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EAA Chapter 569 Newsletter

Lincoln, NE



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Meeting Announcement

Date: Tuesday, October 5th

Time: 7:30pm

Program: Jim Fix – Fix Prop Shop

Jim is known nationally for his excellent propeller work. He'll discuss propeller safety and maintenance.

Place: Duncan Aviation Engine Shop
5000 NW 44th St – Lincoln, NE

our meeting night and location? Have you offered to give them a ride to the meeting? Have you offered them an airplane ride? (Old Buzzards ride?) Contact our membership chairman Roger Aspegren and volunteer to take a new member "under your wing" and make them feel welcome. Lets make sure our new friends feel welcome and wanted any way we can!

Calm winds and clear skies,
Tom Henry

President's Message Tom Henry



The 2011 officer nominations are still open. Please consider giving of your time to the chapter to help keep it running. We still need nominations for officers for 2011. I have decided to step down from being president at the end of this year. Please come forward at the meeting or contact another officer or myself.

Susan Volkmer has graciously agreed to be chairperson for the Christmas Party committee. If you are interested in helping out with the party in any way please contact Susan.

As always we have new members, have you called them and reminded them of



Despite 20 mph winds with gusts 30+, a few members still pulled their plane out of the barn and flew in to the Chapter 569 picnic on September 6 at the Denton Airfield. More on the picnic on page 4.



"Hanger flying"

Flying an Electric Airplane – Really, Flying It

By Richard VanGrunsven
Founder / CEO Van's Aircraft
(reprinted with permission from
Van's)

A year ago, following AirVenture 2009, I wrote an article on electric powered airplanes from my perspective as an owner/operator of one. I compared and contrasted my actual electric aircraft operating experience with the reports and projects being published. Since then, the “press release” news has continued, and I have continued operating my electric self-launch Antares 20e sailplane. Since June of 2009, I have logged over 400 hours of flight time. Just 15 hours of this was “under power”, usually five or ten minutes at a time. This practical application experience has put me in a different position than most people writing or talking about electric airplanes.

In our field of interest and endeavor, the calendar year runs from “Oshkosh to Oshkosh”. This year, again, there were a lot of talks and programs about electric airplanes, but not much action.

Yuneec had another very interesting POC airplane on display. With a low wing and fixed tractor powerplant, it would normally be classed as a

motorglider. It featured a single retractable landing gear and a folding prop to minimizing drag for soaring rather than motor flight. It really looks more like a self-launch sailplane than a general purpose sportplane or motorglider. I don't mean this to be a bad thing, but rather a concession to the realization that electric technology is not ready for prime time GA; certainly not ready to power an airplane like the Cessna 150 or Katana. Neither of the Yuneec airplanes flew at Oshkosh this year. I heard that they had a system failure of some sort which prevented them from being able to fly.

One of the leaders in electric airplanes has been Randal Fishman with his ‘Electraflyer’ aircraft. Starting with a weightshift trike several years ago, he advanced to the Electraflyer C — an electric motor powered Moni airplane in which he flew demonstrations at Oshkosh and Lakeland for a couple of years. He had a very nice looking Electraflyer-X prototype on display at Airventure 2009 but hadn't flown it by Sun'N'Fun 2010, where it was on static display. I did not see or hear of it at Oshkosh this year, so don't know what its current (pun intended) status is. The last entry on his

website is dated July 2009.

My friend Dave Nadler had his Antares electric sailplane on display at Oshkosh again this year and performed flight demonstrations during the airshow on two days. I'm not aware of any other electric airplane flying there this year, so the Antares sailplane still appears to be the industry leader. There are about fifty of them operating worldwide in the hands of private owners. Some have been in operation for five years or more. This would indicate that their system obviously works well, demonstrating that they have achieved a good level of operational reliability.

Interestingly, the Antares does not get much attention from the aviation press, probably because it is a single seat, special purpose, quite expensive airplane. Why can't the Antares electric motor system, or a similar level of technology be incorporated into a more general purpose airplane like the Yuneec or Electraflyer?

It probably can, but I assume that these folks are working through the teething problems that the Antares people struggled with 10 years ago. It's also possible that the folks at Yuneec, et al, are trying to develop a more affordable package, and thus not able or willing to “buy”



Van is one of the higher time electric-airplane pilots in the world, having spent more than 400 hours in an airplane like this one: an Antares 20e.

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the expensive components that have contributed to the success level that the Antares has demonstrated.

Since the aviation press is not yet able to treat us to pilot reports of operating electric aircraft, here's a few words about my experience.

