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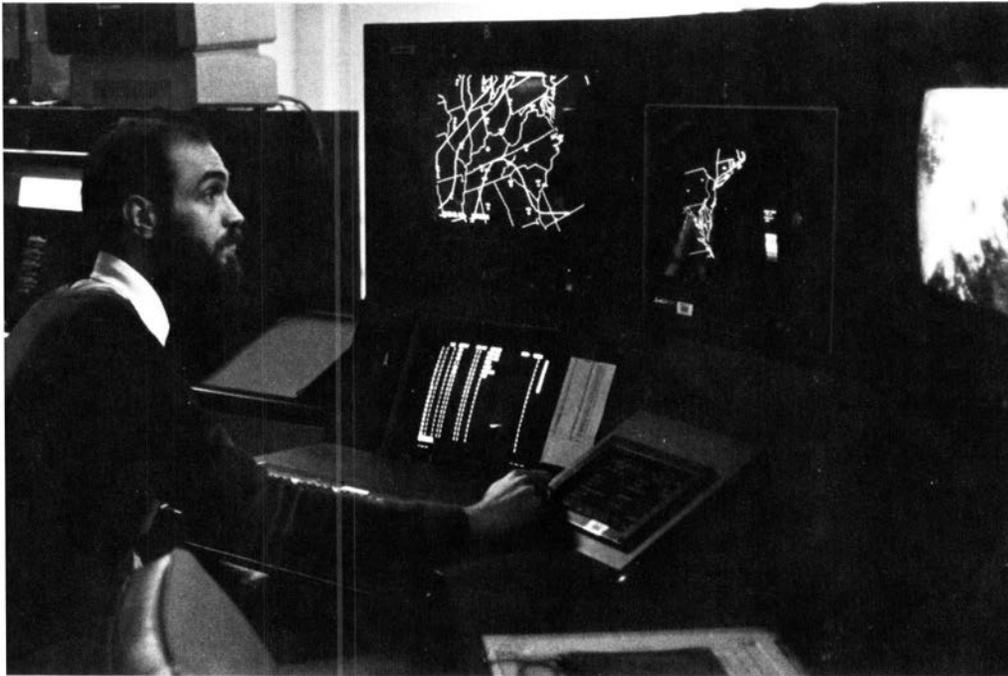


Photo by Michelle Cohen

Research Highlights

A Center Weather Service Unit (CWSU) work station is now under development for FAA's enroute centers that "extensively automates the present system," says Joe Brady, the Technical Center's program manager for the Central Weather Processor/Center Weather Service Unit Program.

"It represents a radical change from the way a meteorologist collects data at the ARTCCs today," Brady adds, referring to facsimile machines, teletypes and similar equipment.

The new production system will actually formulate the weather products a meteorologist would use and will convert NEXRAD products supplied by a Radar Products Generator (RPG) to products that will be produced within the Central

Weather Processor. (See story on the next generation of weather radar in *FAA World*, September 1984.) These products would then be supplied quickly to users like controllers for use on their sector suite displays, pilots via Mode S data link and flight service specialists.

The timetable is for a prototype to be delivered to the Technical Center in 1987 and 26 production models to be delivered across the country in the early 1990s.

The engineering model of the CWSU work station, here manned by Dennis Steelmann, features color digital displays of alphanumeric and graphics of satellite, radar and meteorological products and a touch-entry device.

Back cover: *To all the world, an enroute center would be just a large building with antennas but for the sign out front that says "Federal Aviation Administration." Not at the Salt Lake City ARTCC. It bespeaks aviation from afar since the center acquired this F-105 that once was part of the Thunderbirds Air Force precision flying team.*

"People fly because they believe it is safe to fly. And they believe that because decades ago the airline industry and the government convinced them of that fact by the way they set tough safety standards. In effect, safety became the industry's 'strong heart.'

"Nothing has changed that philosophy—we simply are not going to permit a degradation of air safety. We have not in the past, and we won't today or tomorrow.

"We—the government and the industry—must do what we have always done. We must stay alert to safety threats . . . we must search for the dangerous trends . . . we must educate our flight crews . . . and in doing so we will keep what we have now: the safest aviation system in the world."

—Donald D. Engen

Front Cover: *A Boeing 727 takes off from Washington National Airport.*

Photo by Dennis Hughes

Photo by Tom Gilbert



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Gaining the Other Point of View

They said it couldn't be done—that FAA and airspace users could not compromise and agree on regulatory and procedural changes. But it is happening under the National Airspace Review, now two years underway and going strong.

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All About Airports

FAA-sponsored conferences for airport operators and their personnel are offering a wide-ranging forum for common problems. It may be the beginning of a trend.

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Reflections of a Non-Bureaucrat

He spent a year among us, but on returning to his corporate haunts, this exchange executive had only kind words for federal employees and his FAA co-workers in particular.

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A sleek European racing plane won the MacRobertson Race in 1934, but not by much over a pair of American-built airliners. It demonstrated the superiority of the U.S. certification system.

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There is more than three-and-a-half million square miles of area to the 50 states. Add to that territories that stretch from the Caribbean to the South Pacific, toss in ocean areas, convert it all to the third dimension, sprinkle it with everything from ultralights to jets and lay in terrain, noise and airport limitations.

Now, bring in the diverse interests of all the airspace users under an umbrella called the National Airspace Review (NAR) and ask everyone to agree on regulatory and procedure changes.

While some of you are still laughing, you might note that not only has there been much agreement and success in NAR's two years but there is also a follow-on review projected to carry through the decade.

Never before has such a sweeping program of government-industry cooperation been undertaken. Many people thought it couldn't be done. Some doubters even within the FAA couldn't see how a government agency could open itself to such wide scrutiny and not be backed into a corner from which it could not escape.

NAR grew out of a 1980 aviation industry request for a simplification of procedures, flight regulations and airspace structures. Over the years, these had grown, been patched, altered, stretched, retreaded and mutated.

In May 1981, Raymond Van Vuren, now Associate Administrator for Air Traffic, met informally with

representatives of airspace user groups, outlining a proposal to conduct a review of the entire national airspace system.

"If you have changes to be made," Van Vuren said, "tell us. It's time to hang up parochialism for the good of the whole."

