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	*Scott Weathers*	*661-317-9453*
Secretary	*Kent Troxel*	*661-947-2647*
Treasurer	*Doug Dodson*	*661-256-7276*
Newsletter Editor	*Russ Erb*	*661-256-3806*

http://www.eaa1000.av.org *April 2008*

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:

USAF Academy Flight Test ~~Barbecue~~ Cookouts

Tuesday, 22 April 2008
1830 hrs (6:30 PM Civilian Time)
High Cay Partyhaus
Rosamond CA

AND

Friday, 25 April 2008
1700 hrs (5:00 PM Civilian Time)
USAF Test Pilot School Lounge
Edwards AFB, CA

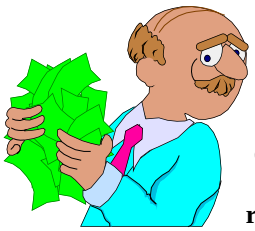
Once again the month of April is here, just like it was about a year ago. That being said, it is time for the semi-annual USAF Academy Cadet Weenie Roast. Well, actually not just a weenie roast, for we intend to throw some burgers on the grill too! (**Note: Menu subject to change at the discretion of the Schmoozemeister**)

No Third Tuesday Meeting This Month!

Also note that you have two opportunities to participate this semester. Come on Tuesday to High Cay and checkout the Glasair progress and the possibly complete ***Bearhawk*** next door. Come on Friday to the Rick Husband Lounge at TPS for some military-style schmoozing. ***Take note that the two events do not start at the same time***.

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 2008 Chapter Roster in the May newsletter.

Seventeenth Annual Scotty Horowitz Going Away Fly-In 17 May 2008 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! Expect to see the ***Bearhawk*** sisters "Smokey Bearhawk" and the newly minted "Three Sigma". We're still trying to convince **Vince "Opus" Sei** to make the hour long flight to return from Tucson! **Doc Horowitz** has left NASA for some undisclosed location to "spend more time with my family" (ever heard that one before?), which means he can't ask "Uncle" for the keys to the T-38 anymore. Maybe someone can actually find him and invite him to his party. Otherwise, we'll go on without him.

Last Month's Meeting

EAA Chapter 1000
Scobee Auditorium
USAF Test Pilot School, Edwards AFB CA
18 March 2008
Gary Aldrich, Presiding

The March meeting found us again at USAF TPS with 17 members and guests in attendance. Standard meeting rations of Chocolate Chip Cookies, chips and salsa and soda were conspicuously present in abundance, thanks to **former Vice Kommandant Knife** (hey, I'm still retired) **Gennuso**, subbing as logistics officer for the absent new **Vice Kommandant Stormy Weathers** who was TDY. We welcomed new members **Mike** and **Becky Cowan** who are working on a Pulsar project.

Kommandant Aldrich, adorned in a green flight suit ("wearin' o' the green" in deference to St. Patrick's Day, after all, what laddybuck doesn't fancy himself an Irishman at heart?), ordered the meeting to order (no small task for C1000). Our guest speaker was documentary film maker **Nick Spark** who dazzled us with a snippet (about 20 minutes worth) of his current project, "**The Legend of Pancho Barnes and the Happy Bottom Riding Club**". **MST3K** rules were immediately suspended. Part of Nick's effort is to add to and correct some of the information contained in the three books written about **Pancho**, a previous documentary and the 1988 CBS television movie starring a mis-cast Valerie Bertinelli. In his research, Nick met with **Lou D'Elia**, a Pasadena collector who acquired 92 "bank boxes" of material from **Mac McKendry**, **Pancho's** 4th husband, including numerous previously unpublished pictures, documents and an unfinished autobiography. Fascinating stuff, here.

