# World

October 1982
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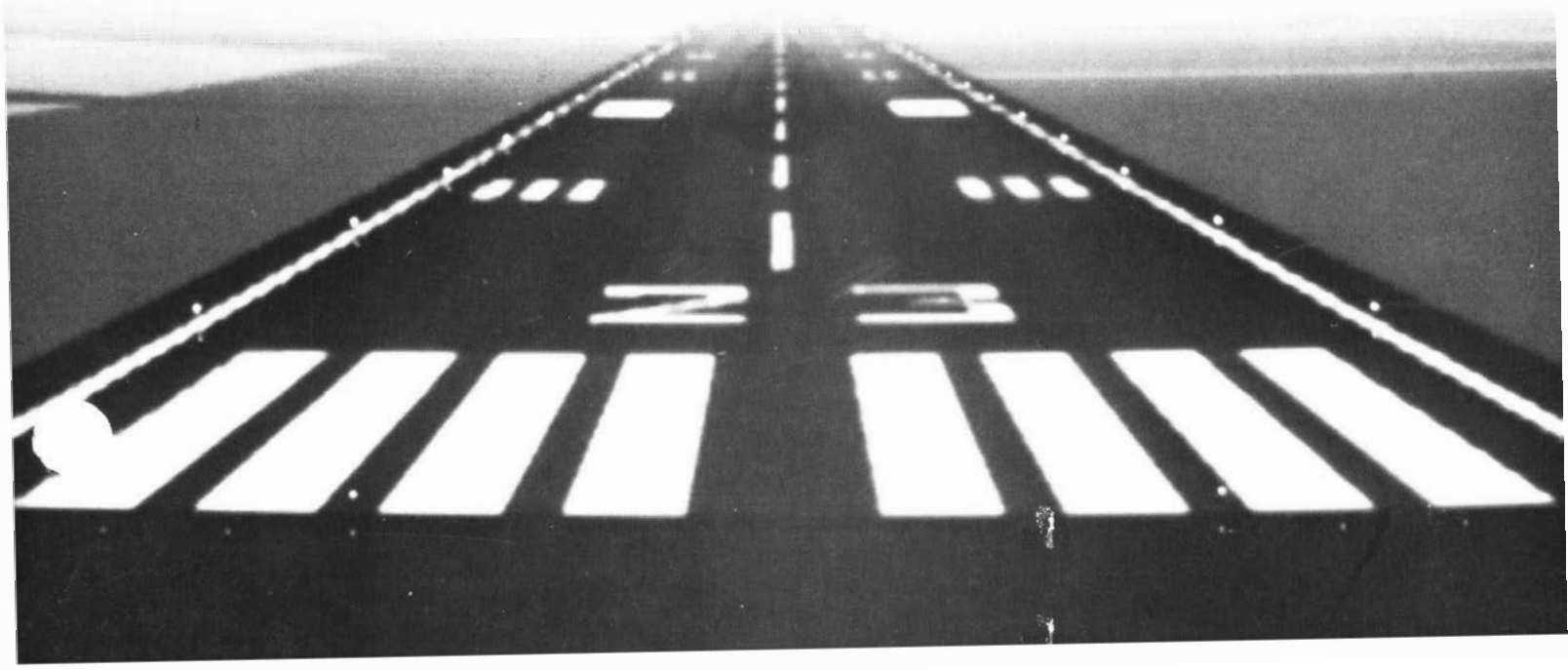
U.S. Department
of Transportation

**Federal Aviation
Administration**

Flight training
without flight




## Once Around the Patch

Administrator J. Lynn Helms became the first American to legally pilot a production aircraft fueled with unleaded automobile fuel. He did this the day after presenting the Experimental Aircraft Association with two Supplemental Type Certificates (STCs) on August 5 at the organization's annual fly-in and convention.

For the first time, FAA had approved the use of automobile gasoline in aircraft—Cessna 150s, models A through H and J through M, powered by a Continental 0200–A engine. The STCs permit the fuel's use in flight schools and flight training and for personal, recreational and business flying. Carrying passengers for hire (air taxi use) will be excluded.

During EAA's test program over the last half dozen years, FAA's certification team paid particular attention to engine endurance tests and to whether unleaded auto fuel would cause excessive wear or valve sticking. The team also assessed the gasoline's potential for vapor lock. The STCs reflect the agecy's findings that changes to the original aircraft type design meet all applicable safety regulations.

After his flight, the Administrator was greeted by EAA President Paul H. Poberezny (above). Mr. Helms praised EAA for "its genuine contributions to the advancement of aeronautics." EAA photo by Lee Fray

*"FAA's mission is to promote the safe and efficient use of the nation's airspace, facilities and the vehicles that travel the airways. To achieve this objective, we should control but not constrain aviation; we should regulate but not interfere with free enterprise of competitive purpose; and we should recognize that most air travelers do so by means of scheduled air carriers. We have a responsibility to consider their priority but not to the extent that it excludes the single individual from enjoying man's greatest achievement—solo flight. Above all, we must remember that the airspace belongs to the users and not the FAA."*

