



# INTERCOM

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DECEMBER 1998

## Message from the Administrator



Dear Colleagues,

I had the pleasure of reading the first issue of the Tech Center *Intercom*, and I want you to know I was impressed. As you are aware, I believe it is very important to keep management and employees informed of ongoing events and accomplishments. The Tech Center *Intercom* is a marvelous way of keeping the entire Center community informed

and involved. I particularly want to commend Anne, Bruce, Terry, and all who contributed to that first issue, for putting together such a professional and informative publication. I look forward to catching up on Tech Center events every month when *Intercom* is distributed.

As this year comes to a close, I also want thank you for your tireless dedication and service to the American people. We faced major challenges this year. Working together, we found creative ways to deal with them. And, as a result, the FAA is in the best position it has ever been to maintain the highest standards of air safety. When historians look back on the events of this year, I believe they will write about our considerable progress. Your contribution was essential to our success. It has been my pleasure to serve this agency along with every one of you.

I wish each of you and your families a very happy holiday season.

*Jane F. Garvey*

## Message From the Director

I want to echo the Administrator's thanks for a job well done this past year. We've all worked hard, but I think we've also had some fun along the way.

It's been an incredible year! We celebrated our 40<sup>th</sup> birthday, hosted numerous visiting dignitaries, sponsored technical conferences, began building construction and renovations, and, amidst all of this, we worked hard, going above and beyond to further the safety, security, and efficiency of the national airspace system. Although it will be impossible to list all of our 1998 accomplishments, I want to take the time to highlight a few of our successes and to thank publicly the entire ACT team for a job well done.

This past year, we began Personnel Reform with the institution of the Pilot Compensation and Performance Management Systems for ARA non-bargaining unit employees located at the Center, as well as participating in the Competency Assessment for ARA personnel. We continued work towards the accomplishment of the Administrator's Model Work Environment initiative through several major activities, such as sponsoring the Model Work Environment Conference in June.

The Tech Center also began a marketing effort. Using our in-house TV production facility, industrial and technical photography unit, as well as our exhibit staff, we had success communicating important technical information to an extensive customer base. In addition, the Visitor and Community Outreach Programs

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provided Technical Center guests aviation-related information in a professional and timely manner to help them better understand what it is that we do here.

In 1998, our Year 2000 (Y2K) End-to-End Test activities at the Technical Center completed several major accomplishments. The team developed and distributed the Y2K End-to-End Master Test Plan, the Y2K End-to-End System Integrity Test Guide, and the Y2K End-to-End Operational Demonstration Test Guide. As a result, the Y2K Office ensured line of business compliance with all Y2K Direction and Directives promulgated by the FAA's Y2K Program.

As the result of a \$2.5 million contract from the FAA's Terminal Integrated Product Team (IPT), the Integration and Interoperability Facility (I2F) branch is now developing a Terminal Integration and Interoperability Facility (TI2F). This facility will support Pre-Planned Product Improvement (P31) research and development activities using both the Standard Terminal Automation Replacement System (STARS) and Common ARTS systems as a baseline for the research and development activity.

The In-Service Management Team led the Display System Replacement Program (DSR) through multiple enhancements of DSR operational software during the year. This team was responsible for Technical Center testing, field familiarization, DSR training and key-site testing. The Host and Oceanic Computer System Replacement (HOCSR) team received and installed HOCSR equipment in all Technical Center Enroute and Oceanic laboratories and planned, coordinated and successfully performed Operational Test on HOCSR equipment at the Technical Center. Currently these personnel are supporting HOCSR system installation and test activities at all 20 ARTCC's.

The Traffic Flow Management Branch developed a set of generic conflict prediction accuracy metrics and conducted an assessment of the conflict prediction accuracy of the User Request Evaluation Tool (URET). The results of this study are documented in the DOT/FAA/CT-TN98/8 and were presented at the Second USA/Europe ATM-98 Research and Development Seminar, held recently in Orlando, FL. The Branch also assumed a leadership role in the Inter-Agency ATM IPT's En Route, Terminal, Surface

and Traffic Flow Management Area Work teams.

During fiscal year 1998 the Airways Facilities Tower Integration Laboratory (AFTIL) branch constructed and hosted evaluations of mock-ups for Airport Traffic Control Tower (ATCT) Cabs and Terminal Area Control (TRACON) at: Orange County ATCT; Orlando, FL, ATCT; Merrill Field, AK, ATCT; Fort Lauderdale Executive ATCT; Vero Beach, FL, ATCT; Generic Low Activity ATCT; Bradley Field ATCT and TRACON; Northern California TRACON; and Northern Georgia Consolidated TRACON.

A team of Tech Center engineers, pilots, and technicians successfully completed wide area flight tests, using our B-727 in Iceland and Chile. Both tests included reference stations installed in the host country that were interfaced to the FAA's National Satellite Master Station at the Tech Center. In addition, a team of Tech Center employees completed flight tests of the Local Area Augmentation System Test Prototype at Philadelphia, Minneapolis, Fairbanks, and Cold Bay, AK.

Engineers completed data collection of Wide Area Augmentation System Terminal Instrument Procedures for flight standards. We also completed testing of the Medium Intensity Approach Lighting System with Runway Indicator Lights (MALSR). As a result the MALSR received an in-service decision. In recognition of the importance of maintaining an interference free air/ground communications link, ACT-330 trained 24 FAA personnel in Radio Frequency Interference (RFI) investigation at the request of the Office of Spectrum Policy and Planning, bringing the total number of personnel trained to 125.

