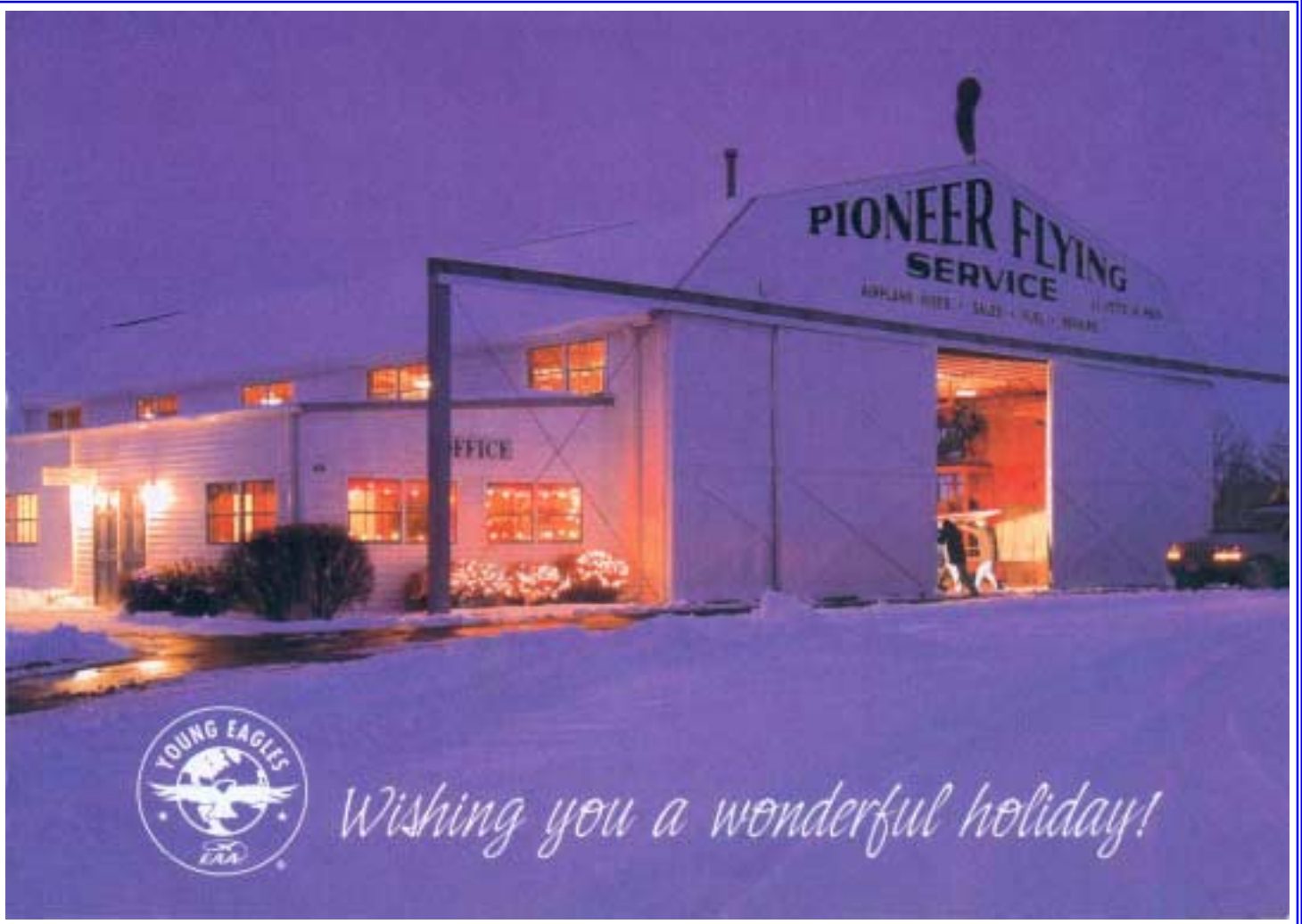




CHAPTER
613

December 2003

www.eaa-chapter613.org



Happy Holidays To All !!!!