—J. Lynn Helms

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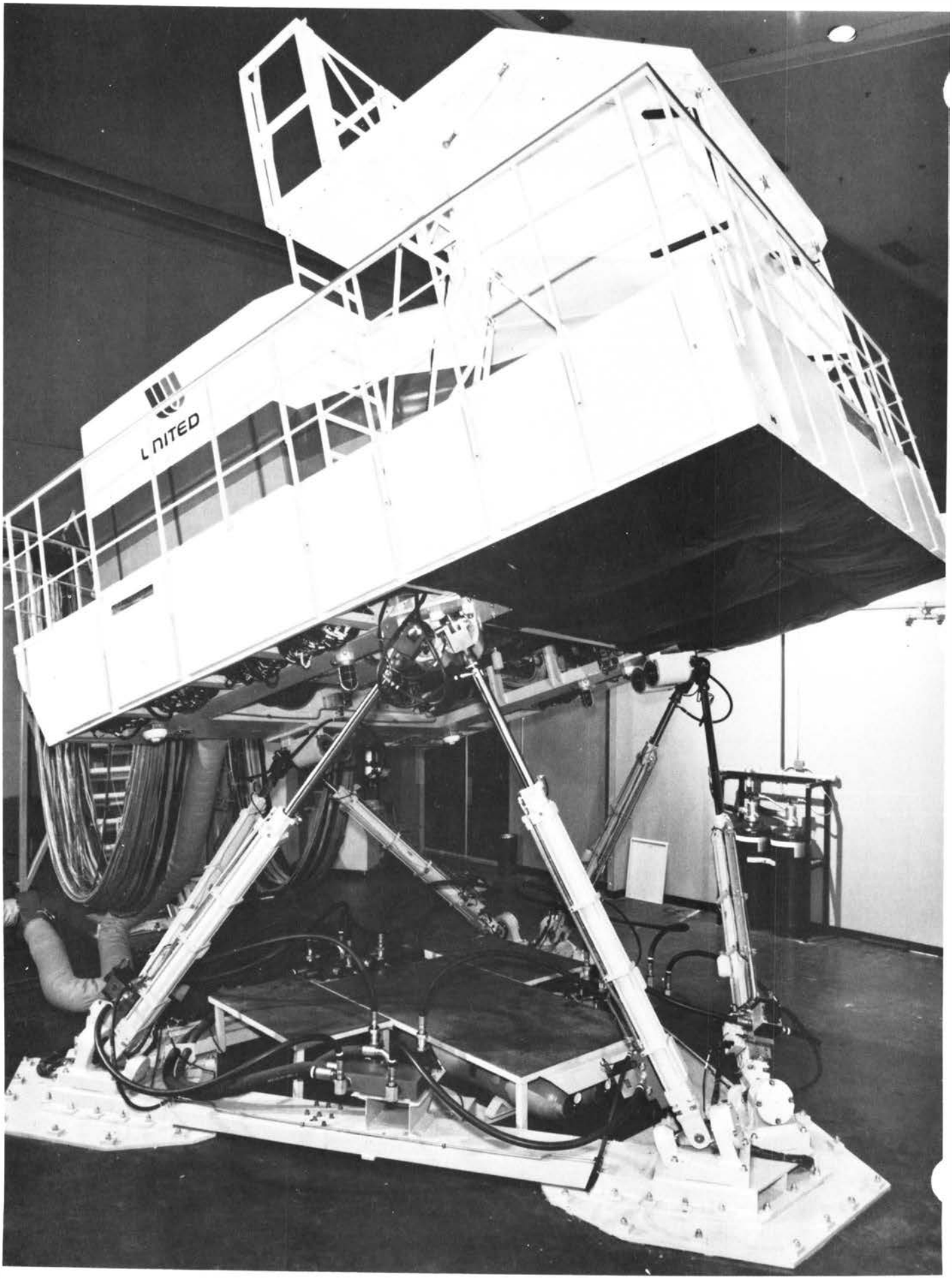

UNITED

By Charles H. Huettner
Manager of the Flight Standards Division in the Southern Region, he holds ATP ratings in Boeing 747s and 727s and in the C-141.

# Flying at FL Zero

## Advanced Simulators Train Crews, Enhance Safety and Save Money

A pilot who has only a commercial license and an IFR rating can now become trained for an Airline Transport Pilot (ATP) rating and type-rated in a Boeing 727 without ever leaving the ground.

Earlier this year, FAA approved the first of a new breed of aircraft simulators that can do this and leave that pilot with only line operating experience needed before he could be in command of an aircraft full of passengers.

The simulator, which is now in use in the United Air Lines training facility in Denver, Colo., is the ultimate in the state of the art and meets all the requirements for the most sophisticated machine envisioned in FAA's Advanced Simulation Program.

This is a program that is intended to permit pilots to be certificated in a simulator and to upgrade the airlines' simulator capability to present real-world training conditions for pilot recurrent training.

This has resulted in our encouraging the development and use of these computer-run cockpit look-alikes, sound-alikes and feel-alikes that can do just about everything an airplane can except get off the ground.

Since pilots can learn from their mistakes in these simulators, they are expected to reduce accidents by allowing flight crews to practice emergencies that would be impossible to simulate in actual flight. And it will give them valuable experience in working together in trying moments. In addition, they can do this for about 10 percent of the cost of actual flying, mainly because they burn no fuel.

I feel this is a significant accomplishment in improving safety in air transportation.

**New United captains Bob Wheat (left) and Bill Wilson in their Boeing 727 Phase III simulator are the first pilots ever to transition from first officer to captain without actual aircraft flight training.**

United Air Lines photo by Jerry Springer

The government's involvement in simulation began in 1954, when the Civil Aeronautics Administration recognized the value of flight simulation by permitting certain training maneuvers and procedures to be done in a simulator. As simulators improved, FAA's requirements became more strict to encourage the industry to progress toward still better simulation.

In 1975, shortly after the first Arab oil embargo, the airlines approached the agency with a proposed goal of total simulation training. FAA agreed that it was a program worthy of study. The result was a combined effort among FAA, the airline industry and the simulator manufacturers to develop what is now the Advanced Simulation Plan.

We discovered very rapidly that simulators were not programmed properly and really not much better than glorified procedures trainers in all flight regimes. They gave the pilot a view out of the cockpit and a certain amount of up-and-down and side-to-side control.

In recognition of the need for better simulator programming, FAA, working with several airlines, upgraded a

**The Phase III simulator at United Air Lines' training facility shows the hydraulic system that controls aircraft attitude.**

CAE Electronics photo

number of simulators and reprogrammed them to match actual aircraft flight test data. Through a series of exemptions, these airlines were permitted to use the upgraded simulators for expanded training and checking in lieu of the aircraft itself. FAA closely monitored these exemptions, comparing the performance of study group pilots trained only in the simulator to a control group of pilots trained in the simulator and aircraft in the traditional fashion. No detectable differences were found.

As a result, the agency published the Advanced Simulation Regulation in June 1980. At that time, the first group of upgraded simulators were capable of meeting what was designated as Phase I standards. The regulation also called for more-sophisticated simulation to be evaluated under Phase II and still more-sophisticated systems under Phase III.

The first Phase II simulator—a Braniff 747—was approved in February 1981. The first Phase III—United's 727—was approved this past May.

Leonard (Bo) Korenek, who was the principal operations inspector for Braniff at the Dallas-Fort Worth Air Carrier District Office when its Phase II simulator went operational, remarked to me that "It was a vast improvement over the Phase I simulators. Phase I's were good for practicing landings, and they were approved as a means of meeting recency-of-experience requirements—but that's about all.

Explaining further, Bo said, "With the Phase II program, we have one that really feels like you are flying an airplane—bumps in the runway, turbulence and other kinds of weather, plus the sounds of flying and the feel of flying," Korenek continued. "You see other traffic on the ground and in the air—sometimes in a near midair-collision situation—and it's so real that you can forget you're in a simulator and can get a little apprehensive when you get into a tight spot."

I know the Phase II simulators are good, but Phase III is even better. To begin with, it's all in color, including thunderheads, lightning and rain, snow or fog on the runway. And if you have to break off an approach at, say, the San Francisco airport, what you see from the simulator is what you would see if you were actually going around at San Francisco.

Beyond having simulators for certificating pilots and saving fuel, FAA wanted them for training flight crews in those operational areas that had been cited as probable causes of accidents. The agency reviewed National Transportation Safety Board accident reports and found that pilots were causing the accidents.