Pancho was born **Florence Lowe** in 1901 to a wealthy Pasadena family, and was introduced to flying at an early age by her grandfather **Col. Thaddeus Lowe**, a Civil War balloonist for the Union Army (GAR). In an arranged marriage, she wed the **Rev. C. Rankin Barnes**, producing a son **William**. A friend commented that "Florence was raised by her mother to be a lady…but it didn't take". In 1927, she signed on as a crew member on a "Banana Boat" to Mexico, which turned out to be a gunrunner for Mexican revolutionaries. Following that adventure, she returned to SoCal and began flying lessons. By 1929 she was involved in air racing and as a movie stunt pilot. Nick's preview ended here, leaving us wanting more.

Pancho was the confidant of **Al Boyd**, **Amelia Earhart**, **Paul Mantz**, **Howard Hughes**, **Jimmy Doolittle**, **Chuck Yeager**, **Bob Cardenas** and **Bob Hoover**. These last three are featured in the film. **Hoover's** description of **Pancho** is priceless…"**She looked like she was frozen in a 9 G pull out**", referring to a sagging of various face and body features.

Nick is currently pursuing additional funds to complete the project for an Orange County PBS station to air the documentary. If you are so inclined to contribute or find out more about the project, visit Nick's website at http://panchobarnesfilm.com. For more info on Pancho, the "first lady of Edwards", go to http://panchobarnes.com. We are negotiating for the world premier to be here at USAF TPS.

Following a Q&A session, **Kommandant Aldrich** declared "**Victory!**" and we adjourned to the BK Lounge for some "spendin' o' the green". Waiving the normal requirement that the speaker has to make us laugh, **Nick** was treated to a "supersized" dinner in appreciation of his work and taking the time to share it with us.

- Kenton Timothy Patrick O' Troxel
Minister of Propaganda, EAA C1000

From last month:

Dr Honey exits a Lancaster bomber which has brought him back to England. What's wrong with this picture? Send your answers to Evil Editor Zurg in care of his lackey Erbman

Evil Editor Zurg was disappointed with the lack of response to this question. ***PPO* Miles Bowen** was the only one to submit an answer, which fortunately was correct. He said "Would it be that a supposedly British-owned airplane has a US registration affixed?"

Of course, this was immediately obvious to everyone who was in attendance at the viewing.

Kommandant's Korner

Bombs Away! Another pleasurable visit of the **Aluminum Overcast** has come and gone this week and the ***PPTAF*** troopers have once again overcome the odds and snatched Victory! from the jaws of disorganization. **Vice-Komm** (and **Operation Commander**) **Stormy** was fretting about the gaping holes in his artfully crafted work schedule but I knew that when the chips were down, we'd run for salsa…er, show up for duty. **Tim Brien**, **MASTER CARNY**, proved that his chosen field of endeavor should be sales. He was able to separate lots of folks from their hard-earned cash, ringing up **$1300** on Tuesday when the weather was nice and crowds were steady…and **$1900** on Wednesday when the

normal 30 knot wind and low temperatures kept the crowds to a minimum!

We were also treated to a walk-on performance by **Trooper Doolittle III**, who regaled the masses with obscure tales of B-17 minutia…most of which seemed to end with a Skyraider story. **Carny-in-training Joanne** showed that her skill in real estate sales is readily transferable to hawking souvenirs to wingnuts. We're looking forward to next year now that she is "checked-out". However, we may have to modify her technique of sic'ing **Bailey** on customers who aren't quick enough to get their wallets out.

Other helpers included, yes, the "usual suspects". I'm sure all their names will appear in glowing praise in the requisite after-action report. Of special note is the sacrifice made by **Houdu** in leaving hearth and mother-in-law to retrieve the "Sandbags" from Gillespie Field in the Strike Mooney. This was not the usual milk-run to Van Nuys, but an hour or more of serious IFR shenanigans culminating in one of the weirdest approach procedures in the book.

All in all, it appeared that the Fortress Crew was happy and everyone had a good time. If you didn't get out to Fox to either help out or just gawk at a piece of aviation history, **shame on you**. Pin this column up on the fridge to remind you to volunteer next year.

The remainder of April's Chapter activities center around the visiting USAFA cadets, who bring voracious appetites and a huge thirst for the aviation lore of which we are stewards. We'll be asking folks to show up at High Cay for the normal burger burn, followed by a reprise at TPS to catch the second batch of cadets.

