

Tower Talk

Upcoming Events:

May Events

- 3 Saturday, 8:00: Young Eagles Rally for Boy Scouts, Waterloo
- 6 Tuesday, 7:00: Board Meeting, Airport Conference Room
- 20 Tuesday, 7:00:
 Chapter Meeting, Airport Conference Room
 Program: Iowa National Guard Helicopter
 Operations

June

- 2-3: B -17 Aluminum Overcast Tour Stop, Waterloo
- 14: Chapter Picnic, Rottinghaus Hangar, Dunkerton
- 28 29: Fly Iowa 2014, Iowa City www.flyiowa.org

July

 July 28 - August 3: EAA AirVenture Oshkosh www.eaa.org

August

• 23 - 24: Thunder in the Valley, Waterloo

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John Livingston Chapter

May 2014

Runway Zero

by Warren Breicheisen, Chapter 227 President

Last month I reported that Carl Campbell is going to participate in the May 6th Honor Flight out of Waterloo. At that time I was unaware that we also have another honoree on that flight-Jim Salyer. Both of these gentlemen certainly deserve this celebration of their service to their country.

John Bender has been organizing some fly outs over the past several weeks, now that we are having some decent flying weather. I participated in fly outs to Ankeny, Austin (MN) and Pella. At Ankeny, we just happened to be there when the air museum was open and they were having a potluck lunch (yum!). We toured the SPAM museum in Austin, but we didn't get to tour the windmill when we were in Pella, since it was Good Friday. While in Pella, at John's insistence, we had to visit one of their very fine bakeries. These fly outs were on weekdays which pretty much limited participants to retirees, but as the weekend pancake breakfast season gets rolling, John will

be notifying us of time and place so people who actually work dur-

ing the week can attend.

Plans for the Young Eagle rally on May 3rd are being finalized. This special YE rally will be an EAA event. Participants will be limited to Boy Scouts. John Dutcher is our liaison with the scout organization. Since this event is sponsored exclusively by EAA Chapter 227 the chapter insurance will cover it. It is worth noting that the chapter insurance only covers ground operations. All pilots are expected to have their own insurance to cover the air operations. We are in need of volunteers for this event both for helping on the ground as well as more planes and pilots. Current plans are to set up the morning of the event, starting at approximately 6:00am. Pilot briefing will be at 7:30am and YE flights will commence at 8:00am. Contact Matt and Rebecca Evers if you can help in any way (319-266-0421).



Another exciting opportunity came our way in the last month. EAA contacted me and indicated we could host the B-17 in early lune as there was a window in their schedule. We confirmed our intention to take advantage of this offer and Dick Poppe consented to serve as our coordinator. The plane will arrive on June 2nd, and be available for tours and flights on the 3rd. It will leave the morning of the 4th. Not only will it be an honor for our chapter to host this marvelous piece of history, but it will provide some extra money for the chapter. Dick will be looking for volunteers to help.

Let's fly somewhere!

Warren Brecheisen President, EAA Chapter 227 Page 2 Chapter 227 Waterloo, Iowa

Honor Flight

May 6th

Waterloo

Regional Airport

Congratulations Veterans!

Carl Campbell and Jim Salyer

selected for the

Honor Flight

May 6th - Waterloo Regional Airport

Chapter Meeting - May 20th Iowa National Guard Helicopter Operations

Please join us on May 20th at 7:00 PM For our meeting on May 20th, our guests will be representatives of the lowa National Guard's helicopter operations here in Waterloo. They will discuss their mission,

their operations and their equipment with us. We share the airport and the sky with these folks but seldom get the opportunity to meet them. Please join us on May 20th at 7:00 PM

in the Waterloo Airport Terminal Building for this interesting and informative meeting.

YOUNG EAGLES RALLY FOR BOY SCOUTS MAY 3RD!

Young Eagles Rally 8:00AM

Pilot's
Meeting
7:30AM

Chapter 227 will host a Young Eagles Rally on May 3rd, 8:00 AM as part of the Boy Scout Spring Camporee. The theme of the scout event is "Fly High with Scouting" and our chapter has been approached by member John Dutcher to provide airplane rides for the scouts. Wabuha and Sun Rivers Districts are hosting the camporee May 2nd- 4th.

