

HANGAR ECHOES

EXPERIMENTAL AIRCRAFT ASSOCIATION
CHAPTER 168 DALLAS TEXAS

The November Chapter Meeting has a Date Change!! 2nd Tuesday , November 11, Same Location!!

Report from Kerrville

By Marvin Brott

The Southwest Regional Fly-In at Kerrville has come and gone with Lisa and Martin Wright picking up a major piece of hardware, the Reserve Grand Champion trophy. The Lancair 320 from Burlington Colorado (also a winner at Oshkosh) was the Grand Champion at Kerrville. Martin had their Pulsar on display with the factory prototypes as a representative of Pulsar. There was a large crowd around his airplane all day. Every time I look at their airplane (based at Aero Country), I come away more impressed with the workmanship and finish. Congratulations Lisa and Martin from Chapter 168.

The weather for this Kerrville was certainly the best in the last 20 years. The new parking and display arrangements for both the show and factory aircraft was much better than in previous years. Everyone commented on how they liked the new arrangement. They had an airshow which was fortunately short on both Saturday and Sunday. Mel Asberry reported that the banquet was one of the best he has attended. Norm Petersen, the EAA Oshkosh troubadour, was an outstanding entertainer with song and jokes. Ray Hegy, a legend in his own time, was recognized at the banquet.



**Lisa and Martin Wright's Pulsar
Kerrville Reserve Grand Champion**

Ray is in his early 90's. He indicated that it was great to be anywhere, let alone at this banquet.

The planners of this Kerrville event deserve to be congratulated for a well executed convention. Our Chapter president, Monore McDonald, was one of those planners. It is sort of interesting that the last Kerrville was in my opinion the most successful yet we must recognize that there is really little room for growth and the weather is always a luck item. The announcement for next years location was not made.

Chapter 168 was very visible at the fly-in. Of course Monore was all over the site helping with what ever needed to be done. Chuck Farry, in charge of aircraft parking, alone with Mel and Ann Asberry were everywhere directing traffic. The approach procedure into Kerrville in the morning was the most organized in a long time, even with turning base onto an 8 mile final. After the airshow, they got all of the airplanes out within one hour, and believe me, there were a lot of one-day planes like me leaving at 4:00PM. While there were a lot of chapter members attending the fly-in, Chuck, Mel and Ann could have used more help during Saturday.



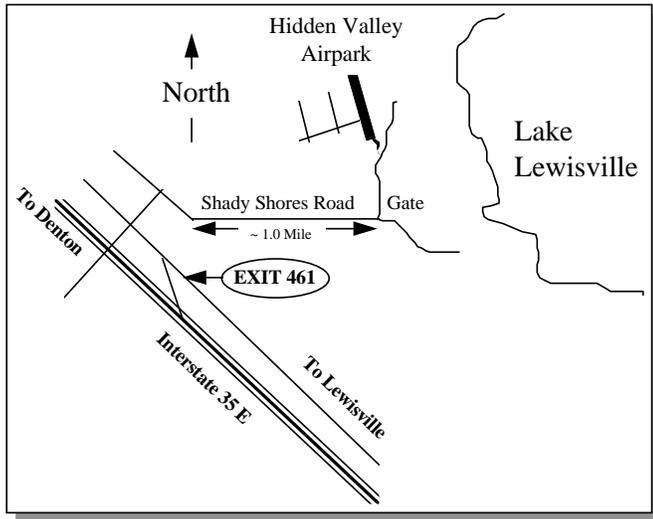
November 11th Chapter Meeting

Our November 11th (second Tuesday, not the first) Meeting will be held at the Farmers Branch Library, located on the Northwest corner of Webb Chapel and Golfing Green Drive. The meeting will be held in the auditorium and will begin at 6:30 p.m. and finish at 8:45 p.m. Please plan now to attend!

The Speaker for the November Chapter meeting (Note: this meeting takes place on November 11) will be Tom Scott. Tom will be speaking on the "Glass Goose".

November 8th Fly-In / Drive-In

The November Fly-In will be at Hidden Valley Airpark just southeast of Denton between I-35E and Lake Lewisville and will be hosted by Howard Walrath. It's very easy to get there. Take I-35E to Exit 461 and go 1.3 miles East and turn left into the gate. Hidden Valley (5TX0) is on both the Dallas Sectional and Terminal Area charts. The 2,000 foot paved runway with sod overrun slopes down to the south. In calm/light winds, use runway 34 for landings and 16 for departures. Listen for advisories on 122.9 MHz. Howard has set up some tours of the 57 family residential airpark to see several homebuilt projects. The chapter trailer will be on the east side of the runway.



November 13th Director's Meeting

The November Director's Meeting will be from 7:00 - 8:45 PM at the Farmers Branch Library on the 13th. The following is a report by Gerry Mizelle from the October meeting.

1..Since the treasurer was not able to be present at this meeting, several items of business were deferred until the November meeting. Specifically these deferred issues were the following:

- a. Assessment of the dues level with respect to the chapter's cash flow.

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- b. Discussion of investing a portion of the current balance in the treasury in order to assure better earnings and to maintain low monthly dues.

2. Gerry Mizelle reported that the electrical umbilical on the chapter trailer has been damaged beyond use and needs to be repaired before the trailer can be legally towed again. This damage occurred during lawn service maintenance at the location where the trailer is stored. Tom Moe volunteered to look at the situation and get the trailer in towing condition before the next need.

3. The December Christmas party was discussed and it was decided to consult with Ann Asberry about food and activities that are acceptable to the library. Monroe volunteered to consult with Ann.

