FAA HORIZONS

Read:
'FAA Plans
for the Future'
Pages 4-5

Vol. 3, No. 22 | Published biweekly for employees of the Department of Transportation/Federal Aviation Administration | October 27, 1969

Over the Top

When the Red Cross Bloodmobile came to Headquarters recently, the goal of 100 volunteers was exceeded and the drive was a success. Among those participating were (from left), Bob Klose, electronics engineer in Systems Maintenance Service and the FAA drive chairman; Under Secretary of Transportation James M. Beggs, who had just donated blood; and FAA Deputy Administrator D. D. Thomas.

Accident Prevention Gains Cited

WASHINGTON—The Southwest and Central Regions report a downward trend in general aviation accidents as both regions continue their two-year accident prevention program which may be expanded nationwide if program results and available funds warrant it. With still eight months to go to complete the second year of the program, the Central Region reports a 17 per cent decrease in fatal general aviation accidents for the first nine months of 1969, as compared with the same period in 1968. Fatalities in the Central Region are down 20 per cent for the same period.

"This fact is particularly significant since 1968 was one of the Central Region's safest years in terms of general aviation accidents," said Edward C. Marsh, Central Region Director.

Based on progress to date and projecting decreases to the first of November, the Southwest Region reports a five per cent decline in the number of fatal accidents and a 12 per cent decrease in non-fatal accidents as compared to the same period in 1968.

The main thrust of the program, started in July 1968, was a grass-roots approach to the problem of accident prevention. In the Central Region, 17 accident prevention specialists were appointed to work closely with pilot groups and individual pilots in a broad educational effort. In the Southwest Region, 12 of the specialists have been appointed.

The 29 accident prevention specialists are working to reach more than 225,000 pilots in the 17 states comprising the two regions. The accident prevention effort takes many forms.

In the Southwest Region, Safety

(Continued on Page 7)

New Merit Promotion Plan Will Facilitate Advancement

WASHINGTON — Under the agency's new Merit Promotion Program, employees have a better chance for advancement and the agency has greater assurance that the best qualified are being promoted.

The new program's objectives are to assure employees fair, equitable consideration free of discrimination, bias or personal favoritism, and to keep career progression avenues open.

For each competitive promotion action there is an "area of consideration" representing the geographic or organizational area from which the agency can reasonably expect to obtain a sufficient number of highly-qualified candidates. For certain positions at GS-14 and above, the normal area of consideration is throughout the Department of Transportation. Higher grade jobs generally have broader areas of consideration, because there are fewer eligible candidates. Areas of consideration for other positions may be limited to a single facility, sector, division, office or service. As a general rule, the area of consideration should be broadened if fewer than three highly-qualified candidates apply.

Employees outside the area of consideration may submit voluntary applications for specific types of positions within FAA and other organizational elements of the DOT. Employees thus have a greater opportunity to be considered for jobs that interest them, no matter where they may be located. Procedures regarding voluntary applications are contained in Notice N 3330.26, July 10, 1969.

Vacancy Notices Circulated

Notices of vacancies are circulated in such a manner as to assure that all eligible employees in the area of consideration know about the vacancy. When regions, centers and Washington Headquarters issue announcements for applicants outside their jurisdiction, sufficient time should be allowed to give employees a reasonable opportunity to apply.

Vacancies do not have to be announced, however. A promotion list may be established by considering all eligibles within the area of consideration. This may be done by using automatic data processing runs or other suitable personnel records to identify eligibles.

Candidates meeting qualification standards prescribed by the Civil Service Commission and selective placement factors have basic eligibility for promotion. Selective placement factors must be essential to successful job performance and are considered part of the qualification standard. For example, if an employee must be able to speak Spanish to successfully perform the duties of a position, the selecting official may require that all applicants speak Spanish in order to be eligible.

The evaluation process must include a review of an employee's training, experience, supervisory appraisal and awards and commendations. In using experience as an evaluation factor, the stress must be placed on the quality and recency of experience rather than its length. Except to break a tie, length of experience or service may not be used in evaluating candidates except when directly related to the quality of performance desired.

An Employee Appraisal Record (EAR) is used as an evaluation factor since it is important to know how well an employee performed in his present job. Moreover, skills and abilities on which an employee is rated for promotion in Part IV of the EAR are demonstrated through performance in his present position. While an employee must be shown his own EAR, he is not entitled to see the appraisal of another employee.

Generally, promotion certificates

(Continued on Page 7)

FSS Personnel Honored At National Convention

LAS VEGAS—Four agency air traffic control specialists were honored here recently at the convention of the National Association of Air Traffic Specialists (NAATS).

Ann Shields of the Philadelphia FSS was named the Outstanding Air Traffic Control Specialist for 1969 by NAATS. George S. Batchelder of the Minneapolis FSS received a similar award from the Aircraft Owners and Pilots Association (AOPA).

The awards were presented to Miss Shields and Batchelder at a NAATS convention luncheon attended by the Administrator and other top FAA officials.

Also included among major NAATS presentations was an award to Joseph Cirillo of the Indianapolis FSS, honored as the Outstanding Air Traffic Control Specialist for 1968 and Bob Hayden, supervisor of the Savannah FSS, who received a special plaque for outstanding achievement as NAATS president for the 1968-69 ,term.

Besides the Administrator, FAA speakers at the NAATS convention included Robert Reynolds, Assistant Administrator for General Aviation: Dr. Merv Strickler, Special Assistant for Aviation Education; Ferris J. Howland, Deputy Director, Air Traffic Service; William M. Jackson, Executive Assistant to the Associate Administrator for Personnel and Training; Thomas J. Creswell, Director of Training and A. R. Ridenour, Assistant Chief of the ATC System Requirements Division.

She's Outstanding

FAA Administrator John H. Shaffer (left), stands by while Hazel McKendrick, Dallas FSS (at podium), presents the NAATS Outstanding Air Traffic Control Specialist Award for 1969 to Anne Shields of the Philadelphia FSS. Also in the group is William Kraham, NAATS Executive Director and General Counsel.

Added Benefits Included In New Retirement Bill

WASHINGTON — President Nixon has signed into law the bill placing the Civil Service retirement fund on a sound financial basis and greatly liberalizing retirement benefits for Federal employees. Here are the highlights of the new legislation:

• Annuities have been increased by computing them on "high three" rather than "high five" average salary.

• At retirement, unused sick leave will now be creditable for additional length of service but not for retirement eligibility. The Civil Service Commission has not yet issued regulations on this provision but it is expected that unused sick leave will be credited on a month-for-month basis. One month of additional service will be allowed for each 22 days of sick leave. (Fractional months are not counted).

• The bill adds one per cent to the automatic cost-of-living increases for annuitants each time the price index goes up three per cent or more and remains there for three consecutive months. The next cost-of-living increase (four per cent) is effective Nov. 1, 1969. With this new feature, all annuitants on the retirement rolls before Nov. 1 will receive a five per cent annuity increase.

• To finance the improved benefits, employee and matching agency contributions have been increased from 6½ per cent to seven per cent effective Jan. 1, 1970. The Treasury will make direct payments into the retirement fund to eliminate the present deficit caused by previous increases in retirement benefits and unfunded military service. The Treasury will also reimburse the fund each time retirement benefits are increased in the future to keep the fund stable.

• Widows or widowers age 60 or more who remarry after July 18, 1966, will continue to receive annuities. This provision is retroactive to include all 60-year-old widows and widowers whose annuities terminated upon remarriage since July 18, 1966. Previously, this provision affected the widow or widower annuity only if the annuity was based on the employee's death or separation after July 18, 1966.