More than 40 scout troops are expected that weekend from Black Hawk, Bremer, Buchanan, Butler, Fayette, and Grundy counties. The Rally is open only to scouts participating in the camporee and early registration. Is required.

Contact Matt and Rebecca Evers if you can help at <u>matthewevers@mchsi.com</u> or 319-266-0421.



WE NEED PLANES, PILOTS AND SUPPORT VOLUNTEERS!

April Meeting Program: Waterloo Air Traffic Controllers

Following the April Chapter Meeting, two Air Traffic Controllers and a Controller-in-training from the Waterloo Tower joined us for a very informative question and answer session. Jeremy (ATC manager), Elizabeth (5-year veteran) and Tim were very open, friendly, and willing to answer all questions presented to them. Jeremy and Elizabeth pointed out that the tower at the Waterloo Regional Airport is a perfect location for training. It takes about 18 months to become certified and then another year



Tim

before a trainee is ready to move on. For that reason, there is currently no pressure for the Waterloo Tower to be closed and



Jeremy and Elizabeth

there is sufficient funding for at least another year. In 2017, the equipment in the tower is scheduled to be updated with new panels and will become digitized.

The Controllers encourage pilots to contact them and request services when desired. They stressed that if you don't understand them, let them know. They emphasized communication with no stress and no intimidation—they are there to help pilots. Talking to the tower also helps them because communication is their means to count traffic.

Runway 6/24 will eventually be closed. The FAA is no longer able to fund im-

provements for it. This is the reason why 6/24 is closed in the winter; plowing it will shorten its life. The airport is able to fill cracks and make superficial repairs; however, there will be no funding from the FAA to resurface it. As pilots, we all appreciate having 6/24 available. As a group, EAA227 may want to support any efforts to revitalize runway 6/24. I am sure there are others who share this same interest.

If you want to tour the Waterloo Tower, it is open to the public. The Controllers ask that you call in advance to arrange a time.

"If you don't understand them, let them know."

Fly-Out Picnic to Rottinghaus' Hangar

A Chapter 227 picnic will be held at Chuck and Rhonda Rottinghaus' new hangar facility just south of Dunkerton. Their grass strip is 1900 feet and is situated in a 9/27 direction. It is 10.9 nm from ALO on the 108 radial. Caution! There are power lines on the east side of the road at the east end of the runway. Fly in at your own risk. Join us Saturday, June 14th! Page 4 Chapter 227 Waterloo, Iowa

Chapter 227 to Host B-17 Tour Visit on June 3rd

EAA is offering historic flight experiences in its beautifully restored B-17G Flying Fortress Aluminum Overcast. One of only 13 Fortress's still flying, this aircraft is an

icon of the Allied strategic bombing effort that helped turn the tide of battle in World War II. Unlike reading a history book, you can actually fly a mission back in time and feel the might of this magnificent machine, just as those brave young men did more than 60 years ago.

We need

your help to

make the

B-17 visit a

success!

Chapter 227 has been chosen to host an Aluminum Overcast tour visit at the Waterloo Regional Airport on June 3rd. We ask your help spreading the word about this extraordinary visit and encourage your participation that day. The flight experience lasts one hour which includes a briefing, nearly a half hour flight, and debriefing at 10:00 -11:00 - 12:00 - 1:00PM. Once the aircraft is in the air, you will be allowed to move about freely to visit the various compartments like the nose, bomb bay, navigation/radio, cockpit and waist sections. Discounted advance reservations are made by visiting www.b17.org or by calling EAA's B-17 Tour Office at I-800-359-6217. B-17 flight



B-17G Aluminum Overcast

jackets are available only to flight experience participants. Ground Tours are scheduled from 2:00 until 5:00PM and can be purchased at the onsite merchandise trailer. Ground tours are free to all active military or veterans.

Opportunities for sponsorship to cover the costs of the tour stop are available. Complimentary rides are available to sponsors whose donations meet the EAA eligibility requirements. To be a sponsor for the visit, go to https://secure.eaa.org/ b17/keepitflying.asp.

B-17 merchandise will be available for purchase on site and at the B-17 website. Proceeds from the tour help keep Aluminum Overcast flying and will assist the con-

> tinuing restoration, maintenance and preservation efforts of EAA.

