

# AirVenture 2006

by Charles Lloyd



Some of my favorite places to visit at AirVenture are buildings A, B, C and D. You can find all the vendors you expect to see in and around these buildings. There are always several surprise offerings from new participants. Since Bill, our pampered 182, stayed behind at Waupaca, while I traveled in luxury in the CFA air-conditioned travel coach, our conversation got right to the point when I started the preflight to leave for Jackson, Wyoming. "What did you see in Oshkosh, huh?" "Well Bill I think you are going to fall in love with some of the items I saw at AirVenture, particularly some of the new avionics."

*Garmin 600*

Garmin's 600, "six pack", electronic display replacement for the classic mechanical flight instruments was a stunning hit in the Garmin area. The 600 contains two 6.5-inch liquid display units placed vertically in one 10-inch case. The left display is a Primary Flight Display (PFD) and the right is the Multi-Function Display (MFD). This is the same concept used in the Cessna's Garmin 1000 Avionics System with two 10-inch displays for PFD and MFD information. The traditional engine instruments remain for engine and fuel management.

With a state-of-the-art picture tube, what else do you need to make the instruments and navigation displays work? The \$30,000 Garmin 600 package includes:



Left: Garmin 600. Above: Tristol models Mutt Muffs.

- 10-inch case with dual 6.5-inch displays programmed for PFD and MFD functions,
- Solid State Attitude and Heading Reference System (AHRS),
- Air Data Computer (ADC),
- Magnetometer,
- Temperature Probe.

This display unit works with other panel-mounted Garmin products in factory installed and after market installations. The other required inputs to make all the 600 display features function are:

- Garmin 430/530 with Wide Area Augmentation System (WAAS) or 480,
- GDL 69 NEXRAD Datalink,
- GTX 320 Transponder for Traffic Information System (TIS),
- L3 Avionics Systems Model 500 Stormscope,
- GWX 68 radar for twins.

Garmin GPS outputs will still drive you autopilot as presently installed either directly or through a GPS Steering S-TEC interface. The PFD displays an attitude indicator (AI). An

airspeed tape is on the left and an altitude tape is on the right side of the AI. The lower portion displays a Horizontal Situation Indicator (HSI). Other display options are bearing pointers for Nav 1 & 2 GPS or VOR plus a true airspeed. The MFD displays your flight plan track with a terrain elevation overlay, Jeppesen Nav Data to depict airways, navaids, airspace plus other features. XM WX NEXRAD plus lightning weather overlays, METARS, and TAFs give the pilot a wealth of information to fly safely. Two new displays are SafeTaxi, a built-in database of over 650 US airports diagrams, which shows the aircraft position on the airport diagram and an optional Jeppesen Chartview to display electronic approach charts.

Garmin continues adding to its building block approach that started in 1998 with the model 430 Nav-com GPS Display integrated unit. At first, many pilots questioned placing so many features in one box. Today's overwhelming market acceptance with 40,000+ 430/530 units confirms their design decision for this ever-expanding avionics family. The only question now is what is Garmin going to announce next? They are certainly moving the leading edge for general aviation avionics to a new level every year.

#### *Mutt Muffs*

Even the family dog, Tristol, got recognition at the show. Dogs have sensitive hearing. Tristol can hear people and cars approaching and takes her job as the family doorbell seriously. Riding in a noisy airplane bothers dogs ears even more than it bothers ours.

Mutt Muffs comes in three sizes and have Velcro adjustments to fit the muffs comfortably on any pet's head. Do you think your dog will not wear these earmuffs? Fido is a fast learner. Once the dog realizes how quiet it is in the airplane then you will not have any problem getting your dog to wear a Mutt Muff.

#### *Alpha Systems Angle of Attack Indicator*

Alpha System's Angle of Attack (AOA) formerly known as The Original Lift Reserve Indicator, offers a mechanically driven and electronic Angle of Attack instruments. The angle of attack display displays how your wing is performing independent of power, attitude or airspeed. Slow down and the angle of attack increases. Go into a steep bank at cruise speed and angle of attack increases again. Increase the angle of attack too much under either of these conditions and you will stall. The Alpha System AOA indicator displays information to manage approach speeds at a fraction of the cost of turbine aircraft units.

Alpha Systems electronic AOA has three Light Emitting Diode (LED) display options: a horizontal or vertical light bar and a 2 1/4 inch instrument with light dots that progress around the face similar to an analog dial. These LEDs change color depending on the condition, fast (yellow), on speed (blue) and approaching a stall (red). When the indicator turns red, then a stall warning sound gets your attention.

