



Left Seat: President's Corner

Your Participation Makes a BIG Difference

I'm happy to report that it seems to me we are experiencing some revitalization within the Chapter and are fortunate to have some new and previous members who are volunteering to do the many small tasks that make up a vibrant chapter. It has been a huge help.

Organizing, setting up and breaking down our meetings, submitting articles for our newsletter, our website, special event planning and execution, finding interesting, volunteering for Young Eagles / Boy Scout programs, and many other contributions all are strengthening the chapter significantly. These represent in many cases fairly light duty for the participants but add tremendously to the quality of our chapter.

As we move forward the wheels keep turning and new opportunities come to the surface. At our last meeting, there was some discussion on how we handle donations and I've heard from several folks some great ideas relative to this. From a library to a tool share scheme to a variety of other odds and ends that may just need to be sold at our Holiday Gathering there seems to be plenty to share or move to a better

home. As the saying goes, 'One Man's Trash is Another's Treasure'.

A natural progression at this point is to more formally organize some of these opportunities that add to the fabric of our organization. In the next few weeks, I would like for you to consider volunteering to help on a specific area or committee. At this point we are basically saying hey we need to do this or that and several folks will chip in and take care of it. I think if we look a little further out and organize a little better we can take it to the next level.

After Oshkosh, I hope we can set up a couple of committees that will help us plan and look a little further out in the Chapter's activities. Please consider either taking the reins of one of these groups and recruiting a couple of folks to help or joining a group.

Many hands make light work. ~John Heywood

Switching gears, lots of activities coming up! On Thursday, July 19th, Steve Johnson will be doing a program on the RC Model hobby. Weather permitting we'll be trying it out in at my or Steve's hanger 6:30 light dinner. Second, coming up on August 17th Peter Cassidy will be a doing another maintenance program on borescopes and how to inspect engines. Hope to see you soon.

Shelby Smith
EAA Chapter 162 President

On the Horizon: calendar of events

Date	Topic	Location
July 19	Radio controlled models	JWN
August 16	Engine Inspection: Borescopes	JWN
September 20	Top Ten Things I Learned Building an Airplane	JWN
October 18	Electronic Flight Bag Technology	JWN
November 15	Flight Simulators	JWN
November 17	Saturday Young Eagles and Boy Scout Merit Badge	JWN

For details on these and other upcoming aviation events in our region, please see the Chapter website at www.eaa162.org.

Lessons From The New Generation of Avionics

by Peter Cassidy

This Stuff is Amazing

It's no surprise that glass panels are pretty much standard in new aircraft. The capabilities of the current generation of avionics, like the WAAS-capable Garmin 430W/530W, is amazing. Situation awareness, something we've all struggled with at one time or other, is pretty much a non-issue with moving map displays. In addition, we have terrain mapping to alert us to hills and towers, and while we don't yet have autoland capability, the roll steering feature of the new autopilots will fly the complete approach including the procedure turn. All the pilot has to do is push the buttons and man the throttle. Like most things in aviation, this new technology is not cheap, but it is affordable, especially for experimental aircraft. If you have not had

the pleasure of flying with this equipment, you owe it to yourself to see what it's all about and why it's selling so well.



More Sophistication Means More To Learn

One of the great things about classic navigation systems like VOR, ADF and ILS is that they essentially work the same from all vendors. Moving from one aircraft to another is not difficult avionics wise. These systems have few controls and their function is relatively easy to understand. Tune the frequency, set the heading and when you are on the path, the needle centers. That's it. How you get to where the needle centers doesn't matter. On an instrument approach, if the approach controller sets you up right at the final approach fix or even inside, it's not the end of the world...provided your flying skills are good.

A WAAS capable GPS, on the other hand, is a different animal. It's a very smart box that does a lot of computation in the background to ensure accuracy. It changes its mode of operation depending on the conditions and is smart enough to lead you through the full approach including the procedure turn.

Unlike the ILS, there are choices to be made in GPS approaches and they are not all under the pilot's control. With the introduction of WAAS, GPS approaches come in three flavors each with lower minimums: LNAV, LNAV/VNAV, and LPV. Which type of GPS approach you get to fly depends on what the FAA has approved for a particular airport (Clarksville KCKV is the closest airport to Nashville with an LPV approach), and on the quality of the GPS signal at the time of the approach. If the signal is really poor, you won't be able to fly any type of GPS approach. Checking GPS NOTAMs is something we need to add to our preflight briefing.

During a GPS approach things get interesting as accuracy computation gets done in a specific sequence. For the Garmin 430W/530W you have to start the approach within 45 degrees of the approach path and at least two miles from the final approach fix. Pilots that like to save a few minutes by doing a "slam dunk" approach at or inside the final approach fix are out of luck if it's a GPS approach. A GPS receiver won't sequence properly from enroute to approach mode. It will remain in enroute mode which is not legal for doing a GPS approach. If the controller vectors you properly for an approach, this won't be a problem, but controllers don't always follow the book. Such errors mean a missed approach.

There is Another Side

Most technology advances have a downside of some sort and this new generation avionics is no exception. Safety advocates have been cautioning us about the problems of complexity and spending too much time staring at the vast array of information on the display instead of looking outside for other aircraft. These new products are sophisticated, computer controlled systems

and if you don't get the button pushing right, you could get into trouble especially in the IFR environment. The FAA calls them *technically advanced aircraft* (TAA) and is rightly concerned about pilot competence to operate these advanced systems.

