March 1994

FAA Aviation News

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Sun 'n Fun p.20

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FAA Aviation News

Volume 33 Number 2

Features

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Front Cover: *If you are winging your way to Sun 'n Fun, get an idea of the air traffic management plan on p.20 so that your arrival and . . .*

Back Cover: *. . . departure will be uneventful. Don't rely solely on our article. CHECK NOTAM's.*

Acceptance

by Phyllis Anne Duncan, *Editor*
(for Andrea—who wants to fly the Shuttle *and* operate the robot arm)

March is Women's History (Herstory?) Month. Consequently, I'd like to talk about a favorite topic of mine: Women in aviation.

"Oh, no," you say. "Here she goes again! Hasn't she written about that enough?"

No.

"Why?"

Because it's a matter of acceptance. Just as in the rest of society, there is in aviation, among some, a problem still accepting women as equals in the cockpit. (See the AvNews/Briefs item on sexual harassment on p. 27.) When women in aviation encounter such resistance—or the occasional, downright exhibition of ignorance—like anyone else, we need to be reassured, reaffirmed as aviators and women.

Women in Aviation Conference

This month the 5th Annual Women in Aviation Conference (WIAC) took place in Orlando, FL. Sponsored by Parks College of Saint Louis University and organized by the indomitable Dr. Peggy Baty, the WIAC is a wonderful event for anyone interested in aviation. (See the September 1993 issue of *FAA Aviation News* for a brief article about WIAC.) I first attended in 1993 and found it affirming on two levels—as a pilot and as a woman pilot.

Again, why distinguish between the two?

Because, as a speaker at last year's conference reported from her research, the drop-out rate for women student pilots is twice that of male students. The apparent reason? Lack of affirmation as pilots, few women pilot role models, and an exclusion by male students and instructors from typical "post-flight" activities. (Relax; this is not the forum for a discussion on the reasons for the latter.)

Women in the U.S. comprise about 52% of the population, but only 6% of the certificated airmen. If we want to save general aviation, we have a vast pool of talent to draw from. For any of you insightful entrepreneurs out there interested in revitalizing general aviation, you have a huge market available. In particular, women in their 40's and 50's are starting or returning to colleges in droves after divorces, widowhood, or emptying the nest. In addition to our children's generation, here are our future pilots, mechanics, instructors, and, even, FAA inspectors. We in the aviation industry are doing ourselves a disservice by ignoring them in aviation advertising and outreach.

When I was learning to fly, I was the only female student pilot, and it was a lonely experience—my excellent primary instructor (a man) notwithstanding; he was not the problem. From the beginning, I felt excluded from many of the typical airport/flight school activities. I persevered because I wanted to fly more than anything. A few months after I started, I got a woman friend to start also, and we clung to each other, taking joy and pride from each other's accomplishments—just like the male student pilots did for each other.

Don't get me wrong. Ninety-nine point 99999 percent of my aviation experiences have been positive, but I can understand how many women and minorities feel when you don't get the support, when you're not included in hangar flying sessions, when no one has time to answer your questions. Many simply shrug and say, "Why bother?"

And it's aviation's loss.

The WIAC's stated purpose is to 1) educate the general public regarding women's contributions to aviation, 2) allow women in various aviation occupations to network, and 3) provide role models and information to women about aviation careers. Purposes 1) and 2) are very important, but the last purpose is paramount. Women in aviation are not merely the headliners like Amelia Earhart or Jackie Cochran. They are our mothers, sisters, daughters, spouses who are corporate pilots, commuter pilots, airline pilots, military pilots, mechanics, engineers, load masters, drop masters, air traffic controllers, parachute riggers, etc., and who do their jobs day-to-day without a great deal of notice—just like their male counterparts.

Young women in particular now have a wealth of role models. Mine were Chuck Yeager, Jimmy Doolittle, and a whole host of outstanding male pilots because they were the only ones I knew about. It was only later in life I finally heard about the women who pioneered aviation. Women now have Emily Howell Warner, Mimi Tompkins, and the brave women pilots of Desert Shield/Storm. But perhaps they wouldn't have known about them without the efforts of the WIAC. Role models can transcend gender. Why shouldn't a young boy want to become a pilot after seeing the example set by women fighter pilots or women airline captains?

Continued on page 5

FAA's "Board of Directors"

GAAP Coalition Presents 1994 Objectives to Administrator Hinson

Eleven representatives of the General Aviation Action Plan Coalition had their first meeting with FAA Administrator David R. Hinson in January. The purpose was to present Administrator Hinson with the Coalition's 1994 agenda for general aviation. The GAAP Coalition is an FAA/Industry partnership effort whose purpose is to support implementation of FAA's General Aviation Action Plan. (See the November/December 1993 *FAA Aviation News*.)

The Coalition's 1994 prioritized goals deal with revamping FAA's Accident Prevention Program, FAA publication of advisory circulars on field approvals/STC's and primary category aircraft, simplified certification initiatives, fuel research, aircraft noise, liability reform, airspace access, a national general aviation policy on airports, and parts availability.

The Coalition's chairperson for 1994, Tom Poberezny, President of the Experimental Aircraft Association, indicated to the Administrator that the industry was proposing a team concept for dealing with most of the issues, to resolve differences between FAA and industry positions, and to implement accomplishable actions. The meeting's main purpose was to assure the Coalition of FAA participation in these teams.

Administrator Hinson responded as follows:

- Concerning the Accident Prevention Program: FAA responded to a letter of recommendations from the Coalition concerning the Program by agreeing to support certain structural changes in the program. Hinson supported improvements relating to increased use of volunteer Accident Prevention Program Counselor, expanding the program to include new audiences, and improvement in the program's guidance materials and training for Counselors. Also, the Administrator has directed Flight Standards to explore a name change for the program, perhaps emphasizing safety education, customer service, or safety partnership. Hinson also briefly spoke of the Cooperative Compliance Action Team (CCAT) in the Denver FSDO. CCAT will serve as a test office for alternative compliance and partnership efforts between FAA and industry. (A comprehensive article on CCAT will appear in an upcoming issue.)
- Concerning the AC on field approvals/STC's: Hinson indicated that the AC had not yet been published because its provisions required resources that the FAA does not have but that the FAA was looking at alternative approaches. He indicated that FAA agreed conceptually with Coalition's recommended action.
- Concerning fuel research: Hinson indicated that he and the FAA were aware of the importance of fuels research to the General Aviation community and that the FAA would keep that research going. Furthermore, the FAA would act as a facilitator to encourage fuel refiners to spend research dollars on alternatives to leaded gasoline.
- On the noise issue: Hinson indicated that the "noise about noise is going to get worse." Hinson indicated that the FAA and industry had to avoid a polarization of positions concerning noise issues for places like the Grand Canyon. If the industry isn't together on this issue, he said, it will result in "legislation that no one wants." For the FAA to take an "extreme position related to aircraft noise", Hinson indicated, would "be interpreted as irresponsible in working with other national priorities and goals" in the area of the environment. However, Hinson asked General Aviation Manufacturers Association president Ed Stimpson to have the GAMA Technical Policy Committee consider developing low noise profiles for inclusion in pilot operating handbooks or flight manuals for all production aircraft. Currently only turbojet aircraft manuals contain this information.

FAA's "board of directors" from left to right are:
Jack Eggspuehler, NAFI
Alden Lange, NATA
Monte Mitchell, AEA
Frank Jensen, HAI
Tom Poberezny, EAA
David Wadsworth, PAMA
FAA Administrator Hinson
Edward Stimpson, GAMA
Paul Fiduccia, SAMA
William Pollard, FAA
Douglas McNair, AOPA
Martin Pozesky, FAA
Charles Huettner, FAA
Edward Scott, NASAO
John Olcott, NBAA

Administrator David R. Hinson and Deputy Administrator Linda H. Daschle listen to the GAAP Coalition present its 1994 objectives. In the background, Robert A. Wright of the FAA's General Aviation and Commercial Division.

- Concerning liability reform: Hinson reported that the U.S. Department of Justice would be studying the prospect of a 15-year statute of repose for aircraft manufacturers as an overall consideration of tort reform. If passed, the statute of repose would be first imposed on transportation products, and the Justice Department needs to study what, if any, effect the statue would have on other transportation areas. Hinson indicated, however, his support of the statute of repose and that he would exert every influence he could.
- On airspace access: The Coalition proposed an FAA/industry workshop with the FAA taking the leadership role in coordinating airspace issues with other government agencies. This would be to assure that other entities would not make regulations restricting airspace access without FAA/industry input. Hinson agreed to support the workshop on the issue and assured that he would get FAA input on any such regulatory efforts by other agencies.
- On General Aviation Access to public-use airports: The Coalition reported that over the past 10 years, general aviation has lost an average of one public landing area per week. Administrator Hinson was amazed at the figure but did not doubt it. He agreed with the Coalition's contention that perhaps there was too much focus on commercial service airports to the detriment of general aviation. The Coalition proposed a workshop to define a national general aviation airports policy, and Hinson agreed to support it. FAA's Deputy Associate Director for Airports, Quentin Taylor, suggested that the FAA needs to revive its practice of promoting an airport's value to a community. FAA has been resisting the closing of airports that receive federal funds by requiring that airports receiving such funds could not close unless a replacement was built. Hinson indicated that FAA was working with the Department of Defense on the issue of general aviation access to former military airfields that are now being closed down. Hinson also indicated that he had instructed FAA's Office of Civil Aviation Security to find ways to minimize unneeded security requirements on the general aviation portion of airports with air carrier service.
- On parts availability: The Coalition requested that the FAA support a workshop to address the parts availability problem and also support several industry initiatives in that area. Hinson and Associate Administrator for Regulation and Certification Anthony Broderick indicated they would support the workshop and consider the Coalition's initiatives.
- On miscellaneous issues: Hinson reported that the long-awaited primary category aircraft AC has been published for public comment. Poberezny requested that AOPA and EAA petitions concerning longer intervals for third class medicals and elimination of the medical requirement for recreational pilots receive a high priority, and Hinson and Broderick both indicated that the petitions had been "fast-tracked" in the rulemaking process. On the issue of changing required aircraft inspection intervals, Broderick indicated that the FAA would support extending the interval if there were data to support that safety would not be denigrated. Broderick asked the Coalition to develop a database from aircraft log books as to what had been found during inspections so that the FAA can better evaluate the proposal. The Coalition agreed to conduct the research.

Hinson expressed great interest in the work of the Coalition and agreed to semi-annual meetings with the Coalition's principals. The Administrator reiterated the "business approach" the FAA is taking and speculated that the Coalition would be a quasi-official board of directors that would ensure the appropriate areas are emphasized to FAA senior management. ■

Piper Aircraft Corp.

Pilot Decision Making

by Tom Hamilton

Keeping In Shape

This is the seventh and final part of a series that first appeared in Balloon Life *magazine in 1989 and that was originally written for balloon pilots. We have left the lighter-than-air examples in because the overlying issue of pilot decision making affects all pilots.*

—Editor

This final article in our series on Pilot Decision Making examines some program that pilots can participate in to improve their skill retention.

As we saw in Part 6, human intelligence retention is selective. We retain both skills and knowledge in proportion to their use and apparent importance to our survival. The process of forgetting can begin almost the moment we walk off the airport with a newly acquired certificate or rating in hand.

As pilots who fly for recreational purposes, we may fly infrequently and irregularly, in between work, family demands, and weather. These "gaps" in our flying activity take their toll. Think back to when you might have had a two-month or longer time between flights. How precise were your approaches?

Figures (1991 statistics) from the National Transportation Safety Board (NTSB) show that of the 692,095 certificated pilots, some 2,143 had general aviation accidents, of which 414 were fatal. That works out to approximately one accident per 323 pilots, and about one fatal accident per every 1,672 pilots per year—a reasonably good percentage, but not one that gives you a sense of invulnerability.

[One group which may be able to hedge that invulnerability could be] the "WINGS" group, a popular term for the Pilot Proficiency Award Program, initiated nearly 20 years ago by FAA's Accident Prevention Program for the benefit of general aviation pilots who recognize a need for assistance in retaining their operating skills at an optimum level. The program now has 10 levels, or phases, is demanding of pilots' time, critical of their performance, provides an excellent opportunity for them to reevaluate their flight proficiency and knowledge, and, at the same time, earn their wings pin and a certificate.

In addition to participating in the Wings program, a pilot can practice good flying skills whether at a fly-in or at home by establishing a goal for the flight and trying to achieve that goal. The goal can be a checkpoint, a flight level, calculating time and distance correctly, etc. By placing these types of parameters on the flight you strive to achieve a set goal.

