

FM WORLD



October 1977

FAA WORLD

OCTOBER 1977
Volume 7, Number 10

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FAA WORLD is published monthly for the employees of the Department of Transportation/Federal Aviation Administration and is the official FAA employee publication. It is prepared by the Public & Employee Communications Division, Office of Public Affairs, FAA, 800 Independence Ave. SW, Washington, D.C. 20591. Articles and photos for FAA WORLD should be submitted directly to regional FAA public affairs officers: Mark Weaver—Aeronautical Center; Clifford Cernick—Alaskan Region; Joseph Frets—Central Region; Robert Fulton—Eastern Region; Neal Callahan—Great Lakes Region; Michael Benson—NAFEC; Mike Ciccarella—New England Region; David Myers—Northwest Region; George Miyachi—Pacific-Asia Region; David Olds—Rocky Mountain Region; Jack Barker—Southern Region; K. K. Jones—Southwest Region; Eugene Kropf—Western Region

Without much ado, 10 passengers (at right) split at 10,000 feet as if they were one. This team of jumpers was participating in the U.S. Parachuting Championships held in Talequah, Okla., last summer.

The cover: All motion is relative to the observer, Einstein said, so to one another, skydivers appear to float on a sea of air, although they're falling at 120 mph.



Some of the jumpers sang along with the rock music blaring from the DC-3's public-address system. Others sat silent and thoughtful. They sat in two rows, one on each side of the cabin and some sprawled in the aisle between. They filled the cabin with color, these lean young men and women dressed in their bulky, red, white, blue, yellow and black jump suits.

I sat near the open door, wearing a chute myself, for FAA regulations require that anyone riding in a plane with an open door must wear a parachute. But I was strapped securely in my seat and did not intend to use my chute.

As we headed toward an 8,500-foot jump altitude and the temperature cooled to an invigorating 65 degrees F.

**EXIT,
EXIT,
EXIT!**

**FAA Helps
Jumpers
Out the Door
Safely**

By Theodore Maher



The U.S. Army's Golden Knights team also jumped at the championships. Here, they form a "Double Diamond" in a sequential as they fall at over 120 mph.

—it was about 100 on the ground—I wondered what the serious-looking young man sitting beside me was thinking. I asked him if he was thinking about the potential dangers of jumping.

"No, I'm not thinking about that," he said. "I'm thinking about the star—the circle—our 10-man team is going to make by holding each other's wrists or hands.

"We've each got a specific job to do in relation to each other—we call it 'relative work.' I'm the last of the team to leave the plane. When I go, I have to dive—swoop—to catch up with the others. Even if we get out of the plane in two and a half seconds, the first guys have already fallen almost 400 feet. They're the 'floaters,' and while I dive down to join the star, they seem to float up to form it. It's all 'relative,'" he said, smiling.

"Then you don't think about the danger at all?" I asked again.

"No," he insisted. "I think about the competition. The faster we make the star, the better our score. The top team will go to the world championships."

At that moment, several jumpers

began to edge toward the door, and my companion joined them.

His team, which was one of three 10-man teams, didn't line up at all like a group of casual passengers leaving a plane. They lined up pressed tightly together, almost as though they were a single organism. "Get set," they shouted in unison. Then with a roar of voices, the single mass shot forward and disappeared through the open door.

The pilot banked the plane so we could see the already tiny figures forming a circle in the air.

The jumper I had talked to and who didn't bother to think about danger had a reason to think positive. He was competing in the U.S. Parachuting Championships in Talequah, Okla., last July. Among these experienced jumpers, safety is a way of life, and accidents are few.

The dangers inherent in jumping out of airplanes are so obvious that safety is almost a religion with these experienced jumpers. Of course, that's how they got to be experienced in the first place.



Larry K. Bagley, the jumping controller from the Salt Lake City ARTCC, climbs aboard for a one-way ride.



Talking to a crew member in the office of a DC-3 is Paul H. Andree (right), chief of the Tulsa, Okla., GADO.

used to be a barrier of high-tension wires just waiting for a heavily loaded DC-3 to take off in 95-degree-plus weather. Largely as a result of Nelson's continuing campaign, the wires were moved back 1,600 feet and marked with clearly visible balls.

Also as a result of Nelson's efforts, a fuel tanker-truck stands by during the meet. Until this year, all planes, including five DC-3s, were gassed-up at a single, low-pressure pump. This worried the parachute association's directors, and they asked FAA for help. Nelson felt this was important and got into the act right away. He recognized



Tulsa accident-prevention specialist Jay Nelson takes a casual look at the business end of a DC-3 "jumping plane."

Jay Nelson, FAA's accident-prevention specialist at the Tulsa General Aviation District Office (GADO), calls the participants "a well-policed organization as far as safety is concerned. We have a good working arrangement with these people, and when they see I'm helping them, they cooperate like crazy."

Although he must study accidents that have already occurred, Nelson spends most of his time trying to eliminate the causes of accidents—waiting-to-happen.

For instance, at the end of the main runway at Talequah Airport, where the national championships have been held for the past several years, there

that pilots might be tempted to stretch their gas supply in an effort to get airborne and cover their expenses, rather than wait in a long line-up.

He arranged to have the truck, with a capacity of 4,000 gallons of aviation fuel, ready and waiting on the ramp. For anxious pilots, the temptation to fly without refueling vanished. Now, even the multi-engined "threes" could be filled in less time than it takes to reload the jumpers.

Nelson also found that although there was a paramedic standing by during the meet, he hadn't any emergency oxygen. The GADO inspector, a former "ag" pilot, just happened to have a tank of oxygen stashed away,

which he brought to the airport for the jumpers.

These are only some of the reasons why the safety-minded men and women running the show have nothing but good things to say about the cooperation they have gotten from the Tulsa GADO.

Of course, cooperation is a two-way street. It's because of the parachutists self-policing that the FAA people have had the time and opportunity to cooperate in these varied ways.

Indicative of this was the message that blared from the, for once, very adequate public-address system. The message recited a cardinal rule: "Any jumper pulling low (that is, opening a chute below the mandatory 2,000-foot minimum altitude) will be grounded and will cause his whole team to be grounded." The message was clear.

There was also an occasional touch of humor through the loudspeakers. At one point, someone wanted one of the meet officials at headquarters. "Larry Bagley," boomed the speakers, "you're wanted at headquarters. FAA wants to pull your ticket."

Since jumpers don't have tickets, or licenses, this really didn't make too much sense, but it brought smiles to many faces—to those who knew that Larry K. Bagley is an air traffic controller at the Salt Lake City ARTCC. He's also a member of the U.S. Parachute Association's board of directors, representing the Mountain Conference.

He's spent a lot of time jumping out of airplanes; over 1,700 times, he's stepped out into the thin, thin air. But Bagley's spent a lot of time flying airplanes, too. Not only does he fly jumpers in twin-Beeches and 182 Cessnas but he also flies 310 Cessnas and UH-1 "Huey" helicopters as a captain in the Air Force Reserve. And, of

Photos courtesy of Jerry Irwin, U.S. Parachute Association



During the "Boogie"—a time for fun and individual competitions—a pair of jumpers maneuver into a two-way parachute hook-up.

course, besides jumping and flying, he handles air traffic as a journeyman controller. He didn't fill me in on how he fills out his spare time.

As we talked, Bagley was interrupted time and time again by jumpers dressed in the uniform of the day—tee-shirts and severely abbreviated blue-jean cutoffs. They were asking him about the "Boogie," because Bagley (some call him the Boogie Man) was in charge of the Boogie—the second, and most lively, part of the meet.

The first part of the championships consisted of team competition—four-, eight- and 10-man (and woman) teams. During these events, teams jumping from about 10,000 feet make a series of formations in a predetermined sequence. Not surprisingly, this activity is referred to as "sequentials."

The teams are evaluated by judges watching the free-falling jumpers through telemeters, which resemble small telescopes. Besides recorders, who write down the judges' comments while the chutists fall, there is also an aircraft controller on hand.

Like all controllers, he is in two-way radio contact with the jump planes. As he vectors the planes onto downwind or base legs, the dialogue sounds similar to that in a tower, but with some unique modifications. As the controller lounges under the tailgate of a pickup truck, a pilot's voice can be heard: "We are turning left base."

