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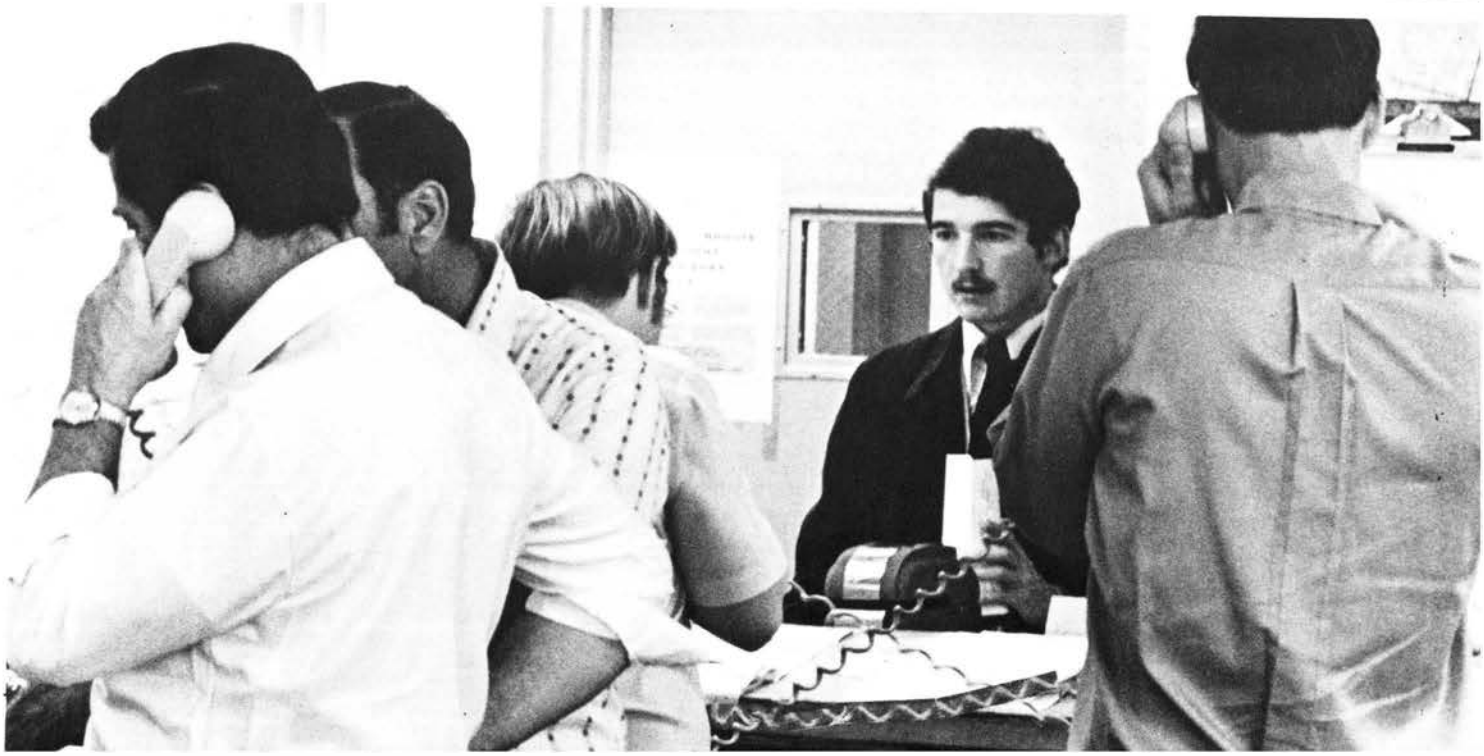

Research Highlights

The most effective fire extinguisher in the world won't extinguish if its operator doesn't know how to use it. That's the premise behind "An Extra Margin of Safety," a training film produced by the FAA Technical Center's Fire Safety Branch and headquarters' Office of Public Affairs as part of a one-two safety punch.

The film follows significant advances in extinguisher research at the center. The results of tests showed that Halon 1211, a liquified gas similar to carbon dioxide, is less toxic and the most effective agent for extinguishing seat cushion fires started with gasoline.

FAA has recommended that every transport-category aircraft be equipped with at least two Halon 1211 extinguishers and is now telling air crews how to use them. The techniques, demonstrated here by former flight attendant Sherry Barthelmess of the Office of Aviation Safety, are of how to extinguish a fire and how to prevent a fire from reigniting. ■

Front cover: FSSs are entering a new era in rendering their services, which will change these scenes: (Clockwise from the top) John Franklin (foreground) and Mike Vaughn of the Tulsa, Okla., FSS use a Service "A" display and closed-circuit TV for weather maps to replace Teletype paper; Barbara Andrews of Tulsa uses a hand-held mike (both photos by Herman Carter, Tulsa FSS); (from left) Andrew Rupnick, John Bailey, William Carr and Joe Hatcher of the Pittsburgh FSS are enmeshed in a tangle of telephone wires. (Photo by Harvey Schoenfeld, New York FSS/IFSS)

Back cover: At 3,000 feet in the Coastal Range mountains of northern California, electronics technician Irene Reese, Ukiah, Calif., Airway Facilities Sector Field Office, ground checks the Ukiah VORTAC.

Photo by Rick Opperman
Ukiah FSS

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The Flight Service Automation System will incorporate the best of the weather-briefing techniques of the Atlanta (above) and Indianapolis AWANS and the flight-plan processing techniques of the Washington (right) MAPS programs.

By Leonard Samuels
The editor of FAA WORLD, he has edited and written for *Popular Mechanics* and business and government magazines.

Automated Weather Wisdom

A La Carte Pilot Briefing Menu on Its Way

The only thing we can do about the weather is talk about it, said Mark Twain. Today, we're getting to be a lot smarter in talking about it at FAA.

With the development of sophisticated equipment and computer programs, the agency is picking up steam in its efforts to improve aviation safety through better detection and rapid dissemination of weather information to flight service station specialists and air traffic control personnel and, through them and better self-briefing techniques, to pilots. Users of the National Airspace System through the end of this century will have better access to complete and more meaningful briefings.

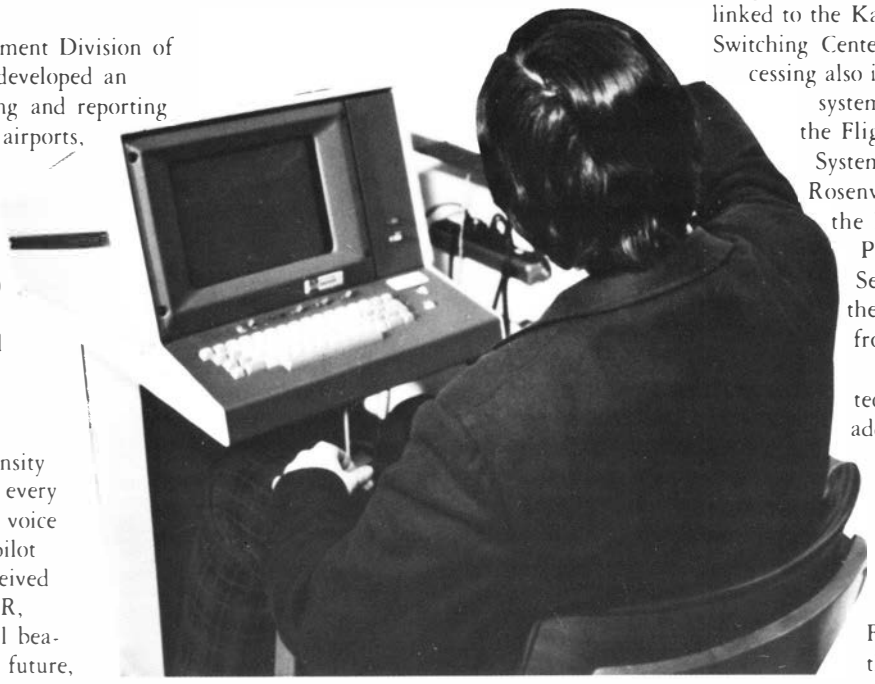
Prime movers in developing tomorrow's system today are the Air Traffic Service, Airway Facilities Service, the Office of Flight Operations, the Systems Research and Development Service (SRDS), the Technical Center and the Transportation Systems Center, as well as the National Weather Service (NWS).

