



# THE LEADING EDGE

NEWSLETTER OF MUROC EAA CHAPTER 1000

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

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<http://www.eaa1000.av.org>

September 2021

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 Meeting:



## AirVenture 2021 Report

Gary "Paco" Aldrich

Heckling by Jimmy Doolittle III

Tuesday, 21 September 2021

1800 hrs (6:00 PM Civilian Time)

Guido's @ the Hangar

Rosamond Skypark

**What?** The *Project Police* are actually going to risk being in the same room at the same time? Yep, we're ready to take that big risk.

On 21 September we will gather at Guido's @ the Hangar at Rosamond Skypark in the shadow of the occasional airplane. While there we will imbibe on the food offerings available. We have made special arrangements with the management to allow you to order anything available on the menu. In order to receive this deal, you agree to pay for whatever you order yourself.

After a suitable time for eating and swapping of tall tales (Pecos Bill is a favorite of mine) we will have our program presented by the **Kommandant**, telling us the story of his most recent visit to AirVenture 2021. Come and find out what he spent his money on this year. Ask him how much fun it is to use his "Best Tugs" to move the **Fightin' Skywagon** in and out of the hangar. Hear **Doolittle** correct him when he gets the story wrong. Find

out if they met up with any of the detached members of the *Project Police*.

**SPECIAL BONUS!** The primary reason we're taking the risk to come together is to say goodbye to our esteemed *Project Police* Officer **Hellmuth Steinlin**.



**Hellmuth** has decided change his focus from aerodynamics to hydrodynamics. He has sold off his airplane and related stuff and used the proceeds to enter an equally expensive hobby—buying a boat. He and Debbie will be moving to Florida to spend their days sailing around the Gulf of Mexico and the Caribbean, trying to figure out exactly where the border between the two is. Come and bid the former **Vice-Kommandant** farewell!

**Members of the Dets:** We're planning to put the meeting on Zoom, so you get to participate too. **Details and links to join the Zoom meeting will be sent by e-mail to the same distribution list no later than Monday, 20 September.** You can see what everyone ordered. **Take note that this meeting will be later**, so those of you in other time zones will probably want to eat ahead of time.

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 "vacant" **Vice Kommandant**



## Last Month's Meeting

### EAA Chapter 1000

Your COVID-19 Defense Bunker

Zoomland, USA

17 August 2021

Gary Aldrich, Presiding

The August meeting commenced around 17:00 PST and was conducted via ZOOM with several members calling in. **Schmoozemistress Tuki** and her able assistant **Emmy** covered the hosting duties as **Erbman** whined something about being forced to teach until 1700, joining from his secret TPS office moments later.

Covid Protocols were observed with each attendee consuming a beverage of their choice.

After a bit of banter around the virtual water cooler and some directed visualization of eating **Tuki Kukis**, we proceeded to our main presentation. This consisted of **Randy "Kanard" Kelly** describing to us his second engine related tale of woe of doing a "top overhaul" on **Lois' Continental O-470R**.

I would normally regale you with a summary of what was said and perhaps some pictures at this point, but there are much better ways to see what you missed or remember what you didn't.

Method 1: Fire up the ol' web browser and watch the Zoom recording at <https://youtu.be/RDWiPAJoEM8>

Method 2: Keep reading this newsletter and find the first half of the story this month. Then wait a couple of months for publishing of the second half of the story.

At the appropriate time, the **Kommandant** declared "**Victory!**" with instructions to go eat dinner.

Most of this is true.

- **Russ "Erbman" Erb**

Emergency Backup 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!"*

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## Kommandant's Korner

Today, 9/11/2021, is a solemn one. One for reflection and remembrance by anyone in the latter half of their 20s and more senior. A day when most conversations will contain the "Where were you when..." discussion. That Tuesday morning, 20 years ago today, **Mrs. Kommandant** and I had just begun our morning rituals before heading off to work when we got a call from Anne's sister in Staten Island, NY. All she said was "Turn on the TV." What we...and the rest of the civilized world...saw was the horrific drama unfolding in Lower Manhattan as one, then two, twin-engine airliners smashed into the center of America's financial world in a



seemingly "made-for-TV" incredulous moment. Dis-belief gave way to dread as the North Tower absorbed the massive energy imparted by twenty thousand or so gallons of Jet-A propelled at high speed. The initial shock at the spectacle did not abate...for hours, days, or weeks in some cases. I suspect families of the victims carry some of that shock still today. For the first 17 minutes after American Flight 11 impacted, my mind was racing to put sense to such a terrible accident. On such a blue-bird day over NYC, how could something go so terribly wrong to bring down an airliner in the middle of the city? I could imagine that the NTSB was going to have a terrifically difficult time determining the cause of the accident. As I stood, mesmerized at the sight of United Flight 175 plunging into the South Tower, I instantly realized this was no accident. Our homeland was being savagely and brutally attacked by an enemy we had yet to fully understand.

