



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>

August 2017

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.



BASEBALL NIGHT!

Tuesday, 22 August 2017

1800 hrs (6:00 PM Civilian Time)

**Jethawk Stadium (45116 Valley Central Way)
Lancaster, CA**



This month's meeting will be held at **The Hangar**, also known as **Jethawk Stadium**, home of the **Lancaster Jethawks**, Class A Affiliate of the Colorado Rockies.

Come and cheer for the home team as we battle the Inland Empire 66ers of San Bernardino, Class A Affiliate of the Los Angeles Angels.

Parking is \$5 per car, or free if you park in the Cinema parking lot across the street and walk in.

As of press time we have not confirmed if we will have access to the Sky Box as in past years. This will be sorted out in the near future, and as soon as we know we will not notify you by e-mail, Facebook, Instagram, nor any other means. Instead, you and your guests are directed to assemble under the F-18-on-a-stick outside the main gate at **1800**. As you join the gaggle, say to someone in the gaggle in a hushed voice "**Nuclear is spelled with 2 r's**". Don't try that cliché passphrase "Swordfish" as it has been overdone. As any chef will tell you, any fish that is overdone will taste nasty. For extra fun, say the pass phrase to some random person walking by. After **Knife** gives you a knowing nod, you will be handed your ticket, either to the Sky Box or to a sumptuous bleacher seat next to all your friends. Act like nothing is unusual and proceed to the gate. Your ticket is provided to you free of charge either by the City of Lancaster or your chapter, depending on where we end up. Your food, beverages, and souvenirs are on you. The game begins promptly at 1835 -0/+10 hours.

If you arrive late because your debrief ran long or you still haven't learned how to show up on time at your advanced age (how embarrassing!), call Kent at **661-886-3740**, and if he's not too grumpy he will tell you where we are.

Remember that **Knife** is a certified ball magnet, so bring your protective gear if you sit next to him.

TAKE NOTE: This meeting is one week later than our usual third Tuesday gathering. If you come on 15 Aug you'll get a great parking spot, 'cause no one else will be there. Maybe the grounds keepers will let you help them water the infield.

- Erbman

Subbing for the **Vice Kommandant** (who doesn't understand baseball... apparently they didn't play the game at the French Foreign Legion compound)



Last Month's Meeting

EAA Chapter 1000 individually

Your Workshop

Your Location

18 July 2017

You, Presiding

Last month you were tasked to do something aviation oriented during our normal meeting time while the **Kommandant, Vice Kommandant, JDIII, Opie, and Stormy** were representing us at the big **AirVenture 2017** show. I would remind you in this space about what you did, but only **Stormy** bothered to submit a report. **Where were you?** Well, I guess now we know who **Evil Editor Zurg** can count on. Why do you continue to disappoint? **EEZ** says he will forgive you if you take him flying in your homebuilt aircraft you're supposed to be building.

- **Russ 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!"

Next Month's Meeting

NOW LISTEN UP, YOU KNUCKLE HEADS!

Especially you in the back! Don't make me send **Knife** around to whack you on the knuckles with a ruler!



Next month, Septemeber 2017, our monthly gathering will be **ONE WEEK EARLIER** on **12 SEPTEMBER 2017**. The program will be our beloved **Kommandant** and **JDIII** telling the story of their recent trip to aviation Mecca.

Why so early? It seems that lo those many years ago, the **Kommandant** and **Mrs. Kommandant** bought into a time share that takes place on the third week of September. We can't say for sure, but we suspect he foresaw this time and thought it would be a way to get out of having to participate in the Oshkosh report.

Therefore, to avoid having to listen to **Erbman** saying "These are not my slides" and trying to make up stories for pictures he has never seen before, we will foil the **Kommandant's** evil plan and hold our meeting one week earlier on 12 September.

GOT IT? You may now resume your previous activities.

Kommandant's Korner

"Fightin' Skywagon" Returns To AirVenture!"

You probably won't see that in the next issue of Sport Aviation, or "AirVenture Today" but it is significant to recognize the achievement



for me. As you may recall, I was doing a routine oil change the day before our planned departure to AirVenture 2015 when I discovered tiny, shiny flakes of metal in the screen of the VC-180's ADC Oberg oil filter. This led to a hasty overhaul (STS) of our travel plans, leaving the Skywagon to languish in her hangar while **JD3** and I rode a large aluminum tube owned and operated by Southwest Airlines to Chicago's Midway Airport (KMDW) with connecting service by rental car to Oshkosh. As it turned out, our decision to fly by commercial carrier was a wise one as the engine teardown inspection following the trip revealed major damage in the valve train (see Fig 1) that might have resulted in leaving the aircraft somewhere along the way (or worse).