The Systems Development Division of SRDS and NWS have developed an automatic weather sensing and reporting system for uncontrolled airports, where there are no weather observers. The system will provide either a CRT (cathode-ray tube) display, a printout or a computer-generated voiced message of time, temperature, dew point, wind speed and gusts, altimeter setting and density altitude that is updated every minute. The automated voice can be called up by a pilot on the telephone or received in flight through a VOR, an NDB (nondirectional beacon) or, possibly in the future, a microwave landing system. A number of automated systems are expected to be installed at airports in the near future.

With sensor additions for measurement of ceiling, visibility and some obstructions to vision, the system is designated ALWOS (Automated Low-Cost Weather Observation System) and designed for commercially funded use—not FAA use. This expanded system is already being tested at Dulles Airport and on an offshore oil platform in the Gulf of Mexico.

Also under evaluation by SRDS at the Landing Aids Experimental Station in Arcata, Calif., are several types of visibility and cloud height sensors, which, with obstructions-to-vision sensing and sensors for Category II and III airports, will be added to become FAA's Automated Weather Observation System (AWOS). Performance specifications for the full AWOS are expected to be completed by the end of this fiscal year.

A typical pilot self-briefing terminal that will one day grace the anterooms of FSSs and fixed-base operators.



The mainstay of mass dissemination of weather information, however, is the Flight Service Automation System, which is entering the second phase of the acquisition plan. Last year, the agency awarded design verification contracts to three firms for $12.8 million and is now negotiating the production contract for the automated systems that ultimately will be installed in 61 flight service stations. The production contract will be awarded this fall, with the first systems to be delivered in the fall of 1982.

These first systems—Model 1—are a synthesis of the AWANS (Aviation Weather and Notices System) at the Atlanta and Indianapolis FSSs and the later MAPS (Meteorological and Aeronautical Presentation System) at the Washington FSS. They will provide specialists at 41 existing FSSs with alphanumeric weather data from minicomputers located at en route centers that are linked to the Kansas City Weather Message Switching Center. Flight-plan data-processing also is provided in these first systems. "In designing the Flight Service Automation System," explained Paul Rosenwald, associate manager of the FSS Modernization Program in the Air Traffic Service, "we took the best of the weather-briefing techniques from AWANS and the best of the flight-plan processing techniques from MAPS and added other requirements we felt the first system should have. But we limited its capability to alphanumerics so we could get it out in the field as early as possible."

For graphics in the Model 1, the stations will rely on

A National Weather Service forecaster draws contours of weather events on a data tablet for an Aviation Route Forecast, which is stored in a computer.

closed-circuit TV to carry weather radar presentations and weather charts from the back room to the specialists' screens. Alternately, the Miami FSS probably will continue to use a single Plexiglas weather-depiction briefing board that all the specialists can refer to.

The Model 2 will be where tomorrow's automated system really comes together. It will build on the Model 1, adding weather graphics and weather radar on another display at the specialist's position and adding direct user access. This model will be at all 61 automated FSSs.

Model 2 provides the initial connection capability for direct pilot access to the computer data through the Voice Response System (VRS) and for testing pilot self-briefing terminals. Still greater flexibility in pilot access will come with the Model 3 system.

VRS is not pie in the sky—it's here and now. Tests of VRS are still being conducted in the Columbus, Ohio, and Washington, D.C., areas and very successfully, too. Pilots at both locations like it. "It's a beautiful program for determining whether the weather is go or no-go," says Columbus FSS chief Howard Freund. Pilots use it for "updates and outlooks," he says. As a result, it cuts the amount of time that pilots take for their actual briefings from specialists.

In these tests, VRS provides hourly surface observations, terminal forecasts, winds aloft, TWEBs (transcribed weather broadcasts), SIGMETs (significant meteorological information) and hazardous weather for waypoints along a route.

All the pilot needs to reach the VRS is a push-button telephone or an acoustically coupled tone generator with a dial telephone. The pilot "dials" the VRS number and enters the three-symbol codes of the airports for which he or she wants the weather, interspersing them with the appropriate number button to define which of the three letters on the button was intended. Next, the # symbol is depressed twice to indicate the end of an entry and a request for a response. The star key can be used to stop a response, proceed, repeat, jump ahead or begin again. To each entry, a voice response is made by the computer, the appropriate words having been programmed into its memory with a human voice.

The VRS can detect errors in requests and will notify the caller after 17 minutes that his time is up.

While VRS is pegged to the Model 3 system, an interim VRS is being investigated for earlier use. The agency may lease a system of 24 units to be located in selected high-activity FSSs. The leased system would end when Model 2 is implemented. Then, the VRS would tap the FSS computer for the same information that the specialists request.

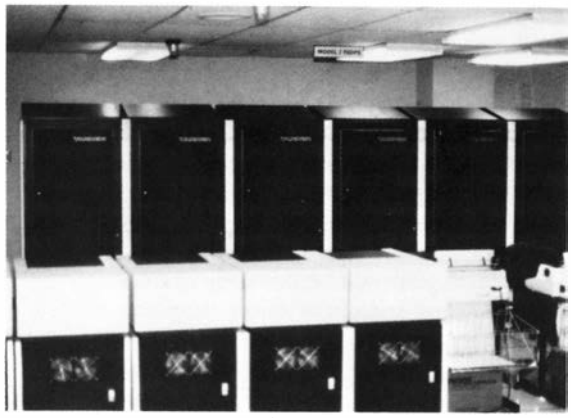
Model 2 also will have a test capability for pilot self-briefing terminals (PSBTs). The agency will purchase from five to 20 PSBTs that will be used around the country to test and demonstrate the technique. These terminals will display alphanumerics and graphics on a single CRT and will access the same data as the specialist from the same computer. The only difference will be that the PSBT will be interactive—the pilot and the computer will ask each other questions. This is because the PSBT has to be designed to cover everybody from a student pilot to the captain of a 747 airliner and airline operations officers.

Model 3 will contain enhancements to Model 2 that will permit the use of a wide variety of pilot direct-access techniques—sophisticated PSBTs, personal CRT terminals called VuSets, home TV, hard-copy printers, VRS and, down the pike, airborne VRS through data link and utterance recognition, which would supplement the need for telephone or data-link tone generation.

Each Model 3 computer installed in an FSS would handle a variety of connections, or input devices, in addition to the specialists' terminals.

A fixed-base operator could have a bank of push-button telephones or could pay for a dedicated (his own) line and install a PSBT and a printer.

On the other hand, a pilot who wanted to make the investment for himself can rent a Plantronics VuSet from the telephone company, which is acoustically coupled through the telephone. It's an inexpensive three-inch CRT for alphanumerics only. It can receive any kind of digitized information, including a weather radar summary in a digitized-map form. "It's quicker than a ver-



Although resident at en route centers, hese smaller computers will be serving automated flight service stations.

If a Touchtone push-button telephone (center rear) isn't available, a variety of tone-generating keyboards can be coupled to a dial phone to access VRS.

bal response, such as the VRS," Rosenwald said, "and you can transmit data at much higher speeds."

