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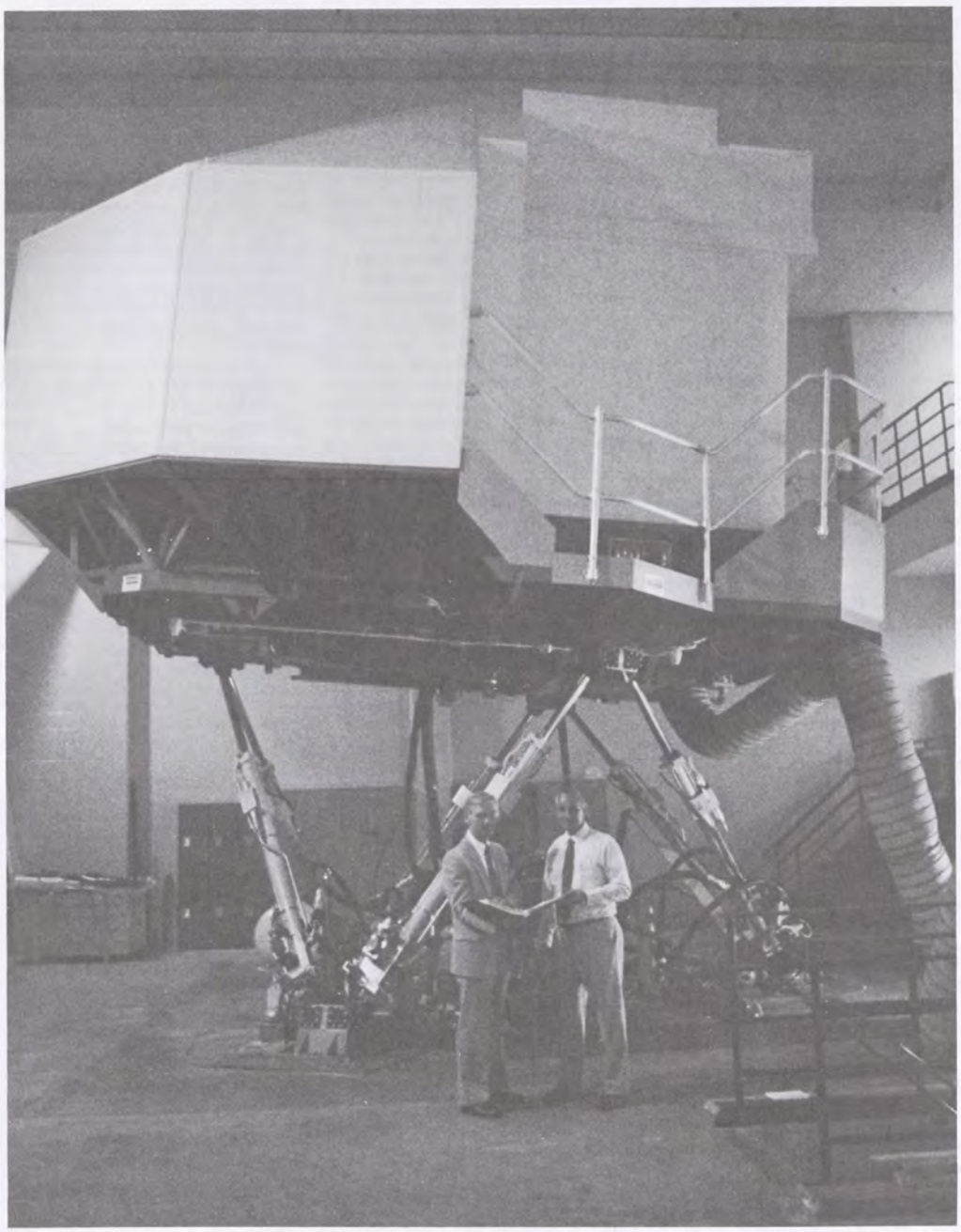

Ed Boothe, manager of the National Simulator Program, Atlanta, and A.R. Papandrea, chief flight instructor for Delta Air Lines, examine one of the manuals for the new MD-88 simulator, in "flight" behind them. Crews in training brief before flying the simulator and de-brief when they are through. Video cameras are available to record crew operating techniques.

Wingless Flight

Simulator Training Keeps on Progressing

By Phil Swatek

The pilot in command of your next flight, the one who is sitting up there in the cockpit so grandly confident, might not have been in that kind of airplane before. Unlikely, perhaps, but possible and legal. But not to worry. There would be a check airman with the pilot in that case.

What makes it possible for your pilot never to have been in the type of airplane before is amazing progress made in simulator training in the last decade. Your pilot could have been certificated—won his FAA license—through simulator training alone. The pilot wouldn't have had to leave the ground—in that kind of airplane—and would still be ahead of the game in terms of training and flying skills.

In This Issue

In the world of aviation simulation, this is known as a "device." A device provides no motion, nor any visuals out the cockpit windshield. In this instance, it is an instrument panel and that's all. The instructor develops the program on his computer, which then translates on the cockpit instruments in front of the trainees.

Aviation is in this way giving the word "simulation" an exalted new meaning. Instead of suggesting a substitute for the real thing—a fake—in the world of flight, it can mean something of unique and great value, such as a $15 million full-flight airplane simulator.

A strong case can be made that training of pilots in simulators is today not only just as good as training in an actual airplane, but better, not even considering the savings in time, money, fuel, and environmental resources.

In fact, it is now mandatory for airline pilots to have simulator training to prepare them for the most frightening conditions they might encounter—windshear, the vicious avalanche of air associated with a sudden change in wind speed and/or direction. Countering windshear isn't practiced in airplanes.

First of all, to practice, you'd have to find one of the invisible but deadly microbursts, a small-scale and particularly violent form of windshear, but it would be like practicing Russian roulette.

The quiet, high-tech simulator phenomenon didn't happen overnight, of course. It has been building since World War II when thousands of young Americans started their instrument flying training inside one of Ed Link's little blue boxes, a cramped, always hot "cockpit" with a simple instrument panel that turned through 360 degrees and lurched a little way up and down and side to side.

Today, though, a simulator for the Boeing 747 would stand three stories high on six hydraulicly powered, moveable, piston-like legs anchored to the floor. It looks like a gargantuan, gently swaying, $15 million bug. It has the same six directions of movement as the 747—forward and back, up and down, side to side, as well as pitch, roll, and yaw.

The cabin on top of the legs is an exact replica of the 747 cockpit and flight deck, including all the electronic and computer equipment. What the simulator has that the real airplane doesn't have is a computer-generated motion picture shown to the flightcrew through the windshield. The moving picture they see might depict the approach to any number of selected airports around the world. Fog, rain, lightening can all be added to the picture to stimulate the interest of the crew. Turbulence severe enough to shake up the simulator can also be added if interest should wane.

The march from Link trainer to today's behemoths, which could have a dozen people aboard for the "flight," was a measured one. Progress was steady but not spectacular through the 1950's and 1960's. The airlines pushed for training credit as various devices proved their worth, but the revolution didn't start until the middle '70's with the availability of high-speed digital computers.

It took high-speed computers to generate all the commands that simulate a flight problem on the cockpit instruments, plus all the visual and oral cues to be presented, and then process the pilot's responses in realistic time. The "optics" had also improved greatly by the mid-70's, along with the six-legged system to portray movement.

Hydrostatic bearings eliminated much of the friction in the simulator motion system and brought the movement much closer to the fluid feel of an airplane aloft. The problem of disruptive artificiality is being further reduced as "fly by wire" control becomes more commonplace in the latest airplanes. Fly-by-wire means the movement of control surfaces is initiated by electronic impulses ordered by the pilot. Motors then move the controls. There is no direct linkage between pilot and controls.

"Airplanes are becoming more like simulators," says Ed Boothe, manager of the National Simulator Program.

As remarkable as the simulation of flight conditions on the ground has become, no one suggests flightcrews wouldn't be able to tell you whether they were really flying or on the ground, but every effort is made to duplicate the flight experience, including elimination of references to their vehicle as being other than an authentic aircraft.

No one could doubt the success of this simulation after seeing a crew file out of the machine—wringing wet—after a particularly tough "flight." Most important, there is no question simulator training "sticks." Experience has proven that pilots somehow don't forget what they learned when they get into the airplane.

FAA recognized the great advances in simulator technology in the '70's and said, in effect, to the industry, "Okay, we are now at a point where we can give a lot more credit toward certification for simulator training, but we have to agree on the terms."

Those terms were spelled out in four pages of the *Federal Register* of June 30, 1980, down to such details as being able to simulate "patchy wet" runways, "patchy ice," and "wet on rubber residue in touchdown zone." A lot more official guidance and regulation on simulator training has come out since then, but the Advanced Simulator Plan of June 30, 1980, was a cornerstone. It was then that the concept was fully accepted—training in simulators, under agreed-upon conditions, became equivalent to training in the actual airplane.

To manage this rapidly expanding field, FAA created the National Simulator Program (NSP). In April 1982, the NSP was moved from Washington to Atlanta in the Southern Region where it is today, a part of the Flight Standards Division.

The NSP staff which totals 23, has six of its staff located in other cities, including Dallas/Fort Worth, Seattle, and Minneapolis. The NSP is responsible for establishing the criteria for evaluating simulators, getting the information to the airlines and other operators, and then making sure that the evaluations are done, principally through the National Simulator Evaluation Team (NSET).

Team members are technical/operations specialists trained for the evaluation responsibility and are "type rated" in the airplane the simulator mimics. They can fly both the airplane and the simulator.

The number of airplane simulators is growing about 13 percent each year, but as of now, NSP is responsible for 278 simulators in the United States and 27 overseas.

Most, but not all, heavy jet simulators are owned and operated by major U.S. and international airlines. Smaller carriers and other jet operators that can't afford or make efficient use of a simulator rely on training schools, which do have the equipment and offer training worldwide.

All the simulators are not for the biggest jets. There are simulators for the whole spectrum of smaller corporate jets.

In the beginning, simulators were inspected quarterly, but with more evaluation experience as well as increasingly reliable simulators, it has been possible to reduce most, but not all, the evaluations to twice a year. That's still a very big workload for a limited number of specialists.

The full MD-80 cockpit "device" waits for a crew to be trained on flight operations systems, highly computerized in modern airplanes. It isn't necessary to have a full simulator to master the more complex cockpit systems before the simulator "flight."

Ed Boothe says that someday the evaluation rate might be further reduced, but it won't be soon because there are no regulatory requirements for building or maintaining simulators. This is very different from the extensive body of regulations surrounding the certification of an airplane and then the on-going maintenance regulations that follow an airplane until the day it is taken off the FAA register.

In the past, and even today, Boothe explains, each simulator is pretty much made by the manufacturer for the individual airline customer. The flight deck has to be just like the ones the airline ordered for their airplanes, with all the same instrumentation, computers, and subsystems.

"It's not like certificating an airplane where there might be hundreds of identical machines that will come down the line," Boothe said.

Obviously, advanced simulator training is not just a U.S. phenomenon. There is great interest around the world, and the Royal Acronautical Society of Great Britain has taken the lead in arranging international participation in establishing standards. The first international meeting was last September in London.

At the meeting in Long Beach, California, last January, industry and government experts set up a small working group to go beyond philosophy and grapple with the problem in technical detail. That team has since agreed to use FAA's new Advisory Circular 120-40B as a basis for validation testing.

There will be another full-blown, multinational meeting in Amsterdam in October to find ways to synthesize differing views which is a very unusual endorsement and tribute to the NSP.

In this highly technical world of simulator flight training, definitions are very specific. "Airplane simulator," for example, means the machine is a full-sized replica of a specific airplane, with all the same navigation and flight management systems, with the motion picture visuals to represent ground and flight operations, plus realistic movement.

A machine that provides all the navigation and flight management programs—actually the most expensive part of the whole effort—but doesn't provide the visuals nor the motion, isn't a simulator. It's a "device" no matter what it costs.

This isn't an effort to discourage use of a range of devices in training. It makes a lot of sense to focus on particular and perhaps time-consuming parts of the total program in specifically tailored devices before putting it all together in the airplane simulator. Learning how to operate the navigational systems or the flight operations systems, which are now so highly computerized, are examples. The NSP has the responsibility for establishing technical criteria for the "devices" as well as the simulators.

Time in a 747 or MD-11 airplane simulator is by no means inexpensive. Although an hour might cost up to $1,000, it is a lot cheaper than the same time in an airplane, which might cost more than $10,000 an hour, if in fact an airplane were available for training.

Part of the problem is the limited availability of new airliners. There's a worldwide shortage given the steady growth of aviation as well as increased competition. Manufacturers already have orders for the next century. An airline doesn't want to take a new jet out of service months at a time to train crews when the crews can be trained just as well, or better, in a simulator, with no revenue lost. That's one of the reasons that about 90 percent of advanced flight training is now done in simulators.

To make the most efficient use of a new airplane in passenger service, airlines need six to 10 trained crews for each airplane. Simulators for the new jets are, therefore, in use around the clock. It is commonplace to see in simulator briefing rooms sleepy crews waiting their turn in the "monster" at 2 and 3 a.m.

The demand for simulator training has changed the traditional sequence in which simulator development followed the airplane. It used to be that airplane manufacturers had no particular interest in helping simulator manufacturers produce a totally realistic flight deck and flight experience for their airplane. Now because it affects the usefulness and value of their airplane, aircraft manufacturers work with simulator developers from the beginning, so true-to-life—or better-than-life—training is available even before the airplane is.

In light of the great and growing demand for simulator training, it is fortunate that outside weather never interferes. No matter what meteorological nightmares the trainees encounter, they won't get wet going back to the debriefing room. No airport neighbors have thus far been known to complain about the noise, and the price of aviation jet fuel isn't a concern either.

As remarkable as the new simulators are in creating the feeling, the atmosphere, of a real airplane flight for training purposes, they will no doubt be further refined, Boothe believes.

"Even faster computers to process more data on aircraft performance, data gathered specifically for simulator development, is the key to further progress," he said.

Helicopter simulators will soon be part of the system because of the rising demand, Boothe says. An advisory circular similar to the successful 120-40B for airplanes should be out within the year.

In a time years after astronauts have walked on the moon, it wouldn't be reasonable to call modern simulators astounding. But to be strapped down in the pilot's seat and go through a rough weather approach to a mountainous airport—in and out of heavy rain, the flight deck bouncing around in the turbulence—is close to it. Maybe amazing is the word.

While these theatrics generated on demand are fascinating, what really matters is the increasingly important role simulators have in preparing better pilots faster for a complicated and demanding aeronautical environment. ■

Modern simulators wouldn't be possible without high speed digital computers. Preparing the computer software and having it reliably ready is as important as putting fuel in an airplane.

A retired FAA official, Phil Swatek was a journalist and a free-lance writer before his government service.

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'Vision 2000—Dare To Excel'

FAA Administrator Busey delivers keynote speech during the closing banquet of the Northwest Mountain Region's NHCFAE National Training Conference.

FAA photo by Matthew Bivins

Hispanic Coalition officers and friends pictured from left to right: Admiral Busey; Adolfo Zavala, Seattle ARTCC; Lory Sugihara, ANM; Lucio Aguilar, Seattle Airway Facilities Division; Jo-Marie Bonwell, ANM-9; Rita Reyna, Denver AFS ARTCC; Clem Monge, ANM-9; Art Fregoso, ANM-50; Tracy Tison—resigned to attend school full time; Cindy J. Korn, ANM-500; Manny Ruiz, ANM-50; Rene Matos, ACT-342.

