

# The C eeco

Experimental Aircraft Association • Chapter 393 • Concord, CA

Mail to: EAA Chapter 393 P.O. Box 272725 Concord, CA 94527-2725

AUGUST, 1993

## CHAPTER MEETING

August 25, 1993 The 4th Wednesday of every month @ 7:30pm; Old Buchanan Terminal Building, Concord Airport. Bring Chairs. *Wear your \$\$\$&€@#% Badges please!*

We will have some special reports from a number of Oshkosh '93 attendees. Lots of good stuff. Don't miss this one.

## 1993 VOICES IN THE DARK

|                   |                           |
|-------------------|---------------------------|
| PRESIDENT         | Glenn Werner<br>676-8786  |
| VICE PRESIDENT    | Jim Lewis<br>930-9429     |
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| NEWSLETTER EDITOR | Will Price<br>254-2267    |

## RAFFLE WINNERS

The last meeting seems so long ago that I cannot find my notes listing previous raffle winners. Those of you who have won in the last raffle or two and have not brought a prize for the next one, PLEASE BRING SOMETHING FOR THE UPCOMING MEETING. There's nothing worse than selling raffle tickets and having no prize.

## THE ANNUAL PICNIC

For those of you who missed our annual picnic, you really blew it. Weather was good, food was terrific and plentiful, and camaraderie abounded. We had a great turnout and a surprising number of our aircraft on display. (Thanks to all who brought their pride-and-joys.) As usual, Callie did an outstanding job of organizing everything. I'm beginning to think she should be the lifetime social chairperson for our Chapter--she always does it right. Thanks from all of us, Callie.

## YOUNG EAGLES AT 393's ANNUAL BASH

by Lisle Knight

I think this was one of the most delightful and fun-loving picnics we have had. Not only was the weather CAVU, but the warm smiles and enthusiasm that came from our Young Eagle Flight Squadron even outshone Ol' Sol that day. And it was shared by all... On July 17th, (2) Glasair RG's, a multi-spangled picasso of a Mustang, and a big Glasair III broke the surly bonds of Buchanan for 6 Young Eagles and their Pilots:

Matt Hoolihan w/Jim Lewis;  
Jeremy Harvey w/Lyle Powell;  
Andrea Perez & Chris Siglim w/Lou Ellis;  
Amanda Perez & Jeff Wiebens w/Pete Wiebens.

On August 8th, (2) more Young Eagles were hoisted aloft in that Digitized Splash of Lemon that also flies.

David and Eric Hung w/Will Price

A very special thanks to our pilots and the "Moms" & "Pops" of the Young Eagles.

You know, I don't necessarily see airline pilots, jet jockeys, or GA pilots coming out of this program--even though that will occur and will be equally great. I see instead the creation of comprehension in a mindset within our future voting block for tomorrow so GA can survive even greater crises than what we are presently experiencing. Let's keep up these Eagle Squadron rallies on an on-going basis to give these kids a realistic insight into aviation.

## CONGRATULATIONS DUE

Hey, we've got exciting things happening. Don Best has been flying the daylights out of his Glasair. He's getting close to being ready for his private license. Don's is really a neat story: he soloed in the airplane he built.

Glenn Werner had his Lancair checked off by the FAA and can be seen buzzing around now. He's delighted with the way it flies but is disappointed that it does not do 260 MPH as advertised in the sales brochures. Did you *really* believe them, Glenn?

And of course we have Dwaine Duis who had his first flight in his restored Luscombe. There is more on Dwaine in the PERSONAL PROFILE column.

To each of you (and anyone else I missed), a special congratulations.

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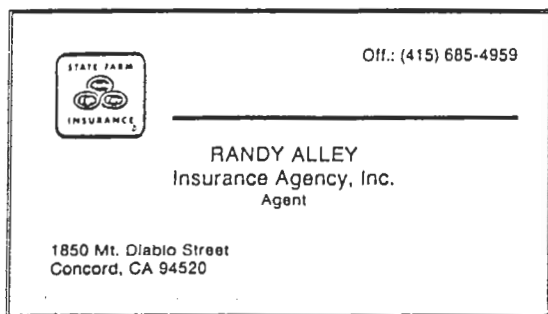
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## ABOUT THE PLACERVILLE YOUNG EAGLES "ACCIDENT"

Some of you may have heard of the "fatal crash" of an aircraft participating in the Placerville Young Eagle program as reported in the Placerville EAA newsletter. You can be relieved that the very realistically sounding article was describing a hypothetical situation. The purpose of the article was to make a point regarding the importance of local chapter members to have active membership in National EAA. In this case, the emphasis was that umbrella insurance from National may not apply if a non-member is involved in a claim-resulting incident. Unfortunately, the shock of reading the article caused some readers to stop reading and fail to progress to the immediately following explanation that the article was fictitious.