Accident Prevention Program safety seminars and even "hangar flying" help to provide an important mental stimulus to the pilot's awareness of flight safety. Sitting around and thinking of "what if" situations and how you would handle them contribute to your wealth of knowledge.

Studies have concluded that certificated pilots who do not fly regularly undergo a rapid and significant deterioration of their ability to perform flight tasks. A safe pilot does more than stay current (three takeoffs and landings in the last 90 days and a current biennial flight review). Practicing what we have learned is as important as having learned our flying skills. ■

Editor's Note: *Our thanks to Mr. Tom Hamilton, publisher of* Balloon Life *and author of this series, for permission to reprint these articles. For subscription information, contact Mr. Hamilton at 2145 Dale Avenue, Sacramento, CA 95815; (916) 922–9648. If you would like to see all seven articles combined into a single* FAA Aviation News Reprint *contact the Editor at the magazine's address on the inside front cover.*

Acceptance

Continued from page 1

If you were not able to make the conference this year in Disney World, plan to make the next one in St. Louis on March 16–18, 1995. Male or female, it will be an uplifting and re-affirming experience. (Contact Parks College of Saint Louis University at 618–337–7500, ext. 299, for more detailed information on next year's conference.)

National Council for Women in Aviation/Aerospace

Another affirming step for women in aviation and aerospace is a new organization, the National Council for Women in Aviation/Aerospace (NCWA). Founded in 1993 by a cross section of women in aviation and from within FAA and the aviation industry, NCWA is a non-profit organization whose stated purpose is "to include *anyone* interested in *any* aspect of aviation and aerospace." NCWA, through its nine geographical regions in the U.S., represents all skill groups in aviation, from those actually working in an aviation field to those who are aviation/aerospace enthusiasts.

NCWA's goal is "to encourage and influence women to *succeed in aviation and aerospace* by providing continuing education, growth, and support." (Emphasis added.) It is committed to identify and promote career and educational opportunities "for all women in aviation and aerospace; to establish educational programs; to provide and identify sources for scholarships; to encourage professionalism in all areas."

The organization serves as a source of information and a promoter of opportunities for women in all facets of aviation and aerospace through "educational, charitable, and scientific means."

NCWA is still in a fledgling state—indeed, their first general membership meeting will be held September 8–11, 1994, in Wichita, KS. But the concept and the initial organization have attracted several corporate sponsors of its goals and purpose. There are, however, a couple of ideals that NCWA wants its members to live by:

YOU will be a significant part of history.

YOU will have the satisfaction of knowing you are part of one of the greatest movements in the American work force.

YOU will help promote an awareness of the role of women in all aspects of aviation and aerospace.

YOU will encourage women who wish to enter aviation and aerospace by demonstrating that there is virtually no limit to what they can do.

YOU will be a role model for young women who aspire to join your field of expertise.

YOU will meet other women who have achieved the goals to which you aspire.

And the great thing is—you don't have to be a woman to participate in this. It will take both men and women to assure aviation's future. The $25.00 dues are tax deductible, and for membership information, contact NCWA at 2020 North Oliver, Wichita, KS 67208; telephone 1–800–727–6292.

Women in aviation or thinking about aviation as a career can, as I learned to do, identify with good, safe pilots of either gender, but because of the WIAC and NCWA, we can grow to feel that we have a rightful place and that we are truly accepted in this most equal of pursuits for the same reasons as male pilots—we love to fly. ■

Editor's Note: *This article does not intend to exclude other aviation organizations focused on women, such as the 99's and the Whirly-Girls, both covered already in* FAA Aviation News, *or the Professional Women Controllers. If there are other organizations out there who would like to let us know about their efforts toward promoting aviation careers among women and minorities, let us know, and we'll write about them, too.*

INSTRUMENT CORNER

Continued from page 24

So what does ATC *really* do when someone is NORDO? As I mentioned earlier, it happens a lot more than you think. In over six years as a controller I've worked countless aircraft no one could raise on the radio, but I can count on my thumbs how many squawked 7600! Most pilots don't realize they are not in contact. They've turned down the volume or accidentally switched to the wrong transceiver—who knows? The primary things ATC does in a NORDO situation is watch carefully and get everyone else out of the way. We'll be using extra care with a NORDO aircraft so long as what you do is reasonably close to the FAR and logical enough so that we can guess what approach you're going for. You'll be fine as far as ATC is concerned. We do have procedures for clearing the airspace when a non-radar aircraft has missed a position report also. [Here might be a good place to note that hand-held transceivers fit nicely into your flight case, are now relatively inexpensive, and could help you and ATC out in the event of NORDO.*—Editor*]

To try and get the pilot back, we'll try searching other frequencies the aircraft was assigned, in case it was a bumped switch. We'll use VOR voice if the pilot seems to know he or she has lost communications. We'll use the emergency frequency—it's a good idea to "go" there if you've gotten "lost" between frequencies. In short, we'll do anything else we can think of. Remember, lost communications doesn't just mean sparks coming out of the radio; it's much more likely to be a wrong switch or something just as trivial. The point is—know your equipment!

Hopefully, you won't ever have to deal with lost communications in IMC, but if you do, be assured ATC does understand you may have other electrical problems as well and may want to get down right away. Your way will be cleared for you. You take care of the aviate and navigate parts, and we'll make up for the communicate part.

See you on the scope! ■

G. S. Livack

Ramp Operations

Hold the Key to Overall Flight Safety Level

by John H. Enders

Safe ramp operation is the vital underpinning to safe flight. It is here that the airplane is prepared for flight.

After the pilot makes the decision to fly and accepts the airplane, it becomes his or her responsibility to complete the mission safely. It is important that the pilot not be burdened unknowingly with incomplete or improper service or maintenance actions that will compromise the crew's ability to safely manage the flight. Strong positive safety attitudes must be instilled in all aspects of ramp operation.

The airport ground environment is a dangerous place for the unwary.

Where else in the system is such a mixture of high-value equipment constantly exposed to ramp vehicles operated, in many cases, by unskilled and unsupervised employees? Where else are sophisticated, expensive machines maneuvered into crowded apron parking slots? Where else are such inconsistencies in ramp and taxiway lighting, signage, and taxi lines found? Where else does one find dangers from flocking birds potentially choking a large engine inlet at the critical moment of takeoff? Where else are there such wide-ranging variances in attitudes toward snow removal and ice control? Where else does one find the potential for tragedy when an airplane is connected to the passenger lounge by a jetway, or when an airplane crashes on or near an airport that has no disaster management plan or supporting community facilities to deal with injuries and fatalities?

High Cost Accidents

Ramp safety issues may seem mundane to people accustomed to dealing with air traffic situations, new aircraft technology, and crew training, but ramp accidents are a high-cost item for airlines and airports in personnel injuries and death, and in damage to equipment. One international airline reported an annual cost of U.S.$20 million per year in ground damage to aircraft.

As larger airliners with wingspans of 198 feet (60 meters) or more appear at civil airports, ramp safety becomes a bigger cost concern. One minor bump to an airliner's wing by a catering truck, caused by a driver's misjudgement, directly affects the airline's cash flow. That bump and the seemingly minor damage it involves will require the immediate removal of the aircraft from service for a thorough engineering inspection; passengers, cargo, and mail must be off-loaded and placed on another flight; crew schedules will be thrown into disarray; aircraft scheduling and maintenance will be disrupted; connecting flights will be missed at airports along the way; flights that depended on that original airplane for their own scheduling may also have to be canceled; and inconvenienced passengers and shippers may convert their ire into a loss of revenue for the airline.

The total cost of such a careless act by the driver will far outweigh the cost to repair the aircraft damage.

Lack of Consistency

Airlines, insurance companies, manufacturers, and regulatory authorities agree that accidents and incidents occurring daily on airport aprons are a serious problem.

A review of ramp operations suggests a lack of overall consistency in standards, operating practices, and management. This may be understandable in view of how the air transport industry has grown, globalized and intensified, but it cannot be accepted as an excuse. Funding for airport modernization has seldom kept up with need, and the administration of the airport function varies considerably from country to country and even within some countries.

Following are examples of recent ramp conditions, accidents, and incidents reported to the Flight Safety Foundation (FSF):

- Jetways are poorly lighted in many cases, resulting in slip-and-fall accidents among passengers, especially the elderly.
- Catering trucks often rely on rearview mirrors for backing, with no outside walkers, even though the "cone of blindness" via mirrors may extend for as much as 150 feet for a 50-foot truck. The vehicle most often backs into the aircraft's wing.
- Ground vehicles operated irresponsibly threaten moving aircraft. In one case, a wide-body aircraft taxied from the terminal to the runway, crossing an airport driveway. Just before crossing, the pilot saw a catering truck coming from the left without slowing in speed. The pilot applied full brakes, and the aircraft stopped in about 49.5 feet. However, the truck maintained its speed and crashed into the aircraft near the nose wheel. Though there were no injuries, damage to the aircraft amounted to about $5 million in addition to costs incurred by taking the aircraft out of service.
- An aircraft mechanic was sucked into the inlet of an engine at start-up. He managed to hold on to the inlet lip until co-workers were able to drag him away from the engine.
- The station manager of an international airline was concerned about foreign object damage (FOD) from debris on the parking apron and notified the host airport manager. The manager obliged promptly by bring out a truck with two jet engines mounted [on it] for snow blowing. In a short time, all the debris had been cleaned from this airline's parking apron but blown onto the host country's adjacent parking area and onto ramps and taxiways that had to be traversed by incoming and departing aircraft.
- Aircraft workers are frequently injured by flap movement. Ramp communication is often ineffective.
- Bird ingestion hazards continue to concern operators at many airports, despite increased efforts in some regions to discourage flocking birds from the airport vicinity.
- On push-back from the stand, the corner of a tractor cab struck the aircraft radome.
- A baggage trolley struck an aircraft and punched a hole in the starboard wing/body fairing.

- During loading of a heavy freight item, a forklift hit and punctured the forward hold door.
- As a driver brought a baggage container to the aircraft for loading, he passed between the undercarriage panels and the No. 3 engine. The container hit the undercarriage panel.
- Ramp personnel improperly stowed the forward airstair door without fully retracting the handrails, causing internal aircraft damage that jammed aileron control cables, and which was discovered later in flight. The handrails tore out crossmembers under the cabin floor, breaking off two aileron cable brackets and their pulleys. A ground crewman inadvertently had a hand on a microswitch that overrode the handrail retraction during stowage.
- Ground personnel locked a commuter aircraft's main cabin door from outside before the aircraft departed the ramp. On taxi-out, an emergency occurred and the door could not be opened from the inside, forcing passenger evacuation through the overwing and rear emergency exits.
- A thunderstorm with strong winds pushed a baggage cart into the right propeller with the engine running. The propeller shattered and debris caused major damage to the wing. The cart had not been secured properly with parking brake set.
- A baggage-tug driver from another company assumed right-of-way over moving aircraft on the ramp.
- Chart inaccuracy showed a mining pit 1,400 feet from the runway in stead of the actual 300 feet. Runway "excursion" could result in hitting boulders lining the pit or going into the pit itself.
- Signage on ramp and taxiways was cited frequently as poor and inadequate. Similarly, hold-short stripes and taxi lines were reported to be of varying visibility.
- Control of pedestrians walking from the aircraft across the ramp to the terminal was often poorly directed, offering opportunities for tragedy. Passengers were killed recently in Washington, DC because of careless operation of a ground vehicle, which struck them as they were walking to the terminal.
- Vehicle collisions presented fire hazards. Drivers need training and supervision.
- Construction barriers were frequently erected without regard to aircraft maneuvering clearance. Intent of the barriers should be specific, e.g., parking of vehicles or stockpiling of materials, and barrier heights should be carefully regulated so they do not interfere with aircraft structures during ground movement.
- Attention must be given to the proper response to a fuel spill, especially when the aircraft is connected to the terminal via the jetway and passengers are aboard. The pilot is usually not in direct communication with the fueller, and communications between fueller and dispatcher are often inadequate. The airport manager must be aware of incidents to move promptly to ensure proper protection.

Apply Common Sense Management

There are remedies and safeguards for each of these situations. Some require investment of additional resources. Virtually every ramp incident or accident could be prevented. No high-tech equipment or complicated procedure is needed, just some basic common sense and an awareness by people who operate vehicles and aircraft on the ramp.

Fortunately, many airports are effectively addressing these situations, and the Airports Council International (ACI), working with national and international authorities, is directing attention and resources to resolving the more serious problems. But we have a long way to go to reduce substantially human error in ground operations.

