



CHAPTER

613

August 2008

(Chapter 613 web site)

www.eaa-chapter613.org



SHELBURNE AIRPORT DAY

By Marge Butterfield

The groundwork is being laid once again for the Fly-In/Young Eagles Rally on Saturday, September 20th at the Shelburne Airport. (Rain date on Sunday, the 21st) We couldn't do this without the help of the volunteers who have helped in the planning part so far and for those who we hope will be there to help out on the 20th. So if there are any members out there who are free that day and haven't already committed their time, we definitely would appreciate your help!

The event officially begins at 10:00 a.m., therefore members should plan to be at the Shelburne Airport around 9:00 a.m. The pilot briefing for the Young Eagle pilots begins at 9:30.

Many of you may recall what a fun time this was at last year's Shelburne Day. We again plan to have a food concession, bake sale (baked items will be needed!), a display of our new Aviation Center and static displays. Please give **Frank Gibney, Sonja**

Burbank or Marge Butterfield a call. Also, we would like to have any aircraft (including ultralights and model airplanes) built by Chapter members on display. Here's a chance to show off your handiwork!

As you can see, this is going to be a BIG DAY and it can't be done without your support. Volunteers will be needed! Some of the positions available are:

- Pilots to give Young Eagle rides
- Young Eagle paperwork handlers
- Young Eagle Certificates preparation
- Bake Sale attendants
- Cooks for the food concession
- Parking attendants
- Static display attendants (for both the airplanes on display and for our Chapter booth)

Well, that's just to name a few. Please call either Frank Gibney or Sonja Burbank at 879-7419 or Marge Butterfield at 878-6337 to volunteer. We will be standing by waiting for your call!
THANKS.

Chapter Member Tops the Two Hundred Mark!

John Butterfield recently received a congratulatory letter from EAA headquarters for his dedication to the Young Eagles Program in flying more than 200 Young Eagles.

Congratulations John!!

Guest Author: Ethan Parent

"November, Four, Three, Zero, Romeo, Alpha cleared for take-off." I let off the brake as I increased the throttle to full. I quickly picked up speed on the runway. Pulling slightly on the ever-so sensitive stick, the wheels lifted up off the ground. At 3,000 feet, I leveled off. I became mesmerized by the unfolding view of the Wisconsin countryside. I realized like never before, that this is where I belong.

The next day, I searched the shelves of the museum gift shop for a logbook. The pilot who brought me flying was a CFI, so getting my first signature towards my license would mean a lot to me. Unfortunately, I could not find a standard pilot logbook. I talked to Kyle (my CFI) to see if he could help. He showed me a website I could order one from when he decided he could just order one in his name right there. Another instructor suggested going to Orion Pilot Shop down the road. All three of us loaded up in the van and we headed out to get my logbook. When we got there, a person found one for me and I paid for it at the counter. After getting back, Kyle signed it. Getting that first signature is my first step toward a life of flying.

For me, getting to fly and having that count as a log toward my license, was the highlight of the Air Academy. There were also many other hands-on activities that we did. We made composite airfoils using an electrified wire to melt the foam and fiberglass to layer over it. We also made a wing rib of an Acrosport II and gliders out of balsa wood. Other activities took place outside the workshop. There was a flight simulator lab and also a climbing course. The museum was massive, with many different experimental and WWII aircraft. It also had some of the works of Burt Rutan. There was always something fun to do.

My time at the EAA Air Academy in Oshkosh, Wisconsin was amazing. The lodge was very nice, the food was great, the staff was friendly, and the activities were fun. I learned many things at the Air Academy and have taken so much away from the experience. My admiration with aviation grows with each time I get exposed to it, and this was the perfect opportunity. I look forward to my future ahead in the aviation field. Thank you EAA Chapter 613 for making this possible.



Ethan hard at work in the workshop



Ummmm... was it *supposed* to be a lawn dart?