Although I am not comfortable with the way the point was made, I certainly agree with the notion that we should each ensure that our national membership is active. So if you are a member of 393, be certain that your membership in National is current.



## PERSONAL PROFILE--DWAINE DUIS

It's interview time again, and here we are really scratching bottom with Dwaine Duis. Let's see, there must be something good about him that I can use to start the column. Hmm, born in Grand Forks, ND--no that's not it; grew up in Southern Minnesota--no, not that either. Went out for football as a freshman in high school--big deal. Broke his arm in a scrimmage--well that's getting a little more interesting. Ahh--here we are: Decided football was not for him. Let's see, what's safer than football? Men's chorus and men's quartet--to hell with that macho stuff, those football players were too damned big and mean. Then came drama and the ham in Dwaine sprouted. He played the lead in some school plays (including *Our Town*, of course). His drama teacher said he had real stage presence. (Any of you who heard him recite *The Roasting of Sam McKee*--or whatever it was--at the Christmas party must admit that he does have some talent.) With regard to sports, he persevered and ran low hurdles.

Oh yes, he had the flying bug in high school--wanted to be in army air corps. After graduating he applied, passed the written but stumbled on the eye exam because of slight astigmatism--most distressing. Of course, what happens to a new high school graduate early in World War II. Yes indeed: Camp Roberts, 4 months of basic, then to South Pacific where he joined the 25th Infantry as a buck private. His first real army experience was when the sergeant said "This is the front

line; dig right here." Dwaine didn't care for the foxhole life so wangled his way to a jeep driver for artillery officer. How did he do that? Simple, he lied and said he was an excellent driver even though he almost flunked driver ed in high school. He landed in the Philippines in 1944 and was there until the end of war. After four months with the occupation forces in Nagoya, Japan he was sent home and discharged.

One week after being discharged he enrolled at the University of North Dakota. He graduated in 1950 with bachelor's degree in teaching with plans of being a high school teacher. Unfortunately, at that time teachers were earning \$50 per week. Jostens Company (school rings, announcements, and awards) offered him twice that so he took it and was assigned to Northern California. That worked out well for him. He built up a faithful clientele and was able to spend his summers at a lakeside cottage he built in Minnesota. What a life: he had a sailboat, speedboat, and airplane. Retired in 1980 after 30 years with the company.

His induction into flying makes an interesting story. Dwaine's brother owed Dwaine money. A local CFI owed his brother money. CFI wants to settle debt to brother with flying lessons. Brother does not want to fly. Secret deal to give Dwaine flying lessons thus settling brother's debt to Dwaine (except don't tell Dwaine all the details). Dwaine balks. Dwaine goes for one ride. Dwaine is hooked.

As is the case with us all, he eventually was ready for his check ride. Unfortunately, he drew a vindictive examiner who thought no one should have license. So he put a hood on Dwaine and said: "Okay, take-off." Dwaine was so shaken he dropped out of flying for seven years (the examiner flunked him, by the way). Never went near an airplane. Finally he decided that he wouldn't let that SOB beat him. So he started back with lessons. After a few hours he soloed, then worked on XC, and got his ticket. He now has about 1,000 hours: 600 in Luscombes.

He is a bit of history for us in that he attended the 393 organizational meeting 4/28/71 at Williams Elementary School in Concord.

Those of you who have been around 393 for a while know that he restored a Fairchild PT26 (WW II trainer) with the help of Vince Bohn. Seems that he found it in a barn in Dixon, CA in 1976. The owner was asking \$10,000; Dwaine offered \$2,700. Six months later he got it for \$3,150. He started restoration in January 1977 and finished September, 1981. Spent about \$15,000 in the restoration. He flew it to Oshkosh in 1982 (trip took four days going and five days returning--rainstorm in Iowa). Won the best antique restoration for 1982. Sold the airplane in 1989. Much to his current chagrin, he let the trophy go with airplane after much pleading by the purchaser and his wife (who had a firm grip on the trophy).

