# World

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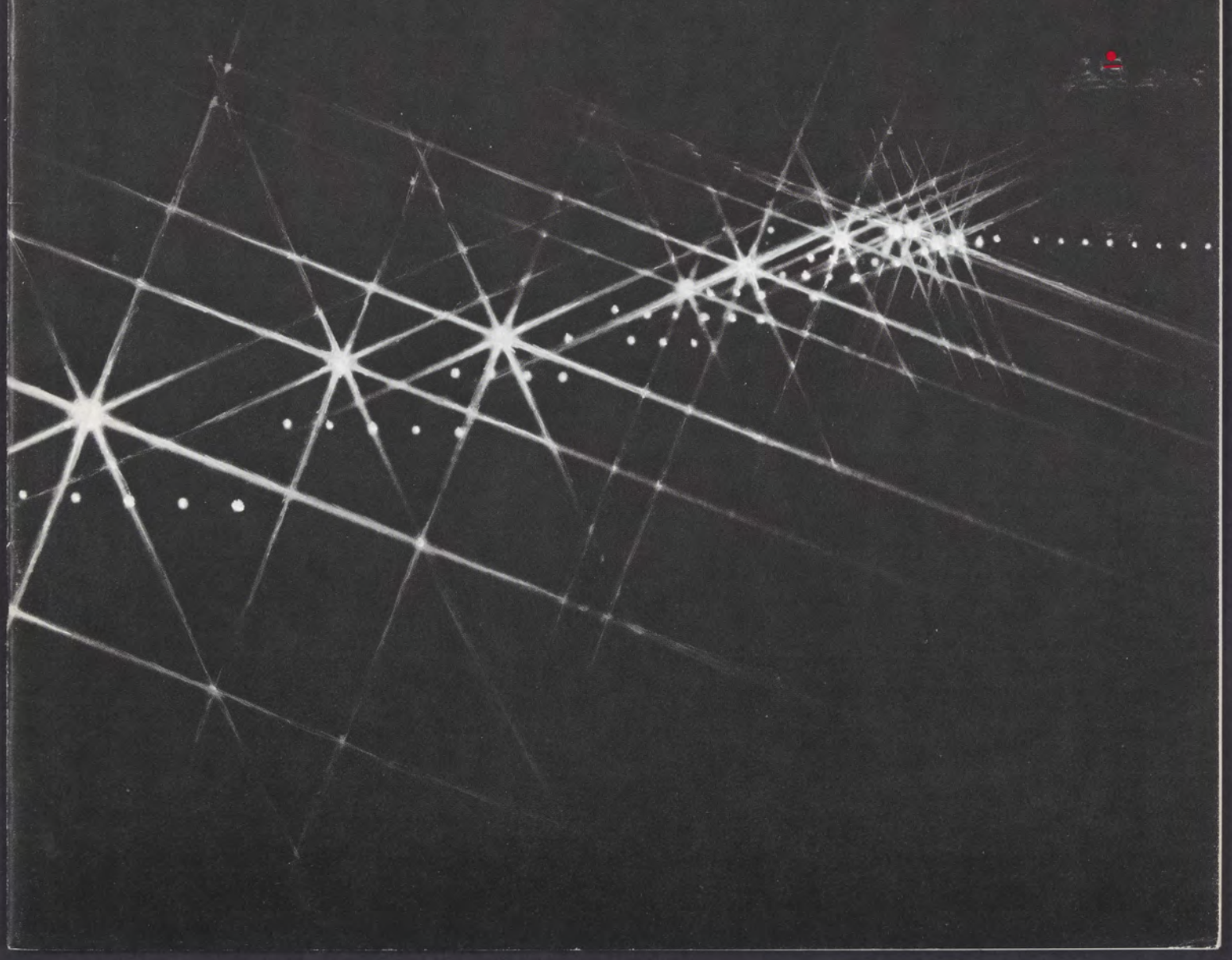

*Front cover:* **A rainy night in Peoria, Ill., diffracts the approach lights and strobes.**

Photo by James S. "Mouse" Reed, Greater Peoria Airport Tower

## Research Highlights

Studies at the Technical Center have shown that existing terminal radar systems can be used as a possible basis for establishing higher-altitude wind-shear detection systems.

While the feasibility of other approaches is being looked into by the Systems Research and Development Service (SRDS), the center has proven that one channel of an ASR-8 airport surveillance radar can be used in conjunction with a wind-shear measuring system developed by the National Oceanic and Atmospheric Administration's Wave Propagation Laboratory under an SRDS contract. Mated to a 15-foot parabolic rotating antenna and its computer system, the overall system can monitor winds up to 1,600 feet and out to the instrument landing system marker about six miles away.

A tower display has yet to be developed and evaluated.

The system covered by the study is designed to complement the earlier development of a Low-Level Wind Shear Alert System (LLWAS) now in place at many airports around the country, which monitors up to 60 feet.



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By Raymond Van Vuren
The Director of the Air Traffic Service, he earlier worked as an air traffic controller in Chicago, Battle Creek, Mich., and Alaska

# The ATC Phoenix

## A More-Efficient Control System To Rise

The air traffic controllers' strike on August 3 had a dual impact on the operation of the Air Traffic Service. The first was in the form of reduced capacity and service to the users and increased working hours for all FAAers in the facilities. The second impact will be felt in three to six years after the strike.

Our first priority after the strike began was to maintain a high standard of safety. Field managers, supervisors and controllers were frequently reminded to slow down traffic enough to ensure safety at all times. The Central Flow Control Facility issued tight flow-control restrictions to spread out aircraft and to prevent peak activity anywhere in the system. Air Traffic Service evaluators immediately began riding in air-carrier cockpits and visiting air traffic facilities to monitor the system's safety.

During the first week of the strike, we dropped nearly 12,000 controllers. Our traffic capacity, in terms of daily movement, was reduced significantly but not to the extent that any user category was totally denied access to the system. The major movement of people and supplies was accommodated. In part, this was due to the majority of the non-striking work force being highly experienced and dedicated employees.

### The Second Impact

Our initial recovery from the strike should be complete within three years. Near the end of our initial recovery, a number of the FAAers now sustaining the operation in such an outstanding manner will be eligible to retire. So we expect to be faced with a young work force with limited experience. Also during this period, we expect that the supervisory and lower management personnel will have a lower level of control experience.

