Newsletter

EAA™ 569

Lincoln, NE April, 2007

Meeting Announcement

Date: Tuesday, April 3
Time: 1930 hrs
Place: Duncan Aviation Engine Shop
Shop Classroom
Program: Movie: One Six Right

"One Six Right" is an exhilarating documentary film that celebrates the unsung hero of aviation – the local airport – by tracing the life, history, and struggles of an airport icon: Southern California's Van Nuys Airport. Featuring thrilling aerial photography and a sweeping original score, the film dispels common misconceptions and opposes criticism of General Aviation airports. Through the love story of one airport, past to present, the film shares the timeless romance of flying with all ages.

The film takes viewers on a journey of spectacular aerial sequences and tells a romantic story through the accounts of passionate pilots, air traffic controllers, historians and flight enthusiasts, including well-known faces such as Sydney Pollack, Lorenzo Lamas, Paul Moyer, Hal Fishman and many others. There is no off-screen narrator.

The film uncovers the rich history of this airport – Amelia Earhart broke a world speed record over its runways, Marilyn Monroe was discovered while working in its hangars, and scenes from Casablanca were filmed on its grounds. Almost every type of aircraft has graced its runways, from the primitive airplanes of the 1920's to the state-of-the-art business jets of today. Through the history of the Van Nuys Airport (VNY), the viewer comes to have a new appreciation for the significance of all General Aviation airports as a critical component of the communities they serve. Located in the heart of the San Fernando Valley, VNY is today the world's busiest General Aviation airport and contributes over $1 billion each year to the Southern California economy.

"One Six Right" explores common misconceptions about General Aviation airports, which are often criticized for noise pollution and viewed as exclusive playgrounds for the rich. The film creates an awareness of the threat to these community airports through staggering statistics of airports that no longer exist, and the rapid rate at which they are continuing to close (1 per week in the U.S.). Airports are not a renewable resource – these smaller and often forgotten airports are the foundation of the entire aviation industry, contributing significantly to global commerce and are the breeding ground of the pilots of tomorrow.

Ford Tri-Motor Tour Planning

President's Message
Dennis Crispin

I'm writing this on Saturday morning and I have just missed our monthly breakfast. The reason that I missed breakfast this month is that I am a thousand miles away at my daughter's home in Washington State doing my annual granddad-helps-with-the-science-fair bit. I'll be home in time for the meeting.

At the March meeting the club decided, in a near unanimous vote, to host a stop on the EAA's Ford TriMotor Tour. The chance to help display this wonderful bit of living aviation history will be the highlight of our club year.

The grand old bird will be here on September 20, 21, 22 & 23. The Lincoln stop will be the last one on the fall tour. We will fly

passengers all day, every day. The plane will be available for up close inspection when not flying.

We will start making serious preparation in April. There is a lot to be done and we will be asking club members to volunteer for the many tasks at hand. With the great range of background, experience and talent within our chapter, it shouldn't be hard to find people to bring together their collective enthusiasms to plan a great event. Be thinking about what you might want to do for your part.

Here are some areas in which you can help:

We will need to secure daily hanger space for the TriMotor. Some of our guys may be working on this already. The old airplane is rather weather sensitive and needs available protection at all times. It would be good to have a backup plan.

We will need to find some sponsorship in the local business community. Within our chapter we should have members who have business or personal connections with the firms that could benefit by connecting some advertising to the Ford tour.

Promotion is the key to a successful event. We will need to contact radio, TV and newspaper media for publicity both before and during the flights. Who can write a great press release?

As the Saturday will be a UNL home football game day, I think we should find a way to tie in the TriMotor tour with the game day activities. Making the "Big Red" connection will assure us of some great publicity.

There will be some necessary coordination with the airport authority and the local FBOs. Our experience in hosting the B-17 should be a good start in making these contacts.

A neat thing to do would be to contact some of the antique car clubs, the historical society, and others who might be able to provide us with some artifacts of life in the 1920's and1930's. Does anyone know of any aircraft from this era that we might put on display?

On the days of the event we will need a sizable crew to handle crowd control, do ride scheduling, work the souvenir stand, etc.

