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The cover: *The precision aerobatic team "The Red Devils" soars over the annual Experimental Aircraft Association convention during its air show. But judging precision aerobatics is a different game, as the story on page 12 relates, and smoke trails are taboo in such contests.*

Photo by Neal Callahan

A unique bonus is DABS' digital data-link capability [which] will permit automatic air-ground transmission of a variety of information.

Workmen install an antenna at NAFEC adjacent to the Atlantic City Municipal Airport terminal as part of the first Discrete Address Beacon System prototype. DABS will be tested and evaluated there and at two other sites for about 18 months.



TRYOUT TIME FOR **DABS** THE SHAPE OF RADAR IN 2001



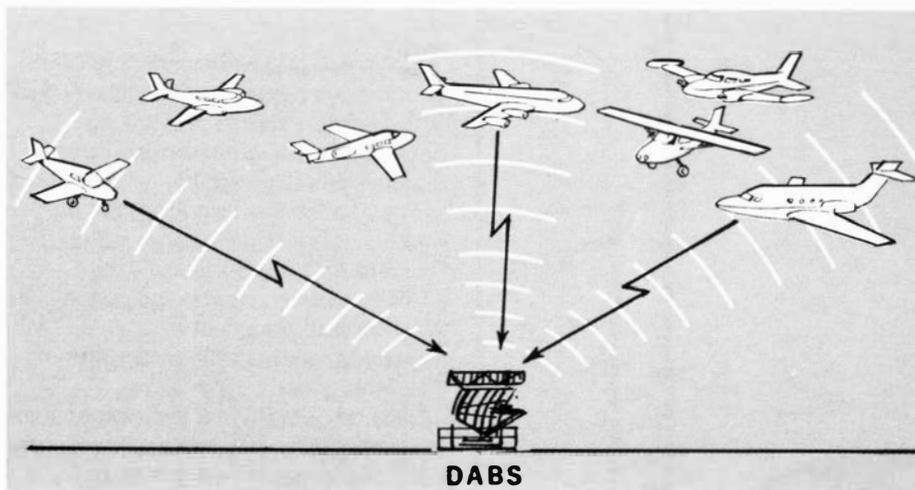
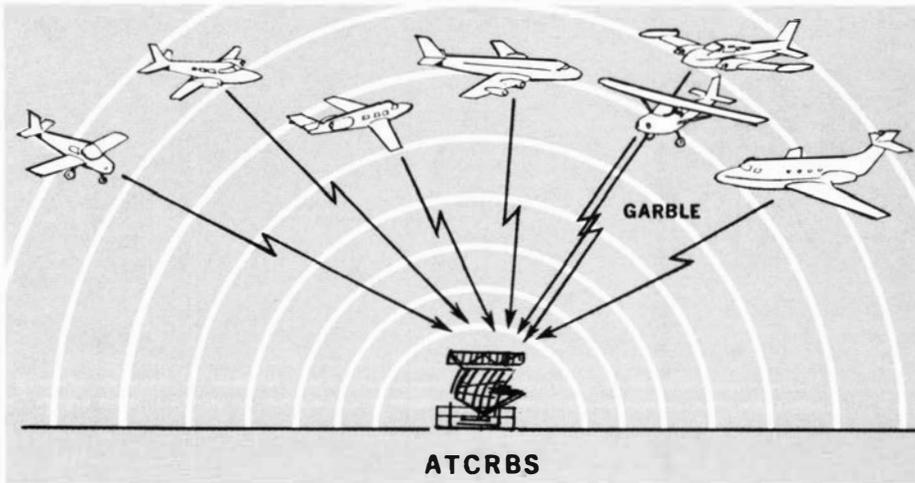
FAA has launched what may be the largest system development effort in the past decade to provide the backbone radar surveillance system for a generation to come.

The agency has begun testing at NAFEC a new beacon radar called the Discrete Address Beacon System (DABS), which is designed to cope with the projected growth of air transportation for the last 15 years of this century and beyond.

Basically, DABS is a system capable of interrogating and getting a reply from a specific airplane rather than all airplanes in the antenna beam, as is the case with the present Air Traffic Control Radar Beacon System (ATCRBS). This feature will be especially important in congested terminal areas where simultaneous replies from many aircraft can overlap and interfere with one another. The steady growth of air traffic gradually is reaching the full capabilities of present beacon equipment in these areas.

At the heart of DABS is a new aircraft transponder that will have a lifetime individual, or discrete, code. Working in conjunction with computer-based ground sensors, the DABS transponder will recognize its discrete call number and respond only when that signal is received. The transponder then will beam back such information as the aircraft's identity and altitude for display on the radar scopes used by air traffic controllers.

A unique bonus is DABS' digital data-link capability, which results from the fact that aircraft are addressed and



respond on an individual basis. This will permit automatic air-ground transmission of a variety of information, such as collision avoidance instructions, weather data, wind-shear advisories and automatic metering-and spacing commands. It also may be used for filing flight plans.

FAA Systems Research and Development Service (SRDS) began the DABS development program by designing a system that would be totally compatible with ATCRBS and build upon it, according to P. Douglas Hodgkins, SRDS program manager for DABS. "With many other programs, there's been a tremendous transitioning problem; not so with DABS. We're continuing to provide the same service we always have with ATCRBS, but we're improving performance plus adding a new service with the data link."

In fact, Hodgkins indicated, compatibility is the byword for DABS, as it must be with such a long-range development project. Present transponders will respond to queries from DABS sensors and DABS transponders will reply when triggered by existing beacon equipment, although they will act like a normal transponder under these circumstances.

The first of three prototype ground-sensor systems being built by Texas Instruments was delivered to NAFEC in June. Flight testing of its surveillance accuracy began last month, and overall system base-line testing began this month.

The second system will be installed in



J.W. Cochran (right), Associate Administrator for Engineering and Development, discusses a program review with Dr. Glen Gaustad of Texas Instruments DABS program office, while seated at a console of the type delivered to NAFEC for testing.

DABS could generate a market of more than \$1 billion over the next 30 years.

October at Clementon, N.J., southeast Philadelphia, where it will be tested as a terminal installation, using the metropolis' air traffic as part of its simulation. The third will be delivered in December to Elwood, N.J.—an existing long-range-radar site—where it will take advantage of New York area traffic for simulation of an en route operation.

The three DABS units first will be evaluated individually and then as a multisensor network to see how well they work together in supporting terminal and en route automated traffic control systems.

"Testing of a major system like DABS requires a multidimensional capability that exists only at NAFEC," points out Joseph M. Del Balzo, deputy director of NAFEC.

Hodgkins echoes that statement. "NAFEC has simulated terminal and en route facilities that don't exist anywhere else in the world, and it provides a very realistic operational environment."

