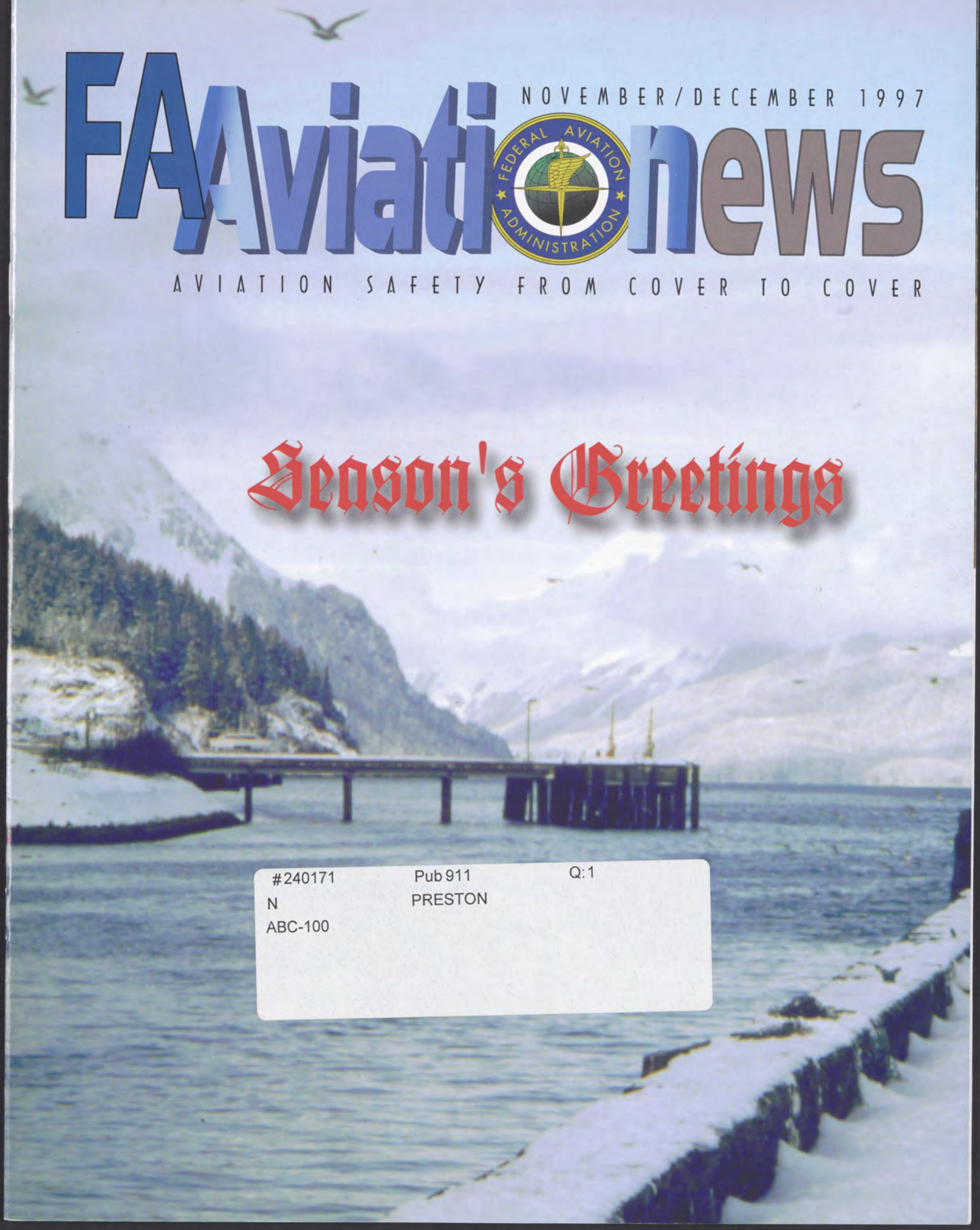
FAA Aviation news

NOVEMBER/DECEMBER 1997

AVIATION SAFETY FROM COVER TO COVER



U.S. Department of Transportation
Federal Aviation Administration

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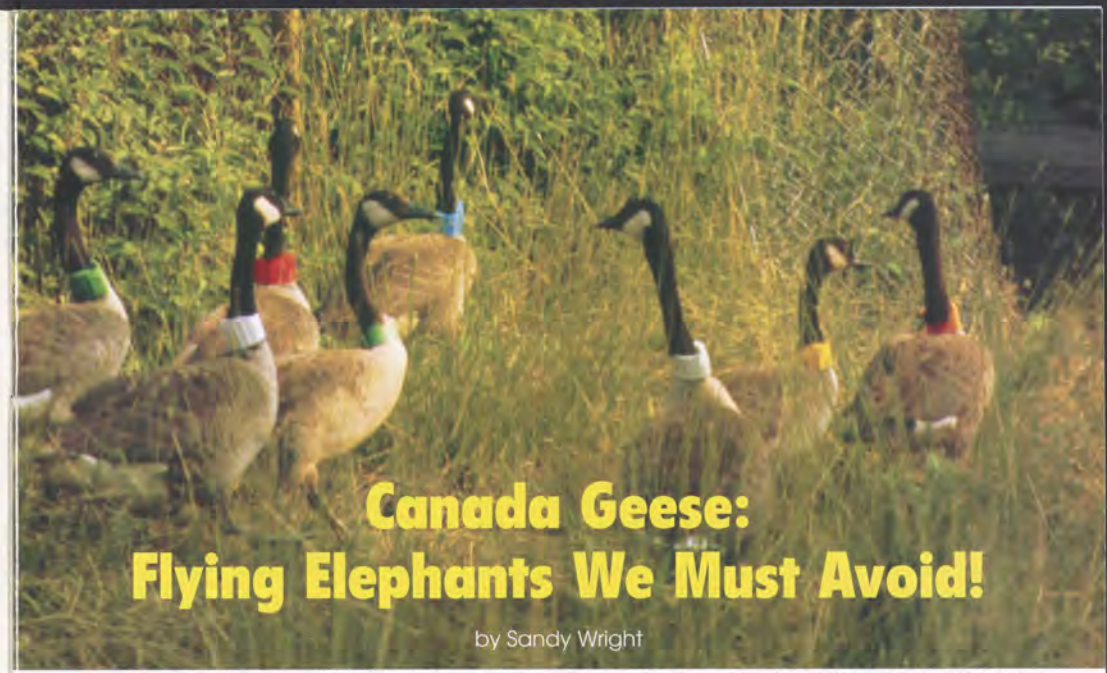
NOVEMBER/DECEMBER 1997
VOLUME 36 · NUMBER 8

FEATURES

DEPARTMENTS

FRONT COVER: This winter scene of Cordova, AK sets the mood for the season. Photo by Patti Mattison. BACK COVER: In 1995 a Concorde like this one encountered geese on final approach to JFK--no one injured; $6 million in damage to the jet. Photo by R. Dolbeer.

Winner of the National Flight Standards Service Excellence in Public Awareness Award
FAA Aviation news



Canada Geese: Flying Elephants We Must Avoid!

by Sandy Wright

Canada geese in holding area at National Wildlife Research Center in Sandusky, OH. They will be released after the goose repellent tests are completed. (S. Wright photo)

INTRODUCTION

A flock of Canada geese honk as they pass overhead in their familiar "V" formation. Many of us would be stirred by this sight. However, if you are a pilot who had a run-in with one of those eight to 12-pound birds, you might see them in a different light. Each year an average of 60 goose strikes is reported to the FAA, but in all probability, there are another 240 that are not reported, based on FAA statistics. Most goose strike reports (66%) do not identify the species. Canada geese, snow geese, and brant represent 92%, seven percent, and one percent of the strikes that are identified to species.

BIOLOGY

The Canada goose is distinguished from other geese by its black neck and head with a white cheek patch. The body feathers are gray-brown to dark brown. Because there are several subspecies, it is impossible to give an exact weight but they range in size from three to 12 pounds. Their life span is about eight years. Geese are monogamous and work together to raise their young. The usual hatch is about five young. In late June and early July, the adults are unable to fly because they are molting, and the young have not acquired their flight feathers. But by late July, all the family can fly, and they congregate in large flocks and move to open areas where there is abundant food. Geese are attracted to airports because of the grassy expanses devoid of trees and shrubs. They feed on tender grass, clover, and grains.

POPULATIONS ON THE RISE

Canada geese are among the most numerous and diverse of all waterfowl species in North America. The non-migratory population has increased from about 0.2 million to 1.8 million (800%) since 1970 (Figure 1). The number of Canada geese migrating through North America has increased from 1.8 to 3 million (67%) since 1970 (Figure 2). The winter distribution of these migratory geese has changed over the last 40 years because of wildlife management practices of providing food for the geese throughout the winter. Now many flocks are remaining in northern areas in winter, and the migration patterns are not as clear as they once were. These increasing populations of migratory, and especially non-migratory geese, coupled with the growth in air travel, both commercial and private, set the stage for a greater chance of collisions between aircraft and geese.

DEVASTATING AND COSTLY STRIKES

Nearly 50% of all strikes with geese involve some degree of damage and at least 24% have an effect on the flight. A few high profile accidents in the United States have recently brought

attention to this growing problem. In June 1995, a *Concorde*, on final approach to JFK International Airport, struck several geese which destroyed two engines. No one was injured, but the damage totaled about $6 million. Three months later, in September, an Airbus 320 struck Canada geese at La Guardia. The repair bill along with loss of revenue came to over $2.5 million. In December 1995, a B-747, on approach to JFK International, had an expensive goose strike. Snow geese destroyed two engines and damaged the airframe to the tune of $6 million. The crew said if felt like the aircraft was being struck by sandbags.

The most devastating strike with Canada geese to date happened at Elmendorf Air Force Base (Alaska) in September 1995. Twenty-four military personnel were killed when their E-3 AWAC aircraft (a modified Boeing 707) crashed after striking a flock of Canada geese on takeoff. Along with the tragic loss of lives, a staggering cost of $189 million was incurred. A few days later, in Michigan, U.S. House Speaker Newt Gingrich's plane struck geese on take-off. There were no injuries, but the aircraft overran the runway during the aborted take-off.

THE FORCE OF AN ELEPHANT

Large birds are the greatest threat to aircraft because the force of the impact is affected by the bird's weight and the speed of the aircraft. Geese can weigh as much as 12 pounds. According to Transport Canada, the impact of a goose striking a jet can be equal to 1.5 million foot pounds of energy, a force equal to that of an African elephant stampeding over a parked car. Most of today's commercial airliner jet engines can withstand the shock of a one and a half pound bird, and the newest airliner jet engines have been designed to take a two and a half pound bird without failing. Aircraft frames and engines are not built to withstand striking a single goose let alone a large number of geese at high speed.

AVOIDING GOOSE STRIKES

In order to avoid damaging strikes you should be aware of when and where these strikes are likely to occur. The worst months seem to be March (14%) and August through November (45%) (Figure 3). The most likely phase of flight for strikes is approach (40.2%). Light conditions seem to favor day/dawn at 46%. Goose strikes have been reported in 42 states. Illinois had more goose strikes than any other (8.7%), followed closely by Connecticut (8.3%) and California (8.0%). The northeastern part of the U.S. seems to be heavily represented with four states and the District of Columbia equaling 30% of the total goose strikes reported. More strikes occur on the runway (altitude 0) than any other altitude. If you observe geese on or near the runway be extremely cautious. Request that the geese be cleared from the runway area and do not land or take off until they are gone.

WHAT IS BEING DONE TO CONTROL GEESE?

Scare Tactics

Presently, complex Federal and State responsibilities are involved with Canada goose control activities. All actions, except harassment, require a Federal permit and in most cases a state permit is also required. Wildlife Services (WS) biologists from the U.S. Department of Agriculture are assisting airport managers with the management of geese in the vicinity of airports.

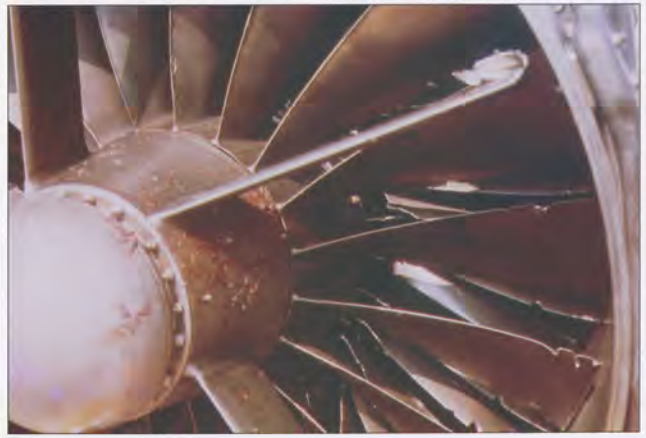
Your strike reports help bring this problem to their attention. For example, an airport in Missouri had a strike reported when a twin engine aircraft received damage to one wing when it struck a goose. WS biologists found 300 geese feeding in crops adjacent to the runway. The geese were harassed with pyrotechnics, and some were removed.