Extensive training will be needed in most facilities for several years. While the FAA Academy fortunately has the capacity to handle increased training, it will still be limited by the facilities' training capabilities, which can't be shifted elsewhere. Radar training is an example of the latter.

Air traffic will continue to be regulated to a decreasing degree throughout the next three years to avoid extreme traffic peaks. The training and checking out of new controllers, to the extent possible, will be geared to providing the maximum control experience for them prior to the onset of that second impact period.

**The cornerstone of our recovery effort will be the restructuring of the work force in major control facilities . . .**

There also was a positive impact to the crisis—a new cooperative atmosphere throughout the system. This was displayed not only among the controllers within each facility but also in the interactions between facilities and between controllers and pilots. This has been a missing ingredient for many years.

Within hours after the strike began, FAA requested and received by airlift 100 military controllers at five critical facilities. The following day, an additional 210 military controllers were airlifted to 10 more facilities. At the end of the first three weeks, there were 808 assigned to the FAA. The military personnel we received had had training equal to FAA's and were operational in comparable military installations. Nevertheless, they were checked out and certified on each FAA position before being permitted to control traffic for us.

To further augment our staff, recent retirees were asked to return to duty. Most of those who accepted were assigned staff functions or other noncontrol duties. A few were given medical exams, retrained and recertified on operational positions.

### Restructuring the Work Force

The cornerstone of our recovery effort will be the restructuring of the work force in major control facilities into three distinct categories: the flight data specialist, the center manual controller or tower local controller and the radar controller. This staffing approach will cut costs, increase competition for promotion and speed the gaining of experience within each of these structured elements. In addition, we will act to increase the efficiency and effectiveness of each member of the work force, leading to a higher level of system capacity with reduced facility staffing.

Helping to keep traffic moving in the San Francisco International Airport tower cab are (left to right, foreground) R. Q. Simmons, Bob Rowland and William Dickson.

San Francisco Chronicle photo by Gary Fong


Wide World Photos

While both air route traffic control centers and control towers were affected by the strike, our recovery plans for each, particularly during the first year, are significantly different. A special emphasis will be placed on those facilities that lost the greatest proportion of their work force.

In the case of towers, we had two sources of rapid, if not immediate, relief for key facilities. The first was the relocation of qualified personnel from smaller facilities to larger ones. The second was the introduction of the military controllers into a great number of towers. While the latter needed a longer training and checkout period than the relocated FAAers, they are now productive and providing additional capacity for the system.

The temporary relocations have given us additional support for the first three to four months. Other temporary relocations will occur beyond that four-month period, but at a continually reducing rate. The military work force will be gradually phased out between January and September 1982.

The control tower recovery plan will be geared to providing newly checked-out controllers at a faster rate than the temporary work force is phased out. This will permit us to sustain terminal traffic capacity next year while reducing controller work hours. Then, in September, tower capacity will begin to increase and should reach normal levels by early 1983.

### ARTCCs Hardest Hit

An entirely different problem is faced by the en route centers and the San Juan

Washington ARTCC traffic moves along under the control of radar controller Dorsey Shipley (left) and manual controller Jim Lambiasi. *Loudoun Times-Mirror* photo by Annalisa Kraft

CERAP. There are no facilities from which to relocate substantial numbers of people. It also isn't feasible or even possible to consider the closing of any of these facilities on a short-term basis. In addition, the number of military controllers available to supplement the center work force was less than 50.

Because of the lack of immediate additional resources, the en route centers are and will continue to be the largest limiting factor on system capacity throughout the recovery period. The approach for the recovery of the centers, therefore, must be different.

One early aspect of center recovery will be the transfer of some functions to towers and flight service stations, such as moving some airspace to approach control facilities and funneling more traffic through the tower en route control system. Some weather functions may also be transferred to flight service stations.

Radar controller Jerry Perrin (left) and manual controller Earl Samp work en route traffic at the Chicago ARTCC.

Hal Stoelzle/NYT Pictures

We have processed new employees as quickly as possible to serve in assistant controller and other noncontrol positions to free up those members of the staff who could not be recertified on control positions for medical or other reasons. These, in turn, can be concentrated in the training area to help in the development of new controllers.

As new controllers are added to the work force, we will reduce the workweek to the normal 40 hours with some limited overtime, free up some additional staff members for other recovery aspects and, finally, increase traffic capacity. Again: The overall concept is to sustain current traffic for about a year, followed




Air Force controller passes picketing strikers at O'Hare Airport, Chicago. UPI Photo

Local controller Warren Norton handles a flight data strip in the tower cab at Newark (N.J.) International Airport.

*The Home News* photo, New Brunswick, N.J.

by a rapid rise in capacity during the second year. This approach will reduce the overall recovery time.

To ensure that the system's capacity is equalized throughout the country as quickly as possible, the hiring and training schedules are being controlled on a national basis. The first FAA Academy graduates should begin arriving at critical facilities for facility classroom and on-the-job training before the end of the year. The checkouts of new controllers on operating positions will begin about February 1982.

Their initial benefit to us, however, will be absorbed by attrition, replacement of military personnel and annual leave by the work force that had sustained the operation since the strike. So, it will be September 1982 before the addition of new controllers will begin to be felt throughout the system.

### A Better System in the Offing

I want to emphasize that the long-term recovery approach will not be designed merely to replace the controllers lost during the strike. Rather, the Air Traffic Service will take advantage of this opportunity to build a smaller, more-effecient organization that will have a greater growth capacity, be more flexible and be more economical to operate. The new system will be developed based on the Service's experience over the years, as well as users' desires and experiences. The rebuilding effort will solicit ideas from all levels within the Air Traffic Service, other FAA services and all user representatives.

Also paramount in the rebuilding effort is the correction of practices and the use of new approaches that will permit us to avoid a repeat of the 1981 strike. Unless those changes are made, it is reasonable to expect that, as the work

force grows, the same anti-management posture could develop within the new controller work force.

The key aspects of this restructuring must be accountability—and very specific accountability at that—within each management or supervisory position. The areas of responsibility and accountability must be matched by the authority necessary.

The National Airspace Review (NAR), though originally independent, is now an integral and important element in the new system. There will be some adjustments made in the schedules of the NAR activity to provide us with earlier feedback in some categories so that the system can be tailored to accommodate user needs better.