Capt. Augustino Ferrari of Aeroporti di Roma said during FSF's International Air Safety Seminar in Rome in 1990 that competent and qualified managers are the key to safe airport operation. He has applied this principle at Aeroporti di Roma, ensuring that all departments fully recognized the overall situation and their own responsibilities. Review of ramp personnel training, communications methods and supervisory management techniques all contributed to establishing a positive attitude among personnel that has resulted in a noticeable decrease in safety incidents and in accident costs.

Establishment of standards must be accompanied by an organizational philosophy that support their implementation. This philosophy must be clear and unequivocal so that all employees fully understand the organization's commitment to the highest possible safety performance. Management must ensure that the organizational attitude is established in accordance with the stated philosophy and standards. Management also must reinforce continually and frequently this message by setting an example for employees and by prompt, firm, and fair enforcement of established standards.

Safety Audits and Safety Reporting

Airport safety audits are practiced by many airlines to ensure that risks are controlled. Airport managers should avail themselves of this method of safety assessment.

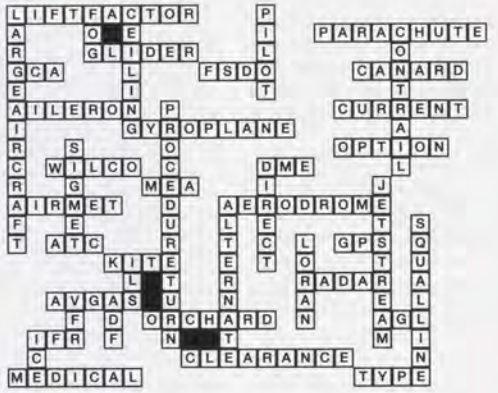
Another action that should be considered is for the ACI to establish a voluntary, confidential and non-punitive safety reporting system for all airport personnel, similar to the U.S. National Aeronautics and Space Administration's (NASA) highly effective voluntary Aviation Safety Reporting System (ASRS). Properly formulated and implemented, this could be a valuable source of early warning information that, once verified, management could use to prevent serious incidents. One airline in the Far East asks each incoming maintenance shift to seek and correct any discrepancies as it enters the workplace. This active reinforcement of alertness and safety awareness has drastically reduced the airline's workplace incidents.

The development of effective coordination between airport management and tenant company management to establish an overall safety management system at each airport consistent with the international and national airport system will go a long way toward improving ramp safety.

With a consistently effective and aggressive ramp safety program in place, the safe preparation of the aircraft for flight will be enhanced. ■

Mr. Enders is vice chairman of the Flight Safety Foundation Board of Governors and is charged with technical oversight of FSF's activities. This article was adapted from a presentation Mr. Enders gave to the ACI's seminar on ramp safety last year in Rome, Italy and was originally published in FSF's publication, Airport Operations, *in the March/April 1993 issue.*

Answer to January/February Crossword Puzzle



The One That Got Away

by Robert Petersen

Sometimes the distinction between comedy and calamity is a very fine one; sometimes whether you view something as amusing or sobering depends on your point of view. Here's one that provides something to think about.

The Captain of an air carrier flight diverted to an alternate airport because of weather and encountered confusion after landing—with some unusual consequences. ***—Editor***

The Captain's Story

"We were directed to [a] hard stand to await a gate slot and had [the] right engine operating. [We] required about 20 minutes of wait time for other aircraft to move before I settled into my spot on the ramp . . . I was advised by Operations that my gate would be vacant in approximately 5 to 10 minutes. Apparently, more than just refueling and re-dispatch was in order; but, I was not aware of the plans for the disposition of the aircraft, crew, or passengers at this point. I elected to keep the right engine running for the short wait on the ramp. We were [then] cleared by Ground to taxi. We did so, and when clear of the other aircraft . . . I taxied to [the] gate.

"While taxiing, my eye caught the fuel quantity gauges as I was concerned about my burn while on the ground. I was surprised to note the quantity was almost 10,000 pounds higher than when I parked. I assumed a system malfunction and had the First Officer check A/B systems—both read the same. Since the aircraft did taxi a bit heavier than when I [had] parked, I realized that we had been fueled while I was parked—with 95 passengers on board, no cockpit contact, and all doors closed. I don't normally sit glued to the fuel gauges while parked, and no other indication of the event was obvious. I was totally unaware of the event, not having been advised to expect refueling . . . "What is even worse—the truck was connected and pumping fuel when we taxied. The fueler managed to emergency release the hose just [before] . . . reaching the end of the reel."

The One That Got Away

Reading this report evokes the humorous image of a fuel truck racing along behind the taxiing airliner still connected by a length of hose—the airliner destined to become "the one that got away." But the Captain didn't think it was so funny.

"Normally I would execute a left turn out of this spot to parking. If I had done this, the outcome probably would have been much different. . . . Somebody dropped the ball here. I do have a right to know what is going on with my aircraft!"

We must give the fueler credit: He didn't panic and run but disconnected the fuel hose before disaster struck. The Captain subsequently discovered that " . . . the fueler was [apparently] employed by a . . . firm . . . [that] was contracted by my company to help out with the overload from the diversions." *[And therefore was likely not familiar with the air carrier company procedures.* ***—Editor****]*

Getting the Message

Why hadn't the fueler contacted the flight crew before fueling? There are a number of possible reasons—total confusion on the ramp because of the number of aircraft; or the fueler did not realize the engine was running, was not aware of special procedures for fueling with passengers on board, assumed the Captain was aware the aircraft would be fueled, was rushing to keep up with the task at hand, etc. Regardless of the causes and factors involved, there existed a large opportunity for disaster, but fortune dealt kindly with all involved—this time.

We could say more about the need for proper coordination between a dispatch office and the cockpit and the need for adequate training of ground personnel, but this narrative speaks eloquently enough by itself. ■

Everything is funny as long as it is happening to somebody else.

—Will Rogers, 1879–1935

Great Expectations

by Jeanne McElhatton

Few in-flight problems are guaranteed to raise the concern of pilots and controllers alike as much as the prospect of an aircraft running out of fuel. In the period following the Avianca accident in January of 1989 (where Avianca Flight 52 crashed short of its destination after running out of fuel), the Aviation Safety Reporting System (ASRS) has seen a rise in the number of reports that concern "low fuel" conditions. Reports may detail the confusion and communications breakdown among flight crews and controllers about what is meant by a "minimum fuel" situation. In more than a few situations, conscientious and understandably vigilant controllers have elevated to emergency status what the flight crew intended only as an advisory.

> "While holding we decided to divert LGA [LaGuardia] and were asked of our fuel status. We told NY [New York] ATCC it was fifty-five minutes, which would take us into our reserve fuel. But apparently, this was interpreted as a minimum fuel situation. We never mentioned 'minimum fuel,' critical fuel, or emergency of any sort. Only on downwind to LGA, approximately thirty minutes later, did I become aware that something was out of the ordinary when we were told that the final was twenty miles long, and if we needed less to please let them know. We said that would be okay, but wondered why they even asked us that. Upon landing, we noticed that the emergency equipment was standing by."

Given ATC's reaction to what they may perceive as a critical fuel condition in this incident report, it's not surprising that pilots might hesitate to use the term "minimum fuel." Flight crews tend to feel that a controller response such as the one illustrated above will create mounds of paperwork, and they certainly wish to avoid that. This flight crew never even used the phrase "minimum fuel," but their flight was handled as an emergency because they had mentioned their limited fuel status.

Sometimes, however, the scene plays the other way, and the message does not get through even though stated clearly. The flight crew must then declare minimum fuel and request priority.

> "Shortly after reaching cruising altitude of FL330, we were given a long delaying vector 90 degrees to our route of flight, followed by several more vectors. At this point we asked if 'the vectors would continue, because we were burning most of our contingency fuel.' We were promised this would be the last vector and [were] handed over to [Chicago ARTCC]. [Chicago ARTCC] immediately initiated more delaying vectors, [which] caused us to declare minimum fuel and ask for priority handling into [Chicago-O'Hare]. . . . If priority handling was not asked for, I am certain we would have burned considerably more fuel and possible had a more serious fuel situation."

This flight crew stated their developing fuel condition; however, this information may not have been relayed to the next controller. Both controllers and pilots have a mixed perception of, and perhaps response to, the term "minimum fuel."

Great Expectations—The Pilot's Perspective

Pilot expectation of the use of the term "minimum fuel" is most often ATC assistance by way of direct routing, minimal or no holding, and no off-course vectors, but this expectation is not always operationally feasible. Minimum fuel does not mean priority handling to all pilots; it most certainly does not of itself indicate *emergency*.

Some pilots are very disturbed because they do not receive expected assistance when stating minimum fuel. Others are disturbed because a controller appears to unilaterally declare an emergency and give priority handling.

One pilot suggests that controllers do not really understand the term "minimum fuel." He might well have included pilots in that statement [as well].

> ". . . When it became apparent that I was going to have to go into my reserve fuel, I informed the Controller that we were 'minimum fuel.' He asked if I was declaring an emergency, and I told him no. He then asked for my fuel status in minutes, and I told [him] forty-five minutes. Later in the approach I heard another airliner being given a vector to make room for a priority fuel. I believe that ATC unilaterally declared an emergency for me without informing me, giving rise to my belief that they do not understand the minimum fuel statement as outlined in the AIM."

Interpretation and semantics appear to be a major part of the great expectations mix-up. Terminology played a roll for this flight crew:

> "Approaching the VOR we were told to slow and expect [a] hold. The Captain decided, wisely, that we would be fuel critical if we held the thirty minutes and then proceeded. . . . [The] Captain informed Center we needed to divert. [The] Center informed us we were now cleared direct if we wanted it. We took that routing. On switch over to Chicago Approach, Approach asked if we were declaring an emergency; [we] told them no. An interesting conversation took place regarding our fuel. The expression 'fuel critical' was used. Finally, Approach informed us [the term] fuel critical was an emergency, and they were declaring an emergency [on our behalf]. If fuel critical means you have an emergency, we were not fuel critical. I think minimum fuel would have been more appropriate in our situation."

Note the reporter's belated assessment of his choice of terminology. His final thoughts are correct; this would have been precisely the proper use of a minimum fuel declaration.

Controller Perceptions

What is the controller perception and/or expectation when "minimum fuel" is used? One Controller's response was, "Minimum fuel doesn't mean a thing to me." Another, and opposite response, was "Understand you are declaring an emergency." Controllers are also prone to ask if assistance or emergency equipment is needed. They most often try to offer assistance and may even declare an emergency—much to the flight crew's dismay.

> ". . . The Captain stated he would be unable to accept the continued delay vectors as we were approaching 'minimum fuel.' The ATC Approach Controller gave us direct LGA and squawk 7700. At that time the Captain stated we were not declaring an emergency. The ATC Controller stated that ***he*** was declaring the emergency, and again gave us direct LGA and squawk 7700. . . ." [Emphasis added.]

Conflict

Controllers declare emergencies—pilots resist the declaration but expect priority handling. There is an obvious misconception in the use of the term "minimum fuel." The phrase does not require, order, or demand priority handling; however, many pilots have come to use the term as if that is what it does mean—the "great expectation." A pilot writes:

> ". . . A second problem is that ATC did not give priority handling when we advised them of minimum fuel."

Just as pilot and controller expectation may be quite varied, you can see that their responses are equally so. When information is passed from controller to controller, some information may get lost or misinterpreted. Each party, controller and pilot, has a specific job to accomplish. Those jobs can be accomplished with understanding, cooperation, and professionalism.

"After several attempts to acquire an [expect further clearance] time or an indication of what delays were in effect, and with no definite reply, the Captain explained that fuel might be a problem. The Controller asked if [our] flight was declaring a 'minimum fuel state.' The Captain [then] declared 'minimum fuel.' Shortly thereafter, [the] flight received clearance to its planned FL330 and was given clearance enroute. With the subsequent helpful assistance from ATC, the flight proceeded . . . with no further problem."

Take AIM

Let's review what the *Airman's Information Manual* (AIM) states regarding minimum fuel.