During 1998, ACT-310 performed technical evaluations of prospective vendors of monopulse secondary surveillance radar systems by conducting an Operational Capability Test (OCT) in support of the ATCBI-6 Beacon Replacement Program. As a result of Center testing, a production contract award was made on August 3, 1998, for 126 systems, 2 months ahead of the program schedule. The Integrated Terminal Weather System (ITWS) program also successfully conducted Preliminary

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### Design Review.

The Configuration Management (CM) Team established CM processes that provide real-time change management and control of the WJHTC NAS Laboratories. To foster expedient and reliable information exchange that allows for the effective management of the wide array of laboratories, the CM Team instituted a global WJHTC Facility Configuration Control Board and multiple Product Control Boards to communicate changes affecting NAS Laboratories at the Center. ACT-400 also established and commissioned a Customer Service Center and Facilities Automation Network, providing a focal point for rapid response to laboratory customer requests. In addition to other work, division personnel provided laboratory equipment configuration plans and electrical power distribution plans and installation for: ETMS expansion; HOCSR installation; TGF expansion; OASIS installation; ARTS 3A/STARS String 3 installation; VSCS SDDS installation; ATCBIR runoff installation; NASPAC relocation; AMCC relocation; RMMS GMCC relocation; and NEXCOM installation.

In 1998, ACT-500 continued to provide worldwide support for ATC improvement. For example, in January, the ATC Simulation and Support Branch performed a seven-sector real-time airspace simulation in coordination with the Air Traffic Western-Pacific Region and NATCA to streamline the easterly flow of traffic into Los Angeles International Airport. Controllers from both the Los Angeles Center and the Southern California TRACON participated in the test to evaluate a new terminal sector and modified arrival routes from the east. In May 1998, the ATC Simulation and Support Branch and the Deutsche-Flugsicherung (DFS) German Air Navigation Service completed the first international air traffic control real-time simulation at the William J. Hughes Technical Center. Controllers from Frankfurt/Main participated in the test to evaluate the advanced Precision Runway Monitor (PRM) capabilities for the monitoring of dependent parallel approaches at Frankfurt/Main International Airport. This team received the Earl F. Ward Memorial Award at the 1998 ATCA Convention for their extraordinary efforts. The Technical Center representatives on the team included: Paula Nouragas, Frank Coffman, Richard Ridgway, and Richard Dzmore.

I am proud of our accomplishments over this past year and look forward to a happy and productive 1999.

- - Anne Harlan

## Shuttle Team Receives Vice Presidential Award



Last month, during the FAA's annual Employee Recognition Day celebration the Tech Center's Aircraft Shuttle Team received Vice President Al Gore's Hammer Award for implementing "a new mode of transportation between the Technical Center and Headquarters."

Those employees recognized included: Ron Esposito, Dick Battaglia, Frank Hines, Diane Loughrin, Carolyn Mason, Deborah Germak, Diane Burgan, Kathy Herman, Michele Holmes, Andy Lee, Nellie Mattson, Michael Chappine, and Rich Weins.

The Hammer Award is presented to teams of federal employees who have made significant contributions in support of reinventing

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government principles. This prestigious award is the Vice President's answer to yesterday's government and its \$400 hammer. The award consists of a \$6.00 hammer, a ribbon, and a note from Vice President Gore, all in an aluminum frame. Six Hammer Awards have been presented this year to teams comprised of federal, state and local employees, and citizens who are working to build a better government.

Since it began operation in May 1997, the shuttle has carried 6,805 passengers safely on 822 flights. Shuttle performance records indicate an impressive 96% on-time arrival record. "The shuttle service has out performed our expectation, and we have been asked to add Monday flights to our service. This will start on January 25, 1999," said Frank Hines Operations Officer.

The shuttle seats are reserved through the ACT-600 Operations Center at the Tech Center. The current times are: Monday, Tuesday, Wednesday, and Thursday:

- 7:15 Depart Tech Center
- 8:00 Arrive Washington
- 8:30 Depart Washington
- 9:15 Arrive Tech Center
- 3:30 Depart Tech Center
- 4:15 Arrive Washington
- 4:45 Depart Washington
- 5:30 Arrive Tech Center

To fly the FAA Air Shuttle Service, call (609) 485-6482 or email ACT-600 at AC\_DCS Shuttle@admin.tc.faa.co.

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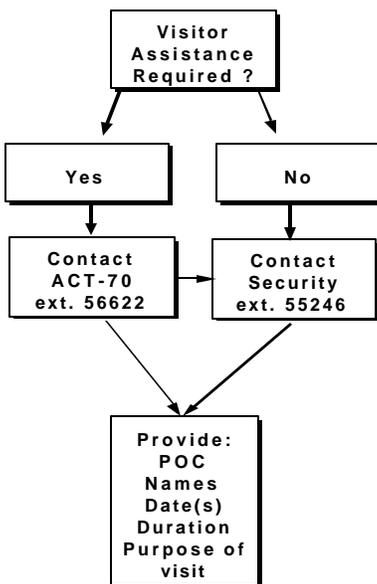
Don't forget, the FAA Shuttle begins Monday service on January 25, 1999.

## Tech Center Hospitality: Helping You Find Your Way



If you

have visitors coming to the Tech Center, the Communication Management Division (ACT-70) can help you make a lasting impression on your guests.



Give Karen Cicatiello, the Visitors Program Coordinator, a call for expert assistance at (609) 485-6622. She will help arrange tours and can provide custom information packets specific to your program, and general information about the Center's facilities, as well as information about the surrounding community, including a guide to local restaurants and hotels.

If you do not need visitor services, you still should contact Security at (609) 485-5246 to ensure quick processing when your guests arrive.