Upcoming Events

December 14th – 09:00 - Chapter 613
Pancake Breakfast – Shelburne Airport

January 18th – 09:00 – Chapter 613
Pancake Breakfast – Shelburne Airport

Views and News

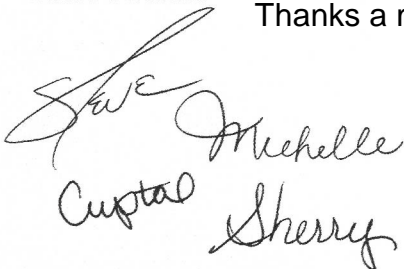
By Bill Morelli

On The Cover – The holiday card shown was sent to Don Taylor from the folks at the Young Eagle Office. The message was as follows:

From the FAA Young Eagles Office,

Wishing you and yours a very happy and safe holiday season. Thank you for all of your efforts on behalf of the program. Because of you and your fellow volunteers, we have even more to celebrate this year as we have reached our initial goal of flying 1 million Young Eagles! This has been an exiting year, but the best is yet to come. The program will continue and be even better in the future. We look forward to working with you as we continue to build aviation's future.

Thanks a million!



Michelle
Captal Sherry

North Ramp Aviation has moved to a new location at Burlington Airport.

They are located in the Customs Building. Get there by taking Aviation Avenue right across from ACE Hardware on Williston Rd.

See pages 9 and 10 for a map to the new location as well as a schedule for upcoming ground schools that North Ramp is offering.

Hobie Tomlinson continues his great articles in the "Flight Advisor Corner" starting on page 5. This months it's Aircraft Upset Recovery"

Consider an e-mail newsletter

Page 11 of this newsletter is a Chapter 613 membership form.

It is a good idea to fill out the form and submit it with your dues renewal. That ensures that your membership data is up to date.

Please consider accepting the Chapter news letter in e-mail form as opposed to a mailed copy. There are some 28 members receiving their newsletter electronically and it saves the Chapter a significant amount of money each year. There is a place on the membership form to add your e-mail address and check that you want the e-mail newsletter.

UPCOMING EVENTS

At the beginning of this page you will see Upcoming Events. Moving forward, this list of future happenings will be placed in the same location on this page to make it easier to find. This was suggested by one of the chapter members.

November Minutes

By Marge Butterfield

The morning air was crisp and clear for our first Chapter pancake breakfast of the season held at the Shelburne Airport on Sunday, November 16th. **Donald Taylor** drove the newly constructed Chapter 613 trailer down from the Franklin County Airport. (See separate article on this). There was a good turnout for the breakfast.



Marge and John Butterfield made blueberry pancakes (As Marge made the pancakes, John dropped in exactly three blueberries onto each pancake!) Following the breakfast, a meeting was called to order by President, **Terry Griffin**, at 10:30 a.m. The minutes are as follows:

- Thanks were extended to **Donald Taylor, Bob Paradis, Joe Gardner, George Chaffee**, and **John and Marge Butterfield** for setting up for the pancake breakfast.
- Thanks were also extended to the cooks, **Marge and John Butterfield** for the great job they did in cooking for the breakfast.
- **Mary Harrison** volunteered to cook for the next breakfast. **John Mc Nerney and Gerry Smart** also volunteered to help.
- The next pancake breakfast will be held at the Shelburne Airport on the second Sunday of the month, which is December 14th from 9:00 – 11:00 a.m.
- The Secretary's Minutes were accepted as published in the November newsletter.
- The Treasurer's Report was presented by **Dave Harrison**, which covered the period from April 27, 2003 through November 16, 2003. There is a current balance of \$7,985.64 in the general account and a balance of \$985.62 in the *Edmando Roberti Scholarship Fund*. The present value of the Mary J. McGrath Scholarship Fund is \$28,863.47. The Treasurer's Report was accepted as presented.
- **Dave Harrison** announced that the EAA calendars had come in. They retail at \$12.00; however the Chapter will be selling them for \$10.00. Dave sold quite

a few at the meeting. There are some left which Dave will bring to the December meeting...just in time for Christmas. These calendars make great gifts!