"We are doing much more than just testing a radar system," Del Balzo added. We must also determine how DABS will work in the air traffic control system. We must find out how the controllers—terminal and en route—are going to use the system and with what procedures."

But before the testing could begin, realism had to be created for DABS to look at—a density of air traffic that did not yet exist. So SRDS asked Lincoln Laboratories to develop an Aircraft Reply and Interference Simulator (ARIES) to test the surveillance capacity of each DABS sensor for up to 400 aircraft. NAFEC then built its own ARIES and expects to use it and the

original ARIES to supplement live traffic for evaluating the first three ground sensors.

Each DABS sensor is expected to be able to handle at least 400 aircraft and could be expected to handle 700. This would exceed the capability required at most terminals. So ultimately, lower-capacity and less-expensive versions of DABS would be developed for lower-density airports.

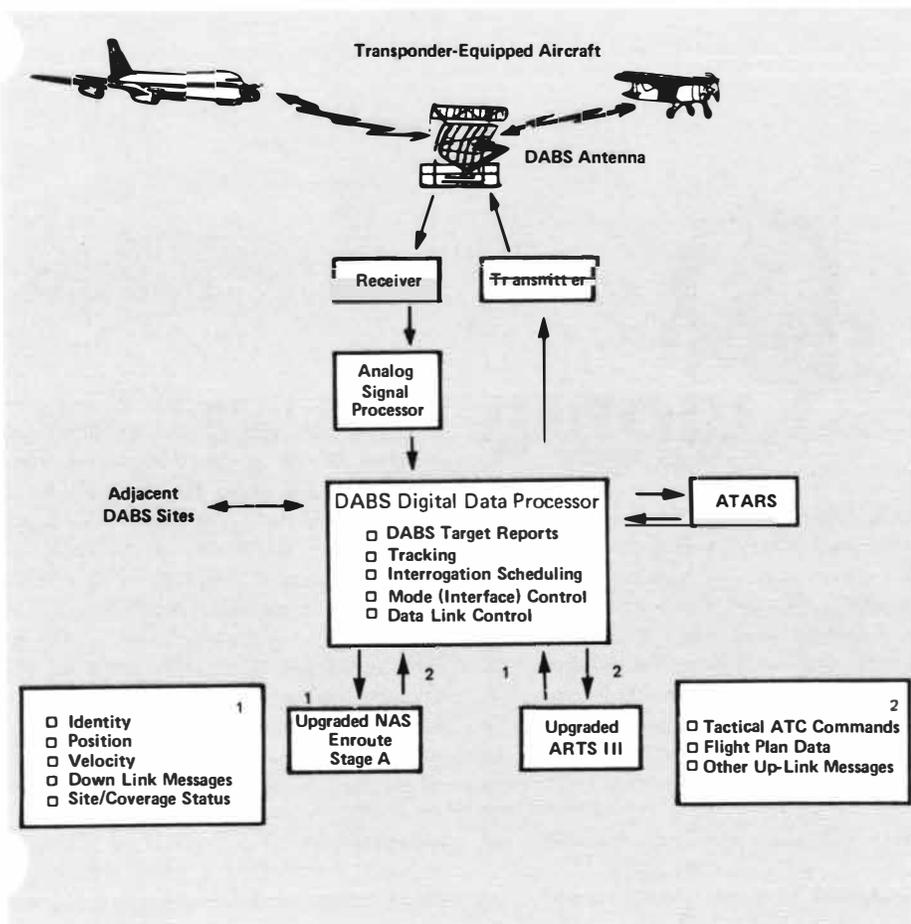
At present, there are 291 beacon sites, the overwhelming majority of which are collocated with en route and terminal radar antennas. If the DABS program is implemented, the initial production contract would be for 40 ground stations to serve major terminal-en route hubs.

According to Daniel J. Hamilton, acting chief of NAFEC's Air Traffic Systems Division, if FAA decides to go ahead with full implementation of DABS, it could generate a market of more than \$1 billion over the next 30 years for minicomputers, microprocessors, antennas and other electronic equipment. Of this, about 25 percent would be for avionics and 75 percent for ground stations.

NAFEC's DABS program manager, Rodney C. Guishard, believes that if the testing and evaluation moves along as planned, NAFEC will submit a report, along with new specifications and recommendations, to SRDS near the beginning of 1980. With this information, Hodgkins will be able to prepare a technical data package for Airway Facilities. If the agency gives DABS the green light, Airway Facilities will use the data package to prepare proposal requests.

Hodgkins points out that the agency would have to make its final decision on implementing DABS by April 1980 for funding in the Fiscal Year 1982 budget. On that basis, the initial production contract would be awarded in July 1982, calling for delivery of the first units in July 1984.

And that will be the beginning of the transition to tomorrow's ATC.



WORD SEARCH

By Jeanette Alzner
NAFEC Computer Programmer

This month's puzzle will really strain your eyes, although it's made up of common aviation terms. They read forward, backward, up, down and diagonally, are always in a straight line and never skip letters. The words may overlap, and letters may be used more than once.

Use the word list if you must, but try covering it first. All 54 words can be found. Circle those you do find and cross them off the list. The word "pilot" has been circled to get you started. When you give up, the answers may be found on page 17.

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R O T A G I V A N R O L L R E D I L G
A D O E I N S T R U M E N T S W I N D
D E N T U R B U L E N C E T H G I L F
I S M A L E P R A D A R R E D D U R
O C P G W L K L L A T S D E E P S U
E E A A T L Y R A I R P O R T S S N E
R N S U P E R S O N I C U A R E J W K
U T S Q P P Z R E T E M I T L A V A A
T R E L L O R T N O C L E A B T X Y T
R T N C A R G O A F E U G S O S T G H
A E G Q S P I G A N U E R W O J R N I
P R E T V T N N I C P E E T E N A I H
E M R W A I S G R I H R L T S I F D S
D I S I D E N N L U C L I M B N F R A
B N V N V E L O C I T Y G A R D I A R
P A A G A A T C T D I A T I P K C O C
F L A P S X L I F T P W F Z K N A B G
    
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AIRPLANE
AIRPORT
ALTIMETER
APPROACH
ARRIVAL
AVIATION
BANK
BOARDING
CARGO
CLIMB
COCKPIT
CONTROLLER
CRASH
DEPARTURE