The controller answers, "Okay, put them on standby."

"Turning inbound, turning final," the pilot's voice comes back.

There is a pause before the controller says, "Exit, exit, exit!" Now, there's a wrinkle you won't find in the air traffic control handbook.

The second part of the championship consists of Bagley's Boogie. A Boogie is a fun time. It's a time for jumpers to get together with friends and jump just for the joy of jumping. It's also a time for some to compete for records, since international judges are on hand to keep score. A Boogie is also a time for parachute film festivals, displays of the latest equipment and lectures by highly experienced parachutists.

During the third part of the competition, the jumpers concentrate on accuracy and style. Parachutists making accuracy jumps here hopped out of planes at 2,500 feet and opened their chutes immediately. All they had to do then was hit a four-inch disc set in the sand a half mile below them. Using the new steerable, square chutes, they did this with almost monotonous regularity.

For instance, both the winner and the runner-up of the men's accuracy competition hit the disc "dead center" seven out of eight times. On the eighth try, they missed by one and by three centimeters, respectively.

In all, the meet was considered a great success. Teams were selected to represent the U.S. in the world championships later this year in Australia. Records set included a 10-man team that hooked up in space 9.7 seconds after leaving the aircraft.

Much more importantly from both FAA's and the association's point of view, while literally thousands of jumps were made during the two-week jump fest, there were no serious injuries.

Although a few jumpers suffered minor sprains, there were no broken bones. And that's pretty good for a bunch of people stepping out of airplanes almost two miles above the earth.

A 10-man-and-woman team falls to earth. A championship team can hook up in less than 11 seconds.

A Modest Proposal

SHOULD CONTROLLERS ADOPT CB TALK?

Some wags at March Air Force Base in California dreamed up the following scenario of air traffic controllers at a base talking in a Piper Apache, a Ranger 55 (Air Force cargo plane) and a flight of jet fighters in phraseology not consistent with the AIM glossary.

Apache: Breaker three sixty-three eight for the Picture Taker.

Approach: You got the Picture Taker, breaker, come on.

Apache: This here's the Apache five four Juliette. What's it look like over your shoulder, come on?

Approach: Ten four, Apache, we got acres and acres of blue sky. What's your twenty, come on?

Apache: Ah, we're over the sky road, with some hikers, bound for your place, come.

Approach: Okay, Apache, how 'bout giving me a flash on your ID rig?

Apache: For sure, for sure, Picture Taker, you've got your flash, come on.

Approach: Ten four, good buddy. We've got you eyeballed now and you got a clear shot all the way to the ten-mile marker, come on.

Apache: Ten four on that clear shot, Picture Taker, and mercy sakes alive, good buddy, we've got your home twenty in the windshield, come on.

Approach: That's a big ten four, Apache. Why don't you just ten twenty-seven over to that local yokel in the glass house on two thirty-six six, come on?

Apache: Ten four, good buddy. We'll catch you on the flipflop. Apache, here, we're going over to the Birdwatcher. Breaker two thirty-six six for the Birdwatcher.

Tower: Breaker, standby. Ranger five five, you've got the cue. Take her into the blue, come on.

Ranger: Ten four, Birdwatcher. Double-nickel flight is puttin' the hammer down. We're ten ten on the side.

Tower: Breaker from the Birdwatcher, come on now.

Apache: Okay, Birdwatcher. You've got the Apache running front door and shakin' the bushes, come on.

Tower: Ten four, Apache. You're number one for the boulevard. Got an eighteen-wheeler departing the scene.

Look out for a bumpy road, come on.

Apache: For sure, for sure; we've got an eyeball on the Super Heavy. We'll take the rocking chair to the runway. **Thor 12:** Breaker two thirty-six six for the Birdwatcher.

Tower: Go, break, you've got the Birdwatcher, come on.

Thor 12: 'Preciate the break. This is Thor one two, a convoy of four looking for a nest, come on.

Tower: Ten four, Thor. What's your twenty?

Thor 12: Just about five miles down the road, good buddy, but we're running short of motion lotion. Are we number one for the strip, come on?

Tower: Negatory, Thor. Latch onto the mud flaps of that bug smasher roaring up the chute at your front door, come on.

Thor 12: Ten four, Birdwatcher. We got him eyeballed. We'll back off a tab. Wouldn't wanta blow his doors off.

Tower: Apache, you got four smokeys closing up your back door, come on.

Apache: Ten four, Birdwatcher. We're definitely going to put the hammer down.

Tower: Okay, Apache, you're looking good, now. Hit the gear and when you're clear, depart the boulevard at the first chicken coop, come on.

Apache: Ten four. We've got the boots on and laced. We'll leave the boulevard real quick to let the smokeys by. 'Preciate the info, good buddy. We're ten seven on the side.

Tower: Okay, Thor. You've got a clear shot all the way to the runway. You're cleared to do it to it, come on.

Thor 12: Ten four, Birdwatcher, we'll take the front door for a short.

Tower: Apache, 'preciate the help for sure. Go ten twenty-seven to three thirty-five eight, come on.

Apache: That's a big ten four, Birdwatcher. This here's the Apache putting our ears down. We gone, bye bye.

CB Terms and Their True Meaning

On-off switch—To help you make up your mind

RF gain—The name of the guy who makes dry dog food

PA button—Used to call your father

SWR meter—Tells when a southern trucker is cussing you

Remote control—To put words in a distant breaker's mouth

Delta tune—A song people sing on the Mississippi River

Squelch—What happens when you eat cucumbers

Dynamic mike—The salesman who talked you into buying your CB radio

Mobile—In Alabama, someplace

Base—Where military people fool around

Portable—Easy to steal

Class A operation—The best

Class C operation—Not so good

Class D operation—Lousy

Clarifier—The know-it-all on your home channel

Ground plane—One that can't fly

Vertical whip—Used to thump tall people with

Height limitations—You can't get on the police force if you don't measure up

Call letters—The initials of the bar girl

Carrier—The person who gave you your cold

Cross-band—When musicians are mad

Five-minute rule—Not as long as a 10-minute rule

Negative ground—Quicksand

Positive ground—That which the bank owns

Press-to-talk—Newspaperman will speak

Channel selector—The guy who guides ships into the harbor

Reprinted from CB Magazine, April 1977

Ferreting Out Something In the Air

The problem was as serious as the cause was elusive. Something in the cabin atmosphere was giving passengers and crewmembers burning eyes, sore throats and persistent coughs.

At first it was thought that the cause was a problem with the aircraft ventilation systems, but they were checked and rechecked and found to be working properly.

Then the investigators started looking at the possibility that some of the materials used in the cabin interiors might be giving off irritating fumes. None such could be detected.

Then, several months later, it struck again, adding an FAA air-carrier inspector to its growing list of victims. However, this time, the investigators' timing was better, and they soon had the answer to the puzzle.

Once they knew what was causing the irritation, they had made the first big step toward eliminating it. While a permanent, economical solution to the problem has yet to be found, there are several interim measures that can be used to prevent the irritation.

The culprit was ozone, a colorless gas that, in high enough concentrations, can irritate the eyes and the respiratory system. These high concentrations usually are found above 40,000 feet, which is higher than most commercial aircraft fly. But the high concentrations don't always stay up there.

That is what caused the problem. The ozone layer was creeping down lower than 40,000 feet, and the pilots unknowingly were flying through it.

The first complaints were received in 1975, according to Wes Euler, FAA's principle operations inspector for Pan

American, who, along with his assistant, Jerry Davis, and Dick Davenport of the Flight Standards Division in the Northwest Region, were the agency people most involved in the investigation.

There were only six incidents reported that year—all by Pan American flight attendants and most concerning the 707—and they were confined to a three-month period. Pan American put out a bulletin on the proper operation of the ventilation systems, and when the complaints stopped, it was believed the problem had been solved.

But, Euler said, complaints started coming in again in February 1976. There were 17 complaints in all, and, this time, most of them concerned the 747 and the 747SP which was just going into scheduled service.

In June 1976, Boeing, at the request of Pan American, did extensive inflight testing for possible irritants, including ozone and any gases that might have been escaping from the cabin materials. Again none was found.

Later, of course, it was realized that June was not the best time to test for ozone, because the winter and the early spring months generally experience the high concentrations below 40,000 feet.