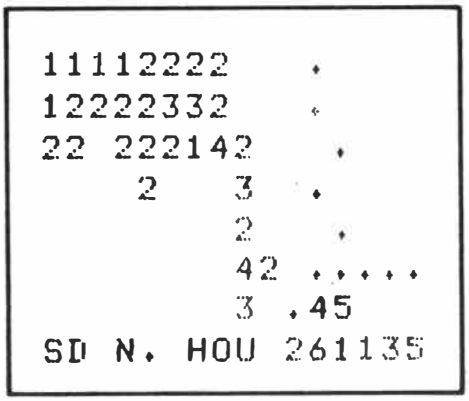
Another approach envisioned is that home computers or keypads coupled through the telephone will permit the use of TV sets as PSBTs and provide graphics as well as alphanumerics to the pilot at home or in the office.

The VRS is expected to generate and update TWEB (Transcribed Weather Broadcasts) and PATWAS (Pilots Automatic Telephone Weather Answering Service) messages. TWEB is mostly for airborne pilots and is a taped 12-15-minute message broadcast over a low-frequency range. PATWAS, as the definition states, is telephone accessed and is a three-minute taped message for the same information.

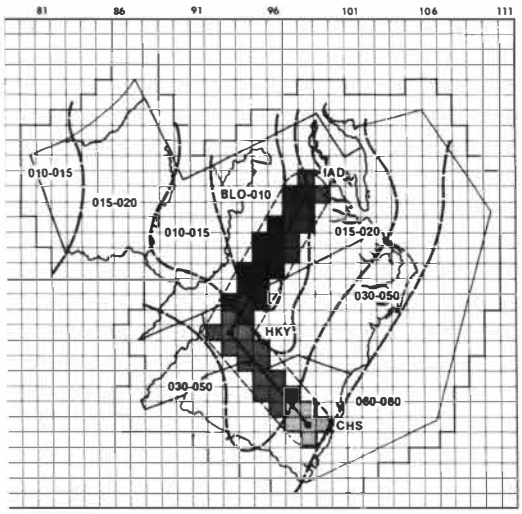
With the automated system, of course, the pilot could dial VRS and receive the information directly from the computer, thereby saving the specialists the time of making the recordings. In fact, these predetermined messages may be directly stored in the computer's memory and automatically updated.

With an utterance recognition device—that is, where the computer recognizes spoken words—the pilot would no longer require a push-button telephone, and he or she could be very specific about the kind of information wanted. Although it has been worked on for a number of years at the FAA Technical Center, it's still in the early development stages, according to Rosenwald.

Under Model 3, VRS also would permit pilots to receive route-oriented briefings and file flight plans. To accomplish this, however, the current weather data base, which is too wordy, must be altered. Further, the forecasts are for fixed multi-state areas, which re-



A VuSet CRT acoustically coupled to a push-button telephone will be able to retrieve alphanumeric data from the FSS computers, as well as display a digital map weather radar summary, such as the one shown at the top for the Houston, Tex., area.



A graphic display of an ARF route-oriented briefing shows grid cells of weather for a corridor from Dulles to Hickory, N.C., to Charleston, S.C.

Before AWANS came to the Atlanta FSS, this was the inflight position.

quires a specialist to analyze and summarize for a route briefing.

The National Weather Service has developed a new grid data-base concept called Aviation Route Forecasts (ARF), the computer prototype of which is being developed by the Mitre Corp. for FAA.

With ARF, weather phenomena are described in 14 categories, the range of severity in each category described by a number. Each phenomenon is identified with a series of 22-by-22-nautical-mile grid points overlayed on a multi-state forecast map for time periods of 0-2 hours, 2-4 hours and 4-8 hours. The computer can then examine the digital values of the weather phenomena for the grid points along a specified route and quickly construct and print out a tailor-made summary briefing for that route. With a PSBT, that weather briefing could be depicted in graphic form (see illustration).

All this is coming, and much is not in some dim future. Beginning with Model 1, it will start to come off the production line in a year, so that flight service station specialists will be able to provide better service to pilots without an accelerating spiral of costs to the taxpayer.

The Flight Service Automation System will free specialists of some clerical duties and shuffling teletypewriter paper, speeding briefings with greater accuracy. We can't program the computer to handle all pilot needs, so we will still require specialists to supply information for varying needs, such as on international flights and specific airport facilities. While many pilots will be able to do advance flight planning and obtain direct computer weather briefings, there will still be a demand for specialist briefings for pilots under special weather conditions and for inexperienced pilots. Pilot self-briefings by 1990 are expected to account for about 70 percent o FSS services.

It's likely that the message "All briefers are busy; please stand by . . ." will become extinct, and nobody will miss it. ■

Q&A

I have a question on visibility. We have a Level I VFR tower with certified tower visibility observers, and we have weather observations taken by a flight service station on the field. The last transmitted observation shows tower and surface visibilities the same. An air taxi is holding at the final approach fix awaiting approach minimums of half a mile, and a Tripacer is holding VFR outside the control zone awaiting Special VFR to the airport.

At 1405 Z, the tower visibility increases to three-quarters of a mile. The FSS is advised, but due to FSS priority, no observation will be taken or transmitted until 1420 Z. Approach control is advised of the new tower visibility. When may the air taxi start his approach?

At 1420 Z, tower and surface visibility are the same. At 1430 Z, the tower visibility increases to one mile. The FSS is advised, but due to priority duties, no observation will be taken or transmitted until 1440 Z. Approach control is advised of the new tower visibility. When may an SVFR clearance be issued to the Tripacer to enter the control zone SVFR?

Reference to Handbook 7110.65B, Sec. 2, Para. 42.a.1 and 2—The basic question is that when the visibility is increasing and differs from the last transmitted observation from the FSS, what is the official, prevailing visibility that is used for fixed-wing aircraft operations—the "old," last-transmitted prevailing or the "new" tower visibility? Must an observation by the FSS be taken and transmitted by electrowriter telephone and/or teletypewriter? In an investigation by NTSB, when were the two above operations legal and illegal and which visibility was the controlling one?

When the visibility is increasing or decreasing and differs from the last observation transmitted, the lower of the two observations—tower or surface—is used for aircraft operations. Therefore, if the FSS is reporting one-quarter of a mile while the tower is reporting three-quarters of a mile, the lower of the two—the FSS report—must be used until the higher is verified by the FSS. This is true in both cases cited.

We can only speculate on the reason for the excessive time between the tower and FSS reports. During peak activity periods, FSS duties may conflict with taking a timely observation. However, under such circumstances, personnel are expected to use good judgment and be guided by the duty priorities contained in Handbook 7110.10F-8. Under all but extreme situations, there should be no reason to delay confirmation of a change in visibility for the 10 to 15 minutes you reported.

We feel no useful purpose would be served by speculating on the possible outcome of an NTSB investigation with respect to this procedure.

In further consideration of your query, the ATC Procedures Division, AAT-300, regards these questions as having considerable merit. It will discuss this provision of Handbook 7110.65B with the National Weather Service.

My question concerns permanent change-of-station regulations. I was transferred to my present duty station about a year ago. Because of the high interest rates, I deferred buying a home. Just before the first year expired, I requested a year's extension, along with which I expected an extension of administrative leave for "post-moving arrangements incident to such change of official post of duty"—DOT 3600.4, Para. 71K, Absence and Leave Manual. However, reading further one finds ". . . but in no case longer than one year after the employee reports for duty at the new post." If real estate transactions can be extended, why isn't administrative leave related to post-moving arrangements, such as closing title, moving, utility hookup, etc.? How can I get the rule changed?