Hang it up they did, although reluctantly and often only after weeks of agonizing and sometimes unexciting discussions and debates.

The proposal was for a four-year project, during which time organizations representing airspace users would have to devote much time, talent and money to preparing for and participating in formal meetings.

Ironically, the very organizations that had criticized the FAA for failure to obtain user opinions before

representative Steering Committee (Excom). In addition to FAA personnel, this was comprised of representatives of the Department of Defense, Air Transport Association, National Business Aircraft Association, Regional Airline Association, Experimental Aircraft Association, Helicopter Association International and Aircraft Owners and Pilots Association. This Excom would oversee and forward to the Administrator the recommendations of individual task groups. In all, the groups were comprised of members of 23 organizations.

More than 100 FAAers from headquarters and the field participated in the 56 task groups, which were under the direction of Karl D. Trautmann, manager of Air Traffic's Special Projects Staff. "Every region and

the Technical Center contributed significantly to the achievements of NAR in terms of personnel and technical expertise," he said.

The aviation alphabet groups are not the only non-agency participants. Because the sessions are open, anyone may submit proposals in person or in writing; nevertheless, outside participation has been minimal.

Each task group was structured with an FAAer serving as chairperson, another as a voting member and a third representing the program management staff. No more than 10 interested organizations serve on a task group, but any number of advisors or observers may attend the sessions. Only members of the task

Gaining the Other Point of View

NAR Government-Industry Cooperation Proves Feasible

formulating new procedures and regulations now found themselves hesitant to commit their resources to a project of this scope. They also wanted some guarantees that their views would be implemented.

Early in 1982, the NAR charter was filed with Congress, and then-Administrator J. Lynn Helms assigned Deputy Administrator Michael Fenello to chair the Execu-

By Charles Spence

An aviation free-lance writer, he was senior vice-president for public relations at AOPA and served 15 years with Hearst newspapers.



At a National Airspace Review meeting, Kenneth Holt (left) of McDonnell Douglas, representing the Aerospace Industries Assn., explains to the Task Group on Military Training Routes about McDonnell's waiver to operate in excess of 250 knots below 10,000 feet.

William Crawford (right), Southern Region Air Traffic Division, discusses with David Scott of the Experimental Aircraft Assn. EAA's position on aeronautical chart symbols during a task group meeting on VFR charting.



As a member of an NAR task group on aeronautical charting, Robert "Pepe" Lefevre of the Allied Pilots Assn. casts a vote on a proposed recommendation.

group may vote on proposals developed as a result of the meetings. Early sessions actually voted, but this was soon changed to reporting on a consensus because, despite compromises, not all parties agreed to each recommendation. Where strong opposition exists, a minority report is

attached to the recommendation.

The task groups' studies began slowly. Not only was there caution in moving away from long-established positions but also a need to educate some of the participants on the air traffic system and most of them to each other's point of view.

Sixteen topics for study were identified in five broad areas: regulatory

simplification, international interface, informational service, airspace structure and procedures. Many of these were broken into sub-topics and a number of them interrelated with other topics.

"What we had to do," Trautman explains, "is break the tasks down to small bites, but we couldn't make changes until the entire subject had been covered." He cited terminal airspace as an example. "When we laid



out the schedule, the terminal 'world' had seven elements for discussion, including a handbook. We had to get through the first six of these and have all the information about how one recommendation might impact on another before we could start to change the seventh—the handbook.”

This necessity for examining interrelationships is time consuming and results in some criticism from industry participants that the program isn't moving fast enough, he noted. However slow to show near the beginning, the project's accomplishments are coming more rapidly now.

More than 700 recommendations have poured in from the task groups, and nearly all of these have been cleared by the Excom, which meets quarterly. About 500 have reached the decision stage, with more than half of these assigned implementation codes and another 200 waiting for results of specific studies.

As a measure of NAR's impact, verification trials of a new Airport Radar Service Area (ARSA) underway at Columbus, Ohio, and Austin, Texas, will be completed several months faster than had its procedures



In a test of a prototype revised aeronautical chart by pilots of all types of experience, NAR task group participants selected student pilot Cheryl Syman to use the chart at Dulles International.



Drexley Barksdale (left) of the Southern Region's Air Traffic Division discusses an item in the minutes of the task group on military training routes with George Lutz of the Experimental Aircraft Assn.

we saw people modifying their views and positions for the betterment of the whole, and that gives a strong sense of pride.”

“I enjoyed working with the user community representatives,” said Jim DeBaca of Southwest Region's Air Traffic Division. “Involved with four



Dennis Wright—then of the Aircraft Owners and Pilots Assn. and now with the National Business Aircraft Assn.—makes a point on the depiction of metropolitan areas on aeronautical charts during a task group on VFR charting.



Rick Weiss of the Cockpit Technology Program Office, Program Engineering and Maintenance Service, helps student pilot Cheryl Syman in flight planning a test of a revised aeronautical chart that is out for comment by user groups.

task groups, I found them a professional group, deeply interested in improving the air traffic system.”

Task group recommendations have been implemented in many subject areas, including military training routes, weather, special use airspace, terminal control areas and area navigation.

The more than two years of meetings and study, accompanied by evaluation and implementation periods, is expected to cost in the neighborhood of \$4 million. More than ten times that amount, however, is forecast as net benefits just from the installation of the ARSAs. In fact, three projects

every FAAer, whether in an operational job or a support one.

The National Airspace Review has also captured the interest of other agencies and foreign governments. During the Past two years, FAA counterpart agencies in other nations have been briefed about the progress of NAR, and some are starting to emulate the program.

A new array of subjects for study has been selected, and official pronouncements will soon be made of

handled under NAR—the ARSAs, ARTCC resectorization and area navigation integration of random routes—are expected to save more than \$1.2 billion.

Administrator Engen recently testified before Congress that “the process has been effective.” And considering the breadth of NAR, the results are touching virtually

what some participants are calling “Son of NAR.” The Excom has been briefed on this follow-on plan to continue through the end of this decade. Participants are expected to include all those now involved as well as representatives from the manufacturing side of the industry who have shown a keen interest.

The sequel is expected to be even more productive. “We’ve learned a few things,” Trautmann said. “The number of meetings will be reduced to about 10 a year from 18, and each will last about six days instead of 10. In addition, because of the higher technology to be considered then, advance information material will be supplied to groups 60 days before a meeting instead of the current 30 days.”

