

NEW HORIZONS

Brought to you by your Kentucky Department of Aviation

January 2013 Issue 39

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**AOPA Air Safety Institute
Flight Instructor Refresher Clinic
February 9, 10, 2013
Louisville, KY**

Flight Instructor Refresher Clinic

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AOPA Air Safety Institute Air Safety Seminars

Monday, April 1, 2013

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Tuesday, April 2, 2013

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Times: 7-9p (Local Times)

Chart Challenge

What would we do without charts? They're one of the most fundamental parts of flying-but they can also be challenging to interpret, difficult to read, and sometimes head-scratchingly confusing. Our new live seminar is meant to help you master them. Based on our popular "Chart Challenge" series of online courses, it's a refresher clinic where you, the audience member, get to put your knowledge to the test. We'll quiz you on everything from VFR sectionals to instrument approach plates, and dig into the practical issues that come with them. We'll cover:

- Challenging questions about specific VFR and IFR charts
- Critical tie-ins with real-world procedures and decision making
- Analysis of tragic accidents caused by chart misinterpretation
- Important "gotchas" you need to be on the lookout for .

THE OTHER SIDE OF THE FENCE

Encouraging the next generation of pilots

By Kevin Garrison



The [Kentucky Institute for Aerospace Education](#) (KIAE) and other organizations like it are working to help solve a problem that aviation industry groups have been wrestling with for some time. It's no secret that the pilot population is aging and flight schools are in constant need of new students.

Started in a T-hangar with an airplane project provided by the Build-a-Plane organization, the high school students and volunteer adults at KIAE have grown to seven airplane projects, a flight training program, and a mechanic training program.

Founding teacher Dr. Tim Smith started his program that later evolved into KIAE from the bottom up, and the idea soon grew from a single school to a network of 16 Kentucky high schools—with many more on the way, including high schools in other states.

KIAE provides tool kits and resources to schools in the network at no charge. These include flight kits, aircraft maintenance resources, and engineering materials.

The flight training program is largely free. Students rebuilt a Cessna 152 they fly and maintain. Volunteers act as flight instructors, to keep costs close to zero. Money for fuel comes from additional fundraising and contributions.

Statewide, many other aircraft and aerospace building and educational projects are under way, being accomplished by member schools with their volunteer adult helpers. In addition, students at KIAE work with the University of Kentucky and other colleges on aerospace engineering projects, as well as with NASA.

Other programs of this type exist, but they most often were planned and started from the top down. They are begun by an influx of money, followed by the hope that students will sign up. Another facet of most other programs is that they are specifically training students for a single career in a single area. The KIAE model offers a wide variety of experiences that young people can try out.

Kevin Garrison, a retired airline pilot, volunteers with the Kentucky Institute for Aerospace Education.

PAY IT FORWARD

Volunteers and their efforts are the heart of the organization. Larry Mooney is a great example. An experienced aircraft mechanic and pilot, Mooney is at the airport every Saturday instructing the kids in everything from TIG welding to fabric work to engine overhaul. Every minute the students spend in the shop is logged toward their airframe and powerplant certificate.



While the training is at almost no cost to the students, [KIAE](#) is not a free ride. The students spend three years of weekly work in the hangar and the classroom before they get a shot at the flying program. The ones who get that far have earned their flight training spot in a very special way, and have a special appreciation for the training.

These students show up for their first flying lesson after having already built one or more aircraft. They work their way through classroom labs, model aircraft, flying simulators, model rocketry, engineering seminars, and countless hours of hangar talk before they take their first hour of dual flight instruction.

KIAE's ability to give the students an early exposure to all facets of aviation—and to allow them to decide what they don't like—is as valuable as finding out what they do like. It is much better to find out you don't really want to be a professional pilot in high school, not after signing up for a 10-year military commitment or dropping huge money to attend a private aviation college.

Many students lean toward the engineering side of things. At KIAE, one of the volunteer adults helped design the spacecraft of the moon race for NASA and lives nearby as a retired professor. He is now offering interested students a free class on spacecraft design and construction.

