FAA HORIZONS

Official Employee Publication of the Federal Aviation Administration / Department of Transportation / April 1967

COVER

"Enough if something from
our hands have power
To live, and act, and serve
the future hour." (Wordsworth)

Vertical takeoff and landing aircraft will play an important role in aviation's future. This artist's concept will be reality in the next few years. (Drawing courtesy of Hughes Tool Co.)

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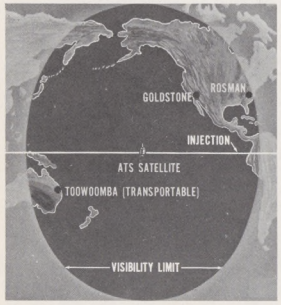

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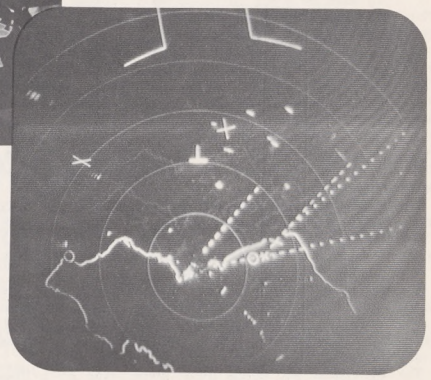
The television set-up for Honolulu's improvised "bright display" system is shown from both ends. **At left** in the TRACON room the television is circled. **Below** is a close-up of the TV screen at the "local" position in the tower. A prototype of the system being procured by FAA is being tested in Atlanta.



Hope for Tower Scope

A radar that can be used in the brightness of a control tower cab has long been the desire of local controllers. Increased air traffic and the wide range of aircraft approach speeds are making this more of a necessity than a desire. These factors, plus varying visibility conditions, have caused local controllers to turn increasingly toward radar information from the TRACON room.

Radar for the tower cab itself came a step nearer reality in February when FAA let a contract for a prototype bright display air surveillance system. The contract, with ITT Industrial Laboratories, calls for a total of 88 systems at a cost of $1,512,113.

The contract climaxed several years of efforts to develop a suitable radar display for use in tower cabs. The brightness of the glass-enclosed cab "washes out" the conventional displays used in the TRACON room. This type could be used in the tower cab only if the controller viewed the scope under a hood. The busy schedule of the local controller and the problems of eye adaptation made this an impractical solution.

The only solution was an extremely bright display on which data could be discerned at a glance under the brightest daylight conditions. Such a system is now being tested operationally in the Atlanta tower.

Honolulu tower came up with one approach to the problem as early as July 1964. Closed circuit television with standard 525 line performance was used to provide the bright display. Earlier FAA attempts to use closed circuit television for this purpose date back to 1960, but it was only after the Honolulu

Donald Capellas **(left)** consults TV monitor in Honolulu Tower. Assistant Tower Chief Hugh Roof **(below)** adjusts aperture of TV camera which looks down on horizontal display scope.

effort identified the special storage tube necessary for the system that the technique became practical.

Other FAA efforts to provide tower bright display systems proved too costly or below the desired performance until 1965 when a breadboard of the present model was assembled at NAFEC. Under a project established by the Air Traffic Control Development Division of SRDS, NAFEC engineers came up with a system that meets the performance requirement in the tower cab environment plus all other specifications. These include compactness, adaptability to a variety of data inputs and installation feasibility.

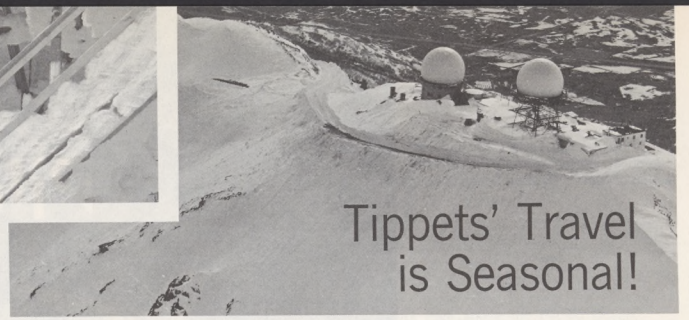
The bright tower cab radar display system consists of a very compact plan position indicator, (PPI) a TV camera, a bright TV display and a remote control panel. The small display CRT of the PPI unit is viewed by the TV camera and displayed on a 12 inch round tube in the TV unit.

The pickup tube in the camera is a special storage type vidicon which provides persistence in the display of targets so that the data on the scanned area is continuously displayed. The storage also provides target "trails" to further increase target detectability.

The TV display unit differs from "home" type TV in that it has a capability of about 20 times the brightness and operates at 945 horizontal lines per frame instead of 525. This means that the resolution in the vertical direction is nearly twice that of home television. An equivalent increase in resolution is provided in the horizontal direction.

Many towers have installed interim displays for the cabs while waiting for an Agency program. These include the use of decommissioned RBDE-2's, CCTV similar to the Honolulu equipment, and conventional PPI's with hoods. These interim solutions, though implemented because of necessity, are undesirable because of problems in performance, standardization, logistics, etc.

Production systems from the contract should begin arriving in the field in early 1968, to improve our FAA terminal performance and safety.



Tippets' Travel is Seasonal!

Francis Peak **Right** and Ashton, **Above left** Idaho, where Tippets climbs high-site antenna are typical winter field trips.

When a technician stationed at a remote radar site atop an Idaho mountain picks up a phone at 5 a.m. and hears the words "This is Joe Tippets," he knows it's not a gag. And, if the same technician were to be greeted personally at the site by Tippets who had arrived in a mid-January blizzard, it would be routine.

It's just Joe T's way. The Western Region Director believes strongly in personal communication with all echelons of the 7,000 employees under his jurisdiction.

He recently completed a trip to high radar sites in the Northwest, and at one time or another has braved icy winds, blizzards and long hauls up hair-raising mountain roads to visit all sites in the nine-state Western Region.

As often as possible, he puts in an appearance at out-of-the-way Flight Service Stations, and sees to it that his itinerary takes him to other "off the beaten path" FAA facilities.

One staff officer who often travels with Tippets described him this way: "Tippets prefers visiting Arizona in the blazing heat of summer and the blizzard-swept mountain country in the dead of winter."

On one winter trip up a steep mountain road to a radar site, the snow vehicle broke down and the regional office party had to slog through the drifts on foot for the remainder of the distance. Tippets turned to an exhausted staff man who was trying to keep up with him and declared: "Think of it: getting paid to travel and enjoy all this scenery."

One Tippets key is communications. He is in constant touch by telephone with employees at all levels throughout the region. And he is just as likely to call a watch supervisor at 4 a.m. as at 2 p.m.

He keeps other channels of communications open, too. Each Monday, a period of the day is set aside as "Open Door" time at which any employee can visit him personally and discuss any matter.

Those who cannot visit him personally are invited to write him with the assurance that whatever is bothering them will receive prompt consideration and action.

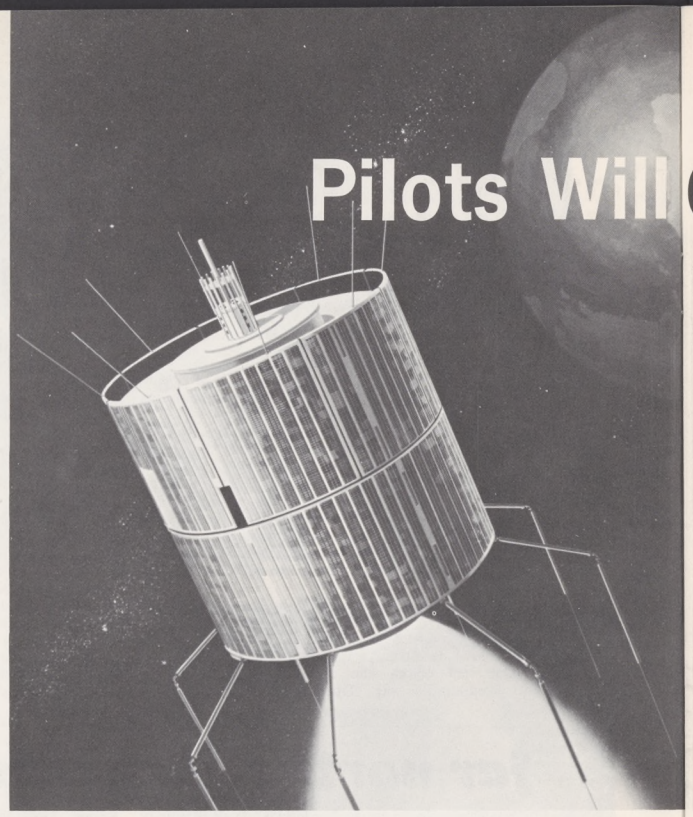
far north flying clinic

Students included air guides, airline captains, military flight instructors, and flight check pilots from the Bureau of Land, Department of Fish and Game, the Air National Guard and FAA. Instructors came all the way from Oklahoma City. For three days, the group discussed such subjects as "Instruments and Performance," "Flight Maneuvers," "Psychology of Training," "Weather," "Medical Aspects of Flight," and FAA Regulations. All of them were there at the personal invitation of the Governor of Alaska. The occasion was a flight instructor clinic.

