



# THE LEADING EDGE

## NEWSLETTER OF MUROC EAA CHAPTER 1000

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

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*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:



### Cookout with the USAF Academy Cadets

**Tuesday, 18 November 2008**  
**1830 hrs (6:30 PM Civilian Time)**  
**High Cay Partyhaus**  
**Rosamond, CA**

Fellow Zeros of Chapter 1K,

Our November meeting is a real party. Of course, you're asking yourself, "What on Earth (aka Ground) can he mean!? Every Chapter 1000 meeting is a party of sorts." And, right you are. But, this one is a real party – with guests and everything. Our chapter will once again host the visiting class of **Aeronautical Engineering 456** from the Air Force Academy. We will surely dazzle these young men and women with our harrowing tales of snatching defeat from the jaws of certain death. We will regale them with how we pushed the envelope, prodding the corners until we left it bruised and bleeding. The blessed event will occur at **High Cay on Tuesday, 18 Nov 08 at 1830.**

Bring your best flight test (or, just flight) stories. Remember, the best stories begin with the phrase, "There I was..." All tales of stratospheric adventures should, but are not required to contain at least six percent truth

(marked down from the usual 10 percent, this week only). Bring your stories and an appetite. The chapter is providing a veritable feast of 30mm steak, ground cow, and the standard fare typically associated therewith.

- **Scott "Stormy" Weathers**  
 Vice Kommandant

### Last Month's Meeting

**EAA Chapter 1000**  
 USAF Test Pilot School  
 Edwards AFB CA  
 21 October 2008  
**Gary Aldrich**, Presiding

The Chapter 1000 meeting was held at Edwards AFB Test Pilot School with 13 in attendance.

The usual chips, salsa, C<sup>3</sup>'s and sodas were enjoyed by all prior to the evening's featured speakers. It was during this socialization that **Stormy** revealed he suffers from **Nav Aids**, which is a form of sick Navigator humor.

The meeting was conducted in the **MOL Room**, named after the **Air Force Manned Orbiting Laboratory** program, which like the **X-20 Dyna-Soar** program never reached fruition.

The newsletter billed the event as "**Doug Dodson and Kommandant Gary Aldrich** will jointly lead a discussion on how to prepare for the first flight of a homebuilt aircraft". But instead, everyone was **blind-sided** by an unannounced and absolutely unwarranted audience participation requirement. **Doug** handed out a list of tasks which might be performed on a first flight, asking each individual to sequence them.

A group **vocabulation** followed, the purpose of which was to achieve a consensus on the appropriate tasking and sequence. Each person was encouraged to offer up their version and explain their rationale, after which they were **publicly ridiculed**. The **Kommandant** sat at the end of the table and glibly quoted from 1) the FAA Advisory Circular 90-89A Amateur-Built Aircraft and Ultralight Flight Testing Handbook (5/24/95), and 2) the EAA Flight Advisory Handbook (5/8/95) as required.

The presentation concluded with the **Kommandant's Powerpoint**<sup>®</sup> presentation on the USAF TPS approach to

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first flights, which follows the mantra: Predict, Test, and Validate using a Build-Up approach.

Actually, **Doug** and **Gary** did a first rate job leading a lively discussion in which no one's ancestry was seriously questioned. Upon reflection, this should not be surprising (them doing a good job, not the part about questioning everyone's ancestry, that WAS a surprise) as these two gents are TPS graduates. All in all there were five TPS graduates in the discussion, including a former TPS Commandant. So, as you might imagine, there was a lot of technical crap that none of the rest of us understood or remotely cared about.

