MAY 1976/$2

AIR FORCE MAGAZINE

UBLISHED BY THE AIR FORCE ASSOCIATION

AIR FORCE ALMANAC

The TACAN that's small enough to fit in a magazine

Micro II combines in one compact, low cost package advantages and capabilities that are unmatched by any competitive airborne TACAN available today.

It sets a new standard for reliability.

Most solid-state TACAN systems specify a reliability of 500 hours—or even 1,000. But MICRO II, because of technological improvements, offers 1,500 hours MTBF—or three times previously acceptable performance.

One tube does it all.

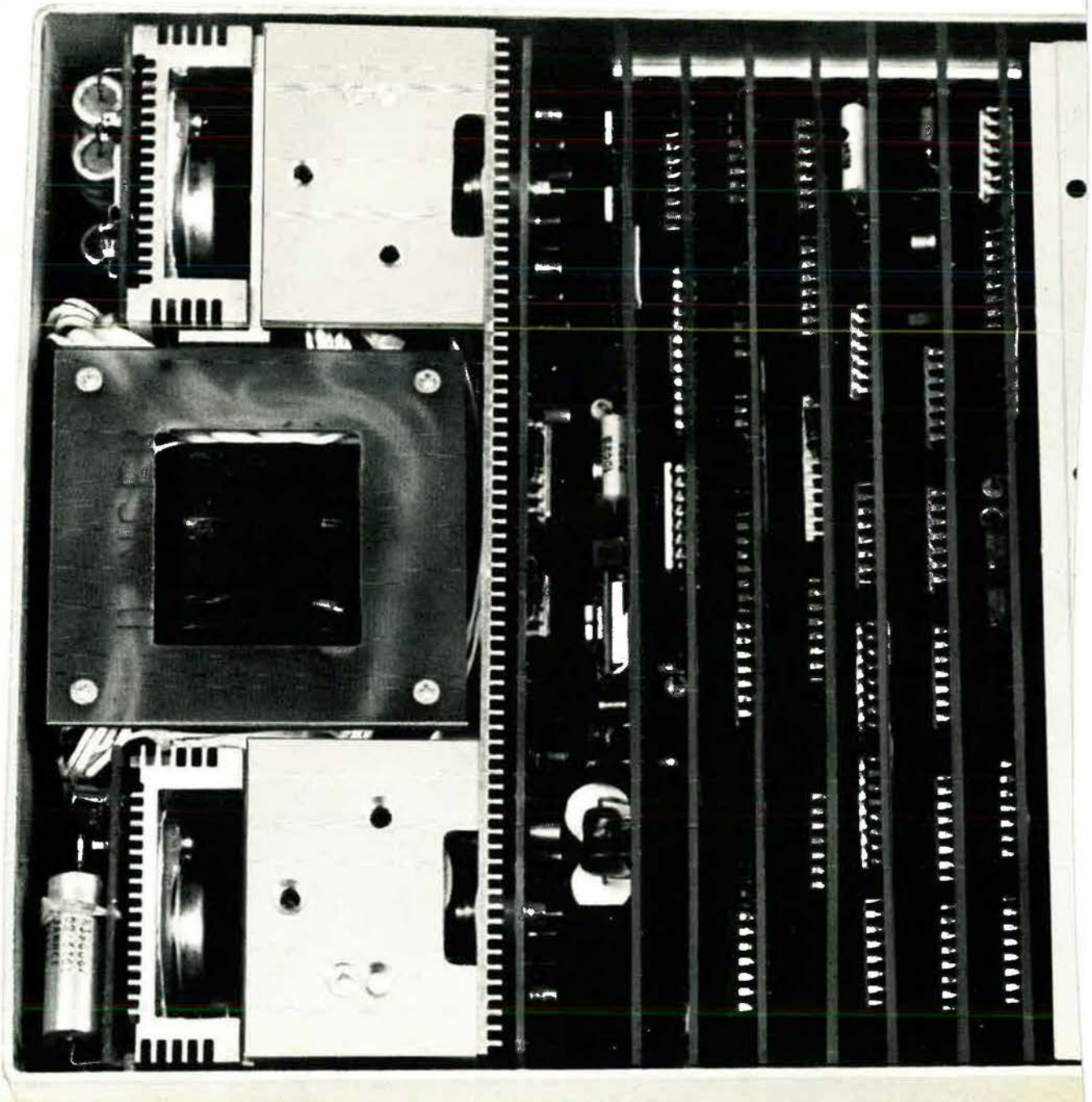
Instead of the 2 or 4 vacuum tubes previously required for the TACAN power amplifier, MICRO II uses only one. That means less life-limited components to wear out, less maintenance, greater overall reliability.

Two major pilot advantages.

Along with complete Air-to-Air Bearing Transmit and Receive capabilities, MICRO II includes Inverse Mode operation. Never before obtainable in a TACAN of such low cost and size, these features provide new operational capabilities—for such critical assignments as in-flight rendezvous and refueling.

Plenty of RF power output.

MICRO II has a 1 kilowatt peak RF power output. Under



yet advanced enough to take you anywhere.

ıormal conditions, a lower power ating would be sufficient. Iowever, MICRO II is designed o cope with transmission onditions that are not normal. So when the need arises, you'll ıave the extra power to meet it.

Advanced technology couplers.

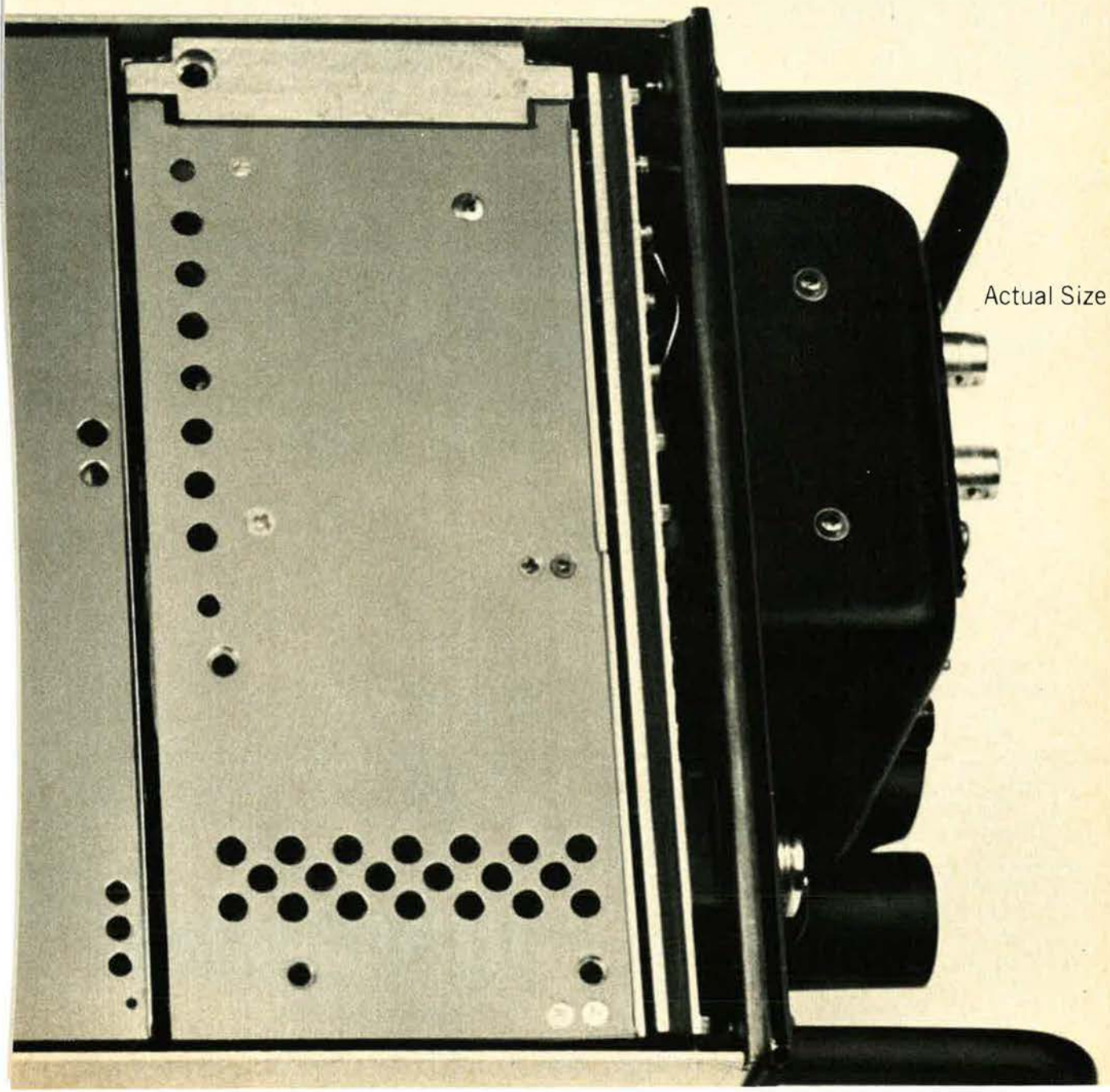
The instrument couplers in MICRO II are solid-state, not electro-mechanical. Consequently, you don't have to worry about moving parts that can wear and fail. As for configuration, it adds up to a single R/T package that will provide simultaneous digital and analog outputs of range and bearing for three instrument loads.