Paragraph 5-84. Minimum Fuel Advisory

a. Pilot—

1. *Advise ATC of your minimum fuel status when you fuel supply has reached a state where, upon reaching destination, you cannot accept any undue delay.*
2. *Be aware* ***this is not an emergency situation,*** *but merely an advisory that indicates an emergency situation is possible should any undue delay occur. [Emphasis added.]*
3. *Be aware a minimum fuel advisory does not imply a need for traffic priority.*
4. *If the remaining usable fuel supply suggests the need for traffic priority to ensure a safe landing you should declare an emergency account low fuel and report fuel remaining in minutes.*

Note that this portion, referencing pilots specifically, states this advisory does **not imply a need for traffic priority**. What to do if the need for traffic priority develops? The message is clear—*declare an emergency.*

ADDENDUM
FROM AIR TRAFFIC

On April 28, 1994, paragraph 5–84, Minimum Fuel Advisory, of the *Airman's Information Manual*, will be revised. The following will be added to *Subparagraph a.* for the pilot:

On initial contact the term "minimum fuel" should be used after stating call sign. An example will follow which reads, *Salt Lake Approach, United 621, "Minimum Fuel."* This addition will be number 3 in the subparagraph, with the present numbers 3 and 4 being renumbered 4 and 5. Additionally, an Advisory Circular on minimum fuel will be prepared in the near future.

Let's carry on with part (b) of paragraph 5–84 from the AIM and see what is recommended for the controller.

b. Controller—

1. *When an aircraft declares a state of minimum fuel, relay this information to the facility to whom control jurisdiction is transferred.*
2. *Be alert for any occurrence which might delay the aircraft.*

Note that the minimum fuel declaration is an advisory only; it is not a specific request for priority handling. It should be considered a "yellow caution flag" indicating future problems may develop if undue delays occur.

Air Traffic Procedures Handbook

Air traffic controllers may not refer to the AIM on a regular basis, but FAA Order 7110.65 does reference minimum fuel:

MINIMUM FUEL—Indicates that an aircraft's fuel supply has reached a state where, upon reaching the destination, it can accept little or no delay. This is not an emergency situation but merely indicates an emergency situation is possible should any undue delay occur.

Advice for Pilots

What can you do if minimum fuel gets you?

- Monitor fuel consumption and have an alternate plan if things don't look as if they will turn out as planned.
- If you decide that a minimum fuel situation exists, or is likely to exist at some point down the line, determine the point beyond which you will not continue in accordance with the original flight plan and what your alternate plan of action will be.
- Communicate! Tell ATC exactly what your situation is, and make sure they understand it. Inform the controller how long you can continue on the original clearance or route before a diversion becomes necessary, restate the situation to the new controller on a hand-off, or otherwise clarify the situation if appropriate. Consider advising ATC on each successive frequency that a minimum fuel situation exists.
- Plan ahead. Don't wait until the fuel is critical and the situation really does becomes an emergency.
- Finally, remember the declaration of an emergency does not put you on trial. It may require a report to the company or a letter to the FAA Administrator (only if requested), or it may not require a thing.

Advice for Controllers

What can you do to reduce both risk and frustration?

- Be aware of the nuances of a minimum fuel statement. What is the flight crew really saying? You may need to question the flight crew until the situation is mutually understood.
- Remember to relay to the next controller the "minimum fuel" status of any aircraft.
- Keep your expectations within the limitations of the advisory on minimum fuel.

So take a fresh look at the term "minimum fuel." Do you and the AIM interpret it the same way? ■

Editor's Note: *This article is reprinted from the Summer 1992 edition of NASA's Aviation Safety Reporting System* Directline. *To obtain copies of* Directline *or ASRS' other publication* Callback *regularly, write to ASRS* Directline *Editor, NASA Aviation Safety Reporting System, P.O. Box 189, Moffett Field, CA 94035.*

Phillips 66

Lubrication and Steam Cleaning

A licensed engineer [our equivalent of an A&P] reported that he recently visited an airfield where he came across a mobile car valet service unit—a man with a van specially fitted out with a steam cleaner, a self-contained generator, etc. This individual was busy covering an airplane with foam and then removing it with steam, resulting in an immaculately clean aircraft. The engineer asked him if he intended re-lubricating the aircraft, and the man indicated that it was his job to remove oil and grease, not to apply it.

The engineer went on to say that he subsequently carried out a check on a twin operated by an air taxi company. He personally supervised the lubrication, ensuring that the correct grade of lubricant was used. The aircraft's owner told him not to clean the aircraft as he had a colleague who would be doing it. A few days later, the engineer had a call from the twin's owner saying that the auto pilot circuit breaker was tripping out at high altitude and also that the control surfaces squeaked. He asked why the engineer had not lubricated them.

Investigation revealed that what the owner stated was correct. The grease on the stabilator trim jack contained only tiny globules of water emulsified within it. That water was freezing at high altitude.

The engineer contacted the person who had steam cleaned the twin and found that the cleaner had used a solution for which the recommended dilution was 10 to 1, but the cleaner found it easier to use at a dilution of 4 to 1, resulting in a very strong cleaning agent.

Comment

It is better to have your aircraft cleaned thoroughly before maintenance so that engineers can do their work more economically and effectively then lubricate as the last task. However, it is worth a note of caution before considering the use of steam cleaners and pressure washers, most of which are designed for the automobile and transport industry. Modern vehicles have few, if any, lubrication points, and these are protected by body work. General aviation lubrication technology is not of this type and includes open bushes, pivot points, etc., that have to be dismantled to grease. Many have the older pattern grease nipples.

"With high pressure steam and detergent, all traces of lubricant are driven out from even the tightest bearing spaces, leaving them well wetted with water to linger, corrode, and seize."

With high pressure steam and detergent, all traces of lubricant are driven out from even the tightest bearing spaces, leaving them well wetted with water to linger, corrode, and seize. Many aircraft are only seen by a licensed engineer once a year, and during this time, the proud owner may have had the aircraft steam cleaned by unsupervised labor many times.

This may be only the tip of the problem. High pressure jets of hot steam can have very damaging effects on pitot static systems, thermo-plastic transparencies and fairings, electrical sensors, or fuel tank vents and drains.

Accordingly, before any owner considers using anything other than a sponge and leather to clean the pride and joy, he or she should consult very carefully with the licensed engineer responsible for the aircraft. ■

This article appeared in the March 1993 issue of the United Kingdom's CAA GASIL.

"Fly Iowa"

Is a *Stimulator* Instead of a Simulator

by Roger Clark
APPM, Des Moines, IA, FSDO

Much has been written about youth and violence today, and solutions from youth boot camps to institutionalization have been proposed. What everyone recognizes is that the seeds of violence lie in disadvantage and lack of opportunity in education as well as society. Aviation has always been a great enthusiasm of the youth of this country, and here is a unique way it has been put to use to provide some Iowa teenagers both some advantage and some opportunity. ***—Editor***

The above title is based on the words of William (Bill) Patterson, the President of First Flight, Inc. (pictured above right with Marily Feilmeier, a sophmore from Early, Iowa), a non-profit organization that maintains control of a very special simulator. Bill, who is a retired Airframe and Powerplant mechanic, and other members of the Experimental Aircraft Association Chapter 135 built the Fly Iowa simulator to get young people enthused about aviation and education. The construction and operation of the simulator depends on financial assistance from the aviation industry.

The simulator, which has movement about all three axes, was completed in May 1993. The initial "flight" was with 38 high school students in Des Moines, IA.

The concept of First Flight was developed to meet the needs of education with the following objectives:

- To inspire teachers to work together for a better educational program that makes learning more entertaining, meaningful, and useful.
- To show students, especially in the at-risk, underprivileged, and minority sector, the importance of obtaining an education.
- To show students why the use of alcohol, tobacco, and drugs can have long term detrimental effects on their future quality of life.
- To guide young students toward selecting a career early in life which will give them a head start on achieving their goals.
- To provide teachers a resource of applicable materials and subject matter in order to be able to instruct in a technical subject without additional training or heavy research.
- To help overcome teacher burn-out, low expectation of students, and frustrations caused by student apathy, inattentiveness, and boredom.
- To get the parent, community, and aviation industry involved in educating our youth.

What is First Flight and What Makes it Work?

First Flight is a fully developed course of study conceived, formulated, and implemented by Bill Patterson and the Aerospace Education Council of Iowa (AECI). The value of this curriculum was recognized by the aviation industry because it was creating and molding students who would someday be valuable employees in the aviation and aerospace industries.

Bill Patterson and AECI recognized that the study of aviation included all of the basic core curriculum subjects taught in schools—reading and writing skills, verbal communications skills, and math/analytical skills. Focusing on the fascination of flight, they were able to motivate kids to study and learn these skills in a fun way. Aviation topics are fused into all curriculum areas—reading, math, language, arts, science, social studies, speech, music, dramatics, and art. Students study the history of aviation, types and uses of aircraft, the airport system, the science of flight, and careers in aviation.

Every subject relates directly to aviation, and actual aviation equipment is used as teaching aids. For example, pilot sectional charts are used for the study of map skills which in turn strengthen mathematics and geometry. Headsets are used to sharpen the communication skills of speech, listening, and following directions. Weather charts implement the scientific study of atmospheric conditions.

Resource persons visit the school throughout the school year to share their talents and experiences, leaving the vital message, "Education is the key to your future." Participating schools in Pennsylvania and Oklahoma have shown an increase of up to 18

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Ten year-old Drew Wiener of Scaller, Iowa flies the simulator to feel aircraft control responses.

Matt Jansen, 15 year-old CAP student from Scaller, Iowa, concentrates on the instrument panel to correlate the readings with control inputs to the simulator.

points in achievement test scores since implementing the program in grades K through 3. Think of what a school district could do using the program in grades 4 through 12 to stimulate and motivate students for higher educational achievement!

Paul Copperman, an education analyst, recently stated, "For the first time in the history of our country, the educational skills of one generation will not surpass, will not equal, will not even approach those of their parents." This failure will bring a lower sense of fulfillment for our young people as they pursue their careers. Moreover, it will hamper their ability to stay competitive with European and Asian countries. As stated in the motto of the United Negro College Fund, "A mind is a terrible thing to waste." The aviation-enhanced curriculum is only part of the program. The young people need an incentive and some motivation to fulfill their dreams and aspirations. That's where the simulator comes in.

First Flight's Action Plan

Simply stated that plan is to:

Stimulate and motivate students through the use of the simulator; support teachers by coordinating First Flight teaching materials with classroom materials; and work with teachers and counselors in making career materials available.

Since its maiden flight in May 1993, over 8,000 students have flown the Fly Iowa Simulator. The program is limited to the third grade and above. Below the third grade, it is felt the kids would only consider it an amusement ride and gain little usefulness from it.

Bill Patterson likes to tell about one experience where an elementary student had just completed her flight and was approached by the principal who asked, "Well, how did you like your ride on that thing?"

The student positively replied, "In the first place, it was not a ride; it was a flight, and it is not a thing; it is an aircraft." A good example of the purposes of First Flight.

In order to achieve the desired results of the program, an introductory package is being developed to be sent to schools before the arrival of the simulator. The package would include an educational package and possibly a videotape for teachers and students to review. These packages will be designed for different grade levels. Plans are also to give teachers instruction so they can supervise the use of the simulator.

Student Impact

It is really amazing to see the impact that the simulator has had on some students. We are told are one student in the program who was previously on drugs. Since he had the opportunity to get involved with First Flight, he is off drugs and has become so interested in aviation that he has enrolled in an Aviation Maintenance Technician program. Another participant, who had been a teenage prostitute, has now enrolled in a flight training program. How many others are there that we don't know about who have been positively affected by First Flight? As many as have participated.

Each student is given about five minutes in the simulator. So far, there have only been a few who got "cold feet" at the last moment. In fact, the requests for the simulator are so great, that EAA Chapter 135 is planning on building at least two more simulators to keep up with the demand. Plans are also to incorporate two-way communications for use with higher grade levels.

So, as the Fly Iowa simulator continues its journey across Iowa, we can expect to see more excited faces on students preparing for education in the aviation and space industries. ■

For information on First Flight's aviation curriculum and/or the availability of the Fly Iowa simulator, contact Mr. Gene Lucas, President, AECI, Biology Department, Drake University, Des Moines, IA 50311. His telephone is 515 266–8711.

Money-saving Shortcut—*Or Shortcoming?*

by Adrian Smith

Bill had been away from aviation for about six years and was pursuing ownership of an aircraft. He found a Beech *Sundowner* within 50 miles of his home base, and he asked me to re-train him.

After a pilot has been away from flying for that much time, it's always back-to-basics. Over the next few weeks we proceeded to review all the air work, including the four fundamentals, constant attitude turns, maneuvering at critically slow airspeeds, stalls, flight by reference to instruments, etc. Each time we returned to our airport, we would add a few extra takeoffs and landings.