4. Tom Moe checked on our "Non-Profit" status with the state of Texas. It was found that Texas does not recognize us as a non profit organization. This issue was discussed and it was agreed that the leadership of 1998 needs to straighten this out during their term.

5. Gerry Mizelle announced that he will be leaving the Dallas area because of a change in his employment situation. Tom Emerson will be asked to finish out Gerry's responsibilities for 1997 since Tom is the newly elected Secretary for 1998.

6. Jim Quinn indicated an interest in taking on the maintenance of the chapter's web site and home page. Jim will present a proposal to that end at the November board meeting.

Submitted by Jerry Mrazek for Gerry Mizelle

November 25th Newsletter Assembly

The December issue of Hangar Echoes will be assembled at Barb and Dick Flunker's home on November 25th starting at 7:00 PM. The address is 401 Hampton Dr. Allen, TX 75013 Phone 972-393-0018. This is your opportunity to look over an RV-6 under construction.

Calendar of Events

Cannot find any fly-ins (except our 168 fly-in) for November or December (sad situation)



A Message From the President Monroe McDonald

South-West Regional Fly-In a.k.a. Kerrville

The 1997 SWRFI is now history; about the best one we've had in my memory, and I have been going many years. The weather was about perfect; the main problem was sunburn. The new areas used on the airport gave us as much room as before and better facilities.

Our initial attendance estimate was about 440 aircraft and 4000 people, more accurate figures available later. Bob Mackey and Norm Petersen from EAA national participated, so I expect we will see a write-up in Sport Aviation.

The SWRFI board at the next meeting in November will decide where future fly-ins will be held. I believe exciting times are ahead!

Another Subject

That was the bragging, now for the nagging. Our chapter is like many in that a small number of people do most of the work of running our activities, but it seems to me that maybe our number is smaller than most. A major-city chapter like ours should have the resources to carry on several projects like Young Eagles, Flying Start, and support our part of the regional fly-in simultaneously. As always, you get out of these things what you put into them; there is a lot of fun and satisfaction in these worth-while projects, so Try it, You'll like it!

Chapter 168 News

As Assembled by Marvin Brott

Results of the Election of officers for 1998

The following are your elected officers for 1998. Please offer your congratulations and support to them as they take office in January.

President: Jerry Mrazek
Vice President: Jim Quinn
Treasurer: Gene Spaulding
Secretary: Tom Emerson

Jay Pratt Wins Reserve Grand Champion at Longmont

Do you remember last December when I indicated that the workmanship was excellent on Jay Pratt's RV-6? Well the judges at the Rocky Mountain Regional Fly-In at Longmont also believed his workmanship to be excellent so he received the Reserve Grand Champion trophy. Since we left a little early from Longmont, Jay just received this information and the trophy. I talked to Jay at Kerrville and he told me that he is officially a "hired-gun" now. He is working full time on an RV-4 at Parker County airport. He is also building an RV-8. Congratulations Jay on the Longmont trophy. See picture in October newsletter.

Chuck Sr and Jr Olmsted Win Best Homebuilt

More hardware for Chapter 168. On 20 September, at the Sulphur Springs Fly-In, the Olmsted's won Best Homebuilt for their RV-4. This RV-4 was featured in our newsletter last June and once again I am not surprised by the judges decision since this is a very well done RV-4. See picture in October newsletter.

Tom and Bonnie Lewis and Pecan Plantation

Tom and Bonnie have completed their move to a new home next to the runway on Pecan Plantation by the Brazos River and Granbury. Many of us have had the opportunity to visit their new home and take a tour. There is no doubt, they did a great job of designing and building a great house-hangar combination and maximizing the opportunity to enjoy the surroundings (lots of

open porches and windows). Now Tom can get back to the RV-6. If you have the opportunity, on November 8th the local EAA chapter will have a fly-in at their house.

Red Marron is Making All the Fly-Ins

Who has flown the most this summer? Who has given the most rides and check-outs this summer? Well, the answer is Red Marron. Just check the fly-in list below (probable not a complete list) if you don't believe me. In all of the flights, he was also accompanied by one or more chapter 168 RV fliers. RVs make good cross country airplanes as proven by Red. He took Martin Wright to Oregon to convince him that the RV is the only way to go. Last Saturday he spent about 3 hours checking out Dean Fellows in his RV-6 so Dean will be ready to make his own first RV-6 flight in the next several weeks. Congratulations Red on a good summer.

May 3rd	Georgetown, TX Fly-In
June ??	Merced, CA Fly-In
June 20th	Longmont, CO Rocky Mt Fly-In
July 4th	El Dorado, KS Fly-In
July 30th	Oshkosh, Fly-In
Aug 30th	Hillsboro, OR Vans Homecoming
Sept 20th	Burlington, CO RV Fly-In
Oct ??	Lebanon, TN RV Fly-In

If you add up the direct round-trip distance from Aero Country for each trip in statute miles, you get 12,178 miles.

Kerry Stanford, Our Newest Contributing Editor

This chapter is very fortunate to have a number of talented contributing editors. We have received good feedback on articles from Brownie Seals, Clair Button, Peggy Fry, and Tandy Allen. We are always looking for good original material. This month I would like to introduce chapter member Kerry Stanford and his article An Airport For All Seasons.



Where were the Chapter 168 Glasair Planes?

It should be noted that Haden Cowdrey won Grand Champion Kerrville last year with his Glasair II S. We looked for all of you 168 Glasair's at Kerrville but missed you, or least I missed you.

From Geryl Mortensen:

Some local news, my friend, David Brown has finished the rebuild project of the Midget Mustang that he bought last year from a doctor who had a hard landing in it. The plane is based at ADS in the Friendly Jet hangar. David is a really big guy and after a lot of soul searching and taxi testing, he has realized that he is just too big to fly it safely. If you know of anyone interested in seeing it, he can be reached at my office by calling (972) 367-2100. I'm not sure how much he is asking, but it should be a good deal.

