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FAA Aviation NEWS

Nov.-Dec. 1991

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**Federal Aviation
Administration**

The FAA's Flight Standards Service, General Aviation and Commercial Division, Accident Prevention Program Branch, AFS-810, Washington, DC 20591, publishes *FAA Aviation News* in the interest of flight safety. The magazine promotes safety in the air by calling the attention of airmen to current technical, regulatory, and procedural matters affecting the safe operation of aircraft. All printed materials herein are advisory or informational in nature and should not be construed as having regulatory effect. The FAA does not officially endorse any goods, services, materials, or products of manufacturers that may be mentioned. Certain details of accidents described herein are altered to protect the privacy of these involved.

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FAA Aviation NEWS

Nov.-Dec. 1991

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Features

Departments

On the cover:
Crowds, part of the 22+ million people attending airshows this past year, inspect the various civilian and military static display aircraft at the recent Cleveland National Airshow.

Photo by Dean Chamberlain.

Women's Aviation Organizations

by Phyllis A. Duncan
Editor (and 99)

There has always been a certain amount of "getting used to it" when it comes to women and aviation. All too often we become hung up on the "first's" and neglect to acknowledge the contributions that women have made to aviation. Women have been involved with aviation probably since *humans* first gave idle thought to what it would be like to fly like a bird. In other ways we fall into the trap of connecting women's contributions to aviation with whatever men they were associated with. How many people realize that Anne Morrow Lindbergh was a fully qualified pilot and navigator and not just along for the ride with Charles?

Even during the heyday of barnstorming, women were still so novel in aviation that even a woman boarding an airplane was cause for a banner headline. And although entrepreneurs were content to exploit that uniqueness in advertising aerial exhibitions, air races, and wingwalking, when it came down to including women aviators in their fledgling aviation organizations, men drew the line for exclusivity.

This exclusion from the social and professional organizations men were founding to share their aviation experiences led to the development of several prominent women's aviation organizations, some of which continue today. In this article we will discuss the two major women pilots organizations. The first, the Ninety-Nines (99's), has the distinction of being the oldest and longest-lived, but the Whirly-Girls had to wait for the development of the helicopter in the 1940's. The two organizations differ in their focus and organization, but their goals in establishing these organizations were similar: To provide a forum for all pilots for the sharing of common ideals and experiences so that the mistake one person makes can be a lesson for everyone else.

Although Earhart was one of the early moving forces behind the new organization for women pilots, it was not her idea. Clara Trenchmann, a non-pilot who worked for the Curtiss Flying Service, had the idea of an organization to keep all women pilots communicating with each other. She had been publishing a newsletter, *Women and Aviation*, for several years toward that purpose, but she recognized the need for a formal association where women could meet periodically and network. Her company at the time employed four women demonstration pilots, and Trenchmann got executive support from Curtiss for her efforts. She and her four colleagues mailed letters to as many women pilots as they knew of, about 60, but they were working from a woefully incomplete list. The letter invited the recipient to an organizational meeting in Curtiss' hangar at Valley Stream at 3 p.m. November 2, 1929. Twenty-six women showed up and established the structure of their new organization. They appointed officers, collected dues, and planned a second meeting. They had everything except a name, and their organization remained nameless until their second meeting two months later when, after a second membership mailing, they discovered they had 99 charter members out of 117 women pilots in the U.S. Amelia Earhart suggested the Ninety-Nines, and so it was.

The Ninety-Nines, Inc.
(International Women Pilots)

The 99's are headquartered in Oklahoma City, OK, just across the road from Will Rogers Airport. Inside this modern brick and glass structure is a tribute to women, past and present, in aviation. To enter this building is to walk into an understanding not only of what it is to be a pilot but also to become aware of the woman pilot's place in the history of recreational, commercial, and military aviation and space exploration. The emphasis is on Amelia Earhart, one of the original 99 charter members. Much of her memorabilia is there, as are dozens of scrapbooks of newspaper clippings about her exploits.

Ms. Earhart and 25 of her fellow women aviators met in Valley Stream, NY in 1929 and founded the first professional organization for women pilots. Their purpose was simply to ". . . create new flying possibilities and to remove restrictions imposed on women flyers." In those days the restrictions far outnumbered the possibilities. Usually, a woman had to get written permission from a male relative to obtain her license. Pregnant women had to surrender their certificates, and even after the 99's convinced the government in the 1930's that pregnant women were not a danger to themselves or anyone else in the air, the government still insisted that the woman had to re-qualify medically after her "confinement." If her license or any ratings expired before her medical re-certification, she had to re-take both the written and flight examinations.

Headquarters of the 99's in Oklahoma City, OK.

Amelia Earhart, co-founder and first president of the 99's.

By 1940 the 99's had grown to the 400, and when World War II came to the U.S., it was the then-99's president Jacqueline Cochran who proved to the military that these 400+ women pilots could fly anything the men could, that they were a resource the military could not ignore in this time of need. The 99's were well represented in the first class of Women Air Service Pilots (WASPS). Largely because of Cochran's ability to promote women in aviation, the 99's prospered throughout the war years. As more women became Wasps, they also added to the ranks of the 99's, a membership base that continues today.

The 99's have always been an international organization (one of its charter members was from Australia) and now has 7,000 members from 41 countries. Members are dispersed in 20 international sections, and the sections contain 198 chapters. Thirty-four committees oversee a variety of aviation education, promotion, and safety and philanthropic projects.

Notable among the safety projects is the 99's' support of the FAA's Accident Prevention Program. The 99's have sponsored more safety seminars than any other organization—over 75%—with particular support of the "Back to Basics I and II" seminars and clinics. Last year alone, chapters sponsored more than 300 educational programs aimed at teachers and students as well as pilots and instructors. Members serve on aviation advisory committees and state aeronautical associations, conduct "pinch-hitter" clinics for non-flying, frequent light plane passengers, "fear of flying" resolution clinics for phobic airline passengers, and flight instructor refresher clinics. Members use their time and aircraft to fly cancer patients for treatment, transport blood or organs for transplant operations, fly donated supplies for relief efforts, and give familiarization flights to public interest groups.

CHARTER MEMBERS OF THE 99's

Mary C. Alexander
Mary Bacon
Barbara W. Bancroft
Bernice C. Blake
Ruth T. Bridewell
Margery H. Brown
Myrtle Brown
Vera Brown
Thelma Burleigh
Myrtle R. Caldwell
Ruth Elder Camp
Mildred Helene Chase
Irene J. Chassey
Bonnie M. Chittenden
Marion Clarke
Margaret Perry Cooper
Helen V. Cox
Jean Davidson
Jane Dodge
Marjorie Doig

Amelia Earhart
Thelma Elliott
Frances Ferguson
Sarah Fenno
Adeline F. Fiset
Phyllis Fleet
Edith Foltz
Ila Fox
Viola Gentry
Betty Huyler Gillies
Fay Gillis
Phyllis M. Goddard
Mary Goodrich
Melba M. Gorby
Geraldine Grey
Candis I. Hall
Sacha Peggy Hall
Ruth E. Halliburton
Frances Harrell
Lady Mary Heath

Jean D. Hoyt
Katherine F. Johnson
Angela L. Joseph
Mildred E. A. Kauffman
Betsy Kelly
Madeline B. Kelly
Teddy Kenyon
Cecelia Kenny
Florence E. Klingensmith
Opal Logan Kunz
Eleanore B. Lay
Eva May Lange
Jean LaRene
Dorothea Leh
Majorie Lesser
Ethel Lovelace
Lola L. Lutz
Edwyna McConnell
Retha McCulloh
Helen Manning

Olivia Matthews
Jessie Keith-Miller
Agnes A. Mills
Sylvia Anthony Nelson
Ruth Nichols
Mary N. Nicholson
Blanche W. Noyes
Gladys O'Donnell
Margaret F. O'Mara
Phoebe Fairgrave Omlie
Neva Paris
Peggie J. Paxson
Achsa Barnwell Peacock
Elizabeth F. Place
Lillian Porter
Thea Rasche
Mathilda J. Ray
Meta Rothholz
Gertrude Catherine Ruland
Joan Fay Shankle

Hazel Mark Spanagle
Ruth W. Stewart
Marjorie G. Stinson
Mildred Stinaff
Dorothy L. Stocker
Louise M. Thaden
Margaret Thomas
Nancy Hopkins Tier
Evelyn "Bobbi" Trout
Esther M. Vance
Mary E. Von Mach
Wilma L. Walsh
Vera Dawn Walker
Ruth E. Webb
Nora Alma White
Nellie Z. Willhite
Margaret Willis
Josephine Chatten Wood
Alberta B. Worley

One project, associated with the 99's since nearly their inception, is the responsibility for *airmarking*. Airmarking goes beyond the painting of a compass rose on the airport ramp. In the 1930's 99's charter member Blanche Noyes painted or directed the painting of airport names and directional indicators on thousands of hangar roofs, barn roofs, and store tops. Many a lost and lorn pilot found his or her way to safety because of Noyes' efforts. In fact she did such a good job that her airmarkings were considered a security risk during World War II, and 2,000 markings within 150 miles of either coast were painted over or removed. After the war the 99's led the effort to get the markers returned or refurbished. Noyes became the first woman pilot hired by the CAA (later FAA) as its Chief of Air Marking. By her retirement in 1972, she had overseen the marking of 75,000 communities. FAA discontinued its airmarking office, but the 99's stepped in and continue airmarking as a public service to this day. So, the next time you cannot get the chart to match the terrain below you until you see an airport name in big, white letters on a barn roof with an arrow towards its location, remember the 99's put it there just for you.

The 99's consider their scholarship program to be one of their most important philanthropic and safety-oriented efforts. Since 1941—50 years—they have awarded annually Amelia Earhart Memorial Scholarships to allow members to pay for advanced flight training or courses in specialized branches of aviation. Periodically through the Amelia Earhart Scholarship fund, the 99's present Research Scholar Awards to a woman to conduct specialized research to expand knowledge about women in aviaiton and space. This year the 99's awarded $39,000 for 16 career scholarships to be used for advanced flight ratings, their highest total to date.

Members can not only keep up on chapter and section events in the organization's magazine, *99 News*, they are treated to safety information, operational techniques, and a wealth of personal experience from other members. The 99's have always been dedicated to the upgrading of pilot skills and proficiency not just by the written word or classroom instruction, but through practical application as well. For many years they sponsored and conducted numerous cross-country racing events, the most famous of which was the Powder Puff Derby. The Derby not only showcased great women pilots, it was a tribute to their skills, proficiency, and stamina as well as a classroom on the most grueling type of flying. Although the Powder Puff Derby ended in 1978, the 99's continue to foster the continual upgrading of pilot skills through their support and sponsorship of local and regional proficiency rallies usually open to men and women. Their continued support of aerospace education and intercollegiate flying competitions is evident from their affiliation with the National Intercollegiate Flying Association (NIFA). Because of their monetary and training support for NIFA, the 99's' expertise in competitive flying led to their support of the U.S. Precision Flying Team, which competes internationally.

Marie Christensen, current president of the 99's, in her favorite place, the cockpit of her Beech Bonanza.

