The Knight Flyer

Jul – Aug - Sep **2011**

Summer days arrive

It never fails. According to Murphy's law, if two or more events are scheduled, they will always occur at the same time.

And so it is. Multiple church picnics, graduations, moving up days all coincide with the June picnic.

It becomes a challenge to pack in chicken dinners with char-broiled hot dogs, but it can be done.

Arriving somewhat late at the field, aircraft activity was already at an intense level.

At least a dozen fliers with multiple planes graced the flight line.

There was not a lot of sun and the breeze was brisk, but no one was deterred.

Things moved along smoothly for the most part, but a few flights made close brushes with disaster.

Chuck repairs landing gear.

The canopy on Bob Soboleski's Christen Eagle became partially detached in the middle of a flight causing a major shift in the aerodynamics of the plane, but he landed successfully.

Ready for touchdown.

Chuck Caruana's Hellcat did a hard landing prompting some emergency field repairs.

There was a great variety of planes at the flight line and every one had it's moment of fame.

The afternoon was filled with talk and passed quickly.

There were many things to talk about as this was the first field get-together this year.

Continued on page 2

Inside

Prez notes ————	**P2**
Summer Stuff ——-	**P3**
Density matters——-	**P4**
A/P Open House —	**P7**
Nike rules ———-	**P7**

Continued from page 1

At 4PM Greg Stromecki had the hot dogs ready to roll, (no pun intended). A number of excellent dishes were available to choose from.

A interesting variegated multi-colored multi-level Jello dish highlighted the desert selections.

Everyone quickly filled a plate , found a comfortable spot and continued to socialize.

A great combination of weather, food and models came together to make the June picnic a fantastic success.

Afternoon Dinner Break

From the President's Desk……

The start of summer has brought improvement in the weather, I hope everyone is enjoying it and getting in as much flying as possible. As a reminder, Wednesday and Sunday are designated club days/nights at the field. This would a great opportunity for our new members to come out and learn to fly. Please contact a member of our training team, Bill Hauth, George Fox, or Orville Chatwood, for any assistance. We have club trainers and "buddy box" training systems available for you. I encourage all members to utilize our training team, there is always something new to learn. Also, Orv and I will be starting our voluntary certification program now that the weather is better. In addition to flying on Wednesday nights, we have also established our "Scale Rally" team meetings. Bill Hauth has established this team and is doing a good job of organizing and preparing for this year's event. It is a pleasure to see the level of interest we have and I appreciate everyone that has stepped up into a leadership role. The notable change to this year's rally will be a realignment of the flight line and spectator viewing areas. It is important that we all remember that the "Scale Rally" is for the public and potential new members. We have asked each of the team leaders to recruit help from the membership for each area of responsibility, please help and volunteer. We will post an org chart on the web site, or please feel free to attend our Wednesday night discussions.

North Collins spring cleanup was a success thanks to all that participated. We accomplished a lot in one day including cleaning of the trailer, well done everyone! Special thanks to Bob Waldraff and Chris Carruana for their efforts with the new benches. Also, special thanks to George Fox for ensuring we all had something to eat. This is another successful example of our leadership team concept. Our first Sunday fun-fly of the year was a success. Thank you to everyone that attended and special thanks to Dave Kobie for volunteering to cook for us. The July fun-fly will be held at Ray Barren's house once again this year. If you have not attended a fly-in at Ray's, I encourage you to make the time and attend. Ray does a great job with the BBQ and we always have a great time flying. Please help Ray prepare by contacting him via e-mail or phone and notify him of how many people you will be bringing to the event.

Thanks to Ray and his family for doing this.

Nike Site Rules

The activity at the Nike Site in Hamburg is ever changing. We have not received any written information on how many months the 5pm weekday curfew is in effect.

Soccer ends around July 31st.

For those who fly at the Site the following rules have been agreed to.

1. May through July, M-F, No flying after 5PM.

2. No flying is permitted on weekends during Soccer Tournaments, or any activity where large numbers of people are on the Soccer fields .

