

# FLY BY

OFFICIAL EMPLOYEE PUBLICATION OF THE FEDERAL AVIATION AGENCY

Volume 1 No.10

FAA Library

December 1959

## SEASONS GREETINGS

To every employee of the Federal Aviation Agency I extend my best wishes for a joyous holiday season. At this, our first Christmas together, I wish to express my appreciation to all of you for the fine cooperation and loyal support you have extended me. Together, we have overcome many obstacles and have moved closer to achieving our goal of maximum safety in aviation.

With the same fine spirit and cooperation, we can continue to improve our service to the American public and meet the challenges and opportunities of the New Year with confidence. May 1960 bring to each of you and your families an abundance of health, success and happiness.

*E. R. Quesada*

## FAA Closes Chapter on First Year of Operations

by

J. Gordon Bennett, Special Assistant to the Administrator

This month marks the end of our first year of operations as an independent aviation authority -- our first year in which expanded functions have caused us to grow from 28,000 to 34,000 employees.

It has been a good year, but, as you know, it has not been easy. From the moment we drew our first breath as an infant agency, we have had to maintain around-the-clock operations -- with no "time out" to plan and organize.

Still, far from being in a position to afford the luxury of self-satisfaction, we can, nonetheless, take a brief look at what we have accomplished during the 12 months now ending. In this, each of us can take pride in our contributions toward getting us off to a good start.

On August 23, 1958 the President signed the Federal Aviation Act. For the first time in the 50-odd year history of aviation, an independent aviation agency of the executive branch of the Government was created and assigned the total task of guarding safety in the air. On November 1, 1958 Mr. E. R. Quesada, former Chairman of the Airways Modernization Board, and Special Assistant to the President, took oath of office as the Federal Aviation Agency's first Administrator. On the same date, the AMB, with its 351 employees, was transferred to the FAA.

On December 31, 1958 the transfer of 27,771 CAA employees and 24 employees of the CAB to the FAA marked one of the largest personnel shifts ever to be made in the Federal Government. Technically speaking, on the following day -- January 1, 1959 -- the FAA was in business.

The first important action by the Administrator was to set up the Bureau of Research and Development. Most personnel came from the former Airways

Modernization Board, and the Technical Development Center of the Civil Aeronautics Administration.

The introduction of jet transports, considerably in advance of the planned date, gave FAA the opportunity for its first jet age improvement to airways. A radar advisory service for civil air carrier jet aircraft was put in operation on three airways, linking New York and Washington with Los Angeles and San Francisco. Aided by military radar, FAA controllers offer a vectoring service between 24,000 and 35,000 feet.

One of the highly important provisions of the Federal Aviation Act of 1958 which established the Agency provided for the transfer of the safety rule making from the Civil Aeronautics Board to the FAA. This vital function was taken over in the spring of 1959. Thus, FAA now has the authority for issuing, administering and enforcing Civil Air Regulations.

CAR's are written and recommended for adoption by the Administrator, by the Bureau of Flight Standards, the Bureau of Air Traffic Management and the Office of the Civil Air Surgeon. There are five principal categories: Aircraft, Airmen, Operations Rules, Air Agencies, and Air Navigation.

In applying this important public safety function, the Agency has proposed weather radar for airliners, maximum age limits for airline captains, higher performance levels for co-pilots, FAA approval of airline training programs, and improved medical standards for private pilots.

To help Agency personnel meet the high standards of the jet age flying, air carrier inspectors began training last spring in jet aircraft. With the wholehearted cooperation of the Air Force,

(Continued on page 3)

## FLY-BY

Editor

Thomas J. Wholey

The official employee publication of the Federal Aviation Agency. Published monthly by the Personnel Relations Branch. Send all materials for publication to: Editor, Fly-By, PT-26, Federal Aviation Agency, Washington 25, D. C. Telephone: ST-3-2100 Ext. 3459.

### Early Aviation Veteran Retires On 42 Years

Wesley T. Huntress, Airways Engineer and the oldest employee in terms of service with the FAA and its predecessor agencies, retired October 31, after 42 years of Government service.

His Government service started with the War Department as an apprentice draftsman in 1917 at \$40 a month. Although he was drafted into the Army, and his monthly paycheck dropped to \$30 a month, he continued working on the same drawing board. After three months of Army life he was honorably discharged and remained working on the same drawing board.

In 1926, Mr. Huntress transferred from the War Department to the Airways Division of the Lighthouse Service which was then in the Bureau of Commerce under the Coast Guard. At that time, it consisted of two people--Captain Hingsburg, who headed the bureau and Abbie Pfeiffer, his secretary. Mr. Huntress, the third member of the team, has been working with the Plant Engineering Branch (now BF-360) continuously since that time.

According to Huntress the early days were quite hectic. Regional offices were being established and personnel recruited. He recalls that his first jobs were to design obstruction lights for the Zeppelin Mooring Mast at Fort Worth, Texas, and the Customs House in Boston.

