

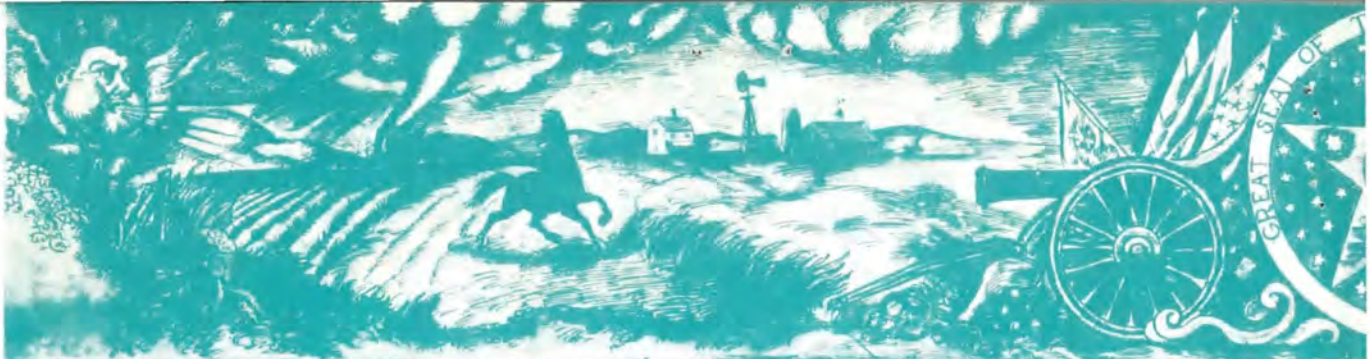
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SEPTEMBER, 1960

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FEDERAL AVIATION AGENCY
Aeronautical Center
OKLAHOMA CITY



Brief Historical Outline

The first known inhabitants of Oklahoma were the Osage, Waco, Quapaw, Caddo, Wichita, Kiowa, Comanche & the Apache. 1541 Coronado crossed western Oklahoma. 1607 the Crown of Great Britain granted the Colony of Carolina the land from the Atlantic to the Pacific between 30° & 36 degrees 30 min. N. latitude. 1763 Britain & France claimed all land drained by the Mississippi & named it Louisiana. France ceded it to Spain 1763. Spain ceded it back to France in 1801. 1803 Louisiana purchased by U.S. 1830 designated as Indian Territory. 1861-65 under military control of Confederacy. 1889 Oklahoma Territory was opened for settlement. 1907 Nov. 16 Oklahoma became the 46th State in the Union.



POINT OF VIEW



There is an unwritten axiom that "stagnation is death."

There is further verity in the fact that any living thing must be nurtured; must have food for living. This is pointedly true in the life of any community -- and, in my mind, a community is a living entity.

There are times when I can look from my office window and mentally travel back through the years -- only 70 years, by the way -- and see, instead of tall buildings and a bustling city -- the hills and plains of an untouched area. That was Oklahoma City's picture just seven decades ago.

This is a proud city -- a community with a giant future -- but only because it has the food for living. That food is the growth of industry in our time and our children's time. The catalyst for changing that food to "Community energy" lies within the people of the community -- and the pride of community within the residents.

Within the last generation "the food for the growth of a city" has come in abundance to this area. One such abundance is the Federal Aviation Agency Aeronautical Center at our municipal airport.

But it takes the catalyst of cooperative people to turn that "food" into energy for future growth. In Oklahoma City we have that catalytic action. Witness the growth of the Aeronautical Center to its present development and envision the future of this "University of the Air!"

In such areas as Tinker Field and the Aeronautical Center -- as well as other new industries -- is the sustenance for city growth and the vaccine against stagnation. In reverse, city awareness helps the growth of these new communities within our own.

There'll be no epitaph written for such cities as ours as long as this intense "let's help each other" feeling exists.

Sheldon L. Stirling

Sheldon L. Stirling
City Manager
Oklahoma City



Quesada Guest Speaker for NFFA

During the Flying Farmers convention the Federal Aviation Agency Administrator, E. R. "Pete" Quesada, talked to the gathering of pilots. There has been an area of controversy over certain rules and regulations set out by the Federal Aviation Agency. For instance, new regulations prohibit planes not equipped for instrument flying from going above certain altitudes.

Administrator Quesada pointed out the FAA's reasoning behind certain regulations and, on one in particular—the requirement that all pilots be examined by designated doctors—and made these points.

"Aircraft must be examined and certified regularly by designated inspectors. Therefore, it seems reasonable that pilots should also undergo similar examinations."

Quesada pointed out that the largest vacuum that remains to day in aviation is lack of medical supervision of the pilots who fly the planes. He said that was the real reason behind the setting up of the Civil Aeronautical Research Institute at the Aeronautical Center.

In his statements on the medical situation, the administrator pointed out that only 1,028 passengers in airline flights had been killed in the last 10 years. During the same period, 3,212—or more than three times as many passengers—have lost their lives with private fliers. Therefore, the need for more rigid physical examinations of all pilots who may be responsible for their own lives or the lives of others in the public interest.

Quesada also stressed the point that any family doctor who is sufficiently interested to read the FAA bulletins, as new information becomes available, can qualify. He's expected to buy only about 50 dollars in special equipment.

The FAA boss also revealed that most of the jet planes recently bought by the Agency—a prototype of those in use on the airlines—probably will be based at the Aeronautical Center.



Ron Templin explains FAA aircraft to Flying Farmers

Flying Farmers Tour Aeronautical Center

The national convention of the Flying Farmers' Association was held in Oklahoma City during August, specifically the week of August 14th. Some 13-hundred persons took in the convention. Across the field from the FAA Aeronautical Center were parked well over three hundred small craft flown in by association members.

On Monday, August 15th, the Aeronautical Center held an "open house" for the NFFA. They were given an insight into all phases of the Center's operation . . . and got a close look at the newest flying addition, the C-135. The huge jet tanker is in the process of having high altitude flight inspection equipment installed.

Somewhere around 500 Flying Farmers took advantage of the Center "open house."

CENTER SLATED FOR NEW BUILDING PROGRAM

The Federal Aviation Agency's Aeronautical Center has under programming plans 11-and-a-half million dollars in new construction. Some of the new construction must be completed and ready for occupancy by the end of the 1961 fiscal year—in order to meet the requirements of the Center's training program.

The new program includes an underground facility containing 130-thousand square feet for storage of aircraft and airmen records, part of the Examination and Records Division.

It also would include a cafeteria, conference rooms, flight inspection and computer operations, and certain emergency rooms. It calls for a building containing 26,500 square feet to house offices of the FAA school, in addition to a library for center-wide use.

The proposed construction calls for a shed-type shelter to provide 3,500 square feet for hangar line equipment; a building of 23,700 square feet for automotive storage, overhaul and base maintenance shops and carpentry, refrigeration and electrical shops.

There will be an auxiliary maintenance building of 3,000 square feet and 5,000 square feet of shed-type storage for equipment. The expansion also calls for outside paved storage and automobile parking space totaling 100,000 square feet.

This, of course, is in addition to the four to five million dollar construction slated for the Civil Aeronautical Research Institute. Construction will start within a matter of weeks.

FAA Employee Study Center Underway

The Aeronautical Center will offer college credit courses, starting September 13, in conjunction with the University of Oklahoma. This is all part of the Aeronautical Center—Oklahoma University Extension Center.

Plans call for faculty members of the University of Oklahoma to teach classes with the Aeronautical Center supplying facilities for the program. The study program will be an adult education center especially for the FAA employees but, as planned, would be open to non-employees.

Courses from a liberal arts schedule, would include English, mathematics, speech, economics, government, physics and engineering.

Arrangements for completion of graduate work in certain areas of study will also be set up. The graduate program would be sched-

uled to run with the other courses. Classes for both programs would begin at the same time as Oklahoma University classes.

Those interested in taking courses should contact H. T. Swenson, in Air Navigational Aids. In general tuition is \$10 dollars per credit hour.

FAA Receiving National Notice

Public interest in the activities of the Federal Aviation Agency has reached a high pitch in the last few months. Let's just glance down a list of informational items about the FAA:

... An FAA article spotlighting the air safety problems will appear in the September issue of Pageant Magazine. ...

The FAA's NAFEC and Research and Development activities were highlighted in an article that appeared in the August issue of Electronics Illustrated Magazine.

The Aeronautical Center and the Examination and Records Division was the story in the September issue of the "National Flying Farmers' Magazine."

Free lance writer, Myron Gubitz, who is affiliated with United Artists Television as a producer-writer is interested in a series of television shows ... for use nationally. These will be based on FAA incidents—drama with a documentary flavor.

Life Magazine plans two big stories about the FAA. One will feature the architect's model of Washington's Dulles International Airport terminal building. Another article—pictorial, naturally—will explain the Bureau of Research and Development's "Arresting Hook" for an air safety-type feature.

The October issue of the Air Force publication "Aerospace" will carry a feature on Air Traffic Management training at the Aeronautical Center. "Interline," a magazine for aviation business, has asked for a feature story on the Aeronautical Center's Civil Aeromedical Research Institute and another on Air Navigational Aids.

He that falls in love with himself will have no rivals.

.. Benjamin Franklin



CARI GETS NEW DIRECTOR

Doctor Hilliard D. Estes, long-time pilot and doctor, was named the new permanent director of the Civil Aeronautical Research Institute this last month.

Doctor Robert Clark will continue to head up the research side of CARI. With Doctor Estes is Vaughn E. Choate, who is the executive officer of the institute. Mr. Choate will operate the business office.

Doctor Estes sees the eventual goal of CARI as a world renowned scientific center. He said most of the outstanding scientists of the world will come into the Oklahoma City area and the Aeronautical Center . . . some regularly for consultation work.

Doctor Estes says his work will deal more actively in clinical work involving the application of research results and co-ordinating research with practical problems of air medicine.

Estes says that by the time the Medical Center reaches its full quota—and that may take several years—there will be at least 200 of the top medical and scientific men in the country living in Oklahoma City.

CARI MOVED TO NORMAN

Personnel of the Civil Aeronautical Research Institute have been engaged in moving into newly renovated offices and laboratories located at the North Campus of the University of Oklahoma (formerly the North Naval

Base.) Buildings No. 803, 805 and 1005 have been renovated and the medical group has been occupied with setting up laboratories and offices in these buildings.



Dr. M. T. Lategola, assisted by Ronald Donaldson, unpacks a respiratory spirometer.

A group of sixteen ATC students underwent a battery of physical and psychological evaluation tests on August the 12 and 13th, marking the first of many similar groups expected to go through the institute.

Medical and graduate psychological students employed on a temporary basis have been assisting in setting up the laboratories and making them operational.



Dr. Clark, Dr. Estes, Dr. Tang, discuss the experimental results with Dr. John Smith of the Washington Bureau of Aviation Medicine



Dr. M. T. Lategola collects a respiratory sample from Air Traffic Control student J. L. Waddell during exercise experiments on the treadmill. Observing is Ronald Strand O. U. Medical student.



Ronald Donaldson, O. U. Medical student, measures the maximum breathing capacity of J. A. Albritton, Air Traffic Control student.

Jerseyites Plan Clambake for FAA Fly-In

When the Federal Aviation Agency holds its Second Annual Fly-In for General Aviation at the National Aviation Facilities Experimental Center (NAFEC) on October 1, visitors will be treated to more than a look behind the scenes at tomorrow's air traffic control system. Scheduled is an old fashioned outdoor dutch treat clambake in the traditional South Jersey manner.

The clambake will afford aviation enthusiasts from throughout the nation to mingle and exchange views with FAA scientists and engineers engaged in the priority job of modernizing our federal airways system.

The Fly-In is an annual event, sponsored by the FAA's Bureau of Research and Development. Again this year the accent will be placed on informing general aviation of the FAA's program with respect to their interests.

Scheduled speakers include FAA Administrator E. R. Quesada and Bureau of Research and Development Director James L. Anast. Public demonstrations of new facilities and inspection of NAFEC's laboratories and active test programs will highlight the activities.

The formal program will occur between noon and 1 P.M., DST, but the Center will be open for inspection and demonstrations and tours will be conducted from 8 A.M. until 4 P.M., according to Fly-In manager Paul Coulthard, of the NAFEC operations staff.

The clambake will be held from 4 P.M. to 6 P.M. Tickets may be purchased at the site, a pine grove near the field.

While October 1 is the principal day for the event, visiting aircraft will be admitted to the Center from September 30 through October 2. There will be no tie-down charges.

The NAFEC tower can be reached on 119.5 megacycles. However aircraft without radio are equally invited to the Fly-In and are urged to watch for light gun signals from the tower.

The National Aviation Facilities Experimental Center is a 6,000 acre laboratory of the Bureau of Research and Development. It is located 11 miles west of Atlantic City, New Jersey.



Education Need in This Air Age

Aviation demands for the next few years include 3,000 qualified electronic technicians just to make it possible to install and maintain navigational aids and facilities at airports and airways.

This was brought out by Doctor Mervin K. Strickler Jr., Federal Aviation Agency Aviation Education Director, in an Oklahoma City meeting this last month.

These workers need more than just good technical education. Without this number of technicians it would not be possible to achieve the number one objective of the FAA—safety.

Doctor Strickler said most parents and others who influence the career choice of students are totally unaware of the career opportunities and learning needs in the FAA. The educational requisites for technicians are not just in technical training. Doctor Strickler called for high standards of accuracy and attainment. The FAA requires nearly 100 percent capability just to have its navigational aids equipment on the air . . . and there is no

margin for error.

It is vital that technicians have high attainment in clear communication, in understanding and communication of the spoken and printed word, that he have a sound grounding in ethics, and that he know something about automation.

Strickler met with FAA Aeronautical Center officials and with Oklahoma City and state education and chambers of commerce leaders. Others from the FAA included Richard N. Coan and Homer Rose. In Oklahoma City from the Department of Health, Education and Welfare were Doctor Wayne O. Reed, deputy commissioner of education; James H. Pearson, assistant commissioner for vocational education; John F. Hughes, executive officer; Walter M. Arnold, area vocational education director; Doctor Ken Brunner, specialist for related programs, and Frank Coyle, program specialist for vocational education. The group made a tour of aviation facilities and education areas in the United States.

Flight Standards Training Conference

The FAA Aeronautical Center hosted a Flight Standards Training Conference in August. The prime objective of the conference, jointly conducted by the Washington training Division and the FAA School at the Center, was to review all the present flight standards training courses.

This review became necessary in the light of jet age requirements. One of the highlighted studies was flight training for the FAA safety inspectors on the new jet transports. In a short time these will be the major flying equipment of most air carriers. Also discussed was the advanced training for modern aircraft systems and turbine power planes.

Among the fifty-five taking part in the training conference were thirty-five from the Bureau of Flight Standards in Washington and the FAA field offices.

Leaders in the two groups, Washington and the Center, were Fordyce Luikart, assistant administrator for personnel and training, FAA, Washington; Brigadier General Carl I. Hutton, FAA, Washington; S. A. Kemp; Robert W. Swinney, and H. B. Pickering, Chief of Flight Standards Training Section, Washington FAA.

From the Aeronautical Center were Enar B. Olsen, Acting Manager; J. B. Mitchell, Acting Superintendent, FAA School, and Warren W. Smith, Department of Flight Standards Training.

AERONAUTICAL CENTER PERSONNEL HELP ON POWDER PUFF DERBY

The All-Woman Transcontinental Air Race, often known as the "Powder Puff Derby," has for years depended upon volunteer communications for unofficial timing and liaison purposes. This year the Aeronautical Center Amateur Radio Club provided the communication link, connecting with Abilene, Texas, on the west and Fort Smith, Arkansas, on the east. Under the direction of Walter M. Hill, PT-940, a crew of operators manned the Center station, W5PAA, from dawn to dusk from Saturday, July 9, to noon the following Tuesday. Scores of messages were received from the race officials at the Catlin Hangar, transmitted by amateur radio via VHF to W5PAA, and retransmitted via HF to race officials in other cities. Many other messages were received from Abilene or Fort

Smith for local officials or for retransmittal.

A full listing of all amateur radio operators who took part in this operation is not available. It is known, however, that these participated: Walter M. Hill, W5HXT; Jesse Jones, K5YTJ; David Doyle, W5LFU; Carl Drumeller, W5EHC; Edw. Murta, K5LIL; Newman Horton, K5SLN; Woodrow Welling, K5UJN; Paul Welch, K50AK; James Bowman, W5KBY. Also a number of others whose names are not available.

'SKY SHIELD' EXERCISE TO PUT 6-HOUR BAN ON CIVIL FLIGHTS—SEPTEMBER 10

E. R. Quesada, Administrator, Federal Aviation Agency, appealed today to the American air travelling public, the commercial air carriers, and to the nation's thousands of private and business pilots for their support and understanding of the need to ground all civil aircraft for reasons of air safety during the North American Air Defense exercise "SKY SHIELD," scheduled to take place September

10, 1960, between the hours of 2:00 A.M. and 8:00 A.M., Eastern Daylight Time.

"The 'SKY SHIELD' exercise," Mr. Quesada said, "is a vital training requirement for our entire air defense system. I am confident that by understanding the need for the exercise, the public will not object to the short period of inconvenience they will experience."

At the time of day selected for the "SKY SHIELD" exercise, the U.S. would normally have about 1,000 commercial flights in the air carrying some 37,000 passengers, in addition to about 700 general aviation aircraft and 680 military flights.

Mr. Quesada stated, "during the planning stages of this exercise, the military authorities, the commercial air carriers, the general aviation interests, and the Federal Aviation Agency gave full appreciation to the impact that this training operation would have upon the public. All were highly cooperative and willing to participate in the interests of improved continental air defense."

The selection of the date and time of the exercise was based on both military considerations and on factors that would have a minimum disruption on airline schedules as well as on private and business aircraft operations. The early morning hours were considered to be the time that would be least inconvenient to all concerned.

FOREIGN AVIATION VIPS AT CENTER

Among the many foreign students and visitors at the Aeronautical Center this summer were people from Indonesia, Japan, Spain, and Brazil. Those pictured below are only a few of the many from other countries.



Studying Aircraft Engineering and Airworthiness were Wirjono Martojo of Indonesian Airways and Abol Mobassery, Deputy Chief, Technical Inspection Department, Department of Civil Aviation, Iran. They are shown with Acting Manager Enar B. Olson.

Japan sent some specialists in the field of Jet Transport Requirements. They were Masayoshi Fukinaga, Kazuo Huodo, Yoshio Kawakami, and Tadashi Ioi-chibara. All are with the Japanese Civil Air Bureau. They were studying Jet Standards at the Center.



Newspapermen were among the visitors. Fernando Gasco, press officer, Ministry of Agriculture, Madrid, Spain; Darwin Maurer, International Liaison Officer at the Center; Moupyr Monteiro, newspaperman from Sao Paulo, Brazil and F. Martinez of the Spanish Embassy in Washington.



The Man—Fred Lanter



There was a special drive about the man, Fred Lanter. This drive manifested itself in a many-faceted manner. Fred was a real specialist, an expert in the field of civil aviation. He was more than a pilot who knew the pilots' problems. He also was adept in the field of air traffic problems and understood the electronic engineer who seldom comes down out of the rarefied atmosphere that constitutes his habitat.



Fred was expert at picking the ideas out of his people, causing them to see the longer vistas of civil aviation needs. He saw much of his great dream—the Aeronautical Center—come into being before his death.



There was yet another facet in this man. His insatiable curiosity about people and things. Fred was an omnivorous reader, devouring completely books on any subject from government to sociology. He was an expert on civil air regulations; took great delight in his knowledge of the progress in that area.

These pictures you see surrounding this brief x-raying of Fred Lanter's thinking processes and character tell more than a thousand words about the man and his personality. These were made late in the Spring of 1960 during a conference in his office.



Ed's Note: Perhaps no article so well tells the character, dreams and life of Fred M. Lanter as one that appeared in the Oklahoma City Times on June 30, 1960. Your editor did some ferreting; discovered the author of this tribute you're about to read was a friend of Fred's. Only a man who knew him well could have put into words this tribute. The writer was Gilbert Hill.

FRED LANTER DEVOTED LIFE TO COMMUNITY, AIR SAFETY

A quiet man signed a letter asking for construction of a medical research building designed to prolong the useful life of men—and hours later died of a heart attack.

Fred M. Lanter, 60, director of the Federal Aviation Agency Aeronautical center here, thus died as he had lived, working for the safety of the lives and property of others entrusted to the nation's air industry.

