

Construction Scheduled

This new three-story building designed for the FAA Aeronautical Center will house the U.S. Coast Guard Institute, the National Aircraft Accident Investigation School, computer services and certain FAA administrative offices. Looking over the artist's rendering are (left to right): Phillip M. Rhoads, Oklahoma City Airport trustee; George Andreason, Chief, Management Analysis Division, who heads the planning team, and L. J. Miraldi, acting Deputy Director.

Center's New Building Ready in '72 for 600

OKLAHOMA CITY—Approval of a new 6.3 million dollar building for the FAA Aeronautical Center has been made by the Oklahoma City Airport Trust.

Phillip M. Rhoads, Oklahoma City Airport trustee, said the building was still in the planning stages, bonds would have to be sold and estimates drawn up for bidders. Estimated completion date for the new, multi-purpose building is September 1972.

A working group, composed of the Oklahoma City Airport Trustees, Rhoads, City Manager Robert Oldlund; George Andreason, Chief of the Management Analysis Division for the Aeronautical Center, and others will guide the building through all stages from planning to completion of construction.

The new building will consist of three stories and a full basement, totaling approximately 183,978 square feet and will be located on the west side of McArthur Bou-

levard at the Aeronautical Center between the Civil Aeromedical Institute Building and the Aviation Records Building.

The building will house the U.S. Coast Guard Institute based at the Aeronautical Center, the National Aircraft Accident Investigation School, the computer services for the FAA Center, and certain administrative offices, such as the print shop, distribution and procurement. Something over 600 personnel will occupy the new building.

Construction will depend on the sale of bonds and bidding for the work. However it is expected that actual construction probably can start this coming February.

The last Airport Trust building erected at the Aeronautical Center was the 2.9 million dollar Systems Training building, completed in the fall of 1969 and dedicated by Secretary of Transportation John A. Volpe.

Shaffer Sees Good News for FSSs

By Theodore Maher

WASHINGTON — Speaking at the recent Flight Service Stations 50th Anniversary celebration at Headquarters, Administrator Shaffer said that in the near future, personnel manning the FSSs will get "better quarters, better equip-

ment and improved treatment in every way."

The gala anniversary program was held here to honor the agency's 4,600 FSS specialists as hundreds of stations across the nation held festive open houses on the Aug. 20

anniversary day—a day proclaimed by state governors and city mayors as FSS Day. It was also a day when the "FSS story" was featured on scores of radio and TV shows and in newspapers.

The normally conservative auditorium decor took on a carnival air as it was decked with hundreds of colorful FSS balloons; red, white and blue bunting, straw-hatted ushers and large, mounted aviation photographs from times-gone-by.

Featuring talks by Administrator Shaffer, AT Director William M. Flener, DOT Under Secretary James Beggs and a colorful slide presentation, the show began as members of the Washington Redskins Band played an overture and a barbershop quartet sang a medley of songs from the 1920s to a packed house.

Shaffer said, "We've come a long way, but we have a long way to go and we are going to have to move awfully fast. We will have new digital data communication equipment within five years and this will eliminate a lot of voice communication.

"But we cannot get along with new equipment alone," he cautioned. He emphasized that people are still the most indispensable system.

Flener spoke briefly, radiating his pride in the service being honored. He also introduced DOT Under Secretary James Beggs; Fred Batrus, executive assistant to the Postmaster General; and Arthur Johnson, a man who started with the FSSs fifty years ago.

The slide show briefly traced the history of aviation from Icarus to the present and told the story of FSS in some detail. It included a picture and spoken chapter from

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Support Is Tremendous After Hurricane Hits

CORPUS CHRISTI—"We got tremendous support," is how Tower Chief Elmo McNeil and AFS Chief Robert Ryman sum up what happened after their facilities were raked over by hurricane winds in excess of 160 miles per hour late in the afternoon of Aug. 3.

ATC facilities were virtually nonexistent when controllers manned the tower at 6:15 a.m. the morning after hurricane Cecilia hit the field. But they hooked up a one channel Gonset transceiver to an auto battery and were promptly back in business.

Commercial power was knocked out, the VOR antenna and shelter were destroyed, two RML reflectors were inoperative, robbing the tower of a radar picture. Communication antennas and telephone lines, were down, and water pressure was zero.

Hangars Damaged

Four out of five hangars were damaged heavily or totally. The AFS office, housed in a badly damaged hangar, was untenable. Of the approximately 70 planes on the field at the time of the storm, almost all were damaged. In many cases the aircraft were total wrecks.

But help was not long in coming. The first day an agency DC-3 ar-

rived from Fort Worth with a small generator and fresh drinking water. Damage was assessed and the call was sent out for the new parts and systems as navaid technicians arrived on the scene from Houston and Brownsville to help install the new equipment.

The call went to the Area Office in Houston via an emergency "hurricane net" single side-band radio. From there it was passed to the Aeronautical Center and only a little over 24 hours after the storm had smashed in from the Gulf, an agency truck loaded with parts, rolled through the night for the stricken city.

Parts Expedited

As the morning of Aug. 5 dawned, the parts were on hand. The Airway Facilities Field Office in San Antonio supplied additional manpower and vehicles as the local AFS technicians went to work.

In the tower cab, fresh auto batteries were taken from damaged vehicles for the Gonset radio as communication facilities were restored. VFR traffic landed and took off while controllers rotated shifts, each working for short periods since the temperature soared in

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Western Region COPCOM Has First Annual Meeting

DENVER — Western Region Controllers' Procedures Committee (COPCOM) members recently held their first annual workshop in Denver.

The group, composed of controllers from Western Region centers, towers and approach control facilities and representatives from the Air Force and FAA Washington Headquarters, divided into terminal and en route discussion sessions during the weeklong workshop. Joint sessions were held periodically to form up recommendations from the entire COPCOM group.

Items discussed included "in-trail operations" and nonradar separation standards" and off-agenda items covering many subjects. Recommendations were made on six national agenda items and more than a dozen off-agenda subjects.

At the final workshop meeting, items of interest to both groups were discussed in order to arrive at common recommendations.

A workshop critique followed and recommendations for future workshops were discussed.

Recommendations and conclusions included: regional workshop dates should be published as early as possible; representatives from the Washington office, their participation in discussions, help in answering questions, and ability to get answers contributed to the success of the workshop; training and currency requirements are and will continue to be problems and will likely appear as agenda items at future workshops. The Western Region COPCOM would like participation from an active instructor from the FAA Academy at Oklahoma City. A current instructor meeting with current controllers could bring out mutual current problems.