At about the same time, the complaints stopped. But when winter returned, so did the complaints. And most of them involved the Pan Ameri-

can 747SP that was being used on the new, non-stop flights between Tokyo and New York.

One of them came in the form of a report filed by Frank H. Walley, an air-carrier inspector from the agency's Pacific-Asia Region, who reported suffering the irritation on a flight from New York to Tokyo on March 15, 1977.

Walley said all the crewmembers and the 10 passengers with whom he talked experienced similar symptoms. He also noted that there was no discomfort during the first three hours

It was decided to test for ozone again. This time, they found it, and the investigators knew they had the answer.

and 45 minutes of the 13-hour and 40-minute flight while the aircraft was at 35,000 feet. The irritation didn't start, he added, until the plane climbed to 39,000 feet.

It was decided to test for ozone again. This time, they found it, and the investigators knew they had the answer.

Pan American immediately instructed its pilots to limit their altitudes in areas where the ozone layer might be lower than normal, and FAA advised flight crews experiencing the irritation to descend immediately to escape the ozone.

A "quick fix" was devised to keep the ozone out of the cabin. This involved heating the air that is pumped into the cabin to higher than normal temperatures to breakdown and convert the ozone into oxygen. Pan American immediately installed the modification in all of its 747SPs and the complaints dropped dramatically.

The principle of the fix was a simple one: The normal oxygen molecule (O_2) is made up of two oxygen atoms while the ozone molecule (O_3) has three oxygen atoms. But when the ozone molecules are heated, one of the oxygen atoms breaks away and joins with a breakaway oxygen atom from another ozone molecule to make one oxygen molecule. So, in effect, two molecules of ozone are changed into three molecules of oxygen, and the irritation is gone.

In cooperation with the aviation industry, FAA is searching for a permanent and cost-effective way to prevent or avoid the irritation.

The big drawback to the procedure, however, was that it uses excessive amounts of fuel. So, the Boeing company developed a charcoal filter to take out the ozone. But this also imposed an economic penalty because the filter weighs close to 700 pounds.

Meanwhile, in cooperation with the aviation industry, FAA is searching for a permanent and cost-effective way to prevent or avoid the irritation.

It is exploring several possible ways of charting or predicting the presence of ozone so that it can be avoided, and it is looking for an effective, lightweight ozone filter, as well as reliable, compact meters that can detect ozone before it reaches the irritation level.

The agency also is conducting a study on the long- and short-term effects of ozone on health. This includes a search of the existing literature—much of which is conflicting—and research into the effects of ozone on night vision.

In the interim, the agency has issued an Advisory Circular in which it recommends that flight crews that encounter ozone decrease altitude to get out of it. It also gives guidelines on where ozone can be expected to be found so that exposure can be minimized. And it recommends that flight crews exposed to ozone breathe 100 percent oxygen for a while before landing to offset any possible effects on night vision.

While other carriers and other aircraft also had ozone problems, the

most seriously affected was Pan American and the 747SP. This was mainly the result of the aircraft's unique capabilities and the routes over which it was used by Pan American.

The 747SP can fly higher and farther than other subsonic commercial aircraft, and Pan American was using it regularly between New York and Tokyo on a route that it took through an area over the northern Pacific Ocean known as the Aleutian Low, where the ozone layer tends to come closer to earth than in most other places. This combination of factors increased the potential for encountering ozone.

There is also more exposure to ozone on a 13-hour-plus trip than on a shorter one, and the irritation gets worse the longer one is exposed to it.

This year, as it did before, the ozone problem went away in the summer, when the ozone layer went back up to the higher altitudes. And, as in years past, it can be expected to come creeping down again next winter and cause further irritation.

But it isn't expected to be as big a problem, because now we know what we are dealing with, and, in most cases, we can avoid or minimize the discomfort.

By Fred Farrar

FEDERAL NOTEBOOK

CAREER DIRECTIONS

The Civil Service Commission has been given the authority to help minimize the impact of reorganization on employees. CSC is considering authorizing early retirement to make room for displaced employees, registering displaced employees for priority placement ahead of registers, temporary hiring freezes, opportunities for retraining and special counseling.

■ While one or another downgrading proposal will carry over to next year, CSC plans to allow agencies to delay demotions because of reclassification or reorganization until Dec. 31, 1979, provided agencies have a plan for resolving problems in these areas. ■ CSC chairman Alan Campbell has suggested restrictions on veterans' preference to aid in equalizing opportunity, including limiting the use of 5-point preferences or the time in which they can be used, limiting 10-point disability preferences to an initial use, limiting a preference in RIFs and denying preferences for retired military personnel. The commission is studying this among other personnel management reforms, he said. ■ An Administration proposal to create an Executive Management Service is being reviewed by CSC and OMB. The idea is to give the President and agency management a cadre of managers under their control for hiring, pay, promotion, transfer and firing. The EMS would include management types in GS-14 to GS-18 grades or GS-16 to GS-18, who would be provided more incentives but would have less job security.

■ Although Rep. Morris Udall (Ariz) is considered a champion of Federal employees, he recently wrote to the CSC chairman, "Surely there is a way to implement the principles of

the merit system with enough flexibility to weed out incompetents, who after all represent failures in the merit system." He went on to offer support for balancing employee retention rights with legitimate management needs. While protecting the whistleblowers, Udall wants to get rid of the "minority of the unresponsive, the irresponsible, the arrogant and the slothful."

THE RETIREMENT SCENE

The House Education and Labor Committee has approved legislation to eliminate mandatory age 70 retirement. ■ Rep. Gladys Spellman (Md) has introduced a bill to allow retirement at any age with 30 years of service. HR 8700 also provides for a 2 percent reduction in annuity for each year under age 55. ■ At this writing, the Senate has a House-approved bill that permits retention of health and life insurance coverage for Federal employees who retire after 5 years of service. ■ The Senate is also considering a House-passed bill to reinstate survivor annuities for widows and widowers whose remarriage took place before July 19, 1966. ■ Rep. Charles Whalen, Jr. (Ohio) has introduced a bill to provide a \$5,000 tax exemption for Federal employees to equate with tax-free Social Security.

GOVERNMENT VAN-POOLING?

The House Government Operations Committee has given the nod by a two-to-one margin to a bill to van-pool Federal employees in up to 6,000 government-owned or leased vans that could carry eight to 15 employees each. Except for some administrative costs and provisions for the handicapped, the employees would split the costs of operation.

In flying, little misunderstandings between pilots and controllers can mean a lot and sometimes lead to potentially unsafe situations. To prevent that, the Moline, Ill., Tower began a "Comm Check" program for towers, patterned after the highly successful "Operation Raincheck" programs held at en route centers.

The brainchild of training officer Dick Hill, Comm Check was begun as a follow-up to the Administrator's expression of concern over pilot misunderstandings and misinterpretations of air traffic instructions. When the agency made available to all pilots a new pilot-controller glossary of terms in the Airman's Information Manual in the fall of 1976, Hill figured the time was right for bringing the parties face to face.

Since then, Moline Tower personnel have conducted more than a dozen sessions at airports in eastern Iowa and northwestern Illinois. Well over 500 pilots have attended the programs, which explain in pilot terms radar services, aircraft separation standards, air-traffic procedures and phraseology. All of the program outlines are



Moline, Ill., Tower chief Don Philips lectures nearly 100 pilots attending a "Comm Check" session in Galesburg, Ill.

Learning To Talk the Same Language

similar, with an emphasis on local peculiarities.

"We want pilots to realize that controllers are genuinely concerned with pilot interests," says tower chief Don Phillips. Echoing that is Galesburg, Ill., Tower chief George Maxey. He credits the Comm Check session held on his airport with helping to acclimate local pilots to the new tower. "The program helped assure pilots that the tower was opened to make the operation more safe, not more restricted," Maxey said. "By seeing our side of the coin, pilots can appreciate why we frown on B-29 patterns and ask that they keep it in close, or why we like to hear from them when they enter the airport traffic area."

This fall, the sessions include programs for commercial pilots, with emphasis on instrument-approach procedures.

The philosophy that this program addresses is that pilot education doesn't stop with the issuance of a certificate; that's where it begins.