A probe mounted underneath the wing senses a differential pressure that measures the wing's lift or angle of attack (alpha). Using the procedure in the operating manual, calibrate the AOA reference point (blue dot at 3 o'clock on the display for your aircraft). You set the reference for maximum lift over



Jim & James at Cessna static display.

drag (best glide speed). The Alpha System AOA does not have flap compensation integrated into the display like more expensive business jet units, but provides predictive information for varying conditions.

One of the major benefits for installing this instrument is the traffic pattern turn to final. With the aircraft down low and slow, you are distracted looking for other traffic and then you overshoot the final and pull back on the control wheel a tad too much. In this tight turn, the Alpha System AOA Indicator LEDs move up the scale until you see only red LEDs indicating a high angle of attack and imminent stall. This AOA LED movement is better than the stall warning horn suddenly going off in your ear, followed by a wing buffet and nose down arrival short of the runway. The other advantage is your approach speeds using the AOA will be more consistent, which translates into improved landings, plus repetitive touchdown points, and rollout distances.

The Alpha Systems AOA does not have a blanket STC for numerous aircraft modes and is not TSO'd which means you will need to do some homework with your local FAA FSDO for a field approval installation. The mechanical unit does not connect to any aircraft system so it's not difficult to get a field approval for this unit. However, the LED units need electrical power and thus "attach" to your aircraft, drawing less than 300-milliamps but they otherwise do not affect the aircraft's operation. The electrical unit will require more evaluation, in-

cluding electrical loading before installing.

*Precise Flight's PreciseLite High Intensity Discharge Lights*

Precise Flight continues to offer innovative additions to its product line. Bill, our 182, already has a Form 337 Field Approval for a right hand landing installation with halogen lamps in both leading edge wing assemblies. These lights are now obsolete with Precise Flight's new PreciseLite HID (high intensity discharge) STC. This lighting system provides up to six times the lumens of a standard landing light bulb. The best part is that the light has a 35-watt draw with a 200-watt equivalent output and a 5,000-hour

bulb life. PreciseLite STC's currently are available for Cessna wing mount installations.

Installation steps are: remove the old lamp and install the new HID lamp, install the ballast unit next to the lamp under the leading edge Lucite cover or on the wing rib behind the lamp assembly, connect power and ground wires to the ballast, and fill out the paperwork. Now, you are ready to go fly.

These lamps cost \$595 each from Precise Flight plus shipping. Increased bulb life and less current draw are reasons to consider this STC for your aircraft. It is certainly on Bill's wish list for a near term installation.

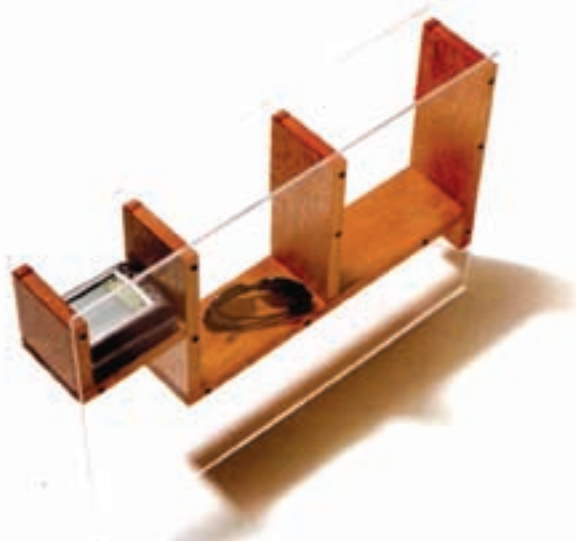
*Aerox Oxygen Systems with Oxysaver Cannulas and Oxygen Systems*

Aerox Oxysaver Cannulas increase oxygen system duration by

four time's normal duration. I won't go into the details but the system mixes pure oxygen with exhaled air, which prevents nasal dryness while conserving the oxygen supply.

Lloyd Boston, President of Aerox, stresses the benefits for using oxygen at lower altitudes than the FAA requires. I thought that you do not need oxygen in a normally aspirated aircraft. Boy, did I learn the meaning of his recommendations twice in the last month. First, the trip from Waupaca, WI to Jackson Hole, Wyoming changed my mind about who needs oxygen. The second leg, four hours from Pierre, SD to Jackson Hole at 12,500 feet in clear skies was 100 miles of bad road. The 182 went up, down and sideways for 4 hours in continuous light turbulence. Oxygen limitations prevented going

Come join us next year  
at the Cessna Flyer gathering  
the week before  
AirVenture 2007 and  
see for yourself the fun  
you've been missing at  
this great aviation spectacle.



