

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 2012

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:



Project Police Baseball

Tuesday, 21 August 2012
1830 hrs (6:30 PM Civilian Time)
Clearchannel Stadium
Lancaster, CA

As is our custom, we will be enjoying our annual trip to the ball park on our normal EAA Chapter 1000 meeting day. We will be attending the Jethawks Baseball game at The Hangar/Clearchannel Stadium/Lancaster Stadium/whatever they're calling it this year. You know, the stadium at CA 14 and Ave I.

This year's baseball outing will be handled very similarly to previous years. We will be sitting in the City of Lancaster Skybox again (our thanks to **Mrs. Kommandant** again). The good news is the tickets are free to **Project Police Officers** and their guests. The constraint is that there are only 20 tickets, so you might want to call the **Kommandant** (661-609-0942) and let him know you plan to attend. Other amenities include free sodas in the Skybox. Of course, you'll still have to pay for your own overpriced hot dogs or other food.

The opposing team will be the ever-popular Rancho Cucamonga Quakes. According to the Jethawks web site, it will be "Two 4 Tuesday" and "Trivia Night". What's that? Buy two hamburgers or chicken sandwiches and get 2 FREE! (a pilot's favorite four-letter F-word). Team up in groups of 4 for Trivia from 1815 until first pitch to win great prizes. Of course, there will be the usual EAA Chapter 1000 promotions, such as counting how many beers **Opie** has and waiting to see which seat next to **Knife** gets beamed by a foul tip.

However, to take advantage of this offer, you need to follow the secret procedure very closely. The game starts at **1900** so be sure to get there by about **1830**. Look for the **Kommandant** or one of his minions strategically located under the F-18 on a stick. Say to him in a hushed voice "**Nuclear is spelled with 2 r's**". After hearing the passphrase, he will hand you a ticket to the game. If you are late and no one is standing there waiting for you, try calling the **Kommandant** at 661-609-0942 and, if the assembled **PPOs** approve, someone will bring a ticket down to you. Of course, your lateness will cost you a round of sodas for everyone there.

- **Erbman**

For the non-existent **Vice Kommandant**

Last Month's Meeting

EAA Chapter 1000

Rosamond Skypark
 Rosamond, CA
 17 July 2012

Gary Aldrich, Presiding

The June meeting was held at **Roger Tanner's** hangar at the **Rosamond Skypark**, featuring the Chapter 1000 webmeister **Russ "Bassmaster" Erb** and a display/discussion of his application of the exclusive world-famous "**Gennuso Speed Mods**" to his **Bearhawk**. **Kommandant Gary Aldrich** presiding.

Thirteen members and guests assembled for the discussion, first partaking of the exquisite buffet of cookies, chips, salsa and sodas provided by Russ' fiancée **Tuki**.



Master Engineer and Knower of All Things Fiberglass/Composite George “Knife” Gennuso and Russ “Bassmaster” Erb show off their catch

Having completed the stuffing and swilling part of the agenda, **Russ** proceeded to show the various hand-fabricated aero fairings for the landing gear and wing struts, as well as wheel fairings, and how they were fabricated. This blended well with the fabrication of how much additional airspeed has been gained as a result. **Master Engineer and Knower of All Things Fiberglass/Composite George Gennuso** was present and assisted Russ in the presentation, as well as vouching for the airspeed claims.



Landing gear with and without wheel pants. The “bullet” on the inside of the wheel pant covers the brake caliper and brake line, as well as cleaning up the intersections with the landing gear leg



Outside of wheel pant. Note spring loaded door for adding air to the tires



The inside of the wheel pant, showing the wheel well, steel reinforcement for axle screw, and spring loaded air inflation door



Erbman shows the unfaired (and draggy) upper wing strut connection



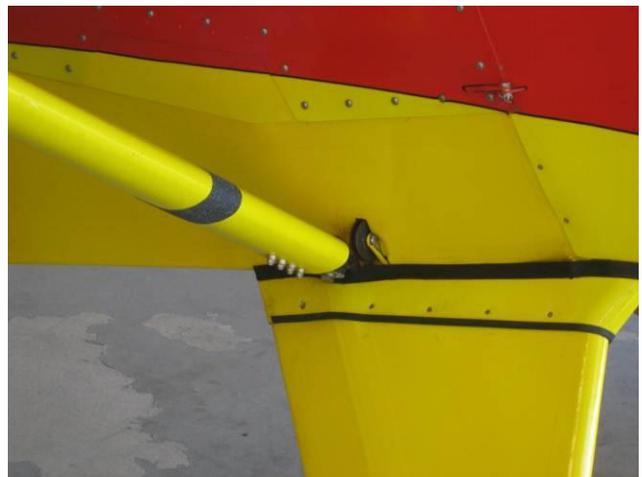
Erbman describes the process where Knife masterfully carved the foam to fit the upper wing strut and fiberglass was laid over the foam