Figure 1. Majorly damaged #1 Exhaust Valve Hydraulic Lifter and its associated lobe on the Camshaft

Having accomplished the extensive and expensive overhaul of the O470U and putting something over 100 hours on the "new" engine, I was confident that our OSH 2017 adventure would include flying ourselves to the event. **Jimmy** and I will be providing some pictures and stories of the adventure at the September gathering of the Chapter (**on 12 September, one week earlier, mark your calendars**) so I won't go into any great details here except to say that we thoroughly enjoyed the trip, had reasonable weather, and hooked up with friends and Chapter Detachment troopers...along with about 590,000 of our closest aviation acquaintances. About the only fly in the ointment was the fact that we were unable to actually land

and park at Wittman Regional Airport due to some ATC buffoonery. Details on that at the aforementioned gathering.

I returned to TPS to find more aviation duties with the Class 17B Flight Test Engineers and Combat Systems Officers. You may recall previous columns where I have described the 5-flight program the school does for the new class aviators every six months using the tired, but dependable Cessna Skyhawk XP aircraft belonging to the Edwards Aero Club. This highly successful and popular program introduces the new students (with limited or no aviation experience) to basic piloting and aircrew fundamentals in preparation for flights in their curriculum high performance aircraft. The program was crafted by none other than **Doug Dodson** of **High Cay** fame way back at the turn of the century and continues, relatively unchanged, to this day. The staff "Skyhawk Squad" had started the Cessna flights the week prior to my departure to aviation "Mecca" and I was inwardly pleased to see that they saved some of the sorties for my return. Thus, after 26 hours and 3500 miles or so of cross-country flying I found myself back in a Cessna cockpit this past week. Not to brag or complain, but that makes over 46 hours of PIC time in the last 30 days. To once again harken back to **Opie's** wisdom, "I've never had as much flying as I wanted...but sometimes I've had more than I can stand!"



Figure 2. Initial stages of engine teardown in Hangar 703 after removal of the camshaft and other miscellaneous parts

So, what lies ahead for the remainder of the Summer? Well, there is another oil change in the VC-180's future. I've been gradually increasing the change interval from the 25 hour number, post-overhaul to something more like 35 hours. I don't know if I will go to the 50-hour number recommended by the oil filter manufacturer as the aircraft does not fly as regularly as I would like and oil is relatively inexpensive when balanced against the potential damage caused by acidic combustion products and moisture left in an idle engine. Call me a bit gun shy, but I am hoping I have seen the last of the inside of a big-bore Continental (see Fig 2).

Following the oil change will be our customary pilgrimage to Yuma, AZ (KNYL) for the annual border protection mission against the invading "undocumented" species of the Columbidae bird family, specifically the Zenaida and Streptopelia Generea. They're "mighty good eating" and fun to shoot. There may well be a local sortie two in the interim as well, but they are often "day-of" additions to the overall schedule. Until we meet again (at the Ball Park?),

Fly Safe and Check Six!

- **Gary Aldrich**
Kommanding

Oshkosh Report From EAA 1000 Det 5

I didn't buy any avionics at KOSH this year, but I twisted all the knobs and pushed all the buttons while Mary looked on with rapt fascination. Well, maybe not so rapt. We were on the grounds approximately two hours when I heard her remark that AirVenture is "**Woodstock for airplanes.**"

I heard a smart person say, "Engines and avionics - don't buy anything until you need it." I recall **Erbman's** PowerPoint slide presentation to the chapter on the evolution of the panel in the **Combat Bearhawk**. Nevertheless, a prospective vision of a panel for the **Astroblaster** is congealing in my brain. Three copies of the GRT Hx 6.5" display and a "Mini" as a backup PFD and I will have a crude approximation of an F-16A. (Yes, I am that old. Aren't you?) I have the probe from Alpha Systems for their AoA gauge, so I looked at their offerings of displays - again. I think I have a glare shield somewhere in the garage. It came with the fuselage kit. But, it isn't riveted to anything else, so I can't justify buying the AoA gauge. I acquired the panel planning software from "**One Mile Up.**" They are out of **Annadale, VA** rather than Denver as the name may imply. I also bought an airbrush and hope to do my own rendition of Marvin the Martian on the nose of the Astroblaster someday.

I thought I knew what engine to get for this project. I have visited **Superior Air Parts** in **Coppell, TX** twice since moving to DFW. Even before they resurrected their build school, they implied that a local DFW guy with a domicile in Texas could work such a deal with them.