In some respects, NAR has been an effort to match procedures and regulations to current technology. NAR II will take a look at the next generation of hardware, equipment and facilities and the shaping of airspace procedures and regulations for the future.

“Everybody understands everybody else’s requirements better now than before,” one industry representative said. “This should make it easier and quicker to find solutions and to work in future situations.”

Now, they know that NAR is working! ■

All About Airports

FAA-Sponsored Conference Provides Wide-Ranging Forum



Southern Region Deputy Director George LaCaille (third from left) presented FAA's highest award to fire chief Clarence Rogers of the DeKalb County Public Safety Department for the rescue of a child from a burning aircraft at DeKalb-Peachtree Airport in Atlanta, Ga. A gold medal was presented at the airport conference.

Photo by Charles Burcher

The Southern and Eastern regions are sponsoring airports conferences that have proved so successful the Office of Airports Standards is looking into the feasibility of all regions doing it.

Southern Region's Airports Division sponsored an Airport

Certification and Safety Conference in July that was hosted by Atlanta Hartsfield International Airport. This forum for information exchange drew 170 participants, including FAAers and airport representatives from Cayman Islands, Haiti, Puerto Rico, the Virgin Islands and the U.S. mainland.

FAA arranged for speakers, set an agenda and the tone for the meeting and selected participants. The last was especially significant, according to Dave Clemens, manager of the Safety and Standards Branch. "For the first time, we made it a point to invite airport personnel below the level of airport manager. We really did reach the men fighting the fires, for example, and that's going to do more good."

Clemens found that this working level group was enthusiastic about the meeting and what they could learn there. He added that airport managers were essential to the

conference in their own right, but pointed out that "if you've got a good leader, the employees' are going to learn from him anyway."

The agenda covered the panoply of airport concerns, including crash-fire-rescue, bird hazards, civil preparedness, the legal aspects of disasters, the airline perspective on casualty management, NTSB investigations and news media management to insure orderliness.

The keynoter for the conference was Donald Ivers from DOT's Office of the Secretary. Airports Division manager William McGill, Regional Counsel Ron Hagadone and Bill Southerland of Airport Standards' Safety and Compliance Division also addressed the gathering on aspects of FAR Part 139, which deals with air-



A highlight of the Southern Region's Airport Certification and Safety Conference was a 'hot fire' demonstration. Airport operations personnel and reporters suitably garbed used water and foam to put out the 500-gallon fuel fire.

carrier airports. Southern Region airport certification safety inspectors Bill Ward and Roger Hall helped moderate the meeting and provide the FAA viewpoint for discussions. Other regional divisions spoke on such subjects as instrument approach procedures, airport security and the impact of construction on FAA navigation aids.

A "hot fire" demonstration was presented by the Atlanta Airport Fire Department, with 500 gallons of fuel ignited. Various extinguishing agents were used by a variety of airport personnel, as well as local newspaper and television reporters, to give them first-hand knowledge.

Dave Clemens believes this is a productive aspect of the conference. "We'll definitely have another meeting, and I'd like to have more physical demonstrations. With the enthusiasm this 'hot fire' drill brought, I'd even like to have more hands-on experience for the participants in the conference. I'd also invite different manufacturers to display state-of-the-art equipment," he said.

"There's nothing like seeing for believing." ■



Ski Fest a-coming

The Second Annual FAA Ski Fest has been announced for February 25 to March 1 at Steamboat Springs, Colo., so all you jaeger tee swillers can plan your

leave time. The resort promises that the entire NASTAR course will be available to FAA. Specific information is expected for the December FAA World.

Reflections of

Oh, Would That John Q Saw

Tyram H. Pettit spent a year as a special advisor to the Administrator and the Associate Administrator for Policy and International Aviation, on leave from his position as Vice President and Area Manager for the Torrance, Calif., Area Management Group of the Bank of America.

Pettit was in FAA as a participant in the President's Commission on Executive Exchange, a program designed to promote mutual understanding between American government and business, to foster personal growth and to stimulate ideas and promote techniques that will result in better management and cooperation.

President Reagan defined the program as giving "executives from the business world who have accepted the challenges of demanding federal positions the opportunity to contribute their business acumen and corporate experience and gain insight into the inner workings of government.

"Conversely, the program enables senior government executives to participate in one-year assignments in responsible and challenging positions in the private sector."

Having had a diverse agenda of tasks—he worked on the aircraft loan guarantee program, executive decision-making approaches and international strategies and organization—Ty Pettit may have gained those insights into FAA's inner workings, but he also gained a perspective of federal employees not often acknowledged by the private sector. What he has to say is very welcome.

"As my assignment with the agency wound down this past summer, I found a few moments to reflect on this unique year.

"To say that I have been immensely impressed by the people of this organization somehow understates this recognition. It was so easy to arrive in Washington with that popular private sector view of the Federal Government as a hopeless self-serving bureaucracy living off the taxpayer with no accountability. While there are probably isolated examples of this onerous stereotype, the people I have met are highly qualified and motivated by a sense of purpose.

"A career in public service is sought for the same reasons all of us seek challenges, opportunities and rewards. Also-rans need not apply. Hiring standards appear to be comparable to or higher than in the private sector, further debunking the popular view.

"Ironically, most of the problems I have witnessed stem from the difficult merging of the political policy-setters with the existing bureaucratic infrastructure. While philosophically dedicated to support the efforts and policy initiatives of the Administration and the Congress, the bureaucracy with its necessarily longer-term orientation is frequently portrayed by politicians as obstructionist. This



totally overlooks the principal and vital role the bureaucracy plays in providing some sort of continuity in the process of government without which the democracy cannot function.

"Government, large or small, must be constructed on a solid foundation, maintained by dedicated career professionals capable of running the day-to-day organization and protecting vital elements of that organization from political tampering. It is a delicate balance which is increasingly vital when the political elements seem increasingly incapable of providing meaningful direction to its bureaucracy.

"The FAA is an impressive technical organization with an undisputable public mandate to set and

Non-Bureaucrat

As He Does



maintain high standards for aviation safety. I guess I expected some specialized version of the bureaucratic stereotype, but what I found was a dynamic responsive organization, highly sensitized to the public, the industry and to the global implications of its actions. Jet travel has linked the world more closely than ever. As the world's most visible regulatory agency, the FAA shoulders that responsibility gracefully.