DESCENT
DRAG
ENGINE
FLAPS
FLIGHT
FUEL
FUSELAGE
GATE
GLIDER
INSTRUCTOR
INSTRUMENTS
JET
LANDING
LIFT

NAVIGATOR
NOSE
PASSENGERS
PILOT
PITCH
PROPELLER
RADAR
RADIO
ROLL

RUDDER
RUNWAY
SEATS
SPEED
STALL
SUPERSONIC
TAIL
TAKEOFF
TERMINAL

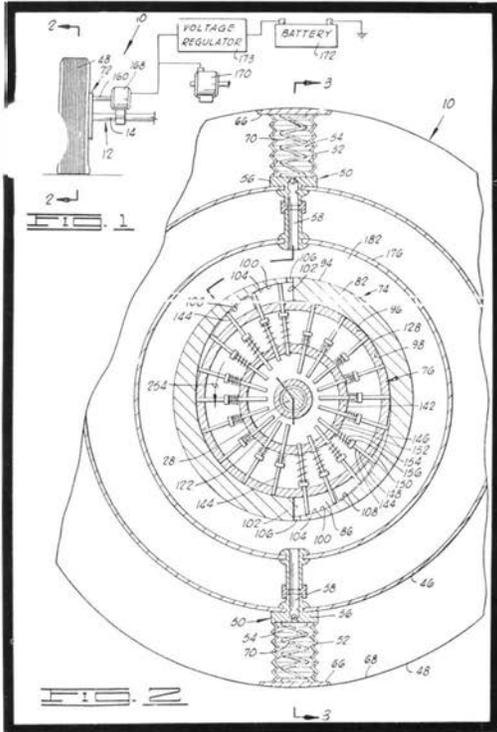
TOWER
TRAFFIC
TURBULENCE
TURN
VELOCITY
WIND
WING
YAW



PIPE DREAM . . . One of the things that makes FAA such an interesting place to work is that people are forever coming up with new ideas to make our jobs more difficult. The latest example is a team of designers in the Soviet Union that is working on a "flying pipeline" to haul oil and natural gas. The designers envision a mile-long train of jumbo-sized balloons pulled by an airship at the front and stabilized by another airship at the rear. The oil and gas would be carried in containers suspended from the balloons, and as much as half a billion gallons might be transported in one trip. Like many great ideas, this one may never bear fruit, but just the thought of it is enough to make one start considering a career in real estate.

BLUE RIBBON EFFORT . . . One of the prerequisites for a successful government program is a catchy acronym. You want something that will intrigue the media but at the same time won't offend the taxpayers. Our favorite in the aviation field is still NASA's Global Air Sampling Program, or GASP. But now the Air Force has come up with one that's almost as good to designate a program for testing adhesive bonding as a replacement for rivets in aircraft structures. It's called the Primarily Adhesively Bonded Structure Technology Program and the acronym, of course, is PABST. We'll drink to that.

TRIAL RUN . . . "Small World" has a bit of advice for engaged couples: Don't get married on an airliner. A young New England couple tried that recently on a charter flight to Europe and found out later—after the honeymoon—that the airplane captain didn't have the legal authority to perform the ceremony. Worse yet, right after the wedding, someone went down the aisle of the airplane, taking up a collection for the newly-married couple and came up with a grand total of only \$11.50. That brings up another point: If you're going to get married on an airliner, do it on a regularly-scheduled flight (First Class, possible) and not on a charter flight. Those people tend to be pretty close with a buck.



Re-inventing the wheel, or . . . The Bumpy Road to Success

Joseph A. Thompson has built a better mousetrap, but as yet no one is beating a path to his door.

It's a shame, because it's a useful invention, it fills an economic need and it tracks with a national priority espoused by the President.

A supervisory procurement agent in the Electronics Section of the Procurement and Systems Branch at

operates a generator tied to the car's batteries.

Thompson estimates it will take about 20 pumps around the rim to produce a continuous breeze to the windmill. His figures indicate that such a wheel should produce 15 to 20 horsepower, or about 750 watts of electricity. Most electric cars of conventional design can run about 30 miles between battery rechargings. His approach, Thompson believes, would give his car a normal day's operating range before recharging of the batteries is needed.

Thompson began working on his invention during the oil embargo of 1973, and his solution certainly appears energy efficient. Rather than merely converting from fossil-fuel energy to chemical energy stored in a battery, he has tapped energy that is wasted, whether in an electric car or a gasoline car. And it's more efficient than tapping the rotational energy of the wheel, because that would create a drag on the wheel that would consume energy. He estimates that mass production of his wheel would make it no more costly than a good new tire.

Thompson may have a patent, but it hasn't been a free ride to the bank. He has no working model, and it's difficult to get someone interested in tooling up for it. He has feelers out to a number of companies and would like to sell or license the patent to anyone interested in helping develop his system.

He might just do it, for the realities of today's energy shortages are on his side.



the Aeronautical Center, Thompson has been granted a patent that will let the bumpy road create a practical electric automobile. His system takes advantage of the wasted energy in the flexing of the car's tires as they roll along.

In his new wheel the pressure of the downward motion is transferred through small air pumps in the rim of the wheel as a puff of air into a chamber in the hub of the wheel where it fits over the brake drum. The low air pressures force a small "windmill" of springloaded vanes to revolve in tapering chambers (see illustration). The windmill, in turn,