• Annuities for widows and dependent widowers have been liberalized considerably. Most of these annuities will be at least 22

(Continued on Page 7)

Waiting to fly the new GAT-1 trainer recently installed in the Rayburn Building are (left to right): Congressman Larry Hogan (Md.); Don Clausen (Calif.), president of the Congressional Flying Club; House Speaker John W. McCormack (Mass.). At the controls is House Republican Leader Gerald R. Ford (Mich.). Answering a question from the Speaker is Lloyd Kelly, vice-president of Singer-General Precision, Inc., makers of the trainer.

FAA Gives Boost To . . .

The Flying Club on 'The Hill'

Explaining how the navigational computer traces a GAT-1 (Link) pilot's flight path to Congressman Morris K. Udall of Arizona is Lloyd Kelly (right), vice president of Singer-General Precision, Inc.

By Thom Hook

Experiencing what it's like to fly a typical single-engine aircraft—including the sensation of takeoff and landing—is now possible for Congressmen right on Capitol Hill.

Interested Congressmen and staff members are being introduced to a new general aviation Link trainer located in the House Office Building. The FAA is giving a hand by providing orientation on the trainer and by operating it under a program directed by the Congressional Flying Club.

President of the club is Congressman Don H. Clausen, a one-time fixed base operator and a strong supporter of general aviation.

Representative Clausen, who initiated the first high school program of flight studies in the country, feels strongly that an interest in aviation is a valuable motivator of America's youth. Because he wants his fellow legislators to have a better understanding of aviation, his office schedules sessions in the Link trainer for interested colleagues and others on Capitol Hill.

Assistance on the trainer is provided by Ralph R. Lovering of the agency's Office of General Aviation Affairs. After Lovering introduces a Congressman or a member of his staff to the general aviation trainer, interest in further instruction is often expressed. In these cases three major light aircraft manufacturers offer them an hour's free flight instruction at a nearby field.

As president of the Congressional Flying Club, Clausen has urged his fellow members to avail themselves of the familiarization opportunity. He also urges them to use the trainer in upgrading their skills. He reports that the response is very good.

The trainer can also be used to provide instruction in radio navigation, instrument approaches and communications.

Senators and representatives who belong to the Congressional Flying Club include:

Sen. Peter H. Dominick (Colo.); Representatives Ray Blanton (Tenn.), Don Clausen (Calif.), John W. Davis (Ga.), John T. Myers (Ind.), William E. Minshall (Ohio), Chester L. Mize (Kan.), Rogers Morton (Md.), Gene Snyder (Ky.), Robert Stafford (Vt.) and Albert Quie (Minn.).

Classification Program Keeping Jobs 'Current'

EDITOR'S NOTE: This article, prepared by the Office of Personnel, is part of a series on FAA Personnel and Training polices.

WASHINGTON — Most FAA employees are aware that classifiers assign series, titles and grades to positions, but the process by which a position is classified is not as widely understood.

Classification usually is initiated when a supervisor finds he needs and can fund a position to cover new programs, or when he wishes to consolidate certain duties in a new position to relieve other employees of excessive workload.

The supervisor determines the scope of the position, how he wishes the work done and the amount of authority or independence he will give to the position. He then writes a description of these elements. Through this initial assignment of duties, the supervisor or manager controls the grade of the position, because the classifier must, by law, classify it on the basis of specified duties, responsibilities and qualifications.

Description Compared

The classifier compares the position description with Civil Service Commission classification standards published for all grade levels in many occupations, such as those in air traffic control, engineering, payroll and secretarial fields. If there are no published standards for the particular occupation or if the position varies greatly from jobs described in the standards, the classifier must search out the closest applicable standards and use these as guides to determine the appropriate grade level. On the basis of his comparison with standards, the classifier gives the position the appropriate title, grade and series. The manager then can fill the position.

In other instances, a manager may find that he has gradually added duties to an employee's position or that he has gradually given him more authority with diminished supervision. In this case, the manager may request that the classifier review the position to see if a higher grade is warranted. The classifier will probably conduct a desk audit of the job to review the employee's duties and check examples of his work. If this review shows that the grade of the position should be changed, the position description will be rewritten and the job reclassified.

Accuracy In Classification

Another aspect of classification work involves assuring that all classifications are accurate and current. To accomplish this, each supervisor is asked to review his positions at least once a year to assure that they are accurately described. In addition, classifiers conduct what are called "cyclic surveys," in which they review all jobs within a particular organizational unit such as a flight service station, an airway facilities sector, a payroll section or an accounting division. In these surveys, all position descriptions for the organization are reviewed and a sampling of positions is desk-audited. Classifiers attempt to cover each organization at least once in three years.

FAA classifiers also make occupational studies. These involve studying a particular type of position in many different organizational locations. The studies usually are undertaken because technological changes can affect occupations to such a degree that earlier standards or guides which determined grade levels have become outdated.

In some instances, such as that resulting in the recent revised air traffic control classification, the Civil Service Commission may believe its standards need changing and makes a nationwide study. FAA classifiers may be asked to assist the Commission in such studies by obtaining additional information on the occupation and the manner in which the occupation has changed.

Internal Guides Developed

In other cases, FAA will conduct a study to develop internal guides for classifying small groups of positions for which the Commission has not yet published standards. In this case, classifiers in the Washington office do the necessary cross-comparison with other Commission standards and issue the guide, so that each region will not have to repeat the work.

In still other situations—such as in the current airway facilities occupational study—FAA wants to determine whether its own internal classification guidelines could be revised and still remain within the framework of Commission standards.

Duties Reviewed

Occupational studies cover a detailed review of duties and activities in the occupation and generally extend over a considerable period of time. An occupational study can recommend keeping the status quo, or that specific positions be either upgraded or downgraded. The studies do not usually result in downgrading, because changes in work programs, regulations, equipment and technology generally tend to make occupations more complex and difficult. At the same time, unless there have been extremely significant changes in the occupation, widespread upgradings do not evolve from such studies. The major impact of the studies is in assuring that classification standards and guides are current and accurate descriptions of the occupation.

Economic Developers

Participants in a joint FAA and Michigan Economic Development Committee meeting in Chicago are (left to right, front row): Sen. Don R. Pears; George F. Montgomery, Mich. House Whip; John F. Wubbolding, Asst. Chicago Area Manager; William H. Quinn, Chicago Airports Branch Chief; E. D. O'Brien, Michigan Aeronautics Commission; and Sen. Casimer P. Ogonowski. In second row are: Doyle Hegland, Chicago Air Traffic Branch; Sen. T. J. Anderson; Joseph T. Bosslet, Chicago Air Traffic Branch; Thomas A. Davis, Chief, Flight Standards Branch, Chicago; Robert Roche, Chicago Airports Branch; and Les Andrews, Michigan Aeronautics Commission. In back row are: Edgar A. Geerlings and Arthur B. Craig of the Michigan legislature.

State Legislators Receive FAA Briefing

CHICAGO—Michigan legislators and other key state officials recently were briefed on FAA operations during a two-day meeting at the Chicago Area Office.

Beside members of the Michigan House of Representatives, the meeting was attended by Michigan Aeronautics Commission and Economic Development Committee officials.

The group received a complete briefing on such matters as the agency's FAAP program, airspace regulations and various aspects of modern airport development.

One afternoon was devoted to a tour of the Chicago O'Hare Tower conducted by Tower Chief Dan Vucurevich.

John F. Wubbolding, FAA Assistant Area Manager, headed the group that met with the state officials. Others who assisted in the briefings and series of meetings included: William H. Quinn, Chicago Airports Branch Chief and his assistant, Robert Roche; Thomas A. Davis, Chief, Chicago Flight Standards Branch; Floyd C. Emanuel, Chief, Airways Facilities Branch; Doyle Hegland, William L. Marcks and Joseph T. Bosslet of the Air Traffic Branch; and Richard Klemme of the Airway Facilities Branch.