We ask for your help to make the Aluminum Overcast visit a great success. We will need volunteers to help with crowd control/ security, ground tours, and merchan-

dise sales. If you would like to help promote the visit or volunteer on June 3rd, please contact Chris Roberts at chrisr@cfu.net or Bob Dieter at dieter@cfu.net.

Thank you to Dick Poppe for volunteering to be the Tour Stop Chairman. If you have any questions about the visit, please contact Dick at

richpoppe@mchsi.com.

For more information specific to the Waterloo visit, go to the EAA B-17 Tour Stop Waterloo page at http://www.eaa.org/ calendar/eventdetail.aspx? id = 17460.

Tour Stop Schedule

Monday, June 2: Aluminum Overcast arrives from Indianapolis, IN during the afternoon.

Media tours, interviews and media flights.

Flights at 10:00, 11:00, 12:00, 1:00. Ground Tours from 2:00 - 5:00. Tuesday, June 3:

Wednesday, June 4: Aluminum Overcast leaves for Cedar Rapids during the morning.

History of the B-17 and Aluminum Overcast

The Boeing B-17 Flying Fortress is a World War II bomber used primarily in Europe. B-17s from the Eighth Air Force participated in countless missions from bases in England. These missions often lasted for more than eight hours and struck at targets deep within enemy territory. Because of their long-range capability, formations of B-17s often flew into battle with no fighter escort, relying on their own defensive capabilities to insure a successful mission.

During the War, B-17s were among the most modern aircraft in the U.S. inventory. However, the advent of the jet age and advances in technology made the Flying Fortress obsolete soon after the conclusion of the War. In the years following World War II, most B-17s were cut up for scrap, used in Air Force research or sold on the surplus market.

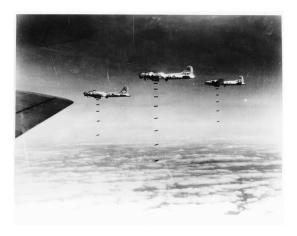
In 1934, the Boeing Aircraft Company of Seattle, Washington, began construction of a four-engine heavy bomber. Known as Boeing model 299, it first took flight on July 28, 1935. The government ordered production of 13 of these aircraft, now designated the Y1B-17. Delivery of these first production models was between January 11 and August 4, 1937.

The B-17 received the name Flying Fortress from a

Seattle reporter who commented on its defensive firepower. The B-17 underwent a number of improvements over its 10-year production span. Models ranged from the YB-17 to the B-17-G model. Throughout the War, the B -17 was refined and improved as battle experience showed the Boeing designers where improvements could be made. The final B-17 production model, the B -17G, was produced in larger quantities (8,680) than any previous model and is considered the definitive Flying Fort. With its 13.50caliber machine guns -chin, top, ball and tail turrets; waist and cheek guns -- the B-I7G was indeed an airplane that earned the respect of its combatants. In addition, air crews liked the B-17 for its ability to withstand heavy combat damage and still return its crew safely home.

Between 1935 and May of 1945, 12,732 B-17s were produced. Of these aircraft, 4,735 were lost during combat missions. Today, fewer than 100 B-17 airframes exist and fewer still are in airworthy condition. At one time, more than 1,000 B-17s could be assembled for mass combat missions, less than 15 of Boeing's famous bombers can still take to the air.

The Experimental Aircraft Association's B-17G-VE, serial number 44-85740 - nicknamed Aluminum Over-



cast, was delivered to the U.S. Army Air Corps on May 18, 1945. Although delivered too late to see action in World War II, the airplane has an interesting history.

Aluminum Overcast proudly carries the colors of the 398th Bomb Group of World War II, which flew hundreds of missions over Nazi-held territory during the war. Aluminum Overcast commemorates B-17G #42-102516 which was shot down on its 34th combat mission over Le Manior, France, on August 13, 1944. Veterans of the 398th helped finance the bomber's restoration.

Since 1994, EAA's B-17
Aluminum Overcast has made an annual tour around the USA promoting interest in aviation, giving many thousands of people unique access to an important historic artifact, and preserving the memory of WWII through flight experiences and tours.

"Today,
fewer than
100 B-17
airframes
exist and
fewer still are
in airworthy
condition."