We do not find the one-year time limitation on the use of excused absence in connection with a permanent change of station to be inconsistent with that indicated in the travel handbook, Order 1500.14. This order provides for payment for travel and transportation not to exceed two years from the effective date of the employee's transfer. The intent is to allow the employee to move family and household goods with a minimum of inconvenience and disruption and to reimburse the employee for costs associated with the move.

Excused absence, Handbook 3600.4, is allowed to enable the employee to make pre- and post-moving arrangements if necessary. The intent of this is to enable the employee to attend to various business and personal activities, such as acquiring a new residence, a driver's license, registering a car, etc., which are necessitated by a permanent change of station. It does not seem unreasonable to assume that after a year, the employee would have been able to attend to most of these tasks. While there is a difference between the orders, this is not inconsistent, because each provision is intended for a different purpose. It is the Office of Personnel's opinion that the one-year provision on excused absence is sound and should not be changed.

By Marjorie Kriz
A Great Lakes information specialist and former reporter, she has been published in the *Chicago Tribune* and *Chicago History* magazine.

Making the Rounds

Airport Inspections Essential to Safe Flight

The snow is blowing and the temperature is just above zero as Charles Quick, Great Lakes Region airports certification safety inspector, lands his Beech Baron at Gogebic County Airport, Ironwood, on Michigan's Upper Peninsula—the U.P., to natives. He's embarked on one of the agency's major safety missions. His annual inspection report will show whether it's a safe and secure airport for commercial air carriers and other aircraft.

At this time of year, the U.P.'s traffic may be lighter, but Quick knows that airports here may have the most problems in the dead of winter.

He already has tested Gogebic's new approach lighting system on Runway 27 by keying his microphone, but he has a number of other tests and questions about the airport. Most of the questions he directs to the airport manager and his assistant, both of whom seem happy to meet him again. Others are fielded by Richard Lang, the Airway Facilities technician responsible for the approach lights and the VOR on the airport, as well as other equipment.

Quick surveys the airport's operations manual and measures the depth of powdery snow on the runway and taxiway, deciding with the airport manager that it's not deep enough to plow, especially with no scheduled air carrier due for several hours. He also inspects the snow-plowing equipment, which has been partially funded by FAA, to assure himself that all are in good condition. Within 90 minutes, he has completed his inspection. He wheels his twin-engine aircraft from the taxiway to the runway and takes off for Houghton County Airport to the east.

Snow continues to fall and blow below, but most of this leg of the inspection tour is above the clouds in bright sunshine. Then, he drops down through the overcast to a barely visible approach light and a landing at Houghton, where he is greeted by the airport manager.

More questions, more answers, more study of the operations manual, more notations on a report, followed by a wild ride on the airport's new fire truck, which is mounted on what look like army tank treads. The cab is so far off the ground and Quick is so bundled up in his heavy Air Force parka and boots that he needs a boost to get in. The inspection is over after more than two hours.

Quick remains overnight in Houghton. After a weather briefing the next morning at the FAA flight service station on the airport, where he also files a flight plan, the Baron rolls over the snowy apron to a taxiway where the wind has cleared an area. He's on his way to Marquette County Airport.

With the automatic pilot engaged en route, Quick makes arrangements with William Thome, Marquette FSS chief, to simulate a fire on the plane when it lands. Before he reaches the end of the landing runway, Quick has his stopwatch out to time the fire truck's arrival. It's within the requirements. After the plane is escorted to the terminal by the fire truck, there are the same questions of the airport operator and the same forms to fill out.

After another weather briefing and the filing of a flight plan, Quick takes off for Ford Airport at Iron Mountain/Kingsford, farther south, where there is almost no snow on the runways and the bright sun is melting some of the snow elsewhere. This time, the crash/fire/rescue test is different. During inspection of runways and approaches, Quick lights a flare at the far corner of the airport and times the fire truck's arrival and extinguishing of his mock fire.

Now, it's back to Chicago DuPage County Airport for several days at his desk in the regional office completing his reports. He found minor infractions at each of the airports he visited, but none would jeopardize the airports' certificates.

A retired Air Force colonel, who still takes

Inspector Quick (right) discusses the operation of the Gogebic County Airport in Ironwood, Mich., with its manager and his assistant over a cup of coffee.

After taking a test ride with the airport manager, airports certification safety inspector Charles Quick (left) examines the tank-type treads on Houghton County Airport's behemoth of a fire truck.

his military survival kit with him on winter flights, Quick is responsible for the certification of 55 airports in Illinois, Wisconsin, Minnesota and the Upper Peninsula of Michigan. He tours these airports, all of which have scheduled air carrier traffic, by air during all four seasons, flying himself in a rented aircraft or the regional airplane, sometimes having company in an FAAer who has business at one of the airports he's scheduled to inspect.

Richard Duckworth, the other certification inspector in the Great Lakes Region's Airports Division, is responsible for an equal number of airports in lower Michigan, Indiana and Ohio. He also flies himself to airports with little commercial traffic so that more inspections can be made during one tour.

While a winter tour, like Quick's to the Upper Peninsula, can cover four or more airports for inspection on a two-day trip, larger, busier airports may demand more than a day for a single inspection. Regardless, these FAA inspectors are not stayed from making all their appointed rounds every year. ■

Even though his aircraft had been hangared overnight, Quick had to brush snow off the plane during his preflight inspection.

As any good pilot would do, Quick gets a weather briefing in the flight service station at Houghton before taking off. Specialist Russ Hewitt does the honors.

Photos by Marjorie Kriz

By Hollis Walker
A former information specialist in the Southwest Region, she has returned to Texas State University to complete her graduate studies.

Lighting a Lamp Across the Gulf

FAA Improves Weather Reporting and IFR Routes

Quick! What do the FAA and the oil and gas industry have in common? Don't strain—I'll tell you: a concern for the safety and efficiency of 800 helicopters and 2,700 helipads stretched out along 600 miles of the Louisiana-Texas coastline in the Gulf of Mexico.

Offshore exploration and production represent a vital link in the nation's search for new energy sources and a big responsibility for the FAA. Helicopters are the cheapest and fastest means for industry to move crews and small equipment to and from shore and between oil rigs in the gulf. It's the FAA's job to ensure the safety of the quarter of a million passengers carried every month by these helicopters.

The task of regulating the operators and the tremendous amount of traffic they generate "is like having to deal with 2,700 airports on land just in this area," according to Keith Rogers, military liaison and security officer at the Houston ARTCC. The net effect is the largest cooperative effort ever undertaken by the Southwest Region. Involved are Air Traffic, Airway Facilities and Flight Standards divisions; the Helicopter Lead Region team; facilities along the coast, especially the Houston Center, the Houston, New Orleans and Lafayette Flight Service Stations, the Flight Standards District Offices and the towers near the coast; FAA headquarters personnel; the National Weather Service (NWS); and, of course, the helicopter operators.

Although helicopters have been in limited use in the gulf since 1947, the most dramatic increase in offshore helicopter use coincided with the exploration boom that began in the early '70s. As oil companies set up their own fleets or contracted with independent operators for helicopter services, pilots approached the FAA for assistance.

What the operators wanted most were detailed, frequently updated weather reports. The coastal area aviation forecast provided by FSSs was applicable only to conditions up to 60-100 miles off the coast, where the oil platforms stretched to 200 miles from the coast.

Their biggest problem couldn't be solved only by better weather reports, however. Says Rogers, who got involved in the offshore program as the center's New Orleans/Alexandria area officer and has continued to coordinate it, "The nature of the situation around here means we've a lot of low-ceiling weather that precludes VFR flight, plus there's sometimes a fog bank that hugs the coast, when it's clear 40 miles out."

