The Bend High Desert Flyer
of Chapter 1345

WEBSITE: http://1345.eaachapter.org/ *KBDN AWOS 134.425* **February 2017, Vol. 16, #2**

PREZ SEZ:

Hello everyone. Well, as the alpine snow park known as the Bend Municipal Airport is slowly melting away, we have another major storm heading our way. Should be here in a few day so, get your snow blowers ready again!

News Flash! EAA National has asked our chapter to again host the B-17 "Aluminum Overcast"! She will be gracing our ramp and skies from April 27th to Sunday April 30th. So, we need volunteers! Contact me if you want to be involved at maxfly55@gmail.com

This month, we are again meeting at the Robertson "Bend Builders Assist" hangar, located @ 63032 Powell Butte HWY.

Dale Anderson has the Young Eagle Builders session starting at 4 o'clock and the flight portion at 5. Burgers & pizza @ 6 with the evening meeting @ 6:30.

If the snow is bad, feel free to park on the taxiway on the East side next to our hanger. Caution, Aircraft have the right of way! Use caution please.

All are welcome so, bring a friend! We'll have lots to talk about and lots of projects to look over.

Thomas Phy,
President

Treasurer's Report

Financial For period: 01/01/17 to 01/31/17

Member dues paid	$345.00
TOTAL INCOME	$345.00
TOTAL EXPENSE	$459.00
Includes Insurance, Licensing Fees & Tax Filing	
NET INCOME (loss)	< $114.00>
TOTAL CASH IN BANK	**$2,826.54**

Jack Watson, *Treasurer*

January Meeting Minutes

Minutes of a regular meeting of The Chapter held on Wednesday, January 18, 2017, at the "Bend Builders assist"/Robertson Hangar at the Bend Municipal Airport. The meeting regularly scheduled for January 11, was delayed for one week due to inclement weather.

ATTENDEES
There were some eleven in attendance including: Thomas Phy, Mike Robertson, Jack Watson, Dale Anderson, Jim Mateski, Kim Muinch, new member Bill Logan and guests Ed and Roger Bigler and two others who missed the sign in sheet.

DINNER
Consisting of burgers prepared by chefs Phy and Robertson along with Costco Pizza at 6:00 pm followed by:

Meeting Minutes – continued

CALL TO ORDER
At 6:35 pm at which time President Phy initiated a round of self-introductions which concluded at 7:10 pm. when he introduced our guest speaker for the evening.

PROGRAM
Mike Custard who gave us a most interesting presentation on the line of floats he is producing for Light Sport and other Aircraft at his facility at the Bend Airport. Mike's presentation concluded at 7:55 PM at which time the meeting:

ADJOURNED

John S. Watson
Secretary /Treasurer

> ***ED NOTE:***
> **Remember, the new KBDN traffic pattern changes were implemented starting 12/1/16**
>
> **The AWOS also carries the NOTAM details**

Young Eagles Support Group Meeting

(everyone interested in aviation are welcome to attend any/all sessions)

Wednesday, February 8, 2017
Bend Builders Assist (EAA) hangar, Bend Municipal Airport

4 PM Aircraft Building Workshop (everyone welcome) – Topic: Interpreting simple wiring diagrams, soldering wires, constructing other connections, wire sizes & types, tool use. (To provide an idea of what is typically involved in constructing the electrical system of an aircraft.) Look at some airplane wiring examples and avionics.Tool try-outs: Wire tools (continued) – soldering tools, hardware & materials for Examples of wiring basics.

5 PM FAA Safety Team Topic: Cockpit management – practice organizing all the materials and items needed to do a cross-country flight and procedures to follow to make it more effective.EAA's B-17 "Aluminum Overcast" will be here the last weekend of April. Discussion of how we will be involved and what options we would like as a part of hosting this event.

