Position Report

Alaskan Aviation Safety Foundation

Winter 2008-2009

Notes from the Front Cockpit

I want to take this opportunity to discuss an important upcoming event. The International Cospas-Sarsat Program will terminate satellite processing of distress signals from 121.5 and 243 MHz emergency beacons on February 1, 2009. All mariners, aviators, and individuals using emergency beacons on those frequencies and who want to continue to receive satellite monitoring services will need to switch to those operating on the newer, more reliable, digital 406 MHz frequency if they want to be detected by satellites.

The decision to stop satellite processing of 121.5 / 243 MHz signals was made back in the year 2000 and is due to problems in this frequency band which inundate search and rescue authorities with poor accuracy and numerous false alerts, adversely impacting the effectiveness of lifesaving services. The 406 MHz beacons provide search and rescue agencies with more reliable and complete information to do their job more efficiently and effectively. The Cospas-Sarsat Program made the decision to terminate 121.5/243 MHz satellite alerting services, in part, in response to guidance from the International Maritime Organization (IMO) and the International Civil Aviation Organization (ICAO). These two agencies of the United Nations are responsible for regulating the safety on international transits of ships and aircraft, respectively, and handling international standards and plans for maritime and aviation search and rescue. More than 180 nations are members of IMO and ICAO.

NOAA, along with the U.S. Coast Guard, U.S. Air Force, and NASA (the four Federal Agencies who manage, operate, and use the SARSAT system) are strongly advising users of 121.5/243 MHz beacons to make the switch to 406. 121.5 ELT signals will still be detected by receivers including local airports, air traffic control, and overflying aircraft.

An installed ELT—either 121.5 MHz or 406 MHz—will continue to be required in most aircraft flying in the United States after February 1. (FAR 91.207) Up to this point FAA has not issued a mandate or regulation for equipping with a 406, so if your aircraft has a 121.5 ELT, the decision on whether to upgrade lies with you, the aircraft owner. Your decision should be based on where and when you fly, and what other survival equipment you carry (cell phone, personal locator beacon). Because of the cost, you may need to consider options and alternatives.

Inside this issue:

Canada is proposing a 406 MHz ELT requirement similar to ICAO's with a compliance date of February 1, 2009. Under the proposal, any aircraft, regardless of the country of registry, would need to have a 406-MHz ELT installed in order to enter Canadian airspace—and they will not allow portable 406-MHz ELTs or personal locator beacons (PLBs) to be used instead of a panel-installed unit.

Originally ELTs were intended for use on the 121.5 MHz frequency to alert aircraft flying overhead. Obviously, a major limitation to these is that another aircraft must be within range and listening to 121.5 MHz to receive the signal. One of the reasons the Cospas-Sarsat system was developed was to provide a better receiving source for these signals. Another reason was to provide location data for each activation (something that overflying aircraft were unable to do).

Different types of ELTs are currently in use. There are approximately 170,000 of the older generation 121.5 MHz ELTs in service. Unfortunately, these have proven to be highly ineffective. They have a 97% false alarm rate, activate properly in only 12% of crashes, and provide no identification data. In order to fix this problem 406 MHz ELTs were developed to work specifically with the Cospas-Sarsat system. These ELTs dramatically reduce the false alert impact on SAR resources, have a higher accident survivability success rate, and decrease the time required to reach accident victims by an average of 6 hours. The Federal Aviation Administration has studied the issue of mandating carriage of 406 MHz ELTs. The study indicates that 134 extra lives and millions of dollars in SAR resources could be saved per year. The only problem is that 406 MHz ELTs are expensive. However, no one can argue the importance of 406 MHz ELTs and the significant advantages they hold.

For more information on the differences between 121.5 MHz Beacons and 406 MHz beacons see next page, courtesy of NOAA.

Features	121.5 MHz Beacon	406 MHz Beacon
Timeliness		
Ambiguity Resolution	Takes two passes (> than 90 min)	Correctly identified in 95% of the cases (<45 minutes)
Waiting Time	45 – 90 minutes	<5 minutes with GEOSAR
Store and Forward	None - increases waiting time	Beacons are detected even if LUTs are not tracking the satellite
Location Accuracy		
Doppler	12-20 nm accuracy	2-5 kilometer accuracy
GPS	None	100 meters
Identification		
Nationality and Type	None	Nationality and type available
User Identification	None	User Identification (e.g. Tail Numbers) can be encoded
Registration	None	Registration information providing different information can be included
Reliability / Operations		
Survivability	Only work in 10–20% of crashes	Expected to work in over 60% of crashes
Built-in Test Feature	None	Yes – Increases reliability
Aural / Visual Monitor	Yes (TSO-C91a)	Yes
Transmitter	75 milliwatts	Watts
Non-beacon False Alerts	Yes (approximately 70%)	None
Coverage	Regional	Global
Capacity	Growth Limited	Room For expansion

So what does all of this mean to the pilot or aircraft owner who forgets to make the changeover or cannot afford the changeover right now. If you file a flight plan, search and rescue will still come out and look for you; IF you file a flight plan they might even start looking in the right area. High flying aircraft will try to monitor 121.5 when requested by ATC. Search and Rescue will fly your flight path listening for your ELT, which is all the more reason to file a flight plan and fly your flight plan. The system will be exactly like it was before the SARSAT system was invented.