It's not too early to be thinking of the Chapter Fly-in, either. That will be May's meeting, so mark it on the calendar now and stand by for tasking. By that time you may also get a look at **Trooper Irvine's** new bachelor pad, mere steps from **High Cay**.

Weather's gettin' better…get out there and fly safe!

Check 6!

- Gary Aldrich
Kommanding

Bearhawk #164 "Three Sigma" Fuel Flow Testing

Date: 8 - 16 Mar 08

Objective

Verify available fuel flow exceeds the required fuel flow for all attainable flight attitudes.

Background:

14 CFR §23.955

(a) *General.* The ability of the fuel system to provide fuel at the rates specified in this section and at a pressure sufficient for proper engine operation **must be shown in the attitude that is most critical with respect to fuel feed and quantity of unusable fuel**. These conditions may be simulated in a suitable mockup. In addition—

(1) The quantity of fuel in the tank may not exceed the amount established as the unusable fuel supply for that tank under §23.959(a) plus that quantity necessary to show compliance with this section.

(b) ***Gravity systems***. The fuel flow rate for gravity systems (main and reserve supply) must be **150 percent** of the takeoff fuel consumption of the engine.

(c) ***Pump systems***. The fuel flow rate for each pump system (main and reserve supply) for each reciprocating engine must be **125 percent** of the fuel flow required by the engine at the maximum takeoff power approved under this part.

AC 90-89A *Amateur-Built Aircraft and Ultralight Flight Testing Handbook* Chapter 1 Section 11.1.e states that this should be done with "the aircraft's nose at an angle 5 degrees above the highest anticipated climb angle."

The point of this test was to make sure that sufficient fuel would flow to the engine at any angle occurring in flight. The worst case scenario for fuel flow is during a maximum power climb. The engine is demanding the highest fuel flow, while the vertical distance (pressure head) between the fuel tanks and the carburetor is at a minimum. Some portions of the fuel system are actually flowing uphill in that condition. Confirming that the fuel system will provide 150 percent of the required fuel flow gives an extra margin to ensure that the required fuel flow will be available.

The Lycoming Engine Operator's Manual for the 260 HP Lycoming O-540 quotes a fuel flow rate at sea level and full throttle of 25.3 gallons per hour. AC 90-89A suggests that in the absence of actual data, the fuel flow can be estimated using a Brake Specific Fuel Consumption (BSFC) of 0.55 pounds per brake horsepower per hour. Therefore

$$260\ \text{BHP} * 0.55 \frac{\text{pounds}}{\text{hour BHP}} = 143 \frac{\text{pounds}}{\text{hour}} * \frac{1\ \text{gallon}}{6\ \text{pounds}} = 23.8 \frac{\text{gallons}}{\text{hour}}$$

This estimate is close enough to the book value to lend confidence in the book value.

The required fuel flow for a gravity system is then 1.5 * 25.3 gallons per hour = 37.95 gallons per hour. This is equal to 0.6325 gallons per minute, or 3.795 pounds per minute. With the fuel pump ON, the requirement is reduced to 1.25 * 25.3 gallons per hour = 31.625 gallons per hour. This is equal to 0.5271 gallons per minute, or 3.163 pounds per minute.

Based on a report from **Pat Fagan** of a climb rate of 1500 feet per minute at 60 KCAS, the climb angle was calculated at 13.4 degrees. Based on available aircraft data, the Fuselage Reference Line Angle of Attack was estimated at 5.2 degrees. This was consistent with the AC 90-89A recommendation to add 5 degrees to the maximum climb angle. Therefore, the desired pitch angle for the fuel flow test was 18.6 degrees. On #164 there was a -0.4 degree correction to the indicated pitch angle at the measuring point (front of the right door sill). Thus, the desired indicated pitch angle was 19.0 degrees.

Additional information on doing the fuel flow test can be found in Tony Bingelis' *Firewall Forward* on page 175.

