FAA HORIZONS

Vol. 1, No. 11 | Published biweekly for the people of the Department of Transportation/Federal Aviation Administration | October 30, 1967

Read NAFEC Fire Fighters–Pg. 2

Dulles is Convenient–Pg.6

# Air Traffic Specialists Hear Story of Future Challenges

ATLANTIC CITY — More than a hundred flight service specialists from around the nation gathered here at the Convention City's Dennis Hotel for the biennial convention of the National Association of Air Traffic Specialists (NAATS) October 16th through 18th.

They signed in for three days of idea-sharing on problems of their profession and to hear high-level speakers from FAA, AOPA, ESSA, and the Flight Safety Foundation. Private industry participating in the convention included Cessna Aircraft, Champion Spark Plug Co., Jeppesen & Co., and Piper Aircraft Corp.

NAATS is the professional association of FSS personnel, representing their thousands of members who help make flying safe by providing pre-flight and in-flight services to general aviation pilots.

**Growth Challenges Set Theme**

The remarkable growth of aviation was the theme that linked together many of the speakers. The flight service specialists were reminded of the challenges imposed by this growth trend. In many parts of the country, the light plane pilot's main contact with FAA is through talking via telephone, radio or in person with his local FSS. The specialists provide flight advisory reports, weather information, open and close flight plans, and in general are an invaluable aid to pilots.

**Deputy Thomas Addresses Group**

David D. Thomas, Deputy Administrator, spotlighted the growth picture at the NAATS banquet.

"We now have about 2,300 carrier aircraft," he said. "Ten years from now they will total 3,500. We now have about 106,000 General Aviation planes. Ten years from now we will have 180,000."

The Deputy Administrator noted that numbers do not give the complete picture. There will be "change and growth within that growth — planes are flying faster, carry more passengers, and have a higher average utilization. These factors lead to crowds at airports, delays, and increased workload for the FSS," he said.

Thomas pointed out that the specialists have kept up with the growth by providing nearly 3,500 assists last year in critical situations.

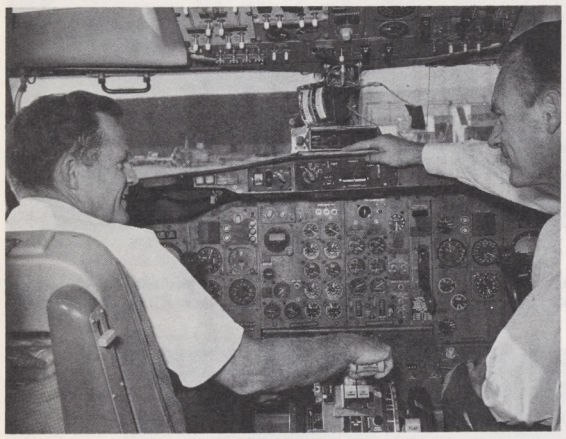
**DF Program is Helping**

Thomas reported that the agency's Direction Finders are assisting an average of 116 disoriented pilots monthly. Usually only the specialist and the pilot know about a flight assist, even though a life is being saved. FSS personnel, he declared, are a most important instrument in helping to forestall accidents.

Joseph Tippets, Associate Administrator for Personnel and Training, told the group:

"I can't think of any group of

(Continued on Pg. 8)



***737 Test***

**Dean Melton, agency test pilot (left), and Brien Wygle, Boeing assistant director of flight operations, discuss final details prior to the first formal FAA test flight of the new Boeing 737 twinjet from Boeing Field, Seattle. FAA testing will lead to certification of the jetliner for scheduled airline service later this year. Six Boeing 737s already had logged more than 660 hours of developmental flight testing in preparation for the tests, and the test fleet has completed more than 520 flights.**

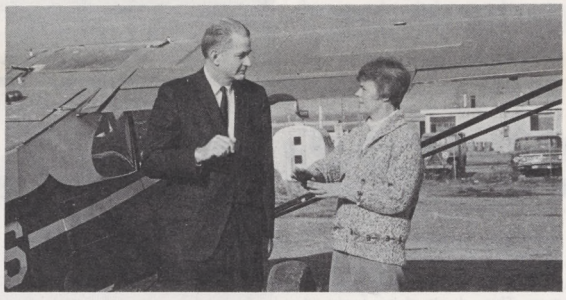
# Hubbell Named Nation's Top Flight Instructor

HOLLYWOOD, Fla. — Henry S. Hubbell, FS chief of the Alaskan Region, has been named Flight Instructor of the Year by the National Association of Flight Instructors (NAFI).

The award was presented to Hubbell at the annual AOPA Plantation Party and Industry Exhibit here on October 21.

Raymond Lanham, president, praised Hubbell for his "outstanding contribution to the profession of flight instruction in 1967."

Hubbell was a mainstay in the formation of the association. During its first year, he put in many hours and many weekends of his own time in helping NAFI develop safety programs, a code of ethics, and operating procedures for the organization. "Hubbell has served not only in the capacity of a counsel from the FAA, but as the personal example of what a professional flight instructor should be," stated Lanham.



***Number One***

**Henry S. Hubbell, FS chief of the Alaskan Region, and Mrs. Ruth O. Buck, an Anchorage flight instructor, discuss flight maneuvers. Hubbell's work with flight instructors throughout the nation was recognized by the National Assn. of Flight Instructors, who named him Instructor of the Year.**

# Minimums Are Increased In New VFR Proposal

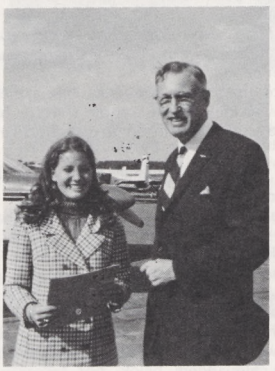
WASHINGTON — Increased weather minimums for VFR (visual flight rules) operations at 10,000 feet MSL (mean sea level) and above are being proposed by the agency in another move designed to promote the safe separation of air traffic.

The proposed rule would prohibit VFR operations at or above 10,000 feet MSL (or more than 1,200 feet above ground level, if higher) when the visibility drops below five statute miles and would require pilots to remain at least 1,000 feet vertically (over or under) and one mile horizontally from cloud formations.

These weather minimums already are in effect for VFR flights in most airspace between 14,500 and 24,000 feet. Above 24,000 feet — where area positive control (APC) is now in effect over virtually the entire nation—no VFR flying is permitted. Moreover, on November 9, 1967, FAA will lower the floor of APC to 18,000 feet over the northeastern and north central United States.

Present regulations permit VFR flights in controlled airspace below 14,500 feet MSL when the visibility is as low as three miles and pilots can remain 1,000 feet above, 500 feet below and 2,000 feet laterally from clouds. VFR flight is permitted in uncontrolled airspace below 14,500 feet if visibility is at least one mile and pilots can remain clear of clouds.

The increased minimums proposed by FAA will allow pilots operating in the airspace between 10,000 and 14,500 feet more opportunity to "see and avoid" other air traffic, which is the basis for all VFR flying. FAA believes this is needed because of the rapid increase in the number of high speed aircraft and their use in the airspace below 14,500 feet. Over the next 10 years in the general aviation (non-airline) fleet alone, the number of turbine powered aircraft is expected to increase from 1,000 to 8,000 while the number of multi-engine piston aircraft will grow to 23,000—almost double the present total. During the same time period, the air carrier jet fleet is expected to quadruple.