A Note From Kathy Mitchell

Dear Chapter 168 10-5-97

Would it be possible for you to print a reminder to your members in the next Hangar Echoes to avoid residential areas near Aero Country? We live inside the pattern (two story gray house on the northwest edge of Red Bud). Since Brad flies in and out of Aero Country and we moved here to be near Aero Country, we obviously have not problem with the airplanes overhead. We LOVE it!!

We do have neighbors that have complained to us (since we can do so much???). In all fairness, there are quite a few airplanes that "do" the pattern inside our neighborhood. As you know, there are lots of empty acres to the west of Red Bud. Most residents here do enjoy the aircraft around, just not directly over their house. It seems to bother them for some reason. We have quite a few aircraft overhead on these beautiful "fall" weekends. Have even seen some really nice warbirds. Heard them too. Again, we love the planes but not everyone is aviation friendly.

Perhaps a reminder in the newsletter would help and if we could all spread the word, maybe we could keep everyone happy. This appears to be a problem in the making and this would be a good time to avoid any ugliness with our residential neighbors. In 1997, it's hard to find places like Aero Courtney. Since we are based out of Aero Country, we have obvious reasons for this request. We'd like to keep our little bit of heaven intact as long as possible.

Thank you for your time and wag your wings next time you see us out in the yard waving at you.

Happy Flying Kathy

Thanks to Barbara and Ralph Haroldson

Thanks for hosting the October issue of Hangar Echoes. If you are interested in sharing your project with the chapter, please volunteer to hold a newsletter assembly get together.

EAA, Chapter 168 and Van's RVs Getting the Sales Job

In addition to directing aircraft traffic, Mel and Ann were busy answering questions about the building of the RV-6. Fortunately they take the time and have the patiences to help the interested want-to-be builder or current builder. It should be noted that they have a few trophies at home for their RV-6.



**Ann and Mel Asberry
Holding Court in Kerrville**

Gerry Mizelle, Chapter 168 Secretary is Relocating

As noted in the Board of Director Meeting Minutes, Gerry announced that he will be leaving the Dallas area due to changes in his job situation. For the last year Gerry has served as your Secretary of Chapter 168. Gerry has been very active and involved in the chapter and he will be missed. The chapter wishes you, Gerry and Joy, the best of success in the future. Please keep in touch!



Gerry and Joy Mizelle



An Airport For All Seasons

by Kerry Stanford

A C-46 swept over the threshold and hung in ground effect just above the runway. The big tail dragger floated at a remarkably low speed before finally touching down on its main gear, lowering its tail and quickly slowing. Turning off the runway, the Curtiss began to taxi back the way it had come, passing a parked 747 with foreign markings and a Fokker F-27 awaiting fuel. At a modern terminal jetway a Boeing 757 loaded passengers. In odd contrast, a nearby DC-3 unloaded people outdoors down a wheeled stairway reminiscent of the 1930's. Just beyond the Gooney Bird a Super Cub taxied past ... floating on pontoons. The Northwest corner of the ramp was guarded by five sleek Russian SU-27 fighters parked in neat formation. Within a few miles in every direction, the airfield was completely surrounded by a vast wilderness.

No, its not a time warp or a secret military base, just another day at a very unique airport, Fairbanks International, in the heart of Alaska. (The SU-27s were visiting. After all, its only a 50 mile flight across the Bering Strait to Russia.)

Alaska... the word alone evokes concepts of untamed wilderness, mountain glaciers and bush pilots able to fly anything and touch down anywhere. If that's your particular vision of our largest and most northerly state, then think of Fairbanks International Airport as both the point of arrival for the interior and the jumping off place for the bush.

Only three highways access Fairbanks, one southwest (the Parks Highway to Anchorage), one southeast (the Alaska Highway) and one gravel road (the Dalton Highway) to Prudhoe Bay and the North Slope. There is little to speak of in terms of secondary roads leaving the city and going elsewhere. In fact nearly 70% of Alaskan bush communities are readily accessible only by air. This situation results in a per-capita ownership of private aircraft higher than any other state. It also means that Fairbanks International Airport serves as home base for a unique collection of aircraft and aviation operations.

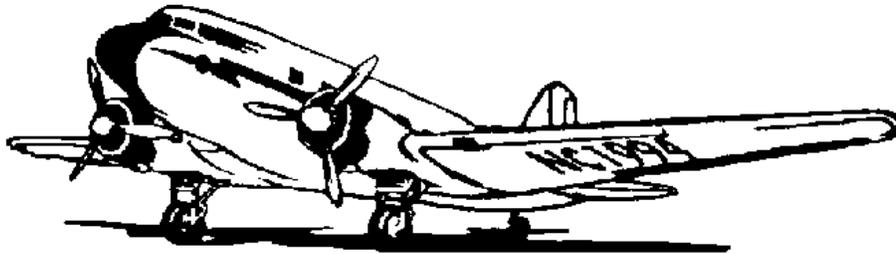
Fairbanks is the only city of any real size in the Alaskan interior with approximately 30,000 people inside the city limits and about 70,000 in the immediate area. The city provides infrastructure for an area roughly a quarter the size of the lower 48. Most of the transportation support for the state's interior, both commercial and private, is done by air.

