experimental aircraft association

THE LEADING EDGE

NEWSLETTER OF MUROC EAA CHAPTER 1000

Voted to Top Ten Newsletters, 1997, 1998 McKillop Award Competition

President	*Gary Aldrich*	*661-609-0942*
Vice-President	*Hellmuth Steinlin*	*760-963-5445*
Secretary	*Kent Troxel*	*661-947-2647*
Treasurer	*George Gennuso*	*661-265-0333*
Newsletter Editor	*Russ Erb*	*661-754-0524*

http://www.eaa1000.av.org *November 2020*

Chapter 1000 meets monthly on the third Tuesday of the month in the USAF Test Pilot School Scobee Auditorium, Edwards AFB, CA at 1700 or 5:00 PM, whichever you prefer. Any changes of meeting venue will be announced in the newsletter. Offer void where prohibited. Your mileage may vary. Open to military and civilian alike.

This Month's Asynchronous Meeting:

Celebrating Sailplane History

Mike Machat
Tuesday, 17 November 2020
1700 hrs (5:00 PM Civilian Time)
(or whenever)
Your COVID-19 Defense Bunker
YouTube, USA

A quick check of the calendar on the wall identifies that it is November, which means the holidays are upon us. You know the drill—Veterans Day (no apostrophe per the Department of Veterans Affairs), Thanksgiving, Festivus, Christmas, New Year's Day, and so on into 2021. It's that time of year when you wonder each day "Do I go to work today?". Of course, for some of our readers, that answer is easy—it's always "no".

All of these holidays bring on perceived obligations, and that can lead to stress. The **Kommandant** and **Evil Editor Zurg** know that your strongest perceived obligation is to attend the monthly EAA Chapter 1000 meeting, and you're getting concerned how you're going to work that in. In the name of stress reduction and protecting the health of the ***Project Police***, the **Kommandant** has declared that the chapter will be "**dark**" for November, a Broadway term for "closed to serve you better".

Even so, your Board of Directors does not want to create alternate stress by leaving you feeling like you have not accomplished you monthly Sport Aviation duties. Therefore, we have provided you with this alternate activity.

***PPO* Mike Machat** has produced a pair of YouTube videos covering the history of vintage sailplanes and flying sailplanes in the Sierra wave. This is stuff that happened near our area here and included some people you know of or may have heard of.

Therefore, at your convenience you are directed to view this video on Vintage Sailplanes

https://youtu.be/MxosAPFjUZM

When you've finished that video, view this one on Wave Flying

https://youtu.be/K55N0Cl7fpg

After watching, in lieu of your report submitted to the **Kommandant** you are encouraged to leave a comment for Mike. If nothing else, suggest a subject you would like to see him cover in a future video.

Once again, you don't need to worry about contacting **Erbman** to arrange base access because you can't get on the base anyway.

- Erbman
Subbing for the **Vice Kommandant**

Last Month's Meeting

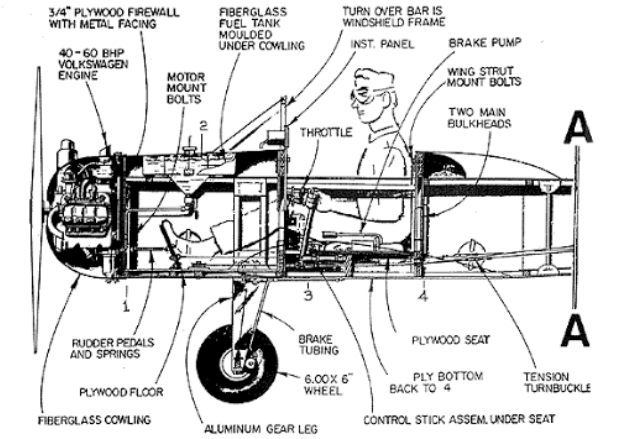
EAA Chapter 1000
Your COVID-19 Defense Bunker
Zoomland, USA
20 October 2020
Gary Aldrich, Presiding