***Flying Teen Queen***

**Michele Patrick, 16, winner of the Miss American Teen-ager contest recently, smiles on receiving her student pilot license from Stanley Henceroth, Washington Area office manager. Michele celebrated by joining the Flying Tigers, a flying club organized by Jim Evans, local disk jockey and aviation enthusiast in Washington, D.C.**

# Two Developments Will Aid Air Traffic Control of SST

ATLANTIC CITY — Forward flight path projection and alpha-numerics, two air traffic control developments planned for use by 1970, will help expedite supersonic airplanes in air traffic, according to a study issued at the National Aviation Facilities Experimental Center.

The report concludes that flight path projection, a forward extension of the expected flight course of a radar target that is generated electronically on the controller's scope, will help controllers separate traffic and resolve potential traffic conflicts.

Identification and altitude information displayed in alpha-numerics on the radar scope, made possible by radar beacon equipment, permits controllers to expedite planes to and from final cruise altitudes, helping to eliminate altitude overshoots in fast-moving jets, the report says.

**Handling Air Traffic in 70s**

The report, number RD-67-38, was prepared by Andrew L. Sluka, an air traffic expert who managed a simulation project at the center here to determine how supersonic airplanes would be handled in air traffic of the early 1970s, and what effect these 1800-mph planes would have on the traffic system in operation at that time.

The project is part of a joint FAA-NASA Langley study program established four years ago to investigate concepts for handling supersonic aircraft in the current, 1970 and 1975 air traffic environments.

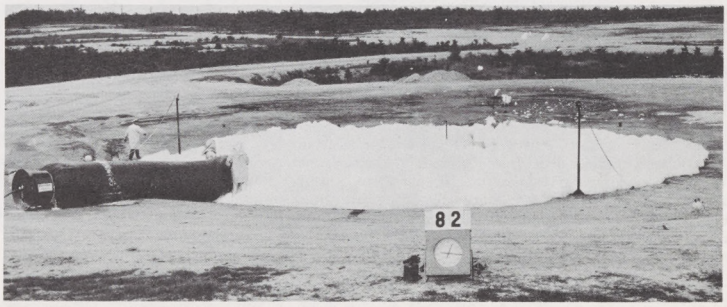
The simulation ran for seven weeks and duplicated domestic and oceanic SST operations in two separate 800-mile areas around JFK International Airport in New York City.


### Light It

**Smoke and flames leap high into the air after a pool of aviation fuel is lit on the center's fire test pad. Firemen standby for the signal to move into action. Diameters of the pool in the tests were either 40, 60 or 80 feet.**

### Powder vs. Foam

**Manning the turret on the white truck, a NAFEC fireman directs a stream of extinguishant, a white chemical powder, onto a fuel fire in a test. On his right, a fireman on another truck shoots liquid foam on the flames.**




### Sudsy Sea

**A huge water-powered fan-dispenser spins out high expansion foam to cover a large blazing pool of fuel in a short time at NAFEC. The new foam was one of several type of extinguishants tested recently at the center.**

# FIREFIGHTERS! . . . for air safety

By Frank McHugh

ATLANTIC CITY—The fire department crew at Atlantic City Airport which is owned and operated by FAA's National Aviation Facilities Experimental Center, comprises a group of modest men. They don't claim to be the best, only the most experienced.

The all-FAA crew has gained its experience fighting fires deliberately set for aircraft safety tests.

Charles J. Sawyer, chief of the crew, tells about one project which ended this summer. "Over the past year, we had 200 large fuel fires. The tests were run to determine what type of firefighting equipment airports should have. From the fires, we gained considerable experience, exploring the best methods and the different types of equipment and extinguishing materials to put out fuel fires," he said.

The recent fires were not the first the department has tackled, Sawyer pointed out. "We've had even bigger ones in the past, burning up as much as 6,000 gallons of aviation fuel in a single fire. To handle fires of that size you've got to know your stuff," he said.

**Produce Training Film**

"In fighting these fires, our crew developed techniques which have been recommended to airports around the country. Protective clothing also was tested, and communication methods and equipment were evaluated. The agency training film "Blanket for Survival" is based on what we learned and developed fighting these big test fires," he said.

For the fires, a special test pad has been prepared at the center. In the pad are hydrants which dispense the fuel at specified rates of flow. Size of fuel pools can be regulated by dirt dikes, prepared before the fuel is allowed to flow.

The department at NAFEC not only handles the airport, but also the center proper, which has some 150 structures varying from offices and shops to airplane hangars. Many are temporary wooden structures built for the Navy during World War II, when the site was a naval air station.

There are two fire stations, one on the airport and a second on the center proper. A new airport station is under construction and is expected to be ready this winter. It will house six trucks, and is designed with doors on both sides of the building to eliminate the need for trucks to back in.

The department also has what Chief Sawyer calls a "one-boat Navy." This is a small trailer-mounted 16-foot boat with an outboard motor for rescue work, since there is a small lake-reservoir on the center, and coastal waters are nearby. Two center firemen, Jack V. Florich and Benjamin S. Riccardi, are scuba divers and are prepared to handle rescue work. Both are graduates of the Navy's underwater swimmers school in Key West, Fla.

Florich also instructs skin and scuba diving in a local recreation center, while Riccardi received an agency Special Act Award three years ago for outstanding diving during an accident investigation of a military plane submerged in a nearby river.

**Men Are Active in Community**

"Our crew is a great group," Sawyer said, "George P. Nestor, one of the area's outstanding combat infantry heroes of World War II, is on the board of education in his community. Several others are active in community affairs: Thomas R. Sooy in the Boy Scouts; Albert L. Barbeto, who is doing outstanding work with the Red Cross; and Walter J. McFadden is active with his church and Sunday school, as is George F. Fleming.

"Most of the men, like Assistant Chief Fred W. Wetzel, are members of community volunteer fire departments or their auxiliary. Wetzel is chief of the fire company in his area.

"To back us up, we also have eight center employees who are auxiliaries and help us when we are called out. These men train with us weekly, and they do a good job," Sawyer added.

The experience the center fire crew has gained is shared with other fire departments in the vicinity of the center. "We've had neighboring departments come out here and use our test pad to get practice in handling big fuel fires," Sawyer said.

**26 Companies Help Each Other**

Mutual assistance plans have been signed with 26 departments in the area, agreeing to help each other in case of need. More than once, the center crew has fought brush fires side by side with local companies in the area, the chief said.

"One of the things we are most proud of here," Sawyer said, "is that in the nine years the center has been established, we've never had a major fire. In most of the alarms for which we've been called out, the fire had already been put out by extinguishers when we've arrived.

"In a place where there are so many wooden structures, and where we are continually testing with electronics, flammable materials and fuels, I think this record is outstanding," the chief added.

Credit for the center's present fire safety effort, according to Sawyer, goes to Fire Protection Inspector Frederick J. Slunt. His job is to continually inspect each building to make sure that fire hazards are removed and work is being done safely. He also sees that the right type of fire extinguishers are placed where they can be grabbed in a hurry.

In his daily inspections, Slunt checks electrical wiring and motors, the storage of flammable materials, and handling of paints and fuels. He examines pipes, boilers and heaters, and checks compressors and ventilators.