Among his early jobs was the making of early landing field location maps. These showed runways and obstructions together with the runway and boundary lighting systems. Many of these were unique. This was due to the fact that he was not able to do an on-the-site survey; consequently, the same tree groupings, "transplanted" to coincide with varying runway layouts, would appear on the maps of fields in Georgia, New York, Texas, California, etc. Many of these original designs--corrected, of course--have been handed down and are in use today with very little change in basic design.

## FAA Prepares To Assume

### 2095 Military ATC Facilities

Administrator Quesada has said that the FAA is preparing to assume the operation of about 2095 military air traffic control facilities at 337 global locations. To handle the job, the Agency will need an additional 9000 air traffic controllers and 6000 maintenance technicians. He made the announcement in a major address before the fourth annual meeting of the Air Traffic Control Association in Oklahoma City in October.

Speaking on the theme, "Project Friendship," at the conference kick-off banquet, Mr. Quesada stated that, "Once in operation, the project will offer better service for all users, increased safety through personnel stability, greater economy through a savings in overall manpower, and increased combat capability for the military."

The FAA Administrator said that certain air traffic control facilities and functions relative to military tactical type operation and air warfare training will remain under military control.

Military flight inspection of air navigation facilities as well as military flight services and air traffic controller training functions will come under the FAA. Mr. Quesada said that some of the flight inspection functions can be absorbed by the end of this year. Other functions and facilities will be phased in at a later date.

Project Friendship involves nine major tasks:

- Identify air navigation and air traffic control facilities and services suitable for FAA assimilation.
- Develop personnel training requirements.
- Develop a support program.
- Study the requirements for assimilating Department of Defense flight inspection functions.
- Develop a program for assimilating certain military flight service functions.
- Design a program for performing appropriate Department of Defense activities in overseas areas.
- Determine FAA's research and development requirements in connection with the transferred military activities.
- Develop budget estimates.
- Prepare adequate personnel legislation which is necessary before the military services can relinquish certain of their facilities.

The carrying out of these tasks has already brought out a number of complex

problems that will have to be overcome before the project can be fully implemented. The solution to some has been found; others have been elusive.

The functions scheduled for transfer fall into four specific areas: flight inspection, flight services, air traffic control training, and air traffic control services.

The FAA will be faced with meeting heavy recruitment and training requirements. It is hoped that the entire training program can be conducted at the Oklahoma City Aeronautical Center. To do this, and speed it up, it is possible that night classes might have to be held. If necessary, military training facilities will also be used. Part of the plans call for constructing two new school buildings at the Aeronautical Center: one for facilities training, the other for air traffic management. The target date for building construction is July 1, 1961.

Project Friendship personnel requirements over a five-year period--assuming a 100 percent transfer of military facilities--call for training 9000 controllers and 6000 maintenance technicians.

Plans for taking over air traffic control services will necessarily remain tentative until such time as adequate personnel legislation is passed. "We can, however," said Mr. Quesada, "start assimilating some flight inspection functions by the end of this year and probably complete the entire transfer in two years. Military flight services could be absorbed within the present FAA structure by mid-1960."

To get the program off the ground and meet requirements for initial training and manning of the first group of facilities FAA will operate, 2109 new positions will be initially established. Of these, 393 will be in training, 1071 will be in air traffic management, 545 in facilities, and 100 in supporting services such as personnel, supply and accounting.

The FAA Administrator summarized his address saying, "Project Friendship makes military aviation a special partner in a common venture for the better use by all users of the nation's airspace. In this respect, it represents the most progressive step taken to date to attain an air traffic control service that this country needs and deserves."

## Blanche Noyes of FAA Gets Memorial Trophy

Mrs. Blanche Noyes, Chief of the FAA's Air Marking staff in D.C. was selected to receive the Lady Drummond-Hay Memorial Trophy. The trophy was presented during ceremonies October 18 at Floyd Bennett Field in New York City.

The coveted award is made each year by the Women's International Association to the most outstanding woman in aviation. Mrs. Noyes received the award in recognition of her long devotion to aviation and her outstanding accomplishments in developing and carrying out the air marking service for the FAA.

Mrs. Noyes has been a pilot since 1928. She is the holder of many speed and other flying records and is the only woman Federal executive flying government aircraft.

## Appointments in FAA

David S. Williamson has been named Deputy Assistant Administrator for Plans and Requirements.

Mr. Williamson comes to FAA from the Department of the Navy, where he served as Special Assistant to the Secretary of the Navy. He was Navy Member of the Air Coordinating Committee and the Alternate Chairman of the Department of Defense - FAA Advisory Committee. Before this, he served as Special Assistant (civil aviation) to the Assistant Secretary of the Navy for Air.

Another appointment was that of Robert C. Green as Deputy Chief of the Technical Assistance Division of the Office of International Coordination.