6 PM Pizza, etc.

6:30 PM EAA Chapter 1345, High Desert Flyers, monthly meeting

"Aluminum Overcast"

Dale Anderson,
Young Eagles Coordinator

One Pilot's take on Lift and Stall

--- food for thought --- and comment?

Airfoil stall is a negative feedback phenomenon. If you look at wind tunnel data for airfoils you see that, for modern airfoils at least, lift does not drop very quickly past the maximum lift angle of attack.

Lift decreases slowly with increasing angles of attack and most of the airfoil lift is maintained even as airflow separation is fully developed. This data seems at odds with our experience as pilots where we feel the bottom drop out in a fully developed stall. The reason for this discrepancy between the data and pilot experience is that in a wind tunnel, any angle of attack can be maintained indefinitely.

Lift and Stall – continued

However, in a flying airplane the angles of attack greater than the maximum lift angle of attack are unstable.

Up to the maximum lift angle of attack, any increase in angle of attack will increase lift, which results in an upward acceleration that decreases the angle of attack and brings the aircraft back into equilibrium.

However, at the maximum lift angle of attack, any increase in angle of attack decreases the lift, if not by much. If the increase in angle of attack is modest, as in a typical stall (not a whip stall), the decrease in lift should be very modest and result in a very slow descent rate. This is where the negative feedback comes in. The modest descent increases the angle of attack further, which further decreases lift resulting in a negative feedback with an ever increasing angle of attack. The angles of attack greater than the maximum lift angle are unstable and cannot be held constant (at least not without a more sophisticated control system than a human pilot). This instability in angle of attack is the phenomenon referred to as stall, not to be confused with airflow separation, which typically is the largest contributing factor to this instability. It is this angle of attack instability that causes the quick decrease in lift, which we perceive as the bottom falling out in a stall.

Note that in a stall an aircraft does not plummet to the earth as a rock. Even with full airflow separation an airfoil continues to produce most of its maximum lift. As airspeed increases, with the increasing descent rate, equilibrium is attained and the decent rate does not continue to increase. In a fully developed stall, the airfoil is again in equilibrium and is producing lift equal to the weight of the aircraft. We know this because the descent rate stabilizes so the aircraft is no longer accelerating.

The most extreme example of aircraft producing lift in a stall condition are deep stall (actually very high angle of attack but commonly referred to as deep stall). In deep stall some airfoils can generate enough lift to slow aircraft to survivable decent rates. I believe that the Velocity kit planes had two deep stall accidents, all the way to the ground, with survivors, before the design was changed to prevent deep stall.

As a young, and probably foolish, pilot I deep stalled a Cessna 150 during a spin recovery. The aircraft deck angle was completely flat, no indicated airspeed, and 500 ft/min descent rate.

The condition was very stable and I was probably lucky to recover. At the time I was fascinated with the phenomenon and had to remind myself that I only had a couple minutes, at most, to recover. I remember applying full power, full down elevator, and full aileron individually with almost no effect. However, in combination both full power and full down elevator did slowly drop the nose and was able to make a normal stall recovery.

I would also like to point out that the longer path lift theory has been debunked years ago with flow visualization in wind tunnels. The fundamental assumption for this theory is that the two molecules separate at the leading edge and then meet at the trailing edge. In reality the molecule following the top surface of the wing is delayed by the longer path and does not meet with its twin following the bottom surface of the wing.

Pilots often have a lot of emotion tied to their mental models of stall. This emotion is understandable because aircraft stall is a very real threat to life and limb, which should elicit emotion. My understanding of stall is no doubt incomplete and inaccurate in many respects due to my limited knowledge and intelligence. In the past I have receive very negative responses when I have presented my understanding of stall to fellow pilots.

Estimating Crosswind Landings

By Thomas P. Turner – Master CFI, CFII, MEI, Mastery Flight Training, Inc.

Seasonal changes are often windy times. A look at the recent FAA preliminary accident report records reflects this, with a big increase in Loss of Directional Control (LODC) crashes during takeoff and, especially, during landing (LODC-L).