The workshop was hosted by co-chairmen Charles Reese, Denver ARTCC, and Charles Digby, Jeffco Tower. Others attending

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Proclaiming FSS Week

Recognizing 50 years of continuous service in the interest of aviation safety by flight service stations, Hawaii's Governor John A. Burns signed a proclamation declaring the week of August 16 as "Flight Service Week" in Hawaii. Witnessing are (from left) Pacific Region Director Phillip M. Swatek, Ambrose Morrison, Chief, Kona Combined Station/Tower, Kailua, Kona; Joseph A. Soares, Chief, Lihue FSS; Joseph K. Hao, Chief, Honolulu FSS; Donald F. Epler, Chief, Maui CS/T.; Kahului; Yoshiaki Ogata, Acting Chief, Hilo CS/T.; and Donald H. Long, PC Air Traffic Division Chief. The FSS anniversary was observed in all 50 states.



C. B. Walk, Jr., then Acting Director of the Aeronautical Center, signs lease agreement with Clinton-Sherman AFB while Frank Kliever, chairman for the Midwest Oklahoma Industrial Foundation, looks on. (Left): Operations and tower at Clinton-Sherman AFB, Clinton, Okla. elevation 1,923 feet. Tower is manned now by personnel from the FAA Aeronautical Center's Academy in Oklahoma City. Below: Walk watches as the first C-141 to use the 13,500 foot runway lands at Clinton-Sherman following its reactivation.

FAA and Air Force to Share Field...

Agency Helps Reopen

HUGE AIRBASE



FAA and ESSA people responsible for operation of the reactivated Clinton-Sherman Tower are (left to right): (standing) Ray Massie, Supervisory Instructor; Tom Jones, ATC Specialist; Hugh Snyder, Weather Bureau advisor; Ted Beckloff, Supervisory Instructor in Charge; Dick Marks, Chief, Air Traffic Training Branch; and I. V. Sims, ATC Specialist. Seated: Wayne Smith, ATC Specialist.



When a large airbase is deactivated because it no longer fits into the national defense picture is it doomed to inactivity? With smaller, more easy to maintain airports in the area, will the large base (where Strategic Air Command planes alternately roosted and zoomed worldwide) see its generous two mile-long runways broken by grass and weeds?

Not so at Clinton-Sherman AFB near Clinton, Okla. It was reactivated last month after being closed tight for the first half of the year. Now the base is being used by the Air Force for operational and transitional flight training of C-141 Starlifters based at Altus, Okla., AFB. FAA employees will operate the tower and runway.

Dramatizing the reactivation in July were fly-bys at Clinton-Sherman by a huge Air Force C-141 and one of the agency's jet aircraft. Controllers, supervisors

and instructors from Air Traffic Control Training at the Aeronautical Center manned the no longer dormant tower. The FAA's DC-9 landed to be hangared temporarily and the C-141 continued touch-and-go landings before returning to its home base for it and other Starlifters at Altus. A few months earlier, Federal officials and officials of the Midwest Oklahoma Industrial Foundation (MOIF) signed papers reopening the huge base, officially closed in mid-winter. Under the terms of the agreement, the FAA will pay \$169,500 a year to the new landlord. The military will use the base on a reimbursable pay basis.

Signing the agreement were Frank Kliever, a Cordell, Okla., banker and chairman of MOIF, and C. B. Walk, Jr., who was then Acting Director of the Aeronautical Center.

The tower and 13,500 foot-long runway will be op-

erated by FAA Center employees. Air navigational aids used in conjunction with the airport operation will be maintained by Southwest Region technicians. The tower will be operational 12 hours daily, Monday through Friday and six hours on Saturday. It will be closed on Sunday.

Supervisors and instructors from the Academy's terminal courses will operate the tower on a rotating basis. FAA Flight Standards Training aircraft will not be based at Clinton-Sherman, but will fly from the Aeronautical Center each day.

Reopening of the base, vacated by SAC Dec. 31, 1969, is the culmination of months of negotiation between the FAA and MOIF. As a result, there will be no weeds growing on the runway of the old Clinton-Sherman AFB, and once again the skies over that airport are busy.



For Outstanding Work

Receiving Special Achievement Awards from Associate Administrator for Plans Oscar Bakke are agency officials who coordinated sessions during the recent Second Annual Planning Review Conference in Washington. They are (from left): Enrique Cruz and Ronald Shreve, Noise Abatement; Walter Faison, Aviation Policy and Plans; William Sperry, Noise Abatement; Ulysses Varese, Policy and Plans; Otho Mendenhall, Aviation Economics; J. K. Power, Noise Abatement; Garland Castleberry, Raymond Uhl and Wallace Ashby, all of Policy and Plans; Bakke; Donald Geoffrion and Thomas Messier of Policy and Plans; and James Gansle of Aviation Economics. Also receiving awards were Horace Adams, Walter Barbo, Raymond Cybulski and Richard Seaman, all of Policy and Plans.

Ontario FSS Now at Home In Permanent New Quarters

ONTARIO, Calif. — A fourth move since relocation from Riverside in 1950 has put the Ontario FSS into handsome new quarters that make the 20 years well worth waiting.

The station at Ontario Airport—an alternate for Los Angeles International—started in a surplus military building only a few hundred yards from its modern site today. For three years, the station operated in the surplus building, until it was combined with the control tower function. For a dozen more years, the combined station and tower were “in business” serving area pilots until 1965, when the facility was decombed due to an increase in air traffic activities. The FSS then went into smaller, crowded quarters in the base of the tower building, considerably away from the cab. Now facility personnel have ample space and feel

really “at home.”

During the past four years activity has increased by more than 20 per cent annually, with 233,595 flight services provided in calendar 1969.

Like other flight service stations, the principal objective is to provide flight assistance to general aviation, military and air carrier pilots. Ontario provides this assistance to pilots flying from 16 civil and three military airports in a flight plan area that serves over 1,500 based aircraft and over 6,000 pilots.

In addition to over-the-counter and telephone pre-flight briefings, in-flight service is provided on four VHF radio frequencies and through the facilities of FAA Omni stations at Narco and Pomona, Calif.

There are 19 specialists at the new station, under Chief John Andrews.

FAA Career Dovetails With Hobby

WASHINGTON—This is about a priceless Siamese cat and an FAA employee who discovered the secret of personal fulfillment that has eluded millions of others.

The cat is a four-inch-high mahogany-colored feline with quartz crystal eyes that sparkle like blue diamonds.

The man who carved it from a block of “tigereye”—a form of petrified asbestos quartz—is Aubrey E. (Bud) Cole, chief of the Air Traffic Service’s Command Control Systems Branch.

Cole’s secret? It lies in combining a meaningful FAA career with a satisfying hobby—a hobby that offsets the concerns and responsibilities tied up with one’s daily

work and in addition offers the promise of a rewarding, active retirement.

Cole’s cat, which looks as though it has just spotted a mouse, emerged from the quartz block after Cole spent about 120 hours of diamond drilling, sawing and polishing to produce it.

The remarkably realistic cat recently graced the cover of the gem-cutters’ “bible”—*The Lapidary Journal*. The same issue contained a lengthy article by Cole telling exactly how to go about carving a cat out of stone. Sixteen photos illustrate the precise steps required—and, incidentally, testify to Cole’s absorption in his unusual hobby.