"The meet was so successful that a second group of nine Michigan legislators has requested a similar meeting on another date," Wubbolding said. "We have also received an indication from members of the Indiana legislature that they would be interested in a similar meeting."

Basic Attitudes on Prejudice Explored at Alaska Meeting

FAIRBANKS—"Bedrock" attitudes and prejudices that foster discrimination were explored in depth during a recent two-day Organizational Bias Seminar here.

Among nationally-known authorities at the seminar was Dr. Harold Lett, a consultant to the National Conference of Christians and Jews. Speaking as a member of the black minority, Dr. Lett recalled the difficulty encountered in escaping the ghetto of a large city and struggling for a better life.

Misconceptions held by many persons concerning so-called racial superiority or inferiority were dispelled by Dr. Nancy Ann Sarsfield, Associate Professor, Health Science Center, Rutgers University.

"Physiologically, man is one despite superficial differences," Dr. Sarsfield told the seminar. "If man seems to be different, it is only because he springs from many and varied cultures which determine his behavior in a group. Given the same opportunity, all men can achieve the same level of progress."

"Depriving members of minority groups of their rights to equal opportunity in employment robs the agency and the nation of the talents and skills of individuals whose only dissimilarity is a difference in skin pigmentation," said Dr. Leonard P. Aries, National Vice President of the National Conference of Christians and Jews.

"The road to positive accomplishment in achieving equal employment opportunity is pitted with obstacles and frustrations," said Quentin Taylor, the agency's Director of Civil Rights. "Your commitment and personal involvement is needed to assure success."

At EEO Seminar

Talking things over during a break in the Organizational Bias Seminar in Fairbanks are Quentin Taylor (left), Director of Civil Rights and William Bradshaw, EEO Officer for the Alaska Region.

William Bradshaw, the Alaskan Region's new EEO staff officer, also attended.

Similar seminars are being planned for Kansas City, Albuquerque and Salt Lake City.

For Difficult Hire

The beautiful bouquet of red roses Barbara Larkin holds came from a grateful controller she was instrumental in hiring. Barbara, a Personnel and Staffing Specialist in the Central Region, lets her boss Erick E. Erickson (left), sniff them as Region Director Edward C. Marsh approves. When recruitment ran into problems, Barbara's perseverance culminated in a successful hire; hence the bouquet.

HORIZONS

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

Administrator — JOHN H. SHAFFER
Assistant Administrator for Public Affairs — MURRAY SNYDER
Chief, Employee Information Division — CLIFFORD CERNICK
Layout/Production — GERNOT RASMUSSEN

Developments in radar such as the display shown here and console on opposite page play a major role in the agency's planning for the future.

Airport instrument landing systems (ILS) and ot

Agency planners have worked out detailed plans to meet the challenge of rapid aviation growth forecast for the next decade and beyond.

Under the National Aviation System Plan, a tentative, prospective course of action has been set forth to keep pace with increasing aviation requirements and emerging developments in aviation technology.

For the next ten year period, FAA planners have itemized many system improvements which would be provided from the proposed appropriations for facilities and equipment, and research and development at an annual level of $250 million for F&E and $60 million for R&D.

En route and terminal automation, expanded radar service and coverage, increased federal assistance to airports, improved navaids and landing aids and satellite technology investigations are on the planning boards to provide even greater safety, increase traffic handling capability and promote better and faster service to the flying public.

In the en route traffic control area, the plan provides for increased automation (NAS Stage A), long-range radar system expansion and modernization and improved air-ground communications capability to cope with the aviation industry's "population explosion."

En route Automation—By 1972, initial operating capability will be provided at the 20 centers in the contiguous United States. Implementation of the program will be in two steps. First, automated flight data processing capability will be provided. By 1974, a full Stage A environment is planned with additional computer capability, digitized data from radars and computer generated displays.

Long Range Radars—It is planned to expand the present system of 84 long range radars to a total of 112 systems in the United States. The expanded system would provide full radar surveillance of the continental U.S. Today's system provides approximately 90 per cent coverage at 24,000 feet and above and approximately 60 per cent for all IFR air traffic at lower altitudes. Planned expansion will provide coverage for an additional 30 per cent of the IFR traffic at the lower altitudes. Commencing in 1973, the long-range radar system would also be improved by replacing 89 earlier type systems with advanced state-of-the-art equipment.

Positive Control Airspace—It is planned to progressively lower altitude positive control area (APC) to 14,500 feet with the base adjusted to 2,000 feet above ground level over mountainous terrain. In the Golden Triangle—northeastern U.S.—and in the area on the West Coast between Los Angeles and San Francisco, the base of positive control area would be further lowered, to 10,000 feet. Below the base of positive control areas, FAA plans to establish positive control airways. Positive control areas would be expanded above the present upper limit of 60,000 feet to 100,000 feet. NAS Stage A implementation will provide the necessary handling capacity

ARTC Center Structures, Sectors and Communications—It is planned to expand buildings to house the new computers and other automation equipment necessary for Stage A. Electrical systems will be made more reliable and environmental conditions will be improved. Planning calls for an increase from the present 550 center sectors to more than 1,200 by 1980. Center air-ground communication channels will increase from the present 1975 to almost 3,000 during the plan period.

Collision Avoidance Systems (CAS)—Although the final quantity and priority of the implementation of CAS ground stations has not been established, 65 CAS ground stations are planned initially.

In the area of major terminal systems, new towers, improved airport surveillance radar and beacon systems and terminal automation are some of the things the agency looks forward to in the next decade.

Airport Traffic Control Towers (ATCT)—Under the plan, 140 new towers would be established in addition to the towers currently in existence and programmed, for a total of 521 through 1980. Many locations will receive tower service at an earlier date than originally planned through the use of a modular design prefabricated unit. In the same time frame, 80 towers would be relocated and 90 towers would be improved.

Airport Surveillance Radar and Beacon System (ASR)—For the next decade, 121 new ASR systems are planned for addition to the existing 119 operational and 40 programmed ASRs. This will provide 278 ASRs through 1980. The plan also includes relocation of 42 ASR and beacon systems in the plan period, with 22 to take place in the first five years. Obsolete equipment would be replaced on a gradual, systematic basis at higher density locations with the refurbished units slated for installation at less-active locations. Add to this picture 88 bright radar displays currently on order, 66 additional programmed and 202 more planned through 1980 and the outlook is for a "brighter" future.

Tower Communications—It is planned to provide 72 additional remote air-ground transmitter and receiver sites to handle increased growth through 1980. Automatic Terminal Information Service (ATIS) will grow from the present 76 to 171.

Terminal Automation—A contract for 64 units of the Automated Radar Terminal System (ARTS III) was awarded by the FAA earlier this year. These systems are planned for 62 large and medium hub facilities and one unit each for training and research and development purposes. Plans call for an additional 52 ARTS III systems, for a total of 116 systems. A scaled-down version of automated terminal radar (ARTS II) for 113 units is planned before the end of FY 1974. Add-ons to ARTS III, such as multiple radar processing and digital display techniques, are receiving R&D effort.

Control Zones for Instrument Approaches—Today there are 761 control zones and approximately 426 more locations that have approved instrument approach procedures but no control zone protection. Designation of control zones for all instrument approaches will require that air-ground communications be established at a unit cost of approximately $10,000 per location. In addition to the present 426 locations, it is estimated that 520 more will qualify in the next decade.

Research and development outlays make possible advances such as signal improvements in the ILS, permitting reduction in landing restrictions imposed by low ceilings and limited visibility.

Miscellaneous Terminal Improvements—Improvement of radar displays and expansion of radar services for all radar locations are covered in the plan. Improved radar displays, basically the ASR-4, will be installed at 172 locations. Expanded radar service is provided or programmed at 55 locations and scheduled for an additional 223 locations to cover all radar locations.