Two such clinics were sponsored by Alaska's Air Commerce Division in cooperation with FAA's Alaskan Region. Governor Walter J. Hickel, whose state boasts one pilot for each 50 residents, welcomed the instructors with this message, "Alaska recognizes the important functions of all flight and ground school instructors in their continuing dedicated effort to foster and promote safe flight standards in all fields of aviation."

The 160 instructors who attended the sessions produced their own message. They wired General McKee, "This refresher training in instruction techniques presented by your highly professional personnel from the Aeronautical Center and Anchorage will help us immeasurably as we return to our task of training pilots to fly safely in the skies of Alaska."

Part of a group of 160 instructors who attended an instructors clinic in Fairbanks which was sponsored by FAA and the State.



Artists concept of ATS-1 built by Applications Technology under the direction of NASA's Goddard Space Center.

Pilots Will Get Way Out Word

In less time than it takes you to read this sentence, air traffic controllers at Anchorage, Alaska, can contact an Agency aircraft via a man-launched moonlet in orbit 22,300 miles above the earth.

Beginning in early May, controllers at the Alaska Air Route Traffic Control Center, Anchorage, will be doing just that during a test of Very High Frequency (VHF) ground/air ground communication through satellite relay.

There has been a long-standing need for a static and fade-free air/ground communication system over remote areas where ground aids aren't available. This prompted the National Aeronautics and Space Administration, (NASA), to include VHF relay as one of the experiments to be attempted with the versatile Applications Technology Satellite (ATS-I).

ATS-I, a complex space laboratory, was thrust into space from Cape Kennedy on December 6. Space scientists permitted the moonlet to drift to 151 degress west longitude above the Equator. The spacecraft is in synchronous orbit, speeding along at 6,800 mph to match the earth's 1,040 mph rotation speed at the Equator. It is positioned just east of the Christmas Islands and southeast of the Hawaiian Islands above the Pacific Ocean. It is the first of five so-called "public benefit" satellites scheduled for launching by NASA. ATS-I contains a variety of experiments designed to extend the scope of space communication, control technology and weather observation through a cloud scanning camera.

FAA's primary interest is in how it might help in the design of an air/ground subsystem for long distance air traffic control. The Agency's satellite sub-program is managed by Oliver J. DeZoute, RD-221, FAA Headquarters, and the experimentation project is managed by Francis Jefferson, National Aviation Facilities Experimental Center, Atlantic City.

Joe D. Conerly, Systems Research and Develpoment Service deputy director, said, "Satellites are a potentially useful element in helping the FAA perform certain functions to carry out its basic mission—to provide for the safe and efficient use of airspace."

A C-135 equipped with special antennas will help to evaluate ATS-I for relaying VHF signals in both over-ocean and land communication between aircraft and ground stations. The aircraft will begin an over-ocean flight to the Hawaiian Islands and to a position directly beneath the spacecraft. A NASA station at Mojave, Calif., will send the ground VHF communication to the satellite. Messages from the FAA aircraft can be received either at the Mojave installation or at an Agency remote receiving station near Anchorage, the areas where reliable, static-free communications are most needed.

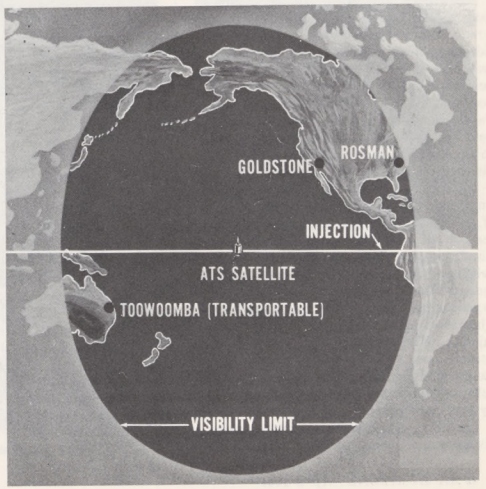
With present high frequency (HF) equipment, aircraft in transoceanic flight sometimes lose contact with ground stations for an hour or more because of static, interference and fading. Some engineers believe the satellite relay can keep such flights in constant voice contact.

From its vantage point high above the Pacific Ocean, ATS-I has a visibility range of 39 per cent of the world, including most of North America, the Pacific area and half of Australia. Although the feasibility of VHF via satellite was established by an earlier communications satellite, Syncom III, the ATS-I is the first with two-way voice communications between a ground station and an aircraft.

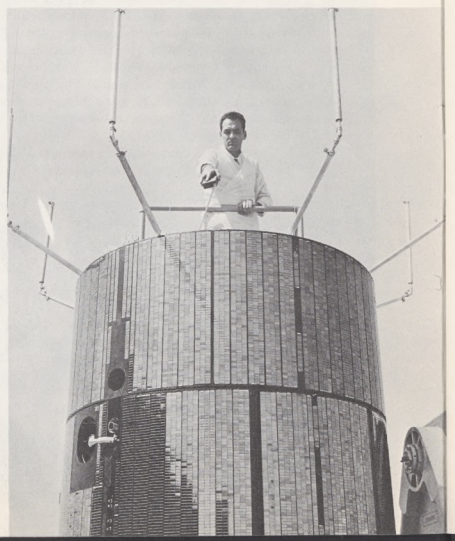
Technicians aboard the FAA C-135 will be primarily concerned with the signals, noise, modulation characteristics of voice and tone, airborne antenna performance and procedures.

Engineers acknowledge that they don't have all the answers for establishing a fault-free over-ocean communication. But they hope the test flights this spring will provide answers to some of the questions.

Sites Planned for ATS Satellite Support



Shortly after ATS-1 was launched, a specially equipped FAA **Gulfstream** and commercial airlines demonstrated communications possibilities with the satellite. The NAFEC crew, from left, Thomas H. Barton, project engineer, Robert W. Black, technician, Irving Budoff and Bernard J. Hughes, pilots. **Right,** antennas of the 790-pound satellite surround Hughes engineer Pat Madden.



HUMPTY-DUMPTY at Center Saves Heads

Would you believe that an egg can be dropped from 21 feet without breaking? Recent research at the Civil Aeromedical Institute in Oklahoma City has proved that a fresh egg can withstand an impact of up to 100 Gs without breaking—provided it hits a properly padded surface.

The secret lies in a newly developed "slow-return" padding which cushions the impact by distributing the shock over one half of the egg.

The egg-dropping is serious business to John J. Swearingen, Chief of the Protection and Survival Laboratory at the Civil Aeromedical Institute at the Aeronautical Center. It was part of a search for a material to be used in Swearingen's program to delethalize aircraft cockpits and automobile instrument panels.

Swearingen, a leader in his field who won White House recognition last year, has made more than 1,000 tests during the past three years to determine what impact the face and head can tolerate. The tolerable limits of a nose striking padding over a surface that deforms with impact is about 30 Gs.

Swearingen has made much of his studies by using dash boards from wrecked automobiles where the passenger side has shown evidence of impact. Researchers dig into the accident files to determine extent of injuries as much as possible. They then attempt to duplicate the impact force on an undamaged dash board secured from local junk yards. In so doing, Swearingen has come up with his statistics on facial tolerances.

Instrumented dummy heads are smashed into dashboards with the help of a sled-catapult device that simulates the jolt of a sudden stop. The device simulates what Swearingen calls "second velocity." It's not so much the speed of the car when it strikes something, he explains, but the speed of the occupants when they hit something that causes the injuries. The seat belt doesn't keep a person from striking his head on the panel. It may even increase the "second velocity." The seat belt does save lives by keeping a person in the car, however.

Even the dashboard padding doesn't dissipate the energy of the "second velocity." But it distributes the load over more of the face by conforming to facial features. To effectively slow up the "second velocity," there must be a metal behind the padding that will yield. Ideally, the dashboard would have a curve with a 10-inch radius from windshield to underside.