Hopefully procrastinators will benefit from the price decreasing in the near future. The downside is that procrastinators may be at the end of a long line of pilots who decide not to wait. I have read conflicting information about the reliability of the new ELTs. I suggest you talk to your avionics supplier for their opinion. I tend to think that the new 406 units will have more reliable G switches than older units, but it is hard for me to say for sure. False alarms may continue to be a problem into the future, but more importantly I hope they activate properly when needed. If you purchase a new ELT, make sure you can remove it from your aircraft and activate it manually. This means you need a portable antenna of some type. Neither old or new units will save you if the antenna is broken off or is pointed into the dirt. If your new 406 takes GPS signals from an external GPS, make sure that it either saves the last position or will allow attachment of a GPS source. My last personal requirement is inexpensive battery replacement.

Bottom line: decide how important SARSAT monitoring is to you. Decide how important increased accuracy is to you. Decide if the risk of continuing to fly with an old ELT is worth the cost savings of not upgrading.

I hope the drop in price of Avgas has prompted everyone to get out and work on their proficiency and have some fun. Please fly safely and file a flight plan, we want to keep you as a member.

Remember that all AASF memberships expire on December 31 of each year. Please renew your membership before you put it aside and forget. The AASF relies on memberships to fund our safety activities.

Carl Siebe, Chairman of the Board

Fall 2008 AASF Safety Seminar Opening Remarks

Mark E. Madden, Vice-Chair, AASF Board of Directors

Many of you have heard the name Tony Kern. In June of 2000, Dr. Kern retired as a LTC from active duty service in the U.S. Air Force. He is a former B-1 bomber Command Pilot and Flight Examiner and among other responsibilities while on active duty he was also the Chair of the Air Force Human Factors Steering Group. Upon retirement he served as the National Aviation Director for the U.S. Forest Service, where he directed the largest non-military government aviation program in the world in support of federal wildland fire suppression.

Dr. Kern is now the CEO and Senior Partner at Convergent Performance, a small veteran-owned firm formed and dedicated to reducing human error in high-risk environments. The reason I bring his name up here is that in addition to his other accomplishments, he is one of the world's leading authorities on human performance in aviation and the author of five books on the subject:

Dr. Kern has penned the term, "War on Error". Let me read to you a message from Dr. Kern on the subject:

> The global cost of human error is almost incomprehensible. Each year, hundreds of thousands of lives and billions of dollars are lost from completely preventable human error.
>
> Why a "War on Error"? Because human error harms and robs more people every year than any disease or human adversary. Anything less than a conscious commitment to understanding and reducing personal error is an unconscious commitment to accepting its continuing presence and all future consequences. Human error is the thief of happiness and slayer of dreams, careers, potential, and all too frequently - life itself. Viewing it as anything less hostile is to willfully expose ourselves to needless tragedy.
>
> We seek a fully coordinated effort to combat the human error challenge by all stakeholders around the globe. By uniting for a cause that all those in aviation can support, we not only will make our industry safer, but we will raise the consciousness of all aviators against this eternal enemy.

The Bombardier Aerospace Corporation has adopted this "War on Error" theme for its annual "Safety Standown" safety conference.

Bombardier's Safety Standown is a non-commercial effort to promote the philosophy of knowledge-based training and personal discipline. This philosophy dramatically improves safety by combining skill-based training with knowledge-based training.

The foundation of Bombardier's seminar curriculum is based on Dr. Tony Kern's *Airmanship Model*. (Kern, 1996)

The foundation in Kern's analogy is called the "Bedrock Principles" and consists of three "foundation stones". This foundation must be firmly established as the other elements or "Building Blocks" cannot compensate for a weakness in this critical area. The three "foundation stones" are:

1. Discipline;
2. Skill; and
3. Proficiency

The walls are called the "Pillars of Knowledge" and bridge the foundation and the roof. There are five "Pillars of Knowledge":

- Self;
- Aircraft;
- Team;
- Environment; and
- Risk

The final structure which goes over all of the previous "Building Blocks" and could be thought of as the pinnacle of the "Airmanship Building" is called "Capstone Outcomes" and consists of:

- Situational Awareness
- Judgement

Using good judgement and making the right decisions is an essential skill and is vital to the safe conduct of any flight.