Following publication of the

cover photo of the cat perched on blue velvet and Cole’s accompanying article, he received offers of up to \$500 for the carving. The cat was appraised much higher by a former curator of gems and minerals of the Smithsonian. However, all offers fell on deaf ears. “I didn’t carve the cat to sell,” Cole explained. “We’ll keep it in the family.”

Cole finds relaxation, personal challenge and an outlet for creativity in transforming semi-precious stones into jewelry and sculpture.

His basement workshop contains a wide variety of tools and machines with which he has produced a steady succession of gemstone creations over the past 20 years including miniature dogs, frogs, fish and dinosaurs. He also creates jade and gold jewelry, to the delight of Mrs. Cole.

“You get better at gem-cutting as you go along,” Cole commented.

Long Experience

By dint of his almost a quarter of a century of experience in the field, his articles on gem-cutting, his displays at national lapidary exhibitions and his frequent lectures on his hobby, Cole now qualifies as an expert in his avocation. He is a past president and current director of the Washington Gem and Lapidary Society and is becoming widely known among the more than one million Americans that pursue this hobby. A forthcoming issue of *The Lapidary Journal* will contain Cole’s latest article. It’s about a gem-cutting project for beginners.

After retirement—and he anticipates this will be within two years—Cole plans to supplement his Federal annuity by taking carving commissions and producing custom-made jewelry. He also plans to furnish equipment and supplies to other carvers. At present, however, the potential business aspects of his hobby interest him far less than the inner satisfaction he derives.

Cole’s agency career began in 1937 when he became an Assistant Airways Keeper at Fort Plain, N.Y. Assignments to stations at Pittsfield, Mass., and Augusta, Me., followed and in 1940 he was transferred to the New York IFSS as a radio operator.

In 1943, he accepted a one-year detail to Port Lyautey, French Morocco, as a technician on loan to the U. S. Navy. That one-year detail stretched into more than three years, including one-year assignments in Paris and London.

Returning to the U. S. in 1947, he spent three months in the New York regional office, then was transferred to Washington.



Gemstone Carver

Aubrey E. (Bud) Cole transforms a semi-precious stone into a valuable item of custom-made jewelry in his home workshop. At FAA Headquarters, Cole is Chief, Air Traffic Service’s Command Control Systems Branch.

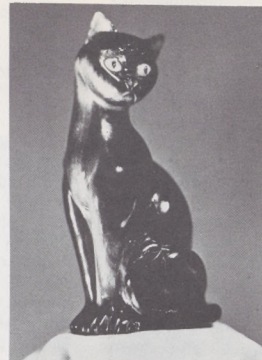
Top Free World Weather Experts At Headquarters

WASHINGTON — The free world’s foremost experts on aviation all-weather operations were hosted by the FAA for a three-day meeting at Headquarters July 8-10.

Representatives of Australia, Canada, France, Germany, the United Kingdom, the United States and the International Air Transport Association assembled to discuss international standards. They formed a working group of the International Civil Aviation Organization (ICAO) All-Weather Operations Panel.

Delegates considered operational requirements for the next generation instrument landing system, in preparation for a full panel meeting to be held in January 1971 at ICAO headquarters in Montreal. The meeting was chaired by Keith Wood, chief of the U.K. delegation, with the U. S. providing the logistics, including an inspection tour of NAFEC. Previous meetings have been held in London, Paris, Melbourne and Montreal.

After the initial meeting in Washington, the international group visited NAFEC on the second day to view FAA all-weather landing development projects, arranged by NAFEC Guidance Branch Chief Loring G. Craymer, Jr. They toured the FAA installation of the British STAN-37 ILS, the AIL microwave scanning beam ILS, and the LFE V/STOL instrument landing system. They also were briefed on various visual aid development projects underway at NAFEC.



‘Tigereye’

This is the cat that received widespread attention among gem-cutters when it was featured on the cover of a national hobby magazine. It was carved by Aubrey E. (Bud) Cole.



The ‘Real’ Mrs. Quarles . . .

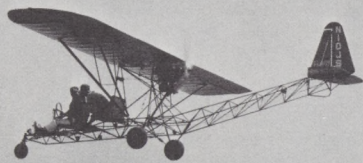
In the Aug. 17 story, “Ninety-Nines to Celebrate FSS Week,” we ran a picture reported to be Mrs. Nona Quarles which actually was Mrs. Martha M. Christy (right), of the Shreveport chapter of the women pilots’ organization. We regret the mistaken identity. Here—at your left and Mrs. Christy’s right—is our own Mrs. Donald A. Quarles, Special Assistant for Women’s Aviation Activities in the Office of General Aviation Affairs at FAA Headquarters.

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, Manpower and Planning Staff, under the Associate Administrator for Manpower, FAA, 800 Independence Ave., Washington, D.C. 20590. Telephone: 962-7848. 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: JOHN H. SHAFER
 Associate Administrator for Manpower: BERTRAND M. HARDING
 Chief, Employee Information Division: CLIFFORD CERNICK
 Associate Editor: THOM HOOK
 Layout/Production: GERNOT RASMUSSEN

FAA Helps EAA Grass-Roots Flyers' Convention . . .



'BREEZY' DAYS at OSHKOSH

Text and Photos by Thom Hook

During the first eight days of August, Wittman Field by Lake Winnebago at Oshkosh, Wisc., and some 150 miles northwest of Chicago became the world's busiest general aviation airport. The tower there, under Chief Lawrence W. Davis, safely handled an amazing 31,762 takeoffs and landings—more than an average airport does in a year.

Hugh L. Doyle, Tower Chief from Rockford, Ill., and a veteran at handling the convention's heavy traffic, assisted Davis and his controllers, who were borrowed from nine Central Region towers.

Daily itinerant traffic and fly-bys, using segregated runways, peaked Thursday, Aug. 6 at 7,174 operations—more than combined peak day loads of O'Hare, JFK International and Washington National.

Headquarters Executives Visit

A contingent of FAA executives whose responsibilities include keeping abreast of developments among grass-roots flyers in general aviation recently flew from Washington to Oshkosh for the 18th Annual International Experimental Aircraft Association Sport Aviation Convention and Exhibition. Administrator John H. Shaffer and Deputy Administrator Kenneth M. Smith also made a fly-in visit to the world's largest conclave of aircraft craftsmen and homebuilders.

By plane, car, bus and camping vehicle some 450,000 spectators came to admire the craftsmanship reflected by 280 homebuilt aircraft, 217 antique planes and 110 shining, high-powered planes called "warbirds and specials,"—including a few gyrocopters and helicopters. In a host of large tents, members from more than 360 EAA Chapters attended forums on various aspects of building one's own aircraft from available plans. When not learning more aeronautical lore at the forums, pilots took other members for rides on "fly-bys," but not without first getting a daily briefing from FAA, of which 11,000 were given during the event.