He has been serving in the International Coordination's field office in Afghanistan since 1957 as Chief of the ICA/FAA, Civil Aviation Assistance Group (CAAG). Before that he was Chief of the International Field Office in Bangkok, Thailand.

## Aviation Publications

The Superintendent of Documents reports that sales of FAA publications to the public in fiscal year 1959 totaled \$428,999—an increase of 10 per cent over the CAA total for fiscal year 1958.

A large part of this total can be attributed to sales of Civil Air Manuals. The Agency is in the process of converting from the volume system of CAMs used by CAA to an individual manual system.

Since January 1, FAA has issued 60 other general and technical publications. Latest project is the FAA annual report to the Congress which is scheduled for publication early next year.

## FAA HAS OWN SEAL

Pursuant to section 301(c) of the Federal Aviation Act of 1958 (72 Stat. 744), the Federal Aviation Agency has adopted an official seal.

The seal is described as: "Within a gold border, a blue background bearing in gold letters near its outer rim the words 'Federal Aviation Agency' and 'United States of America,' the two phrases separated by two stars. In the center on a white disk a light green globe charged with a gold four-pointed compass rose, having on its horizontal axis a stylized gold wing."



The order to adopt the seal was signed by Administrator Quesada on October 29, 1959.

The standards or procedures for the use of the seal are now in the developmental stage. Until this information is disseminated, it is suggested that restraint be exercised in the use of the seal.

## (Continued from page 1)

our inspectors entered ground and pilot training schools, utilizing KC-135 jet aircraft. These are similar to the new jet transports of the airlines.

Problems of the vanishing airspace, one of the prime reasons for the creation of FAA, are being vigorously attacked. Mr. Quesada announced completely new procedures for allocating airspace to meet civil and military needs and for a more efficient use of this "national resource". Federal airways, controlled airspace, and special use areas are being examined by a special staff.

Work at the only airport in the world designed for the new jets and for new volumes of private aircraft began to show real progress. Pouring of concrete for the runways at Dulles International Airport, near Chantilly, Virginia, began in mid-summer. Paving of the two parallel North-South runways is now completed, but due to excessive ground moisture, paving of the West-

Northwest/East-Southeast runway cannot be undertaken until Spring. Contracts have been let for the heating and cooling systems to serve buildings in the terminal area. Construction of the terminal building is expected to begin in early 1960.

Research by the FAA's Bureau of Research and Development seeks to find answers to the complex problems facing today's and tomorrow's aviation. Many projects now in progress will soon result in hardware to be tested at NAFEC. NAFEC is rapidly getting the necessary computers, simulators and laboratories installed in time for the first series of equipment tests.

A massive air traffic sampling project was made in order to develop estimates of air activity up through 1980. Conducted in two parts, January and July, the survey sought to develop scientific data which could predict specific kinds of air traffic activity whether private, military or airline.

Modernization of the Federal Airways, one of the targets set by Mr. Quesada for FAA, moved into high gear with the addition of electronic computers to air route traffic control centers at New York and Washington. The computers, by keeping track of most of the paperwork needed to control IFR traffic, help controllers devote more attention to their prime job of controlling traffic. Other busy traffic centers, including Boston, Cleveland, and Pittsburgh, are to obtain the computers.

New airport aid legislation has resulted in the recent announcement of the FAA's 1960 Airport Plan. This year's plan is directed at helping communities build those items which provide the greatest possible safety to the flying public.

One of the most important actions taken by FAA throughout the year has been to initiate Project Friendship—the assumption of many military air traffic control functions by the FAA. Mr. Quesada commented, "Project Friendship will offer better service for all users.... It makes military aviation a special partner in a common venture for better use of the Nation's airspace." To handle the job, FAA will need 9000 more air traffic controllers, and an additional 6000 maintenance technicians.

These are but a few highlights of our first year together. The organization of FAA is virtually completed, except for detail changes. Many of our most urgent problems and challenges are still with us and before us. The same dedication and diligence that was so much in evidence during our first year now ending is essential to the orderly and swift progress of U. S. aviation.

# Structural Strength and Detail Design Testing of Aircraft

The supervision of structural strength and detail design testing of aircraft is only one phase in the FAA's program of bringing safety to the flying public. Designated FAA representatives carry out this supervision in the factories of aircraft manufacturers. The actual testing to prove that the aircraft is airworthy and up to the standard of FAA specifications is conducted by employees of each of the aircraft manufacturers.

The following article, written by Woodford R. Boyce, KC-241, Aeronautical Engineer, Airframe and Equipment Branch, appeared in Region Three's FLIGHT LINES. The photograph was taken in the Beech Aircraft factory at Wichita, Kansas.

How is a new or modified civil aircraft or aircraft component proven safe for the public to buy and fly? By what standards are these aircraft and components certified? Who does the approving and verifies the safety of the aircraft and components?

Many of the answers to these questions are to be found in the branch of the Aircraft Engineering Division known as Airframe and Equipment. This branch is responsible for approving the structural strength and detail design characteristics of the complete aircraft (except for powerplant aspects). They are responsible for heating, ventilating, pressurization, and powerplant instruments and associated parts in conjunction with powerplant engineers.