Marie Christensen, the current President of the 99's, sees the organization gradually changing its focus from being a networking and social organization for recreational flyers to a networking and professional organization for women who fly for a living. "New members," she says, "are more career-oriented with their flying, and we have to be able to respond to their needs." However, Christensen views this change with mixed emotions, fearing the fly-for-fun pilots, lacking equipment to train, will be absorbed by large pilot schools and the airlines. In spite of this change, the 99's will be a bastion for both the recreational flyer and the professional one. Christensen also believes the original 99 charter members would heartily approve of the change of focus. The 99's will still promote women in all walks of aviation, recreational and professional, as was its stated, original purpose. More importantly, the 99's will continue its excellent working relationship with the FAA.

Of the 99 charter members, 41 are still alive to see how far they have led women pilots into the future. This is embodied in the 99's' motto: "Today, we are building tomorrow's history."

Jean Ross Howard, founder and first president of Whirly-Girls, amid Whirly-Girl memorabilia.

The Whirly-Girls, Inc. (International Women Helicopter Pilots)

In 1947 the helicopter was only eight years old, and most of its practical uses had yet to be formulated. Most industry people perceived it as somewhat of a toy, good for sightseeing. It had proved its rescue role in combat but had yet to demonstrate its commercial applications. By 1947 there were only a handful of pilots in the U.S. licensed to fly helicopters, and one of those was Ann Shaw Carter. Ms. Carter, who was the first woman in the U.S. licensed to fly a helicopter, flew a Bell 47B around New York City on sightseeing flights. Nineteen forty- seven was also the year that airplane pilot Jean Ross Howard became interested in helicopters after a demo flight she received at the U.S.' first helicopter air show in Bowie, MD. Over the next seven years while she worked as an assistant to the Director of the Helicopter Council of the Aircraft Industries Association, Howard dropped hints to the Helicopter Council that she could do her job better if she knew first hand about flying helicopters. Finally Larry Bell, president of Bell Helicopters said, "Get yourself to Fort Worth, and we'll teach you!" She did and got her helicopter rating in 1954 at Bell's facility in Fort Worth, TX.

At once Howard became curious to discover how many helicopter flying sisters she had. She figured the numbers had to be few and felt that they should all get to know each other to share experiences and celebrate the uniqueness of their participation in aviation. She located and contacted the other 12 helicopter-rated women around the world, excluding Russia, where *glasnost* was then a forbidden word. In April 1955, this baker's dozen met and organized The Whirly-Girls.

The Whirly-Girls stated goal then was to ". . . promote interest among all women in rotary wing craft, to establish scholarships to help other[s] learn to fly helicopters, and to provide a standby women's helicopter reserve for civil defense and other national emergencies." As times changed, The Whirly-Girls de-emphasized the latter in the interest of securing helicopter landing areas for hospitals and promoting heliports. However, the sight of women helicopter pilots flying Hueys, Chinooks, and Blackhawks during Operation Desert Shield/Storm certainly filled charter Whirly-Girls with a sense of vindication. (Several early Whirly-Girls were also WASPS and had to wait nearly 30 years for official recognition of their contributions during World War II.)

The 13 women who formed the Whirly-Girls' charter membership received membership numbers based on the chronological order in which the women earned their helicopter ratings. The organization recently welcomed Whirly-Girl #783. (There are four Russian women who are Whirly-Girls.) Its members then and now are a veritable "Who's Who" of aviation. Hanna Reitsch (Contrary to popular belief, she was NOT Hitler's personal pilot.) was the first woman to fly a helicopter during a sport exhibition in Berlin, Germany in 1938, and that earned her the distinction of being Whirly-Girl #1. Ann Carter was #2, and Whirly-Girl founder Jean Howard was #13. The story of Whirly-Girl #6, Medecin General Valerie Andre of France is both particularly interesting and representative of the practical, humanitarian use of helicopters.

In 1949 Dr. Andre volunteered her brain surgery services in the combat zone of Indochina. However, many seriously wounded soldiers were dying before they reached her, having been transported by litter or by vehicle out of the jungle. Although the helicopter was relatively new to medevac, Dr. Andre realized that helicopters would greatly decrease the transport time of wounded men. Better yet, helicopters could get her to her patients even quicker. She returned to France just long enough to get her helicopter license then returned to Indochina where she flew a Hiller 360 on more than 120 missions into combat zones to operate on 165 casualties. Her Whirly-Girl contemporaries call her their "one-woman MASH." For her efforts Dr. Andre received the Croix de Guerre and the Legion d'Honeur, later becoming France's first woman Medecin General (equivalent to our Surgeon General). More importantly to the Whirly-Girls, she demonstrated the practical rescue capability of this unique aircraft, and life-saving today remains one of the helicopter's most widely recognized uses. Dr. Andre was also the epitome of the professional woman pilot the Whirly-Girls wanted to foster.

This same dedication to professionalism in aviation pervades the Whirly-Girls' membership and is the purpose of their primary safety focus, their scholarship programs. The Whirly-Girl philosophy is that a professional helicopter pilot—one who continually upgrades experience—is a safe helicopter pilot, and their scholarships not only provide money for initial helicopter ratings but also for upgraded certificates and add-on ratings.

Since 1968 the Whirly-Girls have awarded the Doris Mullen Whirly-Girl Scholarship, named for Whirly-Girl #84 who died in an airplane accident in 1964. Its purpose is to ". . . perpetuate the high standards of women in aviation." The scholarship goes to a woman for the addition of an advanced rating or for transition training to a helicopter rating. A modest $500 in 1964, the scholarship now amounts to $5,000, and Jean Howard takes pride in the total amount of scholarship money the Whirly-Girls have dispersed through this scholarship—$80,000 to $90,000.

The Whirly-Girls raise scholarship money through typical fundraising events and by corporate contribution. Ms. Howard notes that many scholarship recipients have gone on to become corporate pilots for the companies that contributed to the scholarships. The 1970's saw the formation of both the Whirly-Girls Men's and Ladies' Auxiliaries to raise money for additional scholarships. The Men's Auxiliary consists of spouses of Whirly-Girls or men interested in helicopter aviation. The Ladies' Auxiliary consists of non-helicopter-rated women, again who are interested in the helicopter industry. The Auxiliaries now award another $5,000 annual scholarship to a woman seeking her initial helicopter rating.

The newest Whirly-Girl scholarship, created in June, was born out of women's contributions to the recent Persian Gulf war. Army Major Marie T. Rossi was killed in February while flying supplies in her Chinook during Operation Desert Storm. The Whirly-Girls had been highly impressed with Major Rossi after viewing her in a television interview just days before her death. They decided that a scholarship was only fitting to perpetuate the professionalism of a dedicated helicopter pilot and to recognize the sacrifice Rossi made. The Whirly-Girls will award the 1992 Major Marie T. Rossi scholarship to a woman seeking to upgrade her professional flying status in March 1992 at their annual scholarship awards banquet.

The other area of interest for the Whirly-Girls is the promotion and construction of heliports/"helistops" (the Whirly-Girl term for a helicopter landing facility that has no fuel or other services available). (In 1961 on a visit to the White House, the Whirly-Girls chided President Kennedy for the lack of a civilian heliport in the nation's capital; he offered them the use of his any time.) They have advised many towns and cities on the safe placement and operations of helistops at hospitals and heliports as a natural extension of transportation from a hub airport to a downtown area. They were instrumental in getting several states to pass laws requiring heliports on top of buildings of more than eight stories. The Whirly-Girls also award the Judy Short Memorial Hospital Heliport Certificate to hospitals for providing this life-saving facility.

The Whirly-Girls also provide a safety service through their formal and informal exchanges of information. Their newsletter, *Collective Pitch*, aids this purpose by printing safety information and first-hand experiences of Whirly-Girls on the job as helicopter pilots or as recreational flyers. The Whirly-Girls also hold an annual meeting called a "Hovering" in conjunction with the Helicopter Association International's yearly convention. However, according to Ms. Howard, anytime two or more Whirly-Girls get together, it is a "hovering." At the annual "Hovering" Whirly-Girls serve on educational and safety panels with industry and FAA officials to discuss rotorcraft issues and provide the benefit of their expertise in rulemaking and other safety programs.

One of the foremost contributions of the Whirly-Girls was in the area of their service on the Women's Advisory Committee on Aviation (WACOA). Founded in 1964 by FAA Administrator Najeeb Halaby at the direction of President Lyndon Johnson, WACOA was chartered to provide the FAA recommendations on educational programs and public relations in aviation. Its members went a step beyond into safety issues such as establishment of parallel runways at busy airports, better cockpit design, and upgrading of flight instructor qualifications. WACOA lasted through 1977 and was chaired over those 13 years by Whirly-Girls.

The current Executive Director of the Whirly-Girls is a Navy Reserve pilot, LCDR Colleen Nevius, #435. Like Christensen's 99's, Nevius sees the Whirly-Girls as an evolving professional organization as more and more new members fly professionally as helicopter pilots rather than recreationally. Nevius, one of only about a half dozen women Navy pilots in her early years in the military, had not heard of the Whirly-Girls until 1982 during her stint at the United States Test Pilot School in Patuxent, MD. There she saw an article in *Rotor & Wing* magazine about the Whirly-Girls, and she promptly contacting Jean Ross Howard, who convened a "hovering" to introduce Nevius to the organization. Nevius found what she had little of in the Navy, a large group of women who shared a common interest in helicopters and who welcomed her with unquestioned cameraderie.

Nevius sees the Whirly-Girls' evolution making it a networking organization for women helicopter pilots who want to locate the best training for upgrading their skills. Now that networking is informal, but she hopes to expand and formalize it during her tenure. Nevius, like Howard, stresses the professionalism of the Whirly-Girls members, and takes pride in the regard with which they are held in the vertical flight community. She "complains" that, "Our members are kept so busy teaching and talking about safety at conventions like HAI, they hardly get to enjoy themselves!" It is a sacrifice she and the other Whirly-Girls are more than willing to make.

So, who are the Whirly-Girls? Like the 99's, they are doctors, lawyers, teachers, mothers, daughters, wives, law enforcement pilots, corporate pilots, traffic reporters, military pilots—women from all walks of life who have joined in the promotion of safety and professionalism in aviation and for the sheer joy of flying helicopters.

Conclusion

The two women's aviation organizations share a commitment to the future. Who of the less than 200 hundred women pilots in 1929 could have imagined 41,000 today? But 99 of them had the foresight to create an organization meaningful for today and beyond. The original 13 Whirly-Girls were determined to increase their number, and their success continues.

If the numbers do not impress, the dedication and, need we say it, the professionalism of these women must. ■

Editor's Note: Special thanks to Whirly-Girls founder Ms. Jean Ross Howard and her husband, James Phelan, who served as the crew chief on the first helicopter military rescue mission in Burma in World War II, for their assistance in the history of the Whirly-Girls. Thanks also to Ms. Carol Rayburn, Treasurer of the Amelia Earhart Scholarship Fund, for information she provided. Ms. Rayburn is the Flight Standards Division Manager in FAA's New England Region.