Lanter signed the letter Monday afternoon in his Mercy Hospital room. It was being read Wednesday at a special meeting of the trustees of the Oklahoma City Development Trust about the time of his death.

He had suffered four other heart attacks in the past six years, but he never failed to meet at his office any group interested in air safety, industrial development in Oklahoma, or any other constructive project even though they called on Saturday, or at night, or any other odd hour when a less dedicated man might have been resting.

"Fred contributed as much as any other single person, not only to this nation's air safety, but to the building of the fourth largest payroll in Oklahoma, and the organization of world wide standards of operation for flight" said Paul Strasbaugh, manager of the industrial division of the Chamber of Commerce.

"It was his quiet, dogged persistence, more than anything else, I believe, that has led to the rapid growth and importance of the air center here.

Lanter, actually was an individual in the Oklahoma City which he had come to love and serve.

When introduced at public meetings he would stand, smile, and almost shyly sit down. When asked to speak, he would say what he had on his mind, very briefly but forcefully, and sit down.

Men who knew him best said he had a deep devotion to his community, more ability than most realized, and a genius for getting along with, and leading his people.

Lanter dreamed with the nation's leaders of the goal of uniform air regulations throughout the world, the men and women trained to carry them out in every position of responsibility, and the inspection, research, and development of men and machines to meet the requirements of the air age.

But he had the patience, too, his friends say, to reach that goal step by step as can be demonstrated clearly by what has happened here.

Lanter dreamed of flying after watching the military aircraft of World War I, in which he served. A Hoosier born, he went to college at Tri-State, Angola, Ind., and finally became an aviation cadet at Kelly and Brooks fields.

He was a pilot-instructor for old Capitol Airways at Indianapolis, when he had the opportunity to join the bureau which is now FAA, as an aviation inspector. He came up through the ranks, step by step, becoming convinced that "standardization" of regulations and enforcement had to come with the growth of aviation.

Lanter came to Oklahoma City in 1947, as director of a new "aviation center" housed in the old Will Rogers field barracks.

He watched the consolidation of air training and research in Oklahoma City, and got a birthday present, June 22, 1958, when the FAA center here was dedicated—a \$14 millions installation.

It grew, step by step, needled by the quiet, dogged persistence of a man who saw the needs and dreamed up ways to meet them, until at his death the brick and mortar alone was worth \$20 millions or more, not to count the value of machinery and equipment.

He recognized the value of the center as an "industry," the payroll's importance to his community, and worked for it for the benefit of people working there.

But close friends point out most of his attention still was concentrated on making the airways safer and more efficient—and to that end he was working for more engineers, more scientists, more trained technicians to do the job.

The last step was to be the medical research center which is already here in temporary buildings at Norman, devoted to finding out when men could no longer be trusted with the lives of others as pilots in the air—and how to keep the skills of experience available as long as possible.

The Lanters had no children and his hobbies were his job, and his civic activities connected with him.

Fred Lanter has been an acquaintance and good friend of mine since 1941 when I first became associated with the then CAA in Washington, D. C. Mr. Lanter was my supervisor during the majority of these years from that date until his recent death.

I have been privileged during my working career to serve under several really outstanding executives. Giving full respect and appreciation to these supervisors who taught or tried to teach me many things about how to become a good executive, Mr. Lanter was the best all-around person whom I have had as a supervisor. His interest in what we were doing, suggestions for improvement, appreciation for a job well done, and ability to let us all know he was one of the team made working for him a pleasure.

In my association with Mr. Lanter, of the many good things he did for me and things he taught me, too will always stand out. One of these was his determination that he and we, as Government employees, have an obligation to do a better job and be more devoted to our job assignments than people who are non-Government employees so that we would always be able to refute the opinion of those people who insinuate that Government people do not work as hard as they should. The second was Mr. Lanter's strong belief that every job we do here at the Aeronautical Center is important enough to be done in such a superior manner that our customers, whether they be other F.A.A. people, military organizations, foreign governments, or other, would never have doubt that the Aeronautical Center was the place to go to get service better than they could find anywhere else.

I have never met a person more dedicated than Mr. Lanter to the principle that "only the best is good enough" or one who tried harder to accomplish this in every thing he did. We Aeronautical Center employees could not find a better example of how to be

a superior public servant than Mr. Lanter, and I feel sure that if we each devote the same type effort to accomplishing our job assignments as was shown by Mr. Lanter we will always maintain the excellent reputation of the F. A. A. Aeronautical Center. He would want us to do this.

Bill Matthews.

In our association with a man like Mr. Lanter it is not always the very important events which we remember. Little things which might well be forgotten are not because they reflect a quality of being human that makes the busy man seem interested in even the little jobs.

Such an incident happened not too long after I was employed at the Aeronautical Center. In the days before the fancy typewriters, all Certificates of Training for students had to be filled out on the varityper. For years the same type had been used but there was a time when the only available font actually fell apart. I very carefully selected one that I thought matched the printed type and would be a good substitute.

The director refused to sign the certificates. He wrote a note to the effect that we should get the right type, do what was necessary but get one! It was surprising how I was able to glue the font together long enough to get that one group of certificates filled out.

Later, when I told him that I was amazed he read everything he signed, especially well enough to notice a difference in type, he laughed and told me, "I learned long ago that it is the change in the small print in this business of living that may get you in trouble."

It was typical of Mr. Lanter that I could tell him about such things. Not that he was always in good humor. Sometimes the whole Center was literally on tiptoe because the man in the front office was unhappy about something that had been done or something that had not been done. Yet he had the ability to make us feel that each, individually, had a definite responsibility in an important operation. He expected each to do his share and do it right so that we could all be proud of the collective results.

We liked working for Mr. Lanter.

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Fred M. Lanter Memorial Fund

The Aeronautical Center Employees Association has organized a "Fred M. Lanter Memorial Committee" with the purpose of selecting a memorial to the late Aeronautical Center director.

A savings account has been established at an Oklahoma City bank. All funds received to date have been deposited—this amounts to more than 12 hundred dollars.

The Association has agreed to underwrite all incidental expenses so that all contributions may be used for the Memorial Fund.

The Memorial Committee consists of these employees: Hope Biggers, Charles J. Adams, Doris M. Nichols, Joe J. Motley, Conrad P. Jensen and Daisy L. Dovell. Warren W. Smith is chairman of the committee.

Harry Donceel, president of the Aeronautical Center Employees' Association, says donations to the Fund are not restricted to Center Employees. Anyone wishing to donate to the Memorial Fund may send the contribution to "The Fred M. Lanter Memorial Fund" in care of the Aeronautical Center Employees' Association.

At some future date the committee will decide upon an appropriate memorial tribute to Fred Lanter.

FAA BOALS' VOYAGE

There just aren't enough adjectives to adequately describe the experiences and reactions we had on our tour. Everyone asks us "What did you like best?"—and neither one of us can sort out one experience and say "This was the best part." It was all good. Some days were better than others, some experiences were less than we hoped for. But the educational aspects of the trip would have been shallow without some "rugged" situations.

Our vacation really began with three exciting days seeing New York City. It fascinated us, and was just enough to make us want to go back again. We really wonder how Manhattan Island can keep afloat, with all of that concrete weighing it down.

The long awaited moment of takeoff in the Boeing 707 which was to carry us to Paris finally arrived—10:30 P.M. June 8th. Idlewild at night is simply beautiful. That big plane just tiptoed out to the end of its assigned runway, blew its' nose and away we went! Six and one-half hours later we bumped down at Orly field in Paris where a Constellation awaited passengers. We changed planes and flew to Geneva, Switzerland. As we neared our destination the lovely fields and quaint houses below us were all that we had expected and just like pictures. Flowers were everywhere—balconies blossomed all over the town. Our stay in Switzerland was much too short. We spent only a day and a night in Geneva and about that length of time in Zurich, which is a very busy, lively, up to date city. Evelyn kept her date with the statue of her daddy's ancestor in Zurich. The streets are full of bicycles and tiny cars. Swiss chocolate is the best in the world and the food there is delicious.

We flew from Zurich to Munich—you miss a great deal when you fly—but time was of the essence. Munich has cleaned up most of its war damage and it is very picturesque. When we stopped in Kings' Square, where Hitler made many speeches, we were both sort of subdued, it seemed you could hear the echoes of the Heils. Our bus then carried us through beautiful German country-side to the town of Oberammergau—a village that looks like a story book. The people are charming and the shops are quaint. Here is the site of the famous Passion Play, which was our ob-

jective. The staging, costuming and acting are as professional as one could ever hope to see. The music, both the chorale and the orchestra, simply superb. No professionals either in the cast or in the music. All are residents. None of the women in the play are married. When a woman marries she assumes the responsibilities of caring for tourist visitors. Our housing was in private homes and it was quite an experience. People from all over the world came for the play and we took our meals in a home where we ate with some interesting Swedish folk. They had come all the way on the train just to see the play. Quite a sight to see a teenager buzzing through the streets on a motor scooter, with his shoulder length locks flying in the wind.

On June 13th we took the bus to Munich, a plane to Milan, Italy, and from Milan a bus to Venice. Thus began our tour of Italy, a charming country. Venice is so romantic. We loved St. Mark's Square and the shops with the beautiful jewelry and glassware. What a relief to find no cars on the streets. We found Florence almost equally as charming and were impressed by the lovely paintings of the old masters, and the lovely old churches we saw. The Leaning Tower of Pisa really leans—some of those things you hear about all of your life but never quite believe. All over Italy the hills are crowned by old feudal castles with walls and moats. And many of the old town we saw were built around the ruins of an old coliseum. We also noticed the grapes growing many different ways—some of them high enough to walk under. As Jack Paar says, though, you have to come to America to get really good Italian spaghetti.

From the balcony of our hotel room in Rome we could see the dome of St. Peter's Cathedral. Our guide said we put into one day of sight-seeing there what he usually gives in five half-days.

When we left Rome the pleasure trip ended and the pilgrimage began. The first night we stayed at the Mena House Hotel—some 10 miles from Cairo at the foot of the Pyramids of Giza. The next day we rode camels out to the Pyramids and the sphinx. We think camels are better than horses!

After some sightseeing in and around Cairo and a visit to ruins at Memphis and Sakarra we took taxis to Suez where we spent the night. We got up about 3:00 A.M. to begin our trip to Sinai. Crossed the Red Sea below the canal and began our trip out into the desert of Sinai where the Children of Israel wandered for 40 years. It was about 8 hours by car to St. Catherine's Monastery—the first half of the trip was on hard surface road but the last half was on just a trail—gee, it was rough! Accommodations at the monastery were clean, but that's all. Next day we again arose early—about 5:00—and climbed up Mt. Sinai. This was a torturous climb—took about 4 hours. But it was well worth the effort when we reached the top. Everyone who made the climb got introduced to muscles they never dreamed they had. Next day we drove 12 hours to get back to Cairo. It was a pretty ragged looking party that dragged in to the Nile Hilton Hotel when we got there. Our room had a balcony overlooking the Nile River—really beautiful.

Had a special plane chartered for flight to Luxor. It was a terribly hot day—over 100 degrees. We visited the Valley of the Kings—saw the tomb of King Tut and some other ancient Kings. We went to Thebes—the city of the dead—where there are fabulous ruins of funeral temples. And we went to the ruins at Karnak—the city of life—where there were temples to their Gods. The immensity of these ruins is overwhelming. We just can't conceive of how long it must have taken to carve out these tombs or build these temples and amazing statues. What high degrees of culture and civilization they must have achieved!

Next stop after Cairo was Beirut—Lebanon. Imagine our pleasure as our plane landed and taxied in, to see our own FAA N-17 sitting on the ramp. The Lebanese people are so kind and welcoming. We made interesting side trips out of Beirut to Byblos, Tyre and Sidon and to Baalbek. These are ruins of once flourishing powerful cities. There are towns build up around them now, but not large ones.

From Lebanon we went to Syria, visiting in Damascus—and we saw brocade woven—very interesting process. Enroute from Damascus to Jerusalem we stopped overnight at the Dead Sea, and the next day we went to

Qumram, where the Dead Sea Scrolls were discovered. On the way from the Dead Sea to Jerusalem, we stopped at the place where Christ was said to have been baptized in the Jordan, and also at Jericho.

We spent a wonderful week in Jerusalem, Jordan, visiting the places that are especially significant to Christianity—the Garden of Gethsemane, the Mt. of Olives, Bethlehem, Samaria, and many geological excavation sites which deeply fascinated both of us. We took another one of those hard side trips to Petra—the city which is literally hewn out of the rocks. This is a couple of hundred miles south of Jerusalem. We flew part way, took taxis part way, and rode horseback the rest of the way. It is certainly a spectacular place.

Jordanians are charming people, too. We were treated royally while in the Ambassador Hotel. Mom and George had birthdays while in Jerusalem and the waiters got a real charge out of bringing out a beautiful birthday cake with the candles lit for the two of them, at dinner one evening.

We hated to make the crossing into Israel—many of us really shed tears—as it is a real shame that this holy city has to be divided the way it is. Even though it is just across the street, so to speak, it is just like going into another world. Israel is bustling with activity, and is building a fine strong, modern nation. The hills are dotted with new communal settlements of one kind and another. They are clearing fields and planting trees and crops. While in Israel we spent two days on the shores of the Sea of Galilee—beautiful and inspiring. This is the area where Christ spent a large part of his time. We got to see Nazareth, His boyhood home, too. Our sightseeing in Israel included the towns of Tel-Aviv and Haifa. There are literally hundreds of large apartment buildings being constructed to take care of the Jewish people coming into Israel and settling in these large towns.

We flew from Tel-Aviv to Athens — and it was really wonderful to get back to Europe. And we found Athens to be a beautiful city. Our hotel there was all we could ask for, and by that time we were asking for a lot. Our stay in Athens was more leisurely spent and we enjoyed the people and shops very much. We made one side trip through the beautiful scenic countryside to the ruins of Corinth.

Then it was suddenly time to come home. On July 15th we were 16 hours enroute—5,500 miles. It was pretty good to feel the runway under the wheels of that jet!

We were rather sadly impressed by the way that the old countries live only for the glories of the past. Also, we found we were much happier in the countries where the people welcomed us warmly. Some places they did not receive the American quite so graciously. But then, do we always receive the foreigner graciously? We came home thankful to God that we were born American—never discount the privilege that has been given us.

And never let anyone tell you that dreams don't come true. Ours did.



Chester W. Wells, Assistant Manager

A Region Three man, Chester W. Wells is the new Assistant Manager of the Aeronautical Center. Wells was with the Kansas City regional office for the past three years as Chief of the Budget and Finance Division. He has been with FAA since 1946.

Oklahoman Named Statistics Chief

Earl K. Yost, Junior, has been named to the post of Chief of the Statistics Division of the FAA's Office of Management Services. Yost has been with the Agency since June, 1958 as an Operations Research Analyst in the Bureau of Research and Development.

Yost is a native of El Reno, Oklahoma, and began his professional career in 1943 as a statistical analyst. Yost, who holds a Masters Degree in statistics from the University of Oregon started government service in 1949 with the Navy Department as an Analytical Statistician.

"NO, SIR, NOT I, SIR--"

Isn't it funny ...

When the other fellow takes a long time to do something, he's slow.

But when I take a long time to do something, I'm thorough.

When the other fellow doesn't do it, he's too lazy.

But when I don't do it, I'm too busy.

When the other fellow goes ahead and does something without being told, he's overstepping his bounds.

But when I go ahead and do something without being told, that's initiative.

When the other fellow states his side of a question strongly, he's bullheaded.

But when I state my side of a question strongly, I'm being firm.

When the other fellow overlooks a few of the rules of etiquette, he's rude.

But when I skip a few of the rules, I'm original.

When the other fellow does something that pleases the boss, he's polishing the brass.

But when I do something that pleases the boss, that's co-operation.

When the other fellow gets ahead, he sure had the lucky breaks.

But when I manage to get ahead, Man! Hard work did that!

Funny, isn't it -- OR IS IT?



FSS Training Class FW-1

DATM NEWS

WHO SAID IT COULDN'T BE DONE?

They said it couldn't be done—but once again, the Department of Air Traffic Management Training proved that it could be done. We refer to the challenge handed us to establish and administer a training program for journeymen Flight Service Station personnel. The new role of the Flight Service Station (formerly known as Air Traffic Communications Station) involves new responsibilities of these personnel to provide VFR pilots with a more efficient and comprehensive service.



FSS Training Class FW-2

After months of laborous preparations and overcoming what seemed to be insurmountable obstacles, DATM launched this new program on July 5th. Sixty one participants, representing 50 states and two regional offices reported to Oklahoma City for this four week course. These people represented more than 1,000 years of government service and it was gratifying to see the interest shown by these people in this new program. These men and three women were selected to participate in this comprehensive training program and are responsible for making use of this knowledge by training the personnel at their respective facilities.



FSS Training Class FW-3

This new Flight Service Station program entails much more than meets the eye. These people are responsible for assuming the important duties of briefing pilots on weather conditions anticipated along their route of flight. A responsibility which heretofore has been the Weather Bureau's. This meant that these people would have to have a much deeper understanding of basic weather concepts, the effects of stability within an air-mass on a pilot's chances of completing a safe journey; it requires the flight service specialist to understand the many scientific and technical aspects of weather forecasting, and through the cooperation of the Weather Bureau, top-notch aviation weather forecasters joined our staff to competently instruct these people in this phase of the program.

Coupled with the requirement that these people be able to effectively brief pilots on weather conditions, were the added responsibilities of providing new and more efficient flight assistance to the General Aviation VFR pilot. A service whereby the pilot filing a flight plan may request that his flight be "followed." In so doing, the flight service specialist alerts stations along the route of flight, calculates the time the aircraft will pass over this station, assembles weather and other pertinent data for the purpose of aiding the safety of the flight, and has this information waiting for the pilot when he reports over the station. The new program requires that these specialist be thoroughly qualified to operate both VHF and UHF Direction Finding equipment which will be installed in their stations to further the assistance rendered to the VFR pilot when lost or in distress.

DATM spent many long hours developing course material for this program, planning workshops to make the training more realistic and effective; we installed a weather chart facsimile machine and teletypewriter on the weather circuits to provide "live" weather data with which the students practice pilot weather briefing. We developed a training device which permitted the students to learn the proper methods of operating direction finding equipment thus permitting the use of simulated problems in locating and directing lost aircraft to a safe landing. All this was accomplished despite continued set backs and changes in plans.

But our headaches did not stop here. We are responsible for the writing, assembly, and distribution of 5,000 copies of all training material to be sent to all Flight Service Stations for use in the Directed Study phase of this training program. This monumental task is under way and within the next three months this material will be in the hands of these facilities.

We are proud of this accomplishment. It is gratifying to know that no matter how great the challenge, the staff at DATM is capable of handling it. We have proven this in the past and we shall prove it in the future.



Enar B. Olson congratulates Jerome J. Martin, 10,000th ATC student, as Perry Bolyard and Instructor Kenneth Lux watch.

The Department of Air Traffic Management graduated its ten thousandth student this last month. He is Jerome J. Martin, a member of TG-29. Martin, shown being congratulated by Center Acting Manager Enar Olson, while Instructor Ken Lux, left, and Perry Bolyard, Acting Chief, Department of Air Traffic Management Training, look on.

Martin is an experienced pilot and was an Air Force navigator for seven years. He was assigned to the Pittsburgh Center in the First Region.

Its vacation time, and many of us in DATM have taken advantage of it. Ron Bereman and family are spending an enjoyable three weeks back in Tennessee, visiting Fran's folks. Ron was eager to try his newly acquired Comet out on the road. We have yet to hear any reports on it.

Bob Williams and his family journeyed to Washington, D.C., for their two week holiday. Bob assures us that it was strictly a pleasure trip. He says everything was fine except he didn't appreciate the humid weather that greeted him upon his arrival. Bob had one sour note in his vacation. A sore arm (caused by his attempting to water ski) flared up on him in Washington and he had to seek the

services of the doctors at Georgetown University Hospital. It seems to be better now and we find Bob has full use of that arm (except when there's work to do.)

* * *

Jim Daniels and his family spent an enjoyable 3 weeks visiting relatives and lounging on the beach (Myrtle that is) while in North Carolina and South Carolina.

* * *

Ron DeGarme spent 3 days in Indianapolis. Ron had the pleasure of driving the 500 mile speedway track. He drove a Volkswagen around the track and has a card to show he successfully completed one lap around the track.

