



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>

April 2007

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:



Aluminum Overcast Sortie Generation
Tuesday and Wednesday, 17-18 April 2007
0800-1800 hrs
(8:00 AM - 6:00 PM Civilian Time)
Fox "WJF" Field

We've warned you for the last several months. Now it's time for you to show up and do your part to represent the greatest EAA chapter ever hosting the B-17 "Aluminum Overcast". To figure out how you can help, contact the Chapter **SLDO Scott "Stormy" Weathers**, who asked you last month to contact him, and then cleverly didn't tell you how. Now that we've messed with your mind, tell Stormy how you'll help out at scott.weathers@edwards.af.mil. If you prefer voice communications, call him on his cell phone at 661-317-9453.

Flights and ground tours will be given on Tuesday and Wednesday. Anyone putting in a goodly amount of hours helping out can qualify to be selected to fly in the B-17 for FREE when it repositions to Van Nuys on 19 April.

More info is available at <http://www.b17.org>.
 Just in case you haven't figured it out yet,

**No Third Tuesday
 Meeting This Month!**

HEY DUES DELINQUENTS!!!

You're being cut off!



Yep, this is your last newsletter. You can, of course, still avert this disaster by forwarding your dues check (\$20) in according to the directions on the last page.

This is the last time we'll remind you. You're on your own

now.

We'll publish the 2007 Chapter Roster in the May newsletter.



**Sixteenth Annual Scotty
 Horowitz Going Away
 Fly-In 19 May 2007 at
 Rosamond Skypark**

Make your plans to attend now! You're expected to be there, especially since the board has already signed you up for duties.

You don't want to be listed in this publication as shirking your duties! We don't know of any new aircraft expected to attend, but maybe **Vince "Opus" Sei** will make the hour long flight to return from Tucson! No word on if Mr. "NASA Associate Administrator for Exploration Systems" will show up.

Last Month's Meeting

EAA Chapter 1000
Stormy and Erbman's Building Facilities
 Mojave and Rosamond CA
 20 March 2007
Gary Aldrich, Presiding

This month's meeting consisted of **Project Police Officer** raids on **Scott "Stormy" Weathers' RV-8A** in Mojave and **Russ "Erbman" Erb's Bearhawk** in Rosamond.

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As Vice Kommandant “Knife” Gennuso, Frosty Wyatt and I were driving to Mojave, we were wagering on whether **Stormy** would be in compliance with the provisioning of **Chocolate Chip Cookies** for **PPO** raids. We all agreed that things would not go well for him in the after action report should the visit be *sans* **C³'s**. Fortunately for all, **Stormy** was well prepared. We discovered many interesting things during the raid including a scale model of R2-D2, a rocket back-pack and a hand-carved wood stick grip, a skill Stormy said he acquired by carving pistol facsimiles out of soap while in prison. We also viewed the RV-8A tail feathers in progress with approximately 160 fasteners completed since beginning the project last September.



R2-D2 unit, autopilot installation instructions not included



Minister of Propaganda Troxel investigates the electrically boosted rocket back pack



Hand-Carved wood stick grip. Do not adjust your newsletter—this picture is intentionally out of focus for classification concerns



Vice Kommandant Knife Gennuso and Brian Martinez demonstrate their experimental rivet driving technique – no air compressor required



One RV-8A tail group, some assembly required



160+ rivets and counting...for now

Having consumed most of **Stormy's** cookies, we proceeded south to Rosamond to **Erbman's** garage/hangar to view the "power-on" avionics integration test of his Bearhawk panel. As the pictures illustrate, **Russ** has enough equipment to sterilize all cabin occupants. We were feeling a little woozy after only a few moments basking in the warm glow of the electronic field generated by the **Dynon** and **Garmin** units. **Russ** shoo'd us all out before permanent damage was inflicted and helped revive us with **sodas** and yet more **C's**. Always the thoughtful host, **Erbman** had a diet Pepsi for the **Knife** (who prefers it over Coke). We have come to expect no less from **Russ** who has been a long time participant in and recipient of **PPO** raids.