#### Wilco cockpit caddy.

higher and going lower would be worse. The solution was to grit my teeth and tough it out.

The two-outlet, nine cubic foot bottle and a OxySaver Canula has an 8.9-hour duration at 15,000 feet for one person. You only have to experience that type of trip once to say; where do I sign up for the increased comfort that a supplemental oxygen system will provide to a pilot and passenger.

The next example happened flying a Citation Excel on the night shift during a recent tour. We were flying 5-8 hours per day (night that is) with a 5-6,000 foot cabin altitude. From 10 o'clock on in light traffic drowsiness sets in and your body asks you, "What are you doing? Don't you know it is time to go to sleep." A quick 15-minute dose of oxygen changed my alertness better than 5 cups of coffee. The fatigue disappeared and I was wide awake and alert. Supplemental oxygen beyond what the FAA Regulations requires is a good idea.

Flying a normally aspirated Cessna 182 with two adults on-board at 15,000 feet will take time but the comfort to stay out of the turbulent air will be worth the price to get there. Aerox recommends using oxygen above 10,000 feet during daytime and 5,000 feet at night for increased comfort and alertness. All this for \$570 for a 2-person, 9-cubic foot system that includes a tank with regulator, flowmeter, 2-OxySaver Canulas and one standard mask.

#### Wilco Cockpit Caddy

A recent "Adventures with Bill" article described my do it yourself electronic flight bag (EFB). The EFB includes a laptop computer, portable printer and Hewlett Packard Personal Digital Assistant (PDA). The EFB system works great but there is a storage problem. The laptop and the paper trip kit do not fit into my 25-year old, between-the-seats organizer designed for Jeppesen binders. I need two long pockets in the organizer for the laptop and the 8 1/2 X 11-inch paper trip kit.

Wilco offers a Cockpit Caddy for both Jeppesen and NOS binders. I called Floyd Walpole and suggested an EFB size unit as the third "standard" version for \$195. After 25 years, I think it's time to modernize Bill's between-the-seats cockpit organizer.

#### Alpha System Aircraft Ignition Kit from Teledyne Continental Motors

Bendix has just made it easier to replace your magnetos

with new or rebuilt units from TCM Bendix rather than inspect and repair at the first 500 hour interval and at 1,000 hours overhaul your magnetos. The Alpha System Aircraft Ignition Kit includes two new magnetos, an ignition harness and twelve new Champion spark plugs. Return the magnetos at 500 hours and no longer than five years since installation for \$99 each TCM Bendix will send you new magnetos. This is a new program with pricing not currently available, but the kit pricing should be less than buying the components separately. Call your local FBO to get pricing.

Redundancy, reliability, and safe operating procedures go hand in hand. This is the reason to replace magnetos at the 500-hour inspection interval rather than tear down the magnetos, replace the points and other components. The time and cost to inspect and repair is more than the cost of replacing with new or overhauled components every 500-hours.

#### Conclusion

Oshkosh offers many points of interest for all pilots and especially aircraft owners. Come join us next year at the Cessna Flyers gathering the week before AirVenture 2007 and see for yourself the fun you are missing at this great aviation spectacle.

Garmin International, Inc. 600 Replacement Display  
913 397-8200  
<<http://www.garmin.com/products/g600/>>

Mitt Muffs  
<<http://www.safeandsoundpets.com/index.html>>

Alpha Systems AOA formerly The Original Lift Reserve Indicator  
303 408-6899  
<<http://www.lriaoa.com/index.htm>>

Precise Flight's PreciseLite  
800 547-2558  
541 322-2865  
<<http://www.preciseflight.com/viewpage.php?PID=12>>

Aerox, Inc.  
800 237-6902  
207 637-2331  
<<http://www.aerox.com/>>

Wilco, Inc.  
800 787-7593  
316 943-9379  
<<http://www.wilcoaircraftparts.com/>>

TCM Bendix Alpha Mag Program  
800 718-3411  
251 438-3411  
<<http://tcmlink.com/alphamag/ignKit.html>>

*Charles Lloyd has logged 9,000 hours since his first flying lesson in 1954. He worked for Cessna Aircraft for 16 years. Charles' current day job is as a Citation Excel Captain for a major fractional aircraft ownership company. He flies a tricked out 1966 restored Cessna 182 also known as Bill and is currently a FAA Aviation Safety Counselor. Any comments you have about his articles are welcome at [charles@aviationcongrat.com](mailto:charles@aviationcongrat.com).*