Considerations of possible damage that powerplant fires may cause to other aircraft components and structures are of direct interest to A & E's structural engineers as is the structural strength of engine mounts and cowlings. Dynamic loading, fatigue, flutter and vibration are important considerations of A & E engineers, also. All of these responsibilities are applicable to helicopters including the approval of main and tail rotors from the standpoint of strength, fatigue, flutter of rotors, rotor hubs, and controls.

Through fulfillment of these responsibilities, the A & E Branch advises the Aircraft Engineering Division in certification of all types of civil aircraft, aircraft equipment and components such as brakes, wheels, instruments, systems, etc., that are developed for aircraft.

The basis for aircraft and aircraft component approvals is determined from the CARs and established by the date of the submitted application for Type Certificate. Special considerations are established as necessary for cases not directly covered in the CARs as, for example,

turbine powered aircraft. The applicant shows compliance with the applicable parts of these publications through demonstration by means of submittal of drawings, analyses and static test reports. The A & E branch reviews such technical data and participates in the demonstration to ascertain that compliance has been shown.

After the prototype is built, it is tested on the ground. These tests are designed to demonstrate the structural strength and durability of the aircraft and/or aircraft components. For instance, structural components must be analyzed or tested to loads in excess of the maximum loads that the airplane or component is likely to encounter in its designated usage. These loads are at least 150 percent of the maximum anticipated loads. The loads are applied to all major components such as wings, fuselage, and tail surfaces. These components are observed and inspected during these tests for any indication of weakness or failure. Loads are applied by hydraulic jacks, lead weights or sandbags. Sometimes many tons of force are applied by hydraulic jacks, through a load distributing system of beams and cables called whiffletrees.

Loads are also applied by other means. For example, landing gears are dynamically tested by hoisting the gear with its

simulated loading to the required height in a drop test jig and then allowed to drop. In some instances where the plane will be used by the Navy for landings on aircraft carriers, the complete airplane is drop tested.

The measured deceleration during these drops result in a load multiplying factor used to design and substantiate the strength of the gear. Loads are also applied by pressure. For example, sometimes fuselages are sealed and submerged in huge tanks of water or surrounded by netting (as protective measures from flying parts should failures occur) and subjected to high internal pressures to test their strength.

The resulting data consists of proof of compliance with the applicable CARs. Among the data are drawings, basic load determining reports, flutter and vibration surveys and structural and fatigue test reports.

When all of the data have been approved by all affected Branches, the product is ready for flight testing. When all the Branches have ascertained compliance has been shown, a Type Certificate is issued for the product.

After all of the testing, checking and verification through the coordinated efforts of the applicant and the Aircraft Engineering Division, the final product is certified safe for the public.



A typical static test setup in a structural testing area shows test loads being applied with hydraulic jacks through a whiffle tree system to tension pads located on the test specimen.

# FAA AND INCENTIVE AWARDS—FISCAL YEAR 1959

At the close of fiscal year '59, the Federal Aviation Agency ranked seventh among all Government agencies in terms of employee participation in the suggestion program. On a Government-wide basis, 164 employees per thousand submitted their ideas for improving Government operations. In the FAA, 173 employees per thousand submitted suggestions.

A total of 557 suggestions were adopted in the FAA during the fiscal year, and \$23,935 was paid to employees for their adopted suggestions. The average FAA award was \$43 compared to the Governmentwide average of \$28.70.

The net first year dollar benefits attributed to the 557 adopted FAA suggestions amount to more than \$200,000 plus important benefits which cannot be measured in terms of dollars (such as improved safety and health conditions).

As to the granting of superior performance awards, the FAA ranked 13th among all Government agencies in terms of the per cent of employees receiving such recognition. An average of 27 FAA employees per thousand received superior performance awards during f. y. '59 as compared to the Government-wide average of 28 per thousand. The average FAA award was \$186.21 compared to the Government-wide average of \$162.26.

The FAA granted 52 awards totalling \$7715 for special acts and services during the fiscal year.

In terms of the per cent of employees submitting suggestions during the fiscal year, there was quite a range between the various organizational segments. The high figure was 23.5% of employees submitting suggestions; the low figure was 10.1%.

It is interesting to note that a high participation rate did not necessarily result in a high rate of adoption. For example, the Washington office led all major segments of the FAA in terms of the per cent of employees submitting suggestions--23.5%. On the other hand, the Washington office ranked eighth as to the per cent of suggestions adopted. Another example: the Aeronautical Center ranked ninth in terms of employee participation, yet it ranked first as to the per cent of suggestions adopted.

As to awards for sustained superior job performance, again there was quite a range among the major segments of the FAA. The high figure was 5.76% of employees receiving such awards to a low figure of .66%. On an Agency-wide basis, 2.74% of FAA's employees were recognized for sustained superior job performance.