* * *

Yours truly spent a most enjoyable two weeks in New Mexico, camping and hiking and climbing the Indian Ruins in Bandelier National Monument northwest of Santa Fe. Believe me there is some mighty pretty country out there. We often wondered what was in and behind those mountains and we found out. Of course I almost ruined my car trying to find out but it was well worth it. Man! What roads in them thar hills!!!

FT

* * *

Martha Brill, Kay McNeal, Bobbie Hood, Maxine Bost and Ruth Baxter went for a ride in the FAA "Goony Bird" recently and were presented with their "Goony Bird Wings." Seems as how it was a little too warm and a little too rough on Kay and Martha. But all seemed to come through the ordeal with flying colors.

FT

* * *

The Oklahoma City branch of the Air Traffic Control Association held its July meeting at Tulakes Airport. We enjoyed informative talk by Mr. Tom Sims, Director of the Marketing Division of Aero Design. After the talk, Mr. Jack Rector, Public Relations Manager at Aero Design took us on a tour of the factory where we were able to see the painstaking work being done on the new "500" series of the Aero Commander.



Looking over one of the newest of the "500" series of the Aero Commander are, from left to right:

Charles Kite, Candidate for ATCA National Councilor-at-large. William Berkley, Candidate for Administrative Councilor or the ATCA. Jack Rector, Public Relations Manager, Aero Design Corp. Bob Jordan, Secretary-Treasurer of the Oklahoma City Branch, ATCA. Tom Sims, Director of Marketing, Aero Design Corp. Joe Basham, Coordinator-instructor, Department of Air Traffic Management Training, FAA School.

The August meeting of the local branch of the ATCA was equally informative. The meeting was held at the Aeronautical Center where Dr. Bruno Balke gave a very interesting talk about the research underway in Norman to analyze the workload strain and effect on the air traffic controller.

Dr. Balke is in charge of the Biodynamic Section of the Bureau of Aviation Medicine. One conclusion we did arrive at from Dr. Balke's talk is that we need to get more exercise. Anyone for a game of golf????

And still the population grows!

Tom Smith, PT-930, became the 8 pound father of a proud girl, whoops, I mean the proud father of a 7-lb. 13-oz. girl born August 1, 1960. Tom reports that Zula and baby (Laura Lee) are doing fine and he feels he will recover soon. Congratulations Tom and Zu.

FM



Don Demeter, Centerfielder for the Los Angeles Dodgers, is welcomed to the Aeronautical Center by John K. Hall, Acting Chief, Accounting Division. Mr. Demeter, a native Oklahoma Cityan, is home recuperating from a wrist injury recently received in a collision with Dodger Shortstop, Maury Wills.

The big Centerfielder was particularly impressed with the present size of the Aeronautical Center as it had been six years since he had been at the site. When Don learned that FAA personnel maintained and operated all of the Air Traffic Control towers he had one request to make and that was: "Please, would someone speak to the operator at Chicago, because we are always held in the stack when we arrive at that city." He was also particularly impressed with the extent of maintenance performed on aircraft by the Aircraft Division.

Don feels that the Dodgers still have a very good chance to win the National League pennant and felt that the Yankees were the team to beat in the American League.

Although Demeter loves the game of baseball, he is a devoted family man and dislikes being away from his wife Betty and their young son, Russ, on extended road trips.

Demeter has a reputation in the National League for being a very mild mannered athlete who goes about performing his job in a professional manner and does not become involved in arguments with umpires or teammates. This is not to imply that he does not have a terrific desire to win, but rather that he has accepted the fact that "the way the umpire calls it is the way it is."

All in all, the man who covers the "big garden" for the Dodgers impressed those at the Center who met him as being the type person that you would certainly be proud to number among your friends.

ADMINISTRATIVE SERVICES ADDS TEN NEW EMPLOYEES

The Administrative Services Division would like to welcome these new additions:

Plant Protection Branch—Mrs. Pat Geer, Secretary, from Kerr-McGee Oil Co., and previously at Tinker AFB.

Property Management Branch—Mrs. Ruth E. McDaniel, Clerk-Typist, from Veterans Administration.

Special Services Branch—Mrs. Jo Davis, Office Services Supervisor, from Vance AFB.

Communications Section—Mrs. Dorothy Pope, Clerk-Typist, from Procurement Branch OMD.

Mail and Messenger Section—Billy J. Edwards, Billy E. Bynum, William K. Hood, Deon O. Taylor, all Mail Clerks, from the Post Office Department.

Offices Services Section—Billy H. Lloyd, Storekeeping Clerk, from the Post Office.

Reproduction and Distribution Section—Lyndall E. Butler, Diazo Equipment Operator, from Adams Engineering and Blueprint Co., Oklahoma City.

PROPERTY MANAGEMENT BRANCH CHIEF TRANSFERS TO REGION 1

Harry A. Lahtinen, former Property Management Branch Chief of the Administrative Services Division, transferred to the FAA Regional Office, New York, N. Y., effective August 12, 1960. Mr. Lahtinen had been at the Center since September 1956, Mr. Lahtinen will be sorely missed by all his friends.

**PROJET? TURBOJET?
BY-PASS? TURBOFAN?
AFTFAN**

JET GEMS

The above terms are being bandied about (rather loosely at times) by "slip-stick" artists and other high GC Grade seekers—with a rather superior air—until someone pins them down as to just what they are talking about? If we could finance and survive numerous coffee breaks, we would find that the airborne jet horsepower race involves mass airflow through the engine. It is like stoking an old fashioned furnace, you must have "fifteen scoops of air to each scoop of coal."

If the ashes clogged the grates we didn't get the heat. Jet engines gulp great quantities of air, resulting in high mass air flow which results in high thrust horsepower. The old adage that "we must have more hay to feed more donkeys" accounts for approximately four to five times the fuel consumption as compared to piston engines.

For example: a Constellation piston engine transport will burn about 500 gallons of gasoline per hour, carry 70 people at 300 MPH, up to 25,000 feet operational altitude while a large jet transport will burn 2,000 to 2,500 gallons of keorsene per hour, carry 140 people at 60 MPH up to 40,000 feet altitude. The jet transport replaces three Constellations and everybody gets a much earlier start with their loafing, all because of vastly increased airflow—it's as simple as that!

PROJET

In the July issue of the Beacon we made a brief air flow comparison between a piston engine and a projjet or turboprop engine. In commercial airline and corporation operations

the projjet engine ranges from 2,000 HP to 4,500 HP, airplane speeds up to 450 MPH and altitudes to approximately 25,000 feet. In general, the projjet powered airplane is used where runway length, field elevation, high ambient temperatures and other limitations would seriously restrict the operation of turbojet powered airplanes. The propeller, driven by either piston or projjet engines moves a large mass of air at relatively low velocity thus approaching ideal efficiency at airplane speeds up to 450 MPH. At higher speeds, propeller tip velocities and "slippage" losses present serious problems. In the development of piston engines, an economic limit was reached in the number of cylinders (28) and installed powerplant weight, which eliminated it in the airborne horsepower race for speed, performance and altitude. Although the projjet or turboprop engine is considerably more sensitive to higher takeoff ambient temperatures and field elevations, it develops considerably more horsepower per pound of installed engine weight. In the case of the Rolls Royce Dart turbine engines used in the Fairchild F-27, Grumman Gulfstream and Viscount airplanes and the Pratt & Whitney turbojets used in the early Boeing 707's and Douglas DC-8's the sensitivity to high ambient temperatures and field elevations is compensated by the use of water injection to cool the air and recover the mass air flow to obtain the urgently needed takeoff power.

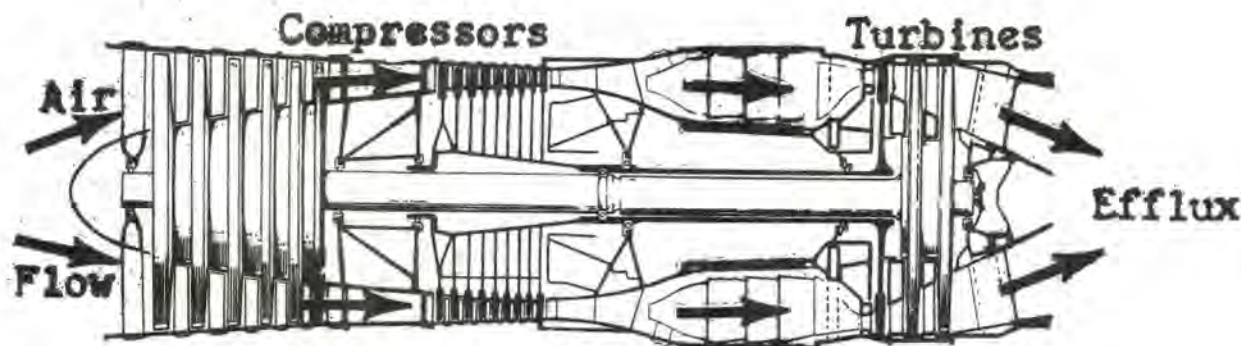
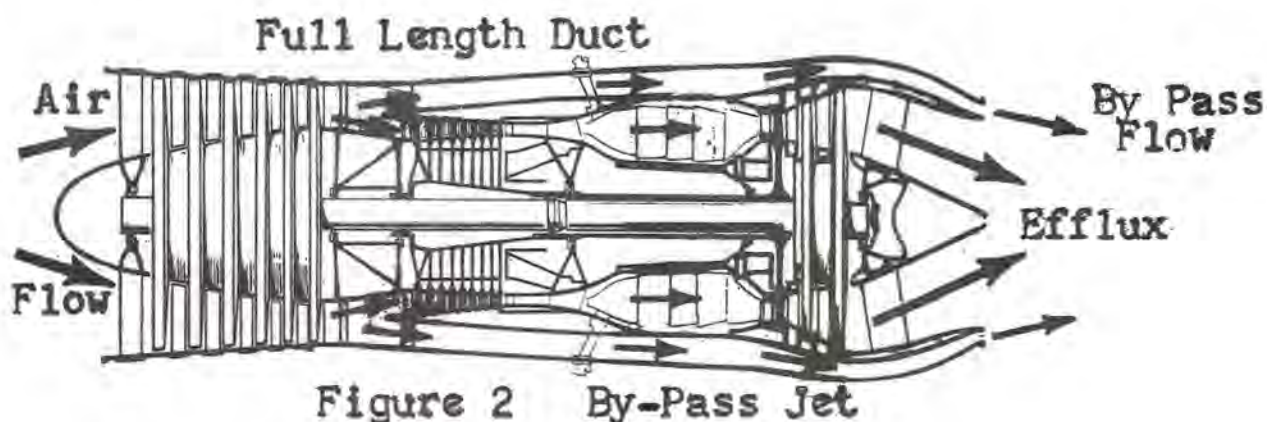


Figure 1 Turbojet

TURBOJET ENGINE

Reference to Figure 1 will give an idea of the "innards" of a representative turbojet engine. The main frame houses the dual axial flow (lengthwise) compressors which are driven by the turbines at the rear of the engine. As the air is passed through the numerous stages or rows of airfoils in the compressor, the pressure ratio (in relation to ambient conditions) is increased to about 11:1. The compressed air flows into the diffuser which results in distribution to the heads of the various burners. Approximately 25% of the air flows through the burners where kerosene is sprayed from nozzles into the air stream. The burning and expansion of the air increases the velocity of the gas stream and the remaining 75% of the air dilutes and cools the gas stream dropping the temperature from approximately 2000°C to 875°C so it won't burn the nozzle guide vanes and turbine blades off the engine. The continuous compression, burning, expansion and pressure drop of the gases results in a tremendous forward push of the engine and gives 10,000 to 20,000 lbs. of thrust. The 30,000 to 50,000 horsepower developed by the turbine is entirely devoted to driving the compressor and engine accessories.

The velocity of the gases in the tail pipe is approximately 1,200 MPH. The performance of the turbojet powered airplane is related to its speed in comparison to the velocity of the tail pipe gases. Remember, it isn't the push of the gases on the outside air that makes the airplane go, it's what happens within the engine as previously described. When the airplane is taxiing on the ground they easily get stuck if they get off the concrete. During take off the turbojet airplane runs from here yonder and must reach a speed of approximately 150 knots before they can "rotate" or start the climb. At 375 MPH a pound of thrust equals a thrust horsepower. At approximately 750 MPH a pound of thrust equals two thrust horsepower. Above this speed you better get a whole lot more thrust, use after burners or go to rockets and say "go, go, go" like ole Walker in the X-15 (over 2,100 MPH!). Incidentally, the turbojet has only two igniters or spark plugs to "light-off" and it takes about 175 pneumatic horsepower to whirl the turbojet up to 15% of its rated speed. An electric starter would be bigger than the ole man's barn and weigh almost as much!



BY-PASS ENGINE

Reference to Figure 2 will give an idea of the configuration of the Rolls Royce Conway By-Pass engine which will power the 24 Boeing 707's and 6 Douglas DC-8's sold to British overseas Airways, Trans Canada Airlines and other foreign operators. It is quite similar to the Rolls Royce Avon turbojet engine except

that it has a duct the full length of the engine to handle a considerable amount of cold air in addition to that passing through the engine. A By-Pass engine is readily identified by the full length air flow duct and division of the cold air within the engine, ahead of the high pressure compressor. This considerably increases mass air flow which is "gravy" because fuel is not mixed with the "outside" air. The

"slip-stick" artists and high graders can sit up until the wee hours over refreshments at the corner tavern, complaining about "duct losses" "by-pass ratio" and other weird factors but

the By-Pass engine sure gives the jet transport a "hot foot" for takeoff, a relatively improved fuel consumption (considering 18,000-19,000 lbs. of thrust) and they "push" pretty good!

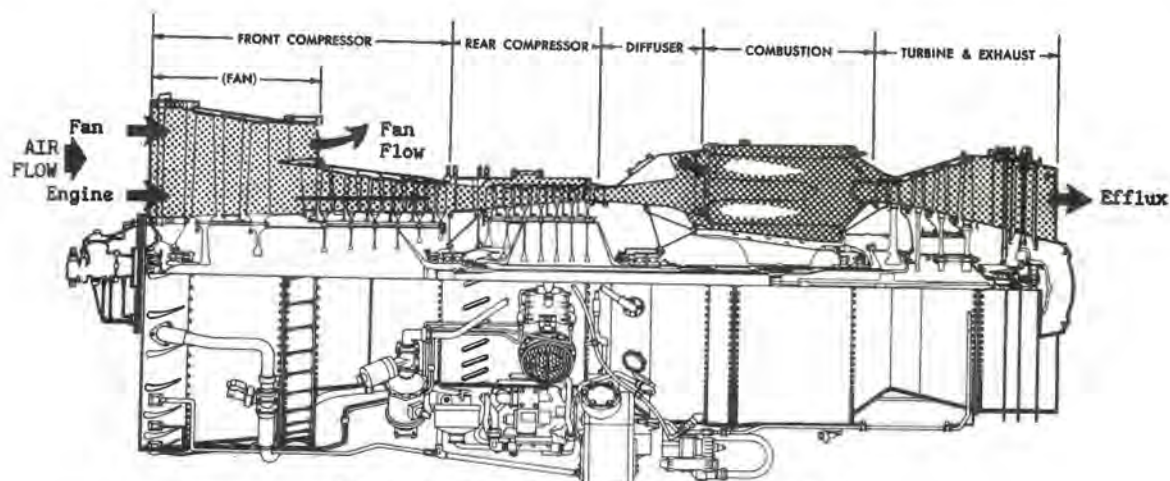


Figure 3 Pratt & Whitney JT3D Turbofan Engine

TURBOFAN ENGINE

Reference to Figure 3 will clarify the major features of the Pratt & Whitney JT3D Turbofan engine. Basically, this engine is essentially the same as the P & W JT3 engine developing 11,000 lbs. thrust (13,000 lbs. with water injection for takeoff) which is widely used in the Boeing 707's and Douglas DC-8's operated by the various airlines. The JT3 engine may be modified during overhaul, (using approximately 90% of the basic parts) by removing the first three rows of front compressor blades and installing two rows of approximately 16 in longer fan blades with a new duct casing. The third turbine stage is enlarged and a fourth turbine stage added to supply the power required to drive the front compressor and fan. The drive shaft is also strengthened to handle 40% more "cold" air

than passes through the engine. The conversion cost of one engine and airplane modification has been estimated at approximately \$1 million. The converted JT3D turbofan will eventually produce approximately 18,000 lbs. of thrust as compared with the total of 13,000 lbs. of the JT3 engine. The JT3D will provide about 50% more takeoff thrust and 20% more cruise thrust. The specific cruise fuel consumption should be 12-15% less during and 8-10% less during cruise. The speed increase should be approximately 30 knots with the turbofan.

In effect we have a large number of fan blades creating a propeller effect in moving 40% more air to compensate for the runway "squeeze" and the 250,000 to 300,000 lb. weight of the large jet transport.

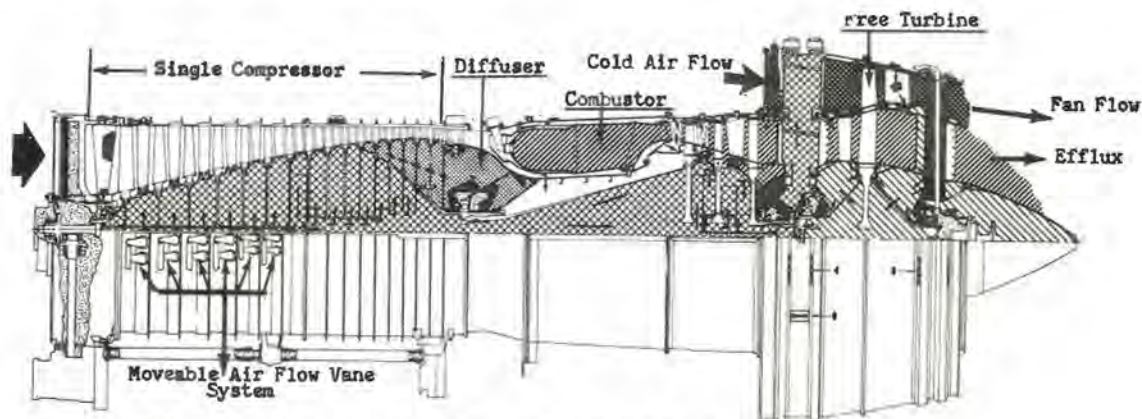


Figure 4 General Electric CJ805-21 Aftfan Engine

AFTFAN ENGINE

Reference to Figure 4 will point out the essential features of the General Electric CJ805-21 engine. This engine will be used in the Convair 600 or 990. Twenty-five of these aircraft are on order for 1961 delivery to American Airlines. The basic engine without the aftfan is used in the Convair 880 operated by TWA and Delta Airlines.

In comparison with the P&W JT3D engine it will be noted that the CJ805-21 engine has one instead of two independently turbine driven compressors. The latter is equipped with 6 sets of variable air guide stator vanes (front) of a total of 17 compressor stages. The variable guide vanes are operated in conjunction with the fuel controller. This is a difference in design philosophy between P&W and GE engineers to control compressor functioning to prevent "stall" of the airflow through the compressor system.

In the CJ805-21 engine the aftfan is driven by a free turbine instead of the front compressor on the P&W.

The performance and fuel economy gains are somewhat similar in the Turbofan and Aftfan engines. Both claim reduction in duct losses due to the short air flow as compared to the long duct in the By-Pass engine. All companies claim 10-15 decibel noise reduction. Independent kabitzers dispute this claim—operational experience will tell the right story.

It is hoped that this highlight presentation will help you in following future "fan" developments. There is a pitched battle regarding pod, imbedded and tail mounted engines in future aircraft—that is another story for the next issue.

Hi Pressure

FAA PROPOSES TO LOWER LEVEL OF CONTROLLED AIRSPACE

All air traffic above 14,500 feet over continental United States will fly in controlled airspace under a proposed rule now being circulated by the Federal Aviation Agency for comments by the industry.

In asking for comments on the proposed rule prior to October 13, the FAA has pointed to certain improvements in air traffic control and communications which make it possible to lower the floor of the "continental control area," which is now at 24,000 feet, over con-

tinental U. S. These improvements include improved radar systems for air traffic control; more peripheral, or outlying, radio stations giving more direct communications with pilots; the use of semi-automatic calculating equipment which frees controllers from much routine detail; and a sizeable increase in the number of controllers.