Before selling the PT, he bought a wind damaged Luscombe which he kept on his back patio as emotional backup--a get-to-someday project. Unfortunately, cancer (lymphoma) got to him. Doctors expected him to die but he survived through chemotherapy and determination. He insisted to doctor that he was going to get well--and he did. In October, 1989 he was given clean bill of health and he started restoring. The restoration was taking so darned long that he started watching Trade-A-Plane. When a flying-condition Luscombe popped up, he

grabbed it. As many of you know, his restored Luscombe is now flying. It's a beautiful little airplane.

As if he doesn't have enough to keep him busy, he is active in Napa EAA 167. In fact, he has been president for past five years. How he got hornswoggled into that is still another story--ask him some time.

As we were wrapping up the interview, he said to me: "Oh, by the way, I've taken up golf. He admitted to me (confidentially, of course) that he gets so frustrated trying to pretend his Luscombe is a real airplane that he needs an occasional diversion. Said that he really enjoys the game.

After talking to one of the people in his recent foursome, I understand why. It seems that Dwaine hit a shot that landed on the edge of a small pond. As he reached down for the ball a frog jumped on his hand. That didn't startle him but he was quit astonished when the frog started to talk and said: "Hello Dwaine, I'm Marie. I was a beautiful young maiden until a witch changed me into a frog. But I can be freed if you'll give me a kiss. Then I'll be yours forever." Dwaine thought about this for a minute and responded with "Let me think about it for a while." He then put Marie into his golf bag and continued his game. (Any of you who knows Dwaine knows that he never does anything impulsive--he likes to think things over.)

After he finished his game and was on his way to the club house he heard "Dwaine, have you forgotten me? Give me a kiss and I'll be yours forever." Dwaine reached into the golf bag, took out Marie, and said "Marie, I'm afraid there will be no kiss. At this stage of my life I think I'll have the most fun with a talking frog."

RICHARD S. POWELL



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## MATHER AIR FORCE BASE

I've the perfect place for Glenn to land his ultralight--how about a 14,000 foot runway? The following was taken from the Chapter 526 (Roseville) newsletter.

Air Force operations ceased at Mather AFB on May 30 and title was conveyed to Sacramento County with the plan of making it a general aviation and air cargo airport. Of more immediate interest to those of us flying around the local area, the Mather ARSA has been cancelled and we no longer have to go all the way to Galt to avoid the ARSA when going up Placerville way. Extend the circles on the McClellan ARSA to see where the boundaries are.

For the time being, I guess Mather is an uncontrolled airport and if you would like to shoot a few landings on 14,000 of runway it should be possible. I would check NOTAMS first.

## VACUUM SYSTEMS END TO END

From "Light Plane Maintenance"

Vacuum system health is too often treated like personal health: Unless something's going very apparently wrong, it's generally taken for granted. But your vacuum system needs and deserves more than just passing attention. Many pilots and mechanics think the once-a-year look is enough. Some don't even think about the vacuum system as a regular inspection item. A startling number of mechanics even go so far as to not even include the vacuum system as part of an annual inspection. Unless the pilot shows up complaining of a dead pump, they won't go out of their way looking for (impending) trouble.

Yet there are so many ways to cut down on vacuum system maintenance, increase gyro life, and prevent early pump failure that it's almost criminal not to go looking for trouble in the air system. For the most part, the hardest part of vacuum system preventive maintenance is just getting at the various system components.

### Know Thy System

Having at least a rudimentary knowledge of the vacuum system should be a requirement for a Private certificate. Unfortunately, the vast majority of pilots never learn any more about their vacuum system other than the fact that it exists. At the very least, every pilot should be able to point at the vacuum pump mounted on the engine.

All vacuum systems have some points in common. Let's start where air enters the vacuum system. This can be at one of two points. In the case of "newer" aircraft, air generally enters the system through a central air filter mounted underneath the instrument panel. From the filter, the air runs into a suction gauge (the one on the panel) and on into the instruments.

Older aircraft (say those built before 1965) generally distribute the filtration task--air enters each instrument individually and each instrument has its own filter. (In fact, even in newer aircraft having a central filter, each instrument has an individual one also.)