Colleen Nevius, current president of Whirly-Girls, still flies helicopters for the U.S. Naval Reserves. Her husband is astronaut Bill Readdy, scheduled for space in January 1992.

THE ORIGINAL 13 WHIRLY-GIRLS

#1 Hanna Reitsch*, Frankfurt, Germany
#2 Ann Shaw Carter, Fairfield, Connecticutt
#3 Priscilla Handy Swenson, Fairfield, Connecticutt
#4 Nancy Miller Livingston, Anacortes, Washington
#5 Lyn Grover Alexander*, Kona, Hawaii
#6 Valerie Andre, Issy-Les-Moulinaux, France
#7 Ethel Jones Sheffler, Bloomington, Illinois
#8 Jacqueline Auriol, Paris, France
#9 Marilynn Himes Riviere, Aiken, South Carolina
#10 Edna Gardner Whyte, Roanoke, Texas
#11 Clara E. Livingston, Lyme, New Hampshire
#12 Mary Rosholt, Los Osos, California
#13 Jean Ross Howard, Washington, DC
*Deceased

ADDITIONAL INFORMATION

For information on membership in the 99's or their scholarships, write to or telephone:

The Ninety-Nines, Inc.
P. O. Box 59965
Will Rogers World Airport
Oklahoma City, OK 73159
(405) 685-7969

For information on membership in the Whirly-Girls or their scholarships, write to or telephone:

The Whirly-Girls, Inc.
P. O. Box 58484
Houston, TX 77058-8484
(713) 474-3932

Both the 99's and the Whirly-Girls accept contributions for their scholarship funds, and contributions are tax-deductible.


DEPARTMENT OF TRANSPORTATION

FEDERAL AVIATION ADMINISTRATION

Pilot Proficiency Award Program

This is to certify that

Jane Pilot

has satisfactorily completed the requirements to become eligible to wear the Pilot Proficiency Wings, Phase I attesting to this individual's dedication to aviation safety.

July 10, 1996
Date

Roger M Baker, Jr.
Signature

Sample Pilot Proficiency Award Program Certificate

Pilot Proficiency Award Program

How You Can Earn Your "Wings"

by Louise Oertly
Associate Editor

"Congratulations, you just earned your Phase III 'Wings.' Now take this training verification to your nearest Accident Prevention Program Manager and you can get your set of wings and your certificate. By the way, I noticed that your biennial flight review (BFR) is due next month. You know, of course, that a person who has satisfactorily completed a phase of 'Wings' need not accomplish the flight review requirements."

You hesitate for a moment and question if that is really possible. After being reassured that it is, you mentally calculate how much extra flight time you can afford by eliminating the cost of the flight review next month. You finally agree thinking, why not kill two birds with one stone?

For those not working in aviation every day, the small set of wings attached to your lapel is something of a status symbol. If questioned, you can honestly say you are a member of an exclusive club, where only about 12,000 pilots take the time to join each year. Time, that precious commodity which few of us have much to spare and which probably explains why over half of those who responded to our recent readership survey (see September/October 1991) do not participate in the Pilot Proficiency Award or "Wings" Program. Participation requires a commitment in time and money to establish a personal recurrent training program. So as an explanation to those who have never heard of it, and a reminder to those who have forgotten about it or never bothered to learn more about it, or even to those who are currently participating, this article is for you.

To participate in the Pilot Proficiency Awards Program, contact a flight instructor, an appointed Accident Prevention Counselor, or an Accident Prevention Program Manager at the nearest FSDO to discuss how the requirements can be met. First of all, a pilot must hold a private pilot certificate or higher and a current medical, when required. There are currently nine phases in the training requirements and each phase is signified by a specific set of wings. Once the training program begins, the pilot has 12 months to complete all requirements in the selected category and class of aircraft. The pilot may only initiate action to qualify for the next phase after 12 months have passed since receiving the previous award for Phases II through IV. To receive Phase V through IX, the pilot must also not have been determined at fault in an aircraft accident for consecutive years equal to the phase of the wing (Phase VI, six consecutive accident-free years; Phase VII, seven years; etc.).

To meet the training requirements a pilot must first select the category and class of the aircraft. Based on those phases of operation that an accident is most likely to happen, the following training profile is established for each:

AIRPLANE

—One hour of flight training to include basic airplane control, stalls, turns, and other maneuvers directed toward mastery of the airplane.
—One hour of flight training to include precision approaches, takeoffs and landings, including crosswind, soft field, and short field techniques.
—One hour of instrument training in an airplane, instrument simulator, or training device.

ROTORCRAFT

—One hour of ground training to include use of rotorcraft flight manual to determine operating limitations, weight and balance computations, performance data, aircraft servicing, use of optional equipment, and standard emergency procedures.
—One hour of flight training to include airport and traffic pattern operations, including departures from a hover (helicopter only), normal and crosswind approaches and landings, maximum performance takeoffs, and steep approaches.
—One hour of flight training to include autorotative descents, power failure at a hover, settling-with-power, system or equipment malfunctions, slope takeoffs and landings, pinnacle/rooftop takeoffs and landings, and navigation procedures.

GLIDERS

—One hour of ground training to include use of glider operating limitations, weight and balance computations, performance data, and standard emergency procedures.
—One hour or three flights to include launch procedures, proper position during tow, emergency procedures such as a slack line or tow rope failure, and tow release procedures.
—One hour or three flights to include thermalling procedures, flight in close proximity to other aircraft, maneuvers at various performance speeds, demonstration of best lift over drag (L/D) and minimum sink, and precision approaches and landings.

LIGHTER-THAN-AIR

—One hour of ground training to include fuel management, refueling, proper inflation procedures, review of the flight manual, and proper weather check.
—One hour of flight training to include precision approaches, touch-and-go, level flight, rapid descent and level out, and simulated landing in a congested area.
—One hour of flight training to include relighting the pilot light, simulated high wind/short field landings, and other simulated emergency situations.

Additionally, all applicants must attend one FAA-sponsored or FAA-sanctioned aviation safety seminar or an industry-conducted recurrent training program or participate in a physiological training course. Attendance must be verified in the pilot's logbook or other proficiency record, such as the standard form produced by the General Aviation Manufacturer's Association (GAMA), and signed by an FAA Accident Prevention Program Manager or other FAA personnel or any Accident Prevention Counselors conducting the meeting. Despite what Advisory Circular 61-91F says, AC Form 3150- 7, Physiological Training Application/Agreement, is required only if the pilot wants to take formal physiological training as part of the requirements. After completing the course, FAA Form 3150-1, Physiological Training, will verify course completion.

Certificated flight instructors are also eligible to earn their Phase I through IX Pilot Proficiency Award "Wings" by documenting the completion of the required "Wings" training to at least three pilots (a minimum of nine hours of instruction) and attending or participating in an aviation seminar or clinic. Beginning with Phase IV the CFI requires an evaluation or proficiency flight with a designated flight instructor examiner or an FAA operations inspector. Also, the CFI can start earning the requirements for the next phase immediately, but can not receive the "Wings" until 12 months after the date for meeting the requirements for the previous phase. To receive Phases V through IX, the CFI must also not have been determined at fault in an aircraft accident for consecutive years equal to the phase of the wing (Phase VI, six consecutive accident-free years; Phase VII, seven years; etc.).

The Pilot Proficiency Award Program has changed over the years. Originally, the FAA co-sponsored the program with GAMA, who offered an airplane to one lucky participant each year. Eventually the economic climate changed and the coveted airplane was a thing of the past. So another type of wing was offered in the form of miniature pilot wings. Today those wings are still awarded, but a pilot or instructor can receive bonuses by successfully participating: It procludes the need for accomplishing the biennial flight review (the implementation of the annual flight review (AFR) has been delayed until August 31, 1993), and some aviation insurance companies may soon offer incentives to participants.

For more information on the Pilot Proficiency Award Program, request Advisory Circular 61-91F from U.S. DOT, Utilization and Storage Section, M-443.2, Washington, DC 20590. ■

First row (top):
Phase I, Phase II, Phase III

Second row:
Phase IV, Phase V, Phase VI

Third row:
Phase VII, Phase VIII, Phase IX

ANOTHER LORAN-C UPDATE

by Dean Chamberlain
Associate Editor

As we said in an article titled, "LORAN-C Goes Public" in the November/December 1990 issue of *FAA Aviation News*, the first public LORAN-C approaches were authorized for use November 15, 1990. Then shortly after the approaches were published, they were NOTAM'ed out of service because there were no FAA-approved LORAN-C approach receivers available to fly the approaches. As of September 1991, there are still no FAA-approved LORAN-C approach receivers available, and the LORAN-C approaches are still NOTAM'ed out of service.

As we said a year ago, and it still applies today, the FAA is concerned that some IFR pilots will try to fly one of the out of service LORAN-C nonprecision approaches without an approach receiver. Until the FAA certificates an IFR LORAN receiver for approach use, it is illegal for any pilot to fly a LORAN approach in IFR conditions without one.

Most of the estimated 100,000-plus LORAN-C units installed in the general aviation fleet are limited to VFR use only. About 10 percent of the units are approved for IFR en route and terminal use. None of the current IFR models are FAA-approved for approach use. None of the current VFR use only or IFR en route and terminal use receivers meet the certification standards required for approach use, including being able to provide the quick in-flight warning needed for approach use.

The lack of an approved approach receiver poses a potential safety problem for some IFR pilots who, through ignorance, may try to fly one of the new approaches using only an IFR en route and terminal type receiver. This possibility will increase as the FAA develops more LORAN-C nonprecision approaches around the country.

Even when FAA-approved approach units become available, IFR pilots, especially renter pilots, will still have to be cautious. Each pilot should check either the aircraft's Flight Manual Supplement, Pilot Operating Handbook, or FAA Form 337, titled Major Repair and Alteration, to confirm the type of receiver installed and its operating limitations. Receivers not approved for approach use must be placarded with their respective limitations noted. But pilots should not depend upon a placard to determine what type of receiver is installed. Placards can and do fall off.

IFR pilots planning on using a LORAN unit in IFR conditions should be aware of two important items. An FAA-approved IFR receiver appropriate for the type of operation to be flown is required. And the unit's installation must be approved by a properly certificated installer for the aircraft to be airworthy. [Please note pilots using LORAN or any other type of RNAV system are responsible for ensuring their planned direct-flight route does not penetrate any kind of restricted use airspace, such as a terminal control area (TCA), airport traffic area (ATA), or airport radar service area (ARSA) without air traffic control (ATC) authorization.]

A brief history of LORAN-C may explain some of the reasons why it is important to have both an approved receiver and its installation approved before IFR operations. Originally, LORAN-C was developed for maritime navigation. As a result, many of the first LORAN systems installed in aircraft were designed for shipboard use. The maritime-use-only LORAN-C ground-based transmitters and receivers were not designed to provide a quick warning in the event of a transmitter or receiver problem. Slow moving ships and boats simply did not and still do not need such a warning. Aviators do need such a warning. A pilot flying an IFR LORAN approach must know immediately (if not sooner) if there is any LORAN system problems that could jeopardize flight safety. The problem could be a change in signal accuracy, a failed transmitter, or a failed receiver. Whatever the problem, the pilot must be informed in enough time to safely execute a missed approach. Although today's LORAN IFR en route and terminal models have a warning system, they and the current LORAN-C system can take up to 60 seconds to display a warning. That response time is still too slow for instrument approach use in a fast-moving aircraft. One of the requirements for an IFR-approach certificated receiver is that it must provide a warning within 10 seconds after receiving a signal "Blink" from the ground-based transmitter. Blink is a coded transmission which indicates that the LORAN signal is out of tolerance. Upon receipt of such a signal, the receiver provides a warning to tell the pilot the unit is receiving inaccurate navigational information.