Bearhawk Pilot Radiation Unit, complete with FAA approved airworthy iPod

Sufficiently fortified, the **Kommandant** declared that **Victory** had again been snatched from the jaws of indifference. Assured that aviation technology had been significantly advanced, the meeting was adjourned and all proceeded to "Coach's Bar and Grill", our favorite Rosamond watering hole, where the customary unsubstantiated claims and questioning of ancestry was asserted.



Retired Air Force Navigator Stormy Weathers locates the Moving Map Display after a few minutes of searching (picture pointer training by Knife)

- Kent "Cobra" Troxel
Minister of Propaganda

Kommandant's Korner

Sigh.... **Zurg** is perched on my shoulder trying to squeeze yet another literary masterpiece from my noggin.



Unfortunately, I'm a bit distracted this weekend as my "CA" (BMW's euphemism for car salesman) just called and said I might be able to pick up my new car today (Saturday)...a week earlier than expected. This has nothing to do with aviation or EAA or Chapter 1000, but it's my excuse for a less-than-witty-and-entertaining column this month...and I'm sticking to it!

I had an opportunity to fly the **Fightin' Skywagon** with the **GNS 530W** again this last week and I can report that I am still very pleased with the upgraded performance. Screen re-draws are noticeably faster and smoother and the unit boots up more quickly as well. The terrain page is much nicer with its higher resolution making it look more like a contour map and less like a 1980's video game. I have yet to fly an approach procedure that requires use of the WAAS capability, but that may come tomorrow when I wing my way northward to Livermore (LVK) to visit the daughter. I have also just downloaded and installed the next edition of the Jeppesen database on the massive 16 MB spare datacard. This card, at \$149 plus tax and shipping represents a fine example of what happens to prices when demand is high, but production of "proprietary" form-factor memory cards is low. The Jeppesen software and (proprietary) card reader placed the latest database on the card in about 10 minutes...at least three times longer than the update took with the non-WAAS database updates. I don't know if this is a hardware, software, or database size issue but it is only a minor annoyance as it can run in the background while

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you are doing something important with your computer...like trying to track the location of your new BMW.

We're entering into the busy season for the Chapter. With the upcoming semi-annual visit of the USAFA cadets and the annual visit of the Aluminum Overcast, the "ops tempo" of the **PPTAF** is significantly increased. Right on the heels of those events is the world famous (at least on the WORLD-wide web) **Scotty Horowitz Fly-in**. I have every confidence that the stalwart **PP** troopers will rise to the occasion once more and snatch victory from the jaws of disorganization. I look forward to the high levels of schmoozing and high fructose snacks and I hope you do to. See you all at WJF and/or High Cay...now's where's that phone number for Rusnak BMW...

Oh yeah...Happy Easter, Passover, (fill in your spring holiday) everybody!

- Gary Aldrich
Kommanding



Young Eagles Report

Our March 17th Rally was another huge success. I want to thank all the volunteers and pilots who helped make the day great. We had 7 pilots, 7 volunteers and flew 24 Young Eagles.

Pilots: **Tony Ginn, Ed Lewis, Steve Irving, Bob Hoey, Paul Rosales, Pete Sanstead, and Ozzie Levi**

Ground Crew:

Registration: **Tanya Duke, Pricilla Sanstead & Caroline Sanstead**

Registration / Print Certificates: **Daesha Roberts & John Keith**

Ground School: **Mike Gonzales & Glenn Watson**

Polaroid & Certificates: **Bryan Duke**

Thanks to **Steve** at Fox Field for donating fuel (yet again) for our Rallies.

Thank you to all the volunteers for your time & support of our Young Eagles program.

Thanks to **Tony** for giving **Mike Gonzales** a ride after the rally. I am sure our non-flying Ground Crew would love rides after the rally. If any pilots would like to stick around and offer rides, that would be wonderful!

Our next event is April 14 (9am) at Fox Field and we already have 17 kids signed up. **Please let me know if you can be either a volunteer for ground crew or pilot for this event.**

There is not a Rally planned for May.

June 9th is "International Young Eagles Day." After much discussion & brainstorming at the last Chapter 49 board meeting, I have started planning a "**Young Eagles Aviation Day**" to be held at Fox Field. I am hoping to get support from everyone in both Chapters 49 & 1000.