## EDITORIAL

If the Government-wide figures for f. y. '59 are to be used as the yardstick, then we had a good year in the FAA. We need not be embarrassed; neither can we afford the status quo. We are dynamic and expanding, and our Incentive Awards program must maintain the same forward pace.

A closer analysis of the above figures reveals certain needed points of emphasis which we cannot afford to overlook during this fiscal year. Less than three per cent of our employees were recognized for sustained superior job performance. Granting that this figure compares favorably with the Government-wide average, what does it really mean for the FAA? The 2.74% figure roughly represents one employee out of every 36. Does this mean that in no instance did the job performance of the remaining 35 substantially exceed the performance standards--or does it mean that only a portion of our employees who deserved the recognition received it? We believe the latter is the case. If so, why?

### WHAT IS THE ANSWER?

We do not believe the answer is economy. Even though such awards are rather expensive, the Government Employees Incentive Awards Act clearly shows that Congress is convinced that truly superior job performance results in increased dollar dividends to the Agency that by far offset the cost of the award.

Could it be that many supervisors either do not know how to recommend employees for sustained superior performance awards or else do not wish to get caught up in the so-called red tape of submitting justifications?

Few things are so demoralizing to an employee who knocks himself out on the job than seeing a less worthy (in his own estimation) employee get a superior performance award when he himself is passed over.

If such awards are not granted across the board strictly on the basis of merit, then they lose their high potential value as incentives and become a negative influence. This is a principle we cannot afford to ignore. In authorizing such awards, the Congress and the President clearly intended that they be used—judiciously—and they are incentives only if they conform to the above principle.

To become more judicious in our handling of such awards, we must so educate and discipline ourselves—supervisors and employees alike—that we can confidently expect that those who truly merit such awards will surely receive them. There can be no middle road.

### AIM FOR QUALITY

As to employee suggestions, we must aim for better quality. Our rejection rate is too high. How can we achieve this increase in quality? One way would be to keep employees informed as to agency

problems and specific areas in which the agency needs and seeks employee advice. Too often we hear employees say, "I would like to submit an employee suggestion and I will as soon as I discover a problem." Management (at all levels) might experiment with taking some of its problems directly to employees. For example, the supervisor of a small unit might post or circulate a memo (on an as-needed basis) which would invite employees to submit their ideas for improving certain operations which somehow are deficient in spite of everyone's best efforts.

Employees would be invited to first discuss their proposed solutions with the supervisor (or others most directly concerned with the problem) and only those suggestions which appear to have merit would then be submitted through official Incentive Awards channels. This type of operation would not restrict the totally independent employee suggestion and would have several important advantages: (1) employees could direct their thinking into clearly identified problem areas, (2) the agency would have the benefit of concerted efforts at problem solving, and (3) the Incentive Awards machinery would not become bogged down with suggestions that have no merit.

No one has claimed that the Incentive Awards Program is a cure-all for anything. No one has claimed that some employees do their jobs in a superior manner just to qualify for an award—yet psychologists and social scientists alike universally agree that the need for recognition is a powerful human drive. Recognition can be granted in many ways—not the least of which is a cash award or an engraved expression of appreciation for a job well done.

Let's make our record for 1960 an outstanding one.



# FAA'S Training With the Military

Twelve more FAA Air Carrier Operations Inspectors will take jet training at the USAF Strategic Air Command's Castle Air Force Base in California. The three and a half month training course will be centered around the KC-135—the Air Force jet tanker version of the Boeing 707.

Administrator Quesada said the Air Force flight training already undertaken by 14 FAA pilots is of inestimable value to the Agency and assures the qualification of our inspectors to meet the demands imposed by the introduction of the Boeing 707, Douglas DC-8 and the Convair 880. "This SAC training program," he added, "is the finest heavy jet training available in the world."

FAA inspectors who have already completed the SAC course receive further specialized jet training at FAA's AC in Oklahoma City.

The training of flight inspectors is scheduled to meet the civil jet delivery program which now calls for about 300 jet airliners to be in operation by the end of 1962. Current figures show 61 civil jet airliners now in service with an additional 40 expected to be added to the fleet by the end of the year. An average of five crews are assigned to each plane by the airlines. The proficiency of all flight crew members in air carrier service is flight checked by FAA inspectors on a continuing basis.

## Test Pilot Schools

Another program, initiated by the FAA with cooperation by the Defense Department, has FAA flight test pilot-engineers responsible for flight testing civil aircraft in the certification process, getting the benefit of new and additional training in Air Force and Navy test pilot schools.

Administrator Quesada said, "Assignment of pilots to these remarkably fine military test pilot schools is a clear-cut demonstration of the cooperation that exists between the FAA and the military services. The knowledge gained by FAA pilots assigned to the military test pilot schools will be of invaluable aid to the FAA, in its job of certification of new aircraft and the resulting safety of all civil aircraft."