Editor's Note: Ethan Parent is an honor student entering Mount Mansfield Union High School as a freshman this fall. He participates actively in the Civil Air Patrol and is hoping to get his Private Pilot's License when he is 17. He likes to do anything related to aviation and is considering the University of North Dakota to major in commercial aviation, aeronautical engineering, or Air Traffic Control. Ethan also flies remote control planes, plays baseball, and is a WWII reenactor.

Last month we started a series on *Maneuvering Flight* by discussing **Problems** and **Slow Flight**. This month we'll continue our series by looking at the next item on the list, **Approach to Stalls**.

Approach to Stall is the maneuver used for introducing students to the subject of stalls. It is also the maneuver used in training and checking pilots to fly transport aircraft, which are not normally stalled during training. For that reason, approach to stalls is the maneuver called for in the ATP PTS ("*Airline Transport Pilot ~ Practical Test Standards*").

Imminent Stall is the flight condition which is created during the Approach to Stall maneuver. *It is important to understand that in an imminent stall condition, the aircraft wing is not actually stalled, but only on the verge of stalling.* Because of the unstalled condition of the wing, recovery from an imminent stall bears a closer resemblance to exiting slow flight than to a full stall recovery. Another way of thinking about an imminent stall would be to consider it an "*extreme slow flight*" condition.

Not Power Limited refers to a condition in which the aircraft has *sufficient power available to overcome the huge induced drag produced by the high angle of attack as well as accelerate in level flight without descending.* This condition is verified by observing an airspeed increase and/or positive rate of climb immediately after full available power is applied. (**Note:** During the recovery maneuver, the angle of attack is lowered sufficiently to prevent climb and allow acceleration to take place, but it is not lowered so much as to induce a descent.) Because all aircraft eventually lose power as they climb, this condition typically only exists at lower altitudes and lighter weights. As this is where almost all flight training takes place, not power limited is the normal training situation we find ourselves in.

Intentional Approach to Stall is a valuable training and testing maneuver as it develops or validates a pilot's sense of feel in performing maneuvers for which maximum aircraft performance is required. It teaches the ability to retain, or regain, full control of the aircraft immediately upon recognizing that a Full Stall is about to occur if preventative action is not immediately taken. Intentional approach to stall is a good introductory maneuver for students to the Full Stall series, as it teaches control feel, coordination skills, and pitch/power management. It is a good bridge maneuver from slow flight training as it further develops those skills and is not as intimidating as the Full Stall maneuvers.

Power Limited refers to a condition in which the aircraft has *insufficient power available to overcome the huge induced drag produced by the high angle of attack as well as accelerate in level flight without descending.* This condition is verified by observing a lack of airspeed increase (static airspeed reading), decreasing airspeed, or a rate of descent immediately after full available power is applied. Because the aircraft may be sinking (mushing) the deck angle might not seem excessive even though the angle of attack is critical. As this condition normally exists at higher altitude and heavier weights, it is the one that will typically occur when the Approach to Stall is unintentional.

Unintentional Approach to Stalls usually happen because *the pilot is trying to force performance that is just not there!* Whenever a pilot tries to perform a maneuver for which the aircraft has insufficient power available, the only possible outcome is a decaying (loss) of airspeed! The last divider between a "Never Again" story and tragedy now becomes the pilot's ability to recognize an imminent stall situation and take immediate action to prevent the impending Full Stall. The tragic Pinnacle Airlines crash of a few years back occurred because the pilots (on a repositioning flight) tried to force a rate of climb that was not sustainable and did not immediately take action to resolve an imminent stall situation. The resultant Full Stall caused both engines to flame out. They were, unfortunately, unsuccessful at both relighting the engines and the dead stick landing. Typical scenarios for unintentional Approach to Stalls are as follows:

- Climbing too steeply after takeoff (short field)
- Trying to "force" SE climb in a Multi-Engine aircraft
- Over-banked turns and sharp pull-ups (i.e. buzzing)
- Inadequate power management (distractions)
- Climbing with excess vertical speed
- Trying to fly at excess density altitudes
- Becoming "low and slow" on approach

Recognition of Approaching Stall is the first training objective of the Approach to Stall maneuver. Although a modern aircraft comes equipped with some type of stall warning device, pilots should not be dependent on these systems. Therefore, pilots need to learn how to recognize an impending stall by the following four clues:

