The Twin State Flyer

EAA Chapter 740 Newsletter

Box 5530, West Lebanon, NH 03784

June 2004

Coming Young Eagles Day

By Tom Williamson, 740 President

I hope you are all aware of the June 19th 2004 Young Eagles and Airport Awareness Day to be held at Lebanon airport. This will be our second event at LEB, and I am hoping ti si a bigger event than last year, when we had to postpone to our rain day and were new to presenting the event at LEB. We are promoting this year's event more than last year, and I believe we will have a larger turnout. There is no substitute for the thrill a youngster gets from a ride in one of our airplanes, as all YE pilots know.

YE Building at Airventure

EAA is promoting its International Young Eagles Day on June 12th of this year, a day when pilots all over the world make an attempt to fly YE's. Typically over 10,000 YE's are flown during this day. Pilots are encouraged to fly at least one YE on this day, if possible. While on the subject of EAA, Airventure 2004 is approaching, and the theme is "Launching the Second Century of Flight". The dates are July 27th-August 2nd. I have said it before, and am now again, if you have not attended one of these airplane orgies, you should get it done. And go back for more. Every kit plane manufacturer has a display there, every accessory is available usually at discounted prices, and lots of pilots and airplanes of all types. I am always amazed at the rare antiques, warbirds, airliners, experimentals that show up. Nowhere is the turnout bigger. Lodging is no sweat if you want to camp outside your airplane, which is my favorite way to attend. You meet more people that way, too. Last time I attended, 2 years ago, an impromptu country band strummed out tunes a couple of rows away until after dark. It was okay. Then, about 7 am, revile is blasted out of the loudspeakers and some guy with no business in front of a microphone starts singing some song or other, not exactly recognizable. If the wind has not picked up too much the

Continued on Page 2

Chapter Officers:

President:
Tom Williamson 802-436-2868
Vice President:
Andreas Bentz 603-643-1447
Secretary:
Stan Spencer 802-674-6739
Treasurer:
Doug Fraser 802-333-9993

Directors:
Bill Molloy 802-649-9057
Joel Godston 603-787-6771
Dino Vlahakis 603-448-3729

EAA Tech Counselors:
Marvin Bishop 802-295-7200
Frank Stites 802-457-3413

Newsletter Editor
Tom Williamson 802-436-2868

Young Eagles Coordinator
Joel Godston 603-787-6771

Webmaster:
Bill Molloy 802-649-9057

Membership Chairman & Flight Advisor:
Dino Vlahakis 603-448-3729

EAA Chapter 740
PO Box 5530
West Lebanon, NH 03784
Website:
www.eaachapter740.org

Boilerplate

Chapter 740 is a local chapter of the Experimental Aircraft Association. It received its charter in October 1981 and operates as a non-profit club. Monthly meetings are normally held on the 2nd Tuesday of each month at Signal Aviation Services building at the Lebanon Municipal airport, W. Lebanon, NH at 7 pm. Visitors are always welcome.

This newsletter is a monthly publication and is sent to all members in good standing, EAA HQ and certain other EAA chapters. A complimentary 3-month subscription will be sent to prospective members on request. Please send address corrections to the editor at 85 Best Rd., Windsor, VT 05089 or email at: twill01@vermontel.net.

Disclaimer

Twin State Flyers Inc. assumes no responsibility for any action taken by any persons as a result of reading any part of any publication prepared by or referred to in its newsletter or other publications. The operating comments, recommendations, critiques, suggestions, and procedures together with the cautions, safety actions, modifications, mechanical remarks, and other items recounted in these publications is provided for the reference of the reader, and no endorsement or approval is implied or intended. The pursuit of flight or the pursuit of any action contained in this newsletter is the responsibility of the individual and not of the Twin State Flyers. Any individual taking any action in reliance on material published in this newsletter does so at his or her own risk. The Twin State Flyers, its directors and members disclaim specifically any responsibility for any action taken by others.

YE Day, from Page 1

ultralights start droning like a huge bee hive, then the departures and arrivals start. Nothing like a pair P&W R-2800's advancing to full power 100 yards to the east of your tent to go with your morning coffee.