I didn't know what to do. My country was under attack and I was a member of her Armed Services...albeit a retired member. I felt I probably should do something productive, so I zipped up my flight suit, jumped in the Volvo and drove to the base...only to be unceremoniously denied entry by an ashen-faced young man toting an M-16. He probably didn't know this old retired dude in the overstressed Nomex was compelled to do something...anything to protect our Country. Numbly, I heeded his command and reversed course for home. I didn't know at the time that, inside the gate, maintenance crews were generating F-16 and F-15 test support aircraft for possible air defense of Los Angeles. The commanders of the two fighter test units were arguing over who would load the single, operational air-to-air missile located on our test base. Pilots were discussing ramming tactics and alert schedules. I navigated the Volvo back to the **Kommandant's Kwarters** and settled on the recliner, like so many of you, to absorb what info was streaming across the TV networks and trying to understand what the day's events would do to "normal" in America.

Almost immediately, SCATANA\* was implemented for the first time in US history. This plan, largely unknown to anyone outside the National Command Authorities or NORAD, sealed the airspace over the United States and commanded all airborne aircraft (other than military) to land at the closest suitable airport. Thousands of airline passengers were stranded, both inside and outside the USA. The airspace embargo was lifted in stages, leaving security TFRs over many important locations. When civil aircraft were allowed to resume flying they had to be on an IFR flight plan. I was giving an Aero Club student instrument instruction in the C-182RG at the time and conducted several lessons in the AV and Bakersfield areas under these rules. The radio was eerily quiet during those early flights, which was good for training, but also bad, since ATC radio chatter would surely return to its former level someday. A couple of weeks after 9/11 the Fox Airfield Association's Fly-in breakfast and aircraft display was modified to a "taxi-in" of WJF-based aircraft. I motored N61691 over to the display line. Of course, there was only one topic of conversation done in very somber tones. After a couple of hours I taxied back to hangar 703



where the airplane sat for quite a while before we were allowed to fly under VFR. So, there you have my “Where were you when...” story.

On a much lighter subject, though still with a bit of a somber note, this month’s gathering...our first face-to-face in over a year will be in the “patio room” at **Guido’s @ the Hangar**. There, **PPO JD3** and I will regale you with our witty and entertaining **AirVenture 2021 Adventure Brief**. In addition, recently retired **Vice Kommandant Hellmuth Steinlin** and his lovely wife **Debbie** will be in attendance for their last meeting. We will present him with the usual “**crummy squadron plaque**” and wish them well in their new lives as bird watchers on a small island in Florida. Hope to see you at Guido’s. Until then...

Fly safe, and Check 6

- Gary Aldrich  
Kommanding

[\\*https://en.wikipedia.org/wiki/Security\\_Control\\_of\\_Air\\_Traffic\\_and\\_Air\\_Navigation\\_Aids](https://en.wikipedia.org/wiki/Security_Control_of_Air_Traffic_and_Air_Navigation_Aids)

## Lois’ (Skylane) 2020 Annual, or How I learned why A&Ps get paid so much for cylinder replacement

### Chapter 1: In the beginning

It seems like only months ago I completed an essay assignment for **Evil Editor Zurg** detailing the trials and tribulations of **Paco** and I retrieving **Lois** from the luxuriously equipped “airport” at **Baker California** and subsequent replacement of the number 3 cylinder whose exhaust valve guide had totally disintegrated taking #3 with it and depositing valve guide pieces in Lois' muffler assembly. (In all fairness, Baker has a nice asphalt runway - and a picnic table.)

Anyway, I digress – that painful “adventure” was actually 3 summers ago (see *December 2018 – February 2018 newsletter*), and this latest adventure starts this last May during **Lois'** yearly annual inspection. (I started to modify a line from an old “Stoned Ranger” radio program for that last verbal joke, but I'd hate to be banned from ever posting an article again by admitting I'd EVER heard a joke that could be considered derogatory to a Native American.) Anyway, one of the first items on the annual checklist is a flight to warm up the engine for compression checks and an oil change. Previously, **Lois'** cylinders were in the mid-upper 70s/80, but this time #6 was 70/80 (not a big deal), and #1 was about 64/80, plus there was a very faint sound that sounded like a bit of a leak into the exhaust stack. “Ummm – that not sound so good **KemoSabe**.” Next item on the list was to borrow **Erbmans'** borescope and shoot pictures of the valves. All the valves looked good EXCEPT #1 exhaust was brighter and cleaner than in the previous annual photo (2018).