People take better care of eggs than they do of noses, Swearingen concludes. Eggs are shipped with excellent padding to protect the shell, but people often move themselves from place to place without this safety margin.

Surfaces that crush easily aid in survival. A fender that crushes, for example, could be the difference between life and death even though they are more expensive to repair after a minor accident. The crushing gives distance.

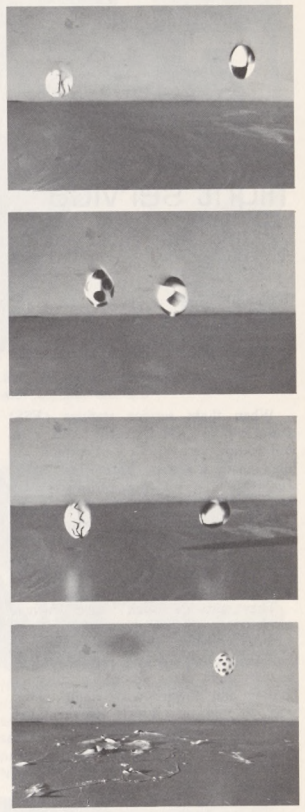
Swearingen has been appointed to a one-year term on the President's First National Motor Vehicle Safety Advisory Board. His research at the Center is being used in setting some of the standards for new auto design.

Swearingen with a fuselage section used in his search for less lethal cockpits.

This dashboard might be useless junk except for the story told by the dent.

Dr. Harry Gibbons drops eggs from ladder while Swearingen tries a lower point.

Omelette Anybody?



This series of photos shows eggs after impact on cushioning material being evaluated as padding in aircraft cockpits and automobiles. In the top three photos, the eggs are on the rebound after being dropped from heights up to 21 feet. The egg in the bottom picture got more than the 100 G impact that a fresh egg can stand without cracking. The eggs that don't break during such drops are ready for scrambling with yolks and whites thoroughly mixed.

With a background of aircraft typical of the 2,500 general aviation aircraft in the Joliet FSS area are, from left, Harold Michale, assistant chief; Joliet FSS, Ann Vodicka, secretary, and John N. Longton, chief.

good flight service will get better

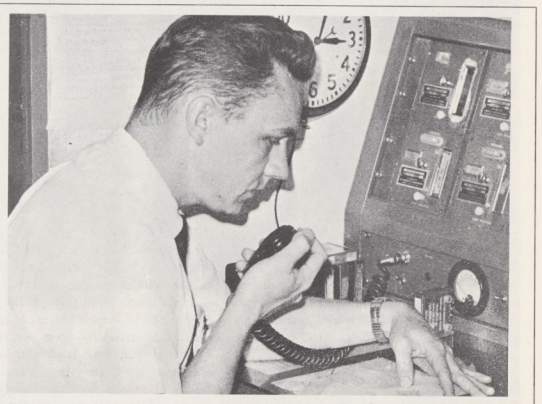
When flight service stations (FSS) came into being in the early 1930s, communication between air and ground was their main function. Later they served IFR traffic by relaying information between traffic controllers and pilots on IFR clearances. Now that communications improvements have virtually obviated this relay function, flight service stations have become a valuable service for VFR aircraft.

They provide such basic enroute services as air/ground communications, weather communications, monitoring facilities, pilot briefing, military flight service, flight plans processing, direction finding and a variety of flight assists. FSS located at airports provide such local services as weather observations, airport advisories, face-to-face briefings, monitoring airport lights and similar services.

One of the busier flight service stations is at Joliet, Ill., south of Chicago. Serving the metropolitan Chicago area with 41 airports within a 40-mile radius, Joliet serves almost half a million flights per year.

Much of Joliet's service to the 5,000 pilots in the area is by long distance telephone, two-way radio and teletype.

A new telephone answering system, especially designed for FSS use and now being tested at Washington National Airport, will greatly improve service at stations like Joliet.

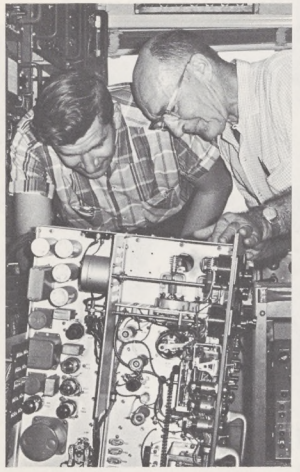


Ronald C. Rife makes a weather broadcast. These reports are made each 30 minutes (15 and 45 minutes past each hour). Weather sequence reports from airports throughout the Joliet area are included.

Michael V. Nizetic and Thomas F. Healy brief pilots over telephone lines.

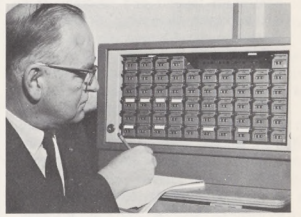
Richard D. Carter and Floyd O. Linderf stand by teletypes.

John F. Adams and George P. Biehl talk with enroute aircraft.



The electronic equipment at Joliet is in the expert hands of technicians like Don Kaptonak, left, and Homer Weatherford of the Airway Facilities Sector.

Esther L. Wakefield is equally at home behind a teletype machine or a typewriter. Here she is making an entry in the station log while she "runs the desk."



New telephone equipment like this being used by Joseph Greten will improve FSS service by guaranteeing "first come, first served" answering to callers. This is a prototype now being used at Washington National Airport.

If all the specialists are busy when a pilot calls the FSS, this new DCA equipment notifies the pilot with a recorded message that his call has been received.

IT BEGAN AS A CHINESE TOP

Amid the dire predictions of a black future for all forms of transportation in the way of increased traffic, lack of facilities, and the public clamor against congestion and noise, lies the germ of a solution.

This solution, involving the prime commodities of time and convenience, just may lie in an aviation concept with the acronym "V/STOL" for vertical/short takeoff and landing. It is not a recent discovery. Some 2,000 years ago the Chinese devised a toy, called the Chinese top, which would rise vertically like a helicopter when a stick was spun between the hands and released, then descend as the spinning slowed. The top was made with a short stick with two or more feathers that served as rotor or propeller blades.

Several attempts had been made down through the years to produce a helicopter-type craft, but it wasn't until a short time after the Wright Brothers's flight in 1903 that some degree of success was finally realized with man-carrying helicopters.

Today, the helicopter is a vital arm of the military in our efforts in Vietnam. It is also used throughout the country in both a commercial and industrial capacity. Through the research efforts of the aircraft industry, the helicopter is being enlarged, having wings added to it, and its speed increased for eventual adaptation into the V/STOL system. There is also experimental and developmental work being done on other vertical takeoff and landing vehicles of the tilt-wing and lift-fan varieties.

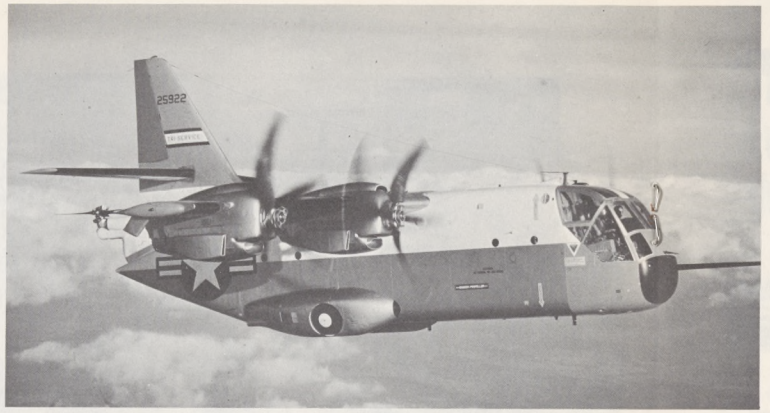
Advancement in turbine engine technology over the past few years has been the catalyst in the development of high-performance V/STOL aircraft. And as the research and development proceeds on a number of military programs, it has been found that it is technically feasible to add wings and auxiliary engines to the larger helicopters to enable them to fly faster in cruise flight. FAA experts say the earliest commercial use of the V/STOL could be in 1972, but that it will more likely be around 1975.

FAA officials feel that the immediate trend in the short-haul field is the small STOL air taxi operations in the city-center. George Bates, Director of Aircraft Development Service, says that "this is possible now and will give the airlines, the FAA, and the airport operators the experience on which to advance to intercity operations."

There are many advantages in incorporating this short-haul (200 to 500-mile) form of transportation into the system. Considering such factors as time, cost and convenience, the V/STOL aircraft, with its greater terminal convenience and superior overall trip speed, would be a tremendous improvement.