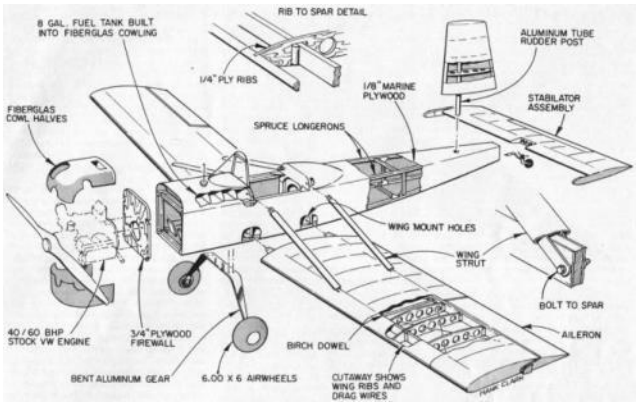
The October meeting was held via ZOOM which gives new meaning to "phoning it in". Eleven members from far flung locations (mostly Texas) joined in.

Thirty-five minutes were devoted to socialating where we learned of **First Dog Pixel's** eye surgery (doing well), **Doug "Opie/Houdo" Dodson's** acquisition of a third aircraft (an **RV-8**, which I believe qualifies him as a fleet operator), and a toast to **John "Bushman" Bush** who recently passed on to the great hangar in the sky.

The featured guest speaker was **David "Doc" Nelson**, test pilot extraordinaire. Doc graduated from USAF Test Pilot School (Class 90B) to be an Air Force Test Pilot on the F-22 and F-35, and eventually retired as Lockheed Martin's Chief F-35 Test Pilot, although he readily confessed to having only few hundred hours in GA aircraft.

Needing something to do, Doc embarked on building an airplane, in this case an **Evans VP-1 Volksplane** acquired as a project-in-work in 2012 from a guy in Camarillo for $1,800. The VP-1 (see pics below) is an open-cockpit, single seat aircraft with a plywood fuselage, wooden wings covered in Poly Fiber with external struts, a complete flying tail (horizontal and vertical), and powered by a Volkswagen engine and two blade prop. The plane weighs in at 533 lbs. empty.





Eight years and $8,200 later, Doc and the plane made its first flight (0.7 hours duration) from KWJF on 20 September of this year using his own test cards. The flight was successful, having maintained a one-to-one relationship between takeoff and landing. Doc reported that the plane flies just as described in the flight manual. He says it flies a lot like a Piper Cub. Lateral control is quite weak, but both pitch and directional control are very powerful, and the plane is directionally stable. He did report one anomaly in that the idle seemed to be set too low for a warm engine as he experienced a "flame out" on the landing roll. He stopped, climbed out, propped the engine and taxied in. The problem has since been rectified.

The **Kommandant** punched out early, having to take a call, leaving **Erbdude** to close out the meeting. Doc was authorized to drive himself to the nearest Burger King, order anything he liked and Supersize it and to mail the bill to the chapter (using his own stamp).

Russ declared "**Victory!**", effectively ending the meeting.

Remember, only one more non-meeting (November) until the season finale Festivus Party in December.

Most of this is true.

- Kent Troxel
Minister of Propaganda
Chapter 1000 of the Experimental Aircraft Association of these United States of America and Occupied Territories
"We have more zeroes in our chapter than any other!"

Kommandant's Korner

Let's see…is there any aviation-related topic I can write about without including a diatribe on the current political and social turmoil in our country? Probably hard to do when most of us are obsessed with news and commentary with the associated hyperbole on both sides of the aisle. But we can at least try to focus on our passion and suppress our anxiety level about current events.

To that end, I promised another flight report on the **SureFly** magneto replacement, and I did put another hour on the system the other day. I don't remember if I mentioned the first flight after the modification, so to recap: I replaced the left magneto with the SureFly unit (www.surefly.aero) at the end of this year's annual inspection. I also installed new points and a condenser in the right magneto. The first flight on the system was cut short after 30 minutes or so because of anomalous indications from the installed COGuardian carbon monoxide detector in the Fightin' Skywagon's panel. The indicator, which appeared to pass its self-check on power application, started alarming intermittently about 20 minutes into the flight. For those not familiar, the COGuardian is an airplane version of the CO detector we all have in our homes to protect us from the insidious deadly gas. It uses a detector of the same operating principle as the home units and issues a red warning light and audible alarm in a similar fashion when it detects dangerous levels of the odorless and colorless gas. Also like our home units, the unit requires recalibration (or replacement) every five to seven years. The unit in the VC-180 was replaced by an exchange unit in April of 2019.