When the new Security Operations Center (SOC) opens, the Security chief, the security clerk, and the identification function (badges, decals, etc.) will relocate to the SOC. All visitors will get their visitor badges and parking passes at the SOC. If Security is not notified prior to your visitor's arrival, they will contact you before granting your guests access into the Center.

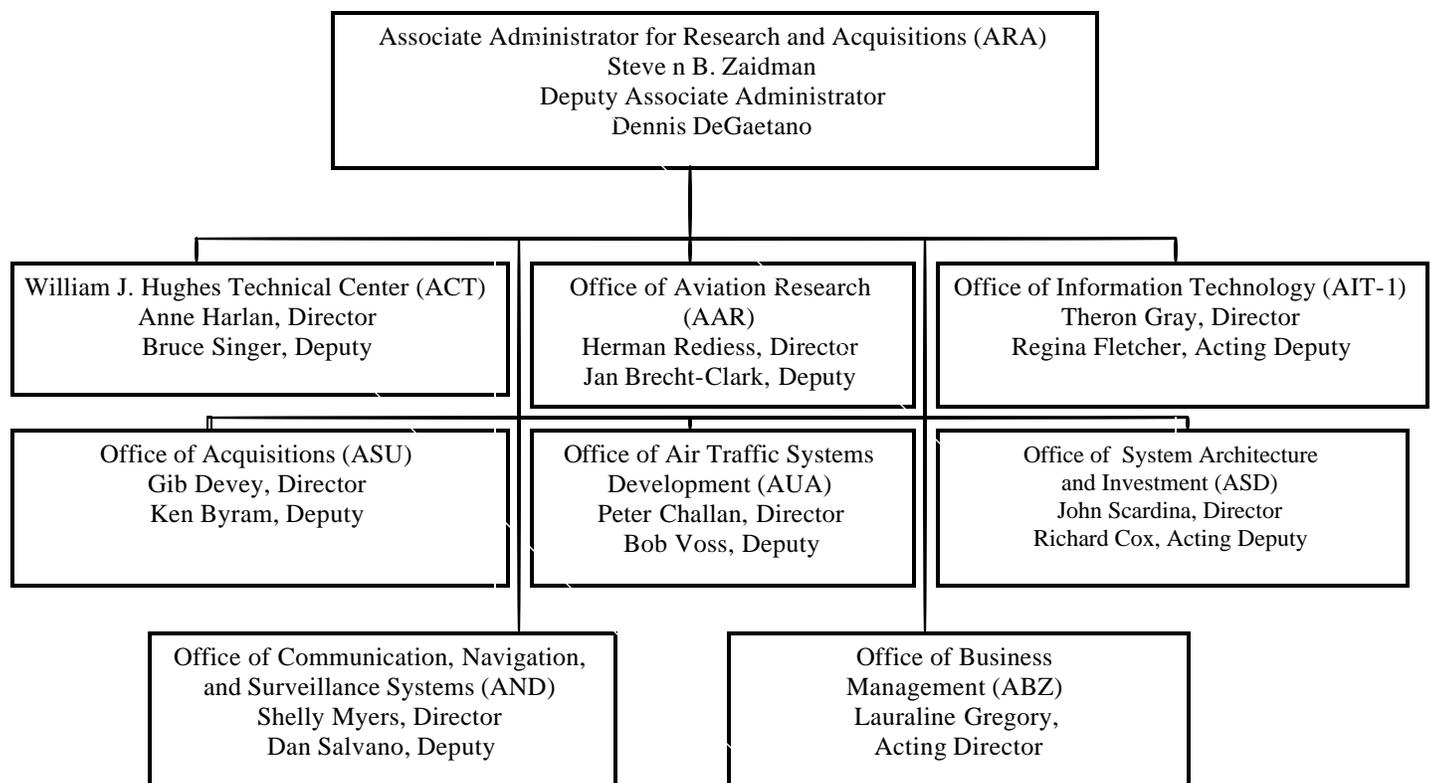
**“Let us help you ensure a memorable visit to the William J. Hughes Technical Center”**

## Getting to Know ARA

The Tech Center reports directly to the FAA's Research and Acquisitions (ARA) line of business. But what is ARA and who constitutes it?

In November 1994, the FAA established the Office of the Associate Administrator for Research and Acquisitions, creating, for the first time, a strong centralized research program that is integrated with development and acquisition programs.

Today, the ARA Associate Administrator, Steve Zaidman, oversees a 2,000-member organization responsible for research, design, development, acquisition, and implementation of the infrastructure of the National Airspace System (NAS). ARA has a budget of approximately \$1.4 billion per year. The organization includes engineers, scientists, technicians, analysts, and managers. Approximately half of them reside at the Tech Center.



ARA is responsible for designing and upgrading the infrastructure of the National Airspace System to keep pace with new technology and spiraling demands. As the agency's Acquisition Executive, the Associate Administrator assists the FAA Administrator in defining and validating requirements and plans for current and future systems, including air traffic management, airport technology, safety, capacity, and security. The office also integrates the agency's operational requirements with system development, such as systems planning for design and material control, advanced technologies and concepts, and operations research.

For the past 2 years, under its new performance management system, ARA has written a performance plan to guide corporate activities during the fiscal year. As Steve Zaidman has explained, "this plan is an important part of ARA's efforts to positively change organizational culture. The plan itself and our success

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in meeting the annual Organization Performance Targets are critical components of our organizational success. For many of us, our accomplishments in meeting the objectives of this year's plan, both corporately and individually, are tied to compensation." That plan ties together the work of the individual directorates into a set of strategic goals.

