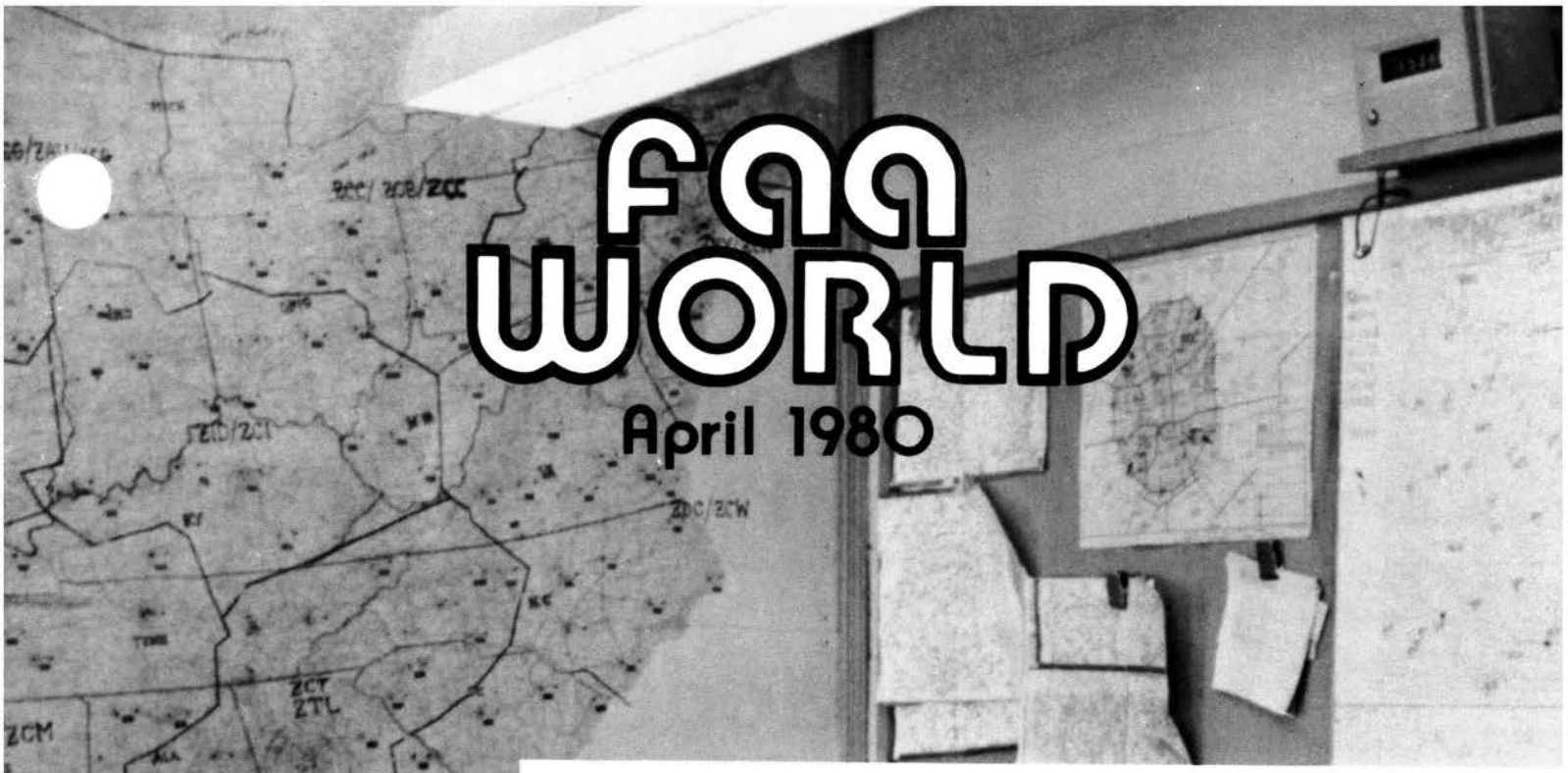
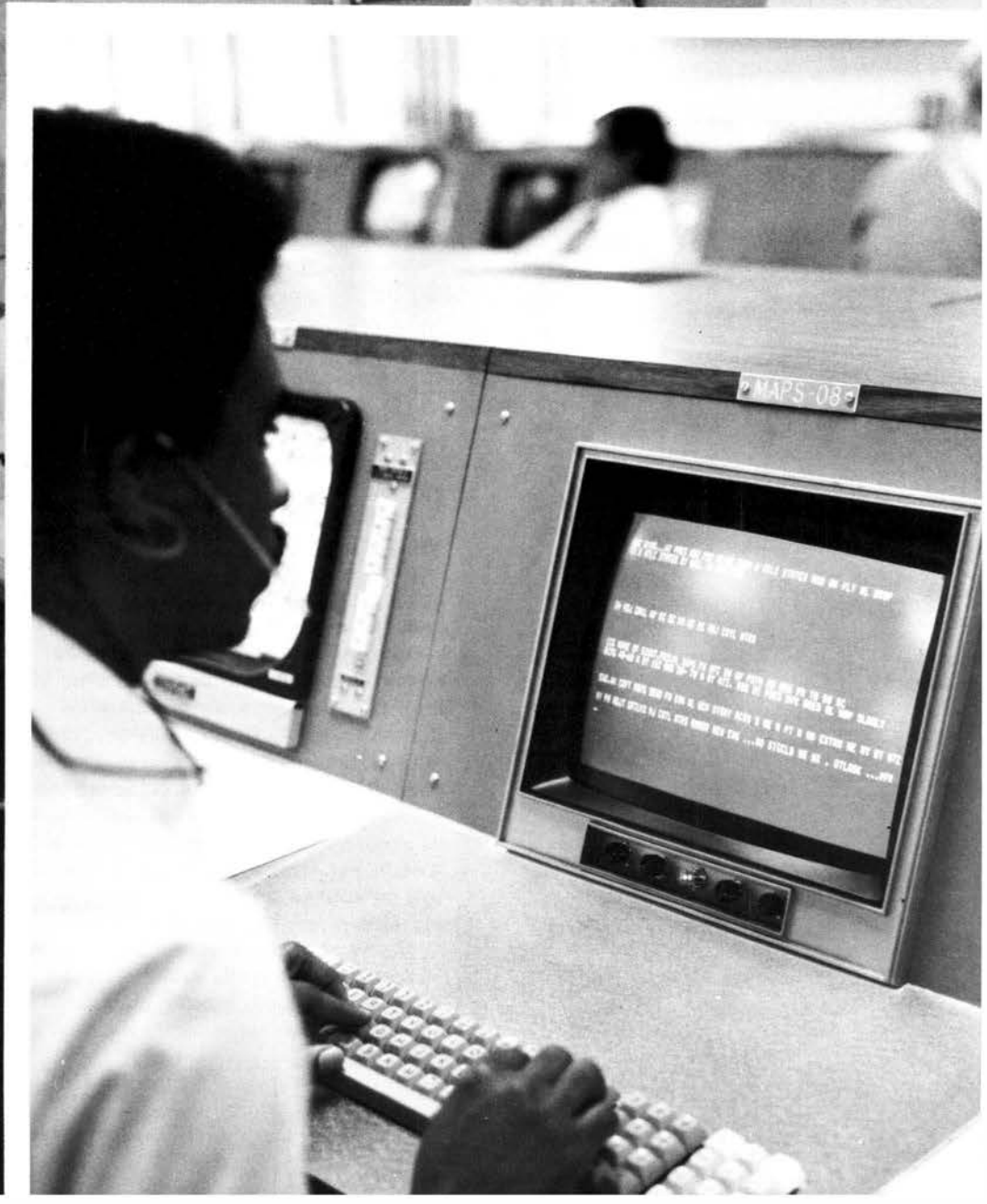
FAA WORLD

April 1980





FSS Modernization on the Move

FAA WORLD

APRIL 1980
Volume 10 Number 4

Bringing the FSS System Into the Modern World

By Gerald E. Lavey

When FAA recently announced its latest plans for modernizing the agency's aging flight service stations, some veteran FAAers must have greeted the news with a ho-hum, feeling they've heard that tune before. After all, FAA efforts to modernize its flight service stations aren't exactly modern. The agency has been at it, off and on, for the past 16 years.