"I found the environment conducive to creativity and, despite the archaic compensation system, supportive of individual excellence.

More needs to be done, of course, but the agency's positive philosophy seems to justify optimism.

"I am very pleased that fate and a little bit of luck landed me at your door for a year. The experience of working with professionals in fields generally unfamiliar to me has been particularly rewarding. I have learned more about aviation than I expected I

would ever know. It's a vital U.S. industry, and it gives me much greater comfort to know that the well-being of that industry is in such capable hands.

"I am returning to the Bank of America much wiser for my year in Washington. Thank you for letting me be a part of the FAA family." ■

—Tyram H. Pettit



The Boron Long Range Radar is remote like most of its ilk, sitting in the midst of the desolate Mojave Desert. But this facility, which serves Edwards Air Force Base and the Los Angeles ARTCC is unique. It looks down on and sits on the property of the federal prison at Boron. Of course, the building is off-limits to its neighbors.

Photo by Fred Smith, Victorville Daily Press

By Richard K. Smith

The American literary editor of *Air International*, he teaches the history of flight at Embry-Riddle in Washington.

The Race That Rocked Europe

The U.S. Proved Its Certification System Half Century Ago



KLM's DC-2 at Schiphol Airport, Amsterdam, in October 1934. Called Uiver (Stork), this participant in the MacRobertson race was the first DC-2 in Europe.

Photo courtesy of KLM

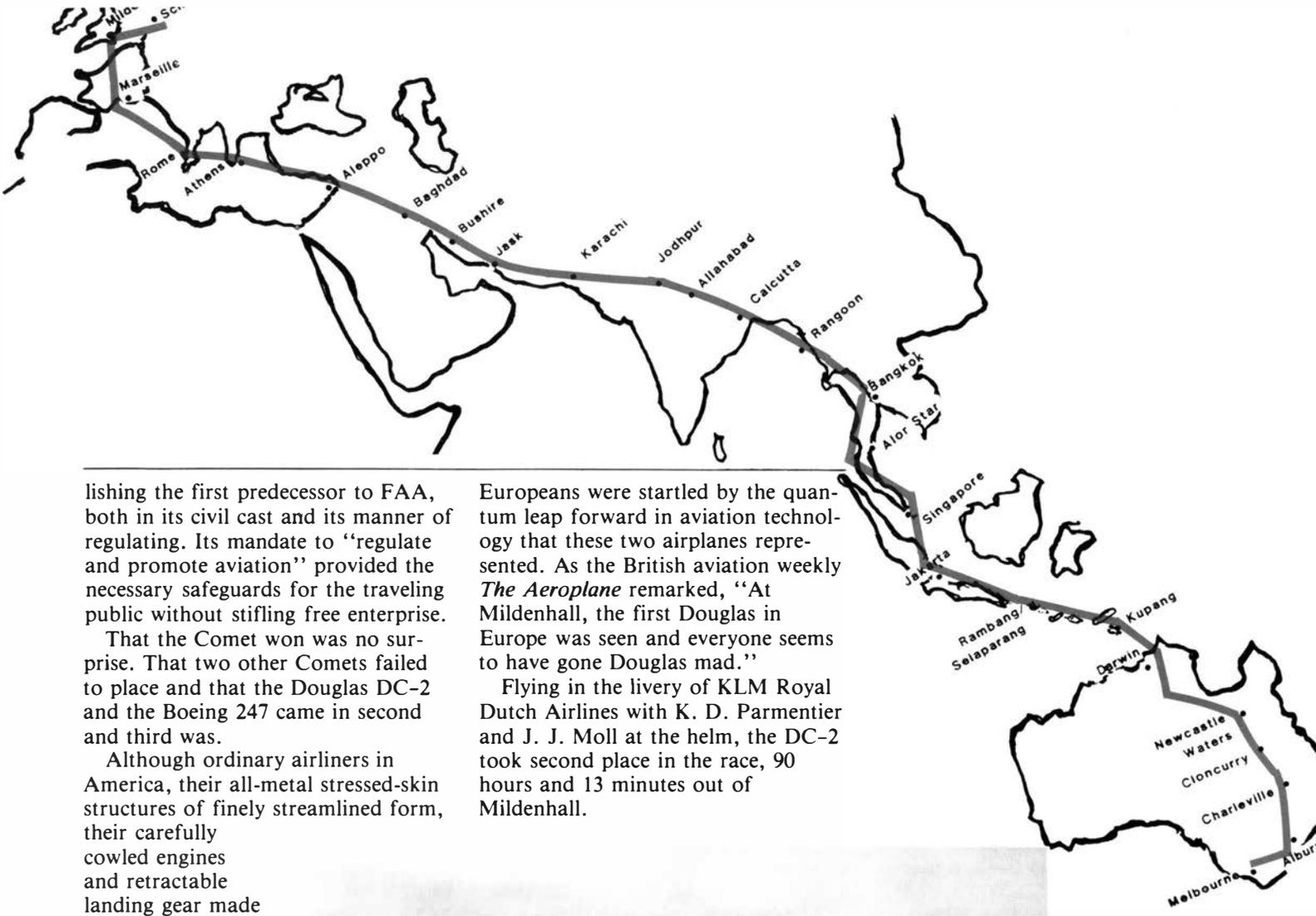
Fifty years ago this month, America established its superiority in commercial aircraft design for all the world to see in a grueling 11,300-mile race from England to Australia, even though its aircraft didn't win the race.

The event was the MacRobertson International Air Race that began in Mildenhall, England, on Oct. 20, 1934, with 20 starters and ended on October 23 in Melbourne. A de Havilland DH-88 Comet—a sleek British twin-engine racer of 5,500 pounds built especially for the race—was the first to cross the finish line in 70

hours and 54 minutes.

The runners-up, however, were American-made airliners right off the production line, weighing in at more than two and three times as heavy as the Comet.

In addition to demonstrating the preeminence of American aircraft manufacture, which persists to this day, the results proved the U.S. had gone in the right direction in estab-



lishing the first predecessor to FAA, both in its civil cast and its manner of regulating. Its mandate to “regulate and promote aviation” provided the necessary safeguards for the traveling public without stifling free enterprise.