This need for a quick system malfunction warning has been part of the problem of developing a national aviation LORAN-C system. In the past, the required warning signal could and was manually activated. The system worked fine, but it was too slow for approach use. One of the first requirements in upgrading the U.S. Coast Guard's maritime LORAN-C transmitters for aviation use was the need to provide for an automatic Blink signal. By the end of 1992, the FAA's Automatic Blink System should be operational.

Flight safety is also why a receiver must be properly installed in an aircraft. Since LORAN-C is a low-frequency system, it is subject to static interference somewhat like an ADF receiver. To minimize the potential problems that static can cause, the LORAN receiver must be installed using appropriate anti-static techniques to reduce the possibility of any static electricity problems. Such anti-static techniques include installation of static wicks and airframe bonding cables on the aircraft, which minimize the effects of static electricity. Electrostatic skin mapping of the aircraft may also be needed to help locate the antenna, further minimizing any possible static problems. The installer must also certify the LORAN system does not interfere with any other required navigation system in the aircraft. This is important because LORAN-C is *not approved as a sole-use navigation system*. It is a supplemental system. This means the route being flown must be based upon another navigation system, such as VOR or ADF, in case of a receiver or transmitter failure. Finally, the installed LORAN system must be flight-checked to ensure it meets established navigational accuracy standards for use in the National Airspace System.

USING LORAN-C

Flying a LORAN-C approach should be easy for most instrument-rated pilots, especially pilots who now fly RNAV approaches using VOR and distance measuring equipment (DME). The approaches are flown in much the same way. The only difference is LORAN-C does not require a VORTAC to define a waypoint. This means LORAN-C approaches, which are independent of local NAVAIDS, can be developed for small, remote airfields that in the past could not financially justify a VOR or NDB installation.

PREFLIGHT ACTION

There are a few things a pilot must do before flying a LORAN-C approach. First the pilot must know how to operate the LORAN receiver under adverse conditions. An approach in bad weather is not the place to learn how to operate the unit. Before getting in the aircraft, a pilot should verify the operation of the LORAN-C transmitter chain to be used for the approach. Pilots can check the status of the transmitter chain through the NOTAM system and by following the instructions in paragraph 1-17 of a current edition of the *Airman's Information Manual* (AIM). The AIM lists telephone numbers pilots can call to check on the status of each chain. The AIM also has additional information on LORAN-C, including how to file a LORAN-C flight plan. In addition to checking the AIM, during the preflight weather briefing each pilot should ask Flight Service if there are any LORAN NOTAM's for their route of flight. Pilots *must specifically ask* for LORAN NOTAM's because they are not normally provided as part of a briefing. Their identification code is LRN NOTAM's.

Cautious pilots should also check their receiver's operation before takeoff by taxiing to a known geographical point on the airport and comparing its coordinates with those being displayed on the receiver.

Before starting an approach, the pilot must select the *approach mode* on the receiver and input certain approach data into the receiver needed for the approach. Each LORAN approach chart will either have the required information on the chart or in the index if it is a NOS chart. The pilot must enter the Group Repetition Interval (GRI) number for the designated transmitter chain providing navigational information for the approach and any local correction factors, called Time-Differences (TD), for the approach. The GRI identifies which chain was used to certify the approach. The pilot must use the same chain for the approach to ensure good signal coverage and navigational accuracy. The pilot must enter the GRI because some receivers automatically select the chain with the strongest signal being received. The strongest signal may or may not be from the chain designated for the approach. The TD corrects for any local seasonal variations in signal reception that could affect the accuracy of the approach.

Once cleared for a LORAN approach, the pilot will fly the approach like any other non-precision approach with two notable exceptions. The first, instead of navigating from fix to fix, the pilot will fly from waypoint to waypoint. From the initial approach fix waypoint to the final approach fix (FAF) waypoint to the missed approach point (MAP) waypoint, the pilot will use waypoints throughout the approach procedure. At the MAP waypoint, normally at the threshold of the approach runway, the pilot will either land or execute the missed approach procedure to yet another waypoint.

The second exception makes the pilot's job easier because a waypoint, not elapsed time is used for the MAP. The pilot does not have to keep track of time, based upon groundspeed, from the final approach fix (FAF) to determine the MAP. By using a waypoint, LORAN saves the pilot this extra work during the critical inbound portion of the approach. Another benefit of LORAN-C is the constant navigational information it provides to a pilot during an approach. Constant updates of such pilot selectable information as bearing, range, speed, and time to a designated waypoint makes a LORAN-C procedure simpler to fly than most other types of nonprecision approaches. The pilot does not have to try to interpret heading and bearing information needed for a NDB procedure or wonder about the aircraft's location during a VOR approach. These benefits should make a LORAN approach easy to fly for the average pilot.

SYSTEM DEVELOPMENT

The first 10 LORAN approaches, although NOTAM'ed out of service, were the start of the FAA's development of a nation-wide LORAN-C navigation system. Since then the FAA has continued work on the system. In May, a dedication ceremony in El Paso, TX, commemorated the closing of the "Mid-continent Gap" in LORAN coverage within the continental United States. FAA has installed 196 signal monitors in VOR stations across the country to monitor the LORAN system. The monitors will provide data as the source of correction values published with approach charts to ensure the accuracy of LORAN-C during nonprecision approaches. The correction values, TD's, will adjust for seasonal errors that degrade LORAN-C accuracy. FAA continues work on the list of 500 proposed LORAN approaches throughout the nation which were recommended by the various states. If and when they can be approved, the approaches will be released for use as soon as the necessary FAA certification work and resources permit. ■

THIS IS LORAN-C

For pilots not familiar with LORAN-C, it is a self-contained, earth-based navigation system consisting of widely-separated, ground-based transmitter chains and airborne receivers. The powerful transmitters, a master and normally three secondary transmitters, located many miles apart, form a chain identified by their group repetition interval (GRI), a four-digit number such as the Southeast U.S. chain's 7980. The chains transmit time-dependent, low-frequency, 100-hertz signals, which airborne receivers use to determine the aircraft's position by comparing the time differences between the master and its secondaries' signals. A receiver with its built-in computer uses the time differences between the widely-spaced transmitter sites' signals to compute the aircraft's location. This information is normally displayed as longitude and latitude coordinates.

To navigate, the receiver computes a course from the aircraft's present position to a desired point, called a waypoint, such as a VOR or airport, and computes range and bearing to that point. The receiver constantly updates the information in flight and can provide such additional information as speed, estimated time of arrival, and tracking errors. The pilot then flies from waypoint to waypoint. Many units have the waypoint coordinates for such things as VOR's, intersections, airports and special use airspace built into their memory. The pilot then recalls the information as needed. For points not in memory, the pilot manually enters the waypoint's coordinates. When flying an approved IFR LORAN approach, the pilot will have to enter TD correction information for that LORAN approach into his or her IFR approach receiver to compensate for local seasonal variation in the LORAN signal, if the receiver does not have the current information stored in its memory.

Stories and Photos by Dean Chamberlain
Associate Editor

AIRSI

Where FAA's Flight Standards Service Lives up to its Name

We all know the Wright Brothers' first powered, controlled, and sustained flight was at Kitty Hawk, NC in 1903. We also know from photographs taken that day that spectators were present. Normally where you find aircraft, although in this case only one, and a few spectators with cameras, you have the ingredients for an airshow. The question is, was that first Wright flight also the first airshow? If it was the first show, did the Wright Brothers maintain the FAA-required 500-foot minimum separation distance between their airshow Category III aircraft (less than 156 knots cruise speed) and the designated primary spectator area? What type of crowd control line was used to keep the spectators back from the performance area? Did Orville wear a parachute? Did an FAA airworthiness inspector do a safety check on the aircraft before the first "show performance?" Since Orville's flight was a "low-level demonstration," did he have an FAA Statement of Aerobatic Competency without an altitude restriction? These are only a few of the unanswered questions from that "first airshow flight." Since some authors say the Wrights were lucky to have flown that morning, maybe at that historic moment in aviation history getting off the ground was their most important concern.

A lot has changed since that first flight. One change was the establishment of the FAA. Now eighty-eight years later safety is the single most important FAA concern at an airshow. The change in airshow safety priorities since 1903, and the role the FAA and the airshow industry share in ensuring airshow safety is the subject of this article.

History books and old newsreel clips show that soon after the Wright Brothers' first flight the fledgling airshow business took off and caught the fancy of the American public. The public's romance with aviation continued during World War I. Dashing young heroes in their flying machines over the Western Front were the envy of all. The public's love affair with aviation continued after the war. At the center of the affair were the returning military pilots who bought surplus training aircraft in the hope of making a living in aviation. The rough and tumble barnstorming days of the 1920's and 1930's had begun.

Aviation has changed since those First World War veterans flew around the country giving impromptu airshows. During the shows, many of the pilots relived their exciting war days as they performed death-defying acts of aerial "combat" against their friends fighting as the "hated" Hun in Fokker Tri-planes. Wing walkers and parachutists added to the excitement at many of the shows. Those performers are gone, but the acts they made famous are still being performed. Gone though are the days when a pilot could just fly into a town and do an impromptu airshow from a farmer's field, and gone too are the days when daredevils and stunt pilots could disregard safety to thrill a crowd.

Today, the airshow industry is still as exciting as it was during barnstorming's heyday, but unlike the shows of yesteryear, the airshow industry of today is a very specialized business. Today's airshow performers are highly skilled professionals who, using specially designed aircraft, perform their aerial magic in FAA-designated aerial arenas. The following information provided by one of the industry's major groups, the International Council of Air Shows (ICAS), gives you an idea how large the airshow industry is. ICAS estimates more than 22 million people attended 333 scheduled airshow events this year. Those 22-plus million spectators watched some 251 performers give an estimated 3,195 performances. Each performance averaged about 12 minutes. During an average airshow season those 12-minute performances total some 600 hours of loops, rolls, spins, snap rolls, Cuban Eights, and other types of exciting, crowd-pleasing, aerobatic maneuvering. The airshow business also has its social responsibilities. ICAS estimates those 333 airshows raised about $22 million dollars for charity this year.