In a recent study done for the agency, an analysis of the "California Corridor" showed that in a trip from Los Angeles to San Francisco approximately 50 per cent of the air travelers would save at least three-quarters of an hour. It also indicated that 50 to 90 per cent of all short-haul air travelers would be better served by city-center V/STOL service.

The agency is currently examining the various special requirements for airways, navigational and approach aids for the V/STOL type aircraft. It is felt that for the en route or cruise phase of flight the V/STOL will be conventional and therefore will respond to the conventional navigation and air traffic control requirements. However, for the terminal area operation, it is possible that precision navigational aids will be needed for purposes of maintaining separation from conventional air traffic. Tests have shown that although they can potentially land at any desired



The Ling-Temco-Vought XC142 V/STOL transport is one of several models being studied by the agency.

. . . it makes a short takeoff with wing at a 35-degree angle.

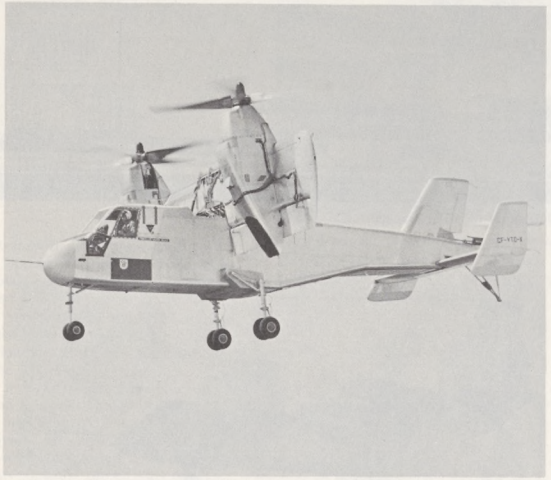
. . . hovers over a landing site that can be put together in a few hours.

. . . takes off vertically with wing at 90-degree angle.

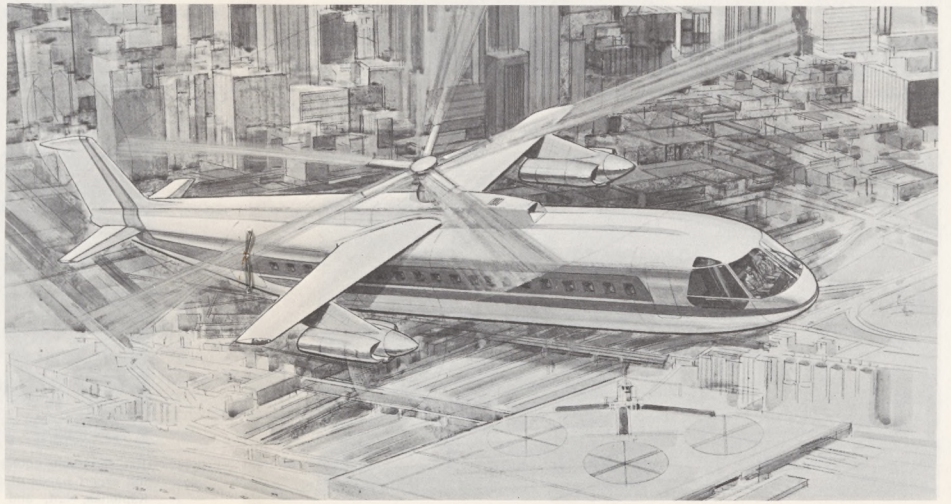
. . . displays its tilt wing feature during a roll-out.

. . . can carry 40 passengers plus baggage.

Canadair CL84 tilt wing V/STOL prototype.



Proposed design of a Lockheed CL879 compound helicopter.



McDonnell 188 STOL transport.

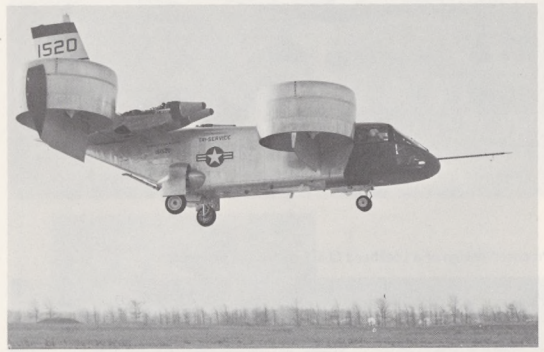
flight path angle, IFR approaches are safely and easily controllable at angles up to about 10 degrees for V/STOL aircraft.

The key to advancement in short-haul air transportation, says George Bates, is the airport. "It is essential," he said, "that great care be taken in choosing a terminal location with due consideration shown for passenger origin and destination, property and construction costs, and ground transportation requirements. It is necessary that the metro airport be an integral part of the local transportation system."

New York City, through the efforts of Eastern Region Director Oscar Bakke, is seriously considering the possibilities of using its Pier 26 for certain types of vertical takeoff aircraft. Los Angeles is already beginning a city-center-airport for the V/STOL.

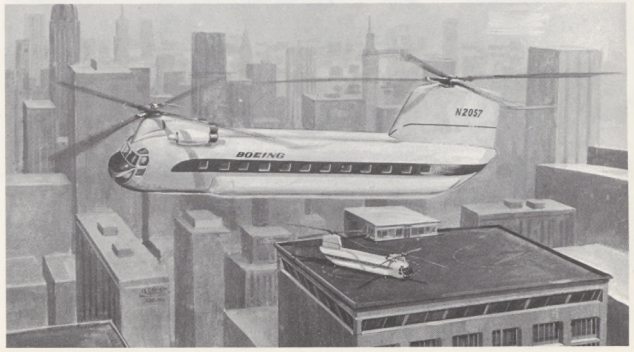
The experts feel strongly that all this is not just a pipe dream, not just a possibilitiy--but a definite goal. Transportation Secretary Boyd, in discussing the future of the V/STOL recently, said he visualized "A very rapid buildup in the design of commercial V/STOL craft of considerable importance in inter-urban short-haul transportation" over the next few years. He said that, although there will be problems involved, he was sure that they could "be resolved in a way tolerable to the public."

In any event, it has been proved that there is a passenger demand, that the airways can accommodate the V/STOL, and that the technicians can build a suitable aircraft. The next few years will see the reality.



Bell Aerosystems V22 variable stability research vehicle.

Boeing-Vertol transport helicopter.



They Pushed Everything but the PANIC BUTTON

Bill Flener and Supervising Inspector Douglas Moore of the Atlanta GADO, were photographed in front of the Queenair while the props were still feathered and in the position selected for the emergency.

Old transport pilots often describe flying as "hours and hours of boredom interrupted occasionally by moments of stark terror."

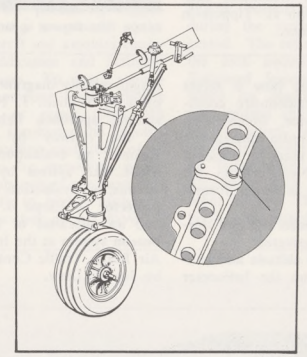
Any boredom that might have been associated with William Flener's checkout in Southern Region's Queenair ended when the inspector, Douglas Moore, got to the part on emergency procedures.

It was a quiet Sunday morning and Flener, then deputy director of the Southern Region, was getting his checkout before being transferred to Washington as deputy director of Airports Services.

Things went smoothly through such emergency procedures as feathering an engine, emergency go-arounds and simulated fires. But when it came time to lower the landing gear manually, a real emergency occurred. Two little green lights came on as an indication that the main gear was down and locked, but a third light, for the nose gear, showed no sign.

Flener checked the light and found it to be working right. It was obvious that the nose gear wasn't fully down. After trying a variety of emergency procedures to get the gear down including taking up the floor boards to inspect the inboard system, Moore and Flener decided that the only course open to them was to land the plane and hope for the best. None of the procedures recommended in the operations manual worked, and maintenance personnel, who were consulted by radio, could provide no clues for what to do in flight in this situation. The nose gear wouldn't go up or down on either the manual or the electrical system.

Electing to land at Dobbins Air Force Base, they circled until most of the fuel was consumed. To further minimize the fire hazard, they shut down both engines on final approach, stopping both props at the angle that would result in the least damage to the plane if the nose gear collapsed. All electrical power and fuel were shut off.



The troublesome clevis pin is indicated by arrow. Momentum during normal operation overode the friction.

Interior of Queenair N-143 showing where flooring was removed in a vain attempt to correct trouble in flight.