What can experienced adults who have had a career in aviation do to move things along for these ambitious young people? Volunteer your time to pass along some of that hard-earned knowledge. You don't need millions of dollars of funding, a huge building, and a full-time professional staff to motivate and teach young people. All that is really needed are a mentor, an interested student, and time.

Announcement to Airport Boards and Managers

I want to make you aware of a safety issue of increasing concern for airports in the Commonwealth.

Simply put: **FAA procedures is discovering unlit obstructions that penetrate the 20:1 visual approaches to IFR runways in Kentucky.**

The discovery of these obstructions is generally coming about via a combination of:

- Obstruction Surveys / Flight Checks for existing approach procedures (could be an amended or reviewed procedure)
- Or during the development of new instrument approach procedures

The original three year evaluation program gave airports the option of solving obstruction penetrations by one or more of the following methods:

- Removal of the Obstruction
- Height Reduction of the Obstruction
- Properly Lighting the Obstruction
- Mitigation by a certified and maintained VGSI (vertical glide slope indicator.... like a PAPI or VASI installation)

If the obstructions cannot be addressed with options 1-3, option 4 (VGSI mitigation with a PAPI or VASI) must be approved by the FAA.

If no action is taken, the affected instrument procedure will be “not available at night” (NA at night) OR.....the approach minimums may be changed to address the issue.

Last April, I directed our inspection branch to distribute the message below on visual approach obstructions that relate to your board's obligation to maintain safe approaches in accordance with Kentucky Statute. Please review it carefully. In many cases these issues will overlap, but conditions vary a great deal among airports across the state and **it is important that your board is both informed and engaged in keeping obstructions out of the approach surfaces at your airport.**

Since this issue is of such a technical nature, we recommend you seek guidance from your engineering consultant and / or FAA Eastern Flight Procedures Team at 404-305-5952.

Thank you and have a Safe and Happy New Year!

R. Winn Turney, Commissioner
Department of Aviation

Over the last few years, I've been involved in an increasing number of conversations with our engineering branch / airports / consultants / and FAA about runway approach obstructions. The issues usually center around GPS approach requests, instrument approach minimums, or federal projects being deferred because of approach obstructions. Many airport boards appear surprised to learn they have obstruction issues to deal with.

When I submit the annual safety inspection letter to your airport, I include approach slope information a minimum of every three years when performing federal inspections, and every year if conditions warrant. Please review that information with intent toward removing approach obstructions at your airport. Failure to maintain approach slopes can result in federal funding limitations degraded or canceled instrument approaches, or eventual runway end relocation to remove the approach slope penetrations.

By FAA and state standards, you're required to have a minimum 20:1 approach slope for a visual runway, or one with a non precision instrument approach for aircraft under 12,500lbs.

Kentucky administrative regulation 602 KAR20:120 states:

Section 8. (1) The approach surface for a visual runway shall be at a ratio of twenty (20) to one (1) for a minimum horizontal distance of 5,000 feet from the end of the primary surface. The inner width of the approach surface shall be the same as the primary surface and shall extend uniformly to a minimum width of 1,250 feet. (2) The approach surface for a non-precision instrument runway shall be at a ratio of twenty (20) to one (1) or greater for a minimum horizontal distance of 5,000 feet from the end of the runway for each runway constructed for and intended to be used by propeller driven aircraft of 12,500 pounds maximum gross weight.

Since it can take years to plan and execute a large obstruction removal project, you as an airport board should have a working knowledge of what your approach slopes are, and take action to maintain them.

This information should be on your ALP and is also available on web site: <http://www.gcr1.com/5010web/>

Just enter your airport information and look under OBSTRUCTION DATA for your approach slopes – item “>57 OBSTN CLNC SLOPE”.

Thank You,

Steve Marcozzi
Manager, Airport Inspection Branch
Kentucky Department of Aviation

SOMERSET, KENTUCKY POLICE LAUNCH NEW AIRCRAFT IN AVIATION PROGRAM

The Somerset Police Department in South Central Kentucky is taking its newly-formed aviation program to the next level.

The department's flight crews held an open house in October at the Lake Cumberland Regional Airport (SME) for city and county officials, emergency services, and members of state and federal law enforcement agencies. The open house gave SPD the ability to introduce the attendees to its new aircraft and to educate them on the services that can be performed by the flight crew.