Other things to consider.

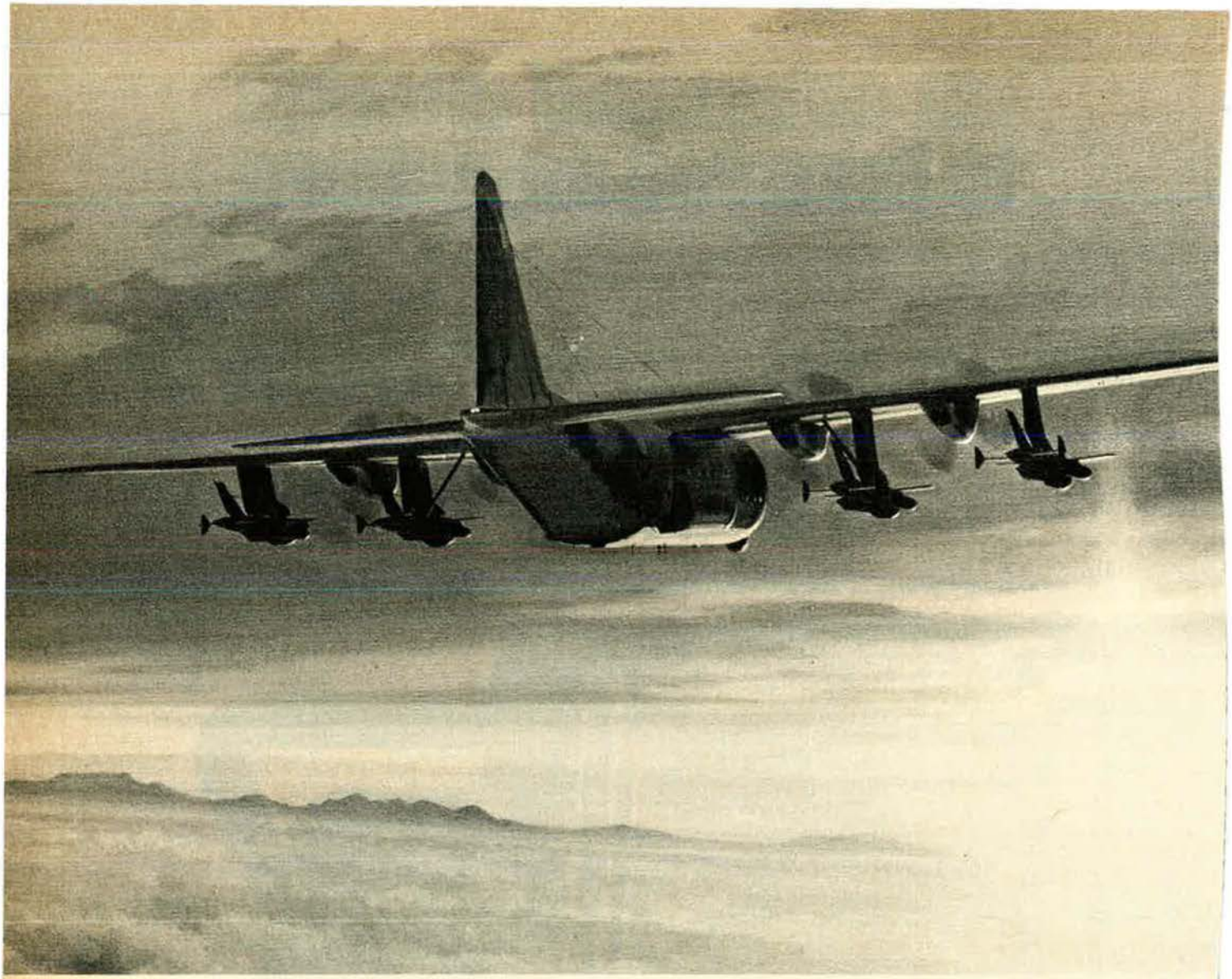
MICRO II is available in two lightweight, compact configurations. A 26 lb. R/T for digital installations, or a 29 lb. R/T for applications requiring analog instruments. Both are qualified to Mil-E-5400 Class II.

What will you put in all that extra space the MICRO II will save you? You name it. Because now you may have room for it.

Hoffman
NavCom Systems
A DIVISION OF HOFFMAN ELECTRONICS CORPORATION
4323 ARDEN DRIVE, EL MONTE, CA 91734
PHONE (213) 442-0123 • TELEX 677487



Actual Size



The Multi-Mission RPV Weapon System is here!

The vehicle is a BGM-34C, the launch platform a DC-130H and the control system a Multiple Drone Control Strike System (MDC/SS).

Teledyne Ryan Aeronautical is producing the RPV, with Lear Siegler, Inc. modular avionics aboard; Lockheed Aircraft Service is producing the DC-130H and Sperry Univac is building the MDC/SS.

This multi-mission RPV prototype weapon system incorporates existing electronic warfare and reconnaissance equipments currently in inventory.

Production procurement scheduled for early 1977 will turn out an extremely cost-effective weapon system which will complement manned aircraft in fulfilling present-day electronic countermeasures, reconnaissance and strike force support missions.

Four pioneering aerospace companies have teamed to produce the system that with its inherent growth capabilities can easily be the operational multi-mission RPV weapon system of the future.

RPV MULTI-MISSION WEAPON SYSTEM

LEAR SIEGLER ASTRONICS DIVISION
LOCKHEED AIRCRAFT SERVICE
SPERRY UNIVAC DEFENSE SYSTEMS
TELEDYNE RYAN AERONAUTICAL

AIR FORCE MAGAZINE
PUBLISHED BY THE AIR FORCE ASSOCIATION

MAY 1976 • VOLUME 59, NUMBER 5

ANNUAL AIR FORCE ALMANAC ISSUE

REPORTS FROM THE MAJOR AIR COMMANDS AND SEPARATE OPERATING AGENCIES

GALLERY OF USAF WEAPONS

BY S. H. H. YOUNG

AN AIR FORCE ALMANAC

DEPARTMENTS

AN EDITORIAL

300 Deadlines — Plus One

By John F. Loosbrock, EDITOR

AS this is written, I am beginning my twenty-sixth year on the editorial staff of AIR FORCE Magazine—or ending my twenty-fifth, depending on how you look at it.

For myself, I prefer to think in terms of beginnings, rather than endings. That is one of the greatest satisfactions of the editing craft, the overlapping cycles that find you well along in putting together the next issue before you see the one that has been irretrievably put to bed.

Three hundred is a lot of deadlines, multiplied by the dozens of subdeadlines that must be met on a daily basis—departments, articles, art and layout, advertising, covers, copy-editing, rewriting, captions. The pressures are always there, bringing with them the multitudinous occupational hazards of the trade—the ulcer, the hiatal hernia, the coffee nerves, the nicotine fit, and the annoying complications of one's internal plumbing that are best not listed or described.

What makes it all go is people, and here I have been blessed beyond either my expectations or my deserts. I have a great group of colleagues and I'd like our readers to know more about them.

If AIR FORCE Magazine is, as I firmly believe, the glue that holds the Air Force Association together, then Managing Editor Dick Skinner is the glue that holds the magazine together. His job description is implicit in his title. He manages the transformation of dozens of chunks and bits of editorial and advertising copy, art, and photos into the cohesive entity we call AIR FORCE Magazine. Skinner is a brilliant master of a most demanding job and I've been lucky to have him. He's made me look good for what will be twenty-five years in September.

Providing the same kind of continuity over the same number of years is our Special Assistant to the Editor, the unflappable Nellie Law. Her secretarial skills are impeccable but represent only a fraction of her value. She is a meticulous and inquiring proofreader, puts together the "Airmail" department, handles print orders and the magazine inventory, and shifts smoothly back and forth from the editorial world into the quite different kinds of duties that stem from my other incarnation as Deputy Executive Director of AFA.

It is the assumption of a conglomeration of AFA management responsibilities more than four years ago—primarily in the financial area—that has caused me to lean so heavily on another key person, Executive Editor John Frisbee, who came to us six and a half years ago after twenty-eight years of Air Force service. His incisive editing improves every piece of copy that passes through his hands, and his ability to rewrite has unearthed many a nugget from a jumble of windy jargon. A fine writer himself, Frisbee can make a mediocre manuscript read like a good one.

The guts of each issue of AIR FORCE Magazine comes largely from the typewriters of our Senior Editors—Claude Witze and Ed Ulsamer. Quite unlike in temperament, personality, and background, they share the good reporter's respect for the truth, desire for the exclusive "beat," and instinct for the jugular that is *sine qua non* in the reporting of public affairs, in a free society. Witze's forte is the intricacies of the political process, Ulsamer's technology and strategy. Together they provide our readers an insight into defense affairs that is unmatched in perspicuity.

How a magazine looks can be as important as what it says. Editors and writers tend to forget this, which makes the Art Director's job as difficult as it is essential. On a staff laced with old pros, Bill Ford stands out as a young pro. Our new logo and cover design and the new look throughout are products of many months of hard work by this talented youngster who, as he recently reminded me, was only five months old when I came to work at AFA. I could almost hear my arteries hardening.