On touchdown, a reassuring "click" was heard, but the Queenair was held in a tail low position until the last possible moment. As they lost momentum, the pilots allowed the nose gear to touch down gently. It held, and the plane continued to roll smoothly. The "click" had signalled that the nose gear had finally popped into place.

Inspection revealed that the "clevis bolt" (not visible from inside) was slightly bent so that more than normal pressure was required to lower the gear. The problem had not become evident during electrical operation because the increased momentum of the gear overcame the friction of the bent bolt. The slower manual speed caused it to stick so that it wouldn't go up or down until pressure was applied from outside. The touch down had done just that.

Yes, Flener and Moore conclude, even though routine flights may not be characterized by boredom and moments of stark terror, they can produce a chilling experience.

HELICOPTER PILOT HONORED FOR RESCUE

Broomfield, Colo.—Robert B. Greeno has been nominated for the FAA Award for Extraordinary Service for rescuing five air crash survivors from a Colorado mountaintop.

Greeno made the rescue by helicopter from the 14,037-foot level of Mt. Sherman, near Leadville, where a Cessna 310 with the five occupants had crashed on a flight to Aspen from Denver.

Fighting a 55 mile an hour wind, Greeno worked his helicopter into a landing on a rocky crag about 25 yards from the downed aircraft. First he was able to take two survivors off. Then, he returned to the crash site for the other three passengers despite winds of more than 80 mph and a severe ground blizzard. Visibility was zero at the crash site when Greeno brought the last survivors out.

Greeno made a "drop-off" type take-off—literally dropping the helicopter into an adjacent canyon, the only place he could keep the ground in sight. All five persons abroad the downed light plane attributed their survival to Greeno's heroism.

"Through his dispay of expertise, courage and complete disregard for his own safety, Greeno has been hailed throughout the Rocky Mountain Empire," said Joseph H. Tippets in nominating Greeno.

Rescue Pilot Greeno is interviewed by Denver television reporters.

Bird Ingestion Tests Among Center's Current Projects

Atlantic City, N. J.—Some of the more interesting tests conducted during the past month at the National Aviation Facilities Experimental Center, located at Atlantic City, include:

Ingestion tests of starlings by a small turbo-prop engine began with the engine operating at take-off power and impact speeds of 100 mph. Engine power is noted before, during and after ingestion to compare and measure both transient and residual effects on engine performance.

Acceptance tests on a coordinate conversion navigation computer were run during a flight to England and Libya. The equipment receives inputs from Loran C, Doppler, and TACAN, plus dead reckoning information, and automatically cranks out latitude and longitude information. Tests will continue for the next year.

An experimental wave-guide antenna for ILS is under flight evaluation at Stewart AFB, N. Y. The antenna is designed for sites where conventional antennas do not ordinarily work.

A cockpit voice recorder was subjected to a 30-minute bath in flames to see how it might stand up in accident-fire conditions. The device, which tapes both voice and radio messages in the cockpit, is used by accident investigators. New criteria for these recorders is being formulated.

Technical reports released during the month covered:

The effect of altitude and helicopter weight on the helicopter height-velocity diagram was compiled by William J. Hanley; **installing approach lighting flush** in the runway by E. Leon Reamer; **an evaluation of a V/STOL ILS system** by Glen D. Adams; **an evaluation of a radar projector** by Floyd B. Woodson; and **an appraisal of the SPAN beacon system** at the Indianapolis Air Route Traffic Control Center by Joseph Levy.

Red Baron Beware

FAA Controller John Kimball won Salt Lake City's paper plane Championship with a design that flew for 9.7 seconds. Here he accepts trophy from KALL radio announcer Will Lucas who wears WWI flying togs.

ROK Controllers Enjoy Their Cincinnati Tour

Three Republic of Korea air traffic controllers, Jae Boong Park, Young Sang Bae and Jae Jong Park, recently completed eight weeks of radar training at Greater Cincinnati Tower.

Thomas J. Suter, their instructor, reports that the three were very impressed with American air traffic control procedures and equipment, but they were even more fond of American haute cuisine. "Their favorite was southern fried chicken," reports Tower Chief C. Woodrow McKay.

FSS Saves Fishing Gear

Arcata, Calif.—Specialists at the Arcata FSS recently chalked up an unusual "save"—fishing equipment valued at over $800.

The floating gear was lost in the Pacific some 18 miles offshore. Pilot Paul LaPrelle spotted it during an air search, and the FSS gave him bearings and distance to fix his position so a boat could be dispatched to pick up the gear.

This "save" was made by Jack Provolt and Roger Speakman.

Ski Buffs Organize

The ski club organized by FAA employees at Salt Lake City in 1965 now has a membership of more than 400 and its own monthly publication, "Sitzmark," its own emblem and a full calendar of activities.

Recent activities include "ski-in" trips to Jackson, Wyo., and Sun Valley, Idaho, skiing competitions, and annual awards banquets. Officers are Jerry Skeels, Turk Wood, Jim Cronin and Elwood Phinney.

NAFEC Quartet in Okinawa

Four air traffic controllers from NAFEC are on a three-month tour in Okinawa at the USAF RAPCON there.

The four, Louis W. Curcio, Stephen A. Karovic, Barry Keefe, and John L. Sachko, worked last spring on a simulation of the Okinawa air traffic situation in the Center's simulation lab. Procedures for the proposed RAPCON were developed at that time and are now being placed in operation by the Air Force.

Recognition and Awards Handbook Contains Lots of Answers

The recently issued Recognition and Awards Handbook (Agency Order 3450.7) is the result of the OPT effort to consolidate all possible Agency issuances on this subject into a single directive. It also clarifies a number of key definitions and concepts and generally streamlines administration of the program. The Handbook provides for the general redelegation of authority and responsibility for the program to the area level.

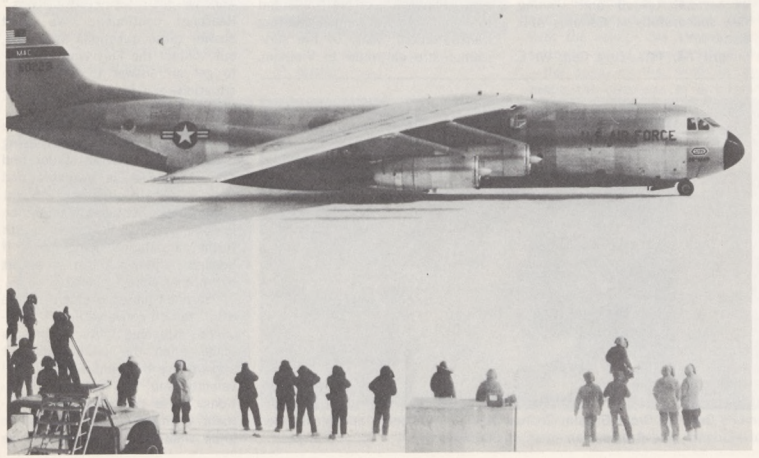
Among the changes were several refinements to the Suggestion Awards System. A new and entirely separate procedure was established for processing suggestions relating to ground equipment, aircraft and avionics equipment modification and maintenance changes. To speed suggestions to someone with authority to adopt or reject them, the handbook eliminates the requirement of routine evaluation of all suggestions by immediate supervisors. Supervisors can now pass on directly to higher authority, suggestions they do not have the authority to implement. The time limit for processing suggestions after they are received by the Recognition and Awards Officer was extended from 30 to 45 days. All awards for a suggestion must now be paid by the organization where it originated. This is true even if the suggestion is adopted in other organizations.

The handbook makes other several important changes to the Agency Awards Program. It clarifies instructions on conferring awards for Sustained Superior Performance and granting Quality Within-grade Increases. It also provides a positive prohibition against conferring both awards during the same twelve month period. The relationship between the cash awards schedules for Sustained Superior Performance based on outstanding performance ratings and those based on other factors is also changed. Formerly, those awards based on outstanding ratings received $50 more than those based on other factors. The revised handbook now stipulates that SSP's based on outstanding ratings will receive one and one half the amount awarded for SSP's based on other factors for each grade level category.

Western Region Rides Out Wild Wind Without Outage

High winds struck two sections of the Western Region recently, but the only reported FAA damage was a brief outage at the FAA co-located offices in Sacramento. In addition, several large stores were destroyed in the Boulder, Colo., area, and aircraft at Boulder Airport were tossed about like tumbleweeds. The winds exceeded 125 miles per hour at one point and local residents said the storm's violence exceeded that of a 1908 wind storm which blew a train off the track.

In the Sacramento area, hangar doors were blown off, wind indicators twisted, and power poles blown down.