It wasn't because those pilots couldn't fly an ILS approach or couldn't manipulate the controls of the aircraft. Instead, FAA discovered that it was a lack of crew coordination—the management of resources in the cockpit and the lack of communication between crew members. This was an area that a sophisticated simulator would have to deal with.

The second major cause of accidents related directly to visibility problems. Prior to advanced simulation, most simulator visual systems were capable

**Eastern Air Lines acceptance pilots fly a Phase II simulator for a Boeing 757.**

CAE Electronics photo


**An exterior view of Eastern's Boeing 757 Phase II simulator.** CAE Electronics photo

of presenting night scenes with reduced visibility but could not accurately represent a complete array of weather phenomena.

To further define the simulator's needed capabilities, the agency asked where the accidents were happening. Almost half of the accidents—42.3 percent—occurred during landing. So, FAA knew it had to tie the ground-effect performance of the simulator to that of real aircraft.

FAA has also introduced a Line-Oriented Flight Training (LOFT) program, which it deemed critical to our Advanced Simulation Plan. After a qualifying pilot has completed all the training and checks for the position and before assignment to line operations, he or she undergoes LOFT in the simulator with a full crew complement. The crew flies the simulator on a complete line mission, just as it would in the actual airplane. In so doing, they experience the same types of things in a real-time scenario that they would on an actual flight. The scenarios are limited only by the imagination of a training department.

Some of the airlines have added the capability of videotaping the crews during LOFT so they can see for themselves how they acted and interacted.

Edgar C. Fell, manager of the Advanced Simulator Program in Southern Region's Flight Standards Division, as part of the final approval of United's Phase III simulator, flew the simulator from Hollywood International Airport in Ft. Lauderdale, Fla., to Norfolk International Airport in Virginia, all the while solidly on the ground in Denver.

"It started with a bump, as a tractor pushed us back from the gate," Ed relates. "While taxiing, we could see another 727 on the ground out of the side window and a general aviation aircraft taking off. On takeoff, the 'plane' jumped as the brakes were released. As the speed increased, the cockpit swayed from side to side, and the bumps in the runway were heard and felt much more frequently. After takeoff, we got the sound and feeling of the gear retracting.

"There was severe turbulence as we climbed out through clouds and then smoothed off when we were on top. Later, we got a clear view of the Florida coastline with buildings, beaches and boats with wakes. For most of the rest of the flight, we were confronted by a series of emergencies intended to teach the crew how to work together in such situations."

Ed was referring to situations such as aircraft systems malfunctions; environmental hazards, like thunderstorms and wind shear; and human factors problems, like an incapacitated pilot.

"When it was time to land at Norfolk," Ed continued in describing his "flight," "there were thunderstorms and lots of turbulence. As we broke through the clouds, the runway was visible briefly and then obscured by rain. But we soon picked up the runway lights and continued in for the landing.

After landing, we could hear rain hitting the roof of the cockpit, heard thunder and saw a lightning bolt in the distance."

As you can see from Ed's description, a pilot undergoing this line-oriented flight training in an advanced simulator can't have a training accident. He's not polluting the environment with noise and fumes. He's not congesting airports. He's spending only hundreds of dollars an hour, not thousands. And he's getting better training, day or night, under any conditions.

And to me, that's the bottom line of the Advanced Simulation Program. ■

# Q&A

**Under the Airway Facilities certification program, there is a normal and a maximum interval for certification. For example: a local tube-type receiver in an FSS must be certified monthly with a maximum interval of 90 days (6490.1, Appendix 3, Table 5). The certification is based only on voice quality and RF sensitivity. Can a technician continue to certify this receiver every month for an indefinite period if other mandatory maintenance is not performed, such as a semiannual crystal-oscillator frequency check and an annual check of selectivity and non-symmetry?**

The General Maintenance Handbook (Order 6000.15A), to a great extent, allows certifying technicians to exercise independent technical judgment in determining what to check or verify as a basis for certification. The certification statement entered in the facility maintenance log is the technician's testimonial that critical parameters are within tolerances and that advertised service is being provided. The maintenance handbook for air-ground communications equipment (Order 6600.22) requires that periodic maintenance be performed at intervals ranging from monthly to annually. To do otherwise is not acceptable.

**My question relates to Handbook 7110.65 and visual approaches. Can a radar approach control clear an aircraft for a visual approach when its radar is out of service? Can the associated ARTCC clear an aircraft under those circumstances? Which aircraft have to be separated from a visual approach—all other aircraft or just IFR aircraft?**

An aircraft may be cleared for a visual approach when the radar is out of service if the provisions of 7110.65C, Para. 430, are met. Your second question is not specific enough for a direct answer. Radar is not a prerequisite for an aircraft to conduct a visual approach; however, if the aircraft is being radar controlled, the provisions of 7110.65C, Para. 796c, apply. In any event, the ARTCC could not issue a visual approach clearance to an aircraft that will enter an approach control facility's area without that facility's authorization. Aircraft conducting a visual approach must be separated from all IFR/Stage III aircraft and, in some cases, from VFR aircraft practicing instrument approaches. See 7110.65C, Para. 435a(2).

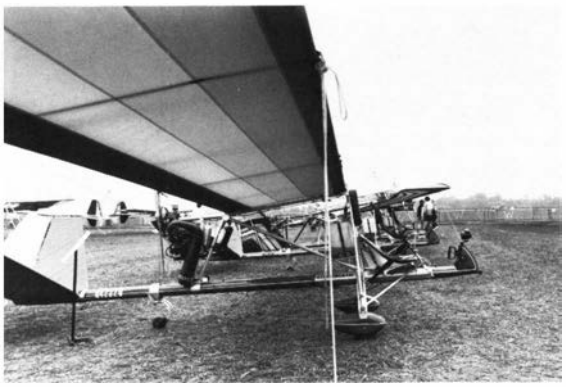
**Why weren't flight data processor positions bid at a level that a tower secretary or other dead-end employee could bid on for upward mobility, instead of GS–7? It should have been at a trainee level reachable by secretaries and clerks. FAA could have used current employees who know a lot more about the system and policies than someone off the street who has a pilot's license.**

The purpose of the announcement for flight data processor, GS–2154–7, was to establish a new permanent occupation and series that would replace the current temporary flight data specialist, GS–2102–7. These positions are established to support the operational air traffic controller. During the rebuilding of the air traffic system, it is necessary to select individuals who have current experience in using the system. Now, we are unable to use individuals who lack that experience because we do not have the capacity for a lengthy training program. As the system is rebuilt and we have the staff to conduct training, our plan is to lower the entry grade level for this career field. However, the highest grade level for this occupation is not anticipated to be above GS–7 or 8 and, therefore, the use of these positions for the upward mobility program has limited application.