Slunt, himself, attributes the good fire safety record to the center employees. "They are aware of the importance of fire prevention, they know how to use fire extinguishers and they follow safety rules," he said.

# Southern Student Pilot Learns How to Use Radio the Hard Way

By Gerrie Cook

MACON, Ga.—During the mid-watch recently, the FSS here monitored a distress call on the 121.5 frequency. A student pilot, flying a Cessna 150, was asking for "anyone to answer." The FSS responded and learned the pilot was lost, low on fuel, and badly frightened.

The FSS directed him to steer 055 degrees for Macon.

There was no response.

Macon tower called to the pilot—still no response.

Macon approach control then called. The pilot answered this time, again stating his plight and asking if he should attempt to land on a highway or just "keep on flying until my plane runs out of fuel?"

Macon approach control quickly contacted Valdosta RAPCON, and learned they were not working the aircraft. Again, Macon re-established two-way radio contact, and the pilot repeated his predicament. This time, it was clear that the pilot was nearing a state of panic.

He advised that his right tank was empty, and he had only one-fourth of a tank on the left side. His altitude was 1300 feet, and his last known position had been Muscogee airport, Columbus, Ga., an hour and a half earlier. In the meantime, the Direction Finding net had been alerted; but, because of the pilot's low altitude, could not get a fix on him. He was asked to climb to a higher altitude to better enable a DF on him. The pilot refused, fearing he would not have enough fuel for a climb.

All airport lights at Wilson airport, Macon, were turned up to maximum, and the pilot was instructed to turn on his landing lights.

To further add to the young pilot's emotional upset, he was very distressed over fear of losing his pilot's license and getting into trouble with the authorities. He was assured that his only problem was to find the airport and land the airplane safely.

### Keep 'em Busy

During the ensuing moments, while attempting to locate the plane, Macon approach control kept up a rapid fire of instructions and questions, not only to help locate him but to keep him so busy he would have no time to worry about his predicament.

Twenty-one minutes later, a radar target was observed thirteen miles west of the Macon airport which matched the DF bearing that had then been established. With more DF steers and radar vectors, the pilot was finally able to identify the airport; and, on his second pass over the runway, landed the Cessna safely.

The pilot told air traffic personnel he was a student with only four hours solo and had never received any radio instructions. He had been released by his instructor to "leave the pattern for some solo air work" and had quickly become disoriented. Unable to determine his location, he had finally resorted to the unfamiliar radio equipment.

Working as a team, John Arthur and Russell Scanlan, Macon flight service station; and John Bowers, Billy Hartley, and Winfred King, Macon tower, were responsible for this outstanding flight assist.

FARMINGTON, N. M.—In this town of 25,000, baseball is king and the FAA is holding its own. Approximately one-third of the flight service station and tower personnel are engaged in the sport.

Sixty-eight ball teams were fielded this year in the various amateur leagues for a total participation of more than 2,000 players. Farmington tower's Gerald B. Hord has coached the Babe Ruth League's Angels to the league crown.

### Auld Aquaintances

**Raymond B. Maloy (left), assistant administrator for Europe, Africa and the Middle East, recently renewed old friendships when he met with H. J. Duffey, II, FAA representative for Africa (center) and Joseph S. Tarka, Nigeria's Federal Commissioner for Transport, to discuss development of aviation programs there. Maloy visited five other African countries on his tour.**

# Texas Leads U.S. Facilities Listing With 881 Airports

WASHINGTON—The number of civil aircraft landing facilities has topped the 10,000 mark for the first time in history, the agency has announced.

The total of 10,015 landing facilities includes 9,209 airports, 419 heliports and 307 seaplane bases.

Texas continues to lead the nation, with 881 landing facilities, followed by California, with 669; Alaska, 607; Illinois, 446; and Pennsylvania, with 443. Illinois is a newcomer to the top five, replacing Ohio, which dropped to sixth place with 384.

The record count, made as of August 1, 1967, represents an increase of 533 landing fcailities since the end of 1966, in spite of 191 airports abandoned since the first of the year. The count does not include fields devoted solely to military use, but does include those serving both civil and military air traffic in the 50 states. It also includes 17 landing facilities in Puerto Rico, three in the Virgin Islands, and five in the South Pacific.

As of the same date, scheduled airlines handling interstate, international and territorial traffic served 542 airports in the 50 states. An additional 281 airports and seaplane bases in Alaska, and eight airports in Hawaii, were served by intrastate carriers, making a total of 831 served by the certificated route air carriers.

A total of 6,846 landing facilities are open to the general public and 3,169 are restricted to emergency or private use. One or more lighted runways are provided at 3,102 airports, and paved runways at 3,003.

### Open Again?

**Cutting the ribbon to mark the opening of the Charleston GADO are Paul French (left), facility chief, and Clifford L. Weaver, Washington Area flight standards branch chief. GADO secretary Katheryne Hoffman and principal maintenance inspector James Wilhelm wait patiently to get in the door.**

# West Virginia GADO Holds Third Opening

CHARLESTON, W. Va.—Opened and closed twice in the past three decades, the general aviation district office here was opened again recently with appropriate ceremonies.

The rebirth of the GADO reflects the rapid growth of general aviation in the Mountaineer State, and the resultant need for expanded services to the flying public.

The Charleston office serves a major slice of West Virginia and 15 of the southwestern counties of Virginia. All services normally provided by such a facility are available at the office, reports Paul S. French, supervising inspector. This, he said, includes written examinations, flight tests and aircraft inspections.

Some 30 state and local officials attended the GADO inaugural ceremonies, among them a representative of West Virginia Governor Hewlet Smith.

# Midnight Search Finds Lost Boat in Frisco Bay

By Frank King

OAKLAND, Calif.—Louis Martin, tower controller here, didn't go right home from work after an evening watch recently. Instead, he jumped into an airplane and flew out in the inky night above San Francisco Bay to look for a missing boat.

The TRACON crew had heard the Coast Guard was looking for a missing pleasure boat, near Oakland. Ronald Coburn, acting watch supervisor, explained, "We heard a Coast Guard cutter transmitting on the emergency channel and telling of the situation. We immediately offered all the help we could."

There were several light aircraft already in the air late that evening looking for the boat. A couple of airliners also were alerted, but they had not spotted the missing craft.

When 11 p.m. arrived and his watch ended, Lou Martin rushed to the area where the Oakland Tower Flying Club, to which he belongs, keeps its plane. The club has a Cessna 172, and there are 17 active members in the organization—all but Lou were safely tucked in bed at home.

Oakland tower controller Eugene Klein also felt the call of duty and went along with Lou. In 15 minutes they were airborne.

"We thought we knew the approximate position of the lost 30-foot cruiser," Coburn continued. "Lou concentrated his search in the vicinity of the Oakland marina."

At 11:45 p.m.—30 minutes after taking off—Martin and Klein spotted the disabled cruiser. The people on board were flashing lights. Lou Martin told the tower he had the boat in sight; the TRACON crew then "grease-penciled" the position of the boat on their radar scopes. The TRACON was then able to direct a Coast Guard cutter to the scene.

The cutter determined that all was well on board the disabled boat. But the four occupants elected to wait until daylight to be towed in, assured that rescue was just a matter of time.

None of the actions that Lou Martin took after he got off work can be found in his job description. It could come under fringe benefits to the Government and service to the public.