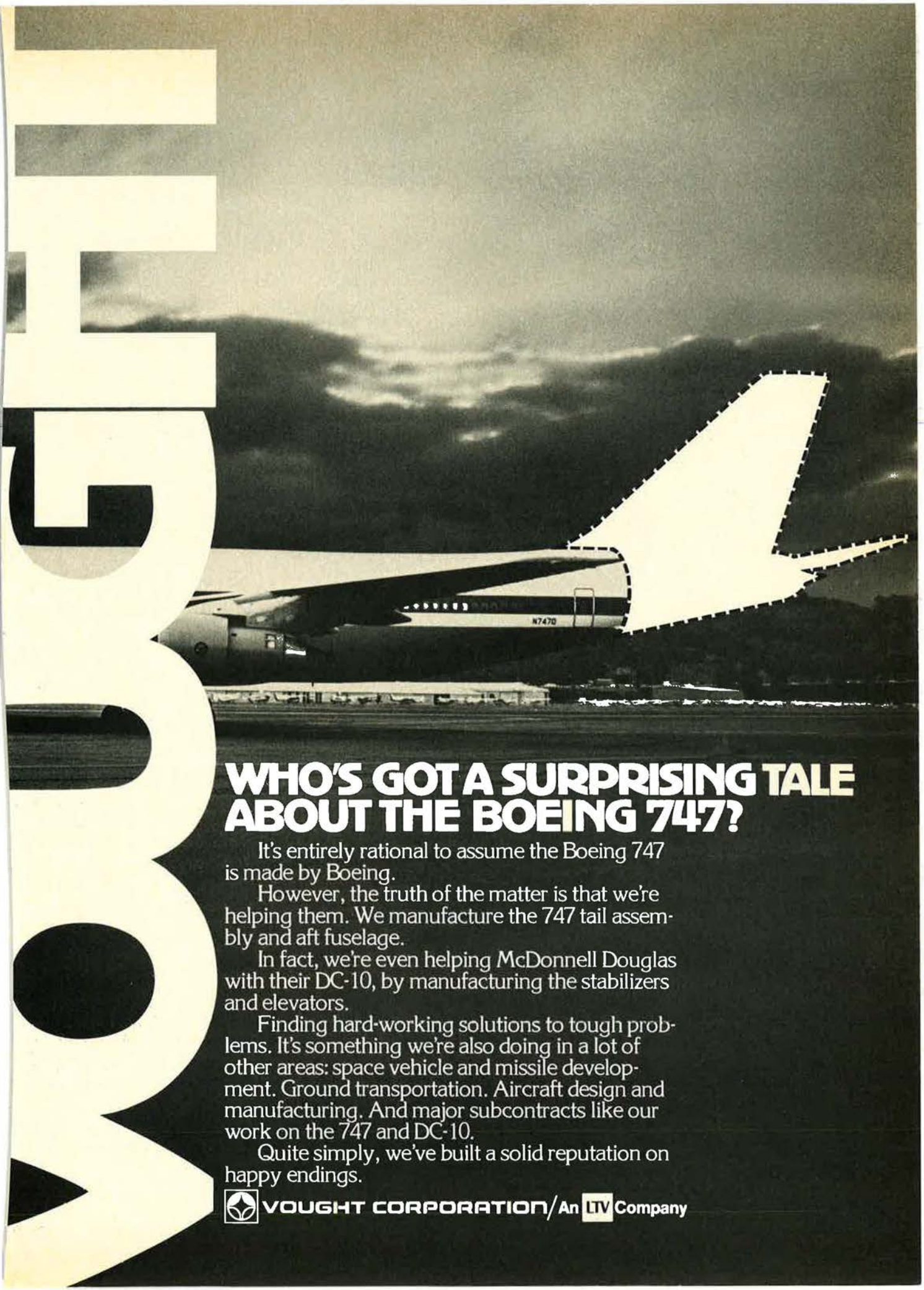
Behind these more visible personalities are others whose contributions are equally essential. Bill Schlitz, Assistant Managing Editor, backstops Dick Skinner, writes the popular "Aerospace World," as well as dozens of captions and blurbs, and reads and edits copy. Bob Shaughness, as Director of Design and Production, provides direct contact with our printer, Merkle Press, and our typesetter, Modern Linotypers. Grace Lizzio is a tireless typist and the only person on the staff who can read Ulsamer's writing. Pearlie Draughn, receptionist par excellence, handles the daily mountain of letters, press releases, and publications, and serves as librarian as well. Robin Whittle's main responsibility is to AFA's Communication Department but she doubles on editoria promotion and writes "Books in Brief."

A bow is due as well to our advertising freight-payers under Advertising Director Charlie Cruze. With his capable assistant, Pat Teevan, Cruze manages the entire sales effort, including promotion, and monitors the work of By Nicholas in our East Coast office, Greg Kane and Marilyn Gross in the Midwest, and Bud and Anna Keele in Los Angeles.

Not to be overlooked is our exceptional good fortune in having a publisher, Jim Straubel, who has an understanding of what we try to do that few other publishers possess.

The phrase "team effort" has become a teeth-gritting cliché but, try as I might, I can find no better synonym for the work of all these talented and dedicated professionals who make my job so satisfying and so much easier.

I salute them, one and all. ■



WHO'S GOT A SURPRISING TALE ABOUT THE BOEING 747?

It's entirely rational to assume the Boeing 747 is made by Boeing.

However, the truth of the matter is that we're helping them. We manufacture the 747 tail assembly and aft fuselage.

In fact, we're even helping McDonnell Douglas with their DC-10, by manufacturing the stabilizers and elevators.

Finding hard-working solutions to tough problems. It's something we're also doing in a lot of other areas: space vehicle and missile development. Ground transportation. Aircraft design and manufacturing. And major subcontracts like our work on the 747 and DC-10.

Quite simply, we've built a solid reputation on happy endings.

VOUGHT CORPORATION/An LTV Company

F-5E

Tactical Air Defense Fighter called Tiger II. Excellent combat agility. Companion ship to dual-cockpit F-5F. Accurate fire control system air-to-air and air-to-ground.

Twin engines increase mission reliability and safety. Easy maintenance, rapid turnaround, extended endurance. All at affordable cost.

Northrop F-5s and T-38s now on duty (or on order) with 22 nations including the United States. Production through Feb. 29, 1976: 2,526 aircraft. All delivered on time, on cost, performance as promised.

Aircraft, Electronics, Communications, Construction, Services. Northrop Corporation, 1800 Century Park East, Los Angeles, California 90067, U.S.A.

NORTHROP

Airmail

Concern for Future

As I read and reread each issue of AIR FORCE, I become more acutely aware of how much vital information concerning our defense posture never reaches the general public other than through your publication. And special issues of AIR FORCE—such as the one outlining the Soviet defense structures—should be mandatory reading material for our legislators on Capitol Hill.

After reading AIR FORCE, I feel distressed—a mounting concern for the nation's defense capability in the future. Still, I want to know as much as possible about the subject for, when it comes to the bottom line, nothing is more vital to assure this nation of a continuation of freedom as we know and enjoy it today than an adequate defense capability.

Congratulations for consistently publishing high-caliber, informative articles. Your message will get through; it *must* if we are to have a reason to celebrate the Tricentennial Anniversary in 2076.

Larry G. Hastings, President
National Space Club
Washington, D. C.

Mr. Paine's Letter

In response to Lauren Paine, Jr., in your March 1976 issue, he is welcome to pick up his membership and go elsewhere.

If Mr. Paine does not consider our society worth spending for, be aware that the Russians and their allies do, and quite exhaustively. Certainly it is costly to maintain even a minimum balance of power. Who amongst us would want less?

I suspect that Mr. Paine has never faced the enemy in combat, with less than equivalent numbers and equipment. Would he want his sons to fight with less reserves, less training, and less personal reward? When we insist upon the cream of our youth to protect our nation, should we deliberately make it impossible for them to enjoy equality with the rest of our nation? Who will be the gainer?

Recent events throughout the world should alert us that our enemies are not losing much sleep in their plans for dominating all that lives upon this planet. Apparently there are still those amongst us who have yet to learn the lesson of 1939.

Sol Greenberg
Roslyn Estates, N. Y.

Mr. Lauren Paine's letter is a relatively accurate statement of how I have felt about AFA since I joined, and that was longer ago than Paine's 1965.

You *are* parochial, you *do* give unalloyed and totally uncritical support to Air Force press agentry (and only slightly less to that of DoD).

Your civilian supporters remind me of hobbyists; fascinated with something they do not really understand. And your portrait of the Air Force is one I have long had difficulty recognizing.

In times past, we may have been inclined to wink at a little lobbying —"What the hell; everybody does it." But the climate in this country, thank God, is increasingly one of a people refusing to be snowed. Your brand of advocacy journalism becomes more of an anachronism every day.

We are the most self-congratulatory, and at the same time the most Neanderthal mentally, of the services. When was the last time you saw a serious, critical article in print written by an Air Force person *on active duty* in your journal or in a professional journal? Do you really believe in the ghost-written flackery you publish under general's bylines?