We were in the third session of full-stop takeoffs and landings, and everything was going as planned—airspeeds were becoming more accurate, systematic prelanding checks were redeveloping, depth perception was stabilizing, and Bill's overall judgement was sound. It was starting to look like the proper size glove; then, it happened—we bounced one in. Taxiing back for takeoff, we discussed what had caused his flare to become high and that, in plain English, because of the subsequent loss of lift the airplane quit flying a bit high.

After doing our pretakeoff check and alerting others of our intentions, we departed runway 34 for more practice. Everything was going well, final approach was on target, and as the asphalt arose to greet us, Bill began his roundout, but this time the aircraft touched on the nose wheel. He immediately added full power in anticipation of a go-around. I assumed there had been a depth perception problem and that perhaps he was not looking ahead. I had no idea the problem was much worse. The go-around was successful, and this time I would be more sensitive to the situation. But the next time, everything was picture perfect, and it happened again.

As we started the go-around, and before a positive rate of climb was established, Bill looked at me with eyes as big as saucers and exclaimed, "I had the yoke the whole way back!"

After we cleaned up the airplane and had every detail under control, I said that I would land the airplane. Still unaware of our problem, I instructed him as to what I was doing on each leg to final. Now, one half mile out on final, full flaps, and trimmed at 68 knots, the runway getting closer and closer, and still explaining to Bill what I was doing—that all abruptly ended when I started the flare and ran out of elevator (stabilator). We wheelbarrowed on the nosewheel a short distance before the mains settled down, completely uneventfully but not a proud landing.

Upon inspection it was obvious that we only had about half the stabilator up travel. What the maintenance personnel found was that at some point in this aircraft's history and before Bill's ownership, the Emergency Locator Transmitter (ELT) hold-down latch had been broken, and a piece of cellophane tape had been used to hold the latch in position. Our "bounce" landing released the taped latch, causing the ELT to lodged under the stabilator counter-balance, reducing its travel but allowing enough for a normal takeoff. The mechanics also advised me that if the ELT had stood on end or moved further aft, the airplane may not have had sufficient stabilator control to allow us to control the aircraft.

After talking with other aviators, perhaps retracting the flaps and/or having Bill sit in a rear seat would have produced a flatter, more normal landing.

At any rate, I have one last thought. If we would have "bought the farm" and if the ELT had been severed from its mount, would the investigators assume that it was from impact, and would we then become a "pilot error" statistic? ■

This incident speaks volumes for having a mechanic you are familiar with look over thoroughly an aircraft you are about to buy. During every pretakeoff checklist, my first instructor taught me to move the control yoke forward and aft, left and right "to the stops," and this is something I've tried to pass on to my students. Adrian and Bill would have felt much better if they had discovered they had less than full stabilator travel on the ground. Mr. Smith is a CFI and Accident Prevention Counselor for the Harrisburg, PA FSDO.

Daniel J. Benny

Small Aircraft Security

by Daniel J. Benny, *M.A., CPP, Private Investigator*

Spring has arrived, and it's time to bring your beloved fly toy out of its winter hibernation. What with the holidays, the cold weather, and your basic daily commitments, maybe you haven't been out to check on your aircraft for several weeks, perhaps months. Imagine your surprise and dejection if you find that you've been vandalized or, worse, your aircraft is missing. The following offers a few suggestions on how you can make your aircraft safe 8

Your private aircraft, like any valuable property, may be the target of criminal activity. Aircraft theft is a significant threat, especially if your plane is a turboprop. Many individuals involved in illegal drug smuggling or other criminal activity steal aircraft either for their own use or to sell to others for illegal use. Small planes are in such great demand that drug cartels have paid over $75,000 for any turboprop aircraft delivered to them.

In some cases, the target may not be your aircraft itself but its avionics, equipment, or other valuables inside. There is also the threat of vandalism to the exterior and/or interior of the plane.

Just as you as pilot-in-command are ultimately responsible for safety, the security of your aircraft is also your responsibility.

Picking an FBO

The security of your aircraft starts at the fixed base operation (FBO) where you keep it. When selecting an FBO from which to operate your aircraft, if possible choose one that provides hangar space and keeps the area well lit. An FBO at which someone is on duty 24 hours each day or which uses a security or police patrol during non-operating hours could have a lower rate of crime against the aircraft kept there. Make sure that personnel at the FBO know who is authorized to operate your plane and provide them with a telephone number should they need to call you at any time.

Maintain strict key control. The key should be kept by the owner or pilots authorized to operate the aircraft. If possible, do not leave a key at the FBO. If your FBO requires that you leave a key with them, make sure that it is kept secured and will not be given to unauthorized persons.

When departing from the FBO at times when personnel are not on duty, advise the FBO either in advance or through a prearranged communications system that you have taken the aircraft, so that the FBO will know that its removal was authorized.

Securing the Aircraft

If you keep your aircraft in a hangar with a door, ensure that it is locked with a high security lock. For aircraft that are maintained in hangars without doors or are tied down outside, make sure that you remove the key from the plane and lock its doors. The use of security throttle or prop locks is also recommended.

To prevent would-be thieves from determining the types of avionics and equipment installed in your aircraft by peering in its windows, use interior heat shields over the windows. A heat shield will not only serve its intended function but will also help in deterring theft. If the plane is stored outdoors, exterior window covers can also prevent or limit damage from vandalism.

Checking Your Insurance

Verify that your insurance policy is current and provides the necessary coverage should theft or vandalism occur. Keep a current color photograph of your plane, showing both its exterior and interior. This would be beneficial in aiding law enforcement authorities in locating your aircraft and in making your insurance claim.

Do not store valuable logbooks or records in the plane. If lost through theft or vandalism, this will certainly create documentation problems for you and your aircraft.

The security of your aircraft is your responsibility. By following these basic guidelines, you may reduce the chances of theft or damage to your plane. ■

Editor's Note: *Aircraft owners should record all serial and part numbers of their avionics equipment, etc., to aid in identifying any stolen items. Mr. Benny is a private investigator and security consultant. He is a Private Pilot and is a member pilot of the Civil Air Patrol.*

The original eight stewardesses: (left to right) Margret Arnott, Inez Keller, Cornelia Peterman, Harriet Fry, Jessie Carter and Ella Crawford. (Top row) Ellen Church and Alva Johnson. (Left) In theory the job of stewardess sounded glamorous, the reality was far different. Within a year and a half all eight nurses returned to jobs on the ground.

A Career Suitable for a Woman—

—Aviation That Is

by Louise Oertly, *Associate Editor*

"Women are seeking freedom. Freedom in the skies! They are soaring above [the] temperamental tendencies of their sex which have kept them earth-bound. Flying is a symbol of freedom from limitation." (Margery Brown, "Flying is Changing Women," *Pictorial Review*, June 1930)

Unfortunately, limitations seem to be what women were up against as they tried to find their wings. From the earliest days it was felt that women were too delicate to handle such a foreign environment as the sky. However, balloonist Madame Blanchard soon proved them wrong and lead the way into the sky. By 1834 one source estimates that as many as 22 women were piloting balloons in Europe.

Seventy years would go by before the advent of the powered heavier-than-air craft, and women found they had to overcome a whole new set of limitations in learning this new way to fly. The Wright brothers refused to allow women into their flying school. Glenn Curtiss allowed them even though he was skeptical about women as pilots. Despite these obstacles women won their wings—even if they had to build the aircraft themselves—and soon became a novelty to the public as they barnstormed, raced, and set records. However, women were looking for a more stable career in the world of aviation.

It was after World War I that aircraft became more commonplace and less dangerous to fly. The day of the stick-and-wire craft was gone, and the new models even boasted enclosed cabins. Aircraft manufacturer's began hiring women to promote their aircraft in order to dispel the notion that only macho ex-military pilots were capable of flying their crafts. Woman pilots like Bobbi Trout would fly for Golden Eagle, Louise Thaden for Travel Air and Beechcraft, Ruth Nichols for Fairchild, and Neva Paris and Margery Brown for Curtiss. Their selling point was "if I can fly it so can you!" Unfortunately, there were few of these jobs to go around so women were looking for other avenues in professional aviation careers.

Commercial aviation was in its infancy at this time. Air carrier operations were beginning to spring up around the country, but they had trouble convincing people that aviation was a safer, faster way to fly. Many people were still saying "if man was meant to fly, God would have given us wings," and others who had flown on the early commercial carrier described the cabin environment as a "chamber of horrors." Sound levels in the Boeing's 80-A *Trimotor* were said to be as high as 117 decibels (about the equivalent to sitting next door to a jackhammer) which made conversation impossible. Gas and oil fumes were the norm, as was oxygen depletion at higher altitudes. For those who became airsick from altitude and turbulence, the trip to the rest room was frequently an obstacle course made up of mail bags. The number of people willing to subject themselves to these conditions were limited, and, needless to say that's why operators' main revenue would be from also carrying the mail.

Madame Blanchard was one of the best known woman aeronaut of her day.

Louise Thaden and Blanche Noyes were two of the few women who had successful aviation careers. Thaden was known for promoting the Beech Travel Air. *Blanche Noyes retired in 1972 from the FAA after working 30 years on the National Air Marking Program.*

The possibility of a woman finding a job in this area was slim as there was already a glut of ex-military pilots on the job market. Some women, such as Inez Gibson who owned and operated Union Air Services in Burbank, CA, would start their own charter operations, but they would have to deal with engrained prejudices. Businessmen and wealthy travelers were becoming accustomed to the convenience and quickness of air travel, and Inez specialized in charter flying to destinations off established airline routes. However, she knew many of her customers were wary of women pilots so she would provide a male pilot. Business was business. The public might enjoy watching a woman risk her life stunt flying, but risking their own lives with her flying was different.

It was in February of 1930 that a 21-year old nurse and student pilot decided to break into the world of commercial aviation. Ellen Church walked into the San Francisco office of the Boeing Air Transport (now United Airlines) and applied for a job as a pilot. She wouldn't get that job, but she would start another aviation career that would actually be considered acceptable for a woman—that of stewardess. The company's reasoning was that a nurse on board would comfort the airsick or scared passengers and reassure the skeptical male businessman that the flight was safe because a woman was regularly on board.

Initially the job of stewardess sounded glamorous to the original eight nurses, but the reality of the job was another matter. Before takeoff she was expected to assist in refueling, transferring the baggage, sweeping out the airplane, emptying ash trays and spittoons, setting the cabin clock to local time, adjusting the altimeter, making sure the seats were bolted down securely, and hanging up the "No Smoking" sign. Lunch and other supplies had to be stowed on board, tickets taken, passengers greeted, and comfort packages (chewing gum for air pressure, cotton for noise, and ampules of ammonia for air sickness) distributed. They were also to have a railroad timetable on hand just in case the plane was grounded somewhere.

The male crew reaction to the stewardesses was decidedly negative at first. One of their favorite tricks was to offload the stewardess at some dusty waypoint, on the grounds of being over gross, or to takeoff "forgetting" she was transacting business in the terminal. The passengers' reaction varied from curious and friendly to demanding and offensive (depending on how often the whiskey flask was passed around). It was the pilots' wives who bombarded Boeing with hysterical letters demanding the stewardess "menace" be ended. Within a year and a half all eight nurses had returned to the ground, but they had laid the groundwork for the others who would take their place.

Although Ellen Church's quest to be a commercial pilot failed, Helen Richey succeeded. Central Airlines hired her as a copilot for the Washington, D.C.-Detroit airmail route. In December of 1934, she became the first women to pilot a commercial airliner on a regularly scheduled route. However, over the next 10 months she discovered it was her fame as a stunt and racing pilot that had gotten her the job, and Central was using her more on the lecture circuit than in the cockpit. Central had assigned her only a dozen round trips during this period, and it didn't help that the Bureau of Air Commerce would not let Richey fly in bad weather. The all-male pilots' union rejected her membership application. Discouraged, Richey finally gave up her dream of being a commercial airline pilot and resigned. She went on to work with the Air Marking Program.

It would be another 40 years before another woman would become a pilot for a U.S. airline. In 1973, Frontier Airlines hired Emily Howell Warner as a first officer which opened the cockpit door for other women. Today women only account for 6% of the entire pilot population, but they can be found in everything from homebuilts to military jets to the space shuttle. Maybe one day soon Margery Brown's statement will be true. "Flying is a symbol of freedom from limitation." ■

H. Dean Chamberlain

The FAA wants everyone going to the 20th annual EAA Sun 'n Fun convention in Lakeland, FL this April 10 to 16 to have a safe and enjoyable trip. Mr. Robert A. Henrich, FAA Southern Region's Accident Prevention Program Manager, has provided us a listing of aviation safety seminars scheduled for the FAA Building at Sun 'n Fun. The schedule is, of course, subject to change up to the last minute. Detailed schedules will be available on a daily basis at Sun 'n Fun.