The Northwest Mountain Region hosted the National Hispanic Coalition of Federal Aviation Employees (NHCFAE) National Training Conference in Tacoma, Washington, in August. More than 100 FAAers attended the conference, which presented speakers, workshops, and cultural awareness sessions to prepare FAAers for the anticipated population changes predicted by the Department of Labor's Workforce 2000 report.

The NHCFAE is a nationwide, nonprofit organization formed by FAA employees in 1979. Its objectives are to:

- Promote equal opportunity for Hispanic, female, and minority FAA employees;
- Improve employee-management relations; and
- Provide an effective liaison between the FAA and the community.

The NHCFAE invited everyone interested in assisting the FAA in the recruitment, training, promotion, and career development of Hispanics, women, and other minorities to participate in this dynamic conference.

This year's theme, "Vision 2000—Dare to Excel," focused on affirmative action recruitment initiatives, shifts in the emphasis of job skills needed, and an increasing need for cultural awareness and appreciation as a result of the changing pool of applicants and job market. These issues will affect the FAA and all Federal agencies as they work toward increasing the representation of women and minority employees.

Highlights of the conference included panels of civil rights officers, Hispanic Employment Program managers, Human Resources division managers, Regional Administrators, and Northwest Mountain Region division managers; a Special Emphasis Program panel; a motivational forum with the topic "Empowering Yourself"; a discussion of FAA employment objectives; workshops on the skill/performance based interview and the SES Candidate Development Program; and presentations on cultural diversity and sensitivity training, the FAA Academy, the FAA National Recruitment Team, and Total Quality Management (TQM).

Luncheon speakers included Wayne Barlow, Executive Director for Regulatory Standards and Compliance, and Dr. H.C. (Mac) McClure, Director of the Aeronautical Center.

FAA Administrator James Busey was the keynote speaker for the closing banquet in Tacoma. Remarking that the small number of Hispanics in FAA is "not acceptable," Busey vowed to push up these numbers.

"I want this EEO initiative to move forward even within the severe, but temporary, constraints of the budget situation. We will not use this situation as an excuse to lie back and do nothing."

Based on statistics for 1982–88, Hispanic participation in the total workforce grew by 22%. Yet, Hispanics in the federal government increased by only 16%.

At home in the FAA "Hispanics represent 3.7%—less than 1% higher than the 2.8% of 1980." At FAA, "there has been virtually no movement at all over the past decade. Clearly, this is not acceptable, and we are going to change this, I guarantee you," Busey vowed.

He cited examples of what we have been doing in recruitment recently. For example, the Great Lakes Region's recruitment in Puerto Rico and colleges and universities throughout the country has provided new Hispanic hires: five safety inspectors, two engineers, eight air traffic candidates, and several electronics technicians.

This summer Headquarters advertised in newspapers in San Juan, Puerto Rico, to recruit seasoned engineers and computer specialists and obtained about 125 applicants. Of the 20 applicants who showed particular promise, FAA found six it wanted to hire, and Busey granted an exemption to the hiring freeze to keep these six applicants.

Busey continued, "To make sure this recruitment effort is not just sporadic . . . I have directed that a number of actions be taken to institutionalize the program nationwide." Among these actions are:

- Developing a national recruitment program and a multi-year recruitment plan;
- Having full-time recruitment specialists in Headquarters and the regions;
- Making managers up and down the line accountable for EEO, starting with the Administrator's top management team.

Busey said, "Everyone at the Administrator's Management Team (AMT) level has been provided specific figures on where he or she stands with respect to minority representation in the national civilian labor force. They are directed to make sure minorities and women within their organizations are developed and prepared for management and executive positions."

To make sure AMT members provide the training and development, Busey said the FAA has set up a new critical job element for SES performance appraisals to go into effect for the appraisal period beginning October 1.

"Everyone knows where we stand and what is expected of them . . . and we've got the Executive Committee for EEO in place to provide the necessary oversight to make sure we achieve tangible, measurable results," Busey stated.

The Eastern Region will host the 1991 NHCFAE training conference, and the Great Lakes Region will host it in 1992. ■

Aviation's Hispanic Heritage

Did You Know . . .

BERT ACOSTA, along with Clarence Chamberlain, set a world record for endurance with the Wright-Bellanca—51 hours and 11 minutes—flying a circular course for a total of 4,100 miles. After Charles Lindbergh's famous flight, Acosta flew Richard Boyd's Fokker trimotor across the Atlantic in 1927.

LUIS ALVAREZ was the recipient of the Nobel Prize for Physics in 1968. Earlier in his career he distinguished himself by devising the ground control approach (GCA) landing system (still used by the military) for which he was awarded the Collier Trophy in 1945.

FRANKLIN CHANG-DIAZ was the first person of Hispanic descent to become an astronaut. Born in Costa Rica in 1950, Chang-Diaz became an astronaut in 1981. He holds a doctorate in physics from M.I.T.

JUAN de la CIERVA designed the rotary wing aircraft autogiro and successfully flew it at Getafe, Spain, January 9, 1923. In 1925 he proved the validity of the autogiro concept with the breakthrough in rotating wing design. He continued research and development work with the British in building prototypes and formulated design, theory, and data on which the helicopter industries of the world were founded.

In conceiving the idea of hinging the rotor blades of the giro at the hub and allowing them to respond individually to aerodynamic forces, he not only validated the autogiro, but also—and more importantly—provided the experience that eventually led to the development of the first practical helicopter.

MANUEL FERNANDEZ was a U.S. Air Force pilot in the Korean War. He destroyed 14 MiGs.

LINDA GARCIA was the first Hispanic female to graduate from the U.S. Air Force Academy in 1980.

SIDNEY GUTIERREZ was the second Hispanic person to become an astronaut in 1984.

MARQUIS PATERAS PESCARA, working in Spain between 1920 and 1926, designed several helicopter models. His most successful model had a forty-horsepower engine and two rotors, coaxially mounted.

An interesting part of his design was its biplane-type rotor blades. Instead of using individual blades, he attached them in pairs, one above the other, similar to the biplane arrangement that was so common in fixed-wing aircraft. He used a propeller in the nose for forward motion.

LEROY PONTON DE ARCE saw from personal experience that night flying of airmail, which the Post Office began as a regular service in 1924, was a hazardous occupation. From 1925 to 1927, he flew the mail on the Boston-New York route—without parachutes or instrumentation other than a compass, an air-speed indicator, and a tachometer.

An experimenter with improving the Fokker's night-flying capabilities, he went on to become one of the original 25 air traffic controllers to enter federal service on July 6, 1936, when the government assumed responsibility for en-route traffic control.

ELWOOD QUESADA in January 1929 served on an Army C-2, named the *Question Mark*, which broke all world endurance records by remaining airborne over California for more than 150 hours. Forty-three times during the historic flight, a second plane hovered less than 20 feet above the Fokker to pass down more than 5,000 gallons of fuel and supplies to the five Army Air Corps fliers aboard. At 70 miles an hour, the *Question Mark* was the first to be refueled by a hose dropped from another plane and guided into a tank in the fuselage. The fuel was then pumped by hand into wing tanks. Plugged grease outlets stopped one of the Wright Whirlwind engines, forcing the plane to land.

Quesada's accomplishments in the field of aviation went on to include his 1943–44 service as Commanding General of the Ninth Fighter Command, directing the U.S. air effort before and during the Normandy invasion. In 1946 he became the first head of the newly created Tactical Air Command and in 1947 the Special Assistant to the President for Aviation Facilities Planning. Quesada served as chairman of the Airways Modernization Board from 1957 to 1958. During the 1958–1961 period Quesada was the first Federal Aviation Agency Administrator.

FAA photo by Donna B. Hughes

Susanna Leon-Guerrero, ALR-100, and Don Espinoza, AHT-400, stand beside an oil painting by Leon-Guerrero's teenage daughter. The painting was on display in Headquarters during an event highlighting National Hispanic Heritage Month, September 15 through October 15. The painting depicts a Paris neighborhood.

FAA photo by Donna B. Hughes

Caterina Vasquez of the Office of the Chief Counsel is dishing out samples of Hispanic cuisine to a long line of FAAers and guests. The dish she is serving is chicken con molé, which is served with a chocolate, peanut and cinnamon sauce.

Members of Ballet Folklorico Cuscatlan, a Salvadoran folk dancing group, pose for a photo after a performance at the Department of Transportation plaza marking the observance of National Hispanic Heritage Month.

FAA photo by Becky Kastner

Positive Endings— *Annual Awards for Outstanding Flight Assists*

By Pat Tomasetti

Operational errors, accidents, litigation, problems identified during evaluation, and the like—the Office of Air Traffic System Effectiveness focuses on so much of the "negative" in performing its functions.

Each year, though, the office also maintains the national database of flight assist reports that reflect how potential disasters were avoided and thousands of lives were saved by positive professionals doing their jobs. In 1989, for instance, 1,127 flight assists—assistance to pilots of aircraft in trouble or distress—were recorded: 238 by the en route centers, 499 at terminals, and 390 at flight service stations.

Based on these flight assists, an "Outstanding Flight Assist Award" is given yearly to an air traffic control specialist (ATCS) in each of the three options. Winners for 1989 were air traffic control specialist Michael J. Blume, Minneapolis Air Route Traffic Control Center, Minneapolis, Minnesota; air traffic control specialist Albert D. Jones, Tri-City Airport Traffic Control Tower, Blountville, Tennessee; and air traffic control specialist Stephen A. Hubbert, McGrath Flight Service Station, McGrath, Alaska. Hubbert is currently assigned to the McAlester, Oklahoma, Automated Flight Service Station.

This year's awards ceremony was held on Friday, August 3, at FAA Headquarters.

Annually, nominations for the awards are made by each region and forwarded to ATH-310, the System Analysis Branch of the System Improvements Division, Office of Air Traffic System Effectiveness. Selected by a review board consisting of one specialist from each of the three options and a facilitator, the winners are picked from one nomination from each region for each option. The review board also recommends the amount of money to accompany the award.

"All of us who carry the 'ATCS' title are prone to reliving our own experiences while reviewing such reports," was how one person involved in the review described the examination.

The selection process for the awards is at times not perfect. For instance, nominations have not always included the number of people aboard the aircraft in trouble or distress. The review board, which then has to assume only one person was onboard, may not realize the true magnitude of the assist and recommend another assist—one with more people involved and the potential of having saved more lives—for the award.

On this year's review board were Carl McKinney, ATM-120, for the en route option; Alton Scott, ATP-240, for the terminal option; and Larry Herrell, ATP-112, for the flight service station option.

Tina McClure, the facilitator in ATH-310, is available to answer questions on the nominations and the awards procedures. Her number at Washington Headquarters is FTS 267-9143.

Now for the details of the winning flight assists for 1989:

Pictured at the August awards ceremony in the FAA Headquarters' MacCracken room are Associate Administrator for Air Traffic, Bill Pollard; award recipients Mike Blume, Al Jones, and Stephen Hubbert; and former Executive Director for System Operations Edwin Harris.

In June 1989, Tri-City departure radar controller Albert Jones was monitoring a November aircraft, an IFR departure. No radio communications from the aircraft were forthcoming, and his observation of the target showed radical course deviations and rapid fluctuations of altitude from 3,000 to 7,000 feet over mountainous terrain.

Further monitoring of the November's flight path showed that the aircraft had reversed course and had flown back across the airport.

Jones immediately suspended departures at the airport. Repeatedly he called the November and was finally able to establish radio communications with its pilot.

The controller instructed the pilot to climb immediately and turn north, but the pilot was unable to maintain heading or altitudes assigned; therefore, Jones began prompting the pilot with no-gyro vectors and plain language communication and issuing numerous reminders to correct altitude and heading.

The November was successfully directed to Tri-City Regional Airport for a safe landing. Once landed, the pilot's license was revoked under an emergency provision.

This flight assist was one of two attributed to Jones in 1989. ■

Al and Pauline Jones are accompanied by their daughter Mandy. Al has also worked at the Crossville, TN, Flight Service Station.

Tina McClure, ATH-310, and Helen Wall, then branch manager of ATH-320, compiled the information for this article.

Michael Blume's—and the Minneapolis Center team's—outstanding flight assist began when radar/manual controller Dale Willer received a pilot's initial report of moderate icing at 7,000 feet. Realizing that the November aircraft with seven passengers aboard was rapidly approaching the limit of radar coverage between the Minneapolis and Denver Centers, ATCS Blume moved in to staff the radar assistant position. Paul Serreyn then joined the team so that Blume could join Willer on the radar position.

As the incident unfolded, Blume and Willer split the frequencies so that Blume, a certified flight instructor and a pilot himself, could work the emergency without interruption, with Willer working the rest of the traffic on a separate frequency at the same position. Soon, however, radar contact was lost with the November.

Knowing that Denver's receiving sector would not be able to pick up the aircraft on radar, a turn back to land at O'Neill was suggested. Beginning the turn, the aircraft reported difficulty in holding altitude, and the pilot communicated he was "going down," adding he needed all the help he could get.

A pilot of a Navajo in the area who had been listening in on the drama advised, "Don't give up early down there. There's roads down there you can use." He then advised the embattled pilot on making a procedure turn.

With icing conditions worsening and the plane running sluggishly, the November's pilot responded, "Negative. I'm going down! We're going down—we're going to have to take it straight down!"

ATCS Blume encouraged the pilot to keep flying, reissued earlier instructions, and led the pilot step-by-step through the procedures for regaining his bearings and maintaining his heading. About one hour and twenty minutes into the drama, the November was over the runway at O'Neill.

After two unsuccessful landing attempts and without being able to see from the front window, the November's pilot brought his plane in for a safe landing.

This was one of three flights Blume assisted last year. ■

Mike and Colleen Blume are an aviation family. Both are pilots, and Colleen works for Northwest Airlines.

Stephen Hubbert receives his award at the ceremony. His wife Gwin also attended the program. Stephen now works at the McAlester AFSS in Oklahoma.

It was February in Alaska, and weather conditions were such that a pilot flying a C185 on an instrument flight rules (IFR) flight plan reported to the McGrath Flight Service Station (FSS) that he had encountered severe icing. He reported to the FSS specialist on duty, Stephen Hubbert, that in three minutes he had accumulated one inch of ice. Unable to maintain assigned minimum en route altitudes, the pilot had lost very high frequency omni-directional radio range (VOR) and automatic direction finder (ADF) navigation capability.

Also to complicate matters, the remote communications air-ground facility (RCAG) at McGrath was out of service for the center frequency, and there was no radar coverage in this area of variable minimum altitudes and high terrain.

It took almost one tension-filled hour of conversation among the aircraft, the FSS, and the Anchorage Center to pull off a very good ending to a very bad beginning.

FSS specialist Hubbert did everything right in his handling of this inflight emergency. As part of the strategy, a state truck was used to get snow plowed, the runway sanded, and runway conditions reported. Hubbert appropriately coordinated with the control facility and then provided direction finder (DF) guidance, including a full DF approach to the airport in McGrath.

A two-time recipient, Hubbert also won the award for outstanding flight assist of the year in 1987. ■

Improving the International Language of ATC

By Diane Spitaliere

Ann Dufaux, Air-Inter English professor, receives orientation at Kennedy tower.