This year, the organization has outlined 11 goals, which set ARA priorities and activities for FY 1999. If you'd like to see a copy of the Fiscal Year 1999 ARA Performance Plan, you can find it on the web at: <http://www.faa.gov/ara/perform/index.html>.

### **ARA Mission**

To provide research, development, and acquisition for products and services that enable the FAA to enhance the safety and security of the National Airspace System and satisfy the operational needs of the U.S. civil aviation system for national and international operations.

### **ARA Vision**

To be a first class NAS acquisition and technology organization, universally recognized as the leader and expert in system acquisition, research, and application of aviation technologies. This is

## **Kudos to Judy McMillen**

DOT Secretary Rodney Slater and FAA Administrator Jane Garvey recently presented Judy McMillen (ACT-10) a Hammer Award in recognition of her efforts in meeting the Technical Center's Back to Work goals. Judy served as the Center's representative on the agency's "Back to Work" team. The team consisted of a representative from each region and center. However, only the team members that met or exceeded their goals received an award.

Good job Judy! Thanks for making us one of the best.



## **Technology Transfer Award Nominations**

Nominations are now being accepted for the FAA's Technology Transfer Awards. These awards are designed to recognize FAA's scientific, engineering, and technical employees responsible for inventions, innovations, or other outstanding scientific or technological achievements that contribute to the mission of the FAA or the Federal Government and individuals and organizations that promote the transfer of science and technology. Only FAA employees are eligible to be nominated and to receive awards. Nominations can be made by anyone.

Monetary awards are given in six categories:

- Intellectual Property - \$5,000
- Innovative Efforts - \$5,000
- Cooperative Research and Development Agreements - \$5,000
- Management Support of Technology Transfer – \$3,000
- Technology Transfer Assistance - \$3,000
- Awards Committee Award - \$1,000

Technology Transfer is the process by which technology or knowledge developed in one place or for one purpose is applied in another place for some other purpose. Goals of Technology Transfer are to leverage the immense Federal R&D budget, increasing the return on investment, thereby enhancing American competitiveness in world commerce.

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The purpose of the Technology Transfer Awards program is to provide an incentive to FAA personnel to participate in the Technology Transfer Program and to recognize annually outstanding achievements in technology transfer at the FAA.

The nomination period for the FAA Technology Transfer Awards program opened December 7 and will close on February 5, 1999.

Awards will be presented on April 7, 1999, at the William J. Hughes Technical Center. For a nomination package or for more information on the awards program contact Sharon Moore at (609) 485-5006 or through e-mail at [sharon.moore@faa.gov](mailto:sharon.moore@faa.gov), or visit the website at [www.tc.faa.gov/aar201/TT/TTAwards.html](http://www.tc.faa.gov/aar201/TT/TTAwards.html).

## A Tech Center Titan Retires

At the end of December Jerry Smith (AAR-500) is retiring after over 40 years of service with the FAA. His impressive government career began



with the Civil Aviation Agency in 1958. After working briefly for the CAA's Technical Development and Evaluation Center in Indianapolis, he transferred to the new Federal Aviation Agency's National Aviation Facilities Experimental Center (NAFEC) in Atlantic

City.

In 1980, after working as an electronics technician on the Air Traffic Control Simulation Program and in the Navigation Branch, working primarily with the Texas Instrument Company Prototype Small Community Microwave Landing System, Jerry joined the aviation security research and development office. There he worked as a computer specialist working with engineers and project personnel to develop and interface data collection systems and experimental explosives detection equipment.

He quickly rose through the ranks, developing a strong international reputation as an explosives expert. Because of his knowledge and skills, after the bombing of Pan Am Flight 103, Smith served as the Tech Center's Project Lead for the explosives tests conducted by the Scottish Police, UK Explosive Forensic Laboratory, FBI, and the FAA Explosive Security office from Washington Headquarters. He coordinated the delivery of LD-3 containers purchased from Pan Am, as well as suitable test baggage, to the test site. After completion of the first test series, he oversaw a second series of tests utilizing the widebody cargo hold for a more realistic scenario. With data and test results from these two series of tests, the amount and the location of the explosives charge could be approximated.

In 1991, when the FAA established the Aviation Security Research and Development Division, the division hired additional explosive handlers to support the enlarged explosives test schedule. Jerry took the lead in training the new project support personnel on the methods used in the FAA's explosives test samples preparation. He worked with them and supported the least bomb risk location test schedule that spanned over 6 years. He also became the agency's key project person that procured the aircraft airframes for the explosives testing. Under his direction, a project with Boeing design engineers facilitated the pressurization of B-707, 100-200 & 300 aircraft to simulate pressure differential similar to aircraft at

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cruise altitudes. Other agencies have since adopted this procedure.

Jerry also helped design requirements for what is now known as the Aviation Security Laboratory (ASL), dedicated in November of 1992, serving as the contracting officer technical representative for the architectural and engineering firm representing the users of the lab facility. As the Security Lab's Senior Explosives Advisor for the past 5 years, he contributed to daily requirements of technical support, including electrical, equipment operation, maintenance and actual system placement support for the laboratory.

Jerry Smith started his career with FAA's predecessor and concludes it as a highly proficient and internationally recognized technical expert in all areas of FAA aviation security research and development. The FAA will truly miss his technical competency, leadership, and work ethic.

Congratulations Jerry! Your FAA colleagues wish you the best of luck and many years of a healthy and happy retirement.

## The Wright Stuff



Celebrating the first flight, the William J. Hughes Technical Center is now exhibiting original Wright brothers' drawings and historical artifacts.

Nearly eighteen months of negotiations and planning activities culminated in the transfer of various items from the Franklin Institute collection in Philadelphia to the Technical Center.

