



# PROP WASH

Dedicated to aviation, safety, friendship, community involvement and education since 1984

[www.auburnaviationassociation.org](http://www.auburnaviationassociation.org)

## July 2007

### President's Message

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We have a threat to the Auburn Airport thanks to our County Board of Supervisors. They voted to overrule an incompatible use finding of the Airport Land Use Commission to allow the Parkside Nazarene Church to have a school at their church location. This is off the departure end of the runway and the Board of Supes obviously don't care about protecting the airport or a large gathering of students! Airport Manager Jerry Martin presented an excellent report to the Board which was ignored. I don't know what the next step in the process is, but I will work along with Jerry to hopefully avoid this problem. Please attend any meetings you can and speak up about the liability of this action.

On a pleasant note, the Nevada Co. Air Fest is coming up July 7th and is always a great day at the airport. Please volunteer a little time to help out or at least go enjoy the show. Tim O'Brien is the contact and his number is (530) 263-3422.

Andy Robinson, our incredible Propwash editor, passed along some great summer flying tips. Don't forget about the extra runway needed for takeoff due to density altitude. You and your passengers need extra water due to the heat. Do you carry emergency equipment with you on every flight? Also be kind to your aircraft and use sun shades when you are tied down.

Our next meeting is delayed one week because of the 4th of July. We are having a cookout with hamburgers and all the trimmings provided by our Association. The list for the salads and sides, etc. is on the back page to finish out a really great meal.

Our speaker this month is Ken Dwelle. I know I'm prejudiced but he has a great presentation on Air Racing that I'm sure you will enjoy. Who knows, maybe you'll want to give it a try!

See you on the 11th at 6:00 for a great cookout and program.

Blue Skies and Happy Flying

Peggy Dwelle  
President 2007

### Aviation Dates

**Wednesday July 11th, 2007**

Auburn Aviation Association Meeting, 6.00pm

**July 23-29 2007**

EAA AirVenture, Oshkosh, WI

**August 4, 5, 6th 2007, 10am - 4pm daily**

Antique Aircraft Display at Auburn, CA

**August 25, 26, 27th 2007, 10am - 4pm daily**

Antique Aircraft Display at Auburn, CA

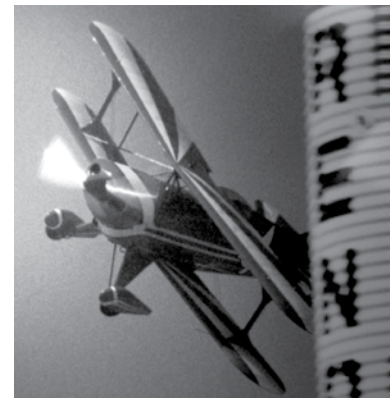
**October 4th - 6th, 2007**

AOPA Expo 2007

Connecticut Convention Center, Hartford, CT

**September 12th - 16th 2007**

Reno Air Races, Reno Stead (4SD), NV



# The Safety Wire

Richard Pearl, CFI-G

This is the second of a continuing series of Aviation Safety articles. The intention is to expand upon Evan Wolfe's excellent "Old Indian Tricks" concept, which hopefully will continue. All pilots are asked to contribute their insights (and no, you don't have to be an instructor, commercially rated, multi-everything pilot to participate). I will be the coordinator of the series and ask that you send your articles – of whatever length – to me: (Richard Pearl) at: pennyrich@aol.com .

## MOUNTAIN FLYING – II (AIRCRAFT PERFORMANCE CONSIDERATIONS)

Mountain flying presents significant differences from low elevation flying, including the effects of route selection, wind, weather, density altitude, and aircraft performance. Mountains can also limit your options. In last month's article we discussed the "Pilot" in the "Pilot-Aircraft-Environment" flight envelop. Summarizing that piece, if you are flying into the mountains, be prepared with a higher level of situational awareness when traversing hostile terrain, and certainly be aware of the serious effects of oxygen reduction and hypoxia. This month we will discuss the "Aircraft" in "P-A-E."