Of course, when the detector started beeping I honored the alarm and increased the ventilation in the cockpit by opening the fresh air vents and began a slow descent with reduced power toward Fox Airfield. It's important to note that I did not smell any unusual odors, such as the smell of burned oil, which would be likely if exhaust gases were leaking into the cabin. Nor did I recognize any of my personal hypoxia symptoms like headache, confusion (more than normal) or tingling feelings in fingers and toes. Regardless, I chose to "land as soon as practical" as is recommended by the detector manufacturer. Reduced power settings seemed to make the warnings occur less frequently but they persisted until landing.

Thus ensued the development of a troubleshooting plan. I was basically left with two possible scenarios.

1. The alarm was valid and dangerous levels of carbon monoxide were, indeed, entering the cockpit.
2. The alarm was false and the result of some issue in the detector itself.

Scenario number one could be driven by a significant leak in the exhaust system. Possible sources would be cracks in the pipes or muffler or a failed exhaust manifold gasket. Troubleshooting would consist of a detailed inspection of the exhaust system. This system was replaced in its entirety when the O-470U underwent a complete overhaul (about 300 hours ago). This fact would cast a bit of doubt that such a "new" system could suddenly fail. Further, the August trip to Jackson Hole did not expose any CO issues.

Scenario number two could be caused by a failure in the COGuardian unit due to a premature failure of the sensor or associated electronics caused by contamination or some other recalibration issue. There is anecdotal evidence that rainwater could have penetrated the unit when the VC-180 was parked for several days in Santa Rosa (KSTS) last Thanksgiving in heavy rain. There was quite a bit of moisture in the cockpit and some erroneous indications were noted on the JPI engine monitor as well as a brief CO alarm upon our departure. In discussions with aviation legend and ***PPO* Jimmy Doolittle**, he mentioned the possibility of electro-magnetic interference, or EMI caused by the SureFly installation. In fact, there is a post-installation EMI/EMC test procedure in the SureFly documentation to detect potential interference with GPS and/or Nav/Comm systems as well as other electrical systems in the aircraft. The COGuardian was not called out as a potential "victim", but it is electronic. No other systems have exhibited interference. Upon review of the COGuardian installation manual, I noticed a brief instruction to "Ensure that the power and ground return wires are twisted together at 6 or more turns per foot." While not specifically mentioned by the manufacturer, this practice of twisting the power leads together is consistent with good practice to minimize signal injection due to electro-magnetic sources. Frankly, I can't remember if I did this during the unit install.

So, a plan emerged to gather some data to guide me to a solution. The easiest/cheapest path was to order one of those "old school" CO spot thingies that you have likely seen for years in rental airplanes. They use a chemical reaction if CO is present to turn a spot grey or black. Hence, flight two would be a repeat of flight one with the "spot" mounted adjacent to the COGuardian.

The result? One hour of flight time at various power settings and altitudes up to 7000 feet MSL resulted in some limited flickering of the green status light in the CO Guardian but no yellow or red or audible alarms. The spot remained unchanged indicating no CO detected. Upon

landing, a manual test was commanded and the unit did not respond with normal indications. This leads me to believe the COGuardian is/has failed. Further flight testing is warranted to confirm the diagnosis. Stay tuned to this space for the continuing saga! Until then...

Check 6 and fly safe

- **Gary Aldrich**
Kommanding

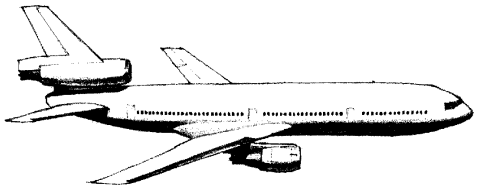
Early DC-10 Buffoonery

Shown here are pictures of an actual Douglas model of an early design study for the DC-10. This model is on display at the Santa Monica Museum of Flying. According to museum curator and ***PPO*** **Mike Machat**, "This was an early 1968 configuration study before they went to the production 'flow-thru' nacelle for the No. 2 engine. The original DC-10 requirement from American Airlines was to create a 250-passenger twin-engine widebody, specifically to operate from New York's LaGuardia Airport to Chicago and Dallas. Realizing they could achieve transcontinental range by adding a third engine, DAC engineers came up with the bifurcated inlet duct as their initial solution. American's Chief Engineer was Frank Kolk (pronounced 'Coke'), so the new trijet was quickly named 'The Kolk Machine' by the Douglas marketing guys."