### More Automation of the Routine

The future system is expected to be increasingly automated and less controller intensive. Flight plans will be filed based on a requested flight profile, altitude and speed normally selected to minimize fuel burn. Then, taking into account aircraft type, gross weight and winds aloft, the automation system will project the flight along its desired flight plan for 10 to 30 minutes to reveal potential separation violations with other projected flights.

Conflict resolution programs will resolve any violations in the least disruptive way.

Flow-control restrictions of adjoining centers will be handled by apportioning delays to aircraft within the center's area and, when necessary, controlling the incoming flow of traffic from other centers. These restrictions will be translated into flight plan revisions and instructions to limit flows as required. Also, any flight plan revisions resulting from an aircraft's deviation from its expected performance will be calculated and new clearances transmitted.

### Human Judgment Still Needed

Despite these automated procedures, however, the controller will be able to intervene at any point in the ATC process. This will include reviewing planned traffic flows, metering, conflict resolution, clearance generation or individual aircraft performance. The controller is the manager of the system, evaluating situations best left to human judgment and relying on automation to accomplish the routine tasks efficiently. Despite the use of the data link and voice-response systems for air-ground communications, controllers will be available at all times to assist pilots.

**[We will] build a smaller, more-efficient organization that will have a greater growth capacity, be more flexible and be more economical to operate.**

In brief, the future system will relieve the controller and the pilot of routine tasks that lead, however infrequently, to human error. The automation of these tasks cannot, however, extend to the more-complex situations requiring human judgment. A major failure cannot be permitted to result in a situation beyond the capability of the pilot or controller. Then, the system must permit traffic to gradually diminish to a point where it can be handled manually by the controller.

We also must consider that segment of the aviation community that may never be equipped to fully use the automated services of the future system. How large that segment will be is not known at this time. For this reason as well, there will be a continuing need for an air traffic control system that can operate in the manual mode of our contemporary system.

Thus, we can be making major strides in the 1980s toward that future system. For the time being, however, it will remain a system that relies very heavily on the air traffic controller. But it could be a controller with improved and more highly sophisticated tools at his or her disposal; a controller less occupied with the more mundane ATC duties—like the delivery of flight plan, airport and weather information—and, we hope, through our planned employee development programs, a controller more dedicated to the ATC profession for the profession's sake. ■



# Q&A

**We have received word that the FAA has been authorized to settle back pay claims of GS-12s under the Fair Labor Standards Act back to May 1974. When will the FAA begin accepting claims for this back pay?**

As a result of an out-of-court settlement, only the 39 FAA employees who filed suit challenging their exempt status under the FLSA were immediately entitled to back pay. The FAA has contacted the General Accounting Office (GAO) for an advance decision on the propriety of back pay and the period of time to which it applies for employees who are not party to the suit. Until we receive such guidance, we cannot process the remaining claims. Keep in mind that back-pay claims are filed directly with the GAO and then forwarded to the FAA for processing. If you are or have been a GS-856-12 EMT and wish to protect your possible entitlement to back pay, we encourage you to immediately file a claim with the GAO, if you have not already done so.

The claim should be sent to the following address: Director of Claims Division, General Accounting Office, 441 G St. SW, Washington, D.C. 20548. In this claim, you should include the basis for the claim (back pay for GS-12 EMTs based on change to nonexempt status under FLSA), your name and address, your current business address, your signature and date.

**This is a potentially touchy situation. It has to do with what an employee should do when he knows of someone in a management position that is misusing that position in a very unethical manner, such as soliciting free air transportation for himself and his family, misusing rental funds, etc. Can such a query be handled in a way that the employee could still retain his job? Or, should the employee just turn his head and not pay any attention to such goings on? If anything can or should be done, what are the appropriate actions?**

We recommend that you use the Office of the Inspector General "hotline" as a means of reporting any suspected wrongdoing within the Department of Transportation. Through the hotline, DOT employees and the general public can conveniently and confidentially report incidents of fraud, abuse and mismanagement and possible violations of regulations and laws directly to the Office of the Inspector General. Complaints can be submitted to the hotline, anonymously if desired, by using the local Washington, D.C. number—755-1855—or a toll-free long-distance number—800-424-9071. Written complaints may be sent to the Inspector General, P.O. Box 23178, L'Enfant Plaza Station, Washington, D.C. 20024.

**I am scheduled for school at the FAA Academy. I plan to use my own car (POV), and so does a co-worker who is attending the same class. To save paying for two POVs, why doesn't FAA allow him extra mileage if he carries a passenger? If he were allowed, say, 27 cents a mile instead of the standard 22.5 cents, it would be an incentive for him to carry me, or vice versa. FAA would save 18 cents a mile and we'd be burning less gasoline.**

FAA employees traveling on official business are reimbursed under the Federal Travel Regulations issued by the General Services Administration and implemented by DOT Order 1500.6 (FAA Order 1500.14). The mileage rate currently is 22.5 cents per mile when the use of a POV is determined to be to the Government's advantage. While the particular situation you describe would encourage economy, the regulations limit the payment of mileage to only one of two or more employees traveling together in a car. The mileage rate was arrived at simply to approximate the actual costs of driving the car, so there is no basis for permitting a different rate. Employees, who are taxpayers, too, are responsible for using prudence in the expenditure of travel funds and are urged to ride together whenever possible.

You've tried the normal channels—your supervisor, the personnel management specialist, the regional office—and can't resolve a problem or understand the answers you've gotten. Then ask FAA WORLD's Q&A column. We don't want your name unless you want to give it or it's needed for a personal problem, but we do need to know your region. All will be answered here and/or by mail if you provide an address.

By Thomas S. Hook
Acting chief of Headquarters' Public Inquiry Center, he is the author of two books on the U.S. Navy's rigid airships.

# Recurrent Training Batting 1.000

## Safety Seminars Reinforce Piloting Skills

Photo by Jay Carroll

When Dennis Hughes got out of the rented Cherokee Archer II—after an hour of flying precision approaches, takeoffs and landings in a stiff crosswind under the watchful eyes of an instructor—he sighed with relief.

"I got out sweatin'," said Hughes. A private pilot, he works for the Department of Transportation's Visual Information Branch as a photographer. That was the toughest of his three hours of recurrent training within 120 days of attending an FAA Safety Seminar, which is needed to qualify for Phase I bronze-tone wings and a certificate under the agency's Pilot Proficiency Award Program.