Now, as I am NOT a TPS graduate, I have attempted to summarize the litany of technical information presented on first flight planning and translate it into English:

1. Engage the rotary enturbulator (start engine) [credited to the **Vice Kommandant**]
2. Taxi for takeoff. Use sufficient power to jump chocks as required.
3. Take-off. Avoid "intentional dishandling" of the aircraft. [credited to **JD3**]
4. Do not crash.
5. If you have to crash, avoid killing yourself.
6. Concentrate on getting away from the ground.
7. Once you have achieved a reasonably safe altitude, fly around long enough to justify the time and money you invested in your aircraft.
8. Be sure to continue compliance with steps 4 and 5.
9. Prior to fuel starvation, land the aircraft, avoiding a premature or uncontrolled impact with the ground. This should be the flight's primary objective. The secondary objective is to avoid hitting the chase plane and to get cool pictures.
10. Repeat steps 4 and 5. Do not attempt a Hollywood photo op by making a low-level, high-speed pass with high G pull-up. "Don't shine your ass". [credited to **JD3**]
11. Congratulate self on successful first flight by consuming mass quantities of beer. Embellish story each time repeated. Gracefully accept beer from any and all who offer congratulations as tribute to your obvious courage and aviatory skills.

Please, no letters thanking me for this. I do this stuff as a public service.

While there was no actual statement or declaration of **Victory!** by the **Kommandant**, everyone nonetheless disbanded in an orderly fashion and reconvened at the **BK Lounge** to **carnivorate** and **commiserate**, sometimes simultaneously.

Kent "Cobra" Troxel  
Minister of Propaganda



## Kommandant's Korner

**ATTENTION AMERICA AND ALL THE SHIPS AT SEA!!!!!!** This is "Scoop" **Aldrich**



reporting from the **San**

**Jose Convention Center** where

there has been a serious outbreak of the dreaded "**Gadgetosis Nervosa**". To **Jane** and **Johnny Sixpack** this may not be news, but to the likes of the "in-the-know" **Project Police Troopers** of **Chapter 1000**, this could only mean one thing...the **Kommandant** has dropped serious coin on some new **gizmo**. We all saw him imperceptibly twitch when **Houdu** was touting his victorious return from parts-East under the watchful weather-eye of a **Garmin GPS 496**. Then, when forced to checkout in the **G1000**-equipped **Super Skyhawk** at the Aeroclub by his **merciless military masters** he was seen to visibly tremble. The wounds of the drubbing he received in the **2006 AirVenture retaliatory-shopping wars** were still stinging. Well, the recent (like yesterday) release of **Garmin's** new eye-magnet, the **GPSMap 696** put the old guy over the edge. Smug in the perception that he had avoided **Garmin fever** by skipping the purchase of the 596 (which, we all know never existed), he strode confidently up to the **Pacific-Coast Avionics** Booth at the AOPA Convention and announced his intention



to purchase. A hush fell over the crowd as the haggling began. The poor salesman was no match for the seasoned avionics shopper and quickly succumbed to the relentless assault. A cheer broke out on the EXPO floor when the deal was done and the legendary **Skywagon** pilot flashed his **VISA**. The beaten clerk allowed as how the **Kommandant** had secured the **last** blue and white box of **Garmin candy** to be had at the show. The ladies wept and the lesser men bowed their heads as the victorious **PPTAF Trooper** melted back into the crowd...eager to juice the battery and activate the XM subscription. Look for a review of the new toy in coming months in these pages.

Speaking of the EXPO, it turned out that running late was the key to success in obtaining a prime parking space at **SJC**. A slow fuel truck at **WJF** pushed the departure of the **Fightin' Skywagon** to nearly 1700L. This meant that chances of making the last AOPA shuttle to the EXPO/Hilton were remote. After a beautiful sunset and glass-smooth ride to the Bay Area, I checked in with **NORCAL Approach** to hear that it was my lucky day and that the AOPA parking had been re-opened after having been max'ed out all day. That good news was enhanced by the fact that the linemen were packing up to leave when

they saw the **VC-180** on the taxiway and decided to “park one more guy”. They also told us that they had sent 200 planes to Reid-Hillview (RHV) that afternoon for overflow parking. The fine folks at **Atlantic Aviation** gave us a ride to the Hilton where we gratefully checked into our room for the much-needed **pre-shopping rest**. From the crowd on the exhibit floor, it appears that this segment of the economy may not be suffering all that badly...yet. Other features of the exhibit hall included a nice mockup of the **SkyCatcher**, the **Cirrus Vision**, and the **PiperJet** (Mrs. **Kommandant's** favorite because of its nicely enclosed potty.) Of course, there was the usual smattering of **Cirri** and **Cessna 400** (*nee Columbia*) cockpits to drool over. I'd report on the aircraft display at SJC here, but **E<sup>2</sup>Z** threatened me with bodily harm if I didn't get this on the wire this evening. Catch me at the next meeting (*uh...don't. He'll be at the SFTE Symposium with Erbman, Stormy, and Vanhoy. Maybe he'll show it at Festivus*) and we'll discuss what I found out while walking the ramp.