Thanks to programs like the Moline Tower's Comm Check, when a pilot radios "ready to go," the controller can be more assured that the pilot is, indeed, ready to go.



Comparing notes during a break in a "Comm Check" session are (left to right) Galesburg, Ill., Tower chief George Maxey, Moline, Ill., Tower assistant chief John Aamot, Moline secretary Diane Martin and Peoria, Ill., Tower chief and local coordinator Robert Diltz.

By W. E. Holtsberg, Jr.

ABOUT OUR LOFTY STANDARDS—William E. Morgan (dark suit), Eastern Region Director, presents a certificate to operate a parachute loft to Col. James H. Tormey, chief of staff of the Military Academy at West Point, as Brian J. Vincent, chief of the Flight Standards Division, and Frank T. Gardner (right), Teterboro, N.J., GADO maintenance inspector, look on. The loft will be used by the Army's famed "Black Knights" parachute team.



NEW BUILDING DEDICATED—Approximately 200 FAAers joined First Lady Rosalynn Carter among others in Honolulu last June for the dedication ceremonies of the new Prince Jonah Kūhio Kalanianaʻole Federal Building, which will house the Pacific-Asia Regional Office. The unique structure surrounds a courtyard complemented by a water fountain, sculptures, trees, and flowers.

ONE OF A SELECT FEW—Robert B. Milburn (left), airworthiness inspector at the El Paso, Tex., GADO, proudly accepts a plaque from Luther DeBerry, director of the Texas State Department of Highways and Transportation, proclaiming him "Aviation Man of the Year" for the El Paso area.



FIRE-FIGHTER—No, it's not a rebel soldier from Princess Leia's starship! It's Chuck Urban, NAFEC aerospace engineering technician, testing an aircraft-skin penetrator nozzle developed by the USAF for injecting extinguishing agents to combat fires inside aircraft.

FACES and PLACES



NOT JUST FOR SHOW—This rebuilt Model T coupe has won several national awards for "Best Engineered" for Allan Ashbury, air carrier operations inspector with the San Francisco ACDO. Driven daily, the car actually boasts a 289-cu. in. Ford engine with automatic transmission, power brakes, power steering, a Jaguar suspension, air conditioning, and, of course, a beautiful exterior.

A COMMON LANGUAGE—Technician Nasoug Sheikh-Al-Sahga of Syria (left) discusses maintenance with technician Frank Holm of the Chicago Midway AFS Field Office. Nasoug received training in the maintenance of TACAN and VOR equipment from Midway AFS personnel before moving on to the Lansing, Mich., AFS for further training.



MARATHON MAN—Dean Hatfield (third from right), Central Region Air Transportation Security Division, is in the back of the pack at the start of the annual Hospital Hill 7.7-mile run in Kansas City. However, not only did white-haired Hatfield finish fourth in his age group but he also outdistanced most of the runners in the photo.

ASTRONAUTS TO BE?—A group of students examines a model of the space shuttle during a tour of the National Air and Space Museum in Washington. The tour guide at left is Ted Maher of the Office of Public Affairs. He is one of a couple of dozen Headquarters employees who work at the museum on a volunteer basis after hours and on weekends.



SHARING KNOWLEDGE—Northwest Region's Harry Gunter (right), EPDO at the Seattle-Tacoma Tower, discusses ATC operations with Riyadh controller Mohamed Shams (left) and Abdulaziz Kashary, director of Aeronautical Information Services in Jeddah. The Saudi Arabians recently completed a three-week course in automated air traffic control at the Sea-Tac Tower.

Visiting with President Franklin D. Roosevelt (left) and the then Secretary of Agriculture, Henry A. Wallace (later Vice President), in Warm Springs, Ga., in 1933, Eugene L. Vidal (standing), Director of the Aeronautics Branch of the Department of Commerce, sought a New Deal for Aviation with Federal assistance for developing a low-cost plane.

The New Deal's Flying Flivver



The following is a second excerpt from the forthcoming book by FAA Historian Nick A. Komons, *Bonfires to Beacons: Federal Civil Aviation Policy Under the Air Commerce Act, 1926-1938*, the second of a four-volume history of FAA and its predecessor agencies. This tale recites one little-known aspect of the New Deal program to help industry out of the depression and create an aviation boomlet with a "volksplane," but industry would have none of it.

The airport development program of the Civil Works Administration contributed its share to alleviating the nation's unemployment problem. Picking up momentum rapidly, it had, during the winter of 1933-34, 70,000 men working at 700 locations constructing new airports or improving existing sites.

It gave the economy in general a shot in the arm, and to a degree, it probably stimulated flying. But it was scarcely the kind of program that could bring the heavily depressed aeronautical manufacturing industry out of its economic doldrums.

Something more direct and more substantial was needed for that, and, at

least in the view of Eugene L. Vidal, the Director of the Aeronautics Branch, that something should be undertaken by the Federal Government, which, under the Air Commerce Act, had the responsibility of fostering aviation's development.

"If there is such a thing as a New Deal for aviation," Vidal told the Society of Automotive Engineers, "it is the recognition of the Government's additional duty to aid the development of a sound aviation industry, which means, above all other things, the development of greater markets for products of that industry." At the same time, Vidal wanted to do something for private flying, which he believed had been

neglected by a Federal Government preoccupied with commercial aviation:

"The forgotten man of aviation is the private flyer, and his brothers are legion. They work at manual training branches in high schools and at engineering tables in colleges, and each dreams of the day when his inspired design will revolutionize aeronautics. They build model planes by the millions and trudge out to local airports each week-end to worship their idols from the ground and long for the day when they will have saved enough . . . to buy a hop. They are the young business women and men who travel by air and would like to fly for recreation or sport or pleasure but cannot afford to. They are the older folks, who would like to include air travel in their daily social and business lives but have not yet met it within the ken of their experiences. They are the multitudes who admire Lindbergh . . . and all others to whom the air is as commonplace as Sunday roads, [but] stand on the edge longingly—physically and mentally worthy of the kingdom of flight, but financially unprepared."

Vidal, then, would democratize aviation—bring it to the multitudes. His hope was that "the New Deal may do for the airplane what the pioneers of mass production did for the automobile; convert it from a rich man's hobby to a daily utility or inexpensive pleasure for the average American citizen."

All this could be attained by the development of a "low-priced, easily operated and maintained airplane" that could be mass-produced. ("If the price is to be within the reach of the average person," Vidal said, "[the aircraft] must be produced and sold in large numbers.") Thus, the American aircraft manufacturing industry would get back on the road to economic recovery by allowing the American people to enter "the kingdom of flight." The program, moreover, would dovetail with the airport building program, permitting "future owners of these [low-cost] aircraft [to] reap [its] benefits. . . ."

The basic idea was not really new. "As soon as we know as much about [airplanes] as we do about automobiles—and that will not be long—then

they can be built by the thousands or by the millions," Henry Ford had said in 1924. Unquestionably, by 1933, airplanes could have been mass-produced. The big hitch was unit price. Vidal believed that the price could not exceed the average price of a new automobile, which, in 1933, ran between \$500 and \$1,000. There was no question in his mind that "an airplane for that price, sold on the installment plan, would have a popular appeal"—provided, like the modern automobile, it was easy to handle and inexpensive to operate and maintain. The same people who bought automobiles would buy his flying flivver ("The automobile driver . . . he is our customer . . .").

After going "into price . . . very carefully," Vidal settled on a \$700 price tag for a two-seat, single-engine, all-metal aircraft capable of a top speed of 100 mph. He visited Henry Ford in Dearborn; Ford engineers, who "spent a bit of time on us," according to Vidal, estimated that they could produce an automobile engine for the aircraft at \$65 a unit "if we would take a full day's production, which at that time was

At a time when the Aeronautics Branch was seeking production of an Everyman's Plane at a price one-third that of existing low-cost aircraft, this American Eagle-Lincoln (restored) typified the higher-priced low-cost aircraft plying the skies.

3,500 units." The low unit price for the engine, when combined with a subsidy to airframe manufacturers for tooling costs and an early initial airplane production run of 10,000 units, Vidal believed, made his \$700 estimate reasonably attainable.

In securing President Roosevelt's approval for the program, Vidal also got a promise of \$1 million in Public Works Administration (PWA) funds to take care of industry's start-up costs. In negotiating with PWA officials, however, Vidal managed to secure an allotment of only \$500,000. He believed, nevertheless, that this fund was sufficient.