Sometimes geese can be discouraged from taking up residence by the use of noise making devices such as shell crackers—special shells fired from a 12-gauge shotgun that project a firecracker up to 125 yards—and auto-exploders which produce a sound similar to that of a shotgun and which can be set up to go off automatically. Distress calls are also played to frighten the geese away. After a while, the geese become used to scare tactics and are not affected by them.

Inspecting engine damage from a goose strike. (R. Dolbeer photo)

Relocation and Removal

Geese are sometimes removed from the site and relocated to a more desirable area. Officials at Washington National and Washington Dulles International airports were unable to completely remove geese by harassment techniques. WS, with the assistance of the Virginia Department of Agriculture, obtained the necessary permits, captured 1,098 resident geese during the summer molt when the birds were flightless, and relocated them to the Tidewater region of Virginia.



A close up of an engine damaged by Canada geese. (R. Dolbeer photo)

Habitat Management

Habitat management is another way to prevent unwanted species from using airport grounds. Research has shown that geese tend to avoid areas where the grass height is over four inches. Taller grass height, combined with an active harassment program, should dramatically reduce a goose population.

In 1996, the National Wildlife Research Center studied the effect of lime applied to grass as a deterrent to geese and found that it was an effective repellent. More studies are planned to determine the minimum effective concentrations of lime on turf and agricultural crops.

Recognizing the threat posed to aircraft by wildlife, the FAA is curtailing the growing of crops on airport prop-

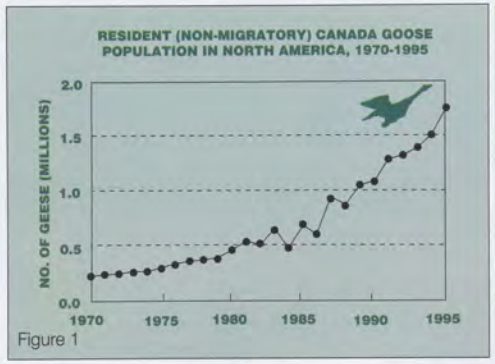


Figure 1

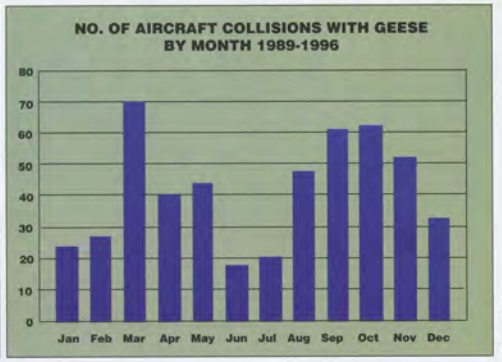


Figure 3

erty. Unfortunately this is being met with opposition by some airport managers who think that it is futile since "birds will be around regardless of what they do." However, other managers, including a former military B-52 pilot, support the FAA saying, "I know what a goose can do to an engine. When I was in the military, farming operations were not allowed around military fields."

REPORT ALL STRIKES

Wildlife strike reporting is critical to managing this serious problem because the accuracy of FAA analyses and the ability to provide appropriate recommendations are limited by data availability. When you file a wildlife strike report, it is entered into the FAA Wildlife Strike Database. The FAA estimates that less than 20% of all strikes are reported. If airport managers and wildlife biologists are to control the bird strike problem they must have accurate data on which to base their actions. These data come from FAA Form 5200-7 "Bird/Other Wildlife Strike Report" which was updated this year and is available from local Flight Standards District Offices, airports, and can be found in your AIM, Appendix I. Copies of FAA form 5200-7 are available on the Internet at www.faa.gov/arp/topics.htm. From there, find "Bird Hazards" and you'll see "Bird Strike Report." Please take a few minutes to help build an important database, even if you sustained no damage or injury. In many instances, the pilot provides the strike information to the tower personnel who then file the 5200-7 report with the FAA. The information is not used in a punitive way but is combined with all other reports to give a better picture of what is going on with wildlife in and around airports and the economic and safety impact these strikes have.

Remember, elephants can't fly, but an aircraft strike with a Canada goose can make you believe they do!

Figure 2

QUICK FACTS

- Resident/non-migratory goose populations tripled from 1985-1995.
- Goose collisions with aircraft have doubled since 1990.
- Most strikes occur during the day.
  - More than twice as many strikes occur during approach than during climb.
  - Almost 20% of the strikes cause substantial damage; over half cause some type of damage.
  - March and October are the worst months for strikes.
  - Twenty five percent of strikes affect the flight negatively.
  - The most expensive goose strike cost $189 million.
  - The deadliest goose strike took the lives of 24 Air Force crew.

Data in the following tables are for all goose strikes reported to the FAA Wildlife Strike database. Most goose strike reports (66%) do not identify the species. Canada geese, snow geese, and brant represent 92%, 7% and 1% of the strikes that are identified to species.

State	No. of Reported Strikes	% of Strikes
IL	45	8.7
CT	43	8.3
CA	41	8.0
PA	37	7.2
NY	31	6.0
NJ	27	5.2
WA	24	4.7
OH	20	3.9
DC	19	3.7
MN	18	3.5

Table 1. Top 10 states for goose strikes, 1989-April 1997

Time of Day	No of Reported Strikes	% of Strikes
Dawn	13	2.5
Day	224	43.5
Dusk	41	8.0
Night	168	32.6
Not reported	69	13.4
TOTAL	515	

Table 2. Number of aircraft collisions with geese by time of day, 1989 - April 1997

Year	No. of Reported Strikes	% of Reported Strikes
1989	41	8.2
1990	39	7.8
1991	46	9.2
1992	56	11.2
1993	76	15.2
1994	80	16.0
1995	85	17.0
1996	77	15.4
TOTAL	500	

Table 3. Number of aircraft collisions with geese per year, 1989-1996

Extent of Damage	No. of Incidents	% of Incidents
Destroyed	0	0
Substantial	95	18.4
Minor	135	26.2
Unknown damage	27	5.2
None	195	37.9
Unknown	63	12.2
TOTAL	515	

Table 4. Type of damage to aircraft, 1989 - April 1997

TIPS FOR AVOIDING BIRD STRIKES

- Avoid areas where there are concentrations of birds (marshes, lakes, rivers and protected wildlife areas).
- When approaching nontowered airports, fly over the airport to check for wildlife.
- Check NOTAM's for bird activity near airports and take appropriate precautions.
- Keep shatterproof goggles or glasses in the cockpit and use them when flying in or out of airports where birds congregate.
- When at low altitudes or approaching an area where bird encounters are likely, slow the aircraft as much as practical. The impact energy increases with the square of the velocity.
- If you encounter a flock of birds, try to stay above them as their first instinct is to dive.
- Some pilots believe your illuminated landing lights enable the birds to see you sooner.
- Use the windshield defroster in cold weather. A warm windscreen is less brittle and less apt to break on impact.
- Report birds to the tower or warn other pilots in the case of nontowered fields.

Author's Note: I would like to thank the following people for their assistance in providing support for this article: Ed Cleary, FAA Office of Airport Safety and Standards; Satish Agrawal and Tom Hupf, FAA Technical Center; Richard Dolbeer, USDA/APHIS/WS; and Gene Wright, Ohio Department of Natural Resources.

Ms. Sandy Wright is employed by the U.S. Dept. of Agriculture, National Wildlife Research Center in Sandusky, Ohio. She manages the FAA Wildlife Strike Database which has had over 17,000 reported wildlife strikes to aircraft since 1989 and is growing by about 2,300 strikes per year.

Runway Incursions

A Growing Problem at Controlled Airports

The FAA defines a runway incursion as "Any occurrence at an airport involving an aircraft, vehicle, person, or object on the ground that creates a collision hazard or results in loss of separation with an aircraft taking off, intending to take off, landing, or intending to land." FAA also only recognizes runway incursions as occurring at airports with operating control towers.

During a recent four-year period, total reported runway incursions increased 54% from 186 to 287. Detailed investigations of these incidents have identified three major areas contributing to runway incursions:

- Communications
- Airport knowledge
- Cockpit procedures for maintaining orientation

The risk of being involved in a runway incursion can be greatly reduced by improving communications skills, increasing knowledge of airport taxiways and runways, and following cockpit procedures.

Keep Communications Clear and Concise

Effective pilot/controller communication is key to safe surface operations. Clear understanding of instructions should never be compromised, especially during busy times or when the frequency is congested.

- Listen before you transmit. If you are able, monitor radio communications to establish a "mental picture" of airport activity.
- Think before keying your transmitter. Keep communications with the controller clear and concise, and follow recommended standard phraseology as indicated in the *Aeronautical Information Manual*.
- Never assume. Ensure you understand all instructions.
- Read back runway "hold short" instructions verbatim.

Be Familiar With the Airport

It sounds simple—know where you are and where you are going. In reality ground operations can be the most demanding and complex phase of flight.

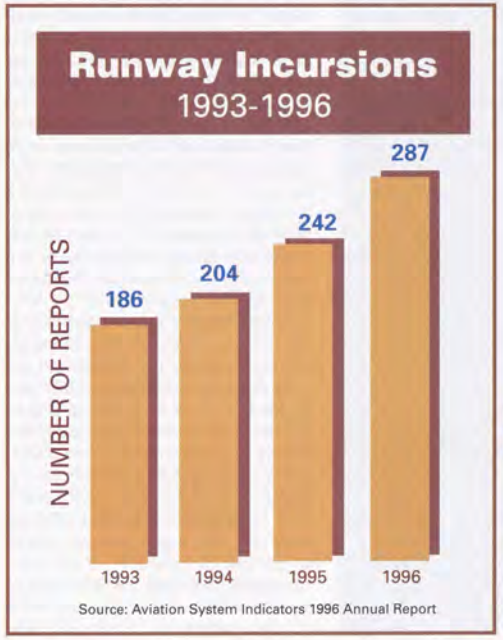
Detailed airport diagrams are helpful and are available on NOAA and other commercial vendors' approach charts. Although such diagrams are normally used by instrument-rated pilots, VFR pilots will also find them useful during surface operations.

- Review airport diagrams before taxiing or landing.
- Keep airport/taxi diagrams readily available during taxiing.
- Request progressive taxiing instructions from air traffic control.
- Be alert to airport vehicle and pedestrian activity.

Follow Proper Cockpit Procedures

Pilots can use proven and effective procedures in the cockpit to help conduct safe operations on the ground and during takeoff and landing.

- Maintain a sterile cockpit environment. Avoid unnecessary conversation during surface operations, takeoff, and landing.
- Constantly scan outside of the cockpit, especially when on runways.
- If lost while taxiing on the surface, contact air traffic control immediately.
- Make your aircraft visible by proper use of aircraft lights.
- If you are unfamiliar with the airport, again, do not hesitate to request progressive taxi instructions.
- Ensure proper radio operation and check audio panel, volume control, and squelch settings.
- Know and follow lost communication procedures, and use good judgement should radio failure occur.



Source: Aviation System Indicators 1996 Annual Report

Stay Alert, Especially in Low Visibility

Extra vigilance is required when visibility decreases, and the ability for pilots and controllers to maintain a desired level of situational awareness becomes significantly more difficult. During periods of reduced visibility, pilots should keep in mind:

- Cockpit workload and distractions tend to increase.
- As cockpit activity increases, attention to communications tends to decrease.
- Fatigue levels increase.
- Increased vigilance is needed when snow and other weather conditions obscure surface markings and make signs difficult to use.

Surface Markings and Signs

Familiarize yourself with airport signage and markings. You can refer to appropriate sections in the AIM or download three safety pamphlets--"Land and Hold Short Operations," "Reducing Runway Incursions," and "Surface Movement Guidance and Control System"--from the Aviation Safety Program Home Page: http://www.faa.gov/avr/news/asphome.htm .

Report confusing or deteriorating surface markings and signs, inoperative airport lighting, and inaccurate airport diagrams to the tower or airport manager.