In April 2012, SPD launched an aviation program with cooperation Law Enforcement Aviation Technology program, an arm of the U.S. Department of Justice's National Institute of Justice. The aviation program is administered nationally by the Small, Rural, Tribal, Border Regional Center (SRTB-RC) through The Center for Rural Development in Somerset. The program has assigned 17 aircraft to small law enforcement agencies that might not see aviation as a viable option to their police agency.

A leased Magni M24 gyroplane was assigned to Somerset police for the purpose of testing and evaluating its benefit to local law enforcement for a trial period during the summer.

Lt. Shannon Smith is the police department's pilot and made the transition from fixed-wing aviation to gyroplanes rather easily. He holds Airline Transport Pilot and Certified Flight Instructor certificates in single and multiengine airplanes, and now holds a Commercial Pilot and CFI certificate in Gyroplanes. He's logged 2,100 flight hours in 23 different aircraft since 2002. He is the second law enforcement officer in the United States to become a Certified Flight Instructor specific to Gyroplanes for police operations.

That trial period ended with successful results. The flight crew was able to log 138 flight hours and fly over 4,000 miles between April and July 2012. They conducted aerial patrols, assisted patrol units with radio calls, monitored traffic flows during special events, and conducted surveillance and inspection of critical infrastructure owned by the City of Somerset. The crews identified several suspicious vehicles and assisted on radio calls that resulted in 7 arrests. Two of those arrests were for DUI, and others were for drug violations and for outstanding warrants.

As the trial period wound down, officials from SPD and The Center for Rural Development were winding up their efforts to secure an aircraft and funding to purchase a replacement gyroplane as a permanent solution for Somerset. Partial funding for this gyroplane came from a cooperative agreement between The Center for Rural Development and the SRTB-RC. The Somerset Police Department made up the remainder of the purchase price by applying money seized from illegal drug trafficking investigations.



In exchange for funding assistance, the Somerset Police Department will submit data to the program to help with other aviation needs throughout the country.

“The success of the trial period this summer was a deciding factor in wanting to commit to an aviation program for the long term,” said Major Doug Nelson. “We had a successful summer and expect the success to continue with the Calidus. We appreciate The Center for Rural Development and the Aviation Technology Program in their support.”

The gyroplane looks like a helicopter with the 27-foot long rotor it uses to develop lift needed for flight, but takes off and lands like a fixed-wing airplane. Gyroplanes’ rotor’s are not powered by an engine, but spin when air passes through them. They use an engine for forward flight and that movement causes air to pass through the rotor system, which continuously turns the rotor and maintains lift.

Gyroplanes are very maneuverable and can fly at slow airspeeds. This allows the flight crew to slow down and spend more visual time on a target that a larger fixed-wing aircraft could. This Calidus Gyroplane has great forward and side visibility, without the visual obstructions of wings wing struts.

“The bottom line on using non-traditional aircraft for law enforcement operations is this: increased public safety at a decreased cost,” commented Lt. Smith. “This gyroplane uses about 5 gallons of automobile-grade gasoline per hour, or less than \$20 per hour at today’s fuel rates. That’s a tremendous savings compared to a other aircraft traditionally used in law enforcement.” The maintenance costs are significantly reduced due to the gyroplane’s simple design and lack of complex systems.

The Somerset Police Department is one of only three law enforcement agencies in the country using a gyroplane for police operations. SPD joins the Tomball Police Department in Texas and the Queen Anne’s County Sheriff’s Office in Maryland.

The police department will also use the Calidus gyroplane to inspect 149 miles of city-owned natural gas pipeline that extends from Eastern Kentucky through Somerset and into neighboring Casey County. The City of Somerset serves six counties in Kentucky with natural gas. Their missions also include patrols of the city’s water system. It serves 125,000 customers with fresh drinking water with its water treatment plant and 7 water holding tanks totaling nearly 10 million gallons.

The flight crew uses the call sign “Guardian One” when performing airborne operations. “With the arrival of the Calidus, we wanted a graphics package to make this aircraft unique. We’ve had a lot of positive feedback from the eagle design,” said Major Nelson.



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