But, FAA has gotten smart from its earlier attempts, says Bob Bell, chief of the FSS Operations and Procedures Branch in the Air Traffic Service. "This time around we have a good chance of making it. I'm more optimistic about this FSS Modernization Program than any of its predecessors, and I've seen them all. A couple of years ago, I thought I'd never see an automated FSS before retirement, but now I think I will."

The key to that success, says Bell, is "to prove to Congress and the general aviation community that an automated FSS network can provide better quality service."

Bell agrees that trying to close FSSs was unquestionably the major stumbling block to earlier efforts.

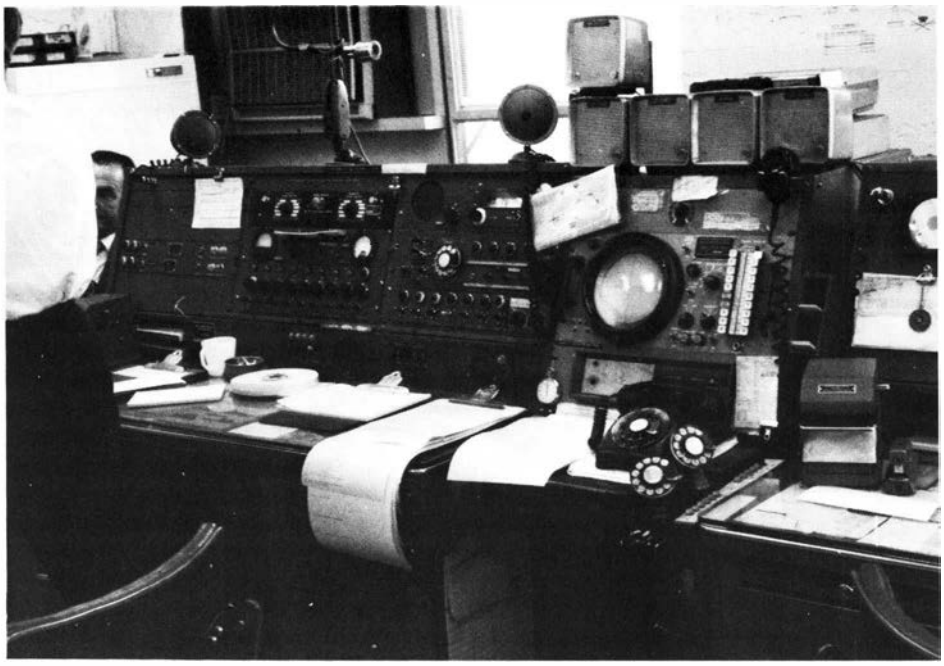
The first such attempt was made in early 1964 when FAA, under Administrator Najeeb Halaby, announced plan to reduce the number of full-time domestic FSSs from 297 to 150. These "hardcore" stations were to be equipped with the latest communications equipment and supported by a number of smaller satellite facilities—some manned, others self-service—which would remain open only on a part-time basis.

According to Halaby, this streamlined network would require 500-600 fewer specialists and save the taxpayer about $3 million annually—without, he added, "any encroachment on aviation services or safety standards."

However, when Halaby went up to

e first AWANS commissioned at the Atlanta FSS in 1975 has elements that will be incorporated in modernization program. Weather graphics are displayed on the array of CRT monitors, and the .ecialist can call up that material in addition to alphanumeric weather and other aeronautical information at his own position's cathode-ray-tube display.

Before AWANS and when the AWANS was down, the Atlanta preflight briefers had to turn back to paper—reams of Teletype reports and facsimile maps, which slowed the briefings.



More typical of the old-style flight service sation slated for improvement is this one at Martinsburg, W. Va., the consoles cluttered and garnished with Teletype paper.

Capitol Hill to present the plan to Congress, he caught a lot of political flak. The proposal was vigorously opposed by private pilots, general-aviation organizations and some local communities. More importantly, some Congressmen, particularly influential ones whose districts were slated to lose FSSs and the revenue they generated, weren't too keen on the idea either.

So, ultimately, Congress slapped a year's moratorium on the closing of any FSS, and told FAA that any changes to the FSS system would be done only when "it could be clearly proved that service and safety would not be reduced."

Later, to make sure that point was perfectly clear, a rider was attached to the FY 1966 appropriations bill prohibiting FAA from closing any station without first consulting Congress.

While those Congressional actions didn't scuttle agency plans for FSS modernization, they certainly relegated them to the back burner. However, in 1969, a group of FSS personnel from headquarters and two regional offices got together to discuss what could be done at least to promote automation. Their efforts led in 1971 to the formation of an agency committee, and later an OST/FAA task force was formed to study the FSS situation from a broader perspective.

In 1973, the task force issued a five-volume report calling for 30 FSS hubs equipped with the latest automated communications gear. The report also recommended 3,500 pilot self-briefing terminals at 2,500 airports to cut down on the number of calls to FSSs for personal briefings on routine information.

The recommendations on consolidation of stations into 30 hubs meant, of course, that some stations would have to be closed. And that provoked the same kind of opposition that Administrator Halaby had faced nine years earlier. Congress, therefore, reacted by repeating its earlier prohibition on FSS closings and added that FAA couldn't even reduce the number of hours that FSS facilities stayed open for business without specific, case-by-case Congressional approval.

However, Congress did allow FAA to test consolidation on a limited scale, and the Washington FSS, which was to be relocated from its quarters at National Airport to the Washington ARTCC at Leesburg, Va., was picked as the testbed. Congress okayed the closing of five FSSs for the experiment, but ultimately only the Richmond and Charlottesville, Va., FSSs were consolidated with the automated Washington FSS when it opened in mid-1977.

Yet, while that concession by Congress was encouraging, it was severely limited and gave no indication that Congress or the aviation community was ready to embrace the notion of widespread consolidation of facilities.

So, when the revised OST/FAA Master Plan for FSS Modernization was issued in early 1978, it highlighted the need for automating the top 43 FSSs and providing pilots direct access to the system, but it skirted the controversial issue of consolidation, saying it was a matter that could be addressed at a later date.

However, Administrator Bond, in his revisions to the Master Plan, took the issue head on. He said, in effect, that FAA would not even think about taking any steps towards consolidation until the automated facilities have demonstrated they can provide "a level of service at least equal to or superior to the service available at the nonautomated locations."

He further revised the 1978 Plan by increasing the number of facilities slated for automation from 43 to 61 and scrapped the idea of collocating any of the FSSs with air route traffic control centers.

He took the latter move for a number of reasons. First, the Washington FSS experiment has shown no significant operational or cost advantages to collocation. He also didn't like the idea of isolating flight service stations from their principal users, the general aviation pilot.

Bob Bell strongly endorses that move.

The Changing Technology Over 60 Years

Flight service stations began as a string of Air Mail Radio Stations at key locations throughout the U.S. to provide weather data and other assistance to pilots who flew the transcontinental mail.