You don't have to buy a new glass equipped airplane to be in the technically advanced aircraft realm. Add a Garmin 430W to your radio stack and you are there. Actually, the problem has been around for quite a while. I once worked at learning to use a Bendix/King KLN-89B GPS in a 1998 Cessna 172. The KLN-89B, one of the early GPS navigators, is a solid performer but has a horrible user interface. The Garmin 430 is a dream in comparison, but even the 430 requires serious study to use it effectively. I've always thought TAA only applied to the new glass-panel equipped aircraft, but the reality is the term applies to that 1998 Cessna 172 with its KLN-89B and a full set of steam gages.

Being computer controlled, these new systems have software and lots of it. Like your PC, there are software bugs so plan on software updates. Garmin's new 400W and 500W units are in the bug fixing stage, fortunately none of the bugs found so far is serious enough to prevent basic Nav/Com/GPS operation. One of the enhancements expected in the next software release is full compliance with TSO C146a so as to permit use as a primary navigation system. Until we get that update, we still need our VOR receiver and we can't file IFR alternates that only have a GPS approach.

Regular Practice Essential

Modern avionics systems are marvelous boxes bringing us very advanced capabilities. However, they are complex and the technology is constantly advancing. As

pilots, we need to study the user manuals carefully and just like we keep our flying skills sharp with practice and recurrent training, we need to apply the same regime to the use of our avionics. When things don't go right, there won't be time to look up the answer in the user manual.

What Our Members are Building

Build Your Own Helicopter or Lessons Learned Along the Way by Ken Loyd



The completed helicopter and proud papa

Many thanks to those of you who attended the last meeting to see my completed project. It was a pleasure to talk about it. Some of you have already completed your own aircraft and my experience sounded very familiar I'm sure. Construction of my Exec-90 required about 1500 hours over a period of about 10 years. I began with no experience, but an enduring fascination with flight, and with helicopters in particular.

Prior to learning about the concept of kit aircraft, I was unaware of the Experimental Aircraft Association, or the concept of experimental aircraft in general. So, one of the first things I learned was how much

freedom this classification offers to individuals to not only build, but even design their own aircraft. I also learned early on, that although such people are adventurous, they are not foolish risk-takers, and they place a tremendous emphasis on safety and quality workmanship. The members of the EAA share an interest in aviation and they are eager to help newcomers like me, even by phone. For me one of the more confusing and challenging aspects of this project occurred whenever the time came to interact with the federal government. I always wanted to comply with all of the details and the spirit of the regulations. Trying to decipher the requirements myself was sometimes nearly impossible, but the EAA through their members and publications did a great job of clarifying processes like registration, airworthiness inspections, and recordkeeping requirements. As many of you know, finding insurance for a home or kit built project can difficult and I was simply not able to find any at all without the help of the EAA.



The instrument panel in repose...

As I worked on my project, I also came to admire the entrepreneurial spirit of the kit manufacturers. To these people, at least at Rotorway, what they do is not just a business but also an ongoing process of development and customer support and education in pursuit of excellence.

Ultimately their success depends on the success of their builder customers and they seem to understand that. Of course kit building is a lot of fun, but the people at Rotorway take the process very seriously.

Building a project like the Exec-90 I learned the obvious things like working with sheet metal, fiberglass resin-mat methods, the limitations of my simple welding skills, sandblasting and spray painting, wiring techniques, and of course, measure twice cut once.

Finally, I realized the satisfaction of completing the project is greatest when it is the result of patience and realistically budgeting time for the project to keep a balance between the project and my profession and my family. Maybe that is why I always feel some disappointment when I see a partially completed kit for sale in the classified section of an aviation magazine, because it means that somebody didn't ever enjoy the sense of accomplishment that comes with finishing the kit.

Another RV-10 Slips the Surly Bonds

In the January 2007 Newsletter your newsletter editor described progress on his second project, a Van's RV-10.



First takeoff from JWN

We are pleased to report that on Sunday, July 15th it passed its airworthiness inspection, and with the help of RV-10 builder Brian Sutherland and your chapter president Shelby Smith (who was simultaneously working on the windshield in his own airplane in the next hangar), the inspection plates and interior panels were all put back in and the bird was readied for its first flight. At 2:30 pm it slipped the surly bonds of earth for the first time, and completed a successful set of circuits around the pattern at John Tune airport.



After a smooth landing, builder-pilot Dan Masys was photographed exhibiting the facial gesture widely known as the "RV grin". The RV-10 is a cross-country cruiser with 4 seats, a 750 mile range and 200 mph cruise speed, built from a kit produced by Van's Aircraft (www.vansaircraft.com)

Just for Laughs

A young and foolish pilot wanted to sound cool on the aviation frequencies. This was his first time approaching a field during the nighttime, and instead of making any official requests to the tower, he said, "Guess who?"

The controller switched the field lights off and replied, "Guess where!"

EAA CHAPTER 162
MEMBERSHIP APPLICATION

NEW MEMBER
\$30.00

INFO CORRECTION
(name and changes only)

SENIOR (65+)
\$10.00

YOUTH
\$10.00

DATE ____/____/____ WHAT NAME WOULD YOU LIKE
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NAME _____
LAST FIRST INITIAL SPOUSE

ADDRESS _____
NUMBER STREET CITY STATE ZIP

PHONE _____
HOME CELL WORK

E-MAIL _____

DATE OF BIRTH ____/____/____

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[]Glider []IFR []ME []IA []ROTO
[]Flt Eng []Radio Repair []Other: _____

AIRCRAFT PROJECT UNDERWAY _____ % COMPLETE _____

AIRCRAFT NOW OWNED _____

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