Report any runway incursions to the NASA Aviation Safety Reporting System (ASRS). ASRS maintains a database of reported hazards, and Alert Messages from ASRS are forwarded to appropriate airport authorities for action. Airport authorities are requested to provide responses to alert messages to ASRS as a check on the types of corrective actions being taken.

Finally, remember as a child how your parents stressed looking both ways before you crossed the street and how well that preserved your pedestrian safety. Stop, look, and listen may be equally helpful in preventing runway incursions.

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This article is based on a pamphlet called, "Runway Incursions," issued by the FAA's Office of System Safety. For any questions contact Steve Shaffer, ATO-120, at (202)493-4306

IS IT OK TO USE RFG IN YOUR STC WITHOUT MTBE?

by Bruce Edsten

Say WHAT?

My first reaction would be to say, "If you do, you'll have to clean it up yourself!"

However, we are talking about a problem looming on the horizon.

The "STC" in the title is the autogas STC (Supplemental Type Certificate), which has become very popular in recent years. Individuals have used a variety of methods—purchasing fuel at their neighborhood gas station and transporting it to the airport—for years. However, the real mark of this popularity is evidenced by the appearance of separate auto gas pumps at the airports. Of course, in many cases this was an easy transition because the pump was already there, formerly used for the now almost defunct 80/87 "red gas." In most cases, the aviation fuel supplier also has a top grade of auto fuel readily available, too. Thus, with a little planning, the FBO could have a reliable supply for all customers.

The point is, however, that AvGas and AutoGas still ain't the same stuff!

Yeah, I know: Close enough for government work, right? If they were not pretty close, the many STC's would not have been granted. No problem with that, but not everybody understands the responsibilities that come with the STC. The FAA doesn't actually regulate the folks that market honest-to-goodness aviation gasolines, but the industry has traditionally policed itself pretty well. No such controls exist for AutoGas. So, who is responsible for ensuring that the auto fuel is the "right stuff?" The STC holder, that's who. And then, maybe you're the third owner of this machine since the STC was installed, or maybe you're just renting this thing. Are you aware of all the provision of the STC? No? Time to hit the books!

Virtually all STC's around specify that the automotive fuel meet the American Society for Testing Materials (ASTM) Specification No. D-439. Does the stuff coming out of the hose at Ralph's Garage meet D-439? The pumps at West Hockey Puck Intergalactic Airpatch? A lot of automotive fuel that is not manufactured to ASTM D-439 is available out there. Points to ponder, all you AutoGas users.

Then, even if it does meet D-439 (or whatever your STC says), remember that is still not the same stuff as AvGas! Tests have shown that auto fuel may cause carburetor ice at lower relative humidity and at higher temperatures than AvGas. Also, several cases of auto fuel causing gum deposits during storage have appeared. (See the sidebar on the next page.)

That brings us to the next wrinkle in this whole picture—RFG. This stands for ReFormulated Gasoline. Guess what? It's a different animal again. Well, dear readers, most of you probably don't have to sweat it just yet, but the handwriting is on the fuel storage tank. RFG has been mandated in a number of high-pollution areas around the country with the idea of bringing down the undesirable emissions. This is a result of the Clean Air Act, and the first (but maybe not the last) of these areas had to have RFG in place starting January 1, 1995. Surprisingly, RFG appeared at my corner gas station and is essentially the norm all over Jefferson County, Kentucky.

So what is RFG anyhow? Simply the latest step in reducing the bad by-products of combustion. This is done by blending the fuel with "oxygenates," which reduce the emissions. As expected, there is no free lunch, and with the environmentally friendly oxygenates comes reduced energy in the fuel. This translates into reduced mileage, or less range, with the same fuel load. The producers say this should be only two or three percent, so it may not be a big deal. There's no free additives, either. At least here in Louisville, the RFG costs more, too, which is not much of a surprise. (Guess I gotta start gassing up in Indiana!)

How about power? This is supposed to remain the same, the difference being that you must burn a bit more fuel to get it. In other words, the mixture will have to be a bit richer, hence the reduced range. The so-called "summer gas/winter gas" situation will continue, too, so if you get a load of the lower volatility "summer gas," starting may be a bit rougher in cold weather.

Where does all this leave the Auto Gas STC holder? I know you don't want to hear this, but it depends. Because RFG is definitely different stuff, it may affect rubber fuel system parts, but that depends on a couple of factors. One is the kind of rubber the parts are made of, and the other factor is the type of oxygenate.

So far, there are three types of oxygenates that I know of. The FAA engineering types say that one should not be a problem, but that the other two might be. The first one is called MTBE. This stands for one of those totally unpronounceable chemical names that stretches across two zip codes, and I won't even try to put it here. Suffice it to say that this is the okay one, and it has been around as an additive for some time. If this is the oxygenate that your fuel producer is sticking in the auto fuel, you should be in good shape.

However, the oxygenate could be ETBE. What makes this unacceptable for use in AutoGas STC's, I don't know, but they say not to use it. Now it very well may be that after further testing ETBE will prove to be acceptable, but at present, you should avoid fuel that uses it as a component.

The third oxygenate is the alcohol group, and none of these additives are acceptable either.

All this brings up another question: How ya gonna know? The manufacturers and retailers are only required to show the oxygenate on the pump if it is greater than 5% of the fuel. My favorite gas pumps are absolutely festooned with "Environmentally Friendly," and "Clear Air" stickers, but nary a hint as to what's in the gas. So I went inside and asked. Everybody in the place kind of tilted their head to one side, let their jaws drops slightly, and hit me with that "what-are-you-somekinda-nut" look. Not much help there.

Will the fuel producers continue to supply airports with non-RFG auto fuel? Nope. That's the problem we had with 80/87 in the first place. There just wasn't enough product to warrant the separate production, transport, and storage facilities, and that will doubtless be the case again. If RFG comes to Ralph's Garage, it will doubtless soon show up at West Hockey Puck, too, and you are stuck with figuring out if you can use it or not.

It may be necessary for you to switch back to 100LL for a while or to fuel up at airports where you know they have not switched to RFG. If you have any questions, you should most definitely direct them to the fuel producers, as only they can tell you what actually goes into the fuel. In the meantime, I would expect that EAA, FAA engineering, and others will be looking at the effects of RFG and will have some answers eventually.

So, IS it okay to use RFG in your STC without MTBE? Yes, no, and maybe, but not necessarily in that order!

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Mr. Edsten is the FAA Safety Program Manager at the Louisville, KY Flight Standards District Office.

Photo courtesy of Phillips 66

Auto Fuel Cited in Gum Fouling Problems in Non-Flying Aircraft

Recently an engine overhaul shop expressed concern about the condition of several aircraft carburetors it had serviced. The carburetors had been removed from aircraft which had been using auto fuel and had not flown in over a year. The auto fuel had broken down and left a gummy residue in the carburetor bowls. The needle valves were gummed into their seat so tightly that pliers had to be used to remove them. The metal floats were covered in a black residue up to the fuel level, and one float was badly corroded enough above that point that it required replacement. This resulted in a three-month wait for parts and over $600 in repairs for each carburetor.

There have been several other less severe examples of this problem, likely because of shorter storage times. Another factor in the problem is probably the type and brand of fuel. In any case, auto fuel dealers say the stuff should be used within six months. So, if you are using auto fuel and are putting the trusty old bird away for the winter (or whatever), switching to AvGas beforehand would be a very good idea. Bunches cheaper than carb overhauls or, heaven forbid, an engine failure.

I was given a vintage lawn mower which had been sitting for a couple of years, and one spring I attempted to get it running. Worked fine when gas was poured into it, but it wouldn't stay running. Eventually, I had to disassemble and clean out the entire fuel system. Runs fine now, but lots of cruddy, sticky gum deposits, almost like pine pitch, had to be removed.

Of course, even AvGas will gum up eventually. So, if you are contemplating any long-term storage—beyond six months or so—you should consult your maintenance manual or the aircraft manufacturer. There are a number of procedures around for "pickling" your fuel system to ensure that it can be safely revived after an extended hibernation.

COLD WEATHER PISTON ENGINE STARTING

By Ted Stanley

There are many factors involved with cold weather flying. If your engine doesn't start, though, the other things don't really matter much.

Cold weather starting is hard on a piston engine, as well as the battery and starter motor. Since multiple attempts to start an engine rapidly depletes the energy reserve of the battery, it's best to get the engine started with a minimum of effort. Remember, too, that if you deplete the battery, your emergency electrical reserve is reduced. In addition, the electrolyte in a discharged battery will freeze at a warmer temperature than with a fully charged battery.

Ideally engines should be preheated before attempting engine start. Lycoming recommends preheating below 20°F, and Continental recommends it below 30°F. If you must start your engine in cold weather, following these guidelines may make the task easier, but refer to manufacturer procedures for your aircraft.

Piston engines need fuel, air, compression, and an ignition source to operate. When all these things come together at the right time, an engine will run. It may not run very well or for very long, but it will run. Pilots usually have no control over the compression or ignition source (other than seeing that the engine is well maintained). However, they have almost complete control over the fuel and air mixture.

To produce a successful engine start, fuel and air must be mixed in the proper proportion, and that mixture must be available to the cylinders. Liquid fuel added to ambient air in the proper proportions does not create the correct mixture. It only occurs after the fuel is atomized or evaporates into the ambient air. In fact, as time goes by and the fuel evaporates, the mixture changes, even though the proportion does not. And since cold fuel takes longer to evaporate than warm fuel, more time is required to create the initial starting mixture.

With this in mind, the pilot must use the controls available to create the correct proportion and mixture. First, clear the induction system by turning over the engine a few times with the starter motor. Do not add any fuel (mixture at idle cutoff). After the engine is cleared, use the engine primer to add fuel to the induction system. The engine primer in a carbureted engine typically consists of a small panel-mounted hand pump in the form of a plunger connected to several primer nozzles in the induction system. These nozzles, like fuel injectors, should be checked occasionally to ensure they are not plugged by induction system deposits.

In carbureted engines, do not pump the throttle. Most non-fuel-injected engines use a carburetor that incorporates an accelerator pump. That pump is actuated every time the throttle is opened, squirting a narrow stream of fuel into the intake system. Most pilots are taught to perform normal starts by pumping the throttle a few times before cranking the engine. This is perhaps a holdover from the days when most cars had carburetors. Automotive systems typically use a downdraft carburetor mounted on the engine with an accelerator pump that squirts down. In contrast, most aircraft systems use updraft systems. The accelerator pump in an updraft carburetor squirts fuel up. However, gravity then causes the fuel to drip down and out through the carburetor, where it then drips into the bottom of the carburetor heat box or engine cowl. This, coupled with excessive throttle pumping and a backfire, can create an engine fire. In minor cases, the air filter is burned or melted, and the pilot may never become aware of the defect. Engine cowls as well as whole aircraft have burned in more major cases.

It is a bit of an art to know how much to prime. Two or three pumps is usually a good place to start. After priming, remember to lock the plunger back in place. An unlocked primer plunger will allow fuel to siphon through the nozzles and can cause a rough-running engine, particularly at idle. Wait about 60 seconds for the fuel to evaporate before cranking the engine. This action, combined with one smooth pump of the throttle just as the engine starts to turn, usually will start the engine in cold weather.

Starting a small carburetor-equipped engine without an accelerator pump requires more specialized techniques. Prime the engine as before, but leave the primer out after the last pump. Close the throttle all the way. This acts as a primitive choke and helps to limit the amount of air coming in the induction system, which enriches the mixture. As soon as the key is turned, push in the primer. This helps to maintain the rich mixture so that the engine will continue running until the carburetor starts to work. Remember to lock the primer.

You can start fuel-injected engines in a similar manner. Follow the manufacturer's instructions for starting the engine in cold weather, but wait about 60 seconds after priming so that fuel in the induction system can evaporate before you attempt an engine start.

These steps may help start an engine on a cold day, but remember to wait after priming. Don't pump the throttle unless the engine is turning, and consider having the engine preheated when it is available. ✳

The author is a private pilot.

Edited by Mickey Hostetler

COLD OUT THERE

by Patricia Mattison

H. Dean Chamberlain photo

As I am writing this, there is no snow to speak of. All the skiers I know are bemoaning their fate and wondering when the snow will fall on their favorite ski area. While other locations are inundated with the white stuff, we have been spared to shovel another day. Those who own aircraft are thankful, I'm sure, that they don't have to clean weighty snow off the wings of their planes.