That the Comet won was no surprise. That two other Comets failed to place and that the Douglas DC-2 and the Boeing 247 came in second and third was.

Although ordinary airliners in America, their all-metal stressed-skin structures of finely streamlined form, their carefully cowled engines and retractable landing gear made them extraordinary airplanes throughout Europe. And when most airliners did well to sputter across the sky at 110 mph, the Boeing cruised at 180 and the DC-2 at 190.

The DC-2, of 18,500 pounds and 14 seats, entered service with TWA in the summer of 1934. The 247, a 13,650-pound airplane with 10 seats, had been in service with United Airlines since mid-1933.

Europeans were always suspicious of what they called “American exaggeration.” It was one thing to read of these airplanes and the astonishing claims made for their performance; it was quite another to see them in three dimensions. When they did, the

Europeans were startled by the quantum leap forward in aviation technology that these two airplanes represented. As the British aviation weekly *The Aeroplane* remarked, “At Mildenhall, the first Douglas in Europe was seen and everyone seems to have gone Douglas mad.”

Flying in the livery of KLM Royal Dutch Airlines with K. D. Parmentier and J. J. Moll at the helm, the DC-2 took second place in the race, 90 hours and 13 minutes out of Mildenhall.



Prior to their flight to Australia, pilot Roscoe Turner; Don Young, his mechanic; and co-pilot Clyde Pangborn (left to right) pose in front of their Boeing 247 at Heston Airport near London.

Smithsonian Institution photo

Most remarkable is that while flying in the race, it performed as an airliner, carrying three revenue passengers and 900 pounds of mail. It made 18 stops along the way, fly-

ing a dogleg track that was about 1,000 miles longer than the course flown by the winning Comet.

Piloted by the then-famous and skillful Roscoe Turner and Clyde Pangborn, the Boeing 247 landed at Melbourne within three hours of the DC-2. Both airliner crews were in far better condition at race’s end in their commodious “offices” than were

Two of the three de Havilland DH-88 Comet racers that participated in the MacRobertson. One won the race; another placed fourth; the third dropped out in India.

Smithsonian Institution photo

C. W. A. Scott and T. Campbell Black in their cramped Comet racer.

Europeans were shocked to discover that American airliners had practically matched the performance of the finest long-distance racing plane in the world. The MacRobertson race—named after sponsor Sir MacPherson Robertson—announced that a new day of flight technology was already past its dawn and rushing toward high noon—and the sudden light was dazzling.

But the Boeing and Douglas airplanes were only part of it. On March 30, 1934, the Sikorsky S-42, a four-engine flying boat of 38,000 pounds, designed for Pan American Airways, made its first flight. It was the first of 10 built for PanAm's route between Miami, Fla., and Buenos Aires, Argentina, and flew its first scheduled flight in October.

A few weeks after the MacRobertson race, Igor Sikorsky was in London where he gave a lecture before the Royal Aeronautical Society in which he described his S-42. His auditors listened with what amounted to stunned disbelief. Not only did the S-42 cruise at 160 mph—breathtaking speed for so large an airplane—but also with a fully equipped cabin it had a load-to-empty ratio of 42:58. At that time, the Europeans were doing well to achieve 35:65 in an airplane of similar weight. And in a day when most airliners carried a wing loading of 10 to 15 pounds per square foot, the S-42's was a mind-boggling 28.5.

Commenting on the Sikorsky lecture, *The Aeroplane* predicted,



“Judging by the discussion which followed the lecture, a drastic revision of ideas in this country seems likely.”

Nor was this all. On Dec. 20, 1934, at Middle River, Md., the Glenn L. Martin M-130, a four-engine flying boat of 52,000 pounds, made its first flight. It was one of three on order for PanAm. In terms of factory weight, the M-130 had a load-to-empty ratio of 51:49, exceeding the “ideal” of 50:50. With a fully equipped cabin, its operating ratio was 45:55.

The claims for the M-130's weight envelope seemed so extravagant that the British *Flight* magazine refused to believe them until after the M-130 demonstrated its capabilities in scheduled service.

The M-130 was designed for transatlantic service in which the longest flight was 2,000 miles between Newfoundland and Ireland. But

because of British political obstructions, PanAm was forced to use it in transpacific service—the “Atlantic Clipper” becoming the legendary “China Clipper.”

Over the 2,410 miles between San Francisco and Honolulu, the M-130s were lifting such heavy fuel loads that they carried barely a ton of payload. But there was no other plane in the world that could equal even this marginal performance.

In 1934, the new American airliner literally had burst upon the world scene and across the whole spectrum of airline operations—from the intercity DC-2 to the intercontinental M-130. Even five years later, these airplanes had no European peers in performance. By 1938, the Europeans caught up with the Americans in terms of speed, but it was not until after World War II that they were able to equal the productivity of American aerostructures.

Why did this phenomenon occur in the U.S. when it did? Part of the answer is in the size of the U.S.—a continental empire unto itself with an equitable distribution of urban populations that would support the costs of high-speed transportation.

Part is in the \$500 million (the



Photo courtesy of KLM

Last year, an airworthy American DC-2 was repainted by KLM to look like the 1934 Uiver. Here flying over Amsterdam, the replica retraced the historic flight to Melbourne over a period of months to permit filming a videotape for the fiftieth anniversary celebration.

equivalent of \$7 billion in 1984's depreciated money) that the U.S. Government spent on all forms of aviation during 1927-1933. This was a national investment that had a dramatic payoff in 1934.

Equally important was the organization of American civil aviation. In contrast to the United States where the Air Commerce Act of 1926 enforced the separation between military and civil aviation, civil aviation in Britain and continental Europe was a small section tucked away in air ministries dominated by military considerations.

An American manufacturer was free to design and build as he chose within a framework of stringent general regulations that described what was required without getting bogged down in the myriad details of how it would be achieved. The final product was judged by the Bureau of Air Commerce authorities only after it was flying. But European practice called for a manufacturer to submit specifications and blueprints before a rivet could be driven. This was a system in which ancient prejudices could run amok with nitpicking, reducing a paper airplane of advanced concept to shreds.

The important difference is that the Europeans judged a design; the Americans judged an airplane.