No matter where we fly, our aircraft is impacted by density altitude (D.A.), not indicated altitude. The plane cares not a whit about what your altimeter says...only what it feels as it powers along! To review, there is indicated altitude, pressure altitude, and density altitude (and of course, MSL and AGL altitudes). Pressure altitude is the altitude in the standard atmosphere where pressure is the same as where you are (set to 29.92 in. Hg.)... density altitude is pressure altitude corrected for non standard temperature and humidity.

Another way to think of density altitude is the altitude to which aircraft performance will correspond, most noticeably with a reduction in power (normally aspirated engine), lower propeller efficiency, slower acceleration, longer take off runs and slower climbs. Another aspect of altitude flying is true air speed, which increases about 2% for every one thousand feet of altitude (read density altitude). Truckee's (5,960 MSL) normal summer D.A. in early afternoon is around 8,400 ft. so our true airspeed is about 17 % faster than at sea level.

Let's look at some performance considerations ("Rules of Thumb") in higher elevation situations:

### Landing:

*A ten percent (10%) change in airspeed (true airspeed) will cause a twenty percent (20%) increase in stopping distance.*

For every knot of airspeed above POH final approach airspeed over the numbers, the touchdown point will be 100 feet further down the runway. Stated differently, every knot of excess speed above Vref equals an additional two percent (2%) of required

runway.

*For every ten feet (10 ft.) excess height at the threshold, an additional 200 feet of runway is required.*

*A one percent (1) reduction in approach angle increases landing distance thirteen percent (13%).*

Coming in to a mountain airport in a high density altitude situation just a "little" hot, and a "little" high (perhaps you're visiting a new-to-you airport or there are trees at the approach end), adding a "few" knots for probable gusty conditions, and lastly cranking in a "few" extra knots as insurance for the grandkids – has a huge impact on landing performance. What started out as a normal landing may now require prodigious amounts of braking. Please note that both in the mountains and at sea level the above Rules are cumulative in effect...the impact is just more noticeable at higher elevations.



### Take-Off:

One of the best articles I've read on the effects of density altitude is by Scott Gardiner (<http://www.faa.gov/avr/afs/news/archive/MayJune2004/DensityAlt.htm>). Scott describes the nine Deadly Sins of Density Altitude, several of which are paraphrased as follows:

Vx, best angle of climb, and Vy, best rate of climb, change with increasing density altitude. At sea level, Vy is a higher number than Vx. However, as density altitude increases Vy decreases and Vx increases. The amount of change between sea level and 8,000 feet density altitude is typically five to eight knots of decrease in Vy and four to seven knots increase of Vx. At some point the two curves meet and you've in effect stopped climbing.

When departing in high density altitude conditions at less than maximum gross weight, do not climb at your maximum gross weight, best rate of climb speed. Vy speeds should decrease as gross weight decreases.

Deadly Sins One and Two are cumulative and, according to Scott, are the primary causes of density altitude departure accidents. Attempting to climb out of a high density airport at a reduced gross weight while using your sea level, maximum gross weight rate of climb speed (indicated) can turn minimal performance into non performance – most noticeable after clearing ground effect.

### Turning Performance:

I just love this one because I see this all the time at Truckee.

Scott talks about Deadly Sin Number Three in terms of course reversal to fly out of a tight box canyon situation. Visualize it, however, as also a 180 degree turning maneuver from downwind to final when the D.A. is high. Assuming one doesn't do a LONG downwind with the ability to make small corrections on your long final, you will frequently see pilots overshoot the runway on base-to-final and have to S-curve to correct their position. S-curves at low altitude are bad!