Since offshore flight is essentially nonradar and all helicopter activity was VFR, operators preparing to depart their coastal bases at 7:00 a.m. often were delayed by fog for three or four hours, he said. Operators asked the FAA for instrument routes into the gulf so they could fly despite the low-ceiling conditions and fog.

The region established a Gulf Offshore Helicopter Sector at the Houston Center with three IFR routes. Before they could take advantage of the routes, however, operators that already had IFR-equipped helicopters and IFR-rated pilots still had to meet the stringent Part 135 requirements: the capability to maintain continuous communications with air traffic facilities, approved navigation systems and surface weather reports by certified observers within 10 miles of each destination.

Intricate company communications networks satisfied the first requirement, although not very efficiently, and a few companies also had approved navigation systems, although existing ones were very expensive. None of the companies, however, could meet the weather-observer requirement. One of the largest operators took the lead by sending a few employees to a National Weather Service training school to be certified and stationed them on platforms in oft-traveled areas. A few other companies followed suit, but weather training proved too expensive for many operators, so IFR route usage was minimal, and the weather continued to ground their 'copters.

The agency was reluctant to go further with the offshore program while route usage was low; but by 1979, the large operators all had made commitments to expand their IFR capabilities, and the gulf offshore program really took off. A task force led by Planning Staff chief Henry Christiansen was formed with representatives from the FAA offices involved. The group began meeting quarterly with the NWS and the helicopter operators' Helicopter Safety Advisory Conference to address the issues.

The weather observation problem was the first obstacle overcome. The task force, NWS and the operators jointly developed a massive weather information project that will be implemented a piece at a time. One part of the system, to begin this summer, is the

Oil workers board an Aerospatiale 330J Puma helicopter prepare to commute back to shore as they finish a week-long shift on an oil drilling platform. Photo by Aerospatiale

This is one of 2,700 oil rig helipads that dot a 200-by-600-mile area of the Gulf of Mexico and which have a growing need for all-weather helicopter service. Photo by Hollis Walker

consolidation of numerous Supplementary Aviation Weather Observation Station reports (the operators' offshore weather observations, plus land observations by FAA and NWS) into a Gulf Area Aviation Weather Forecast available from FSSs. The plan also includes the consolidation of pilot reports (PIREPS), which will be updated twice hourly and broadcast on an FAA circuit.

The most ambitious part of the FAA weather program is the proposed user-funded Automated Low-cost Weather Observation System (ALWOS), now undergoing a six-month test on an offshore platform. ALWOS eventually will eliminate the need for offshore observers. The system provides altimeter setting, wind speed and direction, temperature, dew point, visibility, thunderstorm activity and cloud height and transmits it over a local VHF frequency directly from the platform. After this test, it is expected that the data will also be transmitted to FSSs ashore via microwave, where a printed copy would be available. Also this spring, three offshore and two on-shore lightning-detection systems were commissioned.

Communications problems—the delays resulting from relaying air traffic instructions through company radio operators—are being solved by Airway Facilities personnel. Direct air traffic coverage has been extended to part of the gulf through the installation of a Remote Communications Air-Ground system on a platform in a heavily-trafficked area.

The outlet has worked without a hitch since its commissioning in October. Two more outlets are in the works—amazingly, about a year ahead of schedule—and they'll be commissioned this fall.

The headway being made by the task force has caused operators to become more eager to join the IFR program. Sixteen operators now fly 84 IFR 'copters in the gulf, using the 18 routes that have been approved on a case-by-case basis since the establishment of the offshore sector.

Both operators and the FAA anticipate IFR usage to increase rapidly, from the current 250 flights per month to about 1,500 per month by 1982. The IFR system, which consists of routes fanning out from VORTACS along the coast, will not be sufficient to handle such high volumes of traffic. Additionally, since routes are few, pilots must increase their fuel loads and cut their payloads because the IFR routes nearest their destination platforms often are far out of their way.

In anticipation of route saturation, Rogers has developed a new IFR route system that still is in the developmental stage. It consists of transition routes fanning out from VORTACS to 29 degrees, where they join 26 straight routes separated by 17 miles each. Alternate routes will be designated inbound or outbound. Two diagonal routes cut all the way across the grid so pilots can get from the west Texas shoreline to a platform in the southeast part of the sector, for example, by using the diagonal route to reach the straight route that passes nearest their rigs. "The new system will still take them out of their way," Rogers said, "but the tradeoff is that it will prevent delays on the ground. When business requires it, we'll go to the new plan."

Another problem of heavy IFR usage is caused by the lack of radar coverage offshore. Currently, time separation is adequate to keep traffic apart; soon it will not be.

The dilemma is being dealt with in an innovative fashion. Generally, IFR 'copters in the gulf navigate by using a relatively new, inexpensive airborne navigation system called LORAN-C, which relies on land-based signals. The agency's plan calls for using LORAN-C to provide flight-following information to controllers. Called LOFF (LORAN Flight Following), the plan awaits a year-long test beginning this summer at the Houston Center.

A minicomputer called NOVA, which was designed by an FAA Research and Development team, will collect signals generated by LORAN-C equipment aboard the helicopters, process it and present it on a scope in a manner similar to radar. If it's incorporated into the National Airspace System, controllers would be able to monitor offshore traffic, decreasing time-based separation from about 10 miles to one mile.

"I'm pretty excited about it," Rogers said. "It's the only thing that will give us the

Inspection a Growing Job in Gulf, Too

In addition to the FAA's role in developing offshore IFR operations systems, the Southwest Region's Flight Standards offices bear the responsibility of certifying, inspecting, monitoring and surveilling the 28 Part 135 and six Part 91 helicopter operators in the Gulf of Mexico.

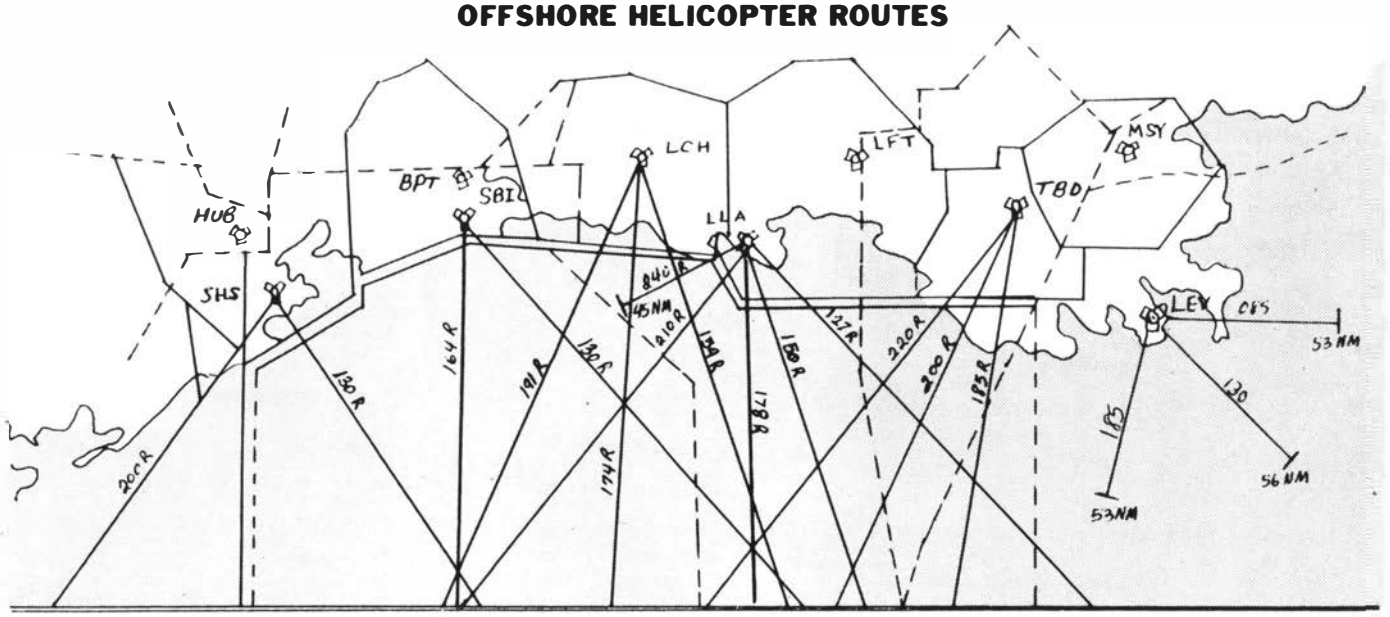
"You just can't imagine the extent and expanse of these operators," says Bob Hazlett, operations specialist and Air Carrier Branch representative to the offshore task force. Helicopter operations in the gulf have blossomed into a $300-million-a-year business. One oil company's monthly lease of an IFR-equipped Bell Model 212, for example, costs it $85,850 for approximately 110 flight hours.