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 b answered here and/or by mail if you provide a name and address.

# *Shades of 1910!*

Photos by Edmund Pinto



Maxair Sports' Hummer uses a single-tube fuselage. Its pilot sits way out front.

The Pterodactyl Ptiger, like its stablemate and the XTC, carries a canard wing.

Flight Designs' Jet Wing (below) has a conventional delta wing like a hang-glider and is flown either as a hang-glider or a powered ultralight.

1982 is the year of the ultralight. Although evolving from powered hanggliders, many of the ultralights are physically reminiscent of the craft that tentatively plied the skies in the early years of this century. The Experimental Aircraft Association's fly-in at Oshkosh, Wis., hosted a varied feast in this new recreational category, including 15 new designs. This year saw FAA issue a regulation defining an ultralight, FAR Part 103: not more than 254 pounds, nor 55 knots speed, nor five gallons of fuel, plus maximum stall speed less than 24 knots. (See FAA WORLD, September 1981, p. 10)

An unusual ultralight was Diehl Aero-Nautical's XTC—the only amphibian. It sports retractable wheels.

The Pterodactyl Ascender uses ruddivators, which both turn and bank the craft.

Evolved out of an unpowered hang-glider, the Quicksilver MX protects its pilot with a streamlining nose cone.

The American Eagle uses weight shift like a hang-glider instead of controls. Its wings carry ruddivators.

on the job

# Edwards AFB RAPCON

Clerical assistant Gloria Humphries.

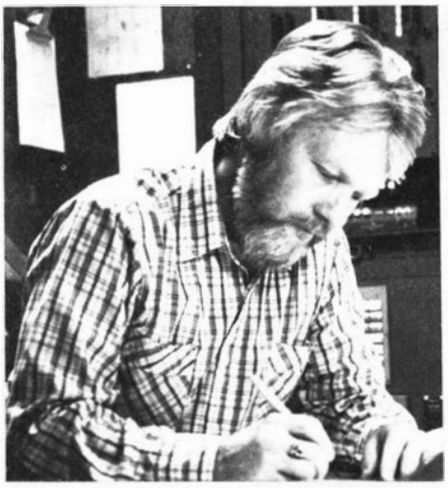
Controller Jan Redditt (above right).

Team supervisor Rick Chisholm (right).

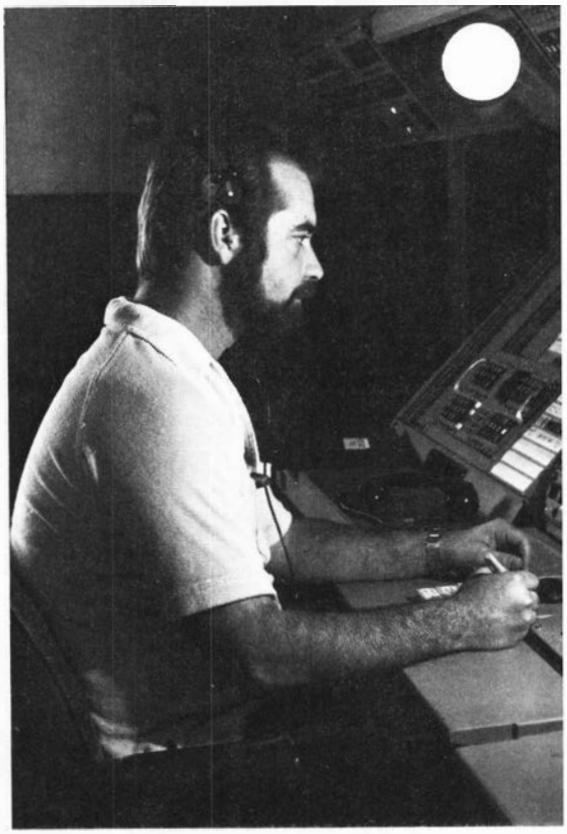
Edwards Radar Approach Control (RAPCON) at Edwards Air Force Base, California, has the lowest and the highest, both in land and airspace. Located in the Mojave Desert, the facility's 24,500 square miles of airspace encompasses Death Valley at 282 feet below sea level and Mt. Whitney, the highest peak in the Forty-eight at 14,495 feet. Its controlled airspace reaches from the surface to "infinity" in certain areas.

The RAPCON's territory includes Military Operating Areas, Air Traffic Control Assigned Airspace, Restricted Areas and, of course, terminal approach control airspace.

In addition to special areas being used for a variety of military activities, aircraft manufacturers like Boeing, Lockheed and Northrup have used the restricted area for testing both military and civil aircraft.

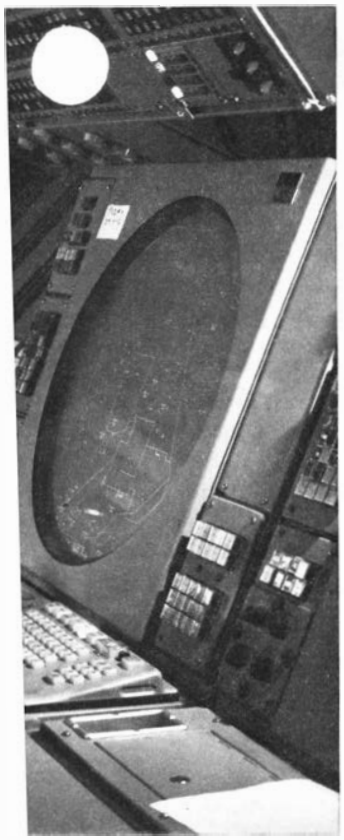


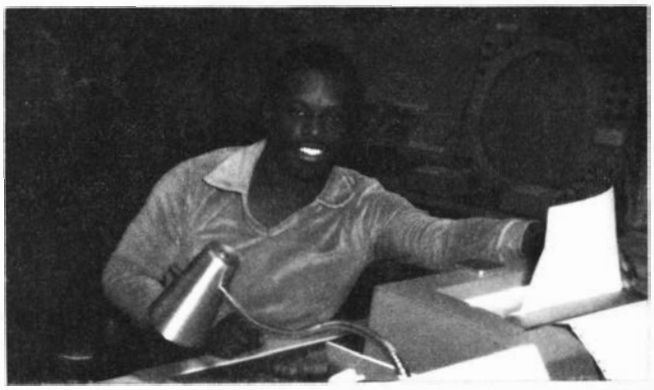
The RAPCON is undergoing an upgrading, scheduled to be completed next year, which includes communications, remote switching and no-gap radar coverage. It features a unique Mosaic and Tracking Direct Access Radar Computer (MT–DARC) system. It will eventually accommodate a total of eight low-altitude surveillance radars (ASRs) in addition to its three long-range radars and provides controllers with full data blocks and tracking.