The Senior Curator of Collections, John Alviti, gently prepared and delivered the artifacts on December 16, in time for the 95th

anniversary of the Wright brothers' first flight from North Carolina's Outer Banks. Their notes, jotted on wallpaper scraps, as well as logbooks, drawings, and pictures will be on display at the William J. Hughes Technical Center Atrium through early next year.

Working closely with the Curator on the project were Carl Genna, acting Branch Manager, Imaging Technology Branch (ACT-73); Carleen Genna-Stoltzfus, Community Outreach Program Manager, (ACT-70); and Patricia Watts, Centers of Excellence Program Manager (AAR-400). These four individuals finalized the selection of items and display plans during final negotiations at the Franklin Institute in early December.

Initial discussions with the museum began during the summer of 1997 between Ms. Watts, a native of Philadelphia, and a colleague employed by the museum. A short visit to the private climate-controlled vault revealed the documents and tools Wilbur and Orville Wright used to make flying a reality. The overwhelming excitement of this tour resulted in the idea to exhibit the hidden treasures at the FAA facility.

According to a recent article in *The Philadelphia Inquirer*, "The general public has not seen the institute's Wright Brothers' Aeronautical Engineering Collection, because the museum lacked the

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facilities to display the papers and artifacts properly. As a result, access has been limited to scholars who knew the material was in Philadelphia."

The Library of Congress holds additional memorabilia, and some items were left to institutions in Ohio, including the Wright Library in Dayton. According to Alviti, Orville Wright bequeathed the early material to the Franklin Institute because its scientists recognized the Wright brothers' accomplishments at a time when they were involved in a bitter dispute with the Smithsonian Institute.

In 1948, at the time of Orville's death, the museum learned that the Wrights had deeded to the institute their early archives and related artifacts, including model airfoils, test data and drawings. "The Franklin Institute from the very beginning had always demonstrated great concern and affection for the Wrights," Alviti said.

For those unable to make the trip in time to see the originals in New Jersey, there is also a new web site developed by the Franklin Museum in a collaborative effort with the Science Museum of London. The web site explores the science and history of flight and serves as the vehicle to broadly showcase the Wright collection. The site address is <http://www.fi.edu/flights>.

## Center of Excellence Meeting

The FAA's Airworthiness Assurance Center of Excellence (AACE) held its first annual meeting at the FAA William J. Hughes Technical Center on November 17 and 18. Bruce Singer, the Tech Center's Deputy Director (ACT-2), welcomed the participants. Chris Seher, Manager of AAR's Airport and Aircraft Safety R&D Division (AAR-400), AAACE's sponsor,



followed, kicking off the meeting.

During the 2-day meeting, AAACE researchers reported on their work in several airworthiness areas including: crashworthiness; maintenance, inspection and repair; propulsion and fuel systems safety technologies; landing gear systems performance and safety; advanced materials; validation; and technology transfer. They also provided an overview of year 1 progress and presented the Center's 5-year research plan.

The overall goals of the research plan are to ensure both the safety of U.S. civil aircraft and passenger survival in the event of an accident. It is anticipated that the Center will develop

technologies and methods that will assess the risk and prevent defects, failures, and malfunctions of aircraft, aircraft components, and aircraft systems along with improved maintenance practices and procedures. One example of research that will be conducted in fiscal year 1999 is a project to develop a better understanding of the fuel vapor dynamics and ignition characteristics as a function of flight conditions. This work is in direct response to the TWA 800 accident.

The FAA has invested \$10 million in the Center since its establishment in September 1997. The AAACE began research on 28 technical projects during FY 1998, and has started 12 additional projects already in FY 1999. Grant funds are matched dollar-for-dollar according to enabling legislation. Contract awards are also cost matched.

During the meeting, Jan Brecht-Clark, Deputy Director, Office of Aviation Research (AAR-2), presented plaques to the lead institutions, and awards to the 3 members of the DOT Office of Acquisitions and Grants, M-60, for their support during formulation of the Air Transportation Centers of Excellence program. In particular, she recognized James Hawkins for the critical role he played in enabling the FAA to submit the concept of the hybrid funding vehicle, a combination grant and sole source contract award following competition. This unique funding capability, approved through the White

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House Reinvention Laboratory, now enables the FAA's Centers of Excellence to conduct critical research, basic through applied, engineering development and rapid prototyping, more effectively and efficiently.

The Center's core institutions include Ohio State University, Iowa State University, Arizona State University, Northwestern University, University of Dayton, University of Maryland, University of California - Los Angeles, Wichita State University, and Sandia National Laboratories.

The Airworthiness Assurance Center of Excellence is a multi-institutional, multi-disciplinary partnership with expertise in research, development, education, and technology transfer as it relates to aircraft airworthiness assurance. The research scientists associated with the Center stand as ready resources, immediately available to assist the FAA in augmenting internal safety research capabilities. Through graduate educational opportunities, the FAA and the Center also create a pool of technical professionals to serve the aviation industry and the flying public of the future. The AACE partnership is positioned to be the world leader in the development and transfer to industrial use innovative technology for improved airworthiness assurance.

For additional information on the Airworthiness Assurance Center of Excellence, please contact the program manager, Patricia Watts at (609) 485-5043.

## **NEW PARTNERSHIP AGREEMENT SIGNED**

On November 20, Anne Harlan, on behalf of the Tech Center, and Gerry Berry, for the National Federation of Federal Employees, Local 1340, signed a partnership agreement. The text of the agreement is as follows:

### Partnership Agreement Memorandum of Understanding on Process For Rating and Ranking Ingrade Applicants

The William J. Hughes Technical Center and National Federation of Federal Employees, Local 1340, (NFFE), hereby agree to modify the Merit Promotion Program rating and ranking procedures for ingrade applicants. The parties agree that this change will help improve the efficiency of operations, ensure a consistent, fair rating and ranking system, and provide managers with the best qualified candidates from which to select for vacant positions.