Snow. It is heavy. And wings that are designed to support an aircraft from beneath can't accept a heavy load on top. In addition, if snow accumulates on the wing of an aircraft, it can cause damage to the structural integrity of the main spar.

Some pilots use warm water to melt snow and ice off the wings. Obviously, the snow will melt; however, there is a possibility that the water could leave a glaze of clear ice on the surface, as well as on the control actuators. Water dripping off the wings and onto the wheels can accumulate as ice on the brakes. If one wheel ices up, you could find yourself going around in circles as you start to taxi.

It would be better to sweep the snow off with a broom and then use a deicing compound to flush away any ice that was left. If you have a fabric-covered aircraft, it is important not to use anything that could crack or bend the fabric. Hangaring the aircraft until the accumulation of snow melts is best. If that's not possible, using wing and tail covers is helpful, as the snow will come off with the covers, leaving the covered surfaces free of snow.

Cover all openings. Because covers can be hidden by snow, you should add prominent red flags to alert you to the covers' presence.

Another area of concern is the air filter. Snow can accumulate on the air filter in flight, choking off the air supply to the carburetor. My local airworthiness expert suggests the use of a wire filter during the winter months.

If you plan to make more than one flight the same day, cover the cowling after the flight with a heavy blanket to retain the heat.

Remember that flight into known icing conditions is prohibited unless the aircraft is equipped for known icing.

Winter flying on a cold, crystalline day, with the snow-covered scenery below, is an experience to remember. Enjoy the scenery—fly warmly and safely. ✳

The author is the Safety Program Manager in FAA's Flight Standards District Office, Juneau, Alaska.

Edited by Mickey Hostetler

TIPS ON WINTER FLYING (STRUCTURAL ICE)

by Bob Hill

Edited by Mickey Hostetler

No other subject related to flight can be as elusive as the weather. Most pilots, regardless of experience, usually appear to have an incomplete understanding of the subject. Proper decisions result from good judgement. This requires a body of knowledge and experience from which to draw when faced with "how far should I go" decisions. While I hope that anyone interested in weather will read this article and gain some knowledge and enjoyment from it, it is written for pilots by a pilot. I am not a meteorologist.

The only time you might acquire ice is in actual cloud at, near, or below freezing temperatures. There are two exceptions: freezing rain and frost. Frost, of course, is ice that forms from sublimation. Be sure to polish or remove it before flight. Isopropyl alcohol on a rag works well. Remove it from the propeller as well as the other lift creating surfaces. Most pilots know about frost removal. Frost not only affects lift/drag characteristics but also has been suspected of inducing control surface flutter.

Freezing rain at the surface usually suspends flight operations. It is most commonly found around 28°F (-2.2 °C). Water droplets must fall through about 2,000 feet of below freezing air to become "freezing rain." You may need to initiate a climb as much as 3,000 feet higher to obtain relief. The layer of above-freezing air is usually about 4,000 feet thick and contains precipitation in the form of rain. If freezing rain exists at the surface, for low level flight, you want an altitude of 3,000-6,000 feet AGL. You must assume that a second freezing level exists about 6,000-7,000 feet above the surface. You need to stay in the warm air above the freezing rain or at an altitude well above the second freezing level where the clouds have become glaciated. A 3,000-foot climb in severe icing conditions could prove impossible. A 180° turn may sometimes be advisable. Freezing rain is most likely found on the north side of a warm front.

The factors affecting the accretion of airframe ice are temperature, cloud water content, cloud droplet size, and the size and speed of the ice collecting object. Water, in the form of vapor, snow, or ice crystals, will not adhere to the airplane. It is possible that a wet snow (34°F) (or +1 degree C) will yield structural icing. This layer tends to be about 1,000 to 1,500 feet thick. Usually a climb of at least 2,000 feet will place you at an altitude where drier snow will be encountered. Most icing encounters occur between 0° and -10°C. Ice is rare below 20°C. However, it is possible to acquire ice at temperatures above 0°C on parts of the airplane where there is a pressure drop, such as engine induction areas. This, of course, may be attributed to aerodynamic cooling.

Collection efficiency affects total accumulation. The larger the airframe component, such as a larger leading edge radius, the less ice it will collect. Larger objects move a greater magnitude of air and allow the water droplets to be carried around it. (This is dependent on water droplet size as well.) Large droplets are not as easily carried by the airstream. Smaller radii move less air around them and, therefore, more droplets will strike the component. This is why antennas and temperature probes, etc., collect ice first. Propellers ice before the empennage, and the empennage ices before the wings. Indeed, most pilots have at least one component, such as a rivet head, that becomes the initial indicator that structural ice may be forming. Other pilots wait for the distinctive sound caused by centrifugal force slinging ice off the props against the fuselage. Moreover, an excellent method of deicing the props is to surge or increase the propeller RPM and allow centrifugal force to remove the ice. One additional benefit of this technique is that it allows one to replenish the oil in the prop hub with fresh warm oil, which precludes the possibility of the oil congealing.

Speed also can affect collection efficiency. The faster an airframe moves through the air, the less chance the air has to move out of its path. Higher speeds will increase the rate at which water strikes the component. This does not mean to imply that pilots should slow the forward speed of the aircraft, as this will result in an increased angle of attack, thereby exposing more frontal area to which the ice will adhere. This practice also may allow ice to form on areas from which it may not be removed. Speed also introduces the principle of frictional heat or ram rise. At 5,000 feet with a TAS of 180 knots and a temperature of 0°C, the friction of air passing over the aircraft surfaces raises the temperature of the aircraft skin 4°C. A true airspeed of 230 knots increases the temperature to 6°C. At 140 knots the frictional heat rise is 2.5°C. It is sometimes possible to "manufacture" heat that will remove ice or keep it from forming. Generally speaking, the fastest ice buildups occur between +1°C and -4°C, and the surface of the aircraft must be at a temperature of freezing or below for the ice to adhere. When studying a PIREP it is important to know the type aircraft involved. An aircraft climbing at 250 knots reports no ice, where you may possibly acquire it in your type aircraft.

The two types of ice are rime and clear. However, there is no sharp transition between the two. Since a higher speed raises the temperature of the leading edges and increases the rate at which water strikes, it is possible to penetrate a cloud at low speed and collect rime ice, and then penetrate it at a higher speed and collect clear ice.

When a cloud creates ice crystals, it is called glaciation. Remember, ice crystals will not adhere to the airplane. Glaciated clouds will appear to have "fuzzy" or undefined edges. When flying over the top of clouds in the clear, look "downsun" where the aircraft's shadow would be. If you notice colored rings (rainbow) around the shadow, the cloud is liquid droplets. If you don't see this, look "upsun." You should see a brilliant light (the reflection of ice crystals) denoting the cloud is glaciated.

Cumulus type clouds can produce heavy ice buildups. Because of latent heat of condensation, cumulus have been known to be wet, as low as -40°C. The droplets tend to be larger in cumulus clouds and do not always "paint" well on radar. The "seat of the pants" will let you know if you're in and out of updrafts. Penetrate any suspect cloud by the shortest route possible, either vertically or horizontally. Cumulus clouds dictate a horizontal move. A change of heading may be necessary to fly out of icing.

Stratus type clouds are less likely to produce severe icing, and icing layers more than 3,000 feet thick (because of glaciation) are rare. One exception would be the leeward (downwind) side of the Great Lakes. Another would be over and downwind of mountain ridges. The greatest liquid content and largest drops are found near the tops of stratus and stratocumulus clouds, so one may expect icing in the "tops" of these cloud types. Icing in stratus type clouds requires a vertical move. If you're icing in stratus type clouds, an altitude change of 2,000 feet in either direction probably will do it. Four-thousand feet certainly will do it! Be aware of the type of terrain if you are descending. I prefer to climb, unless I know there are ice-melting temperatures below. One limitation to consider when climbing is the aircraft's performance envelope. The aircraft's performance will be anemic upwards of its operating ceiling. Climb at a high rate of speed to minimize exposing more frontal area of the aircraft. Do not climb at Vy or cruise climb. It also is important to move immediately when encountering ice. Request an immediate heading or altitude change, depending on cloud type.

H. Dean Chamberlain photo

For the most part, wave clouds and the subject of mountain flying is beyond the scope of this article. However, watch for wave clouds. They occur on the back side of a cold front and are wet over and downwind of the mountains. If your airplane is capable of an altitude of 5,000 AGL of the ridges, this will usually top the wet orographic clouds. Proceed perpendicular (shortest course) to the wave cloud, if possible, and descend and climb perpendicular to it as well. The icing in wave clouds is usually severe, and the upward moving area of the wave is most suspect to be moist. I always request a 4,000-foot climb in icing. Many times, particularly at the southern portion of the Appalachian Mountain chain, I simply plan my flight so as to make an "end run" around the ridges.

When obtaining a preflight briefing, I always like to request the constant pressure level charts for 850 and 700 millibars. Using these charts I can check temperatures at 5,000 and 10,000 feet, respectively. Be suspicious when temperatures are +1°C to -15°C. Next, check the dewpoint/temperature spread. Be suspicious if the spread is within 5°C (the circle will be shaded in). The newer charts depict the color green. Generally, if the spreads are 2°C or less, and the temperatures are conducive, you may expect ice. Compare the same stations at different altitudes to see if it's moist at all levels. If the temperature of the 700 mb chart is more than 7°C colder than the 850 mb chart, there is an unstable air mass (cold over warm), and you may expect some vertical development. Check the 3,000- and 6,000-foot winds to see if they may be carrying moisture from bodies of water. When flying toward a low, a front, rising terrain, or the Great Lakes, remember that clouds slope upward and have higher tops.

Lastly, if executing an approach with ice adhering to the airframe, increase approach speed by about 20%, because of the increase in stall speed. Also, use zero flaps, or as recommended by the manufacturer, to preclude airflow disruption over the horizontal stabilizer, to avoid a tailplane stall. Fly safely! ✳

This article originally appeared in "The FSDO Flyer," published by the Winston-Salem, NC, Flight Standards District Office. The author is an Operations Inspector there.

The opinions and experiences contained in this article are the author's and not those of the FAA, although this article was reviewed by FAA policy offices.

INFLIGHT ICING PLAN

by Phyllis-Anne Duncan

Inflight icing continues to contribute to aviation accidents in spite of improvements in weather forecasting, the introduction of improved ice detection and ice protection systems, augmented training, and changes in operational procedures to allow pilots to recognize, react, and deal with structural icing. The FAA foresaw a need for an in-depth, global plan to address this high-priority safety concern.

In May 1996 the FAA held an International Conference on Aircraft Inflight Icing which was attended by scientists, engineers, and pilots from 21 countries, since, naturally, icing can be a world-wide problem in aircraft operations. Throughout several meetings, five working groups—Icing Environmental Characterization; Ice Protection and Ice Detection; Forecasting and Avoidance; Requirements for and Means of Compliance in Icing Conditions; and Operational Regulations and Training Requirements—developed recommendations and established milestones and focal points for addressing specific actions that will allow the FAA to provide better tools for the Government and industry to deal with inflight icing.

All actions will be accomplished with the intention of addressing international considerations, and information will be solicited from and shared with other aviation authorities in an effort of full cooperation. In addition to FAA employees from various organizations and services, technical expertise was provided by aviation authorities, airframe manufacturers, equipment vendors, pilots and operators, organizations, and individuals to carefully assess the recommendations and formulate an integrated action plan, which was issued this year.

The following action items were the product of the icing plan steering committee:

- Task 1 - Improve training and operation regulations and guidance material related to icing.
- Task 2 - Improve the quality and dissemination of icing weather information to dispatchers and flight crews.
- Task 3 - Accelerate development of airborne technologies that remotely assess icing conditions by working with groups that already are supporting research in this area.
- Task 4 - Ensure that aircraft having unpowered ailerons and pneumatic deicing boots do not have roll control anomalies if exposed to certain super-cooled liquid droplet (SLD) conditions.
- Task 5 - Task the Aviation Regulatory Advisory Committee with a short-term project to consider a regulation that requires installation of ice detectors, aerodynamic performance monitors, or another acceptable means to warn flight crews of ice accumulation on critical surfaces. There will also be a long-term project to develop certification criteria and advisory materials for the safe operation of airplanes in SLD aloft, in SLD at or near the surface (freezing rain, freezing drizzle), and in mixed-phase conditions.
- Task 6 - Improve the regulations and guidance related to certification of airplanes for operation in icing conditions.
- Task 7 - Complete an on-going project to standardize performance and handling requirements and guidance material for certification of FAR Part 25 airplanes for safe operations in icing.
- Task 8 - Not yet defined.
- Task 9 - The FAA along with other airworthiness authorities worldwide will consider a comprehensive re-definition of certification envelopes for the global atmospheric icing environment. This redefinition will depend upon development of models and simulation tools.
- Task 10 - The FAA Human Factors Team will review the design philosophy of automatic autopilot disconnection because of an external disturbance.
- Task 11 - Develop validation criteria and data for simulation methods used to determine ice shapes on aircraft, including icing tunnel, ice accretion computer codes, and icing tankers.
- Task 12 - Develop guidance material on ice accretion shapes and roughness and resultant effects on performance/stability and control. This material will be relevant to the identification and evaluation of critical ice shape features such as ice thickness, horn size, horn location, shape, and roughness.
- Task 13 - Characterize SLD aloft and assess mixed phase conditions (ice crystals and supercooled liquid water droplets) in the flight environment.
- Task 14 - The FAA Icing Steering Committee will coordinate inflight icing activities, including recommendations from the FAA International Conference on Aircraft Inflight Icing.

