

# HANGAR ECHOES

EXPERIMENTAL AIRCRAFT ASSOCIATION  
CHAPTER 168 DALLAS TEXAS

## Chapter Involvement

By Marvin Brott

Last month we had an excellent article by Doug Hill, President of the Lincoln, Nebraska chapter, on sharing, participation, communication, and the personal satisfaction he gets out of being involved with his chapter. At the last meeting Earl Browning, our Vice President, remarked how much he has enjoyed setting up the monthly programs and he encouraged all of us to get involved. From my perspective, I have appreciated your support and excellent articles published in this newsletter. It has been a lot of work but it has been fun. While attending the monthly board of director meetings, I have witnessed a lot of 'volunteerism' by the officers and board members.

In the Chapter 168 News section, please see the note from Michael Carver on how "EAA 168 Needs a New Young Eagles Coordinator". When it comes to getting involved, Michael demonstrated to the fullest extent the meaning of the word by the successful Young Eagles events he coordinated. Michael, thanks for all you

October 1997



Mary Jane and Henry Odlozil



The Odlozil Family

have done for this chapter and best of luck in your new job. (Tandy Allen, our book report contributing editor, has offered to take over the Young Eagles from Michael.)

Also in the Chapter 168 News section, is a note from Jerry Mrazek on the "Results of the Nomination Committee's Efforts to get a slate of officer candidates for 1998". At our October meeting we will be electing the 1998 officers from the recommended slate of officer candidates as prepared by the nomination committee.

Now some recognition for eleven years of outstanding effort in holding the Chapter 168 yearly, premier fly-in. Of course that goes to Mary Jane and Henry Odlozil and their family. That includes four daughters and one son along with their families. This is a big event. Typically about thirty airplanes show up with an even greater number of drive ins. Our September 6th fly-in at the Henry "O" Airport was not different since we had good weather, a lot of airplanes, good people and finally good food. Henry's family goes all out to make this event a success. Mary



Jane and Henry, thanks for eleven years of providing us with an excellent fly-in.

Our chapter owes a lot of recognition to Faye and Harold Troxel for their volunteer effort in providing the refreshments for our monthly meetings. I really do appreciate a cup of coffee and the cookies during the meeting break. Thanks, Faye and Harold!



**Harold and Faye Troxel**

As I mentioned, there are a lot of chapter volunteers doing a lot of excellent work. Too many to mention here. If you get the opportunity, tell them how much you appreciate their effort. I know the three newsletter editors appreciate your positive comments.

The following photos are from the Henry Odlozil Fly-In.



**Father and Son Chuck and Chuck Olmsted**



**Vivian and Owen Bruce**



**Jay Pratt**



**Chuck and Tyler Wilson**



**Nancy and Monroe McDonald**



**Bill Wisley**



**Cecil Mcree**



**Jodie Glaze, Eric, Clair and Ellen Button**



**Tink Joiner and Dave Davidson**

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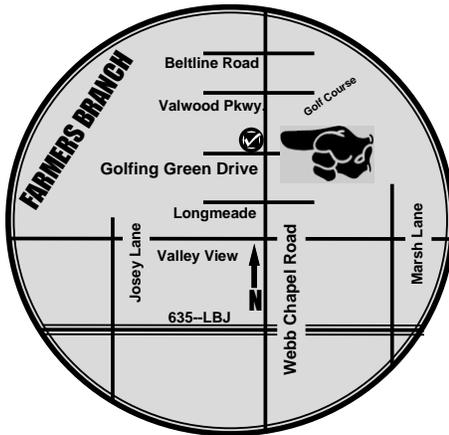


Jan Collmer  
14368 Proton Road  
Dallas, TX 75244  
(972) 233-1589  
Fax (972) 233-0481



## October 7th Chapter Meeting

Our October 7th (first Tuesday) 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!



Richard Graham will be returning as our guest speaker at the October meeting. Richard presented the SR-71 at a packed May meeting but we ran out of time. He has kindly accepted a return engagement. Let him take you on a trip where you will fly at Mach 3.2 and 80 thousand feet in an SR-71. Many of you bought Richard's book (just went into second printing) entitled SR-71 Revealed The Inside Story at the May meeting. He will once again bring a number of books and will have a book signing. For those of you who have read the book, this is an opportunity to ask the detailed question.