Stormy finds the tube to the AOA probe

Then, I went to the Van's Aircraft dinner in the Nature Center at AirVenture this year. As luck would have it, I sat next to **Darren of Aero Sport Power (ASP)**. Darren is one of the few individuals who had to travel **south** to get to AirVenture, coming from **Kamloops, Canada**. ASP is offering a modified O-360 with increased piston travel, so the actual displacement is 375 cubic inches. Their IO-375 is a parallel valve engine producing just under 200 HP without increasing the compression ratio or weight of the engine. Of course, more power means more heat generation. In subsequent email exchanges, Darren assured me that cylinder head temperatures, while initially an issue, are easily managed with effective baffling. Now, I come seeking insight and wisdom from the oracles of Chapter 1000. What ugly ramifications might befall me from a 4 percent increase in piston travel and, therefore, displacement? Darren tells me, "We have been building this engine for over 10 years now and have produced hundreds of them." There is another question that burns in my heart. ASP offers an option to include an electronic fuel injection and ignition (EFII) system from EFII (www.flyefii.com). The incorporation of digitally controlled fuel and ignition purports to bring the technology of the reciprocating aircraft engine up to parity with the automotive industry of the 1990s. It would eliminate the mixture control, leaving me with only a throttle and prop lever. That's not quite the single lever FADEC system suggested during the last decade, but it is a step ahead of the quadrant that includes throttle, prop, mixture, carb heat, and friction levers, turning the single engine crew station into something that might make a B-52 driver feel at home. Do any of the learned gray beards lurking about Chapter 1000 have any insight or experience with such a system in a general aviation airplane? Are there any pitfalls I should be wary of as I contemplate the selection of the powerplant for the Astroblaster?

- **Scott M. "Stormy" Weathers**

EAA Chapter 1000, Det 5, on the Texas frontier
DCMA/AJEE

(Erbman responds...)

Realize that when you set up your panel with a bunch of boxes from the same manufacturer, it may be easier to connect them all together, but watch out for the failure modes. Yes, having multiple boxes can protect you from hardware failures, but one software bug can bring down all of the boxes at once. Either convince yourself that the software has been thoroughly tested and the chance of that is extremely small, or figure out your backup system. If you don't want to install a mechanical airspeed indicator and altimeter, at least practice making approaches without using your instruments. That is, know what power settings and pitch attitudes will get you safely on the ground. Think about this on every approach (pay attention to the attitude and power settings) and you'll be well on your way.

How did Aero Sport Power increase the stroke of the engine? Did they make a new crankshaft? What is its reliability? Did they grind the journals on an existing crankshaft smaller? What impact on strength will that have? These are questions that need to be answered.

*Baffling, while baffling, is important, but the little sheets of aluminum are just part of the cooling puzzle. Having inlets big enough to get enough cooling air in is not that tough. Building baffles that direct the cooling air in the proper direction can be done with sufficient care and attention to detail. The downfall of many cooling systems is getting the air out of the cowling. The **Combat Bearhawk** is known to have cooling issues. As built, it essentially has a cowling designed for an O-360 with an O-540 stuffed in it. The issue with keeping the engine cool has been narrowed down to getting the cooling air out of the cowling. That's tough to do with all of the exhaust pipes and SCAT tubing all over the place getting in the way. Pat Fagan's **Smokey Bearhawk** was built similarly and has similar issues. Later Bearhawks were built with a larger nose bowl that leads to a bigger cowling with more room around the exhaust pipes for the cooling air to get out, and reportedly these Bearhawks don't have cooling issues. Make sure you don't stuff so much krap around your engine that the cooling air can't get out.*

*The **Combat Bearhawk** has dual electronic ignition, and I sing its praises each time the engine starts up as easily as on my car. I also love the fact that I can run at maximum economy fuel flows (Lean Of Peak) and go farther and spend less at the pump. All of this because the much hotter spark will ignite a lean mixture that a magneto might stumble on. For a new aircraft, I'm done with magnetos. Build your electrical system to give appropriate robustness for failures and enjoy the perks of modern technology. The one downside is that you'll have one less lever to fiddle with, and the **Kommandant** tells us that pilots like to fiddle. And I don't mean play the violin.*

However, if you are the kind of guy who prefers fixing things yourself rather than handing them over to someone else with a big wad of cash, you are robbing yourself of an incredible experience by having your engine delivered to you ready to hang on the airplane. You will learn so much in the process of assembling your engine, just like I did when I had to rebuild my engine prior to the third first

flight. Of course, there are other ways to accomplish the same goal. KITPLANES has covered a class given by Lycoming in Pennsylvania where you can learn to tear down and reassemble an engine.