Pilots flying to Sun 'n Fun need to use current charts and ***check the latest NOTAM's for any changes in arrival procedures***. We have provided highlights from the Special Air Traffic Management Plan following the schedule of events. Again, pilots are reminded to use current charts and to check for NOTAM changes to the charts.

Special Air Traffic Management Plan

While you digest the information from the detailed Sun 'n Fun NOTAM and other information provided by your FSS and plan your flight, pay particular attention to the various radar balloons moored in Florida and neighboring states. Some of those balloons go up to 15,000 feet, and their anchoring cables may be unlighted or unmarked.

Airport Manager's Special Notice

1. The control tower will be open and the Class D airspace will be in effect from 6:30 a.m. to 9:30 p.m. EDT.

2. Special procedures will be in effect ONLY from 7:00 a.m. to 7:00 p.m. EDT on April 9 through 16, 1994.

3. DO NOT operate in the Class D airspace SOUTH of the airport. This area is reserved for use by aircraft using other authorization and procedures.

4. Student training flights are highly discouraged during this event. This includes student solo cross-country flights, touch-and-go landings, low approaches, and practice instrument approaches.

5. Limited grass-field operations can be accommodated. For "Special Grass-Field Authorization and Procedures," contact: Sun 'n Fun (EAA) Fly-In, Inc., P.O. Box 6750, Lakeland, FL 33807, telephone (813) 644–2431.

Airport Closure Hours

The airport will be closed daily, April 10 through 16 during the Aerobatic Demonstrations. ATC will not permit arrivals and departures during periods of Aerobatic Demonstrations. Exceptions to these procedures require prior approval by the Airport Manager, EAA, and ATC.

The Airshow Operations area is from the surface to 10,000 feet MSL, within a five statute mile radius of Lakeland Linder Regional Airport. Aerobatic Demonstration hours are from 1430–1800 hours EDT on April 10 through 16. On April 13 there will be two airshow periods. The second period will be from 2000 to 2200 hours EDT in addition to the 1430 to 1800 hour period.

FAA Services

The St. Petersburg, FL AFSS provides complete flight services 24 hours daily. Prearrival pilot briefing and flight planning services are available by telephoning St. Pete AFSS at 1 800 992–7433 (1 800 WX–BRIEF).

A temporary Flight Service Station will be located at the Lakeland Airport in the FAA/FSS building from April 9 through 17. Pilot briefings and flight planning services are available from 0600 to 1900 (Local) daily during the Fly-In.

INBOUND VFR FLIGHT PLANS TO LAKELAND

All aircraft are expected to use the Sun 'n Fun-Lake Parker arrival procedures found in the ATC NOTAM. Pilots are reminded that the Tampa and Orlando Class B airspaces are in effect during Sun 'n Fun. Pilots must remain clear of Class B airspace unless authorized by ATC.

Because of the volume of expected traffic, pilots should add another 30 minutes to their ETE's to allow for unexpected delays. Pilots are also encouraged to ensure the color of their aircraft is included in the remarks section of their VFR flight plans. Also be sure to use the FSS frequencies listed in the NOTAM.

Sun 'n Fun

SAFETY SEMINAR SCHEDULE

Saturday April 9, 1994

0830–1700: Aviation Teacher's Workshop
1900–2100: Operation Airspace

Sunday April 10, 1994

0830–0845: FAA Welcome and Preview Of 1994 Forum Series
0845–0945: The Human Factor—Number One Cause Of Aviation Accidents
1000–1115: How To Avoid Unwanted Adventure Through Good Planning (And Still Have Fun)
1130–1245: Aircraft Modifications—Before You Do Anything, Check It Out!
1300–1415: Cockpit Complacency
1430–1545: Fourth Annual Ultralight Open Forum
1600–1715: Charts Can Save Your Life
1800–1915: Aerobatics And Safety
1930–2100: How To Build An Aircraft

Monday April 11, 1994

0830–0945: Single Pilot IFR
1000–1215: Meet The Administrator
1230–1415: Passing Your Next Medical Exam
1430–1545: Training To Avoid Accidents
1600–1715: ATC—How To Cope & Compete (A Humorous Look At ATC & You)
1800–1915: A Look At The History Of The EAA

Tuesday April 12, 1994

0830–0945: How To Use Radar When Not Radar Equipped
1000–1115: United 232:DC–10, 37,000 Feet, No. 2 Out, No Hydraulics—EMERGENCY
1130–1245: Touch & Goes Are Emergency Maneuvers
1300–1415: Flight Testing Amateur-Built Aircraft
1430–1545: Airport Access Issues
1600–1715: Holding Patterns Made Easy
1730–1845: Accidents From NTSB Files
1900–2015: United 232:DC–10, 37,000 Feet, No. 2 Out, No Hydraulics—EMERGENCY

Wednesday April 13, 1994

0830–0945: Safety Issues For The Homebuilder
1000–1115: GPS—The Future Is Here
1130–1245: A Review Of Experimental Aircraft Accidents
1300–1415: Charts Can Save Your Life
1430–1545: Preflight-Make sure BEFORE You Leave The Ground
1600–1715: Aviation Weather For Pilots
1800–1915: The Funny Side of Aviation

Thursday April 14, 1994

0830–0945: What Your Gyro Instruments Are REALLY Telling You
1000–1115: United 232:DC–10, 37,000 Feet, No. 2 Out, No Hydraulics—EMERGENCY
1130–1245: Very Light Aircraft Certification
1300–1415: Spectrum Engineering Serving Your Needs
1430–1545: Ultralight Conversion To 2-Place Amateur Built
1800–1915: Preventing The Most Preventable Accident
1930–2100: Bill Lear's Jet Stream of Consciousness

Friday April 15, 1994

0830–0945: Navigating On The Airport—How To Avoid Runway Incursions
1000–1115: How To Buy An Aircraft
1130–1245: Stall/Spin Awareness Will Keep You Alive
1430–1545: We Need You To Help Revise AC–43.13–1A, Acceptable Methods & Techniques
1600–1715: (Subject to be announced)

Frequencies

- ARR ATIS 118.65
- DEP ATIS 134.35
- LAKE PARKER ... 124.5
- GROUND 121.4
- LAL VOR 116.0

DO NOT OPERATE IN THE CLASS D AIRSPACE SOUTH OF RUNWAY 9/27 WITHOUT CURRENT CREDENTIALS RECEIVED AT HOURLY BRIEFINGS AT SUN 'N FUN.

H. Dean Chamberlain

Because of frequency congestion, air files and full-route weather briefings are discouraged between 0600–1900 EDT on St. Petersburg AFSS frequencies.

REMEMBER TO CLOSE YOUR FLIGHT PLAN AT THE FAA BUILDING LOCATED ON THE LAKELAND AIRPORT OR CALL 1 800 992–7433. LAKELAND RADIO IS 127.1.

LAKE PARKER VFR ARRIVAL

(See NOTAM for complete details)

When you are 20 to 30 miles from Lakeland, listen to ATIS—118.65 MHz—for landing and special information. When volume exceeds the Airport's acceptance rate, VFR holding will be required before you reach or once you arrive over Lake Parker. As you approach Lake Parker (Lakeland VORTAC 040/6), *turn your TRANSPONDER "OFF," MONITOR Lake Parker Arrival on 124.5,* and fly westerly over the power plant smokestack with white strobe lights, which is located at the north end of Lake Parker. Expect heavy air traffic, some without radios, in this area. All aircraft should maintain 100 mph, at 1,000 feet MSL, inbound from Lake Parker. Aircraft unable to slow to this speed safely should maintain 150 mph at 1500 feet.

Controllers located on the ground at Lake Parker will contact you, using your aircraft "color" and "type" to provide sequencing and other arrival and traffic pattern information. They will contact you in the vicinity of the north power plant and may ask you to "rock your wings"—do so with "gusto"—as an acknowledgment for instructions.

REMAIN IN TRAIL TO THE AIRPORT —NO SIDE-BY-SIDE SEPARATION.

VFR HOLDING AT LAKE PARKER

If VFR holding becomes necessary, the Lake Parker holding pattern will be used. A lead aircraft will be instructed to turn left and proceed southbound over the west shore of Lake Parker, continuing counter-clockwise around the Lake. All other aircraft will be instructed to follow the leader in single file. Traffic in the Lake Parker holding pattern will be monitored by controllers located on the west side of Lake Parker.

DO NOT PROCEED past Lake Parker without a clearance to do so.

TRAFFIC PATTERN

All arriving aircraft will enter the Class D airspace only via the Sun 'n Fun—Lake Parker Arrival Procedure. Only left traffic for Runway 9L or right traffic for Runway 27R will be used with downwind leg entry close to the airport over Airport Road. NOTE: This runway is a narrow strip 50 feet wide, which is usually a taxiway. DO NOT land on the main, wide, Runway 9R/27L, unless specifically instructed by the Control Tower.

Use caution for special events and fly-by aircraft using the main runway with opposite-direction base leg entries. All landing traffic must remain alert for possible radio or light signal wave-off from the Tower. RED SMOKE OR HAND SIGNALS from controllers located near the approach end of the runway in use may also be used to signal wave-off. Plan landing so as to clear the runway as soon as possible on a hard surface.

Pay close attention to the location of the DISPLACED thresholds on Runways 9L and 9R. They will be identified by a flashing strobe and light bar located on each side of both runways.

Conclusion

This is a highly fragmented overview of air traffic procedures at Sun 'n Fun. The complete FAA/airport/Sun 'n Fun plan for the safe operation of aircraft flying to and from the Lakeland, FL area can only be found in the ATC NOTAM. We cannot over-emphasize the importance of having current charts and the Sun 'n Fun published operating procedures. Because of the number of aircraft expected in the Lakeland area, every pilot is cautioned to maintain a careful watch for other aircraft throughout the central Florida area.

Keep the "fun" in Sun 'n Fun and have a safe flight. ■

Cessna Pilot Says Safety Seminars Saved His Life

Pilots are all familiar with the yellow flyers they receive announcing local Accident Prevention Program events. The next time you decide that it's too far to drive, it's the same old subject matter, or that you are already a perfectly safe pilot, think about the following story. ***—Editor***

Keith Weiner and his wife were 6,000 feet over the Atlantic, 10 minutes out of Nantucket when the engine of their Cessna 210 gave one loud bang and stopped without a sputter.

"I declared an emergency as the prop flickered to a stop in a 90-degree position," Weiner said. "I immediately reached into my mental tool box where I had filed things from 10 years of participating in [Accident Prevention Program] aviation safety seminars," he later told FAA's Eastern Regional Accident Prevention Program Manager, George Strickland.

"I recalled how I had come away from each seminar with at least one important thing. From a seminar on crash survivability, I remembered how critical the shoulder harness is, and I immediately checked both our shoulder harnesses.

"My first thought was to try to make the beach in Martha's Vineyard, about eight miles away. With the high wing configuration, I feared we wouldn't be able to get out of the cockpit if we ditched in the water. I thought, too, that an ambulance could get to us if we landed on the beach.

"I gave my wife the emergency checklist and had her start reading. This gave her something to do and enabled her to contribute to the situation.

"It's amazing how focused you can get in that kind of situation. The only gauge I needed was the airspeed, and it was working. It was a clear day and I could see the Martha's Vineyard Airport.

"Once we made it to the beach, I said, 'Let's try to make it to the airport; the ambulance is probably already there.'

"I was cleared to land 'any runway.' The active was 24."

When Weiner reached the Vineyard airport, he was still too high, but he spiraled down to lose altitude at a controlled rate. Then, with the air traffic controllers holding their breath, he maintained 85 knots to short final and then lowered the flaps to slow the airplane and land at a normal attitude.

"The gear held. The aircraft rolled to a stop after a smooth, uneventful landing," Weiner said. "The strangest thing about the whole incident was seeing the propeller straight up, like a hood ornament."

The next day he learned that the No. 3 connecting rod had failed and made a three-inch hole in the crankcase.

"I cannot isolate one seminar, one action, or one bit of knowledge that contributed to the safe outcome of this flight," Weiner told Strickland. "It is rather the atmosphere of aviation professionalism you have promoted over these many years." ■

Cessna pilot Keith Weiner (right) thanks FAA's Eastern Region Flight Standards Division Manager Nick Sabatini (center) while Regional Accident Prevention Program Manager George Strickland looks on.