Foreign pilots sometimes have difficulty understanding English, presently the language used most often in air traffic control worldwide.

To get a first-hand experience of how English is spoken in America and especially within the U.S. air traffic control system, English Professor for Air-Inter Ann Dufaux recently visited Kennedy Tower, made tape recordings of pilot/controller communications, and interviewed controllers on terminology.

Air-Inter, a French domestic carrier associated with Air France, contracted for the services of four English professors from the University of Besançon to set up and implement a flightcrew screening and training program in English competency. The program, which has been in place for about a year, has been very successful and is expanding to include groundcrews.

'Not New to European Airlines'

"Programs like this are not new to European airlines, but as increased emphasis is being placed on pilot/controller communications, they seem to be expanding," said Dufaux.

One of her primary responsibilities is to screen potential pilots for Air-Inter to ensure that their English is at an acceptable level.

"Because air traffic has been increasing so steadily in France, there is a great need for new pilots. It's not unusual for us to screen eight pilots in a single day," said Dufaux.

The intensive screening process takes about one hour and requires the skills of two English professors, one to conduct the interview and one to take notes. Pilots are asked to speak in English for about 20 minutes on subjects related to their professional experiences and training.

In addition, all pilots must be tested on their ability to communicate clearly with air traffic controllers. They have to listen to the Automatic Terminal Information Service (ATIS), take notes, and express what they have heard. They also work on radio communications during which they respond to controller instructions for a landing operation.

"If there seems to be a communication breakdown at any point during the interview, we give them additional material to review and discuss. This is done to ensure that both interviewers are in accord with the level of competency of the pilot's English," Dufaux explained.

Rigid Training for Captains

In order to be promoted to captain, a pilot must go through an extensive four-month training program, which includes a mandatory 60-hour English course.

"We deal mainly with aviation terminology, but we also realize the importance of properly communicating English in everyday language. To this end we offer and encourage flightcrews to attend mini-courses in English available through the university," said Dufaux. "Although these courses are not mandatory, they are strongly encouraged by the airline."

Air-Inter also has English screening and training programs for flight attendants as it is essential that they can be clearly understood by all passengers.

Increasing Need for Programs

In 1992 member countries will begin full-fledged implementation of European Common Market agreements. Borders between countries will no longer be protected. European citizens living in any of the 12 countries participating will be able to work in another country with their own national passport. Greater movement between countries will be possible, and an increase in travel on airlines should occur. Ultimately, one result will be a greater demand for language communication programs such as Air-Inter's because the need for English communication among air traffic controllers and pilots will increase.

"Visiting Kennedy Tower and getting a first-hand explanation of American air traffic control terminology will be of tremendous value to me when I return to France," said Dufaux.

"I hope to incorporate the pilot/controller communications information obtained at this facility into our own language program. I think it will be beneficial to both instructors and pilots alike." ■

Diane Spitaliere is editor of the Eastern Region Intercom.

Oshkosh B'Gosh

By Dorothy Hartigan

Dorothy "Dodie" Hartigan is an air traffic control specialist at the Bedford, Massachusetts, Tower. She and her husband Coleman—Boston Tower—have attended the EAA convention in Oshkosh for the past five years during their vacation.

She wrote this article in memory of John Lewkowicz, manager, Ann Arbor, Michigan, Tower, who served as a controller and area supervisor during this and many other Oshkosh fly-ins. John perished in his antique Stearman during an aerial demonstration on August 2, 1990. A spirited aviator and fellow controller, his kindness and unique personality touched the lives of many.

In our present world full of automated this and computerized that, some things are still done best the old-fashioned way. A prime example of this can be seen during the Experimental Aircraft Association's (EAA) annual fly-in convention at Wittman Field in Oshkosh, Wisconsin.

Each year, for about ten days, Oshkosh and its surrounding towns come alive with activity, as hundreds of thousands of aviators and spectators gather to be part of the world's largest experimental aircraft convention. Up to 15,000 aircraft tie down at Wittman Field and take part in the estimated 60,000 landings and departures that take place during the convention.

The skies are filled each day with everything from motorized parachutes to fighter jets and tankers. With such a wide variance of aircraft performance, pilot experience, and language barriers, it is amazing how well the whole thing works. Spectators sporting portable radios listen with one ear to the non-stop instructions from Oshkosh Tower controllers and with the other to the roar of warbirds filling the sky.

I tune in intently to the fast pace of the tower frequency and am immediately impressed with the controllers' timing and seemingly unflappable perseverance.

Here at Wittman Field it is reminiscent of the type of grassroots controlling that took place in the early days of Archie League and his wheelbarrow and checkered flags. In fact, it is over the grass roots of a farmer's field where the approach to Oshkosh begins.

Aircraft inbound to Wittman Field enter a transition over the town of Ripon and follow a set of old, abandoned railroad tracks to a cornfield in a sleepy little town called Fisk. Here controllers sit in a temporary tower with a couple of radios and several pair of binoculars, identifying and sequencing aircraft by type, color, and call sign. Arrivals may be temporarily held there during field closures or issued runway, traffic pattern, and frequency information and switched to a local control frequency. Aircraft without radios (and there are many) approach the airfield from another route to avoid the major flow of traffic. Once the aircraft approach the airport boundary, north and south local controllers rattle off landing instructions, leaving no room for reply or the possibility of a stuck mike (aircraft acknowledge by rocking their wings). The controllers use every available inch of their runways with the help of reduced separation waivers for this event.

Departures are handled right at the runway by controllers with day-glo batons who wave off these men and women and their flying machines in rapid succession, coordinating with local by radio as needed. A position known as "Rooftop" coordinates with EAA airshow officials for all fly by and airshow departures. Additionally, in the tower there are flight data, clearance, ground, and several air route traffic control center controllers who coordinate all instrument flight rules (IFR) routings and releases. Two additional controllers spot traffic for each local control position. Supervisors and the tower manager oversee the entire operation, juggling microphones and land lines while coordinating the constant flow of information from all the people involved.

Forty-five ATC specialists were brought in on detail to add to the staff of eight controllers already at Oshkosh Tower. They also staffed a portable tower at nearby Fond du Lac Airport, where overflow aircraft from Wittman Field tie down for the convention. Many of these specialists have worked previous Oshkosh fly-ins and are familiar with the operation. Others are journeymen controllers from various Great Lakes Region locations and are witnessing this scene for the first time.

The professionalism and teamwork of the controllers, airway facilities technicians, employees from the local flight service station and flight service district office, and the many EAA officials and volunteers foster a climate of cooperation and comaraderie vital to the success of such a remarkable event. It is evident that these men and women enjoy the challenge of the fast-paced Oshkosh experience and the opportunity to roll up their sleeves to work the airplanes.

Some may wonder why a controller would want to spend a vacation at the largest gathering of general aviation enthusiasts in the world. It could be the aerial demonstrations of such aviation greats as Gene Soucy, Marion Cole, the French Connection, and the Eagles flight team, or perhaps it's the opportunity to stroll past countless rows of antique and experimental aircraft, admiring their beauty and craftsmanship. Really, though, the reason for it is that the Oshkosh fly-in puts air traffic controllers back in touch with aviation and controlling at its grassroots level, where the job gets done and everyone has fun doing it. ■

People

Aeronautical Center

Terry G. Farnstrom, Academy 3R instructor, Automation Section, Airway Facilities Branch, FAA Academy, promotion made permanent . . . **James R. Hill,** Academy 3R instructor, Navigation/Communication/Environment Section, Airway Facilities Branch, FAA Academy, promotion made permanent . . . **Laurie C. Lowman,** supervisor, Flight Procedures/Inspection Section, ACY FIFO, Atlantic City, NJ, promotion made permanent . . . **Beverly S. Norman,** unit supervisor, Review, Qualifications & Evaluation Section, Medical Review Branch, Aeromedical Certification Div. . . . **Robert L. Pace,** supervisor, Engineering Section, Engineering & Production Branch, FAA Logistics Center.

Alaskan Region

Andrew S. Billick, asst. manager, Airway Facilities Div. . . . **Howard J. Cleveland,** supervisor, Maintenance Operations Support Section, Systems Maintenance Engineering Branch, Airway Facilities Div., promotion made permanent . . . **Daniel M. Cryer,** unit supervisor, North Alaska AFS, Fairbanks, promotion made permanent . . . **Robert J. Dunlap,** unit supervisor, Installation Section, Establishment Engineering Branch, Airway Facilities Div., promotion made permanent . . . **James G. Hodges,** asst. manager for automation, Anchorage ARTCC . . . **Joseph F. Woodford,** manager, Anchorage, AK, ARTCC, from Salt Lake City.

Central Region

Gregory L. Bardsley, area supervisor, Cedar Rapids, IA, Municipal Airport ATCT, from Omaha, NE, TRACON . . . **Rita L. Cosner,** manager, Procurement Branch, Logistics Div., promotion made permanent . . . **Philip D. Duda,** supervisor, Technical Support Section, Automated Information Branch, Resource Management Div., from Southern Region Headquarters . . . **Lewis R. Kuhns,** asst. manager, Grand Island, NE, AFS, from Raleigh, NC, AFS . . . **Laurence T. Leonard,** manager, Waterloo, IA, Municipal Airport ATCT, from Idaho Falls ATCT . . . **Raymond A. McMillan,** manager, North Platte, NE, AFSFO, Grand Island AFS, from Columbus, NE, AFSFO . . . **Richard J. Meyer,** group supervisor, Technical/Administrative Support Staff, Small Airplane Directorate, promotion made permanent . . . **Willie R. Moore,** area manager, Lambert Field ATCT-TRACON, St. Louis, MO, from Southwest Region Headquarters . . . **Eddie W. Osborne,** manager, Goodland, KS, AFSFO, Wichita, KS, AFS, promotion made permanent.

Eastern Region

Robert L. Aderhold, unit supervisor, Elmira, NY, AFSFO, Harrisburg AFS, promotion made permanent . . . **Larry T. Anderson,** asst. manager, Washington ARTCC, Leesburg, VA . . . **Alexander A. Argyros,** unit supervisor, Establishment Engineering Branch, Airway Facilities Div., promotion made permanent . . . **Vito J. Borrello,** asst. manager, New York TRACON, from MacArthur Airport ATCT, Islip . . . **Michael R. Chinn,** manager, AFSFO Washington Headquarters, Capital AFS, promotion made permanent . . . **Joseph H. Dotterer,** area supervisor, Washington National ATCT, promotion made permanent . . . **David A. Ellis,** area supervisor, Yeager Airport ATCT, Charleston, WV, from Oberlin, OH . . . **Lorentz J. Graber, Jr.,** manager, Westchester County Airport ATCT, White Plains, NY, promotion made permanent . . . **Gregory J. Greico,** unit supervisor, Establishment Engineering Branch, Airway Facilities Div., promotion made permanent . . . **Lester J. Klein,** asst. manager for training, New York TRACON, Garden City . . . **Nelson Knox,** section supervisor, Establishment Engineering Branch, Airway Facilities Div., promotion made permanent . . . **Michael J. Lanz,** section supervisor, Establishment Engineering Branch, Airway Facilities Div., promotion made permanent . . . **Frank G. Lawther,** unit supervisor, Establishment Engineering Branch, Airway Facilities Div., promotion made permanent . . . **Jeffrey R. Lynch,** manager, North Philadelphia ATCT, from regional headquarters . . . **James A. Martin, Jr.,** unit supervisor, Richmond, VA, FSDO, promotion made permanent . . . **William W. Pearman, Jr.,** area manager, Washington ARTCC . . . **Peter Scotti,** supervisor, Maintenance Engineering Section, Maintenance Operations Branch, Airway Facilities Div., promotion made permanent . . . **David W. Siewert,** area supervisor, Albany County Airport ATCT, promotion made permanent . . . **Mario Strano,** section supervisor, Establishment Engineering Branch, Airway Facilities Div., promotion made permanent . . . **James M. Verdon, Jr.,** area supervisor, Williamsport, PA, AFSS.

Great Lakes Region

Jon A. Bloom, unit supervisor, Pipestone County, MN, AFSFO, Dakota AFS, Bismark, promotion made permanent . . . **Kathleen A. Brommage,** area supervisor, Cleveland, OH, ARTCC, Oberlin, promotion made permanent . . . **Janet S. Fisher,** supervisor, Staffing Section, Employment Branch, Human Resource Management Div., promotion made permanent . . . **Jeffrey L. Homant,** area supervisor, Cherry Capital Airport ATCT, Traverse City, MI, promotion made permanent . . . **Stephen L. Jones,** area supervisor, Cleveland, OH, ARTCC, promotion made permanent . . . **Paul D. Lepinski,** unit supervisor, St. Louis County, MN, AFSFO, Minneapolis, MN, AFS, promotion made permanent . . . **Richard D. Mott,** unit supervisor, Chicago, IL, AFS, from Illinois AFS . . . **Colleen P. Nowakowski,** area supervisor, Lansing, MI, Capital City Airport ATCT, from Grand Rapids ATCT . . . **Craig A. Pass,** area supervisor, Cleveland, OH, ARTCC, promotion made permanent . . . **Richard Pemberton,** unit supervisor, Columbus, OH, FSDO, promotion made permanent . . . **Rojelio R. Reyes,** supervisor, Administration Management Section, Telecommunication & Spectrum Engineering Branch, Airway Facilities Div., promotion made permanent . . . **Lawrence J. Ryan,** manager, Certificate Management Office, Minneapolis, Flight Standards Div., from Denver, FSDO . . . **William C. Taylor,** area supervisor, Saginaw, MI, Tri-City Airport ATCT, promotion made permanent.

New England Region

Louis Cenatiempo, unit supervisor, Windsor Locks, CT, AFS, promotion made permanent . . . **Joseph S. Gaudette,** supervisor, Navigation/Visual Landing Aids Section, Establishment Engineering Branch, Airway Facilities Div., promotion made permanent . . . **James W. Gebryel,** unit supervisor, Windsor Locks, CT, FSDO, promotion made permanent . . . **Wayne P. Hamilton,** unit supervisor, Nashua, NH, AFS, promotion made permanent . . . **Frank R. Procopis,** asst. manager, Boston ARTCC, Nashua, from Indianapolis ARTCC . . . **Eileen B. Seaman,** asst. manager, North Kingstown, RI, TRACON, Quonset Point, RI, from regional headquarters . . . **Michael G. Wayne,** unit supervisor, Windsor Locks, CT, AFS, promotion made permanent.