Controller Bill Grove uses the MT-DARC system, the display of which has the clean lines of an en route plan view display.

As controller Mac Hayes (right) watches the screen, controller Newt Phillips helps with a traffic handoff via telephone.





Aaron Palmer, flight data specialist (left).

Ed Custer, manager of the Edwards AFB RAPCON (below left).

Paul Wilton, evaluation and proficiency development specialist.

Photos by Newt Phillips


# In Defense

## Freedom, Law and Effective

The overloaded DC–7 rolled down the San Juan, Puerto Rico, runway for nearly 7,000 feet before lifting off. Normally, it should lift off in 2,500 feet or so.

As it lumbered into the air, the left inboard engine began to backfire and spit flames. A couple of minutes later, the air traffic control tower heard, "This is five hundred alpha echo coming back around." With very little altitude, the plane banked to the left over the ocean, gradually at first and then steeper and tighter, until a muffled explosion was heard.

The next morning, crowds filled the beach. There was no noise, only an eerie silence broken by the desultory cry of a baby, for this was a monumental tragedy for Puerto Rico.

Toward evening, as a rainbow broke out over the search area a mile and a half offshore, some people murmured their hope that baseball star Roberto Clemente somehow would be miraculously rescued and come ashore to greet them. Of course, that was not to be. The Puerto Rican hero and American baseball superstar had perished with four others on New Year's Eve, 1972.

The case that arose from this crash was a precedent-making one of immense significance for the Federal Government; for me, more than any other, it highlighted the advantage of

**A Navy helicopter hovers over the crash site of the DC-7 carrying Roberto Clemente.** Wide World Photos

**By Michael Pangia**
The former Assistant Chief Counsel in charge of FAA's Litigation Division, he is now in private practice in aviation and marine law.

# of Principle

## Government Rode on the Clemente Decision

government service for a lawyer.

The trial and appeal took more than three years after the accident, but the story began more than three months before.

At one time, Miami International and nearby airports, as well as some others around the country, had been a prime refuge for over-the-hill piston-driven transport aircraft, which were bought, sold, traded and used in all sorts of operations—some even legal. This nesting ground for these old birds soon became known as "Cockoach Corner," where one could purhase an aircraft, such as a DC–7, for under $50,000. (See "Turning the Corner at MIA," FAA WORLD April 1978, page 16.)

To carry goods and passengers for compensation in these planes, however, the operator must have a certificate from the FAA under Part 121 of the Federal Aviation Regulations. The safety requirements of the certificate are demanding and expensive to meet, considering the small investment. That didn't bother many of these owners, who, instead of carrying cargo or people for a fee, simply leased their aircraft to cargo owners or out-of-country airlines. The cargo owners would be considered the operators of the aircraft, who carried their own cargo without charge. These cleverly drafted arrangments, which fell under general aviation rules (FAR Part 91) had all the color of legality and frustrated the FAA both in and out of the courts.

A budding entrepreneur, Arthur Rivera purchased a DC–7 in Cockoach Corner and brought his aircraft to the San Juan International Airport in September 1972. Although he had a commercial pilot's certificate, he was neither a rated pilot in the DC–7 nor a holder of a Part 121 certificate. Most likely, he was hoping to lease the aircraft, just as he had already been doing with a DC–3, which he also owned in San Juan. But he didn't.

On Dec. 2, 1972, while Rivera was taxiing the DC–7 around the San Juan airport, which he was permitted to do under his commercial certificate, the hydraulic system for steering and braking suddenly failed, and the aircraft rolled into a ditch, damaging the tips of the propellers on the inboard engines.

Rivera hired two mechanics—Francisco Matias and Rafael Cintron—who replaced the propellers and checked the engines. Rivera told an FAA airworthiness inspector that he would do a flight test and obtain a ferry permit to take the plane to where the engines could be changed, because they had many hours on them. But, again, he didn't.

On Dec. 23, 1972, an earthquake ripped through Nicaragua. Charged with the spirit that made him a great athlete and a national hero in Puerto Rico, Clemente formed a committee to collect food and medical supplies for the disaster victims. The Puerto Rican people responded so magnanimously that cargo was left over after the third and last planned flight of a leased aircraft had departed on December 29. The committee needed another aircraft, and there was only one candidate on the airport—Rivera's DC–7.

**A star on and off the diamond, Pittsburgh Pirates center fielder Clemente tackled life with "passion" and "compassion," according to pitcher Tom Seaver.**
**Wide World Photos**

When Clemente approached the plane, the mechanics were in the

process of completing the repairs. After a discussion, Rivera turned to the mechanics and said, "Load the aircraft."

Not only was there no flight test or engine replacement but also they didn't have a rated DC-7 pilot. It is said that aircraft accidents don't happen from a single factor but from a combination of them. An additional factor stepped out of an old C-46 the next day, which flew into San Juan on only one of its two engines. Pilot Jerry Hill was ferrying the plane to Miami for repairs.

While the C-46 was being refueled, he wandered over to admire the DC-7 and commented on having previously flown DC-7s. After he was talked into going along as pilot, he flew the C-46 to Miami and returned to San Juan on the morning of December 31. With no sleep after his Miami flight, Hill was about to fly a plane he hadn't touched before and with a strange crew aboard that did not include an experienced co-pilot or any flight engineer.

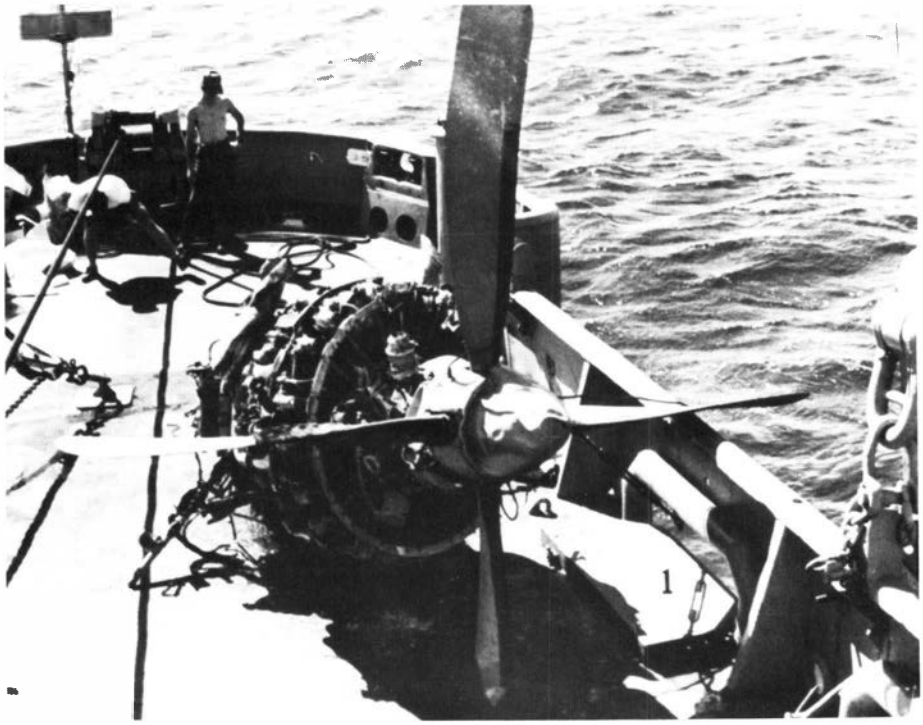
With Clemente, Rivera, Hill, Matias and a cargo truck driver named Angel Lozano aboard, the aircraft, overloaded with cargo, taxied for takeoff at 5:00 p.m. but had to abort because of spark plug trouble, a common occurrence on many DC-7s.