Planned Months In Advance

A relatively last-minute switch from its previous location of ten years' running brought about a meeting last January between key Minneapolis Area Office officials and EAA officers at Oshkosh Tower. Present were Robert O. Ziegler, Area Manager; John L. Doerflinger, Assistant Air Traffic Branch Chief, who was named FAA Monitor for the upcoming event; EAA Executive Director Paul Poberezny; Oshkosh Airport Manager Mike Brock; Larry Davis, Chief, Oshkosh Tower; Dave Roberts, Chief, Green Bay Airway Facilities Sector; Len Berg, Chief, Green Bay FSS; Frank Skopinski, Chief, Milwaukee GADO; and Val Bruger, an EAA director.

At the planning meeting, the agenda covered all aspects of the coming convention, including where aircraft would be parked, where the large camping area would be, and making certain that the programs planned met with airspace criteria set for safe operation of the airport. It was decided that runway 36-18 would be set aside for EAA Fly-by pattern flying, while runway 9-27 would be for the several thousand itinerant aircraft of conventional manufacture that attend the annual convention.

A second meeting of the same group was held in May, and a final letter of agreement between EAA officials and FAA was drawn up and signed by all parties. A final waiver, permitting the convention to hold precision flying demonstrations at 5 p.m. daily, was written by Chicago ARTC Center and delivered to FAA Monitor Doerflinger.

A staff of 18 terminal controllers, seven Flight Standards personnel and three Airway Facilities maintenance technicians were assigned to work the show and safely coordinate thousands of operations each day.

When the week came about, everything went according to plan. The only serious incident in the intensive flying done happened in a hangar—when Bob Hoover's famous yellow F-51 Mustang said farewell to its last air show after a servicing mishap. This was in no way connected with the EAA Fly-Bys, and—as has been the case for the past 18 years—the safety record of the amateur-built aircraft program and the convention itself reflected the fact that it has not been necessary to change regulations pertaining to homebuilders during that period.

Terminal Controllers Busy

Among the staff that contributed to the success of this year's EAA Convention were the following terminal controllers: Donald Driscoll, James Brenner, Gene M. Anderson, Russell Ponessa, James R. Nelson, Peter Waggoner, Harold L. Arneson, Richard Johnson, Laverne Oliver, Allen F. Sabin, Verne Wepner, Gordon Hayman, John Gulig, Gene E. Olson, John G. Dejonge, Douglas Radtke, Robert Margala and Lightel Whitaker. They were drawn not only from Oshkosh Tower's regular crew, but from towers at Flying Cloud, Milwaukee, Minneapolis, Janesville, Rockford, Midway, Grand Rapids, Detroit Metro and Indianapolis.

FSS Specialists included Norman C. Birkholz, Stephen Wilkerson and Donald Valentine, all from Minneapolis. Maintenance support came from technicians Jim Gerrit, Lawrence Cassidy, both of Oshkosh Airway Facilities Sector, and Hank Dunning, of the Green Bay AFS.

GADO Personnel Assist

General Aviation District Office personnel came from facilities at Fargo, Minneapolis and Milwaukee to work the show. They were: George Anderson, John Fedorky, Richard Paquette, Jerald Mertens, Louis Ludwig, Ronald Nelson, Allen McDonald, Robert Watson, Harry Demmerly, Fred Becchetti and Harold Olson.

Until next year, the skies above Oshkosh now are back to the normal 250 operations daily. Some 13,000 campers have left their area as neat as they found it and are back flying from their local small airports and sharing their knowledge at local EAA Chapter meetings. America is still a land where anyone can build his own homebuilt airplane, using materials many factories would find expensive. FAA inspects each project at different stages of construction, and when the plane is completed, chances are it will head one summer day for the big Fly-In at Oshkosh, with its builder at the controls.



FAA Headquarters visitors (from left) Marshall Benedict, of Airports Service; Bob Faith, of Appraisal; and Tony Lalle, of General Counsel, prepare to send Faith aloft in a Breezy pusher piloted by plane builder Howard Bennett, from Lumberton, N.C. Taxiing behind them is a two-place Volmer Sportsman amphibian.



Terminal controller James R. Nelson (right), who regularly works at Minneapolis Tower, guides the all-wood fuselage "Fly Baby" to the runway as part of FAA's mobile field station operation.



This FAA Headquarters group became honorary members of the EAA to keep abreast of developments in homebuilt aircraft. They were (fifth from right). Homebuilders-for-a-day were (left to right): W. M. Andrew J. Prokop, Flight Standards; Robert L. Faith, Appraisal; Anthony Traffic Service; W. Buriil Barclay, Systems Research and Development Safety Board; Marshall C. Benedict, Airports Service; James R. Green EAA's Poberezny; Edward G. (Ted) Wild, Flight Standards; Ralph Hubbell, Flight Standards, and Air Commodore M. D. Khana, of the In



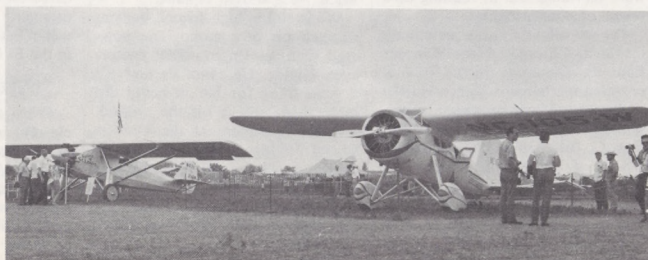
Greeting lead car of FAA contingent from Headquarters is FAA Monitor John L. Doerflinger, Assistant Chief, Air Traffic Branch, Minneapolis Area Office. Riding with EAA executive director Paul Poberezny at the wheel are (left to right): James R. Greenwood, FAA Director of Public Affairs; Andrew J. Prokop, Chief, General Aviation Operations Branch, Flight Standards; William M. (Tuck) Huey, consultant to the Deputy Administrator; and W. Buriel Barclay, Chief, Coordination Branch, Systems Research and Development Service.



Part of the crew in Oshkosh, Wisc., Tower that handled a peak of 7,174 operations Aug. 6 during the EAA Fly-In Convention are seen with an array of homebuilts and antiques tied-down below. On duty are (from left): Harold L. Arneson, Janesville; Gene Anderson, Milwaukee; Jim Gerrit and Dick Johnson, both from Oshkosh.



This unique homebuilt is the second Dyke Delta JD2 to be completed. John Thompson, of Tucson, Ariz., built it in one year. Powered by a 200 h.p. Lycoming engine, the Dyke Delta cruises at 200 m.p.h. at 10,000 feet. Plane seats four, has windows of blue-tinted plexiglas.



Vintage replicas of planes that made aviation history were present. At left, a copy of the Ryan in which Lindbergh flew solo across the Atlantic. Next to it, the beautifully restored all-wood Lockheed Vega of the type in which Wiley Post set many cross-country speed records. Oshkosh homebuilder Dave Jameson bases the "Winnie Mae" at Wittman Field.