After the air has been sucked through the instruments, it starts heading for the vacuum source--either a mechanical pump or a venturi. Before it gets there, though, it encounters the suction relief valve. This valve is adjustable and does just what its name implies--opens up to relieve excess suction in the system. (More on this in a bit.)

Finally, the air makes it to the suction source. In the case of venturis and airplanes without deicing boot systems, the air passes through the source and is dumped overboard. If there are boots to run, the air moves on to the boot regulating network.

Of course, not all instrument systems operate off suction--some operate off pressure systems. Basically, these systems are set up the same way--just "backwards". These systems are typically found in higher-altitude aircraft. Their main advantage is that they capitalize on the inherent efficiency of dry vacuum pumps' exhaust--the pump doesn't work as hard to provide pressure at high altitude as it does to provide adequate suction. (Wet pumps need not apply for the pressure-system job, since the oil they put out would quickly foul the works.)

## The Same Vane

Looked at from the outside, vacuum pumps seem simple enough--a canister that may have some cooling vanes around it. Fortunately, the pumps are pretty much as simple as they look.

Dry pumps have sliding vanes that do the actual sucking or blowing. The vanes are about the size and shape of a stick of gum and it's their ability to slide that provides the seal needed to generate suction or "blowtion". The vanes ride around in a carbon rotor, which in turn rotates in an elliptically shaped bore. The vanes slide out towards the bore walls due to centrifugal force and move air due to the elliptical bore.

Lubrication comes from the vanes wearing against the bore. This creates carbon dust which is either pumped overboard or trapped in a filter, depending on what the pump exhaust is going to do next (like maybe pump up some boots). Because of this constant wearing, dry pumps have a finite life. As a general rule of thumb, most won't make it to the engine's TBO without themselves having to be replaced. Consider that the vanes will probably have worn down to about half their original size after 1,000 hours of operation.

Wet pumps, on the other hand, avoid this wearing problem by lubricating with engine oil. Using a metallic vane and rotor and pumping a mixture of air and engine oil, the wet pumps are well lubricated and the vanes get excellent sealing against the bore.

Unfortunately, in many cases the belly of the airplane gets well lubricated, too, keeping the airplane dirty and the oil consumption up. Hence, the air-oil separator was invented. This is basically a cannister with baffles in it to trap the oil. The exhaust air goes overboard and the oil goes back to the engine.

## The Shaft

The weakest link in the vacuum pump's operation is the drive shaft coupling. Sheared drive shaft couplings are probably the most common failure mode, and it's the weakness of the shafts that's behind it.

The couplings are intentionally made to be weak. No, this isn't some devious marketing plan to increase pump sales. Rather, it's a safety feature to prevent pump failures from endangering engines. Since the pumps are all gear-driven from the engine, if they were given a robust shaft capable of withstanding extremely high torque, a seized pump would be serious trouble for the engine.

Instead, the shafts' couplings are designed to have just enough strength to operate the pump. In Airborne pumps, the coupling is a pair of nylon plates connected by eight steel pins. In Edo-Aire pumps, the pump is driven by a thin steel quill shaft. In either case, pump seizure easily shears the coupling. Thus, the engine never feels the sudden stoppage of the pump.

## Taking Care

Paying a little attention to the vacuum system can make your pump go a longer way towards TBO. But what can a poor pilot do?

With the cowling off, the vacuum pump is easy enough to find on even the most cramped installations (the Cessna 337 comes to mind here, as does most any

Mooney). What's the point in knowing where it is? Especially for those who fly in the clouds, looking at the vacuum pump is the first step in preventing unexpected failure.

Look at the base of the pump, both on preflight (if possible) and whenever the cowling is off. Do you see little bits of nylon? Can you wipe oil off the area around the drive pad? Any of these things should get you thinking of impending drive failure. The pump drive is in distress, and leaking out pieces or oil is the way it lets you know.

Another place to take a look at and around is the pressure relief valve, if you have a pressure-type system. Check the valve for carbon build-up. If the pump has been in service for any amount of time, there's going to be some carbon around the valve (it looks like soot). By checking this periodically, you'll get a feel for the "normal" deposition rate of carbon at the valve. Any marked increase is cause for concern and further investigation. (On vacuum systems that don't power boots, look at the pump exhaust to detect carbon build-ups.)

While you've got the cowling off, you can listen to the vanes sliding around as you turn the prop (turn it backwards, of course). You should hear each vane click as it slides alternately into and out of the slot on horizontally mounted dry pumps.

