

Tower Talk

John Livingston Chapter

February 2015

Upcoming Events:

February Chapter Events

- **3 - Tuesday, 7:00:**
Board Meeting, Airport Conference Room
- **7 - Saturday, 8:30:**
Breakfast, Cedar Falls Family Restaurant
- **17 - Tuesday, 7:00:**
Chapter Meeting, Airport Conference Room

Iowa DOT Calendar:
www.iowadot.gov/aviation

June Events

- **11-14:**
B-17 Aluminum Overcast Tour Stop, Waterloo

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Runway Zero

by Warren Brecheisen, Chapter 227 President

Welcome to our new member, Keith Kaspari. As most of you know, Keith is the new Airport Manager and gave us a presentation at the last chapter meeting.

Chapter 227 is going to have another exciting year in 2015. As always, we will have first Saturday of the month breakfasts, board and chapter meetings and flyouts as weather permits. The most exciting news is that we will be hosting the B-17 again this year and we will have it for a whole weekend. It is scheduled to be in Waterloo from June 11th to June 14th. We have a great group of people who have volunteered to serve on the hosting committee. Marty Hoel has consented to chair the committee. Livingston Aviation will support the event, through the efforts of Tim Newton, and Keith Kaspari will also serve on the committee. We can always use more people, so if you would like to be involved in planning and behind the scenes work, give Marty a call. We will

also have our annual picnic, soup and salad potluck, Christmas party and September Young Eagle Rally. The chapter calendar of events has been posted on the website so you can view it for details.

John Bender has been calling flyouts as weather (and grandkid's athletic events) permits. We had good ones to Ottumwa and Lone Rock, WI a week or so ago. I'm especially fond of the Lone Rock trips. The scenery along the rivers is great and it's nice to park the plane within a few feet of the restaurant entrance. As a reminder, Liars and Flyers is held in the restaurant at the Mason City airport every Saturday morning so if John hasn't scheduled a flyout that's a good alternative. Dave Roberts and I flew to Mason City on the 24th. Not only did we have good food at a reasonable price, but we had fun visiting with a great



group of folks from the Mason City area. As I was leaving, several aircraft were arriving, so I think word is getting out that the restaurant is good.

I missed the annual chapter Christmas party due to circumstances beyond my control. I understand that people were happy with the food and venue and had a good time at the "Pershing" gift exchange. Dorothy had our contributions for the gift exchange wrapped, so I guess we are set for this year.

We have only awarded the Kubicek scholarship to one individual since its existence. Dave Roberts was wondering why so few, so he reviewed the rules and conditions under which it could be awarded. He

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Runway Zero from page 1

**“Let’s fly
somewhere!”**

found some rules that appeared to be quite restrictive, so he made a few changes and presented them to the Board. Hopefully, we can get more

awards out with these changes. The rules are posted on the website. I encourage each of you to be looking for people who can qualify.

Let’s fly somewhere!

Warren Brecheisen
President,
EAA Chapter 227

January Meeting Program: Keith Kaspari, Director of Aviation, Waterloo Regional Airport

**Welcome
new airport
director,
Keith Kaspari**

After the January 20th chapter meeting, we were privileged to hear Keith Kaspari speak about his first two months on the job as the new Director of Aviation at the Waterloo Regional Airport and his thoughts for the future of the airport.

Keith brings a wealth of knowledge and experience with him. Most recently he was senior vice president and chief operating officer at Capital Region International Airport in Lansing, MI. He also led airports in California, Texas, and North Dakota.

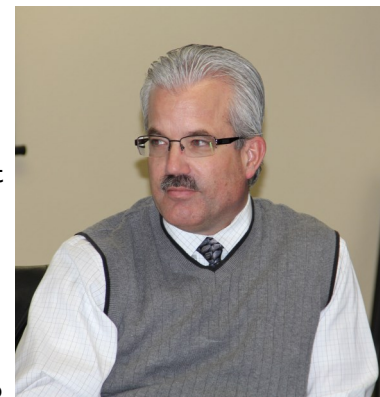


This is his seventh airport. He also has experience with multiple EAA chapters and is a pilot (though he will point out that he is not current.)

Keith feels the airport and the area have a lot to offer. Plans are moving forward to make improvements to runways, taxiways and the airport grounds. He will keep us updated with specifics and dates as those improvements draw nearer.

Our challenge moving forward at the airport is air service development. Although there was an increase in traffic and the load factor last year, we still need to increase the load factor as much as 15% to be considered for additional planes in the schedule each week.

Spending time at the airport is also Keith’s hobby. You



may find him there outside of normal business hours. If you see his office lights on, Keith invites you to stop by.