Looks like we've just about burned through another year. That means that **Festivus** is a-comin'! **Mrs. Kommandant** and I will be hosting the event again at the world headquarters of **ABA Communications**. We're planning on having the party on the usual meeting Tuesday, so mark your calendars or fat-finger it into Outlook, or whatever you do to manage your lives. You'll also be needing to think of a suitable “gift” for the **Kommandant's Krap** exchange. Looking forward to seeing you at the Pole airing those grievances.

Fly Safe, stay warm and dry,

- Gary Aldrich  
Kommanding

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## The (Non-)Joys of Sandblasting

### To Get This Out Of The Way

Let's just say this right up front: Sandblasting sux. Or you could say it blows. Either way, it's not enjoyable. I'm pretty sure that **Bill Irvine** will agree with me on this one.

### So Why Would I Want To Sandblast?

Sandblasting is the easiest way to remove schmutz from irregular surfaces, such as welded clusters or other places not accessible with sandpaper. It will remove glaze, mill scale, welding slag, and old paint right down to the parent metal. Sandblasting will put a wonderfully textured surface on steel that primer has an incredible affinity for. The surface is sufficiently rough for the primer to grip but not so rough as to make the eventual finish rough.

As far as I know, sandblasting is not suitable for use on aluminum, as it may embed foreign particles that will lead to corrosion. If you know different, submit your rebuttal to [eez@pobox.com](mailto:eez@pobox.com).

### Types of Sandblasters

In general, sandblasters fall into two types, suction or pressure. The suction sandblaster is used for lighter duty jobs and is typically cheaper to buy. In my experience,

they can also be more finicky in operation. Operation is similar to an atomizer or suction paint gun. High pressure air flowing through the gun at high velocity creates an area of low pressure. This low pressure draws additional air up the sand delivery tube, entering the tube through a hole in the tube where it connects to the sand hopper. Sand flows out of the hopper into the tube and is entrained in the air flow up to the gun. Eventually the sand enters the high speed air flow at the gun and is propelled at high speed toward the work piece.



If the sand has any moisture in it at all, it won't flow out of the hopper into the tube. Sometimes it helps to shake the hopper to loosen up the sand. The top of the hopper is typically open, so it really isn't a good place to store the sand. Sand flow up the hose is not as reliable because the airspeed in the hose is less because of the smaller pressure differential.

While the suction sandblasters are typically much cheaper than pressure blasters, I can't recommend them for anything other than small, light jobs.

The better way to go for jobs of any magnitude is a pressure blaster. It has many advantages over the suction model, primarily providing a more reliable and consistent flow of sand. According to the one source, it gives 30% more blasting power than siphon units. I'm not really sure what the units of “blasting power” are. Since the tank is sealed so that it can be pressurized, it also keeps the sand dry.



The sandblaster has four ball valves on it. The first ball valve will shut off all air pressure to the unit. When this valve is opened, the sand tank is pressurized, but nothing else happens. The next ball valve allows air pressure into the blasting hose, which runs by the bottom of the tank. The next ball valve is at the bottom of the tank and controls the sand flow rate. The final ball valve is at the end of the hose, just before the nozzle. The nozzle is ceramic. Nozzles come a bunch to a package, and can be easily replaced, although I don't remember ever wearing one out.

My pressure sandblaster also came with an air filter/water trap to dry the air and keep the sand dry. I used this in addition to an air filter/water trap near the compressor.

So what is the benefit of pressurizing the sand hopper? The delivery of sand is more reliable by dropping the sand directly into the high pressure stream of air. However, if the sand hopper were open to atmospheric pressure, the high pressure air would blow into the hopper instead of the sand falling into the air stream. By pressurizing the hopper, the sand has the same pressure on top as on the

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bottom, and thus flows freely into the high pressure stream of air.