Flight under either the Visual Flight Rules (VFR) or under the Instrument Flight Rules (IFR) would be permissible within the continental control area. When the in-flight visibility is five miles or better, and pilots can maintain 1,000 feet vertical and one mile horizontal separation from clouds—they may fly on a see-and-be-seen basis; however, if they choose, they may fly under the Instrument Flight Rules (IFR). In weather below these minimums they must fly in accordance with Instrument Flight Rules.

These minimums will be applied to the altitudes down to 14,500 feet under the proposed rule, where before the visibility minimum was three miles with 2,000 feet horizontal separation from clouds. This increased safety precaution is necessary, the FAA says, because of the high performance of today's aircraft, making operation on a "see-and-avoid" basis more difficult for pilots. An increasing number of faster planes are now using the higher altitudes.

The FAA warns that a pilot flying under Instrument Flight Rules (IFR) in good weather conditions is not excused from the requirement for watching for other aircraft at his level, since other aircraft may not be under control from the ground.

The proposal was published simultaneously with a proposal for revision of the controlled airspace structure which would establish a three level route system. The low altitude airway system would extend upwards to 14,500 feet; the intermediate airway structure from 14,500 feet upwards to, but not including, 24,000 feet; and the high altitude jet routes at and above 24,000 feet.

The grass in the next yard is greener ----- they have no children.

Tinker AFB, Okla. — Federal Aviation Agency pilots are now swelling the ranks of students attending courses with MATS' 1707th Air Transport Wing here.

Four FAA air carrier operations inspectors began ground school in the C-118 (DC-6) Special Pilots course June 17, and started flying July 1. A total of 42 FAA pilots are scheduled to complete the course by next March.

The object of the special classes is to qualify experienced pilots as current in DC-6 type aircraft. After graduation, the FAA flyers will check each U. S. airline pilot flying the Douglas DC-6 for proficiency every six months. And every six months these FAA DC-6 pilots are programmed to return to the 1707th for refresher training, mainly for flying time.

Each class will have only about four students, and will last for just over six weeks. After seven concentrated days of ground school, pilots will get 25 hours of flying time

at the controls of the C-118 Liftmaster; another 25 hours will be spent observing other pilots. The C-118 Flight Simulator, which duplicates every detail of the Liftmaster flight deck, will provide another 28 hours of practice.

This additional requirement was laid on the 1707th ATW in June, after an FAA request went to the U. S. Air Force in April for such training. Flying training is handled by the 1741st Air Transport Squadron, ground training by the 1709th Technical Training Squadron. The course is the same as the MATS special pilot course conducted by the wing except for the final check ride, which is given by Capt. Douglas N. Christie, Jr., 1741st chief pilot. The final check flight will be conducted under civilian rules as outlined in Civil Air Regulation 21.

The new classes are another example of cooperation between FAA and the Military Air Transport Service.



Major Julius D. Miller, left, explains the nose gear of the C-118 to FAA pilot students R. J. Young, center and S. P. Nucci. After completing the C-118 special pilot course with MATS 1707th Air Transport Wing at Tinker AFB., the FAA air carrier operations inspectors will check U.S. DC-6 airline pilots. Mr. Young's base of operations will be Seattle, while Mr. Nucci will be based at New York International Airport.



Edward R. Patterson, left and Laurence F. Tapper, right, of FAA are shown after returning from a flight with instructor pilot (Capt.) Robert A. Mansell, Jr. The FAA pilots are midway through the C-118 special pilot course conducted by MATS 1707th Air Transport Wing at Tinker AFB, Okla. After completion of the course, the FAA inspectors will check U.S. DC-6 airline pilots. Patterson will fly out of Miami, Florida and Tapper from Minneapolis, Minn.



Ronald W. Pulling, Manager, Facilities and Materiel Depot.

MEET RON PULLING

Just recently Mr. R. W. Pulling assumed new duties as Manager of the Facilities and Materiel Depot, a major field establishment of the Bureau of Facilities and Materiel. As an adjunct to the Bureau, the Depot provides central world-wide services in the modification and major maintenance of the FAA Agency Aircraft Fleet; the fabrication, modification, installation design and major maintenance of airborne electronics systems utilized in flight checking all the Federal Airways Systems; the distribution, world-wide, of equipment and specialized parts required to keep over 4,000 major field navigation facilities operable, just to name a few.

Let's turn the clock back to his first job. The year is 1940 and he just graduated from the University of California with a Bachelor of Science Degree in Civil Engineering. The California Department of Highways was his first employer and chances are pretty good that his employment with the Dept. helped to make their excellent roads and highways even better.

After a short sojourn with the California Department of Highways he began his career with the government as a Jr. Civil Engineer in the CAA, Airways Engineering Division in Washington, D. C. where he assisted in the design of intermediate airports, design of grad-

ing, drainage and pavement.

From Washington he transferred to the Los Angeles Regional Office as Assistant to the Chief of Construction, where he compiled cost data on airport construction, interpreted plans and specifications for contractors and field engineers and was in charge of 5 field crews engaged in structural, mechanical and electrical modification work to existing CAA stations.

In 1943 he was promoted and transferred to Hawaii as an Airways Engineer designing and supervising construction of air navigation and communications facilities in the Pacific ocean area. He was loaned to the Armed Forces in 1944 and 1945 to supervise and provide technical advice to troops engaged in similar construction at forward bases, and participated in post-war survey of the Philippine Islands to determine rehabilitation requirements of civil air facilities damaged by war.

In 1946 Ron, as all of his friends call him, was selected and promoted to Chief of the Plant and Structures Establishment Branch and had charge of post-war planning, design and construction of civil air bases in the Pacific Ocean area, including the supervising of engineers engaged in planning, estimating, preparing specifications, and designing airfields, family housing, water supply systems, power plants, and a wide variety of navigational aids and communications facilities in the Hawaiian Islands, Midway, Wake, Guam, and Canton. With the outbreak of hostilities in Korea several emergency projects were undertaken, such as installation of aviation fuel tanks, a LORAN station, etc.

After 7 years in Hawaii he transferred (and it was another promotion) to the Aeronautical Center as Chief of the Project Materials Division. Here again, his engineering "know-how" came to the front and he took over the distribution of equipment required to establish new facilities for the Agency throughout the U. S., etc. In addition to his duties as Chief of the Division he supervised the preparation of a Master Plan for the complete new layout of the Aeronautical Center. In 1952 he was detailed to the Washington Office for 90 days and was appointed to a three-man committee to review the work performed by the entire Establishment Engineering Division Organization. In 1957 he was again promoted and this time as Chief of the new Facilities Materiel Division. This new Division came

about by a consolidation of the Project Materials Division at the Aeronautical Center and the Airways Facilities Shop in Fort Worth. Also, during this time he acted as Technical Consultant to the Director of the Center, establishing and maintaining liaison with the Architect-Engineering firm building the new facilities for the entire Center, including review of requirements, specifications, plans and construction.

This brings us back to the present and his new job as Manager of the Facilities and Materiel Depot, one of the largest and most versatile tenant organizations here at the Aeronautical Center. The Depot presently has around 1,500 employees in many varied technical fields.

Mr. Pulling is a family man, residing at 4216 NW 17th with his wife, Florence—2 boys, Huki and Bill and a daughter, Mary Anna. He likes to play golf and watch his 2 sons, who are quite active in sports and during this time of the year, actively engaged in Little League baseball.

Ron and his family are charter members of St. David's Episcopal church where he has served as a Vestryman, Treasurer, and a member of the Bishop's committee. He is also a member of the Oklahoma City Chamber of Commerce. The American Society of Civil Engineers has appointed him chairman of the Air Transport Committee of the Oklahoma Section of the ASCE. This committee advances the science of civil engineering as related to the administration, economics, planning, design, construction, operation and maintenance of civil and military airports and airways.



C. W. Wells presents "Outstanding Manager" plaque to Norman Hodkinson, as R. W. Pulling looks on.

The Employee Association's "Outstanding Manager's Award" for the summer quarter went to Norman R. Hodkinson, Chief, Facilities Flight Inspection Branch. Norman was congratulated and given his plaque by Assistant Manager Chester W. Wells as Ron Pulling, manager, Facilities and Materiel Depot, looked on.

Hodkinson was selected for the "Outstanding Managers' Award" for his contributions to the program objectives in his Division, maintaining good relations with visitors to the Aeronautical Center, both from other FAA offices and from outside industry.

Hodkinson has been with the Aeronautical Center Facilities Flight Inspection Branch since 1954. . . .

Get your names in now for the next quarterly award presentation—both Outstanding Manager and Outstanding Employee.

For anyone who likes good food, weather and company, Saturday August 13 was a big day. That was the date of the big (approximately 1200) Employees Association Annual Picnic. There was swimming, eating, dancing, and riding the rides. Everyone was in agreement: -- Wedgewood Park really is a good place for a big time!!



Smiling with pride for the fine job of modification and modernization work performed on the *first* TV-2 Type I aircraft to be produced by the Aeronautical Center are: Woody Henson, Claremont Robinson (Pilot), Buford Farnsworth, Buddy Adamson, and Frederick Chaffee.



In cockpit of TV-2 is Buddy Adamson, Aircraft Mechanic Lead Foreman, AC-132, and Buford Farnsworth, Avionic Inspector, AC-680.

Standing left to right: Claremont Robison (Robby the Pilot), John Beck and Donald Watson, Avionic Engineers of AC-680, Woody Henson, Aircraft Mechanic General Foreman of AC-132, and Monroe Ebner who is Chief of the Aircraft Maintenance Branch, AC-132.

Removal of three hundred pounds of wiring, armament systems, and other equipment was necessary in order to install four hundred pounds of new Avionic Equipment. In all, over sixty-one individual modifications were performed on this and other 1951 model aircraft to bring them up to and beyond the standards of the latest T-33 aircraft manufactured.

Flight Operations and Airworthiness, AC-200, formally accepted the aircraft June 29, 1960 to be used in student training.

Monroe A. Ebner, AC-132, held a surprise fire drill July 22, to test the alertness and effectiveness of his organization.

When the air horn sounded, the time required to unroll 300 feet of fire hose and have ready and operating at the site of the make believe fire was only one minute and fifteen seconds. This is very fast time and shows how well an organization can perform when kept at its peak efficiency. (The air horn was designed and installed by AC-132 personnel.)

Hangar and office personnel took active part in the fire drill, as well as the fire fighting equipped Jeep along with men standing by with fire bottles, first aid equipment, and stretchers.

Mr. Ebner said he was pleased with the showing, but added "We can always do better!"

Concentrate on being a trouble-smoother avoid being a trouble-raiser. Learn to get things done without friction, learn to get other people anxious to help you to get things done. Learn to be a frictionless functioner. Try to straighten out your own troubles. Be cooperative, not carping. Most executives have enough to do attending to their own responsibilities. The employee who exercises superior diplomacy, who gets along harmoniously with others, who develops aptitude for handling fellow employees, is one likely to be drawn by the boss nearer to him.

—SKY HOOK—

Washington, D. C.—A newly developed arresting system, designed to keep aircraft from overshooting runways in emergency landings, was successfully "live-tested" recently for the Federal Aviation Agency, when a giant hook, reaching downward from the underbelly of a Convair, engaged a steel cable and eased the airplane to a stop. Based on techniques used by the Navy on carriers, the arresting hook has never before been adapted to a commercial transport.



With Government and aviation industry officials on board, the 40,000 pound twin-engine craft made four landings at normal speeds and came to a stop each time within 1,400 feet of touchdown. Passenger reaction to the experiment revealed that the method was a far smoother way to slow down than by the Convair's convention use of reversed propellers. They also commented favorably on the lack of vibration and engine noise.

"Water-Squeeze" Applied

The system, developed for the FAA by the All American Engineering Company of Wilmington, Delaware, employs the "water squeeze" principle of operation. Two steel tubes, 1,400 feet long, partially filled with

anti-freeze mixture, are buried at the proper gradient on either side of the runway. Each tube contains loose-fitting pistons interconnected by a cable which runs the length of the tube and attaches to a second cable stretched across the runway. As the aircraft approaches the point of no return, the control tower manipulates a lever which raises the runway cable approximately four inches above

the surface. Simultaneously, the hook is released from the aircraft, seizes the cable and drags the pistons through the fluid. The resulting compression of the fluid past the pistons brings the aircraft to a stop.

Barrier Also Used

The hook is one of several arresting devices still in the experimental stage. Another, also developed for the FAA by All American, is the "pop-up" barrier which throws a cable over the landing gear when the aircraft comes to within 1,500 to 1,000 feet of the runway's end.

FAA engineers concede the eventual possibility of arresting systems becoming standard operating practice at many airports at some future date.



ANF MAINTENANCE SUPERVISION CLASSES TERMINATED AT FAA SCHOOL

With the graduation of MS Class 37 (Maintenance Supervision Class No. 37) on 1 July, 1960, one phase of Management Training, conducted at the Aeronautical Center was concluded. This course was designed primarily for Air Navigation Facilities Maintenance Supervisors.

This course was one part of the Agency-wide Management Development Program. The course is presently being revised and hereafter will be conducted by the Regional Training Officers in the field. The broad overall objectives of the course are: (1) to assist supervisors to develop and use management skills, (2) to develop sound management attitudes, and (3) to gain an awareness of the need for economy and efficiency. It is offered as a 40 hour course with conferences in six major areas of supervisory responsibility: (1) The supervisor's job, (2) how to improve the work situation, (3) how to get the work out, (4) how to train employees, (5) how to

work with people, and (6) self-improvement.

Agency plans are that additional supervisors will find the opportunity to replenish their "management tool box" with some of the techniques and principles of good supervision which are being taught and demonstrated in this course.

The participants of MS-37 and their instructors pictured above are beginning with back row (left to right) Mr. Bill Werner, Acting Head, Department of Management and General Training; participants F. C. Manthey; Leroy Hilscher; C. Sabella; B. J. Fraley; E. M. Elkins; R. E. Williams, AC-520; W. Cornwell; Instructor Don Brooksher. Front row (left to right) Instructor Rich Richardson; Participants; L. K. Krenlie; C. D. Haines; R. L. Phillips; C. Terry; W. R. Goode; W. J. Heffern; and Clair Monroe, Acting Chief, Management Training Branch.

THE QUIET THIEVES

Larcenous employes, stealing everything from gold to butter, account for losses to business of more than a billion dollars a year

Condensed from The Rotarian

The mild-mannered elevator operator at a plant in an Eastern town was a thief. When investigators finally caught up with him last year, they found his apartment crammed with \$25,000 worth of electrical fixtures more than 700 items, virtually the entire range of products manufactured by his trusting employer.

The elevator operator had an arrangement with several other employes of the company: they sought out items he desired, and he carried the stuff to the basement of the plant and out to a confederate's car. Distribution was easy: he furnished six of the local bars with catalogues of his employer's products; customers could order what they liked—at about one-third retail cost—and pick up their purchases a day or two later from the bartender. When caught, the elevator operator confessed stealing some \$50,000 worth of merchandise in four years.

Employee theft, though often ingenious, is one of the quietest of crimes, and seldom makes the headlines. Yet it levies a huge toll on the economy. Investigations, Inc., the fact-finding division of Norman Jaspas Associates, management engineers, estimates that merchandise pilferage amounts to more than a billion dollars a year.

Every kind of establishment is vulnerable. Here is a random sampling of employee theft, over the last few years:

- A well-known Italian restaurant in New York reported a loss of several thousand dollars in, of all things, olive oil and shrimp.

- In Buffalo, N.Y., the FBI broke up a ring at the ACK Industries, Inc., plant which had stolen some 100,000 pounds of lead. Workers would melt down the lead and cast it into shapes to fit around their bodies, thereby escaping detection.

- In Kankakee, Ill., police uncovered thefts of food, clothing and bed linen which had cost the Kankakee State Hospital one million dollars over a four-year period.

- In the Port of New York, the Waterfront Commission announced last December that dockside thefts had victimized ship lines to the tune of \$788,540 in a single year.

- In Springfield, Mass., an executive of the Brooks Co., paper manufacturers, committed suicide after admitting that he had stolen \$60,000 worth of unprinted paper.

- In New York City, a mail clerk with a large stockbrokers' firm was recently charged with stealing close to \$200,000 by raising his take-home pay from \$62 a week to \$1062. The extra thousand was in stamps.

Larcenous employes are often brazen in their operations. The shipping-department supervisor at the New York City headquarters of a chain of women's specialty shops had a forthright gimmick. Every day he stowed garments in a box and sauntered out the door, explaining that he was returning defective goods to a manufacturer or personally making a rush delivery.

He then went to the Pennsylvania Railroad station and deposited his loot in a public locker. At lunch time, he would jovially auction off the key to the highest bidder. In four years the supervisor robbed his employers of goods valued between \$40,000 and \$50,000. His racket was finally discovered when an underling was caught trying to sneak some dresses past a guard. "If you think I'm a thief," said the aggrieved fellow, "you should meet my boss."

Even bolder was the operation of the carpet-workroom manager in a large California store. His employer's customers often canceled their orders because delivery was slow. (It was the manager who arranged that delivery would be slow.) At this point, he would phone and offer immediate service at a lower price—which he could easily afford because he was stealing the store's carpeting and using the store's crew of installers. Unmasked after several years, when he could no longer conceal the massive inventory shortages, the manager had been making \$25,000 a year in addition to his \$8,000 salary. The store had lost \$250,000 in stolen merchandise, and \$200,000 in unnecessary overtime for the installers.

Records of insurance companies and detective agencies indicate that there are few limits to what some employes will steal. Small objects which can be stowed in a pocket or a lunch box—electronic parts, drugs, cosmetics, tools—are an obvious target. But the loot can involve surprisingly bulky items. One machinery plant in Delaware recently re-

ported a loss of \$16,000 worth of pipe, brass, copper and steel, trucked out of the plant by a group of employes and sold to a scrap dealer. A railroad construction company discovered that an employe had somehow stolen \$6,700 worth of rails—also sold for scrap.

Where security measures are tight, considerable ingenuity has been employed to smuggle out goods. At a butter wholesaler's, several employes were found with rows of slots stitched into the linings of their overcoats; each slot could hold a quarter pound of butter, each overcoat a three-pound haul. A New York hospital discovered that antibiotics were being smuggled out in plastic bags buried in trash cans. Industrial engineers for a Western mining company last year turned up the startling fact that gold was leaving the refining plant in containers flushed through the sewage system.

One department store employe was able to conceal his theft of 28 refrigerators, 14 gas ranges, and other bulky kitchen hardware by simply nailing the empty storage crates to the floor. Warehouse checkers were fooled into thinking the heavy appliances were still inside.

Employe theft often starts in a casual way—simply because access to goods is easy and security loose. Pilferage is also alarmingly infectious. "Everybody was doing it," is a rationalization frequently offered when the thief is caught. The average pilferer has had a blameless record in past employment, does not think of himself as a thief. He regards his act as a sort of informal sharing of the wealth. "This company is so rich, I thought they'd never miss it," he is likely to say.

Last year at a branch department store not far from New York City many of the sales staff were parttime employes. Since this was a recently opened suburban community, they all had new homes and were in the market for household furnishings. Gradually, an informal trading of favors developed. A salesman in appliances, for example, would approach a neighbor who worked in fabrics and admire a certain pair of draperies, which he could hardly afford. The fabrics man would thereupon mark down the draperies from \$100 to \$15, and later his friend would return the courtesy by getting him a \$30 electric heater for \$5.

These cozy arrangements finally came to

light and, after investigation, 33 employes were fired. They had cheated the store of \$400,000 in 18 months. Yet, as one executive observed, "While the spree was going on, if you had told those people they were stealing, they would have been shocked."

Private detective agencies and insurance companies put a good deal of the blame on management for such delinquencies. In many cases, inventory control systems are inadequate and thefts can go on for long periods unnoticed. Physical counts of inventory are often made at regular, announced intervals, thereby affording opportunity to manipulate records. Collusion between shipping clerks and truckmen is possible when no checker is on the job. Indeed, so unaware are many companies of the hazards that only about 15 percent of commercial firms are protected by fidelity insurance.

Moreover, some companies wink at petty pilfering, and so create a psychological atmosphere in which large-scale theft becomes tempting. And too many managements, fearing the embarrassment of bad publicity, are reluctant to prosecute, and merely fire the culprit. The scandal of employe theft will end only when American business faces up to a long delayed housecleaning.