Only a few of those 22-plus million spectators watching the airshows have any idea who or what organization is responsible for promoting and regulating safety within the airshow industry and assuring that safety standards protect both spectator and performer. That responsibility belongs to the men and women assigned as FAA Flight Standards aviation safety inspectors (ASI's) at each Flight Standards District Office (FSDO) across the country. Coordinating Flight Standards' efforts and working closely with the airshow industry is its National Airshow Coordinator, Mr. Ronald Myres, at FAA headquarters in Washington, DC. Mr. Myres oversees nine regional flight standards airshow coordinators across the country. Each year ASI's spend hundreds of hours working with airshow sponsors and performers across the country ensuring their compliance with the special airshow provisions designed to protect both the public and the performers. ASI's also monitor every airshow performance to ensure that the FAR are being complied with

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HOWS

The Eagles Aerobatic Flight Team-Charlie Hillard, Tom Poberezny, and Gene Soucy-in a classic maneuver at the Cleveland National Airshow.

as well as any special procedures for the show. ASI's, both airworthiness and operations inspectors, work to protect the public's and performer's safety at those 300-plus airshows each year.

How they fulfill their responsibilities was evident at the Cleveland (Ohio) National Airshow held over the Labor Day weekend. The work of the Cleveland FSDO inspectors assigned to the show was especially significant this year because Soviet MiG 29 fighters flew at Cleveland for the first time. The Soviets' language skills and limited knowledge of U.S. airshow procedures presented an interesting challenge for the FAA show monitor Mr. Phil Steele. Working with both the Soviet interpreter and pilots, he held a special briefing for them to make sure they understood the operating procedures at Cleveland. This briefing by Mr. Steele was in addition to the normal pilot briefing conducted by airshow officials. The MiG's presence at the show was one small reminder how our world has changed in the last few months. Although our relationship with the former Soviet Union has changed over the years, the FAA's concern for airshow safety has not. ASI's from the Cleveland FSDO were on hand before and during the show to help resolve any problems or questions the airshow sponsor or participants might have about the FAA's airshow safety requirements.

Although the FAA sets the standards for airshows, the actual operation of an airshow is the responsibility of the airshow organizer. The following is a brief outline of some of the steps required in organizing an airshow.

Once an organization decides to hold an airshow, someone from the group needs to contact their local FSDO to start the application process. The request should be submitted as early as possible before the desired show date to allow time to complete all of the requirements. FAA Advisory Circular (AC) 91-45C, *Waivers: Aviation Events*, outlines the procedures and special requirements for airshows. An ASI from the FSDO will be assigned to work with the organization. In most cases the airshow request will be approved with whatever modifications, called special provisions, that are needed for safety. In a few cases, an event may not be approved because no matter what special provisions are provided, the event cannot occur safely. The reasons are varied: proximity of congested areas, tall obstructions, busy positive control airspace, etc. Normally once an event has been approved by the FAA, the same ASI working with the show organizers will also monitor the show to ensure the organizer complies with all applicable FAR and the special provisions. All of the special provisions needed to ensure safety will be listed in the FAA Certificate of Waiver issued for the show. The waiver with its special provisions provides an equivalent level of safety for the performers, spectators, and public during the effective period of the waiver, anywhere from a few hours to several days. If the show organizer fails to enforce the non-waived FAR and/or the applicable special provisions, the FAA show monitor has the authority to stop the airshow at any time safety has been compromised. Show monitors do not want to or like to stop a show, but they will if the required safety standards are violated and the public is endangered. Show monitors and other supporting ASI's would rather work with the show organizers, performers, and community leaders to ensure a successful show than stop or deny one. ASI's are there to help, not hinder.

There is a limit to the amount of help an ASI can do at an airshow. Mr. Robert Harris, a veteran ASI at the Cleveland FSDO, said it is important for ASI's and airshow organizers to remember ASI's are only responsible for FAA-related areas of concern at a show. ASI's cannot become involved in non-FAA issues such as setting admission charges or scheduling performers. FAA support is limited to the technical aspects of ensuring safety and compliance with the FAR, not the operation or management of the actual program.

Although ASI's were present at Cleveland during show week, their involvement started long before the first aircraft ever took off in front of the crowd at Burke-Lakefront Airport. Working together, the professionals from both the airshow industry and Flight Standards strive to preserve the excitement and daring of the old-fashion airshow while ensuring safety. Their challenge is to protect both the performers operating some of today's hottest aircraft within some of the most complex airspace in the nation and with spectators in proximity. They did their job at Cleveland.

The Cleveland National Airshow was both exciting and safe. The same industry/FAA cooperation demonstrated at Cleveland each year is repeated at hundreds of airshows, large and small, across the country during each airshow season. Although Cleveland is one of the largest and most famous airshows in the country, the FAA procedures used at Cleveland are typical of those used throughout the country. The following is a brief outline of some of the duties the airworthiness and operations inspectors assigned to the Cleveland FSDO did to support the airshow. The duties of the airworthiness and operations inspectors assigned to the show can be broken into three primary areas. Those areas relate to the performers, their aircraft, and the show site and organization.

THE PERFORMERS

Pilots make up most of the performers at airshows, but they are not the only performers. Pilots can generally be placed in one of three categories depending upon the type of flying each will do doing during a show. The first category is for those pilots who basically fly straight and level during a show using normal maneuvers. Typically they perform flybys or some other type of non-aerobatic flight maneuver or demonstration during a show. Their type of flying is designed primarily for displaying their aircraft in-flight to the crowd. The second category for pilots is for military pilots flying DOD aircraft. They may do anything from a flyby to a high-performance aerobatic demonstration in the latest DOD aircraft. The third category of pilots is for what many consider the professionals of the airshow industry. They perform some type of low-level aerobatic maneuver or demonstration during the show. Because they fly low-level aerobatic maneuvers they must meet additional FAA pilot requirements before being permitted to fly a low-level aerobatic performance at a show. Many of these pilots fly corporate-sponsored aircraft and travel from airshow to airshow during the season.

All pilot performers except military pilots are checked by an ASI before being allowed to participate in a show. Each pilot must have an appropriate pilot certificate and current medical. Military pilots flying a Department of Defense approved demonstration are certified by their military command as being competent to perform their DOD-approved routine. This approval procedure applies to all DOD-sanctioned demonstration teams, such as the U.S. Air Force's "Thunderbirds," the Navy's "Blue Angels" flight demonstration teams as well as the Army's "Golden Knights" and the Navy's "Leap Frogs" parachute teams. Each year FAA reviews the DOD-teams' proposed package of planned maneuvers for the upcoming show season. Any potential safety problems are resolved by the FAA and DOD before the airshow season starts.

Low-level civilian aerobatic pilots have special certification requirements. In addition to being properly certificated and rated for the aircraft in which they will perform, they must also have a current FAA Form 8710-7 in their possession. The form, a Statement of Aerobatic Competency, is issued by an operations ASI before the performer's first participation in an airshow. Once issued, the certificate is updated periodically to ensure continued low-level competency.

In the past aspiring low-level aerobatic pilots who wanted a competency statement had to demonstrate their proposed aerobatic routine to an ASI before being allowed to participate in an airshow. Based upon the applicant's knowledge of aerobatics, factors effecting safe aerobatic flight, knowledge of the aircraft and its limitations, and other requirements needed for the certificate, the ASI then issued the statement with whatever safety limitations and restrictions that were needed based upon the applicant's experience level. One such common limitation was and still is a low-altitude restriction. The restriction limits a new performer from descending below a specified minimum altitude above ground level (AGL) until a specified number of performances have been satisfactory completed and witnessed. The first such restriction may limit descent below either 800 or 500-feet AGL minimum altitude until the pilot gains the required airshow experience. After the required number of performances at different sites, the altitude restriction may be reduced to 250 feet AGL or even eliminated by an ASI witnessing the last required performance.

Under this system as FSDO workloads increased, ASI's found they could not serve airshow performers in a timely manner, so FAA instituted a program using specific designees, called Aerobatic Competency Evaluators. The evaluators, qualified and current airshow performers, observed a performer's routine and issued the performer a letter recommending the FAA give the performer the Statement of Aerobatic Competency. The evaluator would also recommend what limitations, if any should be placed on the Statement of Aerobatic Competency. However, there was virtually no participation in the program and a high accident rate among performers in the 1990 airshow season prompted a re-evaluation of the program.

From top to bottom:
Cleveland Airshow performers get briefed on the show site and terms and conditions of the airshow waiver.

FAA Operations Inspector Robert Harris (left) of the Cleveland FSDO inspects performer Leo Loudenslager's statement of aerobatic competency before his scheduled performance.

A Soviet MiG 29 gets slowed by its drag 'chute after its breath-taking performance.

The industry partnership between the airshow business and the FAA concerning evaluation and certification of airshow performers is probably the best example of government and industry collective decision-making. The FAA could have reacted to last year's aberrant airshow performer accident rate by resuming all performer evaluations itself; however, that was neither practical nor feasible given the positive attitude of the airshow industry toward reducing accidents. In cooperation with the airshow industry, FAA has revised the evaluator program. The program now uses a peer review process based on standards designed by actual performers in conjunction with FAA personnel. Now instead of the FAA appointing an evaluator, the airshow industry itself determines the performer's evaluator. That evaluator can also recommend removal of an altitude restriction from a performer's certificate after witnessing the last required performance. By using the flight skills and knowledge of current industry aerobatic professionals, the evaluator program makes it easier for an applicant to be tested and certificated. The program has received wide industry support, including that of ICAS.

As we said earlier, pilots are not the only performers at an airshow. Wing walkers and parachutists participate at many shows. Neither group is certificated by the FAA. Although wing walkers are not required to be certificated, their act and aircraft safety procedures are approved as part of the FAA's waiver process. Wing walkers and other specialty flight acts follow all of the same Flight Standards safety guidelines for the airshow as the aerobatic acts do. Parachutists must be certificated by one of the national parachute organizations before they can participate in an airshow. The jumpers' level of certification determines what type of jump they may make, where they may exit their aircraft, and the location of their landing site in relation to the crowd line at the show. To ensure that all performers have the appropriate certificates as required, ASI's meet and talk with each performer at a show to ensure compliance with and knowledge of the FAR, the airshow waiver, and any other industry requirement. In general, ASI's ensure each performer has the appropriate certificates required, has the appropriate medical certificate if one is needed, and that each participant understands and can comply with both the operating restrictions for the show and their own personal restrictions.

THE AIRCRAFT

No matter how competent the performer, he or she is only as "safe" as the aircraft or vehicle used during the performance. It is the responsibility of the airworthiness ASI's to ensure the properly certificated performers and pilots perform in safe aircraft. Like pilots, airshow aircraft can be put into different categories based upon how the aircraft will be used. Aircraft can be used either for static display or flight demonstration purposes. Some aircraft are used for both purposes. Typical types of aircraft at larger shows may include vintage civilian and military aircraft, ultra-light vehicles, aerobatic aircraft, and some of the latest creations from DOD and commercial aviation. Cleveland had examples of both "old" and "new" aircraft. The "old" was represented by a vintage Continental Airlines' DC-3 from the Continental Airlines Historical Society. The "new" were represented by an U.S. Air Force stealth fighter flyby as well as by the presence of a Beech *Starship*. Although people like to see both vintage and futuristic aircraft at airshows, most people go to airshows to watch and admire the aerobatic pilots demonstrating their flight skill and an aircraft's design limits through precise, heart-stopping maneuvers. Because of the stress and flight loads these high-performance aircraft experience during their routines, these aircraft were all checked by Flight Standards' airworthiness inspectors before the show.