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The Boeing B-17G Flying Fortress

DESIGNED BY:

Boeing Company, Seattle, Washington

BUILT UNDER LICENSE BY:

Vega Aircraft Company (now Lock-

heed)

MODEL:

Experience

ence B-17G Flying Fortress

history on

the B-17

Aluminum

Overcast!

ARMY AIR CORPS SERIAL NUMBER: #44-85740

DELIVERY DATE:

May 18, 1945

REQUIRED CREW:

Ten—Pilot, Co-pilot, Navigator, Bombardier, Flight Engineer (top turret gunner), Radio Operator, 2 Waist Gunners, Tail Gunner and Ball Turret Gun-

ner

POWER:

The B-17G is powered by four 1,200-horsepower Wright Cyclone Model R-1820-97 engines. These engines are nine cylinder, radial, air-cooled type with a 16:9 gear ratio. The propellers are three-bladed Hamilton Standard propellers, 11 feet, 7 inches in diame-

ter.

WEIGHTS:

Basic Empty Weight 34,000 lbs. Gross Weight (Wartime) 65,500 lbs.

FUEL CAPACITY:

1,700 gallons

RANGE:

1,850 miles. Range could be extended when equipped with "Tokyo Tanks" which provided a total capacity of 3,630 gallons.

WING SPAN:

103 feet, 9 inches

LENGTH:

74 feet, 4 inches

HEIGHT:

19 feet, I inch

SERVICE CEILING:

35,600 feet

ARMAMENT:

Thirteen Browning M-2 .50 caliber machine guns. Fire rate approximately 13 rounds per second. No gun on a B-17 carried more than one minute's supply of

ammunition.

BOMB LOAD:

Depending on types of bombs, maximum normal load could go to 8,000 lbs. If B-17 was fitted with special external racks, maximum normal short-range bomb load

could go as high as 17,600 lbs.

NUMBER BUILT:

12,732. Production peaked at 16 airplanes a day in April 1944. Today there are about a dozen B-17's still flying.

SPEEDS:

Maximum 300 mph. at 30,000 ft. Maximum continuous 263 mph. at 25,000

ft.

Cruising speed 170 mph.

Landing 74 mph.

Rate of Climb 37 minutes to 20,000 ft.

COLORS:

398th Bomb Group



B-17G Aluminum Overcast

We Want to Honor B-17 Experiences!

If you know any World War II Veterans, please invite them to Media Day the afternoon of June 2nd and Flight/ Tour Day on June 3rd. Their stories will add to the experience for riders and visitors and it is a great way for our community to honor their service. Perhaps you know a member of the Women's Airforce Service Pilots (WASP's) who ferried B-17s during World War II whom you could invite. We would also like to hear memories from people whose parents or grandparents had experience with B-17s and

from anyone who worked at B-17 production facilities at Boeing, Douglas or Lockheed. We want to recognize their service and sacrifice, so please ask if they are willing and able to speak to the media about their experiences. Veterans and active military members will receive complimentary ground tours!

Please contact Chris Roberts at chrisr@cfu.net or Bob Dieter at dieter@cfu.net if you know anyone who might be willing to participate.

Media
on site
June 2nd
during the
afternoon

Take an Interactive Tour of a B-17:

B-17G Aluminum Overcast

http://www.b17.org/history/interactive_tour/

Frequently Asked Questions:

http://www.b17.org/faq/

Book a Flight:

https://secure.eaa.org/B17/securejoin B17.html



Thunder in the Valley Air Show 2014

The Air Force Thunderbirds will thrill us with another air show at the Waterloo Regional Airport on Aug. 23-24, 2014. Planning committee meetings are underway. Currently, we are planning the static display again and will host a pancake breakfast.

If you have any suggestions or would like to volunteer, please contact Warren Brecheisen or Chris Roberts.



For more information, visit www.cedarvalleyairshow.com

by the
Kiwanis Club
of Waterloo

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Tech Notes - A Bolt is a Bolt - Right? by Mike Lewis

Several years ago I used to regularly get asked "do I have to use airframe bolts (AN-XX)?" I don't hear that question so much anymore; I assume because most of the building now is from kits (as opposed to from plans) and the kit manufacturers provide the hardware. As to the question, legally for a homebuilt there are no FAA specified material requirements including hardware. This may be a classic example, however, of where legality does not define good judgment. For most applications, good judgment dictates that you do use airframe bolts.