In case you forgot what you learned in your Propulsion classes, or forgot if you ever took a Propulsion class, here is **Erbman's** analysis of why this was not a good idea. In general, jet engines want a very consistent flow into the fan face. Large variations in the flow can lead to fan stall or compressor stall, which will leave a low pressure area on the front side of the burner, thus allowing all of the fire to come out the front of the engine, which is not desirable or the intent. The high pressure of the compressor exit keeps the fire moving toward the nozzle as it should. Take that pressure away and the fire goes both ways, usually with loud noises and the soiling of the pilot's pants.

Imagine if this aircraft got into some significant sideslip, such as from a gust or crosswind landing. The upwind side of the fan would get good flow, but the flow to the downwind side would be blocked by the vertical fin, leading to all sorts of badness.

While there have been single engine jets with bifurcated inlets, such as the Lockheed P-80, there was a significant distance between the inlet and the compressor face, allowing any differences from sideslip to even themselves out. In fact, the P-80 engine was not fed directly by the inlet, but sat in a plenum that was fed by the inlet. Not the most efficient setup, but it worked well for the centrifugal compressor. On this DC-10 model, there is very little distance between the fin and the fan face, which would not allow for mixing from side to side.



- Russ "Erbman" Erb

Evil Editor Zurg Makes An Appearance

This screen shot of the September EAA Chapter 1000 meeting, secretly captured at the direction of **Kent "Cobra" Troxel**, shows that **Evil Editor Zurg** actually made an appearance in **Erbman's** Brady Bunch Zoom cube.

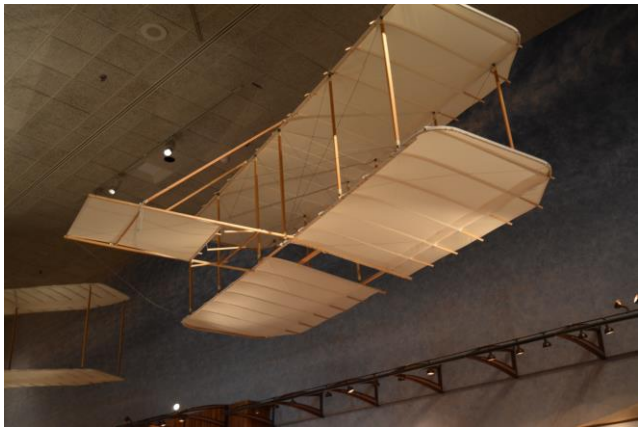
This should put to rest those rumors that **Erbman** and **Evil Editor Zurg** are the same person. Really, the things people will believe!

National Air and Space Museum Wright Brothers Aircraft Review

In one room, the National Air and Space Museum captures the progression of Wright Brothers aircraft. The 1903 Flyer is original, or at least mostly so. Remember it was severely damaged by a gust of wind after making three flights on 17 December 1903. The Wright Brothers rebuilt it for museum display years later, but it never flew again.

The other three aircraft on display are full scale reproductions. The originals were scrapped or repurposed as Wilbur and Orville saw no value in them beyond research tools.

Small scale glider flown as a kite to investigate lift, stability and control



First glider flown at Kitty Hawk. Lift was significantly less than predicted, so this was mostly flown as a kite. Note the low aspect ratio common to all early aircraft attempts by all inventors.

Second glider flown at Kitty Hawk. This one shows the higher aspect ratio require and also the addition of a rudder for directional control and stability

1903 Flyer on display. Tuki and Emmy visible in the background

Web Site Update

Just a reminder that the EAA Chapter 1000 Web Site is hosted courtesy of Quantum Networking Solutions, Inc. You can find out more about Qnet at http://www.qnet.com or at 661-538-2028.