A child's toy miniature parked close to a four-place BD-4 homebuilt attracted almost as much attention as Jim Bede's 172 m.p.h. family cruiser. Plane is marketed to builders in seven packages of materials, and with engine varying from 108 h.p. up to 180 h.p., cost is in area of \$5,000. Right wing is folded above.



Among the crowd admiring the craftsmanship that went into Dale Crites' restored 1912 Curtiss Sweetheart pusher plane were (from left): Robert O. Ziegler, Minneapolis Area Manager; Cliff Skoog, Minneapolis Flight Standards; John Doerflinger, Asst. Chief of Air Traffic, Minneapolis Area, and Frank Skopinski, Chief of Milwaukee GADO.



When a receiver burned out on mobile equipment set up on the field, electronics technicians (from left) Lawrence Cassidy and Hank Dunning of Oshkosh Airway Facilities Sub-Sector quickly made the necessary repairs.



Members of the Experimental Aircraft Association during a one day visit to Oshkosh. They were photographed with EAA Director Paul Poberezny (left to right): W. M. (Tuck) Huey, consultant to the Deputy Administrator; Appraisal; Anthony W. Lalle, General Counsel; R. A. (Bob) Taylor, Air Traffic Development Service; Joseph C. Zacko, Jr., National Transportation Administrator; James R. Greenwood, Public Affairs; George J. Pour, Flight Standards; Standards; Ralph A. Lovering, General Aviation Affairs; Henry (Hank) Khana, of the Indian Embassy.



Above: Warbirds of America had a well-known father and son team performing in each afternoon's air show.—Bill and Corky Fornof, in matching Grumman Bearcats. Below: Among the Warbirds, now affiliated with EAA, were (front to rear): Bob Hoover's F-51 Mustang; a Curtiss P-40 Warhawk, and Paul Poberezny's pre-World War II P-64.



Besides being a focal point for FAA's services to pilots, this tent also served Weather Bureau personnel. Here pilots gathered for briefings and to file or close flight plans for cross-country flights.



Most Outstanding

Director of Air Traffic Service William M. Flener (left), presents the National Air Traffic Facility of the Year Award to Ronald E. Current, who was then acting chief of the Indianapolis Center, in recognition of the facility's selection as the outstanding ARTCC during 1969.

Indianapolis Center Staff Gets Outstanding Awards

INDIANAPOLIS — Controllers at the Indianapolis Center, the ARTCC winner of the Outstanding ATC Facility of the Year Award, received their award from Air Traffic Service Director William M. Flener recently.

At the same ceremony, Central Region Director Edward C. Marsh presented the Region's award to the center as the outstanding center in the Central Region. Both awards were accepted by Ronald E. Current, then acting chief of the facility. Lonnie D. Parrish, former Indianapolis Center Chief, was also present.

The national and regional awards were based on the outstanding quality of service rendered by the center as well as its continued productivity in spite of personnel shortages. During the year, center controllers played a major part in testing and developing ATC automation equipment and did an outstanding job in the area of recruitment and training during 1969. More than 200 new employees

were recruited and in training as a result of that program.

Others attending the ceremony included Chicago Area Manager Paul E. Cannon; Jerry Roland, representing Senator Vance Hartke of Indiana; Maxine Gordon, representing Indiana Representative William G. Bray; John Walsh, Deputy Mayor of Indianapolis; George D. Smith, Assistant Chief of the Central Region Air Traffic Division; and M. L. Koehler, Chicago Area Air Traffic Branch Chief. All of the FAA facility chiefs in the Indianapolis area also attended.

Senator Birch E. Bayh, Jr., who was unable to attend the ceremony, sent the following telegram: "Congratulations on being selected the Air Traffic Control Facility of the Year. The Award is richly deserved and I know you will continue to serve in the same great tradition of excellence." In addition, American Airlines sent a telegram to the facility expressing its appreciation for dedication and fine service provided by personnel of the facility.

Aviation Chief Retires; Played Role in History

WASHINGTON—Last month, a man who played a major role in significant U.S. aviation developments during the span of almost half a century, said "goodbye" to the FAA after an agency career of 33 years.

Although Harold D. Hoekstra has retired as Chief, Engineering and Safety Division of the Aircraft Development Service—his most recent FAA job—you'll see him around. He plans an active retirement, including aviation-oriented work that will occasionally bring him to 800 Independence Avenue.

Soft-spoken and unassuming, Hoekstra would be the last person to call attention to the magnitude of his contributions to aviation—a matter that, unfortunately, gets lost in the flurry of farewells that so often accompany a retirement.

Hoekstra first became interested in flying in 1911, when, at age eight, he saw Leonard Bonney take off from a ballpark in Battle Creek, Mich., in a Wright biplane.

While still in high school, he constructed his own monoplane powered with an English JAP motorcycle engine. He concedes now it's a good thing for him it never did more than bounce off the ground.

While a student at the University of Michigan, Hoekstra and his colleagues flew a gas-filled balloon the length of Lake Erie—a lark that was fully recounted in an earlier issue of *FAA Horizons* (May 12, 1969).

Hoekstra soloed in 1930, flying an OX-5 Travel Air at a small airport near Cincinnati and is still an active pilot.

Engineer and Designer

During the early 30s, he pursued a career as an aeronautical engineer, designer and project engineer for major U.S. aircraft firms of that era, including Ford, Stinson, Crosley and Curtiss. He joined the CAA in 1937 as an aeronautical engineer in airworthiness work.

Hoekstra has played a significant

role in the introduction of the modern family of jets. Starting in 1955, he headed CAA's headquarters and field engineering work on the initial certification of jet transports.

He also qualifies as a "pioneer" in early development of the SST. He was a member of the first agency team to study SST airworthiness standards and standards for operations and maintenance of the faster-than-sound aircraft. He directed what came to be known as the "Red Book" published in March 1961—the first Bureau of Flight Standards report on the SST.

A couple of other Hoekstra "firsts": he was first to suggest ways of making civil aircraft more effective and usable in a national emergency through certain modifications—later to become the Civil Air Reserve Fleet Plan. He was on the first U.S. delegation to the Provisional International Civil Aviation Organization (ICAO) convention at Montreal early in 1946. He initiated the first FAA technical measurement of jet transport noise, using FAA's Boeing 720 (N-113) in the El Paso tests.

Worked To Enhance Safety

Over the years he has been closely associated with developments that have made flying safer. As CAA's representative working with Texas A and M College, he helped develop a better, safer agricultural aircraft. In 1948, he developed the Koch chart (named after Al Koch, then director of the Office of Aviation Safety.) The chart provided pilots with a simple, handy check of aircraft performance at various temperatures and altitudes—a concept better known as density altitude. He thus made a major contribution to general aviation air safety long before the introduction of the Denalt computer, which supplanted the Koch chart.

Air safety projects and papers on which Hoekstra has worked include those having to do with loads and stresses, aircraft braking, stability augmentation for light airplanes, recorders, jet pod fire tests, lightning protection, the Phoenix crash safety tests, spins, flutter and structures.