FIA has essentially the same amenities and facilities as any other airport serving a client base of similar size. The northwest side of the field is devoted mostly to heavy iron. There is a modern terminal with airport operations offices, passenger service with four regularly scheduled major airlines, conventional air cargo capability, fire station and security. Typical commercial liners using the field include F-27s, B-727s, B-737s, MD-80s, the

occasional B-757 and a good many B-747 cargo birds. There are two paved, lit, parallel runways (1L-19R at 10,300 feet in length and 1R-19L at 3,200 feet), both with full ILS. On the southeast side of the field are FBO's, the tower, Civil Air Patrol, flying services and smaller airlines, tie-downs and private aircraft hangers, and the FAA Flight Service Station. Most of the general aviation aircraft are parked here. All in all its pretty much standard stuff for an airport of this size.

"Standard stuff" isn't entirely accurate for this place though. Few large airports deal with Arctic snowfalls and a temperature range of colder than 50 F below zero to as hot as 100 F above. The weather and other situations can present a variety of unique predicaments. For example, the 1992-93 snowfall in Fairbanks was a smothering 140 inches while the previous year's accumulation was a record setting 147 inches. Twice during this period most airline flights into Anchorage were diverted to FIA due to airborne dust from volcanic eruptions of Mt. Spurr in southern Alaska.

Other unique aspects found at FIA include runway 1-19, a 5,400 foot float pond parallel to and between both paved runways. There is also a 3,980 foot gravel strip south



of and in line with 1R-19L. It serves tundra-tired bush planes in the summer and becomes a groomed skiway once the snow falls. At the northeast corner of the airport is a tree-covered campground with aircraft tie-downs, vehicle access, firewood, phone, water, restrooms and a covered picnic area with barbecue facilities. Transient fliers camping here enjoy summer flowers planted by the local 99's Chapter.

It's the aircraft themselves that make this place truly unique however. While a good many general aviation tricycle gear types live on the southeast side, this is bush plane country and tail draggers abound. From as small as a Kitfox to as large as a Dehavilland Otter, tail wheels are everywhere. Cessna 180s, Maules, Citabrias, Decathalons, Helio-couriers, Luscombes, Beavers, Otters, Arctic Terns, Champs, Stinsons and of course a variety of Cubs are parked wingtip-to-wingtip. A couple of Douglas DC-3s and four C-46 Curtiss Commandos dominate the big tail wheel category. To spice things up a trio of Grumman Super Widgeon amphibians also calls FIA home.

Tundra tires, wheel skis and amphibious floats decorate quite a few of the planes on the tarmac. The back country capabilities of these aircraft allow state residents to enjoy the legendary outdoor activities Alaska has to offer.

Tricycle gear bush planes work out of FIA as well. Cessna 182s and 206s, Caravans and Skywagons, Twin Otters, Buccaneer amphibians, and the occasional Super Beaver sit parked on the tarmac or beached at the float pond. Lockheed C-130 Hercules, both military and commercial are frequent visitors. Even ski-equipped LC-130s from the New York-based 109th Air National Guard put in an occasional appearance. More rarely seen varieties such as the Fairchild C-119 Flying Boxcar and Short Brothers Sky Vans and Sherpas pass through on their way to the north slope oil fields or some other back country destination.



Light and heavier twins make up the majority of the small airline aircraft at FIA. A scheduled flight to nearly any reasonably good-sized bush community can be had with one of these lines. If you need to get to Nome, Ft. Yukon, Barrow or Kotzebue, they'll get you there all year around. They'll haul just about any reasonable cargo to your intended destination as well, even a car.

Rotary wing aircraft fly out of FIA too. A variety of helicopters work out of the south corner of the field, including Jet Rangers, Hueys and Aerospatials. They provide specialized flight services, cargo and personnel delivery, forest and pipeline patrol and search and rescue capability.

A number of working Douglas DC-6 cargo birds compete with the C-46s and DC-3s in the radial engine squadron. Regularly scheduled passenger junkets to historic Canadian cities are available aboard both DC-3s and DC-4s from Fairbanks. (This is "romantic radial-engined flying" at its finest.) There's even an occasional visit from a converted P4BY-2 fire bomber, the single-fin Privateer version of the Consolidated B-24 Liberator. To add color, other rare types are scattered about the airport grounds, some flying and some not, such as a Dehavilland Caribou and a Neptune sub-hunter as well as quite a few Beech-18s. The CAP even maintains a pair of sailplanes at FIA.

The C-46 Commandos are the real attention-getters though. They fly frequently, and the mellow rumble of one of these radial classics on final over Fairbanks invariably means a look upward.

In addition to the four flying C-46s, there are three other Curtiss Commandos parked on the field. All of these birds are operated or owned by Everts Air Fuel. The firm hopes to have as many as seven C-46s working in the near future. These aircraft are not young, having been built during the war years between 1942 and 1945. They still perform admirably in Alaska however, hauling fuel, salmon, machine parts and other air cargo around the back country to remote villages and mines. Because the big tail dragger can get into and out of tight places with fairly heavy loads, it's a favorite Everts bush plane. According to Robert Everts, vice-president of Everts Air Fuel and a Commando pilot, "They still don't make an aircraft that will do what these will do getting into and out of a rough field." Everts Air Fuel also flies three of the DC-6s at the airport and has one DC-6 parts bird.

Like other operators at FIA, Everts Air Fuel flies their aircraft in nearly all of the weather Alaska has to offer, severe winter conditions included. How cold is too cold? A frostbitten rule of thumb in Fairbanks is that most outdoor activity stops at around 20 F below zero. Robert Everts commented, "We normally shut our operations down at 25 F below, although we have been known to fly at 55 F below when there's an emergency."

20 F below zero then is usually the low end of the scale for outdoor activities in the Alaskan winter. By contrast, the summer weather in Fairbanks is typically pleasant May through August and into September, with June and July being particularly nice.