Northwest Mountain Region

Gary K. Bailey, supervisory electronics technician, Seattle, WA, AFS, from Salt Lake City, UT, AFS . . . **Daniel A. Boyle,** chief, Resource Management Branch, Air Traffic Div., from Salt Lake City ATCT . . . **Paul J. Conway, Jr.,** area supervisor, Denver ARTCC, Longmont, CO, promotion made permanent . . . **Larry G. Garbis,** unit supervisor, Salt Lake City, UT, ARTCC . . . **Bruce F. Harpham,** manager, Tacoma Narrows Airport ATCT, Gig Harbor, WA, from Seattle-Tacoma ATCT, Olympia . . . **Frank Helander,** unit supervisor, Denver, CO, FSDO . . . **James R. Hewett,** asst. manager for training, Auburn, WA, ARTCC, promotion made permanent . . . **Sheryl K. Kragenbrink,** area supervisor, Denver ARTCC, Longmont, CO, promotion made permanent . . . **Daniel C. Kube,** systems engineer, Longmont, CO, ARTCC AFS . . . **Gary W. Nelson,** area supervisor, Mahlon-Sweet Airport ATCT, Eugene, OR, promotion made permanent . . . **Carl E. Peterson,** manager, Grand Junction, CO, AFSFO, Denver AFS, from Parker, CO . . . **Wyman G. Shell,** principal maintenance inspector, Los Angeles Manufacturing Inspection District Office, Transport Airplane Directorate . . . **Robert M. Stacho,** section supervisor, L.A. Aircraft Certification Office, Transport Airplane Directorate, promotion made permanent . . . **Norman K. Tate,** area supervisor, Denver ARTCC, Longmont, CO, promotion made permanent . . . **John W. Walker,** unit supervisor, Portland, OR, FSDO, Hillsboro, OR, from Birmingham, AL, FSDO.

Southern Region

William S. Brown, crew chief, Atlanta, GA, ARTCC AFS, Hampton, GA . . . **Frank P. Burns,** supervisor, International Security Section, Air Security & Hazardous Materials Branch, Civil Aviation Security Div., from Brussels, Belgium . . . **Bobby L. Butler,** area manager, Orlando, FL, International Airport ATCT . . . **Wilbur H. Caison,** unit supervisor, Hampton AFSFO, Atlanta, ARTCC AFS, promotion made permanent . . . **Arthur M. Coleman,** area manager, Pensacola, FL, Regional Airport ATCT . . . **Bryce Courtney,** area supervisor, Orlando, FL, International Airport ATCT, promotion made permanent . . . **Corwin E. Denny,** manager, San Juan, PR, International Flight Service Station, promotion made permanent . . . **David L. Fair,** unit supervisor, Alabama FSDO, Birmingham . . . **William L. Fitchpatrick, Jr.,** area supervisor, Hampton, GA, ARTCC, from Hilliard, FL, ARTCC . . . **Santiago Garcia,** area supervisor, Hilliard, FL, ARTCC . . . **Victor A. Garcia,** asst. manager, plans & procedures, San Juan, PR, CERAP . . . **David C. Glover,** asst. manager, plans & programs, Jackson, TN, AFSS, promotion made permanent . . . **Jerry G. Groendyke,** area supervisor, Craig Airport ATCT, Jacksonville, FL, promotion made permanent . . . **John S. Harlow,** area supervisor, Jackson, MS, Municipal Airport ATCT . . . **Christopher A. Hennig,** traffic management unit supervisor, Hilliard, FL, ARTCC . . . **Bayard M. Irwin, Jr.,** manager, Real Estate & Utilities Branch, Logistics Div. . . . **Larry J. Little,** asst. manager, Nashville, TN, ATCT, from regional headquarters . . . **William E. Lorentz,** manager, Charlotte, NC, AFSFO, Charlotte AFS, from Gainesville, FL, AFSFO . . . **Michael G. Neary,** supervisor, Systems Management Section, Data Processing Branch, Management Systems Div., from Eastern Region Headquarters . . . **Sherrod T. Ratcliff,** manager, Greenwood, MS, AFSFO, Jackson AFS . . . **Gregory A. Sackett,** area supervisor, Orlando, FL, International Airport ATCT, promotion made permanent . . . **Virgil B. Scalf,** asst. manager for training, Orlando, FL, International Airport ATCT . . . **Charles A. Spillner,** manager, Atlanta, GA, FSDO, College Park, GA, from North Florida FSDO, Orlando . . . **Romallis T. St Cyr,** area supervisor, Louisville, KY, AFSS . . . **Thomas M. Thornton,** asst. manager for technical support, Jacksonville, FL, Hub AFS, from regional headquarters . . . **Gregory A. Williams,** area supervisor, St. Petersburg, FL, AFSS, promotion made permanent.

Southwest Region

William H. Allen, supervisor, Spectrum Engineering Section, Telecommunications & Spectrum Management Branch, Airway Facilities Div., promotion made permanent . . . **Bruce C. Beard,** area supervisor, Fort Worth ARTCC . . . **Mary C. Beebe,** asst. manager, Oklahoma City TRACON, from Great Lakes Region Headquarters . . . **Charles R. Bono,** asst. manager, Albuquerque, NM, ARTCC, from regional headquarters . . . **Ronald B. Clark,** supervisor, Special Programs Section, Resources & Planning Branch, Airway Facilities Div., promotion made permanent . . .

The information in this feature is extracted from the Personnel Management Information System (PMIS) computer. Space permitting, all actions of a change of position and/or facility at the first supervisory level and to branch manager in offices are published. Other changes usually cannot be accommodated because there are thousands each month.

Mary C. Dreessen, security officer, Houston, TX, CASFO, promotion made permanent . . . **Alan K. Gabbert,** manager, Dallas AFSFO II, Dallas/Fort Worth AFS, from New Orleans, AFS . . . **Richard J. Gerrek,** area manager, Fort Worth, TX, ARTCC, from FAA Technical Center . . . **Billy L. Henderson,** systems engineer, Fort Worth ARTCC AFS . . . **Wendale T. Irons,** asst. manager for program support, Houston ARTCC AFS, promotion made permanent . . . **Terry J. Jacob,** unit supervisor, Dallas/Fort Worth AFS . . . **Larry P. Kizer,** area supervisor, Houston, TX, ARTCC, promotion made permanent . . . **Michael S. McKean,** area supervisor, Dallas/Fort Worth TRACON, promotion made permanent . . . **Leroy Powell,** manager, Albuquerque, NM, AFS . . . **Bonifacio A. Sanchez,** area supervisor, Houston, TX, ARTCC, promotion made permanent . . . **Fred D. Sikes,** Monroe, LA, AFSFO, Little Rock AFS . . . **Charles W. Smith,** manager, Dallas/Fort Worth AFSFO II, Dallas/Fort Worth AFS, from Dallas AFSFO II . . . **Danny A. Thompson,** area supervisor, Lafayette, LA, Regional Airport ATCT, promotion made permanent . . . **Oscar Vaca,** manager, El Paso, TX, AFSFO, El Paso AFS, from Washington Headquarters . . . **Robert P. Wheeler,** area supervisor, Fort Worth, TX, ARTCC, from regional headquarters.

Technical Center

Michael J. Gallagher, technical program manager, Voice Switching Automation Branch, Automation Div., promotion made permanent . . . **Edward C. Gore,** unit supervisor, Production Section, Plant Services Branch, Plant Engineering & Services Div., promotion made permanent . . . **Jamison Hurst, Jr.,** manager, National Automation Field Support Div., from Philadelphia ATCT . . . **Carmen P. Johnson,** unit supervisor, Contracts Branch, Logistics Div., promotion made permanent . . . **Gary E. Poulsen,** deputy manager, Plant Engineering & Services Div. . . . **Vivian G. Thomas,** unit supervisor, Materiel Management Section, Materiel Branch, Logistics Div., promotion made permanent . . . **Maryanne C. Wright,** unit supervisor, Contracts Branch, Logistics Div., promotion made permanent.

Washington Headquarters

Johnnie B. Gamble, Jr., manager, Materiel Management Branch, NAS Support Div., Logistics Service . . . **Thomas Gassert,** manager, Performance Analysis Program, Maintenance Engineering Div., Systems Maintenance Service, from Fort Worth ARTCC AFS . . . **Charles H. Hall,** asst. manager, Traffic Flow Management Branch, Operations Div., Air Traffic Operations Service . . . **Paula Riley Lewis,** manager, Organizational Analysis Branch, Management Analysis Div., Office of Management Systems, promotion made permanent . . . **George H. Macania,** group supervisor, Continued Airworthiness Staff, Aircraft Engineering Div., Aircraft Certification Service, promotion made permanent . . . **Thomas L. Marker,** staff chief, Logistics Systems Staff, Logistics Service, promotion made permanent . . . **Harry E. McClure,** manager, Airworthiness Certification Branch, Aircraft Manufacturing Div., Aircraft Certification Service, promotion made permanent . . . **Carl E. McKinney,** section supervisor, Operations Branch, Operations Div., Air Traffic Operations Service, promotion made permanent . . . **Martin D. Miller,** manager, Management Support Branch, Plans Evaluation & Management Support Div., Office of Aviation Medicine . . . **Willis C. Nelson,** manager, FSS & Weather Branch, System Plans & Programs Div., Air Traffic Plans & Requirements Service . . . **Frank P. Paskiewicz,** manager, Production Certification Branch, Aircraft Manufacturing Div., Aircraft Certification Service, promotion made permanent . . . **Mary A. Pugh,** section supervisor, Operations Branch, Operations Div., Air Traffic Operations Service, promotion made permanent . . . **Paul K. Rosenwald,** section supervisor, FSS & Weather Branch, System Plans & Program Div., Air Traffic Plans & Requirements Service . . . **Rajendra Saroop,** manager, Operations Program Branch, Maintenance Operations Div., Systems Maintenance Service . . . **John W. Ward,** manager, Operations Branch, Resource Staff, Office of the Associate Administrator for Airway Facilities . . . **Robert A. Wright,** manager, Technical Standards Branch, General Aviation & Commercial Div., Flight Standards Service.

Western-Pacific Region

Arlander Clayton, area supervisor, Riverside, CA, AFSS . . . **Joan P. Cooper,** area supervisor, Hawthorne, CA, AFSS, from Santa Barbara FSS . . . **Lawrence G. Downs,** asst. manager-operation, Honolulu, HI, ARTCC . . . **Norman D. Harris,** asst. manager, Oakland, CA, TRACON, from McClellan AFB TRACON . . . **Sabra W. Kaulia,** manager, Airspace & Procedures Branch, Air Traffic Div., from Los Angeles, CA, TRACON . . . **Laurence A. Marinel,** asst. manager for training, Sacramento, CA, AFS, promotion made permanent . . . **Roman B. Miszkewycz,** area supervisor, McClellan AFB TRACON, Sacramento . . . **Edward P. Moy,** supervisor, Air Traffic Control Automation & Flight Information Program Section, Establishment Engineering Branch, Airway Facilities Div., promotion made permanent . . . **Ronald J. Oberlercher,** manager, San Francisco, CA, AFSFO, from regional headquarters . . . **Judith M. Opperman,** manager, Livermore, CA, ATCT . . . **William P. Simons,** area supervisor, Ontario, CA, TRACON, from Los Angeles ARTCC . . . **Jeffrey H. Thorstenson,** asst. manager, Los Angeles, CA, TRACON . . . **Alvin I. Toll,** manager, Long Beach, CA, FSDO, from regional headquarters . . . **Marvin E. Walker,** manager, Red Bluff, CA, AFSFO, Sacramento AFS, promotion made permanent . . . **Brian K. Yamada,** area supervisor, Honolulu, HI, ATCT, promotion made permanent.

Retirees

Aeronautical Center

Carl L. Berry
Eugene H. Garland
Marcia B. Grimm
David L. Lawton
Kenneth R. Powell
Howard E. Reinier
Floyd L. Simpson, Jr.

Central Region

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William P. Drew
Wayne M. Kirkpatrick
Robert L. McCall, Jr.
Jerald D. Mertens
Harold W. Miller
Paul W. Minor
William F. Stockley

Eastern Region

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Thomas F. Cronin
Clarence J. Dahl
James T. Doris
Thomas P. Hamill
Daniel Holodick
Thomas N. Hoydick
Linwood D. McNeely
Robert W. Otto
Robert H. Pohl
Charles Radi
James G. Skaltsakos
Sebastiano C. Virga
Stephen R. Wolford

Great Lakes Region

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Lloyd H. Anderson
Daniel M. Coleman
Ronald G. Hightower
Russell H. Kilmer
Ernest R. Koskinsemi
David R. Mahieg
Andrew J. Mercker
William A. Ryan
Eugene J. Van Pietersom
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New England Region

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Joseph A. Pontesorso
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Southern Region

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Bobbie H. Mason
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Billy R. Phillips
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Clarence B. Spradley Jr.
Ernest E. Wickersham
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Southwest Region

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Evelyn M. Fitzjarrell
Mack A. Frezesione
Stephen L. Goodenow
Doyle D. Graves
Ira A. Lasinger
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Janice N. Morvan
Carlos A. Perez
Raymond J. Phillips
Santiago Sanchez
Josephine Valdes
John M. Whitmore
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Technical Center

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Richard W. Shaw

Washington Headquarters

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Daniel R. Keenan
Alphonso Petteway
Ernest F. Van Vlaanderen

Western-Pacific Region

Robert E. Elgines
Thurman Gupton
Gary H. Ota
James Page, Jr.
Frederic L. Samsone
Larry L. Scheuffele
Lillian D. Snowden
David L. Tetzlaff

New Scholarship Fund for Women Pilots

To help women advance their training in aviation, American Flyers Flight School has established the Judith Resnik Memorial Scholarship to assist career-oriented women pilots. The scholarship fund is in memory of Judith Resnik, back-up command pilot astronaut aboard the space shuttle *Challenger*, which exploded January 28, 1986.

American Flyers, a nationwide flight training company, has set up the scholarship with $20,000 to be awarded annually in flight training. The company hopes to attract other contributors.

"With today's soaring demand for qualified pilots, it is vital that we assist women in getting access to training and career opportunities," said company chairman Donald D. Harrington.

Women today represent only 6% of America's certified pilots, and women starting pilot training have decreased by 32% in the past decade.

"We hope other aviation companies will step forward and build the fund. It will benefit us all," Harrington continued.

The distribution of awards will be determined by a committee of six women in the aviation field, including Arlene Feldman, head of FAA's New England Region since June 1988. Feldman was the first woman to serve in the position of Regional Director at the agency. A pilot and an attorney, she is also the first Honorary Member of the Professional Women Controllers and a long-time member of the Ninety-Nines, the international organization of licensed women pilots.

FAA's Arlene Feldman Named to Selection Panel

The Judith Resnik Memorial Scholarship is named in honor of the late Challenger *astronaut and aircraft pilot pictured here with NASA pilot Dr. Richard A. Laidley after their familiarization flight aboard a T-38.*

Scholarships in the first year could range from $1,000 to $5,000 each. Scholarship criteria are designed to select career-oriented women who already have made a serious and successful effort at flight training. Recipients, who must hold at least a private pilot's certificate and an instrument rating, can train at any of the 12 American Flyers locations. Applications for the scholarship are now being accepted, with November 15 being the deadline for the award to be given January 1.

Additional scholarships will be considered on a monthly basis, and the deadline each month is the 15th day of the preceding month.