FEDERAL NOTEBOOK

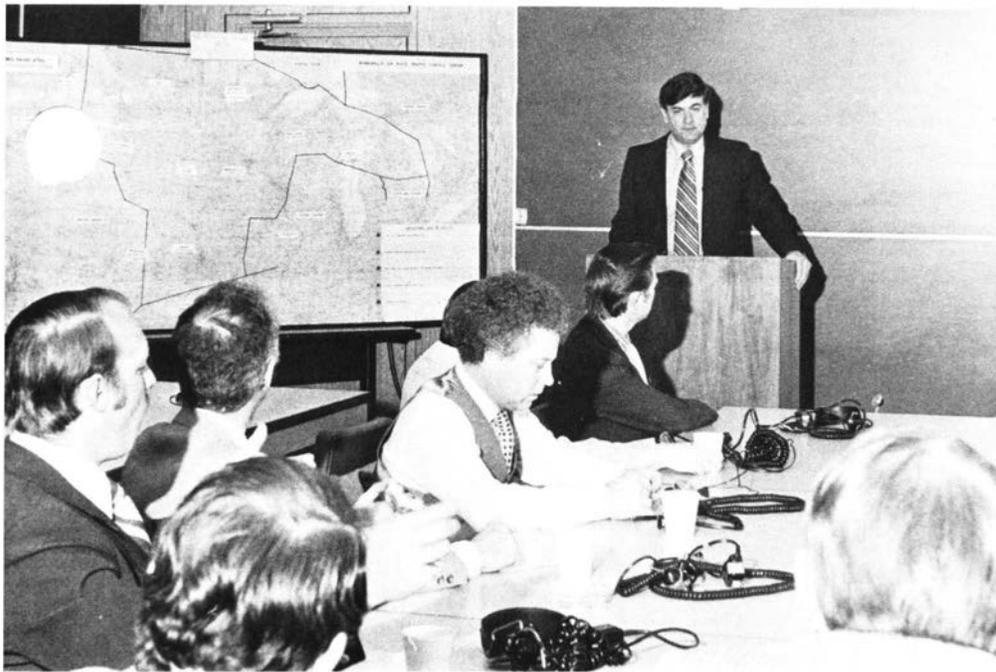
RIVETING THE LID

To set an example that the private sector might follow to aid in the fight on inflation, the President has set and, at this writing, is sticking to a 5.5 percent across-the-board cap on pay increases for October. The figures released by the Bureau of Labor Statistics show that comparability would require an average 7.9 percent raise. Private industry's increases for clerical pay was said to average 7.4 percent and professional-administrative-technical boosts 8.3. Now, the President's pay agents--the director of the Office of Management and Budget, chairman of the Civil Service Commission and the Secretary of Labor--have found that an average 8.4 percent raise would be needed to match the private sector. In fact, although the lower grades are most in need of relief from inflationary pressures, both groups point out that comparability would require a sliding scale that would range from 6.15 percent for a GS-1 to 19.4 percent for a GS-18. Nevertheless, only a flat 5.5 percent is in the offing. So much for 1978. ■ In the discussion stage now among the President, the chairman of CSC and the chairman of the Council of Economic Advisors is reported to be a pay cap for 1979 as part of the long-term inflation fight. ■ Instead of coming down on pay comparability each year and suffering complaints on the credibility of the pay system, the government is looking to change the system. The General Accounting Office has proposed legislative action to * include state and local employees in pay surveys * include benefits with pay in determining compensation * set salary schedules more in line with industry * eliminate cost-of-living allow-

ances in Alaska, Hawaii, Guam, Puerto Rico and the Virgin Islands * reduce time lag between data and actual pay increase * develop method for within-grades based on merit * eliminate top three steps in wage-grade system * create a geographic pay system for clerical and technical employees * sever the link between Congressional and Executive pay systems * set a new pay system for top executives. The Senate Appropriations Committee has already voted to eliminate the blue-collar top three steps.

REORGANIZATION HAPPENINGS

As Congress moves along with the Administration's reorganization proposals, the legislation is changing considerably. The House Post Office and Civil Service Committee has approved amendments on * the right to counsel for employees interviewed for possible disciplinary action * wider union bargaining scope and free dues checkoff privileges * Hatch Act liberalization * changing the proposed Senior Executive Service to a two-year experiment in three agencies * requiring affirmative-action efforts be included in appraisal of SES managers * downgrading protection. While the full Senate voted a bill closer to the original, it eliminates veterans preference reduction (the House is accepting it), creates an SES, pins step increases to merit, splits the CSC into two bodies but gives the appeals board a veto over some policies of the new personnel agency, sends whistleblowers to a special counsel who preserves their anonymity and who can order investigations, and caps the total pay of double-dippers. After the full House considers its version this month, the bill undoubtedly will go to a conference.



Center EPDO W.A. Fredrick explains the ATC mission and controller training program to a group of North Central pilots.

Photos by Gerald Howland

Minneapolis ARTCC controller Gary Fay (center) explains DYSIM (dynamic simulation lab) operation to North Central pilot Wayne Tutor (right) as another airline captain listens in to the discussion.



Airline Pilots Fly Radar Scopes

The Indian saying "Never judge another man until you have walked a mile in his mocassins" might be said to be the basis for FAA's "fam" flights and other-side-of-the-mike programs for pilots. No matter which foot the mocassin is on, however, the programs have been eminently successful.

Twenty-one North Central Airlines captains recently spent four hours getting a look at air traffic control at the Minneapolis ARTCC, and the seminar was so well received that the airline has asked to put all of its captains through the program. Western Airlines asked to be included in a future seminar.

"They hated to give up the mike," Don Latimer, center chief, said of the pilots working radar positions in the center's dynamic simulation laboratory.

Begun as part of North Central's recurrent pilot-training program, the seminar gave the captains a first-hand

look at the controller's life. "It was set up so that each participant could monitor a control position for 90 minutes, receive a short tour of the automation department, get a 30-minute briefing on flow control and have a 30-minute hands-on session in the lab," explained deputy chief Wesley W. Walker.

"Each pilot worked at least 15 minutes as a radar controller in the lab," he added, "handling problems developed for the Minneapolis terminal area. An instructor and an input operator were used for each participant. The pilots seemed to thoroughly enjoy this portion."

Walker termed the seminar, which ended with a 30-minute discussion on ATC, "a real eye-opener. The positive reactions and results far exceeded our expectations."

At the conclusion, each pilot received

a training certificate for satisfactorily completing a course in air traffic control procedures and monitoring ATC operations.

Area officer Don Soderholm organized the seminar with EPDO W. A. Fredrick. Participating were flow controllers Richard Curry and Gene Wischman and controllers Al Jones, Glenn Weibel, Gary Fay, Ben Einar and Robert Finn.

By Marjorie Kriz



CREATING POSITIVE ROLES—Karl Edgerton, Civil Aviation Security inspector in the Western Region, participates in a ceremony honoring Michelle Nichols of "Star Trek" fame for her support of aviation. Making the presentation were Western Airlines flight officer Ricardo Youngblood (left) and Eastern Airlines pilot Benjamin Thomas (right), the vice president and president, respectively, of the Black Airline Pilots Organization. Edgerton also has been active in soliciting the pilots group for participation in youth career programs.

TOP TECHS—The Springfield, Ill., AF Sector was Year for 1977. SFO chiefs (left to right) Marv Decatur, Ill.; Don Boudreau, Champaign, Ill.; Jim Hartwell, Terre Haute, Ind.; and Bob Worthington, Springfield, Ill., presents the award to Springfield Sector manager [name obscured].



NO ROCKING CHAIR YET—Carl Schwarz, retired from the Northwest Region's Airway Facilities Division, flies on the Civil Air Patrol's "Sunset Patrol" every Sunday during the summer to keep track of boaters on Puget Sound.

FACES and PLACES

NEW LONG-RANGE RADAR—Region engineer Desmond Stanton (right) checks cable performance during the installation of a new ARSR-3 at Arlington, Iowa, as Joseph Newman of Westinghouse looks on.

Photo by Robert Jacobson



osen as the Great Lakes Region's Sector of the Aerod, Evansville, Ind.; George Andruskevitch, y, Mt. Vernon, Ill.; Jimmie Jones, Alton, Ill.; Bob ngfield, look on as AF Division chief John Truhan rence Minke (right).



