Central States Association

A Product of Creative Minds

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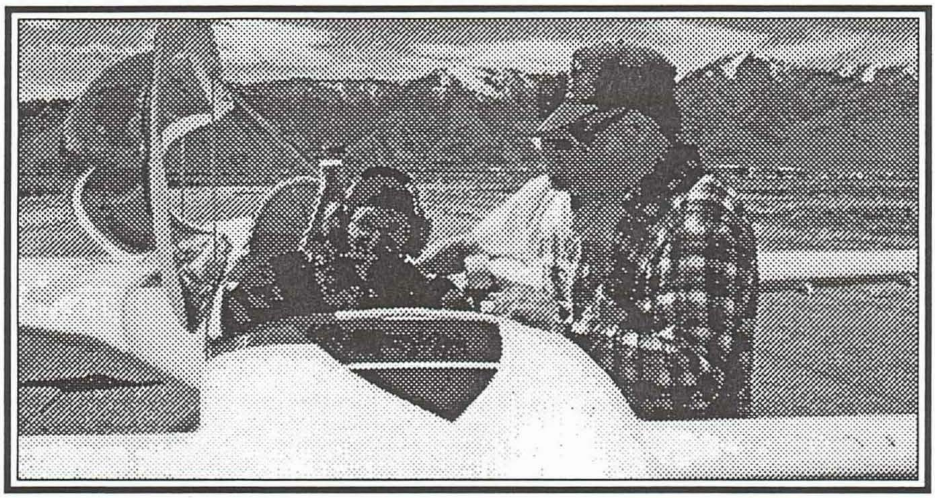


Jim Price Sets C-1a World Altitude Record

The World Altitude record is still in EZ hands. See page 23 for details of the nearly **7 mile high** flight.

Editorial: Resin System Considerations

Terry Schubert (OH) - Contact with competent builders has caused me concern about the resin systems we use. It seems all epoxies are adversely effected by high humidity before cure. Hexcel's 2427 is apparently more effected than others.

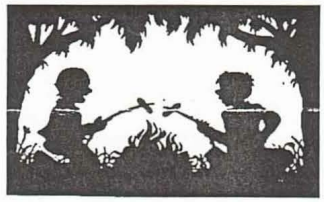
At the OKCGIG Jerry McAdams of Fort Forth, TX revealed an alarming event. He built his Long-EZ fuselage inside with Safe-t-Poxy. The outside was layed up using 2427. After cure he cut out for the landing brake and found the exterior skin delaminating between plies. With little effort the skin simply came apart. He replaced the skin with Safe-t-Poxy structure.

His winter time lay up was done in a shop heated with an unvented kerosene space heater. Such heaters produce considerable moisture as a by product of combustion. The high humidity probably effected the uncured first ply thus inhibiting a good bond to the second ply.

Jeff Russell of Aero-Cad, has tested many epoxy systems before determining a system that will work in his North Carolina location. He will not use 2427 after the delamination of a Berkut firewall from a fuselage under construction. He said it looked like the tapes were laid up on wax paper.

You, as manufacturer, must ensure your layups reach full strength. Jerry and Jeff discovered their inferior layups. Imagine the result if those layups were on a center section spar and it was not replaced. The spar would certainly fail and cause death!

You must test your resin to be sure it develops good strength under your shop conditions. Remember Mojave is a very dry place and cured resin properties at RAF might be very different from a very warm humid area. **PLEASE TEST YOUR RESIN UNDER YOUR SHOP CONDITIONS!!** See page 9 for further discussion.



OSH Hot Dog Roast

Gene Zabler (WI) - Please join Central States and the Wisconsin Bunch for a hot dog roast at OSH on Friday, August 2. We start the fires at 4 PM. Volunteers are needed. We are hoping to be in the same spot in the campground as last year. The campsite is located just west of the campground bicycle parking lot on the south side of the campground entrance to the Air Show.

Be sure to check the Homebuilder's Building (located on the field) for exact location and any changes. Hot dogs and lemonade will be served at a nominal charge. The Hot Dog Roast is a good opportunity for everyone to get together for good conversation and information on building and flying the greatest airplanes in the world.

See you at the OSH Hot Dog Roast!