Procedure:

1. Fuel airplane with 3 gallons per tank.
2. Reverse and chock tailwheel.
3. Place lifting cables around axles (2 per side)
4. Use cranes on each side to lift each wheel. Lift both sides evenly, keeping the wings level. The indicated pitch angle should be 19.0 degrees. The main gear tires should be about 22.6 inches above the floor.
5. Turn fuel selector to OFF.
6. Remove fuel line from carburetor. Connect 90 degree fitting to fuel line with open end pointing down. Tie up next to carburetor inlet.
7. Tie funnel and tube in place
8. Weigh empty gas container for tare weight.
9. Place funnel tube in gas container.
10. Open fuel selector to BOTH for 1 minute, then close to OFF.
11. Weigh gas container. Subtract tare weight to determine the amount of fuel drained in one minute.
12. Repeat steps 6-9 with fuel pump ON.
13. Repeat steps 6-9 with fuel pump OFF and fuel selector in LEFT.
14. Repeat steps 6-9 with fuel pump OFF and fuel selector in RIGHT.

Results:

The tail wheel was reversed, placed into the position it would caster to if the fuselage was being backed up. Because of the geometry of the tail wheel, it was most stable in this position. In the normal locked position it was possible that side loads would cause the tail wheel to unlock, causing the fuselage to move unexpectedly.

The tail wheel was chocked to prevent the fuselage from moving forward or aft.

Lifting cables formed from 1/8 inch control cable were placed around the axles as shown here.

As shown here, the cable was formed in a double loop. This reduced the load on each strand by half of what the load would be for a simple loop. The picture above shows a double loop cable. This was from a previous attempt. For the lift, two independent double loop cables were used on each side. If, for some unforeseen reason, one cable was cut or otherwise broke, the other cable would support the axle long enough to get the tires back down to the floor.

Two shop cranes, one on loan from the adjacent **High Cay Construction and Maintenance Facility**, were used to lift the nose of the airplane to the maximum climb attitude. Since the axles were hanging below the cranes, the system was stable. Any side loads on the airplane might cause it to swing back and forth, but it would not tip over.

Notice the tail wheel was reversed and chocked.

Other suggestions for getting the required pitch angle:

1. Dig a hole for the tail wheel instead of raising the nose. This is probably the best solution if you can get away with digging holes wherever your airplane is based.

2. Roll the main gear up onto a trailer of an appropriate height.

3. Build one or two boxes of the appropriate height for the main gear to rest on. Build ramps or use ramps such as Item Number 55424 from Harbor Freight to get the wheels up onto the boxes. Find a way to ensure the boxes won't fall over while pushing the airplane up the ramps. Secure the wheels on top of the boxes (chocks or otherwise) so that they won't move.

The fuselage was raised to an indicated pitch angle of 19.0 degrees, for an actual pitch angle of the fuselage reference line of 18.6 degrees.

With the fuel selector in OFF, the fuel line was removed from the carburetor. A 90 degree fitting of the same size as the fuel lines (3/8 inch) was attached to the fuel line to turn the fuel flow in the desired direction. This fitting was tied to the carburetor so that the measured flow would be at the proper height. As stated in *Firewall Forward*, "open end must be at the same level as carburetor inlet." If the tube is continued downhill, the siphoning effect will artificially increase the fuel flow, yielding an invalid test.

To catch the fuel and direct it to a suitable container, a funnel and hose were used, which our balmy **Kommandant** immediately labeled a "beer bong". (*An investigation has been started to search for evidence in the Kommandant's past that would explain why he was so familiar with this concept*) The outlet of the funnel was 1/2 inch in diameter, and the tube had an inside diameter of 1 inch (chosen because it fit on the funnel the best). The funnel was chosen to have an outlet larger than the fuel lines to ensure the fuel would not back up in the funnel and possibly overflow, not only making a hazardous mess, but also invalidating the experiment.

The tube was pushed onto the funnel and held in place with the homebuilder's best friend, namely **duct tape**.

