

Column: Condor Corner
Issue: October 2012
Title: Oshkosh – KidVenture 2012
Author: Scott Manley - CFIG

Introduction:

The Experimental Aircraft Association (EAA) annual convention (a.k.a. Oshkosh, a.k.a. AirVenture) is one of the world's largest aviation events. If you like things that fly, you owe it to yourself to attend. If you have something aviation-related to promote (for example, the sport of soaring), there are, logically, few better places to do it. More than 500,000 aviation enthusiasts attended AirVenture this year.

As in years past, a number of us, who believe it important for soaring to be represented at Oshkosh, volunteered in a number of capacities. SSA Director Gerry Molidor is the liaison to the EAA, coordinates the larger SSA presence, and may report on the bigger picture in some future issue of Soaring. (Gerry, forgive me if I just put you on the spot). This report is limited to my involvement and observations of AirVenture 2012, in particular the Soaring Flight booth at KidVenture, and the role/value of the Condor glider flight simulation in that venue.

History

KidVenture is a special area at Oshkosh where kids of all ages (typically five to fifteen) can experience a wide variety of aviation-related activities and learning opportunities.

In 2010, prior to any SSA support, a number of SSA members, lead by Anne Mongiovi, got our soaring foot in the door by volunteering to staff the Aircraft Design module, one of about 12 official learning stations that compose the core of KidVenture. We took the liberty of incorporating a Condor glider simulation into the otherwise predefined curriculum, and as you can imagine, the kids loved it.

In 2011, under Gerry Molidor's leadership, and with some financial support from the SSA, we secured our own **Soaring Flight** booth at the entrance to KidVenture's main hangar. This time, I had arranged to have three simulation stations, one of which used a 6-foot projection screen as a monitor.

This year (2012), the KidVenture organizers provided us with a considerably larger booth space in a better location inside the main hangar. In addition to the three Condor simulation stations, we had room for an information table and seating for waiting kids and their parents. Outside, the Red Wing Soaring Association (MN/WI)(Steve Kennedy, Peter Dreis, Paul Campobasso) provided a Blanik L-13 in which Anne Mongiovi photographed over 150 kids. After the convention, Anne sends each kid his/her photo along with information on the SSA, and how to get started in soaring.

Gerry tells me Soaring Flight has already been invited back for KidVenture 2013.



Statistics

In 2011, we ran a lot of kids through the Soaring Flight booth. When it was all over, I wished I had kept an attendance record. So this year, I did. I started a new sign up sheet each day. As each future glider pilot showed up, we would sign them in; recording their first name (only), age, and their home state. When OSH was over, I entered the raw registration data into a spreadsheet, sorted it by date, derived a gender data point from the first name, and generated pivot tables (numeric summaries) and charts (graphic representations of the pivots). The spreadsheet is available for download, associated with this article (October 2012), in the Documents section of the Condor product page, on Paul Remde's Cumulus Soaring website:

<http://www.cumulus-soaring.com/condor.htm#Documents>

As always, thanks to Paul for hosting our Condor Corner articles and the related documents.

Here is the executive summary of activity at the KidVenture 2012 Soaring Flight Booth.

- 1) More than 400 kids flew the glider simulation this year. On average, we introduced another kid to soaring flight every 6 minutes, for 6.5 hours a day, for 7 straight days. Our lightest day was Sunday (closing day) with 18 kids. All other days we hosted 60-70 kids.

- 2) 84% of our fledglings were boys; 16% were girls.
- 3) The kids ranged in age from 2 to 63 with the vast majority in the 7-14 range. The average age for boys was 11; the average age for girls was 10.
- 4) Our future glider pilots hailed from 37 of the 50 United States, from 5 foreign countries (including 3 Canadian provinces), and one U.S. Territory (Guam).

The Routine

As time allowed (depending on how many kids were waiting), I would run my little fledglings through the following routine:

- 1) Get Comfortable

I would greet them by name and introduce myself. I would then get them comfortably seated on a chair in front of the monitor or projection screen, and place the joystick on a small platform (for stability) in their lap. The rudder function had been auto-coordinated using a setting in the specially designed EAA 2012 Condor flight plan. I discovered last year that rudder control was too complicated for younger kids and, at least half the time, their little legs couldn't reach the pedals anyway.