FAA HORIZONS

FAA HORIZONS, the official employee publication of the U.S. Department of Transportation, Federal Aviation Administration, is published biweekly by the Employee Information Division, Office of Information Services, FAA, 800 Independence Ave., Washington, D.C. 20590. Telephone: WO 2-5575. Articles of general interest to employees should be submitted directly to Regional FAA Public Affairs Officers: George Fay, Alaskan Region; Robert Fulton, Eastern Region; Jack Barker, Southern Region; Joseph Frets, Central Region; K. K. Jones, Southwest Region; Eugene Kropf, Western Region; George Miyachi, Pacific Region; Edwin Shoop Jr., NAFEC, and Mark Weaver, Aeronautical Center.

| | |
|---|---|
| Administrator | WILLIAM F. McKEE |
| Deputy Administrator | DAVID D. THOMAS |
| Director, Office of Information Services | CHARLES G. WARNICK |
| Chief, Employee Information Division | W. BRUCE CHAMBERS |
| Associate Editor | THOM HOOK |
| Art Director | GARY D. SMITH |

**49ers**

**Scenic Park grade school students were given a tour of "Alaska Unlimited" DOT exhibit by scenic Debbie Lord (center), a clerk typist in the Personnel and Training Division. Third Grade teacher Mrs. Charles Vandergaw (left), and pupils look on.**

# FAA's Six-Car Train Exhibit Tells DOT Story of Transportation's Key Role

ANCHORAGE — "Transportation: The key that opened up the 'Great Land'," was the theme of the agency's recent exhibit on "Alaska Unlimited," a six-car railroad train which toured the 49th state this summer.

Sponsored by the Greater Anchorage Centennial Commission and the Jaycees, the "Alaska Unlimited" exhibits advertised the natural resources of the state, and were provided by federal, state and commercial agencies involved in development of these resources.

The transportation exhibit which occupied one car was prepared under the direction of Dean Brennan, graphics section chief in administrative services here. Brennan had gathered materials from the Alaska Railroad, the Bureau of Public Roads, the U.S. Coast Guard, the National Transportation Safety Board and the FAA. He then integrated them into a single exhibit, which explained how the various modes of transportation complemented each other in helping to push back America's last frontier.

It was "standing room only" during the numerous stops that the Centennial train made at cities, towns and military bases along the right-of-way. Centennial year visitors from outside considered "Alaska Unlimited" an added bonanza on their visit to America's northernmost vacation land.

FAAers along the route of travel kept an eye on the DOT exhibit and assured that it was always in first class shape. While in Anchorage, some served as tour guides and explained its transportation message.

Everyone who saw the exhibit came away with a greater appreciation of the exhibit's simple message that, had it not been for air, sea, and land transportation, much of Alaska's countless riches would still be locked in the silent vastness of its mountains, valleys, forests, and waterways.

**Hoisting a Glide Path**

**Robert Warren, then chief of Atlanta FIDO, recently found a way to measure the exact glide path by theodolite from an Atlanta airport runway for Category II operations. He considered lifting the dipole and cable by balloon, but it was too windy. Then a 90-foot boom (on truck in background) was used to raise the dipole and cable, so that alignment could be made with the runway centerline. Warren now works in the Southern Region Flight Standards division.**

# FAA and Weather Bureau Will Study Airport Fog

WASHINGTON — The vertical structure of fog will be studied starting early in 1968 for the FAA by a special test group of the Weather Bureau at NAFEC near Atlantic City, N.J.

A 160-foot tower at the FAA center is being equipped with sensors to measure vertical profiles of weather elements—such as wind, temperature and dew points—according to Matthew Lefkowitz, chief of the bureau's observations and methods branch.

Transmissometers also will be used for detail measurement of fog.

Speaking recently before the Radio Technical Commission for Aeronautics meeting here, Lefkowitz covered joint FAA-Weather Bureau efforts conducted at Atlantic City toward upgrading terminal weather observations.

Some studies will relate vertical and slant variations of visibility to those obtained horizontally at ground level, the meteorologist told the meeting.

Later plans call for sensors on the tower to measure vertical and horizontal components of wind and also fog droplet distribution.

Also under study are optimum airfield locations of weather sensors including ceilometers.

A better understanding of weather observations cycle times and variability of weather parameters will come from data obtained from a mesometeorological network of 14 automatic weather observations stations surrounding the FAA center, Lefkowitz told the meeting. The mesonet provides high density data on which to base studies of space scales and lifetimes of weather features, and also permits time and space variability of cloud-base heights to be analyzed.

SALT LAKE CITY—When a pilotless aircraft lands on a hangar, brother—that's news.

And that's only one of the things that happened during a rip-snorter of a storm that whipped across the Salt Lake City area recently. Controllers at Municipal Airport had a "front row seat."

Winds at one time gusted at 68 knots. A light plane was ripped from moorings, hurled aloft, coming to rest upside down on the roof of a hangar.

# NAFEC Tests Foam To Slow Plane Fires

**By Frank McHugh**

ATLANTIC CITY — Airplane fuel tanks are being stuffed with plastic foam pieces resembling huge rubber sponges as part of FAA safety tests to see if airplanes can be made safer in crash landings.

Purpose of the plastic foam is to slow down fuel spillage from airplane tanks broken open in an accident.

In progress for the past year at the National Aviation Facilities Experimental Center, the tests were not announced until use of the material was declassified in mid-September by the USAF. The Air Force is using the foam material to prevent explosions and fires in combat airplanes whose fuel tanks are hit by bullets.

The foam is a special polyurethane plastic material which, unlike a sponge, does not absorb the fuel but permits it to flow freely.

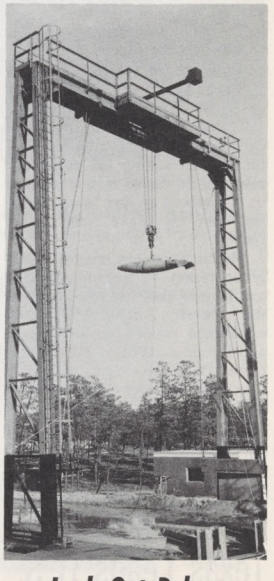
Three types of tests have been run at the FAA center, each designed to emphasize a different situation experienced by a fuel tank in an accident.

In the first test, gallon plastic bags of fuel, both with and without the plastic foam, were shot by compressed air through wire grid screens to make the fuel spray. Effects of the foam material were measured.

In the second test, surplus F-86 droppable fuel tanks with and without the foam were dropped from a height of 35 feet onto a concrete pad to note size of splash patterns and effect of the foam.

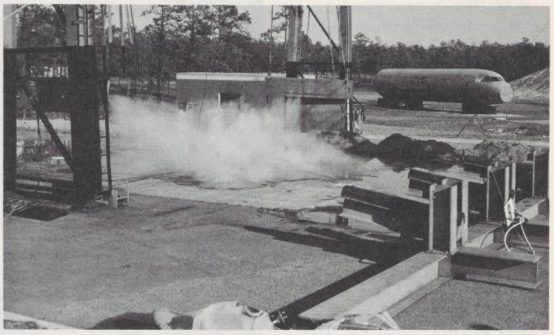
In the third test, the tanks were catapulted at speeds of 100 mph into flames to determine impact effect and flammability.