- **Vision** is the first clue used in detecting an impending stall. Vision is used to monitor the relative position of the elevator control and the deck (pitch) attitude of the aircraft. **Although an aircraft can be stalled in any attitude and at any airspeed, it always stalls at a fixed angle of attack.** That angle of attack can only normally be generated with full up elevator control (aft stick/yoke). Hence the elevator control's position becomes a "poor man's AOA (Angle of Attack) indicator" and gives a direct clue to impending stall. Deck (pitch) angles requiring more power (thrust) than is presently available will produce steadily decaying airspeed. While excessive deck angles may be obvious at low density altitudes and high power settings, they are much more subtle at high density altitudes and low power settings. This is because the aircraft will start to settle (mush), causing the critical angle of attack to be reached with a much lower deck angle
- **Hearing** is the second clue used in impending stall recognition. As the aircraft approaches an impending stall, the lessening of airflow noise along the fuselage becomes quite noticeable. Then just prior to the stall airframe vibration and other incident noises increase sharply. Aural (or other) stall warning devices activate about this time. On a fixed pitch propeller aircraft in a power-on condition, the loss of r.p.m. just prior to stall gives a particularly noticeable change in sound.
- **Feel** is the third very important clue used in impending stall recognition. The control pressures become noticeably less and large control movements (deflections) are required to obtain the desired results. The lag between control inputs and aircraft response becomes greater (sloppy controls), and the aircraft exhibits a ragged response to control inputs. Then - just prior to stall - buffeting, uncontrollable pitching, and vibration may begin.
- **Kinesthesia**, or kinesthetic sense, is the fourth and most important clue. It is the ability to sense changes in direction or speed of motion. All correctly trained and experienced pilots will have developed this kinesthetic sense. When this sense is properly developed, it will warn of a decrease in speed and/or the beginning of settling/mushing of the aircraft.

The Approach to Stall maneuver requires the aircraft to be flown into a condition approaching stall, but with recovery initiated before a Full Stall actually occurs. An Approach to Stall maneuver is usually started at 2,500 feet AGL, or above, with a light, single engine piston aircraft. This gives a 1,000 foot margin above the hard floor (minimum recovery altitude) of 1,500 feet AGL specified in the Private and Commercial PTS for SE Airplanes. For Multi-Engine, propeller aircraft, the maneuver would be typically started at 4,500 feet, or above, as the Private and Commercial PTS for ME aircraft specifies a hard floor of 3,000 feet AGL. Turbine aircraft would typically fly these maneuvers above 10,000 feet AGL.

The maneuver is started once the appropriate clearing turns are completed, by maintaining a pre-selected heading and altitude, all while reducing power sufficiently to cause a deceleration rate of 1 knot/second. Heading and altitude are maintained until an imminent stall is indicated by stall warning, airframe buffeting, or loss of control effectiveness. The maneuver is flown in each of three configurations which are as follows:

1. Clean ~ Flaps and Gear retracted (on aircraft so equipped)
2. Takeoff ~ Flaps at takeoff setting, gear retracted (on aircraft so equipped)
3. Landing ~ Flaps at landing setting, gear extended (on aircraft so equipped)

A 20 degree bank will be used in one of the above maneuvers, usually the one in takeoff configuration. A bank in either direction is initiated as soon as the aircraft is established on heading and altitude with the deceleration rate set and is continued at 20 degrees of bank until recovery is initiated.