I have contacted some local aviation / aerospace industries & academia and aviation clubs (R/C airplanes) to set up booths, and all seem interested in participating. This will be open to the public, but only the kids pre-registered to fly will be given flights, although I would love to fly 50 or more kids. I am hoping to get **A LOT** of volunteers for the day. I would also like to invite other local EAA Chapters to fly in for the day, so we have lots on the ramp and maybe more volunteers. Fox will have an "Open Hangar" day.

Here are a few of the volunteer jobs:

Set-up

Young Eagles – Registration, Certificates, Picture taking, Pilots and more Pilots

Lunch – Grilling hamburgers and hotdogs (lunch is paid for by Fox Field but we need to cook it) Chips & Drink also provided

Helping people find bathrooms, hangars, expos etc...

Clean Up

I am sure I am leaving out a lot of jobs.

I would really love to make this a good sized event open for the public, but I can not do it without the support of the Chapters. Please send me an email if you would like to help. I need the support of volunteers before I go any further on this.

Thanks –

- **Tanya Duke**
Home: 940-3698
Cell: 810-1004

Project Police Fly The B-17 "Aluminum Overcast"

*(Our Magnum Opus on "Flying The Fortress" completes this month. If you really like what you read, start saving your dimes and nickels—for just \$359 you will be able to "Fly The Fortress" yourself on 17-18 Apr 2007 right here at Fox Field. Better yet, donate your time to assist with the operation and get selected for one of the coveted "Sandbags"! Talk to **Scott "Stormy" Weathers** about how you can help!)*

Waist Gun Compartment

Behind the radio room is the waist gun compartment, which also contains the top of the ball turret. There are doors between the cockpit and bomb bay, bomb bay and radio room, and radio room and waist gun compartment, which would presumably be closed during a mission, but were left open during our flight.

Aluminum Overcast is a late model B-17G, and as such has the waist guns staggered with the right gun ahead of the left gun. This gave the two waist gunners room to work without bumping into each other, and presumably cut down on the number of "Excuse Me"s on the intercom. Each gun was equipped with gyroscopic sights that automatically computed lead for deflection shooting.



View aft into waist gun compartment



View forward in waist gun compartment



Waist gun sight

Ammunition for about 1.5 minutes of total shooting was stored in wooden boxes on the side of the aircraft near each gun.

We were fortunate that *Aluminum Overcast* was equipped with windows at the waist positions, which really cut down on the wind blast. Without the windows installed, the wind would come in the gaping hole and proceed rearward and exit the aircraft around the tail guns. If the radio room door was open and the upper hatch was removed, that just added to the gale. While the temperature at 25,000 feet is already minus a whole bunch of degrees cold, imagine adding to that about 50 knots of wind chill *inside* the airplane. This is why all of the crew had electrically heated suits, and you can see the outlets in this compartment for plugging them in. Presumably they worked reasonably well, but didn't do much for body parts that were exposed, like any part of the face not under the oxygen mask.



Outlet for electrically heated flying suit. Note stringer splices to the right.



Electrically powered reel for trailing wire antenna

We noticed a bunch of rivnuts around the inside of this compartment with nothing attached to them. We were told that these were for attaching armor plates, but that the armor plating was frequently removed to reduce weight.

Oddly enough, the skin at the top of the fuselage does not continue across the top, but actually bends up to form

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the vertical fin. As a result, you can reach right up into the vertical fin. This also conveniently allows access to the HF and VHF antennas.



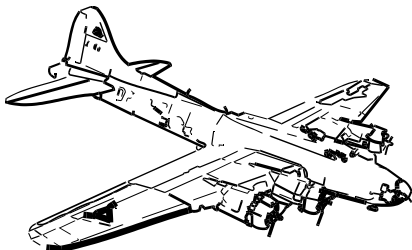
Looking up into dorsal fin

The control and trim cables for the elevator and rudder run along both sides of the ceiling of this compartment through some very high tech fairleads—wood or phenolic blocks. Once again, we found that the pilots preferred that we not pull on these cables, although it was fun to watch them move.



High tech fairleads

Turning to the aircraft's right just in front of the tailwheel takes you out the only sensible entry door on the entire aircraft. There is another smaller door aft of the tailwheel which gave the tail gunner access without crawling around the tail wheel, although that was possible.