Some tasks have already been completed, and others will take until 2003 to complete and incorporate into operating practices or regulations. Some of the FAA organizations responsible for the tasks include Flight Standards, Aircraft Certification, Air Traffic Control, the FAA Technical Center, the Simulator Team, and the Aviation Weather Center, among others.

This comprehensive and extensive plan to improve the safety margin when encountering inflight icing is an example not only of FAA and industry partnership in a crucial area of concern but also a guarantee of better means and methods to deal with one of winter's biggest safety problems. ✳

For further information on the FAA Inflight Aircraft Icing Plan, please contact Mr. Eugene Hill, FAA Icing National Resource Specialist at (425) 227-1293.

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FAA AND EDUCATION

Story and photos by H. Dean Chamberlain

Helicopters Go Back to School

What do you call two helicopters that go to an elementary school? Smart helicopters, of course. The helicopters landed at the Wood Acres Elementary School in Bethesda, MD, on June 11, 1997. No, they didn't land for remedial kindergarten. They went to show the more than 500 students the unique operating characteristics of helicopters, characteristics the students had been studying for two weeks as part of a special concept program developed by the FAA General Aviation and Vertical Flight Program Office and a helicopter industry trade association, Helicopter Association International (HAI). The concept program is called the Vertical Flight Community Service Education Program (VF CSEP).

HAI President Frank Jensen represented the helicopter industry at the fly-in and presented Annette C. Hall, Principal, Wood Acres Elementary School with a model helicopter to commemorate the day and her school's participation as the program's prototype school. Steve Fisher, FAA VF CSEP team leader coordinated the event with representatives from his FAA office. Fisher also presented Hall a model of the Marine Corps' V-22 Osprey Tiltrotor to represent the future technology awaiting her students. This seemed fitting since Fisher is a Marine Corps Reserve colonel and military pilot.

Whether it's the first to fight, or in this case, the first to help students learn, U.S. Marines from Marine Corps Base, Quantico, VA, and HMX-1, the Marine Corps Presidential helicopter support squadron based at Quantico, were some of the first on scene that day. Led by Captain Greg Wilson, the Marines were there to organize and control the helicopter landing zone which was set up in a large recreational area behind the school and to provide communications support.

The Maryland State Police provided one of the helicopters, an AS-365-N2, *Dauphin,* flown by Mike Bieda. The second helicopter was a MedStar, BK-117, emergency medical service (EMS) helicopter from the Washington Hospital Center flown by Sanford Garner III.

Supporting the helicopter landing zone operations were emergency resources from the nearby Glen Echo Fire Department and local police personnel helped with crowd control.

Principal Hall said she welcomed

meetings at the HAI-sponsored Heliexpo 97 convention further refined the need. Jensen then challenged the rotorcraft industry to find ways to educate today's youth of the opportunities and challenges of the 21st Century and the role helicopters will play in that future. Responding, the FAA's GA-Vertical Flight Program Office came up with the idea for VF CSEP to meet that challenge.

Because of the important roles helicopters provide in local communities, airborne law enforcement, EMS, search and rescue (SAR), air ambulance, and transportation, it was decided to develop a curriculum that not only taught about the role helicopters play in America, but to go into how and why helicopters operate.

Classroom topics developed in partnership with both Wood Acre teachers and parents included rescue and law enforcement, basic helicopter characteristics, air ambulance ops, mechanics of helicopters, differences from airplanes, and types of jobs available within the helicopter industry. Helicopter design and drawing helicopters and cartoons were included in art classes. MedStar EMS crewmembers, Maryland State Police, HAI, and FAA personnel taught the courses. The helicopter fly-in was the practical "hands on graduation exercise" for the course.

Although Wood Acres was the prototype school for the VF CSEP concept, the next step will be the helicopter industry/HAI and FAA with the possible assistance of one or more military organizations taking the concept nationally. Local HAI/FAA representatives will work directly with their neighborhood schools and teachers to develop a helicopter course designed for specific grades. The course will stress how helicopters benefit the community, helicopter flight characteristics and operations, the role education plays in aviation, and the grand finale will be a "Helicopter Community Service Awareness Day" in which one or more helicopters would fly into a nearby "landing zone." HAI and FAA headquarters would provide national oversight of the program. To date, the Forrestville Elementary School in Great Falls, VA has requested information on how to participate.

The courses would be taught by local helicopter expert representatives. Materials and helicopters would be donated by HAI and local HAI-member helicopter operators or local governmental units with helicopters as part of the program. The program would be designed to have minimum impact on the schools' and teachers' workload.

The pilot program also showed that education doesn't stop at the classroom door. As part of the preparations for the fly-in, the team working on the program made a determined effort to inform and educate both Wood Acres parents and residents living near the school about helicopters and what to expect when the aircraft flew into the landing zone. Details included why the emergency vehicles would be there, the need for crowd control, the need for maintaining a safe distance away from the landing zone while the helicopters' rotors were turning; and when and how the helicopters would be arriving. Interested parents and neighbors were invited to attend the fly-in. The team also provided the local police with information to answer any anticipated calls from concerned citizens about the landing helicopters.

Who knows? This proactive helicopter community education program might be coming to a school near you this fall.

For more information on this concept program, please call Steve Fisher at FAA (202) 267-8535, or Dick Wright, HAI, at (703) 683-4646.

the test program at her school. She said it showed the children not only about aviation and helicopters, something they are normally don't get to see, but more importantly, the helicopters showed the children career opportunities in aviation. "I was glad one of the crew members on the EMS helicopter was a woman," she said. "It shows that girls can have a future in aviation." She contrasted this to when she was in school. "We didn't have some of the career opportunities that exist today for young girls when I was growing up," she said.

The children's reactions were simple to describe. They loved the helicopters and equipment. From the youngest kindergarten student to the oldest fifth-grader present, they had a great time viewing and inspecting the helicopters as they tried to stump the flight crews with questions. In addition to the helicopter crew presentations, the fire/rescue crew briefed the children on their rescue truck role while the Marines told of their jobs.

According to Fisher, the need for such a community educational program was born at a FAA-industry Rotorcraft Roundtable session. Later,

FAA AND THE COMMUNITY

Story and photos by H. Dean Chamberlain

Driggs Fly-In – A Flying Success

The 11th Annual Northwest Mountain Family Fly-In and Safety Conference was held recently in Driggs, ID. Organized by three FAA Flight Standards District Office (FSDO) Safety Program Managers for pilots and their families, this year's fly-in included guest speakers, the Idaho and Montana Divisions of Aeronautics, Transport Canada, FAA representatives from not only the FSDO's and their Regional office, but also from Air Traffic Control Facilities, and two Automated Flight Service Stations from the FAA's Northwest Mountain Region.

This was the second straight year the fly-in was held in Driggs. The three-day event had something for everyone including a Friday night barbecue followed by a slide show about a round trip seaplane adventure to Australia in an *Albatross* made by one of the hosts of the fly-in.

Held at the Teton Peaks-Driggs Airport which is located about 60 miles east of Idaho Falls in the Teton Valley on the western side of the Teton Mountains, the 6,230-foot MSL high airport provided a great setting for the fly-in, especially for the mountain flying safety seminars. The 13,770-foot Grand Teton Mountain peak overlooking the airport visually reminded pilots that the lessons leaned at the fly-in could be used on their way home.

Jim Cooney, one of the organizers of the event and the FAA Safety Program Manager at the Helena (MT) FSDO said, "An important part of each year's fly-in and safety conference is having things for the whole family to enjoy." He said, "One of the reasons for the success of the past fly-ins has been that families can combine an exciting vacation with participation in the fly-in."

For non-pilot family members who wanted something different, there were non-aviation activities in the Driggs area as well as in nearby Jackson Hole, WY, located just over Teton Pass on the eastern side of the Tetons. For those willing to make the drive, Yellowstone National Park was an hour or two northeast of Driggs.

Add in great community support, interesting speakers and seminars, good camaraderie, different types of aircraft, good food, activities for the whole family, and different airports throughout the Idaho, Montana, Wyoming, area, and you have the ingredients for an exciting and successful continuing fly-in for the past 11 years.

Conducted throughout the fly-in were the FAA's Pilot Proficiency Awards ("WINGS") and the Pilot Aircraft Courtesy Evaluation (PACE) programs.

Volunteer certificated flight instructors (CFI's) donated their time to fly with pilots wanting to complete a phase of the WINGS program. Pilots who completed the three-hour flight, the one-hour ground training, and one of the safety seminars as required by FAA Advisory Circular 61.91, received their respective WINGS phase, which, as outlined in the AC, can be used in lieu of an FAA required flight review.

FAA airworthiness inspectors worked with aircraft owners during the maintenance portion of the PACE events. As a courtesy inspection, the voluntary checks were done to see if the aircraft and its maintenance records were in full compliance with appropriate regulations and airworthiness standards before the pilot flew with an FAA operations inspector for a pilot proficiency review. This FAA safety review is not part of the "WINGS" program which is conducted by authorized flight instructors.

No fly-in would be complete without an informative and entertaining speaker. Driggs was no exception. The guest speaker at the Saturday night banquet was Scott Crossfield who flew many of the X-Series experimental aircraft after World War II until the 1970's. He entertained the audience with a slide program on the X-Series aircraft as well as anecdotal comments on the aircraft and the pilots

Fly-in atendees sign up for WINGS and PACE events.

Teton Peaks/Driggs Reed Memorial Airport

who flew them. From the Bell X-1 (the first aircraft to break the sound barrier with Chuck Yeager at the controls) to the X-15, Crossfield was an important part of many of the test flights. The list of X-Series pilots read like a Who's Who of aviation. The list also included the name of the first man to walk on the moon, Neil Armstrong.

Seminar subjects included, among others, survival techniques and equipment, human factors, stall/spins, GPS, pilot briefings, mountain flying, flying in Canada, pilot judgement, METAR/TAF weather reports, aircraft maintenance, operations at nontowered airports, density altitude, and an AOPA Air Safety Foundation course titled, "Never Again."

Seminars are an important part of each year's program planned by the FAA Safety Program Managers who coordinate the fly-in. They work hard to provide attendees with meaningful safety seminars as well as fun activities that challenge attendees' flying skills and knowledge. As pointed out by Dr. Jerald Cockrell, an aviation humourist and psychologist, who "crashed," or as he described it, made a very "short field" twin-engine landing on a downtown Atlanta street, learning about an accident and how to prevent a similar accident from happening again doesn't have to be boring. Not only was his presentation an interesting story, if you can ever call an accident funny, but his safety message was crystal clear as well as being very entertaining.

In addition to the various seminars and being able to participate in the WINGS and PACE programs, pilots could also challenge themselves by "flying" the FAA Civil Aeromedical Institute's Gyro 1 Spatial Disorientation cockpit trainer. The enclosed cockpit trainer demonstrated time after time to the hearty pilots who flew it that without proper training, spatial disorientation can affect anyone. The computerized, rotating trainer caused more than one sweating pilot to fly down into a non-recoverable "grave yard" spiral.

Those less adventurous could compete in the FAA preflight contest where each participant searched for five, small yellow dots placed on the preflight aircraft to simulate "discrepancies" that should be found during a normal preflight.

Not everyone found all five "discrepancies."

The yellow dots used to simulate discrepancies were an interesting way to test peoples' preflight skills without actually making a real discrepancy on the aircraft. This not only eliminated the chance that a "manufactured" discrepancy made for the test might be overlooked when returning the aircraft to service after the test was over, but the dots also eliminated a logbook entry that would have been required after "repairing" any discrepancy "manufactured" for the test.