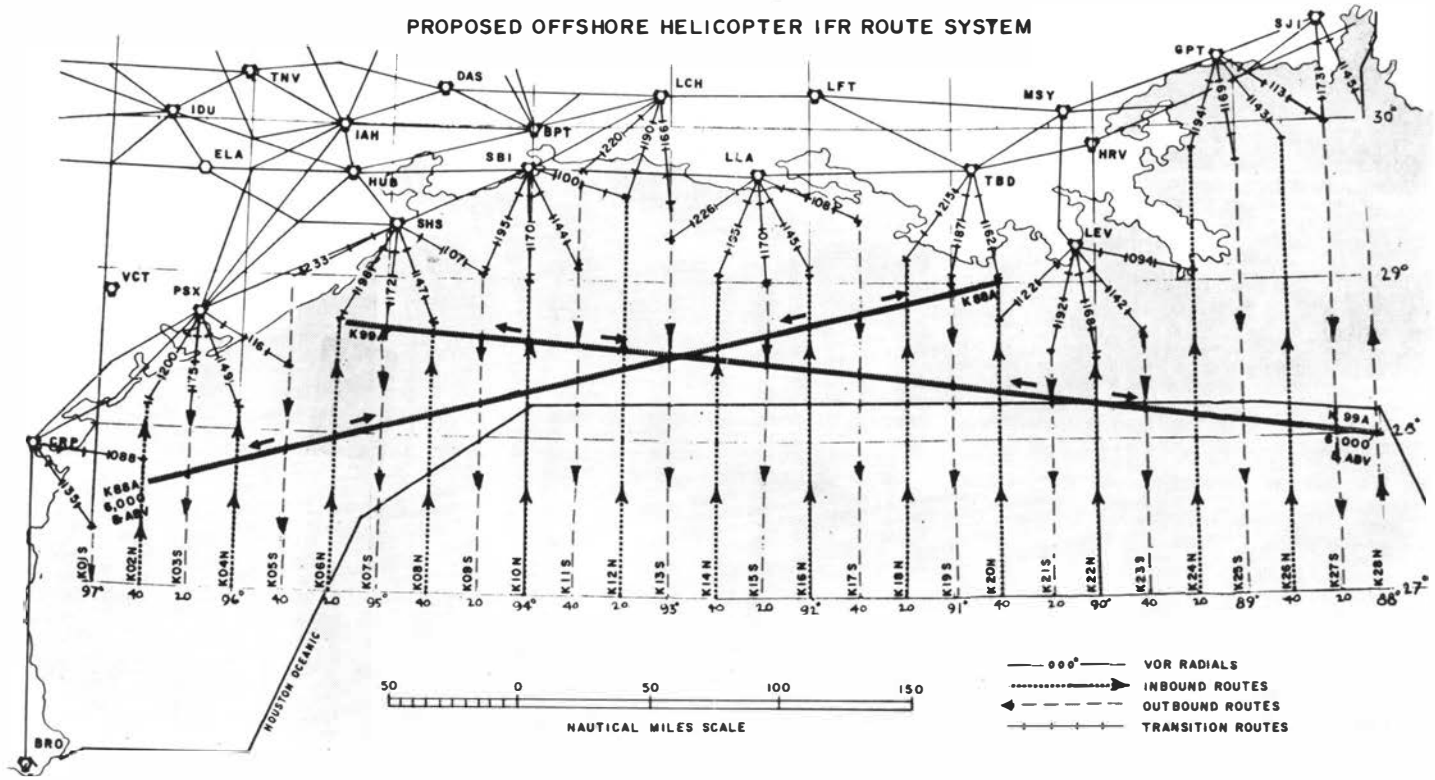
According to Hazlett, "The FAA's part involves the continuous review of pilot training programs, operations and maintenance manuals and instrument procedures; aircraft inspections; inspection and surveillance of maintenance facilities, en route operations, satellite base locations and landing sites; and the administering of pilot and airmen proficiency checks."

Most heavily involved is the Lafayette, La., satellite GADO, under whose jurisdiction comes the home base and maintenance facility of the largest operator, Petroleum Helicopters, Inc. (PHI). PHI alone operates nearly 400 'copters, logs 27,240 flight hours per month and employs 800 pilots and 1,150 maintenance personnel. ■

The current IFR routes fan out over the gulf, in many cases requiring lengthy, indirect courses following the VORTAC radials. Nevertheless, it has been a decided boon to weather-delayed aircraft.

OFFSHORE HELICOPTER ROUTES





The proposed IFR system into the gulf involves short transition routes along VORTAC radials followed by straight shots out to the gulf along parallel alternating inbound and outbound tracks. Two routes cut across diagonally to provide more direct access to platforms at opposite ends of the 600-mile oil-drilling area.

A Bell 212 helicopter owned by Petroleum Helicopters, Inc., prepares to take off from a Shell Oil Co. platform. Photo by Hollis Walker

ability to control large numbers of helicopters out in the gulf."

The Gulf Offshore Helicopter Task Force is tackling a number of other projects, including an advisory circular to standardize operator-designed approaches and missed approaches to platform landings and a guide to the design of offshore helipads. The group is beginning to coordinate with the military on conflicts between IFR routes and military warning-and-alert training-exercise areas in the gulf. Recently, a sectional chart of the gulf was published, and operators are being polled for their reactions to the proposed new route system.

Offshore activity undoubtedly represents the region's biggest long-term project, "but we're excited about helping them, despite the problems," Rogers said.

Regional Director C.R. "Tex" Melugin, Jr., echoed his enthusiasm. "The region's role doesn't stop with airworthiness and the certification of machines," he said. "We've got a tremendous opportunity here to come up with new ideas, try new concepts. The offshore area is a perfect test bed." ■

By Cliff Cernick
The Alaskan Region public affairs officer and formerly in the Western and Northwest Regions, he is a former newspaper editor in Anchorage and Fairbanks.

'Make Your Own Breaks' Says FAA's Youngest Pilot

At 22, Defford Taylor is the agency's youngest full-fledged pilot.

As an Air Space Systems Inspection Pilot for the Anchorage Flight Inspection District Office (FIDO), he has flown FAA aircraft to virtually every corner of Alaska where FAA people are employed.

Getting there has not been easy for Taylor. Sterling credentials did not readily open doors.