Rear entry door (open with steps) and tail gunner entry door under elevator



Evil Editor Zurg leaves it as an exercise to the reader to figure out what this is. (Hint—look on the side wall)



Tail wheel assembly. This way back to the tail gunner position.

Tail Gunner

After crawling into the tail, the tail gunner would set himself down on a small, low seat that looks like it came

from a kid's tricycle. The guns are flexibly mounted and manually aimed using a computing sight. The ammunition storage was in wooden boxes on either side of the tail gunner. The windows are small, but once again are very close to your head, so we assume the field of view is good.



Tail gunner bicycle seat



Tail gunner position with larger windows found on late model B-17Gs



Tail gunner's sight

Hydraulics

The airplane reminds me of the many houses I saw growing up that proudly proclaimed themselves as "All Electric". The only hydraulics in the entire airplane drive the cowl flaps and the brakes (not counting the aforementioned self-contained hydraulics in the belly turret.) These hydraulics were driven by an electrically powered hydraulic pump on the rear cockpit wall. The hydraulic reservoir and accumulator were also located on the rear cockpit wall.



Hydraulic pump and reservoirs



Old fashioned hydraulic expander brakes, built well before the clearly superior disk brakes were developed

Landing Gear

The landing gear were individually actuated by electrically driven jackscrews. If any of these failed, the offending gear could be manually cranked down. The shaft for each main gear passed along the rear cockpit wall, but the crank was inserted from the bomb bay side. While this may sound like an odd way to do things, there was a lot more room for access in the bomb bay than in the cockpit, especially when you remember that the cockpit area was mostly full of top turret. Access to crank down the tail wheel was way back at the tail wheel itself. The cranks were stored on the left cockpit wall.

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Flaps

The flaps are split flaps and are extended by...any guesses? That's right—electric jackscrews. Rather than a simple hinge, the flaps are supported by two sets of rods that force them down when the jackscrew pushes them rearward. This setup avoids needing a large control horn that wouldn't fit in the wing.



Split flap in deployed position



Side view of flap



View showing hinge rods that force the flap down as the jackscrews push aft



One of five flap actuation jackscrews. Note truss wing rib construction, truss rear spar construction, and large number of stringers on the upper (compression) wing skin

Fuel System

Each engine is fed by its own fuel tank, and there are no fuel selectors (valves) accessible from the pilot or copilot positions. The only valves are at the rear of the cockpit. The only cross feed available is across the fuselage. That is, you can cross feed from 1 to 4 or 2 to 3, but not from 1 to 2 or 3 to 4. Additionally fuel can be drawn from bomb bay tanks if installed. Fuel is cross fed by a pump in the bomb bay. The selectors were positioned for the source and destination tanks and the fuel pump was switched on. The direction of transfer depended on which direction the pump was turning.



Fuel transfer selectors under rear cockpit door to bomb bay

Noise

Yep, this airplane comes equipped with noise. You should come equipped with your ear plugs. The least noisy place in the airplane was the cockpit, with significantly more noise in the nose, radio room, and waist section. The quilted wall coverings that you may be familiar with in Air Force aircraft weren't in vogue yet

when this airplane was produced. The only sound attenuation available was what little came from the 0.032 aluminum between you and the outside world.

In Conclusion...

If you found this report of interest, then you really ought to get a copy of the EAA B-17 Flight Manual. You can get it from **Erbman**, but you'll probably want to bring him a USB thumb drive, since at over 11 MB the PDF is not really e-mailable.

- Russ Erb

Project Police Qualitative Evaluator

Recollections of the XB-51

In high school, when I received my copy of Model Airplane News with the Martin XB-51 on the cover, I thought something to the effect: "What an airplane!! What a bomber!!"

And that variable incidence wing! The tandem landing gear! No rotation required for takeoff! What innovation! Boy, this is going to be the future Army Air Force!

All through college and early work experience it was in the background of my mind. Little did I know that after a few years I would be able to stand next to the one remaining XB-51.

At Edwards AFB I walked on the ramp. Boy! That thing is HUGE! Those wings are small! That rotating bomb bay is small!"