Hughes' instructor had told him that he was coming in too fast on his final approach. By the hour's end, he had relearned how to make the approach—that is, slower and without crabbing over the runway threshold. That way, he wouldn't risk ripping off the plane's retractable landing gear.

Not long after, accident prevention specialist (APS) Weldon Britton, of the Flight Standards District Office at Dulles, pinned the coveted wings on Hughes' coat lapel and gave him his certificate.

Hughes is one of 17,000 pilots who have earned their wings/tie-tacs in the program, which began in July 1977 in FAA's Central Region. Each year, pilots may attend one seminar and undertake three hours of specified training to earn successively more "special wings": Phase II wings, silver-tone, with a star; Phase III, gold-tone, with star and wreath; and Phase IV—like III, but with a simulated ruby mounted in the FAA shield, centered in the wings. All four wings are an inch-and-a-quarter wide.

APS Britton and his counterparts at the agency's 84 General Aviation and Flight Standards District Offices attract airmen like Hughes into the incentive-award program through safety seminars, usually held weekday evenings, and through occasional Super Safety Seminars, which are all day for one or two days on weekends.

There have been some 25 Super Safety Seminars, each of which brings in well over 2,000 airmen and airwomen. Britton, working with 45 volunteer accident prevention counselors from the private sector, recently staged a Super Safety Seminar at Glenn Martin State Airport in Baltimore, Md., which drew 2,500 pilots, not only from the Washington area but also from territory covered by the Richmond and Baltimore GADOs.

On opening day, Saturday, winds were gusting to more than 30 m.p.h. So, while some pilots flew in, many drove to the seminar. By Sunday, the winds abated so more could fly in.

Pilots could select from concurrent meetings in nine rooms in the big Hangar 1, and also take a breather from the smaller sessions by listening to three keynote speakers representing industry and government each day. Among the featured speakers were Archie Trammell, Aircraft Owners and Pilots Association; Jack Enders, Flight Safety Foundation; Kenneth Rausch, Insurance Company of North America; Calvin Pitts, NASA (who recently circled the earth in a Bonanza—see *FAA WORLD*, October 1981, p. 20); and Mike Pangia, FAA Assistant Chief Counsel.

Keith Potts, chief of the Airspace and Air Traffic Rules Division in Washington, watches over the shoulder of an airman trying his hand at one of a number of flight simulators at a Super Safety Seminar. The site is a hangar at Glenn Martin State Airport in Baltimore, Md.

In addition to two full days of safety lectures covering weather, engines, instrument flying and more, there were 40 separate static exhibits and displays.

Each participant had the opportunity to win a $50,000 "Safe Pilot '81" new airplane or runner-up regional flight-proficiency scholarships, all donated by the General Aviation Manufacturers Association. The GAMA sweepstakes winner is drawn after December 31. Last year, a lucky pilot flew away in his choice of a Gulfstream Tiger.

At one of the more than 40 displays, APS Weldon Britton (left) and his wife chat with avionics dealer Frank Stephenson.

Photos by Thomas S. Hook

Arriving at the seminar in his own Waco biplane, keynoter Mike Pangia, Assistant Chief Counsel for Litigation, is greeted by Ellen Bowie of Washington's Accident Prevention Staff.

"We operate the seminar program on a zero budget," APS Britton said. "Our many volunteer safety counselors give their time and talents in putting on seminars such as this one."

Britton knows what it takes to make pilots more proficient. He came to the FAA in 1978 after 28 years of military flying, later operating his own air taxi charter business in North Carolina and then flying a corporate-owned King Air 200 in Saudi Arabia. He had logged a year of flying combat in three wars—P-40s and P-51s in World War II, observation planes in Korea and Caribou-type aircraft in Vietnam.

Under Britton's guidance, his volunteers were able to involve a number of organizations and agencies in participating in the Super Safety Seminar. Among them were the Ninety-Nines (International Organization of Women Pilots), National Aeronautics Association, U.S. Coast Guard, Civil Air Patrol, Air National Guard, Experimental Aircraft Association, ultra-light plane dealers, Aircraft Owners and Pilots Assn., General Aviation Manufacturers Assn., Academy of Model Aeronautics and the Boy Scouts of America.

After attending the seminar, the pilots have 120 days in which to obtain their three hours of airwork. In addition to the hour of crosswind landings and the demonstration of soft- and short-field techniques, pilots aspiring for their wings must acquire an hour of basic airwork—stalls, turns, etc.—that show mastery of the airplane, plus an hour under the hood—instrument training. Then they send the certified record to their nearest district office and are presented their wings for the phase completed.

An Eastern Airlines pilot and one of the 45 accident prevention counselor volunteers, Capt. Larry DeAngelis tries out the "left seat" of an Eagle ultra-light.

Willard "Pete" Pederson, chief of Washington headquarters' Accident Prevention Staff, explains that the proficiency program complements the Biennial Flight Review, reinforcing the mandatory check-ride every 24 months by providing a mini-flight course with minimum instruction times and prescribed maneuvers.

"The program provides an incentive for pilots to take recurrent training, at their own expense," said Pederson. "The record shows that those who have earned these wings to date are accident-free."

The Martin State Airport affair featured for the first time at a seminar a demonstration of radio-controlled model aircraft. The modelers also launched five models on a coast-to-coast flight in support of the Easter Seal Campaign. Departing from a real airport's ramp at 5-minute intervals and followed by their operators' cars, the models were to be flown in 60-mile legs to Los Angeles and then to Las Vegas, their feat gathering interest, publicity and contributions for the campaign along the way.

Two Easter Seal children received their first free small-airplane rides during the seminar, their bright smiles warming the hearts of the pilots.

A bull roast and free camping on the airport rounded out the weekend's packed program. ■

# People

### Alaskan Region

**William C. Bull, Jr.,** maintenance mechanic foreman at the Cold Bay AF Sector Field Office, King Salmon Sector, from the Fairbanks Sector.

### Central Region

**Samuel L. Tyson,** deputy chief of the Kansas City ARTCC, from the Western Region Airspace and Procedures Branch, AT Div.