If the Air Force is worth defending, it can stand criticism. You are in an excellent position to give ear to the loyal opposition, and not only as a few tokens in your "Airmail" pages.

It might do well if you abandoned the stars and the Pentagon and the Distinguished Visitor circuit, at least part of the time, for the flight lines, offices, clubs, and homes of the Indians with fewer feathers. Perhaps then you would understand why so much of your output is greeted by that marvelous eight-letter native American word for excreta of the male of genus bos.

I'll stay with AFA, in hope, but you worry me more every year.

Col. Robert J. Powers,
USAF (Ret.)
Shreveport, La.

No-Win Wars

I wish to comment on the article by Gen. T. R. Milton in your March issue ["Perils of the Vietnam Syndrome"]. I am sorry to have to state that I will continue to oppose involvement in the Angolas of the world because of three considerations unmentioned by General Milton. First, I have in my possession a State Department release of 1969 stating that "we are not seeking a military victory" in Vietnam. It is bad enough to send troops out to die while imposing artificial restrictions on the weapons to be used and the borders to be crossed. To send men out to die while refusing them the right to win, or even the psychological comfort of believing in the illusion of victory, is a moral monstrosity. In my view, only politicians (and generals) who view men as pawns in some worldwide chess game could perpetrate such an evil upon our armed forces.

But there is a second and greater philosophical horror. When President Nixon signed the Vietnam peace agreement, he referred to our participation in that conflict as "the most selfless act in our history," implying in that phrase that the act was also "praiseworthy." It certainly was "selfless," in that we not only failed to gain anything, but also we lost many thousands of our own people, many billions of dollars, and the friends we were supposed to be helping. Repetitions of such praiseworthy selflessness in the future would be suicidal.

Finally, after Vietnam fell, President Ford made a determined effort to ensure that the perpetrators of this moral monstrosity in our government were not to be sought out. He may have preserved the national unity, but he also ensured that philosophically, *nothing has changed.* The people who believe we dare not gain a victory over communism anywhere lest there be nuclear war still hold their jobs, as do those who believe it is right to send people into battle for no higher

Airmail

goal than a negotiated settlement, and those who believe we can pay the human and material price of such settlements endlessly.

I don't think we can afford it. Perhaps we will lose our world stature by default. Certainly our Vietnamese defeat has already lost us quite a bit in moral stature both worldwide and at home. No one will hold us in awe if we engage in additional halfhearted prosecutions of no-win wars. Moreover, if our troops are to be asked to sacrifice all that they have, they should be allowed the faith that their country is trying to save their lives by seeking the quickest victory possible. To do less is to betray the soldier's trust.

Unless I and others like me can feel that our forces will not be betrayed again, I will not support any further use of them in the Korea/Vietnam manner, regardless of what happens to our national prestige. And I don't think any other moral citizen will grant such support either.

Richard N. Sullivan
Landing, N. J.

• *We call our readers' attention to the second paragraph of General Milton's article, in which he said: "No one in even approximately his right mind wants any more Vietnams, with all that name conjures up: the massive overcommitment of troops, the confused strategy in which the giving of signals to the enemy took the place of trying to defeat him."*—THE EDITORS

Medicare Discrimination

I am writing to express my feeling on the article in "The Bulletin Board," page 75, "Kin Medicare Changes," in the February issue. The last paragraph states that the Administration is threatening to charge dependents on a sliding scale formula based on the sponsor's rank.

This type of action is a creeping discrimination against officers and higher ranking NCOs, who have attained rank and position through hard work. In no similar American civilian activity do such discriminatory practices of price structuring based on trade or profession exist; there is one price for all who seek the service. To charge dependents of certain members a higher fee than dependents of other members bears absolutely no relationship to the needs of the facility or proper conduct of government business. This threat as presented is inconsistent with the prohibition against arbitrary and capricious charging of fees and is a clear example of blatant class discrimination.

Colonel
(name withheld by request)

We Wouldn't Either

We sure wouldn't want "The Wayward Press" of your March issue to be wayward.

California only excludes the first $1,000 of military pay earned while in California. Outside of the state, all is excluded. The state's Franchise Tax Board will receive a check from me this year.

Capt. Dale S. Elliott
Edwards AFB, Calif.

Commemorative Stamp

May 20, 1977, will mark the fiftieth anniversary of Charles A. Lindbergh's solo crossing of the Atlantic. This saga undoubtedly remains the all-time great event in aviation.

Through the joint cooperation of the Long Island Early Fliers, Missouri Historical Society, International Aerospace Hall of Fame, and Aero-Club of France, a number of ambitious special projects and events are planned to honor this achievement.

Various aviation groups have petitioned the Postmaster General to issue a special stamp commemorating the event, in the belief that this is the type of memorial of which Lindbergh would have approved. At present, it is on the agenda of the Citizens Stamp Advisory Committee for consideration. However, the decisions of this committee are often influenced by the number of letters it receives on behalf of any special and/or commemorative stamp.

Since there are few among us whose lives have not been affected, at least in part, by this courageous man and his pioneering flight, a letter . . . in support of a stamp honoring this event would be instrumental in helping them reach a favorable decision.

Please mail your letter of support to The Citizens Stamp Advisory Committee, c/o The Postmaster General, United States Postal Service, Washington, D. C. 20260.

Capt. Charles V. Dobrescu
TWA
Glen Cove, N. Y.

Forgotten Groundsiders

I have been a member of the Air Force Association for only a short time. I enjoy reading AIR FORCE Magazine, and agree most of the time with the editorials and what the Association stands for.

What I would like to see in the magazine is more coverage of Air National Guard activities, especially in the light of more and more combined JCS exercises that the Guard is participating in. I am not in the flying end of the Guard, but on the groundside. I belong to the 274th Mobile Communication Squadron, NYANG, 253d Mobile Communications Group, Eastern Tac Communications Region. More emphasis should be placed on articles concerning us forgotten communicators.

I am very proud of my unit. We are well recognized in the communications business as one of the top squadrons. We are not perfect, but when called upon we do perform. Our Squadron finished out 1975 with our Federal Inspection in December and received an outstanding rating. This achievement only shadows what happened in November when we received the Air Force Outstanding Unit Citation. So there is a lot happening in the Guard besides flying. . . .

SSgt. Alfred J. Krist, NYANG
Long Island City, N. Y.

Missing B-24 and Crew

A few years ago I became interested in a B-24 bomber and its crew which were lost during World War II and finally discovered in 1970. The B-24, serial number 42-72806, nicknamed "Ten Knights In a Barroom," was lost near Angoram, New Guinea, on December 1, 1943. The aircraft was shot down while on a bombing mission, with four other bombers, over Wewak. The bomber and crew took off from

We suggest that readers keep their letters to a maximum of 500 words. The Editors reserve the right to excerpt or condense as required in the interests of space or good taste. Names will be withheld on request, but unsigned letters are not acceptable.

The world's biggest airlift bargain. Hercules will still be serving in the 21st century.

Here's one way the United States and other countries can beat inflation. Hercules airlifters rolling off Lockheed assembly lines today will be serving in the 21st century.

Hercules is also a budget cutter in another way. Its tough turboprop engines are stingy on fuel. In fact, Hercules uses only about half the fuel of proposed airlifters powered by fanjets. That saves hundreds of thousands of dollars over the life of each Hercules.

Hercules has turned out to be one of the most remarkable planes ever to fly. It was born with a classic airlift shape so simple and functional that it is almost timeless. But inside Hercules, Lockheed has improved the plane from nose to tail. All basic systems have been improved. New systems and engines have been added.