Under current procedures, ingrade applicants are referred to selecting officials without going through the rating and ranking process. This procedure is hereby changed so that all qualified ingrade applicants for positions announced under the Merit Promotion Program will be rated and ranked in the same manner as other qualified candidates.

This Memorandum of Understanding will become effective immediately after the parties have signed the agreement and will remain in effect for a period of one year. If neither party seeks to renegotiate this agreement prior to the anniversary date, the agreement will automatically renew itself each year thereafter.

/s/ Anne Harlan

Anne Harlan, Director  
WJH Technical Center

/s/ Gerry Berry

Gerry Berry, President, National  
Federation of Federal Employees,  
Local 1340

November 20, 1998  
Date

## Staying Current with Material Advances

FAA regulations are painstakingly enacted and created in the context of the technology of the time. Naturally, as technologies improve, the FAA periodically conducts research to review the applicability of the regulations to reflect the changing times. Such is the case with AAR-422, the Fire Safety Section, as they reconsider Federal Aviation Regulation (FAR) part 25.853C, commonly referred to as the Seat Fire Blocking Layer Test for Urethane foam aircraft seats.

The applicable standard, FAR part 25.853.C, required compliance by 1987 and affected all transport category aircraft. The standard consists of a laboratory test in which a mock-up cushion is exposed to an intense 1800°F flame for a 2-minute period. There are two main criteria for acceptance of the seating material. First is the burn length across any cushion surface, which cannot exceed 17 inches on an 18-inch wide sample. Second is the percentage weight loss of the test cushion, which cannot exceed 10 percent. Many materials are capable of meeting these criteria, but other factors such as weight, expense, etc., determine which materials aircraft manufacturers use.

With advances in cabin material technology aboard aircraft, the industry is constantly finding new ways to improve comfort and reduce weight of aircraft seats. The FAA originally developed its test method for seats composed of urethane foam, still the most widely utilized seating material in aircraft worldwide. Industry, however, has recently developed several alternative materials and configurations. Because of the radical difference between the new materials and the traditional ones, the FAA is reevaluating the applicability of its test method to these new materials. A good example is the innovation of what is essentially lawn chair technology for aircraft seating. The type of web construction used in outdoor furniture has found its way into the new generation of aircraft seating materials because of its advantages with respect to weight, strength, and comfort. The web design is being introduced to work in tandem with, or instead of, urethane foam cushions. The FAA, responsive to the voice of the aircraft seat manufacturers, is conducting a series of full-scale tests to determine the flame spread characteristics and performance of several types of non-traditional seats.

Under consideration is whether this new generation of seat cushion materials will require a different acceptance criteria since, using the example of the web seating material, they would likely exceed the maximum 10 percent weight loss due to their lightness. Full-scale fire tests will determine if a material that fails the laboratory test (due to weight loss) will exhibit a similar level of performance to the traditional seating materials.

AAR-422 engineer Tim Marker has devised a test series to investigate the performance of these new materials to address the concerns of industry. Using the precisely controlled environment of the Fire Safety Section's Full Scale Test Facility, a full-scale 707 aircraft mock-up, researchers will first establish baselines for testing. Subsequent tests will evaluate new materials such as polyimide foam and fiberfill materials. Since these materials may be used in conjunction with the urethane foam, test configurations will vary. Measurements of flame spread, temperature, toxic gas levels, and smoke will be recorded during the tests to allow subsequent calculations of the material performance. Testing will continue into the fall and a report with recommendations will be issued after the conclusion of the test series.

For additional information on this test series, please contact Tim Marker (AAR-422) at (609) 485-6469.



## Headquarters Headlines

### FAA Grants First U.S. Type Certificate to Russian Aircraft.

The FAA announced on December 17 that its Small

Airplane Directorate has issued the first U.S. type certificate for a Russian type design, clearing the way for import into the United States. The type certificate was issued at a ceremony at the Ilyushin plant attended by senior Russian officials and by U. S. Ambassador James Collins. The Ilyushin IL-103, an all-metal, two-seat propeller-driven aircraft, was issued Certificate Number A45CE. It is powered by a single 210 HP Teledyne Continental Motors IO-360ES engine with a Hartzell propeller. It was certified in the Utility Category.

### FAA Completes Successful WAAS Flight Trials in the Republic of Chile.

On December 9, the FAA and the Republic of Chile's Director General of Civil Aeronautics (DGAC) successfully completed the first test flights in Chile demonstrating the capabilities and benefits of the Wide Area Augmentation System (WAAS). The test flights were conducted at the Arturo Merino Benitez International Airport in Santiago, Chile. This effort represents the latest step toward achieving a seamless, worldwide satellite-based air navigation system. WAAS consists of a network of differential Global Positioning System (GPS) ground stations that receive, analyze, and provide corrections to signals from GPS satellites, and transmit that information to aircraft flying within the WAAS coverage area.

### FAA Releases Policy On Use of Airline Safety Data.

On December 2, FAA Administrator Jane Garvey announced a new policy on gathering and using aviation safety data to prevent accidents. In a policy statement to be sent to the Federal Register, the FAA said it will not use safety data generated in a Flight Operations Quality Assurance (FOQA) Program for enforcement actions except in egregious cases. The FOQA program analyzes information automatically recorded by the on-board Digital Flight Data Recorder (DFDR) to look for safety

trends. For the past 3 years, the FAA and airlines have worked on a FOQA test to prove the concept of using de-identified DFDR data to identify safety problems. Airlines participating in the study included United, US Airways, Continental, and the Alaska Air Group. It has only been the technological advances in DFDRs of the last decade that affords the ability to gather this information quickly and efficiently. Previously, this information was used to identify clues to accidents after they had already occurred.