Additional testing of the material will continue here, according to project manager Robert H. Ahlers.



**Look Out Below**

**A surplus auxiliary tank stuffed with a plastic foam and filled with jet fuel is hoisted on the drop-test facility at NAFEC.**



**Splat!**

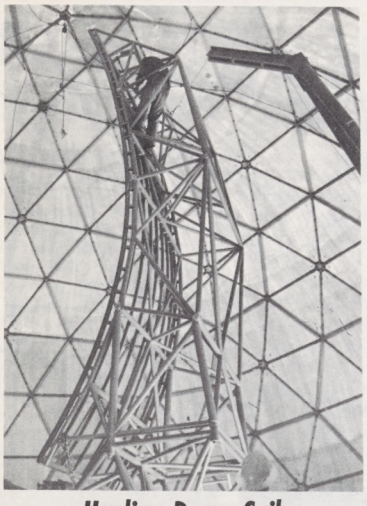
**Dropped from a height of 35 feet, the tank splashes on the pavement, which has grid markings on it to record extent of splash pattern. Comparisons between tanks with and without the plastic foam then are made.**

**Tank Check**

**John Sommers, chief of the structures section at NAFEC, examines the tank, split open from the drop. Pieces of the polyurethane foam, which resembles rubber sponges, can be seen.**

Squeak, Squeak, Squeak Went the Bearings

# They Keep 'em Going



## Hauling Down Sail

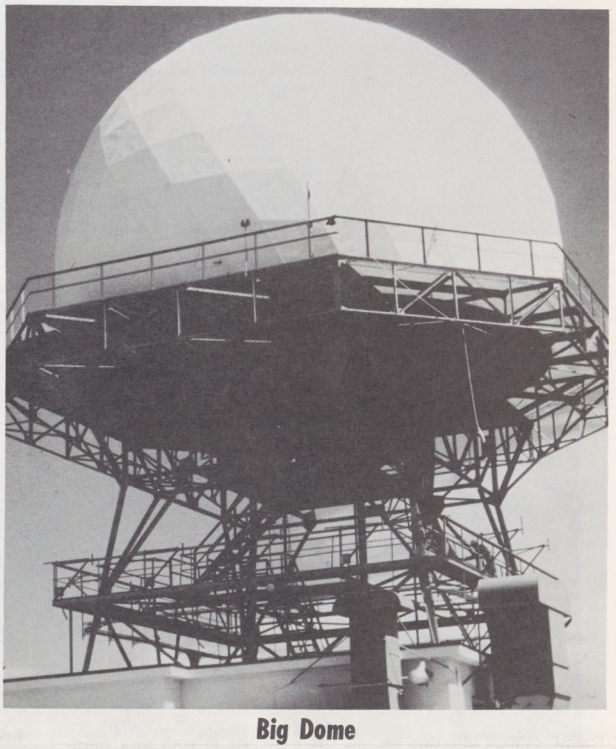
**An FAA Depot crew man adjusts the hoist cable (at right) to take down the antenna center section prior to overhauling the ARSR pedestal. Seven sections to the radar antenna sail have to be taken down to clear the pedestal for overhauling.**

## Main Drive Gear

**When the FAA Depot crew opened the ARSR pedestal to give the base of the radar antenna the lubrication it needed after nine years of continuous operation, many pounds of dry grease filled the king post. All had to be removed before new seals and fresh grease could be replaced.**

## Lowering Feeder Horn

**The delicate feed horn assembly has to be lowered carefully so repairmen can reach the worn pedestal bearings. When operating, the feed horn directs electronic impulses over the sail, which are reflected on any aircraft in front of it. After "hitting" the aircraft, they return to the feed horn and are converted into blips on the controller's scope.**



## Big Dome

**This large 50-foot diameter plastic air route surveillance radar dome stands atop Francis Peak near Salt Lake City, Utah. After nine years service, its antenna pedestal was recently overhauled in four days. The site is at 9,558 feet elevation and the radar has a range of two hundred miles.**

**By Thom Hook**

SALT LAKE CITY—Perched atop Francis Peak, almost two miles high, the large air route surveillance radar (ARSR-1) near here was tapped recently for overhaul by an FAA Depot crew, coordinated by Systems Maintenance Service in Washington.

It is one of 50 FAA radars to get a periodic going over. The remaining 34 units in the system are owned and maintained by the military services.

Anyone who has experienced the heavy snows of Utah's mountains can appreciate the problems facing the radar people at Francis. A bulldozer is in constant use, from November through April, pushing back the relentless snows to keep the road open. Men remain snowbound a week at a time, and when the snow reaches over the rooftop, air is piped in through elevated ventilation hoods.

Pleasant weather is the best time to tackle this type of remote site overhaul. Even then, it must be done quickly, with a minimum of shut-down time from its vital task of keeping an eye on IFR traffic within a 200-mile radius of Salt Lake City.

That's why during recent good weather, a tractor truck hauling an equipment van for a five-man FAA Depot crew huffed its way up the winding road to the radar site at 9,588 feet elevation.

The tractor's air lines and air compressor had been repaired before departing Oklahoma City 1,247 miles away on this assignment. But they were severely taxed. For safety's sake, the crew vowed they'd put new flexible air lines and rubber air disc replacements in the brake system, before they would venture down the mountain after the job was completed.

But they made it. And Charles Gage, a mechanical engineer in charge of the project of overhauling many ARSRs out of Oklahoma City, breathed a sigh of relief. He set his overhaul crew to work immediately alongside three more men per shift supplied by the site.

Under the radar's 50 foot diameter plastic geodesic dome, machinists Marcelles C. (M. C.) Capps, George Gideon and Leroy Lawson and equipment specialist Wayne Ledinski guided the site people in taking down the awkward-sized radar "sail" sections.

This ARSR's "sail" revolves at six rpm to sweep the surrounding countryside for 200 miles. The Salt Lake City Air Route Traffic Control Center (ARTC) receives and uses the information to direct all IFR traffic in its area.

To revolve six times a minute—once every ten seconds—isn't breaking any speed records. Perhaps it shouldn't be too demanding on the giant bearings, pinion, bull gear, and flexible couplings between motor and gear box that make the antenna revolve smoothly.

But nine years of continuous operation add up to 28,382,400 revolutions!

And that's why Charles Gage and his crew will be visiting half-a-hundred long-range radar sites with tools, plenty of grease, oil and know-how as time goes by.

### Overhauling is Important and Complex

"Overhauling an ARSR is a project sometimes passed over lightly, as just another activity," says Arthur R. Ashley, radar branch head in maintenance engineering at FAA headquarters, Washington.

"When the radar is taken down to get at the inner workings of its pedestal with much-needed lubrication," explains Mr. Ashley, "the reassembly that follows must be flawless. When putting the radar 'sail' up again, great care must be taken to ensure no change in its contour."

He explained further that if the reflector portion is "out of true" by even a quarter of an inch, the radiation pattern can be seriously affected.

The check on the completed job must be flight verified and approved, he added, before the facility can be returned to service for controlling air traffic.

### Disassembly Takes Ingenuity

Once on location the FAA Depot crew is joined by the additional men supplied by the site for each shift. The radar is shut down Friday midnight and the men are split into two twelve-hour shifts. One team works from midnight to noon, and is relieved by the other from noon to midnight. They keep at it until the job is done.