While its pretty obvious that Alaska can present some extreme situations, Fairbanks International Airport is a unique aeronautic facility. It has the people, capabilities and aircraft to handle the flight needs of the Alaskan environment. This field is definitely worth a look if you happen to be coming north. And if you're planning that once-in-a-lifetime flight to Alaska in your

own bird, don't forget to pack along your outdoor gear for a stay at the FIA transient flyers campground.



Etiquette and Tips for Airport Bums

By Tandy Allen

O.K. aviators, gather round. No, no - not you that already own (or are owned by) airplanes. We want to address those aircraft owner wannabe's (the AOWA, if you will) that occasionally find some time on their hands of a weekend and turn into airport bums. Now "bums" is not used here in the perjorative sense. Rather the term is used as an identifier for those individuals that "hang out" at airports in their spare time.

Some of us have a good deal more experience as airport bums than we do actually flying. We consider ourselves a cut above the EAA'er who goes "bummin" only very rarely. Not incidently, I got my start as an airport bum job as Newsletter Editor for Chapter 200 in Kansas City. In the endless search for articles to put in the newsletter, I used the job as a license to look into every open hanger, garage and basement all over the Kansas City area. More than once, I have braked hard to investigate an airplane pulled out of the garage. Found a rare "Raven" (Avid Flyer look-a-like with a 2100 cc Volkswagen engine) that way while crusing a neighborhood in Olathe, Kansas.



Of course, the ideal way to arrive at a foreign airport is to land in your own plane - even if it is rented. If you can grease one on in front of the usual Saturday morning flightline judges, you will be a long way ahead in establishing that bond between pilots that makes bummin so enjoyable. If instead, you should perform one of your "arrivals" and manage to not cripple the airplane, you will be looked upon as one with a lot in common with most pilots. Not a bad beginning either way. I have done both but, of course, no one was looking when I greased one in. Never is.

The most rewarding thing about airport bummin' is that what worked for me in Kansas has proven to work well in Texas, Oklahoma, Maine(!) and even at Oshkosh. Airport bummin is a learned social skill with a few guiding principles. In the interests of promoting bummin as a bonifide recognized aviation activity and smoothing the way for future visits, the following points of bummin etiquette are provided for your use;

DO keep your hands to yourself. Dont't touch anything- tools, parts, finishes (especially). A LongEZ builder once admonished me for merely touching the wing surface When he told me that he had spent two years sanding it I understood. I thought that later I

had made a friend of him but he never did manage to arrange a ride in that airplane for me.

DO expect to meet some real nice people - and a few old grouches. The nice guys are going to outnumber the grouches by a wide margin and even some of the grouches can be persuaded to discuss their favorite airplane if you approach them right.

DO offer to help, even if it is just pulling a plane out of a hanger. Most of those you meet don't need help, or even want, it but an offer to help is a good way to break the ice.

DO identify yourself as a builder, if in fact you are. Find someway to work your experience into the conversation. EAA builders are normally more than happy to pass along building hints. I have picked up some good ideas that have made my project go a bit faster.

DO wear your EAA 168 hat, shirt, name badge, Oshkosh patches, etc. These quickly identify you as being serious about learning from the builder. Besides, it will give you someone to talk to at the next meeting.

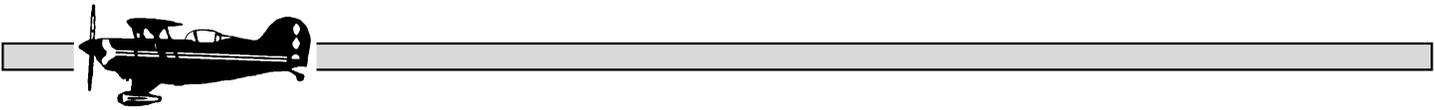
DON'T be offended if the builder is a bit cool to start. Be patient and courteous. Some builders are just harder to get to know than others.

DO your homework. Learn to recognize all of the popular homebuilts and the merits and disadvantages of each. I bought a small book published by :PLANE AND PILOT that shows over 100 homebuilts that has proven handy at times. Reading the completions section of SPORT AVIATION and KITPLANES is also very helpful in tagging some of the more popular homebuilts. Of course with over 500 homebuilts offered , it is difficult to keep up but rewarding when you find a new one.

DO have an informed opinion on two stroke v.s. certificated four stroke engines. The guy you talk to may be on the other side of this question. You probably can learn something from his experience. Same thing for auto engine conversions.

DON'T be afraid to ask questions about unfamiliar airplanes. If you see something you can't identify, ask. I'll guarantee that the builder is prouder of that one of a kind than an RV builder and you know how hard that would be.

I hope these few hints will be helpful in your next bummin visit. By the way, when you guys that already have an airplane or two in your hanger see a stranger looking at your project, be receptive. It makes my bummin that much more enjoyable.





How Safe are Experimentals?

With the tragic accident of John Denver, the question is certainly being asked about how safe is the experimental aircraft classification. Therefore, it seems timely to for this newsletter to take a look at safety. This article was sent to me by Chris Hill several months ago on the safety of experimentals as researched and written by DJ Molny. His study was made on RV's, but I am sure will see in the data that the Long Ez would be very similar. Molny's comments are in some cases summerized to shorten for this newsletter. The following is by DJ Molny.

I went to the NTSB archives and pulled all available monthly summaries (Jan. 83 through April 97), located the entries involving RVs, and downloaded the synopses for every recorded RV accident. I then sliced and diced the data in various ways, and got some interesting results. As should be noted, I share Mark Twain's sentiments about "lies, damned lies, and statistics", so I will do my best to insert disclaimers wherever appropriate.