Shortly after announcing the program, in November 1933, Vidal conducted a survey to demonstrate that a market existed for his machine. Thousands of questionnaires were mailed to prospective buyers. By February, about "18,000 replied, and 13,000 said they would purchase," Vidal announced. "The 13,000 affirmative replies included nearly 10,000 saying yes without reservations and about 3,000 making final decision upon future financial status. . . ." Survey participants had also been asked to list "the number of their friends or acquaintances who would be probable purchasers"; they listed 57,000 names. "Surely one in ten of this group is an assured purchaser," Vidal concluded.

Vidal was heartened by these results. And it did appear that private fliers, on balance, were enthusiastic



On the Other Hand . . .

It seems unlikely that an aircraft sales program of this magnitude could have been successful in the winter of 1933-34, or, indeed, at any time during the Great Depression, which ran into 1940-41.

Vidal assumed that the average buyer of a new automobile would become the primary customer for his flying flivver; in doing so, he was banking on a breed that had been in rapid decline since 1929. New auto sales were depressed nearly as much as new aircraft sales, dropping from an all-time high of 4,455,100 units in 1929, to 1,103,500 units in 1932. But while new auto sales were on the wane, the desire or need to own a new car, it seems fair to say, was not; demand was being pent up by economic conditions.

It would have been a rare man, indeed, who had \$700 to spend on a new transportation vehicle in 1934 and chose to put it into an airplane; people would have bought the vehicle they had been waiting to buy all along—the motor car, which had a great more utility than a two-seat airplane.

If Vidal was right, however, in assuming the existence of a large pent-up market for his airplane, then he was proposing a program that would have worked havoc on the nation's airways. In November 1933, there were fewer than 10,000 certificated civil-aviation aircraft; Vidal proposed to double that number by the spring of 1934. It is doubtful that the airways were capable of accepting such a large increase in traffic in one increment.

about the program. One Illinois town, for example, inspired by Vidal's proposal, resolved that an air reserve corps of one million members be established and that the Federal Government grant the members of this corps "aid in purchase of . . . airplanes by a 40% grant of the purchase price. . . ."

"What do you think of this [resolution]?" Vidal asked Maj. Gen. Benjamin D. Foulois, the Air Corps Chief. "We are at least stirring up interest throughout the country."

Vidal had indeed stirred up interest. His proposal had "set the high-water mark in news excitement not only for November but for a much longer period," *Aviation* observed. But the reaction was by no means uniform: "There are those who cheer the scheme, those who denounce it, and those who ridicule it. . . ."

Aircraft manufacturers did not do much cheering; instead, in the words of one observer, they met the scheme with "a shower of dead cats and brickbats." "Automobile engines will never be used for practical aircraft of any

type until aircraft engines become standard for automobiles," said William B. Stout, skeptical of the performance of Ford's \$65 engine. Grover Loening suggested that the aircraft manufacturing industry was perfectly capable of taking care of its business, and the Department of Commerce might do well to mind its own—developing airways and intermediate landing fields. "There have been sneers and skepticism. . . . There have been groans and complaints. . . ." noted Robert J. Pritchard, editor of *Western Flying*. Aviation editors joined in, what must have appeared to Vidal, a conspiracy to kill his proposal with ridicule.

Aviation conducted a survey of the industry; among those questioned, 64 percent of the airframe manufacturers and more than 50 percent of the engine manufacturers were categorically opposed to the scheme. But the most revealing statistic was that 70 percent of those surveyed expressed concern that potential customers, led to believe that a \$700 airplane was in prospect, would put off purchasing existing

aircraft costing three to four times as much. Far from helping their business, Vidal was destroying it. As *Aviation* commented, when Vidal announced his project, "a considerable segment of the aircraft industry thought it a joke—and not a particularly funny one."

Industry opposition killed the project. By the winter of 1934, the New Deal was already locked in battle with the air transport industry over airmail contracts; it did not want another aviation hassle with manufacturers. In March 1934, PWA withdrew its promised allotment. "Now in order to keep going," Vidal recalled years later, "we shifted our [emphasis] to the development of a safer, more easily flown airplane. . . ." But it was a low-key program with no grand design. The idea of a "Poor Man's Airplane" was dead.

The first volume published in this series, *Takeoff at Mid-Century—Federal Civil Aviation Policy in the Eisenhower Years, 1953-1961*, can be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, for \$6.00. Order Stock No. 050-007-00355-2.

Planes and Big Cats Turn Her On

The famous cat photographer Walter Chandoha never handled the pussy cats that Vicki Thomas does. And there are few people who would want to.

An aviation clerk at the Los Angeles GADO in Santa Monica, Calif., Thomas vows her first love is aviation, and she has the credentials to prove it. She holds a commercial pilot's certificate with instrument rating and has tried her hand at parachuting, soaring and gyrocopters.

But for a hobby and a sometime second career, photography is her thing, with a specialization, you might say, in lions and tigers, oh my! That came about, one day, when she accompanied a circus photographer friend who was going to shoot an elephant act. The friend asked the trainer to get Thomas a tiger to shoot.

That was her first big cat, a Siberian female, and it was love at first sight. Before the picture-taking session was over, Thomas and the tiger had established a working rapport that culminated in a friendly romping session. She was hooked.

Several months later, she was introduced to Gordon Meredith, owner of the very first Mercury cougar, Tanya. This led to an all-day shooting session



This real attention-getter at a Santa Monica, Calif., Airport open house was shot by Vicki Thomas. Yancy, the tiger, owned by Dee Arlen, is slated to appear in a Hollywood movie. One might consider the smile on the plane more appealing at closer range.



Aviation clerk Vicki Thomas has a way with cougars . . . doesn't everyone?



Virginia Story's cougar behaves for Vicki Thomas, but at that range, the tether is no insurance for the photographer.

at Meredith's ranch, and some of Thomas' photos that day led to other jobs in animal photography.

Thomas has gotten to work with half a dozen tigers and a like number of lions, many a cheetah, an Asian black leopard, an African spotted leopard, a jaguar, ocelots, small leopard cats, an Asian fishing cat, bobcats, a wolf, deer and some esoteric species like margays, ocebobs and a serval.

Although a danger exists, Vicki Thomas has a fondness for the big cats and photographing them eyeball to eyeball.

IT ONLY HURTS WHEN OTHER PEOPLE LAUGH. . . .

Newt Phillips of the Scottsdale, Ariz., tower made his first free-fall parachute jump from 10,500 feet in early August and landed without a scratch. Then, to show his appreciation to his jump master, stunt-pilot Phillips took him up for a demonstration of aerobatic flying. The demonstration also went off without a hitch and Phillips landed the aircraft, parked it and cut the engine. Then, as he was climbing out of the cockpit, his left leg got caught and he tumbled to the ground, breaking his right leg in three places. That isn't funny, even by "Small World's" rather warped standards, but you have to admit it's certainly ironic.

FLIGHTS OF FANTASY. . . . The Alaskan Intercom recently asked the region's summer hires what they would do if someone gave them a million dollars and received a



variety of responses. But 16-year-old Judi Baker's answer showed that her summer stint at the Anchorage GADO had left its mark. First of all, Judi said, she would buy an airplane. Then, she added, she would find herself a "goodlooking flying instructor." Must be a swinging bunch at the Anchorage GADO.

NOBODY KNOWS OUR NAME. . . . The "Problem Line" column in the Long Island, N.Y., publication *Newsday* carried the following question and answer this past summer: "Q. What do the initials FAA

stand for? I say Federal Aviation Agency and my teacher says Federal Aviation Administration. Who is right? A. Its official name is Federal Aviation Administration, although it is popularly called Federal Aviation Agency. . . . As a matter of fact, the Manhattan phone book has a listing for Federal Aviation Agency but it refers the reader to look elsewhere." Hey, now we're confused!

PLAY "MISTY" FOR ME. . . . Last month, "Small World" listed the noise levels of various occurrences that one encounters in daily living and placed jet aircraft on the top of the heap. But we've found at least one thing that's louder—rock music. It pushes the needle on the decibel scale up to 123 as compared with 115 for a jet airliner 500 feet overhead. And they don't even have a retrofit program for rock bands.