Like pilots, the various types of airshow aircraft have their own categories and inspection requirements. Static display aircraft have no special FAA inspection requirements. Airworthiness inspectors inspect them like any other aircraft at the airport during the course

Above:
Cleveland FSDO Airworthiness Inspector Robert Taylor checks out a Christen Eagle.

Below:
Ken Shauman (right), also an Airworthiness Inspector from the Cleveland FSDO, works with Byrd Mapoles, pilot of a wing-walker aircraft, in assuring the Stearman 450's airworthiness records are ship-shape.

Continental Airlines Historical Society's vintage DC-3 proved to be a popular attraction on static display and during its fly-by. FAA inspectors enjoyed the sight as well.

of the show. Military aircraft airworthiness, like military pilot competency, is a DOD-command responsibility. Their DOD crews ensure their airworthiness. All other performing aircraft, including vintage military aircraft, are inspected. The ASI's start their checks by reviewing each aircraft's registration, airworthiness certificates, and maintenance records with its pilot. Next, the ASI's inspect the aircraft. According to Mr. Ken Shauman, one of the four ASI's checking airshow aircraft at Cleveland, the inspectors' checks include the aircraft's controls and their surfaces, control cables or operating means, the aircraft's fabric or covering for signs of overstressing such as tears, deformation damage, or some other indication of damage to the covering or sub-structure, and other such checks to ensure airworthiness. Basically the inspectors perform a very detailed preflight inspection using their airframe and powerplant rating experience to check the aircraft for safety. They also check for compliance with applicable configuration changes listed in the aircraft's records and FAA Form 337. Modifications such as attached cameras, wing-walking mounts, and other such special modifications needed for an act are also checked. If there is a problem with any aircraft the ASI's do their best to correct the problem. In one case, Mr. Shauman worked overnight to issue an experimental airworthiness certificate for exhibition purposes for one aircraft to ensure it complied with the FAR and to make sure it would be in the airshow. His effort was an example of how inspectors work with the performers and the industry to make sure the show goes on, but goes on in compliance with the FAR.

THE SHOW SITE

We have discussed some of the performers' requirements and some of the airworthiness checks done on airshow aircraft. Now we will discuss the airshow site, and the process needed to request FAA approval of an airshow. FAA approval is granted by the Certificate of Waiver commonly called "the waiver," we talked about earlier. The waiver grants FAA approval for a specific organization to hold an airshow at a given site on a given day or days with specific performers doing designated maneuvers in a reserved block of airspace. The waiver can best be described as the airshow on paper. The nontransferable waiver states in part, "This certificate is issued for the operations specifically described hereinafter. No person shall conduct any operation pursuant to the authority of this certificate except in accordance with the standard and special provisions contained in this certificate, and such other requirements of the Federal Aviation Regulations not specifically waived by this certificate." The waiver further states, "This certificate constitutes a waiver of those Federal rules or regulations specifically referred to above. It does not constitute a waiver of any State law or local ordinance." The form also states the holder of the waiver is responsible for complying with all of the terms in the waiver. Finally, the waiver says it can be canceled at any time by the FAA Administrator or his authorized representative. Normally the FAA show monitor is the authorized representative. This is the provision the FAA uses to stop an airshow if there is a safety problem. We have listed some of the standard provisions listed on the waiver, but what does it all mean? Why does an airshow require a waiver in the first place?

The FAR specifies certain operating standards and requirements for both pilots and aircraft within U.S. airspace. Examples of these requirements include types of pilot certificates, minimum altitudes, aircraft speed limitations, types of operations permitted within airport traffic areas, within TCA's and other such operating areas, and operations near and over open assemblies of people. The Certificate of Waiver waives certain sections of the FAR during an airshow. To protect non-participating aircraft during the time the waiver is in effect, which can include both the actual airshow or practice time for the show, the show's designated block of airspace will be described in a NOTAM during the show's authorized times. (This is why all pilots planning on flying in the area of an airshow

Continued on inside back cover

From top to bottom:
Flight Operations Manager Dan Alspach (left) confers with FAA Inspector-in-Charge Phil Steele of the Cleveland FSDO. FAA, sponsor, and performer cooperation assured a safe, enjoyable show.

Airshow officials and FAA inspectors observe the show from a central observation point. Airshow managers can contact performers or ground personnel via radio to keep them apprised of conditions that might affect performance safety.

An inverted Christen Eagle races Less Shockley's jet-powered truck, "Shock Wave." Can you tell who won?

Famous Flights

In the beginning there were the Blanchards

Jean-Pierre and Madeleine Blanchard

by Louise Oertly
Associate Editor

The dream of flight began in ancient times, but it was not until the late 18th century when the Montgolfier brothers' balloon experiments got aviation off the ground (if you will excuse the pun). Others were intrigued that flight was possible, and men like Charles and Pilatre de Rozier soon gained fame as aeronauts, but most say the title of the first "professional" balloonists goes to the name Blanchard.

Jean Pierre Blanchard was born on July 4, 1750 to a poor family in Les Andelys, Normandy. He inherited mechanical ability from his father, who was a combination carpenter, gunsmith, and machinist. At the age of 16 he built a four-wheeled forerunner of a bicycle called a velocipede, and four years later experimented with a "Vaisseau Volant" or "Flying Ship." It consisted of a set of pedals and two hand levers connected to four flapping wings, and it never got off the ground. By the time he was 29 years old he was a professional engineer and designed the hydraulic system to raise water 133 meters from the Seine River to Chateau Gaillard. With this type of background, his becoming involved with ballooning, or levitation as it was called then, is not surprising.

Blanchard's 25-year career would take him to nine different countries. His initial flights were in France and England with sponsors paying for the privilege of being a passenger. One of these sponsors was Dr. John Jeffries, who would later finance the first balloon flight over the English Channel. Blanchard did not like to share the limelight and tried several tricks, including a lead vest, to make sure Jeffries would not be on the flight. Needless to say all his tricks failed and on January 7, 1785, both men successfully completed the crossing. From here Blanchard toured Germany, Holland, Belgium, Switzerland, Poland, and Austria, where his European tour was cut short in 1792. Austrian officials arrested him on suspicion of spreading radical doctrines of the French Revolution. Lacking proof (although the consensus is he probably was) the officials released him, and Blanchard immediately set his sights on the United States for his next ballooning tour which would last five years.

Blanchard's dreams of financial success with ballooning did not come true. In fact, at the end of his American tour tragedy struck. A tornado destroyed the Balloon House where Blanchard stored his equipment and workshop; however, he lost more than just equipment. His 16 year-old son was on the roof of the building when it was struck and died of his injuries several days later. Blanchard would return to France after this and within a year also lose his wife, Victorie. Blanchard, himself would die in March of 1809, after suffering a debilitating heart attack the year before.

Mentioned in the first paragraph was that the first professional balloonists were the Blanchards. Jean Pierre Blanchard would remarry in 1798. Marie-Madeleine Arment was an 18 year-old admirer. Although what she found to admire in a man 30 years her senior and described by his contemporaries as humorless and mean-spirited, an "unpleasant creature—petulant little fellow not many inches over 5 feet and physically suited for vaporish regions," is a mystery.

Her husband once said to her, "My poor dear, when I am dead I fear you will have no other resource than to throw yourself into the water." Little did he realize the success she would achieve after his death, performing before emperors and kings (Napoleon's marriage in 1810 and Louis XVIII's return to Paris four years later). Madeleine Blanchard would become the best-known woman balloonist of her day, although the honor of being the first woman to pilot her own balloon goes to Jeanne Labrosse, who later married French balloonist Andre Jacques Garnerin.

Madame Blanchard was described as extremely petite and timid on the ground (she refused to ride in carriages fearing they would overturn), but fearless in the air. She made her first solo flight in 1805 using a gondola that was specially made for her petite size and looked too light and fragile to withstand flight. It was described as a child's cradle, and she used it as a bed when she made overnight flights. Most of her flights were in the evening when the winds were calmer and were often illuminated by pyrotechnics dropped from her balloon. Unfortunately, this bit of showmanship would eventually be her downfall. On July 7, 1819, she was thrilling the crowd at Tivoli Gardens in Paris with airborne fireworks, when she accidentally ignited the hydrogen gas escaping from the balloon. The crowd below applauded the spectacular fireworks display until they realized it was not an act. She was desperately fighting the fire, when her balloon hit a rooftop. The gondola overturned, plunging her to her death in the streets below.

It is ironic that the man who disliked sharing the spotlight would one day have to share the place of honor with his own wife. To balloonist the name Blanchard conjures up the image of *both* Jean Pierre and Madeleine. ■

Photo Courtesy of HAI

Columbia Helicopters' Boeing 234 dispenses a load of water during a recent forest fire in California.

HELICOPTER HEIGHT — VELOCITY CHARTS

by Ed Robinson
Aviation Safety Inspector

One of the least understood portions of information published in rotorcraft flight manuals is the height-velocity (H- V) chart. A helicopter pilot must become familiar with this chart before operating a particular helicopter.

Basically, H-V charts describe the altitudes and airspeeds, as demonstrated by the manufacturer, that are required for a helicopter to make a safe power-off autorotative landing in case of a complete and instantaneous failure of the engine. For multiengine helicopters, the chart applies for single engine operations only if the rotorcraft is designed with engine and associated system isolation features specified in FAR Part 29 for Category A operations. Conversely, the chart can be used to determine those steady-state altitude-airspeed combinations from which it would likely be nearly impossible to complete an autorotative landing successfully. The altitude-airspeed combinations that should be "avoided" are usually represented by shaded areas on the chart. (Figure 1)

Enter the chart from the left on the "indicated altitude feet" scale using the aircraft's skid height above the ground. Then enter the chart from the bottom on the indicted air speed scale using the aircraft's indicated airspeed. The chart assumes skid height and airspeed are at a constant altitude and airspeed and an engine failure that is complete and instantaneous. If the lines intersect in a shaded area, it would be nearly impossible to complete all the required transitions from powered to autorotational flight before the helicopter would be at ground level therefore making it nearly impossible to complete an autorotative landing successfully. An established autorotational glide through either shaded area is much less hazardous, and the likelihood of completing a successful power-off landing is increased because most of the transitions from powered to autorotational flight have been accomplished and the aircraft is in a controlled, stabilized descent.

The FAR describe certification requirements for rotorcraft in FAR Parts 27, for normal category rotorcraft (6000 pounds or less gross weight), and 29, for transport category rotorcraft (more than 6000 pounds gross weight). Restricted category rotorcraft are certificated in accordance with FAR Part 21.

Normal category rotorcraft, for the most part, have H-V data published in the performance section of the rotorcraft flight manual (RFM) while transport category rotorcraft have H-V data published in the FAA approved limitations section of the RFM. (Amendment 29-21 of FAR Part 29 permits manufacturers to relocate H-V data to the performance section of the RFM for transport category rotorcraft weighing less than 20,000 pounds and with nine or fewer passenger seats.) Restricted category rotorcraft will have all applicable limitations prescribed individually during certification. As an example, surplus U.S. military helicopters that are certificated in the restricted category will normally adopt operating limitations, including H-V data, from the military RFM.