AIAA IN NAFEC AREA—Dr. Frederick S. Billig (center), regional director of the American Institute of Aeronautics and Astronautics presents a charter for a southern New Jersey chapter to its chairman, D. Michael Brandewie, assistant chief of NAFEC's Simulation and Analysis Division, and NAFEC Deputy Director Joseph M. Del Balzo (left), who is a member of the chapter's executive council.

TOP DOC—Dr. J. Robert Dille (right), chief of the Civil Aeromedical Institute, was presented with the Aerospace Medical Association's 1978 Theodore C. Lyster Award by association president Brig. Gen. Howard Unger for Dille's contributions to flight safety and the health of civilian fliers and controllers.



TOP SECS—Mrs. Deborah Fontaine (left) of the Quonset, R.I., TRACON and Mrs. June Gaffney of the New England Airports Division were recently honored at a luncheon given by the Federal Executive Board as the Region's Secretaries of the Year.



ADDED TO THE STABLE—FAA has leased a Bell 206L helicopter, the first aircraft in its aircraft inventory. To be based at Washington National when delivered next spring, the chopper will be used for evaluating RNAV routes and maintaining FAA helicopter pilot proficiency.

CONVOCATION—The Federal Aviation Christian Fellowship held its second annual meeting in Honolulu recently, with members representing FAA facilities across the country attending with some friends. Left to right are (seated) Joanie Brooks, Los Angeles ARTCC; Roslyn Chandler, Washington FSS; Rose Spelman; Warren Shepard, Phoenix; (standing) Charlie Brooks, Palmdale; Arthur Chandler; Andre Crawford, New York; Doyle Whittaker, Washington ARTCC; Ed Clayton, Honolulu ARTCC; and Chuck Spelman, Los Angeles ARTCC.



There must be a hundred different ways to fly a loop wrong.

It can be flat on the top or on one of the sides. It can be pinched at the bottom or on the top. It can be shaped like an egg or even a sausage. It can finish much higher than it was begun or much lower. And the pilot can lower a wing or slip a few degrees off heading several times on his way around.

Who cares . . . besides the pilots and their instructors?

In addition to FAA Flight Standards inspectors who judge the competency of the aerobats and the safety of their maneuvers, the people most concerned with the intricacies of how not to fly an imperfect loop are the judges of competitive aerobatics from the International Aerobatic Club (IAC). This division of the Experimental Aircraft Association has encouraged pilots to seek perfection.

It was under the guidance and leadership of a group of experienced IAC judges that representatives from most of the General Aviation District Offices in the Eastern Region got a taste of how this search for the perfect loop is projected through IAC's program of schools, achievement award sessions and contests. The official IAC Judges School, one of a series held each year in various parts of the country, was organized by the Washington, D.C., chapter of the IAC and conducted by Greer Parramore, a Delta Air Lines

INSPECTORS STUDY

What Aerobatics Is All About

captain and manager of the U.S. Aerobatic Team.

Charles Schuck, technical assistant on special projects for the General Aviation Division of the Flight Standards Service in Washington headquarters, explained the purpose of FAA's attendance at the IAC Judges School: "One of the GADO's jobs is to issue letters of competency allowing pilots to fly below minimums in aerobatic competition. So, they have to know what the various aerial maneuvers are all

about and what is expected of the contestants."

Schuck added that the Judges School helps prepare GADO inspectors for monitoring the aerobatic meets to make sure the provisions of the waiver are met.

The two-day school consisted of one day of classroom work in the Eastern Airlines training facility at Washington National Airport, followed by a day of simulated contest flying and judging at Fauquier County Airport in Virginia.

Using a chalkboard and his hands, Parramore took the class of 45 rookie judges, rookie competition pilots and FAA officials deep into the complex world of modern aerobatics. Parramore was assisted by Jim Fulbright, an airline pilot and advanced-category aerobatic pilot. The class was shown just how dozens of maneuvers are supposed to be flown and what the more common errors look like.

In the old days, a loop was a loop. Today, a simple inside loop is just one of many detailed in the Aresti Catalog—the bible of aerobatic standards for competition. To understand the rating factors and gain some grasp of a quite sophisticated sport demands that the student have some knowledge of the Aresti System of diagramming and assessing thousands of maneuvers and their combinations. And that's where modern aerobatics breaks away completely from the old style.

And that is also where the judge who is to pass on the adequacy of competitive aerobatics must start in order to cope with something that's as different from stunt flying as Olympic gymnastics is from somersaults on the front lawn. The school was meant as an introduction to this new world, and it seemed to work.

"All of us, at one time or another during our aviation careers, have gone through the aerobatic stage,"

Eastern Region GADO inspectors who attended the International Aerobatic Club's Judges School included Joe Thomas, Arlington, Va.; Jim Riley, Richmond, Va.; Dave Kountz, Pittsburgh; Bill Lutgen, Rochester, N.Y.; Joe Notarian, Camp Hill, Pa.; Ken Garofalo, Centerport, N.Y.; and Gale Braden, Springfield, Va.





A Pitts Special aerobat returns from a practice flight, a daily routine for successful competitors. Photo by Dick Stouffer

commented Joe Notarian, who attended the school, He is the principal aviation safety inspector (Operations) of the New Cumberland, Pa., GADO.

"However," he added, "there certainly have been some drastic changes since I had my Ryan, some 20-odd years ago.

"The training will come in very handy the next time we are called upon to issue a letter of competency or an air-show waiver. I now have a much better understanding of the difference between aerobatic competitors and air-show performers."

The attitude toward safety of both the IAC and the Aerobatic Club of America (which is mainly concerned with running the U.S. National Championships and fielding a national team) is evident in the safety record. There have been but two fatalities in aerobatic competition since the sport was first recognized by the National Aeronautic Association in 1964, and both appear to have been due to structural failure. In that time, there have been more than 100 official contests in the U.S., many of them involving more than 50 pilots and some as many as 100 pilots, nearly all requiring several flights by each competitor.

In contrast, during that same period, the list of pilots killed in air-show stunt flying has grown to double figures and

includes some highly skilled individuals of considerable experience.

Schuck sees the safety consciousness fostered by IAC as a benefit to other kinds of flying. "A lot of people in aerobatic flying, for example, are airline pilots," he explained, "and that is bound to make them better at their jobs.

"Let's put it this way: Who would you rather have flying your airplane—a pilot who owns a ranch on the side and is worrying about his sick cattle while at the controls or one who spends his or her spare time doing precision flying?"

For the observer at his first contest, it is a strange and confusing scene. No long plume of white smoke marks the inverted pass at rudder-scraping altitude in front of massed and gasping fans. In fact, no smoke at all, because it can be used to fool the judges into thinking a sloppy loop is really round. And hardly any fans, either, because the sport is so sophisticated that only the participants and a few educated onlookers understand it well enough to appreciate the often-brilliant flying.