### Eastern Region

**Robert D. Barber,** assistant systems engineer, Washington ARTCC AF Sector . . . **Charles E. Baxter,** chief of the Bedford, Va., AF Sector Field Office, Charleston, W. Va., Sector, from the Oklahoma City Sector . . . **John A. Boyd,** chief of the Saranac Lake, N.Y., AF Sector Field Office, Albany Sector . . . **Richard R. Howroyd,** team supervisor at the Charleston Tower, from the New York TRACON . . . **Paul G. Lebert, Jr.,** team supervisor at the Baltimore, Md., Tower . . . **Ray C. Weimer, Jr.,** unit supervisor at the Buffalo, N.Y., AF Sector, from the FAA Academy.

### Great Lakes Region

**George A. Davis,** team supervisor at the Peoria, Ill., Tower, from the Decatur, Ill., Tower . . . **Thomas R. Glaze,** team supervisor at the Springfield, Ill., Tower.

### Northwest Region

**Michael L. Hopkins,** team supervisor at the Boeing Field Tower, Seattle, Wash., promotion made permanent . . . **Robert E. Newbry,** chief of the Twin Falls, Idaho, Tower, from the Boise, Idaho, Tower.

### Pacific-Asia Region

**Derald R. Lee,** avionics specialist in the Tokyo Flight Inspectin Group, Yokota AFB, from the Anchorage Aircraft Maintenance Base . . . **Albert H. K. Nam,** team supervisor at the Honolulu Tower, from the Lihue, Kauai, Hawaii, Tower . . . **Wendell L. Nelson,** unit supervisor at the Guam AF Sector at Andersen AFB . . . **Ward D. Orsted,** chief of the Hoolehau, Molokai, Tower, from the Kahului, Maui, Tower.

### Rocky Mountain Region

**Orville L. Deckert,** assistant manager of the Grand Junction, Colo., AF Sector . . . **Patricia M. Jones,** team supervisor at the Denver, Colo., Flight Service Station . . . **Darrel L. Pittman,** team supervisor at the Bismarck, N.D., Tower, from the Salt Lake City, Utah, ARTCC.

### Southern Region

**Paul T. Callihan,** team supervisor at the Orlando, Fla., Tower . . . **Carmen N. Mena-Moreno,** deputy chief of the San Juan, Puerto Rico, International FSS . . . **Austin F. Pacher,** chief of the Winston-Salem, N.C., Air Carrier District Office, from the Atlanta, Ga., Aeronautical Quality Assurance Field Office . . . **Raymond E. Simmons,** assistant systems engineer at the Memphis, Tenn., ARTCC . . . **Baxter C. Sowell,** deputy chief of the Atlanta FSS, from the Plans and Programs Branch, Air Traffic Division . . . **William D. Sweeten,** team supervisor at the Hebron, Ky., Tower . . . **Eugene B. Workman,** chief of the San Juan, P.R., AF Sector Field Office, from the Knoxville, Tenn., Sector.

### Southwest Region

**Harry M. Crouse,** team supervisor at the San Antonio, Tex., Tower . . . **Bobby L. Fritz,** team supervisor at the Love Field Tower, Dallas, Tex., from the Monroe, La., Tower . . . **Hurschel L. Haynie,** team supervisor at the Hooks Tower in Tomball, Tex., from the Houston, Tex., Intercontinental Tower . . . **Peter F. Molony,** team supervisor at the Enid, Okla., Tower, from the Dallas-Fort Worth Tower.

### Western Region

**Thomas E. Carman,** team supervisor at the San Carlos, Calif., Tower, from the Oakland, Calif., TRACON . . . **Dean R. Cooper,** chief of the Van Nuys, Calif. Tower, from the Burbank, Calif., Tower . . . **Sidney D. Edwards,** systems engineer at the Oakland ARTCC AF Sector . . . **Lloyd Golden,** chief of the Burbank Tower, from the Los Angeles TRACON . . . **Howard W. Hinton,** chief of the El Monte, Calif., Tower, from the Riverside, Calif., Tower . . . **Ronald E. Krebs,** team supervisor at the Coast TRACON, El Toro MCAS, Calif., from the Evaluation Staff, Air Traffic Service . . . **Thomas D. McCort,** team supervisor at the Oakland TRACON, promotion made permanent . . . **Jon K. Miller,** chief of the Imperial, Calif., FSS, from the Yuma, Ariz., FSS . . . **David A. Smith,** team supervisor at the Napa, Calif., Tower, from the Edwards AFB, Calif., RAPCON . . . **Laurel L. Thompson,** unit supervisor in the Oakland ARTCC AF Sector.



# In Praise of Excellence

FAA's "can do" response in keeping the national airspace system running in the aftermath of the controllers' strike has brought a barrage of congratulations, compliments and thank-you's from all segments of the aviation public. On October 20, the Air Traffic Control Association (ATCA) added its voice with a presentation to the agency of its ATCA medallion "for excellence."

In accepting the award at ATCA's Annual Meeting and Technical Program in Las Vegas, Nev., Administrator J. Lynn Helms made it clear that he considered himself only an intermediary.

"As much as I derive pleasure in accepting this," the Administrator said, "I also am sad that the 9,000 people who made it possible couldn't be here both to hear your words and enjoy the benefit of it.

"During the last 11 weeks and on seven of the last nine weekends, I have traveled over the entire country visiting these very people and observing how well the airspace system is continuing to perform and how calmly and efficiently our field personnel are handling the workload. This is true from our largest centers to the remotest corners of the system, such as Bettles, Alaska, where nearly half the population of the town is FAAers and their families, enduring the isolation and doing their jobs.

"I accept this award solely on behalf of those people who made the system go—they are an outstanding group of people."

The basis for the award was explained by the ATCA president, Col. Ward Baker, who is also chief of the Emergency Operations Staff at FAA headquarters:

"Aug. 3, 1981, will stand as a landmark day in the history of our national airspace system and, indeed, in American aviation. On that day, almost 11,000 controllers decided to strike against their government. It was their belief that such an action would bring aviation and the American economy to its knees. Many other people, some of them experts in the aviation business, believed this would happen. However, today, 75 days later, the National Airspace System is alive and well. It may have some bruises, but with some tender loving care and everyone's cooperation, it will be better than it was.

"The fact that the nation survived the strike was no accident. It is directly attributed to a group of dedicated, truly professional people. Of course, I refer to the men and women of the FAA—in particular, the national headquarters Contingency Planning Staff, which developed a plan to face the strike head-on and minimize its impact, as well as the personnel who manned the Central Flow Control Facility and the headquarters Command Center.