Below is a photo of some of the more common fasteners.



"...good
judgment
dictates that
you do use
airframe
bolts."

You will notice the head markings. The AN bolt has a cross on the head; the Grade 5 has 3 radial lines and the Grade 8 has 6 radial lines. The Unbrako has no specific markings although in most cases I believe there is a small manufacturer's mark on the rim of the head. To put these fasteners in a strength perspective, here are the minimum tensile strengths of each:

AN4 = 125,000 psi, Grade 5 = 120,000 psi, grade 8 = 150,000 psi, Unbrako = 190,000 psi.

The argument I often heard is that a grade 8 bolt is stronger than an airframe bolt. That is true, however strength should not be the only factor in making the judgment. There are other differences that may be significant. One of the major differences is that airframe bolts are Continued on page 9

Tech Notes from page 8

essentially "body Bolts"- that is they only have enough thread length to engage a nut and washer or two. Many airframe applications are designed where the bolt is used in shear; that is the two parts being fastened are loaded in a manner that would cause them to slide sideways were it not for the bolt. When properly sized, the full body diameter of the airframe bolt will extend passed the shear plane and bear on essentially the entire length of the hole(s). If you use a standard "hardware store" bolt, and the shear plane goes through the threaded portion of the bolt, there is significantly less shear area in the bolt. Additionally if the bolt threads are bearing on the sides of the hole it will, to use a sophisticated engineering term "garf" up the hole! Not a good thing.

Additionally, if the shear plane does go through the threads, the cross sectional area is much smaller than the body of the airframe bolt. As an example, a 1/4-20 bolt has a root diameter of approximately .187 inch. This means the shear area is about 1/2 the body area. To put it another way, the 1/4 - 20 has a shear area through the threads that is about the same as an AN3 airframe bolt.

In addition to the body length issue, there are other differences. Plating (corrosion resistance) may be different, body and thread tolerances may be different, head squareness tolerance maybe different.

Maybe a word about the bolt shown on the far right (previous page). While these bolts do not adhere to standard SAE strength grades, this is a very good, high strength (1 1/2 times the strength of an AN bolt) bolt. The common players in this field are SPS Unbrako, and Holokrome. However, you should notice the head size. On a 1/4 inch bolt, these have a head diameter of .375. The equivalent AN bolt has a head bearing diameter of .4375. This means the bearing area of the Unbrako is 40% less than the AN bolt. On aluminum or even mild steel this could bean yielding the bearing surface and allowing the fastener to loosen. Much of the use for the Unbrako type bolts was originally in the tool and die industry, where parts were very hard steel so the head area was less of an issue. One more comment about these bolts - there are a ton of Chinese knock offs out there and who knows their properties.

In short, there are probably some non structural applications where a hardware store bolt is acceptable. For most airframe applications, I certainly would not want to risk it, particularly over a little cost difference. By the way, if you want to see more on other variations of airframe bolts, options and numbering systems, Aircraft Spruce's catalogue is excellent.

"...there are
a ton of
Chinese
knock offs
out there
and who
knows their
properties."

Chapter Classifieds

FOR SALE: Miter Saw, Delta 10", excellent condition \$50.
Call Warren @ 319-277-2118.

Whether you are looking to sell something or looking to buy, please send you classified ad to chrisr@cfu.net.

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: Chris Roberts 507 Chateau Court Cedar Falls IA 50613 c) 319-240-8128 h) 319-277-8128 chrisr@cfu.net

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

CLASSIFIED ADS

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	=xccat.			
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Experimental Aircraft Association Chapter 227 publishes Tower Talk for the use education and enjoyment of Chapter members and others to whom it is provided. Chapter and national events, news of members, member projects, activities and general aviation items of interest to the membership are included. Editorial content is the opinion of the contributor and does not necessarily reflect the position of Chapter 227 or EAA and no claim is made for technical accuracy of material presented. Meetings are normally held the third Tuesday of each month in the Airport Conference Room. Please contact any officer for information about Chapter activities.