In place of hordes of gawkers are IAC technical inspectors with clipboards, a roomful of computers for scoring and five teams of carefully trained judges and their assistants. They rapidly translate the mysterious Aresti symbols

into terse descriptions of the coming maneuvers and then record the judge's hurriedly barked scores and comments on the flaws of the maneuvers for later review by the pilot.

At the same time they are grading each maneuver by each pilot, the judges are ever alert for violations of the minimum-altitude rule. Minor excursions below the minimum (which varies from 1,500 feet for the least skilled pilots in the Sportsman and Intermediate Categories, to 1,000 feet for Advanced and 300 feet for Unlimited), bring penalty points.

But serious violations that could involve safety are unhesitatingly met with disqualification for the entire flight, which effectively eliminates the pilot from contention. Any flight beyond the "deadline," which may or may not correspond to a boundary of the invisible "aerobatic box" in which all maneuvers are to be flown, also brings immediate disqualification.

IAC's concern in getting the most from a pilot and airplane without compromising safety and precision is what motivated Eastern Region Air Show Coordinator and Richmond, Va., GADO inspector Eugene "Jim" Riley to support the Aerobatic Judges School so enthusiastically.

Says Riley: "IAC is an organization with strict standards where a person can get the proper instruction. Without that kind of tutoring, a pilot would try it on his own; pretty soon there would be an accident, and we'd be out there picking him up."

Thanks to Riley and to IAC members, there are now a lot more people who can watch a well-flown loop or snap roll or outside horizontal eight and simply nit-pick it to pieces. And every time that happens, someone will fly just a little better the next time.

By Don Berliner



Local coordinator and Buffalo, N.Y., AF Sector chief Ernie P. Fernsten chats with a police captain in the terminal about bomb-sniffer Xintos in the background. The team's routine takes Xintos' nose everywhere in the terminal and planes.

The Nose Knows

FAA's Air Transportation Security Field Offices at some 30 airports monitor the hunt for explosives around terminals and aboard aircraft by four-legged detectives: bomb-sniffing dogs (see FAA WORLD, April 1976).

Seventy-seven dogs have been trained in a three-year program funded by the FAA and the Law Enforcement Assistance Administration for \$400,000. At Lackland AFB in Texas, the dogs get 11 weeks of obedience and patrol training and nine weeks of explosives detection.

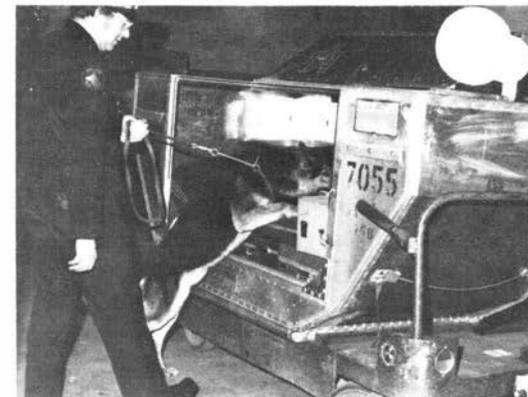
How well the dogs do their job is tested annually by U.S. Air Force evaluators. The dogs and their handlers discover hidden explosives 96.6 percent of the time, sometimes as fast as 30 seconds and on the average in 16 minutes in large areas, like warehouses.

The tests—lasting several days in each city—include searching for explosives in aircraft, airport lounges, coin-operated lockers, baggage-claim areas and vehicles.

In the real world, in 4,000 searches, including about 600 on aircraft, the dogs found explosives 76 times.

In addition to checking on the use, efficiency and continuing training of the teams, the Air Transportation Security Division's Explosive Security Specialists coordinate the regional programs and the availability of the teams for other airports.

By Irving M. Moss



Let's Go for a Spin

“The feeling was a combination of exhilaration, shock and total fright,” was the way a passenger in Herb Schaaf’s plane described plunging in a spiraling dive. But the spin was deliberate in the hands of Schaaf, who is Pacific-Asia Region’s accident prevention specialist.

It was part of a continuing program of stall-spin clinics for flight instructors, which was launched last year with a session for all the chief instructors from Hawaii’s flight schools at Dillingham Airfield.

Schaaf explained the need for such a clinic because the current generation of pilots has received little or no training in spins. “As a matter of fact, many of us have almost forgotten how critical spin situations can be,” he said. “Improper control application, disorientation and apprehension can result from this experience.” Schaaf added that 24 percent of all fatal aircraft accidents are stall-spin accidents.

“We have to reach the instructors to reach the students,” he continued. “It is a positive approach that will have a definite impact in decreasing the accident rate, particularly in a stall-spin situation.”

Accident-prevention specialist Herb Schaaf (right) discusses the characteristics of a spin with a flight school's chief instructor at the region's first stall-spin clinic.



Photos by John Titchen. Honolulu Star-Bulletin

DIRECT LINE



Q I don't understand the selection procedure for filling vacancies with the Merit Promotion Program. Once a bid has been closed and a group of individuals are rated qualified, how can there be a cancellation? When a bid goes to a selecting official with a sufficient number of qualified bidders, a selection should be made from this group. If no selection is made and the bid is cancelled, then that position should be abolished. Otherwise, MPP is a farce.

A No, the Merit Promotion Program is not a farce. Cancellations occur for a number of valid reasons. Perhaps you have noticed the phrase "for planning purposes" on many advertisements. This generally means that the vacancy does not currently exist. A few of the most common reasons for this are anticipated retirements, anticipated resignations, anticipated selections for other advertised jobs, anticipated increases in staffing, anticipated new facilities. The anticipations do not always happen, however. Other reasons for cancellations include a need to place 3-R returnees within certain time limits, hardship and other internal-placement requests that management agrees to, changes in training availability and changes in equipment delivery or commissioning. In short, we have to advertise MPP positions, but whether the announcement is marked "for planning purposes" or not, valid things do occur that make it necessary to cancel. While we would be the first to agree that positions should not be advertised and cancelled on a whim, we can't have a rigid system which always requires a selection from the list or the loss of the position altogether. If you have specific examples of constant advertising and cancelling without good reason, we are sure the division chief involved would like to know about it.

Q I don't believe one of the questions in an earlier query I submitted was fully answered concerning a conflict in the rules on approval of time & attendance reports. Ref. Order 2730.2A, Para. 301, the definition of "attendance" is regular hours worked and overtime. Ref. Order 2730.6B, Para. 13, it states that the supervisor indicates all work performed by approving the entry in the log (2730.4). If the supervisor approves the log, and entries on the T&A are made from the log, then the supervisor does not have to certify the T&A. If certification is required by the supervisor on the T&A for overtime, as you indicated, the instructions on certification (Para. 417 of 2730.2A) and the examples in Fig. 4-14 are in direct conflict with Para. 415. Which (Paras. 415, 417, 3d(4) or Fig. 4-14) is correct, and what is the correct way to enter this on the reverse side of Form 2730-56, since Form 2668 is not authorized in this region for overtime?