- 2) What is a Glider?

I used the Condor external glider view (F2) to show them what they would be flying (a beautiful ASW-28 with red trim) and asked them what they noticed about this type of aircraft. The observations I was looking for (and quite frequently got) were "long wings" and "no engine".

I would then ask: "If the glider has no engine, what makes it go?" I would listen to their answer and then relate the analogy of riding their bicycle down a hill, not having to pedal, going faster on steep hills and slowing down when going uphill. The older kids quite often recognized and identified the motivating force as gravity; the younger kids learned something new.

- 3) Airspeed Control

I would then explain our first task was to control the speed of the glider, asking if they knew what happened if the glider went too slow or too fast. Again, regardless of their answers (many of which were quite insightful), I would tell them we needed to fly the glider at a safe speed; not too fast and not too slow (Baby Bear's treatise on speed-to-fly).

I pointed out the line between the blue sky and the green ground and ask if they knew what that line was called. Quite often they knew it was the "horizon" (their external visual pitch reference). I then directed their attention to the little "piece of tape" holding the blue string on the glider canopy (their internal visual pitch reference). As I started the simulation running, I would ask them to see if they could keep the little

piece of tape on the horizon by using easy forward and backward movements of the stick. Within a very few oscillations, they had the ASW-28 stabilized in level flight at a constant airspeed. I would praise them and explain this attitude (“tape on the horizon”) would result in an ideal, safe speed to fly. By no accident, I already had my fledglings visually flying the ASW-28 at its best glide speed.

Next, starting at best glide speed pitch attitude, I would have them pitch the glider down (“tape below the horizon”), as if going down a steeper hill on their bike, and point to the increase in speed on the airspeed indicator. I would then have them pitch up (“tape slightly above the horizon”) and note the decrease in speed.

I would finish this segment by having them reestablish best glide speed. I then switched to Condor’s external Fly-By view (F6), affording my student a new and different perspective on what they were doing, and described their flight attitude as “straight and level”; “level” because the wings were level with the horizon; “straight” because the glider was flying in a straight line.

4) Turning Flight

I explained that to turn the glider, we would need to make it “lean” just like they leaned their bicycles when turning. I asked my young apprentices to slowly move the stick to the side and watch as the glider leaned in the same direction. As they rolled the glider and established a shallow bank, I would remind them they still needed to keep the piece of tape on the horizon (constant speed turn). Very quickly, most kids were able to incorporate pitch control (learned only minutes earlier) into their new turning task. Once stabilized in the turn, I would again switch to the Fly-By external view (F6), give them another perspective on their flight attitude, and praise their flying skills.

Amazingly, at this point, rather than having to tell my fledglings “how” to return to level flight, I would simply ask them to “please roll the wings level”. They would. I then asked them to “give me a turn in the opposite direction please”. They would. I next had them transition from a turn in one direction directly into a turn in the other direction, again while keeping the tape on the horizon (i.e. reversing the direction of turn while maintaining airspeed control by reference to the horizon). They would.

At this point (now only about 6-8 minutes into the routine), if my student had demonstrated sufficient discipline by mastering the fundamentals (and almost all did), I would ask if they wanted to learn some “tricks” (a.k.a. aerobatics). Their eyes would light up, since so far “*the routine*” probably seemed a lot more like work than play. The disciplined training, however, had laid the foundation for the fun that was to come.