DIRECT LINE



Q What method will be used to compute the retro-active Fair Labor Standards Act overtime pay at facilities that did not have their personnel logs back to May 1, 1974? I understand payment will not be made without the logs. Why must those of us in such facilities be penalized through no fault of our own? It would be simple enough to average the overtime from periods where there are records.

A In a letter on Instructions for Payment of Fair Labor Standards Act Entitlements for the period May 1, 1974, through July 3, 1976, the Office of Accounting and Audit specified on Jan. 27, 1977, that time-and-attendance forms or statements certified by the appropriate supervisor are the only official records acceptable to support calculation of pay. Although facilities can submit amended T&A reports, a facility chief or supervisor could not attest that an employee had, in fact, exceeded 40 hours of work in a week without having access to some official record. The only alternative is file a complaint with the appropriate office of the Civil Service Commission in your region.

Q I am one of seven assistant chiefs in a Level III FSS. Should 3120.4D, Chapter 4, Section 4, be interpreted to require supervisory FSS assistant chiefs to maintain journeyman operational currency requirements, subject to Paragraph 206? Aren't these currency requirements applicable to team supervisors in centers and radar control facilities and to first-line supervisors at lower-level FSSs, as opposed to assistant chiefs in Level III FSSs? The latter have shift jobs and managerial responsibilities similar to center and radar facility assistant chiefs. Isn't this in conflict with 7210.3C, paragraph 66b, which is more applicable to Level III assistant chiefs? If so, and familiarity currency is maintained by observation only, doesn't paragraph 629 apply, where an assistant chief doesn't need a Class II Medical Certificate?

A The key to the problem suggested by you is through the use of the term "first-line supervisor." It is the Air Traffic Service's policy to require first-line supervisors to be operationally current and medically qualified. Your confusion is in comparing your job title, "assistant chief," to the same title in the center option, where the position is that of a second-level supervisor and not that of the team supervisor, which is the first-level supervisor with essentially the same function as the FSS assistant chief. Handbook 7210.3C, Paragraph 66c, is a general statement for all options, referring to second-level supervisors and above and requiring them to operate/observe a control position one hour per week. Paragraph 529 is the ARTCC paragraph dealing with medical certificate requirements. Basically, its intent is to require a second-class certificate for those who handle traffic directly. Handbook 3120.4D, Paragraph 206, contains FSS

currency requirements and addresses FPLs and first-line supervisors. This requires satisfactory performance of these duties, etc. The Air Traffic Service will be issuing a directive that sets forth a standard organization for flight service stations, and it will retitle all FSS first-line supervisors as "team supervisors."

Q I am an electronics technician stationed at an airport sector field office. My headquarters is in the same room as an FSS. Order 6030.36B states in Paragraph 7j that an entry must be made in the Facilities Maintenance Log, Form 6030-1, showing the date and time of arrival and departure from a facility. Must I show arrival and departure when I start and stop working on the FSS's equipment? What it comes down to is I report for work at 0800, read the mail, check over a pending modification for a localizer, for example, and at 0900 start checking receivers in the FSS, which I finish at 1100, and then I turn to filling in vehicle reports. Do I really show arrival at the FSS at 0900, even though I have been in the room since 0800?

A Since the FSS log is intended to show the time expended at the facility, regardless where the facility is located, an entry should be made at 0900 indicating the start of work there and at 1100 indicating the completion of work at the FSS. When a headquarters is colocated with a facility, administrative duties not directly related to that facility should normally be performed prior to signing in or after signing out.

Q What are the citations covering the subject of time-in-grade carryover for step increases when switching between general schedule grades?

A Within-grade increases for GS employees are covered in the Federal Personnel Manual, Supplement 990-2, Book 531, Subchapter S4. A within-grade increase is defined as "an increase in an employee's rate of basic pay from one rate of his grade to the next . . . and is synonymous with the term 'step increase.'" A within-grade increase is subject to the completion of the required waiting periods: 52 weeks for rates 2, 3 and 4; 104 weeks for rates 5, 6 and 7; and 156 weeks for rates 8, 9 and 10. A new waiting period begins on receiving an equivalent increase, which is defined as "an increase or increases in an employee's basic rate of pay equal to or greater than the amount of the within-grade increase for the grade in which the employee is serving." If by switching between GS grades, you mean a promotion action, such an action constitutes an equivalent increase, since the employee must receive at least two within-grade increases when promoted. However, if the employee who is promoted is on a retained rate, the minimum-two-steps rule is not applicable. If you

mean a demotion action, the time spent at a particular step in the higher grade will count toward the waiting period for the next step at the lower grade. For further details on your particular situation, contact your Personnel Management Division.

Q I feel you failed to answer the questions on IFR letdowns for a Level I non-radar approach control asked in the June "Direct Line." FAR 91.83 lists the required information for IFR and VFR flight plans. I think the answers should have been that just identification and type of aircraft is not enough information when the aircraft is on top of an overcast, not on an IFR flight plan and not in an emergency, that the minimum information is what is contained in the FAR and that the controller would be guilty of circumventing the FAR. Controllers are daily faced with such situations, and often the pilot becomes incensed when the controller will not accommodate the request for an IFR letdown.

A As a clarification of the June response, here is a definition that is being added to the Pilot/Controller Glossary in the Airman's Information Manual, Part I, and the Air Traffic Control and Flight Services Handbooks. It will appear in the Jan. 1, 1978, issues. "ABBREVIATED IFR FLIGHT PLAN—An authorization by ATC requiring pilots to submit only that information needed for the purpose of ATC. It includes only a small portion of the usual IFR flight plan information. In certain instances, this may be only aircraft identification, location and pilot request. Other information may be requested if needed by ATC for separation/control purposes. It is frequently used by aircraft which are airborne, desire an instrument approach, or by aircraft on the ground which desire a climb to VFR on top."

Q Recently, I had a suggestion rejected for an invalid reason. I could think of two or three reasons for rejection, but not the one the examiner used. It was obvious from the evaluator's answer that he had no concept of the operation or purpose of the equipment. This tends to lend credence to the rumor that engineering suggestions from the field are automatically rejected as a matter of policy. What can I do to make sure that my suggestion is properly examined by a competent examiner?

A Order 3450.7C, "Incentive Awards Program," describes the FAA employee suggestion system, and Chapter 7 is devoted entirely to technical suggestions. The FAA makes sure competent personnel review each technical suggestion. This evaluation begins at the field level. The suggestion is re-evaluated at the regional level and again at the Airway Facilities Service in Washington. Each of these offices have highly qualified engineers and/or techni-

cians to evaluate the suggestions. At the field office level, the suggestion is evaluated from the standpoint of whether or not there is a real need for the modification and whether or not it will do the job it is designed to do. At the regional level, the evaluators are journeymen engineers at the branch- or division-chief level, and their work includes the same type of evaluation done in the field, plus a determination whether or not the suggestion is cost effective. It is also evaluated for safety aspects. All technical suggestions are sent on to Washington. The final evaluation of the technical suggestion is done by engineers who are expert in the type of equipment the suggestion pertains to. Many of these engineers helped in the original design of the equipment and have followed it through the testing and installation. These engineers evaluate the suggestion for the same aspects as was done in the field and the region with an overview toward national requirements. They also assure that the suggestion does not apply to equipment that will be replaced in the near future. During the past 10 years, the Airway Facilities Service has adopted 1,070 beneficial technical employee suggestions and has recommended awards to be made that totaled \$506,470.

Q I recently returned from a foreign assignment. When I left the U.S., I was unable to claim reimbursement for the expenses associated with selling my house. The logic, as explained to me, was that it was not necessary for me to sell my home since the FAA paid for housing at the foreign post. This would be plausible if it were the agency's intention to return you to your original geographic location. This, in fact, did not happen. Has any employee received compensation for this kind of loss and is there any way for me to claim it?