A DOT Form 3500.1, which replaced FAA Form 2668, is used to authorize overtime on a group basis. The completed 3500.1 serves as documentary evidence of overtime approval. The T&A clerk checks the block on the T&A report indicating use of the overtime approval form and enters the date of the 3500.1. Under these circumstances, the supervisor need not sign the T&A report if a facility log is maintained. When overtime is approved on an individual basis, the T&A report serves as the documentary evidence and must be signed by the supervisor, even though a facility log is maintained. Under these circumstances, the block on the T&A report indicating supervisory approval is to be checked. Accounting and Audit recognizes that the wording of Para. 3d(4), Order 2730.2A, could be misinterpreted. Therefore, we are processing a change to that order to make clear that approval of overtime on an individual basis must be indicated by the supervisor's signature on the T&A report.

Q Please interpret the criteria for division chiefs to consider in preparing the recommendations for FAA Academy instructor selection. Is one of the requirements that the candidate must serve at least one year at the full-performance level at the present facility? I ask this because I was denied a positive recommendation from my region on the basis that I was just transferred into the region a few months before bidding on the instructor's position, although I have more than a year at the full-performance level. If this denial isn't valid, what recourse do I have?

A Your region's Employment Branch reviews such a bid to determine if the applicant meets the minimum eligibility stated in the published announcement, which includes one year at the full-performance level. It also solicits a recommendation from the division chief that considers the criteria spelled out in Order 3330.29A, Para. 8d(1) through (4). In a review of your region's Academy bids, we found that two employees were not recommended due to "limited experience and short duration of employment within our region." This evaluation meets the criteria of the order in the region's opinion. For the division chief to recommend a candidate without reservation, he needs over and above the recorded evidence information on personal characteristics, potential, quality and recency of technical experience and training. Needless to say, this form of observation can only take place over a period of time. In one instance, the division chief did identify potential. The region suggests you discuss your career goals and potential with your immediate supervisor.

Q Is it FAA policy that a GS-13 on the non-pri crew can usurp the Supervisory Electronic Technician (SET) position on the computer

floor, even though he has management's approval, without checking with the acting SET (a GS-12, in this case)? I realize that a GS-13 is higher than a GS-12, but isn't tact and diplomacy part of being a GS-13?

A Formal policy dealing with the situation you describe is established and monitored at the sector level. If the situation described presents a problem, it should be discussed with the responsible Airway Facilities watch supervisor—the Systems Engineer. If this discussion fails to satisfactorily resolve the problem, then it may be carried to the next higher level of supervision.

Q With the exception of air shows, where waivers may be granted, I would like to know if a terminal controller should clear a formation flight for takeoff or landing as a single aircraft—that is, when two or more aircraft want to depart as a formation or are inbound for landing as a formation, does the controller clear the lead aircraft and let the formation provide their own separation, or should the controller sequence each aircraft within the formation individually, providing standard separation?

A This addresses civil aircraft as well as military. I have worked under three chiefs at this facility. The first said, "separate"; the second said "handle as one" and then changed to "separate"; the third says it is up to the local controller on duty. Appendix 4 of Handbook 7110.65A says, in part, "Formation flight—more than one aircraft which, by prior arrangement between the pilots, operate as a single aircraft with regard to navigation and position reporting." There is no mention of takeoffs or landings. Para. 1122 of Chapter 5, Section 12, says, "do not clear a succeeding aircraft to land on the same runway before a preceding arriving aircraft crosses the landing threshold, except when appropriate military authority has authorized reduced separation between military aircraft. In such cases, do not clear more than the first two aircraft to land at any one time and include traffic information with the clearance." Even here, some take the position that this paragraph speaks to "aircraft" as a formation flight, as well as to individual aircraft.

A The answer to the basic question is "yes." When the aircraft want to operate as a formation for takeoff or landing, the controller treats them as a single flight and issues instructions to the flight or flight lead. Separate other aircraft from the formation using the procedures in 7110.65A-745 (see also 1025d). Aircraft within the formation provide their own separation from aircraft within the same formation. However, local agreements, military directives (when locally applicable), etc.,

may prescribe specific procedures for handling aircraft in a formation or for join-up/break-up, consistent with the provisions of 7110.65A. Some users may not allow their aircraft to remain in formation for landing or takeoff and will have procedures established for individual handling (see 7110.65A-12 and 13, local agreements and applicable military directives). This doesn't cover all variations, but as a standard procedure, controllers do not provide separation between aircraft in a formation.

Q During the January blizzard, I was one of two people who had to spend a couple of days at our facility. I worked from 7:00 a.m. on January 26 to 3:00 p.m. on January 28; that's 16 hours on Thursday and Friday and eight hours on Saturday. Our tower is open from 7:00 a.m. to 11:00 p.m., so that was all that was shown on the T&As. Since we had to spend both nights at the tower, are we at least entitled to comp time?

A Based on the information supplied, the determining factor centers on the total hours you actually worked, not the total hours you were on the site. Since the facility was closed and you performed no work between the hours of 11:00 p.m. and 7:00 a.m., no compensation or compensatory time in lieu of compensation is authorized. The fact that you remained on site during non-work hours provides no basis for authorization of compensatory time off.

Word Search Answer Puzzle on page 6



Heads Up

ALASKAN REGION

An assistant chief of the Cordova FSS, **Richard D. Mathews**, has been selected for chief of the Gulkana FSS . . . The new chief of the Investigations & Internal Security Branch in the Air Transportation Security Division is **Rex T. Morris**.

CENTRAL REGION

Ronald N. Boe has moved up to assistant chief of the Sioux City, Iowa Tower.

EASTERN REGION

The Washington FSS has gained **Edward J. Schultz** as an assistant chief from headquarters . . . Boosted to assistant chief at the Poughkeepsie, N.Y., FSS was **Malachi G. Sheahan** . . . **Henry G. Grote** of the Morristown, N.J., Tower was promoted to assistant chief at the Newark Tower.