Load is 25,000 Pounds

The world's largest fanjet, the C-141 Starlifter, is shown bringing in a "partial" load of 25,000 pounds of supplies and 28 passengers to support the Navy's Operation Deep Freeze. These giant jets were built under a joint industry-military-FAA type certification program at Lockheed-Georgia's plant at Marietta, Georgia.

In service for a little more than two years, the huge C-141's already have sped thousands of tons of supplies and thousands of troops to the Vietnam front, and rushing the conflict's wounded from Saigon to Washington in less than a day's time, saving many lives.

A civil version, the Lockheed-200, was also used to airlift the "Eldo" rocket from Europe to Australia in just 20 hours.

it happened this month

These aerospace events happened during the month of April since 1912.

April 16, 1912—Harriet Quimby, first U. S.-licensed woman pilot, flew the English Channel.

April 27, 1913—Robert G. Fowler and cameraman Raymond A. Duhem took the first seaplane flight across the Isthmus of Panama from Panama to Cristobal—non-stop in 57 minutes. It was also the first passenger flight in Central America and the photos taken by Duhem were the first of the Panama Canal and of Central America taken from the air.

April 30, 1917 — Major Billy Mitchell became the first American Army officer to fly over German lines.

April 29, 1918—The American Ace of Aces, Lt. Edward V. Rickenbacker, shot down his first enemy airplane.

April 19, 1919—Captain E. F. White and mechanic H. M. Schaefer set an American distance record for non-stop flight. Flying a DH-4 Liberty 400 from Chicago to New York, they covered 738.6 miles in six hours and 50 minutes.

April 13, 1925—Henry Ford started an airplane freight line between Detroit and Chicago. These were the first such commercial flights on a regular schedule.

April 16, 1926—The first cotton-dusting plane was purchased by the Department of Agriculture.

April 24, 1929—Elinor Smith set the women's solo endurance record—26 hours, 21 minutes and 32 seconds.

April 8, 1931—Amelia Earhart flew an autogiro to an altitude of 19,000, at Pitcairn Field, Pa.

April 28, 1937—The first commercial flight across the Pacific Ocean was completed by a Pan American Clipper. It landed at Hong Kong.

April 25, 1940—The aircraft carrier Wasp was commissioned.

April 24, 1946—Winged Cargo, Inc. inaugurated the first commercial glider flight service at Philadelphia.

April 9, 1947—CAA granted its first approval of the Army GCA radar device for use by commercial planes. Pan American World Airways was authorized to use it at Gander, Newfoundland, only.

April 21, 1950—Lt. Commander R. C. Starkey piloted the heaviest aircraft ever launched from a carrier. The aircraft, with a gross weight of 74,668 pounds, took off from the U.S.S. Coral Sea.

April 12, 1957—The Ryan X-13, USAF jet research plane capable of vertical takeoff and landing, flew successfully at Edwards AFB, Calif.

April 7-8, 1958—Brig Gen. W. E. Eubank set a world distance record without refueling from Tokyo to Lajex, Azores, in a KC-135. On the same flight, he also set a world speed record from Tokyo to Washington, D. C., in 13 hours, 45 minutes, and 46.5 seconds.

April 22, 1962—Jacqueline Cochran flew 5,120 miles from New Orleans to Hanover, Germany, claiming 49 world records on the three-stop flight.

April 30, 1962—Joseph A. Walker reached a record altitude of 246,700 feet in an X-15.

April 17, 1964—Jerrie Mock became the first woman pilot to fly solo around the world. She traveled 22,858.8 miles in 29 days, making 21 stops. She landed her Cessna 180 "Spirit of Columbus" at Columbus, Ohio, ending the flight.

COFFEE, TEA OR MILK?

Two FAA wives in the Seattle Area help make it possible for the military lounge in the Seattle-Tacoma Airport to remain open 24 hours a day.

As hostesses at the Travelers Aid-USO facility, Mrs. Frank H. Horn and Mrs. Dexter B. Farnsworth work four-hour shifts each week dispensing coffee, milk and fruit juices to servicemen awaiting transportation. Many of the servicemen are en route to Vietnam.

Robert Nohrns answers questions for Lee Crawley, Great Britain; Zouhair Khateeb, Lebanon; and Mohammed Bukhari, Saudi Arabia. These foreign students give Ardmore an international flavor.

ARDMORE FSS GOES INTERNATIONAL

Ardmore, Okla., is a lot more international-minded than one would ordinarily think. What with students from such places as Afghanistan, Iran, South Africa, Sudan, Japan, Australia, Niger, and South America, it has to be.

The two main attractions for these foreign students are the American Flyers airline pilots training school and FAA's Flight Service Station.

Station Chief James D. Reasoner and his nine specialists, because of their closeness to the flight school, are regarded by the foreign students as the final authority in all aviation discussions. "When something comes up in class such as a regulation," Reasoner said, "they often come to the station to discuss it with us. We always use the manual to give the students uniform and correct information as well as to show them the source of the information."

Specialists stay alert to questioning. Foreign students visit the station to discuss weather, to learn to read teletype messages and to get complete briefings. "When they go into instrument work we get a lot of discussions," Reasoner continued. "We don't answer these questions as a rule, but contact the Fort Worth Center to get an answer to a complete situation—say, for instance, a problem of holding patterns."

Specialists impress upon the students the advantages of using the radio and that the station and the whole FAA is available and anxious to help. If a solo student becomes disorientated, his position is worked through VOR radials, with further assistance being given, if needed, by Perrin AFB or an escort by another school plane.

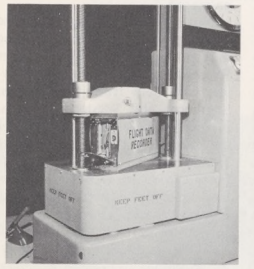
"We don't have too much trouble with radio conversations," Reasoner explained. "And ident is made when the pilot taxis out and we give the wind direction and velocity and any unusual conditions. It is the same for instrument training — but usually we know what will be asked and we have the answer. Then comes the familiar 'ro-yer' for 'roger' and they are in business."

Such activities put Oklahoma on the map in the eyes of foreign airmen. Additionally, a sister corporation of the school, American Flyers Airline, flies military charters from various parts of the world. Each flight plan and the progress of each flight is routinely forwarded to Ardmore FSS, giving the station yet another facet of international activity.

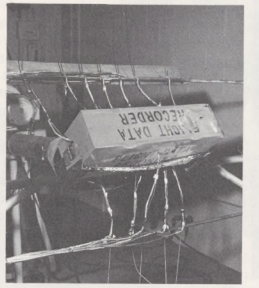
While the foreign students are actually only a small percentage of the American Flyers alumni, they are becoming leaders in aviation in their home countries. Many are top pilots and management personnel in fledgling airlines in the Middle East and the emerging countries of Africa. Others are Latin Americans who were among the first to be trained as airline pilots at American Flyers.

TORTURING THE RECORDER

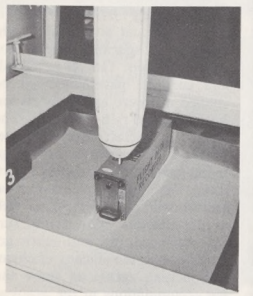
A flight recorder's job isn't done until it tells an accident investigator everything it has recorded about a flight that preceded a crash. If it is severely damaged in the crash, it has failed its primary mission. This series of pictures shows the "torture tests" given to a new recorder design at NAFEC in the Experimental Center's efforts to find a recorder whose tapes will be playable no matter how severe the crash it might be fished from.



In a squeeze, the recorder must withstand up to 5000 pounds per square inch for up to five full minutes.



Then it is wired with a torch, and for 30 minutes . . .



In its most vulnerable spot, it is pricked by a nail-nosed "missile" which has been dropped from a height of 10 feet.

. . . it is bathed in flames making temperatures soar to 1100 degrees centigrade.

book blips

Selected new library acquisitions for professional reading. Check your local FAA library for these aids to professional development.

The Aeronauts: A History of Ballooning, 1783-1903. Lionel Thomas Caswall Rolt. This book is a complete history of balloons and of the intrepid men who flew in them. Here is the serio-comic story of man's first aerial conquests; of the first manned ascents; of the first flights across the English and Irish Channels; of the first high altitude ascents; of ambitious voyages planned in giant balloons culminating in Andree's ill-fated Polar expedition; of the first use of balloons in war and of the first navigable balloons, steam, electric and petrol powered. This book is heroic, sometimes tragic, and often hilariously funny.