The formula for radius of turn is true velocity, squared, then divided by 11.26 times the tangent of the bank angle. However, the 180 degree turn requires a diameter turn, or 2 (X). Using a 45 degree bank angle at 60 knots equals a diameter turn of 484 feet. At 70 knots true airspeed you need an additional 658 feet for the 180 degree turn...a 36% increase. Don't feel comfortable doing a 45 degree turn and use the more traditional 30 degree bank combined with a higher true airspeed situation, (70 knots vs. 60 knots)...the turn is now 135 % greater. This is the primary reason airplanes are driven into canyon walls.



The two points to note from this "Sin" are: give yourself enough base leg in the landing pattern, and be careful in flying into a canyon that requires a course reversal.

Sin number nine involves realistic take off and climb out performance numbers. The manufacturer's performance charts do provide elevation, temperature, slope, headwind/tailwind components, and type of runway surface. The problem comes when the cumulative factors become cumbersome to work with when you are in a hurry to depart and you GUESS at the required number. Further, the performance numbers are developed with a brand new, thoroughly tweaked airplane and flown by a professional test pilot. No additional comment necessary. Personally, I crank in a healthy performance discount.

### Other Aircraft Mountain Flying Performance Thoughts

- Never leave unused runway (it's useless behind you, as they say): hit the numbers on landing and use the entire runway on take off.
- At 10,000 feet D.A. your engine power has decreased by 30 percent. This has implications for both aborted landings and normal takeoffs.
- Know your service ceiling in terms of density altitude. It's really hard to outrun a rising mountain in your standard airplane.
- Night mountain flying lowers all available options.

Next month we'll explore the "E" for Environment.

Safe Flying.

## July Guest

### Ken Dwelle

Ken Dwelle was an Air Force Brat and spent his early years moving around before settling in Auburn in 1984. He attended CSU Sacramento, where he earned a B.S. in Business Administration. He learned to fly at the Auburn airport in 1986 under the expert instruction of Mr. Mike Duncan.

He spent 10 years as an Air Force pilot, 4 years at United, and is currently the Director of Transportation for Nella Oil Company.

He holds an ATP license and has more than 5,000 flying hours, primarily in the F-16, F-117, T-38, B-737, Airbus 320, T-6 Texan, Beech 36, Mooney M-20 and Cessna 172.

He enjoys old aircraft restoration, snow skiing and spending time with his family. He is married to Judy Dwelle and they have two children, Kaitlyn and Scott.



# Oshkosh Bound

Time to get onwards to South Dakota. First leg down, getting closer to Oshkosh.

*Looking out at the mountains east of Ogden:*

## Andy Robinson

This is a short Here is my trip that I flew in 2005 (last year I had camera issues).

The plan was set: I would fly my Cherokee Six from Auburn, CA to Oshkosh, WI, and then meet up with my brother Simon (whom was flying in from the UK). Darrall would fly a Cessna Stationair from San Jose with Ted, then collect Eric in Sacramento and meet up in Custer County. Stewart and James would fly up in Stewart's Cherokee Six from McKinney, Texas. We would then all meet at the airshow on Saturday 23rd July.

### Day 1: Friday July 22nd 2005

The straight line distance from Auburn, California, to Oshkosh, Wisconsin, is 1706 statute miles (1483nm), this is not possible to fly in one hop in my plane, so the trip was split over two days.

The first leg was from Auburn, California to Ogden, Utah. I had an early departure from Auburn, I managed to get wheels up around 6.10am. I then had an instrument flight plan filed with NorCal approach ATC, whom cleared me to climb to 13,000 ft, flying a course along the airways to Ogden. Up at 13,000ft the air is quite thin - due to this, I had to use supplemental oxygen, this was quite good since it was quite early in the morning...the extra oxygen helped!

*6:44am... above the Sierra Nevada's, the sun rising:*



### Heading out

The air was smooth up at 13,000 ft, along with a reasonable tail wind pushing the plane onwards. Approaching Ogden, my route took me over the Salt Lake. Quite a sight from 13,000 ft.