GREAT LAKES REGION

Sector manager **Robert G. Carson** of Akron, Ohio, was selected manager of the Detroit Airway Facilities Sector . . . St. Paul, Minn., Sector manager **Kenneth J. Melotte** was picked to be the AF assistant sector manager in Detroit . . . In turn, **Daniel M. Reid** moved from Detroit AF Sector manager to manager in Moline, Ill. . . . **Chester W. Anderson** has moved from chief of the Albuquerque, N.M., Tower to chief of the Chicago O'Hare Tower . . . A new assistant chief at the Youngstown, Ohio, FSS is its own **Wesley Gahagan** . . . Washington headquarters has yielded up **Robert P. Beatty** to the Youngstown Tower as its chief . . . **John T. Kefalotis** left headquarters to become the deputy chief of the Cleveland-Hopkins, Ohio, Tower.

NEW ENGLAND REGION

George Dileo left the Aeronautical Center to become an assistant chief at the Burlington, Vt., Tower.

NORTHWEST REGION

Ralph H. Busby III of NAFEC is now the chief of the Salem, Ore., Tower . . . **Richard D. Wilder**, who hails from the Fairchild AFB Sector Field Office, is now chief of the Mica Peak, Wash., Sector Field Office . . . **George A. McConnachie** of headquarters has taken an assistant chief's slot at the Seattle ARTCC . . . Also from Washington, **Helen M. Parke** was selected for assistant chief at the Seattle ARTCC.

ROCKY MOUNTAIN REGION

Assistant chief **William H. Fischer, Jr.**, of the Jamestown, N.D., FSS was chosen as chief of the Aberdeen, S.D., FSS . . . **Harry E. Lamar** has left the Great Falls, Mont., FSS for an assistant chief's spot at the Minot, N.D., FSS . . . The Salt Lake City Tower has boosted **Paul D. Brophy** to assistant chief . . . **David B. Isenhour** of the Salt Lake City FSS got the nod for the chief's slot at the Lewistown, Mont., FSS.

SOUTHERN REGION

Hilary L. McMillan has moved up to assistant chief at the Montgomery, Ala., FSS . . . **Alex Malon** of NAFEC is now the deputy chief of the Nashville, Tenn., Tower . . . NAFEC also supplied the Hickory, N.C., Tower with its chief, **Roy A. Robison** . . . **Glen D. Bennett** has transferred from headquarters to the Miami, Fla., AF Sector as its assistant manager . . . **Donald P. Doane** of headquarters is now deputy

chief of the Jacksonville, Fla., Tower . . . **Andrew L. Sluka** of NAFEC is now in the Ft. Lauderdale, Fla., Executive Tower as its chief . . . **Dennis S. Poore** was promoted to assistant chief at the Balboa, Canal Zone, ARTCC . . . Moving up to sector field office chief at Raleigh, N.C., was **James A. Harper** . . . A new home-grown sector field office chief in Montgomery, Ala., is **John P. Butler** . . . A new assistant chief at the Crestview, Fla., FSS is **Lloyd H. Allen** of the Raleigh, N.C., FSS . . . **Carmen N. Mena-Morena** has crossed the waters from the San Juan, Puerto Rico, IFSS to become an assistant chief at the Mobile, Ala., FSS . . . NAFEC has supplied a chief to the St. Croix, Virgin Islands, Tower in the person of **Samuel R. Causby**.

SOUTHWEST REGION

William G. Meyers of the Harrison, Ark., FSS is now an assistant chief at the Dallas, Tex., FSS.

WESTERN REGION

O'Hare's **Patrick F. O'Sullivan** is now chief of the Davis-Monthan AFB RAPCON in Arizona . . . **Gerald H. Bogan** has switched from chief of the El Toro MCAS RATCC in Santa Ana, Calif., to chief of the Los Angeles ARTCC . . . The Los Angeles FSS has lost assistant chief **Robert E. Dirks** to the Ontario, Calif., FSS in the same position . . . The Burbank, Calif., Tower has gained **Donald E. Fowler** from headquarters as its deputy chief . . . **Ward E. Stevenson** departed Washington to become chief of the Oakland, Calif., Tower . . . **Richard A. Cox** of headquarters was selected as chief of the Torrance, Calif., Tower.



At Crosby's request while the two were having dinner in Guadalajara, Mexico, Al Crook (right) joined Der Bingle in a rendering of "Guadalajara." Crook believes the less said about his part of the duet, the better.

While in Alaska recently, Crook congratulated his son, Mark, 17, on completing his solo flight at Willow Airport.



Pilot to the Stars

Once he was Bing Crosby's personal pilot.

Once his job included flying top Hollywood stars and film crews to locations and "high rollers" to Las Vegas and, at one point, he flew around the state a candidate for California governor named Richard Nixon.

Now, Albert J. Crook, former chief of the Anchorage GADO, is chief of the Air Taxi & V/STOL Section of Flight Standards' headquarters General Aviation Branch.

He looks back at those years of celebrity flying with mixed feelings. "Most of the time, it was very interesting," he says. "I enjoyed meeting and getting to know Crosby, George Gobel, Dean Martin, June Allyson, Dick Powell and Rosemary Clooney, but it had its problems, too."

By far his worst experience, he recalls, was when he was Santa Monica, Calif., air-taxi pilot. "I was flying a bunch of film people back from a shopping trip in Utah. We were at 10,000 feet over Palmdale at midnight, when one of the stars, a nationally known comedian

became drunk and insisted on taking over the controls of the Aero Commander.

"The guy had been a flight instructor in the military and, after getting plastered, suddenly got the flying bug. Even worse, he wanted to do aerobatics. He kept yelling 'I can fly this crate and I'm gonna roll 'er over.' We had a rather violent struggle when he tried to take the controls. I won—I wasn't about to let him take over." After the film funny man was subdued, Crook said, he promptly passed out.

In this same job, Crook occasionally flew gamblers to Las Vegas and back, usually with their wallets considerably thinned out. On one such trip, Crook saw one of his passengers lose more than \$40,000 in less than two hours.

He began flying for Bing Crosby in 1961, when the star bought a new Aero Commander and hired Crook to fly it. At the time, Bing was building a home in Baja California, and Crook flew the family there and on shopping trips to Guadalajara and Mexico City many times. He also flew company executives

associated with the Bing Crosby Golf Tournament and Bing Crosby Enterprises.

"Bing was always a gentleman and always treated me like one of the family," Crook remembers. "And he was remarkably prompt for a celebrity. If he said he was going to be at the airport at 6:00 a.m., he was there."

In 1964, Crook joined the FAA in Spokane, Wash., after some 16 years as a pilot, air-taxi operator and proprietor of flying schools.

By Clifford Cornick

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
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OFFICIAL BUSINESS
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The first new American airliner in a decade will be the Boeing 767 medium-range, wide-body twin jet. Planned to carry about 200 passengers, the twin-aisled aircraft will go into development and production this fall and into service in 1982. It is expected to be quieter and 35 percent more fuel efficient. A score of Northwest Region personnel will invest more than 25,000 hours in the certification process.