Editor's Note: *Now you know why instructors make you practice those emergency procedures over and over again. Congratulations to Mr. Weiner for an excellent job in handling a serious emergency. One last note: Mr. Weiner was right on in giving his spouse something to do by reading the checklist. Not only did this assure that he didn't miss an item, it helps to keep the non-flying passenger participating in the successful recovery of the flight. It is also a good example for why non-flyers who fly regularly with their pilot companions should have some sort of rudimentary flight training, such as that offered by Pinchhitters. Our thanks to Duncan Pardue of the FAA Office of Public Affairs in Eastern Region for this article, originally printed in the December 20, 1993 Eastern Region* Intercom.

SQUAWK 7600!

by Bill English

We quite often get the same or similar questions posed to us again and again. If we appear to have a contradictory answer to questions printed months or years apart, there could be a couple of explanations. The policy has changed, or we simply didn't do our research.

Initially, the question of what do I do under IFR if I lose my radio seems quite simple to answer, but, as Mr. English notes, it depends on where communications are lost. With his letter, he did enclose the following article on the subject—from a controller's point of view.

—Editor

Dear Editor:

In reference to your answer to the reader's question in the "Instrument Corner" of the November/December issue, I believe you have left out some important information. You have also contradicted yourself from a similar question in 1991.

The reader questions exactly what to do at the IAF when NORDO and refers to FAR § 91.185(c)(3). This regulation specifies how to leave a clearance limit under lost communications. Neither the reader's question nor the answer states what the clearance limit is. Simply arriving at an IAF does not make it a clearance limit. In today's mostly radar ATC world, the clearance limit is usually the destination airport in which case FAR § 91.185(c)(3) does not apply.

The clearance limit is always the first item in your original or amended clearance; i.e., "N123 cleared to the XYZ airport via . . . " If a short range clearance is necessary, as it often is in non-radar, the phraseology is "N123 cleared to the ABC VORTAC, hold north as published . . . " A clearance such as, "N123 cleared direct ABC . . . " does not make ABC the clearance limit. It simply allows the pilot to navigate directly to that fix and then resume his previous routing.

For furthering clarification, see the copy of my article, "Squawk 7600," reprinted from the FSDO–1 Communicator *[the newsletter of the Bedford, MA Accident Prevention Program Manager, name]. I am a controller at Boston Center, a CFII, and an Accident Prevention Counsellor.*

One of the eeriest sounds in an airplane—at least here in the crowded northeast—is a silent radio. Whether it's lost communications, NORDO, radio failure, whatever you call it, many pilots aren't sure what to do when the jabbering people they wish would shut up and go away actually do just that. We've all seen the written test procedures about NORDO (ATC slang for "no radio") procedures, but how many pilots really understand what to do when the radios go belly up? I'll review and hopefully clarity the regulations for VFR and IFR and fill you in on what really happens in the control room when someone gets quiet. It happens a lot more often than you think!

The FAR don't address lost communications for VFR flight, since, unless you are using a class of airspace requiring two-way communications for ATC services (ever notice how only FAA people call them "services"?), there isn't any regulatory requirement to talk to anyone. Of course, in Class D airspace with an operating control tower, light gun signals would be used. Break out your *Airman's Information Manual* (AIM) sometime and review them; I'll bet you forgot some. AIM ¶ 6–31 states that an aircraft with an operable transponder shall set it to Mode 3/A code 7600. Note that there is a recent change—the reference to code 7700 for one minute has been deleted. This paragraph applies to an IFR or VFR aircraft.

AIM ¶ 6–30 and FAR § 91.185 have some very specific rules for IFR loss of communications, most of which follow a pretty logical sequence, but some parts are widely misunderstood.

If the flight is in VMC, continue the flight under VFR and land as soon as practicable. Well, that's easy, and the notes make it clear that the intent is not to have you squeeze into a tiny ice-covered strip six miles short of your destination. In IMC, things get a little more complicated.

The ***route*** is addressed first. Simplified, it goes: What you got, what you were told to expect, or what you filed—in that order of preference. If you were on a radar vector at the time of losing communications, you should proceed to the next fix, route, or airway specified.

How about ***altitude***? You should fly at the *highest* of: the ATC clearance, the appropriate minimum IFR altitude, or the altitude ATC has told you to expect.

FAR § 91.185(c)(3)—***leave clearance limit***—is probably the least understood of all the procedures, mostly because we spend so much time on learning it when in real life it is almost never applicable.

"What??" you say. "But I was always hearing about all this holding and figuring ETA's and stuff!"

Well, look at the title of the paragraph again—"leave clearance limit." Ninety-nine and 44/100ths percent of the time our clearance limit is the destination airport; i.e., "Cleared to the Bedford Airport via . . . "In this type of case, FAR § 91.185(c) does not apply. There is no holding; you just fly your route, complete the approach, and land. Remember, many of the IFR rules are written for "normal" air traffic procedures, which means NON-RADAR, where pilots have all kinds of short-range clearance limits. (Controllers call it a "paper stop"—the airplane is not really intended to hold. It's just a way to ensure separation.)

If you do have a clearance limit other than destination, then you must apply FAR § 91.185(c)(3), determining whether the fix is an approach fix or not, etc.

This brings up a common question: What about a clearance that implies radar vectors to the airport or approach? For example, "DREEM direct BED"? While the FAR and AIM don't specifically mention this type of clearance, ATC considers the approaches associated with the airport to be extensions of the airport. So, in our example, after DREEM intersection you could proceed to BEDDS intersection or LWM, as you deem safest, and complete the approach.

Continued on page 5

• Altitude Problem

Re Mr. Faber's letter concerning "Measuring Altitude" in the May-June FlightForum, Mr. Faber asks a deceptively simple question, but I don't believe he really wanted a definition of AGL.

The only specific application of determining an area "AGL" would be in connection with avoiding controlled airspace, i.e., floor of Airway or Transition Area. In the case of an Airway, I suggest that charted terrain elevations should be used in conjunction with specified MEA/MOCA. In the case of a Transition Area it would seem that the airport elevation should be used. Mr. Faber would be better advised NOT to avoid controlled airspace or pay very close attention to the charted highest known feature in quadrangle on Sectionals.

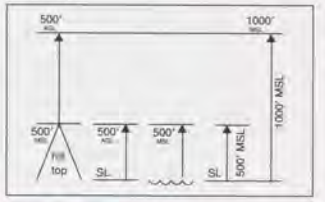
Would you please clarify "A measurement of 500 feet AGL over a hill top will be higher than a similar measurement taken in the middle of a valley when both are compared to sea level."

Richard J. Lewis
Madeira Beach, FL

Thank you for your comments. We do not know of an easy way to answer either your question or Mr. Faber's questions other than by definition. A simplistic answer is controlled airspace above ground level flows like a river over the terrain, and it follows the variations in the terrain at the prescribed minimum altitude. Within that general flowing airspace, minimum IFR altitudes in feet MSL are then designated based upon required obstacle clearance specifications listed in the FAR and the United States Standard for Terminal Instrument Procedures (TERPS). Allowances are made for specific obstacles such as isolated peaks, tall towers, or hill tops within the four nautical mile right and left of centerline of the protected area on charted airways. Approach allowances are then made for airports based upon landing descent angles, maneuvering area, aircraft speeds, etc., to protect IFR aircraft in the terminal airport's operating environment based upon the airport's elevation and surrounding area obstacles. Above ground level means above a vertical reference point. That point can be an airport runway, hill top, or river valley. Charted IFR routes in feet MSL within that airspace provide the required minimum altitude obstacle protection based upon the references listed.

It is important to note that IFR pilots operating on an IFR flight plan off a designated airway must ensure they operate at a safe altitude based upon the requirements of FAR § 91.177, Minimum altitudes for IFR operations. The pilot in command is responsible for determining that safe altitude. The only way a pilot can determine that altitude is by using a current VFR chart with any NOTAM'd new obstacles listed or any other required changes made by the pilot.

Regarding your question about the 500 feet AGL measurement compared to sea level, the following illustration shows the relationship.



• Cruise Clearance

Your "VFR on Top" article in the January/February Instrument Corner brought to mind a question on a related subject. Why are controllers so adverse to issuing a "cruise clearance" when requested by a pilot. I have never been able to get one after many requests. I have, however, been inappropriately given "VFR on Top" clearances in lieu of a cruise clearance.

The cruise clearance is especially important to us non-pressurized/non-turbocharged aircraft owners. In mountainous areas being able to descend below an MEA while still maintaining minimum IFR obstacle clearance can have the following benefits: denser air which equals more available engine horsepower; lower rates of oxygen consumption; better ability to cope with mountain waves; more effective use of up slope winds; may be able to remain below a freezing layer; and may be able to maintain VMC conditions.

One controller said that if he granted my request, I would own all of the airspace from the surface to the cruise altitude. I was taught that the MIA in mountainous terrain was 2,000 feet above all obstacles within four NM of course, which excludes a lot of air below me.

While I'm at it, here's one for your "Airspace Corner." An ARTCC controller at a recent airspace discussion responded with "What airspace reclassification?"

I seem to be getting more incomplete/illegal IFR clearances. Is that because of workload or reliance on "radar contact" or just sloppiness.

Ron Saeger
Fargo, ND

According to Mr. Dave Cink, assistant air traffic manager, at the Fargo Tower, who tried to contact you, his facility does issue an occasional cruise clearance to local satellite airports. Regarding your comment about airspace, he said you and about 150 other people attended an airspace meeting in Fargo on September 14. We want to thank you and all of the other people for attending the meeting. We question your comment about being able to descend below an MEA in mountainous terrain even though you made reference to still maintaining minimum IFR obstacle clearance, and your later reference to maintaining 2,000 feet minimum IFR clearance in mountainous terrain. A cruise clearance allows a pilot to fly from the minimum IFR published altitude up to the maximum specified altitude in the clearance. It does not allow a pilot to descend below the minimum IFR altitude. Our concern is what minimum IFR en route or published minimum IFR altitude you are talking about when you discussed going below the MEA. The 2,000 feet minimum IFR altitude you referred to for use in mountainous terrain applies only when the pilot is operating off a published airway. At that point the pilot is responsible for his or her own IFR terrain clearance. The minimum IFR altitude rule then provides altitude guidance. On published airways, the published minimum en route altitudes apply.

We also want to clear up any misconception some pilots may have about your comment about a pilot owning IFR airspace. In essence, an IFR pilot on a cruise clearance can operate any where between the minimum authorized IFR altitude and the maximum altitude authorized in the

FAA AVIATION NEWS welcomes comments from its readers. We may edit letters for style and/or length. We will select one representative letter from those on the same topic for publication, and because of our publishing schedule, responses may not appear for several issues. We will not print anonymous letters, but we will withhold names or send personal replies upon request. Address: Editor, FAA AVIATION NEWS, AFS–810, Washington, DC 20591

clearance and land at the destination airport as long as certain conditions are met. But that pilot and any IFR pilot operating in VFR conditions must always be alert for VFR traffic. Only in IMC and only when everyone is following the rules, can an IFR pilot say he or she "owns" the controlled airspace he or she is flying in. This safety item is especially important when operating into or out of a non-towered airport. Local VFR traffic may be operating in the traffic pattern that might conflict with IFR traffic. This is why it is so important for every pilot to know and follow all operating rules including the new A–B–C airspace rules.

• Importing Aircraft

I am a pilot and I am also an aircraft broker. My question deals with importing an aircraft into the U.S. from England. If I was buying a Citation 1SP in England and wanted to import it into the United States, what inspections would be needed to be performed? I have heard two different stories. Some dealers say you need to do a Phase 1-5 inspection, and others say you only need to do a Phase 1–4 inspection. Also, if the Phase 1–4 or 1–5 inspection was done within the last 90 days do you need to do it again for export.

J.P. Hanley
Pompano, FL

Rather than trying to answer your question regarding a specific *Citation* maintenance procedure, we want to refer you to the following advisory circulars (AC). AC 21–23, *Airworthiness Certification of Aircraft, Engines, Propellers, and Related Products Imported to the United States*, dated 7/7/87, and AC–21–2G, *Export Airworthiness Approval Procedures*, dated 7/9/92, should provide you the information you need. Both AC's provide additional references. You need to pay particular attention to the various Bilateral Airworthiness Agreements, if any, between the United States and the country you want to import from or export to. The agreements outline what standards you must meet when importing or exporting aircraft. You can contact your local Flight Standards district office for more information. AC–21-2G is available for sale from the Government Printing Office. AC–21–23 is available from FAA. For complete information on ordering AC's you can request AC No. 00–2.6, *Advisory Circular Checklist (and Status of Other FAA Publications)* from the U.S. Department of Transportation, General Services Section, M–443.2, Washington, DC 20590.