Young Eagles Report

Our next Young Eagle event will be 9 September at Tehachapi Airport, courtesy of the terrific volunteers at the Tehachapi Society of Pilots, and the Women in Aviation International (WAI).



This will be open to the public; first come first serve.

Reference the Young Eagle schedule for this event and others in the SoCal area:

https://www.eaa.org/en/ea/events

Thanks!

- Tom "Duke" Wayne

EAA Chapter 1000 Young Eagle Coordinator
661-733-8825; twfox2@sbcglobal.net
3833 Sourdough Road, Acton, CA 93510

A Free Flashlight For Only \$250!



JDIII tells us that the pilot's favorite four letter "F" word is FREE. Visit Aircraft Spruce's web site and look up part number 13-06922. In the Overview it says "Receive one FREE with an order of \$250 or more. One per customer. Request in special instructions during checkout." Rumor has it that the Kommandant is going to stock up on oil and filters for the Fightin' Skywagon just so he can score one of these beauties! Don't anybody tell Mrs. Kommandant.

For those of you looking for less drama in your life, you can just order one directly for \$7.95, but where's the fun in that?

Annual Regulations Review

FAR Part 0

FAA Regulation / Part 0, Section 000 (a) 1 (c)

Section I: No pilot or pilots, or person or persons acting on the direction or suggestion or supervision of a

pilot or pilots may try, or attempt to try or make, or make attempt to try to comprehend or understand any or all, in whole or in part of the herein mentioned, Aviation Regulations, except as authorized by the Administrator or an agent appointed by, or inspected by, the Administrator.

Section II: If a pilot, or group of associate pilots becomes aware of, or realizes, or detects, or discovers, or finds that he or she, or they, are or have been beginning to understand the Aviation Regulations, they must immediately, within three (3) days notify, in writing, the Administrator.

Section III: Upon receipt of the above-mentioned notice of impending comprehension, the Administrator shall immediately rewrite the Aviation Regulations in such a manner as to eliminate any further comprehension hazards.

Section IV: The Administrator may, at his or her discretion, require the offending pilot or pilots to attend remedial instruction in Aviation Regulations until such time that the pilot is too confused to be capable of understanding anything.

Now That's Interior Decorating!

A Jacobs radial engine converted to a table stand at the Radial Café at the Grand Prairie TX airport (KGPM).



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

Aug 8: EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., El Indio Restaurant, Rosamond Skypark, Rosamond CA. (661) 609-0942

Aug 22: EAA Chapter 1000 Baseball Meeting, 6:00 p.m., The Hangar, Lancaster CA. (661) 609-0942

Sep 12: CNX EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., El Indio Restaurant, Rosamond Skypark, Rosamond CA. (661) 609-0942

Sep 12: EAA Chapter 1000 Monthly Meeting, 5:00 p.m., Edwards AFB. USAF Test Pilot School, Scobee Auditorium. (661) 609-0942

Oct 10: EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., El Indio Restaurant, Rosamond Skypark, Rosamond CA. (661) 609-0942

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

Nov 14: CNX EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., El Indio Restaurant, Rosamond Skypark, Rosamond CA. (661) 609-0942

Nov 14: EAA Chapter 1000 Monthly Meeting, 6:30 p.m., Flying Dog Ranch, 4400 Knox Ave, Rosamond CA. (661) 609-0942

Dec 12: EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., El Indio Restaurant, Rosamond Skypark, Rosamond CA. (661) 609-0942

Dec 19: EAA Chapter 1000 Festivus Etc Celebration, 6:00 p.m., Kommandant's Kwarters, 42370 61st Street West, Quartz Hill CA. (661) 609-0942

Jan 9: EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., El Indio Restaurant, Rosamond Skypark, Rosamond CA. (661) 609-0942

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

Feb 13: EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., El Indio Restaurant, Rosamond Skypark, Rosamond CA. (661) 609-0942

Feb 20: 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:
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Inputs for the newsletter or any comments can be sent to Russ Erb, 661-256-3806, 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**

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ADDRESS SERVICE REQUESTED

**THIS MONTH'S HIGHLIGHTS:
 JETHAWKS BASEBALL 22 AUGUST 17
 FIGHTIN' SKYWAGON RETURNS TO OSHKOSH
 DET 5 OSHKOSH REPORT
 YOUNG EAGLES 9 SEPTEMBER 17**