Erbman explains to Miles and the Kommandant the slots in the fairing for the tie-down ring and the carabiner on the tie-down strap



The upper wing strut fairing screwed into the wing with rivnuts



The unfaired (and draggy) lower wing strut end. The black stripe is adhesive backed sandpaper (non-slip for stairways). The fairing is clamped around the sandpaper to hold it in place



Cobra inspects the attachment integrity of the upper wing strut fairing



Lower wing strut fairing in place



Lower wing strut fairing showing attachment screws and clamping around strut



Foam inserts inside of lower wing strut fairing to hold fairing in position relative to the strut



Fairing around shock strut. Left side shows insert clamped to shock strut that outer fairing attaches too. With weight-off-wheels the fairings pull up against the fuselage skin



With fairings on the left side and not on the right side, calculate 1) the radius of the wings-level turn, and 2) the amount of additional rudder trim tab deflection required to straighten the flight path



“We calculated a speed increase of a few hundred knots, but decided to dirty up the fairings a bit to keep the speed increase down to about five knots. It would be bad form to keep leaving the Fightin’ Skywagon in the dust”



The Kommandant counters saying that keeping up with the Bearhawk will never be a problem. He could even run away from the Bearhawk, except that no self-respecting Skywagon owner would ever stoop to tiny 6.00x6 girly-man tires or be seen wearing “wheel panties”



Knife explains his method of visualizing airplane parts inside of foam blocks. “You must BE the fairing. Visualize herding the random molecular motion into smooth streamlines around the obstruction. BE the fairing.”



Next step: Light the fires



Opie identifies his Alodine shipment from Aircraft Spruce. Tuki identifies Opie. Erbman quietly wonders what is going on.

Having our fill of both refreshments and claims of near supersonic speeds from the mods, **Kommandant Aldrich** declared that “**Victory!**” had been achieved, after which most members retired to nearby Coach’s restaurant for libation and sustenance.

Most, if indeed not all of this is true.

- **Kent “Cobra” Troxel**
Minister of Propaganda

Kommandant’s Korner

“Pushing the edge of the envelope” has become somewhat of a trite phrase, especially in our little flight-test oriented community of sport aviators. Unlike the “average” EAA chapter, Chapter 1000 has members that do that “right stuff” everyday...and get paid for it. They are either in the test aircraft or monitoring from a control room or chase plane when some of the world’s most advanced and complex air machines are taken to...and over the edge of that envelope. Several of our members have served as test pilots or flight test support crew on homebuilt aircraft. The program costs and schedules don’t compare to the “big boys”, but the risks and technical challenges are the same.



In a recent column I waxed on eloquently (at least in my estimation) about my decision not to assault one of those edges in the **Fightin’ Skywagon**. For those just joining us, I related how a relatively mild wind velocity could keep me firmly grounded simply because the Cessna test pilot was only required to demonstrate the ability for the Skywagon to land in a 12 knot crosswind. To challenge a stronger wind would put me and my (non-flight test trained) passenger in the mode of expanding the envelope without a test plan or rigorous safety review. This past weekend, I chose to push on another portion of the envelope.

The mission was to travel to Mammoth, California, in the high Sierras to attend “**Bluesapalooza 2012**”. This combined Jazz/Blues/Beer festival is conducted in a pastoral forested setting in the popular vacation town. Mammoth is served by Mammoth-Yosemite Airport (KMMH). The airport sits at the southeast end of a valley in the shadow of Mammoth Mountain at an elevation of 7135 feet MSL. The single runway is 7000 feet in length and slopes downward to the east on a one percent grade. We left KWJF around 1000 on Friday with 60 gallons of 100LL, three souls (Anne had invited a friend to accompany us) and about 50 pounds of baggage. The flight north through the Owens Valley was calm and beautifully desolate and the descent from cruise at 9500 feet MSL to the 8000 foot pattern altitude took only a couple of minutes. The AWOS-3 was reporting light winds favoring an easterly landing so I slid onto a left downwind for runway 9. The density altitude being reported at landing

was only 9700 feet! The combination of high DA and low headwind intensified the ground rush and I had to keep reminding myself not to "plant" the touchdown. The landing was passable and we were guided in to a tiedown space by a friendly ramp person. Of course, he should be friendly, as we were being charged a \$15 ramp fee for the privilege of his assistance...along with a per night parking charge of \$15. He informed us that there was a reduction in cost if I bought fuel, but I was not interested in adding any more weight for the departure. Oh, yeah, he also said the fuel was running eight bucks and change a gallon!