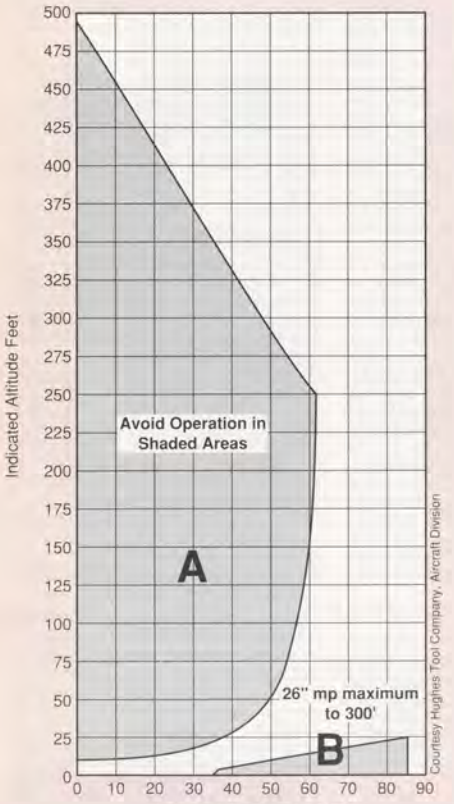
In the past, the FAA has issued supplemental type certificates to individual transport category rotorcraft that conduct unique operations in order to move the H-V data from the limitations section to the performance section of the RFM.

FAR § 91.9 requires aircraft operators to adhere to all information in the limitations section of the RFM. (Data published in the performance section of the RFM is informational only for flight operations conducted under FAR Part 91). When the chart is in the limitations section of the RFM, helicopter operations conducted within the "avoid" area of the H-V chart are in violation of the FAR. When the H-V chart is in the performance section of the RFM, operating within the "avoid" area of the chart is not a violation of the FAR but proof of such operations may be used to substantiate violations of other FAR, such as FAR § 91.119 or § 91.13.

Rotorcraft external-load operators are certificated in accordance with FAR Part 133 and many make their living by operating within the "avoid" region of the H-V curve. While operating as a "flying crane" they hover a hundred feet or more out of ground effect while placing objects in locations not easily accessible by ground cranes. They accept and manage this risk and have demonstrated an excellent record of safe flight operations. Additionally, the operating rules of FAR Part 133 provide for an equivalent level of safety to non-participating members of the public who might be exposed to rotorcraft external-load operations.

Before certification, rotorcraft external-load operators who operate normal or transport category rotorcraft must prepare a rotorcraft-load combination flight manual which the FAA approves. This manual supplements and, in some cases, replaces information found in the manufacturer's RFM during rotorcraft external-load operations. FAR § 133.47 states that H-V data need not be listed as an operating limitation in the rotorcraft-load combination flight manual. This provision of the rule gives certificated rotorcraft external-load operators the necessary relief from H-V chart limitations. ■

Editor's Note: Mr. Robinson is a specialist in the Operations Branch, General Aviation and Commercial Division, Flight Standards Service, in FAA's Washington Headquarters. He is also Chairman of the Rotorcraft Task Force (ROTAF), an open forum for the public and private sectors to discuss issues of common interest concerning rotorcraft. He also authored "Helicopter IFR" in the September/October 1991 issue.



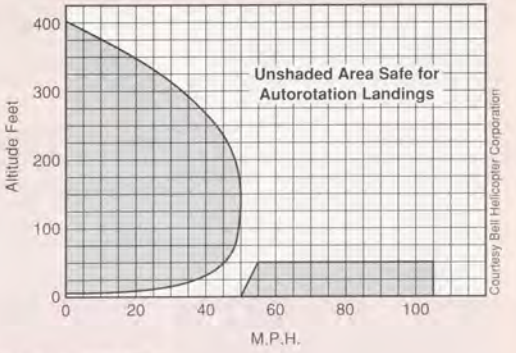


Figure 1 - Airspeed vs. altitude limitations charts.

No, your eyes are not playing tricks with you. This article is in a larger typeface. We would like to have your comments on whether the entire magazine should go to this larger typeface or remain as is. Our address is FAA AVIATION NEWS, AFS-810, Washington, DC 20591. Thanks for your input.

• First Comes Focke

Didn't Professor Heinrich Focke design the Focke-Wulf Fw 61 which flew in 1936 and the German military had a number in operation in World War II. The counterrotating rotors were powered and the helicopter could lift off vertically. It predated Sikorsky and Piasecki's helicopters by a few years.

G. Emrys Evans
Sidney, BC

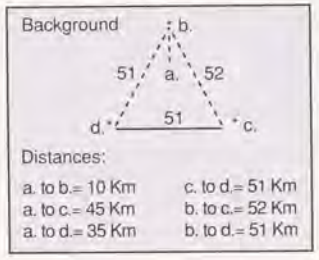
Your informant was correct. The twin-rotor Focke-Wulf Fw 61 was the first entirely successful helicopter in the world. It made its first free flight on June 26, 1936, but was not commercially producted. Sikorsky designed and built the first successful helicopter outside Germany in 1939.

• Logging Crosscountry Time

If a student pilot flew from point A to B to C to D and back to A (see diagram), would this count as a crosscountry flight working toward a private pilot certificate? We all agree that if a student flew from point B to C to D and back to B, this would count toward the crosscountry requirement. At a recent annual Pilot Examiners meeting we were told not to accept the crosscountry proposed in the question for none of the points were 50 nautical miles from the original departure point (A). I contend that the pilot just change his departure point to one of the points that make it legal, however this was not satisfactory to the inspectors conducting the meeting.

W. Ken McCoy
Fircrest, WA

FAR § 61.109 (b)(2) requires ten hours of crosscountry flights, each flight with a landing at a point more than 50 nautical miles from the original departure point. Since, in the example cited, point A (departure point) is not 50 nautical miles from the other points, it does not meet the requirements and therefore cannot be credited as crosscountry flight time.



• CVR Requirement

I have a question about the new regulation on cockpit voice recorders. The new regulation says something to the effect that turbine-powered aircraft requiring two pilots and having six or more passengers seats must have the recorders. Twin turboprops (King Airs, Cheyennes, Conquests, Aero Commanders, etc.) are all single pilot planes but if flown IFR under FAR Part 135 they require either a working autopilot or two pilots.

Some Flight Standards District Office (FSDO) people have been saying that because they require two pilots for Part 135 (at least potentially) that this means they need recorders if they operate under Part 135. Is this true?

R.D. Kantrud
New Brighton, MN

Yes and no. FAR § 135.151, Cockpit Voice Recorders, outlines the requirements for voice recorders. The rule states in part, "After October 11, 1991, no person may operate a multiengine, turbine-powered airplane or rotorcraft having a passenger seating configuration of six or more and for which two pilots are required by certification or operating rules unless it is equipped with an approved cockpit voice recorder. . . ."

In your example, the key phrase is ". . . for which two pilots are required by . . . an operating rule." FAR § 135.101 requires two pilots for flights conducted *only* under IFR. FAR § 135.151 would require the example aircraft to be equipped with a CVR to conduct IFR flight. If the FAR Part 135 certificate authorizes the use of an autopilot in lieu of a second in command (FAR § 135.103), two pilots are not required and, therefore, a CVR is not required. In this case, no IFR flights could be made *without* an operative autopilot unless the aircraft was equipped with a CVR. In other words, the aircraft could not be flown under IFR with a second pilot in lieu of the autopilot as is now a common practice if the autopilot is inoperative.

• Short and to the Point

In your January/February 1991 "FlightFORUM" your answer to the "Third Class Flight Instruction" question, although a wealth of information, did not answer H.B. Addington's question. Simply put, "Can a flight instructor give flight instruction for 'pay' with a third class medical?"

Albert A. Sozio, CFII
Foxboro, MA

Affirmative.

• Address Unknown

I tried to get a copy of the FAA Aviation Forecast-Fiscal Years 1991-2002 (Document number FAA-APO-91-1) report discussed in the May-June 1991 issue. The post office returned my letter for lack of a complete address. Can you print the complete address for ordering the document?

Richard Morton
Aspen, CO

The publication and other FAA technical reports can be ordered from the Department of Commerce, National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161. The NTIS telephone number is (703) 487-4650. If you do not have a technical report's stock number you can call the NTIS Title Identification Office at (703) 487-4780.

INSTRUMENT CORNER

• Check Ride Check

I have been told that an instrument instructor Airplane check ride does not count as an Instrument Competency Check. However the Practical Test Guide for Flight Instructor Instrument states that satisfactory performance, (item 5. page x in the introduction) includes demonstration of the required procedures and maneuvers to the Commercial Pilot Skill Level. If that is the case would not a Flight Instructor Instrument check ride count as an Instrument Competency Check?

James Burke
Seattle, WA

Affirmative. The Instrument Flight Instructor applicant must demonstrate instrument flight skills to the instrument rating level. That skill-level demonstration meets the requirement for an instrument competency check.

FAA AVIATION NEWS welcomes comments from our readers. Letters may be edited for style and length. We will not print anonymous letters, but we will withhold names on request. Address: FAA AVIATION NEWS, AFS-810, Washington, DC 20591.

THE ACCIDENT CLIMATE DURING A RECESSION

Aviation is an exciting field to work in because, just when you have achieved stability, you are proven wrong. This is true not only in flying the aircraft, but also in managing your aviation business or, in the case of government, providing services and monitoring the system. What looked like healthy boom times for air transportation over two years ago has changed to cautious pessimism today.

The recession we now are experiencing is typical of the "boom or bust" cycle in aviation—the job that looked secure last year has now led us to the Unemployment Insurance Office. For those of us who have had to register for unemployment upon layoff, the romantic illusions about flying are permanently tarnished. Standing in the line-up wearing your blue uniform with the gold stripes (as one or two of my colleagues once did), behind the construction worker in the hard hat, you are about to undergo one of life's more humiliating experiences.

You are likely to find that in the field of unemployment insurance benefits, "commercial pilot" or airline pilot" is not on the list of job possibilities. The only time I ever saw a pilot's job offered at an unemployment office, it called for an "ultralight" aircraft instructor, at a wage of $20.00 per hour, but you had to weigh less than 170 pounds.

The message from the person behind the desk will be: "Don't call us, we'll call you. By the way, do you have a chauffeur's license?" Many a laid-off pilot has put food on the table driving a "hack" or driving nails on a building site. Some have even resorted to selling computer software.

If you are an aviation manager or CEO, these are the times when your banker calls to discuss the company's overdraft and Revenue Canada (or the IRS in the U.S.) sends a letter inviting you to remit your quarterly taxes or suffer the consequences. Most of us have read the newspaper stories of aviation companies struggling for survival in the face of rising fuel costs and reduced passenger loads.

In government service the invariable cry is "do more with less." User charges increase for aviation services, and ways are sought to reduce or eliminate services where demand is low. Aviation users and their communities do not like to see the loss of facilities—any attempt to shut down navigation aids, close towers, or eliminate weather services is met with citizen opposition.