TOTALS

I was able to locate a total of 107 NTSB accident reports involving RV's. NTSB synopses were available for all but one of the accidents. 102 different aircraft were involved in the 107 accidents. (See "Repeaters" below.) Assuming a fleet size of 1581, this means that 6.45% of all RV's have been involved in an accident at one time or another. Of the 107 accidents, 38 were fatal accidents with a total of 52 deaths. There were 28 serious injuries in 24 accidents, and 31 minor injuries in 25 accidents. There were no injuries of any kind in 31 of the accidents.

Disclaimer: The NTSB database only contains information about "accidents", which are defined as an aircraft operation in which "any person ... receives fatal or serious injury or any aircraft receives substantial damage." Therefore these data only apply to emergency situations that have an unhappy ending. Emergency situations that are resolved without injury or damage are not included in the data.

PROBABLE CAUSE

I used the NTSB's probable cause determinations in all cases where one was available. The NTSB has yet to issue a probable cause determination for 10 accidents occurring after April '96. In those cases, I made my own best guess about probable cause; it is likely that some of these guesses will prove to be incorrect. There seems to be a fair amount of subjectivity in the NTSB's determinations. For instance, most people who run a tank dry are hit with a "pilot error - fuel management" judgement. However, the October '95 forced landing of N96VA was attributed to a faulty fuel tank sensor which led the pilot to switch to a dry tank while on approach. But one could certainly argue that the pilot A) should have known that the selected tank was nearly empty, B) should not have switched tanks at low altitude, and C) should have switched back to the other tank in an attempt to restart the engine.

ACCIDENT TYPES

I went through all of the NTSB synopses, and grouped the accidents by probable cause. Here are the results:

107 Total accidents (100%)

25 Engine failures (23.4%) 71 Pilot errors (66.4%)
3 Prop failure (2.8%) 2 Structural failure (1.9%)
6 Unknown (5.6%)

According to the AOPA Air Safety Foundation's "Nall Report", 70% to 80% of all GA accidents are eventually attributed to "pilot-related factors". The percentage of RV accidents due to pilot error is 66.4%. This suggests that **mechanical factors do not affect RV's at a significantly higher rate than the GA fleet** as a whole, despite the fact that RV's are amateur built and not FAA certified.

DETAILED BREAKDOWN

Propeller: 3 (2.8%)

2 Blade separation 1 Retaining bolt failure

Structural: 2 (1.9%)

1 Wing failure during low-level acro (RV-3)

1 Horizontal stab failure during acro (RV-4) (preliminary finding)

Unknown: 6 (5.6%)

Engine Failure: 25 (23.4%)

1 Carb ice 2 Fire 8 Fuel system
2 Induction Air2 Ignition failure 2 Loss of oil pressure
8 Unknown

Comments: Improper routing of fuel lines caused three of the engine failures, including one fire. Mogas was used in at least two of the engines that failed. Both induction air failures were due to improper construction techniques.

There was one instance of carburetor ice that was designated an engine failure because the pilot did not have any choices - there was no carb heat system on the aircraft. Carb ice was suspected in several of the "unknown" accidents. All other instances of carb ice were designated pilot errors due to improper use of carb heat.

Pilot Error: 71 (66.4%)

3 Exceeded design limitations 12 Low level acro
5 Low flying 10 Fuel mgmt
3 Improper use of carb heat 3 Poor judgement: weather
4 Hard landing 6 Landed short of runway
8 Loss of control on landing 3 Loss of control on takeoff
4 Departure stall (i.e. stall during initial climb)
4 Stall/spin in the traffic pattern 2 Mid-air collision
4 Preflight overlooked deficiency

Comments: All three cases of exceeding design limitations occurred during acro in RV-3's, and resulted in wing failures. In one case, a recording accelerometer showed a peak reading of 9.2G.

There are a total of 20 accidents that I consider to be the result of "hot dogging": 12 low-level acro, 5 low flying, and 3 instances of exceeding design limitations. These represent 28.2% of all pilot errors, and 18.7% of all accidents. Some or all of the four departure stalls may be the result of "hot dogging" as well.



Fuel management accidents stem from the two classic causes: insufficient fuel on board, or having the fuel selector valve in an improper position.

The three weather accidents were: a night flight without instrument lights, continued VFR into IMC, and instrument flight in severe turbulence and icing over mountainous terrain. Two of these accidents resulted in four fatalities.

There were a total of 29 pilot error accidents during takeoffs, initial climb, approaches, landings, go-arounds, touch-and-go's, et al. These represent 40.8% of all pilot errors, and 27.1% of all accidents. Of these 29 accidents, five occurred in the RV-6A (nosewheel) type. Disclaimer: I do not know the average percentage of RV-6A's in the fleet over the study period, therefore it is not possible to say if they are more or less prone to takeoff and landing accidents than their tailwheel cousins.

Regarding the short landings, can RV pilots comment on how easy (or hard) it is to get behind the power curve in an RV? Also, it is worth noting that this entire thread started because of a query about stall/spin accidents in the pattern; these represent only four of the 107 accidents recorded.

CONCLUSIONS

The **accident causes do not suggest any glaring mechanical problems with the RV series**, except perhaps for the RV-3 wing spars. And most of those failures occurred during hard acro, many at low altitudes. Takeoffs and landings account for many of the accidents, but this is true of all GA operations. The **rate of "hot dog" accidents** feels high to me, but that is perversely reassuring because they can be avoided by simply exercising good judgement.

The overall GA fleet experienced 9.2 accidents per 100,000 flight hours in 1995. However, the NTSB data do not give any insight into the frequency of RV accidents per 100,000 flight hours.