—Irwin Ross

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Personnelly Speaking

Is Uncle Sam a "Good" Employer?

Some people who work for the government believe in a vague hazy sort of way they are being "taken." They feel that because they work for Uncle Sam they are passing up all the lavish benefits "private industry" heaps on its employees. This is one example of fallacious thinking that won't stand up under careful analysis.

Let's get one thing out of the way first. Uncle Sam has his problems as an employer and when we make comparisons of this kind we have to speak in generalities. We have to compare statistics and there are always specific exceptions to any generality and "statistical" man doesn't exist. I know of individual employees who are considered so valuable their employer pays them at rates way above the norm, and other employers who have really generous sick leave plans and still others who are rabid football fans and buy their employee's football tickets, but these are exceptions. Not infrequently employees are treated generously to free football tickets but their employer figures "social security" is all the retirement protection his employees need.

Within the past two weeks three survey reports have come in dealing with employer practices in Oklahoma. These were made by business—not the government. They were made by a large private utility, a large manufacturer and a business association. In each case we were asked to furnish information for use in their survey. The results are now in and the reports show that with regard to pay:

1. Jobs graded up to about GS-7 and WS-10 our rates of pay are in the upper range of pay rates in this area.
2. From about GS-8 and WS-10 through GS-12 and WS-19 we are right in the middle of the range.
3. Only in the highest grades, about GS-13 and up do we begin to drop below the average rates in this area.

The survey by the association dealt with "fringe benefits" and in no case did we find a more complete package than that offered by the federal government. A partial list of "fringe benefits" for federal employees covering only the most important "fringe" benefits

includes:

1. Protection of tenure; the like of which doesn't exist in industry.
2. The best retirement system I've seen.
3. Generous vacation and sick leave.
4. An excellent group-life insurance plan.
5. A new health insurance program that appears to be one of the very best.
6. Compensation for on-the-job injuries or death that far exceeds the benefit provided under the State Workman's Compensation laws.
7. A well established and fast developing program of employee development (training) that few industries even attempt.

And more that space is not available to list.

In addition congress is working on other problems, for example, a more realistic per diem rate for official travelers and a better system for paying the moving expenses of employees who are transferred at government expense.

All in all when the facts are in the federal government compares very favorably as an employer with business and industry, particularly in this area. I believe also that the government will continue to maintain as favorable working conditions as it can, but—there'll always be that exceptional pasture where to some people the grass looks mighty pretty.

Changes Made in Credit Union

Effective this last August 15th, the FAA Employees Credit Union Board of Directors announced that Bill Sage would be General Manager of the Credit Union. Sage has been with the Oklahoma City Postal Federal Credit Union. He is well qualified to assume the duties as general manager. Sage was with the Oklahoma City Postal for six years as Assistant Treasurer and was graduated from the School for Credit Union Personnel held at the University of Wisconsin.

Also announced . . . the following assignments:

Mrs. J. B. Rodgers, Office Manager and Bookkeeper, Mrs. Marie Martinez, Cashier, Mrs. Bobbie Horne, Cashier, Mrs. Georgia Whittaker, Clerk and Mrs. Hazel Franz, Assistant Bookkeeper and Cashier.

FAA GOLF CLUB

The activities of the FAA Golf Club for 1960 have been the annual spring FAA tournament and the FAA-AACS quarterly tournament.

The winners of the FAA spring tournament were as follows :

WINNERS

Championship

E. Deases and T. T. Campbell

CONSOLATION

Championship

R. W. Brown and J. W. Gregory, Jr.

"A" FLIGHT

S. F. Houghton and R. S. Saldana

"A" FLIGHT

R. W. Pulling and A. A. Cagigal

"B" FLIGHT

W. R. Nolan and L. I. Kearby

"B" FLIGHT

H. R. Richardson and R. Cox

"C" FLIGHT

R. L. Hoffer and B. B. Werner

Trophies were presented by Mr. Olson.

The results of the FAA-AACS (Tinker Field) Quarterly Tournament have been as follows:

1st Quarter Winners—AACS

2nd Quarter Winners—FAA

3rd Quarter Winners—FAA



Olson and Richardson



Olson and Kearby



Cagigal, Olson and Pulling



Campbell, Olson and Deases

Olson and Houghton



Olson, Werner and Hoffer



SEPTEMBER 1960

<i>Sun</i>	<i>Mon</i>	<i>Tue</i>	<i>Wed</i>	<i>Thu</i>	<i>Fri</i>	<i>Sat</i>
				1 245	2 246	3 247
4 248	5 249	6 250	7 251	8 252	9 253	10 254
11 255	12 256	13 257	14 258	15 259	16 260	17 261
18 262	19 263	20 264	21 265	22 266	23 267	24 268
25 269	26 270	27 271	28 272	29 273	30 274	

ORDER NOW . . .

Your Beautiful FAA RING

Wherever men in your profession gather, at the conference table, in the field or at any gathering whether large or small, each man's ring gains for him the same, quiet recognition that your ring will win for you.

- ★ Made in beautiful 10K gold.
- ★ Long lasting deep cut die work.
- ★ The year you became a qualified F. A. A. member deeply cut in the sides of the ring.



A ring made especially for you for only \$29.00 plus tax.

Aeronautical Center Employees Association, Inc.



Name _____

Date _____

Address _____

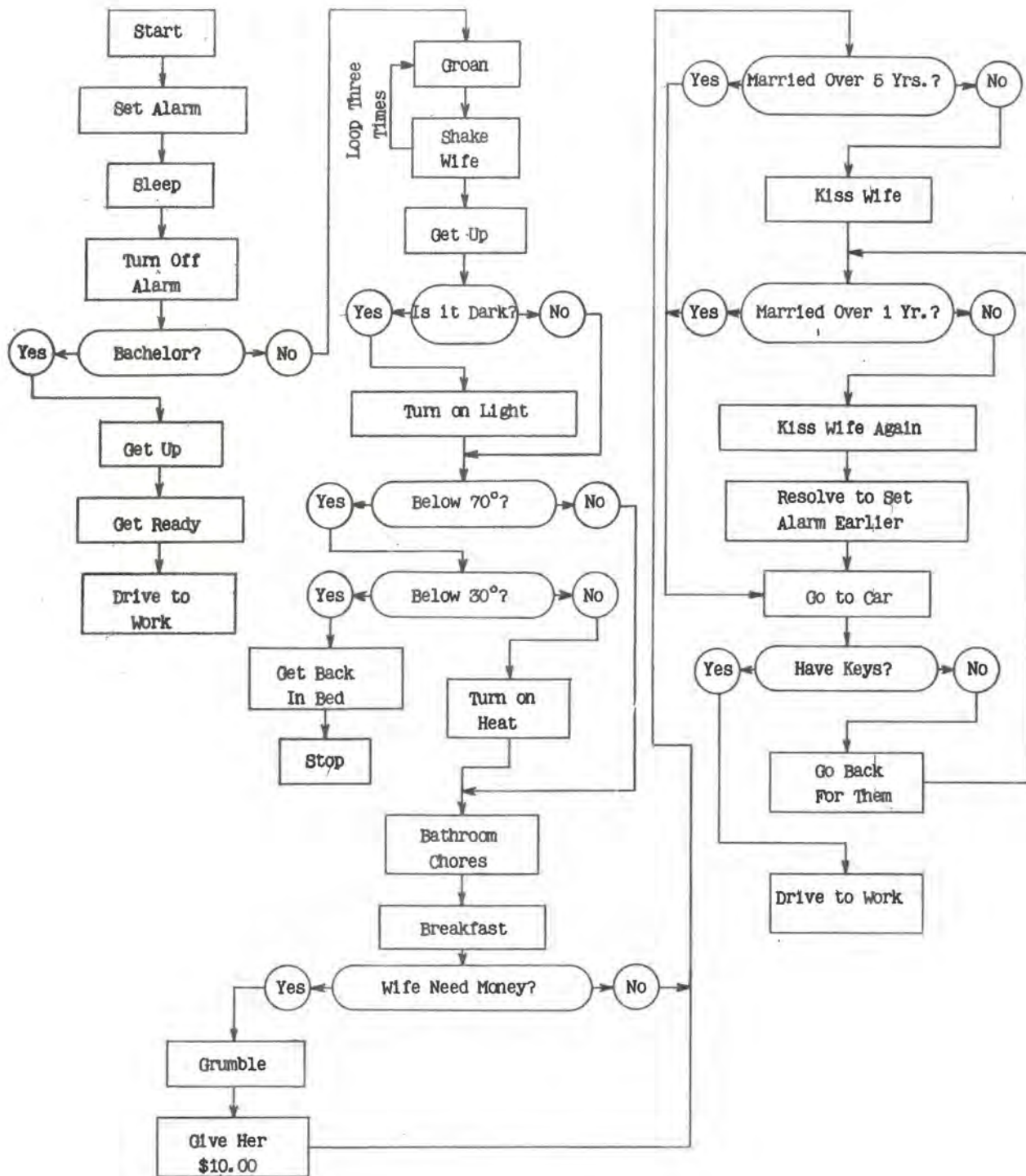
City _____ State _____

\$5.00 deposit on order.
Balance due on delivery.

Year _____	Stones	
Finger Size _____	Synthetic Ruby	<input type="checkbox"/>
10K Yellow _____	Blue Spinel	<input type="checkbox"/>
10K White _____	Black Onyx	<input type="checkbox"/>
(White Gold \$5.00 more)	Green Tourmaline	<input type="checkbox"/>
	Amethyst	<input type="checkbox"/>
Smooth top stones will be used unless facet top is specified.		

Customer's Signature _____

PROGRAMMING



Flow chart for problem of getting to work.

ELECTRO-MECHANICS CLASS 14(ELECTRICAL PHASE) APR. 18, 1960 - JULY 8, 1960

NAME	REG.	STATION	NAME	REG.	STATION
Ashe, Arnold J.	3	Molina, Ill.	Lewis, E. E.	2	Okla. City, Okla.
Brasch, C. S.	1	New Rochelle, N.Y.	McEwing, R. A.	1	Syracuse, N.Y.
Brasch, Y. C.	6	Canton 1st, S. P.	Meyer, G. W.	5	Juneau, Alaska
Brasch, J. C.	1	Windsor Locks, Co.	Millstead, L. L.	4	Otto, New Mex.
Brasch, A. J.	2	Tulsa, Okla.	Tone, L. O.	3	Sg. Bluff, Iowa
Hickman, H. R.	4	Cheyenne, Wyo.	Yong, Gus	6	Hilo, Hawaii
Hubball, D. N., Sr.	4	Roswell, New Mex.			

ELECTRO-MECHANICS CLASS 15(ELECTRICAL PHASE) MAY 16, 1960 - JUNE 24, 1960

Baker, Ted B.	5	Fairbanks, Alaska	Peach, J. H.	4	Sacramento, Cal.
Bonnett, R. E., Jr.	2	Savannah, Ga.	Schuchmann, A. A.	3	Burlington, Ia.
Borch, R. B.	2	Abilene, Texas	Skavland, R. S.	4	Mullan, Idaho
Briggle, P. R.	3	Rockford, Ill.	Ventura, V. F.	6	Wake, Island
Briggle, A. J.	2	Corpus Christi, Tex	Waters, J. M.	1	Roanoke, Va.
Brigley, H. F.	3	Flint, Mich.	Whitaker, H. R.	4	Hanksville, Utah

MAINTENANCE SUPERVISION 33 CONVENED MAY 2, 1960 to MAY 6, 1960

Brall, Herbert	5	Anchorage, Alaska	Kloke, R. W.	AC	Okla. City, Okla.
Christiansen, A. M.	3	Lincoln, Nebr.	Leavell, D. E.	4	Roswell, N. Mex.
Giorgiandano, R.	1	Youngstown, Ohio	Morgan, W. G.	4	Corpus Christi
Hickabey, J. L.	2	Jackson, Miss.	Tolan, J. D.	1	Litica, N. Y.
Hunt, George	1	Roanoke, Va.	Whittier, Milton	4	Eugene, Ore.
Hoyle, W. J.	1	N Bedford, Mass.	Vamvalis, D. N.	1	Hudson Falls, NY
Duella, N. A.	3	Kansas City, Kans.	Richardson, E. J.	4	Blythe, Calif.

MAINTENANCE SUPERVISION 34 CONVENED MAY 16, 1960 to MAY 20, 1960

Cliffe, B. B.	1	New York	Lane, T. M.	4	Billings, Mont.
Crosby, William	2	Okla. City, Okla.	Ollis, M. J.	2	Okla. City, Okla.
Cammon, J. A.	2	Midwest City, Okla.	Raulerson, H.	2	Houston, Texas
Hamby, T. A.	5	Anchorage, Alaska	Reed, K.	2	Okla. City, Okla.
Hunter, Roger	1	Columbus, Ohio	Stapleton, R. P.	1	South Gate, Ky.
Jantzen, S. E.	3	Wichita, Kans.	White, Max D.	3	Chanute, Kans.
Kruger, Kermit	2	Okla. City, Okla.	Wolter, C. W.	3	Minneapolis, Min.

ROS 143 TI-440 CONVENED APRIL 18, 1960 to APRIL 29, 1960

Ames, E. E., Jr.	4	San Francisco, Cal.	Powell, J. L., Jr.	1	Jamaica, NY
Gordero, A., Jr.	1	Washington, D. C.	VeZolles, E. M.	3	Indianapolis, Ind.
Giorgiandano, R. A.	1	Youngstown, Ohio	Weisert, John	3	St. Louis, Mo.
Glover, L. M.	3	Kansas City, Mo.	Zoelzer, V. A.	3	Indianapolis, Ind.
Hewitt, R. S.	3	Moline, Ill.			

ROS 143 CLASS FPS-20 CONVENED APRIL 18, 1960 to APRIL 22, 1960

NAME	REG.	STATION	NAME	REG.	STATION
Bukowski, A. S.	2	Shreveport, La.	Lenox, J. M.	2	Tulsa, Okla.
Cerrito, T. J.	1	Quonset Pt., RI	Morgan, W. G.	2	Corpus Christi, Tex
Cottle, E. C.	3	Malden, Mo.	Smith, C. H.	5	Anchorage, Alaska
Goo, Harry W.	6	Honolulu	Yanke, D. J.	1	Cleveland, Ohio
Hardcastle, E. R.	2	Flippin, Ark.			

ROS 144 CLASS FPS-20 CONVENED MAY 16, 1960 to MAY 20, 1960

Alexander, J. L.	2	Nashville, Tenn.	Pope, W. G.	2	Wilmington, NC
Blades, W. M.	2	Montgomery, Ala.	Robinson, E. L.	2	Tallahassee, Fla.
Cole, C. L.	2	Jackson, Miss.	Singleton, R. D.	2	Ft. Worth, Texas
Coleman, J. E.	2	New Orleans, La.	Wherrell, N. D.	2	Orlando, Fla.
Hudson, J. R.	2	Nashville, Tenn.	Winter, J. S.	2	Nashville, Tenn.
Mauerman, R. H.	1	Rochester, N. Y.	VanHofe, G. E.	2	Orlando, Fla.
Mizell, H. B., Jr.	2	Sulphur Springs, Tex	Wusnack, O. A.	2	El Paso, Texas

ROS 144-A ARSR-1 CLASS CONVENED APRIL 25, 1960 to MAY 13, 1960

Ballou, D. A.	3	Minneapolis, Minn.	Robinson, E. L.	2	Tallahassee, Fla.
Cole, C. L.	2	Jackson, Miss.	Singleton, R. D.	2	Ft. Worth, Tex.
Mauerman, R. H.	1	Rochester, NY	VanHofe, G. E.	2	Orlando, Fla.
Mizell, H. B., Jr.	2	Sulphur Springs, Tex	Wherrell, N. D.	2	Orlando, Fla.
O'Neil, H. B.	3	Indianapolis, Ind.	Winter, J. S.	2	Nashville, Tenn.
Pope, W. G.	2	Wilmington, N. C.	Wolter, C. W.	3	Minneapolis, Min.

ROS 144-B ARSR-1 CLASS CONVENED APRIL 25, 1960 to MAY 13, 1960

Abu-Lymoun, A. I.	OIC	Cairo, Egypt	Fairbanks, H. M.	3	Grand Rapids, Mich
Alexander, J. L.	2	Nashville, Tenn.	Flem, M. W., Jr.	3	Nashville, Tenn.
Blades, W. M.	2	Montgomery, Ala.	Hudson, J. R.	2	El Paso, Texas
Campbell, A. F.	1	Boston, Mass.	Rislinger, E. L.	2	El Paso, Texas
Coleman, J. E.	2	New Orleans, La.	Wusnack, O. A.	2	El Paso, Texas

ROS 144 ASR-3 CLASS CONVENED APRIL 25, 1960 to MAY 13, 1960

Bayless, L. F.	2	Hobart, Okla.	Macht, K. R.	1	Wright Patterson
Cliffe, B. B.	1	Idelwild, NY	MacQueen, J. G.	2	Austin, Texas
Coburn, C. H.	2	Waco, Texas	Markey, G. J.	1	New York
Deadrick, E. L.	3	Ypsilanti, Mich.	Masvold, D. L.	5	Anchorage, Alaska
Donaldson, U. L.	2	Okla. City, Okla.	Mischew, S. S.	2	Okla. City, Okla.
Elkins, J. A.	2	Ft. Worth, Tex.	Russell, T. B.	3	Lincoln, Nebr.
Gudlauskis, E. J.	1	Griffiss AFB	Schwabe, H. L.	2	Savannah, Ga.
Harris, J. C.	2	Montgomery, Ala.	Shuler, C. E.	2	Okla. City, Okla.
Hazlett, M. B.	2	Houston, Tex.	Talbot, J. R. L.	1	Boston, Mass.
Johnson, L. E.	2	Jacksonville, Fla.	Ursery, E. F., Jr.	2	Okla. City, Okla.

ROS 144 CPN-18 CLASS CONVENED MAY 16, 1960 to MAY 20, 1960

NAME	REG.	STATION	NAME	REG.	STATION
Bayless, L. F.	2	Hobart, Okla.	Macht, K. K.	1	Wright Patterson
Coburn, C. H.	2	Waco, Texas	MacQueen, J. G.	2	Austin, Texas
Crane, F. E.	4	March AFB, Cal.	Masvold, D. L.	5	Anchorage, Alaska
Donaldson, U. L.	2	Okla. City, Okla.	Mischew, S. S.	2	Okla. City, Okla.
Elkins, J. A.	2	Ft. Worth, Tex.	Russell, T. B.	3	Lincoln, Nebr.
Gudlauskis, E. J.	1	Griffiss AFB	Schwabe, H. L.	2	Savannah, Ga.
Harris, J. C.	2	Montgomery, Ala.	Shuler, C. E.	2	Okla. City, Okla.
Johnson, L. E.	2	Jacksonville, Fla.	Ursery, E. F., Jr.	2	Okla. City, Okla.
Larson, R. C.	3	Lincoln, Nebr.			