He can also be reached at 319-291-4483 and keith.kaspari@waterloo-ia.org.

Thank you, Keith, for a terrific program and your support to the chapter.

Please stop by Keith’s office and welcome our newest member of Chapter 227!

Back by popular demand...

B-17 Aluminum Overcast



Waterloo Regional Airport June 11-14, 2015 (save the dates!)

The B-17 Flying Fortress *Aluminum Overcast* visited ALO for one day last June. Even though it arrived late (due to weather) and left early (due to weather) and the merchandise truck never made it, the event was still such a huge success that we felt our community deserved more. *Aluminum Overcast* is more than just an airplane. It is a traveling museum, a connection to the past, and a living tribute to the "greatest generation" who built and served heroically on these magnificent warbirds. An event such as this projects a positive message about aviation and brings positive media coverage to the airport and chapter.

Mission flights (up to 4 each day), ground tours (during the afternoon) and merchandise are all part of the experience. And our chapter will receive a commission on the sales!

The EAA encourages chapters to arrange extra activities (such as food, Young Eagles flights, or hangar dances) to coincide with the B-17's visit.

We need your help to make this event a success! If you have any ideas to help promote the B-17 visit, to get people out to the airport while it is here, and/or would like to serve on the planning committee, please contact:

Marty Hoel at hoelm@mchsi.com or 319-231-1367

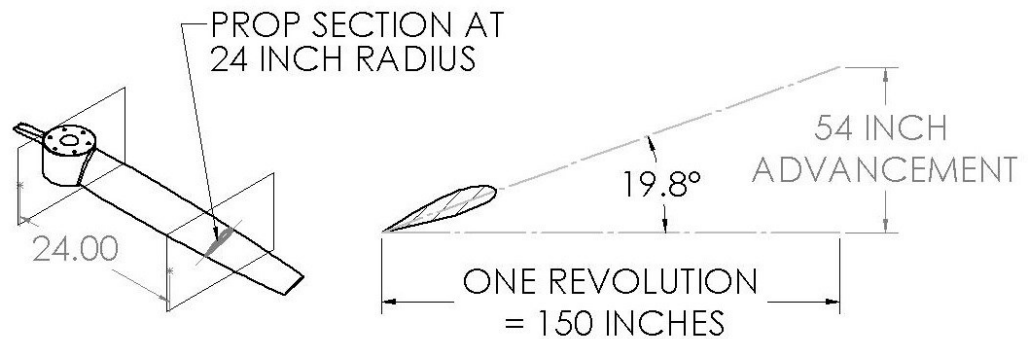
Tech Notes - A Little Prop Wash!

by Mike Lewis

“...maybe
this is more
history
than current
events.”

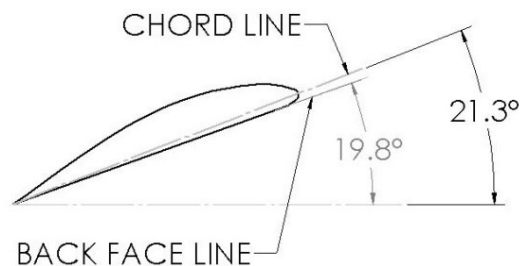
Prop selection – what a loaded topic! Actually I am probably dating myself a bit. With all of the kit building, the prop selection is probably less of an issue than it was in the days of strictly plans building, so maybe this is more history than current events.

Do we all understand how propellers are specified? For example a 72 x 54 prop is 72 inches in diameter by 54 inch pitch. By commonly used definitions, that 54 inch pitch means the prop will advance 54 inches in one revolution, assuming no slip. The pitch then defines an angle of the blade at a predefined radius along the blade. Let's look at the same example and assume we are looking at a section at a 24 inch radius. Gonna throw a little math at you here. At 24 inch radius, that section travels $24'' \times 2\pi$ or approximately $24 \times 2 \times 3.14 = 150$ inches as it goes around the circular path of one revolution. Now as we said, the blade section will advance 54 inches in that revolution. Now we have to use some tricky-nometry to determine the angle of the blade, namely the inverse tangent of the angle is $54 \div 150$ which equals .36. Now punch that TAN^{-1} function on your calculator for .36 and you get about 19.8° , so the blade angle for a 54" pitch prop at a 24" radius would be 19.8° . You can repeat that for any blade position.



“...where is
that blade
angle
measured...”

Pretty straight forward isn't it? Or is it!? Bear in mind that a prop blade is an airfoil. Often the airfoil is pretty thin and flat bottomed with a sharp leading edge. Some props however, particularly wooden ones are not so flat bottomed and may have a rather large leading edge radius. So then the question arises, where is that blade angle measured; at the chord line, or on the back surface of the blade?