From the cockpit, obviously it's wise to keep an eye on the suction gauge. Fluctuations (even momentary intermittent ones) should get your attention. Your pump is trying to tell you something!

Incidentally, when winter comes on you might want to look into having the cabin preheated as well as the engine. This isn't for your comfort or that of your passengers--it's because many gyro instruments won't function properly at temperatures below 40 degrees Fahrenheit. Since the instruments suck air from the cabin, preheating the cabin air will get the gyros warmed up quicker. At the same time, remember this little piece of advice if you ever find yourself on the gauges with an inoperative cabin heater and cold OATs. You're not just looking at discomfort but possible lying or sluggish gyros, too.

## Digging Deeper

For the mechanically inclined (and that's you), there's more in-depth inspection and maintenance. Again, you're looking to head off trouble here--find it before it becomes big or simply prevent it altogether.

Keeping the system filters clean is the first line of defense. Many aircraft manufacturers recommend filter replacement every 100 hours for individual instrument filters in systems that do not have a central filter. For most of us, that translates into about every annual.

Centrally filtered systems need to have the main filter replaced about every 500 hours. The instrument filters can last until the instruments themselves are overhauled--provided the central filter stays clean enough to do its job.

Therein lies the key. If you fly in dusty environments, spend a lot of time below the haze level, are based in an urban area or smoke in the cockpit (you Neanderthal), obviously you should be thinking about changing the filter more often. Some FBOs change the filter every annual, which sounds more than a bit extreme to us. While it's true that anything that lets the system breathe

easier is going to translate into longer pump life, unless you live in a dust bowl, every two to three years is plenty often. If you do live in a dustbowl, or fly ag operations, do it once a year.

### **The Air-Oil Separator**

In wet-pump systems, periodic cleaning of the air-oil separator is a must. All too often, these devilishly simple little devices are ignored until something untowards (like a belly full of oil) draws attention to them. Ideally, it should be cleaned once a year. In reality, most go years between cleanings.

Cleaning the separator is easy enough, although getting at it may not be. Most installations we've seen, though, have been right out in the open near the vacuum pump on the back of the engine, making servicing easy.

When you find the separator, you'll note three hoses attached to it. One hose comes from the vacuum pump, another goes to the engine and the third goes overboard out the bottom of the cowling or tees into the crankcase breather.

Obviously, the separator must be separated from its surroundings before you can do anything with it. Start out by loosening the hose clamps that attach it to the hoses. Then, detach it from the mounting (if it is mounted on anything other than the hoses). You may want to tag the hoses to make later identification easier.

Once liberated, the separator can be cleaned by soaking in Varsol, Stoddard solvent or even 100LL. Let it soak for an hour or so (longer if you're using 100LL). Then take it out and shake well. Pour out the solvent, dip it back in the bath and shake it again. Keep this up until the solvent comes out clear. Obviously, this means don't pour the solvent from the separator back into the container and reuse it--it will get so dirty you'll never know when cleanliness has been reached.

While you've got the thing in your hands, take a look at the point where the crankcase return line attaches. You should be able to see a small orifice. Make sure this is open and gets cleaned, too. If it's clogged, attack it with solvent and/or shop air, but don't stick anything in it. The orifice is just the right size to allow the separated oil to go back into the crankcase. If it clogs, the oil goes overboard. But if you enlarge it any (by trying to poke it out with a metal pick, for example), the separator could well wind up pressurizing your crankcase, with all the unpleasantness that goes with that particular problem.

Once the separator has been cleaned, you can either blow it out with shop air or just let it air dry. Either way, try to shake out as much solvent as possible. Then, reinstall it and run the engine up for a leak check (very important anytime you play with oil- related hoses).

### **Clogs**

Beyond keeping the filters clean and the separator separating, vacuum systems suffer from two other maladies--the aforementioned clogs and leaks. Let's deal with clogs first.

Clogs are usually easy to detect. Depending on where in the system the clog is, there are only a limited number of symptoms. A clog at a particular instrument will generally show up in that instrument alone--it gets sluggish or may even fall over dead. A clogged central filter shows up as greater-than-normal suction indications

on the vacuum gauge and all the instruments become very sensitive and lively (for a while at least, until they or the pump die from overexertion). Clogs after the instruments but before the relief valve show up as low suction and sluggish instruments (overly long erection times are a clue here). Finally, a clog after the relief valve will usually show up as a dead vacuum pump, since such a clog will kill the pump.