Generalizing, it may be said that in America the proof of the pudding was in the eating, whereas in Europe it had to be in the recipe.

The latter was not a system that encouraged innovation, but the new American airliner was the essence of innovation. Its design more than doubled wing loadings so less structure

carried more load and reduced the resultant penalties by means of high-lift devices and controllable-pitch propellers. It achieved extraordinary lightness in airframes without hazards to structural integrity, yielding greater payloads or intercontinental range. And it combined power and streamlining to almost double the speed envelope.

Although history never discloses the results of its alternatives, it seems unlikely that American commercial aviation would have developed with the dramatic suddenness that it did if it had been burdened by a European-style air ministry.

It is often said and too often

accepted that it was World War II that gave the United States its world leadership in superior airline equipment. However, the war served only to confirm the Americans in a leadership that was achieved in 1934.

The MacRobertson race was a marvelous *coup de théâtre*, dramatizing an epochal change in aviation technology that went far beyond the 11,300 miles to Melbourne. There was nothing like it before; there could be nothing like it again. It was aviation's last surprise.

It provided a convenient curtain-raiser to the era of modern aviation—the beginning of the epoch in which we still live. ■



At the finish of the race in Melbourne on Oct. 24, 1934, are (left to right) Roscoe Turner (with mustache), Clyde Pangborn and their radio operator Reeder Nichols.

Smithsonian Institution photo

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

Aeronautical Center

- **William B. Farquhar**, manager of the Payroll Branch, Accounting Div.
- **Barbara J. Hill**, supervisor of the Records and Processing Section, Human Resource Utilization Branch, Human Resource Management Division.
- **Patricia S. Shankles**, unit supervisor in the General Materiel Section, Supply Management Branch, FAA Depot.

Alaskan Region

- **Ronald B. Glonek**, area supervisor at the Sitka Flight Service Station, from the Yakutat FSS.
- **Dexter Palk**, assistant manager of the Anchorage Flight Standards District Office.

Central Region

- **Thomas R. Davidson**, assistant manager of the St. Louis, Mo., International Airport Tower.
- **Quentin J. Gates**, supervisor of the Operations Section, Operations, Procedures & Airspace Branch, Air Traffic Division, from the Kansas City, Mo., International Airport Tower.
- **Donald G. Hehr**, assistant manager of the Kansas City Tower.
- **Edgar K. Huff**, supervisor of the Airspace and Procedures Section, Operations, Procedures & Airspace Branch.
- **Joseph P. Kenny**, supervisor of the Information Resource Technical Section, Automated Information Resource Branch, Resource Management Division.
- **Jack R. Lee**, area supervisor at the Spirit of St. Louis (Mo.) Tower.

Eastern Region

- **James L. Beall**, area supervisor at the Washington ARTCC, from the Greater Pittsburgh (Pa.) Tower.
- **William B. Bracken**, manager of the Program and Planning Branch, Airway Facilities Division, from the New York ARTCC AF Sector.
- **Hiram H. Bundy, Jr.**, manager of the Fredericksburg, Va., AF Sector Field Office, Norfolk, Va., AF Sector, from the Pittsburgh AF Sector.
- **Albert F. Douglas, Jr.**, area supervisor at the Andrews Air Force Base Tower, Camp Springs, Md., from the JFK Tower.
- **Charlie N. Dudley**, assistant manager of the Baltimore, Md., Tower.
- **Martin N. Finkelstein**, manager of the Examination, Classification and Disbursement Branch, Accounting Division, promotion made permanent.
- **Martin W. Gibbons**, area supervisor at the New York TRACON.
- **Michael Gussin**, area supervisor at the Allentown, Pa., Tower.
- **Robert J. Howard**, assistant manager, traffic management, at the New York ARTCC.
- **Joseph H. Kelley**, chief of operations, Airspace Section, Airspace & Procedures Branch, Air Traffic Division.
- **David R. Kelly**, area supervisor at the Buffalo, N.Y., Tower, promotion made permanent.

- **Robert M. Kitson**, unit supervisor in the ATC Facilities Section, Electronic Engineering Branch, AF Division.
- **Felton R. Lancaster**, assistant manager of the New York ARTCC, from the Memphis, Tenn., ARTCC.
- **Vincent A. Laurentino**, manager of the New York ARTCC AF Sector, from the Metro New York AF Sector.
- **Thomas F. Lawson**, area supervisor at the Norfolk, Va., Tower, promotion made permanent.
- **Vincent J. LePera**, unit supervisor (airworthiness) at the Pittsburgh Air Carrier District Office.
- **Raye Liverpool**, supervisor of the Travel and Transportation Section, Examination, Classification and Disbursement Branch, Accounting Division.
- **Richard D. Mackey**, assistant manager for program support at the Pittsburgh AF Sector.
- **Edward J. McKenna**, area supervisor at the Poughkeepsie, N.Y., Tower, from the Westchester, N.Y., Tower.
- **Robert J. Montgomery**, area supervisor at the Newport News, Va., Tower, from the FAA Academy.
- **James M. Murphy**, area supervisor at the Buffalo Tower, promotion made permanent.
- **Herbert Ross**, assistant manager of the Metro New York AF Sector, from the Airway Facilities Division.
- **Herbert J. Rossell, Jr.**, supervisor of the Procedures Section, Airspace & Procedures Branch, Air Traffic Division.
- **Vincent S. Samosky**, area supervisor at the Charleston, W. Va., Tower.
- **Daniel J. Schillaci**, area manager at

the Washington ARTCC, from the headquarters Resource Management Division.

■ **Robert C. Shrump**, area manager at the Washington ARTCC.

■ **William R. Slattery**, area supervisor at the Poughkeepsie Tower, promotion made permanent.

■ **Edmund Spring**, manager of the Washington ARTCC, from the Philadelphia, Pa., Tower.

■ **Richard E. Swalina**, unit supervisor in the Norfolk AF Sector.

■ **Robert D. Turner**, area supervisor at the Massena, N.Y., Flight Service Station, from the Utica, N.Y., FSS.

■ **Philip A. Urso**, assistant manager for technical support at the Metro New York AF Sector, promotion made permanent.

Great Lakes Region

■ **Ronald Bradley**, area supervisor at the Port Columbus, Ohio, Tower.

