doak 703-897-4989

Director At Large: Pete Bastien 703-568-5778

Director At Large: Robert Doak 703-897-4989

Director At Large: Lucy Ooi 585-410-5573

ber support in varying amounts. Please indicate on your membership application the function(s) (can be more than one) you will support as a Club member. All active Club members are expected to participate. However, members who live some distance away and cannot attend meetings regularly may prefer to support functions associated with Club weekend activities.

ANNUAL DUES (Jan 1-Dec 31) \$20.00. Family membership (typically husband and wife): \$25.00. A spouse who wishes to participate will please complete a membership application form.

2018 CLUB VOLUNTEER STAFF

Safety & Training: Vacant

Membership: Jim Birnbaum 703-361-7478

Club Artist: Jim Heidish 703-524-5265

Newsletter Editor: Lucy Ooi (“Wee”)

Ooi.Lucy@gmail.com

Web Master: Steve Beste,

president@flyingclub1.org

A club is only as good as the members who volunteer to support its activities. The following listed activities with the club require mem-

CLUB WEB SITE: <http://flyingclub1.org>

MEETINGS are monthly, year-round. See the web site for dates and places.

THE NEWSLETTER: The newsletter is published by email on the first of every month.

SUBMITTING ITEMS FOR THE NEWSLETTER Members and non-members are encouraged to submit items for this newsletter. Send submissions to Lucy Ooi at Ooi.Lucy@gmail.com at least one week prior to the end of the month.

If you are interested in joining the U.S. Ultralight National Organization go to their website for membership information at: www.usua.org

Likewise, if you are interested in joining the U.S. Powered Paragliding Association, the National PPG Organization, go to their website for membership information at: www.usppa.org