Clogging of the pump's exhaust can lead to low vacuum indications. This is usually due to carbon building up and is generally a good indication that the pump is nearing life's end.

A clogged relief valve is another matter. Here you'll find suction that varies considerably with engine speed. Depending on how the valve stuck, suction can be too low except at high engine speed (valve stuck open), or too high at high engine speed (valve stuck closed). In extreme cases, like with the valve stuck closed and a dirty filter, total suction can become so great the lines collapse.

One source of many apparent "clogs" is kinked tubing. Sometimes the tubing is actually kinked, but in most cases we've seen, formerly kinked tubing was used in an installation. The tube itself is straight, but where the kink used to be there is now a restriction in the line--it's open, but not all the way.

One thing all clogs and restrictions have in common is that they shorten vacuum pump life. The pump works harder, generating more heat and eventually failing. Again, anything that allow the pump to breathe easier contributes to extending its life.

Leaks in the vacuum system are much more insidious. They can drive mechanics and instrument shops to distraction in trying to track them down.

Leaks should be suspected if adjusting the relief valve provides no relief from low suction readings. The first and most obvious thing to suspect is a loose connection. Check as many as you can get to. To be fair, getting at all the connections is not easy in most airplanes.

Trying to find a leak can be daunting. If it's possible to hook up the system to a vacuum source, leaks can sometimes be detected by ear. More recently, sophisticated ultrasonic equipment has become available for leak detection, but few shops have it and the equipment can detect leaks that aren't there due to background noise. Bluntly, if you've got a leak in the system and the source isn't obvious, you've got a job on your hands.

### **Installation Errors**

Vacuum pump life can easily be shortened through any number of installation errors. Most of these are pretty subtle, but all are preventable.

Believe it or not, it's not unheard of for mechanics to install a "backwards" pump. Airborne pumps come in either clockwise (CW) or counterclockwise (CC) versions. No matter which way they're turning, they will produce suction. However, because the ellipse of the pump bore is not symmetrical, running the pump backwards dramatically shortens its lifespan by loading the vanes in the wrong direction. (Edo pumps don't have this problem.)

Another common vacuum installation error is to use something like thread lube or Teflon thread tape for

connections. Thread lube can work its way down the system until it reaches the pump, gumming the vanes with obvious consequences. The tape can break up as the fitting is threaded in. Eventually bits and pieces fly back to the pump, which finds them indigestible.

Likewise, the time-honored practice of wiggling hoses onto fittings can lead to little bits of hose being cut off. In time, these too will make their way to the pump.

Putting too much bend in flexible lines is another common problem (see the section on clogs, above). Also, failing to secure vacuum lines properly leads to chafing (and leaks).

Engine washes pose a hazard to vacuum pump longevity. Ideally, the pump and its outlets should be covered and protected before any engine washing. In practice, though, many mechanics just "try to be careful" during the wash to avoid getting water or solvent in the pump. Basically, the pump drive coupling area should be covered, the pump exhaust (if exposed) should also be covered and any valves or controllers (i.e. relief valve, boot control valves, etc.) should be protected.

### Regular Checkups

Armed with this knowledge of your vacuum system and its needs, you're miles ahead of the rest of the crowd in ensuring a long and healthy life for your pump. If you come away with nothing else from this article, you should have at least a greater awareness of vacuum system operation.

Hopefully, you can adopt a regular program of inspecting the system and changing the filters. After all, these things are far cheaper than replacing a dead pump, and the peace of mind you'll have while shooting that tricky approach will be more than adequate compensation for your efforts on the ground.

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### THE AIRPORTS COALITION

At the request of the Board of Supervisors various interested groups met at the airport manager's office on August 4, re: helicopter training sites. About 15 alternate sites were reviewed. As one might anticipate, no single site was found to be acceptable to all parties involved. In fact, most groups responses seemed to fall into historic patterns. In fact, following the meeting I heard a degree of skepticism regarding the lack of agreement. Personally, I hardly expected grand and glorious results from this first meeting (and/or subsequent meetings) but at least we are beginning to listen to each other and jointly work toward a solution.