*Over the salt lake:*



Over the mountains east of Utah - the terrain got a bit rougher. Onwards to South Dakota.



The end of the second leg of the first day: arrival in to Custer County, South Dakota. The planes next to the fuel pump are RV kit planes. These guys had flown from Placerville, California. Not too far from Auburn - though they were traveling a lot faster than I was, about 200 knots groundspeed with the nice tail wind we all experienced, certainly quicker than my respectable 150 knot groundspeed, however, their load carrying capacity was a lot less than mine. One of the owners was telling me that he had shipped his camping gear to the FBO at Oshkosh via UPS Ground the week before. They seemed to have enough room for a couple of snack bars and a sun hat!



Finally the Turbo Stationair arrives 2.5 hours after my non-turbo charged Cherokee Six.

Darrall flew along with Ted and Eric from the Bay Area. They started from San Jose, however, they got delayed since they had to file an IFR flight plan to get of the valley in the fog, then they flew to Sacramento to collect Eric. They also stopped off at Ogden, Utah - then they got distracted by the local restaurant... I think this is why the tail is a bit low on the Stationair!

A couple of my friends, Amber and Kevin, also from the Auburn area, decided to drive to Oshkosh - "they wanted to take a road trip

in their new truck". They had departed from California a couple of days earlier - the tailwinds are not as effective on a trucks speed. Since Custer County airport was close to Mt. Rushmore, Amber & Kevin drove me to see the presidents.



### Day 2: Saturday 23rd July

Another early start. Darrall's passengers, Ted and Eric, were still eating breakfast, so it was time for me to head off east. My Cherokee Six cruises about 15 knots slower than the Stationair, though it burns a lot less avgas, and can carry more junk...more of that later!

During this flight I was able to radio updated weather to Darrall in the Stationair. Once again, I was trailblazing. I think the combination of an earlier start and less breakfast sped my plane up....I was over 100 miles ahead of the Stationair.

The weather was starting to deteriorate. By the time I arrived in LaCrosse, some thunder storms were forming to the north.

Apart from refueling the plane at LaCrosse, emptying the coffee maker, consuming some chocolate, I was able to check the weather on the internet. The radar summary was depicting some heavy thunderstorms - directly on course to pass overhead Oshkosh. I called up the flight service station to get an updated weather brief. His words were simple - wait a few hours!

The FBO at LaCrosse was quite comfortable - so I put my feet up and awaited the arrival of the Stationair.

Darrall, Ted and Eric arrived - bringing rain with them.

Some heavy hail passed north of LaCrosse then made its way to Oshkosh. The weather then started to cooperate and cleared up a bit. Though we still had to file an IFR flight plan to get in from the west. Finally, at 5pm, we headed off to Oshkosh.

Arrival in to Oshkosh was good. Unfortunately I was busy flying my plane, talking to air traffic control, and looking out for other aircraft - so no chance to get the camera out. I got clearance to fly the VOR runway 09 approach, then clearance to land. What a sight - Oshkosh - and lots of planes!

I heard Darrall on the radio flying the Stationair, he was diverted and vectored by air traffic for some sight seeing over the Lake Winnebago - about 100 Bonanzas were then directed to land at Oshkosh! Darrall was beaten by some Bonanzas!

After a 15 minute diversion, the Stationair was cleared to land.

### The Cherokee Six reunion

James and Stewart flew up from Texas in Stewart's Cherokee Six. They had arrived at Oshkosh about 15 minutes before me.

Before setting up tents the mandatory toasting of beer was performed!



Ted and Eric went off in hunt of their rental car (they were staying in a hotel - tents weren't good enough for them!!) we concentrated on the beer.

After the all important celebratory drink Camp Six was established.