■ **Henry J. Bronson**, area supervisor at the Chicago ARTCC.

■ **John G. De Jonge**, manager of the Chicago-Palwaukee, Ill., Tower, from the Bloomington, Ind., Tower.

■ **Edward R. Froelich**, area manager at the Minneapolis, Minn., ARTCC, from the Chicago, ARTCC.

■ **Charles J. Frost**, assistant manager for technical support at the Cleveland ARTCC Airway Facilities Sector, from the FAA Academy.

■ **Gregory A. Gaskill**, area supervisor at the Lansing, Mich., Tower, from the Spirit of St. Louis, Mo., Tower.

■ **Harry M. Gramentz**, environmental support unit supervisor at the Minneapolis ARTCC AF Sector.

■ **Steve M. Lechien**, manager of the

West Lafayette, Ind., Tower, from the Chicago O'Hare Tower.

■ **James D. Lichlyter**, area supervisor at the Carbondale, Ill., Tower, from the FAA Academy.

■ **Donald R. Light**, area supervisor at the Grand Rapids, Mich., Tower, from the Jackson, Mich., Tower.

■ **Donald R. Markwell**, assistant manager, airspace and procedures, at the Chicago, ARTCC.

■ **Arnold E. Miller**, area supervisor at the Indianapolis, Ind., Tower, from the Evansville, Ind., Tower.

■ **Bruce M. Moenedick**, manager of the Minot, N.D., AF Sector Field Office, Dakota AF Sector.

■ **John E. Porter**, supervisor of the Leased Communications Section, Program and Planning Branch, AF Division, from the Aurora, Ill., AF Sector.

■ **Dennis R. Ragle**, assistant manager, administration, at the Cleveland ARTCC.

Retirees

Cheshire, George W.—AC
Fisher, Herbert R.—AC
Hicks, Jewell S.—AC
Kimes, George D., Jr.—AC
Lategola, Michael T.—AC
Roe, Betty E.—AC
Sobetsky, Charles A.—AC
Walker, Freddie A.—AC

Lawrence, Clifton E.—AL

Bridges, John R.—CE
Estes, James D.—CE
Thompson, Keith E.—CE

Canty, William S., Jr.—EA
Cochran, Jackie—EA
Downs, Norman R.—EA
Dyer, William—EA
Jones, Jacob B.—EA
Palusko, Frank R.—EA
Perkins, James A.—EA
Reed, Elmer E.—EA

Smoke, Fred P.—EA
Vitelli, Vito J.—EA

Dougan, Charles E., Sr.—GL
Featheringill, Thomas N.—GL
Firl, Kenneth R.—GL
Harrington, Gordon R.—GL
Holifield, Tommie—GL
Hubenthal, Earl J.—GL
Kosanovich, Bernard—GL
Mather, Donald E.—GL
McMillin, Richard J.—GL
Ortega, John P.—GL
Snell, Frank E., Jr.—GL

Artz, Harold H.—MA

Chiulli, Earl F.—NE
Simonson, Joseph T.—NE

Blackburn, Myrthin L.—NM
Canfield, Willis D.—NM

Chavers, Jerry—NM
Dexter, Maitland W.—NM
Fullmer, Max L.—NM
Greenup, William—NM
Johnston, Howard V.—NM
McNeill, James H.—NM

Bennett, William R., Jr.—SO
Coon, Josie N.—SO
Crumbley, Virginia C.—SO
Doyle, Helen E.—SO
Franklin, James E.—SO
Jenkins, Kenneth R.—SO
Kite, William R., Sr.—SO
Mimms, Joseph L., Jr.—SO
Page, Alexander J.—SO
Sherwood, Judith J.—SO
Sitton, Frank W.—SO
Starnes, Thomas M.—SO
Waide, Frances F.—SO

Bowman, Roberta P.—SW
Clifton James P.—SW

Cobb, Lloyd H., Jr.—SW
Rinehart, Clifford D.—SW
Short, Kenneth H.—SW
Ward, Walter J.—SW
Woodard, Joe C.—SW

Botz, Frederick P.—WA
Connelly, Peter M.—WA
Fink, Stanley W.—WA
Walker, Marvin J.—WA

Cozzetto, Joseph—WP
Cunningham, Jack R.—WP
Harris, Warren J.—WP
Kane, Owen R., Jr.—WP
Matera, Alphonse N.—WP
Partridge, Delancy D.—WP
Terrel, Robert O.—WP
Tilton, David A.—WP
Truitt, Vernard H.—WP
Vaccio, Alice T.—WP

■ **Melvin L. Suko**, unit supervisor in the Dakota AF Sector, Bismarck, N.D., from the Michigan AF Sector.

■ **Stanford B. Swallow**, manager of the Maintenance Operations Branch, AF Division, from the Dakota AF Sector.

■ **Jimmie H. Walker**, assistant manager, operation, at the Cleveland ARTCC.

■ **Richard A. White**, assistant manager, traffic management, at the Chicago ARTCC.

Metro Washington Airports

■ **James M. Flanagan**, manager of the Finance and Administration Division.

New England Region

■ **William F. Mann**, systems engineer in the Boston ARTCC Airway Facilities Sector, from the Bradley Airport AF Sector, Windsor Locks, Conn.

Northwest Mountain Region

■ **Marvin A. Birt**, manager of the Aviation Security Branch, Civil Aviation Security Div., promotion made permanent.

■ **Gary F. Fay**, area supervisor at the Denver, Colo., ARTCC.

■ **Edward M. Gass**, area manager at the Seattle-Tacoma, Wash., Tower.

■ **Roy K. Kamigaki**, area supervisor at the Denver ARTCC.

■ **Duane J. Mason**, assistant manager of the Maintenance Branch, Airway Facilities Division.

■ **Charles T. Parks**, area supervisor at the Portland, Ore., Flight Service Station, from the Air Traffic Division.

■ **George C. Paul**, assistant manager of the Airports Division.

■ **Ronald F. Rhoades**, area supervisor at the Seattle-Tacoma Tower.

■ **Richard L. Riegler, Jr.**, area supervisor at the Denver ARTCC, promotion made permanent.

■ **Steven J. Selleck**, area supervisor at the Boise, Idaho, FSS, promotion made permanent.