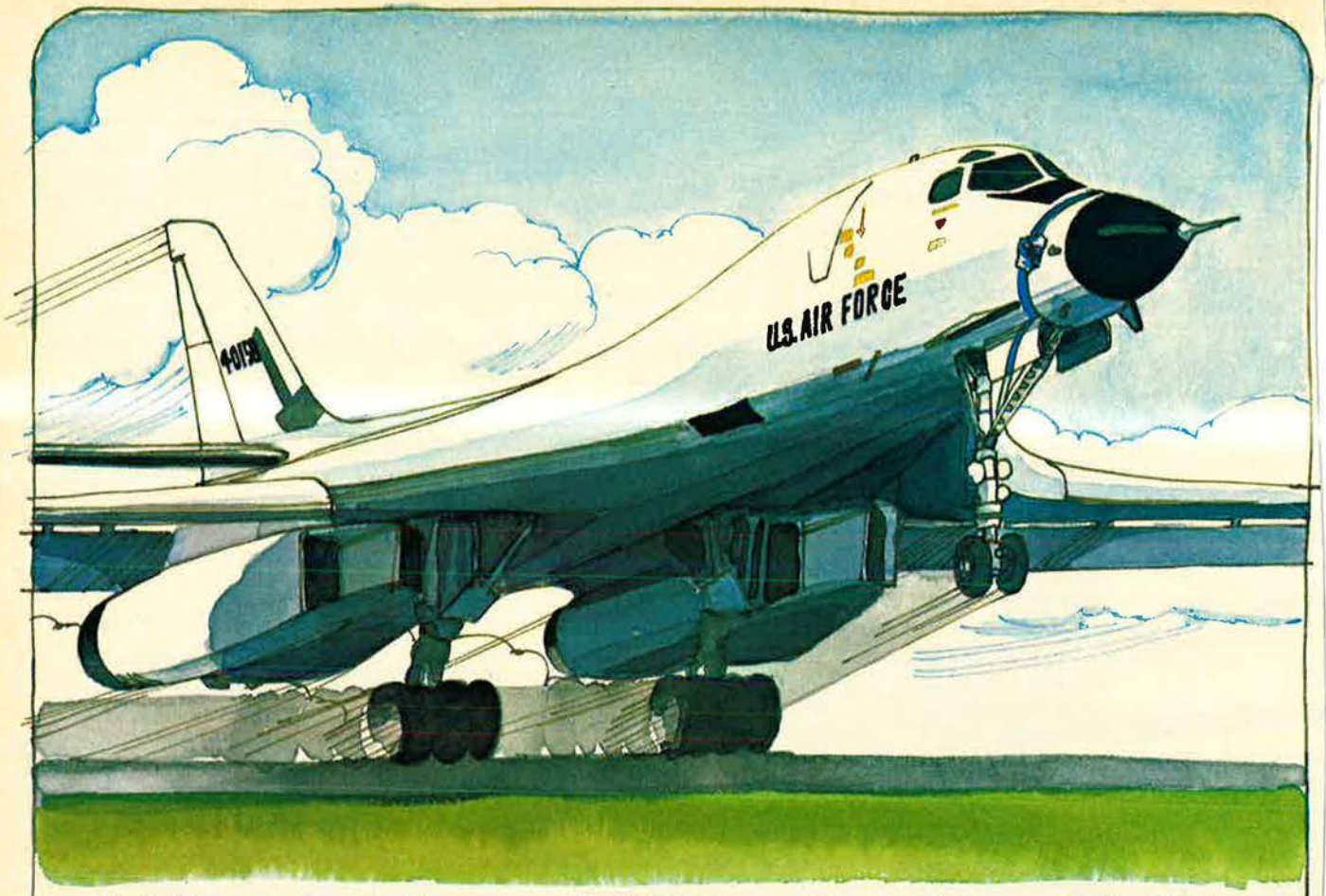
The result: Payload is up 26% since Hercules first flew. Engine power has risen 20%. Cruise speed is 11% faster. And range has increased 52%.

For the United States, Hercules is paying off in yet a third way. Thirty-seven other nations have chosen this sturdy airlifter that easily handles short dirt, gravel, sandy and snowy runways.

The Lockheed Hercules. It will be lifting trucks, tractors, bulldozers and other oversized cargo in the 21st century.

Lockheed Hercules

Lockheed-Georgia Company



We produce VSDs for the F-15. Now the B-1 will have ours, too.

Sperry is fast becoming *the* name in cathode ray tube displays for aircraft of all types—fighter, bomber, transport and helicopter.

F-15 pilots have been praising our Vertical Situation Display, commenting on its "sharp, bright symbols" and the ability to read the display even when the cockpit is bathed in sunlight.

Now Sperry is delivering VSDs to Rockwell International for the new B-1 strategic bomber. In addition to displaying symbology normally seen on an electromechanical attitude director indicator, the Sperry VSD has provisions for displaying a picture of approaching terrain sensed by a low light level television or an infrared system.

Sperry CRTs have also been used successfully in a number of subsonic aircraft. They are being used in NASA's STOLAND project aboard a Convair 340, deHavilland Buffalo, Twin Otter and a Bell UH-1. The Air Force used a Sperry display in a C-141 during an all-weather landing program.

B-1 VSD

In the near future our CRT will be installed in Boeing's YC-14 as an electronic attitude director indicator, and aboard Navy SH-3H helicopters, where our display will be part of Teledyne Systems' tactical navigation system.

If you would like to test our CRT capability, call on us. We're Sperry Flight Systems of Phoenix, Arizona, a division of Sperry Rand Corporation, making *flying* machines do more so man can do more.

SPERRY
FLIGHT SYSTEMS

Airmail

Wards Drome, Port Moresby, and was with the 321st Bombardment Squadron, 90th Bombardment Group, V Bomber Command. The crew members were listed as missing in action until the plane was found in New Guinea. The crew members were:

1st Lt. Oliver Sheehan, pilot; 2d Lt. Robert J. Rothwell, copilot; 2d Lt. Wendell D. Rawson, navigator; 2d Lt. James A. Gebbie, bombardier; TSgt. Uhland S. Adair, engineer; TSgt. John J. Haggerty, radio operator; SSgts. Rocco W. Bobbora, Thomas D. McNamara, Raymond M. Phillips, and Richard D. Wall, gunners.

I would appreciate hearing from any readers who might be familiar with any of these men, their aircraft, or information about Wards Drome, Port Moresby, or the 321st Bombardment Squadron. I am collecting information for a possible book and am interested in what the daily routine might have been for these men. Any correspondence will be answered.

SP/4 Michael J. Cundiff
496-60-8125
226th A. G. Co. (Postal)
APO New York 09108

We're Sorry, Milt . . .

In an April issue review of George Wunder's new book, *Amateurs At Arms,* Mr. Wunder was mistakenly identified as the creator of "Terry and the Pirates." Not so. The comic strip was, of course, the brainchild of Milton Caniff.

celand-Based Aircraft

Several members of the International Plastic Modelers' Society (IPMS) presently stationed at Keflavik, Iceland, would like to start a project to commemorate in some small way the Bicentennial. We are planning to build an exact scale model of every type of American military aircraft that has ever been based in Iceland. To that end, I should like to solicit the assistance of anyone who might have a photograph or two (black and white, color, or color slide), technical orders, camouflage schemes, magazine articles, etc., which describe any of these aircraft. Of particular interest is the 57th Fighter-Interceptor Squadron, especially the B-25 that is thought to have been assigned to it for a period of time in the 1950s.

I should like also to ask for assistance in obtaining a photo (or any other information) regarding a Forward Air Control aircraft (I'm not sure whether it was an O–1 or an O–2) used in SEA that had the words "THE FAC" lettered on the top of its wings. I'd be most grateful for *any* information/photos of AC-47, AC-119, and AC-130 aircraft used either in SEA or in the US.

All materials will be returned unharmed immediately after copying.

SSgt Edward L. Robbeloth
Iceland Defense Force, Box 1 J-2
FPO New York, N. Y. 09571

KIA Member of 83d FS

I am researching the death of my uncle, 1st Lt. Alan R. Jacobson, while flying his P-47D-28(HL-B) over Eisenberg, Germany, on November 9, 1944. At that time he was a member of the 78th Fighter Group, 83d Fighter Squadron.

I have explored many avenues of research and have been able to gather bits and pieces but would like to hear from any readers who were in the 83d during the period of June to November 1944, or may have known Lieutenant Jacobson personally.

I would also like to make contact with or find the location of his wingman, 1st Lt. Edwin H. Miller (HL-U/O-1048524).

Any photos of Lieutenant Jacobson or his aircraft, "Jakes Place I" and "Jakes Place II" would also be helpful.

Lt. (j.g.) James H. Jacobson, USN
IPAC 1232—Box 38
FPO San Francisco, Calif. 96610

312th BG History

My history of an Air Force group serving in the Pacific during WW II is approaching completion. *The Roarin' 20s—The History of the 312th Bombardment Group in WW II,* will be a complete, detailed account of the "Most Versatile Bomb Group in the United States Air Force." The 312th actually had a combat life involving the P-40, A-20, B-25, and the B-32 aircraft. It was the only group to be given the B-32 as its combat arm. The four-engine bomber, with a tail over thirty feet high, was the planned sister ship of the B-29. The last actual combat against Japan was in this aircraft. Over 200 photographs as well as escape-and-evasion reports, maps, combat missions, human interest stories, typhoons, and the details of life in New Guinea, the Philippines, and Okinawa are unfolded.

All former members of the 312th and its four squadrons—386th, 387th, 388th, and 389th—interested in obtaining a copy of this history should contact me. For historical purposes, cross references are made to the Fifth Air Force combat groups and squadrons that joined the 312th in assigned missions in the Pacific. Secretaries of the reunion committees of these units should also contact me.

Dr. Russell L. Sturzebecker
503 Owen Rd.
West Chester, Pa. 19380

UNIT REUNIONS

Air Rescue

There will be an Air Rescue reunion at Lake Coeur D'Alene, Idaho, July 30–August 2. Contact

Bob Dyberg
5025 66th Ave. West
Tacoma, Wash. 98467

Ranch Hands

The 10th annual reunion of the Vietnam Ranch Hands will be held May 22 near Andrews AFB, Md. All former Ranch Hands contact

Charlie Hubbs
6002 Summerhill Rd.
Camp Springs, Md. 20031

"SPOOKFEST"

Everyone ever assigned to an AC-47 unit is invited to an East Coast reunion on June 5. Details from

Col. D. O. Sandfort
4701 Upland Dr.
Alexandria, Va. 22310
Phone: (202) 693-8216

27th Fighter Wing

The 27th Fighter Wing will hold a reunion in Austin, Tex., July 29–31. We need addresses of all former members who were with the wing at Kearney, Neb., and Austin, Tex. Send to

George Kelley
6508 Auburndale
Austin, Tex. 78723

P-40 Warhawks

The 5th annual reunion of the P-40 Warhawk Pilots Association will be held

SCIENCE/SCOPE

A four-square-inch liquid crystal cockpit display developed by Hughes is being tried out by the U.S. Air Force. Although USAF is considering liquid crystal technology for display of TV, scan-converted radar, and FLIR (forward-looking infrared) imagery in tactical aircraft cockpits, its first request for proposal was for a head-up display for aiming guns and missiles. The LCD consists of a thin layer of liquid crystal material between a transparent conductive cover and a large semiconductor substrate that contains a matrix array of 100 vertical and horizontal rows, producing 10,000 individual picture elements. The LCD's advantages over cathode-ray-tube displays: full raster image with good contrast, low distortion, smaller size and weight, lower-voltage operation and lower power requirement, less chance of catastrophic failure, and great cost-effectiveness.