3. On Aug. 6-7 there will be no flying by Knight's members while we host our Scale Rally.

4. Only Electric planes can be flown earlier than 10 AM (without noise).

5. Observe ALL written rules that are posted in the shelter.

6. NO flying is to take place while mowers are on the field.

7. If asked to stop flying, get the name , title of authority and phone number of that person. Write it down with the details of what happened, and why it happened. Pack up and stop flying. Give the written information to any club officer.

Summer Activities

Dates to keep in mind for summer fun!

Stars Rally
July 16, 17
Olean, NY

Warbirds over the Bay
Jul 24,25
Burlington, Ont

Knight's Scale Rally
Aug. 6 & 7
Hamburg, NY

Sky rovers
Jul 23, 24
Phelps, NY

RCCR, Great Electric Fly
Aug. 21, 22, Brockport, NY

Dick Parshall Mem Float Fly
Sept 10, 11
Honeoye, NY

Flying Dutchmen Annual Scale Rally
Sept 10, 11 Kitchner, Ont

Batavia Fun Fly
July 30-31
Scale, Sport, electric
No fees
6684 Randall Rd.
Leroy, NY

Geneseo Air Show
July 8-10
Geneseo, NY
Full Scale/ WW2 Aircraft
$20
Kids (15) + Parking free

Why Density Matters

The flight of an aircraft depends on many things.

The weight of the plane, the speed with which it's moving, the shape and size of the wing, all figure into how it flies.

We have seen them in the "Equation of Lift", fig 1, that links these factors together.

The weight, wing area, angle of attack and speed are familiar to us and we can relate to them.

Air density is a little more mysterious. We are given a number with a value of .00236.

Even worse are the strange units. lb -sec/ft^4. What the heck is that?

What does this mean? And how does it affect how my plane flies?

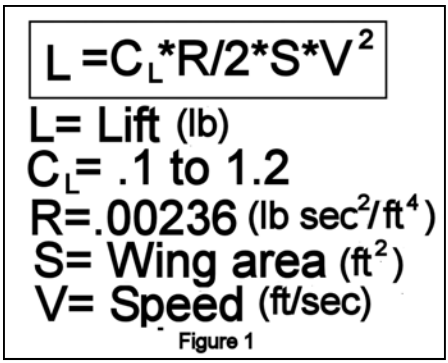

Figure 1

Very few people ever give a second thought to the density of the air. Yet, for the flight of an aircraft it is a significant factor.

For pilot's of full scale aircraft it can be the difference between life and death.

The density changes with temperature and altitude. If you fly in summer, the air is thinner and you need to go faster for the same lift. Or carry less weight.

The higher you go, the faster you must fly in order to maintain the same lift.

So, what is this thing called, density?

The air blanket that covers the earth is made up of molecules of nitrogen, (78%) and Oxygen, (21%).

Like all substances, air has weight.

It is this weight that is the cause of the air pressure, see fig 2, that we hear about on the nightly weather report.

The pressure is caused by gravity which pulls down on the column of air over our heads.

We don't notice it for two reasons.

First, air is a gas and behaves like all fluids. The pressure is not just downward, but pushes with the same force in all directions.

Second, our bodies have evolved in the presence of this constant force and automatically push back against it.

At sea level, the pressure is 15 lbs per sq. in. on every square inch in every direction.

The aircraft wing uses this pressure to create lift.

As the wing moves through this sea of air, part of the air moves over the wing and part moves underneath.

Due to curvature or angle of attack, the pressure under the wing is slightly greater than above the wing.

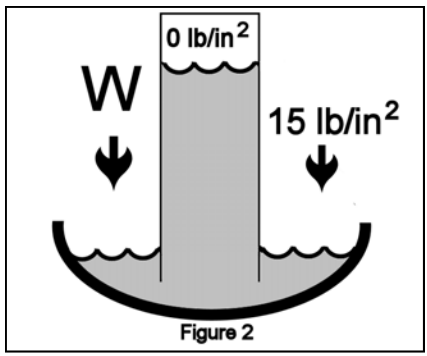

Figure 2

This pressure difference between the top and the bottom of the wing provides lift.