**Administrator J. Lynn Helms (left) accepts the ATCA award from Col. Ward Baker, president of the association.**

"Special recognition must go to the field personnel—those controllers who honored their commitment, the supervisors, the engineers and technicians, the pilots, the aviation security and safety inspectors and the many supporting staffs. All worked many long hours to keep the system operating and the country flying.

"At the recent congressional hearings on rebuilding the air traffic control system, Paul Ignatius, president of the Air Transport Association, said, 'Air traffic control specialists, supervisors and military controllers have done a magnificent job and deserve the nation's appreciation.'

"To those words, ATCA would like to add that, in accomplishing this feat, the men and women of FAA have established a standard of excellence that should be emulated by every organization within the Federal Government." ■

near hit

By Nick Komons
The Agency Historian, he is the author of "Bonfires to Beacons"—a history of early Federal aviation policy—and other published works.

# A Miss Is As Good As a Mile, But a Near-Miss Isn't

A passing acquaintance called recently to ask why FAA refers to incidents in which aircraft barely escape colliding with each other as "near misses" rather than "near-collisions." Was it, he asked, because near-collision evokes images of smashed metal and mangled bodies?

My caller's question reminded me of something former National Transportation Safety Board Chairman John H. Reed told a gathering of aviation writers in 1972. Reed said on that occasion:

> By the way, with so many news media people here, I cannot resist pointing out that some writers still refer to a "near-collision" occurrence as a "near miss," which is a descriptive misnomer that reverses the intent of the meaning. If you've had a "near miss," it means that you didn't miss at all—so you must [have] had a collision!

Mr. Reed is in good company. No less an authority than William Morris, in his *Dictionary of Word and Phrase Origins,*

near-dead

says that the correct term for aircraft experiencing a close shave in midair is "near-collision" and quotes a correspondent who submits that " 'near miss,' as used by the Federal Aviation Agency is an abomination."

Mr. Reed may be in good company, but he—and his company—are wrong. They don't realize, it seems, that the adjective "near" and the prefix "near-" have different senses and that each possesses a distinct pedigree.

### The Assertive Adjective

The use of the adjective "near" in the sense of "narrow" or "close" is well established, dating back to the 16th century.

In 1751, Henry Fielding is saying,

near miss

"They tell me it will be a very near Thing, unless you join us." By "near thing," Fielding means something barely effected—in this case, the election of a candidate for mayor. In 1860, John Russell talks of "long chases and near escapes." And he means "narrow escapes"—escapes that are barely effected, not attempts that have been foiled. By extension, then, a "near miss" is a miss that is barely effected. So, with aircraft, it can mean only one thing: that the aircraft narrowly avoided colliding with each other.

Where is the misnomer or the reversal of meaning? Where, indeed, is the abomination? I can't think of a more natural way of conveying the thought intended. All you're doing is modifying a noun with an adjective. Moreover, your audience can grasp your meaning without performing mental acrobatics.

### The Antithetical Adverb

On the other hand, you have to do a mental flip-flop to grasp the meaning of "near-collision" or "near-hit." The prefix "near-" is an adverb used like an adjective and conveys the sense of "nearly" or "almost" or of "approximating in kind or degree."

Its present use, according to some authorities, stems from the 17th century practice of dropping the "ly" from "nearly" in such expressions as "near dead" and "near a fortnight ago." Seventeenth century Englishmen got into the habit of prefixing this adverb to nouns. In 1625, Viscount Lisle makes the following reference to Florida: "There lies higher a 'neere-isle,' betwixt Cuba and Mexico." So, a peninsula, since it is nearly an island, becomes a "near-isle."

The practice of using "near-" for "nearly" was roundly condemned and fell into comparative, if not total, disuse for a century or more. The 1933 edition of the *Oxford English Dictionary (OED)* pronounced the usage obsolescent. But, in fact, at that very time, "near-" words were in the midst of a vigorous revival in the United States. The revival had been touched off in 1902 by one George Horace Lorimer, who coined the word "near-seal" for a fur resembling seal. In 1909, we got "near-beer," which enjoyed a brief popularity during prohibition. Soon the admen took over and turned out advertising copy teeming with such expressions as "near-silver," "near-leather," "near-porcelain," "near-wool" and "near-silk." A trend had set in.

near-miss

H. L. Mencken says that the appearance of "near-accident," "near-engagement" and analogous expressions was a logical extension of this trend. So, as the trend continued, we got "near-hit" and Mr. Reed's "near-collision." And we must not forget "near-miss," which may be the source of Mr. Reed's confusion. The military coined "near-miss" during World War II to mean any bomb strike not a direct hit that falls close enough to a target to damage it.

Curiously, *Webster's Third New International Dictionary* and a number of lesser authorities list "near-" words under "near, adj.," presumably on the assumption that since "near-" is used like an adjective, it must be an adjective. But this ignores the etymology of these words and helps perpetuate the confusion in usage. On the other hand, the *OED Supplement* is right on the button when it lists them under "near, adv."

But even the *OED* stumbles over "near-miss" and assembles examples of its use under "near, adj.," in the sense of "something barely effected." What is barely effected if we say, "The bomber returned with one near-miss amidship to its credit"? Certainly not a miss, as in "near miss." When a bomb explodes close enough to a vessel to damage it amidship, that's no miss. So, it's a bomb

near-accident

strike that is barely effected. That makes "near-miss" a lineal descendant of Lisle's "near-isle" and Lorimer's "near-seal," not Fielding's "near thing" or Russell's "near escape." Move it over to "near, adv.," in the sense of "nearly" or "approximating in kind or degree."

Much of the confusion surrounding these expressions may stem from the fact that the military, when it coined "near-miss," failed to hyphenate it. *The United States Air Force Dictionary* still omits the hyphen, but *Webster's Third* inserts it. Using or omitting the hyphen is crucial; improperly employed, the hyphen can completely reverse the intended meaning.

You have to perform mental acrobatics to catch the meaning of "near-" words because "near-" is no ordinary modifier. It carries such force that it stands the poor noun on its head, completely reversing its original meaning. In "near-hit," a hit is no longer a hit; it is a miss. In "near-miss," a miss is no longer a miss; it is a hit.