"Ever since I was a kid, I had my heart set on a flying career." he said. "I had an aviation dream. I started taking flying lessons at Merrill Field in Anchorage when I was 12 ·ars old. I soloed at 16 (the earliest one can gally solo). Now, I've got more than 2,500 hours and a tremendous job.

"I encountered some real setbacks after I got my instructor's rating and set out to find a job," he continued. "At a time when I had more than 1,400 hours, I approached just about every fixed-base operator at Merrill Field seeking work but without any luck. One of them told me he was not hiring pilots and would not be hiring anybody in the foreseeable future.

"The way he said it made me wonder, so on a hunch, I remarked to a white friend who had only about 350 hours that he might be able to land a job at this particular place. He landed one immediately."

Though this evidence of discrimination was disturbing and discouraging to Taylor, he refused to succumb to bitterness.

I had confidence in my skill as a pilot—knew I had something to offer." he said. "I ran an ad in the Anchorage daily newspaper offering to give flying lessons. I got more students than I could handle."

He rented the aircraft he used for instruction from a Merrill Field flight instructor, John Rogers. His thriving free-lance instruction operation did not escape the attention of the air-taxi operator who originally had turned him down for a job. "Why not come over and use my aircraft for your flight instruction, and we can offer you some charter flying, besides?" the operator asked Taylor one day.

"It gave me a great deal of satisfaction to say 'no' to that fellow," Taylor recalls.

Taylor is convinced that people who are eager to get ahead, regardless of race, "can create their own breaks." Giving in to bitterness and resentment as a result of the kind of rejection he encountered when attempting to gain a foothold "can work against you," he feels.

Just as important to personal and career growth, he adds, is education. "I've been studying for as long as I can remember," he declared, "and I don't think I'll ever stop. I've spent a lot of time out at the University of Alaska, and in June, I'm looking forward to receiving my Bachelor of Science degree in aviation from Golden State University in Pasadena, Calif."

Although Taylor enjoys his FAA position, he hopes ultimately to go to work for a large airline as an air carrier jet pilot. Meanwhile, he's piling up the flying hours and the flying savvy to equip him for this career step.

"Working for the FAA has helped me no end in upgrading my skills and helping me get additional ratings," he said. He is rated in a Convair 580, which will be an airline transport rating this month when he turns 23—the youngest age for this particular rating.

Taylor gives every indication that he intends to continue to "make his own breaks"; he won't allow the ignorance of prejudice and discrimination to bar his way to achieving new career goals and objectives. ■

People

Aeronautical Center

■ **Lawrence J. Cates,** unit chief, Line Maintenance Section, Seattle Flight Inspection Field Office, Flight Standards National Field Office.

■ **William E. Rogers, Jr.,** group chief in the Flight Inspection Section, Los Angeles FIFO, Flight Standards National Field Office, from the Frankfurt, Germany, FIFO.

Eastern Region

■ **Thomas E. Anderson,** unit chief in the Hagerstown, Md., Airway Facilities Sector Field Office of the Baltimore AF Sector, from the Technical Training Branch, headquarters Office of Personnel and Training.

■ **William B. Bracken,** manager of the New York ARTCC AF Sector.

■ **George W. Brown,** team supervisor at the Buffalo, N.Y., Tower.

■ **Raymond P. Gillich,** assistant systems engineer at the Washington ARTCC AF Sector.

■ **Allen I. Isacowitz,** team supervisor at the JFK Tower, New York, from the New York TRACON.

■ **James Moore,** assistant manager of the Philadelphia AF Sector, from the Maintenance Operations Branch, AF Division.

Great Lakes Region

Willie R. Cadwell, assistant manager of the Springfield, Ill., Airway Facilities Sector.

■ **Frank Catalon,** crew chief at the Chicago ARTCC AF Sector.

■ **Salvatore R. Dimaggio,** assistant systems engineer at the Chicago ARTCC AF Sector.

■ **Frederick J. Gadd,** chief of the Dayton, Ohio, Flight Service Station, from the Youngstown, Ohio, FSS.

■ **William J. Martin,** team supervisor at the Chicago-Palwaukee, Ill., Tower.

■ **Dominic J. Montell,** assistant chief at the Cleveland Hopkins, Ohio, Tower.

■ **James O. Scott,** assistant chief at the Chicago ARTCC, from the Oakland, Calif., ARTCC.

■ **Bernard E. Self,** crew chief at the Indianapolis, Ind., ARTCC AF Sector.

■ **Charles R. Worthington,** chief of the Springfield, Ill., AF Sector Field Office.

New England Region

■ **Roy L. Whitton,** team supervisor at the Westfield, Mass., Tower.

Northwest Region

■ **Tommy E. Barclay,** team supervisor at the Portland, Ore., Tower, from the Oakland, Calif., TRACON.

■ **Robert N. Carlson,** team supervisor at the Seattle, Wash., ARTCC, promotion made permanent.

■ **Douglas M. Greene,** team supervisor at the Spokane, Wash., Tower, from the Portland Tower.

■ **James L. Litzen,** team supervisor at the Seattle ARTCC.

■ **Evan F. Payne,** chief of the Idaho Falls, Idaho, Tower, from the Spokane Tower.

■ **Donald L. Stobie,** team supervisor at the Seattle ARTCC.

Pacific-Asia Region

■ **Robert J. Carter, Jr.,** unit supervisor in the Guam Airway Facilities Sector at Anderson AFB.

■ **Donald E. Kramer,** team supervisor at the Honolulu, Hawaii, Tower.

■ **Teruo Mende,** maintenance mechanic foreman in the Honolulu Hub AF Sector.

■ **James Y. Takahashi,** team supervisor at the Honolulu ARTCC.

Rocky Mountain Region

■ **Robert D. Decino,** assistant systems engineer at the Denver, Colo., ARTCC Airway Facilities Sector.

■ **Lee Roy Graf,** team supervisor at the Grand Forks, N.D., Tower.

■ **Melvin G. Southam,** assistant chief at the Grand Junction, Colo., Flight Service Station, from the Air Traffic Branch at the FAA Academy.

■ **Albert M. Walkup,** assistant systems engineer at the Denver ARTCC AF Sector.

■ **Robert A. Westhoff,** chief of the Denver Air Carrier District Office.

■ **Robert E. Whitney,** assistant systems engineer at the Salt Lake City, Utah, ARTCC AF Sector.

■ **Jarrold A. Woodward,** assistant systems engineer at the Salt Lake City ARTCC AF Sector.

Southern Region

■ **Jesse F. Addison, Jr.,** radar unit chief at the Charleston, S.C., Airway Facilities Sector in Augusta, Ga.

■ **Carl H. Barr III,** chief of the Mayaguez, Puerto Rico, Tower, from the Pompano Beach Fla., Tower.

■ **Elvin L. Brighton,** team supervisor at the Fort Lauderdale, Fla., Tower, from the Tamiami Tower, Miami, Fla.

■ **Fred Drinkwater,** assistant manager of the Jackson, Miss., AF Sector.

■ **Marvin J. Leininger,** assistant chief at the Miami ARTCC.

■ **Walter J. Penner,** team supervisor at the Asheville, N.C., Tower.

■ **Eugene J. Stys,** team supervisor at the Macon, Ga., Tower, from the Mayaguez Tower.

■ **Charles E. Thompson,** team supervisor at Macon Flight Service Station.

Southwest Region

■ **Donald D. Bingaman,** team supervisor at the Fort Smith, Ark., Tower.

■ **Waymon J. Brewster,** team supervisor at the Houston, Tex., Intercontinental Tower, from the Little Rock, Ark., Tower.

■ **Richard E. Chaney,** program support officer in the Albuquerque, N.M., Airway Facilities Sector.