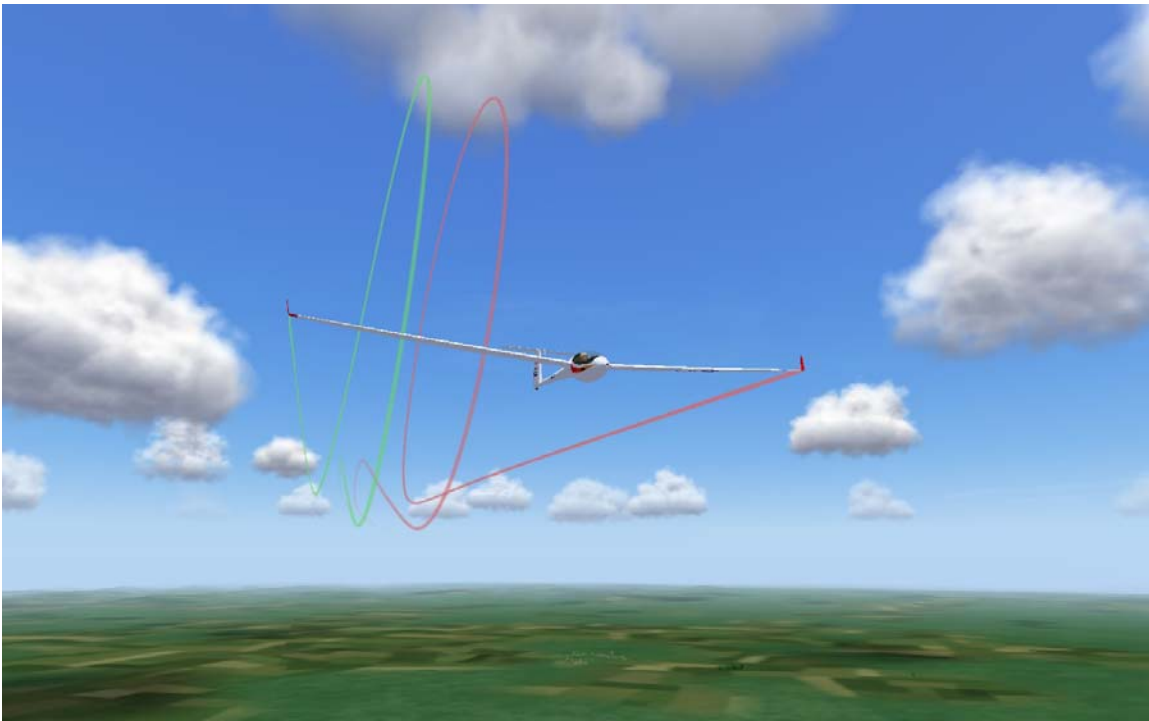
5) The Loop

I would ask if my young protégés if they knew what a “loop” was. Whether or not they did, I would provide them with a description and visual demonstration of a loop using my “flying hand” (all flight instructors have at least one flying hand). I would explain, because gliders have no engine, the energy needed to perform the loop would

need to come from extra speed. I would then run in full nose down trim and the ASW-28 would start pitching down. Without exception, my well trained, highly disciplined little future glider pilots would instinctively start applying back pressure to hold the “tape on the horizon” (maintain a safe airspeed). I told them it was now OK to relax that pressure and allow the glider to pitch down, but not to lose sight of the horizon (i.e. allow it to disappear off the top of the monitor). I pointed to the reference speed of 100 knots on the airspeed indicator and instructed them to wait until the needle pointed to 100. As the glider accelerated, I covertly turned on the wing tip smoke.

At 100 knots, I asked them to smoothly, but firmly, bring the stick all the way back into their belly and hold it there. The ‘-28 pulled up into the loop. As the sky pasted by and the ground refilled the screen, I had my little aerobats look down for the wing tip smoke trails, and as the glider descended through the smoke trails, to relax the back pressure, find the horizon, and reestablish a level flight attitude (tape on the horizon). I would then freeze the action by hitting the Pause (P) key, switch to an external glider view (F2), and pan the view around to show them the loop they had just accomplished. I wish I could have packaged and sold the smiles.

I would ask if they wanted to do another loop (rhetorical question). Of course they did. So I talked them through another loop and usually followed that with a double and sometimes a triple loop, each time showing them the external view of their accomplishment. Occasionally I would switch to the Fly-By (F6) external view while the loop was in progress, always taking care, however, to switch the view back inside in time for my little future Bob Carlton to visually capture the horizon.



7 year-old Competition for Jason Stephens

6) The Roll

Again, I would first use the flying hand to introduce the roll. At this point in their training, however, I was able to simply direct them through any new maneuver using a few, now-familiar, but simple commands.