- **ELECTIONS WERE HELD.** The following officers were re-elected: **Terry Griffin** – President, **Don Nowakowski** – Vice President and **Marge Butterfield** – Secretary. **Steve Couzelis** was elected as our new Treasurer. (**Dave Harrison** wanted to step down as Treasurer as he had held the position for 11 years. Thanks Dave for your years of dedicated service!)
- The position of Activities Director still needs to be filled. Anyone out there interested???
- **Donald Taylor** announced that the EAA Chapter 613 trailer he constructed cost a total of \$337.30. This was due largely in part to donations made by George Chaffee, Taylor Marine, Swanton Lumber, Prestige Aircraft, Border Air, Ltd., Dennis Demers and Norm Sears. Donald said that the trailer will be registered by the Chapter as a utility trailer.
- Young Eagles Coordinator, **Donald Taylor**, announced that the Experimental Aircraft Association reached its goal of one million Young Eagle rides on 13th of November. This ride was given to a 15 year old from Illinois. It appears that the Young Eagles Program will still be in effect next year, so Donald announced that he would still like to be the Young Eagles Coordinator. Donald also announced that he received a letter from the head office congratulating him on giving over 1,000 Young Eagle rides. Out of over 35,000 pilots, Donald was one of 14 pilots that hit over the 1000 mark. Congratulations Donald!!!
- Our Chapter has given 489 Young Eagle rides so far this year. **Donald Taylor** is hoping our Chapter will reach 500 by years end.
- **George Godin** asked the group to publicly recognize **Donald Taylor** for his dedication to the Young Eagles Program. George also announced that one of the Young Eagles he flew a few

years ago is now going for a commercial license.

- **Frank Gibney** announced that he just recently received the "Scholarship Box" from **John Elgert**, who was our former Scholarship Committee Chairman. **Frank Gibney** has volunteered to take over this position and announced that he would like to put all three scholarship applications on our website. Applicants could fill out the applications on line. Frank reiterated that it takes everyone in the Chapter to get out the news about the scholarships. If any member knows of anyone interested in the three scholarships you can tell them that the *Edmando Roberti Scholarship* is for pilot training. You have to have already soloed. The *Mary J. McGrath Scholarship* is for a pilot who wishes to become a certified flight instructor. The EAA Air Academy has different aviation camps for youngsters up to age 17. Last year the Chapter also paid the airfare to Oshkosh.
- **Donald Taylor** gave thanks to **Dave Harrison** in helping with the purchase of the Chapter tables and chairs.
- **Frank Gibney** spoke about the importance of having a survival kit in your airplane at all times, but especially in the winter. **Bob Paradis** brought in some candles and matches which are important to have in your survival kit to enable you to start a fire. Frank is definitely qualified in survival techniques as his company hosts many expeditions in all parts of the world. Frank announced that if anyone would like to know more about putting together a survival kit and survival techniques to feel free to contact him. **Terry Griffin** added that 90% that survive the plane crash die from exposure.
- **John McNerney** announced that the FAA is considering a new ruling regarding giving scenic flights as fundraisers for charitable and/or nonprofit organizations. John will be forwarding some information on this for the newsletter.
- **Donald Taylor** announced that he had wanted to get some thank you cards from national headquarters and was informed that they do not have any.

Terry Griffin advised that each EAA chapter needs to have their own thank you notes and letterhead with their own logo. This could be done on a computer. **John McNerney** announced that he knows of a printing shop in Vergennes that could run some cards off at a reasonable price. **Donald Taylor** had wanted to send a thank you card from the Chapter to someone who had helped him at the Young Eagle Rally in Saranac Lake. **Mary Harrison** also suggested that our Chapter should send thank notes to all the companies and individuals whose donations helped with the construction of the EAA Chapter trailer. **Marge Butterfield** said that she would do this.