After successful experiments with air mail routes linking Washington, Philadelphia and New York and a combination rail/air mail route between New York and Chicago, the Post Office started a transcontinental air route between New York and San Francisco in 1920. On August 20 of that year, it authorized the establishment of Air Mail Radio Stations at key locations. By November 1, 10 of the 17 stations to be established were in operation, and mail was being carried from coast to coast by air.

But the trip was long and difficult and included frequent stops at such places as New Brunswick, N.J.; Bellefonte, Pa.; Cleveland and Bryan, Ohio; Chicago; Iowa City; and Elko and Reno, Nev.

These early stations generally were staffed by a one operator who worked seven days a week and stood split shifts to accommodate the dawn departure and dusk arrival schedule of the mail planes. The typical operator rose at 4:30 a.m. and began preparations for the morning flight by radioing checkpoints along the route for weather reports. At the same time, he would report his local conditions to other callers up and down the line.

Radio telegraphy was used exculsively, being cheaper than leased wire telegraphy and more dependable than voice radio. Except for experimental work, no radio communications in the early Twenties were air to ground, and radio navigation did not exist.

The radiotelegraph was usually a two-kilowatt spark transmitter through which messages were sent by code at a rate of about 30 words a minute, strictly station-to-station. It was normally housed in a small structure some distance from the airstrip so that the station's high antenna would not interfere with low-flying aircraft.

The station operator made his own weather observations and forecasts, including estimated cloud ceiling, temperature, visibility, windspeed and direction and field conditions. Additional nearby weather observations were phoned in by part-time weather observers, and pilots would pass on their inflight weather observations after landing. The trouble was that the pilot had no information about storms adjacent to his flight path, and, once airborne, he could not learn of changing weather conditions.

By 8:30 in the morning, the station operator would usually have completed all his calls and seen his pilot off the ground, shooing stray cattle off the airstrip, if necessary, helping sort and stow the mail and looking after supplies. He was then free until about 4:30 in the afternoon, when he stood a second four-hour shift, servicing the arriving daylight flight and the departing night flight.

If a landing in darkness or poor visibility was anticipated, he prepared to light the airfield with the best means at hand—automobile headlights, oil drums, flares, etc. Snowdrifts often had to be cleared from the runway, and runway edges frequently needed delineation in the form of lighted markers.

If field conditions were too poor for a safe landing, the station operator had to warn the pilot, using pre-arranged signals.

On July 1, 1927, after seven years of regular Air Mail Service, the Post Office turned over the ground-support facilities to the Department of Commerce. At the time of transfer, more than two-thirds of the 2,665-mile Transcontinental Airway was lighted with 101 electric beacons and 417 acetylene gas beacons. Ground personnel in the system consisted of 45 radio operators, 14 maintenance mechanics and 84 caretakers. The entire operation was administered by the Lighthouse Service of the Department of Commerce.

Lighting the airways and extending their radio capability had a beneficial effect on flight safety from the very beginning. The 1919 fatality ratio of one pilot killed for every 114,324 miles of Air Mail flight was reduced to one fatality per 2.5 million miles by 1926.

Development of tools for the airways system was rapid in the late 1920s.

The first radiotelephone system for ground-to-air two-way communications was installed in 1927 at Bellefonte, Pa., and the next year, the Department of Commerce began installing two-kilowatt radiotelephone and radiotelegraph transmitters in the airway stations. Concurrently, airborne receivers were designed.

Again in 1928, the first leased teletypewriter circuits were introduced as a weather data collecting system. In 1932, the Aeronautics Branch began purchasing its own. Some 700 miles of land lines went into operation initially on the New York-Chicago route. In 1931, the Weather Bureau began distributing weather maps to air terminals six times a day over these circuits, along with hourly local weather observation reports.

By 1928, the four-course radio range was developed—a breakthrough that remained the standard civil air navigation aid until after World War II. It was operated by the Airway Radio Stations.

It consisted of a 1,500-watt tone-modulated transmitter with a motor generator, goniometer, loop-tuning equipment, an automatic keying device and an antenna of two single-wire vertical loops strung on five masts—four in a square and one in the middle. Placed at right angles to each other, the loops generated a pair of overlapping figure-eight patterns. One was keyed with the Morse letter "A" (dot-dash) and the other with an "N" (dash-dot). Where they overlapped, the signal received by an aircraft was a steady tone, indicating that the plane was on course.

These aural beacons had a range of 100 miles and were spaced 200 miles apart. It gave the pilot his course line but not his position on that course, except when he was right over the station.

To solve that, the Aeronautics Branch came up with the radio marker beacon that emitted a characteristic signal that could be identified by the pilot. This nondirectional device was later replaced with a directional one that could function as a localizer range for intermediate airfields along the airways.

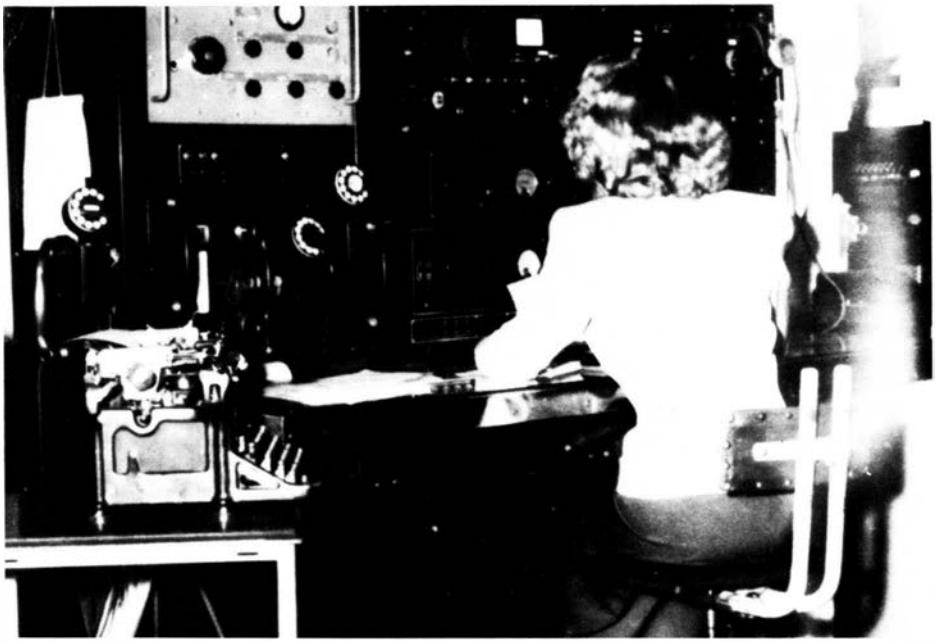
Through the succeeding years, much of the improvement in Airway Radio Station/Airway Communication Station/Flight Service Station services has been in the realm of refinements in electronic circuitry—moving into very high frequency (VHF) equipment to reduce weather and terrain interference, converting radio communications to simultaneous operation that permitted pilots to receive radio-navigation and radiotelephone signals at the same time, changing over to more-reliable Doppler systems and solid-state circuitry.

A big advance for the stations was the introduction of Adcock Direction Finding systems in the late 1940s and early 1950s, which enabled station operators to guide lost aircraft by means of signals from the aircraft radio.