- a) "Speed to 100"
(fledgling would pitch down and accelerate to the target speed)
- b) "Tape on the horizon"
(fledgling would pitch back up to level flight)
- c) "Stick to the side"
(fledgling would initiate a roll)
- d) "Stick forward as you go upside down"
(fledgling would apply forward stick pressure)
- e) "Stick back as you come back upright"
(fledgling would apply back stick pressure)
- f) No need to tell them to complete the maneuver by pitching to the horizon and rolling the wings level. They would now do that instinctively.

I would talk them through another roll in the same directions and then a third in the opposite direction.

7) Inverted Flight

After a couple successful full rolls, I asked (using the flying hand) if they could imagine what would happen if we only did half of a roll. Again, as if we were about to do something really naughty, the look of excitement appeared as the fledgling realized we would be upside down. While inverted pitch control was now counter-intuitive and required a lot of "push, push, push" reminders on my part, rolling level while inverted came quite naturally and I had my young apprentices flying upside down in no time, again using pitch attitude relative to the horizon to maintain a safe airspeed while inverted. To end this session, I would admonish my fledgling to hold firm the forward pressure on the stick and I then switched to the Fly-By (F6) view so they could see themselves flying by upside down. As always, a big grin.

8) Split S & Cuban 8

If time allowed, I had them start combining maneuvers. The Split S is a half roll to inverted followed by a half loop (fighter pilot maneuver). The Cuban 8 is a half loop to inverted, a half roll on the 45 down, another half loop to inverted, and another half roll on the way down.

The full roll, inverted flight, split S, and Cuban 8 maneuvers were all optional depending on whether we had kids waiting, but I always finished each kid's training as follows.

9) Solo

After teaching them the fundamentals of controlled flight by reference to the horizon, and teaching them at least one "trick" (aerobatic maneuver) as a reward for their

disciplined attitude, I would “solo” each of the kids. I praised their flying skills, told them they didn’t need me any more, and freed them to “go ahead and have some fun”; at which point I would simply get up and walk away, leaving them to fly the simulation on their own. If the kid’s parents happened to be waiting nearby, I would invite the parents over to sit next to their young aviator and watch the performance. From a distance, I too would watch with great delight as yet another happy, excited kid put on an air show for his/her proud parents.

The Flight Instructors

In addition to the kids having a really good time and being introduced to the sport of soaring, there was another important and satisfying dynamic taking place. Each of the Soaring Flight booth volunteers was getting first hand experience of what it is like to be a glider “flight instructor”. Two of my favorite quotes are “You never learn something better than when you have to teach it to someone else” and “It is one thing to know something; it is quite another to teach it”. In the process of planting the soaring seed in another crop of over 400 kids, I suspect we may have helped inspire a few of the next generation of glider flight instructors.

At the risk of forgetting someone, I would like to recognize and thank the following list of folks for volunteering their time to the kids and the Soaring Flight booth this year: Sy Horowitz, Megan Hart, Michael Abell, Ron Rose, Lee Murray, Danny Evans, Josh Starr, Mel and Taylor Callen, Tim Ponsot, Jer Eberhard (CFIG).



Megan Hart – Future CFIG

For this glider flight instructor, KidVenture affords the opportunity to do a lot teaching in a short period of time. Unlike being limited to the few dozen personalities and learning styles I might encounter in a typical soaring season in the real world, in only 7 days, I get

to experience more than a hundred new challenges to my teaching skills. I get to try out and refine new techniques. I learn things working with kids that might help my adult students. For example, I am going to try holding off longer on introducing rudder coordination into my real life and simulation-based flight training until the student has a better mastery of pitch and roll. I may try using less glider jargon initially; instead introducing concepts using examples that better relate to my student's experience base. And, I am going to try drawing out the child in each of my adult students in an effort to leverage the pure joy of learning young kids naturally have.

In Conclusion

It never ceases to amaze me:

- a) how much you can teach a 7-year-old kid in 15 minutes
- b) what can be done with a little imagination and a \$60 piece of software called Condor.

=====

Scott Manley owns, and occasionally actually flies, a DG-303. The back of his pilot's license reads: Commercial pilot: airplane single-engine land & sea; instrument airplane; glider. He lives in Madison, Wisconsin and flies as a commercial pilot, glider flight instructor, and tow pilot for Sylvania Soaring Adventures in Beloit, Wisconsin.