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The reality is it depends on who is making the prop. There are several wood prop carvers out there and I have seen some specify pitch angle as at the chord line and some specify it as the back side of the blade. I think the back side of the blade camp just comes because it is easier to measure. If you specify pitch assuming you really want a 54 inch per revolution advance, which requires that 19.8° pitch angle and your prop maker is measuring at the back face of the prop, and then maybe he uses a rather generous leading edge radius, you will really have a significantly greater pitch than you expected. In the example shown in the above illustration, the true pitch is Tangent of 21.3° times 150 inches or about 58.5 inches rather than 54 inches.

Now some more wrinkles. Not all props are “true pitch”. That is they do not make the same theoretical advance per revolution at any point along the blade. Obviously it is virtually impossible to make a true theoretical pitch near the hub. Beyond that factor though, some prop makers insist a little wash-out is better, and some insist a little wash-in is better. So how do you deal with these variables? All I can suggest is talk with your prop maker so both of you understand and know what you expect.

Earlier I eluded to “slip”. As mentioned, pitch is the theoretical distance the prop will advance in one revolution. In reality, the prop does not advance that much (maybe in a dive!). The difference between the theoretical advance and the actual advance is often referred to as “slip”. As a rule of thumb one might expect around 10%-15% slip for most prop applications. So for talking purposes, let’s look at this theoretical 54 inch pitch prop and assume we are turning it at 2500 rpm and assume a 12% slip. We can predict speed by multiplying (pitch)x (1-slip)x (rpm) or $(54) \times (.88) \times (2500) = 118800$. Since pitch was in inches and revolutions were per minute, this figure is in inches per minute. To get to more common speed units we can divide by 12 (inches per foot), and then divide by 5280 (feet per mile) and multiply by 60 (minutes per hour). And we get about 112 mph. Interestingly enough, a Cessna 152 uses either a 54 in pitch prop or a 56 inch pitch prop.

I intended to discuss some of the trade offs in prop materials, but this has gotten pretty long winded so I think I’ll do that next month.

“So how do you deal with these variables?”

AirVenture to Commemorate 70th Anniversary of World War II’s End

Some of history’s most iconic airplanes will be highlighted at AirVenture 2015 during EAA’s 70th anniversary commemoration of the Allied victories in World War II. “This is an extremely important milestone anniversary of arguably the most significant event of the 20th century – the end of World War II both in Europe and in the Pacific,” said Rick Larsen, EAA’s vice president of communities and member programs.



CAF’s B-29 FIFI

EAA is working on securing the appearance of the actual Interstate Cadet high-wing aircraft that is generally recognized as the first aircraft in Pearl Harbor to be attacked by Japanese planes. The airplane was flown that infamous morning by instructor pilot and future WASP Cornelia Fort, who escaped a strafing attack after landing. Other aircraft used in key Pacific battles will also be represented including those flown in Doolittle’s Raid, the Battle of Midway, and subsequent island hopping campaigns. The V-J Day commemorative air shows will culminate with participation by the world’s only flying B-29, the CAF’s FIFI.

The Safety Checklist: METAR Weather Reports and TAF Weather Forecasts by Dave Hummel

Part of a pre-flight weather briefing, METAR weather reports and TAF weather forecasts are predominantly used by pilots.

What is a METAR? (AC 00-45E)

An aviation routine weather report known as METAR is the weather observer's interpretation of the weather conditions at a given site and time. The METAR is used by the aviation community and the National Weather Service (NWS) to determine the flying category - visual flight rules (VFR), marginal VFR (MVFR), or instrument flight rules (IFR) - of the airport, as well as produce the Terminal Aerodrome Forecast (TAF).

Basic elements in the body of a METAR (AC 00-45E)

A METAR report contains the following basic elements in the order presented:

1. **Type of report** - the METAR (routine) and SPECI (special observation).
2. **Station identifier** - (ICAO) four-letter station identifier, in the conterminous United States, the three-letter identifier is prefixed with a K.
3. **Date and Time of report** - six-digit date/time group appended with Z to denote Coordinated Universal Time (UTC). The first two digits are the date followed by two digits for hour and two digits for minutes.
4. **Modifier** (as required) - if used AUTO identifies a METAR/SPECI report as an automated weather report with no human intervention.
5. **Wind** - five digit group (six digits if speed is over 99 knots); first three digits, direction of the wind from tens of degrees referenced to true north. Directions less than 100 degrees are preceded with a zero; next two digits are average speed in knots, measured or estimated, or if over 99 knots, the next three digits.
6. **Visibility** - prevailing visibility in statute miles followed by space, fractions of statute miles, as needed, and the letters SM.
7. **Runway visual range (RVR)** (as required) - follow by visibility element
8. **Weather phenomena** - broken into two categories: qualifiers and weather phenomena.
9. **Sky condition** - reported in the following format:
Amount/Height/Type (as required) or
Ceiling/Height (Vertical Visibility)
10. **Temperature/dew point group** - two digit form in whole degrees Celsius separated by a solidus (/). Temperatures below zero are prefixed with M.