Density is the factor that tells us how thick this fluid is. Or, to put it another way, how many molecules are contained in a given space, see fig 3.

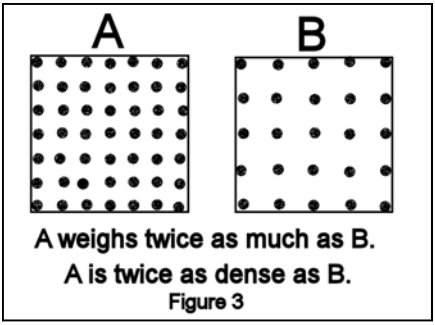

Figure 3

The more molecules there are in a cubic foot, the greater the weight. We can take a cubic foot of this air and actually weigh it.

When we do, we find the weight of a cubic foot at sea level is .076 pounds.

This "weight" of course is due to gravity, but we don't want the weight caused by gravity.

What we really need is the "mass", which is independent of gravity.

Most often when we think of the "weight" of something on the earth, we overlook the fact that everything we measure on the earth is embedded in the gravity field of earth.

Our measured weight is the result of gravity, but our actual "mass", (the amount of stuff we are made of), does not depend on gravity.

Now, why is that?

Well, gravity changes. As we go up in altitude, for example, on the top of a mountain, our weight would change, but the stuff we are made of does not change.

If we were to go higher, our weight would decrease because the further we get from the earth's surface, the more the force of gravity decreases.

Ultimately, at some high altitude, there would be a point where our weight would be zero, yet we are still made of the same amount of "stuff". We don't disappear!

So, how much does that "stuff" weigh?

Newton's law relates the true mass of an object to the acceleration produced by the force of gravity.

At the surface of the earth, that acceleration is easily measured and turns out to be 32 ft/sec^2.

It's a measure of how fast you fall.

That stuff is called our "mass". And it is independent of gravity.

The mass will be the same whether on the earth or the moon.

Of course, that only applies to a solid or liquid.

Here we are dealing with a gas.

Because air is a gas, as we go up in altitude, something else happens. The air gets thinner. Unlike a solid, there are fewer molecules in each cubic foot. The air really does disappear!

That means it weighs less because there is less "stuff" in the same space.

We need to remove the effect of the force of gravity upon our cubic foot of molecules.

.076 pounds/cubic foot divided by 32 ft/sec^2, gives us .00236 lbs-sec/ft^4.

This is how we get the strange units. This is the number that we use in the equation of Lift.

The density of the medium in which our plane is flying greatly affects the speed that we need to generate a certain lift.

Continued on p 6

Continued from p5

To see how it does, we can examine the speed in different atmospheres but keep the other parameters the same.

For example, how would the speed change between sea level and the top of a mountain?

Lets start with a model with a 5 foot span and a chord of 11 inches. The area of this wing is 4.6 square feet.

In previous articles these parameters were identified as follows.

"Cl", is the attack angle and for level flight, depending upon the wing shape, has a value of about .1.

"S", is the area of the wing in sq ft. The velocity is "V" in ft/second.

"R" is of course the density. At sea level and standard temperature it's .0024 lbs-sec/cu-ft^4, (as we have just shown).

If the plane weighs 3 lbs, it will fly at a speed of about 74 ft/sec or 51 mph at sea level.

The same plane would have to fly faster on a 10,000 ft mountain to maintain level flight. The density there would be around .0016. See fig 4.

Again applying the Equation for Lift, we find that the velocity under those conditions for the same plane would be 62 mph.

This is a difference of 11 mph.

At these altitudes the difference is significant, especially in regard to the stall speed.

Many a plane has fallen victim to change in it's stall speed.