### Air Compressor Requirements

My pressure sandblaster is the 40 lb model from Harbor Freight, item number 34202. According to the Harbor Freight web site, this compressor requires “6-25 scfm @ 60-125 psi.” Well, that’s real helpful, since it’s not clear if it is 6 scfm @ 60 psi or 6 scfm @ 125 psi, which are very different things.

Before we go on, just what is a “scfm”? The acronym stands for “standard cubic feet per minute” and is a measure of mass flow posing as a volumetric flow rate. One scfm is one cubic foot of air when measured at standard pressure and temperature (usually one atmosphere and room temperature, but the standard varies based on who is defining it) flowing past a point in one minute. At a pressure of 6 atmospheres (88.2 psi) and standard temperature, a standard cubic foot has the same mass, but is squished into 1/6 the volume. You could also say that the density was 6 times higher, but that’s not important now.

I have two air compressors plumbed together to drive the sandblaster. Each compressor has a rated capacity of 8.6 scfm @ 40 psi or 6.4 scfm @ 90 psi. The last time I used the sandblaster, it had stabilized at 35 psi after running for five minutes or so. Therefore, I’m assuming it is using slightly more than 17.2 scfm @ 35 psi. At 35 psi the performance of the sandblaster was still adequate. That’s more than the rating on **Houdu’s** hangar compressor. Even **Bill Irvine’s** compressor is rated at a lower number than 17.2 scfm, but it was at 90 psi, so it may be able to keep up with this sandblaster.

### Blasting Materials

Strictly speaking, “sand blasting” is more appropriately called “media blasting” since other abrasives can be used besides sand. **Bill Irvine** can tell us about some more exotic types of media that he has tried, but he’ll have to write his own article for that (*said article has been pre-approved by Evil Editor Zurg*). For the purposes of this article, we’re looking at media suitable for removing rust, scale, and preparing steel for painting.

There are a lot of options available for blasting media, and every one of them has serious drawbacks with regards to the health of an unprotected operator. The reference for this section is <http://toxsci.oxfordjournals.org/cgi/content/full/61/1/135> , *Comparative Pulmonary Toxicity of 6 Abrasive Blasting Agents*. Fair warning: This paper is published by the Society of Toxicology, which means it is written by medical doctors for medical doctors. I’ll do my best to interpret their conclusions for you. Hopefully **Doc Coussens** will correct me if I get it wrong.

The media I used was **Silica Sand**. This is what **Karl’s Hardware** sold me when I asked for sand blasting media. Oddly enough, the bags were clearly marked “NOT TO BE USED FOR SAND BLASTING” in large, unfriendly letters, which makes me wonder exactly what was it being marketed for. It’s not topsoil and it’s not

playground sand. I suspect that the bags were labeled that way to limit liability.

So what’s the big deal? According to the article above, “Sand with a high crystalline silica content has been used for abrasive blasting (sandblasting) for many years. Unfortunately, during the blasting process, silica sand fractures into small respirable particles that are associated with worker morbidity and mortality due to a progressive lung disease known as **silicosis**.” From the American Heritage® Dictionary of the English Language, silicosis is defined as “A disease of the lungs caused by continued inhalation of the dust of siliceous minerals and characterized by progressive fibrosis and a chronic shortness of breath.” Sounds nasty. Even before sandblasting, silicosis was a serious problem for stonecutters.

A common approach to attempt to avoid silicosis is to use another media that doesn’t contain “siliceous minerals”. Apparently it was assumed that “no silica, no silicosis.” Of course, nobody seemed to ask if there would be any other problems until the above listed publication. As it says, “One approach to the problem of lung disease in the abrasive blasting industry is the replacement of sand with safer abrasive blasting agents. Although sand is the most popular abrasive blasting agent, a number of substitutes for sand are in current use. A 1992 survey reported that **coal slag** was the most frequently used of these substitutes. Unfortunately, the toxicity of most commercially available substitutes is incompletely investigated. In this study, we examined pulmonary alterations in rats 4 weeks after intratracheal instillation of respirable fractions of blasting sand or 5 abrasive blasting substitutes: **coal slag, garnet, specular hematite, staurolite, or treated sand** (blasting sand coated with a dust suppressant). The toxicity of these abrasive blasting substitutes was compared to the toxicity of blasting sand and to the pulmonary response to the instillation of the vehicle, phosphate-buffered saline.”