Other improvements would include: Presently non-operational airport surface detection equipment (ASDE) to be reactivated and modified to accommodate bright displays, development of modernized ASDE and more complete guidance and control systems, full implementation of standby power at continuous power airports, retrofit of obsolete beacon antenna systems with improved versions, display of severe weather information on radar displays, pur-

acilities are included in the agency's ten-year plan.

FAA PLANS FOR THE FUTURE

chase and installation of digital weather displays for all required elements in all ATC towers, installation of automatic weather sensing and transmission devices, addition of more display systems at selected towers to handle changing and increasing traffic demand, such as helicopter operations, STOL operations and ground control.

Flight Service Stations (FSS)—Today there are 335 manned flight service stations and 13 unmanned facilities. Although the primary mission of FSSs changed radically nearly ten years ago, the location, physical plant and equipment of most stations have not. No major changes other than systems improvement are planned for the international system or for the FSS system in Alaska or Hawaii. The FSS system in the conterminous states (298 manned and 13 unmanned facilities), however, requires major reconfiguration. It is planned to provide a total of 971 facilities, consisting of 155 full-time manned, 416 part-time manned and 400 unmanned facilities.

Both short range and long range en route navigation aids are planned by the agency.

Short Distance En Route Navigation Aids—Presently, the FAA operates 888 very high frequency omnirange (VOR) stations, of which approximately 561 are equipped with tactical air navigation (VORTAC) equipment. Plans call for 166 more VORs to be converted to VORTAC with distance measuring (DME) equipment planned for 155 more. Increased use will be made of Area Navigation. For this purpose, 85 precision VORs (PVORs) will be provided in high density terminal areas and 120 en route VORs will be upgraded by doppler modifications.

Long Distance Navigational Aids—The FAA is participating with other government agencies and foreign governments in an R&D program to analyze long distance navaid requirements for current and future operations.

In the terminal navigation area, the agency is pursuing programs in instrument landing systems (ILS), terminal VHF Omnirange (TVOR), distance measuring equipment, V/STOL approach and landing, area navigation, visual aids, visibility measuring equipment and future concepts and systems for terminal navigation.

Instrument Landing System (ILS)—There are approximately 280 ILSs in service. An additional 123 ILSs are programmed through FY 1970 and a total of 1,355 ILSs are planned through the ten-year period. The plan proposes that all post-1972 ILS requirements be met by a replacement (microwave) ILS.

Terminal VHF Omnirange (TVOR)—There are 48 TVORs in operation. The plan includes 88 additional TVORs to provide approach guidance to those airports which are not expected to qualify for ILS.

Distance Measuring Equipment (DME)—A new-type DME, to be co-located with ILS and a precision DME for Category III, is under development. The plan includes establishment of 532 additional terminal DMEs —399 co-located with ILS and 146 with TVORs.

V/STOL Approach and Landing—Facilities are planned for major airport terminals and connecting metropolitan areas with the major effort being one of R&D for the near future.

Visual Landing Aids—An R&D effort will be conducted to provide low-cost visual aids, for in-service improvements, to develop new aids for heliports and to develop improved techniques for marking and lighting obstructions, etc. Under the plan, 533 additional approach light systems of various approved configurations are planned.

Visibility Measuring Equipment—Runway visibility range (RVR) equipment will be installed where warranted on each ILS-equipped runway served by a control tower to provide continuous information on visibility conditions for the runway being used in IFR operations. The R&D effort will be devoted to develop lower cost and extended range visibility measuring equipment and calibration devices, to develop Slant Range Visibility (SRV) measuring equipment for Category II to Category IIIB weather environment; and increasing system reliability of RVR equipment.

Mobile Facilities—The present inventory of 24 mobile facilities—ASR, ATCT, ILS, power units—will be augmented by an additional 135 units in a variety representing nearly all permanent facilities.

In the communications area, voice, data and future communications are some of the programs being considered by planners.

Air-Ground Communications—Experiments will be conducted to test the discrete aircraft frequency concept; air-ground, in-service improvements are planned.

Voice Communications for centers and 18 systems for the higher density terminal locations are in the plan.

Voice Communications—Included in the plan are 20 electronic voice switching systems (EVS) for centers and 18 systems for the higher density terminal locations. Additionally, 228 five-channel voice recorder units and 55 new 150-channel recorders will be in the terminal area. Initially, 108 five-channel recorders will be provided to pick up a backlog, but then this item will become a part of the tower establishment item.

Data Communications—Data transmission systems, low-cost broadband radar remoting systems and in-service improvements are programmed.

Future Communications— R&D funds would be used to participate with industry and NASA in the evaluation of satellites as a tool in air traffic control and to develop automatic means of interchanging information between aircraft and automated ground systems.

NAFEC Facilities—The plan provides for a moderate expansion and improvement program to provide the necessary facilities for the agency's experimental program to support the R&D effort.

Airport Development Program—The proposed airport development program consists of both an expanded planning effort and provision of additional Federal aid for construction and improvement of airports. Under provisions of the Airport/Airways legislation now pending before the Congress, Federal aid for airport development will be increased from a $75 million annual authorization to $180 million in FY 1970, $220 million in FY 1971, with a continued expansion leading to $2.5 billion in the next ten years. Together with matching grants on a 50-50 basis with state and local governments, this strongly increased program will permit financing of $5 billion in new and expanded airfield facilities.

Planning Grant Program—It is planned to establish an airport planning grant program at an annual level of $10 million. These grants could be made to areawide planning agencies for airport system planning and also to any public agency for planning the development of a specific airport. Airport system planning grants would be for the purpose of encouraging the determination of airport needs on an areawide basis in conjunction with area planning.

State Agency Program—This would be a grant program to state aviation agencies at an annual level of $5 million for assisting those agencies in carrying out state programs of airport planning and development.

Controllers Decorated

The Vietnam Service Medal was recently awarded these controllers who are among the 59 members of the Office of International Aviation Affairs' Civil Aviation Assistance Group in Saigon. The controllers, who assist the Vietnam Directorate of Civil Aviation in maintenance of air traffic control, are (from left): Gerard R. Kraszewski, Melvin E. Schneider, Winston F. Hatch, James T. Stokes, Howard L. Allen, Dean A. Stromwall and Lee J. Sloand.

Native Hire Plan Showing Results

ANCHORAGE — An Alaskan "Native Hire" Program, launched in December 1967 to help remote facilities build a permanent local work force, is now bearing fruit. Hiring began in Point Barrow and at Nome with Civil Service Commission agreement that ATCS station-student trainees could be hired at the GS-4 level.

At Nome, Homer E. Hoogendorn, an Alaskan native, was employed as an AT trainee under the training agreement. Roger Seetot, also a native, was employed as a GS-5 electronic trainee. Both progressed satisfactorily in their training and Hoogendorn recently was promoted to GS-5, AT trainee, while Seetot was promoted to GS-7, ET trainee.

Hoogendorn is progressing well in his training and feels he will have no trouble completing the Aeronautical Center AT course for FSS specialists.

Seetot is also progressing satisfactorily in training and says, "This is a good program and I'm very glad I got into it."

By Sue Silverman

FAA produces film for pilots and the public, not for film producers. So, when an agency motion picture walks off with top honors at a film producer's film festival—well, that's cause for celebrating.

At the Oct. 18 annual meeting of the Information Film Producers of America in San Francisco a "Cindy Award" in the educational category went to FAA's "Safety By the Numbers". It wasn't the first kudos for this film, either. Already in 1969, the movie captured a top prize in the National Safety Council's Safety Film Competition and was awarded a Certificate of Excellence for Creativity in the U.S. Industrial Film Festival.