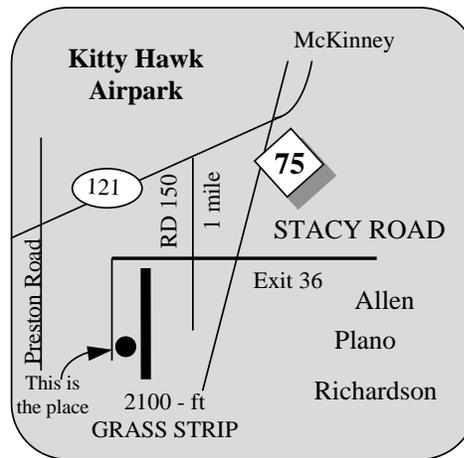
Richard Graham, Col. USAF (Ret)

## October 11th Fly-In / Drive-In

The October Fly-In will be at the Kitty Hawk Airport and will be hosted by Jim and Anita Rushing, and Don and Clara Stovall. The plan is to have the chapter trailer at the Fly-In so the food arrangement will be different from past fly-in at Kitty Hawk. Please plan on attending

## Calendar of Events

*(See on last page above chapter officers)*



## October 16th Director's Meeting

The October Director's Meeting will be from 7:00 - 8:45 PM at the Farmers Branch Library on the 16th. The

following is a report by Gerry Mizelle from the September meeting.

1. Discussion about the need to replace Michael Carver as the chapter Young Eagles Coordinator. Tandy Allen volunteered to assume that position for us. Please thank him and continue with you support.
2. Monroe led a discussion about the upcoming Kerrville FlyIn. There is a work day scheduled on the 12th., the future sites have been narrowed to three, the event will be held on the ease side and Ann Asberry has Saturday night banquet tickets.
3. Discussion about the XMAS Party and the Library's schedule. Monroe will contact the library to confirm our 12/2 availability.
4. Jerry Mrazek discussed the status of 168 Officer Candidates, his article contains this information.
5. Bill Wisley, because of personal commitments, resigned from his 168 Director position. A discussion followed and the BOD decided to wait as the Director nominations will take place shortly.
6. 168 Web Page status. We have to thank Gerald Mortensen for the creation and maintenance of our web site. However Gerald is spending most of his time out of the country and the site where our information is not his personal space. Do you, or someone you know, have access to a site? We need a **168 Webmaster** who can create a new site for us and add our updated events once a month. Please contact me or any officer with your suggestions.

## October 28th Newsletter Assembly

The November issue of Hangar Echoes will be assembled at Pat and Marvin Brott's home on October 28th starting at 7:00 PM. The address is 1317 Seminole Drive, Richardson, Tx 75080 phone 972 235 5552.

## New Members:

- a. D. Olin (Olin) Atkinson, (972) 248-7618, no project
- b. Joe Matthews, (214) 599-9583, no project



## **A Message From the President Monroe McDonald September Activities**

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

We just got back from the last board meeting, Sat 9/13, where we got down to the detailed planning for next months fly-in. Here some new details you should know about:

There will be a BBQ dinner Sat. night at the KC Hall, where we have been in years past and there is plenty of room and beer available. Tickets at the door will be \$10; We will have some special tickets available at the 10/7 chapter meeting. These will:

1. cost \$1 less
2. have a seat at a special chapter table
3. get a chance on a ride in the new Interceptor turbine aircraft, in addition to regular door prizes

The plan for both Oshkosh and Kerrville was to scrap the two-tier ticket scheme (some with access to the flight line, some without) and cordon off the aircraft with pedestrian walkways between rows. At Oshkosh, they did the one-class ticket part but the aircraft were in open rows as always, but now with the general public loose amongst them. After going through the planning, I think we found out why, because it appears we are going to have to do the same thing. It appears that the original plan would take several thousands of dollars in new stanchions and rope and more man-days of labor than we have. We will make that change part of the pending relocation.

All aircraft owners are welcome to cordon off their own aircraft, and this has become common practice at Oshkosh. Stanchions and rope will be available for rent as are tie-downs, or you can bring you own.

Information brochures with aircraft arrival procedures will be available at the chapter meeting.