If I understood that right, they took the resulting dust from blasting various media, put it in the lungs of lab rats, and waited to see what diseases the rats developed.

From the abstract, the summary of results was “Blasting sand caused lung damage and showed histologic evidence for inflammation and fibrosis.” (*as expected*) “Garnet, staurolite, and treated sand exhibited toxicity and inflammation that were similar to blasting sand, **while coal slag caused greater pulmonary damage and inflammation than blasting sand**. In contrast, specular hematite did not significantly elevate LDH or PMN levels and did not stimulate macrophage activity 4 weeks postexposure.” (*emphasis added*) As I read that, **any blasting media (with the possible exception of specular hematite (fancy rust)) is hazardous to your lungs**. Go read the paper yourself if that isn’t enough for you.

### Respiratory and Bodily Protection

So if you’re screwed regardless of what media you choose, and the popular “safer” alternative is actually more dangerous than what it replaces, what do you do? My solution was simple—just make sure you don’t breath in any of the media dust. That’s it. How tough could it be?

One option is to simply use a cartridge respirator. That protects your lungs but not your eyeballs. The common solution to that is to wear a sandblasting hood. The Harbor Freight version is a standard plastic hard hat covered with a heavy canvas hood that covers your entire head and has a little plastic window in the front that quickly clouds from being hit by sand ricochets. The plastic is easily replaceable, but I don't know of a source for pre-cut pieces of clear plastic. I originally wore one of these with a respirator underneath. It worked adequately, but was exceptionally hot to use.

What I found I liked better was to use a HobbyAir Forced Air Respirator System with the Full-Face Mask. This is the same mask that I use when spraying isocyanates, which are also toxic if inhaled. This solved several problems, the biggest being providing clean air without any of the media dust. The mask also provides eye protection, and the easily replaced plastic lens covers solve the problem of lens damage from sand ricochets. Finally, the cool air from the air pump does a great job of cooling the face, which significantly helps in keeping the rest of the head cool. While the full face mask worked adequately for the amount of sandblasting I had to do, Axis Products also sells the 88VX Air Supplied Sandblast Hood. While this hood may be more appropriate for sandblasting, it has the downside of costing \$595, more than twice the cost of the full face mask.

Besides protecting the lungs and eyeballs, the rest of the operator should be protected. The hands can be protected by heavy leather work gloves. With all of that sand flying around, it's going to get all over you body, or at least try. Therefore, I wear the same Dupont Tyvek® coveralls that I use for painting. For those of you who don't have the September 2007 issue of *The Leading Edge* in your "favorites", they are available from McMaster-Carr (<http://www.mcmaster.com>). as the "Deluxe Coverall" (part number 5231T39, \$7.56 each) and include a hood and feet (shoe covers). The top of catalog page 1746 has a table of sizing guidelines based on height and weight.

One of the real issues with all of this protection is heat rejection. Think of it as wearing your parka during the summer. You wouldn't think that a thin sheet of Tyvek would provide significant insulation, and it doesn't. However, the air that is trapped between the Tyvek and your body does form a significant insulating layer. As a result, it is easy to get hot while sandblasting at otherwise comfortable temperatures. The only solution I've found is simply to dress lightly underneath the coveralls. I'll leave it at that, which is already dangerously close to an overshare. I mention it just so you'll think about it as you are preparing for your sandblasting.

### Operating Your Sandblaster

One of the first things I discovered about my sandblaster was that the 60 grit sand I was using was too coarse to flow through the "fine" nozzle that came with the sandblaster. I had to replace it with a "coarse" nozzle from Harbor Freight.

The sandblaster came with a large funnel for loading sand. If I just stuck the funnel in the top of the hopper, it would seal itself around the loading hole. I was concerned

that if I loaded it up with sand, the flow would stop or slow way down because the air inside could not escape. My solution was to bend a welding rod (or any other wire) more than 90 degrees and stick one end in the filler hole, then put the funnel in the hole. The wire keeps the funnel from sealing against the hole and leaves space for the air to escape.