For further information and application forms, contact:

Judith Resnik Memorial Scholarship
American Flyers, Van Nuys Airport
16461 Sherman Way, Suite 100
Van Nuys, CA 91406
or
Laura Mowrey, ***scholarship administrator***
(800) 233-0808

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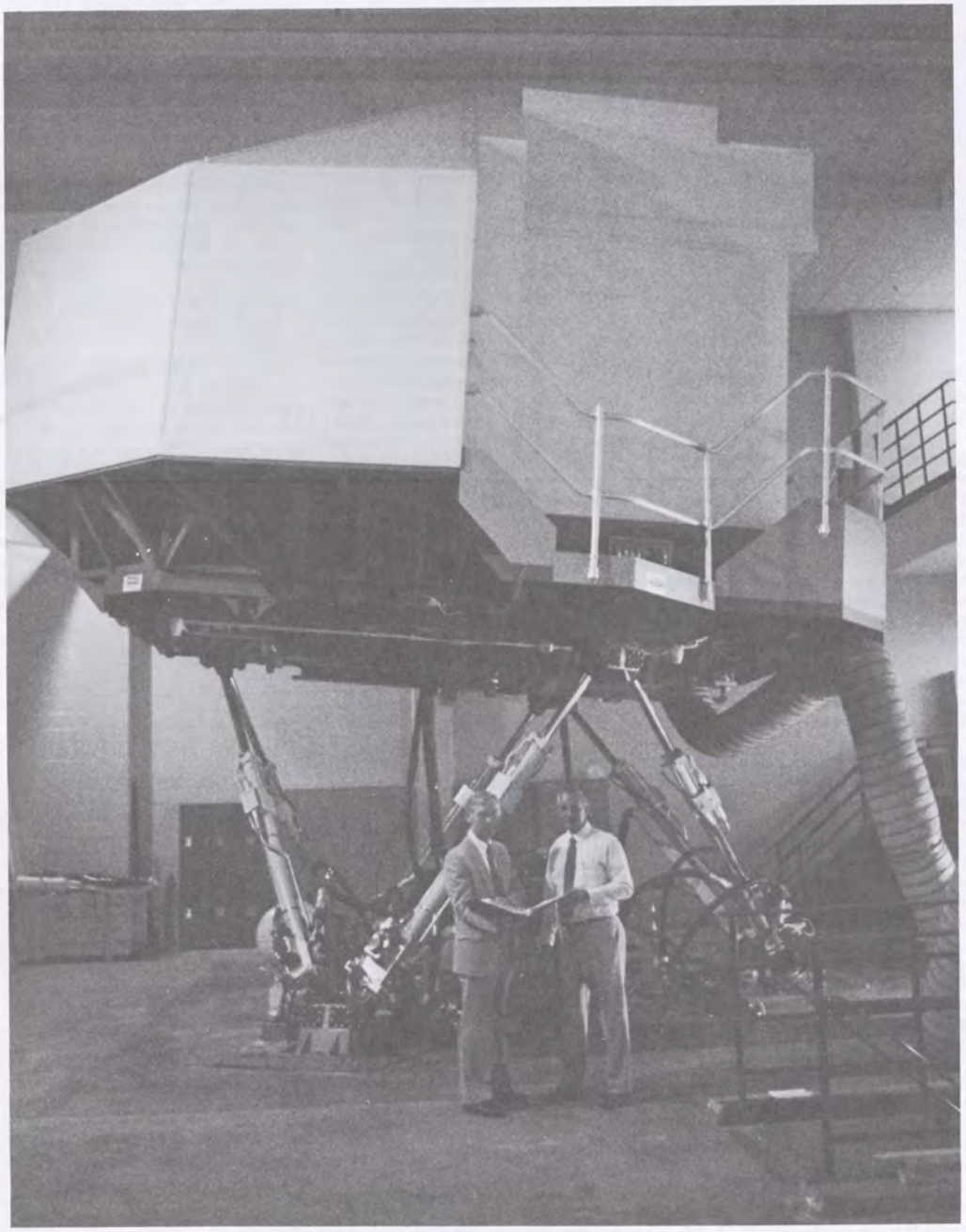

Ed Boothe, manager of the National Simulator Program, Atlanta, and A.R. Papandrea, chief flight instructor for Delta Air Lines, examine one of the manuals for the new MD-88 simulator, in "flight" behind them. Crews in training brief before flying the simulator and de-brief when they are through. Video cameras are available to record crew operating techniques.

Wingless Flight

Simulator Training Keeps on Progressing

By Phil Swatek

The pilot in command of your next flight, the one who is sitting up there in the cockpit so grandly confident, might not have been in that kind of airplane before. Unlikely, perhaps, but possible and legal. But not to worry. There would be a check airman with the pilot in that case.

What makes it possible for your pilot never to have been in the type of airplane before is amazing progress made in simulator training in the last decade. Your pilot could have been certificated—won his FAA license—through simulator training alone. The pilot wouldn't have had to leave the ground—in that kind of airplane—and would still be ahead of the game in terms of training and flying skills.

In This Issue

In the world of aviation simulation, this is known as a "device." A device provides no motion, nor any visuals out the cockpit windshield. In this instance, it is an instrument panel and that's all. The instructor develops the program on his computer, which then translates on the cockpit instruments in front of the trainees.

Aviation is in this way giving the word "simulation" an exalted new meaning. Instead of suggesting a substitute for the real thing—a fake—in the world of flight, it can mean something of unique and great value, such as a $15 million full-flight airplane simulator.

A strong case can be made that training of pilots in simulators is today not only just as good as training in an actual airplane, but better, not even considering the savings in time, money, fuel, and environmental resources.

In fact, it is now mandatory for airline pilots to have simulator training to prepare them for the most frightening conditions they might encounter—windshear, the vicious avalanche of air associated with a sudden change in wind speed and/or direction. Countering windshear isn't practiced in airplanes.

First of all, to practice, you'd have to find one of the invisible but deadly microbursts, a small-scale and particularly violent form of windshear, but it would be like practicing Russian roulette.

The quiet, high-tech simulator phenomenon didn't happen overnight, of course. It has been building since World War II when thousands of young Americans started their instrument flying training inside one of Ed Link's little blue boxes, a cramped, always hot "cockpit" with a simple instrument panel that turned through 360 degrees and lurched a little way up and down and side to side.

Today, though, a simulator for the Boeing 747 would stand three stories high on six hydraulicly powered, movable, piston-like legs anchored to the floor. It looks like a gargantuan, gently swaying, $15 million bug. It has the same six directions of movement as the 747—forward and back, up and down, side to side, as well as pitch, roll, and yaw.

The cabin on top of the legs is an exact replica of the 747 cockpit and flight deck, including all the electronic and computer equipment. What the simulator has that the real airplane doesn't have is a computer-generated motion picture shown to the flightcrew through the windshield. The moving picture they see might depict the approach to any number of selected airports around the world. Fog, rain, lightening can all be added to the picture to stimulate the interest of the crew. Turbulence severe enough to shake up the simulator can also be added if interest should wane.

The march from Link trainer to today's behemoths, which could have a dozen people aboard for the "flight," was a measured one. Progress was steady but not spectacular through the 1950's and 1960's. The airlines pushed for training credit as various devices proved their worth, but the revolution didn't start until the middle '70's with the availability of high-speed digital computers.

It took high-speed computers to generate all the commands that simulate a flight problem on the cockpit instruments, plus all the visual and oral cues to be presented, and then process the pilot's responses in realistic time. The "optics" had also improved greatly by the mid-70's, along with the six-legged system to portray movement.

Hydrostatic bearings eliminated much of the friction in the simulator motion system and brought the movement much closer to the fluid feel of an airplane aloft. The problem of disruptive artificiality is being further reduced as "fly by wire" control becomes more commonplace in the latest airplanes. Fly-by-wire means the movement of control surfaces is initiated by electronic impulses ordered by the pilot. Motors then move the controls. There is no direct linkage between pilot and controls.

"Airplanes are becoming more like simulators," says Ed Boothe, manager of the National Simulator Program.

As remarkable as the simulation of flight conditions on the ground has become, no one suggests flightcrews wouldn't be able to tell you whether they were really flying or on the ground, but every effort is made to duplicate the flight experience, including elimination of references to their vehicle as being other than an authentic aircraft.

No one could doubt the success of this simulation after seeing a crew file out of the machine—wringing wet—after a particularly tough "flight." Most important, there is no question simulator training "sticks." Experience has proven that pilots somehow don't forget what they learned when they get into the airplane.

FAA recognized the great advances in simulator technology in the '70's and said, in effect, to the industry, "Okay, we are now at a point where we can give a lot more credit toward certification for simulator training, but we have to agree on the terms."

Those terms were spelled out in four pages of the *Federal Register* of June 30, 1980, down to such details as being able to simulate "patchy wet" runways, "patchy ice," and "wet on rubber residue in touchdown zone." A lot more official guidance and regulation on simulator training has come out since then, but the Advanced Simulator Plan of June 30, 1980, was a cornerstone. It was then that the concept was fully accepted—training in simulators, under agreed-upon conditions, became equivalent to training in the actual airplane.

To manage this rapidly expanding field, FAA created the National Simulator Program (NSP). In April 1982, the NSP was moved from Washington to Atlanta in the Southern Region where it is today, a part of the Flight Standards Division.

The NSP staff which totals 23, has six of its staff located in other cities, including Dallas/Fort Worth, Seattle, and Minneapolis. The NSP is responsible for establishing the criteria for evaluating simulators, getting the information to the airlines and other operators, and then making sure that the evaluations are done, principally through the National Simulator Evaluation Team (NSET).

Team members are technical/operations specialists trained for the evaluation responsibility and are "type rated" in the airplane the simulator mimics. They can fly both the airplane and the simulator.

The number of airplane simulators is growing about 13 percent each year, but as of now, NSP is responsible for 278 simulators in the United States and 27 overseas.

Most, but not all, heavy jet simulators are owned and operated by major U.S. and international airlines. Smaller carriers and other jet operators that can't afford or make efficient use of a simulator rely on training schools, which do have the equipment and offer training worldwide.

All the simulators are not for the biggest jets. There are simulators for the whole spectrum of smaller corporate jets.

In the beginning, simulators were inspected quarterly, but with more evaluation experience as well as increasingly reliable simulators, it has been possible to reduce most, but not all, the evaluations to twice a year. That's still a very big workload for a limited number of specialists.

The full MD-80 cockpit "device" waits for a crew to be trained on flight operations systems, highly computerized in modern airplanes. It isn't necessary to have a full simulator to master the more complex cockpit systems before the simulator "flight."

Ed Boothe says that someday the evaluation rate might be further reduced, but it won't be soon because there are no regulatory requirements for building or maintaining simulators. This is very different from the extensive body of regulations surrounding the certification of an airplane and then the on-going maintenance regulations that follow an airplane until the day it is taken off the FAA register.

In the past, and even today, Boothe explains, each simulator is pretty much made by the manufacturer for the individual airline customer. The flight deck has to be just like the ones the airline ordered for their airplanes, with all the same instrumentation, computers, and subsystems.

"It's not like certificating an airplane where there might be hundreds of identical machines that will come down the line," Boothe said.

Obviously, advanced simulator training is not just a U.S. phenomenon. There is great interest around the world, and the Royal Aeronautical Society of Great Britain has taken the lead in arranging international participation in establishing standards. The first international meeting was last September in London.

At the meeting in Long Beach, California, last January, industry and government experts set up a small working group to go beyond philosophy and grapple with the problem in technical detail. That team has since agreed to use FAA's new Advisory Circular 120-40B as a basis for validation testing.

There will be another full-blown, multinational meeting in Amsterdam in October to find ways to synthesize differing views which is a very unusual endorsement and tribute to the NSP.

In this highly technical world of simulator flight training, definitions are very specific. "Airplane simulator," for example, means the machine is a full-sized replica of a specific airplane, with all the same navigation and flight management systems, with the motion picture visuals to represent ground and flight operations, plus realistic movement.

A machine that provides all the navigation and flight management programs—actually the most expensive part of the whole effort—but doesn't provide the visuals nor the motion, isn't a simulator. It's a "device" no matter what it costs.

This isn't an effort to discourage use of a range of devices in training. It makes a lot of sense to focus on particular and perhaps time-consuming parts of the total program in specifically tailored devices before putting it all together in the airplane simulator. Learning how to operate the navigational systems or the flight operations systems, which are now so highly computerized, are examples. The NSP has the responsibility for establishing technical criteria for the "devices" as well as the simulators.

Time in a 747 or MD-11 airplane simulator is by no means inexpensive. Although an hour might cost up to $1,000, it is a lot cheaper than the same time in an airplane, which might cost more than $10,000 an hour, if in fact an airplane were available for training.

Part of the problem is the limited availability of new airliners. There's a worldwide shortage given the steady growth of aviation as well as increased competition. Manufacturers already have orders for the next century. An airline doesn't want to take a new jet out of service months at a time to train crews when the crews can be trained just as well, or better, in a simulator, with no revenue lost. That's one of the reasons that about 90 percent of advanced flight training is now done in simulators.

To make the most efficient use of a new airplane in passenger service, airlines need six to 10 trained crews for each airplane. Simulators for the new jets are, therefore, in use around the clock. It is commonplace to see in simulator briefing rooms sleepy crews waiting their turn in the "monster" at 2 and 3 a.m.

The demand for simulator training has changed the traditional sequence in which simulator development followed the airplane. It used to be that airplane manufacturers had no particular interest in helping simulator manufacturers produce a totally realistic flight deck and flight experience for their airplane. Now because it affects the usefulness and value of their airplane, aircraft manufacturers work with simulator developers from the beginning, so true-to-life—or better-than-life—training is available even before the airplane is.

In light of the great and growing demand for simulator training, it is fortunate that outside weather never interferes. No matter what meteorological nightmares the trainees encounter, they won't get wet going back to the debriefing room. No airport neighbors have thus far been known to complain about the noise, and the price of aviation jet fuel isn't a concern either.

As remarkable as the new simulators are in creating the feeling, the atmosphere, of a real airplane flight for training purposes, they will no doubt be further refined, Boothe believes.

"Even faster computers to process more data on aircraft performance, data gathered specifically for simulator development, is the key to further progress," he said.

Helicopter simulators will soon be part of the system because of the rising demand, Boothe says. An advisory circular similar to the successful 120-40B for airplanes should be out within the year.

In a time years after astronauts have walked on the moon, it wouldn't be reasonable to call modern simulators astounding. But to be strapped down in the pilot's seat and go through a rough weather approach to a mountainous airport—in and out of heavy rain, the flight deck bouncing around in the turbulence—is close to it. Maybe amazing is the word.

While these theatrics generated on demand are fascinating, what really matters is the increasingly important role simulators have in preparing better pilots faster for a complicated and demanding aeronautical environment. ■

Modern simulators wouldn't be possible without high speed digital computers. Preparing the computer software and having it reliably ready is as important as putting fuel in an airplane.

A retired FAA official, Phil Swatek was a journalist and a free-lance writer before his government service.

FAA World

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'Vision 2000—Dare To Excel'

FAA Administrator Busey delivers keynote speech during the closing banquet of the Northwest Mountain Region's NHCFAE National Training Conference.

FAA photo by Matthew Bissell

Hispanic Coalition officers and friends pictured from left to right: Admiral Busey; Adolfo Zavala, Seattle ARTCC; Lory Sugihara, ANM; Lucio Aguilar, Seattle Airway Facilities Division; Jo-Marie Bonwell, ANM-9; Rita Reyna, Denver AFS ARTCC; Clem Monge, ANM-9; Art Fregoso, ANM-50; Tracy Tison—resigned to attend school full time; Cindy J. Korn, ANM-500; Manny Ruiz, ANM-50; Rene Matos, ACT-342.

The Northwest Mountain Region hosted the National Hispanic Coalition of Federal Aviation Employees (NHCFAE) National Training Conference in Tacoma, Washington, in August. More than 100 FAAers attended the conference, which presented speakers, workshops, and cultural awareness sessions to prepare FAAers for the anticipated population changes predicted by the Department of Labor's Workforce 2000 report.