Recovery is initiated at the first indication that a stall is imminent, as determined by activation of the stall warning system, aerodynamic buffeting, or loss of control effectiveness. The recovery is completed as follows:

- Apply full available power
- Simultaneously roll the wings level, if in a bank ~ (gentle with ailerons at high AOA)
- Verify that airspeed is increasing and/or Rate of Climb is positive
- If airspeed is increasing and/or rate of climb is positive, lower the nose sufficiently to prevent climb and allow the airspeed to increase ~ but not so much as to cause a descent. (Not power limited condition)

- If airspeed is not increasing (static), or is decreasing, and/or a rate of descent exists, lower the nose sufficiently to cause the airspeed to begin increasing ~ even though lowering the nose causes additional descent. The pitch attitude at which the airspeed first starts to increase becomes the “target pitch attitude” for recovery and is held until minimum recovery airspeed (typically 1.4 to 1.6 V_{so}) is regained. The aircraft is then returned to its original altitude at the start of the maneuver. (Power limited condition)
- Anticipate the rapid change in trim caused by the large airflow change over the tail (on aircraft where the tailplane is in the propeller slipstream) or thrust vector effect (on aircraft where the thrust does not act through the aircraft center of gravity (C.G.) such as Lake Amphibians or turbine aircraft with pylon mounted engines)
- Anticipate the yaw caused by “P” factor and spiral slipstream effects on propeller aircraft.
- Retract flaps to the “Takeoff” position (if they were in the “Landing” position) as soon as full power is applied and the wings are level.
- Retract the landing gear as soon as airspeed has increased to 1.2 V_{so} (V_2 in turbine aircraft) This is not done initially as open gear doors create extra unwanted drag.
- Retract the flaps from the “Takeoff” position to the flaps “Up” position (clean) using the normal flap retraction schedule.
- Reduce power to maintain the desired recovery airspeed
- Resume/maintain level flight at the maneuver entry altitude

Common Errors in the performance of Approach to Stalls are as follows:

- Not maintaining heading (or bank angle) in the entry phase
- Allowing a large rate of descent (sink) to occur during the entry phase
- Excessive deceleration rate
- Allowing a Full Stall or Spin to occur
- Using an excessively low pitch attitude during recovery
- Using incorrect recovery power (Under-Powering or Over-Boosting the engine/s)
- Excessive altitude loss or airspeed gain

This is where we will break for this month and continue with **Fundamentals of Stall Recovery** next month. The thought for the month is: “*Practice does not make perfect, only perfect practice makes perfect*” (i.e. don’t habitualize error) – **Vince Lombardi**, Football Coach. So until next month, be sure to **Think Right to FliRite!**

Heading Home ~ Greenville SPB (52B) Moosehead Lake, Maine



Safety Tip By Don Taylor**Master Takeoffs and Landings**

In 2007 more than 50 percent of all pilot related accidents occurred during takeoff or landing, clear evidence that despite all the educational efforts over the decades, the basics are still giving us fits.

Why do pilots have so much trouble with such fundamental skills? It's no real mystery: takeoffs and landings require us to fly close to the ground, near the edges of the airplane's performance envelope.

Good judgment and stick and rudder skills are a must - especially when crosswinds, obstructions, and short runways enter the picture. Pilots who don't have the basic skills (or haven't maintained these skills) are especially at risk.

Mastering takeoffs and landings takes practice and more practice.

Did You Know? By Don Taylor**Stretching Your Fuel Dollar**

Flight planning with fuel-economy focus, and implementing efficient ground, departure, en route, and arrival procedures will result in immediate fuel savings. Other contributing factors to fuel efficiency that have a long-term, continuing effect on fuel burn, include maintenance and care of the airframe, engine, and prop, as well as aircraft modifications that reduce drag and improve aerodynamics.

When planning a flight, pick the altitude with the best tailwind (or least headwind). Conserve fuel by reviewing airport diagrams and listening to weather before starting the engine. Plan to depart when traffic is light to avoid delays.

Save fuel en route by leaning and throttling back for economy cruise. Leaning is recommended by most engine manufacturers. When operating at or below 75 percent power, reducing power to a best-economy setting will result in improved mileage per gallon. It takes a few more minutes to reach your destination at 65 percent power than at 75 percent, but the fuel savings add up.

Check your landing gear, cowling, rigging, and trim for items that may be causing drag. A well kept engine is a must. Fresh oil, clean spark plugs, well-timed magnetos, a spotless engine, and a well dressed prop all contribute to improved fuel efficiency.

Dress it up, fly rite, and save.