To fire up the sandblaster, start out with all of the ball valves closed. Open fully the valve closest to the air hose which pressurizes sand hopper. Next, open fully the ball valve on the back of the sandblaster which pressurizes the hose. Then open fully the ball valve at the nozzle at the end of the hose. At this point, mass quantities of air are blowing out of the hose, but no sand. Finally, open the ball valve at the bottom of the sand hopper just enough to get a useable flow of sand out of the nozzle. If you open the valve too much, you will get too much sand in the hose and it won't accelerate up to full speed at the nozzle (and you'll use up your sand faster).

Use the valve at the bottom of the hopper to regulate the flow of sand. The sand flows through this valve slowly so there is minimal wear on the valve. If you try to control it with the valve at the nozzle, the sand passing through the valve will quickly wear it away and it will no longer seal. I only move the nozzle valve when no sand is flowing. Stop the sand flow first at the bottom of the hopper before stopping the air flow at the nozzle. If you just close the nozzle valve, sand will continue to flow until it fills up part of the hose, which will give you a big slug of sand when you reopen the nozzle valve.

### The Myth of Reusability

Finally, don't count on recycling your sand and using it over and over. I tried that—it didn't work. As mentioned above, when the sand hits the steel at high speed, much of it fractures into smaller particles, much like breaking a rock by throwing it against something, only this rock is really, really small. The really fine dust will float away or go out your exhaust fan. The rest will eventually take on the consistency of talcum powder, which doesn't make for very good abrasives.

One final reason I like using sand instead of any of the alternatives—I can do this in my driveway and the remains just blow away and become one again with the environment. No cleanup required.

### Special Deal for Project Police Officers

For those of you operating near the primary bases of operation for EAA Chapter 1000 who might find yourself in need of a sandblaster, call **Erbman** to see if you can arrange to borrow mine. You might even convince me to loan you a compressor to augment yours while operating it.

- Erbman

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### Project Police Officer Wins OLC World Championship

**Jim Payne**, a glider pilot from **Rosamond, California**, won the **2008 Aerokurier Online Soaring**

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**Contest.** Jim outscored 10,981 pilots in this year-long contest to become the 2008 OLC World Champion. The contest scores each pilot's six longest flights adjusted for the performance of the sailplane.

Jim's top six flights totaled 9,170 kilometers (5,697 miles) for an average of 1,528 km (949 miles) per flight. His longest flight was 1,795 km (1,115 miles). Total flight time for the flights was 62.9 hours.

All the flights originated with a tow by a Cessna 182 from **Rosamond Skypark**, California. Five of the flights used mountain wave which occurs when strong winds spill over a mountain range. The Sierra Nevada mountains between Mojave and Reno generate excellent waves. The sixth flight was flown using thermals which are rising columns of air that occur due to the heating of the earth.

Five of the flights were flown in an ASW-27, a single-seat racing sailplane with a 15-meter (49 foot) wing span. The sixth was flown in an ASH-25, a two-seat racing sailplane with a 25-meter (82 foot) wing span.

Jim learned to soar at the United States Air Force Academy in 1971. A retired Air Force test pilot, he has logged over 9,000 flight hours including over 4,700 glider hours. He holds the fastest U.S. glider speed record at 167 miles per hour for a flight from Inyokern to Big Pine, California, and return. The FAA has awarded him a top ten flight of the year on three occasions. He currently is Northrop Grumman Flight Test Manager for Global Hawk at Edwards AFB.

Scores are listed at:

<http://www3.onlinecontest.org/olc-2.0/gliding/getScoring.html?scoringId=2>

Maps and other details are available at this web site.

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### New Av-Fuel Could Save General Aviation Engines

Jon Ziulkowski is in Berlin, Germany, this week touting a new, renewable fuel that could turn the general aviation world on its heels.

Ziulkowski, 23, is a 2003 graduate of Portage High School and 2007 graduate of Purdue University in aviation technology. He has been working for Swift Enterprises Ltd. of West Lafayette as its chief corporate pilot and aviation fuels principal investigator on the SwiftFuels project. Federal Aviation Administration approval of the project is pending.