U.S. Air Force B-52 bomber crews can fly "blind" night or day with the aid of a forward-looking infrared (FLIR) system built by Hughes. The FLIR enables the crews to fly low-level night operations by sensing differences in thermal radiation of the terrain below and presenting light-and-dark patterns on TV-like cockpit displays. Hughes has delivered 316 FLIR systems to the Boeing Company, Wichita, Kansas, builder of the giant bomber.

AH1Q Cobra helicopters and TOW missiles -- the U.S. Army's newest airborne antitank team -- recently joined the Seventh Army in West Germany. While the TOW (for tube-launched, optically-tracked, wire-guided) missile has been in service with Seventh Army ground troops since the early 70s, the extended-range version recently developed by Hughes will be carried by the Cobras. It will enable the crews to engage enemy armor from as far away as 3,725 meters.

A Roland missile intercepted a jet drone at White Sands Missile Range, N.M., recently, as the U.S. Army began testing two West German-built Roland all-weather short-range air defense systems. Roland, first major foreign-designed weapon system selected for deployment with U.S. forces, protects battlefield troops and equipment and high-value rear-area emplacements against high-speed, low-level air attack. Hughes is prime contractor to the Army Missile Command for the U.S. Roland program.

Japan has strengthened its defense against enemy air attack by adding a parallel computer system to its BADGE air defense system. The new system enables the Japanese Air Self Defense Force to provide simultaneous access to the operating system for maintenance, personnel training, and required operational data reduction and evaluation while it operates BADGE around the clock. BADGE's long-range radars, computer-controlled electronic network, and advanced display equipment automatically detect, track, and identify unknown aircraft entering Japan's air space. The new parallel system was built by Nippon Aviotronics Co., Ltd., a joint venture of Nippon Electric Co. and Hughes.

Airmail

at the Imperial House, North, Dayton, Ohio, July 23–25. For information contact

Evan Hull, Secy.
P. O. Box 134
Northboro, Mass. 01532
Phone: (617) 393-2142

Pilot Class 51-G
All those interested in a 25th reunion in the fall of 1976 at Colorado Springs, Colo. (at an Air Force Home Football Game), contact

Gary E. Sparks
2803 Valley Hi Ave.
Colorado Springs, Colo. 80910

Class 61-E
I'm trying to locate members of US Air Force Pilot Training Class 61-E for the purpose of organizing an up-to-date locater roster and a reunion. Members please write

Francis C. Reidinger
3718 Stonewall Circle
Atlanta, Ga. 30339

73d Bomb Wing
The 1st reunion of the 73d Bomb Wing will be held May 20–22 at the Holiday Inn, Hays, Kan. (near Walker Field of WW II). For further information write

73d Bomb Wing Assoc.
105 Circle Dr.
Universal City, Tex. 78148

AC-130 Spectre Association
The Nebraska branch of the National AC-130 Spectre Association will hold a mini reunion May 29 at the Fontenelle Hills Country Club, Bellevue, Neb. All associated with the fabulous 4-engine fighter (gunship), including River Rats, are invited. Contact

Col. R. A. Wicklund
602 Martin Dr., North
Bellevue, Neb. 68005

392d Bomb Group
A mini reunion is planned for Valley Forge, Pa., July 23–25. All former members of the 392d Bomb Group and attached units please contact me for details and inclusion in the 392d Directory being created.

Col. Bob Vickers, USAF (Ret.)
4209 San Pedro N. E., #316
Albuquerque, N. M. 87109

343d Strategic Recon Sqdn.
The 343d Strategic Reconnaissance Squadron (SAC) will hold its 1st reunion at Offutt AFB, Neb., July 23–24. All former members are encouraged to attend. A "straw count" is needed for planning purposes since there is no accurate roster of former members. Contact the Reunion Committee at once.

Reunion Committee
343d Strat. Recon. Sqdn.
Offutt AFB, Neb. 68113
Phone: (402) 294-3298

491st Bomb Group (H)
The 491st Bomb Group (H), 2d Air Division, 8th Air Force, stationed in England during WW II, will hold its annual reunion at Valley Forge, Pa., July 21–25. Further information from

Red Parker
297 Proctor Ave.
Revere, Mass. 02151

487th Bomb Group
The 487th Bomb Group Association is holding a reunion July 29–31, at the Hotel Del Coronado, Coronado, Calif. Please contact

Lt. Col. Pete Riegal
409 N. 3d St.
Lompoc, Calif. 93436

Airpower in the News

By Claude Witze, SENIOR EDITOR

Friends and Enemies

Washington, D. C., April 5

There is a good deal to be said this month for the concept that when the pinch is on, the Russians are the Pentagon's best friends. Despite earlier apprehensions, President Ford's $114.9 billion Fiscal 1977 defense budget is winning broader support on Capitol Hill than has any Pentagon money request of recent years. It is the Kremlin—what it has done, is doing, and threatens to do—that is responsible for the switch in many votes.

The Senate Armed Services Committee, chaired by John C. Stennis of Mississippi, voted 15 to 1 to authorize expenditures of $114.2 billion, a cut of only $700 million from the request. Mr. Stennis said his group was concerned about expanded Soviet military power and its continuing trend of expansion. He cited "severe readiness problems" in our own armed forces, and the requirement for no further reduction in our force levels.

Over in the House, Armed Services Chairman Melvin Price of Illinois announced the other day that his committee has voted to authorize $33.4 billion for procurement and research and development. This is $698.6 million more than the Pentagon requested. The vote in his committee was 34 to 1, the closest to unanimity, the chairman said, that the group has been in many years. Mr. Price declared the decision "is dictated by the actual military capability the Soviets have, regardless of how much it costs them. It is dictated by the size and kind of forces that we might have to defend against in a crisis. It is dictated by conditions in the world over which we do not often have control."

The chairman pointed out that not long ago some House members were declaring that if we cut defense spending the Russians would cut theirs, and that if we restrained new developments it would enhance the chances of a SALT agreement. All these things were taken into account and the committee was unable to avoid the conviction "that the world, by any measure, is a less safe place today than it was even a year ago."

Sen. John McClellan, who chairs the Appropriations Committee in the upper chamber, has favored sharp reductions in past years. The other day, he dug in his heels and asked the Senate to approve the President's Pentagon request. In a floor speech, he said our strength, relative to Russia, is declining. "We cannot—we must not—allow this relative decline in our military forces to continue. . . . If current trends continue—if they are not reversed—there will be a time at some point in the future—and rather soon, I think—when Soviet military capability will surely exceed that of the United States. The margin of superiority which we have in some fields and the equality which we have in others will have vanished—probably never to be regained."

The new House and Senate Budget Committees looked like major stumbling blocks only a few weeks ago. The threat dissolved in the face of the facts. In the House committee, headed by Rep. Brock Adams of Washington, there was a move to simply endorse the White House military request and give the Pentagon what it wanted. It lost, but the vote was 13 to 12. By the same vote, 13 to 12, the committee cut $1.3 billion from the request, rather than the $5.0 to $7.0 billion the chairman had talked about. Mr. Adams, who accused the President of "unreasonable" defense requests and said military funds were being provided faster than they could be spent, was rebuffed.

President Ford, disturbed by the possibility that Mr. Adams could prevail, warned in a speech at the Pentagon that he would not accept a sizable reduction, and would veto a bill that imposed one.

The story was not dissimilar in the Senate Budget Committee, where the opposition was louder in its earlier attacks. That group voted unanimously to hold its recommended cuts to only $200 million in outlays and $300 million in budget authority.

Probably because the political primary campaigns were using up most of the headlines and newspaper space, details of this year's defense budget debate escaped the public attention they deserve.

One inescapable observation is that the defense critics, most of them political liberals, are becoming discredited and commanding less attention. A few days ago, for example, Rep. Les Aspin of Wisconsin, the man with the busy mimeograph machine, called a press conference in the Rayburn House Office Building to issue a blast discounting what he called "allegations that the surge in the Soviet military is relegating the United States to No. 2 in the world." He continued: "The presidential race has become a one-sided affair. Both Republican candidates are shouting, 'The Russians are coming,' and screaming, 'I can protect the nation better.' None of the Democratic candidates are willing to jump into the fray."