Veteran test pilot Scott Crossfield (left front) talks with fly-in attendees, including Helena SPM Jim Cooney (right front), after his presentation on X-Series aircraft.

Contributing to the success of the fly-in were the Air Traffic Control, Flight Service, and Airway Facilities specialists who controlled, provided weather services and flight plan filing, and who brought and maintained the mobile air traffic control facility at the nontowered Driggs airport throughout the three days of the fly-in.

No discussion of any FAA sponsored or supported fly-in or safety seminar would be complete without recognizing the fact that none would ever take place without the support of all of the volunteers, airport staff, local community, speakers, and others who make everything happen. This fly-in was no exception. FAA wants to recognize the support of the City of Driggs; the Idaho and Montana Divisions of Aeronautics; Transport Canada; the Driggs Airport Board and Staff; the Teton Valley Chamber of Commerce and its members who supported the fly-in; Anhauser Busch for use of its hangar; Sweetwater Air Park; Western Aircraft; Teton Aviation Center; Teton AvJet; II Morrow Corp.; the A-10 military pilots who flew over the airport on their way back to their base; AOPA Air Safety Foundation; the guest of honor and speaker, Scott Crossfield; all of the guest speakers; pilots; and individuals who made the 11th Annual Northwest Mountain Family Fly-In and Aviation Safety Conference the success it was in Driggs.

Next year's fly-in will be Kalispell, MT. The date is pending. For more information on next year's event, you can call next spring to John Goostry at the Boise FSDO, 208-334-1238 or 1-800-453-0001; Jim Cooney at the Helena FSDO, 406-449-5270 or 1-800-457-9917; or Jim Pyles at the Salt Lake FSDO, 801-524-4247 or 1-800-532-0268.

The last time it was held in Kalispell, 425 pilots registered for the fly-in so you might want to plan to check on the date early next spring.

You Don't Have to be Able to Land on a Mountain to be a Mountain Pilot

Driggs, ID is located in a very large, 6,000-plus foot high valley surrounded by mountains. The airport elevation is 6,230 feet MSL which is normally higher than I fly in Virginia. So does landing at Driggs make me a mountain pilot? You bet.

According to Jim Pyles, FAA Safety Program Manager at the Salt Lake FSDO, Driggs is a mountain airport. "One of our biggest problems in our area is low-land pilots who think they don't need to review mountain flying techniques when they fly into someplace like Driggs with its 7,300-foot long runway or Jackson Hole's 6,300-foot long runway. The Jackson Hole runway is more than 6,400 feet MSL elevation. The two nearby airports are separated by a mountain range that peaks out at almost 14,000 feet. To put this into perspective, consider this, the instrument missed approach procedure for the ILS Rwy 18 at Jackson Hole says, 'Climb to 11,000 via JAC R-188 then climbing left turn to 15,000 direct JAC VOR/DME and hold.' How many small GA aircraft can climb and hold at 15,000 feet?

"They tend to think that as long as they are not landing a remote, rough dirt bush site, they are safe. But, they may not be," Cooney said.

First of all, remote landing sites in the bush all require special training, techniques, and maybe aircraft that all go beyond normal mountain flying training, he said. "I'm not talking about such sites. I'm talking about mountain airports such as Driggs. They are high and on a hot summer day, the density altitude can be very high," he said.

"Even though Driggs has a 7,300-foot long runway, pilots need to review how to calculate density altitude, true airspeed, and aircraft performance before attempting to takeoff from such an airport on a hot day in a small aircraft at gross weight.

"Add in the dangers of mountain canyons, strong winds, turbulence, high mountain passes, and loss of aircraft performance because of high density altitude, and you can begin to see why pilots who don't have mountain flying experience should get a mountain checkout with a knowledgeable flight instructor or check pilot before entering the mountains," he said.

"A good way a pilot can begin his or her education is by attending one the mountain safety seminars given by the FAA such as the annual Northwest Mountain Family Fly-In and Aviation Safety Conference, a state aeronautics division, or one of the various flying organizations," he said.

Pilots planning on flying in one of the mountain states can also contact that state's aeronautics division for information. Pilots can also contact the nearest FAA Flight Standards District Office's Safety Program Manager for information and help. Another good source of local information is the local airport's fixed-based operator (FBO). Most FBO's can recommend one of their CFI's who will be glad to help you. It might be wise to plan on taking some local dual instruction to get familiar with local conditions.

Good planning at the beginning of a trip can also save pilots a lot of time later. There are many good books on mountain flying. As noted by many mountain pilots and authors, when planning on flying through the mountains, the most direct route may not be the best route. A longer route with lower elevation mountain passes, access to better emergency landing sites, access to people, and better survival conditions might be the best route for small aircraft. Add in the probability of changing wind and weather conditions, and you are on the way to developing a good mountain flight plan.

Piper Seneca III

TWIN TWICKS!

by David Graben

It was a beautiful afternoon, with clear blue skies and a light breeze from the south. The flight instructor and his two students checked the weight and balance carefully. With three onboard and full tanks, the PA-23-150 *Apache* was just a bit under maximum gross. After a thorough preflight, they took off for the practice area.

At 3,000 feet AGL, the instructor shut down and feathered the left engine. He knew that the examiner would require this on the flight check, and he wanted the student to be prepared. At this point things started to go downhill in more ways than one. The old "Geronimo" would not hold altitude, and they could not get the left engine to restart. It was decided that they could not make it back to the airport, so they made an off-airport landing in a gravel pit. End result? One destroyed aircraft and one aviator in the hospital.

The Practical Test Standards for the multi-engine flight test require the complete shutdown of an engine. This is an excellent confidence builder for students using aircraft with single engine climb capability and a good chance of restart. On older ships that won't hold altitude, challenging situations often occur. Consider the following when making a single out of your multi:

1. Check density altitude. It could be higher than you think!
2. Be over or close to an airport that has clear approaches to long runways and crash/rescue equipment.
3. Expect the unexpected; for example, that the aircraft won't restart or hold altitude.
4. Keep the aircraft light, with minimum fuel and no passengers.
5. Keep the aircraft cool by flying in the early morning or late afternoon.
6. Be familiar with the aircraft; for example, speak with other instructors or examiners who know the "habits" of the aircraft you will be flying.
7. Thoroughly brief your student.
8. And, most importantly, BE CAREFUL OUT THERE!

This article originally appeared in the newsletter, "Fort Worth Wings," published by the FAA's Forth Worth, TX Flight Standards District Office.

Edited by Mickey Hostetler

CURRENCY VS PROFICIENCY

by Jim McElvain

According to old Webster, currency means "occurring in or belonging to the present." According to the FAR, an aviator must have a current medical, a flight review, and three takeoffs and landings to function "in the present." Being current with as little as five hours of flying time at the end of a two-year period is certainly plausible, and IFR currency does not fare much better if the majority of the required flight time is accomplished enroute and on auto-pilot.

On the other hand, proficiency indicates that an individual is "adept, skillful, expert, and masterful." A proficient airman not only meets the minimum requirements for currency but also is skillful in all operations authorized by his or her certificate.

How is one to maintain proficiency while keeping a few dollars in the bank? Consider the following recommendations.

- *Don't Waste Time.* Droning along enroute does little for proficiency. Do some calculations, practice the art of dead reckoning, take a little time for a steep turn, some slow flight, or a stall series. Be precise. Plan a specific rate of climb and descent and keep that enroute altitude nailed. If you have a safety pilot onboard, get all the hood time possible. Taxi, takeoff, and land on the centerline.
- *Get Your Money's Worth.* Speak well in advance with the instructor who will do your flight review, being brave and honest. Let the instructor know the areas you are terrified of or weak in and ask that the review emphasize those areas. You might as well come out of the experience a better aviator, rather than merely showing you can still get "up and down" without crashing!
- *Train for Proficiency.* Hey, the pros all do it! Pick a month and designate it as your annual proficiency training time. Schedule with your local flight school or one of the national simulator facilities, or participate in the FAA Pilot Proficiency Award Program ("WINGS"). "WINGS" is an ideal way for general aviation pilots to improve and maintain their skills.

When you qualify for the "WINGS" program, by attending an Aviation Safety Seminar and training with your instructor for three hours, you also will satisfy your FAR § 61.56 Flight Review requirements while improving your proficiency. The training will emphasize areas often associated with aircraft accidents.

This should help "crash proof" you and will make your insurance company happy. Many companies are giving proficiency training discounts to aircraft renters and owners who get their WINGS. If interested, contact your local Aviation Safety Counselor or instructor. FAA Advisory Circular 91-61 outlines the program.

Don't be just current—be proficient!

This article originally appeared in the newsletter, "Fort Worth Wings," published by the FAA's Forth Worth, TX FSDO. The author is an Aviation Safety Inspector at that FSDO.

SimuFlite Photo

Edited by Mickey Hostetler

Landed OK ...
But Couldn't Call for Help!

This article is a reprint from Transport Canada's Aviation Safety Letter. *A publication distributed to all Canadian pilots by the Safety Programs Branch, System Safety, Transport Canada. We thank ASL for permission to reprint the article.*

The article points out an important safety concept. After a safe landing, a pilot may have to know how to attract SAR—not knowing may increase the odds against a safe recovery.

This is not the first example of a pilot surviving an emergency landing or accident and not knowing how to operate the survival equipment. In other cases, pilots have failed to arm their ELT before a flight and subsequently crashed with no alert signal being transmitted because the ELT was turned off.

Then there is the possibility that a pilot might be killed or incapacitated in a crash. If so, will the surviving passengers know how to activate the onboard survival equipment. Do you know how to operate your survival equipment?

Recently, a Cessna pilot in the Yukon Territory did a great job of landing his aircraft in a swamp after the engine oil vacated the premises. Neither the pilot nor the aircraft was damaged during the few moments of stark terror that punctuated his many hours of routine flying. Just before the landing, the pilot transmitted a "Mayday" that was overheard by two over-flying aircraft and relayed to a nearby FSS.

However, the position transmitted was more generic than it was exact. The FSS notified the rescue coordination centre (RCC). A major search began promptly, employing about six aircraft. The searchers found nothing the first day.

The next morning, a Royal Canadian Mounted Police aircraft aiding in the search found the undamaged aircraft sitting forlornly in its swamp. A search and rescue (SAR) aircraft sped to the scene and lifted out the uninjured pilot. So what's the problem?

A couple of things might have sped the rescue and reduced search costs. According to a report filed by the RCC after the event, "The pilot was unaware of the effort put into search. Also he had no clue that ELT could be picked up by satellite, his radios could be heard by overflights, or that numerous grizzly bears were in the area."

The pilot was not unique in not knowing how to attract SAR's attention to an emergency site. Other survivors have also waited and waited and waited rescue while neglecting to flash up the ELT's or radios to summon help quickly.

Rather than concentrate on the things that could have been done better, let's focus first on what went right. The Mayday call alerted two aircraft, the FSS and the RCC. The position was a bit vague but, in northern Canada, that's to be expected. Then there was the landing, which was apparently a superb piece of airmanship.

Could more have been done? As it turned out, yes. The aircraft contained an automatic, fixed ELT and a portable ELT. The arrival did not excite the fixed ELT, and the pilot didn't think to turn on the portable. Thus, search aircraft had nothing to home on to.

After the landing, the pilot did not attempt to use the aircraft radios to contact high flyers. Oddly enough, not using the radios may have been the prudent course of action. A forced landing may have resulted in an unnoticed fuel leak. Flashing up the aircraft electrics could have resulted in a spark—a spark sufficient to ignite the spilled fuel. Although the resulting fireball and smoke plume might have attracted search aircraft, it's not a recommended technique.

Now let's sort out a few ground rules to help SAR pluck you from the site of your emergency landing. If, someday, you find yourself in the same situation as this pilot—that is, down and undamaged but immobile—place the ELT function switch to the ON position. Leave it on. Within 90 minutes, COSPAS/SARSAT will hear it. Within three hours, SAR will have a fix. Someone will come to get you. As well, most military aircraft monitor 121.5 MHz, and if they or other high flyers in the area report your ELT, SAR might get there even sooner.

Are you using the aircraft radios to talk to local high flyers? If your forced landing was relatively jolt-free, there is no obvious damage, and you can't smell avgas, it's probably OK. But remember, avgas is distilled to be susceptible to small sparks. Turning on electrics may trigger a fireball that will alert SAR agencies three provinces away.