■ **Osborne C. Davis, Jr.,** deputy chief of the Fort Worth, Tex., ARTCC, from the Evaluation Branch, Air Traffic Division.

■ **Dean V. Falcicchio,** program support officer in the Little Rock AF Sector, from the Oklahoma City, Okla., AF Sector.

■ **Peter F. Molony,** team supervisor at the Enid, Okla., Tower.

■ **Robert G. Rightmer,** team supervisor at the Houston Intercontinental Tower, from the Little Rock Tower.

■ **Danny E. Young,** team supervisor at the Little Rock Tower.

Western Region

■ **Jack R. Cunningham,** chief of the Torrance, Calif., Tower, from the Santa Monica, Calif., Tower.

■ **David R. Dart,** systems engineer at the Oakland, Calif., ARTCC Airway Facilities Sector, promotion made permanent.

■ **Sidney D. Edwards,** unit supervisor in the Oakland ARTCC AF Sector, promotion made permanent.

■ **Leroy Hilscher,** unit supervisor in the Oakland ARTCC AF Sector, promotion made permanent.

■ **Blaine P. Hudson,** systems engineer at the Los Angeles ARTCC AF Sector, promotion made permanent.

■ **Jonathon D. Hudson,** team supervisor at the Torrance Tower.

■ **Robert J. Hunter,** systems engineer at the Los Angeles ARTCC AF Sector, promotion made permanent.

■ **Donald W. Isaacs,** manager of the Lancaster, Calif., AF Sector, from the Maintenance Operations Branch, Airway Facilities Division.

■ **Michael Lammes,** assistant chief at the Los Angeles Flight Service Station, from the Bakersfield, Calif., FSS.

■ **James J. Lamper,** systems engineer at the Oakland ARTCC AF Sector, promotion made permanent.

■ **Bobby G. Lewis,** systems engineer at the Los Angeles ARTCC AF Sector, promotion made permanent.

■ **Cornelius J. Lynch,** systems engineer at the Los Angeles ARTCC AF Sector, promotion made permanent.

■ **Joseph E. Manfreda,** systems engineer at the Oakland ARTCC AF Sector, promotion made permanent.

■ **George W. Manthey,** unit supervisor at the Los Angeles ARTCC AF Sector, promotion made permanent.

■ **Harold E. McInturff,** team supervisor at the Bakersfield FSS, from the Air Traffic Branch, FAA Academy.

■ **Raymond D. Nelligan,** manager of the Riverside, Calif., AF Sector, from the Lancaster AF Sector.

■ **Donald R. Olivera,** systems engineer at the Oakland ARTCC AF Sector, promotion made permanent.

■ **James Page, Jr.,** team supervisor at the Hawthorne, Calif., Tower, from the Long Beach, Calif., Tower.

■ **Edgar J. Richardson,** unit supervisor at the Los Angeles ARTCC AF Sector, promotion made permanent.

■ **Robert C. Rybicki, Jr.,** systems engineer at the Oakland ARTCC AF Sector, promotion made permanent.

■ **Louis E. Spencer,** unit supervisor at the Los Angeles ARTCC AF Sector, promotion made permanent.

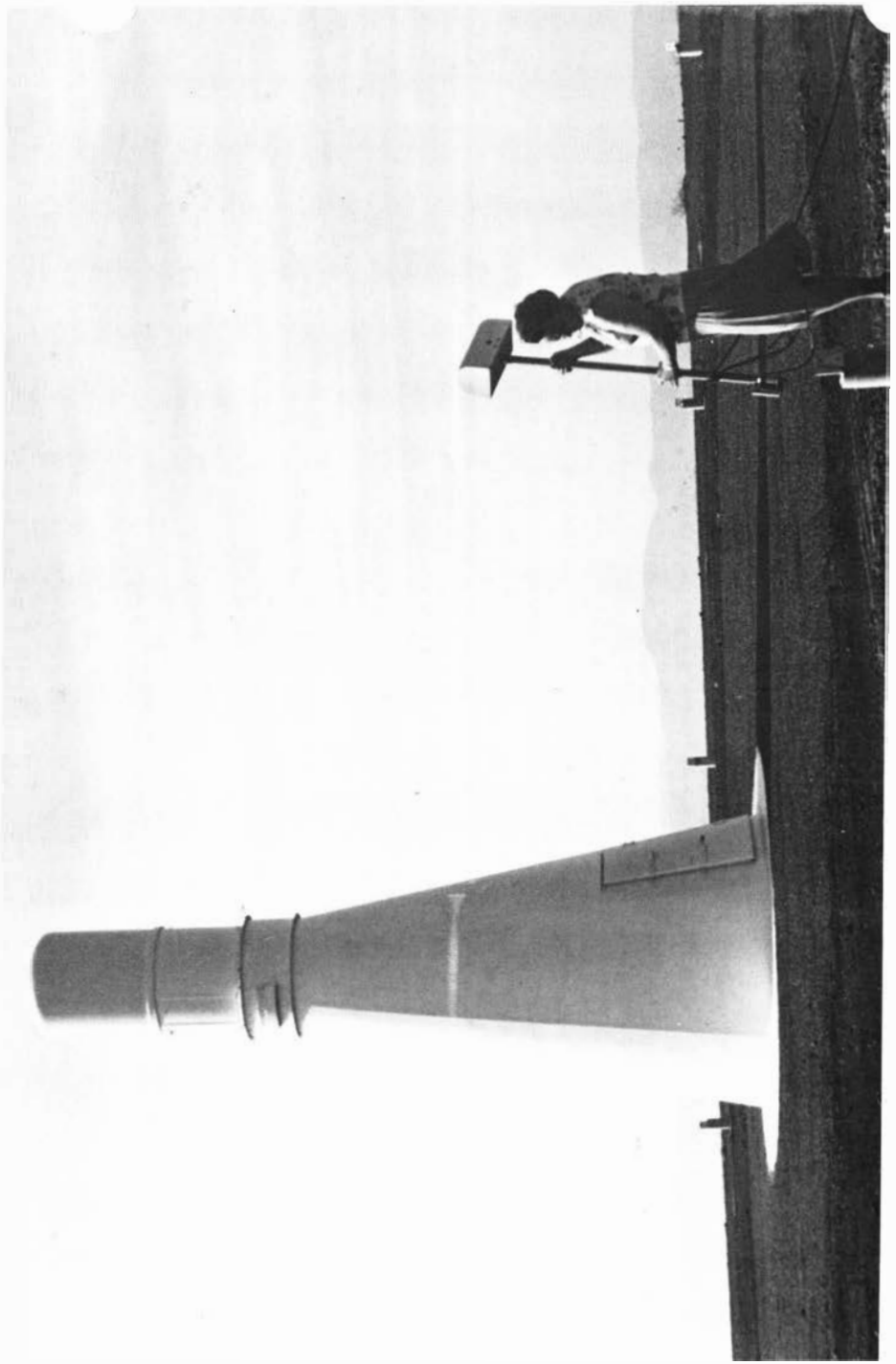
■ **James L. Spray,** systems engineer at the Los Angeles ARTCC AF Sector, promotion made permanent.

■ **Albert Stolsek,** team supervisor at the Tucson, Ariz., TRACON at Davis Monthan AFB, from the Springfield, Ill., Tower.

■ **Laurel L. Thompson,** systems engineer at the Oakland ARTCC AF Sector, promotion made permanent.

■ **Clarence N. Yaroslaski,** systems engineer at the Los Angeles ARTCC AF Sector, promotion made permanent.

■ **Robert J. Young,** assistant chief at the Tucson FSS, from the Las Vegas, Nev., FSS.



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