Holes were drilled near the top of the funnel to tie it up under the fuel line. I used avionics lacing cord because I had a lot of it left over. Any suitable string, cord, or wire could be used.

The tubing was almost too large to fit into the gas container, but it did fit. The stiffness and curvature of the tube would not let the gas container sit squarely on the floor, so a Gas Container Stabilizing System (GCSS) was rapidly conceived and assembled, as expertly pointed out on the following page.

After the test was completed, the pitch angle was checked again to determine if the cranes had leaked down significantly. Strangely enough, the pitch angle had increased (!) by 0.1 degree. This was suspected to be because of the reduced weight (unlikely) or experimental uncertainty (more likely).

The first funnel picture shows the fuel flowing during a test.

The calculations of fuel flow are summarized in Table 1.

All gravity modes (fuel pump OFF) fell well short of the required fuel flow. This is assuming that no fuel pump is used at all, including an engine driven fuel pump.

With the electric fuel pump (Facet 40108) ON, the fuel flow requirement was less, but, as expected, the fuel flow was greater. In this case, the flow was 6.9 gallons per hour over the requirement.

The fuel flow with the fuel selector in LEFT or RIGHT was slightly less than in BOTH. Either tank individually supplied sufficient fuel flow for cruise flight.

Lowering the fuselage was done with great care, realizing that hydraulic jacks are difficult to lower in a controlled fashion and go from not moving to moving too fast with a very small rotation of the relief valve. The objective was to bring both cranes down simultaneously keeping the wings more or less level. The aircraft was successfully lowered to the ground with no damage.

Analysis:

The climb angle simulated in this test was rather extreme, simulating approximately best rate or angle of climb performance. This sort of climb would most likely be used for obstacle clearance on takeoff or for getting to pattern altitude rapidly. In both cases, this attitude would only be maintained for short durations. Due to the low airspeed (60 KCAS), it is very likely that engine cooling would be insufficient for the high power setting. Engine cooling requirements would drive a faster airspeed and thus lower pitch angle, resulting in higher fuel pressure and thus higher fuel flow.

The fuel in the carburetor bowl would keep the engine running for a little while, but without a fuel pump at high fuel flow rates would empty rapidly. The issue at hand is not a fuel stoppage, but insufficient fuel flow. Without a fuel pump, the fuel that was flowing would continue to enter the engine, but the insufficient flow rate would result in a leaning of the mixture. This leaning would become apparent to the pilot by a reduction in power or an increase in engine roughness. While not tested, it is suspected that this reduction in power would last long enough to get the pilot's attention before the mixture might become too lean to run. The pilot's first response to any loss of engine power should be to lower the nose and establish a glide. If the problem was caused by insufficient fuel flow, the additional pressure head (height of the fuel above the carburetor) resulting from pitching down would likely increase the fuel pressure and fuel flow, thus solving the problem. The climb could then be continued at a lower pitch angle.

The test condition was for the maximum fuel flow at sea level. As the altitude increases, the density of the air decreases, thus reducing the amount of air that can be pulled through the carburetor. The fuel flow is then reduced in the same proportion as the air flow to keep the mixture constant. However, the maximum fuel flow for a given pitch angle is independent of altitude, so the ability of the fuel system to provide the required fuel flow increases as the altitude increases.

Smaller engines, such as the O-360, will have correspondingly lower fuel flow requirements.

Based on the fuel flow results, the estimated fuel flow for other pitch attitudes was calculated for full and empty tanks. The estimates shown in Table 2 are all for the fuel selector in BOTH and the fuel pump OFF.

As shown in Table 2, the available fuel flow increases rapidly as the pitch angle is reduced. The ground attitude is more representative of a sustainable climb angle for sufficient engine cooling. The level (cruise) attitude shows an available fuel flow well in excess of even the full power requirements.