Young Eagles: Donald Taylor

[Editor's Note: While working on the newsletter, I somehow managed to misplace Don's inputs for this section - so I'm going from memory - sorry Don!]

No one has reported Young Eagles - 121 flown as of last month - so we have a long way to go for our goal of 300 for 2008.

Next Young Eagles opportunity: Shelburne Day, Saturday, September 20th at the Shelburne Airport (VT8). (Rain date on Sunday, the 21st)



Try to stay in the middle of the air. Don't go near the edges of it! The lower edge of the air can be recognized by the appearance of ground, trees, buildings, sea, and the upper edge by interstellar space. It is much more difficult to fly there. ANONYMOUS

(Stolen from EAA Chapter 889, Kingsland, Texas June 2008 Newsletter)

UPCOMING EVENTS

EAA Chapter 324 Simsbury (CT) FlyIn Sunday, 21 September 2008

Here at Simsbury Airport, we are already busily at work planning for the 23rd Annual Simsbury FlyIn, to be held this year on Sunday, Sept. 21 (Rain Date: Sept 28). The event is co-sponsored by EAA Chapter 324, ValleyClassic Wheels Auto Club, and the Simsbury Flying Club. We cordially extend an invitation to you to attend, and to bring your aircraft for display and judging. Even if you don't wish to display your aircraft, we would love to have to fly in.

If you have questions, please contact Bill Thomas, Airport Manager, atwdthomas421@comcast.net, or 860-693-4550. See you there !

<http://www.simsburyairport.com/flyin.php>

Calendar of Events

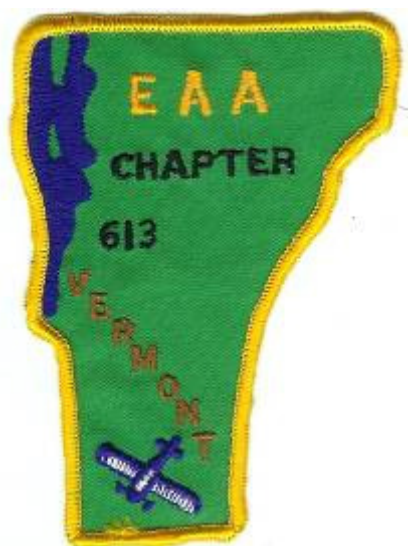
September 20, 2008	SHELBURNE DAY, Shelburne Airport (VT8), 9am - close (Rain date: 21 September)
September 21, 2008	EAA Chapter 324 Simsbury FlyIn, Simsbury Airport (4B9), CT, 8am - 3pm (Rain date: 28 Sept)

OFFICERS/COMMITTEE MEMBERS

President	Phone	Address	e-mail
Tony Speranza	878-7377	2 Poplar Court, Essex Junction, 05452	asperanz@yahoo.com
Vice President			
Bruce Uvanni	985-4008	PO Box 324, Shelburne, VT 05482	buvanni@us.uvm.com
Treasurer			
Eric Richardson	425-6281	5755 Greenbush Rd, Charlotte, VT, 05445	eric_ib_richardson@yahoo.com
Secretary			
Marge Butterfield	878-6337	721 North Williston Rd, Williston 05495	airbear9fj@verizon.net
Newsletter Editor			
Bruce Richardson	229-2460	975 Crosstown Rd, Berlin 05602	bbrichardson@yahoo.com
Scholarship Committee			
Frank Gibney	879-7419	1147 Sunset View Rd. Colchester 05446	gibneyf@aol.com
Young Eagles Coordinator			
Don Taylor	868-3809	11 Ferris St., Swanton 05488.	
Technical Counselor			
George Coy	868-2698	116 St. Albans Rd, Swanton 05488	george@gesoco.com
Assistant Tech Counselor			
John Butterfield	878-6337	721 North Williston Rd, Williston 05495	airbear9fj@verizon.net
Chapter Web Site			
Dick Bayer	796-4432	20B South Main St., Alburg 05440	webmaster@grnmtsolutions.com

EAA CHAPTER 613
Bruce Richardson
975 Crosstown Rd
Berlin, VT 05602

FIRST CLASS MAIL



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