Hundreds of vendors to visit in the morning, airshows in the afternoon, and then there are the forums. These are scheduled and easy to find, forums on all aspects of aircraft construction, forums on aircraft maintenance, chapter activities, web design, newsletter writing (I missed that one), aeromedical issues, FAA presentations, NASA presentations, celebrities, if it has to do with aviation there is probably a forum on it. I once attended a Chuck Yeager talk when the man himself spent several hours describing the WW II fighter pilots' life, and then he took an hour's worth of questions from the crowd.

Some folks are apprehensive about flying into such a crowded event as Oshkosh. The FAA does a superb job of arrival and departure management here. It is not very complicated. Full and detailed descriptions of procedure are available from the FAA and EAA, and it is not hard to fly. It helps to have two pairs of eyes watching for traffic, so use that as your excuse to bring a kid or spouse along. The arrival handles more airplanes than O'Hare on a very busy day, and as long as you fly as directed in the NOTAM and as directed by the controller you will do fine.

With our chapter Young Eagles day coming up and summer fly-ins, both local and national, it should be a great year for bug-smashers. I hope to see you at our June 19th event, our barbecues beginning June 8th at LEB, and all the other events going on in the area for aviation enthusiasts. Happy flying.

Hampton Fly-Mart
By Dino Vlahakis

The annual Hampton Airfield Fly market took place on the weekend of 15-16 May. It appeared to have fewer attendees and vendors than I had seen previous in years. There were fewer fly in aircraft noted as well. Chapter 740 member Charlie Zue was seen peddling some items in the vendors section. We also ran into Sonny Cilley scouting the bargains as we made our way through the rows of "treasures." I saved a ton of money by not spending any of them. Many of the vendors pulled out early on Sat afternoon and from reports we heard that Sunday was a a slow day. By the crowds in the Airfield cafe you would have never known it.
I drove down on Friday night to attend a memorial service for Darren Banfield. Darren operated a shop under the name Golden Age Restorations in a hangar on the field. He loved working on and flying antiques. Watching him form sheet metal on his many pieces of equipment into neat airplane parts was a treat. This is not to say that he wasn't proficient with dope and fabric. He'd tackle any job! There was always fun to be had at the hangar during the impromtu BBQ's that he and John Carroll would host. He was co host of the annual antique and biplane fly-in at 7B3. Darren owned a Rearwin Sportster and was recently working on a Fokker triplane replica for a customer.
About a week earlier Darren had purchased a Cessna T50 (Bobcat) which is a WWII vintage twin. This one had floats on it. He had departed somewhere in southeastern Ma. and crashed near Sharon. Reports indicate that one engine was feathered and that he died instantly after hitting a tree while trying to land in a lake. Investigation is ongoing. The information we got was not official. Not having Darren there flying his Bucker Jungmann during the Fly Market cast an air of sadness among those of us who knew him. A fly by and missing man formation was held on Friday evening just prior to the memorial service held in his hangar. Two stearmans and a Waco made up the formation with well known aerobatic pilot, Rob Holland, flying the Jungmann. In the shop about 200 people assembled to meet family members and listen to streams of touching and humorous eulogies by friends and relatives as we celebrated his life of 37 years. According to reports , one of his employees will be continue to operate the shop and restoration facility in the same hangar. He'll be sorely missed.

Things to Consider

As we enter into our short summer flying months I have to think about what will transpire in the fall on this year. We are in the process of putting together a nominating committee to help out with the transition to a new administration for the chapter. As has been pointed out before, each of our officers is terminating service this year due to our term limits as per the chapter bylaws. An entirely new administration will have to take over after our October annual meeting.
This organization survives because there are those among us who are willing to serve as chapter officers and directors. It will only continue as long as the membership keeps it viable. It will not keep going without the will to do so, and that happens when we all stand up and serve.
I encourage each and every member to bet involved in the process. If you would be willing to serve on the nominating committee or serve as an officer or director please let an officer or director know, please volunteer your time and services. As I said, this chapter survives because we make it so, it fails if noone is willing to serve. October is not far off.