Two days of camaraderie, beer sampling (over 100 micro-breweries with FREE tasting) and groovin' to the music brought us to departure on Sunday morning. I had declared my intent to be airborne no later than 1200 to try and get a jump on the DA so we arrived at the airport about 1030. We had been joined by a fourth traveler, so it would be "N2705K Heavy" on departure. Whipping out my trusty weight & balance app I calculated our gross weight at 2961 pounds. N2705K is the holder of an STC by Kenmore Air Harbor which allows an increased gross weight from the 2800 pound standard to a hefty 3190 pounds. This is done with a simple doubler added to the main spar of the horizontal tail...but that's another story. The STC included a new weight & balance envelope that I had dutifully posted in the POH. Satisfied that the W&B was good, I opened the copy of the POH I keep on my iPad to check out the expected takeoff performance in section 5. There I (re)discovered that the STC did NOT include a revision to the performance data. Thereupon, we became the test crew for the "increased gross weight takeoff performance flight test". The second to last line in the POH "Short Field" takeoff chart for the 2800 pound gross weight was for a takeoff from 7000 feet MSL and 30 degrees C. Using proper leaning procedure, the book predicted a ground roll of 1340 feet. Similarly, we should be above the proverbial 50 foot tree at 2745 feet after brake release. The AWOS was reporting calm winds and 9150 feet DA when I performed a full throttle run-up. I leaned the engine to approximate maximum power and chose runway 9 as it was downhill, in the intended direction of departure, toward lower terrain, and clear of any of those pesky 50 foot trees. My final risk mitigation was a mental commitment to abort the takeoff if we were not off the runway and accelerating by mid-field. I needn't have worried as the mighty O470 began churning out horsepower and while the acceleration was far from "neck-snapping" we were rolling along on the mains within a thousand feet or so and she lifted us off at the published 57 knot IAS. We cruised by mid-field in a comfortable, though modest 300-400 foot per minute climb. In the short time to reach our first waypoint at Bishop (BIH) we had reached cruising altitude and the Earth had dropped away to give us several thousand feet between us and the desert floor. The test point was a success and I filed away the results in my mental performance report...along with an increased confidence in the VC-180.

As a counterpoint to this tale, I received a video by email this afternoon of a Stinson pilot who wasn't as

successful in his heavyweight, high altitude departure from a dirt strip in southern Idaho. As is today's norm, there were at least three high-definition video cameras that recorded an agonizingly long takeoff roll followed by an anemic climb and ending in a collision with those nasty 50 footers. Fortunately, all aboard survived, but I wonder what performance study and/or risk assessment went into that takeoff. Check it out at:

http://www.liveleak.com/view?i=835_1344412426.

With that, I will close and see you all at the Jethawks game.

Fly Safe, Check 6, and PLAY BALL!

- Gary Aldrich
Kommanding

Experimental Soaring Association Western Workshop – 31 Aug – 3 Sep 12 at L94

All soaring enthusiasts and sailplane homebuilders are invited to attend our 32nd annual workshop at Skylark North, Tehachapi, CA on Labor Day weekend. Outstanding technical presentations will be given on Saturday and Sunday. The first public presentation on the Robin, <http://robinultralight.blogspot.com/>; an ultralight motorglider for homebuilders is scheduled.

SATURDAY SEPTEMBER 1st

Registration in Armstrong Hangar, Lectures in Byard Hangar

8:30AM Dan Armstrong Cloud Street Winch experiences

9:30AM Jeff Byard Soaring 100

10:30AM Greg Cole - The latest at Windward Performance

11:30AM Brig Gen Joe Lanni (USAF (ret) - Flying the F-22

12:30-1:30 LUNCH

1:30PM - ESA Business meeting

2:30PM John Washington – Aria Motorglider

3:30PM Bob Kuykendall – HP24

4:30PM

5:30PM Potluck BBQ Dinner - Byard Hangar

7:15PM Auction John Ashford, Auctioneer - bring stuff to donate!