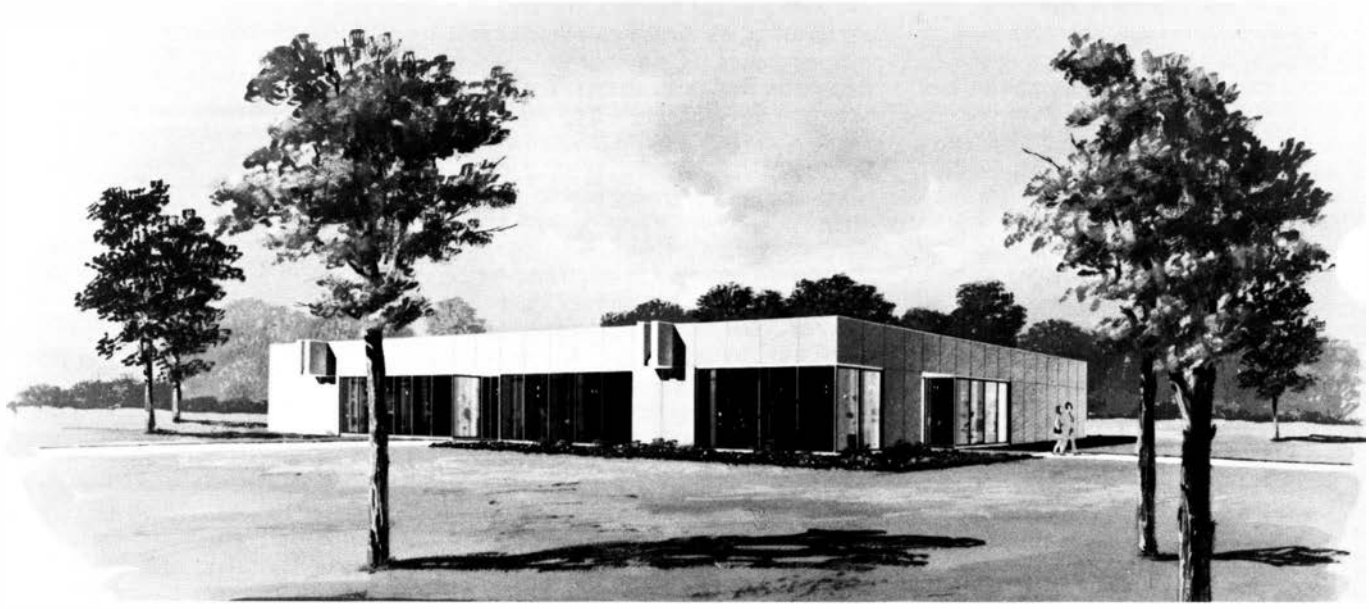
In 1938, the Airway Radio Station was re-designated "Airway Communication Station" under the newly created Civil Aeronautics Authority (later the Civil Aeronautics Administration of the Department of Commerce). By this time, thanks to air-to-ground radio, station operators could actively participate in the control of a flight in progress, giving the latest weather reports and helping lost pilots find their bearings.

The term "flight service station" came into use with the creation of the Federal Aviation Agency in 1958 and has continued to the present day.

Today, the flight service station network covers all of the 50 states and reaches out to Pago Pago, Samoa, and Guam in the Pacific, to Panama and to the Caribbean. There are 317 stations, including six international stations, staffed by about 5,000 flight service station specialists. All stations are closely linked to FAA's nationwide air traffic control system by radio and Teletype.



A forerunner of the flight service station, the Airway Communication Station hired women operators during World War II.



Artist's conception of the new building that will be erected for 59 of the automated FSSs.

He said: "There's a saying that flight service stations are the front door to the FAA. Most student pilots, for example, get their first exposure to FAA through flight service stations, and it's our chance to show them we're there to serve them."

"Besides," he added, "it's important for FSS specialists to keep up with aircraft and to be familiar with the airports and the other facilities in their area. It's hard to do that when you're stuck out in the boondocks."

According to Paul Rosenwald, who has been involved in the agency's FSS modernization efforts since 1969 and now is the associate manager of the FSS Modernization Program for the Air Traffic Service in Washington headquarters, another drawback to collocation is the attitude of some flight service specialists toward controllers.

An *AOPA Pilot* magazine article last year, in fact, said that FSS specialists and controllers at Leesburg are about as compatible as "oil and water."

Rosenwald, who also was a flight service specialist for eight years at Brookville, Pa., and Dayton, Ohio, insists it's not that bad, but conceded that when some GS-11 journeymen specialists start looking at the benefits enjoyed by the GS-14 journeymen controllers, they can start feeling like they're second-class citizens."

Under Bond's plan, the 61 automated FSSs will be located at airports in 45 states and Puerto Rico. In fact, 32 are at the leading state general-aviation airports, and 27 are at satellite airports that have been earmarked by FAA for substantial upgrading to attract general aviation pilots away from the larger, crowded airports primarily serving air carriers. Forty-three of the sites already have flight service stations.

If the Washington FSS experiment has helped steer FAA away from collocation, it also has demonstrated the benefits of consolidation, including increased productivity, better use of staff, and a net decrease in overhead costs.

Rosenwald notes, for instance, that before consolidation, the average Richmond specialist was handling fewer than 10 briefings and flight plans per hour in VFR weather, the average Charlottesville specialist 3.6 and their Washington counterpart 14.5.

A study by FAA after consolidation, by comparison, showed that the average number of briefings and flight plans handled jumped to 14.5 per hour under much worse weather conditions.

Most importantly, however, the automated Washington, Atlanta and Indianapolis FSSs have clearly demonstrated that automation works and is the key to the FSS network of the future. It relieves specialists of routine, time-consuming tasks. With automation, for instance, they don't have to riffle rough reams of paper looking for information to brief pilots. And specialists will not be tied up in clerical tasks, such as monitoring the teletypewriters for reports, then tearing them off and making copies for all the specialists in the facility.

Gilbert Shade, a flight service specialist at Martinsburg, W.Va., said the Teletype request-reply circuit his facility shares with eight or nine other FSSs often is a major source of frustration." When he needs information from the computer in Kansas City, he said, "the circuit may be tied up and we can't get to it."

Also, he said, when two FSSs try to get information simultaneously, one may override the other or both may get wiped out. Or, if you make a mistake in requesting the data, you'll get the wrong data, and there's nothing you can do to stop it. You get the whole nine yards at 100 words a minute. And, again, all you can do is wait and start all over.

"I estimate that about two-to-three hours a day are wasted because of problems with the Teletype circuit,"said Shade.

"In the meantime, while you're trying to get the data, pilots may be waiting impatiently on the phone. Often, they'll tell you they can't wait; they'll take off and try to get a briefing en route. That's bad, because it gets pilots into bad habits and could get them into real trouble."

Those slow-speed teletypewriters are on their way out at the 150 busiest FSSs as an interim measure to upgrade those facilities. They are being replaced by computerized display systems on lease from Western Union, and these will stay in use for the next three years.

Without automation, FAA estimates the current labor-intensive network of 292 domestic flight service stations will require 11,500 flight service specialists and an annual cost of $320 million by 1995 to keep pace with projected traffic. By comparison, the automated facilities, staffed by 4,700 specialists (roughly the same number as today) could handle that traffic at less than half that cost.

So, FAA is moving ahead with automation. In January, the agency awarded competitive contracts totalling $12.8 million to three companies to design computer systems for the 61 new automated facilities.

In about 15 months, one of those contractors will be picked to produce a series of interconnected computers to cover the entire network. The computers will be installed at the agency's air route traffic control centers, where there are maintenance and other support services, such as computer expertise and emergency power sources. The computer systems will be linked by leased land lines to the flight service stations.

What will the new facilities look like when fully automated? Says Rosenwald: "They'll have the best features of the systems at Atlanta, Indianapolis and Leesburg, plus a lot more."