The harsh fact is that recession hits all of us, whether public or private, and creates a climate where accidents may occur. For the aviation industry, the climate of recession creates a chain of conditions, the final link of which may be an aircraft accident. The following are examples of such conditions:

- Low morale due to dashed expectations—no job and no advancement
- Increased stress to perform—productivity goes up along with fatigue, which will ultimately reduce productivity
- Management distraction—safety issues are lower priority than economics
- Maintenance—don't fix it until it breaks; if it hasn't broken, don't worry about it
- Increased family conflict, and stress-related illness
- Greater propensity to substance abuse

Many of the above conditions are present in good times, too, but in recessionary periods personal and management defenses against stress are weakened. Anxiety, whether free-floating or explicit, is a dominant emotion in recession and often leads to poor decision-making. The tendency to cut corners is strongest when the demand is highest, and recession causes all of us to bear down harder, with adverse impact on system safety.

Reprinted Courtesy of the Aviation Safety Letter, *Transport Canada - Aviation, Systems Safety Directorate.*

STILL BOLDLY GOING WHERE NO ONE HAS GONE BEFORE

FAA Aviation News wishes the crew of NCC-1701A, *U.S.S. Enterprise*, continued success after 25 years of voyaging the cosmos and expanding our imaginations. *FAA Aviation News* highlighted the ground-breaking science fiction program as a "Famous Flight" on its 20th anniversary. See the September/October 1986 issue.

FUEL REMAINING DEFINED

All pilots should be aware of a new term added to the Pilot/Controller Glossary in both the *Airman's Information Manual and the Air Traffic Control Manual.* Both documents now include the term "Fuel Remaining" and its definition. "Fuel Remaining" is defined as, "A phrase used by either pilots or controllers when relating to the fuel remaining on board until actual fuel exhaustion. When transmitting such information in response to either a controller question or pilot initiated cautionary advisory to air traffic control, pilots will state the *approximate number of minutes* the flight can continue with the fuel remaining. All reserve fuel *should be included* in the time stated, as should an allowance for established fuel gauge system error."

HELPING SET THE MEDIA STRAIGHT

Pilots do not like reading about aircraft accidents in their local newspapers or journals or seeing news footage of them on the evening news. There are several reasons for this. Any aircraft accident is bad news for all of aviation, but what is more frustrating is when the local reporter, print or visual, gets the terminology wrong. Occasionally, when the reporter uses incorrect terms or nomenclature, it reflects badly on aviation, mostly general aviation.

Rather than storm the local editorial offices, we can try some good old fashioned education. The Aircraft Owners and Pilots Association (AOPA) has just produced a brochure entitled, *The ABC's of Aviation: A Glossary of Aviation Terms.* In its introduction, the brochure states, "This guide is intended to provide a descriptive list of basic aviation acronyms and terms and translate some common technical jargon." As a result, the brochure is an excellent resource for reporters and their editors in making sense of our profuse collection of aviation acronyms. For free copies of the brochure, contact Cheri Farha, Director of Media and Public Relations, at (301) 695-2162. Pass one along to your local editor or news producer and hope for the best.

AOPA also has a program called "Fly-A-Reporter" which encourages general aviation pilots to take non-aviation media reporters on familiarization flights to show the utility and safety of general aviation. Additional information on this program is available from the number above.

HOW HIGH? TEAMING UP TO IMPROVE PILOT "ALTITUDE AWARENESS"

The FAA has teamed up with the aviation industry in an effort to reduce significantly the number of altitude deviations. The cooperative effort is aimed primarily at airliners, but altitude deviations have been a problem in general aviation as well.

An altitude deviation occurs when pilots do not fly at the altitude assigned by air traffic control. Some altitude deviations may be as a result of the pilot in command exercising his or her authority under FAR § 91.3 in response to an emergency. Others are the result of inadvertent mishaps, perhaps caused by missing a clearance, forgetting an altitude, or entering incorrect information into automated guidance equipment.

"We know that pilots don't do this deliberately," said Captain Bill Sorbee of the Airline Pilots Association (ALPA), "but we have been unable to gather enough facts to determine a common cause or common thread underlying these deviations."

Now the Pittsburgh Flight Standards District Office (FSDO), USAir, and ALPA are working together to find the causes and come up with solutions to this serious aviation safety problem. Other organizations involved in the quest to reduce altitude deviations are FAA's Air Traffic Division, National Air Traffic Controller Association, and a human factors consulting firm.

After coordination with ALPA, USAir worked with the Pittsburgh FSDO to develop a comprehensive altitude awareness program to reduce altitude deviations by USAir pilots. "The nature and scope of our operation [nearly 3,000 departures a day] increases the potential for altitude deviations," said Captain Jim Fogerty, Director of Flight Safety and Quality Assurance for USAir.

Under the program, FSDO's throughout the country will refer USAir altitude deviations to the USAir Certificate Management Unit at the Pittsburgh FSDO for data collection, analysis, and appropriate corrective action.

"This undertaking is an excellent demonstration of how government and the aviation industry can work together in a partnership to enhance the safety of airline passengers," said Nick Sabatini, Eastern Region Flight Standards Division Manager.

Jim Repucci, Supervisor of the Certificate Management Unit at Pittsburgh, added, "The new FAA emphasis on partnership, cooperation, and corrective action should make this effort very productive." Mr. Repucci is also one of the organizers of the study. "One of the problems of the past has been the difficulty of obtaining full disclosure from pilots when they may be facing enforcement action," he said. "Consequently, we have attempted to analyze a critical aviation safety problem with incomplete data.

"We are hopeful that the additional data generated through this new program can be used to help us better understand the reasons for altitude deviation and reduce the frequency of these incidents to a level near zero. The results of this comprehensive program have been very encouraging so far," Repucci said.

One factor that will be examined in the study is the greater frequency of altitude deviations occurring on newer aircraft with more sophisticated and automated instrumentation. Over the coming months, FAA hopes that the new data will provide new insights into and solutions to this problem. If the program is a success with USAir, it could be extended to other airlines and also to corporate operators.

This article is based on material provided by Duncan Pardue, FAA's Eastern Region Intercom.

AFR REQUIREMENT DELAYED

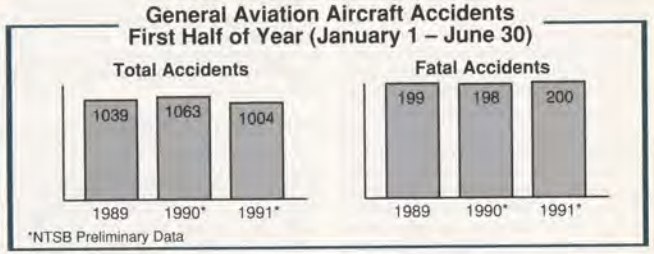
FAA has delayed the implementation of the annual flight review requirement of FAR § 61.56(d) until August 31, 1993. This regulation would have required all recreational, glider, and non-instrument rated private pilots with less than 400 hours to take an annual flight review. During this suspension period, all pilots must comply with the remaining requirements of FAR § 61.56. For those pilots who have already taken an annual flight review, the FAA is considering it to be a biennial flight review.

FAA HOTLINE NUMBERS

FAA offers two nationwide, toll-free telephone services to the public. The FAA SAFETY HOTLINE (1-800-255-1111) is intended primarily for those in the aviation industry, who have specific knowledge of alleged Federal Aviation Regulations violations, to report unsafe practices or conditions that affect aviation safety. A caller's identity is kept confidential, protected from disclosure under the provisions of the Freedom of Information Act.

The FAA CONSUMER HOTLINE (1-800-FAA-SURE or 1-800-322-7873) is provided for citizens with questions or complaints concerning matters within FAA's purview, such as carry-on baggage, airport security procedures, child safety seats, or user services provided by FAA, including examinations, aircraft certification, and facility operations. Calls will be returned by an FAA official.

Both hotlines operate from 8 a.m. to 4 p.m. Eastern time, Monday through Friday, except holidays.



DOWNWARD TREND FOR G.A. ACCIDENTS CONTINUES

A study of general aviation accidents, based upon NTSB data, for the first half of 1991 shows a decrease of 6% compared to the same period last year. Fatal accidents increased slightly during the same period.

Reflecting our changing world and recent events in their homeland, Soviet flight crews, unable to remove the Soviet flag from their aircraft on display at the Cleveland National Airshow, raised the flag of the Russian Republic atop the tail of an Ilyushin transport.

AIRSHOWS

continued from page 14

must check current NOTAM's.) During the effective times of the airshow NOTAM, the airshow air operations director or similar official is in control of that block of airspace and is responsible for all aircraft movement within the airspace and on the surface at the show site. Because of this responsibility, it is the job of the FAA-show monitor to work with the airshow coordinators to help develop a safe airshow waiver request. The ASI will consider all local flight restrictions and desired airshow performances when making his or her recommendations regarding the proposed show. Based upon the type of airshow requested, its locations and surrounding airspace, type of aircraft involved, and available safety support services needed, the local Flight Standards District Office manager has the authority to issue a waiver for the show if it can be done safely.

Some of the items required in filling out a waiver request includes detailed descriptions of the operations planned, altitudes involved, times, safety considerations and limitations, and performance dates. A list of the FAR that need waived during the show is also required. All proposed flight maneuvers, including a diagram of how they will be flown, are needed. Plans for crowd control and all safety services must be provided. The name, address, and certificate information of each performer is needed. Detailed maps of the site and surrounding areas must be attached showing the layout of the show site and well as emergency service support locations. These are only a few of the requirements that must be answered when requesting a Certificate of Waiver from the FAA for an airshow. Big annual airshows like Cleveland's and the Experimental Aircraft Associations's Annual International EAA Convention and Sport Aviation Exhibition at Oshkosh, WI, waiver requests have been developed over many years and only need to be updated each year. Before Flight Standards issues waivers for sites of "first-time" airshows, ASI's conduct on-site inspections to determine whether the area can safely support the airshow. Proximity of positive control airspace or congested areas are valid reasons for denying a site; however, ASI's familiar with their jurisdictions are usually able to suggest alternate sites that are more suitable. For organizations wanting to hold their first airshow, there is also plenty of help available within the industry.

As we said earlier, the airshow industry is a big business. There are professionals and companies within the business that can be hired to do all of the work of organizing an airshow for you. Normally, the companies provide all of the technical support and management services needed for the show, such as providing an air/ground operations director, contracting for performers, providing command and control equipment and communications needed to control the show, as well as working with the FAA regarding the needed waiver. The local organization or community provides the volunteer labor and services needed to support the show. Whether a community uses the services of a professional airshow organizer or decides to do the necessary work itself to plan and hold an airshow, their local Flight Standards professionals are there to help. And like the ASI professionals at the Cleveland FSDO, they will do everything they can to ensure you have both an enjoyable and safe airshow. ■

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The Cleveland National Airshow was held at Burke Lakefront Airport on the shores of Lake Erie. The proximity of downtown areas like Cleveland's skyline poses unique situations for FAA inspectors approving a waiver application. By virtue of the fact that the Cleveland National Airshow was held and was a success, as always, exemplifies both Flight Standards' and the industry's willingness to work together for safety.