Moreover, notice what the hyphen does: It joins two words in Teutonic union and transforms them into a single entity. What you've got, in fact, is a new word—and, in the case of "near-collision," a word you don't need. Why mint new words—and compound words at that—when all you need do is modify a noun with an adjective to say precisely what you want to say?

Now, I'm not arguing that these 20th century words have no standing. But I do contend that when you say "near miss"

near-collision

instead of "near-collision," you are using a term with a superior pedigree than its rival—though I won't go so far as to call "near-collision" an abomination. Speaking of abominations, I wonder what Mr. Morris' correspondent thinks of near-beer? ■

near-silk

near escape

near thing

# The Savant of the Civil Air Regs

Time has dimmed our memory of Fred Fagg, and that's unfortunate, because this versatile man, a former director of the Bureau of Air Commerce, who died on October 14 at the age of 85, is unquestionably worth our contemplation.

Fagg's career perfectly illustrates that aviation has freely drawn on a great variety of talents. It was not just hero pilots, brilliant engineers, and farsighted entrepreneurs—the Lindberghs, Weicks, Whittles, Smiths, Douglases and Boeings—who made aviation what it is today. There were also men like Fred Fagg, who never designed an airplane or ran an airline, but who blended such disciplines as the law and economics with an intimate knowledge of aviation, thereby helping to shape the industry's future. Indeed, Fagg probably exerted as great and as lasting an influence on Federal aviation policy and on the course of U.S. air carrier development as any single individual.

Fred Dow Fagg, Jr., was born in Brooklyn, N.Y., on July 30, 1896. In 1910, his family moved to San Diego, a beehive of early aviation activity. There, as a lad of 14, he saw Lincoln Beachey, Arch Hoxsey and other early fliers "rise up from North Island and thrill the local folk with their aerial antics." The fliers lived at the local YMCA, where young Fagg worked at odd hours. He sat in their automobiles and swapped stories with them.

"Would anyone wonder then why—when we entered World War I—I volunteered for a place in the Signal Corps of the U.S. Army?" he asked. In 1918, he was one of 50 night bomber pilots ordered to England by General Pershing, where he served with the 92d Aero Squadron and gained a strong appreciation for the need for navigation aids during night flying.

The war over, Fagg returned to finish his interrupted undergraduate course at the University of Redlands and, in 1920, enter Harvard for graduate studies in transportation economics.

When it came time to submit his Ph.D. dissertation topic, he did his best to persuade his mentors to allow him to devote his labors to air transportation "instead of turning out another study of some rusty rails in one of our deserts." The Harvard faculty balked. "Those conservative professors were sure that aviation would not amount to anything for the next 50 years, so they refused my request," he related. "And I switched to the law!" American jurisprudence and aviation will forever remain indebted to those shortsighted academics.

**[Fagg] was also the intellectual force behind the major ideas that made the Civil Aeronautics Act of 1938 a delicately balanced instrument . . .**

In 1929, after spending a year in Germany as an exchange professor in law, Fagg established and headed at Northwestern University the Air Law Institute, the first school of its kind in the United States. A year later, he founded and became editor of the first scholarly journal in the United States devoted to aviation law. The institute, the journal and earlier lobbying efforts by Fagg and others for enactment of uniform state aviation laws were crucial in rescuing aviation from a legal no-man's land.

In 1934, Fagg came to Washington to testify before the Federal Aviation Commission, which had been appointed by President Roosevelt to chart a new Federal aviation policy. What was scheduled as a brief visit turned into a four-year residency. The tall, lantern-jawed professor so impressed the commission's chairman, Clark Howell, that he was asked to stay on as the commission's counsel. That was followed by a stint as a legal counsel to a Senate committee investigating safety. Then, in 1936, Fagg undertook the monumental task of rewriting the Bureau of Air Commerce air regulations.

The air regulations of that day were an untidy, amorphous mass of material. They were intermingled in a series of aeronautical bulletins that contained both informational and regulatory matter. No one could look between two covers and find a complete and up-to-date version of the regulations.

Fagg, working in collaboration with a noted legal scholar, John H. Wigmore, reshaped the regulations into a single set of source material that was uniform in style and general plan and was structured according to parts and sections numbered by an expansible decimal system. In short, Fagg and Wigmore codified the civil air regulations.

In 1937, Congress enacted legislation requiring the codification of all Federal regulations by July 1938. Thanks to Fagg, the Bureau of Air Commerce had anticipated that congressional requirement by at least a year.

The codification had not yet been completed when Assistant Secretary of Commerce J. Monroe Johnson tapped Fagg to head the Bureau of Air Commerce. The Bureau was in turmoil. Splintered internally by warring factions, beseiged by Congress and the press for a series of fatal accidents and badly in need of funds to modernize an aging airways system, the air agency was crying out for firm, imaginative leadership.

Not everyone considered Fagg as the right man for the job. "Fagg is a brilliant scholar, but practical fliers say that is all he knows," columnist Drew Pearson reported.

Roosevelt himself was a skeptic, and Johnson had difficulty persuading the President to accept Fagg, who, in addition to his inexperience, was a Republican. "All right you can have that man," FDR said on relenting,"—but if that SOB gets us into trouble, not only does he go back to Chicago but you will be fired as Assistant Secretary!"

Johnson needn't have worried. In a series of deft administrative and political moves, Fagg quickly transformed the Bureau, in the words of *Time* magazine, from "an Administration headache to a smile." More important for the flying public, Fagg was able to secure funds from a previously tight-fisted Congress to revitalize the doddering airways.

Fagg's work was only half done. He now turned to a question that had been absorbing his mind for a number of years, and which had prompted him to appear before the Federal Aviation Commission in the first place. Fagg was convinced that the U.S. airline industry would never achieve stability without a period of Federal economic regulation. The air carriers themselves, battered by cut-throat competition and hamstrung by an airmail contract system that dictated their routes, shared that conviction.

FDR had declared as early as 1935 that he would look favorably on a measure granting the Interstate Commerce Commission (ICC) authority to issue air carrier route certificates and regulate air fares. But despite the efforts of such legislators as Pat McCarran, Clarence Lea and Harry Truman, legislation regulating airline economics languished in the Congress—and for good reason.