Of the three, the prototype FSS at Atlanta has been in operation the longest. Called AWANS, for Aviation Weather and NOTAM System, it was installed in 1975 and commissioned after a year's evaluation. Later, another AWANS was installed at the Indianapolis FSS.

AWANS, Rosenwald explained, is a computer-based system that collects and stores alphanumeric and graphic weather information and other aeronautical data, such as Notices to Airmen (NOTAMs), which are reports on the status of equipment and facilities in the national aviation system.

Alphanumeric weather data will

The prototype of an interim modernization now being installed at 150 busy FSSs is at the Chicago FSS. It consists of a CRT display and input device, a small computer updated by the Weather Message Switching Center in Kansas City and a backroom bank of television cameras that transmits weather facsimile maps to the CRTs at specialists' positions.

Part of the FSS automation and modernization program will be pilot self-briefing terminals remoted from FSSs to fixed-base operators, of which this is one possible configuration.

An El Paso, Tex., FSS Enroute Flight Advisory Service (EFAS) specialist checks Teletyped weather reports. Forty-four FSSs have such positions, which are expected to carry over into tomorrow's automated system for disseminating in-flight weather information.

include, for example, surface observations, winds aloft, terminal and area forecasts and any significant meteorological condition (SIGMET), such as extreme turbulence or heavy icing that may create a particular hazard to flight. Graphic data include weather radar images and weather charts received from the National Weather Service.

A NOTAM, on the other hand, may advise that an instrument landing system is temporarily out of service or that a runway has been closed for resurfacing.

All this information comes from the FAA's National Communications Switching Center in Kansas City, which distributes the information it gets from FAA facilities, the National Weather Service and other sources across the country.

At the Atlanta and Indianapolis FSSs, flight service specialists can call up from the computer any of that data by typing the correct codes on their keyboards and have it presented in an organized briefing format on TV-like displays in front of them.

Jay Fincannon, a flight service specialist at the Atlanta FSS for the past 12 years who has worked with both the manual FSS system and AWANS, said: "I know this is a cliche, but the difference is like night and day, especially when the weather is bad.

"In fact, once you get used to AWANS," he said, "it's a drag going back to the old system as a backup. If you come to work and see everybody working the backup, you feel like turning around and heading home.

"AWANS is not perfect, but it's a thousand times better than whatever's in second place."

The automated system at the consolidated Washington FSS—called MAPS for Meteorological and Aeronautical Presentation System—is similar to AWANS, says Rosenwald, but its system for retrieving weather and NOTAM data is not as sophisticated.

NAFEC's Dr. Donald W. Connolly has been developing a computer-operated Utterance Recognition Device (URD) that FAA hopes can be programmed to recognize human speech, thus permitting pilot briefings and filing of flight plans directly with a computer under the future FSS automated system. This would reduce the need for personal pilot briefings.

.owever, it is better at processing flight plan data, he added, so it's well suited for the Washington area where there is a lot of flight-plan activity.

Along with MAPS, there is a closed-circuit TV system for displaying weather maps and other graphics on small, separate TV monitors at the various briefing positions. But it's not part of the basic MAPS system. A specialist must do the job manually by taking maps that come from the National Weather Service over facsimile machines and arranging them under a battery of TV cameras in the back room.

In the new automated system, the graphics will be displayed automatically with a push of a button at the specialist's console, said Rosenwald.

However, that capability will not be available until the second step of FAA's three-step plan to implement automation. The first step calls for putting the basic automated equipment into operation at 41 sites. The basic package will have the capability of displaying only alphanumeric data on e specialist's scope. In step two, the graphics display will be added to and integrated with the basic automated package along with a capability for testing pilot self-briefing systems. The final step will provide for direct user access to the FSS system by means of Touchtone and later dial telephones and, eventually, computer terminals at fixed-base operators and other locations readily accessible to pilots.

Actually, this will not necessarily be the final step in the automation process; it can be introduced at any time after step one.

The General Accounting Office last year criticized FAA's three-step approach, saying that step one could be delayed and incorporated into step two, saving almost $6 million. FAA disagreed, claiming the advantages of gaining specialist and user acceptance before proceeding to the next two steps will more than offset the cost savings GAO claimed could be achieved.

Virtually all the sites slated to get utomation will need new buildings. Of e 43 existing facilities, only one can be adapted to accommodate the automated equipment and later, perhaps, consolidation. Another one of these sites already has a new building under construction, leaving a total of 59 new buildings that still have to be built at an estimated cost of $110 million.

The building design calls for up to 14,000 square feet of floor space, with standard floor plans and power systems to permit national planning of equipment, systems and operations. It also provides for expansion. Construction will begin in 1982, with the first one ready to receive the second-stage automated equipment the following year.

FAA estimates the total cost of the program—automation, building program, and eventually, perhaps, consolidation—to run about $447 million. Even with that, however, the agency estimates that $1.5 billion can be saved through 1995 by replacing the current labor-intensive system with a fully-automated one.

However, an *AOPA Pilot* magazine article asked last year: How can approximately 4,700 FSS specialists, even with automated equipment, meet the demand for pilot services of the future when they cannot even meet them today? The article cited the growing number of busy signals pilots get when calling FSSs for briefings, or, perhaps more annoying, the recorded message that greets them with: "All briefers are busy. Please stand by and your call will be answered in turn."

Rosenwald admits that FAA's projected savings are predicated to a large degree on the success of pilot self-briefing devices. Otherwise, flight service stations will continue to be inundated with telephone calls for routine information.

Experiments with self-briefing equipment have been encouraging, he said. The Voice Response System (VRS) being tested in the Washington, D.C., and Columbus, Ohio, areas, for instance, has proved to be highly popular with pilots. With VRS, pilots can get briefings on certain weather conditions along their planned route of flight by using Touchtone telephones. After the system was in operation for several months, a questionnaire was sent out in the Washington area, and, of those responding, virtually everyone gave VRS high marks.

The same is true for the Pilot's Automatic Telephone Weather Answering Service (PATWAS), which was tested in the New York City area in 1975 and 1976. PATWAS produced a dramatic drop in the number and length of person-to-person briefings at the Teterboro, N.J., FSS and the National Weather Service office at LaGuardia Airport. It accounted for a significant number of preflight briefings given to pilots in that area, said Rosenwald.

With the push of a button, specialists at the consolidated Washington FSS at Leesburg, Va., can call up weather reports and other aeronautical data on CRT displays using the automated Meteorological and Aeronautical Presentation System (MAPS). MAPS is similar to AWANS but is not as sophisticated in retrieving data.

At NAFEC, FAA also is experimenting with a computer-operated Utterance Recognition Device (URD), which recognizes human speech and can, therefore, perform functions ordinarily done by a person. A group working on that project currently is trying to find a list of words which, when programmed into a computer, will allow a pilot to file a flight plan by speaking directly to the computer.

Bell says all this equipment may sound exotic, but "really all we are trying to do is bring the FSS system into the modern world.

"There really is no alternative," he said, "because there is no way we can meet future pilot demands without automation. We've gone about as far as we can with the present equipment. We're almost at the end of the rope."

The first of Midway Airlines' DC-9s are lined up at Chicago Midway Airport awaiting takeoff for proving flights prior to certification as a new interstate airline.

Photo by Neal Callah

The Making of an Airline

Story and photos by Marjorie Kriz

Once upon a time, establishing an airline was a pioneering adventure—Charles Lindbergh blazing an air trail north to the Orient, Ralph O'Neill exploring air routes to South America and Thomas E. Braniff locating mid-western cities in the expanse of a still uncharted continent. Today, the sinuous trail is still strewn with impediments, but of a different kind.