Jim Price Sets World Altitude Record

Jim Price (MI) - NAA/FAI WORLD ALTITUDE RECORD ACTIVITY
Current status- On 5/5/96 I did an officially certified flight, corrected for temperature and barometric pressure to a little over 35,000 feet at Douglas County Airport (MEV), NV. near Lake Tahoe. This is above the current (Dave Timms - Long-EZ) World Record of 30,400 feet, and appears to be above Bruce's Pushy Galore unofficial record (he submitted 32, 990 to the NAA) by the required 3%. It would be great to see the record continue in the hands of a Long-EZ - YES!! It should be about two to three months before I have the official nod and the Class C-1a **WORLD RECORD.**

Flying up there is a bit tough. The canopy frosts up and it's cold (61 F. below zero). Not being able to see out, I used the hand held GPS to tell where I was; the moving map worked great. ATC requested my altitude a bit too often for my liking (my encoder blanks altitude above FL300). This required me to lift my mask to talk into my microphone that was below my mask. They couldn't hear me too well, and I lost the seal of my mask by my nose from pulling the mask out of position & couldn't get it to reseal. This caused moisture to build up on one of my lenses. I'll go with an "in mask" mike next time. *Ed - Yes there is a next time proposed.*

ATC wouldn't let me use the airspace that I wanted to fly in. Maybe with improved communication we could work this out. I hand held a video camera to tape the instrument panel gauges. I wouldn't do that again as it's too hard to fly and film at the same time. We made up an "over the shoulder" camera mount for my next run.

WORLD CLASS PEOPLE- I wanted to name all of the outstanding people who assisted me with this high altitude project, but according to Terry there just isn't room to list them all. I don't know how one properly recognizes these folks who gave so freely of their extremely busy lives, but I do know that it certainly is an honor to be associated with them. A couple of special people who were instrumental to my success in Nevada were Central States members Dave Jones and John Grubb with the Carson City EAA Chapter 403 who volunteered to adopt me and my project. Their help was invaluable.

Safety- If you ever plan to take on a project like this please do your homework. This activity can be hazardous. I was able to link with Lt.Col. Sam Holoviak at the U.S.A.F. School of Aerospace Medicine (at Brooks AFB), Dept. of Aerospace Physiology and he helped prepare me for this flight. I like his style, he came across with a couple of statements like - if you don't do this it could kill you, do you understand? It surely got my attention!

Emergency back up oxygen, understanding the "bends" and knowing where there was a pressure chamber close by in case I got them, back-up area airports in case I got trapped on top of a cloud deck or had another form of an emergency, being prepared for the canopy frosting over and the bitter cold was all worthwhile and "required learning". IFR partial panel skills need to be up to speed. My (Jeff Rose) dual electronic ignition system had the means to retard spark timing to 6 degrees before top dead center which allows the engine to idle way down. The low RPM allows the prop to act as a big speed brake in case of an emergency descent. These are just a few of the items researched and planned for and I still have more to learn yet.

Aircraft development - I first removed and weighed all extras. I was able to get my O-320 Long-EZ down to 842 lbs. empty. I was going aft CG, within the envelop, so I had to come up with a means of putting weight forward. I ended up with my 1/2 hour fuel reserve and my oxygen system up in the nose. Then I needed to come up with some other improvement ideas.

I made a proposal to the University of Michigan Aero Space Engineering Department and Dr. Kauffman set up a research "HIGH EZE Team" for me. Their test pilot Professor Bill Ribbens examined the ARMY Long-EZ data and suggested we try vortex generators. We decided to wind tunnel test to evaluate the effects of vortex generators. We found that on the Roncz canard a 25% increase in lift can be obtained with a 2% drag penalty at a high angle of attack. Not Bad! I ran a combination that provided slightly less drag and lift. I wanted to make sure that I would not go into a flat stall so vg's were added to both the main wing and the canard.

Bill Bainbridge gave me a light weight alternator which drives off the Lycoming vacuum pump pad. It's 8 amp output allowed me to use a very light weight battery.

Testing my modifications was a bit of a concern. Mike Melvill experienced a flat stall in the development of the new canard; from listening to his story, I knew that I didn't want to go through that. I tufted the main wing and the canard in my flight testing so I could see that the canard would stall before the main wing. This process worked well. I still did all my early testing up high and with a parachute.

This has been a truly extraordinary learning opportunity, and again I would like to thank everyone that has been involved. Be well and fly safely.
Jim Price hilong@aol.com

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7 miles up in a Long-EZ !!