### FAA Issues Emergency Order To Air Cargo Industry.

On November 27, the FAA issued an emergency Airworthiness Directive (AD) ordering air cargo operators of 160 converted Boeing 727 aircraft to inspect and repair fuselage skin lap joints, or come up with an alternative means of compliance. Inspections must be performed within 60 landings; repairs must be made within 120 days or within 250 landings. The FAA determined in 1991 that the lap joints on older Boeing 727s required repairs to prevent cracking caused by corrosion and fatigue that could result in rapid decompression of the aircraft. In a Feb. 21, 1991, AD, the agency ordered repairs that included removal of a cloth located between the lap joints that was retaining moisture and causing corrosion. It also required that the "flush" rivets on the lap joints be replaced with stronger "buttonhead" rivets. Repairs were made on all passenger aircraft. However, the agency has learned that similar aircraft converted to cargo use have not complied with the AD that gave the industry up to 6 years to complete the repair work.

### FAA Certifies Second Explosives Detection System.

On November 23, the FAA announced that it had officially certified the eXaminer 3DX 6000 explosive detection system manufactured by L-3 Communications of New York. The eXaminer 3DX 6000 joins the CTX 5000 and 5500 machines manufactured by Invision Technologies of Newark, California, as FAA-certified explosives detection systems. Both company's machines are designed with computed tomography ("CAT scan")

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technology adapted from the medical field to detect a wide range of explosives, and both combine high detection rates with low false alarm rates. The eXaminer 3DX's certification furthers the FAA's goal of providing competition among providers of explosives detection systems.

**High Level Posts Filled.** On November 23, FAA Administrator Jane Garvey announced the appointment of William S. Davis as Deputy Associate Administrator for Civil Aviation Security, L. Nick Lacey as Director of the Flight Standards Service, and Elizabeth Erickson as Director, Aircraft Certification Service. Since 1997, Davis has been a transport pilot for the Federal Express Corporation. There he gained experience in air cargo operations, including the shipment of hazardous materials. Prior to his work with Fed Ex, Davis served for 26 years with the U.S. Coast Guard.

Lacey has been president of Lacey Limited Liability Co., an aviation consulting firm for airlines, government agencies, financial institutions, and defense contractors, since 1996. There he provided airline operators and others with advice on meeting federal safety regulations, improving services, and other assistance. From 1994 to 1996, he served as vice president-operations of Tower Air, Inc. From 1992 to 1994, he was program manager of the Civil Reserve Air Fleet.

Erickson has been serving as acting director of the Aircraft Certification Service, and previously served as deputy to the director for the past 5 years. She began her career with the FAA in 1984. She also has served as assistant to the Deputy Administrator from 1992 to 1993. Prior to her work at the FAA, she was a research psychologist at the U.S. Army Research Institute in Alexandria, VA.

## Tech Center Hosts Historic Flight



Mrs. Frances Forsythe at the celebration

The Technical Center's Flight Operations Center was the scene of the beginning of a historic re-enactment of the first trans-continental flight by African-Americans on November 4. A ceremony and news conference marked the occasion with the support of the US Postal Service. The widow of one of the pioneering Forsythe and Anderson flight team, Mrs. Frances Forsythe, spoke eloquently of the need to observe the achievements of these pilots who paved the way for the formation of the famous Tuskegee Airmen of WW2. Dignitaries in attendance included Dick Ruttan, pilot of the Voyager, first airplane to circle the globe without landing or refueling, and Dr. Anne Harlan, Center Director,

and herself a commercially rated pilot. Mr. Ruttan is in the process of attempting the first around the world balloon flight. Master of Ceremonies Theos McKinney, a member of the Tech Center's Flight Test Team, contributed his thoughts on the occasion as an African-American pilot. "The Black Pilots of America, an organization of ethnically diverse pilots whose purpose is to encourage broader job opportunities for blacks

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Anne Harlan and Dick Ruttan

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in all phases of aviation, is conducting this re-enactment to commemorate the pioneering accomplishments by these airmen which have forever benefited the credibility of black pilots everywhere," said McKinney.

Part of the re-enactment team's mission is the promotion of a commemorative US Postage souvenir cachet to be issued February 6, 1999. Team members signed and stamped covers for the postal cancellations, which will depict the many stops made on the pioneering flights by the Forsythe/Anderson team.

Charles Anderson was a young man who was determined to learn to fly, but the

lack of opportunity for African-Americans in aviation in the early part of this century frustrated his dream. Then, in his 20's, he

met a retired WWI German fighter pilot, Ernest Buehl, who was willing to instruct the budding aviator. Charles became one of the first blacks to earn his pilot's license.

Anderson's partner, Dr. Albert E. Forsythe, was considerably luckier. He was raised in the Bahamas, where segregation was considerably less. Upon emigrating to the U.S., he experienced the same discrimination, but on teaming with Anderson and Buehl, he earned a license to fly the airplane he owned.

Forsythe and Anderson devised a series of long distance flights in 1933 to prove blacks were as able to be aviators as anyone. The three historic flights (two originating in Atlantic City) proved the skills and bravery of these pioneers. Their exploits attracted the attention of First Lady Eleanor Roosevelt, who flew with Anderson in his twin-seat Piper Cub. Mrs. Roosevelt urged the President to establish a flight program for blacks. The result was the establishment of the "Fighting 99<sup>th</sup>" fighter wing later immortalized in the story of the Tuskegee Airmen.