All those early pioneers needed was a little money and a lot of nerve. In those days, the government was only marginally involved. But today, the pioneer needs lots of money and colossal nerve, as well as the blessing of the Civil Aeronautics Board and a great deal of help from FAA.

As a matter of fact, FAA does more than just help. FAA people do a lion's share of the work. At least that's how it was in Chicago recently when Midway Airlines was getting cranked up for its first jet flight.

In several ways, Midway is a unique organization. It's an airline starting out right from scratch as a full-grown, all-je' operation. Whereas most airlines beg small and gradually grow into large carriers, this one is going to start out big. Right from the beginning, it will serve almost three dozen cities in 17 states.

With three leased DC-9s as the backbone of its fleet, Midway Airlines began service on Nov. 1, 1979, from Chicago Midway Airport to Cleveland Burke Lakefront, Detroit Metro and Kansas City International Airports. But this first flight did not take place until after almost three years of planning and months of concentrated inspections and monitoring by inspectors from Chicago's Air Carrier District Office #31 and FAA inspectors from areas as distant as the East and West Coasts. Great Lakes Region specialists alone put in over 1,000 hours certifying the airline.

Twelve of the 15 inspectors assigned to ACDO #31 were actively involved in the certification process, along with two other FAAers from the region: one from the Air Transportation Security Field Office and the other from Flight Standards' Quality Assurance Systems Analysis Review unit (QASAR). The inspectors all had impressive backgrounds in airworthiness—which includes avionics and maintenance—and in operations, including flight itself. In addition, two of the inspectors, Tom Howard, who was the DC-9 program manager for ACDO #31, and William L. "Larry" Neimann, also were airman certification inspectors.

Neimann is the principal operations inspector for the airline. He was the focal point for the airline certification, and for months was tied up checking a myriad of details matching the airline's manuals against FAA regulations.

He said much of his time was invested in overseeing the neophyte airline's various training programs. Although many of the pilots had experience flying DC-9 planes in the military before joining Midway, all pilots participated in the training program.

Niemann himself traveled to the West Coast to observe the training done in the McDonnell Douglas DC-9 simulator at Long Beach.

The pilots who trained in the manufacturer's simulator subsequently gave basic indoctrination to other new pilots joining the airline. Of course, this indoctrination itself was done under the watchful eye of FAA inspectors.

All this care was taken despite the fact that over 90 percent of the pilots hired were Air Force veteran pilots and several were former McDonnell Douglas instructor pilots.

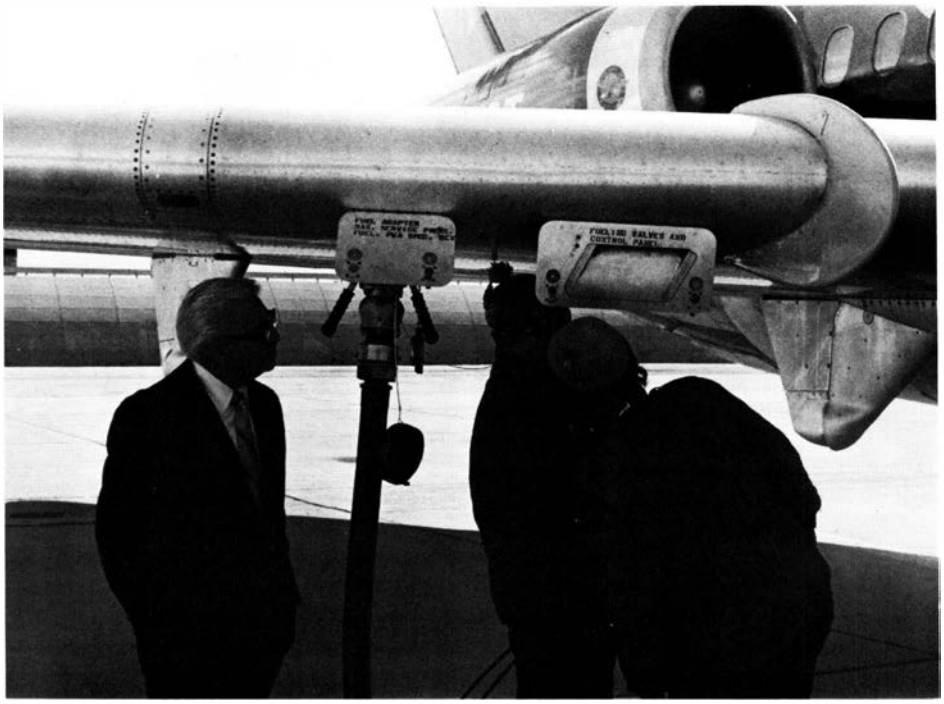
Niemann tells a story about two erstwhile Air Force flight examiners being checked through the training program. "When I was flying as a copilot in the military," he said with a grin, "it was the other way around. In those days, these guys were checking me out. As far as I'm concerned, Midway has hired the cream of the crop. Generally these guys are a little older than most new airline pilots, and they are considerably more experienced."

Besides the McDonnell Douglas simulators, Hughes Air West simulators at Los Angeles were also used for pilot

Principal operations inspector Larry Niemann (right) of the Chicago ACDO presents the air-carrier operating certificate to Midway Airlines president Irving T. Tague in front of a model of the airline's DC-9.

Bill McKim (right), principal security inspector for Midway Airlines, checks over Midway Airport terminal gate screening equipment for the airline. Similar checks were made at other terminals during the proving flights.

Riding the jump seat during the preflight check is Tom Howard (right), Chicago ACDO DC-9 program manager and airman certification inspector, who monitored flight procedures.



Chicago ACDO inspector Louis Patceg monitors the refueling of a Midway Airlines aircraft at Midway Airport prior to takeoff on a proving flight for its certification.

training. Inspectors from the Western Region kept an eye on this training, just as Eastern Region inspectors observed training carried out in the Allegheny Airlines (US Air) simulators in Pittsburgh.

An initial group of flight attendants was trained at TWA's flight attendant school in Kanses City. Although this was already an FAA-approved course, Inspector Carolyn Johnson of the Kansas City, Mo., ACDO monitored the Midway Airlines crews and reported back to Niemann.

When the day finally came for the proving flights to be flown from Midway Airport, FAA inspectors were on hand every minute of the time. They looked into every nook and cranny of the aircraft and monitored every movement of the ftight and cabin crew from the time they arrived for briefings at Midway Airport until they returned from the other airports. They checked each refueling and line maintenance procedure, watched each crew and pilot briefing by dispatchers and observed baggage and cargo-handling operations.

Then, in flight, almost every conceivable disaster, from dealing with a sick passenger and an incapacitated pilot to a skyjacking and an emergency aircraft evacuation, was simulated and thrown at the crews to determine how they would react and if they would adhere to the FARs and their own manuals. On some of the proving flights, several "crises" occurred in succession, more than any airline could expect during actual operation.

Deficiencies noted by the inspectors during the proving flights were pointed out immediately and often were corrected immediately. Many were minor, but nevertheless important, such as an inoperative windshield wiper or a flight attendant finding an ashtray lying on the floor. Right away, she checked all ashtrays on the aircraft, removing those which appeared to be loose. If she reported the loose ashtrays to airline maintenance, then she earned brownie points; if not, then it was a black mark. She reported the problem, thus complying with the FARs. The wiper was fixed before takeoff.

Besides Howard and Niemann, who rode the jump seats during the proving flights, the ACDO #31 inspectors working long hours to certificate Midway Airlines were: Don Devine, Louis Patceg, George Fitzmaurice, Al Hopkins, J. R. Jones, Dave Hegy, Fred Brumm, Rhuno Nelson, John Ciasca and Charles Chism. From Flight Standards' QASAR unit was Hugh Graham and from Security was Bill McKim, both of whom rode the proving flights to check on their particular specialties.