ELT's were intended to attract SAR to emergencies. A forced landing in a swamp with an oil free aircraft constitutes an emergency. In this case, the company had two ELT's aboard the aircraft. Either one could have been used to summon help to an aircraft and pilot that were going no farther that day. Fewer search aircraft would have been needed, and the pilot would have spent less time contemplating nature. Fortunately, he did not have to contemplate the grizzly bears that are a formidable part of that area of nature.

And, contrary to popular opinion, grizzly bears don't have 121.5 MHz ears, so turning on the ELT won't attract them. It will attract the SAR aircraft that will prevent you from having to outrun them. ✳

• Tires

Regarding the April 1997 article "Tires Make the World Go Round," covers are suggested as a means of protection from the sun.

For those of us who would likely not bother with covers, a suitable alternative is frequent application of an ozone/UV protectant. It also makes them look nice!

Richard J. Lewis
Madeira Beach, FL

Thanks for the tip.

• Authorized Flight Instructor

I saw the Forum item in the *Aviation News* regarding the long cross country flight for the instrument rating. I guess I started this debate with my article on "The Check Ride," but I have been holding my tongue for a while now since it has the potential for personal implications for me.

I agree that the long cross country flight is "instrument instruction" and must be given by an "authorized flight instructor." However, when I go through the regulation I am unable to get a definitive statement as to exactly what privileges an instrument flight instructor has that an ordinary flight instructor does not. There appear to be only vague references to "consistent with ratings" that seem to apply more to type ratings and multi-engine than the instrument ticket. The limitation seems to prevent an instructor from giving instruction in an airplane he/she is not rated to fly. There is no prohibition that would prevent a CFI from giving instrument instruction.

Since every airplane instructor is required to have an instrument rating on the pilot certificate as a condition of the basic instrument rating, there is no question that the CFI is instrument rated, and so would be operating within his competence as a pilot in giving instrument instruction. In fact every CFI gives instrument instruction as a part of the training of every private pilot.

In addition, a CFI can endorse an applicant for the "WINGS" program for the required hour of instrument work, and can include hood work in a BFR. Obviously, "authorized flight instructor" is not a sufficiently descriptive term because a CFI is authorized to give instrument instruction under some circumstances.

The question is where this authority ends. The CFI obviously has the authority to give instrument instruction to a pre-private student and is therefore an "authorized flight instructor" in that context.

He/she is also an "authorized flight instructor" when it comes to BFR's and the "WINGS" program. The extent of the CFI's authority and the limitations that bound this authority do not appear to be spelled out in the FAR. Conventional wisdom holds that he/she is not authorized to give instrument competency checks or to endorse an applicant for the check ride. The 15-hour requirement also seems to be generally accepted as requiring the services of a CFII, but from there things start to get fuzzy.

Maybe the new FAR Part 61 will fix some of this. My own inclination would be to eliminate the difference between the CFI and the CFII for the airplane category, since the pilot certificate has to carry the instrument rating in any case. Anybody suggestions?

Bill Belanger
Via Internet

As per FAR §§ 61.1(b)(2) and 61.195(b), a flight instructor is only permitted to give training "in accordance with the privileges and limitations of his or her flight instructor certificate." Only an authorized flight instructor (instrument) is authorized within his or her certificate and ratings to give required instrument flight training.

The training a CFI gives a student pilot under FAR § 61.109(a)(3), "Control and maneuvering an airplane solely by reference to instruments, including descents and climbs using radio aids or radar directives" is not instrument training within the meaning of the FAR. That flight time is "flight by reference to instruments" to meet the private pilot certification training requirements.

The FAR states when instrument flight training is required. The training must be given by an appropriately rated instructor (CFII). For example, FAR § 61.129 (b)(3)(i) states that a commercial pilot applicant for a multi-engine rating must have received "10 hours of instrument training, of which at least 5 hours must be in flight in a multi-engine airplane." That required instrument flight training must be given by a holder of a flight instructor certificate with a multi-engine airplane rating and instrument airplane rating listed on the flight instructor certificate.

• Twice or Times Two: What is the Difference?

I have just finished reading the May/June issue of *Aviation News*. In Richard Davis' article "To Fly or Not to Fly," part of the records' review suggested by a renting pilot should be to verify testing of transponders, altimeters, and the static pressure system.

I certainly hope it should have read BIENNIAL (once every two years) rather than the printed BIANNUAL (twice a year). Oh, what a difference a letter can make...(couldn't resist the pun).

Ray Rusek, CFII
Windsor Heights, IA

Oops! Although biennial eliminates the chance of confusion, our Webster's Ninth New Collegiate Dictionary lists one definition of "bi" as meaning 1-b "coming or occurring every two [bimonthly] [biweekly]. As used in the article, biannual could mean every two years, but the accepted usage of biannual is "twice in one year." Sorry about that.

The best way to list the required inspection period is by quoting FAR §§

91.411 and 91.413 which state in part "...within the preceding 24 calendar months..."

• Midairs and Transponders

As a private pilot, my greatest fear is the mid-air. And I know you guys are on a campaign on the subject.

Last Wednesday, I was flying west at 4,500 ft 10 miles southwest of Ft. Worth Navy (formerly Carswell AFB), when an F15 or F18 passed directly under me coming from my 10:30 o'clock direction. He was no more than 500 feet below, probably 300. Not exactly a near miss but close enough to get my attention. Conditions were excellent VFR, the fighter was slow, but I doubt I would have seen him in time to avoid a collision had he been at my altitude.

So what, you ask? Well, we were not on a military training route, but we were near the base. I had just passed through Ft. Worth Navy airspace, had been released for a frequency change, but was still monitoring the tower. So I asked them about the fighter.

Turns out, I was on radar; the fighter was not. My transponder was on; his was off or in-op. The tower said it must be an F16, as several were up at that time. I told them no. (When was the last time you've seen an F16 with twin rudders?) The tower radar man must have been monitoring the conversation, because he broke in and said he couldn't see the fighter.

Thus Ft. Worth Navy was unaware of its presence. Then they suggested I radio Ft. Worth Center and ask them about it.

Ft. Worth Center had no knowledge of the fighter either, and did I want to file a report or something, because they didn't know what else to do about it. I declined, stewed, and pondered what to do.

What upsets me most about this is that I spent $6,000 buying and installing a TCAD which works very well. It usually finds traffic before I see it. But if the military guys don't bother to use their transponders...

Why am I writing you? I was rereading your excellent "Feather Canyons?" article (July/August '96) which I saved as a mandatory pre-summer refresher course, and it occurred to me you might have suggestions on how to apply pressure on the flying community—military and civilian—to use ALL MEASURES to avoid each other.

Any ideas?

Darden McFarlin
Arlington, TX

Yes. Thanks for reminding everyone that when in VFR conditions, ALL pilots have the responsibility to see and avoid each other. Hopefully, the fighter pilot had you in sight. We are also using your message as a reminder to all pilots to use all of their available equipment to help avoid a possible midair. But your message also is a reminder that electronic equipment has certain limitations. Equipment may not be turned on, it may be inoperative, or it may not be installed, so even as we approach the next millennium with the prospects of an all GPS-based navigation system and possible cockpit to cockpit data-link messaging capabilities and collision avoidance systems in GA aircraft, all pilots must remember that certain rules of thumb still apply. For instance, in VFR conditions, all pilots (even those on IFR flight plans) must watch outside their cockpit for traffic. It also pays to monitor the appropriate tower, en route, or CTAF radio frequencies when operating near airports or airways for possible traffic. It also is a good idea to request flight following from ATC when flying VFR. Although this service is on a workload permitting basis for VFR flights, it is a good request to make when flying VFR. Not only does it give you traffic advisories, it also gives you real-time flight following in case you need assistance. We think the key to your letter is good communications between pilots and controllers, and the constant need for vigilance.

However we will discuss this issue with our military liaison, so your concerns can be voiced further.

• Electronic Spins?

Many may have suggested it; I just may have missed it - computer spins. As one who must be attuned to both governmental and extra-governmental aviation activities, you are aware of Microsoft's Flight Simulator, Version 5.0. In view of the fact that one can learn to enter and exit a spin on this program, it would seem worth considering the possibility, even as a demonstration project, of getting students to demonstrate on the program at a FSDO their ability to enter and exit a spin before issuing a certificate. I am sure that the FSDO's have the computer capacity. The students would know what do and how to do it if the time came, the FAA would be assured of that element in their training.

The risk (cost) would be minuscule compared to the benefit. There should be widespread enthusiasm and acceptance. I am most assuredly not the first; reason is on our side.

Philip Whittlesey, M.D.
Via Internet

Thanks for your comments. If students want to review the procedure on their own, that is fine. But, there is no regulatory requirement for student pilots to demonstrate spin entry or recovery techniques as part of their training or practical test.

• Holding at a Fix

Guidance contained in the AIM, paragraph 5-3-7, does not adequately describe holding pattern selection when arriving at a fix located at the destination airport.

Using the Liberty/Causey VOR AP (Chart L-22), an aircraft is en route to the Liberty VOR (LIB) from Greensboro (GSO), NC. A landing at the Causey Airport (NC) is planned. The aircraft is told to hold at the Liberty VOR. No further instructions are received.

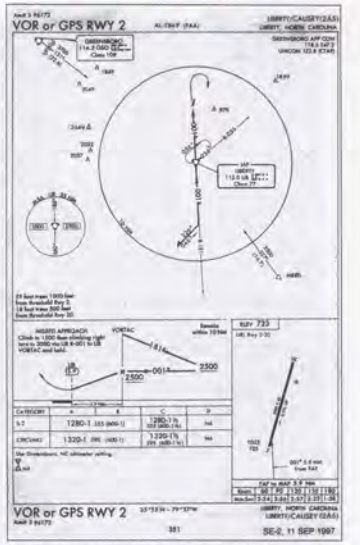
1. Is the pilot expected to hold on the inbound course to the LIB VOR?
2. Should the pilot hold using the missed approach holding pattern, even though the AIM, paragraph 5-3-7, does not mention the missed approach holding pattern on instrument approach charts?
3. Should the pilot hold in the procedure turn airspace shown by the barb, i.e., south and west of the LIB VOR?

F. Kent Carter
Greensboro, NC

1. Yes, unless a holding pattern is charted the pilot is expected to hold on the inbound course at the aircraft's altitude/flight level. See the rules for IFR loss communications. ATC will protect that airspace and altitude.

2. No.

3. No. Unless a non-standard holding pattern is shown, the pilot is expected to use a standard holding pattern. See Answer 1.



Optically reduced illustration, not to be used for navigational purposes

FAA AVIATION NEWS welcomes comments. We may edit letters for style and/or length. If we have more than one letter on the same topic, we will select one representative letter to publish. Because of our publishing schedules, responses may not appear for several issues. We do not print anonymous letters, but we do withhold names or send personal replies upon request. Readers are reminded that questions dealing with immediate FAA operational issues should be referred to their local Flight Standards District Office or Air Traffic facility. Send letters to FORUM Editor, FAA AVIATION NEWS, AFS-805, 800 Independence Ave., SW, Washington, DC 20591, or FAX them to (202) 267-9463. INTERNET address: Dean.Chamberlain@faa.dot.gov

SAFETY ALERTS STOP

FM INTERFERENCE IMMUNITY

The International Civil Aviation Organization (ICAO) has established a requirement for all aircraft ILS, VOR, and VHF communications systems to be "immune" to interference from FM broadcast signals. Systems must have "enhanced receivers" to achieve immunity for FM interference for international flights conducted after January 1, 1998. The requirements are outlined in ICAO Annex 10, Volume I, Section 3, and Annex 10, Volume III, Section 2.

Enhanced receivers will not be required or necessary within the U.S. because of frequency protection measures in use. All operators flying internationally are reminded of their responsibility to comply with all applicable regulations in force, including any regulations requiring aircraft equipage with upgraded communications and navigation equipment. For further information, contact Michael O'Neill of the FAA's Office of International Aviation; (202) 267-8124.

ANOTHER "EMPTY" HAZ-MAT

An hour after takeoff a flight attendant in the lower galley of a DC-10 complained of dizziness and nausea, which were relieved after taking some oxygen. The second officer went to the galley to investigate, opened a cargo compartment door, and was overtaken by vapors, which were also alleviated by inhalation of oxygen. The plane made an emergency landing, and biohazard investigators met the aircraft. The offending cargo compartment revealed several empty containers which had contained a strong chemical that had leaked. The biohazard crew indicated that the remaining vapors were highly combustible in addition to being physically irritating. Several flight attendants were treated for an allergic reaction. No passengers were affected.