For more info., check the web at [www.mrdata.com/airshow/swflyin.html](http://www.mrdata.com/airshow/swflyin.html)

### **Chapter 168 News**

*By Marvin Brott*

- Thanks to Wally and Darrel Watson and others who put the September issue of Hangar Echoes together. If you are interested in sharing your project with the chapter, please volunteer to hold a newsletter assembly get together.
- Thanks to Rod Johannsen on his excellent presentation on making a trip to the Bahamas at the last meeting.
- Ann Asberry mentioned by the BOD meeting that Don Stovall recently had a kidney transplant. He is doing very well and would welcome your company. Come to the October fly-in at Kitty Hawk and wish him your best.

### **EAA 168 Needs a New Young Eagles Coordinator**

*By Michael Carver*

We have done a lot in the last two years. By my counts, our chapter is responsible (directly and indirectly) for nearly 450 Young Eagle flights. Now, unfortunately, I must ask that you continue without my help. I have accepted an out of state job and will be moving in late September. I am not, therefore,

able to continue as Young Eagles Coordinator for EAA Chapter 168 and for the TEXINS Flying Club.

We've built a fine team and I am confident that what we have started will continue. Each time we've run a rally, we've learned a little more about how to make the next one better (both for ourselves and the kids). Each time we've run a rally we've added a few members to the EAA (sometimes to our chapter but always to national). Most importantly, each time we've run a rally we've improved the public's perception of "little airplanes." Please don't stop this important work.

I want to thank everyone for the giving me this opportunity to "lead" (its been sort of like herding cats but ...) such a fine crew. Leaving this fine group will certainly leave a void in my life but I am trusting you not to let it leave a void in our community.

Thanks,  
Michael Carver



**Results of the Nomination Committee's Efforts to get a slate of officer candidates for 1998**

*by Jerry Mrazek*

The nomination committee, made up of Jerry Mrazek, Ann Asberry, Sam Cooper, and A. D. Donald, called or otherwise contacted 26 potential candidates for 1998 chapter officers. Of these contacts we secured four volunteers who expressed a willingness to serve the chapter. We appreciate this volunteer spirit. Our chapter is a volunteer organization and it takes volunteers to make it work. I hope that we can develop this spirit further in the next several years and have no shortage of volunteers when they are needed.

The recommended slate of officer candidates prepared by the nomination committee and approved by the board of directors is listed below:

**President:**

Monroe McDonald (Incumbent )  
Jerry Mrazek

**Vice President:**

Jim Quinn

**Treasurer:**

A. D. Donald (Incumbent)  
Gene Spaulding

**Secretary:**

Tom Emerson  
Gerry Mizelle (Incumbent)

Ballots will be printed and available for use at the next chapter meeting. Spaces will be provided for members present at the meeting to write in any other candidates of their choice and time will be provided for comments to be made about any of the candidates. The vote will then be taken at the October chapter meeting and the officers will begin their terms in January.

Marvin, as you can see, I have sent a copy of this to Gerry Mizelle at his request. I believe he intends to take care of getting the ballots together.

**Awards Dinner At Kerrville**

*by Ann Asberry*

Earlier this year, the Southwest Regional Fly-in at Kerrville announced there would not be an awards banquet.

That changed, and now the "Octoberfest '97" awards dinner is selling advance tickets to EAA members at a reduced rate and is offering a "special drawing prize" to only those ticket holders. The dinner will be held at the Knights of Columbus Hall Saturday night. There will be food, entertainment and lots of prizes and of course the fly-in aircraft awards. The tickets are \$10 at the fly-in, but you can buy yours at this

**An Airport For All Seasons**

Chapter meeting for \$9. If we sell 10 advance tickets, we will have a reserved Chapter table at the dinner.

The grand prize is a trip for two to any destination served by Southwest Airlines and will be awarded to some lucky ticket holder. There are many other prizes as well.

Many of you will remember the original Meyers 200 design. It is called the Interceptor. It is one-of-a-kind and has now been re-engined with a Garrett turbo-prop and will be on display during the fly-in. The holder of the first ticket drawn from the advance tickets at the dinner will be awarded a flight for two in this unique aircraft. The flight will be an aerial tour Sunday around the Kerrville area.

Please bring your cash or check to the meeting. I will be happy to put your name in the hopper for this special prize.