The airlines did not relish the idea of falling under the aegis of the ICC; they preferred an independent agency devoted entirely to aviation. Fagg also felt it was a bad idea to get the ICC involved in aviation's affairs; aviation, he said, because it was still in its formative years and was therefore unlike rail and other mature modes, required separate treatment.

The chief reason for the legislative stalemate lay within the Executive Branch. The various Federal agencies and departments with a stake in aviation could not agree on a common policy and took to bickering among themselves. The President, meanwhile, appeared content to let matters slide.

What was needed was someone who could light a fire under the President, persuade him to forget the ICC and reconcile the policy differences dividing the executive departments. Fred Fagg proved to be that man. With the President's grudging approval, six members of FDR's little cabinet got together and "had the frankest taking down of hair" as they hammered together an aviation bill. Fagg was more than a mere catalyst in this process. He was also the intellectual force behind the major ideas that made the Civil Aeronautics Act of 1938 a delicately balanced instrument that could be embraced simultaneously by Roosevelt, the contending executive departments, Congress and the aviation industry.

Roosevelt, now having gained an appreciation for that man from Chicago, resolved to appoint him chairman of the new Civil Aeronautics Authority, which had been created by the 1938 act. But Fagg packed his bags, said his good-byes and headed west. He had done what he had set out to do and saw no reason for remaining in Washington. Besides, as he put it, "My heart was in teaching and in research work in the field of law. . . ."

*(Continued on page 19)*

By Betty Moschella
A public information specialist at the Technical Center, she was a free-lance writer and has been published in *Transportation USA*.

# A Crash For a Good Cause

## FAA's Largest Plane To Be Sacrificed

**In a test at Lakehurst, N.J., when a transport-category aircraft loaded with regular jet fuel was hurtled along a catapult into a mound of earth and fuel was spilled and ignited, the plane was engulfed in a ball of flame.**

FAA's largest plane—a four-engine Boeing 720—left the Technical Center for Edwards Air Force Base, California, last summer never to return.

The plane will be sacrificed in a controlled crash into the Mojave Desert in 1984 to verify simulation tests of several systems, the most important of which is the use of antimisting fuel additives.

The project is a $10 million joint undertaking by FAA and the National Aeronautics and Space Administration (NASA), which received congressional endorsement last year.

While the Tech Center will manage and coordinate the program, NASA's role will be to install instrumentation on the aircraft at the Dryden Flight Research Center at Edwards and, perhaps, perform the final remote-controlled flight. Otherwise, the Naval Weapons Center at China Lake, Calif., will control the flight. Accident studies by Boeing, Lockheed and McDonnell Douglas, conducted under an FAA-NASA contract, will determine the crash scenario.

The primary goal of the experiment is to provide a realistic crash environment to demonstrate how antimisting fuel additives can prevent a major fuel-spill fire by eliminating the fireball that usually results. At work in developing a modified fuel since 1964, the agency believes that antimisting fuel additives can inhibit fire and save lives in impact-survivable crashes.

**When the same type of plane with FM-9 polymer added to its fuel repeated the experiment, there was practically no fire from its forcibly spilled fuel.**


The best candidate for an additive so far is FM-9, a British-developed antimisting kerosene powder that the Tech Center has been testing. In addition to in the laboratory, tests have been conducted in simulated crashes using aircraft on a catapult, or jet car track, at Lakehurst, N.J. Before the crash test of the B-720, the additive will be flight tested to ensure it has no adverse effects on engine performance.

If the FM-9 test is successful, it could pave the way for its use in jet transports.

In addition to proving the fuel additive, the crash vehicle is expected to host other experiments relating to crashworthiness, the data from which could be useful in governing future aircraft design. Such experiments include validating a computer crash model and testing seat restraint systems; seat and floor structure; emergency equipment, including emergency lighting and evacuation exits; and fuel tank systems, including frangible fittings and rupture-proof tanks.

Under plans being considered for the antimisting part of the test, the plane will be equipped to record all possible parameters that will tell researchers how much fuel is released during the crash, the rate at which it was released and its exposure to ignition sources. If the fuel burns, instruments will report at what rate, and, if it doesn't, the agency will know why. Radiometers will record the heat intensity and precise temperatures that develop in each area of the plane hit by fire.

Crashworthiness instrumentation will measure the strain on the fuselage and failure modes, such as ripping, bending and tearing. Accelerometers will measure impact pulses and g-loads and the way they are predicted to travel through the vehicle according to a recently developed mathematical analysis model. Such information can be used to determine how seats and seat restraint systems hold up during a crash.

The data will be gathered in two ways: from crash-proof instruments aboard the B-720 retrieved after the crash and from electronically transmitted signals to receivers near the crash site. Highspeed photography also will be used.

Before the crash, the aircraft will have been flown by remote control a number of times and all systems will be checked. The last flight will be monitored. If anything doesn't function properly during that final run, the crash will be aborted. ■

### Savant of the Regs

*(Continued from page 17)*

His farewell party, thrown by Bureau staffers, was a poignant affair. "I had not realized how the Washington bureaucracy could show such a warm and human side, and I was not at all ashamed to let some tears roll down my cheeks . . .," he recalled.

The Washington bureaucracy surprised him in other ways. Its professionalism and dedication had been an eye-opener. "If I carry away one memory of Washington," he said in 1962, "it is of how many lights were burnt past 11 o'clock at night when John Q. Public used to think that the boys went home at 4:30 in the afternoon and . . . the girls dropped the inkwells the minute the bell rang."

When he died, 43 years had passed since he had given up the reins at the Bureau of Air Commerce. In between, he served eight years as vice president and dean of faculties at Northwestern and another 10 as president of the University of Southern California.

Fagg's brief stint in Washington stayed with him to the end. And his special handiwork will stay with us for years to come. "I wanted only results . . .," he once said. The results are visible for all to see: A body of legal scholarship that stands at the foundation of aviation law; a code of Federal air safety regulations whose scheme endures to this day; and a Federal economic regulatory policy that is only now being dismantled after serving aviation for over 40 years. ■

By Nick Komons


In a joint project with the National Aeronautics and Space Administration, McDonnell Douglas is testing winglets on a Continental Airlines DC-10. Projecting 10½ feet upward and 2½ feet downward, the winglets are expected to reduce drag and cut fuel consumption by about three percent, as well as cut take-off distance by 10 percent.

McDonnell Douglas photo

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