This film's compelling dramatic plot will hold your attention, even if you're not a pilot. But the essential point of the film is that when a pilot moves up from a single-engine to a twin craft, he should add other skills to his flying repertoire. The film is an instructional device, not an Alfred Hitchcock thriller, but the scenes in the Northwest combined with some pretty fair acting make "Safety by the Numbers" a real good yarn.

In producing the film, FAA kept much of the work right here in the DOT family. Don Houghten, FS-449, acted as technical advisor; Martin Konigmacher, HQ-450 as production supervisor; and Bob Blanchard and his Seattle Area Office staff helped when the crew went on location. Of special mention is the assistance rendered by the Coast Guard's Thirteenth District in Seattle.

Prints of the film will be available soon from the FAA Film Library. Inquires should be addressed to PA-30, Office of Public Affairs at Headquarters.

SST Success Predicted

NEW YORK—The supersonic transport airplane (SST) will prove its critics wrong because of three major factors:

- The SST will meet the anticipated need for transoceanic air travel.
- The Government will gain a return and even a profit on its investment.
- The aircraft will produce a favorable balance of payments abroad.

Those assertions were made by Administrator John H. Shaffer, in a recent speech before the Society of Airline Analysts in New York City.

In addition to the three major factors, production of the SST will create 50,000 new jobs directly and perhaps 150,000 more jobs indirectly as well as produce "technical fallout and industrial derivatives," he said.

Shaffer noted that the Government's investment of $994 million out of the total cost of $1.2 billion will be returned in full by the time the 300th SST is delivered. After that, he predicted, royalties will continue so that by the time the 500th SST is sold "the taxpayers will have realized a 'dividend' of something on the order of a billion dollars."

Of those projected 500 SST sales, 270 will be to foreign carriers, Shaffer said. "The sale of these aircraft and spare parts abroad will produce $11.5 billion in export revenues over a 13-year period," he added.

More People Airborne In 1980

Noting that more people will be traveling internationally by 1980 than are traveling within the U.S. today, Shaffer said that the SST is specifically designed for transoceanic travel and that flights at supersonic speeds will not be permitted over the United States as long as sonic boom problems remain.

"All our market forecasts assume overland flight restrictions on the SST," he added.

Answering criticism of Government involvement in SST development, Shaffer noted that in earlier years commercial aircraft development evolved from military efforts after the risk areas had been encountered and overcome. "That situation dosen't exist with the SST," he added.

In 1953, he recalled, five years before jets entered commercial air travel, the president of a leading U.S. airline told an audience the jet ". . . is inefficient at low altitude and for short or middle-distance operations; it is very expensive to operate; and is not suited for long-range operations due to high fuel consumption and limited weight-carrying capacity."

"Despite such doom-and-gloom predictions, the jet age arrived and with it came a new affluence for aviation and release for the airlines from a dependence on federal subsidy," he said. "The supersonic age is arriving just as certainly and the question, as President Nixon put it, is '. . . whether in the years ahead the people of the world will be flying in American supersonic transports or in the transports of other nations.'"

Though today's civil aviation is enjoying a prosperity, it is not a dollars and cents one, Shaffer said. Heavy investment in new equipment is one reason why airline earnings are down and the rapid addition of new and larger aircraft has caused a temporary surplus of seat miles, he added.

Although more persons are using airlines for personal/business travel or for shipping cargo, airports and airways are not up to satisfying these increasing demands, according to Shaffer.

Expansion of our air traffic control system has fallen far short of matching the growth in air traffic," he also noted. "More than two-thirds of the nation's 3,200 airports are in need of landing area improvements, and 900 more airports are going to be needed before 1980."

Enactment of the Aviation Facilities Expansion Act of 1969, now before the Congress, he said, would enable the nation to meet its needs in the air transportation area. The proposed legislation, he continued, "promises new benefits for all who fly or profit from the civil aviation resources of this country."

Special Achiever

For an outstanding job of reorganizing stocked material and distributing the mail during a manpower shortage, Youth Opportunity Campaign employee Gerald Lewis received a Special Achievement Award from William Siegmund (right), Chief of Eastern Region Administrative Services. Looking on is Lewis' supervisor, Joseph Gyimoty, Chief of Publications and Graphics.

3 Major Computer Contracts Awarded

By Don Byers

WASHINGTON—Three contracts totaling $48,912,479 have been awarded by the FAA to the Federal Systems Division of IBM.

One award, for $38,368,263, is for improved computer and display channel processor systems scheduled for installation in the New York, Cleveland, Chicago and Washington centers. These new, larger-capacity systems will help meet increased demands on the automated system by 1973-1985.

The second contract, for $2,712,450 will provide the agency with operational and testing programs for the new computer display channel processor.

A third contract, for $7,831,766, provides for the purchase of two lower-capicity IBM 9020A computer systems, of the type initially ordered by the agency from IBM for the NAS (National Airspace System) Enroute Stage A automation program. These computers are scheduled for installation at the Minneapolis and Miami centers.

The agency's air route traffic control centers are responsible for the control of aircraft operating under instrument flight rules during the enroute portions of flight between terminal areas. Purchasing for implementation of the NAS Enroute Stage A system began in June 1964, and the system is expected to be fully operational at all 20 centers serving the domestic U.S. by the end of 1973.

The more powerful computer systems provided by the $38.3 million contract can process data faster and provide greater flexibility than those originally purchased. Their higher capacity will be required to handle the traffic expected at the nation's busiest centers. Traffic workload in the centers will be 150 per cent higher by 1980.

Learning How

Operation of a carbon dioxide fire extinguisher is demonstrated by NAFEC fireman Thomas R. Sooy for the benefit of Betty DeMaio and other onlookers during the NAFEC Fire Department's Fire Prevention Week program aimed at giving employees a greater awareness of fire dangers and indoctrination on fire fighting. Fireman George P. Nester is at left and Fire Inspector Fred J. Stunt is second from right.

DIRECT LINE

This is your direct line to the top! Your questions will get answers! Employees are encouraged to discuss questions with supervisors or their local personnel office, but for those who do not have ready access to a personnel office, this column will provide an opportunity to get questions answered. Send your letter to Acting PT-1, Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, D. C., 20590. Ground Rules: • All questions must be signed. • This column should not be used to supplant formal grievance and appeals procedures. • Questions should concern personnel and training policies, programs and procedures, not operational or technical matters. What's your question?

Question: I was enrolled in the Civilian Conservation Corps from November 1933 to August 1938 and was employed in the Work Projects Administration from June 1939 to June 1940. Is there a possibility that any of this time can be added to my present 29 years of Civil Service toward retirement credit?

Answer: FPM Supplement 831-1, Appendix C, Rulings on Creditability of Civilian Service, summarizes rulings on retirement credit for service in specific agencies and organizations. According to these rulings, service as a Civilian Conservation Corps enrollee is not creditable for Civil Service Retirement purposes. On the other hand, service with the Work Projects Administration may or may not be creditable, depending on several factors. A decision can be made only after an examination of your documents by your local personnel office. Check this out with them.

Question: If blizzard conditions and blocked roads prevent me from working my regularly scheduled 2 a.m. to 10 a.m. shift, may my supervisor change my shift the following morning to the 1 p.m. to 9 p.m. shift? Also, if I was unable to work the 1 p.m. to 9 p.m. shift because of illness, should I be charged 8 hours of sick leave for this day?