E. L. (Bert) Reynolds, of the electro-mechanical branch in maintenance engineering at Washington headquarters, who witnessed the Salt Lake City ARSR overhaul, described some highlights of such an around-the-clock heavy-duty tear-down, grease-up and reassemble job:

"One of the first jobs the crew performs is to lift an electric hoist to the work platform," Reynolds explained. This is done with a snatch block and rope falls attached to the radar's feed horn frame. The electric hoist enables the crew to lift 'A' frame sections and other heavy equipment needed for the overhaul.

"Attaching the snatch block to a hook eye in the geodesic dome is a touchy job in overhauling," Reynolds points out. "The crewman has to stand unsupported on top of the radar beacon antenna and reach up as far as he can to hook the block in the eye.

"The 'A' frame and hoist are needed to lower the main radar antenna parts. The three center sections are lowered gingerly to the ground to provide working space within the dome.

"To hoist the main bull gear off the king post in the pedestal, a demountable gantry-type crane, developed by the FAA Depot people, is used," Reynolds continues. "The crane rolls on a track and has a couple of two-ton chain falls, which easily lift the heaviest weights."

### Ten Pounds of Dried Grease

In the Salt Lake City overhaul, when the crew got into the pedestal they found both the upper and lower bearing seals had ruptured. Grease had escaped both up and down the king post, and about ten pounds of dried grease was removed from inside the king post assembly. Oil from the gear box had leaked and spread inside the pedestal enclosure.

"Despite nine years of service for the radar pedestal, the bearings, pinion and bull gear showed very little wear," Reynolds said. "The flexible coupling between motor and gear box was worn and was replaced, and a rebuilt motor and gear box were installed."

Reassembly of the main radar reflector and beacon antenna required less than two hours. The entire overhaul required only four days of shut-down, of which a half-day was used for testing.

Charles Gage's quintet of FAA Depot radar overhaul specialists, aided by helpers supplied by the sites, will continue to take care of the agency's ARSRs on a scheduled and on an emergency basis as needed.

This year about a dozen radars in the ARSR network will feel the tender, loving care of this quick-to-respond maintenance team.

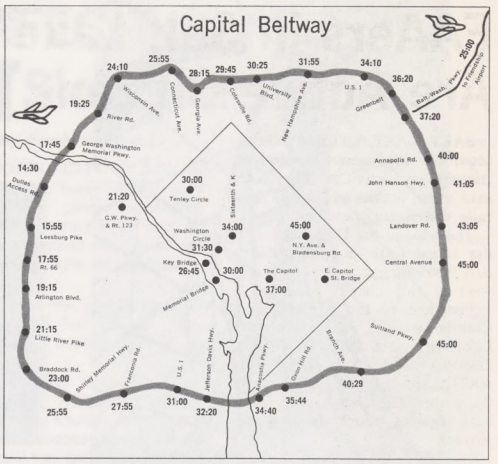
# Downtown to Dulles: 37 Min.!

*By Edward Aikman*

**ED. NOTE: As FAA resident engineer at Dulles during construction, and now head of engineering at Washington National, author Aikman has, since 1958, driven there more times, over more routes than perhaps anyone. Through captions in his own words, and by stopwatch, he proves once and for all the convenience of Dulles International.**

*Photography by James C. Beauchamp*

"Maybe you believe that 'Far-Out Dulles' bit. I beg you, try me. Climb in that jalopy. Time your trip to Dulles."



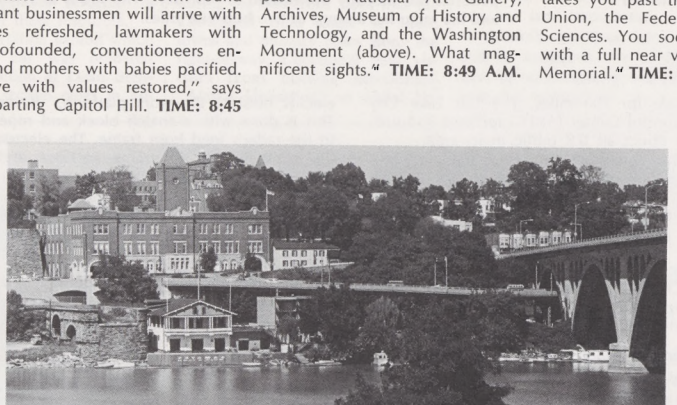

"This map, reprinted from the WASHINGTONIAN magazine (copyright Washington Magazine Inc., 1967) is from a stopwatch study I made. It shows the Capitol Beltway and times required to make the beautiful trip to Dulles . . . or from Dulles to town."

"Not one Washington-bound, air traveling soul should miss the Dulles-to-town round trip. Observant businessmen will arrive with sales pitches refreshed, lawmakers with thoughts profounded, conventioneers enlightened, and mothers with babies pacified. Visitors leave with values restored," says Aikman, departing Capitol Hill. **TIME: 8:45 A.M.**

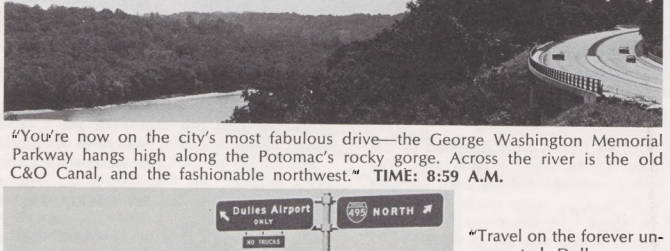
"From the Capitol, you proceed past the National Art Gallery, Archives, Museum of History and Technology, and the Washington Monument (above). What magnificent sights." **TIME: 8:49 A.M.**

"Continuing down Constitution Ave., your scenic trip to Dulles takes you past the Elipse, the White House, Pan American Union, the Federal Reserve (above) and the Academy of Sciences. You soon cross the new Roosevelt Island Bridge, with a full near view of stately Memorial Bridge and Lincoln Memorial." **TIME: 8:51 A.M.**

"Within a stone's throw as you cross the Potomac River and prepare to leave the city is the Iwo Jima Monument, Arlington National Cemetery, and the grave of the late President John F. Kennedy." **TIME: 8:54 A.M.**



"Up you sweep under classic Key Bridge; across the river is cosmopolitan Georgetown, the historic Potomac Boat Club and the remnants of a bridge of Civil War days. This is your view from the parkway's start." **TIME: 8:56 A.M.**



"You're now on the city's most fabulous drive—the George Washington Memorial Parkway hangs high along the Potomac's rocky gorge. Across the river is the old C&O Canal, and the fashionable northwest." **TIME: 8:59 A.M.**


"Travel on the forever uncongested Dulles access road from the Beltway exit to the terminal takes 14 minutes across lovely, rolling northern Virginia hunt country." **TIME: 9:07 A.M.**

"The beauty of the Dulles terminal complex is that, once there, you have truly arrived. It's only a few seconds and steps to ticket counters, departure and arrival gates. Other airports present difficult parking problems, or require that travelers be championship baggage lifters and marathon walkers." **TIME: 9:22 A.M. A beautiful 37 minutes!**

# FAAers in Salt Lake Are Active Citizens

SALT LAKE CITY — Off-duty activities of agency employees cover many activities. They even man game booths at state fairs to raise money for the community.