“...weather conditions at a given site and time.”

“A METAR report contains the following basic elements...”

The Safety Checklist from page 4

11. **Altimeter** - four-digit format representing tens, units, tenths, and hundredths of inches of mercury prefixed with an "A". The decimal point is not reported or stated.
12. **Remarks (RMK)** (as required) - Operational significant weather phenomena, location of phenomena, beginning and ending times, direction of movement.

Example: METAR KLAX 140651Z AUTO 0000KT 1 SM R35L/4500V6000FT - RA BR BRK030 10/10 A2990 RMK A02

Above is an example of the phraseology used to relay this report to a pilot. Optional words or phrases are shown in parentheses: Los Angeles (California) (zero six five one observation), wind calm, visibility one, runway three five left RVR, variable between four thousand five hundred and six thousand feet, light rain, mist, broken ceiling 3000 feet, temperature ten, dew point ten, altimeter two niner niner zero.

What is a Terminal Aerodrome Forecast (TAF)? (AC 00-45)

A terminal aerodrome forecast (TAF) is a concise statement of the expected meteorological conditions significant to aviation within five statute miles (SM) of the center of the airport runway complex (terminal) for a specified time period. TAF's use the same weather code found in METAR weather reports, in the following format:

1. **Type of reports** - a routine forecast (TAF); and an amended forecast, (TAF AMD) or a corrected forecast (TAF COR).
2. **ICAO station identifier** - 4 letter station identifiers.
3. **Date and time of origin** - the date and UTC for when the forecast was actually prepared displayed in ICAO format. Valid time, TEMPOs and PROBS are presented ddhh/ddhh. FROM groups are presented ddhhmm. **Note:** This TAF date and time format recently changed to conform to international (ICAO) standards. This change provides 30-hour TAFs for 32 high impact U.S. airports. The remainder of TAF reporting stations will continue with 24-hour forecast.
4. **Valid period date and time** - valid forecast period is a 2-digit date followed by 2-digit beginning and 2-digit ending hours in UTC. Routine TAF's are valid for 24 hours and are issued four times daily at 0000Z, 0600Z, 1200Z and 1800Z.
5. **Forecast** - wind, visibility, significant weather and vicinity weather, cloud and vertical obscuration, non-convective low-level wind shear, forecast change indicators (FM, TEMPO and PROB).

“...the phraseology used to relay this report...”

“...a concise statement of the expected meteorological conditions...”

2015 Membership Dues are Due!

DON'T FORGET TO RENEW YOUR CHAPTER 227 MEMBERSHIP IF YOU HAVEN'T ALREADY DONE SO.

ACCORDING TO THE BYLAWS, ANYONE WHO HASN'T PAID DUES BY MARCH 31ST SHALL FORFEIT MEMBERSHIP PRIVILEGES.

IF YOU HAVEN'T ALREADY PAID YOUR DUES, PLEASE MAKE YOUR CHECK TO:

EAA CHAPTER 227

SEND/GIVE YOUR DUES TO:

**DAVE HUMMEL
621 EAGLE RIDGE RD
CEDAR FALLS IA 50613**

AND INCLUDE ANY UPDATES OR (BETTER YET) FILL OUT A NEW MEMBERSHIP FORM!

[Click here for a downloadable/printable membership application](#)

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SEE OUR WEBSITE:

EAA227.COM

OR ASK ANY CHAPTER MEMBER

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Chapter Classifieds

For Sale:

**Artex 110-4 ELT
with remote switch
and antennae.**

\$100.00

Contact

Dave Roberts

drdave@cfu.net or

319-277-8128



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looking to buy,

please send your Classified Ad(s) to
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And be sure to let me know when it sells!

NEWSLETTER INFORMATION

If you have an article, picture, or anything else you would like to share in a future newsletter, please contact:
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Visit our website:
eaa227.com

Do you have anything aviation related that you would like to sell? Please let us know so we can include items in our new
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EAA CHAPTER 227 LEADERSHIP

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	Dave Hummel	cfihum@cfu.net	319-266-9561
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