I toyed with the idea of estimating the number of RV flight hours based on the total GA fleet hours and the percentage of RV's in the GA fleet. But I did not pursue this because A) I have no reason to assume that RV's are flown for the same number hours as the average GA aircraft, and B) the FAA "hours flown" number is itself a statistical estimate of unknown quality.

I hope this information is useful.

DJ Molny jmolny@evolving.com

Heard while on approach to Norfolk International:

Pilot: "Norfolk Approach, N1234, VFR, 2,000 ft, landing Norfolk."

Approach: "Do you have Oscar?"

Pilot: "I have a passenger with me, but his name is Randy."

BACK UP



IN-FLIGHT BATTERY GAS EXPLOSION

By Lucky George Eagan, MN. (612)454-3745 Lancair Network News

Plagiarized from the Chapter 983 newsletter:

On Saturday I flew my Lancair 320 for hour 30 minutes and decided near the end of the flight to check the free fall of my landing gear. I slowed to 80 knots, tripped the hydraulic circuit breaker, selected gear down and opened the bypass valve. The gear fell out and within a few seconds I got the main gear lights. but no nose wheel down and locked indication, I have a 4 inch by 2 inch landing light attached to the nose wheel strut and decided to take it off on the basis that it might create just enough drag to prevent the nosegear from locking down with the free fall system.

The following Wednesday I fired up the engine and off I went. I have dual electronic ignition on my engine so no mags to check. Temperatures, pressures and a prop check and away I flew. Ten minutes into the flight I decided to do the free fall check again. Same routine as before, BUT the gear went out missing the usual noise. Maybe I was just a bit slower. Anyway no lights, nothing, not even for the main gear. I reached for the hydraulic circuit breaker to pump them down when I noticed the fuel gauges showed empty. I had no electrical power and the instrument and alternator field circuit breakers were tripped. I flipped them on and had some engine instruments, but still no electric. Could I have inadvertently shut off the master switch? NO-It was on. I decided to cycle the master switch and BANG, EXPLOSION, SMOKE, and the sealed lead acid immobilized electrolyte battery compartment door goes flying from behind the copilot's seat cushion into the baggage compartment. I was at 3,500 ft and within 10 miles of home base, so I headed back not knowing the gear status. I had lost all radios, hydraulic pump, gear position indication lights, transfer fuel pumps, etc. I tried the flaps. they worked OK. I later learned the flaps were powered from the electronic ignition backup battery due to a blown diode. Then I moved the copilot's seat cushion forward and saw that my sealed battery was not sealed any more! The hydraulic circuit breaker switch had blown off, the battery hold down board was missing and the battery box was shattered and deformed. With the engine dependent upon the electronic ignition system and whatever power is left in the small backup battery, and an unknown amount of fuel in the header tank, I decided to put it onto the runway as soon as possible no matter what the gear position. I even thought about the grass, but didn't like that idea. Remembering that the last gear free fall attempt was unsuccessful, I thought of catching up to a nearby aircraft and asking him to check on the gear, but no radio. So on short final I pulled the mixture and set full flaps. THANK YOU, THANK YOU, I'M ON THE GEAR! Now that was a great feeling. During postmortem, I remembered just before dropping the gear while waiting to slow down, I saw 18+ on the voltmeter. I switched to amps and read 29.5. Mentally I said I better check that out. I believe the over voltage condition overheated the battery causing

hydrogen gas to collect in the battery box area and blow when it got a spark from that master relay that I thought was sealed, or maybe from the circuit breaker. Anyway, I'm installing over voltage protection and getting the relay out of that battery box after I make a new one. I will be ordering a new battery, 40 amp circuit breaker, master relay, a new voltage regulator, and most important--overvoltage protection. All the radios are at the radio shop for repair. I used 15 auto fuses in place of circuit breakers, and upon checking later I had 8 fuses blown; Radio Master, Fuel Transfer Pump (2). Gear control and lights, KX 125., KT 76, Fuel Gauges, and GPS. Also seeing that the nose wheel did lock this time, I recommend no extra things on thnose gear leg. That landing light that used to be attached to the nose gear strut is an the shelf to stay.



History of Paint

Several months ago Ken Krebaum sent to me an article on the early days of auto painting. I found it absolutely fascinating. Since he knows that I have gone through a lot of wet and dry sandpaper and have painted parts of my RV-4 more times than I would like to admit, he suggested that I was qualified to write a multi part article on the "The History of Aircraft Finishing.". Ken then went ahead what a suggested outline:

Therefore, the first part of this "History of Paint" is by Michael Lamm on how cars got color followed by Ken's suggested outline for how airplanes got color. Read and enjoy!

How Cars Got Colors

By Michael Lamm

For the first quarter of this century, almost all automobile bodies were painted by hand, with brushes. Nothing held back car production like painting. Paint technology had not kept up with advances in other areas of mass production. Major automakers could assemble a car in four to five hours, but it took three to eight weeks to paint it.

Into the 1920s many car bodies were built by independent suppliers. These companies had sprawling paint areas that housed as many as 20,000 bodies at a time, yet they still had trouble keeping up with the ever-increasing demand. As one maker observed, without a faster method of painting, "it would have been necessary to put a roof over the entire state of Michigan." The logistics of moving bodies around the huge sheds was a nightmare in itself. First, unmounted bodies were dollied from prep and sanding areas to huge paint rooms. Then after the paint had been painstakingly applied, they were transferred to long, low sheds into which warm, filtered air was pumped to speed drying.