Be ready with your thoughts and ideas at the April meeting.

At the last meeting we spent so much time talking about the Ford that we didn't get to some other items of business. Let's plan some flying events for this coming spring and summer.

Dennis Crispin
President EAA Chapter 569

Beginning an Electrical System Design

(Bob Collins from St. Paul, MN attended the Electrical Wiring Workshop in Oshkosh and talks about it in his weekly RV Builder's Hotline Newsletter – Ed.)

I'm kind of a left-brain kind of guy. Fairly literal and direct, prone to following most rules, relatively logical and clean as the day is long. So you would think that part of the noggin' would be a little more helpful to me than it's been in recent years when it comes to building an RV. If there's a mistake, I've either made it, or I saw it pass by the window as a I traveled by on the way to some other conclusion.

I'm aware that part of the brain is the creative side, and part is the rational, analytic side, although I can't remember which side is which. But I'm pretty much sure 'writing" is on one side and "soldering" is on the other.

You know soldering, right? Heat up the iron, grab the solder, stick the wire where it's supposed to go and drop a gallon or two on top of it. That's the way we did it when installing the new speakers on our phonograph system when I was growing up. Turns out, though, that's not the way to do it. And I learned that last weekend in Oshkosh when I attended the avionics and electrical SportAir workshop. More on that later.

If you're an RV builder just getting started, you're going to hear more about the SportAir workshop. And if you haven't learned all about it, then stop now and go to http://sportair.com/, pick a workshop that sounds interesting, find one you can get to and fork over the cash. Don't even worry about the money, because you'll get it back many times over.

What the workshops specialize in is confidence. I took the RV Assembly workshop from Ken Scott years ago, and it gave me the confidence -- not necessarily all the answers -- to start my project. Any mistakes that happened after that weren't Ken's fault, by the way.

The electrical workshop, taught by Dick Koehler, whose articles you occasionally see in Sport Aviation, taught me enough that I have a frame of reference to learn more. Believe me, I've read Aeroelectric Connection a number of times. I'm going to read it again, and I know this time it'll make sense.

Now if you're an engineer -- especially an electrical engineer -- move along; there's nothing to see here. For everyone else, especially you right-brain types -- or is it the left-brain? -- read on.

The workshop, as most workshops do, covered two days -- Saturday and Sunday -- at the museum in Oshkosh. So my RV-building pal, Warren Starkebaum, and I drove over Friday afternoon.

The Saturday class focuses on electrical systems and wiring and I'll try to recap it here from my notes.

Approaching your instrument panel is a daunting task. But it has to begin here: what do you want? "Aviation is a compromise," Dick said. "You can't have everything. There's nothing wrong with what you decide to put in it, but everything you choose affects the rest of the design, and weight is your enemy."

So I made a note. Decide what I want. And added this line: "check Quicken." I took solace from Dick's comment that "my next airplane is going to have a handheld GPS and a handheld radio." Pretty gutsy for a guy who flies around Washington, DC.

What's involved in determining what to choose? Starter, alternator, lighting, avionics for, umm, starters. And where will you put each piece of equipment? Where will you put the battery? Once you determine that, you can figure out where a wire will begin (on the buss bar...the place where the juice comes from), and where it will end (on the component) and then measure it to roughly the nearest foot. Now just repeat that 20-30 times and, voila! -- an electrical system.

But, of course, you don't do this on the plane. You do this with a piece of paper, your uncut panel, and maybe a mug of beer. Completing a detailed schematic (wiring diagram) will be useful as you build, and also be helpful later when you want to make changes in your plane.

But, again, it all comes back to what sort of flying you intend to do. "Figure out what routes you want to fly, and then build your system around that," according to Koehler. What sort of instruments will you use -- VFR or IFR? You then determine the avionics and amperage draw. You figure out what sort of lighting and other loads will be imposed on your system. Now include all the intermittent loads, like gear, flaps, starter motor; anything that is "on" for less than two minutes.

Then, calculate the loads (total consumption) for the continuous load and that determines the size of your alternator. Your continuous load should not exceed 80 percent of alternator capacity.