SUNDAY SEPTEMBER 2nd

Registration in Armstrong Hangar, Lectures in Byard Hangar

8:45AM Phil Barnes - (more birds, I am sure ;-)

9:30AM Raul Blacksten – Homebuilding, Shomebuilding, Nothing to Learn Here

10:30AM Mark Calder – Robin ULA

11:30AM Bob Hoey & Max Perrault – Pegasus

12:30-1:30 LUNCH

1:30PM TBD – Test Pilot School

2:30PM John Ashford – Aussie Report

3:30PM Al Bowers – small UAV Glider Experiments

4:30PM
 5:30PM Potluck Dinner
 7:15PM Desserts on Us Free Dessert and Presentation by Gary Osoba

- Murry Rozansky

Stopping the Oil Leak From Valve Cover Gaskets

During this year's EAA Chapter 1000 Airport Barbecue, **Harry Richardson** asked me to show the **Combat Bearhawk** to a friend of his. While he was looking at the airplane, I related to him that I had an oil leak where oil would appear on the inside of the left cowl door. Before I could finish the sentence, Harry interjected "and you have no idea where it is coming from?" Yea, exactly! Touching his finger under cylinder #2, he said my valve cover gaskets were leaking.

I had installed the cork gaskets that came with the cylinders. Harry said that those were the gaskets called for in the Type Certificate, but that it was well known that they didn't last very long. He recommended that I swap out the cork gaskets for silicone gaskets, available from Aircraft Spruce for use in non-certified (experimental) installations. I seemed to remember seeing them in some engines, so I ordered up six to give it a try. Harry emphasized that they must be installed according to the instructions that come with the gaskets. If you don't follow the instructions, you will naturally over-torque the screws and the gaskets won't work correctly.



This was the biggest offender—the #2 cylinder valve cover. You can see how the cork gasket was compressed with time. The ridge on the valve cover, presumably there to make a better seal, eventually cuts through the gasket. In this picture you can see a path around the screw hole where the gasket was totally breached.

Of course, nothing is ever easy, and the old cork gaskets had pretty much cemented themselves to the valve covers. Removal involved a razor blade and a careful touch to keep from cutting fingers.



This is the silicone valve cover gasket. The instructions specify a torque value for the screws that sure feels like it isn't enough, and certainly less than I would have applied without guidance. The proof is in the results—I've flown the airplane at least twice since installing the gaskets and no more oil has appeared on the cowling door.

I also found it interesting that I got the same response from everyone that I mentioned to that I was changing the valve cover gaskets. Everyone said something like "you're not using the cork gaskets, are you?" Apparently I was the only one who didn't know about this.

- Russ Erb



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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 21: EAA Chapter 1000 Monthly Meeting, 6:30 p.m., Clearchannel Stadium, Lancaster CA. (661) 609-0942

Aug 31 – Sep 3: Experimental Soaring Association Western Workshop. Mountain Valley Airport (L94), Tehachapi CA.

Sep 11: EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., High Cay, 4431 Knox Ave, Rosamond CA. (661) 609-0942

Sep 15: EAA Chapter One Open House. Flabob International Airport (KRIR). <http://www.eaach1.org/>

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

Sep 27-30: Flabob Flying Circus, Antique Aircraft Fly-In. Flabob International Airport (KRIR). <http://www.flabobflyingcircus.com/>

Oct 9: EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., High Cay, 4431 Knox Ave, Rosamond CA. (661) 609-0942

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

Nov 10: Veterans Day Celebration. Flabob International Airport (KRIR). <http://www.flabob.org>

Nov 13: EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., High Cay, 4431 Knox Ave, Rosamond CA. (661) 609-0942

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

Dec 11: EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., High Cay, 4431 Knox Ave, Rosamond CA. (661) 609-0942 Cancelled

Dec 11: EAA Chapter 1000 Festivus Etc Celebration, 6:00 p.m., Kommandant's Kwarters. Quartz Hill CA. (661) 609-0942

Jan 15: EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., High Cay, 4431 Knox Ave, Rosamond CA. (661) 609-0942

Jan 15: EAA Chapter 1000 Monthly Meeting, 5:00 p.m., 4440 Knox Ave, Rosamond CA. (661) 609-0942

To join Chapter 1000, send your name, address, EAA number, and \$20 dues to: EAA Chapter 1000, Doug Dodson, 4431 Knox Ave, Rosamond CA 93560-6428. 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**

**C/O Russ Erb
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 Rosamond CA 93560-7692
<http://www.eaa1000.av.org>**

ADDRESS SERVICE REQUESTED

**THIS MONTH'S HIGHLIGHTS:
 JETHAWKS BASEBALL 21 AUG @ 1830
 GENNUSO SPEED MODS
 HIGH DENSITY ALTITUDE--AGAIN
 VALVE COVER GASKETS**