The new fuel, which Ziulkowski described as containing no petroleum and is 100 percent bio-derived, will be unveiled at the Berlin International Air Show.

The new fuel, if approved, could replace today's general aviation fuel for small aircraft, said Ziulkowski.

When Ziulkowski, who also is studying for his master's degree in aviation technology/alternative fuels, was hired as a corporate pilot by Swift more than three years ago, officials told him he needed to take on a project.

"I said it would be nice to come up with an alternative fuel," he said.

Today's general aviation fuel is a lead-based petroleum product. The FAA has continuously extended deadlines for replacing the fuel with the next expiring in 2010. Without

developing a new fuel, said Ziulkowski, small aircraft could be grounded.

Ziulkowski said the Swift team worked trial and error coming up with a new formula until it got to what it believes is the perfect blend of components. The new fuel is not ethanol based, he said, but can use a variety of biomass products - from sugar to corn to sawdust - in its production depending on where it is produced. The finished product meets nearly all criteria for general aviation fuel, is more efficient and less costly to produce. It also cuts emissions.

The company, which works from the Purdue Research Park, is in the process of constructing a pilot plant in Delphi which could produce 2,000 gallons per day of the new fuel.

The SwiftFuels formula will be tested by the FAA William J. Hughes Technical Center in New Jersey and two engine and two small plane manufacturers before it receives approval. Ziulkowski said the approval could come quickly as there are no other proposed fuel alternatives "waiting in line for testing."

The significance of the development, said Ziulkowski, is multifold. Initially, if approved, he said it could "save general aviation and aviation in general."

Without the development of a new fuel before the FAA deadline, light aircraft could be forced to stop flying, he said.

There also can be long-term significance to the project. By altering some of the components, the new fuel could be extended for use in jet airplanes as well as diesel-powered vehicles. Ziulkowski said researchers also can make an 87 octane fuel suitable for cars.

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Northwest Indiana Times 05/31/2008

Author: Joyce Russell

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### New Member

The **Project Police** are excited to welcome **Lyn "Sweet Cheeks" McNeely** to our fold. Former Vice Kommandant **George Gennuso** was especially excited at the prospects for fun screaming her "call sign" across a crowded room (*I tried it in the parking lot—it was indeed fun!*).

Lyn is another one of those USAF TPS Flight Test Engineer graduates (93A) that we seem to have so many of in the **Project Police**. With over 1000 hours of flight under her...uh...flight suit Velcro straps, she retired from the USAF as a Lt Col. Initially she went to work as a C-17 FTE at the 418<sup>th</sup> FLTS where she taught **Stormy** the ropes of Test Conducting. Recently she moved to the USAF TPS staff as a Test Management Master Instructor, which located her in the same room with the **Kommandant** and **Erbman**. Unable to resist the great sucking sound, she quickly succumbed to the lure of the **Project Police** and signed up with EAA. Rumor has it she would like to build a Van's RV of her own someday and work on airplane and glider pilot certificates.

### Eating the Project Elephant

*(Written in response to a builder considering abandoning his project)*

If you're reading this, sit your project in a corner, cover all but one piece of it with a tarp and absolutely do not look at any more of it than that one piece.

The telling comment in your writings was that "...I crave to create things..." However, you did two things one should never do as part of the creative process, 1. You tried to come up with a rational reason to do it, when creating is a reason in itself, and 2. You started looking down the road looking for a completion date as if the completed project was the reason for creating, when it isn't. The act of creating each piece IS the project. Not the entire airplane.

Any project is a series of acts of creation that are vaguely connected to one another. First you create an aileron spar, then a rib and another rib. But, you never should think past each piece to the time when you'll be wafting over the horizon in your own airplane. Creation isn't about use. Creating is about creating.

I had a classic example hit me in the nose three nights ago. I've spent six very frustrating months building headers for my little hotrod. First, it was trying to correct the damage done by the chrome platers polishing through the first set I built, then it was building an entirely new set. I almost forgot I was working on a car, since the damn headers had taken over my life.