As you design your electrical system, keep in mind the "noise" caused by electrical fields. Although I've ready plenty of posts on various bulletin boards from people who ran their strobe light wires down the same conduit as their radio antennae wires, I've decided as a result of the workshop not to do that. According to Dick, "run your antenna (wires) on one side, and power on the other." The farther you can keep the two apart, the better to avoid noise in your headsets and communications. "Even a few inches is better than all the 'shielding' (protective grounding of a shield surrounding wires) in the world," according to Koehler.

Koehler then spent time discussing batteries, their purpose, the type to purchase (lead acid, nicad, gel-cell, RG) and the pros and cons of each. That was followed by a discussion of alternators, the generator that produces the alternating current; the voltage regulator, that regulates alternator output and protects the battery from getting too much power from the alternator. "Be careful that the voltage regular matches the alternator your purchase," Koehler said. "And you don't want an internal voltage regulator because you can't control it."

Moving along the electrical system, relays (solenoids) were next. These are used to connect the battery to a system (the master relay) and used to activate a starter and -- if all goes well -- turn the big fan in the front. Relays eliminate the need to run heavy cables to the cockpit. The master relay uses a small electrical current to create a contact that allows the power to flow to the system. Turning on the master switch is actually grounding the master.

Dick Koehler admires the outstanding workmanship that Bob has put into a piece that

replicates the lighting system in an airplane, with an always-on light and one with a dimmer. Actually, Dick is smiling because it appears he'll be able to make his flight home, now that the last guy in the class to finish his project -- guess who? -- has wrapped it up.

And then it's mostly a matter of wires. Of course, you can't just grab any old strand. The builder needs to determine the correct wire for the job. But whatever wire you decide to use, make sure it's Teflon-coated (Tefzel) since it has a lower burning point. Use copper wire, not aluminum, use only mil-spec. A safe bet here is to buy from aviation suppliers. "You can use any wire you want," Koehler said, "but if you use auto grade wire and it turns, the gas from the burning wire will kill you."

Determining the proper size of the wire is accomplished through a chart in the AC43.13-1B. You've bought that already, right? Armed with knowledge of how long the wire is from the main power source to the component, and how much current the component draws, you can easily select the proper size wire. I have found some charts online, but buy the book and the charts there will help you.

One thing about wire here concerned me, mostly because a year or so ago I bought a big hunk of red and black wire. I had intended to color code the whole shootin' match. "You can use any color wire as long as it's white," Koehler said. Uh oh. Someone in the class, by the way, said he heard that the dye used to make colored insulation diminishes the insulating value. Nobody could confirm that, though it at least got my attention.

The good news that came out of the day's activities was that Home Depot, thanks to all the cabling people are doing for their home entertainment systems, is stocking very good crimpers for both electrical wire and coaxial cable. And a good crimper is very important as is, by the way, a good wire stripper. Forget that junk where you just put it in the pliers-like stripper and yank. No yanking allowed! Get a good stripper.

More notes: Mark your wires as you install them. Sure, you can use some masking tape to indicate what the wire goes to, but that's going to fall off over time. Leave a 6 inch loop near the connector. and no more than 4 wire terminals can go on any one stud in a terminal strip. You will put ring connectors on the majority of wires you run.

Try to keep splicing of wires to a minimum. "Every time you add a splice, you add a potential problem," according to Koehler. Run bundles of wires above fluid lines. "If you have a fuel leak, do you really want it dripping on wires carrying electricity?" he said. Bundles of wires should be less than 1 1/2 inches in diameter. Use Adel clamps generously, making sure you hang the clamp down, not up.

For bundles of wires, use nylon cable ties or electrical lacing tape to keep them from moving around. "Anything that moves, needs to be nailed down," Koehler said. Protect all wires and surrounding structures from chafing.

Shielded wire may be necessary with some items -- strobe lights, for example. These are grounded only at one end. If you ground shielded wire at both ends, you create a new electromagnetic field... a ground loop. Bad thing. Speaking of grounding, "more than half the problems I run into (as an A&P), are the result of bad grounding," Koehler said.