LODC-L events usually have four things in common:

Estimating Crosswind Landings

1. **There are no injuries.** LODC-L events are low-speed impacts; it's rare when anyone gets hurt.

2. **Airplane damage is usually substantial.** Bent wing tips, "wiped out" (collapsed) landing gear both in fixed and retractable gear airplanes, and propeller strikes (which require propeller replacement or repair and a complete engine tear-down inspection and reassembly) are common elements of the LODC-L impact

3. Because of the type of damage involved, the cost of repairs is usually enough to "total" an airplane, or at the very least, to require costly repairs and long down-time.

4. In the vast majority of LODC-L events, **the computed crosswind component is less than 10 knots.**

10 knots? My research into LODC-L runway excursions shows that the reported wind is rarely very strong. It's almost never near the published Maximum Demonstrated Crosswind speed for the airplane. Maybe when the wind is quite strong we realize we must be on top of our game and give crosswinds the attention they need. Perhaps we choose to land on another runway, or even go somewhere else entirely. When the winds are lighter, however, we might not be giving the crosswinds the attention we should.

There is a limit to an airplane's control authority that determines the maximum speed at which maintaining runway alignment is physically possible. This is not the maximum crosswind figure published in the Pilot's Operating Handbook; the POH merely lists the maximum crosswind component that was demonstrated during the airplane's certification process. The "ultimate crosswind component" would depend on a lot of factors, including engine power, runway coefficient of friction, the quality of the airplane's tires, and whether the crosswind was coming from the left or the right – so many variables that publishing a precise figure would be nearly impossible, and be essentially useless to a pilot.

But history shows the maximum crosswind component, that is, **the threshold of loss of control,** is not determined by the airplane. **It is determined by the abilities and attention of the pilot.**

One of the factors in LODC-L mishaps, in my opinion, is that pilots don't think very much about crosswinds when preparing to land. We listen to the AWOS or ASOS to determine the runway to use, choose the same runway as other traffic in the pattern, or accept the runway assigned by a control tower. Once the runway-in-use decision is made (or made for us), we tend to mentally discard the wind information. Most pilot training conditions us to consider the crosswind component for takeoff. When it comes to crosswinds for landing, however, we often take whatever we get.

This lack of focus may drive so many airplanes off the sides of the runway, often to never fly again. **We just aren't thinking about crosswinds.** Part of the reason may be that not everyone is a whiz at doing math in their head while flying an airplane. But it doesn't take the power of an E6B to estimate the crosswind component for a runway you're considering using. You can get close enough, while erring on the conservative side for purposes of in-flight estimation, by thinking about **1/3, 2/3,** and **100%.**

<u>When you listen to ATIS, AWOS, or ASOS, determine the angle between the runway heading and the reported wind.</u>

- If the difference is **20° or less,** assume the crosswind component is **1/3 of the reported wind speed.** This is very conservative when the angle is smaller within this range, and closer to correct at the 20° angular difference point.

- If the difference between runway heading and wind direction is **more than 20° but less than 45°,** assume the crosswind component is **2/3 of the reported wind speed.** Again, this is conservative at the lower end of this range but closer to accurate at the 45° point.

- If the difference between runway heading and the reported wind is **45° to 90°,** assume the crosswind component equals **100% of the reported wind speed.**

Once you have estimated the crosswind component, ask yourself honestly if you're **well-rested** and **current enough on crosswinds** to land.

2017 CHAPTER BOARD:

President	Tom Phy maxfly55@gmail.com	541-306-1500
Vice-president	Charles Brown cbshomebiz@gmail.com	541-576-4912
Secretary	Jack Watson jswatson30@cs.com	541-408-5614
Treasurer:	Jack Watson jswatson30@cs.com	541-408-5614
Young Eagles Coordinator	Dale Anderson daleanderson779@gmail.com	607-591-1714
Newsletter Ed.	Mike Bond mvbond@q.com	541-317-8443