Hoekstra is a fellow of the Royal Aeronautical Society of London and has been active in a number of professional engineers' organiza-



Harold D. Hoekstra.

tions. He was a past national director and vice president of the Society of Automotive Engineers, and in 1970 was named chairman of that organization's Engineering Activity Board.

He holds seven aeronautical patents.

A source of special pride is his family—his wife Laura, once a pharmacist, two daughters, one an architect and the other a mathematician; also two sons, one with a doctorate in engineering and the other an MS in physics. All are married and there are five grandchildren.

Harold Hoekstra has left FAA but is not, of course, leaving aviation. It has been his life—and he has dedicated himself to its cause.

"I'll drop back from time to time," he promises, as so many retirees do—but Hoekstra really means it.

The FAA and its predecessors have a special meaning for him—they were the fabric of his life too long for him to close the door for good.

Pollution Solution

WASHINGTON—If rush hour commuters were to travel from suburban areas to downtown business sections in currently available aircraft, they would generate only one-eighth the air pollution emitted now by their private automobiles according to a study recently completed by Rutgers University and conducted on traffic commuting between such cities as New Haven, Conn., Newark, N.J., and White Plains, N.Y. and downtown Manhattan.

Researchers found the 40 tons of pollutants emitted by commuters' automobiles during rush hours could be reduced to five tons if aircraft were used.

Students Training as ATC Specialists

WALNUT, Calif.—The number of colleges participating in the agency's experimental aviation technology education project continues to grow. This summer a group of students, enrolled in the program at San Antonio College,

are working as trainees in traffic control facilities in Southern California.

The eleven—ten men and one woman—are the first to be hired in the program to train air traffic controller students co-sponsored by the

college and FAA. They will be enrolled in the college's new course, "Traffic Control Internship 47." Each will work for approximately ten weeks this summer, receiving about \$90 per week.

The students selected for this summer project have all passed a Civil Service entrance exam and the FAA psychological test. They have all been classified as FAA trainee air traffic control specialists.

During the ten-week period, they are working at Brackett, Ontario, Riverside, Van Nuys and Fullerton Airport Towers, and at March Air Force Base RAPCON. They will be trained by permanent, fully-trained FAA personnel at each location.

In cooperation with the FAA and the State Department of Education, this year, the college initiated the new aviation major leading to an Associate in Science degree in air traffic management. The course of study prepares the student to enter the field as a specialist in traffic control or flight service. The program is also excellent training for a student who intends to work in related fields such as airport management, fixed base operations, flight instruction, ground instruction, aviation trades services and military operations.



Student Controllers



Student controllers from San Antonio College in Walnut, Calif., training at agency ATC facilities this summer are (front row, left to right): Norman Spaford, Ontario Tower; Anna Olivo, Riverside Tower; Bruce Bender, Brackett Tower; (back row from left) Jim Kasa, Riverside Tower; Bradley Johnson, March AFB RAPCON; John Clark, Brackett Tower; and David Challburg, Fullerton Tower. Students enrolled in the program but not shown are Greg Wood, Ontario Tower; Mike Meschner, March AFB RAPCON; and Henry Morales and Mike Hance, Van Nuys Tower.



Bumper Advertising

A recruiting sign for the rear bumpers of two Central Region government vehicles is held to show "Horizons" readers by (from left): Thelma E. Barnes, Mary A. Davis, Alfreida M. Brown and Lolita S. Townsend. The girls are employees in the Personnel and Training Division; the sign: for EEO recruiters.

DIRECT LINE

This is your direct line to the top! Your questions will get answers! Employees are encouraged to discuss questions with supervisors or their local personnel office, but for those who do not have ready access to a personnel office, this column will provide an opportunity to get questions answered. Send your letter to: The Associate Administrator for Manpower, Direct Line, FAA, 800 Independence Avenue, S.W., Washington, D. C., 20590. Ground Rules: • All questions must be signed. • This column should not be used to supplant formal grievance and appeals procedures. • Questions should concern personnel and training policies, programs and procedures, not operational or technical matters. What's your question?

Question: On May 1, 1970, I will have 20 years of civil service time. I wish to resign and go into private business. If something should happen to prevent me from working, in what way could I take advantage of the retirement fund for myself and family? If I should die, how could my wife and family make use of the retirement fund?

Answer: When you leave the Federal service before you are eligible to retire, you have a choice of withdrawing your contribution to the retirement fund or leaving it in the fund for future use. You may withdraw your contribution at any time up to 30 days before you are eligible to receive an annuity. If you do not withdraw your contribution, you may draw a "deferred annuity" at age 62. If after leaving Government service, you are disabled (or otherwise prevented from working), or die, the only benefit that you or your family can receive from the retirement fund before you are age 62 is the return of your contribution with any interest accrued in a lump sum payment. Your wife and family would be eligible for the same benefits under "deferred annuity" as would be the case under a regular annuity—but only after you reach age 62 and begin to draw annuity payments.

Question: Are there any plans to upgrade electronics engineers who have numerous "pressure" facilities within their area of consideration?

Answer: The Civil Service Commission is currently studying the GS-855 Electronics Engineering classification standard. There are no indications at this time as to what revisions will be made or whether the grade structure of electronics engineers will be significantly changed. However, the FAA has requested that full consideration of positions in the operational and maintenance field be considered and featured in the revised standard. The Commission will undoubtedly consider "pressure" along with all other pertinent considerations.

Question: What does an employee have to be subjected to in order to receive additional pay for physical hardship? What is the agency's definition of "prolonged period and extreme temperature" as related to hazard pay?

Answer: Hazard pay can only be authorized for duties approved by the Civil Service Commission which are included in Appendix 3, PT P 3550.11. In accordance with these regulations, Federal agencies pay hazard differential to an employee who is assigned and performs irregular or intermittent duty when the duty is not usually involved in carrying out the duties of his position. Hazard pay differential may not be paid an employee when the hazardous duty has been taken into account in the classification of his position. Your personnel office

receives changes to the regulations as issued by the Commission. The details regarding what constitutes a "prolonged period and extreme temperatures" are also contained in the Civil Service Commission's definition of the payable hazard. Normally, the agency does not attempt to further define these situations. The Commission also sets the rate (amount) of differential that may be paid for performance of an approved duty.

Question: Order 2500.31B refers to an air traffic control chief's authority to purchase certain items within specific limits. Is there a similar fund for Airway Facilities Chiefs?

Answer: While there is no similarly designated "Captain's Fund," Airway Facilities Chiefs may use SF-44, U.S. Government Purchase Order-Invoice-Voucher, or imprest funds for purchases to meet essential operational requirements.

Question: If a career status employee is a member of an active Reserve Military Unit and is ordered for active duty for training (periods in addition to the required two-week training but required by the military to complete the reservist's military education requirements), can he be denied the use of his accrued annual leave for this absence? Would an absence not covered by annual leave be covered by leave without pay?