As we worked on soldering exercises, I developed an important additional tip. Get an eye-check-up regularly. Well, that's my plan anyway. Aside from my left-brain (or is it right brain?) challenge, you can't make good connections, if you can't see the connector. This is particularly true with those 25-pin D-sub connectors. Good glasses, a magnifier, great light, good working conditions, it seems to me, is an additional key to organizing an electrical system.

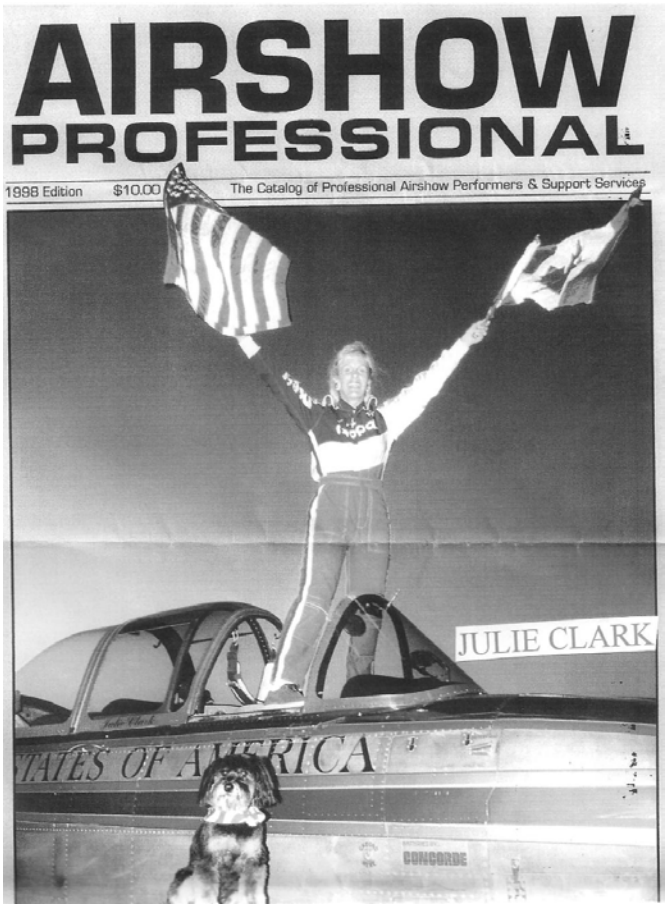
Of course, this class -- being only two days in length -- couldn't teach us everything about putting an electrical system in our RV airplanes; it barely scratched the surface. But it provided a basic understanding of the principles needed.

Aviation Career Exploration Camp

For many years, the Department of Aeronautics has embarked on a vigorous aviation education program designed to reach the youth of America with ideas and opportunities for careers in aviation. This program is our Aviation Career Exploration (ACE) camp designed for youth 13-17 years of age. The camp is geared toward motivating, inspiring and challenging our young people to follow their dreams. Our ACE camp also provides the opportunity to develop an awareness of the role of aviation in our society and to encourage students to explore career opportunities in the field of aviation.

This year the camp will be held June 17 - 22, with the students based at the Platte River State Park, midway between Omaha and Lincoln. The students will spend their days exploring the many facets of aviation. Tours include an FAA Control Tower and Radar Approach Control Facility, the Strategic Air & Space Museum, both the Air & Army National Guard, the Lincoln Airport, Duncan Aviation and Offutt AFB. The students will receive an orientation ride in an airplane and learn about aerodynamics, aviation weather, flight planning and rocket building. The camp wraps up on Friday, June 22, with a graduation ceremony at the Strategic Air & Space Museum theatre. Parents and guests are all invited.

The camp proves to be a break from the ordinary summer time activities and is an interesting week long adventure in exploring the many rewarding career areas in aviation. For more information about ACE Camp 2007, contact David Morris at the Nebraska Department of Aeronautics, e-mail David.Morris@aero.ne.gov or 402-471-2371.