What an exhaust valve should look like, the symmetric “burnt pizza” (Cylinder #2, 2018)



Cylinder #1 in 2018. Arrow shows where burn marks are getting less circular and working toward the edge



Cylinder #1 in 2020. Note brighter and cleaner appearance, which is not a good thing. Arrow shows where leak most likely was

### Chapter 2. Dissassembly and Diagnosis

Three years ago I wouldn't have thought anything of that, but after the previous “Baker Adventure” I'd learned

that shinier than usual exhaust valves are signs of hotter than normal exhaust valves, which is definitely a bad thing. Time to consult with “**Mr Bill**” (aka “the Cessna 310 guy”, aka **PPO Bill Irvine**). While Bill thought the problem was not IMMEDIATELY concerning if I was flying local only and could easily monitor temps and stuff for problems, the fact we were looking at an imminent 16 - 20 hour relocation of **Lois** from **Rosamond Skypark** to **Shelbyville Municipal Airport** (SYI) in Tennessee threw a significant wrinkle into the calculation of “where will I be if the problem becomes critical”.

So the decision was made to pull #1 and carry it to the friendly folks at **Ly-Con** in Visalia CA. Having recently done the “cylinder extraction exercise” at Baker, repeating that step in the hangar at the Skypark was trivial. First I jotted down a “checklist” of what needed to be done. Remove the scat tubing for the cabin heater, loosen the plug wires from the plugs, pull the plugs, pull the exhaust and intake manifolds on the right (copilot) side, loosen up the top cooling baffles, remove the rocker arm covers, remove the rocker valve arms, pull the pushrods, pull the pushrod tubes, loosen the cylinder nuts, then remove the cylinder. The last step is trivial, but it greatly helps having two sets of hands when handling a roughly one Aviation Money Unit (1 AMU) valued Millenium aluminum cylinder. When I was ready for the last step, I gave fellow Chapter 1000 member (and slave to **Evil Editor Zurg**) **Russ Erb** a call, who arrived shortly and we started to pull the #1 cylinder, at which point we also notice I'd forgotten to remove the rear intercylinder baffle. That's a quick pull (1 long bolt) and we pull the cylinder.



**Cylinder #1 removed**

**Russ** was kind enough to provide some pre-drilled steel straps which we used to secure the cylinder bolts which pass completely through the main case to hold the crankshaft bearings secured. (That's a “strong recommendation” by EAA endorsed mechanic **Mike Busch**. Ask **Erbman**.) I also raided my RC airplane parts stash for rubber bands to suspend the connecting rod and keep it from dragging on the opening in the crankcase.



**Return repaired cylinder here**

Previously I'd used the “Bear-Ex” (Bearhawk Express) to ferry #3 cylinder to Ly-Con, but alas “Bear-Exs” chief pilot was occupied the next week. So the next day I had no teaching or Zooming to do, so I drove up to Visalia and delivered #1 cylinder to **John Card** at Ly-Con for diagnosis. A couple days later I got the news that the cylinder not only had a bad valve, but also some other problems, essentially making it unsuitable for rebuilding. In addition, they don't have any O-470R cylinders handy for rebuild like they did the last time. **CRAP!!!** This is NOT going to be a simple rebuild, but I'm going to need a new cylinder unless I can find a good used cylinder.

But wait, there's more! Backing away from the problem of one bad cylinder to look at the BIG PICTURE, it suddenly hits me – **this is the second major cylinder failure in less than 40 hours on an engine that was completely rebuilt less than 400 hours ago!!!!** To quote Marcellus, “Something is rotten in the state of Denmark!” (Shakespeare's *Hamlet*, Act 1, Scene 4.) If two cylinders have gone “kaput”, then what is lurking in the other five? (Actually, other four, since one of the cylinders was a rebuild from the “Baker Experience”.) After discussion with **Mr Bill** and much head shaking, the unpleasant decision is made to pull ALL the cylinders and take them to Ly-Con for inspection. Having just pulled #1, pulling #2 through #6 was trivial. I located some boxes to keep all the common parts in common bins, removed all the ancillary stuff, and again with **Erbman's** help, pulled the remaining five cylinders, and packed them in “banker boxes” for transport.

This time however, “Bear-Ex” Chief Pilot (**Erbman**) WAS available the next week, so we made a date to fly to Visalia and deliver the other five cylinders to Ly-Con. This was to be a “slightly special” flight, as five cylinders in boxes was more bulk cargo than had been carried in **Three Sigma** (Russ's Bearhawk) before, and this flight would be the first operational use of a new “cargo configuration” (rear seat removed) for **Three Sigma**. On the appointed day, we loaded **Three Sigma**, double-checked the weight and CG, and flew to Visalia.





When we got to Visalia, we learned that **John Card** was in quarantine after a family member came down with COVID, so **Chris Davis** of Ly-Con came to the airport to retrieve us and the cylinders and ferry them to the shop.