■ **William A. Shoemaker, Jr.**, area supervisor at the Spokane, Wash., FSS, from the Denver FSS.

■ **Anthony A. Uliana**, maintenance mechanic foreman in the Denver Field Maintenance Party.

Southern Region

■ **Donald Cass**, manager of the Quality Assurance & Standardization Staff, Air Traffic Division.

■ **Donald G. Heath**, area supervisor at the Wilmington, N.C., Tower, from the Florence, S.C., Tower.

■ **John F. Keesey**, manager of the Pensacola, Fla., Flight Service Station, from the Muscle Shoals, Ala., FSS.

■ **Donald R. Kemmerling**, manager of the Evaluations Staff, Air Traffic Division.

■ **Alexander J. Kulikowski**, supervisor of the North Operations Section, Operations Branch, Air Traffic Division.

■ **Alex Malon**, manager of the Chattanooga, Tenn., Tower, from the Nashville, Tenn., Tower.



Great Lakes Region air traffic airspace specialist Georgene McDonough shows off the cover of EAA's Vintage Airplane magazine featuring her and her husband Don's restored 1950 Beech Bonanza and the bronze Lindbergh statuette awarded by EAA for the best restored classic. Their Beech has won six out of seven times shown. They're angling for the Grand Champion award next year. Don's being an A&P mechanic hasn't hurt.

■ **William E. Roberts**, area supervisor at the Montgomery, Ala., FSS, from the Knoxville, Tenn., FSS.

■ **Joseph C. Urevick**, area supervisor at the Orlando, Fla., Tower.

■ **George W. Weimar, Jr.**, area manager at the Atlanta, Ga., ARTCC, from the Air Traffic Division.

Southwest Region

■ **Ronald P. Aikens**, programs officer at the Oklahoma City, Okla., Tower, from the Brownsville, Tex., Tower.

■ **Alfred H. Arnold**, supervisor of the Construction Section, Procurement Branch, Logistics Division.

■ **Vernon H. Drewa, Jr.**, manager of the Dallas Airway Facilities Sector Field Office, Dallas-Fort Worth, Tex., AF Sector, from the AF Division.

■ **Donie G. Heavner**, enroute automation supervisor at the Albuquerque, N.M., ARTCC.

■ **Lee R. Holmes**, assistant manager of the Dallas Flight Service Station, from the Lubbock, Tex., FSS.

■ **Donald F. Leech**, enroute automation supervisor at the Albuquerque ARTCC.

■ **Gerald W. Lobb**, manager of the Houston, Tex., AF Sector Field Office, Houston AF Sector, from the El Paso, Tex., AF Sector.

■ **Randy L. Morton**, section supervisor in the Technical Support Staff, Electronics Engineering Branch, AF Div.

■ **Felix Saenz, Jr.**, manager of the Harlingen, Tex., Tower, from the Hobby Field Tower, Houston.

■ **Ronald L. Staley**, supervisory community planner, Programming Section, Planning & Programming Branch, Airports Division, from the Houston Airports District Office.

■ **J. T. Stubbs**, assistant manager at the Lubbock Tower, from the Lawton, Okla., Tower.

Technical Center

■ **Anees A. Adil**, manager of the Facility Engineering & Maintenance Branch, Facilities Division.

■ **Richard F. Bock**, deputy manager of the ATC Systems Technology Division.

■ **Ronald R. Polillo**, supervisor of the Management Information Systems Section, Management Services Branch, Administrative Systems Division.

■ **Joseph Rubino**, manager of the Test & Evaluation Division.

■ **Bruce M. Singer**, manager of the Aircraft & Airport Systems Technology Div.

■ **Leonard J. Turren, Jr.**, supervisor of the Software Engineering Section, Facility Engineering & Maintenance Branch, Facilities Division.

■ **Robert H. Weins**, manager of the Administrative Systems Division.

Washington Headquarters

■ **William S. Smith, Jr.**, assistant manager of the Safety Analysis Division, Office of Aviation Safety.

Western-Pacific Region

■ **June T. Anderson**, supervisor of a staffing section in the Employment Branch, Personnel Management Division, promotion made permanent.

■ **Thomas R. Anthony**, area supervisor at the Red Bluff, Calif., Flight Service Station, from the Los Angeles FSS.

■ **Richard G. Cambra, Jr.**, manager of the Data Processing Branch, Management Systems Division.

■ **William A. Denton, Jr.**, area manager at the Los Angeles ARTCC, from the headquarters Quality Assurance Division.

■ **Charles E. Enkerud**, area supervisor at the Oakland, Calif., Tower.

■ **Jimmie W. Estes**, manager of the Fresno, Calif., Airway Facilities Sector Field Office for Radar.

■ **Richard T. Harris**, area supervisor at the Salinas, Calif., FSS, from the FAA Academy.

■ **Marvin E. Holbert**, manager of the San Carlos, Calif., Tower, from the Santa Maria, Calif., Tower.

■ **Jerry A. Johnson**, area manager at the Burbank, Calif., Tower, from the Casper, Wyo., Tower.

■ **Jimmy H. Johnson**, manager of the Arcata, Calif., AF Sector Field Office, from the Red Bluff, Calif., AF Sector.

■ **James A. Johnston**, assistant manager, plans and programs, at the Sacramento, Calif., TRACON.

■ **James R. Lane**, assistant manager for technical support at the Fresno AF Sector.

■ **Richard S. Leary**, area supervisor at the Lancaster, Calif., FSS, from the San Diego, Calif., FSS.

■ **Jackie L. Lyons**, manager of the Prescott, Ariz., AF Sector Field Office, from the Phoenix, Ariz., AFSFO.

■ **Dallas R. McClemons**, assistant manager for training at the Sacramento TRACON.

■ **Gerald F. McQuilliams**, manager of the Bakersfield, Calif., AF Sector Field Office.

■ **Matij Mirko**, manager of the Fresno AF Sector Field Office for Nav/Comm/Data.

■ **Arthur E. Pearsall**, manager of the Long Beach, Calif., Flight Standards District Office, from the Flight Standards Division.

■ **Charles J. Walker**, manager of the Redding, Calif., Tower, from the Las Vegas, Nev., Tower.

■ **Ronald D. Willis**, area supervisor at the Oakland Tower.



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