Julie Clark

GUEST SPEAKER
Beatrice Airport
Awards Banquet
Friday May 11, 2007
For Reservations
Call Beatrice Airport 402-223-5349
by May 4th, 5:00pm

Minutes of the Club Meeting
March 6, 2007

1. Future programs were discussed. We will have a Ground School sometime in the next several months.
2. Website -- we need someone to do the web site now that Steve Davey has left.
3. Young Eagles --(Evelyn Sharp days at Ord with chapter 1055)
4. Flying activities -- we need to set up some flying activities for 2007.
5. Proposed FAA regulations -- possible rule changes affecting Young Eagles and possible user fees were discussed.
6. 4.5 months until Oshkosh
7. Ford Tri Motor -- the last tour of the fall will be at Lincoln, September 20,21,22,23.
8. We voted to accept hosting the Ford Tri Motor ---- the motion passed.
9. Program -- Mark Novak

Rich Boelts, Secretary

Minutes of the Executive Meeting
March, 2007

There was no Executive Meeting this month.

Rich Boelts, Secretary

Things to Do

Apr 3 - EAA Chapter 569 Meeting –
Duncan Aviation Engine Shop, 7:30pm

Apr 7 – Chapter 1055 Breakfast –
8:00-10:00 - York, NE

Apr 21 – Chapter 569 Breakfast –
7:30-10:30 - Crete, NE

May 27 – Young Eagles –
Evelyn Sharp Field – Ord, NE

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For Sale

OXYGEN SYSTEM FOR SALE: Sky Ox 24 cu ft aluminum cylinder with 2-place regulator, mask, 2 cannulas, and case. Filled with oxygen but never actually used. Sporties 7498A, list $530 (without oxygen). Asking $350. Wayne Martin 488-6849 cwmart@windstream.net.

Accident Report

Accident occurred Wednesday, March 01, 2006 in Fort Pierce, FL
Probable Cause Approval Date: 8/29/2006
Aircraft: Mooney M20J, registration: N511G
Injuries: 1 Minor.
The pilot stated that about 8 to 10 minutes after takeoff, while still climbing, at an altitude of about 5,000 feet, the airplane lost engine power. The pilot further stated that the gauges showed about 1,000 rpm, and the manifold pressure remained at 25 inches. He turned around and returned to the airport and made attempts to restart the engine, all of which were unsuccessful. The pilot made a forced landing to a clearing short of the airport property, and the airplane incurred substantial damage. A postcrash examination of the airplane revealed that the dual magneto had detached from its mounted position, and was hanging by the ignition harness behind the engine. The magneto had not incurred any damage, and the magneto drive gear was laying in the accessory housing along with one hold-down plate. The retaining nuts, washers and lock washers were not recovered. When tested, the magneto operated on all eight distributor outputs. The impulse coupler was not damaged, and the distributor wiring was intact. There was engine continuity, proper valve action, and compression on all cylinders. Engine oil was present, and there was evidence of some oil having leaked at the back of the engine. No anomalies were noted with either the induction or fuel systems. The airplane had last received an annual inspection on August 2005 when an overhauled engine had been installed. It had accumulated 10 hours since the annual inspection.

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

Improper magneto installation by maintenance personnel, which resulted in the magneto detaching from the engine and subsequent loss of engine power.

Questions from the Private Pilot Test Exam

1. What conditions are necessary for the formation of thunderstorms?
A. High humidity, lifting force, and unstable conditions.
B. High humidity, high temperature, and cumulus clouds.
C. Lifting force, moist air, and extensive cloud cover.

2. During the life cycle of a thunderstorm, which stage is characterized predominately by downdrafts?
A. Cumulus.
B. Dissipating.
C. Mature.

3. A nonfrontal, narrow band of active thunderstorms that often develop ahead of a cold front is known as a
A. prefrontal system.
B. squall line.
C. dryline.

4. If there is thunderstorm activity in the vicinity of an airport at which you plan to land, which hazardous atmospheric phenomenon might be expected on the landing approach?
A. Precipitation static.
B. Wind-shear turbulence.
C. Steady rain.

5. Which weather phenomenon signals the beginning of the mature stage of a thunderstorm?
A. The appearance of an anvil top.
B. Precipitation beginning to fall.
C. Maximum growth rate of the clouds.

Answers: 1. (A) 2.(B) 3.(B) 4. (B) 5. (B)

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