This comprehensive establishment comprised of 2 Cherokee Sixes, three sleeping tents, and one entertainment/cooking tent. The latter came complete with 2 gas grills, a backup gas grill, coffee maker - with dedicated gas burner, folding chairs, table, satellite radio, CD player, 4 coolers, solar powered charging station, cocktail shaker, martini glasses..... It's amazing what can fit in the back of a Cherokee Six. Darrall's Stationair had to park on the other side of the grass taxiway - the two Sixes were over-crowding the camp site!

After two days of flying, I had flown a total of approximately 1525nm, 1755 statute miles.

Here's the map of the track flown - about 2/3rds the way across the continent.



# Membership

## AAA Committee

Please take a moment to check the front of this Propwash. If there is a colored spot/sticker affixed to the address, then it is time to renew your membership. Please submit your \$20 membership fee along with your address/phone/email details - a form has been printed on the next page for your convenience. Please bring your payment to the next meeting or mail it to Auburn Aviation Association, PO Box 6454, Auburn, CA 95604-6454.

Thankyou. We hope to see you at upcoming meetings!

## Auburn Aviation Association Membership Form

Please Provide the Following Information:

Member Name: \_\_\_\_\_ Spouse: \_\_\_\_\_

Street Address: \_\_\_\_\_

City: \_\_\_\_\_

State: \_\_\_\_\_ Zip: \_\_\_\_\_

E-Mail: \_\_\_\_\_

Phone:

Home: \_\_\_\_\_ Business: \_\_\_\_\_ Mobile: \_\_\_\_\_

Type of License: Student \_\_\_\_\_ Glider \_\_\_\_\_ Rotocraft \_\_\_\_\_ Other \_\_\_\_\_

Rating(s): Private \_\_\_\_\_ Commercial \_\_\_\_\_ CFI \_\_\_\_\_ Instrument: \_\_\_\_\_ Other \_\_\_\_\_

Aircraft(s)

Type: \_\_\_\_\_

Type: \_\_\_\_\_

Mail Form plus a Check for \$20 made Out To:

Auburn Aviation Association  
P.O. Box 6454  
Auburn, CA 95604-6454

For Questions, Call Richard Pearl  
(Membership Chair)  
(530) 885-8602

# Name The Plane!

This Month's picture:

The Editor

Last Month's picture



What's the plane?

Answers:

What's the tug plane?

American Champion Aircraft Scout 8GCBC

What's the plane from which the photo was taken?

DG-505 glider (sailplane)

What's the airspeed?

75 knots

...and for the bonus point: where was the photo taken?

Over Nympsfield, Gloucestershire, UK.

## Antique Aircraft

Editor

For those of you whom own 35 year or older aircraft that qualify for the antique aircraft tax exemption, there will be aircraft show days at Auburn airport on the following dates:

4th, 5th 6th August - 10am - 4pm

25th, 26th and 27th August - 10am - 4pm

Further informaton can be obtained from:  
Walt Pease (530) 823-0182

### Auburn Aviation Association

#### Officers 2007

President	Peggy Dwelle	(530) 878-9009	peggy@nellaoil.com
Vice President	Don Anderson	(530) 888-6710	25eagle@sbcglobal.net
Treasurer	Carol Uhouse	(530) 886-5729	carol.uhouse@camoves.com
Secretary	Mary Ann Frank	(530) 885-5809	efmaf@infostations.com

#### Board Members 2007

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Membership at Large	Glen Hartliep	(530) 401-2628	ghartliep@netscape.net
5AC	Don Anderson	(530) 888-6710	25eagle@sbcglobal.net
Past President	Evan Wolfe	(530) 637-5107	wolfeshark@cwnet.com
Emeritus	Dick Kiger	(530) 885-4364	dolores1@jps.net



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# **July Meeting**

Wednesday July 11th, 2007  
6:00pm

**A - M   Beans/ Side Dish**  
**N - Z   Salad**

The Association will be providing hamburgers, hot dogs, and a sheet cake - yummy!

*(Potluck information is divided by first letter of your last name)*