**Chapter 983 Said It Better**

*By Marvin Brott*

Last month in Hangar Echoes I reported on Oshkosh 1997. In one paragraph I mildly indicated my displeasure with the extra cost of the program and the fact that "all pigs are not equal", i.e. warbirds and homebuilts. Well the newsletter editor (Gary Green) of Brazos Valley Bunch, Granbury Chapter 983, expressed the displeasure much better than me. Therefore, I share his comments with you.

*A lot of us that registered our homebuilts were highly ticked off when we paid our \$106 per couple for our weekly passes and were not given a program upon registering as in past years. They would not even give us the little insert out of the program that had the forum schedules, evening program schedules, etc. They expected us to pay an additional \$5 to get a program. Well, by damn, I wasn't about to pay \$5 to get that glossy program filled with ads. To Hell with their forum schedule. If I missed a chapter officer's forum or newsletter editors forum, so be it. What really set me off was the knowledge that we homebuilder's flying in with our experimentals were being treated like bastards at a family reunion. The warbird drivers don't pay anything for their weekly passes. Their passes are given to them. Their fuel is paid for if they fly in any of the afternoon showcases or airshows. Yep, ya can fly in to Oshkosh with a clapped out old Cessna 337 with some black or gray camouflage paint splattered on it, call it an 0-2, and get the royal treatment. Same for the T-34's, a smattering of olive-drab Navion's, and so on and so forth, ad nauseam. There would be no EAA if it were not for us homebuilts. We're the roots and core of the of EAA and the convention. We should be treated with the same respect as the deep pocketed wannabe's flying the warbirds. By next year, maybe I'll learn how to download the Oshkosh program and events schedule off of the internet and take it with me.*

*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.

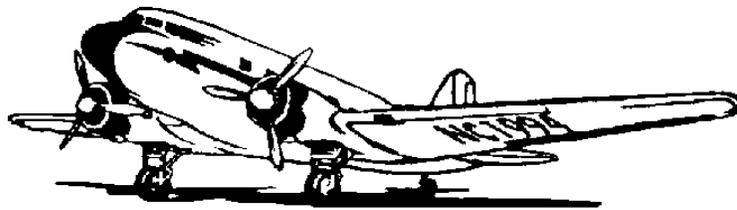
Only three highways access Fairbanks, one southwest (the Parks Highway to Anchorage), one southeast (the Alaska Highway) and one gravel road (the Dalton Highway) to Prudhoe Bay and the North Slope. There is little to speak of in terms of secondary roads leaving the city and going elsewhere. In fact nearly 70% of Alaskan bush communities are readily accessible only by air. This situation results in a per-capita ownership of private aircraft higher then 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.



## USING A GPS TO CALIBRATE THE AIRSPEED INDICATOR

Plagiarized from the RANS NEWSLETTER and Chapter 983

Airspeed indicator installations among identical planes can vary in accuracy. Here is a simple way to calibrate your airspeed indicator using a GPS.

1. Pick a smooth air day. Wind is not a factor, but smooth air is necessary to attain accurate results.
2. Fly a triangle course with the first leg 90 degrees to the wind. Fly this leg between 5 to 10 minutes. Hold your IAS within 2 MPH and altitude within 50 feet.
3. Watch the GPS and record the GPS speed every minute on your notepad under a column labeled "Leg One".
4. After 5-10 minutes, turn down wind on a new course 120 degrees away from the first leg and again record the GPS ground speed readouts under column "Leg Two".
5. Turn again 120 degrees after 5-10 minutes and record "Leg Three" GPS ground speed readouts.
6. Land and average the readouts for each leg, then take the results and average them. This will give you a wind corrected true airspeed. Take the average TAS and multiply it by the value for your test altitude shown in the chart below. The new value is equal to the calibrated airspeed. The difference between the CAS and IAS is the system error.

### CORRECTION FACTOR

3000' - .9151  
5000' - .8617  
8000' - .7860  
9000' - .7620  
11000 - .7156

If your CAS and IAS are within 3%, you are within acceptable tolerances for airspeed installations. To be really accurate, the same test should be flown at least 4 different airspeeds. For example: at 1.3 V<sub>stall</sub>, at 1.8 V<sub>stall</sub> (maneuver speed), at 75% power cruise speed, and max cruise speed.

If you discover an error factor beyond 3%, inspect your installation for leaks, kinks or debris. You may find calibrating your airspeed indicator with the GPS will test your skills in holding airspeed and altitude.





## 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.

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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.