This year at the Utah State Fair, the Lions Club here operated a dart throwing game whose proceeds went to club charity programs.

President of the Airport Lions Club is David E. Jones, chief, Salt Lake City Area ATC. William J. Decker, chief, Salt Lake City ARTCC is 3rd vice president of the group. The club has 22 members, eight of whom are FAA employees.

A local aircraft distributor and a fixed base operator donated 160 airplane rides as prizes. Donated items of valuable camping equipment were given away as secondary prizes.

"We came out extremely well," Jones said. "We won first prize for our outdoor display."

Near the booth, the club had a new airplane and display that advertised airplane rides.

Lions volunteer workers cleared over $1,000 that will go to community service work.

**Confabers**

**Looking over border-crossing regulations at their meeting in El Centro, Calif. recently were (left to right): Earl C. Myers, technical adviser, USAF; J. Eldon Taylor, president of the Imperial Valley Federal Executive Association; Alonzo Stanford, U. S. Embassy, Mexico City; Eduardo Perez, Mexican consul, Calexico, Calif.; Arthur Feldman, American consulate, Mexicali, B.C.; and Raymond E. Tucker, chief, Imperial FSS.**

# FSS Chief Has Key Role In Mexico-U. S. Meeting

By Frank King

EL CENTRO, Calif. — Ray Tucker, chief of the FSS at Imperial, Calif., had a key role recently in setting up a hands-across-the-border meeting of U.S. and Mexican federal officials.

As vice-president of the Imperial Valley Federal Executive Association, Tucker helped plan the international conference held here recently.

At the get-together, members of the Imperial Valley FEA conferred with Mexican officials from the nearby Mexicali area.

"We planned the meeting so both U.S. and Mexican officials would be given a better understanding of each other's jobs," Tucker said. "Each individual at the meeting had an opportunity to outline the scope of his work and responsibilities."

Twenty-five U.S. executives and nineteen Mexican officials attended the meeting.

Arthur Feldman, U.S. Consul at Mexicali, was master of ceremonies. Eduardo Perez Camara, Mexican Consul at El Centro, coordinated Mexican participation. Guest for the meet was Alonzo Stanford, from the American Embassy in Mexico City.

More than half of the U.S. executives delivered a description of their duties in both English and Spanish. Feldman interpreted for those unable to speak Spanish. He also interpreted from Spanish to English for most of the Mexican executives.

"Most of the time was spent in telling about the duties and services our offices perform," Tucker said. "We got involved in discussions of regulations on individuals crossing the international border, both ways. We also talked about transferring property across the border."

Milton C. Wood, chief, airway facilities at Imperial, is also a member of the Imperial FEA. He reports that three Mexican airport officials from Mexicali Airport made a trip over to tour the El Centro airport and facilities as a direct result of the recent meeting.

The meeting will probably result in more such activities. Mexican executives are now planning to reciprocate and hold a similar meet soon with their U.S. counterparts. The meeting probably will be in Mexicali.


**Kiddie Ride**

**An airplane ride in a Northeast Airlines "Yellow Bird" has these underprivileged kids from Boston all agog as they board the plane at Logan Airport. Eastern Region's Boston Area office arranged the sight-seeing ride with Northeast as part of its community relations program.**

# Governor Gives Little Rock Man Arkansas Honor

LITTLE ROCK, Ark.—Louis W. Stepter, tower chief here who will assume the duties as chief of the El Paso TRACON/Tower, was recently commissioned an "Arkansas Traveler" by Governor Winthrop Rockefeller. The honor is the highest that can be conferred on a non-native of the state.

Stepter, born in Texas and assigned to the Little Rock facility since 1948, was presented the certificate in his office by Marion B. Burton, the Governor's executive secretary.

The citation authorizes and commissions Stepter to serve as an "Ambassador of Good Will from Arkansas to the people of other states, the people of nations beyond the borders of the U.S., or wherever this Ambassador of Arkansas may hereafter travel or reside."

At the brief ceremony, Director James Woodard of the Arkansas Department of Aeronautics presented Stepter with a letter of commendation for his work in assisting his department here.

**Queen of Pageants**

**Mrs. Charles L. Welcho, wife of the chief of the Boeing Field tower in Seattle, holds the community service award in Kent, Wash., she won for direction of the 1967 "Miss Kent" Pageant, the seventh pageant she has supervised.**

# Time-Frequency Collision Avoidance Idea Studied

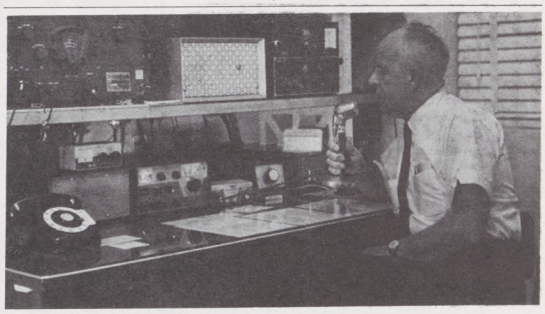
ST. PAUL, Minn.—A study to find out how electronic airborne collision avoidance equipment will be integrated with the air traffic control system is under way, air traffic controllers from all over the country were told here recently. The study is being made at the National Aviation Facilities Experimental Center, near Atlantic City, N. J.

Speaking at the annual convention of the Air Traffic Control Association, Lyle G. Alverson, assistant chief of ATC systems at NAFEC, said that studies were begun in June at Atlantic City to determine how the introduction of an avoidance system using the time-frequency technique will affect air traffic.

Among the problems investigated, he told the meeting, will be to learn how often collision alarms will be experienced, and how the response of pilots to these alarms will affect air traffic control.

Alverson said the data recording capability of the ARTS system at the Atlanta tower will be used through November to collect information for the project. Later, typical traffic situations will be recreated on radar displays in the air traffic simulation lab at NAFEC, he said.

Gordon D. Jolitz is in charge of the simulation part of the project at NAFEC, while Floyd F. Jones supervises the collison avoidance portion.



**Ham Is Promoted**

**Lawrence S. Fulston, an electronics technician and "Unit A" Leader of airway facilities sector 38280 in Jacksonville, spends his leisure time communicating over his amateur radio station, WA4RON. He also works voluntarily for the Army and was recently named director of the North Florida District of MARS—the Military Affiliate Radio System, and given the Army call letters, AD4RON.**

# Washingtonian Wins His B.S. Degree after 14 Years Work

WASHINGTON — John Pyle, communication specialist in the Systems Research and Development Service has proven that tenacity pays off.

When Pyle retired from the U.S. Navy in the fall of 1953, he immediately registered at George Washington University, with the long-range goal of building on his already substantial technical background and obtaining an engineering degree.

Taking from three to 12 credits a year, John plugged away at the required courses, juggling his personal life to make way for the courses. Study was such a routine that his two boys were amazed to learn that not every father goes to night school. This month, after 14 years, Pyle received a letter from the university registrar, certifying his 130 credits and advising that he will receive his B.S. in electrical engineering at the next February convocation.

Pyle is now trying to decide on graduate school courses.