Answer: Upon request, a reservist or National Guardsman must be granted military leave, annual leave, or leave without pay, if necessary, to perform active duty for training or inactive duty training in the Armed Forces under the provisions of paragraph 66 of the Absence and Leave Handbook (3600.2) Military Selective Service Act of 1967. If he is not eligible for military leave or has used it, he must be allowed to use annual leave. If he has no annual leave (or does not wish to use it), he must be granted leave without pay.

Question: Why is an electronics technician sometimes required to work alone to restore navigational systems?

Answer: Agency policy on this matter is spelled out in Order 3900.9, "Accident Prevention Handbook for Airway Facility Personnel," Appendix 1, paragraph 4. FAA technicians are highly trained journeymen who are well indoctrinated in safety procedures. Even though ETs frequently work alone, they have a documented low accident rate, with far fewer accidents than comparable journeymen in other Federal employment, electric utilities, and all industries. The majority of routine equipment adjustments can be accomplished without exposing the employee to dangerous voltage and technicians are trained to take all safety precautions necessary to avoid accidents.

COPCOM

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were: Roger Clark, Robert Cotey, and photographer Tom Ross of Denver ARTCC; Wesley Walker, Los Angeles ARTCC; Thirl Christensen, Salt Lake City ARTCC; William L. Govers, Seattle ARTCC; Stephen Brashear, Oakland ARTCC; Paul C. Ubanks, Pueblo, Colo. CS/T; Jack G. McDonnell, Portland Tower; Edsell F. Byrd, Brackett Tower; Tom McChort, Oakland Bay TRACON; James Donnelly, Las Vegas Tower; CMSgt. R. A. Marean, Mather AFB; and, Lt. Col. Don Willis and Paul Peterson of Washington Headquarters.

Hurricane

(Continued from Page 1)

the unventilated glass greenhouse.

On Aug. 7, four days after the storm, while power and telephone lines in the area were still hanging loosely from poles, the VOR—powered by an engine generator—was flight tested by an agency DC-3 and the facility was back in operation. The Airport Surveillance Radar (ASR), hooked up to new micro-wave reflectors and realigned, and was flight tested on Aug. 10.

Also on Aug. 10, only two days after it was ordered, new furniture arrived for the AFS office, temporarily set up in the airport's International Building.

A little more than a week after the storm, while the city was still digging out and the two hangars reduced to rubble still littered the field, ATC operations were back to normal.

Some FAAers also had their own problems. One controller who lives on the first floor of an apartment building was startled to see the second floor blown away in the wind. An AFS technician thoughtfully drove his camper into a hangar before the storm for safekeeping — but unfortunately the hangar collapsed, destroying the vehicle.

But morale was excellent. Mrs. Pauline Glasson, a local pilot on the FAA Women's Advisory Committee visited the airport the day after the storm. She reported that she saw a FAAer sitting on top of a desk out in the open field. There were telephones on the desk and smashed equipment all around, but the man said with a smile "What can I do for you?"



Systems Engineering Session

Attending a recent four-day Systems Engineering Management Workshop held mainly for FAA Headquarters executives were (from right foreground to left): Clifford L. Schum, Office of Budget; Percy H. Andros, National Airspace System Program Office, and Charles E. Dowling, Jr., Systems Research and Development Service. Schum's schematic fold out in foreground is used in relating a class assignment to systems engineering.

Case Study, Team Concept Used in Systems Workshop

WASHINGTON — Twenty-four FAA executives recently participated in a four-day Systems Engineering Management Workshop, a form of executive training which has been presented to about 1,000 persons over the past four years.

Systems engineering management encompasses planning and control of a totally integrated engineering effort related to a system program. It includes the system engineering effort to define the system and integrated planning and control of the program efforts of design engineering, system support engineering, production engineering, test and evaluation engineering.

The case study method is used with the team concept in presenting the workshop, which was developed by General Electric primarily for its own personnel. The course proved so popular that it was later presented to representatives of the Air Force, Army, Navy, NASA, the FAA and other civilian governmental agencies.

Attending the workshop from the National Airspace System Program Office were: Newel R. Anderson, Percy H. Andros, August Bardelmeier, William Bushell, J. D. Coke, Stephen A. Cannistra, Kenneth P. Gray, George D. Hadorn, Melville King, Frederick W. Pickett, Gerald A. Seguin, Richard F. Thoma and Charles C. Walker.

Systems Research and Development Service attendees were: Ed-

mund Bromley, Jr., Charles E. Dowling, Jr., Richard H. Haskin, Albert M. Hermie, Owen E. McCRussell, Colin G. Simpson, Harold Intire, George Quinn, Patrick E. J. M. Williams and Hugh C. Wintermoyer.

Also attending was Clifford L. Schum of the Office of Budget.

FSS Show

(Continued from Page 1)

the lives of the senior woman and man Flight System specialists. Elizabeth K. DeCramer of the Eau Claire, Wisc. FSS, recalled that in the early days, women were something of an oddity in the station and that men would stop in just to take a look at "that girl"—Miss DeCramer.

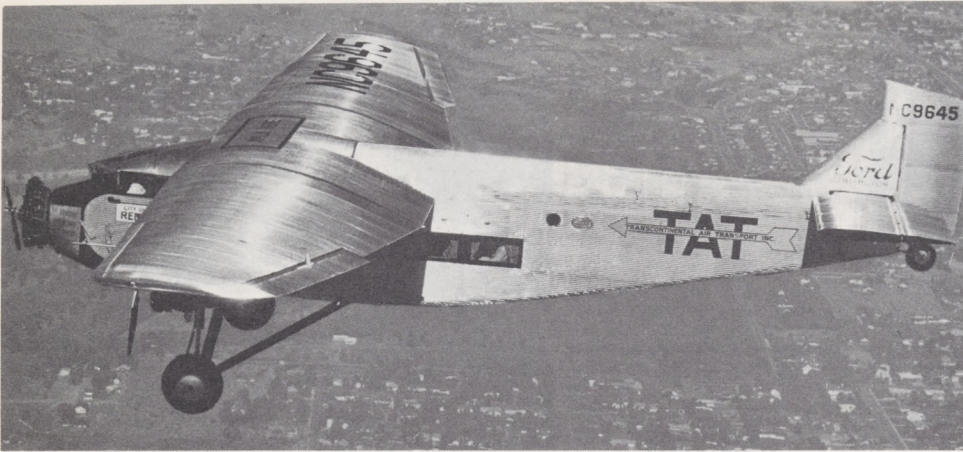
Stanley Beaver of the Youngstown, O. FSS told about the early beacon caretaker who, when asked "How high is your ceiling?", replied, "About nine feet; just a moment and I'll measure it."