- Thanks were extended to **Ray Magee** for the use of his hangar for the Chapter pancake breakfast and meeting.

50/50 Raffle

After passing his raffle tickets through the aura generated by Marge's continuous good luck, John Butterfield successfully won the 50/50 raffle taking home a grand total of \$16.00. Congratulations John!!

** Membership Renewal **

It's time to pay your 2004 dues! Page 11 of this newsletter is a membership application so that members can renew their membership by mail. If you plan to pay your dues at the December pancake breakfast, please still fill out the application and bring it to meeting. The application contains a lot of information to keep our database current. Thanks. The dues for 2004 are due January 1st.

Flight Advisor Corner

by Hobie Tomlinson

AIRCRAFT UPSET RECOVERY

This past fall I was fortunate enough to be accepted into the Upset Recovery Flight Training program operated by the Flight Research Training Center (www.flightresearchtraining.org) at Roswell, New Mexico. This is a government sponsored flight-training program, which gathers data on typical industry pilot performance in a variety of unusual flight situations. The Veridian (Calspan-UB research Center, Inc.) division of General Dynamics operates it in conjunction with Eastern New Mexico University Roswell at the old Walker AFB (Roswell Army Air Field), Roswell, New Mexico.

This is a two-day program, which provides both ground and flight training in a variety of typical and historic upset scenarios. Training is provided in an F33C aerobatic Bonanza, which simulates a typical single engine aircraft, and a specially modified Learjet 25. The Lear has been modified to an “in-flight” simulator by incorporating computer driven fly-by-wire flight controls for the right seat pilot, while the instructor/safety pilot in the left seat retains normal control functions. The fly-by-wire computer allows the Learjet to simulate the flight characteristics of any aircraft. The computer is programmed to mimic the flight characteristics of the desired aircraft by loading in the aircraft’s flight test data, just as modern simulators are programmed. This allows the Learjet to “become” the simulated aircraft for the student. The obvious advantage of this process is that it provides “real world” sights, sounds & “G” forces, which cannot be reproduced with a ground based simulator. During this training the Learjet is programmed to become a Boeing 737, simulating a typical transport aircraft.

I actually attended the training during the first part of November, so I thought it would be worthwhile to do a series of articles on the subject while the things I learned are still fresh in my mind. Some of the situations (i.e. uncommanded control deflections) are unique to aircraft with powered flight controls, others (i.e. aerodynamic stalls) can be induced by environmental factors such as ice or windshear. Categories such as marginal/unstable aircraft are particularly applicable to first flight scenarios in original designs, while the old nemesis of wake vortices is out there for all of us. It seems a good time to talk about these issues as we have just been through several articles on the subject of “first flights”. Even though most are well proven designs, it is still “test

flying” and involves a much higher exposure to these kinds of situations than normal.

In looking at the volume of material this involves, I struggled with a reasonable way to organize and present it. My goal is to keep relevant to the types of operations we are involved with and to organize the material so it has some continuity. As I said previously, because of the very nature of our organization, we are involved with test flying many different types of experimental aircraft and therefore have a much higher exposure to these events.

With all that said, we will look at:

- Aerodynamics
- Aircraft Stability
- PIO (Pilot Induced Oscillation)
- Human Factors
- Unusual Attitude Recoveries
- Upset Recoveries
- Recovery Blockers
- Control Failures
- Summary

Aerodynamics: Not to bore you with a lot of things you already know, but I do think it is worthwhile to review some aerodynamic terms and perhaps look at them in a different context. I think this is an especially important review so that we can have this fresh in our minds as we proceed. We want to discuss:

- In Flight Forces
 - Aircraft attitude verses Angle of attack (AOA)
 - AOA verses Flight Path
 - Sideslip verses Dihedral effect
 - Corner speed and Crossover speed
 - Certification “G” limits verses recovery “G” limits
 - Rolling “Gs”
 - Adverse aileron yaw verses AOA
 - Thrust vector (power) effects
 - Aerodynamic Center verses Center of Gravity

The in flight forces acting on an aircraft are of course, Lift offsetting Gravity and Thrust offsetting Drag. Gravity being the one we cannot control and drag being mostly limited to aircraft configuration changes, that leaves thrust (power management) and lift (AOA + Speed) as the primary means of flight control. As simple as that all sounds, it becomes a very important concept as we get into recovery strategies.