I think that a couple of points have become clear. First, The Airports Coalition intends to remain organized

and protect our interests as pilots and airplane owners. Second, we are not unreasonable and are completely willing to work with any and all parties in resolving airport related problems.

The next meeting is August 25; I will keep you posted. W.P.

### PUCKER REVISITED

I'll bet most of you thought you had heard the last of pucker research (or probably hoped you had). Well you're in luck (or out of it, as the case may be) because research continues. In fact, I recently received the following letter from Frank Williams, President of ARNAV.

Dear Professor Will,

Thank you for your continued interest and help in the research of stress induced anxiety in non-space flight. While your grasp of the puckerometry principals is keen. I would like to tell you of our current research into this fascinating science.

However, before discussing current research, I have been asked to make it clear that the scientists from NASA Langley contributed their time and effort with absolutely no government money spent or government facilities used. Their efforts are truly a labor of love.

### Steady State Vs Dynamic Ranging

PuckerFactor (Pf) gives a comprehensive steady state evaluation of conditions in a given geographical area. Our current studies are centered around the Dynamic ranging of Pf, or rate of Pf changes with time. A new variable, abbreviated dPf, pronounced DeltaPuckerFactor, has been introduced that will account for the pilots perceived change of anxiety levels. Recent test results indicate that the dPf curve was steepest on student pilots, and generally decreased in slope (dPf/dt) up until about 1000 hours of flight have been logged. Above 1000 hours, the dPf curve flattened out, with the notable exception of one test subject (TS) who stated "I have better than 13,000 hours in twenty different type of aircraft, but I lost my logbook". No one at the airport remembers this TS ever flying, but his stories were so captivating and descriptive, we felt compelled to include his results in the study.

Future research topics include a study that will measure the Pf and dPf variance between male and female subjects. We believe that gender specific variables must be incorporated for consistent reporting and proper analysis by receiving pilots. I will keep you advised as we receive test results.

Remember - "One person's pucker is another person's panic!"

Sincerely,

Frank Williams  
President, ARNAV Systems Inc.

As pucker studies evolve into real, bonafide research, I believe it is time to correct a significant misnomer. In that respect, I am submitting the following open letter to Mr. Williams. WP

Dear President Frank:

Since the inception of your pucker research several months ago, you have used the term *puckerometry*. I suggest that during your early stages of research the term was appropriate but it is now misleading. Allow me to explain. Your early work revolved primarily around making observations and *measurements* of your human subjects. Since the suffix *metry* relates to areas of endeavor involving measuring, your choice of *puckerometry* was appropriate. (The suffix *metry* comes from the word *metrein* which I believe is French meaning *to measure*. Please don't hold me to this as I have enough trouble with English without worrying about other languages.)

On the other hand, work in the area has progressed far beyond your original primitive measurements and we are seeing an entirely new science blossom. To that end, I suggest that we attempt a transition from *puckerometry* to *puckerology*. The latter is much more appropriate as the suffix *ology* designates a *doctrine, theory, or science*. Hence, *puckerology* carries the meaning *pucker science*. (Or you may prefer to think of it as *pucker doctrine*, which has a much more profound ring to it.) We may wish to retain the term *puckerometry* as descriptive of the specific research area of making measurements. This would be consistent with commonplace word usage in science: for instance *biology* and *biometry*.

Personally, I have only one minor problem with a transition to the new name. That is, there might be a potential inappropriate implication that our field may be considered akin to *astrology*. We certainly do not want the aviation community at large getting the idea that our analyses are based on the movement of heavenly bodies. To make matters worse, I have heard reports of a few charlatans taking advantage of our good name in attempting to market counselling services for highly pucker-prone pilots. Without a doubt, a change to *puckerology* will yield a plethora of soothsayers, star-gazers, and crystal-ball experts attempting to pawn themselves off as experts in our emerging field.

However, overall I feel that the name change will be appropriate and that the advantages far outweigh the potential disadvantages.

I'll be quite interested in your response to my proposal.

Yours for controlled pucker.

Will Price, PPS

#### FROM LARRY LAUGHLIN

Congrats to Glenn Werner: His Lancair flies and he won our bet--real non-stop energy on his part.