After changing the spark plugs in the lower cylinders, a job that Rivera apparently had to do often, the plane taxied back to the runway, took off with effort and crashed.

With no insurance and virtually no assets from Rivera's operation, the families of the occupants, except Rivera's, sued the only "deep pocket"—Uncle Sam—in U.S. District Court in Puerto Rico.

The lawyers searched for a theory of recovery and found one. As part of a stepped up surveillance program, FAA was making a special effort (as a result of a crash that killed the Wichita State football team) to keep an eye on uncertificated carriers using large aircraft, such as Rivera's operation. The plaintiffs alleged that if the FAA had followed its own internal order directing increased surveillance in this area, the accident would not have occurred.

With Clemente's popularity, I realized that any theory of recovery in a trial in Puerto Rico was a good one.



**Navy divers recovered scattered parts of the plane and the number two engine, which showed its propeller had been feathered.** U.S. Navy photos

To make matters worse, the opposing attorneys were Phil Silverman, my ex-boss at the Justice Department, and Don Madole and his wife, Juanita, also trained by the government and very capable in aviation law. I commented to myself that with the emo-

tional climate of this case, getting out alive would be victory enough.

However, I was able to convince the court to try the liability issue only, leaving the damage issue, which involves the loss of support, care and comfort, to be tried at a later date if the government lost on liability. This defused some of the emotional tension.

As the trial neared, colleagues both in and out of the government urged me to settle the case, saying I'd never win it in Puerto Rico. Because I saw a principle of government involved, my instant response was, "We will never settle this case."

Our leadership in aviation is a result of freedom. To maintain that freedom, we must all be responsible for our own actions, and the Federal Aviation Regulations demand just that.

I believe the purpose of FAA's surveillance and enforcement programs is to create an atmosphere of encouragement, as well as to function as a deterrent. It is not intended to make the government liable whenever someone breaks the law.

The programs also cannot operate to make the government a partner with a lawbreaker in the sense that it has to pay for the harm a lawbreaker does. If it did, the government would be discouraged from engaging in such surveillance.

Still worse, if the government were made financially liable for not catching someone's transgressions, the government would have a right to step in beforehand to stop a person's activity—that is, exercise prior restraint, and that would be an erosion of freedom. No, I couldn't settle this one.

The case took a week and a half to try. I was most concerned with an expert witness the plaintiffs had hired—a retired FAA inspector from Miami. He charged that the FAA surveillance program demanded that the inspectors check all large, nonairline aircraft everytime they took off and landed and that failure to do so would make the FAA liable if such an aircraft crashed. He claimed that he never missed inspecting any such aircraft when he was an inspector.

When I first started questioning, he was obviously extremely defensive, manifested by a very tense appearance and guarded answers. I wanted to develop a "communications loop" with him. I would argue and back off, each with a different tone of voice and stance until I could detect the development of a conditioned reaction.

For example, whenever it appeared the former inspector was uncomfortable with his performance or was overqualifying his answers, I reacted with a rigid tone to reinforce his discomfort. When his answers were correct and accurate, I eased off. In setting this stage, I really didn't care about his answers. Finally, he wouldn't take his eyes off me, even for court questions or plaintiff objections. I was ready to move in.

I wanted this witness to demonstrate that the Southern Region order for surveillance could not possibly be interpreted to require operational checks of all such aircraft, but had to be applied with judgment and discretion on the part of the FSDO manager.

After he made his dogmatic statements about FAA's responsibility, I led him on an Alice-in-Wonderland excursion in logic.

After eliciting his assertion that the order required air traffic to notify the FSDO of the intended takeoff of an aircraft any time of night or day, I put it to him: "And then let us assume that that aircraft was going to St. Thomas Airport and that St. Thomas is within the San Juan FSDO area; then doesn't this order require that when the aircraft arrived, air traffic must notify the FSDO again?"

"Yes," he replied.

"And that the FSDO must send an inspector to St. Thomas to meet the aircraft on arrival and go through this strict procedure that is specified in the order?" I continued.

"It also said not to delay the operator," the inspector volunteered.

"So, how can you go there without delaying the operator?" I countered.

". . . He could rent an airplane to get there."

To emphasize the ludicrous position he was in, I said, "And hopefully it is faster than the plane he is following."

The questioning went on to point out that if there were a hundred takeoffs and landings a day, each one would have to be handled in similar fashion within the FSDO's area.

Not content with having gone too far out on the limb already, he hung on, alleging that is the way surveillance was conducted in Miami, Fort

**Earlier in December, Rivera had taxied the DC-7 into a ditch at San Juan Airport when its hydraulic system failed.**

Lauderdale and West Palm Beach by himself and 67 other inspectors. "We got them all," he claimed.

"Do you remember the Christmas trees?" I asked. In 1970, when this inspector was working in Miami, a Super Constellation took off loaded with untied trees. On rotation, the load shifted rearward, causing the plane to crash in a residential neighborhood. "Why didn't you inspect it?" I asked.

The witness was stuck. He found himself excusing the 68 inspectors for what he already characterized as a dereliction of duty and condemning nine inspectors for not covering every activity contemplated by the order in 320,000 square miles of area.

He had to concede that the FSDO manager must have leeway and use common sense in implementing the order. Now, by the inspector's testimony, the discretionary function execption of the Federal Tort Claims Act (by which the government consents to be sued) could apply at the facility manager's level.

The trial went well, but I hadn't expected to emerge unscathed. Still, I was very disappointed when the decision came down against the government several months later. The court rejected the discretionary function argument and reasoned that if the FAA had inspected the aircraft, violations would have been found, passengers warned and the flight canceled.

I felt that was akin to saying that if the police were patrolling for speeding on a certain road, a speeder may have been caught and a speeding accident prevented. Therefore, the municipality should be rendered liable for any speeding accident that does occur.