Aircraft attitude is simply the aircraft’s orientation relative to the surface of the earth. Upsets have been

defined by the industry as anything involving an aircraft pitch attitude greater than 25 degrees nose up or less than 10 degrees nose down, bank attitudes of more than 45 degrees or any aircraft speed inappropriate to the flight condition. It is important to make a distinction between aircraft attitude and angle of attack. Aircraft attitude has nothing to do with producing lift, lift is only a function of angle of attack and speed. For example, an aircraft in vertical flight prior to a wingover has an extreme attitude, but a very low angle of attack while a stalled aircraft has a normal attitude but an excessive angle of attack.

Angle of attack (AOA) is the angle between the wing cord line and the relative wind. Airfoils produce increasing lift as the angle of attack is increased up to a maximum of about 15 degrees. Lift is produced as an equal but opposite reaction to the air downwash force created when air flows off the back of the curved upper surface of a wing. Increasing the angle of attack increases the downwash (as do flaps or a downward deflected aileron) increasing lift. Trouble starts when the AOA rises above the critical value. This causes the inertia of the air to overcome its natural cohesion to the upper surface of the wing, resulting in airflow separation, which destroys the downwash producing lift, hence a stall. That being said, it is important to distinguish between the angle of attack and the Flight Path Vector. The Flight Path Vector is a "snapshot" of the aircraft's speed and direction (flight path), or simply put – where it's going. For example a "stalled" aircraft has a normal attitude, an excessive angle of attack & a downward flight path. All three are different. An aircraft in the first quarter of a loop has a vertical attitude, a normal angle of attack and a curved flight path. Confusion about these three has prevented recovery in many salvageable situations!

Sideslip is the horizontal angle between the aircraft fuselage (where it's pointed) and the aircraft flight path (where it's going). Sideslip will produce roll, which is why an intentional slip requires opposite aileron. Dihedral is the upward angle from horizontal at which the wings are attached to the fuselage. Dihedral Effect is the tendency for the aircraft to roll away from sideslip, thus creating roll stability.

Corner speed is something the fighter guys have talked about for years, but is not widely taught outside of the "acro" group. It is the speed at which an aircraft will fly the tightest radius turn, either horizontally or vertically. This becomes very important to know when inadvertent ground contact appears immanent! Corner speed is typically somewhere between 1.6 times stall speed (V_{so}) & maneuvering speed. It is where stalling

speed and limit "g" load coincides. Turn radius below corner is limited by stall and turn radius above corner speed is widened by inertia.

Crossover speed is that speed (AOA) at which ailerons are able to overpower the rudder. Aileron effectiveness is increased at lower angles of attack & decreased at higher AOA. This is why your instructor taught rudder for roll control during stall training.

Recovery "G" limits obviously need to be less than those do that will break the airplane. The Aircraft Certification Limits are aerobatic +6/-3; Utility +4.4/-1.76; Normal +3.8/-1.5 and Transport +2.5/-1.0. Recoveries are flown to +3/-0.5 "Gs" so that they are compatible with any aircraft category.

Rolling "Gs" is another fighter/acro term. An aircraft rolls because of a lift (hence load) difference on the wings. If we have loaded the wings to their "G" tolerance in a pull up, then create a roll input, the lift differential will overstress the upward moving wing. This is why your instructor taught you to level the wings before pitching the nose up in a high-speed unusual attitude recovery (i.e. the graveyard spiral). It is probably one of the things that broke a lot of the early bonanzas, as the V tail is very susceptible to rolling "G" damage.

Adverse Aileron Yaw is the tendency of ailerons to yaw the aircraft opposite to aileron input at high AOA. This is why you see Cessnas yaw all over the place on approach when the pilot is not using rudder properly. This is also why an aircraft will spin opposite to the aileron input when the pilot tries to correct bank with aileron during a stall. The WW2 era aircraft designs all have significant amounts of this phenomenon.