Biplane. Richard Bach. In 1964 Mr. Bach turned his back on modern aviation and joined the fraternity of flying pioneers. Trading his new, radio-equipped monoplane for an open-cockpit 1929 biplane, he set out across the continent, flying alone from North Carolina to Los Angeles. Richard Bach not only describes a unique and thrilling adventure but shares with the reader the almost indescribable joy of open-cockpit flight —the song of the wind in the wires; the suspense of a take-off from an impossibly short space; the exhilaration of flying a few feet above the ground. "Biplane" is a deeply felt and exciting true story of a man willing to trust wood and cloth and wire and his own skill to recapture the wonderful era of the barnstormers.

The Courage of the Early Morning, a frank biography of Billy Bishop, the Great Ace of World War I. William Arthur Bishop. This remarkably objective biography, written by Bishop's son, is a warmhearted, entertaining, and often surprisingly out-spoken account of the escapades and heroics of a man of great courage. Billy Bishop survived more than 170 air battles during World War I and was given official credit for shooting down 72 German aircraft. Experts on aerial warfare acknowledge that his relentless airfighting techniques and skills as a brilliant individualist and marksman were unique and his record unsurpassed.

Effective Writing for Engineers, Managers, Scientists. Henrietta J. Tichy. With lively sympathy, understanding, and humor "Effective Writing . . ." helps the professional meet every writing problem of his working day. If you want to write more successfully and more easily, you will discover that H. J. Tichy's book is a most effective and useful desk companion.

Fighting Airmen. Curt Anders. An exciting action-packed account of the careers of America's great flying commanders: William Mitchell, "All in a Life's Work"; Edward V. Rickenbacker, "The Indestructible Captain"; Henry H. Arnold, "The Global Airman"; Claire L. Chennault, "The Leather-Faced Old Tiger"; James H. Doolittle, "I've Done It"; George C. Kenney, "The Number One Take-Out Man"; Curtis E. LeMay, "Young Ironpants."

Manned Satellites. William F. Hilton. The book outlines the many problems of putting man into space, with their possible solutions: the economics and uses of circular orbits versus elliptical orbits; the launching of trajectories and transit times for interplanetary journeys and for earth satellites; lifting and non-lifting; re-entry into the earth's atmosphere; effects on impact point; complications caused by physical needs in space (water, food, oxygen) and extra safety precautions; man's usefulness in space; space travel in the future.

Polar Flight. Basil Clarke. This is a magnificent story of man's courage and impatience to reach the geographic poles by using one mode of travel—flight. Within this book is a parade of hardy men of the heroic age of exploration who risked their lives in aircraft still in an early stage of development. Basil Clarke has put together an absorbing narrative which records the pioneering achievements of those men and their machines.

Three . . . Two . . . One Minute of Fuel

When the two Navy F8B Crusader jets touched down at Newark Airport with only three minutes of fuel, a pair of Newark Tower controllers were as relieved as the pilots.

Because they brought down the two Navy fliers safely, Arthur Varnado and Edward Zienka were the co-recipients of the Eastern Region's coveted "We Point With Pride" plaque, which is awarded only to those who participated in an act of life-saving.

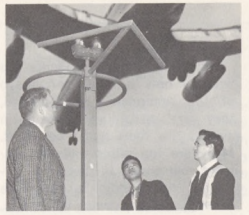
The two Navy jets declared a fuel emergency while en route to the Floyd Bennett Naval Air Station in Brooklyn.

New York Center decided Newark was their best bet and Varnado and Zienka assumed control with radar and radio contact. The Crusaders were cleared for a straight-in approach to Runway 4, and all other aircraft were cleared away from the inbound flights.

At the outer marker, one pilot reported only three minutes of fuel remaining. The approach and letdown were continued. The chilling report came from the pilot—"one minute of fuel left." But immediately after, he picked out the approach lights and within moments felt the welcome concrete under his wheels. It was the same story for the second.

Peace Eagles Descend on Iran

PEACE EAGLES. This C-130 with the national tail markings of Iran is being loaded with a complete TACAN ground station. It was airlifted to Iran from FAA's Aeronautical Center at Oklahoma City as one of three TACAN stations to be installed by FAA near bases of the Imperial Iranian Air Force under the U. S. Military Assistance Program. FAA is supporting the U. S. Air Force in this project, nicknamed "Peace Eagles," by accomplishing site selection and engineering, providing system equipment, installing the equipment and flight-checking the TACAN systems. To accomplish the in-country work, FAA will establish a Federal Aviation Specialist Group (FASG) in Iran to work with the U. S. Military Assistance Advisory Group and Iranian aviation authorities in completing this high-priority project. Air Force and FAA personnel who have worked closely to iron out joint logistics and other problems in this project are shown here with the Commander of the Iranian Air Force plane, Major Motahari. Second row, left to right are Col. E. H. Schwarze, IA-203 FAA, E. W. Young of AFLC, H. J. McConnell and A. O. Peck of the Air Froce Oklahoma City Air Materiel Area (DCAMA). First row, left to right are W. B. R. Zetterstrom, IA-240, FAA, Major Motahari, Lt. Col. B. G. Gilbreth, Hq., USAF, Olga Konja, AFLC, J. J. Minchik, IM-460, FAA, and W. D. Siebert of OCAMA.



V-Rings for Manila

A departing jet's silhouette appears to be almost within arm's reach of international trainees Isagani Naval, (center), Armando Bernales, (right) and FAA Electronics Technician Richard Sjoberg during an on-site inspection of the new V-Ring localize antenna and monitoring system on Atlanta Airport's Runway 9R. Naval is a senior airways technician and Bernales, an airways technician, from Manila International Airport in the Phillipine Islands. Following intensive training on ILS/VOR maintenance at the FAA Academy, they came to Atlanta for two weeks' on-the-job training which was financed by the Phillipine Government. Similar V-Ring antenna equipment will soon be installed with the Instrument Landing System at the Manila Airport.

Scouting the Tower

Controller Delphine Aldecoa of Boise, Idaho, Tower, finds that, in addition to performing her controller duties as well as her male counterparts, she can identify better with some of the tower's visitors. These senior girl scouts were given a demonstration of airport traffic control during study of career fields.

tech talk

Q. When is a plane a hydroplane?

A. As often as it lands on a wet runway.

Hydroplaning may be great sport for the boat enthusiast, but it's a matter of grave concern for the jet pilot. This so-called "dynamic hydroplaning" occurs as a direct relation between speed and tire pressure and water on the runway. Loss of wheel friction at critical speeds during takeoff and landing is a definite safety hazard.

It's an old problem but the solution isn't simple.

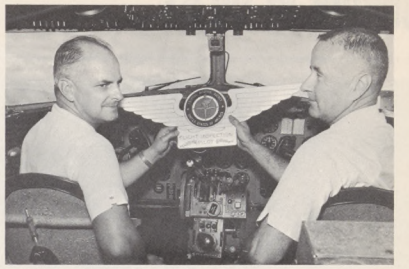
Extensive studies and experimental engineering work by NASA and several foreign countries provided only meager data and many questions remain unanswered.

Now FAA is trying for some quick answers. Runway grooving may provide them. The Systems Research and Development Service, with help from the Eastern, Southern, and Western Regions, is running a six-month study of the effects of grooving during the 1966-67 winter season. Five airports—John F. Kennedy, Cleveland-Hopkins, Miami, Salt Lake City, and Las Vegas—were selected to get data in different climatic conditions. At Washington National Airport, operational information is being gathered on transverse grooves being installed on runway 18-36.

A selected section of taxiway approximately 64 feet long is transversely cut in varying width, depth, and spacing patterns for data collection. Groves in asphalt and concrete pavements will be studied in freeze and thaw cycles; hot, cold, and rainy weather. The effects of aircraft tires; snow removal and runway cleaning equipment; snow and ice melting chemicals; and other environmental factors will be observed, as well as the effects of grooves on surface drainage, dirt and debris accumulations, the efficacy of chemical melting agents on snow and ice accumulations in the grooves, and vibration effects on the airplane, if any.

The data collection program will continue through June 30.

London FAA representative A. B. Johnson presents Louise O. Edwards with a letter of commendation and her 25-year emblem. Miss Edwards, who joined the CAA in Washington in 1948, is a secretary in the London office.



Robert Schweitzer (left) earns his wings as Facilities Flight Inspection Pilot for the Pacific Region.

Associate Administrator Robert Willey thanks J. Merle Schulman, Employee Relations Specialist, with a Sustained Superior Performance Award for his contribution to work on the Recognition and Awards Handbook.

Hans Giesecke has been named to the newly created post of chief scientist at the National Aviation Facilities Experimental Center.