The containers had been accepted labeled as "empty" and with no residue. Along with the tragedy that caused the crash of ValuJet Flight 592, this incident raises the importance yet again of accurate and truthful labeling of hazardous materials so that pilots in command can make the appropriate handling decisions.

LORAN-C REVIEW

The Department of Transportation (DOT) is conducting a Congressionally mandated review of the decision to decommission the Loran-C navigation system in the year 2000. The decommissioning was outlined in the 1996 Federal Radionavigation Plan. DOT has retained the firm Booz, Allen & Hamilton, Inc., to assess the technical merits of extending Loran-C service beyond the year 2000, and to conduct a cost/benefit analysis of such an action. As part of its contract, Booz, Allen hosted a users conference for representatives of various Loran-C users to provide information about the system and its present and future use in September.

Because not everyone who wanted to present information at the conference could attend, the Government is soliciting written input from individuals and organizations until about Dec. 15, 1997. Comments may be mailed to:

DOT Loran-C Study Comments
Mr. Joseph R. Davis
Booz, Allen & Hamilton, Inc.
8251 Greensboro Drive
McLean, VA 22102

Telephone comments cannot be accepted. E-mail comments may be directed to a dedicated account called loranc@bah.com. FAX comments may be sent to (703) 917-3023. Both of these accounts are available 24 hours a day. Comments are being solicited on any technical, operational or economic issues associated with the proposed action. Comments should be factual, and if possible provide verifiable reference to the source of any data cited. Commentors may call (703) 902-4671 during normal business hours (8:00AM-5:00PM EST) if they wish to confirm receipt. All comments should identify the originator and provide some means (mail, telephone, or E-mail) to allow return contact with the originator. Commentors should identify the specific Loran-C user community (maritime, aviation, weather, timing and synchronization, etc.) they represent and the specific use made (type of aircraft, vessel or other platform, where used, what other navigation systems are used, and typical navigation activity). In addition, comments should address safety, reliability, and other system performance issues.

Input will be accepted until approximately Dec. 15, 1997; however, early submission will ensure time for the contractor and the Government to address key issues in the cost/benefit analysis and other technical reports.

FAA ADMINISTRATOR TO OPEN 1998 WOMEN IN AVIATION CONFERENCE

FAA Administrator Jane F. Garvey will be the opening speaker at the 1998 Women in Aviation Conference on March 13, 1998 in Denver, CO. Other keynote speakers for the event include Carroll Suggs of Petroleum Helicopters; Horst Bergmann of Jeppesen; Linda Lang of Arizona Rotorcraft; and Sean D. Tucker, air show performer extraordinaire.

As part of the three-day conference there will be FAA Aviation Safety Program seminars, an inspection authorization renewal seminar, and an aviation workshop for elementary and secondary teachers.

"Climbing to New Heights" is the theme of the 1998 conference. For further information on the conference contact Women in Aviation, International at (937) 839-4647.

MARYLAND AVIATION SUMMIT

On Wednesday, June 18, 1997, more than 160 representatives of Maryland aviation businesses gathered to identify and discuss mutual concerns at the Baltimore-Washington International Airport, in Baltimore, MD.

Many things have changed since the first Summit. The most important is the improved working relationship between the FAA, the Maryland Aviation Administration (MAA), and their customers. This is important to the survival of small businesses and small airports. The FAA Baltimore FSDO and MAA joined in this effort to enhance and improve aviation safety.

David Winstead, Secretary of the Maryland Department of Transportation and Richard Lea, Manager of the FAA Baltimore Flight Standards District Office began the day with a warm welcome. Both stressed the importance of aviation in Maryland and the need for everyone to work together for aviation safety and growth. "Safety has always been the FAA's mission. But we do not go it alone," said Mr. Lea.

Dr. Kathy Abbott, the keynote speaker, stressed the Summit's theme of "Safer Skies Through Cooperation." She is currently the FAA National Resource Specialist for Flight Deck Human Factors on detail from NASA. She easily conveyed her dedication to the improvement of aviation safety through one simple model—the "Swiss Cheese" theory of accidents. The holes in the cheese represent potential accident causing factors. Fortunately in most cases these holes do not line up to create one continuous tunnel, but sometimes one does form, resulting in an accident. Dr. Abbott analyzes these holes to help determine how to break the accident "chain." In the June 2nd issue of *Aviation Week & Space Technology*, the 51 recommendations made by her Human Factor's team were recognized as the second of the top 10 priorities in air safety.

Following her presentation, the business participants divided into four focus groups: Airworthiness, Air Carrier, Flight Training, or Airports. First they met among themselves to discuss safety issues and ways that customer service could be improved. Next they formulated action plans to make these improvements. In the afternoon they were joined by FAA inspectors from the Baltimore FSDO to explain their action plans and prioritize this list.

(H. Dean Chamberlain photo)

From the Baltimore FSDO (left to right): Manager Rich Lea, Safety Program Manager Wendy Grimm, Aviation Safety Inspector David Gillen, Administrative Officer Theresa Coffindaffer, Assistant Manager George Galo, and Aviation Safety Inspector Doug Lundren.

The MAA and the FAA clearly demonstrated support for the State's airports. The Third Annual Safety Summit provided a continuing opportunity for Maryland airport operators, fixed-base operators, flight instructors, mechanics, and others to meet and discuss mutual concerns. The business participants developed workable plans to enhance and improve aviation safety. These plans were forwarded to the FAA Baltimore FSDO to be incorporated into their annual program. As the previous Summit led way to this year's successful Summit, this event has provided a strong foundation for next year's fourth annual aviation safety Summit.

Following the Summit, the Second Annual Maryland Aviation Awards Ceremony was opened by Nicholas J. Schaus, Deputy Administrator, MAA.

Four Marylanders were recognized by MAA for either being first in their field or for having made significant contributions to the development and growth of general aviation, air carrier, aircraft manufacturing, or airport development in the State of Maryland.

The four were Louis Turfield Miller, Harbor Field; Nathan (Bill) Morris,

Kentmorr, Bay Bridge; Mina A. Paille, Davis Airport; and posthumously, Florence Parlett, Lee Airport.

In addition, MAA presented Airports of the Year awards to Suburban Airpark in Laurel, MD in the category, Privately Owned/Public Use. Montgomery County Airpark, Gaithersburg, MD won in the category, Public Owned/Public Use.

Four MAA Special Awards were given to Charles Abell, Manager, Frederick Municipal Airport; Carolyn Motz, Manager, Washington County Regional Airport; and Robert Powell, Owner and Operator, Raintree Airpark.

Baltimore FSDO Manager Rich Lea (H. Dean Chamberlain photo)

After the MAA award presentations, Mr. Lea, presented special awards to a select group of pilots and others who have supported the FSDO's mission of ensuring safety.

Lea presented the FSDO's FAA Wright Brothers Master Aviator Award to Martin M. Burke (posthumously), Joseph Kadel, Walter F. O'Neill Jr., Andrew Serrell, John K. Crawford, George Marville, Marvin T. Rorrer, and Robert F. Woodall. Each has been a pilot for more than 50 years.

In addition, Lea recognized Piedmont Airlines for its contribution to aviation safety by going above and beyond everyone's expectations to open up its Crew Management Resource training to general aviation.

Lawrence J. Donaldson, Jr. was the FSDO Aviation Maintenance Technician of the Year. Gay Z. Williams was the FSDO Certified Flight Instructor of the Year. And Robert Hawkins and Martha Ainsworth received the FSDO Aviation Safety Volunteers of the Year Award.

FREE AIRWORTHINESS SYMPOSIA

"When is good enough not good enough?" asks the FAA's Aviation Safety Program.

"When it's business as usual in aviation!"

The FAA's Aviation Safety Program in the Western-Pacific Region is sponsoring, in partnership with industry, five (count 'em, five), free (you heard it right) maintenance education symposia in the first quarter of next year.

The first two-day symposium is scheduled for January 30 and 31, 1998 in Hawaii. (Never let it be said that the FAA does not serve you well.) That symposium will be followed by four more in Southern California, Northern California, Arizona, and Nevada. The dates, respectively, are February 27 and 28; March 6 and 7; March 13 and 14; and March 27 and 28.

Maintenance technicians in the Western-Pacific Region will be receiving detailed information by mail shortly, but if you will like additional information, please contact either Kevin Clover, Regional Safety Program Manager-Operations, at (562) 420-1755, or Linda Goodrich, Regional Safety Program Manager-Airworthiness at (310) 215-2150, x125.

Editor's Runway

from the pen of Phyllis-Anne Duncan

It's Resolution Time Again!

The holidays are always a reflective time, and certainly with the New Year quickly approaching, many of us perform that time-honored exercise of developing our New Year's Resolutions—you know, those things we swear we're going to do or change in the upcoming year. In that frame of mind, then, a number of aviation resolutions come to mind.

First, how about continuing or even beginning your participation in the FAA Aviation Safety Program Pilot Proficiency Award Program, WINGS? Annually, if you attend an FAA safety seminar and take three hours of instruction, you earn a phase of WINGS and receive a "framable certificate from the FAA" and a set of WINGS, a lapel pin distinctive for 10 of the program's 20 phases. (Alas, budgets being what they are, only certificates are given for Phases 11 through 20.) Completion of a phase of the WINGS program counts as a flight review, so what other incentive you do need? Primarily, participation in the program means that you are assured of an annual flight with a CFI. The program has evolved steadily over the years and includes all manner of airmen. The FAA Safety Program Manager at your local FSDO can give you all the details you need about the WINGS program.

If the WINGS program is not your milieu, why not resolve to add a rating or upgrade your certificate? New FAR Part 61 now allows for a private pilot to add an instrument rating almost right away, and an instrument rating is one of the best additions to your certificate you can purchase. It hones your handling skills, your planning skills, your judgement—everything you need to be a good, professional pilot whether you ever intend to fly for compensation or hire or not. Or add a seaplane rating or learn to fly gliders or balloons. You'll find that you'll enhance your aviation knowledge and skills overall, and you'll enjoy another aspect of this unique world of aviation. Become a flight instructor, get a multi-engine rating—anything to keep up your enthusiasm for aviation.

Resolve to involve a friend or relative in aviation, either through any of the industry programs available or on your own. Aviation is something that is worth sharing, and showing your skeptical neighbor that "little airplanes" really don't rain from the sky is very satisfying. The same holds true for your local city or county council member, your state legislator, the editor of your local newspaper, even your Senator or Congressional Representative. Knowledge is power, and by introducing aviation to the people who may be making decisions about aviation in your area, you'll ensure they make informed decisions.

If you're in aviation for a living—don't laugh; it can be done—help out your local school system next year on career day by discussing your aviation-related profession. The young people still in school today are aviation's future—but only if they know and understand what it can offer them. You can be an example, a role model, and your love of aviation and your dedication to safety perhaps will encourage those young people to take up aviation as either a career or an avocation.

As the statistics sadly show, accidents caused by mechanical malfunction alone are rare; the large majority of accidents are still attributed to pilot error. Perhaps, if we resolve each year, every year, "This year I will do whatever it takes NOT to have an accident," we will put our minds and behavior more in a good judgement mode. As with anything in life, aviation is just another part of our lives that we continually reassess, sharpen, and improve. Let's resolve to do that.

As for here on the Aviation News Staff, we resolve to continue bringing you the best magazine we can. We are hoping to interview new FAA Administrator Jane F. Garvey soon. We will be touching on some air carrier topics in upcoming issues as well—unruly passengers and the dangers of oversized carry-on baggage. One other thing we're considering is increasing the number of issues of the magazine from eight a year to 10. Publishing eight a year has kept the subscription price at $16.00 a year for three years now. Why not 12 a year like other magazines? We're trying to keep the subscription increase gradual. Going from eight to 10 would definitely mean an increase in the annual subscription rate, but one not so large as if we went from eight to 12. If we were to go from eight issues to 10 that would mean that you, the reader/subscriber would get 280 pages a year of advertisement-free information versus the current 224. How much is that worth? We don't know, but we'd like a gauge of opinion. Write me at the address on the inside front cover or call at (202) 267-8017 or e-mail me at phyllis.duncan@faa.dot.gov . We really want to hear what you have to say on this.

In the meantime, I hope whatever holiday you acknowledge at this time of year is peaceful and, above all, safe.

'Til next time...

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