Two nights ago, I finished the headers. Then looked around. What's next? As I was looking at the brake and clutch pedals and trying to decide how to modify them for more travel, I realized I could just remake the floor boards in that area and recess them an inch and a half. So, out came the cardboard and scissors, some 20 gauge steel and away I went. Where the headers had been grinding me down, I suddenly found myself whistling and grinning---I had that rush that ALWAYS comes with starting a new project. In this case, it was just a foot square piece of floor boards where the steering column went through, but it was a new project, using a different skill set than I'd been using and I was having a ball. I finished them last night and several times this morning walked out just to look at what I had created over the last couple of days. It made me feel good.

The emotional release and mental relaxation that came from making that little floor board panel was more than enough justification to be doing the entire project. And today has gone much smoother because of that.

Can I rationalize building an open wheel, open hood, sitting-on-the-ground car powered by a 57 year old motor? Of course not! The Maxima more than does what it can do. So can my 15 year old Honda Civic for that matter. This process (which is coming up on 47 years in length) was never about building a piece of transportation. It was about creating something that I saw in my head and wanted to see sitting in my garage. Could I afford to do this project? Absolutely not, even though the finished cost isn't even that of an overhauled Lycoming. But, I could afford to do that little piece of floor board. And the headers. And I could afford the \$6.57 I spent this morning on a 6" long Grade 8

bolt and a mixture of washers and nuts that will become my throttle assembly. I can't afford the tires. But, hopefully will sometime soon. Not that the tires make any difference because I have so many cheap things to do first.

When I hit something I can't afford to do, I find something on the project I can afford to do. But, I never, as in NEVER, sit down and figure out what the entire project is going to cost me because I know it'll be out of proportion with what I'm building. The cost, however, will be a fraction of what the project has given back to me in terms of scratching that creative itch and making me forget the BS that accompanies most of our lives.

If you look at the act of creating something like a flying machine and then look at the act of pushing that project out of your life unfinished, you need to be really objective about which act is going to do the most damage. As Bruce so beautifully put it, ten years from now you'll be ten years older no matter what, but even if the airplane isn't finished at that point, just the knowledge that it's out there in the garage waiting for you is a benefit. The creeping regret that almost always lingers after giving up on something will definitely not be a benefit.

When we give up on something because of the two most controllable items in our lives, money and rationalization, the regret that always follows becomes even more crystal clear, when time gives us the perspective of distance and can see we made the decision based on the wrong facts.

Regret is a terrible thing and entirely too often it forms the basis for an unhappy last chapter to our lives. So, throw a tarp over the project. Take one piece and continue to create. When there are no more unfinished pieces under the tarp you must be done. And, whether you fly it or not, you'll be a happier man for it. Push it out of your life and that probably won't be the case.

- budd davisson

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### 1/3 Share in Cessna 182 For Sale

A couple of our fellow members are selling a 1/3 share in a 1974 Cessna 182P hangared at Fox Field. Monthly recurring costs have been running about \$200 per partner with \$25 per flight hour (dry). Total time is approximately 4250 with about 1500 on the continental O470R. Nicely equipped with auto pilot, HSI, dual KX155's, LR tanks, VFR Apollo GPS with moving map, engine analyzer and fuel flow indicator. No damage history and complete logs. Contact Lee McCullough for additional details (661-435-9002).

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### Web Site Update

As of 8 November 2008, the hit counter showed **123896**, for a hit rate of 16 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**

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

Dec 2: EAA Chapter 49 Monthly Meeting, 7:00 p.m., General William J. Fox Field, Lancaster, CA. (661) 948-0646

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

**Dec 16: EAA Chapter 1000 Festivus Etc Celebration**, 6:00 p.m., Kommandant's Quarters. Quartz Hill CA. (661) 609-0942

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

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

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

Feb 3: No EAA Chapter 49 Monthly Meeting

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

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

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

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

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

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

**Apr 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.

Contact our officers by e-mail:  
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 Secretary Kent Troxel: kenttroxel@sbcglobal.net  
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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:**  
**HIGH CAY COOKOUT 18 NOV WITH CADETS**  
**GADGETOSIS NERVOSA ATTACK!!**  
**THE NON-JOYS OF SANDBLASTING**  
**JP WINS WORLD CHAMPIONSHIP**



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