• Legal Alternate

Please clarify the suitability of an airport to qualify as legal alternate when required by FAR § 91.169(c) for an IFR flight. My opinion is that the airport must have a terminal forecast in order to qualify, such as Teterboro (TEB) NJ, Newark (EWR) NJ, or Providence (PVD) RI. Those that do not have a FT such as Morristown (MMU) NJ or New Bedford (EWB) MA are not legal alternates, even though the back of Jepp Charts may show information such as "for filing as alternate" with higher than the standard 600–2 or 800–2, or indicate that the tower must be operating.

If I am correct, then why are alternate minimums published on the Jepp Charts as such. Since, I am not a meteorologist, my interpretation of the wording of FAR § 91.169(c) would require a forecast at the alternate to meet the legal requirements.

Robert J. Grinch
Ridgewood, NJ

The type of forecast needed to determine alternate minimums is based upon the rules under which the flight is conducted. Under FAR Part 91 flight rules, any type of FAA approved weather forecast may be used to determine if minimums are met under FAR § 91.169(c), including "Area" forecasts. Operations conducted under FAR Parts 135 and 121 have rules specifying the type of forecast and required weather service that an airport must have before that airport can be used as an alternate. Airports that can be used as alternates that have non-standard alternate minimums have those requirements listed. Your charts are listing those unique requirements.

• Controller Responsibility

What responsibility, if any, does an ATC "tower" controller have to inform a FSDO/ACDO of an aircraft landing (IFR) when the reported visibility is below that prescribed for the approach?

John Nicolicchia
Oceanside, NY

Air traffic controllers' responsibility is to report incidents that are in violation of the Code of Federal Regulations (CFR). If an aircraft landing below the prescribed visibility for an approach violated a CFR and the controller was aware of the violation, then he/she is required to report the incident.

• Over/Abeam the Fix

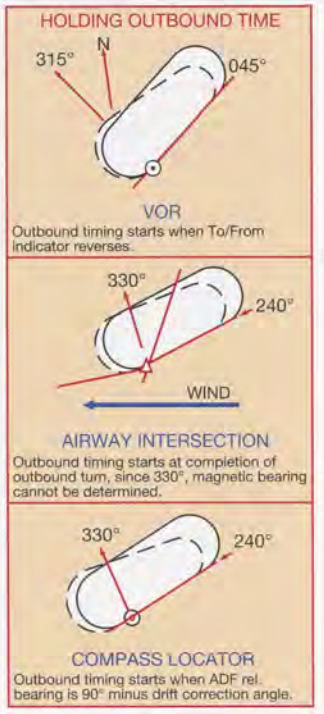
My question has appeared in your pages previously. I have seen responses, but no answers. Therefore, I ask it again.

With regard to holding, the AIM states: "Outbound leg timing begins over/abeam the fix, whichever occurs later."

I cannot envision any situation in which it would be possible to be over the fix, later than abeam the fix. Can you clarify this?

Cyril Toker
Ponte Vedra Beach, FL

The FAA Instrument Flying Handbook, AC 61–27c, page 209, gives graphic examples of three situations that answer your question. The answer depends upon what type of equipment you are using to identify what type of fix. For example, as stated in AC 61–27c, at a VOR, outbound timing starts when To/From indicator reverses. At an airway intersection, if the abeam position cannot be identified, outbound timing begins upon completion of outbound turn. At a compass locator, outbound timing begins when ADF relative bearing is 90 degrees adjusted for drift correction angle.



New FAA Deputy Administrator

Linda Hall Daschle, an aviation executive who began her career 18 years ago as a licensed weather observer for the FAA, has been sworn in as FAA's Deputy Administrator.

Daschle, an Oklahoman, worked as a weather observer to help pay college tuition at Kansas State University. During the 1980's, she was director of the Civil Aeronautics Board's Office of Congressional, Community, and Consumer Affairs. While at the CAB, she was awarded its Special Achievement Award for her contributions to initiatives for air service for rural Americans and airline consumer awareness.

From 1987 until her nomination as Deputy Administrator, Daschle was Senior Vice President for Federal and Environmental Affairs for the American Association of Airport Executives (AAAE). AAAE is a professional organization representing managers of U.S. airports. She was also general manager of AAAE's new business television network, the Airport News and Training Network.

Secretary of Transportation Federico Peña said of Daschle, "She is a capable, hard-working, smart executive who brings a common sense approach to the FAA. Her entire professional life has been devoted to aviation, in both the public and private sectors. This combination of work experience helps bring a balanced view to decision-making. We're delighted to have Linda join the team."

Dyed Fuels

Dyes are now being added to certain U.S.-produced diesel fuels and kerosene. The diesel fuel sold in the United States has a color ranging from light yellow to dark red. The addition of dye—a new requirement by both the EPA and the IRS—to most diesel fuels will cause a change in color so that the fuel, after dye addition, will range from light green to blue to deep violet.

Because these fuels may look similar to aviation fuels, pilots, air carriers, fuel vendors, and other should be especially alert to ensure aircraft receive the appropriate fuel. If any doubt exists regarding the accurate identification of fuel, it ***should not*** be dispensed into aircraft or into storage from which it could be dispensed into aircraft.

Sexual Harassment on the Flight Deck

In October 1992 a first officer sued her airline, alleging she had been the victim of sexual harassment during her training and while flying the line.

What is sexual harassment? The courts have acknowledged two basic types of sexual harassment in the workplace:

1. *Quid pro quo harassment*—This occurs when an employer\superior asks for sexual favors in return for job-related benefits such as promotion or salary increases, etc., or when sexual favors are made a term or condition of employment or a basis for employment decisions.
2. *Hostile work environment*—The Civil Rights Act gives employees the right to work in an environment free of sexual behavior that creates offensive working conditions or of conduct that adversely affects or unreasonably interfers with the person's work performance or creates an intimidating, hostile, or offensive work environment, or affects psychological well-being. This is the most often reported form of harassment.

The first officer alleged that she was exposed to both forms of harassment during her three-year career with the airline. Probably the most serious alleged offense took place on an overnight layover in 1992. The first officer alleged that the captain that she was flying with attempted to sexually assault her after inviting her to his hotel room for a drink.

Apparently, the first officer had to fly the rest of the month with this captain. One can only imagine the B–737 flight deck atmosphere after this episode.

This situation highlights the more sinister aspect of this case. Was the aircraft and passenger safety compromised under these circumstances? Without a doubt!

Cooperation, communication, and mutual professional respect among crewmembers are the touch stones of safe flight on a multi-crewmember aircraft. Any basic Crew Resource Management (CRM) course will verify these facts. When unwelcome sexual advances, adverse sexual comments, or sexually offensive actions occur they poison the synergistic atmosphere on the flight deck. This must be recognized by everyone as one of the most serious threats to safe flight operations. Consequently, it cannot be tolerated.

It can be argued that the law states this and that concerning sexual harassment; however, as professional aviators the bottom line relates to flight safety not who will probably win a court battle.

Sexual harassment compromises flight safety in a significant way, and since women are going to become a larger force in the professional pilot ranks, this problem will not go away. Employers must, therefore, expand training to include this very crucial and timely topic.

Submitted by Dr. LaMarr O. Stanford, assistant professor in the Department of Aeronautical Technology at Arizona State University, Tempe, AZ. An ATP-rated pilot and CFII with varied aviation experience, he teaches CRM and aviation law.

What Would You Change?

FAA Administrator David R. Hinson asked that very question in a letter to

the aviation industry published in the January 10, 1994 edition of the *Federal Register*. Hinson requested that individuals in the aviation industry provide public comments on three Federal Aviation Regulations (FAR) they feel could be amended or eliminated and reduce regulatory burden.

Respondents should prioritize the three regulations, indicate how the intent of the regulation could be otherwise fulfilled, and, where appropriate, suggest a substitute or a version of the amendment. There should also be an indication of how the public would benefit from such a rule change or elimination.

The FAA will use the responses in establishing priorities for future regulatory changes—including repeal or modification of rules—to maintain safety and security while reducing regulatory burden on the aviation industry.

Comments should be sent in triplicate to FAA, Office of Chief Counsel, Attention: Rules Docket, AGC-200, Docket No. 27581, 800 Independence Ave., S.W., Washington, DC 20591. March 11, 1994 is the comment deadline.

North Carolina Wings Weekend

The North Carolina Flight Standards District Office and the North Carolina Division of Aviation will conduct its sixth "WINGS" Weekend April 23–24, 1994. The event will take place at Guilford Technical Community College Aviation Center located on the Piedmont Triad International Airport (GSO) in Greensboro, NC.

The "WINGS" Weekend is a two-day marathon of safety seminars, flight training, and fun. FSDO personnel and Accident Prevention Counselors will present 20 seminars on Saturday; the program repeats on Sunday. Subjects range from airspace reclassification to weather. Doctors will talk about pilot physiological concerns, air traffic controllers will talk about communications, and FSS personnel will give pilots the latest information on FSS' services. There will even be a pinch-hitter course for the non-flying half of any twosomes participating. A banquet sponsored by the airport authority, and other events round out an exciting weekend for aviation in Greensboro. Pilots will be able to earn their "WINGS" in one day.

For more information and registration, contact Accident Prevention Program Manager Tom Jones at (910) 631-5147; or Mike Wright at the NC Department of Transportation, (919) 840-0112.

World War II Pilot Reunion

World War II P-47 *Thunderbolt* pilots are holding their annual reunion May 26–June 2, 1994 in Paris, Normandy, Deauville, and Rheims, France. The reunion is sponsored by the 2,000-member P-47 Thunderbolt Pilots Association and precedes commemorations of the 50th Anniversay of D-Day. For further information contact either: Bob Forrest, 9728 Argyll Circle, L.V.E., Lakewood, NJ 08701; (201) 920-0146; or Bob Richards, P. O. Box 3299, Topsail Beach, NC 28445; (910) 328-8781.

Changes in the Wind at FAA

"As [the progress of the human mind] becomes more developed, more enlightened, as new discoveries are made, new truths discovered and manners and opinions change, with the change of circumstances, institutions must advance also to keep pace with the times. We might as well require a man to wear still the coat which fitted him when a boy as civilized society to remain ever under the regimen of their barbarous ancestors."

—Thomas Jefferson

In the first week of this new year, the Department of Transportation moved to shrug off at least the coat of its childhood, or, at most, its ancestry, barbarous or not. As part of a five-point plan for the promotion of a strong aviation industry, Transportation Secretary Federico Peña announced initiatives for the revitalization of the nation's aviation industry.

The news conference had been called to submit the Department's response to the President's Airline Commission recommendations released last summer. "The Clinton Administration's Initiative to Promote a Strong Competitive Aviation Industry" espouses a five-point aviation strategy:

1. Revitalize Domestic Aviation
2. Promote international aviation trade and competitiveness.
3. Promote airport development and economic growth.
4. Enhance safety, consumer benefits, and the environment.
5. Integrate aviation into the national transportation system.

Some of the specific steps under those five points include:

- Completion, by April 1994, of a plan to restructure FAA's Air Traffic Control Services as a government corporation.
- Acceleration of the use of GPS, satellite-based navigation.
- Completion of aeronautical research and development plan to support new technological advances.
- Possible modification of the high-density rule which limits flights at Chicago-O'Hare, New York's La-Guardia and JFK, and Washington National to improve capacity.
- Providing air carrier access to additional capital by allowing a higher percentage of foreign ownership of U.S. air carriers—but only if reciprocal opportunities are provided to U.S. carriers and investors abroad.
- Continued prohibition of diversion of airport revenues for off-airport uses.
- A thorough review of all aviation regulations to lessen the burden on the industry wherever possible and where safety would not be compromised.
- Requirement for airlines seeking approval for international routes and other major changes to outline how displaced workers would be protected.
- Enactment of the reauthorizing legislation for the Airport Improvement Program.

The most "newsworthy" aspect of the announcement was, of course, the initiative to incorporate the FAA's Air Traffic Service. The main purpose of the corporation would be to free procurement decisions from the federal government's purchasing process, enabling high-tech equipment to be purchased and installed before obsolescence.

The overall plan, due to Secretary Peña by April, will contain the specific details of how a government air traffic corporation would work.

Sun 'n Fun

April 10–16,1994

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