Assigned to the Flight Test Pilot School at Edwards AFB on August 31 was Frank D. Melton of FAA's Region Four. James M. Patton, Jr., from Region Two, started his training at the Navy Test Pilot School, Patuxent, Md., on October 29. Both are trained engineers.

Relatively few pilots can meet the ex-

acting entrance requirements for advanced training offered by the Navy and the Air Force flight schools. Pilots accepted as students must not only be highly sensitive to the aircraft's response to flight maneuvers, but must be:

- An active pilot with a minimum of 1500 hours in various aircraft

- Trained in higher mathematics, physics and the theory of flight

- Between the ages of 25 to 33 and pass a rigid physical examination.

Instruction period at the Air Force school is four months while at the Navy school the term is eight months. Courses include academic studies in aeronautical engineering and actual flights to train pilots in the techniques of flight testing and aircraft.

Both schools train selected pilots to perform flight tests of new types of aircraft and to monitor flight tests of production, as well as experimental aircraft. Tests are flown to determine performance, flight characteristics, operational characteristics and operational limitations of the aircraft. Pilots are also trained to determine and report the functioning of equipment, such as radios and instruments. Serviceability of the aircraft is determined, too, by the trained pilots.

Training at these military schools is granted at no cost to the FAA.

## Air Force Field Office

At NAFEC in Atlantic City, the Air Force has established a field office. When it is completely staffed, the detachment will consist of about 21 officers. They will be responsible to the Air/Ground Systems Office, Directorate of Systems Management, Headquarters Air Research and Development Command, which has systems responsibility for management of navigation and air traffic control aids in the Air Force. Major Raymond L. Arnsdorf will be liaison officer for the Air Force at NAFEC.

Major Arnsdorf said the field office would serve as the focal point in the coordination and management of all Air Force activities at NAFEC.

The office will be organized into three divisions—operations, material and administrative. It will be responsible to a yet-to-be-selected field office chief, a rated officer with extensive electronics and air traffic control background.

Eight-fold mission of the field office will be to:

- Assist NAFEC in performing its

mission as it pertains to Air Force requirements for the common system of air traffic control, navigation and landing.

- Advise NAFEC of Air Force test requirements not covered in the NAFEC test program or of those test requirements requiring special emphasis because of operational urgency and similar contingencies.

- Decide, with NAFEC, whether Air Force engineering acceptance tests will be conducted here or at an ARDC (Air Research and Development Command) Center on those items or components selected for use in the Air Force inventory.

- Arrange for using NAFEC facilities and aircraft for testing and evaluation required by Air Force Regulations. Arrange for special Air Force aircraft and other resources required in the accomplishment of NAFEC testing activity.

- Arrange for the preparation of procurement specifications when required.

- Provide NAFEC with a single point of contact through which to process all requests for services or material from the Air Force.

- Advise the Air Force's operating commands of the progress the FAA is making in meeting Air Force requirements, of the need for human factors or qualitative personnel requirement information study.

- Determine, from data provided by NAFEC, the USAF requirement for operations and maintenance training devices.

## Military Aircraft Available

Under another agreement between the FAA and the Department of Defense, aircraft will be made available to FAA through loan or transfer from the military services.

As a result of the negotiations, FAA will be able to secure both high performance jets and other needed aircraft directly from Army, Navy and Air Force sources without incurring the considerable expense that would be required by purchasing the aircraft.

Transfer of loan of aircraft would be on an appropriate reimbursable basis, with the military departments furnishing, within their capability, aircraft support, such as equipment, repair and special maintenance. This would also be on a reimbursable basis. The agreement permits the FAA to install special equipment necessary for carrying out its programs.

## Operating Positions In WNA Control Tower

At one time or another, your neighbor may ask you what goes on and who does what in one of FAA's control towers. If you make a mental note of the illustration, which shows the operating positions in the Washington National Airport Control Tower, chances are you'll be able to rattle off an answer something like this:

There are six positions and each is dependent on the other. The first of these, the "A" position, is known as Local Control. The controller issues airport traffic control clearances and information; clears aircraft for take-off and landing and handles aircraft operating under VFR conditions in the Control Zone. He guards all frequencies assigned to the position and provides the pilot with weather information when needed.

The "A1" position is known as the Military Coordinator. (This position is necessary at WNA due to the proximity of military fields.) This person handles all coordination with the military fields. Under IFR conditions, he handles all traffic for the military fields and acts as "back-up" man for the Local Control position.