The NHCFAE is a nationwide, nonprofit organization formed by FAA employees in 1979. Its objectives are to:

- Promote equal opportunity for Hispanic, female, and minority FAA employees;
- Improve employee-management relations; and
- Provide an effective liaison between the FAA and the community.

The NHCFAE invited everyone interested in assisting the FAA in the recruitment, training, promotion, and career development of Hispanics, women, and other minorities to participate in this dynamic conference.

This year's theme, "Vision 2000—Dare to Excel," focused on affirmative action recruitment initiatives, shifts in the emphasis of job skills needed, and an increasing need for cultural awareness and appreciation as a result of the changing pool of applicants and job market. These issues will affect the FAA and all Federal agencies as they work toward increasing the representation of women and minority employees.

Highlights of the conference included panels of civil rights officers, Hispanic Employment Program managers, Human Resources division managers, Regional Administrators, and Northwest Mountain Region division managers; a Special Emphasis Program panel; a motivational forum with the topic "Empowering Yourself"; a discussion of FAA employment objectives; workshops on the skill/performance based interview and the SES Candidate Development Program; and presentations on cultural diversity and sensitivity training, the FAA Academy, the FAA National Recruitment Team, and Total Quality Management (TQM).

Luncheon speakers included Wayne Barlow, Executive Director for Regulatory Standards and Compliance, and Dr. H.C. (Mac) McClure, Director of the Aeronautical Center.

FAA Administrator James Busey was the keynote speaker for the closing banquet in Tacoma. Remarking that the small number of Hispanics in FAA is "not acceptable," Busey vowed to push up these numbers.

"I want this EEO initiative to move forward even within the severe, but temporary, constraints of the budget situation. We will not use this situation as an excuse to lie back and do nothing."

Based on statistics for 1982–88, Hispanic participation in the total workforce grew by 22%. Yet, Hispanics in the federal government increased by only 16%.

At home in the FAA "Hispanics represent 3.7%—less than 1% higher than the 2.8% of 1980." At FAA, "there has been virtually no movement at all over the past decade. Clearly, this is not acceptable, and we are going to change this, I guarantee you," Busey vowed.

He cited examples of what we have been doing in recruitment recently. For example, the Great Lakes Region's recruitment in Puerto Rico and colleges and universities throughout the country has provided new Hispanic hires: five safety inspectors, two engineers, eight air traffic candidates, and several electronics technicians.

This summer Headquarters advertised in newspapers in San Juan, Puerto Rico, to recruit seasoned engineers and computer specialists and obtained about 125 applicants. Of the 20 applicants who showed particular promise, FAA found six it wanted to hire, and Busey granted an exemption to the hiring freeze to keep these six applicants.

Busey continued, "To make sure this recruitment effort is not just sporadic . . . I have directed that a number of actions be taken to institutionalize the program nationwide." Among these actions are:

- Developing a national recruitment program and a multi-year recruitment plan;
- Having full-time recruitment specialists in Headquarters and the regions;
- Making managers up and down the line accountable for EEO, starting with the Administrator's top management team.

Busey said, "Everyone at the Administrator's Management Team (AMT) level has been provided specific figures on where he or she stands with respect to minority representation in the national civilian labor force. They are directed to make sure minorities and women within their organizations are developed and prepared for management and executive positions."

To make sure AMT members provide the training and development, Busey said the FAA has set up a new critical job element for SES performance appraisals to go into effect for the appraisal period beginning October 1.

"Everyone knows where we stand and what is expected of them . . . and we've got the Executive Committee for EEO in place to provide the necessary oversight to make sure we achieve tangible, measurable results," Busey stated.

The Eastern Region will host the 1991 NHCFAE training conference, and the Great Lakes Region will host it in 1992. ■

Aviation's Hispanic Heritage

Did You Know . . .

BERT ACOSTA, along with Clarence Chamberlain, set a world record for endurance with the Wright-Bellanca—51 hours and 11 minutes—flying a circular course for a total of 4,100 miles. After Charles Lindbergh's famous flight, Acosta flew Richard Boyd's Fokker trimotor across the Atlantic in 1927.

LUIS ALVAREZ was the recipient of the Nobel Prize for Physics in 1968. Earlier in his career he distinguished himself by devising the ground control approach (GCA) landing system (still used by the military) for which he was awarded the Collier Trophy in 1945.

FRANKLIN CHANG-DIAZ was the first person of Hispanic descent to become an astronaut. Born in Costa Rica in 1950, Chang-Diaz became an astronaut in 1981. He holds a doctorate in physics from M.I.T.

JUAN de la CIERVA designed the rotary wing aircraft autogiro and successfully flew it at Getafe, Spain, January 9, 1923. In 1925 he proved the validity of the autogiro concept with the breakthrough in rotating wing design. He continued research and development work with the British in building prototypes and formulated design, theory, and data on which the helicopter industries of the world were founded.

In conceiving the idea of hinging the rotor blades of the giro at the hub and allowing them to respond individually to aerodynamic forces, he not only validated the autogiro, but also—and more importantly—provided the experience that eventually led to the development of the first practical helicopter.

MANUEL FERNANDEZ was a U.S. Air Force pilot in the Korean War. He destroyed 14 MiGs.

LINDA GARCIA was the first Hispanic female to graduate from the U.S. Air Force Academy in 1980.

SIDNEY GUTIERREZ was the second Hispanic person to become an astronaut in 1984.

MARQUIS PATERAS PESCARA, working in Spain between 1920 and 1926, designed several helicopter models. His most successful model had a forty-horsepower engine and two rotors, coaxially mounted.

An interesting part of his design was its biplane-type rotor blades. Instead of using individual blades, he attached them in pairs, one above the other, similar to the biplane arrangement that was so common in fixed-wing aircraft. He used a propeller in the nose for forward motion.

LEROY PONTON DE ARCE saw from personal experience that night flying of airmail, which the Post Office began as a regular service in 1924, was a hazardous occupation. From 1925 to 1927, he flew the mail on the Boston-New York route—without parachutes or instrumentation other than a compass, an air-speed indicator, and a tachometer.

An experimenter with improving the Fokker's night-flying capabilities, he went on to become one of the original 25 air traffic controllers to enter federal service on July 6, 1936, when the government assumed responsibility for en-route traffic control.

ELWOOD QUESADA in January 1929 served on an Army C-2, named the *Question Mark*, which broke all world endurance records by remaining airborne over California for more than 150 hours. Forty-three times during the historic flight, a second plane hovered less than 20 feet above the Fokker to pass down more than 5,000 gallons of fuel and supplies to the five Army Air Corps fliers aboard. At 70 miles an hour, the *Question Mark* was the first to be refueled by a hose dropped from another plane and guided into a tank in the fuselage. The fuel was then pumped by hand into wing tanks. Plugged grease outlets stopped one of the Wright Whirlwind engines, forcing the plane to land.

Quesada's accomplishments in the field of aviation went on to include his 1943–44 service as Commanding General of the Ninth Fighter Command, directing the U.S. air effort before and during the Normandy invasion. In 1946 he became the first head of the newly created Tactical Air Command and in 1947 the Special Assistant to the President for Aviation Facilities Planning. Quesada served as chairman of the Airways Modernization Board from 1957 to 1958. During the 1958–1961 period Quesada was the first Federal Aviation Agency Administrator.

FAA photo by Dennis B. Hughes

Susanna Leon-Guerrero, ALR-100, and Don Espinoza, AHT-400, stand beside an oil painting by Leon-Guerrero's teenage daughter. The painting was on display in Headquarters during an event highlighting National Hispanic Heritage Month, September 15 through October 15. The painting depicts a Paris neighborhood.

FAA photo by Dennis B. Hughes

Caterina Vasquez of the Office of the Chief Counsel is dishing out samples of Hispanic cuisine to a long line of FAAers and guests. The dish she is serving is chicken con molé, which is served with a chocolate, peanut and cinnamon sauce.

FAA photo by Ricky Kozuki

Members of Ballet Folklorico Cuscatlan, a Salvadoran folk dancing group, pose for a photo after a performance at the Department of Transportation plaza marking the observance of National Hispanic Heritage Month.

Positive Endings— *Annual Awards for Outstanding Flight Assists*

By Pat Tomasetti

Operational errors, accidents, litigation, problems identified during evaluation, and the like—the Office of Air Traffic System Effectiveness focuses on so much of the "negative" in performing its functions.

Each year, though, the office also maintains the national database of flight assist reports that reflect how potential disasters were avoided and thousands of lives were saved by positive professionals doing their jobs. In 1989, for instance, 1,127 flight assists—assistance to pilots of aircraft in trouble or distress—were recorded: 238 by the en route centers, 499 at terminals, and 390 at flight service stations.

Based on these flight assists, an "Outstanding Flight Assist Award" is given yearly to an air traffic control specialist (ATCS) in each of the three options. Winners for 1989 were air traffic control specialist Michael J. Blume, Minneapolis Air Route Traffic Control Center, Minneapolis, Minnesota; air traffic control specialist Albert D. Jones, Tri-City Airport Traffic Control Tower, Blountville, Tennessee; and air traffic control specialist Stephen A. Hubbert, McGrath Flight Service Station, McGrath, Alaska. Hubbert is currently assigned to the McAlester, Oklahoma, Automated Flight Service Station.

This year's awards ceremony was held on Friday, August 3, at FAA Headquarters.

Annually, nominations for the awards are made by each region and forwarded to ATH-310, the System Analysis Branch of the System Improvements Division, Office of Air Traffic System Effectiveness. Selected by a review board consisting of one specialist from each of the three options and a facilitator, the winners are picked from one nomination from each region for each option. The review board also recommends the amount of money to accompany the award.

"All of us who carry the 'ATCS' title are prone to reliving our own experiences while reviewing such reports," was how one person involved in the review described the examination.

The selection process for the awards is at times not perfect. For instance, nominations have not always included the number of people aboard the aircraft in trouble or distress. The review board, which then has to assume only one person was onboard, may not realize the true magnitude of the assist and recommend another assist—one with more people involved and the potential of having saved more lives—for the award.

On this year's review board were Carl McKinney, ATM-120, for the en route option; Alton Scott, ATP-240, for the terminal option; and Larry Herrell, ATP-112, for the flight service station option.

Tina McClure, the facilitator in ATH-310, is available to answer questions on the nominations and the awards procedures. Her number at Washington Headquarters is FTS 267-9143.

Now for the details of the winning flight assists for 1989:

Pictured at the August awards ceremony in the FAA Headquarters' MacCracken room are Associate Administrator for Air Traffic, Bill Pollard; award recipients Mike Blume, Al Jones, and Stephen Hubbert; and former Executive Director for System Operations Edwin Harris.

In June 1989, Tri-City departure radar controller Albert Jones was monitoring a November aircraft, an IFR departure. No radio communications from the aircraft were forthcoming, and his observation of the target showed radical course deviations and rapid fluctuations of altitude from 3,000 to 7,000 feet over mountainous terrain.

Further monitoring of the November's flight path showed that the aircraft had reversed course and had flown back across the airport.

Jones immediately suspended departures at the airport. Repeatedly he called the November and was finally able to establish radio communications with its pilot.

The controller instructed the pilot to climb immediately and turn north, but the pilot was unable to maintain heading or altitudes assigned; therefore, Jones began prompting the pilot with no-gyro vectors and plain language communication and issuing numerous reminders to correct altitude and heading.

The November was successfully directed to Tri-City Regional Airport for a safe landing. Once landed, the pilot's license was revoked under an emergency provision.

This flight assist was one of two attributed to Jones in 1989. ■

Al and Pauline Jones are accompanied by their daughter Mandy. Al has also worked at the Crossville, TN, Flight Service Station.

Tina McClure, ATH-310, and Helen Wall, then branch manager of ATH-320, compiled the information for this article.

Michael Blume's—and the Minneapolis Center team's—outstanding flight assist began when radar/manual controller Dale Willer received a pilot's initial report of moderate icing at 7,000 feet. Realizing that the November aircraft with seven passengers aboard was rapidly approaching the limit of radar coverage between the Minneapolis and Denver Centers, ATCS Blume moved in to staff the radar assistant position. Paul Serreyn then joined the team so that Blume could join Willer on the radar position.

As the incident unfolded, Blume and Willer split the frequencies so that Blume, a certified flight instructor and a pilot himself, could work the emergency without interruption, with Willer working the rest of the traffic on a separate frequency at the same position. Soon, however, radar contact was lost with the November.

Knowing that Denver's receiving sector would not be able to pick up the aircraft on radar, a turn back to land at O'Neill was suggested. Beginning the turn, the aircraft reported difficulty in holding altitude, and the pilot communicated he was "going down," adding he needed all the help he could get.

A pilot of a Navajo in the area who had been listening in on the drama advised, "Don't give up early down there. There's roads down there you can use." He then advised the embattled pilot on making a procedure turn.

With icing conditions worsening and the plane running sluggishly, the November's pilot responded, "Negative. I'm going down! We're going down—we're going to have to take it straight down!"

ATCS Blume encouraged the pilot to keep flying, reissued earlier instructions, and led the pilot step-by-step through the procedures for regaining his bearings and maintaining his heading. About one hour and twenty minutes into the drama, the November was over the runway at O'Neill.

After two unsuccessful landing attempts and without being able to see from the front window, the November's pilot brought his plane in for a safe landing.

This was one of three flights Blume assisted last year. ■

Mike and Colleen Blume are an aviation family. Both are pilots, and Colleen works for Northwest Airlines.

Stephen Hubbert receives his award at the ceremony. His wife Gwin also attended the program. Stephen now works at the McAlester AFSS in Oklahoma.

It was February in Alaska, and weather conditions were such that a pilot flying a C185 on an instrument flight rules (IFR) flight plan reported to the McGrath Flight Service Station (FSS) that he had encountered severe icing. He reported to the FSS specialist on duty, Stephen Hubbert, that in three minutes he had accumulated one inch of ice. Unable to maintain assigned minimum en route altitudes, the pilot had lost very high frequency omni-directional radio range (VOR) and automatic direction finder (ADF) navigation capability.

Also to complicate matters, the remote communications air-ground facility (RCAG) at McGrath was out of service for the center frequency, and there was no radar coverage in this area of variable minimum altitudes and high terrain.

It took almost one tension-filled hour of conversation among the aircraft, the FSS, and the Anchorage Center to pull off a very good ending to a very bad beginning.

FSS specialist Hubbert did everything right in his handling of this inflight emergency. As part of the strategy, a state truck was used to get snow plowed, the runway sanded, and runway conditions reported. Hubbert appropriately coordinated with the control facility and then provided direction finder (DF) guidance, including a full DF approach to the airport in McGrath.

A two-time recipient, Hubbert also won the award for outstanding flight assist of the year in 1987. ■

Improving the International Language of ATC

By Diane Spitaliere

Ann Dufaux, Air-Inter English professor, receives orientation at Kennedy tower.

Foreign pilots sometimes have difficulty understanding English, presently the language used most often in air traffic control worldwide.

To get a first-hand experience of how English is spoken in America and especially within the U.S. air traffic control system, English Professor for Air-Inter Ann Dufaux recently visited Kennedy Tower, made tape recordings of pilot/controller communications, and interviewed controllers on terminology.