Asked to reconsider, the court reaffirmed its position. I appealed to the First Circuit Court of Appeals.

The preparation of the appellate argument involved extensive research, even into the fundamental governmental concepts found in the Federalist Papers, which were a foundation for the Constitution itself. I argued before the three judges that if the lower court's decision were to be affirmed, every federal, state and local agency would be subject to suit every time it had a special program to enforce its laws and regulations.

If a chief of police ordered every bank in his town to be watched, with five policemen for 10 banks, how absurd it would be for the town to become liable for a bank robbery. The Court of Appeals agreed and reversed the lower court's decision. The plaintiff's appeal to the Supreme Court was rejected.

The Clemente decision is a landmark, having been cited in nearly 75 legal decisions since, including the aftermath of the DC-10 crash in Chicago.

More than that to me, however, is its significance as an example of the unique opportunity that government service can provide for pursuing a cause without the compromises that often compel settlements in the private sector. While now enjoying private practice, I leave the story of th case as a tribute to my colleagues in government who provide a noble service to the public.

*Epilogue:* In pretrial preparation, I had interviewed Arthur Rivera's widow as a potential witness where she was living on the mainland with her son, born shortly after the accident.

Several years later, while flying my own plane south, I stopped off to visit and offer them a ride.

After running up the engine at the end of the runway, I had to taxi back—spark plug trouble. The plugs of the lower cylinders—the same ones that fouled on Rivera's DC-7—had to be changed. As she helped me, it became obvious that she had helped change spark plugs before, and an eerie feeling came over me as the chord of memory was struck. But the ride and my trip were without further event. ■

# Jodie Wasn't on the Payroll

No, FAA hasn't found a way to save technicians from having to climb lofty communications towers; the fellow on this one is an intruder.

Jim Edens, supervisor of the Environmental Support Unit of the Tulsa, Okla., Airway Facilities Area B Office, called his boss, Doyle Harrington, who came running across the road with Lloyd Hankins, visiting manager of the regional Evaluation

Staff, and a camera. They arrived just in time to see Edens attempting to placate a displaced chimpanzee with a banana.

This was to no avail, and the nearby Mohawk Park Zoo was called for help. A keeper arrived in a pickup truck and related that "Jodie" was one of six chimpanzees that had escaped. The keeper ended the escapade with a simple command to the chimp to "come down and get into the seat of the truck." Jodie's weakness, he explained, was a fondness for riding in trucks. ■

# People

The information in this feature is extracted from the Personnel Management Information System (PMIS) computer. Space permitting. *all* actions of a change of position and/or f cility at the first supervisory level and bran managers in offices are published. All changes cannot be accommodated because there are thousands each month.

## Aeronautical Center

■ **William A. Arnett,** unit chief in the Electronic Production Section, Engineering and Production Branch at the FAA Depot, promotion made permanent.

■ **Thomas A. Baker,** unit chief in the Flight Service Section, Air Traffic Branch of the FAA Academy.

■ **Robert M. Davis,** chief of the Inventory/Referral Management Branch in the Special Examining Division.

■ **James S. Jones, Jr.,** unit chief in the Flight Service Section, Air Traffic Branch, FAA Academy.

## Alaskan Region

■ **Monte G. Hammond,** proficiency development and evaluation officer in the King Salmon Airway Facilities Sector.

■ **Bennie L. Hutson,** chief of the Kodiak Airway Facilities Sector Field Office in the Anchorage AF Sector, from the King Salmon AF Sector.

■ **Fred L. Jack,** chief of the Bethel AF Sector Field Office in the King Salmon AF Sector.

■ **David F. Morse,** assistant manager of the Fairbanks AF Sector, from the Washington headquarters Field Programs Branch, AF Programs Division.

■ **Lowell A. Oliver,** assistant manager of the King Salmon AF Sector, from the Fairbanks AF Sector.

■ **Robert E. Wilson,** manager of the Anchorage AF Sector, from the Program Support Branch, Airway Facilities Division.

## Central Region

■ **Howard K. Hull,** assistant chief of the Dubuque, Iowa, Airway Facilities Sector Field Office of the Des Moines, Iowa, AF Sector.

■ **Paul E. Marchbanks,** chief of the Des Moines Tower, from the Kansas City, Mo., International Airport Tower.

■ **William J. McIntosh,** unit supervisor in the Program Support Unit of the Wichita, Kan., AF Sector.

■ **Roger E. Voss,** unit supervisor at the Grand Island, Neb., AF Sector.

■ **Frank L. Yohe, Jr.,** enroute automation supervisor at the Kansas City ARTCC, from the Special Services Section, Air Traffic Branch, FAA Academy.

## Eastern Region

■ **Richard H. Morgan,** chief of the Charleston, W. Va., Flight Service Station, from the Philipsburg, Pa., FSS.

■ **John M. Stuck,** chief of the Rochester, N.Y., Tower, from the New York TRACON.

## Great Lakes Region

■ **Paulette Barnes,** team supervisor at the Detroit, Mich., Flight Service Station, from the Flight Service Section, Air Traffic Branch, FAA Academy.

■ **James R. Callahan,** assistant chief at the General Mitchell Field Tower, Milwaukee, Wis.

■ **Charles A. Cole,** chief of the Alton, Ill., Tower, from the Muncie, Ind., Tower.

■ **Lawrence H. Kant,** assistant chief at the General Mitchell Field Tower, Milwaukee.

■ **Richard H. Mack,** team supervisor at the Minneapolis-St. Paul, Minn., International Airport Tower.

■ **John W. Metcalf, Jr.,** chief of the Jackson, Mich., FSS, from the Findlay, Ohio, FSS.

■ **Terence E. Miller,** team supervisor at the Moline, Ill., Tower, from the Chicago O'Hare Tower.

■ **Phillip M. Reichart,** assistant chief at the General Mitchell Field Tower, Milwaukee.

■ **James H. Schave,** team supervisor at the Minneapolis-St. Paul International Airport Tower.

■ **David P. Shepherd,** team supervisor at the Minneapolis-St. Paul International Airport Tower.

■ **Byron F. Van Dake,** team supervisor at the Minneapolis-St. Paul International Airport Tower.

■ **William G. Yocius,** planning and procedures officer at the Chicago O'Hare Tower, from the regional Air Traffic Operations Branch.

## Northwest Mountain Region

■ **Dennis E. Davis,** chief of the Bellingham, Wash., Flight Service Station, from the Baker, Ore., FSS.

■ **Joseph F. Daws,** systems performance officer in the Seattle, Wash., ARTCC Airway Facilities Sector.

■ **Wesley C. Hamilton,** chief of the McChord AFB, Wash., RAPCON, from the Seattle-Tacoma, Wash., Tower.

■ **Michael P. Hipsher,** assistant chief at the Denver, Colo., ARTCC.