ROS 144 VHF/DF-1 CLASS CONVENED MAY 16, 1960 to MAY 20, 1960

Abu-Lymoun, A. I.	OIC	Cairo, Egypt	Fiacher, C. S.	1	Baltimore, Md.
Ballou, D. A.	3	Minneapolis, Min.	Hazlett, M. B.	2	Houston, Tex.
Briggs, S. L.	3	Kansas City, Kans.	O'Neil, H. B.	3	Indianapolis, Ind.
Brooks, K. F.	4	L. Beach, Calif.	Terranova, J. F.	4	Burbank, Calif.
D'Agati, J. F.	1	Cleveland, Ohio			

ROS 144 RML T/R CLASS CONVENED APRIL 25, 1960 to MAY 20, 1960

Abbott, E. F.	4	Gr. Falls, Mont.	Essary, W. M.	3	Kansas City, Kans.
Adkins, T. M.	2	Memphis, Tenn.	Hancock, R. G.	2	Montgomery, Ala.
Berrigan, D. F.	6	Anderson AFB	Hardcastle, E. R.	2	Flippin, Ark.
Bradley, R. A.	2	Memphis, Tenn.	Jennings, C. C.	4	Albuquerque, NM
Bukowsky, A. S.	2	Shreveport, La.	Miller, S. III	3	Olathe, Kans.
Carter, L. L.	4	Phoenix, Ariz.	Morgan, W. G.	2	Minneapolis, Min.
Chandler, J. W.	2	Houston, Tex.	Niven, J. E.	2	Flippin, Ark.
Christiansen, W. J.	3	Omaha, Nebr.	Nutt, S. J.	3	Olathe, Kans.
Clepper, B. E.	3	Kansas City, Kans.	Perkins, J. C.	4	L. A., Calif.
Cordle, N. E.	1	Washington, D. C.	Smith, W. R.	2	N. Charleston, SC
Cottle, E. C.	3	Malden, Mo.	Yanke, D. J.	1	Cleveland, Ohio

TELETYPEWRITER CLASS 1 CONVENED MAY 16 to JUNE 10, 1960

Abers, John G.	1	Queens, N. Y.	Murphy, Jay A.	1	Westfield, Mass.
Baird, J. M.	2	Greenville, S. C.	O'Brien, J. M.	3	Flint, Mich.
Black, C. B., Jr.	2	Charlotte, N. C.	Pennell, J. J.	2	Raleigh, N. C.
Bittle, G. F.	2	Orlando, Fla.	Phillips, H. E.	3	Kansas City, Mo.
Evans, R. G.	3	Chicago, Ill.	Pontiff, H. J.	2	Tampa, Fla.
Farnes, G. C.	3	Watertown, S. D.	Rhodes, J. C.	2	Tri City, Tenn.
Gane, J. E.	2	Miami, Fla.	Rogers, G. W.	2	New Bern, N. C.
Herbert, W. K.	5	Anchorage, Alaska	Santola, J. T.	1	Jamaica, NY
Jarvi, E. A.	5	Anchorage, Alaska	Schwab, E. H.	1	Chicago, Ill.
Karts, E. J.	2	Miami, Fla.	Torason, C. W.	1	Jamaica, NY
Mau, E. G. W.	6	Honolulu	Uranga, S.	3	Chicago, Ill.
Mahoney, J. F.	1	Rochester, NY	Wescott, E. L.	3	Kansas City, Mo.

MAY GRADUATES IN DIRECTED STUDY COURSE 90

NAME	REG.	STATION	NAME	REG.	STATION
Adame, Jose M.	FM	Okla. City, Okla.	Moriarty, B. M.	4	Eugene, Ore.
Badgley, E. C.	FM	Norman, Okla.	Muller, Roland A.	AC	Okla. City, Okla.
Balman, W. D.	3	W. Lafayette, Ind.	Murphy, Patrick F.	4	Kearns, Utah
Bingham, Wm. H.	3	Ft. Worth, Texas	Nakanishi, J. K.	6	Waco, Tex.
Bishop, Jack L.	AC	Norman, Okla.	Natoli, A. M.	6	Syracuse, NY
Carroll, Jack	2	Mobile, Ala.	Ohms, D. J.	4	Phoenix, Ariz.
Carter, Chas. E.	AC	Moore, Okla.	Olivera, D. R.	4	Pacific, Calif.
Chambers, F. D.	FM	Okla. City, Okla.	Osbone, R. W.	2	Elm Mott, Tex.
Cruzan, Bruce G.	2	W. Hollywood, Fla.	Ota, Gary H.	4	Richmond, Cal.
Cushman, H. J.	4	Red Bluff, Cal.	Pase, Gene M.	1	Charleston, W. Va.
Davis, H. H.	2	Mobile, Ala.	Patton, Wm. E.	4	Colo. Sprgs., Colo.
DeBoer, R. A.	3	Sgt. Bluff, Ia.	Pearce, H. L.	2	Mobile, Ala.
Duffey, Alvin L.	2	Texarkana, Ark.	Perry, Dexter M.	5	Anchorage, Alaska
Duggan, E. G.	4	Medford, Ore.	Plummer, E. W.	4	Phoenix, Ariz.
Edlen, Robert	4	Eugene, Ore.	Preston, R. J.	1	Charleston, W. Va.
Funes, O. D. Z.	OIC	Tegucigalpa, Hon.	Pyron, W. M.	2	Hobart, Okla.
Garcia, Jose	FM	Okla. City, Okla.	Rains, Roy S.	2	Slidell, La.
Gleason, R. L.	4	Phoenix, Ariz.	Reeves, F. A.	FM	Okla. City, Okla.
Hall, Stanley B.	4	Riverside, Cal.	Reynolds, B. G.	PT	Lexington, Okla.
Harada, Terence	6	Wake Is.	Riberal, R. A.	4	Los Angeles, Cal.
Harden, Roy	3	Indianapolis, Ind.	Rivas, Jose L.	4	Tucson, Ariz.
Hartman, Jos. A.	3	Sioux Falls, S. D.	Rogers, B. H.	2	Texas City, Tex.
Healy, Jas. M.	1	Boston, Mass.	Rudolph, Edward	4	Salt Lake City, Ut.
Holmes, Jas. L.	2	Waco, Texas	Savino, R. P.	1	Syracuse, NY
Holt, Orval R.	3	Kansas City, Mo.	Sato, Wm., Jr.	6	Oahu, HI
Holt, Walter T.	FM	Okla. City, Okla.	Schellenberg, H. K.	2	Charleston, SC
Hope, Henry O.	2	Charlotte, N. C.	Simpson, R. R.	4	Manhattan, NY
Hopkins, Chas. W.	2	San Antonio, Tex.	Singleton, B. J.	2	Hialeah, Fla.
Huey, Jno. E.	AC	Okla. City, Okla.	Smith, J. A.	4	Stockton, Cal.
Hughes, W. W.	4	Colo. Sprgs, Colo.	Sober, Colonel V.	FM	Okla. City, Okla.
Hull, W. B.	4	Mesa, Ariz.	Sobetsky, Chas. A.	FM	Okla. City, Okla.
Izumi, Geo. Y.	6	Honolulu	Soullas, N. P.	1	Elizabethtown, N. J.
Joseph, Jno., Jr.	1	Lexington, Ky.	Stephens, R. D.	FM	Okla. City, Okla.
Keane, Horace, Jr.	WO	L. Angeles, Cal.	Steward, C. W.	4	L. Angeles, Cal.
Kiser, Walter L.	2	Texarkana, Ark.	Stoberg, J. L.	4	Phoenix, Ariz.
Krout, Wm. E.	2	Sgt. Bluff, Ark.	Strange, Shirley V.	2	Texarkana, Ark.
LaBounty, J. B.	1	Taunton, Mass.	Strubling, B. W.	PT	Okla. City, Okla.
Lewis, E. E.	2	Okla. City, Okla.	Suskin, Irving	EST	Jamaica, NY
Liffing, Cyril S.	2	Charlotte, N. C.	Swartz, R. L.	1	Atlantic C., N. J.
Lindsey, R. H.	3	St. Louis, Mo.	Taylor, F. G.	4	Stockton, Cal.
Long, C. E.	PT	Okla. City, Okla.	Tidwell, Wm. R.	2	Texarkana, Ark.
Longo, E. L.	1	Scranton, Pa.	Trivigno, C. F.	2	St. Petersburg, Fla.
Manganello, Chas.	1	Rome, N. Y.	Vasta, V. V.	1	Oakwood, N. Y.
Martinez, F. A.	FM	Okla. City, Okla.	Vaughn, L.	FM	Okla. City, Okla.
McGinley, R. D.	5	Juneau, Alaska	Waldron, A. P.	1	McKees Rocks, Pa.
McKenney, Jno. F.	1	Lexington, Ky.	Walton, D. Jay	4	Salt Lake City, Ut.
Meane, Paul L.	1	Syracuse, N. Y.	Ware, Leighton F.	2	Texarkana, Ark.
Middleton, Billy E.	2	Valdosta, Ga.	Wheeler, Allan E.	4	Atascadero, Cal.
Migdalaki, E. V.	1	Cheektowaga, NY	Wingate, T. A.	4	Las Vegas, Nev.
Miske, D. J.	2	Ft. Worth, Texas	Yurechko, Jno.	1	Beaver Creek, Pa.

COMMUNICATIONS EQUIPMENT CLASS 154 CONVENED APRIL 16, 1960 TO JULY 22

NAME	REG.	STATION	NAME	REG.	STATION
Adamek, John	1	Barengat, N. Jersey	Lipecomb, J. M.	2	Macon, Ga.
Blanchard, R. M.	2	Concord, N. Hamp.	Lisundia, R. T.	4	Los Angeles, Cal.
Boatler, E. N.	2	Washington, D. C.	McNair, K. R.	2	FWorth, Texas
Burch, H. N.	3	Detroit, Mich.	Mishimoto, W. T.	1	Honolulu, Hawaii
Carnahan, C. B.	4	Malad City, Idaho	Pickering, W. J.	3	Garden City, Kans.
Chesnut, J. W.	2	Nashville, Tenn.	Pollack, W. R.	4	Malmenstrom, AFB
Cline, J. D.	4	Thermal, Calif.	Powell, R. C.	3	St. Louis, Mo.
Fautsch, R. E.	3	Chicago, Ill.	Preston, R. J.	1	Charleston, W. Va.
Ferraro, R. J.	OIC	Argentina	Rozier, J. C. L.	2	Augusta, Ga.
Gales, E. J.	2	Charleston, S. C.	Rushing, B. L.	3	Champaign, Ill.
Goss, J. F.	1	Atlantic City, N. J.	Saunders, D. E.	2	Atlanta, Ga.
Grelsen, R. J.	4	Eugene, Oregon	Snellen, H. L.	AC	Oklahoma City
Hoss, A. J.	3	Joliet, Ill.	Thompson, L. H.	1	Richmond, Va.
Hudson, J. W.	4	Palmdale, Calif.	Torchia, C. T.	2	Ft. Worth, Texas
Johnson, A. D.	3	Peoria, Ill.	Walsh, E. M.	1	White Plains, N.Y.
Vassallo, Juan F.	OIC	Argentina	Watson, F. M.	3	Radwood Falls, Minn.
Weiss, Erich P.	OIC	Argentina	Well, W. T.	2	Greenwood, Miss.

COMMUNICATIONS EQUIPMENT CLASS 155 CONVENED MAY 2 TO AUGUST 5, 1960

Baldwin, W. F.	4	Spokane, Wash.	Neuvonen, G. W.	4	Mesa, Ariz.
Bailey, R. G.	1	Vandalia, Ohio	Nghi, Doan Tran	OIC	Vietnam
Bentley, B. O.	4	Denver, Colo.	Novak, F. W.	3	Garden City, Kans.
Cia Macco, J. M.	1	Albany, N. Y.	Phillips, R. N.	1	Albany, N. Y.
Connelly, J. T.	1	Atlantic City, N. J.	Phong, Pham Nguyen	OIC	Vietnam
Eberhart, F. O.	2	Atlanta, Ga.	Rowe, D. E.	3	Wauwau, Wisc.
Edwards, M. P.	4	Yuma, Arizona	Russo, A. J.	1	Portland, Me.
Eldred, S. C.	3	Springfield, Ill.	Ryan, R. A.	2	Ponca City, Okla.
Gilbert, W.	1	Albany, N. Y.	Savino, R. F.	1	Syracuse, N. Y.
Griscom, W. C.	2	Birmingham, Ala.	Spreaser, C. E.	3	Topeka, Kans.
Herrington, D. G.	3	Lubbock, Texas	Trent, B. L.	3	Dodge City, Kans.
Johnson, D. E.	4	Seattle, Wash.	Welch, Jarrell	2	Galveston, Tex.
McNerney, J. M.	4	San Rafael, Calif.	Wiley, G. F.	3	Evansville, Ind.
Mason, J. W.	3	Peoria, Ill.	Williams, G.	4	Cedar City, Utah
Marshall, L. M.	1	Jamaica, N. Y.	Wilson, J. W.	2	Corpus Christi
Moriarty, B. M.	4	Eugene, Oregon	Zumwalt, E. T.	5	Anchorage, Alaska

VOR CLASS 177-A CONVENED APRIL 18, 1960, TO MAY 13, 1960

NAME	REG.	STATION	NAME	REG.	STATION
Czabtree, G. T.	2	Jacksonville, Fla.	Riley, L. N.	1	Newark, N. J.
Heichelbech, L. P.	2	Abilene, Texas	Shelton, G. R.	3	Davis, Ill.
Jatiman	OIC	Djakarta, Indonesia	Snoddy, J. E.	2	Midland, Texas
Kempston, K. F.	4	Billings, Mont.	Swanson, M. F.	4	Portland, Ore.
Lantrip, N. A.	4	Reno, Nev.	Tessama, Tsogave	OIC	Ethiopia
Mack, R. C.	1	Nantucket, Mass.	Thatcher, C. R.	5	Annette Is., Alaska
Milestead, G. W.	2	Lubbock, Texas	Townsend, H. A.	5	Anchorage, Alaska
Naylor, Joel G.	4	Bountiful, Utah	Wieser, Max K.	4	Cheyenne, Wyo.
Ondemir, Hassan	OIC	Ankara, Turkey	Young, Tolford R.	1	Falmouth, Me.
Formise, David A.	1	Brooklyn, N. Y.			

VOR CLASS 177-B CONVENED APRIL 18, 1960, TO MAY 13, 1960

Albert, F. J.	2	Delray Beach, Fla.	Kandola, Kjell S.	1	Barre, Vt.
Boatright, C. K., Jr.	1	Erlanger, Ky.	Lawrence, R. B.	2	W. Columbia, SC
Brewster, S. H.	4	Dubuque, Idaho	Menke, D. A.	3	Pierre, S. Dak.
Cardona, Raymond	1	Martinsburg, Pa.	Moon, A. M.	2	Montgomery, Ala.
deFlon, Jon R.	1	LaPlata, Mo.	Ramos, John	4	Las Vegas, N. Mex.
Fischer, Joseph	1	Washington, D. C.	Reese, C. G.	4	Summit, Utah
Glaeser, W. C.	3	Cuba, Mo.	Shurtliff, J. L.	4	Dubuque, Idaho
Gors, W. E.	3	Clearlake, Iowa	Wiese, M. E.	4	Pioche, Nev.
Holden, C. L.	6	Agana, Guam	Woody, G. M.	AC	Guthrie, Okla.
Jones, S. E.	4	Malad, Idaho			

VOR CLASS 178-A CONVENED MAY 2, 1960 TO JUNE 24, 1960

Chaffin, E. L.	4	Lakeview, Ore.	Manlove, D. S.	3	Wichita, Kans.
Darnell, J. E.	3	Schererville, Ind.	Matthews, B. W.	2	E. Point, Ga.
Edmonds, W. H.	1	Philadelphia, Pa.	Oborny, E. C.	3	Hutchinson, Kans.
Fabryka, J. L.	1	Wilmingon, Del.	Rubin, R.	1	Binghamton, NY
Hamlin, L. H.	2	Jacksonville, Fla.	Shroud, E. F.	4	Albuquerque, NM
Huffman, C. R.	4	Great Falls, Mont.	Thorton, J. R.	4	Salt Lake City, Ut.
Liffing, C. S.	2	Charlotte, N. C.	Tribble, C. A.	1	Eric, Pa.
Liguore, S. L.	1	Wallington, Conn.	Weber, K. W.	1	Pittsburgh, Pa.
Longe, E. L.	1	Scranton, Pa.	Mahdik, G. W.	4	San Francisco, Ca
Worthington, C. R.	3	Evansville, Ind.			

VOR CLASS 178-B CONVENED MAY 2, 1960 TO JUNE 24, 1960

Benson, R. R.	4	Malad City, Idaho	Huddle, K. D.	3	Sioux Falls, SDak
Dial, N. B.	5	Anchorage, Alaska	Innsley, C. W.	2	W Palm Beach, Fla
Dooley, J. R.	2	Chattanooga, Tenn	Kraft, W. V.	3	Watertown, S. D.
DuFour, J. L.	1	Pawtucket, R. I.	McDonald, D. W.	4	Drummond, Mont
Emerick, F. B.	1	Ormsby, Pa.	Pepple, C. D.	4	Grand Junction, Colo
Freggess, R. F.	2	Largo, Fla.	Phillips, R. L.	3	Scottsbluff, Nebr
Gallagher, P. F.	1	Scranton, Pa.	Schroeder, C. D.	5	Anchorage, Alaska
Gibbs, D. H.	1	Lynchburg, Va.	Thorn, W. H.	2	Amarillo, Texas
Gremments, D. R.	3	Redwood Falls, Minn			

VOR CLASS 179-A CONVENED MAY 16, 1960 TO JULY 8, 1960

Clark, J. P.	1	Fall River, Mass.	Meekins, M. B.	1	Norfolk, Va.
Clinton, Jon W.	2	Irving, Texas	Milstead, C. W.	2	Lubbock, Texas
Costello, Paul J.	1	Augusta, Maine	Norem, A. O.	3	Des Moines, Iowa
Davis, R. H.	4	Pocatello, Idaho	Rademacher, L. P.	3	Madison, Wis.
Emerich, Glen A.	3	Novato, Calif.	Sanford, R. P.	3	Taylor, Mich.
Farr, J. E.	2	McGregor, Texas	Smith, J. P.	1	Richmond, Va.
Huhts, Jack A.	3	Dickinson, N. D.	Stovall, B. K.	1	Youngstown, Ob
Johnson, Dale V.	4	Denver, Colo.	Wasley, F. J.	4	Fresno, Calif.
Kitazawa, Fujihiko	OIC				

VOR CLASS 179-B CONVENED MAY 16, 1960 TO JULY 8, 1960

NAME	REG.	STATION	NAME	REG.	STATION
Adorno, R. W.	2	Puerto Rico	Hippa, Alton A.	1	Roanoke, Va.
Annes, Townsend	4	Denver, Colo.	Jarsulic, K. M.	1	Charleston, W. Va.
Broff, Dick	5	Farewell, Alaska	Kreischer, E. G.	4	Albuquerque, NM
Farley, D. G.	5	Yakutat, Alaska	Manceer, F. D.	1	Martinsburg, Pa.
Fidone, Sam J.	3	Imperial, Nebr.	Mooring, Aubrey	2	Tesarkana, Ark.
Forrester, Jack A.	4	Elko, Nev.	Morgan, Samuel D., Jr.	3	Card City, S. D.
Grunsted, D. R.	4	Ehrenberg, Ariz.	Pase, Gene M.	1	Carlisle, Pa.
Henne, Nelson C.	1	New York	Patterson, J. T.	2	Memphis, Tenn.
Sato, W. J., Jr.	6	Kaneohe, Hawaii	Wildermuth, W. F.	1	Columbus, Ohio

TACAN CLASS 22 CONVENED MAY 2, 1960 TO JULY 22, 1960

Allen, James H.	2	Tallahassee, Fla.	Paschen, W. P., Jr.	3	Cedar Rapids, Ia
Belenschia, C. W.	3	Flint, Mich.	Pearson, Earl D.	4	Portland, Ore.
Bracken, W. B.	1	New York	Pearson, G. C.	4	Monticello, Utah
Cook, R. S.	4	Las Vegas, Nev.	Pearson, H. J.	3	Goodland, Kans.
Dick, C. C.	3	Lexington, Ky.	Peterson, H. L.	3	Des Moines, Ia.
Downing, R. W.	3	Huron, S. D.	Potts, David D.	AC	Oklahoma City, Okla.
Ewing, T. F.	1	Portland, Me.	Rentfrow, E. C.	5	Anchorage, Alaska
Heraly, H. R.	3	Eau Claire, Wisc.	Richter, F. H.	1	Worcester, Mass.
Johnston, H. V.	4	Tonopah, Nev.	Ryberg, Jon C.	1	Erie, Pa.
Lake, A. S.	1	Front Royal, Va.	Sanderson, G. R.	4	Gr. Junction, Col.
McAndrew, R. E.	4	San Diego, Cal.	Vajgrt, L. A.	3	Lincoln, Nebr.
Muse, Gene F.	AC	Oklahoma City, Okla.	Yokum, R. L.	4	San Rafael, Cal.
Parr, F. M.	2	Ft. Worth, Texas			

ILS CLASS 173 CONVENED APRIL 18, 1960 TO MAY 13, 1960

Baskaya, Muffit	OIC	Turkey	Kolien, Oleg G.	5	Anchorage, Alaska
Barnum, R. E.	4	Medford, Ore.	Kish, P. J.	1	Cleveland, Ohio
Baysal, Sukru	OIC	Turkey	Lacy, Fred D.	1	Cleveland, Ohio
Borgelt, Karl G.	1	Toledo, Ohio	Lemmer, James L.	4	Mullan, Idaho
Crookshank, R. D.	2	Los Angeles, Cal.	Mahoney, J. F.	1	Rochester, NY
Delisni, J. J.	4	Santa Barbara, Cal.	Onsgard, C. P.	1	Green Bay, Wisc.
Ellis, B. E.	3	Huron, S. Dak.	Rudisill, L. R., Jr.	3	Savannah, Ga.
Fesley, W. J., Jr.	3	Honolulu	Savil, D. A.	3	Springfield, Ill.
Granger, W. J.	2	Tallahassee, Fla.	Stapleton, R. P.	1	Covington, Ky.
Hamby, T. A.	5	Anchorage, Alaska	Turken, I. Z.	OIC	Turkey
Hawkins, R. G., Jr.	2	Amartillo, Texas	Wells, M. E.	4	Redwood City, Cal.
Hunter, R. G.	1	Columbus, Ohio	White, Max D.	3	Chanute, Kans.