The celebration climaxed as Shaffer presented awards to the current chiefs of the four flight stations that have been in continuous operation since Aug. 20, 1920: Harold H. Griffith, Chief, Elko, Nev. FSS; C. W. Wheeler, Chief, Rock Springs, Wyo. FSS; Albert S. Hall, Jr., Chief, Salt Lake City FSS; and Joseph J. Greten, Chief, Washington, D. C. FSS.

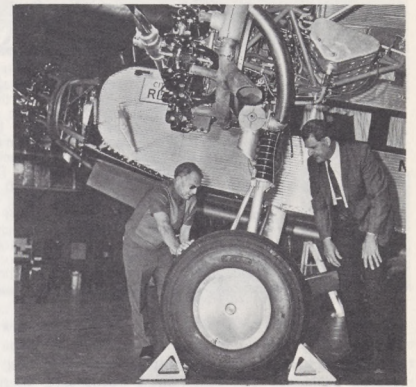


For Youth Opportunity

Members of the newly established Department of Transportation Youth Opportunity Committee include: (seated) Secretary Volpe, and Mrs. Mildred W. Goodman, committee chairman; and (standing, left to right front row): Janet Sprickman, NHSB; Jewell Davis, OST; John Charoszy, FAA; John Yoshino, FHW; Joseph Walker, FRA; Edith Robinson, USCG; back row, Richard Lally, OST; John Robitaille, FAA; Harold Merritt, UMTA; Sally Willinger, Presidents' Committee on Youth Opportunity; William Carney, FAA; and Richard Desautels, FAA.



With sunshine glimmering along its nearly 78-foot wingspan of new corrugated aluminum, the 13-passenger "City of Reno" cruises over Nevada. It is part of a collection of transportation models of the past collected by a Reno firm and cruises at more than 120 miles per hour. Transcontinental Air Transport, Inc., (TAT), was a forerunner of TWA.



Some 50 inspections of the "City of Reno" Tri-Motor were made by FAA Maintenance Inspector Philip J. Abbinanti (right). Here he looks at brake installation with Harry R. Volpi, who was in charge of rebuilding the plane. Less than ten per cent of the original parts were salvageable.

FAA Maintenance Inspector Has Key Role in...

Philip J. Abbinanti, Principal Maintenance Inspector at the Reno GADO, watched the gleaming rejuvenated Ford Tri-Motor roll out of its hangar recently.

He was looking at the results of some 50 inspections and almost five years of work by a crew headed by Harry R. Volpi, who is in charge of the executive aircraft fleet for a well-known Reno club.

The gleaming new transport standing before the FAA inspector carries 13 passengers and will tour air shows and fly-ins around the nation to promote Nevada.

The spanking new "Tin Goose" is almost an exact replica of the highly functional plane of the 1927-1933 era. The trim ship is 90 per cent new, having been created ten per cent from remnants of the original plane with the rest being new components.

Up to the time that this new "City of Reno" came along, FAA had type certificated 196 others.

Abbinanti recalled how he was handed the project in 1965 when he was transferred to Reno from Oakland. His first job was to evaluate the structure of what had been the "City of Wichita" and advise Harry Volpi on how to approach the renovation project. Corroded main spars and other worn out parts led Abbinanti to conclude that approximately ten per cent of the plane was salvageable. The rest could be used only as a guide for constructing brand new parts.

Many Other Jobs Done

Sandwiched between Abbinanti's regular inspections of the "City of Reno" over the nearly five years that passed before its rollout were the usual interesting jobs of an aircraft inspector. These other tasks included certification of airmen, repair stations and air taxis; investigating accidents and violations, and running surveillance on general aviation operations. But the slow progress of the Tri-Motor rising Phoenix-like from a mass of blueprints was watched with keen interest by Abbinanti.

The old Tri-Motor came from Mexico, where it had been turned into a cargo plane and converted to a smooth skin exterior. Builder Volpi laboriously culled detailed pointers from many sources—Ford, the National Archives, the Smithsonian and from airlines.

Volpi's crew of 15 artisans built jigs to line up the fuselage wing and tail sections. After stripping the "Tin Goose" to its "skeleton", special molds were used to produce aluminum corrugation more durable than the original. Most of the new skin was produced using original dies. The only deviation overall was installation of circuit breakers instead of fuses in the electrical system and addition of toe brakes for better landing and taxiing control.

Virtually everything except the landing gear and wheels were hand-made in Volpi's shop, which had to qualify as an FAA Repair Station to do the work.

Although the plane was designed by Ford engineers, there is very little auto engineering in it.

"Just a few small automotive touches," said builder Volpi. "The door latch used is from a Model A, and

Creating a New Tri-Motor from Scratch



After more than four years spent fabricating an authentic Tri-Motor and making 90 per cent of the plane from blueprints, Harry R. Volpi (left) receives an Airworthiness Certificate from Principal Maintenance Inspector Philip J. Abbinanti. Volpi's shop was designated an authorized Repair Station for Tri-Motors under FAR 145 during the project.



At the upcoming Reno Air Races Sept. 18-20, Maintenance Inspector Phil Abbinanti will represent the agency in the interest of safety as he did last year, when the prop on this experimental aircraft was damaged during an aerobatic flight.

the original gear shift brake lever is from a Lincoln . . . but that's it."

Abbinanti recalled that some of the old Tri-Motors had mail chutes built into each wing. Using a long-handled crank, the mechanic could lower part of the wing's underside to gain access to a storage chute capable of holding 400 pounds of mail. None of the chute apparatus remained in the skeleton, so Volpi appealed to Abbinanti and the FAA, who supplied photos and drawings from which they could handcraft the wing setup.

Visits West Coast

Five days after the new Tri-Motor made its recent maiden flight, it went into service at the annual West Coast Antique Fly-In at Merced, Calif., the first of many such events where the big silver bird will be carrying passengers.

Abbinanti's work on the Tri-Motor has since been overshadowed by other tasks, such as the upcoming Reno Air Races on Sept. 18-20.

Abbinanti has been a certificated Airplane and Powerplant Mechanic since 1937 and came to the FAA in 1962. He operated repair stations in Portland, Ore., before coming with the agency, and he also saw service in Juneau, Alas., and Oakland, Calif.

Of all the aviation projects he has undertaken, the "City of Reno" is the most memorable.

"CITY OF RENO" TRI-MOTOR

Specifications: May 31, 1970

Specifications:

Wingspan	77 feet 10 inches
Length	50 feet 3 inches
Height	12 feet
Gross Weight	13,250 lbs.
Max. Payload	3,643 lbs.
Power	Three radial piston (450 hp.) Pratt & Whitney Wasps.
Fuel Capacity	Total 1,350 hp 355 gallons

Performance:

Maximum Speed	153 mph
Cruise Speed	120-130 mph
Maximum Range	560 statute miles
Rate of Climb	1,050 feet per minute
Service Ceiling or Max. Cruise Altitude	18,500 feet

Passenger Accommodations:

Cabin Height	6 feet
Cabin Width	4 feet 6 inches
No. of Seats	13 (Plus pilot and co-pilot)