As some of you may know, I am still very involved with radio control modelling. Perhaps that explains why I am slow to finish projects like the Avid Flyer. Normally I pass on the myriad of R/C events in Northern CA, but there is one big one coming up that any aviation enthusiast will enjoy. *The R/C Unlimited Madera '93 1/4 Scale Pylon*

*Race* is scheduled for October 6-10. Over 100 AT-6 Class airplanes have registered and entries for the Unlimited Class are still coming in. These R/C aircraft are measuring 60 to 100 inch wing span, 12 to 40 pounds, and most are powered by leaf blower or small chain saw style engines, swinging 24 to 30 inch props. These scratch or kit built R/C airplanes take 100s of hours to assemble and paint, often with stunning scale detail, complete with flaps and retracts, of course. To watch them compete in Reno style air racing is something to behold. The event will be held right on the Madera Airport and full-size aircraft will be allowed to land and depart during the event; however, the airport will be closed during the actual pylon racing events. Food, an R/C trade fair, camping, and more are all planned for this 3rd annual meet. This type of event makes for a great spectator sport for the whole family. You may contact "Giant Scale Racing" at (310) 320-8369 for more information.

On another subject, did you hear about the last Pleasant Hill City Council meeting? The POP people were going to make another presentation against HAI and the Airport and call for action by the City Council. As it turned out, one POP representative showed up to present the old facts, demanding counter-productive action by the City Council. Over 20 pilots showed up in opposition and the Council voted (against POP) to take no action what-so-ever. The POP representative shot himself in the foot by opening his mouth. Proof once again that the people that use and want Concord Airport are not going to be passive and quiet anymore. POP shots will no longer go unanswered in attempting to rule the course of the airport's future.

#### HUMOR IN THE AIR

*Oakland Center:* Navy A-6 approaching Minden. Be aware that there are gliders in the area.

*Navy A-6:* What's that got to with us? We're at 19,000 feet.

*Oakland Center:* Sir, the gliders are above you.

*Pilot:* Tower, 123 Golf request instructions for takeoff.

*Source unknown:* 123 Golf, open the throttle smoothly, check temperatures and pressures, keep the aircraft straight using....

#### COMPOSITE BUILDER SUPPORT GROUP

For information about the Composite Builders Group, call Lyle Powell at 938-3217. To be placed on the mailing list for the CBG, send your name and address to Jordan Coonrad, PO Box 2878, Alameda, CA 94501 or call him at 769-9766.

#### UNCLASSIFIED ADS

##### WANTED

Flyable Long-Eze. Call Charles Adkins at (707) 253-0454. 0293

##### WANTED

A builder hangar-mate. Call Ray Nilson 672-5139.

##### WANTED

Hangar space for Tri-Pacer fuselage. Call Eric Sweet at 531-9330.

## CALENDER OF EVENTS

|            |  |            |  |
|------------|--|------------|--|
| Aug 22     | Sacramento Valley Pilots Assn Fly-In at Columbia. They will have flour bombing and spot landing contests (open to all). For info call Ivan Icters at (916) 878-8422. | Sept 11-12 | Grants Pass Airport Air Fair, Grants Pass, OR (503) 471-3041                   |
| Aug 28-29  | Hawthorne Air Fair. Hawthorne  | Sept 12    | Nut Tree Aviation Flea Market. For info contact Steve Coughlin (707) 447-2907. |
| Aug 28-29  | Pacific Coast Air Museum (Sonoma County Airport) Open House  | Sept 19    | Santa Maria Air Fair, Santa Maria  |
| Sept 3-4   | End-O-Summer Fly-In, Madera Municipal Airport.   | Oct 1-2    | Calif International Airshow. Salinas (408) 754-1983                            |
| Sept 4-6   | California Air and Water Festival, Long Beach  | Oct 2-3    | Travis AFB Air Expo  |
| Sept 10-12 | Chico Antique Airshow, Chico. For info contact Don Walker (916) 894-3218.  | Oct 9      | Auburn Air Fair/Fly-In. For info contact Tony Wright. (916) 878-0219.          |
|            |  | Oct 16     | Santa Barbara Airshow  |
|            |  | Oct 16-17  | Chino Air Show   |
|            |  | Oct 23     | Edwards AFB  |
|            |  | Oct 23-24  | Pt. Mugu Air Show  |
|            |  | Oct 24     | Castle AFB Airshow   |
|            |  | Oct 30-31  | March AFB Open House   |
|            |  | Nov 7      | Fall Fly-in and Airshow, Half Moon Bay   |

# The C eco

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