Thrust Vector is the effect changing power setting has on aircraft control. It is the reason you see engines on SE aircraft mounted at a small angle difference to the fuselage centerline. This helps mitigate the effect of "P" factor. ("P" factor is an aircraft turning tendency caused by the fact that the propeller produces more thrust on the side of the downward moving blade). Adding power on most aircraft causes pitch up, while reducing power causes pitch down. Aircraft with high thrust lines, such as the Lake amphibian, exhibit the reverse response. These pitch down with power, especially at low speeds.

The aircraft Center of Gravity is the point through which all 4 flight forces work in trimmed flight. When lift is changed with the elevator, the new lift force works through the Aerodynamic Center of the aircraft, which is behind the center of gravity. Pitch stability is created as

this new force causes the aircraft to return to its original pitch attitude. As the aircraft CG moves aft, reducing the distance between these two centers, pitch stability is reduced.

Well, like all my projects this seemed so simple when I started and tends to enlarge as I go along. But, I think it is very worthwhile material and quite pertinent to the type of operations we are engaged in, so – we will just press on in succeeding months until we are done.

I want to take this opportunity to thank you all for giving me the privilege of writing for your newsletter and especially to wish all of you a very Merry Christmas and a Happy, Prosperous and Safe New Year! Please feel free to fwd your questions, comments & suggestions to me at Hobietw@att.net. As always, be sure to **Think Right** to **FliRite!**



YOUNG EAGLES

by
Donald Taylor

We have 15 pilots reporting Young Eagle flights so far this year for a total of 503. We have surpassed our goal for 2003 by 203. Chapter 613 has flown 486 because 17 flights went to Chapter 1375 .

Walter Houton	1
Peter LaFramboise	53
Gorge Godin	11
Donald Taylor	231
George Coy	4
John Butterfield	35
Mike Pecue	33
John McNerney	10
Bill Yendrzski	42
Chuck Robitaille	5
Frank Gibney	5
Bill Morelli	5
Steve Couzelis	33
Loren Shaw	32
Ron York	3

Safety Tip

Are You Ready For Winter Flying?

1. Always allow sufficient time for preheating.
2. Dress so that you can conduct a thorough preflight.
3. Remove ALL snow, ice and frost from the aircraft surfaces.
4. Remember there is much less daylight flying time available in the winter months.
5. Watch out for ice on runways. You may take off ok, but it is a different story when you land.
6. Review carburetor ice procedures
7. Taxi speeds must be consistent with conditions. Watch out for snow banks.
8. Give yourself a multitude of options.
9. Review aircraft performance numbers very carefully.
10. Are you prepared for survival options?



As of November 13th we have recorded our 1,000,000 Young Eagle Flight. It was a 15 year old boy from Illinois.

Did You Know



This photograph of the first flight at Kitty Hawk, North Carolina, on 17 December 1903 is one of the most recognized in the world. With Orville Wright at the controls, lying prone on the lower wing with his hips in a cradle that operated the wing – warping mechanism, the first successful powered flight took place. Wilbur Wright, seen running alongside to balance the machine, has just released his hold on the forward upright of the right wing. The starting rail, the wing rest, a coil box and other items needed for flight preparation are visible behind the machine. This flight was the result of years of experiments and design by the Wright brothers.

The following Submitted by John McNerny

OFFICIAL QUESTIONS PROPOSED CHARITY, SIGHTSEEING FLIGHT RULE

U.S. Rep. Sam Graves (R-Mo.) has joined AOPA in calling on the FAA to hold public meetings on proposed changes to standards for charity and sightseeing flights. In a letter to FAA Administrator Marion Blakey, he wrote, "Because of the potential adverse impact of this NPRM [notice of proposed rulemaking] on thousands of general aviation pilots and businesses, it is incumbent upon the FAA to ensure that the proposed rule and its impact are thoroughly evaluated." The proposal would raise the minimum number of hours, from 200 to 500, required for pilots conducting charity fundraising flights, and remove an exemption that allows Part 91 sightseeing flights within 25 nautical miles of an airport. Operators conducting flights under this exception would be subject to Part 135 operational requirements. See the following web site:

(<http://www.aopa.org/whatsnew/newsitems/2003/03-4-134x.html>).