Those from the Western Region were Doug Howard, John Goggin, Herschel Patton and Curt Whallen; from Central Region were Carolyn Johnson and Vincent Ring; and from Eastern Region were Leroy Darner, Dave Kountz and Bernie Wirl.

"But our work, that of ACDO #31, doesn't end with certification of the airline," said Larry Niemann. "We must continue to monitor its operations for proficiency and adherence to FAA's safety goals."

As for Chicago Midway Airport, operations would increase, there would be passengers in the echoing terminal building and cars in the parking lot. The world's first busy airport and holder of so many other firsts most historians have lost count, may never regain its old glory, but it still is big enough and important enough to be the home base of a new and expanding airline.

Old-timers (from the left) William S. Hall, Glen Gilbert and William H. Smith from the early days of the Kansas City Center attended a nearly-38 years reunion of controllers.

Military uniforms were common at CAA facilities during World War II. This was the Kansas City Center in June 1945. Facing the maps in the foreground were the extensive flight data strip boards common to the early centers.

When 7 Days Was a Workweek

It was no classroom exercise and no mistake, but it was 38 years ago. It was the opening day of the Kansas City Airway Traffic Control Center, Feb. 1, 1942. Six days later, another three reported in: Gessner, Roe and Current. Together with Jack Tighe and Glen Gilbert, that made up the original contingent.

Last fall, in a reunion of "CKC Pioneers" who had worked the center in its first decade, 90 controllers and their spouses converged on Kansas City to reminisce.

Recalled was the fact that these controllers worked seven days a week—56 hours—and longer if necessary to cover for illness.

Cited from the FAA history "Bonfires to Beacons" by Nick Komons were Earl Ward and Glen Gilbert, who "more than any others, were responsible for creating a new enterprise and a new profession from scratch—Ward contributing his substantial managerial skills, Gilbert his conceptual powers."

Jack Tighe, a Chicago Center controller who was one of the Kansas City originals, developed the first satisfactory "shrimp boat."

Also remembered was a pre-opening control meeting for the Kansas City Center that was scheduled for the evening Charlie Dowling was to be married. It was necessary for him to leave his wedding reception just as it started, drive from St. Joseph to Kansas City for the meeting in a borrowed car and have his best man take his bride home. "And there wasn't even a box on the efficiency rating report used then to reflect this devotion to duty!" commented co-master of ceremonies Bill Smith.

Other participants chatted about incidents that occurred before the advent of approach control, radar, center radio and PATCO. Some of the episodes made Arney Leathers and Glen Gilbert take notice, since the incidents had never been the subject of official reports!

The center's chief controller, Arney Leathers, made up the duty schedule—from midnight to 8:00 a.m.: Carmody and McCain; from 8:00 a.m. to 4:00 p.m.: Wohlers, Jones, Watt and Engelman; from 4:00 p.m. to midnight: Knenlein, Scott, Taylor, Saucke and Dowling. That was it.

Learning Survival Indoors

The numbing cold of arctic air coupled with the piercing chill of a 25-mile-per-hour wind dropped the chill index into double-digit sub-zero temperatures. The air crew tried desperately to build a small fire as they huddled in the cold.

Fortunately for these fliers, they were not in the Arctic but inside a building at the Aeronautical Center in Oklahoma City, taking a course in survival training for flight inspection pilots.

The building is the Civil Aeromedical Institute (CAMI), and the pilots were the first of some 348 who will be taking global survival training, which includes training for desert, Arctic and water survival should their aircraft crash. Ten crewmen at a time go through the three-day course.

FAA airmen who live through a crash can expect to be rescued within 48 hours, according to CAMI, but they are being trained to take care of themselves in the wilderness for much longer than that. *(Continued on page 19)*

DIRECT LINE

Q **I am in a GS-11/12/13 slot, and after one year in grade at GS-11, I was recommended for promotion to GS-12. I had an above average PER, and my supervisor told me that I should expect the promotion effective two weeks after my year in grade was completed. A few days before my effective date of promotion should have taken place, my supervisor told me that the regional training office had called about his not having submitted the proper training records; as a result, my promotion would be delayed. The records were sent in sufficient time, but the promotion was delayed two more weeks. This will cost me a lot over the years. My supervisor says there is nothing he or I could do to change my effective date of promotion, although it was not my fault, nor would a grievance do any good because there's nothing automatic about promotions. What are my rights?**

A As a general rule, a personnel action may not be made retroactive so as to increase the rights of an employee to compensation. Exceptions are made to this rule where administrative or clerical error (1) prevented a personnel action from being made as originally intended, (2) resulted in nondiscretionary administrative regulations or policies not being carried out or (3) has deprived the employee of a right granted by statute or regulation. In your case, it appears that the delay in processing your promotion occurred before a proper, completed promotion request was submitted to the personnel office. This situation does not meet the criteria for a retroactive personnel action. All FAA employees are entitled to present grievances under the grievance system. If you believe you have one, you have a right to file in accordance with agency Order 3770.2A.

Q **There is no question that performance standards are necessary and desirable, but I question the implementation of the standards in my case. My supervisor decided that new standards were necessary for certain positions. The standards were developed and, for the most part, are fair. However, the supervisor put them into effect retroactively. Even though they were first discussed with me in late January, I was informed that they had been placed into effect as of Oct. 1, 1979. Several of the goals in the standards cannot be met by starting now, several months later. Therefore, I anticipate that I and others in a similar position will receive lower-than-normal PERs. Several other employees had yet to have their standards explained and their goals established. Is it agency policy to place new performance standards into effect retroactively? Does the Office of Personnel Management permit it? Is it fair?**

A The governing document outlining the agency's policy on performance standards is Order 3430.3A. It provides that performance standards should be revised or developed when (1) a new position is established, (2) changes occur in assigned duties and responsibilities or (3) the mission or function of the work unit changes. In other words, performance standards should be kept up to date. Employees should receive and review their performance standards at the beginning of the rating period. Obviously, this cannot always be accomplished when there are differences in rating dates for employees in similar positions. When situations like this occur and new performance standards are developed, it is our interpretation that a reasonable grace period must be given the employee before the new standard is used for giving a performance rating. Implementing performance standards retroactively is not consistent with the intent of FAA Order 3430.3A,and FAA does not condone it. OPM regulations on performance standards do not provide for their retroactive application, either.

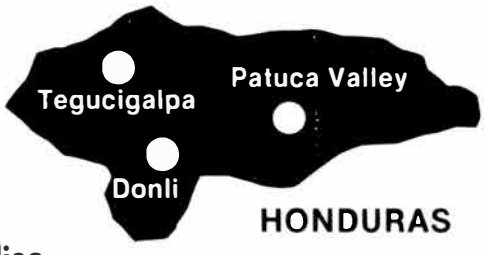
Q **Can a controller legally instruct a helicopter to make its approach and land at a location on the airport other than a runway of a designated heliport? Please cite specific directives.**

A A controller may legally instruct a helicopter to land at other than designated landing areas when so specified in a Letter of Agreement. To date, locally developed Letters of Agreement are the only directives used for guidance. Washington headquarters has recognized the need for specific procedural guidance on helicopter operations and is considering initiating draft proposals.

Word Search Answer

puzzle on page 15

One Can Make a Difference



By Patricia Calise

It was 1978, and Roy Johnsen was whisking along on a smooth highway east of Teguchigalpa, Honduras, in an air-conditioned Mercedes Benz bus. This modern environment made him wonder why he was taking a year's leave of absence from his job as a general aviation operations inspector at the Albany, N.Y., GADO, purportedly on a mission of mercy in the jungle.