# Direct Line!

**This is your direct line to the top! Your questions will get answers! Of course, employees are encouraged to discuss questions or problems with their supervisors or their local personnel office, but for those FAAers who do not have ready access to a personnel office, this column will give them an opportunity to have their questions answered. Write today to Joseph H. Tippets, PT-1, Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, D.C. 20590. General Ground Rules: • All questions must be signed by the employees. • This column should not be used in place of the formal grievance and appeals procedures. • The questions should concern personnel or training policies, programs, and procedures and not be operational or technical in nature.**

*My question has three parts: (1) Is it possible to retire at the age of 50 with 25 years of service? (2) If so, what and how do you compute reduced annuity? (3) Is it possible to retire at the age of 55 with less than 25 years of service?*

**The answer to the first part of the question is: Yes, it is possible to retire at age 50 with 25 years of service—but not voluntarily. The law says that an employee at age 50 with as few as 20 years of service can retire if he is involuntarily separated from the Federal service for reasons other than misconduct, deliquency, or inefficiency. And, it is also possible to retire at any age with five years or more service if you become disabled for the job you hold.**

**The answer to the second part of your question is that the basic annuity for all kinds of retirement are computed the same way. Here's how you figure it out:**

- **(a) Take: 1-½% of the "high-5 years" average salary and multiply the result by 5 years of service;**
- **(b) Add: 1-¾% of the "high-5 years" average salary multipled by years of service between 5 and 10;**
- **(c) Add: 2% of the "high-5 years" average salary multiplied by all service over 10 years. The total is your basic annuity.**

**But remember, if you should retire before age 55, except for total disability, your basic annuity would be reduced by 1/6 of 1% for each full month (2% a year) you are below age 55.**

**The answer to the third part of your question is: Yes, it is possible to retire under these conditions but only if you are involuntarily separated or become totally disabled, as explained above. For further information see PT P 3800.5, Chapter 5. It may also be a good idea to keep a copy of the Civil Service Commission's pamphlet on the Retirement System dated November 1966 with your personal papers.**

*Why can't the agency set up a seniority system to determine preference for days off, work schedules, annual leave, etc.?*

**The agency has often considered what it might do to make work schedules uniform throughout the agency based on seniority and other factors. But experience has shown that it is just not practical to place the entire agency under one system. A system that meets the needs of one facility does not necessarily meet the needs of another. Decisions of this type are often best arrived at within the facility concerned, on the basis of consultation with employees. Operational requirements, of course, must be the primary concern.**

*Some time ago, I wrote to my local personnel office about some personal matters which my supervisor had failed to remedy. Why haven't they acknowledged my letter and why did they show it to my supervisor?*

**It looks like somebody missed a signal in your case. Perhaps the confidential nature of your letter was not clear to the personnel officer. The personnel officer should take positive steps to see that you get a proper response to your personal problem.**

**If the personal matter is not job related, it might be answered without contacting your supervisor. If inquiry is confidential the P & T officer should suggest how you might approach your supervisor. If you have made it clear that the inquiry is confidential the P & T officer should not contact your supervisor until after he has had an understanding with you about such a discussion.**

**These FAAers participated "all the way" in the NAATS convention. Left to right they are, E. A. Woody, Tom Cresswell, Earl Anderson, Sam Stittman (NAATS president), and Joe Tippets.**


## Supersonic Napkins

**Lou Lombard (left) and Bill Mutter, Denver Center controllers put finishing touches on SST replica at Longmont, Colo. The parade float, built from 22,000 paper napkins by center personnel and their families after hours and on weekends, captured four major prizes in six different Colorado community parades.**

## All Hands...Lift

**At the recent LAX hangar FAA—Coast Guard open house, three attentive gentlemen outdid themselves to help Pat Hill, "Miss Inglewood", climb aboard one of two helicopters on display. From left, they are: John H. Hilton, LA area manager; Miss Hill; Capt. A. C. Pearce, USCG, and Murt Munson, chairman, Aviation Aerospace committee, Inglewood Chamber of Commerce.**

**Deputy Administrator Thomas tells the NAATS convention that "growth within growth" is the future of aviation.**

# Denver Center's Colorful Float Is Top Parader

LONGMONT. Colo. — Here's a proven recipe for making a prize-winning parade float:

First, you take 22,000 pastel-colored paper napkins. Insert them side by side, along a twenty-two foot-long wire and wood framework.

Mount this on a jeep, and make the jeep look nice through judicious use of a hundred yards of gaily colored crepe paper. Put up signs telling the world who you are.

And presto! You have an FAA parade float showing a replica of the SST.

The above recipe shows only *some* of the ingredients actually required by Denver Center volunteers to build a parade entry.

Other ingredients would include the several hundreds of hours donated by controllers and their families in putting the float together over a period of weeks.

Lou Lombard, controller at the center, spearheaded planning the float.

Constructed at a total out-of-pocket cost of less than $60, the float was entered in six different Colorado community parades. More than 100,000 spectators saw it during a two-month period.

The float won a first place, three second places and a third place in county fair and fall festival parades held in Boulder, Loveland, Longmont, Lafayette, Louisville and Broomfield, Colo.

## Whatta Time!

**With a "wow!" look on his face, C. E. Mayhall looks pleased as punch after being congratulated by Deputy Administrator Thomas on the anniversary of Mayhall's 40 years of Government civilian service. An FAA employee for the past 18 years, Mayhall is Executive Officer of I&M Service, handling all administrative actions and assisting the director in the whole range of I&M operations.**

# AT Conventioneers Hear Challenges

**(Continued from Pg. 1)**

Federal employees who come closer to typifying the concept of public service advanced by President Johnson. Your daily face-to-face contact with the flying public has few parallels . . . ."

Proof of the pudding, he told the audience, was in the many testimonials the FSS gets from professional civil pilots, the military pilots, the businessman/pilot, and the student flyer—those they serve daily.

FSS performed more than 30 million flight services last year, he said, noting an increase of 21 per cent over the previous year. The number of pilot briefings went up a staggering 44 per cent.

This growth calls for "a more responsive manpower system to assure that job classification, career planning and training programs keep pace with advancing technology," Tippets said. He pointed out that the agency now invests some $10,300 to train the average flight service specialist before he becomes fully qualified.

**Air Traffic Service Director Speaks**

Archie W. League, director of ATS, reminded the group that he had forecast two years previously that important developments would be happening in aviation and in the agency—most significant being the tremendous growth in the number of their customers.

"Our Federal Air Surgeon now has on file 600,000 active airman medical certificates," he said. "Last month they processed 46,000 airman medical exams and issued certificates — this is an average of 2,000 per working day."

With this growth Air Traffic Service becomes more and more concerned about its ability to carry out its responsibility to contribute to safety.

**New Tools for the Future**

He stressed that we must impress FSS employees with the importance of proper pre-flight briefing and in-flight assistance.

In the future, he foresaw flight planning and pre-briefing information possibly being computer-stored and computer-derived. Television adaptation, remote electronic writing techniques and automatic briefing are in the idea stage to provide FSS men with tools to assist them in their jobs.

The FSS Procedures Committee, which just completed its first two week session in Washington, has agreed upon 85 recommendations out of 130 non-duplicated items, and submitted them for action. He praised the 12-man committee, and noted they had talked in depth during their stay with a Civil Service Commission representative making an analysis of classification standards of field facilities ATS personnel.

The ATS director advised the audience to encourage pilots to file flight plans, and he complimented them on their enthusiasm in their work.

"The U.S. is one of very few nations where a citizen can get into his own airplane and fly almost anywhere at will," he said. "You are helping make this possible."