Answer: In order to answer your question, Direct Line will have to create a hypothetical situation and make some interpretations which would appear to fit the situation you described. Let's say that you were excused from your regularly scheduled 2 a.m. to 10 a.m. shift on Monday morning because of hazardous weather conditions. (See paragraph m(4), 3600.2, Absence and Leave.) Subsequently, it was determined that you would probably be unable to report to work "the following morning" (Tuesday) to work your 2 a.m. to 10 a.m. shift because of the same blizzard conditions. In this case it would be entirely proper for your supervisor to change your tour of duty to the 1 p.m. to 9 p.m. shift on Tuesday (See paragraph 5, 3600.3, Workweek and Hours of Duty). Now, if you were unable to work the 1 p.m. to 9 p.m. shift because of illness, your absence would normally be charged to sick leave. Once again, Direct Line would have to know the exact circumstances surrounding your request. If there are still some questions in your mind, your best bet is to get together with your supervisor and personnel office for a complete discussion of your particular case.

Question: The subject of on-the-job attire for ATC personnel has been discussed several times in "Direct Line," with reference made to 7230.1, AT Facility Operation Handbook. Is the same standard applicable to Airways Facility Branch technicians or is there another handbook covering AFB employees? In either case, who in the Regional Office is to make the determination of proper standards of dress for on-the-job attire?

Answer: Agency Handbook 7230.1, paragraph 301.3 states the general agency policy regarding personal appearance. The policy stated therein, regarding "neat, clean, business-like appearance during working hours" and that "personal grooming and clothing must be appropriate to the conduct of government business," has been part of the AF personnel indoctrination process for more than ten years and is still current. For example, the Maintenance Engineering Branch Training Bulletin OJT-I, published in 1958, stresses the importance of neatness and cleanness as a matter of good judgment, personal pride, and a proper image to the public. The third edition of OJT-I entitled "The Electronic Technician in FAA," published in 1964, reaffirms this basic policy in the section on *Individual Attitudes, Appearances, and Morale*, pages 1-12. Regional and Center Directors have the responsibility to specify, when necessary, certain procedures to achieve the objectives outlined in agency policy. Your supervisor, in turn, should resolve any differences in the interpretation of these procedures through the chain of command.

Prevention

(Continued from Page 1)

Improvement Reports were distributed and prominently displayed in flight service stations, GADOs and the offices of fixed base operators. These reports make it convenient for pilots and others to bring the agency's attention to unsafe conditions or practices on or in the vicinity of airports.

In both regions, state aeronautics commissions have been enlisted in the agency effort and have cooperated wholeheartedly.

Press media have been used extensively in bringing the accident prevention message to the public. The Central Region reports that public service programs and announcements have been carried by more than 150 television and 140 radio programs, reaching an estimated 14,000,000 persons. A similar effort has been made in the Southwest Region.

Long-time, proficient pilots have been enlisted as accident prevention counselors to work with their colleagues in cutting the toll of accidents. In the Central Region, 380 pilots have been designated as accident prevention counselors and more than 3,500 pilots have received individual counselling in safer flying practices. The Southwest Region has named a total of 261 accident prevention counselors.

Merit

(Continued from Page 1)

should contain the names of three to five highly qualified candidates. They may, under some circumstances, include highly qualified applicants from outside the agency, in the absence of highly-qualified FAA employees within the area of consideration.

Special consideration for re-promotion is to be given employees demoted without personal cause, i.e., without misconduct or inefficiency and not at their own request. Details on this are contained in Notice N 3330.26, dated July 10.

Procedures Cover Detailing

There are also new procedures for handling "details"—temporary assignment of employees from their regular positions to other positions — and "temporary promotion": placing employees in higher grade positions for a specified period. Details to higher grade positions for more than 60 days and temporary promotions for more than 120 days must be made under the new merit promotion plan. Details in excess of 30 days must be documented in the employee's official personnel folder.

Information on Promotion

Besides general information contained in the FAA's Merit Promotion Handbook, an employee is entitled to certain information about promotion actions in which he was involved. This includes:

- Whether the employee was considered for promotion, and if so, whether he met minimum qualifications.
- Whether the employee was one of those in the group from which the selection was made.
- Whether any record of production or supervisory appraisal of past performance was used in considering him for promotion.
- Who was selected.
- In what areas, if any, the employee should improve himself to increase future promotion chances.

Discuss Complaints

When an employee thinks he was treated unfairly or a requirement was violated, he is encouraged to discuss his complaint informally with his supervisor or the personnel office.

If he cannot resolve his complaint in this way, he may file a formal complaint in accordance with grievance procedures in agency Handbook 3770.2 *Adverse Actions, Appeals and Grievances*. Not subject to formal agency grievance procedure is failure to be selected from among the group of best-qualified candidates. Employees may often feel they are better qualified than the person chosen. *Final selection, however, is the right of the selecting official.*

Support Required

Cooperation and support of all levels of management is required to make the new Merit Promotion Program work. Supervisors play an especially vital role. They must do their best to make objective appraisals and give fair, impartial consideration to all candidates for promotion. Employees should be willing to acquire the skills and training needed for advancement and must keep the personnel office informed on additional qualifications, education, or experience by submitting updated Personnel Qualification Statements (SF-171) to local personnel offices.

Ham Helps Out in Disaster

CEDAR CITY, Utah—Though separated by several hundred miles from the scene of the recent Hurricane Camille, a central Utah ham radio operator played a key role in providing emergency communications to the hurricane area following the disaster.

Hundreds of vital messages, including top priority military messages which could get through in no other way, were relayed by Ronald Wenstrom of the Cedar City FSS over the ham radio station in his home.

"Through one of the idiosyncrasies of radio, I was able to talk to ham operators in Mississippi who, though only a few miles apart, couldn't communicate with each other," Wenstrom said. "This was due to the skip and bounce of radio signals on certain frequencies, a phenomenon referred to in radio parlance as the 'skip effect.'"

Ham radio operators throughout the country helped to provide virtually the only communication link with the stricken area. Among the radio operators were FAA employees such as Wenstrom who hold amateur radio licenses and operate their own ham stations during off-duty hours.

Hurricane Net Control

From the ham station in his Cedar City, Utah home FSS specialist Ron Wenstrom relayed hundreds of emergency messages concerning the recent hurricane disaster in the southeastern states.

Retirement

(Continued from Page 1)

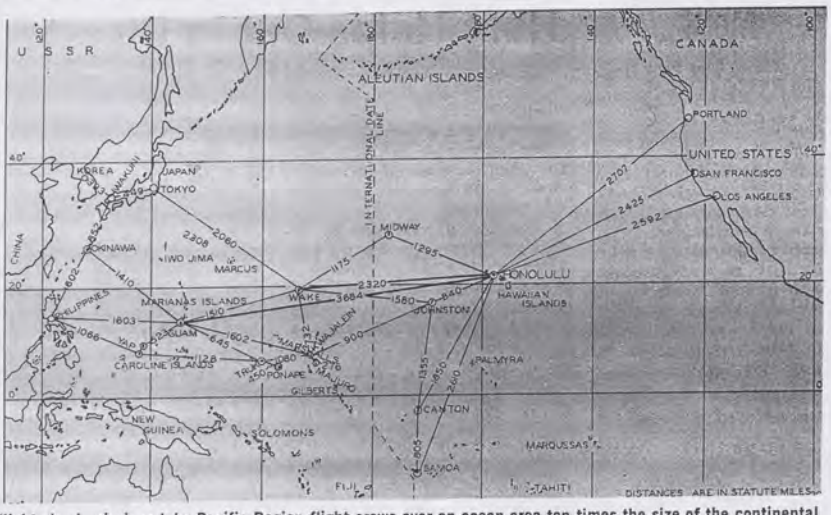
per cent of the deceased employee's "high three" year average salary. Previously the widows' and dependent widowers' annuity ranged as low as four per cent of the deceased employee's "high five" average salary.

- A Federal employee's survivors will now be eligible for survivor benefits on the basis of only 18 months of civilian service. Previously, survivors of an employee who died before completing five years of civilian service were entitled only to a lump-sum return of retirement contributions.
- Basic child survivor benefits have been increased from $50 per month to $75 per month if one parent is alive, and from $60 per month to $90 per month if neither parent is living. The $75 and $90 figures will also be subject to cost-of-living annuity increases such as the Nov. 1 raise of five per cent. These new amounts will go to each child in the family, not to exceed three children. In families with more than three children, the total amount will be divided accordingly.