Eastern Region Director Oscar Bakke (fifth from left) presents plaques to the brains behind last November's highly successful "Metro Air Support '66."

"Aviation Mechanic of the Year" for the State of Missouri is David M. Starr. Governor Warren Hearnes does the honors with the FAA award.

Rex McQueen, Pacific Region's Air Traffic Control advisor, displays his third consecutive Sustained Superior Performance Certificate in as many years.

people in focus

Honored

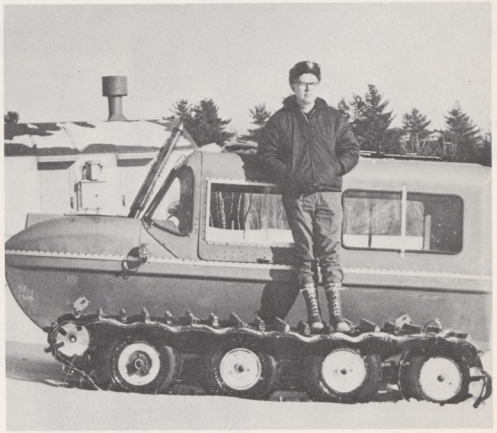
February 15, 1967, was a great day for Wilma N. Dembroski, secretary to Central Region Director, Edward C. Marsh, when she was named "Secretary of the Day" by Kansas City, Missouri, radio station KMBC. Wilma was presented with 2 dinner tickets, 2 theatre tickets, and an orchid.

Transportation Officials Confer

What might be the first assembly of Department of Transportation agencies in the field took place in Alaska early this year. The informal meeting, sponsored by FAA's Alaskan Region Director George M. Gary, brought together (from left) Rear Admiral Joseph R. Scullion, Commander, 17th District, U. S. Coast Guard; William J. Niemi, Regional Engineer, Bureau of Public Roads; George Gary; John E. Manley, General Manager of the Alaskan Railroad; and John R. Hafer, Supervisory Air Safety Investigator, Bureau of Safety, CAB. The meeting was devoted to each briefing the others on his agency's mission and resources, and a general discussion of how the separate agencies could best work together for mutual support and to avoid duplication.

Glider Guider

Radar controller William Brandes of Columbus, Ohio, Tower is ready to go aloft in his glider during a meet at Colorado Springs this past winter. A long-time glider enthusiast, Brandes was named oustanding pilot for 1966 by the Central Ohio Soaring Association.



Parked for the Season

April weather makes it seem a long time ago, but Wesley Beane, Millinocket, Maine, remembers many days this winter when this Kristi snow vehicle was the only way to reach the outlying facilities.

Making the Dirt Fly

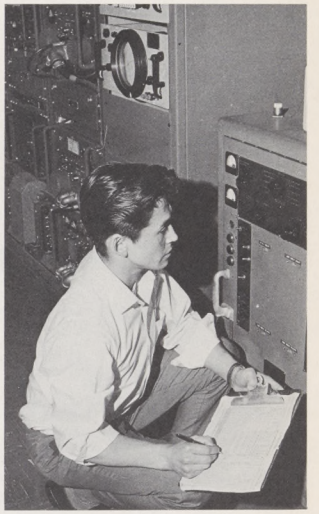
Southern Region Director "Jim" Rogers **(2nd from left)** and Guy Lipscomb, Chairman of the Richland-Lexington Airport Commission, at ground-breaking ceremonies for FAA's new control tower, Columbia, S. C. Giving Rogers and Lipscomb plenty of room for their "spade work" are Chester Wells, **(left)** Atlanta Area Manager, and Monroe David, Columbia Airport Manager.

Flying Scholarship

Lesley Van Salter, 18, **center,** received the first flying scholarship awarded by the Society of Experimental test pilots to the children of deceased test pilots. FAA employee Joe Tymczyszyn helped launch the program through the Society of Experimental Test Pilots.

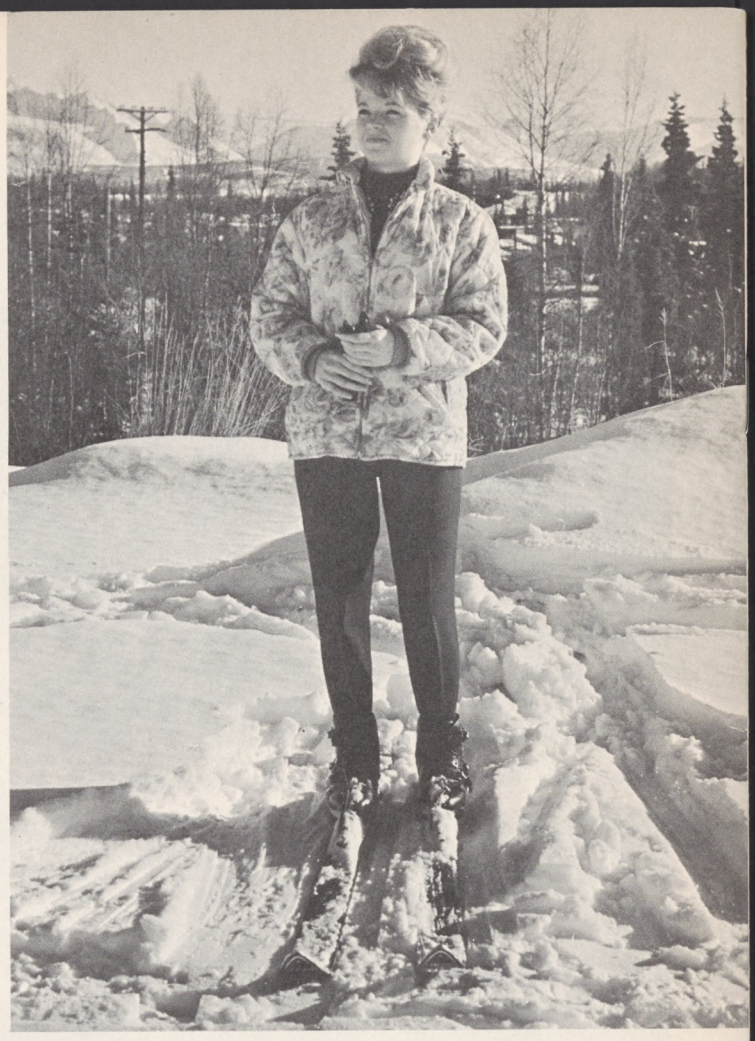
Mr. and Mrs. Chuck Miller shown above offered the contributed scholarship, leading to a private pilot's license.

In addition to Lesley Van Salter, whose father lost his life in the 1959 crash of an F-104 he was testing at Edwards Air Force Base, other students in the SETP Scholarship Foundation are: Donald J. LaHaye, an engineering student studying at Princeton University; Constance A. Neale, attending New Mexico State University; and Christine Grimes, enrolled at UCLA.



Homegrown Technician

"This is a real step forward in the Alaskan Region's effort to hire local people." With these words, Clyde Shoe, Alaskan Region Personnel Chief, summed up his feelings about a recent "new hire." Stanley L. Hoffman, an Alaskan native from Bethel, has been employed as an electronic technician trainee at the Flight Service Station at Bethel, a small community 325 miles west of Anchorage. Hoffman, who came to FAA from the Bureau of Indian Affairs, was born in Bethel, August 1944, attended school there, and received his early technical training at the RCA Institute in New York City. Shoe expects that ". . . Hoffman will attend technical courses at the FAA Academy in Oklahoma City and progress through to a journeyman status."



Cool Skier

Diminutive Libby Mansell of the Alaskan Region barely weighs 100 pounds in ski gear and she just tops five feet with her hair bouffant style. But Libby, a clerk-typist, looms tall in the eyes of ski-buffs who have watched her "schusses" down Alaska's mountain slopes. The pert miss is equally expert on water skiis. (Yes, water skiing is a popular summer sport in Alaska.) A member of a civil service family, Libby has lived 17 of her 20 years in Alaska. She says she prefers Alaska to the family's former home, Phoenix, Ariz., which they revisit each two years at Government expense on home leave.

after hours

Test Flight

Who plays with paper planes? Everyone from grade school kids to engineers, pilots and anyone else who likes to fold paper. This group is judging Washington entries in the American Airlines Division of the First International Paper Airplane Competition sponsored by *Scientific American*. But their faces reveal that they're probably indulging in a secret hobby. From left, are Fred Pelzman, FAA Office of Information Services; L. G. Crothers, DC City Manager, American Airlines, and Robert H. Wilkie, AC Sparkplug Division, GM. For more news on paper plane buffs, see news pages.

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