Chapter 1000 Calendar

EAA Chapter 1000 Board of Directors Meetings are now held on an unscheduled, as needed basis. If you need to know when, you're already on the e-mail notification list. (661) 609-0942

Nov 17: CNX EAA Chapter 1000 Monthly Meeting, 5:00 p.m., Edwards AFB. USAF Test Pilot School, Scobee Auditorium. (661) 609-0942

Dec 15: EAA Chapter 1000 Festivus Etc Celebration, 6:00 p.m., Kommandant's Kwarters, 42370 61st Street West, Quartz Hill CA. (661) 609-0942

Jan 19: EAA Chapter 1000 Monthly Meeting, 5:00 p.m., Edwards AFB. USAF Test Pilot School, Scobee Auditorium. (661) 609-0942

Feb 16: EAA Chapter 1000 Monthly Meeting, 5:00 p.m., Edwards AFB. USAF Test Pilot School, Scobee Auditorium. (661) 609-0942

Mar 16: EAA Chapter 1000 Monthly Meeting, 5:00 p.m., Edwards AFB. USAF Test Pilot School, Scobee Auditorium. (661) 609-0942

Apr 20: EAA Chapter 1000 Monthly Meeting, 5:00 p.m., Edwards AFB. USAF Test Pilot School, Scobee Auditorium. (661) 609-0942

May 15: EAA Chapter 1000 Annual Aviation Event, currently accepting ideas for activities. (661) 609-0942

Jun 15: EAA Chapter 1000 Monthly Meeting, 5:00 p.m., Edwards AFB. USAF Test Pilot School, Scobee Auditorium. (661) 609-0942

Jul 20: CNX EAA Chapter 1000 Monthly Meeting, Cancelled in lieu of AirVenture (we hope). (661) 609-0942

Aug TBD: EAA Chapter 1000 Baseball Meeting, 6:00 p.m., The Hangar, Lancaster CA. (661) 609-0942.

Sep 21: EAA Chapter 1000 Monthly Meeting, 5:00 p.m., Edwards AFB. USAF Test Pilot School, Scobee Auditorium. (661) 609-0942

Oct 19: EAA Chapter 1000 Monthly Meeting, 5:00 p.m., Edwards AFB. USAF Test Pilot School, Scobee Auditorium. (661) 609-0942

To join Chapter 1000, send your name, address, EAA number, and $20 dues to: EAA Chapter 1000, George Gennuso, 3119 Lennox Ct, Palmdale CA 93551. Membership in National EAA ($40, 1-800-843-3612) is required.

Contact our officers by e-mail:
President/Flight Advisor Gary Aldrich: gary.aldrich@pobox.com
Vice President Hellmuth Steinlin: hellmuthsteinlin@hotmail.com
Secretary Kent Troxel: kenttroxel@sbcglobal.net
Treasurer George Gennuso: knife.pulsar1@gmail.com

EAA Chapter 1000 Technical Assistants

Composite Construction		
George Gennuso	knife.pulsar1@gmail.com	661-265-0333
Wood Construction		
Bob Waldmiller	bob@waldmiller.com	661-816-7224
Aluminum Sheet Metal Construction		
Bill Irvine	wgirvine@yahoo.com	661-948-9310
Russ Erb	erbman@pobox.com	661-754-0524
Welding/Welded Steel Tube Construction		
Russ Erb	erbman@pobox.com	661-754-0524
Engine Installation		
Russ Erb	erbman@pobox.com	661-754-0524
Electrical Systems		
Russ Erb	erbman@pobox.com	661-754-0524
Instrumentation and avionics requirements for VFR/IFR		
Gary Aldrich	gary.aldrich@pobox.com	661-609-0942

Inputs for the newsletter or any comments can be sent to Russ Erb, 661-754-0524, by e-mail to erbman@pobox.com

THE LEADING EDGE
MUROC EAA CHAPTER 1000 NEWSLETTER
C/O Russ Erb
3435 Desert Cloud Ave
Rosamond CA 93560-7692
http://www.eaa1000.av.org

ADDRESS SERVICE REQUESTED

THIS MONTH'S HIGHLIGHTS:
ASYNCHRONOUS MEETING ON YOUTUBE
KOMMANDANT TROUBLESHOOTS CO ALERTS
EARLY DC-10 BUFFOONERY
EVIL EDITOR ZURG SEEN AT MEETING

EAA™
THE SPIRIT OF AVIATION