According to the factory information, the Antares has enough battery power to climb to approximately 9000 ft. at my normal operating weight. I have never verified this, and do not feel that it could be done in a single "open the tap and go" motor run. My experience has been that the indicated battery power starts to drop more rapidly after about 3000 ft. of climb. Normally, the motor is stopped and retracted at about this time; the start of a soaring (or gliding?) flight. After a few minutes following motor shut-down, the battery power indication will rebound by 10-15%. I have also found that by reducing the power to just enough to sustain level flight (about 25% output), the battery power will rebound somewhat and then drop slowly, commensurate with the low draw.

It would seem that the batteries need to be "rested" periodically to re-balance themselves, either by shutting them off or operating them at a much lower continuous power draw like the "low cruise" mode.

On an ideal flight, I would launch, using battery power to take off, and contact a thermal within a mile or so of the departure end of the runway. I would center the thermal, reduce power to 50% or less and establish that a positive climb rate is probable with no power. At that point, somewhere between 1500

and 2000 ft. altitude, I would stop the motor and retract motor pylon.

The high-performance airplane would continue to climb and soar for hours without need to use motor to remain aloft. Total battery use would be 10-15%.

A sample flight for a "poor" soaring day might be: Take-off and climb at about 80% power to 3,000 ft., at which time the power meter will be indicating about 60% or less. After turning the motor off and retracting it, the power level will rebound to about 70%.

At a later point in the flight, I might find myself running out of thermals, altitude, and ideas. I extend the motor and climb about 1500 ft. in the process of getting to another thermal (or getting enough altitude to glide back home). In the process, the power meter may drop to around 35-40% and then rebound to about 50% as the batteries re-balance themselves. Tallying up, I would have climbed a combined total of 4500": half of the specified performance capability, and used about half of the battery energy. My real world experience has basically validated factory claims.

In the real world, I am rarely climbing in stable air. While climbing in sinking air, often unavoidable while trying to reach the area of the "house thermal" energy goes away quickly as the altimeter slowly winds upward. The reverse is true when the thermal gods smile on me, so the above examples are based on averages.

During a long soaring flight, the flight instrumentation and radio will use about 2-4% of the battery energy, not enough to seriously

deplete the energy available for a "save" if needed.

Another characteristic of my system is that the motor should not be operated at high power (high battery discharge) when any of the battery temperatures are below 20 deg. C. When soaring at higher altitudes (low outside temps.), the battery temps can easily drop below 20 deg. C. To assure that the motor can be used if needed, there is a built-in battery heating system. The batteries draw from their own energy to heat themselves. This obviously reduces the available energy by a small amount. Normally, I do not activate the battery heater unless the flight is not going well and I feel that I may need to use the motor in the next 5 minutes or so. I do not waste energy keeping the batteries warm during an entire flight.

If I should be distracted with the challenge of soaring flight and overlooked heating the batteries, I can still run the motor at low power (level flight or slight climb) while the batteries are heating. The problem is that cold batteries do not deliver energy well and may be damaged by attempting to draw high output when cold. This is true for other common type batteries as well. This is why your car may not crank well, or at all, in really cold conditions.

Most of the general purpose electric sportplanes being developed or proposed quote flight duration available from their batteries. Its safe to assume that these flight times are based on low power settings and "economy cruise/ loiter" speeds. However, unless one is to cruise at an altitude

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of 10 ft., a fair amount of energy is needed to reach even a modest cruise altitude. In the case of my Antares, normal climb rate of 5-6 hundred fpm requires a power draw about 4 times that of level flight. So, a large percentage of the available energy is used just getting to altitude. I suppose that at the end of the flight, gliding back down to landing with the motor throttled or shut off, some of this can be offset. Still, it's a factor to consider, as would be traffic pattern delays at the end of a flight.

The bottom line is that, from my experience, electric aircraft operation is not necessarily as "plug-and-play" as some advocates would like you to believe. In some respects, it is. For instance, operating the motor is as simple as pushing a lever forward---the equivalent of ignition, primer, starter, throttle, mixture control, etc., all in one operation. On the other hand, there are concerns such as the limited energy (range) available, and the battery temperature issue. We can continue to hope for breakthroughs to alleviate these concerns, but in reality we probably must not expect more than incremental gains in the near future.

Airport Notes

The Beatrice Airport runway seal project is on hold until next year. Come on down to Beatrice!

At the York Airport, runway 17 / 35 is still closed and will be for a little while longer. Check NOTAMS.

Chapter Picnic Held

The EAA Chapter 569 annual picnic was held Sunday September 5th at Shoemakers' hanger in Denton. Both new and established members were represented at the gathering, with approximately 50 people in attendance. Despite the windy conditions, there were several fly-ins. Kerm Wenger, Tom Johnson and Tom Henry grilled up hamburgers and there was a large spread of side dishes and desserts. No one went home hungry!

After the meal, Dennis Crispin and his grandson, Spencer, presented a slide show of their experience at Oshkosh. Dennis sported a "Galoshkosh 2010" T-shirt and elaborated on the challenges at this year's event with the heavy rains received in the area. Spencer talked about all of the various activities he participated in including learning how to rivet, building a wooden rib and flying a flight simulator. He even floored some of the instructors by explaining to them what Bernoulli's principle is!