It is now late June. The guys at Ly-Con were still very busy and impacted by the COVID shifts, so it was a couple weeks before we got the verdict, which was NOT good. Basically three of the six cylinders had micro-cracks and the other three, which would be rebuildable, would all have to be bored oversize, which would result in a highly discouraged unbalanced power per cylinder configuration. Fortunately, the couple weeks that had elapsed between dropping off the cylinders and getting the results had allowed **Leigh** and I to discuss options, so much of the “gnashing of teeth” was done before we got the bad news. The previously decided response to this scenario had been “buy six new cylinders from Aircraft Spruce”, so I called Spruce, ordered the cylinders (which were in stock) and designated they be shipped to Ly-Con in Visalia. One nice thing, if you are moving “industrial quantities” of stuff like that already in prepared shipping cases between organizations that routinely ship stuff, you get a significant shipping savings. So, several days and about nine AMUs later, there were six new Millennium cylinders at Ly-Con for preparation for mating to the rocker valve assemblies. One of the things in the quote from Ly-Con was intake port polishing and flow balancing, which on competition engines give a big increase in power, but even in “normal” applications the Ly-Con guys claim might get you significant horsepower. This was (as I recall, but can't find the quote sheet) something like a \$300 option, but seeing as how it was almost \$150 to refurb and update all the rocker valves, new thrust bearings, new rocker arm shafts, etc, which was included in that porting option, I decided to

go ahead and have them port and flow balance the cylinders.

It is now late July. Our “official” Skypark house/hangar lease expired in August although we had a verbal to stay through November; **Lois** was still without an engine and an annual; work at Ly-Con was going slowly because of COVID, and my stress level had been rising steadily. Lacking the ability to do anything about the engine, I went ahead and started doing those other items of the annual that I COULD do (pull panels, check wiring, check cables, check ELT, etc), clean up all the stuff that came off that was reusable, and order all the new hardware I thought I needed such as new cylinder nuts, exhaust manifold nuts, washers, etc. On August 10<sup>th</sup>, Ly-Con emailed me the cylinders were ready for pickup. “Bear-Ex” had an opening that next week and we coordinated an early flight out to beat the heat as we were going to be carrying another max load and it's the middle of a hot summer. We arrived at the Visalia airport right about Ly-Con opening time and they delivered the six cylinders to us. Russ and I loaded them into **Three Sigma** and strapped down the cargo bay to both OUR and the Ly-Con guy's satisfaction. (The Ly-Con guy told us a story of somebody that showed up to pick up cylinders who ended up flying with one on top of the instrument cluster to have room. To Russ and me with our military flight backgrounds in military cargo haulers, that was “inconceivably funny”.) We returned to Rosamond with the cylinders and I already knew my next few weekends are going to be shot.



*(We interrupt this saga in the interest of space. Catch the exciting story of putting the engine back together in the November newsletter. Next month is the photo essay from AirVenture)*

- **Randy “Kanard” Kelly**  
EAA Chapter 1000 Det 15, Shelbyville TN

## 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

**Sep 21: EAA Chapter 1000 Monthly Meeting**, 6:00 p.m., Guido's @ the Hangar, Rosamond Skypark. (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

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

**Dec 21: EAA Chapter 1000 Festivus Etc Celebration**, 6:00 p.m., Kommandant's Kwarters, 42370 61st Street West, Quartz Hill CA. (661) 609-0942

**Jan 18: EAA Chapter 1000 Monthly Meeting**, 5:00 p.m., Edwards AFB. USAF Test Pilot School, Scobee Auditorium. (661) 609-0942

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

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

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

**May 21: EAA Chapter 1000 Annual Aviation Event**, currently accepting ideas for activities. (661) 609-0942

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

**Jul 19: CNX EAA Chapter 1000 Monthly Meeting**, Cancelled in lieu of AirVenture. (661) 609-0942

**Aug 16: EAA Chapter 1000 Monthly Meeting**, 5:00 p.m., Your COVID-19 Defense Bunker, Undisclosed Location. (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.

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

From the Project Police legal section: As you probably suspected, contents of The Leading Edge are the viewpoints of the authors. No claim is made and no liability is assumed, expressed or implied as to the technical accuracy or safety of the material presented. The viewpoints expressed are not necessarily those of Chapter 1000 or the Experimental Aircraft Association. Project Police reports are printed as they are received, with no attempt made to determine if they contain the minimum daily allowance of truth. So there!

**THE LEADING EDGE**

**MUROC EAA CHAPTER 1000 NEWSLETTER**

**C/O Russ Erb**

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**ADDRESS SERVICE REQUESTED**

**THIS MONTH'S HIGHLIGHTS:**

**MEETING IN PERSON—GUIDO'S 1800 21 SEP**

**AIRVENTURE 2021 REPORT W/PACO & JD3**

**WHERE WERE YOU 20 YEARS AGO?**

**LOIS CYLINDER ANALYSIS**