Air-Inter, a French domestic carrier associated with Air France, contracted for the services of four English professors from the University of Besançon to set up and implement a flightcrew screening and training program in English competency. The program, which has been in place for about a year, has been very successful and is expanding to include groundcrews.

'Not New to European Airlines'

"Programs like this are not new to European airlines, but as increased emphasis is being placed on pilot/controller communications, they seem to be expanding," said Dufaux.

One of her primary responsibilities is to screen potential pilots for Air-Inter to ensure that their English is at an acceptable level.

"Because air traffic has been increasing so steadily in France, there is a great need for new pilots. It's not unusual for us to screen eight pilots in a single day," said Dufaux.

The intensive screening process takes about one hour and requires the skills of two English professors, one to conduct the interview and one to take notes. Pilots are asked to speak in English for about 20 minutes on subjects related to their professional experiences and training.

In addition, all pilots must be tested on their ability to communicate clearly with air traffic controllers. They have to listen to the Automatic Terminal Information Service (ATIS), take notes, and express what they have heard. They also work on radio communications during which they respond to controller instructions for a landing operation.

"If there seems to be a communication breakdown at any point during the interview, we give them additional material to review and discuss. This is done to ensure that both interviewers are in accord with the level of competency of the pilot's English," Dufaux explained.

Rigid Training for Captains

In order to be promoted to captain, a pilot must go through an extensive four-month training program, which includes a mandatory 60-hour English course.

"We deal mainly with aviation terminology, but we also realize the importance of properly communicating English in everyday language. To this end we offer and encourage flightcrews to attend mini-courses in English available through the university," said Dufaux. "Although these courses are not mandatory, they are strongly encouraged by the airline."

Air-Inter also has English screening and training programs for flight attendants as it is essential that they can be clearly understood by all passengers.

Increasing Need for Programs

In 1992 member countries will begin full-fledged implementation of European Common Market agreements. Borders between countries will no longer be protected. European citizens living in any of the 12 countries participating will be able to work in another country with their own national passport. Greater movement between countries will be possible, and an increase in travel on airlines should occur. Ultimately, one result will be a greater demand for language communication programs such as Air-Inter's because the need for English communication among air traffic controllers and pilots will increase.

"Visiting Kennedy Tower and getting a first-hand explanation of American air traffic control terminology will be of tremendous value to me when I return to France," said Dufaux.

"I hope to incorporate the pilot/controller communications information obtained at this facility into our own language program. I think it will be beneficial to both instructors and pilots alike." ■

Diane Spitaliere is editor of the Eastern Region Intercom.

Oshkosh B'Gosh

By Dorothy Hartigan

Dorothy "Dodie" Hartigan is an air traffic control specialist at the Bedford, Massachusetts, Tower. She and her husband Coleman—Boston Tower—have attended the EAA convention in Oshkosh for the past five years during their vacation.

She wrote this article in memory of John Lewkowicz, manager, Ann Arbor, Michigan, Tower, who served as a controller and area supervisor during this and many other Oshkosh fly-ins. John perished in his antique Stearman during an aerial demonstration on August 2, 1990. A spirited aviator and fellow controller, his kindness and unique personality touched the lives of many.

In our present world full of automated this and computerized that, some things are still done best the old-fashioned way. A prime example of this can be seen during the Experimental Aircraft Association's (EAA) annual fly-in convention at Wittman Field in Oshkosh, Wisconsin.

Each year, for about ten days, Oshkosh and its surrounding towns come alive with activity, as hundreds of thousands of aviators and spectators gather to be part of the world's largest experimental aircraft convention. Up to 15,000 aircraft tie down at Wittman Field and take part in the estimated 60,000 landings and departures that take place during the convention.

The skies are filled each day with everything from motorized parachutes to fighter jets and tankers. With such a wide variance of aircraft performance, pilot experience, and language barriers, it is amazing how well the whole thing works. Spectators sporting portable radios listen with one ear to the non-stop instructions from Oshkosh Tower controllers and with the other to the roar of warbirds filling the sky.

I tune in intently to the fast pace of the tower frequency and am immediately impressed with the controllers' timing and seemingly unflappable perseverance.

Here at Wittman Field it is reminiscent of the type of grassroots controlling that took place in the early days of Archie League and his wheelbarrow and checkered flags. In fact, it is over the grass roots of a farmer's field where the approach to Oshkosh begins.

Aircraft inbound to Wittman Field enter a transition over the town of Ripon and follow a set of old, abandoned railroad tracks to a cornfield in a sleepy little town called Fisk. Here controllers sit in a temporary tower with a couple of radios and several pair of binoculars, identifying and sequencing aircraft by type, color, and call sign. Arrivals may be temporarily held there during field closures or issued runway, traffic pattern, and frequency information and switched to a local control frequency. Aircraft without radios (and there are many) approach the airfield from another route to avoid the major flow of traffic. Once the aircraft approach the airport boundary, north and south local controllers rattle off landing instructions, leaving no room for reply or the possibility of a stuck mike (aircraft acknowledge by rocking their wings). The controllers use every available inch of their runways with the help of reduced separation waivers for this event.

Departures are handled right at the runway by controllers with day-glo batons who wave off these men and women and their flying machines in rapid succession, coordinating with local by radio as needed. A position known as "Rooftop" coordinates with EAA airshow officials for all fly by and airshow departures. Additionally, in the tower there are flight data, clearance, ground, and several air route traffic control center controllers who coordinate all instrument flight rules (IFR) routings and releases. Two additional controllers spot traffic for each local control position. Supervisors and the tower manager oversee the entire operation, juggling microphones and land lines while coordinating the constant flow of information from all the people involved.

Forty-five ATC specialists were brought in on detail to add to the staff of eight controllers already at Oshkosh Tower. They also staffed a portable tower at nearby Fond du Lac Airport, where overflow aircraft from Wittman Field tie down for the convention. Many of these specialists have worked previous Oshkosh fly-ins and are familiar with the operation. Others are journeymen controllers from various Great Lakes Region locations and are witnessing this scene for the first time.

The professionalism and teamwork of the controllers, airway facilities technicians, employees from the local flight service station and flight service district office, and the many EAA officials and volunteers foster a climate of cooperation and comaraderie vital to the success of such a remarkable event. It is evident that these men and women enjoy the challenge of the fast-paced Oshkosh experience and the opportunity to roll up their sleeves to work the airplanes.

Some may wonder why a controller would want to spend a vacation at the largest gathering of general aviation enthusiasts in the world. It could be the aerial demonstrations of such aviation greats as Gene Soucy, Marion Cole, the French Connection, and the Eagles flight team, or perhaps it's the opportunity to stroll past countless rows of antique and experimental aircraft, admiring their beauty and craftsmanship. Really, though, the reason for it is that the Oshkosh fly-in puts air traffic controllers back in touch with aviation and controlling at its grassroots level, where the job gets done and everyone has fun doing it. ■

People

Aeronautical Center

Terry G. Farnstrom, Academy 3R instructor, Automation Section, Airway Facilities Branch, FAA Academy, promotion made permanent . . . **James R. Hill,** Academy 3R instructor, Navigation/Communication/Environment Section, Airway Facilities Branch, FAA Academy, promotion made permanent . . . **Laurie C. Lowman,** supervisor, Flight Procedures/Inspection Section, ACY FIFO, Atlantic City, NJ, promotion made permanent . . . **Beverly S. Norman,** unit supervisor, Review, Qualifications & Evaluation Section, Medical Review Branch, Aeromedical Certification Div. . . . **Robert L. Pace,** supervisor, Engineering Section, Engineering & Production Branch, FAA Logistics Center.

Alaskan Region

Andrew S. Billick, asst. manager, Airway Facilities Div. . . . **Howard J. Cleveland,** supervisor, Maintenance Operations Support Section, Systems Maintenance Engineering Branch, Airway Facilities Div., promotion made permanent . . . **Daniel M. Cryer,** unit supervisor, North Alaska AFS, Fairbanks, promotion made permanent . . . **Robert J. Dunlap,** unit supervisor, Installation Section, Establishment Engineering Branch, Airway Facilities Div., promotion made permanent . . . **James G. Hodges,** asst. manager for automation, Anchorage ARTCC . . . **Joseph F. Woodford,** manager, Anchorage, AK, ARTCC, from Salt Lake City.

Central Region

Gregory L. Bardsley, area supervisor, Cedar Rapids, IA, Municipal Airport ATCT, from Omaha, NE, TRACON . . . **Rita L. Cosner,** manager, Procurement Branch, Logistics Div., promotion made permanent . . . **Philip D. Duda,** supervisor, Technical Support Section, Automated Information Branch, Resource Management Div., from Southern Region Headquarters . . . **Lewis R. Kuhns,** asst. manager, Grand Island, NE, AFS, from Raleigh, NC, AFS . . . **Laurence T. Leonard,** manager, Waterloo, IA, Municipal Airport ATCT, from Idaho Falls ATCT . . . **Raymond A. McMillan,** manager, North Platte, NE, AFSFO, Grand Island AFS, from Columbus, NE, AFSFO . . . **Richard J. Meyer,** group supervisor, Technical/Administrative Support Staff, Small Airplane Directorate, promotion made permanent . . . **Willie R. Moore,** area manager, Lambert Field ATCT-TRACON, St. Louis, MO, from Southwest Region Headquarters . . . **Eddie W. Osborne,** manager, Goodland, KS, AFSFO, Wichita, KS, AFS, promotion made permanent.

Eastern Region

Robert L. Aderhold, unit supervisor, Elmira, NY, AFSFO, Harrisburg AFS, promotion made permanent . . . **Larry T. Anderson,** asst. manager, Washington ARTCC, Leesburg, VA . . . **Alexander A. Argyros,** unit supervisor, Establishment Engineering Branch, Airway Facilities Div., promotion made permanent . . . **Vito J. Borrello,** asst. manager, New York TRACON, from MacArthur Airport ATCT, Islip . . . **Michael R. Chinn,** manager, AFSFO Washington Headquarters, Capital AFS, promotion made permanent . . . **Joseph H. Dotterer,** area supervisor, Washington National ATCT, promotion made permanent . . . **David A. Ellis,** area supervisor, Yeager Airport ATCT, Charleston, WV, from Oberlin, OH . . . **Lorentz J. Graber, Jr.,** manager, Westchester County Airport ATCT, White Plains, NY, promotion made permanent . . . **Gregory J. Greico,** unit supervisor, Establishment Engineering Branch, Airway Facilities Div., promotion made permanent . . . **Lester J. Klein,** asst. manager for training, New York TRACON, Garden City . . . **Nelson Knox,** section supervisor, Establishment Engineering Branch, Airway Facilities Div., promotion made permanent . . . **Michael J. Lanz,** section supervisor, Establishment Engineering Branch, Airway Facilities Div., promotion made permanent . . . **Frank G. Lawther,** unit supervisor, Establishment Engineering Branch, Airway Facilities Div., promotion made permanent . . . **Jeffrey R. Lynch,** manager, North Philadelphia ATCT, from regional headquarters . . . **James A. Martin, Jr.,** unit supervisor, Richmond, VA, FSDO, promotion made permanent . . . **William W. Pearman, Jr.,** area manager, Washington ARTCC . . . **Peter Scotti,** supervisor, Maintenance Engineering Section, Maintenance Operations Branch, Airway Facilities Div., promotion made permanent . . . **David W. Siewert,** area supervisor, Albany County Airport ATCT, promotion made permanent . . . **Mario Strano,** section supervisor, Establishment Engineering Branch, Airway Facilities Div., promotion made permanent . . . **James M. Verdon, Jr.,** area supervisor, Williamsport, PA, AFSS.

Great Lakes Region

Jon A. Bloom, unit supervisor, Pipestone County, MN, AFSFO, Dakota AFS, Bismark, promotion made permanent . . . **Kathleen A. Brommage,** area supervisor, Cleveland, OH, ARTCC, Oberlin, promotion made permanent . . . **Janet S. Fisher,** supervisor, Staffing Section, Employment Branch, Human Resource Management Div., promotion made permanent . . . **Jeffrey L. Homant,** area supervisor, Cherry Capital Airport ATCT, Traverse City, MI, promotion made permanent . . . **Stephen L. Jones,** area supervisor, Cleveland, OH, ARTCC, promotion made permanent . . . **Paul D. Lepinski,** unit supervisor, St. Louis County, MN, AFSFO, Minneapolis, MN, AFS, promotion made permanent . . . **Richard D. Mott,** unit supervisor, Chicago, IL, AFS, from Illinois AFS . . . **Colleen P. Nowakowski,** area supervisor, Lansing, MI, Capital City Airport ATCT, from Grand Rapids ATCT . . . **Craig A. Pass,** area supervisor, Cleveland, OH, ARTCC, promotion made permanent . . . **Richard Pemberton,** unit supervisor, Columbus, OH, FSDO, promotion made permanent . . . **Rojelio R. Reyes,** supervisor, Administration Management Section, Telecommunication & Spectrum Engineering Branch, Airway Facilities Div., promotion made permanent . . . **Lawrence J. Ryan,** manager, Certificate Management Office, Minneapolis, Flight Standards Div., from Denver, FSDO . . . **William C. Taylor,** area supervisor, Saginaw, MI, Tri-City Airport ATCT, promotion made permanent.

New England Region

Louis Cenatiempo, unit supervisor, Windsor Locks, CT, AFS, promotion made permanent . . . **Joseph S. Gaudette,** supervisor, Navigation/Visual Landing Aids Section, Establishment Engineering Branch, Airway Facilities Div., promotion made permanent . . . **James W. Gebryel,** unit supervisor, Windsor Locks, CT, FSDO, promotion made permanent . . . **Wayne P. Hamilton,** unit supervisor, Nashua, NH, AFS, promotion made permanent . . . **Frank R. Procopis,** asst. manager, Boston ARTCC, Nashua, from Indianapolis ARTCC . . . **Eileen B. Seaman,** asst. manager, North Kingstown, RI, TRACON, Quonset Point, RI, from regional headquarters . . . **Michael G. Wayne,** unit supervisor, Windsor Locks, CT, AFS, promotion made permanent.

Northwest Mountain Region

Gary K. Bailey, supervisory electronics technician, Seattle, WA, AFS, from Salt Lake City, UT, AFS . . . **Daniel A. Boyle,** chief, Resource Management Branch, Air Traffic Div., from Salt Lake City ATCT . . . **Paul J. Conway, Jr.,** area supervisor, Denver ARTCC, Longmont, CO, promotion made permanent . . . **Larry G. Garbis,** unit supervisor, Salt Lake City, UT, ARTCC . . . **Bruce F. Harpham,** manager, Tacoma Narrows Airport ATCT, Gig Harbor, WA, from Seattle-Tacoma ATCT, Olympia . . . **Frank Helander,** unit supervisor, Denver, CO, FSDO . . . **James R. Hewett,** asst. manager for training, Auburn, WA, ARTCC, promotion made permanent . . . **Sheryl K. Kragenbrink,** area supervisor, Denver ARTCC, Longmont, CO, promotion made permanent . . . **Daniel C. Kube,** systems engineer, Longmont, CO, ARTCC AFS . . . **Gary W. Nelson,** area supervisor, Mahlon-Sweet Airport ATCT, Eugene, OR, promotion made permanent . . . **Carl E. Peterson,** manager, Grand Junction, CO, AFSFO, Denver AFS, from Parker, CO . . . **Wyman G. Shell,** principal maintenance inspector, Los Angeles Manufacturing Inspection District Office, Transport Airplane Directorate . . . **Robert M. Stacho,** section supervisor, L.A. Aircraft Certification Office, Transport Airplane Directorate, promotion made permanent . . . **Norman K. Tate,** area supervisor, Denver ARTCC, Longmont, CO, promotion made permanent . . . **John W. Walker,** unit supervisor, Portland, OR, FSDO, Hillsboro, OR, from Birmingham, AL, FSDO.