ILS CLASS 174 CONVENED MAY 1, 1960 TO MAY 27, 1960

Balkan, S. D.	OIC	Turkey	Henderson, C. R.	2	New Orleans, La.
Basarac, M. L.	OIC	Turkey	Johnson, D. R.	1	Dayton, Ohio
Boydston, J. A.	4	Los Angeles, Cal.	Lake, R. J.	2	West Palm Beach
Calatyud, A.	OIC	Bolivia	Lenard, Dean	3	Topeka, Kans.
Carskadon, R. J.	1	Cleveland, Ohio	McClinty, John	1	Washington, DC
Dumont, E. J.	3	Kansas City, Mo.	Mihalopolous, A.	OIC	Grand
Dunn, G. F.	1	Dayton, Ohio	Mollard, B. G.	4	Pueblo, Colo.
Fulton, J. W.	1	Wheeling, Ohio	Morrison, R. D.	3	Kansas City, Kans
Hatcher, M. D.	4	Albuquerque, NM	Parsons, W. P.	2	Tulsa, Okla.
Hemdb, L. D.	3	Indianapolis, Ind.	Pettit, A. G.	4	Stockton, Calif.

ILS CLASS 175 CONVENED MAY 16, 1960 TO JUNE 10, 1960

Anderson, W. H., Jr.	1	Norfolk, Va.	Pettit, A. G.	4	Stockton, Calif.
Baker, R. S.	4	Billings, Mont.	Schulze, C. H.	1	New York
Coffey, D. K.	4	Seattle, Wash.	Schofield, J. P.	1	Philadelphia, Pa.
Conyers, W. I.	5	Anchorage, Alaska	Waters, R. E.	6	Hilo, Hawaii
Ellis, Kammel M.	3	Milwaukee, Wisc.	Whitworth, W. D.	5	Anchorage, Alaska
Haley, G. W.	2	Oklahoma City, Okla.	Wiley, R. W.	4	Seattle, Wash.
Hood, G. P.	3	Saginaw, Mich.	Williamson, J. C.	1	Rochester, NY
Imes, E. R.	1	Columbus, Ohio	Zack, D. E.	4	Gt. Falls, Mont.
Kaiser, E. B.	5	Anchorage, Alaska	Zaidi, Aziz	OIC	Pakistan
Nodine, Harvey	3	Moline, Ill.			

RADAR CLASS 147-A CONVENED MAY 2, 1960 TO JULY 15, 1960

Acuna, R. L.	3	Lincoln, Nebr.	Campbell, P. H.	2	Jacksonville, Fla
Allin, M. C.	3	Lincoln, Nebr.	Cooper, J. G.	2	Orlando, Fla.
Barrett, W. J.	4	Oakland, Calif.	Cox, L. W.	2	Ft. Worth, Tex.
Baur, G. H.	3	St. Paul, Minn.	Dennis, L. E.	4	Tucson, Ariz.
Bayesdon, T. L.	2	Jackson, Miss.	Dewey, B. E.	4	Tucson, Ariz.
Beaver, W. J.	1	Philadelphia, Pa.	Diggs, L. O.	2	Mobile, Ala.
Bendall, Ray A.	2	Memphis, Tenn.	Dudine, R. E.	2	Jackson, Miss.
Blythe, R. E.	2	Atlanta, Ga.	Finn, J. R.	1	Washington, DC
Bradley, A. G.	2	Jackson, Miss.	Fitzroy, J. R.	1	Jamaica, N. Y.
Brown, D. R.	4	Albuquerque, NM	Goodman, G. A.	2	Mobile, Ala.
Brown, E. W.	4	Burbank, Calif.	Haydel, W. C.	2	Longview, Tex.
Buewell, V. H.	2	Oklahoma City	Howard, S. A.	2	Tallahassee, Fla.
Caldwell, H. Jr.	1	Fairborn, Ohio.			

RADAR CLASS 147-B CONVENED MAY 2, 1960 TO JULY 15, 1960

Huller, R. R.	1	Washington, D. C.	Patterson, H. G.	4	Dallas, Ore.
Kibbe, L. L.	2	Ft. Worth, Texas	Polanski, J. S.	3	Chicago, Ill.
Kushima, J. T.	6	Wake Island	Prochaska, W. T.	3	St. Louis, Mo.
Langford, J. D.	2	Valdosta, Ga.	Rauch, D. L.	1	Idelwild, N. Y.
Larson, U. M.	4	San Francisco, Cal	Robertson, B. J.	2	Little Rock, Ark.
Laurentino, V. A.	1	Jamaica, N. Y.	Sauter, E. C.	1	Friendship, Md.
Menna, L. P.	1	Quonset Pt., R. I.	Schmidt, W. A.	2	San Antonio, Tex.
Meyer, J. F.	4	Spokane, Wash.	Schrank, A. A.	2	San Antonio, Tex.
Mohon, B. G.	2	Mobile, Ala.	Stephens, L. R.	4	Spokane, Wash.
Ninke, C. O.	3	Wichita, Kans.	Tryon, B. E., Jr.	3	Milwaukee, Wisc.
Noel, B. F.	5	Fairbanks, Alaska	Wade, Roy F.	3	Omaha, Nebr.
Ott, Daniel	1	Norfolk, Va.	Woessner, L. W.	4	Oakland, Calif.

RMI/REPEATERS CLASS 10 CONVENED APRIL 25 TO MAY 13, 1960

Bauer, R. V.	3	Jackson, Mich.	Miller, D. C.	3	Emporia, Kans.
Chambers, W. E.	4	Seattle, Wash.	Sharber, J. M.	2	Sulphur Springs
Clinton, W. H.	2	Orlando, Fla.	Wells, W. G.	2	Savannah, Ga.
Evans, Stanley	2	Houston, Texas			

MAY GRADUATES IN DIRECTED STUDY COURSE 100

NAME	REG.	STATION	NAME	REG.	STATION
Beumett, Glen	AC	Okla. City, Okla.	Matsu, Geo. Y.	6	Agana, Guam
Burg, Allan H.	4	Great Falls, Mont.	McFarland, Orville	1	Charleston, W. Va.
Bowman, Wm. H.	2	Curand, C. Z.	Miller, Charles E.	6	Agana, Guam
Cook, Robert S.	4	Henderson, Nev.	Mitchell, Wm. G.	3	Ypsilanti, Mich.
Christian, Charles M.	4	The Dalles, Oregon	Muehlbach, Donald	3	LaGrange, Indiana
Clark, Dwayne W.	4	Aurora, Colo.	Naef, William G.	4	Los Angeles, Calif.
Cole, William T.	1	Richmond Hill, N.Y.	Nakao, Noboru	6	Kahului, Maui, T.H.
Davis, Robert E.	2	College Park, Ga.	Newland, Russell Jr.	2	Raleigh, N.C.
Edwards, Desmond	5	Fairbanks, Alaska	Nhieu, Huynh Van	OIC	Okla. City, Okla.
Etgen, James R.	1	Dayton, Ohio	Reece, Lewis A.	3	Inkster, Mich.
Forrester, Jack	4	Elko, Nevada	Stone, Benjamin F.	1	Winchester, Ky.
Fryer, Merlin B.	4	Ogden, Utah	Takehara, Toshio	6	Honolulu, T. H.
Gonzales, Eugene G.	4	Albuquerque, N.M.	Tanaka, Tooru	6	Canton Island, S. Pac.
Gordish, Andrew A.	4	Sacramento, Calif.	Terby, Robert D.	FS	Ogden, Utah
Gordon, Lloyd C.	AT	Green River, Wisc.	Tharpe, William	1	Windsor Locks, Conn.
Haasebrook, Marvin	5	Fairbanks, Alaska	Thompson, Eugene	PT	Okla. City, Okla.
Hee, Clifford S. C.	6	Honolulu, T. H.	Tichenor, George	2	Terminal, Texas
Hwang, Jae Won	OIC	Korea	Tomisser, Julius J.	4	Pendleton, Oregon
Iha, Eric T.	4	Los Angeles, Calif.	Trainer, Gerald F.	FM	Arlington, Va.
Ivill, Stanley	2	Miami, Florida	Tucker, U. L.	2	Wilmington, N.C.
Jimenez, Pedro	OIC	Okla. City, Okla.	Van Vorst, Earl L.	4	Paso Robles, Calif.
Juenemann, R. G.	3	Inkster, Mich.	Vegh, Joseph	4	Colo. Springs, Colo.
Kreischer, Ervin G.	4	Albuquerque, N.M.	Wells, Marvin E.	4	Redwood City, Calif.
Loe, Edmund W. T.	6	Wake Island	White, Charles G.	3	Wayne, Mich.
Loux, Derril D.	4	Stockton, Calif.			

MAY GRADUATES IN DIRECTED STUDY COURSES IN 200 SERIES

NAME	REG.	STATION	NAME	REG.	STATION
DS-201					
Berry, Henry C.	2	Atlanta, Ga.	Howes, Geo. S.	2	Memphis, Tenn.
Bonello, Arthur H.	1	Atlantic City, N.J.	Melendez, Alfonso	4	Denver, Colorado
Bordreau, Donald J.	3	Evansville, Ind.	Polla, Pio, Jr.	1	Jamaica, N.Y.
Branstetter, Lyndie	FM	Okla. City, Okla.	Shell, Charles E.	1	Richmond, Va.
Campbell, Donald E.	4	Oakland, Calif.	Whitworth, W. D.	5	Anchorage, Alaska
Geary, Bernard J.	1	Bridgeville, Pa.	Wilson, Carlos C.	1	Louisville, Ky.
Golembeski, Jos. M.	4	Daggett, Calif.			

DS-202

Bolden, Robert, Jr.	6	Honolulu, T. H.	Jatiman	IC	Okla. City, Okla.
Butler, Carl H.	4	Boise, Idaho	Lujan, Teodoro	4	Crescent City, Calif.
Carnahan, G. Benj.	WB	Salem, Oregon	Neece, Louis T.	2	Fayetteville, N. C.
Forrester, Jack	4	Elko, Nevada	Peanock, George K.	5	Anchorage, Alaska
Gray, Robert, Jr.	1	Worcester, Mass.	Perry, Harrie L.	4	Gr. Junction, Colo.
Green, J. W., Jr.	2	Johannesburg, Tenn.	Whitaker, C. L.	4	Burbank, Calif.
Haasper, Virgil	4	Los Angeles, Calif.	Wied, J. R.	2	Pasadena, Texas
Holte, Richard W.	3	Jamestown, N.D.	Williams, S. S.	4	Crescent City, Calif.

DS-203

Boudreau, Donald	5	Evansville, Ind.	Johnson, David L.	4	Seattle, Wash.
Burns, Hoi'shall W.	FM	Okla. City, Okla.	Kling, Richard W.	3	Chicago, Ill.
Carr, James A.	4	Niles, Calif.	Larson, Udell M.	4	Millbrae, Calif.
Cox, R. W.	4	Winslow, Ariz.	Shaw, William S.	3	Indianapolis, Ind.

DS-204

Cian, Edward	4	Arlington, Calif.	Murphy, Kenneth W.	1	Rochester, N. Y.
Kurth, Wilmer, Jr.	3	Minneapolis, Minn.	Osgard, Charles P.	3	Green Bay, Wisc.
Mack, Gerald P.	1	Rochester, N. Y.	Park, Arthur W.	6	Kapaa, T. H.

DS-205

Air, Clarence L.	6	Agana, Guam	Osgard, Charles P.	3	Green Bay, Wisc.
Allen, Wallace D.	4	Baker, Oregon	Price, Sterling W.	4	Grand Junction, Colo.
Arndt, Leslie E.	3	Kansas City, Mo.	Schlichtig, Daniel A.	WB	Burbank, Calif.
Boudreau, Donald J.	3	Evansville, Ind.	Scott, Francis E.	1	Roanoke, Va.
Chun, Herbert W. M.	6	Honolulu, T. H.	Stallings, Drew	4	Sacramento, Calif.
Gordon, James M.	3	Kansas City, Mo.	Vancil, Kenneth T.	4	Hayward, Calif.
Holte, Richard W.	3	Jamestown, N.D.	Welch, W. A.	4	Phoenix, Arizona
Jatiman	IC	Okla. City, Okla.	Woelke, Herman E.	3	Phoenix, Arizona
Marietta, Wm. L.	WB	Houston, Texas	Wood, Lawrence M.	PT	Okla. City, Okla.

MAY GRADUATES IN DIRECTED STUDY COURSES IN 300 SERIES

NAME	REG.	STATION	NAME	REG.	STATION
DS-301					
Blocker, Alvin	2	Shreveport, La.	Magalia, Orville E.	4	San Bruno, Calif.
Cason, Chas. T.	5	Fairbanks, Alaska	McGrath, Roddy F.	1	Simsbury, Conn.
Cole, C. L., Jr.	2	Jackson, Miss.	Moeller, C. S.	2	Charlotte, N. C.
Cooke, Samuel E., Jr.	2	Hollywood, Fla.	Mulrooney, Vincent D.	4	Long Beach, Calif.
Hansen, Duane A.	4	Salt Lake City, Utah	Polk, Norman	4	Hayward, Calif.
Hersmer, Herbert	FS	So. Ozone Park, N.Y.	Queen, Ralph E.	4	Tucson, Ariz.
Higbee, Kenneth G.	FM	Okla. City, Okla.	Ryan, John G.	1	Old Town, Maine
Hill, Lakin B.	1	Buffalo, N. Y.	Steel, John L.	PT	Okla. City, Okla.
Ingels, James R.	4	Alpine, Calif.	Tollefsrud, Edwin N.	3	Pierre, S. Dakota
Jimenez, Pedro	OIC	Spain	Vegh, Joseph	4	Colo. Springs, Colo.
Ladeau, Wm. D.	4	Albuquerque, N.M.	Warin, Marcel L.	3	Wichita, Kansas
Lee, James E.	4	Kearns, Utah			

DS-302

Heckman, Norman M.	1	Presque Isle, Me.	Kemmer, Frank R.	2	College Sta. Texas
Jones, James D.	2	Houston, Texas	Story, Charles B.	5	N. Nenana, Alaska

MAY GRADUATES IN DIRECTED STUDY COURSES IN 400 SERIES

NAME	REG.	STATION	NAME	REG.	STATION
DS-403					
Bischoff, Dale H.	3	Minneapolis, Minn.	Laird, Robert R.	4	Los Angeles, Calif.
Gonzales, Francisco	OIC	Spain	Steele, John L.	PT	Okla. City, Okla.
Klein, Frank Howard	4	Medford, Oregon			
DS-404					
Johnson, B. L., Jr.	PT	Okla. City, Okla.			
DS-411					
Carson, Robert G.	PT	Okla. City, Okla.	Newland, Russell Jr.	2	Raleigh, N. C.
Craig, Ralph C.	1	Jefferson, Ohio	Pickavet, George	4	Santa Barbara, Calif.
Holm, William S.	PT	Okla. City, Okla.	Steele, John L.	PT	Okla. City, Okla.
Hutchinson, Roger	FM	Rensselaer, N. Y.	Warin, Marcel L.	3	Wichita, Kansas
Jacobs, James E.	2	Alcoa, Tenn.	Williams, Fred M.	4	Denver, Colorado
Johnson, B. L., Jr.	PT	Okla. City, Okla.			
DS-405					
Kawagoe, Roy	6	Wahiawa, Oahu			

MAY GRADUATES IN DIRECTED STUDY COURSE 401

Dohg, James G.	EST	Elmont, L. I. N.Y.	Jackson, Max H.	PT	Okla. City, Okla.
Fleming, Russell	PT	Okla. City, Okla.	Kiteon, Lewis S.	PT	Okla. City, Okla.
Garrison, Walter	4	Oakland, Calif.	Rule, Harold B.	3	Kansas City, Kans.
Gonzales, Francisco	OIC	Okla. City, Okla.	Shirk, Howard L.	2	El Paso, Texas
Hutchinson, Roger A.	WO	Rensselaer, N. Y.	Valentich, Frank G.	4	Oakland, Calif.

MAY GRADUATES IN DIRECTED STUDY COURSE 441

Argueso, Edwardo	OIC	Spain	Twitty, William C.	PT	Del City, Okla.
Gross, Maurice H.	2	Del City, Okla.			

MAY GRADUATES IN DIRECTED STUDY COURSE 901

Davis, Charles E.	2	Orlando, Florida	Schindler, M. J.	2	Tulsa, Okla.
Gogniat, Marc M.	4	Las Vegas, Nev.			

MAY GRADUATES IN DIRECTED STUDY COURSE 1

NAME	REG.	STATION	NAME	REG.	STATION
Cothran, Norris K.	FM	Okla. City, Okla.	Wichita, James B.	3	Topoka, Kansas
Marillat, Dean	PT	Okla. City, Okla.	Wicienciak, Stanley	3	Calumet City, Ill.

MAY GRADUATES IN DIRECTED STUDY COURSE 2

Livingston, Jno. H.	4	Los Angeles, Calif.	Mansey, John E.	2	Atlanta, Georgia
Marillat, Dean	PT	Okla. City, Okla.	Robbins, Albert	3	Brooklyn, N. Y.
Maki, Herbert M.	4	Albuquerque, N. M.	Wasserbarger, Cecil	3	Chadron, Nebr.

GENERAL OPERATIONS BRANCH GRADUATES

GO-12A-1 Business Flying Specialists Refresher 5/2 thru 5/13/60

Name	Region	Station
Allen, Frank A.	4	Long Beach, California
Beafner, Barton M.	1	Worcester, Massachusetts
Baxtersen, Hugh	2	Boston, Texas
Staley, B.	2	Little Rock, Arkansas
Pague, Walter C.	Observer	Middletown, Ohio

GO-VJ-4 Jet Flight indoctrination 5/16 thru 6/10/60

Name	Region	Station
Abrams, B. L.	5	Detroit, Michigan
Jacobson, E. D.	Wash	Washington, D. C.