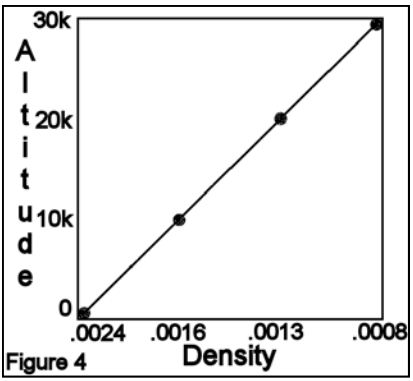

Figure 4

Whether we choose to design our own planes or just understand how the different planes we have behave in a variety of conditions, we should have an understanding of all of the factors in the Equation of Lift.

The density of the atmosphere is a key factor in how our planes fly.

This year is the 30th anniversary of our Scale Rally. We plan to have a tee shirt to celebrate. A number of members submitted designs.

The members voted and the winning entry is shown at the left. It was submitted by Orv' Chatwood's daughter, Amanda.

A Man and His Machine

It has been said that a special bond forms between a pilot and his aircraft.

During the world wars, many stories surfaced of the intimate relationship between pilots and crews for the plane that carried them into battle and brought them home again.

George Fox has taken the concept to a whole new level.

"The machine does not isolate man from the great problems of nature but plunges him more deeply into them." **Antoine de Saint-Exupery**

Open House at Hamburg Airport

The crowd appeared to be very light this year. Down more than 50% from previous years.

The CAP volunteers did a splendid job of preparing and serving pancakes, sausage and scrambled eggs.

The Young Eagles program was in full swing. This program introduces young people to flight, by providing free airplane rides.

After, dining in the spacious hanger, it was time for a stroll over to the Knight's static display.

The display consisted of about dozen planes nicely arrayed on the hanger floor.

Our static displays are used to introduce our club to the community and show people what we do.

It is important to keep the world of flight alive especially among the young.

If our display helps, then our efforts are certainly worth while.

Continued from p2

Ray's contact information is;
Phone: 699-4716 or
E-mail: rgbasb@hughes.net

Finally, the Joint Fun-Fly with the Aircrafters is set for August 13th and 14th – weekend after scale rally. We will be donating any left-over food from the scale rally: The Aircrafters will be providing a pig roast and other items. We are asking that everyone bring a small dish to pass, we are expecting pilots from other clubs as well.

I look forward to flying with all of you this year, Let's have FUN!

If anyone needs to contact me, please call or e-mail as necessary.

Home Phone : 649-2943
Cell Phone : 771-7958
E-mail :jehrigiii@gmail.com

Also, please feel free to contact me with any ideas, questions, or concerns you may have. I look forward to your input for the betterment of our club.

Thank you for your support,
Jim Ehrig

2011 FLYING SEASON INSTRUCTORS

At the Nike Base:

John Newman	824 - 5744
Bill Eberhardt	627 - 3486
Dave Savini	289 - 2031
Jim Devlin	627 - 7221

At North Collins:

Chuck Caruana:	337 - 0144
George Fox	648 - 0667

Call to make arrangements for all persons involved.

KNIGHT'S SWAP SHEET

If you have something for sale, or looking for that special something, put your request in "The Swap Sheet". Free to all club members.

3rd Q 2010

Schedule
Fri. 7/29, 8/19, 9/16
St. James Church 7:30
New members 6:30

Board Meeting*
7:30 pm
Pegasus

***Check meeting cards for dates.**

Officers

President: Jim Erhig
Vice Pres: Chuck Caruana
Secretary: Dave Savini
Treasurer: Ray Barren

Board

Jim Pravel Bob Rodgers
Bob Waldraff Orv Chatwood
Editor Jim Devlin

The Flying Knights of Hamburg, NY

Academy of Model Aeronautics - A Chartered Radio Control Flying Club
Www.theflyingknights.com

The Flying Knights
c/o 5761 Diana Lane
Lake View, NY 14085