It was many years later that I realized why—it was a flying gas tank. With 3 engines and specific fuel consumption of nearly 1.2 lb/hr-lb thrust, it needed a lot of fuel for even medium range.

Jet engines rapidly became more efficient. Now I look at jet engines with SFC below 0.5 lb/hr-lb thrust and think of how much less fuel and less structure is required to do the same mission.

The small wings were a realization that if you knew you had thrust available, you did not need the large wings like the P-59A. During the design stage of the XP-59A, no one was sure how much real thrust would be available from the first-of-a-kind engine.

The wings had large anhedral with "training wheels" at the tips. I don't know how much they flexed upward in flight.

It has been well documented that the last XB-51 crashed during the filming of Bill Holden's "Toward the Unknown" movie. The XB-51 would have been a marvelous center piece showing innovation during the embryonic jet aircraft design period.

Great pictures at:

<http://www.airbornegrafx.com/HistoricAircraft/EarlyJets/XB51.htm>

- **Lee H. Erb**, aka Erb the Elder
EAA Chapter 1000 Det 5, Arlington, TX



From Lloyd S. Jones "U.S. Bombers" 1980

Food! EAA Chapter 49 Fly-In/Drive-In Pancake Breakfast



Yes, you'll want to get to Rosamond Skypark (L00) the morning of **21 April 2007**. The **Forty-Niners**, recognized the world over as friends of the **Project Police**, will be serving up a feast from 0830 until 1100. The menu includes Pancakes, Eggs, and Ham. Only \$5! Perfect for tightwad **Project Police Officers**.

If you're flying in, shoot for the displaced threshold for the spot landing contest (0800-1000). Then taxi past the old FBO to the South Taxiway. Turn left past Casa Rosales and park at the East end.

If you're driving in, drive up 40th Street West and stop just before you get to The Golden Cantina. Walk through the gate near "the grassy park."

The big event is in John Manduca's hangar. You can see pictures and everything at

http://www.eaa49.av.org/pancake_files/

Web Site Update

As of 7 Apr 2007, the hit counter stood at **114565**, for a hit rate of about 19 hits/day for the last month.

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

Apr 14: Young Eagles Rally, 8:45 a.m., General William J. Fox Field, Lancaster, CA. (661) 940-3698

Apr 17-18: B-17 *Aluminum Overcast* hosted by EAA Chapter 1000, General William J. Fox Field, Lancaster, CA. (661) 609-0942

May 1: EAA Chapter 49 Monthly Meeting, 7:00 p.m., General William J. Fox Field, Lancaster, CA. (661) 948-0646

May 8: EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., High Cay, 4431 Knox Ave, Rosamond CA. (661) 609-0942

May 15: No meeting. Go to Fly-In instead

May 19: Sixteenth Annual Scotty Horowitz Going Away Fly-In, Rosamond Skypark (L00), Rosamond CA. (661) 256-3806

Jun 5: EAA Chapter 49 Monthly Meeting, 7:00 p.m., General William J. Fox Field, Lancaster, CA. (661) 948-0646

Jun 9: Young Eagles Rally, 8:45 a.m., General William J. Fox Field, Lancaster, CA. (661) 940-3698

Jun 12: EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., High Cay, 4431 Knox Ave, Rosamond CA. (661) 609-0942

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

Jul 3: EAA Chapter 49 Monthly Meeting, 7:00 p.m., General William J. Fox Field, Lancaster, CA. (661) 948-0646

Jul 10: EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., High Cay, 4431 Knox Ave, Rosamond CA. (661) 609-0942

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

Aug 14: EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., High Cay, 4431 Knox Ave, Rosamond CA. (661) 609-0942

Aug 21: 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, Doug Dodson, 4431 Knox Ave, Rosamond CA 93560-6428. 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, 661-256-3806, 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****3435 Desert Cloud Ave****Rosamond CA 93560-7692****<http://www.eaa1000.av.org>****ADDRESS SERVICE REQUESTED****THIS MONTH'S HIGHLIGHTS:****ALUMINUM OVERCAST 17-18 APR AT FOX****YOUNG EAGLES REPORT****XB-51 (XF-120) RECOLLECTIONS****THE REST OF THE B-17 FLIGHT REPORT*****The Leader In Recreational Aviation***