Manufacturers made virtue of necessity by boasting about the time and effort they put into painting. When Hudson introduced its inexpensive Essex closed coach for 1922, the sales literature trumpeted: "The finish has not been slighted as there are 25 paint operations, this being fully up to the normal number." In reality, manufacturers longed to eliminate this final vestige of hand-craftsmanship from their production lines--not just because of the time and space it required but because paint men, being skilled workers, were the only segment of the industry's labor force with a strong, independent union.

To apply varnish without leaving brush marks, painters had to be patient and meticulous. Each coat was brushed on at right angles to the one before it. Between color coats, bodies were rubbed with ever-finer grades of pumice and sandpaper. After four to eight color coats, the painter flowed on one or two final coats of clear varnish. Topcoats had the consistency of molasses, and each one took a week or two to air-dry.

After all that exacting work and care, a varnish job lasted only two to three years. Freshly applied varnish had tremendous depth--almost a glow--but within a year or so it would begin to oxidize and darken. Colors became clouded, clear topcoats turned yellow, and surfaces started to crack. Wealth car owners often ordered two custom bodies for each

chassis and returned one to the coachbuilder every year for refurbishing and a total revarnish.

Black absorbed more heat than lighter colors and therefore dried faster. That's partly why from 1914 through 1925 Ford offered the Model T in "any color as long as it's black." Black varnish, which used a carbon base, also resisted ultraviolet sunlight, so it lasted longer. Finishing a Model T body in black varnish took about a week. This was still too long for Henry Ford, so he kept looking for faster painting methods.

One alternative to hand-applied varnish was baked enamel. Bicycle manufacturers had used baked enamel for years, and automakers started experimenting with it around 1908. Baked enamel could be flowed or sprayed onto metal and oven-dried in less than a day. It was tough, had good luster, and needed very little handwork. Why, then, weren't Ford and everyone else using baked enamel? In fact they did make some use of it, but baked enamel had its own set of drawbacks. At first it came just in black, because only Gilsonite, a black pigment derived from coal, could withstand the heat needed to bake it. That restriction was no problem for Ford, of course, but another difficulty was the heat itself. Many car bodies still used wooden framing, and a body painted with baked enamel had to spend four and a half hours in a gas-fired oven at 450 degrees Fahrenheit, a temperature that would burn or split wooden members. So only bodies or parts with no wood in them could be finished in baked enamel. By 1923 Henry Ford had removed much of the wood from his open body styles and ordered his body suppliers to use black baked enamel as well. But since Model T bodies still had wooden tacking strips, Ford avoided the 450-degree ovens by specifying six thin coats of baked enamel instead of one heavy one, with each coat fired at 165 degrees and each body passing through the oven six times. Body finishing now took about three days.

The long-awaited breakthrough in automotive finishes finally arrived in 1923, when Duco lacquer became available. Duco was based on volatile nitrocellulose (similar to guncotton) in an acetate solvent, rather than the linseed oil of earlier varnishes. It had been developed by Du Pont for painting fabric airplane wings during World War 1. After the war chemists at Du Pont and General Motors figured out how to dissolve more pigment in the lacquer, how to help it adhere



by pretreating the steel and applying primers, and how to keep it from softening and peeling.

Duco cut painting time from weeks to days. It could be sprayed on with a gun, came in bright colors, didn't fade or yellow, and was more flexible than varnish, yet it didn't need high-heat ovens. Painting became another unskilled task, and the painters' union collapsed. As a result of savings on labor and storage, Duco cost less than baked enamel. The first production car to use Duco was GM's 1924 Oakland. Some

low-volume coachbuilders stayed with varnish for a while, but by 1929 most of them had switched.

Michael Lamm is a writer and book publisher in Stockton, California

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How Airplanes Got Colors

suggested outline

Part I: 1903 - 1920 The Unvarnished Truth

- This description of the early days highlights the search for an adequate finishing system.
- Eddie Rickenbacker is overheard in a Paris cafe, "Don't put no enamel on my Sopwith Camel! "And they didn't.

Part II: 1920 - 1940 The Wonder Years - High On Dope

- The first practical aircraft finishing system lifts the aircraft industry to a higher plane.
- The nitrate- and butyrate-induced hallucinations of the Granville Brothers and Steve Wittman take to the air.

Part III: 1940 - 1950 The Aircraft Industry Goes Natural

- A GI proclaims, "Willie! Joe! Kilroy! Hold it! If we don't paint the rest of this tub, we'll have a lot more time left to do the racy nose-art!" The natural aluminum finish is born.
- After the war, civil aviation realizes "If bare aluminum defected Hitler and Tojo, it'll get my Luscombe from Garland to Plano!"

Part IV: 1950 - 1980 The Renaissance of the Homebuilder's Movement

- It takes 30 years to get the dope out of our system. Some remain hopelessly addicted.
- Auto enamel becomes popular; in 1975, Cessna's product line wins the Sunkist "Orange Peel" award for excellence.
- The invention of Bondo curiously coincides with sudden gross weight specification increase on all homebuilts.

Part V: 1980-2000 Aircraft Finishing Becomes a Symphony In Two Parts (A and B)

- Homebuilders now have another common bond: isocyanate poisoning.
- The "wet look" becomes the term pathologists use when describing the internal state of homebuilder's lungs.

Part VI: 2000 and Beyond

- "Active Luminescent" aircraft finishes are developed. PPG's slogan is "The paint job you can plug in"
- The typical active finish draws 35 amps at 12 volts.
- Heard on the Forth Worth Center frequency: "Center, this is, ah, Glasier, ah, one-five-seven-bravo-sierra. Our, ah, paint job has tripped off-line and, ah, we can't seem to reset it. Ah, request vectors the nearest paint shop."

- In the usual Oshkosh grand champion theme of "what's best is excess," the 2003 homebuilt grand champion can only be viewed through No. 14 welder's goggles.