Mr. Aspin then put on what sounded like a counter-briefing. He gave his own analysis of Soviet military spending, weapons production, manpower, and strategic weapons. "These show that the Russian bear is not so great as he is portrayed by some," he said. He said he was sending his analysis to all members of Congress and to editorial writers across the nation.

Earlier, on March 23, Representative Aspin turned out one of his press releases, attacking the Air Force's B-1 bomber project. He said the facts in it were taken from a General Accounting Office report. They were, but many were taken out of context and others simply misinterpreted. The result of this was that on the day some news stories appeared, GAO asked for Pentagon approval for release of a "steril-

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Airpower in the News

ized" version of the report—one with the classified data removed—so that the press and the public could judge some of the issues raised by the congressman. USAF, for its part, turned out a detailed refutation of ten points raised by Mr. Aspin. The press, with some exceptions, ignored the whole affair. The principal achievement was that the GAO study broke loose on March 23, 1976, after the agency had stamped it for release not later than December 31, 1987 (sic).

Skepticism about Mr. Aspin's credibility as a defense expert—he once worked for Robert S. McNamara in the Pentagon—probably goes back to December 13, 1974. That was the day he issued a press release charging "that the Air Force is trying to keep the first flight test of the B-1 bomber a secret because 'they're afraid it won't fly.' " He continued with a statement that USAF had postponed one test flight and failed to schedule another. On top of this, he declared USAF was trying to keep the press and the public from witnessing the tests.

Well, the B-1 made its first test flight on December 23, 1974, ten days after Mr. Aspin's highly inaccurate prognostication was made. As of this writing, it has made twenty-seven flights, has been in the air nearly 135 hours, more than five of these hours at supersonic speed. The press has been welcome to witness any and all of the flights. The Defense Department says the program is proceeding well.

It also could be that Representative Aspin is wearing out his welcome at the newspaper and television offices. Late last year, one newspaper counted his press releases over a six-week period. There were ninety-seven of them, the majority on Pentagon affairs. And, there is evidence the press knows it has been used as a tool by Mr. Aspin, who shares each reporter's joy in a headline. The New York *Times* says he has "elevated the practice to new heights."

The congressman's response is that he is engaging in guerrilla warfare. "What you've got to have is more mobility," he told the *Times*. "You can move faster. They've got to clear everything through fifteen layers. While they are still trying to clear a response to one release you can hit them with two or three others."

Observed a reporter for the Milwaukee *Journal:* "Ask the Pentagon for a response to an Aspin charge and it is likely to be several days—or weeks—before the response arrives, if at all. These ponderous processes, coupled with the daily deadline pressure facing reporters, frequently enable Aspin to get his charges into print unchallenged." At the Defense Department this fact is accepted. The only regret is that nobody has kept a record on how many man-hours of labor and taxpayer dollars have gone into competing with the Aspin literary output.

Until recently, it was more difficult to evaluate the standing of Mr. Aspin with his congressional colleagues. He is a member of the Armed Services Committee, where he cast the lone negative vote in that 34 to 1 test on the procurement authorization bill. His record of attendance at committee hearings is not good. On the day that Marion Anderson, a Michigan antidefense zealot, was invited to testify, Mr. Aspin was absent. The witness boasted that he was her sponsor on Capitol Hill and that he approved of her activity. When she came under fire from committee members who accused her of sloppy economic reasoning, and blew holes through her presentation, she sorely missed his presence.

Three days ago, on April 2, the Wisconsin congressman called a press conference to give out his own judgment on the Soviet surge. Much of what he said about arithmetic was true, but he overestimates the Russian effort on the Chinese front and seems to ignore what is going on in the Middle East, the Persian Gulf area, Angola, and Cuba—all takeoff points that are remote from Peking. While he was talking and handing out charts of the Aspin intelligence analysis, there were growls in the corridor of the Rayburn Building. The Armed Services Committee had more than one opportunity to witness a highly classified briefing—complete with charts and secret photos of Russian installations—presented by John T. Hughes, the expert on collecting facts for the Defense Intelligence Agency. An authoritative source told AIR FORCE Magazine that Mr. Aspin did not accept a single one of several invitations to expose himself to this account. On inquiry, an Aspin aide said it was not considered necessary in the Aspin camp, which has its own contacts with the Central Intelligence Agency.

Well, today (April 5), after Mr. Aspin had held his press conference and obtained some publicity for his own account, he finally heard the DIA briefing. He heard it at the White House, on invitation of the President. That's the kind of offer that not even Mr. Aspin could refuse.

Most press releases from the Aspin office invite reporters to make further inquiry, if required, from his press aide, Bill Broydrick. On March 14, Mr. Broydrick played a starring role at the "National Conference to Stop the B-1 Bomber, Cut Military Spending, Meet Human Needs." This was a two-day conclave of counterculture dissidents who were preparing to assault Congress. Both the participants and the methodology were reminiscent of the antiwar demonstrations of a few years ago.

At this show, Bill Broydrick took a lead part in a seminar on "The Mood of Congress on the Issues and How to Work With Congress." At least 300 delegates heard him explain how to carry the case down the street to the Capitol. He did not appear brimming with confidence for his chosen cause. He told the crowd in a nearby high school auditorium that they had no reason to be optimistic—a highly accurate evaluation. "The Pentagon line," Broydrick said, "has finally sold" because "people are really getting worried about the level of Soviet spending."

On the other hand, the Aspin aide told his young audience, it should not give up the fight to get a priority for human needs over defense requirements, a petition that seemed to ignore the reversal in priorities that has been in effect for the past several years. He said the figures current on Soviet spending are "phony" and added "if they [USSR] spend $200 billion and we [US] spend $10 billion, that may be right, depending on our policy."

There was no member of Congress present at the Broydrick pre-

sentation. Had there been, his feelings would have been jolted, at the least, by the contempt with which Broydrick viewed the Lower House. He told the meeting, with a tone of firm assurance, that after this session they could go to Capitol Hill to lobby, confident that they, as individuals, knew vastly more about defense issues than the congressmen they were approaching. The young people accepted that. There was no one in the congregation to challenge it.

Other speakers at the conference, sharing the spotlight with Broydrick, included the aforementioned Marion Anderson, Don Luce, the activist boss of Clergy and Laity Concerned, Eqbal Ahmad, the Pakistani radical, and Rep. John Seiberling of Ohio, who gave the climactic speech.

Probably the main reason these efforts lack resourcefulness is that they are pressed in an atmosphere approaching that of a religious ecstasy. There is a fervor that instills blindness. After attending hours of congressional hearings, the Aspin press conference, and the National Conference to Stop the Bomber, there is something missing in our notes. At no time has any zealous foe of the Fiscal '77 defense program explored the significance of the Soviet-Cuban adventure in Angola, the messages from Solzhenitsyn, the firing of James Schlesinger, or the obvious popularity of Daniel Moynihan. The political picture, in this presidential year, might as well involve an election in the principality of East Overshoe. There has been no lesson learned from the experience of Great Britain with an advanced welfare state. The people who knew Hitler get their only publicity on the obituary pages.

Zealots cannot hear any messages from the other side, be they from our own intelligence sources or the near-mystic lips of a distinguished Russian expatriate. The majority, for which we can be thankful, can watch what the Kremlin does and listen to what it says, and act accordingly. ■

The Wayward Press

It was less than three and a half years ago, and a lot closer to the war in Vietnam, when the first conference on the military and the media was held at the Naval War College in Newport, R. I. It has been an annual powwow on that campus ever since. Last year the Air War College, at Maxwell AFB, Ala., followed the pattern, largely at the behest of its own students, and has just completed Military-Media Symposium—'76, which convened there on March 29 and 30.

There has been progress. We have attended several of these affairs at the two military schools and can report that the press representatives appear less belligerent and more respectful of their hosts than they did in 1972. At Maxwell last month, there was less confrontation and more understanding. We were not told the press has a double standard—one for the press and one for the military—or that a reporter has a right to quote himself as a "well informed source." Probably the most serious charge leveled at the Air Force was that it sometimes does not tell the whole truth, and it is a charge that will stick.

The newspaper world had at Maxwell its best possible spokesman. He was Jerry W. Friedheim, former Assistant Secretary of Defense for Public Affairs and now Director of the American Newspaper Publishers Association. It is a transfer in jobs that can result in big dividends. It would be impossible to have a man in this ANPA post who is more understanding of the military problem. In his address, Mr. Friedheim made an eloquent appeal for joint understanding. The basic message was that the welfare of America depends equally on the press and the military and the way they do their work. The country needs both of us, he said, and it behooves us to avoid confrontation and get on with the job of exercising our freedom and protecting it.

The other major speakers were Arthur Sylvester, another former Assistant Secretary of Defense for Public Affairs, and Barry Zorthian, a vice president of Time, Inc., and veteran public affairs officer. During the heat of the war he served in that capacity at the US embassy in Saigon and was known to every correspondent.

It is impossible to summarize the long hours of discussion at this year's USAF media conference. The press was criticized, both by the students from the floor and, on the platform, by Reed J. Irvine, Chairman of Accuracy in Media. It was defended by Peter G. Arnett, veteran war correspondent from the Associated Press, and Dr. Clark Edwards and Jay Lewis, spokesmen for television newsmen from WSFA, the NBC outlet in Montgomery, Ala.