A PL 89-516, as cited in Title V, U.S. Code, Para. 5724a, deals with relocation expenses of employees transferred or re-employed. The law defines the expenses that may be allowed. Among them, real estate expenses are covered as follows: "Expenses of the sale of the residence (or the settlement of an unexpired lease) of the employee at the old station and purchase of a home at the new official station required to be paid by him when the old and new official stations are located within the United States, its territories or possessions, the Commonwealth of Puerto Rico or the Canal Zone." These provisions are implemented by Para 640 of the DOT Travel Manual, Order 1500.6. In effect, reimbursement of real-estate expenses for transfers to and from foreign areas is precluded. Reimbursement of real-estate expenses upon return is not allowed even though the new U.S. duty station is at a location different from the U.S. duty station at the time of departure. The Office of Accounting and Audit is not aware of any authorized exception to this legislation.

Heads Up

AERONAUTICAL CENTER

Getting the chief's slot in the Quality Control Branch of the Aircraft Services Base is **Eugene L. Anderson**.

ALASKAN REGION

Albert M. Harenchar, Jr., was promoted to chief of the Labor Relations Branch of the Personnel Management Division.

CENTRAL REGION

Moving up the ladder to an assistant chief's post at the North Platte, Neb., FSS from the Dodge City, Kan., FSS is **Robert L. Southwick**.

EASTERN REGION

Previously located at the Albany, N.Y., Tower, **Mark A. Sissons, Jr.**, is the new chief of the Charlottesville, Va., Tower ... **William L. Conley, Jr.**, advanced to chief of the Elkins, W. Va., FSS from the Charleston FSS ... The Albany, N.Y., Tower has a new assistant chief in **Richard C. Weinberg**.

GREAT LAKES REGION

Edward D. Eisele is the new chief of the Columbus, Ohio, GADO ... The Metropolitan Airport Tower in Detroit, Mich., has a new assistant chief in **Albert C. Russell, Jr.** ... Joining him as deputy chief will be **Carl E. Cowgill** ... Moving from the Akron Tower in Ohio to an assistant chief's position with the Champaign, Ill., Tower is **Loren Gene Gardner** ... **James R. King** has transferred from the Milwaukee, Wis., FSS to the Zanesville, Ohio, FSS as chief ... The South Bend, Ind., Tower has three new assistant chiefs in **Adrian J. Nugteren**, **Robert J. Konopka**, and **Lester J. Jugenheimer** ... A former assistant chief at the Columbus-Ohio State University Tower, **Arthur W. Nugent, Jr.**, was selected as chief of the Ann Arbor, Mich., Tower ... **Charles R. Reavis** advanced from assistant chief to deputy chief at the Chicago-O'Hare Tower ... A new assistant chief at the Flint, Mich., Tower is **Terry C. Riggs**, formerly of the

Detroit Metropolitan Airport Tower ... The Kalamazoo, Mich., Tower has two new assistant chiefs in **James F. Cook** and **John C. Converse** ... **Gerald H. Jagow** was selected as an assistant chief at the Minneapolis, Minn., ARTCC ... Promoted to an assistant chief at the Columbus, Ohio, FSS was **Ronald E. Riley**.

NORTHWEST REGION

Moving from chief of the Troutdale, Ore., Tower to assistant chief at the Seattle, Wash., Boeing Field is **William R. Strickland** ... Promoted to manager of the Olympia, Wash., AFS was **Rodman B. Gill** ... **Douglas C. Mott** is the new chief of the Tacoma Industrial Tower in Wash., transferring from the Seattle-Tacoma Tower ... The Fairchild AFB, Wash., RAPCON has a new chief in **William Byerly** ... **William H. Holmes** was upgraded to an assistant chief's post at the McCord AFB, Wash., RAPCON.

ROCKY MOUNTAIN REGION

Transferring from assistant chief at the Fargo, N.D., Tower to chief of the Casper, Wyo., Tower is **John J. Alex** ... Taking his vacated position at the Fargo Tower is **Wesley A. Weyhrauch** ... **Warren L. Lee** has moved up to deputy chief at the Salt Lake City, Utah, Tower ... **William T. Butler** has left the Salt Lake City Tower to become chief of the Aspen, Colo., Tower ... The new chief of the Miles City, Mont., FSS is **Robert L. Tillery** ... Promoted to field office chief at the Bismarck, N.D., AFS was **Darrel D. Vogt**.

SOUTHERN REGION

Michael E. Bozzi is a new assistant chief at the Orlando, Fla., Tower ... Promoted to deputy chief at the Miami International Airport Tower was **Cecil R. Wall** ... The Miami, Fla., Center boasts a new assistant chief in **James D. Reilly** ... **William Bourgeois, Jr.**, was upgraded to assistant chief at the New Bern, N.C., FSS.

SOUTHWEST REGION

Moving up to become deputy chief of the

Dallas-Ft. Worth, Tex., TRACON Tower is **Donald E. Kneram** ... **Gary M. Massingale** is the new field office chief of the Little Rock, Ark., AFS ... Transferring from the Gage, Okla., FSS to the El Dorado, Ark., FSS as chief is **James D. Glendenning** ... **Jimmy J. Debaca** was promoted to assistant chief of the Houston, Tex., Radar Approach Tower ... Boosted to assistant chief at the Little Rock, Ark., Radar Approach Tower was **Robert E. Graphman** ... Moving up the ladder to become assistant chief at the Little Rock, Ark., FSS is **James A. Van Zandt** ... **Darrell L. Kelley** was promoted to assistant chief at the Austin, Tex., RAPCON Tower ... Getting the nod as deputy chief of the Oklahoma City RAPCON Tower is **Harry L. Weatherford** ... Advancing to assistant chief of the San Antonio, Tex., FSS was **Robert W. Lindsley** ... **Mark A. Olsen** is a new assistant chief at the Roswell, N.M., Approach Control Tower ... Named as chief of the Esler Regional Airport Tower in Alexandria, La., was **Donald A. Endsley**.

WESTERN REGION

Nolan C. Tucker was selected as an assistant chief of the Sacramento, Calif., Metropolitan Airport Tower ... Transferring from the San Diego, Calif., FSS to the Sacramento, Calif., FSS as assistant chief is **Wilburn D. Spring** ... The Napa, Calif., Tower has a new assistant chief in **Michael G. Newman**, who previously was with the Los Angeles TRACON Tower ... New assistant chiefs at the Davis-Monthan AFB, Ariz., RAPCON are **Ronald A. Nichol** and **Lawrence L. Parrent** ... **Richard A. Morris** was named chief of the San Diego, Calif., Lindbergh Airport Tower ... The El Monte, Calif., Tower has a new assistant chief in **John W. Williams**, who came from the Ontario, Calif., Tower ... Promoted to assistant chief at the Oakland, Calif., FSS was **Walter F. Springer** ... Selected as chief of the Fresno, Calif., Air Terminal Tower was **Paul Schultz**, formerly an assistant chief at the Las Vegas, Nev., Tower.

How Busy Is Busy?

Only four out of the 10 busiest airports in the United States last year were primarily airline airports, but little Florence City, S.C.—the 418th busiest controlled airport in this country—boasted more air-traffic activity than Santiago, Chile. In fact, Havana, Cuba, wouldn't even rate a control tower in the U.S.!

In a report of airport activity prepared by the Aircraft Owners and Pilots Association, AOPA found that air traffic at many of the world's major cities is much lighter than at U.S. cities of comparable size.

The number of aircraft operations at Tokyo—164,426—with an 11,454,000 population, is closer to that of Wilmington, Del., with an 80,386 population, than it is to the more comparably sized New York City.

The busiest airport outside the United States was London's Heathrow, which handled 276,087 takeoffs and landings in 1975—the last year for which international statistics are available; this is less than the 284,279 count at Fort Worth's Meacham Field, which ranked as the 34th busiest airport here.

Other matched pairs that highlight this anomaly include Hickory, N.C., which equals Lima, Peru, and Dubuque, Iowa, which surpasses Bangkok, Thailand.