Under the new law, computation rates will be: 1½ per cent of your "high three" for the first five years of service, 1¾ per cent of your "high three" for the next five years of service and two per cent of your "high three" for all years over ten The present age requirements for retirement (30 years of service at age 55) have not been changed by the new legislation.

AT's Hawaiian Eyes

During a recent visit to the 50th State to discuss transportation and mass transit needs, DOT Secretary John A. Volpe visited Honolulu ARTCC in Diamond Head crater. Here he bids a warm "Aloha" to radar controller James Miura while Assistant Center Chief Roger Moser (in coat) and Frank Trigilio, ATCS, accompany him on tour.



Flight check missions take Pacific Region flight crews over an ocean area ten times the size of the continental U.S. Sea survival training is a mandatory safety measure for the Flight Inspection Group.

Leaping into the Pacific from a pier substituting for a downed plane's wing, Kenneth B. Hatton of the Honolulu FIG group exhibits left-foot-first technique during survival exercises.

Dunked Honolulu FIG crew members (from left), Herbert Y. Aiwohi, Cornell B. Bostwick and Norman A. Lahti head for the inflatable raft used during simulated ditching at sea.

If They Ever Have to Ditch They're . . .

TRAINED TO SURVIVE

By George Miyachi

Personnel of the Honolulu Flight Inspection Group (FIG) see "a lot of water" in carrying out their flight check missions: their oceanic "territory" encompasses 35,000,000 square miles—more than ten times the area of the continental United States.

Sometimes, FAA flight crews are aloft over this seemingly endless watery realm for as much as nine hours at one stretch. An average trip—the routine KC-135 jaunt from Honolulu to Wake, for example, takes five hours. Below, except for occasional dots of land, there's just water, reaching to the horizon and beyond, hour after hour.

Although an FAA aircraft has never been forced to ditch in this lonely section of the globe, every pilot realizes this is a possibility, however remote.

To be fully prepared for coping with such an eventuality, unlikely though it is, all FIG personnel are required to undergo sea survival training at least once every two years.

The training is provided for agency personnel by Air Force survival specialists from the 61st Military Airlift Wing's ground training office. Recently, all 18 FAA flight crew members splashed into salt water off Hickam Air Force Base to simulate a ditching at sea. They were given practical lessons on the use of life jackets, life rafts and signalling devices.

For several hours, they experienced conditions similar to those likely to be encountered following a ditching at sea.

"Although none of us particularly relished the dunking, all of us realize that it could mean the difference between life and death," said Sherman Daugherty, FIG Chief. "We took the exercise very seriously even though we don't expect to have to make use of it."

Daugherty and his colleagues feel the tests provide invaluable survival knowledge representing an extra margin of safety during their long over-water trips to such places as Singapore, the Philippines, Samoa, Bali, Japan and Korea.

FIG crew members participating in the recent survival test were: Sherman Daugherty, Ken Gordon, Robert Luebbe, Norman Alhti, Harold Anderson, Wesley Dunning, John Gerell, Alex Wagner, Marion Davis, George Hiatt, Robert Luxton, George Murray, Cornell Bostwick, Herbert Aiwohi, Ellsworth Ching, Walter Wasierski, Kenneth Hatton and Richard Ishii.

Shooting a flare skyward during Very pistol drill at Hickam AFB in Hawaii, George W. Hiatt was among the 18 Honolulu FIG crew members who recently participated in tests which could save lives should an FAA aircraft ever have to ditch in the Pacific.

Climbing onto pier on completion of sea survival refresher training, Herbert Y. Aiwohi of Honolulu FIG is soaked, but confident he can handle an emergency while flying over the vast Pacific.

"Always room for a few more," is the spirit as Honolulu FIG crew members scramble into giant raft of the type carried by aircraft on long overwater flights. Refresher training is given FAA flight crews periodically with cooperation of Air Force

U.S. Air Force Photos by M/Sgt. Sam Polson

FAA PLANS FOR THE FUTURE

Because of widespread interest in the scope of system improvements planned by the agency, or already in progress, the two-page article, "FAA Plans for the Future," published in the October 27, 1969 issue of "FAA Horizons," is being reproduced here in its entirety.

Developments in radar such as the display shown here and console on opposite page play a major role in the agency's planning for the future.

Airport instrument landing systems (ILS) and other airport f

Agency planners have worked out detailed plans to meet the challenge of rapid aviation growth forecast for the next decade and beyond.

Under the National Aviation System Plan, a tentative, prospective course of action has been set forth to keep pace with increasing aviation requirements and emerging developments in aviation technology.

For the next ten year period, FAA planners have itemized many system improvements which would be provided from the proposed appropriations for facilities and equipment, and research and development at an annual level of $250 million for F&E and $60 million for R&D.

En route and terminal automation, expanded radar service and coverage, increased federal assistance to airports, improved navaids and landing aids and satellite technology investigations are on the planning boards to provide even greater safety, increase traffic handling capability and promote better and faster service to the flying public.

In the en route traffic control area, the plan provides for increased automation (NAS Stage A), long-range radar system expansion and modernization and improved air-ground communications capability to cope with the aviation industry's "population explosion."

En route Automation—By 1972, initial operating capability will be provided at the 20 centers in the contiguous United States. Implementation of the program will be in two steps. First, automated flight data processing capability will be provided. By 1974, a full Stage A environment is planned with additional computer capability, digitized data from radars and computer generated displays.

Long Range Radars—It is planned to expand the present system of 84 long range radars to a total of 112 systems in the United States. The expanded system would provide full radar surveillance of the continental U.S. Today's system provides approximately 90 per cent coverage at 24,000 feet and above and approximately 60 per cent for all IFR air traffic at lower altitudes. Planned expansion will provide coverage for an additional 30 per cent of the IFR traffic at the lower altitudes. Commencing in 1973, the long-range radar system would also be improved by replacing 89 earlier type systems with advanced state-of-the-art equipment.

Positive Control Airspace—It is planned to progressively lower altitude positive control area (APC) to 14,500 feet with the base adjusted to 2,000 feet above ground level over mountainous terrain. In the Golden Triangle—northeastern U.S.—and in the area on the West Coast between Los Angeles and San Francisco, the base of positive control area would be further lowered, to 10,000 feet. Below the base of positive control areas, FAA plans to establish positive control airways. Positive control areas would be expanded above the present upper limit of 60,000 feet to 100,000 feet. NAS Stage A implementation will provide the necessary handling capacity

ARTC Center Structures, Sectors and Communications—It is planned to expand buildings to house the new computers and other automation equipment necessary for Stage A. Electrical systems will be made more reliable and environmental conditions will be improved. Planning calls for an increase from the present 550 center sectors to more than 1,200 by 1980. Center air-ground communication channels will increase from the present 1975 to almost 3,000 during the plan period.

Collision Avoidance Systems (CAS)—Although the final quantity and priority of the implementation of CAS ground stations has not been established, 65 CAS ground stations are planned initially.

In the area of major terminal systems, new towers, improved airport surveillance radar and beacon systems and terminal automation are some of the things the agency looks forward to in the next decade.

Airport Traffic Control Towers (ATCT)—Under the plan, 140 new towers would be established in addition to the towers currently in existence and programmed, for a total of 521 through 1980. Many locations will receive tower service at an earlier date than originally planned through the use of a modular design prefabricated unit. In the same time frame, 80 towers would be relocated and 90 towers would be improved.