The Chapter Trailer

By Marge Butterfield



The above picture does not do it justice. You would not believe the detail that went in to the construction of the official EAA Chapter 613 trailer.

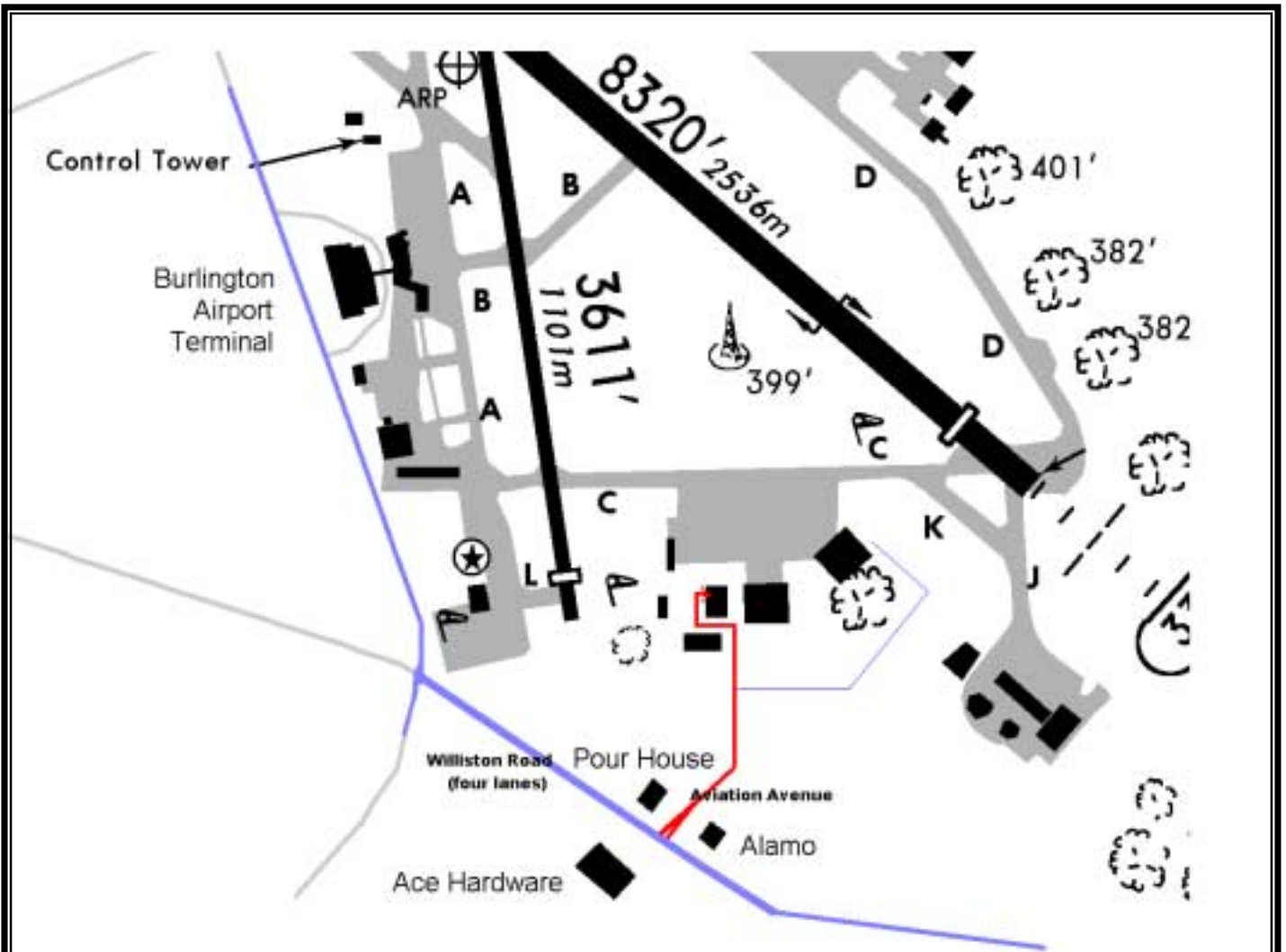
Donald Taylor's years of expertise in building sure came in to play here. Many hours of hard work went into this project. When Donald sets his mind to do something, he does it right. At the last Chapter pancake breakfast, George Chaffee (who had donated the trailer frame) jokingly said "I'd like that trailer back!"