Next chapter event, after the YE day, will be July 13th, barbecue at LEB, 6 pm, bring side dishes.

Oshkosh is coming, go to www.airventure2004.org.

August we will have another barbecue, it will be on August 10th, usual time and place.

Aviation Safety Education Safety Days, July 10 and 11, 2004, at Daniel Webster College's Tamposi Aviation Center at Nashua Municipal Airport, KASH, Nashua, NH
Saturday, July 10: 9 am -5 pm
Sunday, July 11: noon - 4 pm
Visit www.dwc.edu or call 603-577-6622 for more information.

Flight Advisor Article

Submitted by Hobie Tomlinson, EAA Flight Advisor

WIND SHEAR. PART II

In last months Flight Advisor article; we discussed the wind shear itself. This month let's look at the practical application of this information to the different types of wind shear. We will discuss:

1) Convective Shear
2) Frontal Boundary Shear
3) Inversion Shear
4) Mechanical Shear
5) Coriolis Effect/Ground Friction

CONVECTIVE SHEAR occurs in and around thunderstorms and is the most dangerous of all the shears. A microburst is created when cold air in the top of a thunderstorm becomes too heavy for the up rushing air to support. This "bubble" of cold air then flows down through the cell like water poured through a tube, striking the ground and flowing out in all directions. The best way to visualize this is to point a water hose directly down at a paved surface and turn on the water. The downward flowing water will duplicate the airflow in a microburst event. An aircraft unlucky enough to encounter this will first experience a large airspeed increase as it enters the out flowing air, resulting in a marked decrease in the descent rate. About the time power is reduced and the nose lowered to correct these changes, the aircraft encounters reducing headwinds and a violent downdraft, resulting in a disastrous sink: rate. Just as the nose is raised and power is applied to counter the sink: rate, strong tailwinds are experienced, resulting in a severe loss of airspeed. In its most violent form, a thunderstorm microburst can produce shears of over 100kts combined with down flows of over 6000 feet per minute! As these microburst easily exceed the performance capability of any aircraft, avoidance is the key. Do not take off or land when thunderstorms are present in the immediate vicinity of the airport.

In the arid southwest, dry air microburst can exist in clear air under virga. This is especially a problem at western airports. If an inadvertent encounter is experienced, it is very important to initiate the escape maneuver at the earliest signature of a microburst (the strong airspeed increase during entry into the microburst). This is when the aircraft is at its highest energy state and has the best chance at survival. No aircraft can out climb the downdraft, so its total energy must be used to penetrate it, as a microburst is usually of relatively small diameter (two to six thousand feet). Immediately apply maximum available power and use all energy available to maintain level flight until through the downdraft (fly a zero vertical speed until airspeed starts to increase again).

Although stall warning must be respected, it is very important to hold a pitch attitude that gives an intermittent stall warning until airspeed starts to increase again. This means increasing AOA to the maximum and letting airspeed bleed down to stall warning, then keeping it there until the aircraft arrests it descent and starts to climb. It is more important to use any initial gains to restore airspeed rather that to climb, as the escape maneuver depends on achieving maximum forward distance, rather than any altitude gain.

Be aware of two traps in the recovery maneuver. The downdraft will cause the relative wind to shift upward, reducing AOA. Restoring the correct AOA will cause an extreme nose up pitch attitude, as much as 25 to 30 degrees nose-up. While this is occurring, the low airspeed will put the aircraft "out of trim", requiring an unusually large backpressure on the controls to maintain the correct pitch attitude. This may well combine with a nose down thrust vector from high, tail mounted engines found on many small jets. It is critically important that the nose not be allowed to drop! At the low airspeeds being encountered, the wing cannot produce enough lift to arrest the resulting high sink rate. Modem technology has produced wind shear computers, which will program the optimum escape maneuver for a given aircraft. These are among the great safety advances of modern technology, but are usually only found in "high end" cockpits.

Gust fronts are the other side of the two-edged convective shear sword. These are far more likely to be encountered by most of us and are a very real hazard when thunderstorms are approaching an airport. The very famous accident in Cheyenne Wyoming, when the young lady "Jessica" was trying to make the records by being the youngest pilot to fly across the U.S. in a light airplane, was a classic example of a gust front shear.