Good airmanship would make it unreasonable to intentionally takeoff with only three gallons in each tank, other than perhaps in an emergency. It is possible that a

Table 1. Fuel Flow Results

Fuel Selector Position	Fuel Pump	Initial Fuel Quantity in Tank(s) (gallons)	Fuel Flow (pounds/min)	Fuel Flow (gallons/hour)	Requirement (gallons/hour)	Margin (gallons/hour)
BOTH	OFF	3/3	1.74	17.4	38.0 (150%)	-20.5
BOTH	ON	2.85/2.85	3.85	38.5	31.6 (125%)	6.9
LEFT	OFF	2.53	1.50	15.0	38.0 (150%)	-23.0
RIGHT	OFF	2.53	1.46	14.6	38.0 (150%)	-23.3

Table 2. Fuel Flow Predictions for Different Pitch Attitudes and Fuel States

Pitch Attitude	Pitch Angle (deg)	Fuel Quantity	Pressure Head (inches)	Fuel Flow (gallons/hour)
Climb	18.4	Empty	10.7	17.4
Climb	18.4	Full	23.5	25.7
Ground	12	Empty	19.6	23.5
Ground	12	Full	30.2	29.2
Level	0	Empty	34.9	31.4
Level	0	Full	41.4	34.2

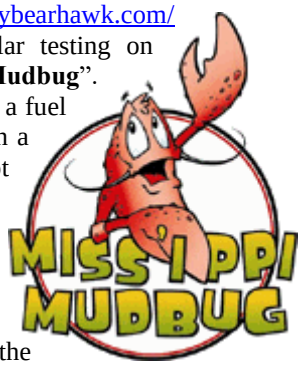
pilot would be called upon to go around after a failed approach with this low a fuel state. However, in this case there is most likely no reason to be climbing at extreme attitudes. Additionally, if a Bearhawk can fly with a 180 HP engine, then it is not necessarily required to climb out with full power from a 260 HP engine, again reducing the fuel flow requirements.

In any case, the tests demonstrated that sufficient fuel flow was available for full power operation of a 260 HP Lycoming O-540 at any achievable attitude with the fuel pump ON. Similar results would be expected using an engine-driven fuel pump. The fuel pump creates a lower pressure at its inlet, creating a greater pressure differential between the tank and the pump, thus increasing the fuel flow. **Turn the fuel pump ON during high power operation, such as takeoff and climb, or install an engine driven pump. (R1)**

As installed, operation of the electric fuel pump could be monitored by observing the fuel pressure on the EDM-900. With the fuel pump ON, the fuel pressure would be about 5 to 7 psi. With the fuel pump failed or OFF, the fuel pressure would show 0 to 1 psi. If the fuel pump has failed, the airplane can still be operated, but with less margin on the available fuel flow. The risk could be mitigated by using lower power settings and avoiding extreme climb angles. The pilot should also be more aware of indications of engine power loss.

Additional Testing:

Eric Newton of http://mybearhawk.com/ was concurrently doing similar testing on Bearhawk #682 "**Miss'ippi Mudbug**". His fuel system also contained a fuel flow sensor intended for use in a gravity system, but did not include a fuel pump or check valve. Eric was getting similar results. However, he tested with and without the fuel flow sensor in the line. Without the fuel flow sensor the flow rate increased by 10 gallons per hour. Calculations estimated that the pressure drop through the fuel flow sensor was 0.4 pounds per square inch (psi), which was consistent with claims made by the sensor manufacturers. Assuming that the fuel systems were otherwise identical, an additional 0.6 gallons per hour could be attributed to the check valve, although this was probably within the limits of experimental uncertainty.



It would appear that the Bearhawk fuel system as designed is sufficient for the requirements of an O-540. However, the addition of a fuel flow sensor will noticeably degrade the fuel flow available. The loss of fuel flow from the sensor can be offset by the inclusion of a fuel pump, either electric or engine-driven. The fuel pump would only be required for high power settings, such as takeoff and climb. The fuel flow available without the fuel pump was sufficient for cruise power settings.