Airport Surveillance Radar and Beacon System (ASR)—For the next decade, 121 new ASR systems are planned for addition to the existing 119 operational and 40 programmed ASRs. This will provide 278 ASRs through 1980. The plan also includes relocation of 42 ASR and beacon systems in the plan period, with 22 to take place in the first five years. Obsolete equipment would be replaced on a gradual, systematic basis at higher density locations with the refurbished units slated for installation at less-active locations. Add to this picture 88 bright radar displays currently on order, 66 additional programmed and 202 more planned through 1980 and the outlook is for a "brighter" future.

Tower Communications—It is planned to provide 72 additional remote air-ground transmitter and receiver sites to handle increased growth through 1980. Automatic Terminal Information Service (ATIS) will grow from the present 76 to 171.

Terminal Automation—A contract for 64 units of the Automated Radar Terminal System (ARTS III) was awarded by the FAA earlier this year. These systems are planned for 62 large and medium hub facilities and one unit each for training and research and development purposes. Plans call for an additional 52 ARTS III systems, for a total of 116 systems. A scaled-down version of automated terminal radar (ARTS II) for 113 units is planned before the end of FY 1974. Add-ons to ARTS III, such as multiple radar processing and digital display techniques, are receiving R&D effort.

Control Zones for Instrument Approaches—Today

Research and development outlays make possible advances such as signal improvements in the ILS, permitting reduction in landing restrictions imposed by low ceilings and limited visibility.

there are 761 control zones and approximately 426 more locations that have approved instrument approach procedures but no control zone protection. Designation of control zones for all instrument approaches will require that air-ground communications be established at a unit cost of approximately $10,000 per location. In addition to the present 426 locations, it is estimated that 520 more will qualify in the next decade.

Miscellaneous Terminal Improvements—Improvement of radar displays and expansion of radar services for all radar locations are covered in the plan. Improved radar displays, basically the ASR-4, will be installed at 172 locations. Expanded radar service is provided or programmed at 55 locations and scheduled for an additional 223 locations to cover all radar locations.

Other improvements would include: Presently non-operational airport surface detection equipment (ASDE) to be reactivated and modified to accommodate bright displays, development of modernized ASDE and more complete guidance and control systems, full implementation of standby power at continuous power airports, retrofit of obsolete beacon antenna systems with improved versions, display of severe weather information on radar displays, pur-

...ther airport facilities are included in the agency's ten-year plan.

FAA PLANS FOR THE FUTURE

chase and installation of digital weather displays for all required elements in all ATC towers, installation of automatic weather sensing and transmission devices, addition of more display systems at selected towers to handle changing and increasing traffic demand, such as helicopter operations, STOL operations and ground control.

Flight Service Stations (FSS)—Today there are 335 manned flight service stations and 13 unmanned facilities. Although the primary mission of FSSs changed radically nearly ten years ago, the location, physical plant and equipment of most stations have not. No major changes other than systems improvement are planned for the international system or for the FSS system in Alaska or Hawaii. The FSS system in the conterminous states (298 manned and 13 unmanned facilities), however, requires major reconfiguration. It is planned to provide a total of 971 facilities, consisting of 155 full-time manned, 416 part-time manned and 400 unmanned facilities.

Both short range and long range en route navigation aids are planned by the agency.

Short Distance En Route Navigation Aids—Presently, the FAA operates 888 very high frequency omnirange (VOR) stations, of which approximately 561 are equipped with tactical air navigation (VORTAC) equipment. Plans call for 166 more VORs to be converted to VORTAC with distance measuring (DME) equipment planned for 155 more. Increased use will be made of Area Navigation. For this purpose, 85 precision VORs (PVORs) will be provided in high density terminal areas and 120 en route VORs will be upgraded by doppler modifications.

Long Distance Navigational Aids—The FAA is participating with other government agencies and foreign governments in an R&D program to analyze long distance navaid requirements for current and future operations.

In the terminal navigation area, the agency is pursuing programs in instrument landing systems (ILS), terminal VHF Omnirange (TVOR), distance measuring equipment, V/STOL approach and landing, area navigation, visual aids, visibility measuring equipment and future concepts and systems for terminal navigation.

Instrument Landing System (ILS)—There are approximately 280 ILSs in service. An additional 123 ILSs are programmed through FY 1970 and a total of 1,355 ILSs are planned through the ten-year period. The plan proposes that all post-1972 ILS requirements be met by a replacement (microwave) ILS.

Terminal VHF Omnirange (TVOR)—There are 48 TVORs in operation. The plan includes 88 additional TVORs to provide approach guidance to those airports which are not expected to qualify for ILS.

Distance Measuring Equipment (DME)—A new-type DME, to be co-located with ILS and a precision DME for Category III, is under development. The plan includes establishment of 532 additional terminal DMEs—399 co-located with ILS and 146 with TVORs.

V/STOL Approach and Landing—Facilities are planned for major airport terminals and connecting metropolitan areas with the major effort being one of R&D for the near future.

Visual Landing Aids—An R&D effort will be conducted to provide low-cost visual aids, for in-service improvements, to develop new aids for heliports and to develop improved techniques for marking and lighting obstructions, etc. Under the plan, 533 additional approach light systems of various approved configurations are planned.

Visibility Measuring Equipment—Runway visibility range (RVR) equipment will be installed where warranted on each ILS-equipped runway served by a control tower to provide continuous information on visibility conditions for the runway being used in IFR operations. The R&D effort will be devoted to develop lower cost and extended range visibility measuring equipment and calibration devices, to develop Slant Range Visibility (SRV) measuring equipment for Category II to Category IIIB weather environment; and increasing system reliability of RVR equipment.

Mobile Facilities—The present inventory of 24 mobile facilities—ASR, ATCT, ILS, power units—will be augmented by an additional 135 units in a variety representing nearly all permanent facilities.

In the communications area, voice, data and future communications are some of the programs being considered by planners.

Air-Ground Communications—Experiments will be conducted to test the discrete aircraft frequency concept; air-ground, in-service improvements are planned.

Voice Communications for centers and 18 systems for the higher density terminal locations are in the plan.

Voice Communications—Included in the plan are 20 electronic voice switching systems (EVS) for centers and 18 systems for the higher density terminal locations. Additionally, 228 five-channel voice recorder units and 55 new 150-channel recorders will be in the terminal area. Initially, 108 five-channel recorders will be provided to pick up a backlog, but then this item will become a part of the tower establishment item.

Data Communications—Data transmission systems, low-cost broadband radar remoting systems and in-service improvements are programmed.

Future Communications—R&D funds would be used to participate with industry and NASA in the evaluation of satellites as a tool in air traffic control and to develop automatic means of interchanging information between aircraft and automated ground systems.

NAFEC Facilities—The plan provides for a moderate expansion and improvement program to provide the necessary facilities for the agency's experimental program to support the R&D effort.

Airport Development Program—The proposed airport development program consists of both an expanded planning effort and provision of additional Federal aid for construction and improvement of airports. Under provisions of the Airport/Airways legislation now pending before the Congress, Federal aid for airport development will be increased from a $75 million annual authorization to $180 million in FY 1970, $220 million in FY 1971, with a continued expansion leading to $2.5 billion in the next ten years. Together with matching grants on a 50-50 basis with state and local governments, this strongly increased program will permit financing of $5 billion in new and expanded airfield facilities.

Planning Grant Program—It is planned to establish an airport planning grant program at an annual level of $10 million. These grants could be made to areawide planning agencies for airport system planning and also to any public agency for planning the development of a specific airport. Airport system planning grants would be for the purpose of encouraging the determination of airport needs on an areawide basis in conjunction with area planning.

State Agency Program—This would be a grant program to state aviation agencies at an annual level of $5 million for assisting those agencies in carrying out state programs of airport planning and development.


FEDERAL AVIATION
ADMINISTRATION