The November 4 observance at the Tech Center kicked off a National Celebration of their historic achievements. Members of the Black Pilots of America chapters will re-enact the first round trip transcontinental flight. Other events include various cultural, historic and educational programs along the way. The re-enactment program is being enthusiastically sponsored by a number of national organizations as well as by the US Postal Service. For more information, contact William T. Stevens, Hackensack Postmaster, at (201) 440-7712 or by fax at (201) 440-7710.

## A Unique Partnership

On December 17, the Tech Center hosted a contest for students at Brick Township High School to select the winning Soft Ground Arrestor Test Bed model to go on permanent display in the Center's atrium. The judges were impressed with all the concepts. They picked two that they thought had the most promise. One incorporates a HO scale train track as a means for guiding the aircraft down the runway. The second uses a chain (similar to what is used to hold a badge around your neck), electric powered that rotates in a circular motion (similar to a chain for a garage door opener). A third concept that made use of a pneumatic system may be incorporated in the final design.

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The contest was the brainchild of AAR's Fred Snyder and Pete Sparacino, who wanted a working model of the Soft Ground Arresting System for display in the Center and to take to conferences and symposia as part of the FAA's Technology Transfer booth. They wanted a working model in which an aircraft advances into a soft ground material and then retracts with the soft ground returning to its original condition, allowing the display to be used time and time again.

A good idea, but the question arose of how to get the model built.

Pete remembered a former project that Jim White (AAR-410) and Keith Biehl (ACT-370) had put together with a local high school. Several years ago, White and Biehl, working to help design a soft ground arrestor bed for John F. Kennedy International Airport, challenged students and teachers at Brick Township High School to keep pace with the FAA's efforts by designing and building test tracks, model aircraft, instrumentation packages and computer software.

In 1996, Joe Tomaselli, Brick Township principal, and half a dozen enthusiastic teachers accepted the challenge. They combined the math, physics, practical arts, computer science, media, and chemistry classes into a team. The team designed and built a portable 40 foot-long track with a guide wire, light beam activated sensors, and an adjustable arrestor bed section about the size of a cafeteria tray, made with a variety of arrestor materials, such as sawdust and shaving cream, gelatin, and bristles from the custodian's broom. Aircraft blueprints were studied to build scale model aircraft equipped with twin CO2 cartridges for engines. Computer software was written to convert electrical signals into speed decay and acceleration. "The team approach seemed to tap into this boundless reservoir of teenage enthusiasm and creativity," said White.

When he needed a reusable model, Sparacino approached White and Biehl to see if they thought the high school would like to tackle this natural follow on project. Once again Principal Tomaselli came through, immediately and enthusiastically committing his students to this project. Pete, Jim, and Keith began working with the principal and



Pete Sparacino, Carleen Genna-Stoltzfus, and Laurie Zaleski meet with the teachers

group of teachers in September to set the parameters for the December 17 contest.

All involved with the contest—teachers, students, and FAAers—had a wonderful learning experience, and everyone was a winner. The student work was well thought out and pieces of each concept may be incorporated in the final design. All the students received a certificate of participation.

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## Research Symposium

The FAA/NASA Joint University Research Program (JUP) in Air Transportation Technology will be holding a symposium on January 7-8, 1999, at the National Air and Space Museum's Briefing Room.

The JUP is a long-term cooperative partnership between the FAA and NASA to pursue common research goals by promoting research and education in selected aviation technologies. The program provides an air transportation research grant annually of approximately \$100,000 each to the Massachusetts Institute of Technology (MIT), Ohio University, and Princeton University to perform scholarly research germane to the broad spectrum of national airspace system activities.

During the symposium, students and faculty from the 3 universities will provide an overview of their ongoing research. For information on the JUP and/or the symposium, contact Jim Remer at

## Fire Research Expert Comes to Tech Center

Dr. Jim Quintiere, a world renowned fire researcher, has joined the staff of the Fire Safety Section (AAR-422) during his sabbatical year from the Department of Fire Protection Engineering, University of Maryland. Dr. Quintiere has published over 75 papers related to fire research in scientific journals and is the author of a recent book *Principles of Fire Behavior*.

He began his sabbatical with a series of invited lectures at the University of California at Berkley followed by a month of collaborative research in Denmark. In recent years, he has addressed specific models for ignition, flame spread, and the burning rate of charring and non-charring materials, with application to prediction of the fire growth in rooms. He will be participating in the critical work to develop a new stringent fire test standard for thermal acoustical insulation.

## US/Israel Bilateral on Aviation Security Technologies

On December 15, 1998, the United States and Israeli Governments incorporated an appendix addressing aircraft survivability into their bilateral agreement on aviation security. The FAA has agreed to provide the Government of Israel through El Al, one of the newly certified Galaxy Scientific Blast resistant aircraft baggage containers.

The container will undergo an accelerated operational assessment program that will consist of multiple loading/unloading cycles on El Al aircraft at JFK airport. The purpose of this effort is to rapidly assess the operational effectiveness and durability of the Galaxy container design.

Upon completion of the operational test phase (January-February 1999), the unit will be blast tested by the FAA to determine whether blast resistance is maintained or compromised due to normal operational use. If the container is successful in meeting operational/blast requirements, the Government of Israel is considering purchasing several units for full time

operational use on El Al aircraft. The FAA will have access to all data collected during the test and will be responsible for conducting the blast test. The data generated as a result of this effort will be part of the FAA's continuing hardened container demonstration effort.

For additional information, please contact Nelson Carey (AAR-500) at (609) 485-5953.

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Intercom

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