He had volunteered to participate in "Wings of Hope," a non-sectarian, non-profit and non-political aviation-oriented organization committed to providing medical rescue, communications and economic development services to the needy in remote areas of the world.

Soon, the road ended, though, and Johnsen transferred to a smaller bus that lurched along a dirt road, hitting more potholes than it missed.

The signs of modern technology had faded, and each passing mile took him nearer to the environment he expected.

Suddenly the road disappeared and he joined a line up of trucks facing a raging river that blocked their way. It was three days before the waters subsided.

Santa Maria, his destination, was a picture-postcard collection of tiled roofs and whitewashed adobe and mud houses encircling a 20-acre pasture—an air force emergency field. Five- and six-thousand-foot mountains formed a horseshoe around the town, pointedly indicating that there was no road past—just burro trails and foot paths into the jungle and the Patuca Valley beyond.

With 20 years of flying experience, Johnsen had flown every type of aircraft—from helicopters to aircraft-carrier jet fighters during the Vietnam War. It was then going to be no problem for him to pilot a Cessna 185 from village to village in the Patuca Valley.

Medical personnel unload a sick Patuca Valley resident from the Cessna 185 at the provincial capital of Donli, as Johnsen leans into the plane to guide the rear of the stretcher.

His home-base airstrip was to be that 20-acre pasture in Santa Maria. A couple of local youths, whom Johnsen called "cowboys," managed cows and horses that kept the grass short on the airstrip and cleared the animals off during takeoffs and landings. Similarly, a word from Johnsen about the height of grass along the dirt strips in the valley produced a crew of men with machetes to cut the grass. They were all only too happy to please this man who flies the big silver bird into their villages carrying the sick and supplies of medicine, food and tools.

Johnsen soon found poignant examples of the value of his stint in the Honduran jungle. He saw it in the eyes of a young man standing by the side of the runway, his collarbone shattered from a fall from a horse and protruding through his skin. The sweat of a two-mile walk still soaked his clothes. It would have been a four- to seven-day walk to the "outside" for a healthy man, and the two miles had already drained him, but in less than an hour he was in the hands of doctors—a lifetime away but a short flight near.

An Indian in the Upper Patuca Rive Valley had never heard the sound of the silver bird, but he had heard through the jungle telegraph of a man and a metal bird that took sick people away and

brought them back restored. He had to find the bird or die, for tropical ulcers were eating away at him. His right arm hung limp and his left could barely raise food to his mouth; walking was an effort. He gathered his family and their few possessions and set out.

For 20 days, they struggled along muddy jungle trails and hacked out new trails with a machete. His 15-year-old son, suffering from malnutrition and parasites, had not the strength to carry him, so the trip was slow and painful.

Johnsen found the family waiting on an airstrip one day. The man could no longer stand and was sick with fever. Compassionate farmers had doled out funds to support the family until the airplane's arrival.

Wonder and hope barely suppressed the terror welling within the sick man as he was lifted into the plane and the engine started. As Johnsen revved the engine and started taxiing, the man's family fled in fear into the protective jungle. Twenty minutes later, the Indian's arm was being swabbed by doctors.

Weeks later, the lung-deep holes in his chest, once filled with banana leaves and native herbs, were healing. His left arm was completely functional and he could feel strength returning to his right arm. Johnsen flew him back to his family.

Johnsen spent a year flying people, salt, tools, hardware, food staples and barbed wire and administering the program. The expertise he brought both as a pilot and as an operations inspector led Wings of Hope to cite him for "consolidating [the program] into the well-run professional operation which is functioning there now."

"It was the most memorable year of my life," Johnsen said. "This place grows on you. But there are the realities of life to return to, and there's only one of me."

Roy Johnsen

SURVIVAL continued from page 16

As crews of FAA aircraft that regularly check the worldwide system of navigational aids, all fly in hostile climates at times. Only one flight inspection aircraft has been lost, and that one was at sea off Recife, Brazil, in which one crewman died. That loss led to survival training for all flight inspection crew members.

In CAMI's cold chamber, the crew is given the same emergency equipment that they could expect to find in the Sabreliners and Jet Commanders they normally fly. In fact, they simulate evacuation from remnants of these very planes. In this laboratory, which can drop the temperature to -30 degrees F., the airmen worked at lighting survival fires with the spark of a storage battery and cotton balls or other material that might be found in a wrecked aircraft. In this case, none of the crew was able to start a fire until instructor Joe Nix stepped into the leader's role and showed them how.

"I don't want to tell someone that something will save his life unless I know for certain that it will," said Nix, an expert in survival and physiology. He counts Air Force and FAA fliers and astronauts among his students.

He recalls his horror at discovering that regulation survival equipment aboard an Air Force plane was all but useless. Insulated survival clothing stored in the plane was so tightly packaged that it took inspectors three hours to remove the wrapper and several hours for it to fluff up enough to be usable. also, in cutting the wrapper away, the contents were cut.

FAA's survival course includes tips on how to find water and shelter at sea, in the Arctic or in the desert, on first aid and on signaling to attract rescuers. Of course, part of any survival course involves learning what to eat and what to leave alone.

In ditching-at-sea instructions, Nix loads the students into the nearly wingless fuselages of a Sabreliner that never flew and a Jet Commander that had crashed. The crewmen take the same seats they would in operational planes when on inspection flights, and the fuselages are hoisted into the water-filled survival tank. The hoist also keeps the planes from sinking.

In preparation for this exercise, Nix told his students, "Okay, change into your flight suits. When we come back from shooting the flare guns, you can get in your airplanes and crash."

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CENTRAL REGION

Norman S. Baker, deputy chief of the Kansas City, Mo., Flight Service Station, from the Burlington, Iowa, FSS.

EASTERN REGION

Thomas W. McGee, an assistant chief at the Washington ARTCC, from the Enroute Operations and Procedures Branch, Air Traffic Service.

GREAT LAKES REGION

James L. Campbell, an assistant chief at the Indianapolis Tower.

NORTHWEST REGION

Edward M. Gass, deputy chief at the Boise, Ida., Tower.

PACIFIC-ASIA REGION

Ronald D. Harris, chief of the Plans, Programs and Evaluation Branch, Air Traffic Division . . . **Dalton P. Peterson,** chief of the Procurement Branch, Logistics Division . . . **George W. Wiggins,** an assistant chief at the Honolulu ARTCC.

ROCKY MOUNTAIN REGION

Dennis J. Enright, chief of the Bismarck, N.D., Airway Facilities Sector Field Office, from the Grand Junction Colo., AF Sector.

SOUTHERN REGION

Philip Loftin, chief of the West Columbia, S.C., Tower, from the Greensboro, N.C., Tower . . . **Marcus Milner,** chief of Knoxville, Tenn., Airway Facilities Sector Field Office . . . **Louis Ruiz, Jr.,** chief of the Dyersburg, Tenn., Flight Service Station, from the San Juan, P.R., International FSS.

WESTERN REGION

Alfred E. Anthony, chief of the Los Angeles Air Carrier District Office . . . **Harry K. Boyle,** an assistant chief at the Las Vegas, Nev., Tower . . . **John D. Marley,** chief of the Lancaster, Calif., AF Sector Field Office . . .**Charles W. Ralston,** chief of the Scottsdale, Ariz., Tower, from the Las Vegas Tower . . . **Hoy H. Washburn,** chief of the Oakland, Calif., Flight Standards District Office.