The "B" position is also known as the Flight Data position. He copies and

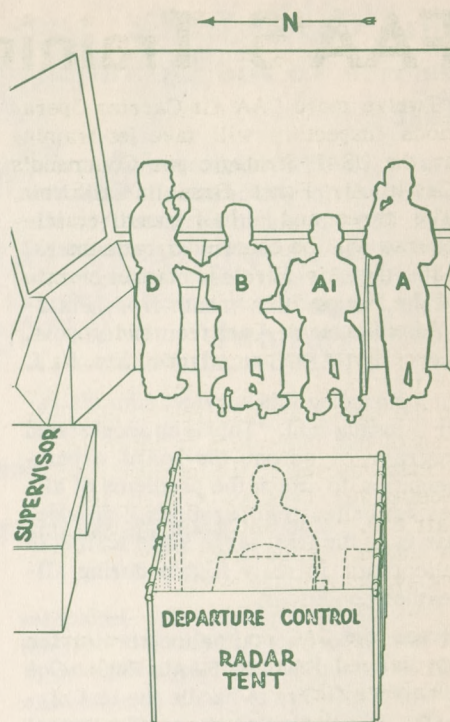
relays reports and information received over interphones and telephones; relays air route traffic control clearances and other control messages, and takes care of voice recorders. It is his responsibility to maintain airport traffic control operating forms and notify all concerned in case of emergency or accident.

The "D" position is known as Ground Control. The one who occupies this position furnishes aircraft with taxi instruction and supplies information concerning field conditions, altimeter setting, wind information and time checks. He provides the pilot with weather information when necessary and handles all aircraft and vehicular traffic operating on the field to and from the active runway.

The Radar Departure Control position handles all traffic departing on an IFR flight plan. It provides radar separation between all aircraft on an IFR flight plan and gives traffic information as necessary.

The Supervisor does just what the name implies. He supervises the over-all operation of the tower. He also relieves the controllers from the position when necessary and makes all assignments to the operating positions.

The illustration shows the various posi-

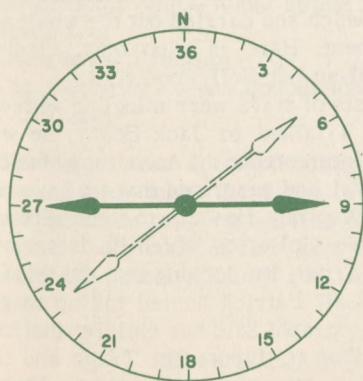


tions when traffic is landing to the north. When landings are made to the south, controllers change positions. This would place the "A" position on the north end of the console. To the south of him would be the "A1", "B" and "D" positions.

## NUMBERING SYSTEM FOR AIRPORT RUNWAYS IS NO REAL PROBLEM

How many times have you wondered about the runway numbering system used at airports? For those interested in a clarification of what is meant by Runway "3-21," or "17L-35R," etc., Region Two's September 1959 issue of the SCANNER has the answer. Here is what they had to say.

First, imagine the dial of a clock as being graduated into 36 hours rather than 12, with the number 36 at the top.



This corresponds to a compass rose with north or 36 (360°) at 12 o'clock; east or 9 (90°) at 3 o'clock; south or 18 (180°) at 6 o'clock; and west or 27 (270°) at 9 o'clock.

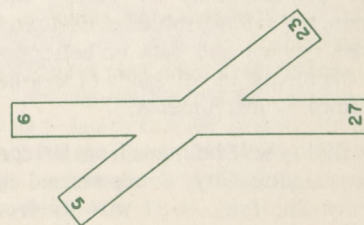
Still using your imagination, picture the clock as having only one hand which is pivoted in the middle and extended across the face of the dial with points at both ends. You will note that when the hand rotates, the points are always 180° apart. By interpolating to the nearest 10° and dropping the zero for brevity, 180° becomes 18, and 360° becomes 36, etc.

By considering that the runway alignment is along the straight line of the clock hand, you are able to rotate the hand to match the known compass bearing of the runway and read the numbers at each end. For example, an east/west runway alignment would be numbered 9-27, and an approaching pilot receiving landing instructions by radio to use Runway 9 would immediately have a mental picture of his landing from west to east on an E/W runway. You will note from the sketch, that the numbers are inter-

changed to indicate the landing direction on the approach end of the runway, which coincides with the compass heading of an aircraft on final approach.

The letters "L" and "R," as in Runway 17L-35R, merely denote that the airport has parallel runways, and distinguish between the two by indicating "L" for left and "R" for right on the approach ends.

This runway numbering system was originated by the late Russ Delaney about 1940 in the old 5th Region at Kansas City. The Airports Division at that time prepared the narrative explanation and drawings which resulted in its formal adoption.



## First 'Copter Traffic Service To Aid Operations Test

The world's first helicopter air traffic control service will be established at New York City to aid in an intensive, all-weather operations test of helicopters. Daily flights, regardless of weather conditions, began this month from Philadelphia to New York and from Bridgeport, Conn., to NAFEC at Atlantic City, N. J.

In announcing this service, Administrator Quesada said, "This is an accelerated program of across-the-board experimentation to attack the problems of all-weather helicopter operations." He added that it is the first large scale testing of helicopters in daily flights during all-weather conditions.

A new experimental helicopter service will be established by FAA's Region One at New York City to handle the test aircraft. It will furnish air traffic control for the rotary wing aircraft and coordinate their flights with the normal fixed wing traffic along the route. Special attention will be paid to the problems of flying under instrument flight rules and how helicopter traffic can be integrated with normal fixed wing traffic in high density air traffic areas.