Bombardier's Safety Standown for this year was held last week in Kansas City and I was there. This is the second year that I've been able to attend. I was one among almost 600 pilots in attendance. While the conference is geared primarily toward corporate and public use aircraft pilots, the very same principles discussed during the Safety Standown apply to general aviation here in Alaska as well.

Nicholas Sabatini, the FAA Associate Administrator for Aviation Safety, told us that as of this last September, there have been zero fatal accidents in corporate aviation this year. He also told us that the broader general aviation community is also enjoying its safest period. Last year, GA had the fewest fatal accidents and fewest fatalities since World War II. There were 284 fatal GA accidents in 2007 - about half the number of fatal accidents 20 years ago.

We are making progress. Our safety efforts are paying off. But we can never sit back and say, "That's good enough."

Mark Rosenker, Acting Chair of the NTSB, told us that we will see three of the items on the NTSB's "Most Wanted Safety Improvements" list removed this year. The three desired safety improvements being removed this year are:

- Positive train control - on the list since its inception in 1990;
- Fatigue in the railroad industry; and on the aviation side
- Eliminate flammable fuel-air vapors in fuel tanks on transport category aircraft

Added to the aviation 2009 Most Wanted Safety Improvements list is: (NTSB)

- Improve the Safety of Emergency Medical Services (EMS) flights;
- Improve Runway Safety;
- Reduce Dangers to Aircraft Flying in Icing Conditions; and
- Require Image Recorders

I'll close my opening remarks by mentioning one of my favorite authors, Ernest Gann.

One of the all-time classic books for people who love flying is Ernest Gann's Fate is the Hunter. In this book Gann writes about the early days of aviation when there was a far greater degree of risk than there is today. While Ernest Gann said fate was the hunter, aviation safety at the beginning of the 21st century is not about fate at all. Aviation safety is about dedicated, self-disciplined individuals gathering, analyzing, and sharing information and staying focused on working together to manage the inherent risks found in aviation.

On behalf of the Alaska Aviation Safety Foundation, I'm pleased you have chosen to join us today. I hope you will also join us in the global war on error.

Thank you.

References:

Kern, Tony, Redefining Airmanship, p. 22, McGraw-Hill, 1996

NTSB Press Release, October 28, 2008, SB-08-49, http://www.ntsb.gov/pressrel/2008/081028.html

Membership Renewal Invoice for 2009

Today's date: ……..

Due by: **January 31, 2009**

Membership:	
o Individual:	$25.00
o Corporate:	$100.00
o Additional donation:	$.....

Name:

_____

Address:

_____

City, State, Zip code:

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Home Phone: Work Phone: Cell Phone:

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* It is critical that we get your email address if you have one. We will not give away, rent or sell this info. Our intention is to publish our newsletter and other announcements electronically whenever possible, to minimize printing and postage costs.

Please enclose a check payable to the AASF and mail it to:

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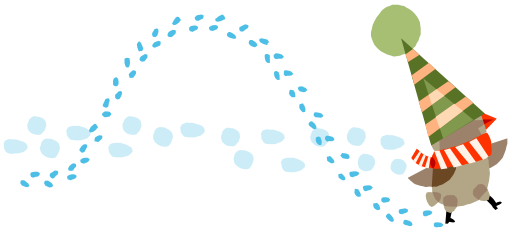
TO:

On behalf of the Alaskan Aviation Safety Foundation we wish you all the best for the year 2009



Upcoming Events:

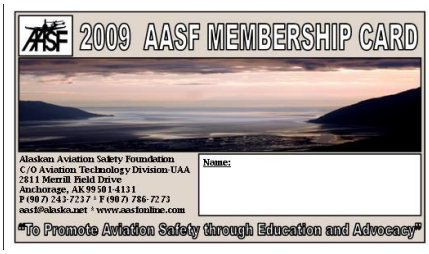
- **Super Cub Seminar, 7 February, 2009** at the Lousac Library, Anchorage
- **43rd Annual AACA Convention and Trade Show**. **2-7 March, 2009.** Hotel, Captain Cook, Anchorage, AK
- **AASF's Annual Seaplane Seminar** **11 April 2009**. "Tom Wardleigh" Hangar at Lake Hood (OAS).
- **Alaska Airmen's** 12th Alaska State Aviation Trade Show and Conference, **2-3 May 2009**. Fedex Hangar Anc Intl.
- **Valdez May day Fly-in and Air Show 8-10 May 2009**. Valdez, Alaska

Membership Renewals Due NOW!

This is the time of the year again that most memberships expire. The AASF offers memberships per calendar year.

Membership Prices:

- **Individual: $25.00**
- **Cooperate: $100.00**



Thank you for your continued support