As a thunderstorm approaches an airport, warm moist air is flowing into the thunderstorm giving it its moisture supply. This seems ideal for pilots wishing to quickly depart the field before the storm arrives, as the

Continued on Page 5

Flight Advisor, from Page 4
runway into the wind is the one facing away from the approaching storm. However, at the storm cold air is being dragged downward by the high precipitation rate and spreading outward like water poured on pavement. This outspreading cold air can be at distances of up to 5 miles from the storm, depending on its severity. The boundary between the inflowing warm air, which is flowing over the outspreading cold air, is the "gust front". When it reaches the airport, the light (05-15kts) headwind will suddenly change to a strong (20-60kts) tailwind. The resultant 25 to 75kt airspeed loss is catastrophic for a low energy, low altitude aircraft. In the "Jessica" accident, the CE177RG was immediately stalled by the gust front shear and crashed. An airline friend of mine broke his back when the CE150 he was flying was stalled by a gust front shear and crashed, trying to "beat the storm", The moral of the story, **DO NOT** attempt to takeoff or land in the vicinity of a thunderstorm!

.

INVERSION SHEAR occurs when cool air close to the ground lifts the overflowing warmer air, creating a sharp boundary between the calm air and windy conditions aloft. This usually happens in the colder latitudes during the winter. As in the frontal boundary shear, it has no vertical component and is easily within the performance parameters of most aircraft. It can present a problem when it happens at a very low altitude during takeoff or landing, especially when performance is marginal (short fields). It is also most dangerous at night or during a low viability approach, when the resulting speed loss/sink rate may not be quickly recognized.

MECHANICAL SHEAR occurs when terrain features (such as buildings, trees, ridges, etc) affect the prevailing winds. This is a particular problem at airports located in hilly/mountainous terrain, or with trees/buildings located in close proximity to the runway, especially during crosswind conditions. Large terrain features produce unique local winds, as well as wind swirls and turbulent flows. These cause a multitude of wind changes in short distances. Trees and buildings close to the runway cause wind "shadows" (absence of wind) as well as varying the local wind direction and causing turbulent flows.

All Vermont airports are affected. Rutland and Middlebury being very affected by strong southeast winds. Plattsburg, New York is particularly affected by strong northwest winds. Airports like Canandaigua, N.Y. - D38 (which has a "v" shaped tree line with the point near the center of the runway) has opposing winds at opposite ends of the runway during strong crosswind conditions.

The recent crash in the Champlain Islands was caused when a fully loaded CE 172 took off to the south in calm surface winds, only to encounter a 25kt tailwind at 50 feet agl. A contributing factor in this accident was the failure to control the aircraft's ground track, which was adversely affected by the crosswind component of the shear.

Be alert for shear at all airports during windy conditions, especially when gusty winds exist. Study the airport topography before making an approach and try to visualize the wind flows downwind from prominent terrain features, as well as around structures on the airport. If the airspeed is fluctuating on approach, adjust your airspeed such that the bottom of the airspeed fluctuation range is at the desired approach speed (the formula is to add 1/2 the gust value to the appropriate approach speed). Consider landing with less than full landing flaps. Do not try for a "grease job" landing, but allow the airplane to fly onto the runway in the appropriate landing attitude, and then quickly lower the nose to the runway (reducing the AOA and preventing a gust from lifting the aircraft back into the air). Once the nose wheel is down, firmly brake the airplane to a stop using a steady, but firm brake pressure. The object being to reduce the aircraft speed as quickly as possible and mitigate the winds affect on the aircraft. The reason to not keep flaring the airplane in an attempt for a smooth landing is that a gust “peak” can balloon the aircraft or a gust "lull" can abruptly drop the airplane onto the runway with no time to react.

Especially when dealing with weather events, listen to your gut - when in doubt. **Don't.** So until next month, remember to, **Think Right to FliRite!**

Tom Williamson, NLE
85 Best Rd.
Windsor, VT 05089