Helicopter manufacturers and the military will be major participants in the tests. Joining with the FAA are the Army, the Marine Corps, and Sikorsky Aircraft Corp. Plans to participate are also being made by Vertol Aircraft Corp. and possibly other manufacturers at a later date. The unusually comprehensive testing program is possible since each participant is contributing the costs for his portion of the tests.

The Army and the Marine Corps each will loan the FAA a twin-engined helicopter and furnish experienced flight crews. Sikorsky will maintain the two military aircraft at their own expense.

FAA is primarily interested in the helicopter air traffic control problem, particularly when operating in high density air traffic, such as found around New York and vicinity. Other FAA interests include qualifications of rotary wing crewmen, air safety problems, navigation services needed and data on helicopter flying problems in all kinds of weather when flown on instruments.

Daily flights will be made from Bridgeport to Atlantic City. Every second day an Army Sikorsky H-37 will fly from Bridgeport to Westchester, Idlewild, NAFEC (Atlantic City) and return. On

alternate days the route will be flown in a Marine Corps Sikorsky HR2S. At a later date it is planned that a Vertol 107 twin-turbine helicopter will fly from Philadelphia to NAFEC, Idlewild, Westchester and back. Each helicopter will operate about 300 miles a day, round trip.

One FAA helicopter will operate from NAFEC to assist in the test program. It will make precise measurements of navigational system accuracies, and of the ability of pilots to execute precision maneuvers during instrument flight conditions.

## New Informative Pamphlet Available for Inventors

It's possible that in your tinkering you've come up with a better mousetrap, a straighter common pin or some other invention. If you have, and the only thing that's keeping you from banking that first million is how to get it patented, then your problem is solved.

This answer and many others can be found in a new informative pamphlet published by the Patent Office, U. S. Department of Commerce. It can give you help and guidance in deciding whether to apply for patents, in obtaining patent protection and promoting your inventions.

The text portion of the pamphlet suggests to the inventor: the consideration of the practicality of the invention; the importance of witnesses, records and diligence; making a search; studying patents found in the search, preparing the patent application and Patent Office prosecution. The second section comments briefly on the marketing and developing of the invention.

Some 45 questions and answers provide much needed basic information to the inventor. Explanations include the meaning of the words "Patent Pending", patent applications, when to apply for a patent, who may obtain a patent, ownership and sale of patents, duration of a patent, patent searching, plans and design patents, technical knowledge available from patents, infringement of other patents, enforcement of patent rights, patent protection in Foreign Countries, National Defense inventions, developing and marketing inventions and patents.

The pamphlet, entitled "Patents and Inventions--An Informative Aid for Inventors," is now available through the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. and the Field Offices of the U. S. Department of Commerce at a price of 15 cents per copy.

## Region Five Secretary Is Televisit Winner

The October issue of Region Five's MUKLUK TELEGRAPH in Anchorage, Alaska, carries a story about an FAAer of whom they are very proud. The following is what they wrote about her:

Mrs. David (Janice) Fischer, secretary to Mel Peterson, was exactly the kind of representative for Alaska to send to New York and Hollywood as the State's Mrs. Daytime Televisit winner.

The State, and the FAA could not have had a better representative, nor could anyone have brought home as much in memories and knowledge as she did. She walked on red carpets in New York and Los Angeles, mingled with celebrities, gave her autograph to stars and learned that while all is not what it seems on the TV screen, the people who put it there are mighty clever in the way they entertain us.

She was one of 51 winners in a contest, one from each State and the District of Columbia. Of course, they roomed her with Mrs. Texas to whom, Janice reports, she gave the "full Alaska treatment." She definitely was not one of the women who gathered in the "hospitality room" of a luxurious New York hotel in her free time and played bridge. Instead, she reported having more fun when "out on my own" than in the elaborately managed and de luxe tours arranged for the winners by CBS. Her stories wired back to the Anchorage Times and station KTVA revealed a surprisingly sharp knowledge of news value of her many experiences.

In New York, they gave a cocktail party for the winners. "They tell me it cost \$8000," she said. "Sounded like having a night on the town here in Anchorage."

In Hollywood, celebrities were as thick as low bush cranberries on a tundra hillside, or grayling at Tangle Lakes. Her impressions of them were normal, but they fail to reveal the admirable poise with which she carried out the whole assignment. Here is what Mrs. Fischer said about her Hollywood visit.

"Hosts of stars were mingling with us. When I talked to Jack Benny, he was quite interested in the Anchorage Musical Festival and surprised that we have our own Symphony. He wants to come here and play his violin, on which he is serious as an artist. I'm looking into the trip for him. Gail Patrick hunted me up to get my autograph! Said her children insisted on having it. Lieutenant Tragg and the District Attorney of the Perry Mason Show were much interested in Alaska politics."