Thanks to the dedicated efforts of Donald, we now have a well-constructed trailer, with our EAA logo on the side, to take to different locations for use at various functions.

**** New Member s ****

The following new members have joined our Chapter: **Charles Bigalow** from Shelburne. Charles is retired and has his private pilot's license. **John Winsor** from Williston. John recently purchased a 1946 Stinson which is based at the Shelburne Airport. John is looking forward to getting his tail wheel endorsement. **John Schwartzberg** and his wife **Beth Schiller** from Essex, NY. Both John and Beth have their IFR and Seaplane ratings and they fly a Cessna 170A and a Cessna 180J. John is also an Aviation Medical Examiner and is willing to give medicals in Vermont. You can contact him at 802-233-6186.

Welcome to EAA Chapter 613



The important landmarks to look for on Williston Road are the Ace Hardware store, Alamo rental cars and the Pour House.

Location of North Ramp Aviation

Prepare for your Pilot Written Exams
at North Ramp Aviation's
Ground Schools

Private Pilot Ground School:
Tuesdays, January 6-March 16, 2004,
6:00-9:00 PM
11 weeks

Instrument Pilot Ground School:
Thursdays, March 4 – April 8, 2004,
6:00-9:00 PM
6 weeks

Commercial Pilot Ground School:
Thursdays, January 15 – February 19, 2004,
6:00-9:00 PM
6 weeks

All Courses: \$300.00

Nick Santo, Gail Isenberg and Derek Maroot, Instructors
North Ramp Aviation Classroom
271 Aviation Ave, Suite 4
Call 865-4366 to reserve your space.
Enrollment is limited



EAA CHAPTER 613

of VERMONT



Membership Application

and **Renewal Form** to update Chapter's data base

Date _____

Name _____ Spouse or S. O. _____

Mailing Address _____

City _____ Zip _____

Business or Occupation _____ Business Phone _____

National EAA # _____ Date _____ Home Phone _____

E-Mail address _____ @ _____ Check Yes__ or No__ if you want
EAA Newsletter sent via E-mail.
(Saves chapter postage & paper)

Pilot License Yes__ No__ If yes, what class & rating? _____

Aircraft Owned _____ Current Projects _____

Are you willing to give others rides? Yes__ No__ Would you like to be given rides? Yes__ No__

Are you willing to participate in the Young Eagles Program? Yes__ No__

Aircraft Interests

Homebuilts _____ Classics _____ Warbirds _____ Ultralights _____ General _____ Aerobatic _____

Other _____ Please describe _____

Use this area to express thoughts and suggestions for club activities, your interests in holding office or chairing a committee, as needed.

Dues: \$15. (Single); \$20. (Family). Please make check out to: **EAA Chapter 613 of Vermont** and send with this form to:

David Harrison, Treasurer
645 South Lincoln Road
Lincoln, VT 05443-9558

Dues are paid to Jan 1, and are up for renewal at that time.

04/02

EAA. . . the Sport Aviation Association

EAA CHAPTER 613

**Bill & Carol Morelli, NLE's
105 Brick Church Rd.
Fairfax, VT 05454**

FIRST CLASS MAIL



December 2003

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Assistant Tech Counselor & Activities Committee			
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