Southern Region

William S. Brown, crew chief, Atlanta, GA, ARTCC AFS, Hampton, GA . . . **Frank P. Burns,** supervisor, International Security Section, Air Security & Hazardous Materials Branch, Civil Aviation Security Div., from Brussels, Belgium . . . **Bobby L. Butler,** area manager, Orlando, FL, International Airport ATCT . . . **Wilbur H. Caison,** unit supervisor, Hampton AFSFO, Atlanta, ARTCC AFS, promotion made permanent . . . **Arthur M. Coleman,** area manager, Pensacola, FL, Regional Airport ATCT . . . **Bryce Courtney,** area supervisor, Orlando, FL, International Airport ATCT, promotion made permanent . . . **Corwin E. Denny,** manager, San Juan, PR, International Flight Service Station, promotion made permanent . . . **David L. Fair,** unit supervisor, Alabama FSDO, Birmingham . . . **William L. Fitchpatrick, Jr.,** area supervisor, Hampton, GA, ARTCC, from Hilliard, FL, ARTCC . . . **Santiago Garcia,** area supervisor, Hilliard, FL, ARTCC . . . **Victor A. Garcia,** asst. manager, plans & procedures, San Juan, PR, CERAP . . . **David C. Glover,** asst. manager, plans & programs, Jackson, TN, AFSS, promotion made permanent . . . **Jerry G. Groendyke,** area supervisor, Craig Airport ATCT, Jacksonville, FL, promotion made permanent . . . **John S. Harlow,** area supervisor, Jackson, MS, Municipal Airport ATCT . . . **Christopher A. Hennig,** traffic management unit supervisor, Hilliard, FL, ARTCC . . . **Bayard M. Irwin, Jr.,** manager, Real Estate & Utilities Branch, Logistics Div. . . . **Larry J. Little,** asst. manager, Nashville, TN, ATCT, from regional headquarters . . . **William E. Lorentz,** manager, Charlotte, NC, AFSFO, Charlotte AFS, from Gainesville, FL, AFSFO . . . **Michael G. Neary,** supervisor, Systems Management Section, Data Processing Branch, Management Systems Div., from Eastern Region Headquarters . . . **Sherrod T. Ratcliff,** manager, Greenwood, MS, AFSFO, Jackson AFS . . . **Gregory A. Sackett,** area supervisor, Orlando, FL, International Airport ATCT, promotion made permanent . . . **Virgil B. Scalf,** asst. manager for training, Orlando, FL, International Airport ATCT . . . **Charles A. Spillner,** manager, Atlanta, GA, FSDO, College Park, GA, from North Florida FSDO, Orlando . . . **Romallis T. St Cyr,** area supervisor, Louisville, KY, AFSS . . . **Thomas M. Thornton,** asst. manager for technical support, Jacksonville, FL, Hub AFS, from regional headquarters . . . **Gregory A. Williams,** area supervisor, St. Petersburg, FL, AFSS, promotion made permanent.

Southwest Region

William H. Allen, supervisor, Spectrum Engineering Section, Telecommunications & Spectrum Management Branch, Airway Facilities Div., promotion made permanent . . . **Bruce C. Beard,** area supervisor, Fort Worth ARTCC . . . **Mary C. Beebe,** asst. manager, Oklahoma City TRACON, from Great Lakes Region Headquarters . . . **Charles R. Bono,** asst. manager, Albuquerque, NM, ARTCC, from regional headquarters . . . **Ronald B. Clark,** supervisor, Special Programs Section, Resources & Planning Branch, Airway Facilities Div., promotion made permanent . . .

The information in this feature is extracted from the Personnel Management Information System (PMIS) computer. Space permitting, all actions of a change of position and/or facility at the first supervisory level and to branch manager in offices are published. Other changes usually cannot be accommodated because there are thousands each month.

Mary C. Dreessen, security officer, Houston, TX, CASFO, promotion made permanent . . . **Alan K. Gabbert,** manager, Dallas AFSFO II, Dallas/Fort Worth AFS, from New Orleans, AFS . . . **Richard J. Gerrek,** area manager, Fort Worth, TX, ARTCC, from FAA Technical Center . . . **Billy L. Henderson,** systems engineer, Fort Worth ARTCC AFS . . . **Wendale T. Irons,** asst. manager for program support, Houston ARTCC AFS, promotion made permanent . . . **Terry J. Jacob,** unit supervisor, Dallas/Fort Worth AFS . . . **Larry P. Kizer,** area supervisor, Houston, TX, ARTCC, promotion made permanent . . . **Michael S. McKean,** area supervisor, Dallas/Fort Worth TRACON, promotion made permanent . . . **Leroy Powell,** manager, Albuquerque, NM, AFS . . . **Bonifacio A. Sanchez,** area supervisor, Houston, TX, ARTCC, promotion made permanent . . . **Fred D. Sikes,** Monroe, LA, AFSFO, Little Rock AFS . . . **Charles W. Smith,** manager, Dallas/Fort Worth AFSFO II, Dallas/Fort Worth AFS, from Dallas AFSFO II . . . **Danny A. Thompson,** area supervisor, Lafayette, LA, Regional Airport ATCT, promotion made permanent . . . **Oscar Vaca,** manager, El Paso, TX, AFSFO, El Paso AFS, from Washington Headquarters . . . **Robert P. Wheeler,** area supervisor, Fort Worth, TX, ARTCC, from regional headquarters.

Technical Center

Michael J. Gallagher, technical program manager, Voice Switching Automation Branch, Automation Div., promotion made permanent . . . **Edward C. Gore,** unit supervisor, Production Section, Plant Services Branch, Plant Engineering & Services Div., promotion made permanent . . . **Jamison Hurst, Jr.,** manager, National Automation Field Support Div., from Philadelphia ATCT . . . **Carmen P. Johnson,** unit supervisor, Contracts Branch, Logistics Div., promotion made permanent . . . **Gary E. Poulsen,** deputy manager, Plant Engineering & Services Div. . . . **Vivian G. Thomas,** unit supervisor, Materiel Management Section, Materiel Branch, Logistics Div., promotion made permanent . . . **Maryanne C. Wright,** unit supervisor, Contracts Branch, Logistics Div., promotion made permanent.

Washington Headquarters

Johnnie B. Gamble, Jr., manager, Materiel Management Branch, NAS Support Div., Logistics Service . . . **Thomas Gassert,** manager, Performance Analysis Program, Maintenance Engineering Div., Systems Maintenance Service, from Fort Worth ARTCC AFS . . . **Charles H. Hall,** asst. manager, Traffic Flow Management Branch, Operations Div., Air Traffic Operations Service . . . **Paula Riley Lewis,** manager, Organizational Analysis Branch, Management Analysis Div., Office of Management Systems, promotion made permanent . . . **George H. Marania,** group supervisor, Continued Airworthiness Staff, Aircraft Engineering Div., Aircraft Certification Service, promotion made permanent . . . **Thomas L. Marker,** staff chief, Logistics Systems Staff, Logistics Service, promotion made permanent . . . **Harry E. McClure,** manager, Airworthiness Certification Branch, Aircraft Manufacturing Div., Aircraft Certification Service, promotion made permanent . . . **Carl E. McKinney,** section supervisor, Operations Branch, Operations Div., Air Traffic Operations Service, promotion made permanent . . . **Martin D. Miller,** manager, Management Support Branch, Plans Evaluation & Management Support Div., Office of Aviation Medicine . . . **Willis C. Nelson,** manager, FSS & Weather Branch, System Plans & Programs Div., Air Traffic Plans & Requirements Service . . . **Frank P. Paskiewicz,** manager, Production Certification Branch, Aircraft Manufacturing Div., Aircraft Certification Service, promotion made permanent . . . **Mary A. Pugh,** section supervisor, Operations Branch, Operations Div., Air Traffic Operations Service, promotion made permanent . . . **Paul K. Rosenwald,** section supervisor, FSS & Weather Branch, System Plans & Program Div., Air Traffic Plans & Requirements Service . . . **Rajendru Saroop,** manager, Operations Program Branch, Maintenance Operations Div., Systems Maintenance Service . . . **John W. Ward,** manager, Operations Branch, Resource Staff, Office of the Associate Administrator for Airway Facilities . . . **Robert A. Wright,** manager, Technical Standards Branch, General Aviation & Commercial Div., Flight Standards Service.

Western-Pacific Region

Arlander Clayton, area supervisor, Riverside, CA, AFSS . . . **Joan P. Cooper,** area supervisor, Hawthorne, CA, AFSS, from Santa Barbara FSS . . . **Lawrence G. Downs,** asst. manager-operation, Honolulu, HI, ARTCC . . . **Norman D. Harris,** asst. manager, Oakland, CA, TRACON, from McClellan AFB TRACON . . . **Sabra W. Kaulia,** manager, Airspace & Procedures Branch, Air Traffic Div., from Los Angeles, CA, TRACON . . . **Laurence A. Marinel,** asst. manager for training, Sacramento, CA, AFS, promotion made permanent . . . **Roman B. Miszkewycz,** area supervisor, McClellan AFB TRACON, Sacramento . . . **Edward P. Moy,** supervisor, Air Traffic Control Automation & Flight Information Program Section, Establishment Engineering Branch, Airway Facilities Div., promotion made permanent . . . **Ronald J. Oberlercher,** manager, San Francisco, CA, AFSFO, from regional headquarters . . . **Judith M. Opperman,** manager, Livermore, CA, ATCT . . . **William P. Simons,** area supervisor, Ontario, CA, TRACON, from Los Angeles ARTCC . . . **Jeffrey H. Thorstenson,** asst. manager, Los Angeles, CA, TRACON . . . **Alvin I. Toll,** manager, Long Beach, CA, FSDO, from regional headquarters . . . **Marvin E. Walker,** manager, Red Bluff, CA, AFSFO, Sacramento AFS, promotion made permanent . . . **Brian K. Yamada,** area supervisor, Honolulu, HI, ATCT, promotion made permanent.

Retirees

Aeronautical Center

Carl L. Berry
Eugene H. Garland
Marcia H. Grimm
David L. Lawton
Kenneth R. Powell
Howard E. Reimer
Floyd L. Simpson, Jr.

Central Region

Paul K. Bohr
William P. Drew
Wayne M. Kirkpatrick
Robert L. McCall, Jr.
Jerald D. Mertens
Harold W. Miller
Paul W. Minor
William F. Stockley

Eastern Region

Joseph B. Bledsoe
Thomas E. Cronin
Clarence J. Dahl
James T. Doris
Thomas P. Hamill
Daniel Holodick
Thomas N. Hopdick
Linwood D. McNeely
Robert W. Otto
Robert H. Pohl
Charles Radi
James G. Skaltsakos
Sebastiano C. Virga
Stephen R. Wofford

Great Lakes Region

William G. Altman
Lloyd H. Anderson
Daniel M. Coleman
Ronald G. Hightower
Russell H. Kilmer
Ernest R. Koskniemi
David R. Malucg
Andrew J. Mercker
William A. Ryan
Eugene J. Van Pietersom
Donald L. Watson

New England Region

Peter Crosland
Donald E. Duhaimel
Harrison A. Hollis, Jr.
James C. Moran

Northwest Mountain Region

Bennett O. Bentley
Harry E. Lamar
Francis M. McKinney
Joseph A. Pontecorvo
Melvin L. Wimber

Southern Region

James S. Berryhill
Ned Cobb
William F. Cullen
Elzie L. Foster, Jr.
James D. Franklin
John G. Hodges
Bobbie H. Mason
James W. Nash
Harold D. Nelson
John W. Otto
Billy R. Phillips
Nathan H. Pridemore
Emil L. Schultz
Elizabeth L. Skinner
Clarence B. Spradley Jr.
Ernest E. Wickersham
Kenneth W. Wilson

Southwest Region

Lee C. Field, Jr.
Evelyn M. Fitzjarrell
Mack A. Freestone
Stephen L. Goodmon
Doyle D. Graves
Iris A. Lassiter
Charles L. Lee
Janice N. Morvan
Carlos A. Perez
Raymond J. Phillips
Santiago Sanchez
Josephine Valdes
John M. Whitmore
David J. Young

Technical Center

George H. Fox
Howard J. Mason
Robert C. Schimmel
Richard W. Shaw

Washington Headquarters

Richard W. Barker
Joseph N. Chin
Donald E. Higgins, Jr.
Janice O. Hinton
Fred Hodo, Jr.
Daniel R. Keenan
Alphonso Penteway
Ernest F. Van Vlaanderen

Western-Pacific Region

Robert F. Elgines
Thurman Gupton
Gary H. Ota
James Page, Jr.
Frederic L. Sansone
Larry L. Scheuffele
Lillian D. Snowden
David L. Tetzlaff

New Scholarship Fund for Women Pilots

FAA's Arlene Feldman Named to Selection Panel

To help women advance their training in aviation, American Flyers Flight School has established the Judith Resnik Memorial Scholarship to assist career-oriented women pilots. The scholarship fund is in memory of Judith Resnik, back-up command pilot astronaut aboard the space shuttle *Challenger*, which exploded January 28, 1986.

American Flyers, a nationwide flight training company, has set up the scholarship with $20,000 to be awarded annually in flight training. The company hopes to attract other contributors.

"With today's soaring demand for qualified pilots, it is vital that we assist women in getting access to training and career opportunities," said company chairman Donald D. Harrington.

Women today represent only 6% of America's certified pilots, and women starting pilot training have decreased by 32% in the past decade.

"We hope other aviation companies will step forward and build the fund. It will benefit us all," Harrington continued.

The distribution of awards will be determined by a committee of six women in the aviation field, including Arlene Feldman, head of FAA's New England Region since June 1988. Feldman was the first woman to serve in the position of Regional Director at the agency. A pilot and an attorney, she is also the first Honorary Member of the Professional Women Controllers and a long-time member of the Ninety-Nines, the international organization of licensed women pilots.

The Judith Resnik Memorial Scholarship is named in honor of the late Challenger *astronaut and aircraft pilot pictured here with NASA pilot Dr. Richard A. Laidley after their familiarization flight aboard a T-38.*

Scholarships in the first year could range from $1,000 to $5,000 each. Scholarship criteria are designed to select career-oriented women who already have made a serious and successful effort at flight training. Recipients, who must hold at least a private pilot's certificate and an instrument rating, can train at any of the 12 American Flyers locations. Applications for the scholarship are now being accepted, with November 15 being the deadline for the award to be given January 1.

Additional scholarships will be considered on a monthly basis, and the deadline each month is the 15th day of the preceding month.

For further information and application forms, contact:

Judith Resnik Memorial Scholarship
American Flyers, Van Nuys Airport
16461 Sherman Way, Suite 100
Van Nuys, CA 91406
or
Laura Mowrey, ***scholarship administrator***
(800) 233-0808

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