■ **Charles T. Parks,** team supervisor at the Portland, Ore., FSS, from the Flight Servic Section, Air Traffic Branch, FAA Academy.

## Southern Region

■ **John A. Austin,** unit supervisor in the Miami, Fla., Hub Airway Facilities Sector.

■ **William D. Ballance,** team supervisor at the Savannah, Ga., Flight Service Station, promotion made permanent.

■ **John O. Burkett,** unit supervisor in the Fayetteville, N.C., AF Sector Field Office, Raleigh, N.C., AF Sector, from the Electronic Establishment Engineering Branch, AF Division.

**Corwin E. Denny,** team supervisor at the San Juan, Puerto Rico, International Flight Service Station, from the Mobile, Ala., FSS.

■ **Burnie G. Hughes,** systems engineer in the Miami ARTCC AF Sector.

■ **James R. McNamara,** team supervisor at the Memphis, Tenn., ARTCC.

■ **Janet L. Morris,** chief of the Macon, Ga., FSS, from the Bristol, Tenn., Tri-City FSS.

■ **Dickie L. Sergent,** assistant chief at the Atlanta, Ga., International Airport Tower, from the Lexington, Ky., Tower.

■ **Donald F. Thomas,** systems engineer in the Atlanta ARTCC Airway Facilities Sector.

## Southwest Region

■ **James K. Eastham,** team supervisor at the Houston, Tex., ARTCC.

■ **Rex L. Finch,** chief of the Farmington, N.M., Tower, from the Albuquerque, N.M., Tower.

■ **Curtis H. Freeman, Jr.,** chief of the Electronic Engineering Branch, Airway Facilities Division, promotion made permanent.

■ **David Gonzalez,** deputy chief of the Oklahoma City Tower, from the regional Air Traffic Operations Branch.

■ **Patrick R. Lieurance,** chief of the Galveston, Tex., Flight Service Station, from the Deming, N.M., FSS.

■ **Arthur N. Mitchell,** chief of the McAllen, Tex., Tower, from the Love Field Tower in Dallas, Tex.

■ **Kenneth E. Moore,** team supervisor in the New Orleans, La., FSS, from the Galveston FSS.

■ **Joseph P. Odonohoe,** team supervisor at the Oklahoma City FSS, from the Abilene, Tex., FSS.

■ **James L. Owens,** chief of the Meachum Field Tower in Fort Worth, Tex., from the Airspace and Procedures Branch, Air Traffic Division.

■ **Edward R. Ridlon,** unit chief in the Albuquerque AF Sector.

■ **Keith R. Rogers,** military liaison and security officer, Houston ARTCC.

## Washington Headquarters

■ **Russell M. Scarberry,** chief of the En Route Procedures Branch, Procedures Division, Air Traffic Service, from the Boston ARTCC.

## Western-Pacific Region

■ **Barbara C. Ady,** team supervisor at the Palm Springs, Calif., Tower.

■ **Sheryl D. Becker,** chief of the Hawthorne, Calif., Tower, from the Oxnard, Calif., Tower.

■ **Miriam A. Clark,** team supervisor at the Stockton, Calif., Tower, from the McClellan AFB, Calif., RAPCON.

■ **Richard A. Cox,** section chief in the Airspace and Procedures Branch, Air Traffic Division., from the Des Moines, Iowa, Tower.

■ **Ralph A. Hiller,** team supervisor at the Palm Springs Tower, from the Brackett Field Tower, La Verne, Calif.

■ **Johnathon D. Hudson,** team supervisor at the Torrance, Calif., Tower.

■ **Francis G. Judd,** assistant chief at the Lancaster, Calif., Flight Service Station, from the Flight Service Section, Air Traffic Branch, FAA Academy.

■ **John K. Krohn,** section chief in the Air Traffic Operations Branch, Air Traffic Div., promotion made permanent.

■ **Stuart A. Meriwether,** operations officer at the Nellis AFB Tower in Las Vegas, Nev., from the North Las Vegas Tower.

■ **Wilson S. Moses,** chief of the Bakersfield, Calif., FSS, from the Lancaster FSS.

■ **Jack H. Olsen,** chief of the Tonopah, Nev., Airway Facilities Sector Field Office, Las Vegas AF Sector, from the Reno, Nev., AF Sector.

■ **James H. Panter,** deputy chief of the Las Vegas Tower, from the Plans and Program Branch, Air Traffic Div.

■ **Pedro C. Pascua,** unit supervisor on Tutuila Island in the American Samoa AF Sector, from the Office of the FAA Resident Director.

■ **James R. Tokarski,** chief of the San Carlos, Calif., Tower, from the Grand Canyon, Ariz., Tower.

■ **Jack S. Trott,** chief of the Salinas, Calif., FSS, from the Blythe, Calif., FSS.

■ **Charles E. Weinum,** team supervisor at the Reno Tower, from the Oakland, Calif., Tower.

■ **Leland J. Wingard,** team supervisor at the Napa, Calif., Tower, from the Oakland Tower.

# Feeling Fit

Edited by Henry J. Christiansen

## Give your heart a break so it doesn't. Exercise is good for it.

The heart does its job of pumping blood very well. Each beat of the muscular left ventricle expels a certain amount of blood into the general circulation. This is known as the stroke volume. The stroke volume varies according to an individual's size, but depends most importantly upon the state of physical conditioning. Stroke volume may vary from two ounces of blood in a very deconditioned person to eight ounces in a very fit individual. An average person, with a four-ounce stroke volume, will circulate some 100 million gallons of blood with this little one-pound pump during a lifetime.

A well-conditioned person has a great reserve—by raising the heart rate, he can use the larger stroke volume to circulate much more blood than a sedentary person. This same person also has a low resting heart rate, since it can provide all the blood a resting body needs at a lower rate.

There are some indications that the lifetime exerciser has a good blood supply to the heart itself. Since the blood pumped "through" the heart is not able to provide oxygen "to" the heart, the adequate flow of blood through two small coronary arteries is vital to heart muscle function. Generally speaking, it hasn't been shown that a lifetime exerciser is far better off than a recent convert. It is accepted that exercise can be beneficial, but a correlation with the duration of the exercise program has not been demonstrated. As we all know, some recent converts to the "Masters" category of competition perform as well or better than some oldtimers who have participated for 30 years.

We might conclude from this that a lifetime of inactivity is fine, provided we get fit at the last minute. Needless to say, this is most unlikely to be the case. Given the potential long-term benefits of exercise, don't wait till the last minute.

(Source: *The Runner* magazine)

*Mr. Christiansen is the Southwest Region's Special Projects Coordinator, as well as an inveterate runner (his third year in the Boston Marathon) and health buff. This column was coordinated with the Regional Air Surgeon.*