Thanks to Don and Yvonne for the use of their hanger for the picnic!



Dennis and grandson, Spencer who just turned 12 years old.

Questions from the Private Pilot Test Exam

- Which initial action should a pilot take prior to entering Class C airspace?
 - Contact the FSS for traffic advisories.
 - Contact the tower and request permission to enter.
 - Contact approach control on the appropriate frequency.
- If Air Traffic Control advises that radar service is terminated when the pilot is departing Class C airspace, the transponder should be set to code
 - 0000
 - 1200
 - 4096
- From whom should a departing VFR aircraft request radar traffic information during ground operations?
 - Ground control, on initial contact.
 - Tower, just before takeoff.
 - Clearance delivery.

Answers: 1 (c), 2 (b), 3 (a)

Accident Report

Accident occurred Wednesday, October 21, 2009 in White Plains, NY

Probable Cause Approval Date: 4/19/2010

Aircraft: CESSNA 182,
registration: N4731N
Injuries: 2 Uninjured.

The pilot reported that he approached the airport during night conditions and was told by air traffic control to expect runway 29. He glanced at the approach chart and noted the runway was more than 4,400-foot-long, but learned after the accident that it had a displaced threshold resulting in 3,164 feet being available for landing. He entered the downwind leg, then turned onto base leg when the controller requested he proceed direct to the numbers at the best forward speed. The pilot elected to land with no flaps and while on final approach, was advised by the controller to expedite through the intersection of runways 11/29 and 16/34. The airplane touched down past the runway intersection, which at the center has approximately 2,854 feet runway remaining to the departure end of runway 29. In a statement to the Federal Aviation Administration inspector-in-charge, the pilot-rated-passenger reported that the airplane's estimated speed to the runway was 110 knots. The pilot further stated that after touchdown, he was unable to stop the airplane. It traveled off the end of the runway, down an embankment, onto a service road and collapsed the nose landing gear. No preimpact malfunctions were reported by the pilot.

The National Transportation Safety Board determines the probable cause(s) of this accident as follows:

The pilot's failure to attain the proper touchdown point, resulting in a landing overrun. Contributing to the accident was the pilot's excessive airspeed in an attempt to comply with air traffic control's request to expedite his landing.

Minutes of the Executive Meeting

September 20, 2010

The meeting was called to order by President Tom Henry at 7:00 PM.

Treasurers Report: The Treasurers report was not available.

Election of Officers: Due to lack of excited candidates, the present officers will be contacting potential volunteers and draftees. We will settle for unexcited candidates if it comes to that.

Christmas Party: Doug Volkmer's wife Susan will chair the Christmas Party committee this year. Cristi and Butch are working on the chapter movie.

Program: Vice President Wenger indicated that Mr. Jim Fix will speak to the membership at the next scheduled meeting.

Movie Night: Emails will be sent to gauge interest in having a movie night this fall and winter. The intent is to have the event support itself without chapter subsidy.

No Technical Visits were scheduled.

Meeting was adjourned at approximately 8:45 PM.

Doug Elting,
Secretary

Congratulations to Stauffer!

Brad Stauffer recently received his instrument rating during a checkride at St. Joseph, Missouri. He worked for over a year, flying the Archer out of Beatrice with CFI John Cox. Congratulations Brad!

Lost and Found

Left at the Chapter Picnic was a large green plastic salad bowl and a blue pyrex lid. Contact Don or Yvonne Shoemaker at (402) 797-7200 if either of these are yours.

Classifieds

FOR SALE



1978 Piper Tomahawk

PA-38-112 2216 TTAF&E
Very Clean, new June, 2010
Annual All AD's Current. \$19,500

More Pictures at <http://tbarjne.com>

Email Tom at:
td_johnson@tbarjne.com

Events

York Airport (JYR), EAA Chapter 1055 Fly-in breakfast on the 1st Saturday of every month. 0800-1000. Free will donation.
(Runway 17/35 still may be closed on Oct 2.)

Crete Airport (CEK), EAA Chapter 569 Fly-in breakfast on the 3rd Saturday of every month. 0800-1000.

October 2 - Nebraska State Fly-In, Kearney Regional Airport (EAR),

0800 -1000 Fly-in/Drive-in breakfast hosted by Kearney EAA Chapter, PIC Free!

8am - 1pm Public viewing of aircraft, NE National Guard Exhibits, Roger's Helicopter Air Care, NE Aviation Hall of Fame, Evelyn Sharp Memorial Plate Dedication, Western NE Community College Aircraft Engine Display

11am - 3pm Music by The Rumbles

12 noon - 1pm BBQ on the airport.

More info: jlynaugh@kearneygov.org.

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