10 BUSIEST U.S. AIRPORTS—1976

City/State	Total Movements	General Aviation	% General Aviation
Chicago (O'Hare) Ill.	718,147	120,049	16.7
Santa Ana, Calif.	627,199	598,436	95.4
Van Nuys, Calif.	618,689	614,885	99.4
Long Beach, Calif.	551,815	543,998	98.6
Atlanta, Ga.	490,002	55,402	11.3
Los Angeles, Calif.	482,587	122,238	25.3
San Jose, Calif.	469,982	408,808	86.9
Torrance, Calif.	439,134	438,569	99.8
Phoenix, Ariz.	425,375	320,438	75.3
Denver, Colo.	418,753	196,380	46.9

Comparison of Foreign-U.S. Airport Traffic Activity

Place	Plane movements	Comparable U.S. airport	Plane movements	U.S. rank
Amsterdam	173,267	Danbury, Conn.	174,085	128
Athens	97,140	Elmira, N.Y.	97,493	255
Auckland, N.Z.	68,000	Shreveport, La.	68,281	331
Baghdad	10,674	Florence City, S.C.	12,485	418
Bangkok	56,391	Dubuque, Ia.	56,397	358
Belgrade	50,552	Plainview, Tex.	50,848	377
Berlin	55,567	Juneau, Alas.	55,498	359
Brussels	97,070	Monroe, La.	96,946	256
Budapest	27,064	Brunswick, Ga.	27,128	408
Buenos Aires (Aeroparque)	131,663 (100,375)	Midland, Tex.	131,732	192
(Ezeiza)	31,035	(Burlington, Vt.)	101,733	244
Caracas	80,458	(Lebanon, N.H.)	32,645	404
Copenhagen	163,033	Columbus, Ga.	80,458	304
Delhi	52,589	Syracuse, N.Y.	163,710	145
Dublin	79,416	Harlingen, Tex.	52,898	370
Frankfurt	206,497	Terre Haute, Ind.	79,507	307
Geneva	120,951	Hollywood, Fla.	206,620	83
Hamburg	95,644	Knoxville, Tenn.	120,501	214
Havana	9,238	Montgomery, Ala.	95,626	261
Helsinki	86,076	①		
Hong Kong	83,191	Ft. Smith, Ark.	86,982	286
Istanbul	49,793	Erie, Pa.	83,904	293
Johannesburg	68,626	Joplin, Mo.	49,585	379
Kingston, Jam.	52,953	Shreveport, La.	68,281	331
Lima	42,770	Kenai, Alas.	52,988	369
Lisbon	44,981	Hickory, N.C.	42,356	389
London	380,122	Brownsville, Tex.	45,291	387
(Heathrow)	276,087	Denver, Colo.	386,456	11
(Gatwick)	104,305	(Ft. Worth)		
Madrid	118,163	Meacham, Tex.	284,279	36
Melbourne, Aust.	92,076	(Sacramento, Calif.)	104,582	239
Montreal	192,674	Yakima, Wash.	113,473	224
Moscow	43,418	Parkersburg, W.Va.	92,086	271
Oslo	124,744	Houston, Tex.	192,953	104
(Gardermoen)	44,080	Kona He Ahole, Haw.	43,101	388
(Fornebu)	80,664	New Haven, Conn.	124,317	205
Paris	320,293	(Marysville, Calif.)	47,168	385
(Orly)	150,088	(Jackson, Mich.)	81,046	303
(Chas. de Gaulle)	85,800	San Francisco, Calif.	326,677	23
(Le Bourget)	84,405	(Norfolk, Va.)	150,816	160
Prague	59,476	(St. Petersburg, Fla.)	86,354	287
Rio de Janeiro	75,677	(Springfield, Mo.)	85,295	291
Santiago, Chile	12,481	Merced, Calif.	60,140	350
Shannon, Ire.	34,440	Lynchburg, Va.	75,730	321
Singapore	163,222	Florence, City, S.C.	12,485	418
(Seletar)	98,263	Paducah, Ky.	34,939	398
(Singapore Intl)	64,959	Syracuse, N.Y.	163,710	145
Stockholm	84,910	(Rochester, Minn.)	99,056	251
Sydney, Aust.	149,904	(Hot Springs, Ark.)	65,942	336
Tokyo	164,426	Dothan, Ala.	84,225	292
Vienna	62,733	Akron, O.	149,922	161
Warsaw	44,202	Wilmington, Del.	165,377	143
Zurich	139,011	St. Joseph, Mo.	62,953	342
		Pine Bluff, Ark.	45,487	386
		Toledo, O.	139,258	179

Note: Where more than one airport is totaled for city count, individual airports are listed indented and in parentheses.

①Activity would not qualify for tower based on U.S. criteria.

②Ranking out of 420 U.S. airports with traffic control towers at end of 1975.

All my life, I tried to avoid math," Irene Wisdom admitted. Her statement seemed ironic coming from a woman who, with 34 other Eastern Region employees, had just completed a 15-week course in basic mathematics.

"But when I saw all the opportunities there are in FAA, with so many of them needing a knowledge of math," she continued, "I realized I had to take advantage of this opportunity. I was afraid it would be boring; instead, I found it

ematics backgrounds. "I used to see all those people in the hall or sitting at desks year after year," says Reed. "They realized they weren't ever going anywhere. I wanted to help them—to build their self-confidence so they could advance." Reed felt he had been in the same boat and didn't consider himself college material. But he made the jump and was awarded a degree in electrical engineering by Columbia University five years ago—at the age of 35.

Employees + Math = Opportunity



Electronics engineer James Reed, Jr., instructs the Eastern Region Basic Math Class for adults that he originated.

exciting." Ms. Wisdom, a clerk-stenographer on the Civil Rights Staff, became class secretary.

The course was conceived by Airway Facilities electronics engineer James Reed, Jr., who noted that many people were precluded from electronics jobs because of poor math-

"Too many people have a totally negative attitude toward math," Reed went on, "and it comes from bad learning experiences as youngsters. I wanted to offer the employees something novel—a mathematics course aimed at adults, and one that stressed learning rather than grades."

He designed a course to provide employees with the basic math skills to enhance their performance in their present jobs or to help them enter such careers as electronics technicians, data processors and computer operators or to help them prepare for such examinations as the Professional Administrative Careers Examination (PACE) and the Air Traffic Control Specialist Examination. The course could also inspire employees to seek further math training on their own.

The course served not only those with little formal training. Elsa Haupt, who is an equal employment opportunity specialist and finished the course with a special award for attaining the highest average, has a master's degree in Fine Arts and has taken graduate courses in Business Administration. "It was a fantastic idea!" she said. "I don't remember getting anything like it in school. Actually, it was much more complex than basic math—it went into the theory of math. It was so useful that some people have already



Safety in the air is partly dependent on the emergency release in the circular rings between the chopper cable and the load. Inspector Butterworth watches as a pilot checks the release mechanism.

At Work In the Woods

Helicopter specialist Frank Benedict and maintenance inspector Al Butterworth of the Seattle FSDO are usually found on or around airports, but, of late, they have been spending some time off in the timberlands of the Olympic Mountains of western Washington.

To stop a high accident rate in external-load helicopter logging operations, the FSDO set up a special surveillance program this past January. Twenty-nine such operators, 14 of whom are also air-taxi operators, are active in the Seattle district, and many operators of cedar-shake mills use the helicopters to airlift heavy bundles of salvaged cedar stumps from inaccessible areas.

Benedict and Butterworth flew a rented helicopter into the hills, where they inspected rigging, maintenance and operations procedures and refueling and talked safety to everyone in the business.



qualified for better-paying jobs."

Jeanne Yancey, also an EEO specialist, has a B.S. in Education and thinks the course was a much-needed refresher. Yancey received a letter of appreciation for the extra work she did in grading papers and handling other administrative chores.

The students attended classes in off-duty hours one night a week for an hour and a half each. Using the U.S. Army Engineers School's text, they completed homework assignments

and examinations in nine subjects: Introduction to Arithmetic and Whole Numbers, Common Fractions, Decimals, Unit Conversion (metrics), Ratios and Proportions, Percentages, Powers and Roots, Elementary Algebra and Introductory Trigonometry.

Even Jim Reed, who taught the course with the help of Ben Bernstein, David Caines, Renard Gaddi, Edward Montgomery and Peter Scotti, feels he profited from it. "I learned a lot myself. I was forced to inventory my own

knowledge and dredge up things I had long forgotten. I also learned a lot from the students, because I was constantly surprised at the number of different ways there are to analyze the same set of facts and to solve a problem."

Federal Women's Program coordinator Leslie Berger, who served as class administrator, was impressed with the enthusiasm and diligence of the students. "But now," she says, "they're after me to start another course... this time, one in English."

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Love That Tiger (See page 17)