Conclusions

The fuel flow available was sufficient for high power settings and extreme pitch attitudes with the electric fuel pump ON, and was not sufficient with the electric fuel pump OFF. Estimates based on the test results predicted that sufficient fuel flow will be available at long-term sustainable pitch attitudes and cruise flight with the fuel pump OFF.

Recommendation

Turn the fuel pump ON during high power operation, such as takeoff and climb. (R1)

For Sale

A friend of mine, Al, is needing help in selling his ***1999 Seawind Amphibian*** due to a severe medical condition that is threatening his life. Because of expensive medical bills, Al is desperate for money and letting go of his beloved aircraft that he has spent nine years building is a last resort.

The Seawind is in mint condition. Only 58 hours on both the airframe and engine. Fully loaded and has been in a hangar from the beginning in Phoenix, Arizona (Deer Valley Airport – DVT). Upon request, I can provide complete specs.

Even though Al has put over $400,000 into the aircraft, he is willing to let it go to the ***"best reasonable offer"***.

Please pass this e-mail on to your membership to see if there is anyone that might be interested. If so, my contact info is below.

Thank you for your help.

Best Regards,

Dave Lanman Ph: (602) 432-8356 dwlanman@cox.net

Web Site Update

As of 5 April 2008, the hit counter showed **120741**, for a hit rate of 17 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 22: EAA Chapter 1000 Cookout with USAF Academy Cadets, 6:30 p.m., High Cay, 4431 Knox Ave, Rosamond CA. (661) 609-0942

Apr 25: EAA Chapter 1000 Cookout with USAF Academy Cadets, 5:00 p.m., Edwards AFB. USAF Test Pilot School, Rick Husband Lounge. (661) 609-0942

May 6: EAA Chapter 49 Monthly Meeting, 7:00 p.m., General William J. Fox Field, Lancaster, CA. (661) 948-0646

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

May 17: Seventeenth Annual Scotty Horowitz Going Away Fly-In, Rosamond Skypark (L00), Rosamond CA. (661) 256-3806

May 20: NO EAA Chapter 1000 Monthly Meeting. That's why you went to the fly-in above.

Jun 6-8: Golden West Fly-in, Yuba County Airport (MYV).

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

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

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

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

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

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

Jul 28 – Aug 3: EAA AirVenture Oshkosh http://www.airventure.org

Aug 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, 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:
President/Flight Advisor Gary Aldrich: gary.aldrich@pobox.com
Vice President Scott Weathers: Scott.Weathers@edwards.af.mil
Secretary Kent Troxel: kenttroxel@sbcglobal.net
Treasurer Doug Dodson: houdu@pobox.com
Technical Counselors: Gary Sobek Gary@rvdar.com
Bill Irvine wgirvine@yahoo.com

EAA Chapter 1000 Technical Assistants

Composite Construction		
Doug Dodson	douglas.dodson@pobox.com	661-256-7276
George Gennuso	pulsar1@sbcglobal.net	661-265-0333
Brian Martinez	brianmmartinez@aol.com	661-943-5379
Bob Waldmiller	waldmilr@qnet.com	661-256-0932
Wood Construction		
Bob Waldmiller	waldmilr@qnet.com	661-256-0932
Aluminum Sheet Metal Construction		
Bill Irvine	wgirvine@yahoo.com	661-948-9310
Miles Bowen	cessna170bdriver@yahoo.com	661-822-0806
Russ Erb	erbman@pobox.com	661-256-3806
Welding/Welded Steel Tube Construction		
Russ Erb	erbman@pobox.com	661-256-3806
Engine Installation		
Bob Waldmiller	waldmilr@qnet.com	661-256-0932
Doug Dodson	douglas.dodson@pobox.com	661-256-7276
Electrical Systems		
Miles Bowen	cessna170bdriver@yahoo.com	661-822-0806
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, 661-256-3806, 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:
USAFA CADET COOKOUTS 22, 25 APR
PANCHO BARNES FILM REVIEW
ALUMINUM OVERCAST INITIAL REPORT
BEARHAWK FUEL FLOW TEST RESULTS

EAA™
The Leader In Recreational Aviation