GO-6-7 Type Rating on Douglas DC-3 5/23 thru 6/5/60

Name	Region	Station
Chase, Ralph J.	3	S. St. Paul, Minnesota
Klenke, Geo. C.	4	Santa Monica, California
Kruger, T. R.	1	Columbus, Ohio
Stieber, E. J.	2	Fort Worth, Texas

Indoctrination Class 60-2 5/23 thru 6/24/60

Name	Region	Station
Abler, Gerald P.	3	Oedar Rapids, Iowa
Paffley, F. A.	1	Baltimore, Maryland
Grant, James W.	2	Miami, Florida
Hogan, Mark C.	1	Indianapolis, Indiana
Maynard, B. T.	1	Portland, Maine
Purcell, J. E.	4	Fargo, North Dakota

G-1-8 General Flight Refresher 5/31 thru 6/10/60

Name	Region	Station
Huchanan, Geo. S.	Wash	Washington, D. C.
Planary, Paul W.	5	Honolulu, T. H.
Lovering, R. R.	Wash	Washington, D. C.
Troxell, Harry S.	3	W. Chicago, Illinois

GO-6-9 Type Rating on Douglas DC-3 6/6 thru 6/24/60

Name	Region	Station
Hickey, L. E.	1	New York City, New York
Marton, Thomas G.	2	Fort Worth, Texas
Stivers, Wm. A.	3	Kansas City, Kansas
Tatman, M. C.	4	Phoenix, Arizona

GENERAL OPERATIONS BRANCH GRADUATES
(Continued)

GO-14-16 Pilot Flight Testing Procedures 6/13 thru 6/24/60

Name	Region	Station
Grandy, R. L.	4	Cheyenne, Wyoming
Latham, G. D.	2	Atlanta, Georgia
Leach, Edw. S.	4	Seattle, Washington
Smith, John C.	3	Wichita, Kansas

GO-6-10 Type Rating on Douglas DC-3 6/20 thru 7/1/60

Name	Region	Station
Green, L. M.	2	Orlando, Florida
Newland, Wm. P.	3	S. St. Paul, Minnesota
Weir, Don C.	4	Oakland, California
Toot, Wm. R.	1	Columbus, Ohio

GO-J2-1 Jet Flight Refresher 7/11 thru 7/22/60

Name	Region	Station
Boyd, Paul H.	Wash	Washington, D. C.
Dewey, A. J.	4	Van Nuys, California

GO-14-17 Pilot Flight Testing Procedures 7/25 thru 8/5/60

Name	Region	Station
Stefford, R. L.	3	Grand Rapids, Michigan
Melugin, C. R.	AO	Oklahoma City, Oklahoma
Mood, Norwood C.	2	Dallas, Texas
Wange, J. P.	4	Sacramento, California

GO-4-6 Airline Transport Pilot Certification 8/8 thru 9/2/60

Name	Region	Station
Anderson, E. L.	3	Des Moines, Iowa
Garofalo, K. S.	1	Washington, D. C.
Jones, Roger R.	2	Fort Worth, Texas
Thurburn, A. E.	4	Portland, Oregon

GO-15-8 Instrument Rating Refresher 8/8 thru 8/19/60

Name	Region	Station
Francsek, John J.	4	Los Angeles, California
Gratzer, D. M.	Wash	Washington, D. C.
Hay, George C.	3	Detroit, Michigan
Wiseley, Robt. H.	2	Amarillo, Texas
Hiruma, Shigeru	Observer	Tokyo, Japan
Nakamoto, Seiji	Observer	Mizusaki City, Japan
Minozawa, Genyo	Observer	Fukuoka City, Japan

GENERAL OPERATIONS BRANCH GRADUATES
(Continued)

GO-6 Type Rating on Douglas DC-3 8/8 thru 9/2/60

Name	Region	Station
Peres, Alfonso C.	Observer	Argentina

ATM-J2-1 Jet Flight Refresher 8/15 thru 8/26/60

Name	Region	Station
Beckham, R. A. (Major)	Wash	Washington, D. C.
Van Etten, C. L. (Colonel)	Wash	Washington, D. C.

GO-14-18 Pilot Flight Testing Procedures 8/22 thru 9/2/60

Name	Region	Station
Bendy, Norman J.	4	Helena, Montana
Nelson, David R.	5	W. Chicago, Illinois
Olson, Herbie C.	2	New Orleans, Louisiana
Bishara, Ibrahim	Observer	Cairo, Egypt

FLIGHT TEST BRANCH

Class GO-11-28 & -29 AIRCRAFT CHARACTERISTICS & PERFORMANCE (GENERAL) (BELOW 12,500 LBS.) May 9 - May 20, 1960

Name	Region	Station	
Beyer, David D.	Anchorage, Alaska	Romaine, A. E.	Yakima, Washington
Blohm, John W.	San Antonio, Texas	Smalley, L. G.	Sioux Falls, S.D.
Garvin, Robert V.	Fairbanks, Alaska	Turner, M. W.	Louisville, Ky.
Jamison, F. M.	Okla. City, Okla.	MacDonald, D.S. (Obs.)	Detroit, Michigan
McAllister, A. H.	Lincoln, Nebraska	Young, Dorothy (obs.)	Okla. City, Okla.

Class GO-11-30 AIRCRAFT CHARACTERISTICS & PERFORMANCE (GENERAL) (BELOW 12,500 LBS.) May 31 - June 10, 1960

Name	Region	Station	
Phelps, Robert C.	Ontario, California	Severance, L. E.	Wausau, Wisconsin
Powell, John H.	Dallas, Texas	Mount, Roy L., Jr.	Okla. City, Okla.
	Schmidt, Harry P. (Obs.)	Glenwood Gardens	Waukegan, New York

Class GO-11-31 AIRCRAFT CHARACTERISTICS & PERFORMANCE (GENERAL) (BELOW 12,500 LBS.) August 22 - September 2, 1960

Name	Region	Station	
Asbury, Robert B.	Fresno, California	Meyer, Albert	Midland, Texas
Harris, Louis C. (Captain)	Ft. Belvoir, Va.	North, Arthur I.	Cincinnati, Ohio
	Yoder, Robert F. (Obs.)	Lock Haven, Pa.	

Flight Inspection Training

Procedures Basic - FB-60-12
Completed June 17, 1960

Name	Region	Station
EDWARDS, C. C.		Kansas City, Kansas
FARLEY, Edward J.		Atlanta, Georgia
CELLESTY, Edwin E., Sr.		Richmond, Virginia
HALL, Charles L.		Aurora, Colorado
HALPIN, Robert P.		Tokyo, Japan
LUTHER, Alfred W.		Sacramento, California
MITCHELL, Jack D.		Orlando, Florida
MORRILL, Irving E.		Burlington, New York
MOBLE, John W., Jr.		Columbus, Ohio
RATLIFF, Howard T.		Ft. Worth, Texas
SLYMAN, Clyde H.		Minneapolis, Minnesota
SPYKER, Andrew H.		Seattle Creek, Michigan
THAYER, Eustan E.		Los Angeles, California
WHITESIDES, Carl W.		Oklahoma City, Oklahoma

PAA FLIGHT INSPECTION INDOCTRINATION TRAINING COURSE

T-60-4

Completed Class 6-24-60

Headroom, Russell J.	Washington, D. C.
Reynolds, Jerome F.	Spencer, Alaska
Reut, William S.	Kettle Creek, Michigan
Reut, William S.	Mount Vernon, New York
Reffman, Karl H.	Des Moines, Washington
Revel, Harley L.	Salt Lake City, Utah
Reubens, Clinton L., Jr.	Fort Worth, Texas
Reut, Jack F.	Atlanta, Georgia
Reut, James A.	Spokane, Washington
Reut, Howard G.	West Babylon, L. I.
Reutner, David B.	Honolulu, Hawaii
Reutman, Joseph	Brooklyn, New York
Reut, Alfonso C.	Argentina
Pickett, Donald J.	Hermosa Beach, California
Richmond, Herbert W.	Enterprise, Alabama
Smith, Emilio C.	Argentina
Taylor, Thomas M.	Issaquah, Washington
Torgerson, Leslie G.	Honolulu, Hawaii
Walters, Clarence E.	Anchorage, Alaska
Wittfeld, Carl J.	Jacksonville, Florida

USAF FLIGHT INSPECTION INDOCTRINATION TRAINING

Class Number 16040

Date of Completion: June 24, 1960

Captain Robert L. Howke	Chanute Air Force Base, Illinois
Captain John G. Imhoff	Hamilton Air Force Base, California
Captain Delbert F. Knight	Randolph Air Force Base, Texas
Captain Glenn V. Thomas	Robins Air Force Base, Georgia
1st Lt. Jack W. Reynolds	Robins Air Force Base, Georgia
1st Lt. Noble L. Utley	Robins Air Force Base, Georgia
W/Sgt. Raymond O. Koronen	Westover Air Force Base, Massachusetts
W/Sgt. Thomas P. Oulhane, Jr.	Chanute Air Force Base, Illinois
W/Sgt. Yoshihisa Sato	Lackland Air Force Base, Texas
S/Sgt. Charles M. Whitt	Mitchel Air Force Base, New York
Captain Koichi Tsuruta	Lackland Air Force Base, Texas
Bernie L. Stillwell	AC-680.4, Oklahoma City, Oklahoma

AIR CARRIER OPERATIONS BRANCH

Class S-ACO-100-1 AIR CARRIER OPERATIONS INDOCTRINATION
May 2, 1960 - May 27, 1960

Bowman, Robert C.	Region 3	Monahan, Paul H.	Region 2
De Gomez, John A.	" 4	Murphy, Jerry D.	" 3
Garrison, W. E.	" 1	Nucci, S. P.	Wash.
Hanna, Robert	" 4	Richardson, J. S.	Region 3
Hurst, Phillip P.	Wash.	Slavin, Benjamin	" 1
Jones, Robert P.	Region 1	Smith, A. L.	" 3
Latham, Derrick L.	Aero. Center	Strange, James E.	" 1
Law, Marvin H.	Region 3	Strickland, Chas. R.	" 2
Mayfield, Roy L.	" 4	Switzer, David	Wash.
Michaud, Edw. F.	" 2	Valentine, Robt.	Region 2
		Young, Robert J.	" 4

Class S-ACO-101-1 AIRLINE TRANSPORT PILOT CERTIFICATION
(for New Air Carrier Operations Inspectors)
May 31, 1960 - June 10, 1960

Bowman, R. C.	Region 3	Richardson, J. S.	Region 3
De Gomez, John A.	" 4	Strange, James E.	" 1

Class S-ACO-100-2 AIR CARRIER OPERATIONS INDOCTRINATION
May 31, 1960 - June 24, 1960

Bennett, Chas. R.	Region 1	Grenner, Edwin	Region 3
Bishop, Chas. T.	" 4	Kendall, Frank G.	" 1
Bivens, Paul R.	" 3	Larson, Robert C.	" 1
Brown, John D.	" 3	Reuter, Gail A.	" 3
Elde, Fred A.	Wash.	Rowbottom, C.	" 1
Felden, M. O.	Region 4	Schedler, Wm. N.	" 2
Francisco, M. G.	" 2	Summers, Wilmer G.	" 2
Fulton, John R.	" 4	Taylor, Leroy M.	" 4
Goodwin, R. E.	" 1	Thielen, W. J.	" 1

Class ACO-J1-21 JET FLIGHT QUALIFICATION
June 6, 1960 - July 1, 1960

Cookley, Ted Aeronautical Center
Evans, B. E. " "

Class S-ACO-100-3 AIR CARRIER OPERATIONS INDOCTRINATION
June 27, 1960 - July 22, 1960

Bohon, Chas. D.	Region 3	Jones, Max L.	Region 4
Carr, Edw. J.	" 1	McCarron, C. J.	" 3
Carter, G. W.	" 2	Miller, C. T.	" 2
Chapman, C. E.	" 2	Renner, E. H.	" 2
Cowrie, Wm. E.	" 1	Rumore, James	" 1
Estes, E. E.	" 4	Slaiter, V. R.	" 4
Fowler, Verice	" 3	Slocum, M. G.	" 1
Holloway, V. N.	" 3	Tacy, R. F.	" 1
Hudson, Wm. N.	" 1	Yost, A. F.	" 2
Jarrett, Wm. W.	" 1		

Class S-ACO-101-2 AIRLINE TRANSPORT PILOT CERTIFICATION
(for New Air Carrier Operations Inspectors)
July 25, 1960 - August 5, 1960

Bohon, C. D.	Region 3	Miller, C. T.	Region 2
Holloway, V. N.	" 3	Morgan, M. G.	Aero. Center

Class S-ACO-100-4 AIR CARRIER OPERATIONS INDOCTRINATION
July 25, 1960 - August 19, 1960

Altman, Dale E.	Region 1	Janky, Leon J.	Region 1
Bjornson, R. E.	" 4	Meades, Robt. L.	" 2
Brown, Vern C.	" 1	Neudorffer, E. R.	" 3
Burlingame, D. E.	" 3	Renner, R. D.	" 2
Cabler, Edw. A.	" 3	Smith, David E.	" 3
Condon, Edw.	" 1	Stewart, Geo. R.	" 1
Hughes, John M.	" 2	Taylor, C. A.	" 1

Class S-ACO-101-3 AIRLINE TRANSPORT PILOT CERTIFICATION
(for New Air Carrier Operations Inspectors)
August 22, 1960 - September 2, 1960

Brown, V. G.	Region 1	Neudorffer, E. R.	Region 3
Janky, Leon J.	" 1	Smith, D. E.	" 3

Class ACO-16-3 FLIGHT TESTING OF AIRCRAFT SIMULATORS
August 10, 1960 - August 26, 1960

Grenner, Ed	Region 3
Jones, Robt. P.	" 1
Kurdys, F. E.	Wash.

Class S-ACO-100-5 AIR CARRIER OPERATIONS INDOCTRINATION
August 22, 1960 - September 16, 1960

Blackwood, M. S.	Region 3	Norris, Robt. W.	Region 3
Duke, Roland N.	" 4	Smith, James E.	Aero. Center
Ernst, A. M.	" 3	Staiger, John F.	Region 3
Hack, M. C.	" 3	Tompkins, F. V.	" 2
Hopkins, E. A.	" 3		

GM-8(5) Airworthiness Surveillance & Accident Prevention
5/2 thru 5/13/60

Name	Region	Station
Driver, O. H.	1	Louisville, Ky
Keith, C. W.	2	Dallas, Tex.
Kern, C. E.	2	Ft Worth, Tex.
Kirk, P.	3	Kansas City, Mo.
Lane, H. G.	4	Van Nuys, Calif.
McCrackin, T. W. Jr	3	Indianapolis, Ind.
Schuermyer, H. W.	5	Anchorage, Alaska
Temte, J. N.	AC 262	Oklahoma City, Okla.
Volker, B.	3	Fargo, N. D.
Young, L. M.	4	Boise, Idaho

EE-2(16) Transport Aircraft Electrical Systems Course
5/9 thru 5/20/60

Name	Region	Station
Barnard, John B.	4	Long Beach, Calif.
Clark, A. E.	4	New York, N. Y.
Hall, Robert J.	1	Chillicothe, Ohio
Herrou, James L.	3	Kansas City, Kans.
Kuehn, R. A.	3	Chicago, Ill.
Mumford, Dale A.	4	Seattle, Wash.

PP-3(42) Gas Turbine Engine Development Course
5/23 thru 6/3/60

Name	Region	Station
Buckner, Francis B.	6	Honolulu, Hawaii
Doering, Fred J., Jr	4	Los Angeles, Calif.
Lova, Robert O.	2	Atlanta, Ga.
Morgan, Andrew J.	2	Fort Worth, Tex.
Rigsbee, Leonard R.	4	Denver, Colo.

GM-(60-2) Indoctrination Course
5/23 thru 6/24/60

Name	Region	Station
Adams, Lloyd A.	3	South Bend, Ind.
Boothe, William R.	2	Dallas, Tex.
Brittain, Allen W.	4	Los Angeles, Calif.
Budjinski, Joseph F.	1	Cincinnati, Ohio

GM-(60-2) Indoctrination Course (Cont'd)
5/23 thru 6/24/60

Name	Region	Station
Clark, Delbert J., Sr	3	Indianapolis, Ind.
Curry, Everard D.	4	Van Nuys, Calif.
Edge, Karsten A.	1	Lindenhurst, N. Y.
Finck, Russell V.	1	LaGuardia, N. Y.
Littleton, Earl C.	4	Los Angeles, Calif.
Meyenberg, Maurice N.	4	San Diego, Calif.
Meyer, Henry K.	4	Sacramento, Calif.
Ruckman, Cecil E.	1	Teterboro, N. J.
Steigman, Walter B.	3	Minneapolis, Minn.
Whittemore, Ronald J.	3	Kansas City, Mo.

GM-(60-2) Indoctrination Course - Manufacturing
5/23 thru 6/24/60

Name	Region	Station
Gbin, Wing C.	4	Seattle, Wash.
Ross, Albert G.	3	Indianapolis, Ind.

GM-(60-2) Indoctrination Course - Air Carrier
5/23 thru 6/24/60

Name	Region	Station
Bloch, Joseph	3	Indianapolis, Ind.
Bottis, Milton L.	1	LaGuardia, N. Y.
Cadwalader, Ward K.	4	Miami, IDO
Chincotta, Joseph T.	4	Denver, Colo.
Davenport, Dean A.	4	San Francisco, Calif.
Dow, Gail S.	2	Atlanta, Ga.
Garrett, Horace P.	4	San Francisco, Calif.
Luther, William H.	4	Denver, Colo.
McCarthy, Lloyd B.	1	Tulsa, Okla.
Rosler, Henry J.	3	Chicago, Ill.
Schwenberger, Vincent E.	1	Boston, Mass.
Slawinski, Chester J.	4	San Francisco, Calif.
Smith, Donald B.	2	Dallas, Tex.
Whitaker, Clarence L.	4	Burbank, Calif.
Zendler, William T.	1	Idelwild, N. Y.

EE-1(16) Light Aircraft Electrical Systems
5/31 thru 6/10/60

Name	Region	Station
Chadderdon, Harold P.	3	Lincoln, Nebr.
Diets, R. H.	1	Harrisburg, Pa.
Mathisen, Jack E.	3	Bismarck, N. D.

EE-1 (16) Light Aircraft Electrical Systems (Cont'd)
5/31 thru 6/10/60

Name	Region	Station
Norden, Frank T.	2	Jackson, Miss.
Radice, D. V.	1	Teterboro, N. J.
Serra, Jim D.	2	Miami, Fla.

EE-5(2) Pulse Techniques
5/13 thru 7/1/60

Name	Region	Station
Bodiford, B. B.	2	Winston Salem, S. C.
Clarke, R.	2	Dallas, Tex.
Flavin, J. W.	3	Ypsilanti, Mich.
Kleinert, R. R., Jr	1	LaGuardia, Field
Magness, S. A.	2	Miami, Fla.
Odom, J. D.	1	New York, N. Y.
Ogilvie, E. F.	2	Miami, Fla.
Saucke, L.	4	Denver, Colo.
Weis, W. J., Jr	3	Kansas City, Mo.
Woehr, J. R.	2	Dallas, Tex.

PP-3(43) Gas Turbine Engine Development Course
6/13 thru 6/24/60

Name	Region	Station
Anthony, A. E.	4	Los Angeles, Calif.
Beccetti, P. A.	3	St Louis, Mo.
Davis, B. Z.	4	Seattle, Wash.
McLaughlin, J. B.	2	Marietta, Ga.
McPecke, J. A.	5	Anchorage, Alaska
Tholen, J. J.	2	Ft Worth, Tex.

EE-4(7) Basic Jet Transport Electronics Specialist A. C. Systems & Controls
8/8 thru 8/26/60

Name	Region	Station
Cardullo, J. V.	2	Miami, Fla.
Drevenstadt, L. V.	4	Miami, Fla.
Garrett, H. P.	4	San Francisco, Calif.
Park, E. L.	1	Boston, Mass.
Rosler, H. J.	3	Chicago, Ill.

GM-8(6) Airworthiness Surveillance & Accident Prevention
8/8 thru 8/19/60

Name	Region	Station
Harper, Gordon O.	3	Chicago, Ill.
Henderson, Justus W.	3	Washington, D. C.
Johnson, T.	1	Charleston, W. Va.
Mueller, Roman B.	3	Kansas City, Kans.
Royal, R. C.	2	San Antonio, Tex.

PP-5 (1) Commercial Jet Aircraft Powerplant Course
8/13 thru 9/2/60

Name	Region	Station
Dwyer, Joseph P.	14	Cleveland, Ohio
Schwobli, Ed W.	1	Hagerstown, Md.
Trosper, Hollie C.	5	Anchorage, Alaska
Dewhitt, Ed T.	4	San Francisco, Calif.

GM-5 (3) Modern Business Aircraft Instrument and Automatic Flight Control Instruments
8/22 thru 9/2/60

Name	Region	Station
Anderson, H. B.	4	Palo Alto, Calif.
Childers, Rex	AC-680, 4	Oklahoma City, Okla.
Gray, H. B.	AC-680, 6	Oklahoma City, Okla.
Johnson, A. F.	AC-680, 4	Oklahoma City, Okla.
Maloy, H. C.	AC-680, 4	Oklahoma City, Okla.
Maynard, R. W.	AC-680, 6	Midwest City, Okla.
Metzger, P. L.	1	Allentown, Pa.
Reid, J. I.	2	Ft Worth, Tex.
Tuttle, Wayne	2	Houston, Tex.
Walther, G. I.	3	Minneapolis, Minn.

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The cover three-quarter picture is of the FAA's new KC-135, now in the process of changeover for High altitude flight inspection of air navigational aids equipment. The picture was taken by photographer Bob Newkirk from an FAA TV-2 flying nearby.

The inside of the cover pictures Oklahoma from the historical point of view. It depicts the areas in which each of the Five Civilized Tribes lived.

The color calendar in this issue shows a typical Oklahoma refinery. This one had just been newly painted a bright silver when the picture was made. Its location--just a few miles south of the Aeronautical Center.

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