If there is a single striking difference between a media-military conference in 1972 and a conference in 1976, it is the change in emphasis. At Newport, nearly four years ago, the screaming from both sides, and there was screaming, was about what had been printed. The military had fought a war under handicaps imposed on them by the political structure. They felt strongly that the press, ignoring those handicaps, had presented an unfair portrayal of their conduct in the field. The press delegates responded with a defense of their accuracy.

This year, there was recognition of many other factors involved. For the first time, to our knowledge, it was realized that freedom of the press, in lower case, includes the freedom to withhold publication. There was new stress on what the newspapers and television networks *fail* to report, particularly when facts withheld might be the ones that would determine an opinion and the resulting action. Much of the AIM case, presented by Mr. Irvine, was centered on this characteristic. There are other examples.

It remained for Lt. Gen. Raymond B. Furlong, Commander of the Air University, to set down some basic precepts. He told the Air War College students and their guests not to waste time in recriminations and what-should-have-beens. Both the press and the military, he said, have to be bigger than that, because they have major responsibilities to the nation and the people.

The General quoted Samuel Huntington, at one point, and with approbation. He said Huntington holds the view that "the American knows only liberalism. Liberalism in the United States has been unchanging, monotonous and all-embracing. . . . Liberalism does not understand and is hostile to military institutions and the military function." To this, General Furlong merely added that the media in this country plays a major role in the views held by the American people.

He had a less subtle admonition for the men in uniform.

"We are perceived—and often with justification—as defensive and uncooperative," the Air University commander said. "Too often we view the media as a forum for the presentation of preferred news and less as a forum for the presentation of the public's news. Our business is the nation's business and the nation has a right to know. . . .

"The military and the media are the victims of labels—a shorthand that limits understanding and communication. We are both victims of being symbolized by individuals whom we do not recognize or accept as characteristic of our professions."

Aerospace World News, Views & Comments

By William P. Schlitz, Assistant Managing Editor

Washington, D. C., April 7

★ In announcing its recent package of proposed cutbacks in facilities and personnel, the Air Force was influenced by a paramount consideration: cutting costs.

The package of forty-plus items "should save about $30 million in Fiscal '77 and . . . about $150 million a year every year thereafter starting in Fiscal '78," estimated Air Force Secretary Thomas C. Reed.

The most significant of the moves under consideration are the closure of three major Air Force bases, the sharp curtailment of operations at two others, and the pullback of B-52s from the remaining eight satellite bases.

USAF's force-reduction proposals are the vanguard of similarly stringent proposed cuts by the other services.

Under the Air Force plan, Kincheloe AFB, Mich., Craig AFB, Ala., and Webb AFB, Tex., are to close. Craig and Webb are pilot training bases, deemed excess with demand for pilots now radically reduced. At Kincheloe, a SAC base, the 449th Bombardment Wing is to be disbanded. The base's B-52s are to be relocated at Ellsworth AFB, S. D., and KC-135s transferred to the Air Reserve.

The plan also calls for inactivation of the 1840th Air Base Wing at Richards-Gebaur AFB, Mo., and relocation of Air Force Communications Service Headquarters to Scott AFB, Ill. At Loring AFB, Me., SAC's 42d Bombardment Wing is to be disbanded, with its B-52s relocated and KC-135s AFRES-bound. Also, the 69th Bombardment Squadron will be inactivated, with fourteen B-52s placed in nonoperating active (NOA) status. While other units will remain at Loring, it has been designated to become "a forward operating base capable of supporting alert aircraft and contingency operations," USAF said.

The realignments may affect an estimated 10,000 to 12,000 Air Force personnel and some 5,000 civilians, with perhaps 7,500 and 3,000 work slots respectively lost permanently.

With the exception of Glasgow AFB, Mont., at which all Air Force activities will terminate this September, the SAC satellite bases will be kept in operational order so that planes can be dispersed to them if the need again arises, said Col. James Hines, chief of USAF Bases and Units Division. Exercises on the satellite bases will take place periodically.

Other significant moves in the latest USAF realignment package:

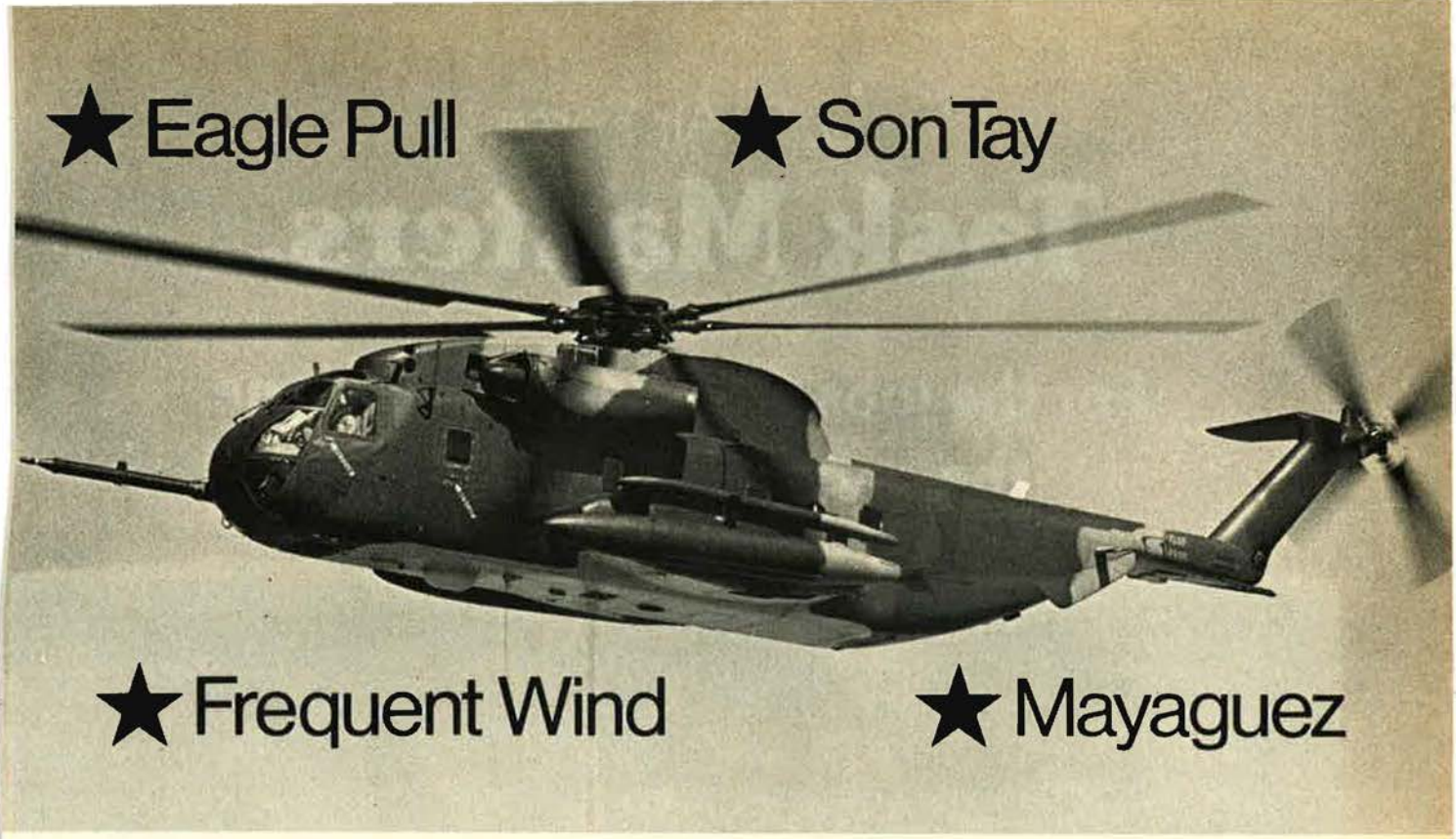
- The 17th Bombardment Wing at Beale AFB, Calif., will be disbanded and its B-52s transferred elsewhere. The U-2 operations currently conducted at Davis-Monthan AFB, Ariz., will be relocated at Beale, combining them with SR-71 activities already there.
- The Environmental Health Laboratories will be transferred from Kelly AFB, Tex., and McClellan AFB, Calif., to Brooks AFB, Tex., along with the Radiological Health Laboratory now at Wright-Patterson AFB, Ohio.
- The 354th Tactical Fighter Wing, Myrtle Beach AFB, S. C., will convert from A-7 to A-10 aircraft.
- The A-10 Operational Test and Evaluation mission and six aircraft will transfer from Davis-Monthan AFB, Ariz., to Nellis AFB, Nev.
- KC-135s will be transferred from SAC to AFRES units at March and Mather AFBs, Calif., and McGuire AFB, N. J.

★ In another significant realignment, collocated SAC and AFCS communications units are to be consolidated under AFCS control.

The net result of combining the SAC communications elements with those of AFCS at forty-four sites will mean a reduction of about 300 manpower slots, Hq. USAF officials said.

Managing the communications resources will be a SAC Communications Area (SACCA) that AFCS will establish at Offutt AFB, Neb. Personnel from AFCS's Northern and Southern Communications Areas and

At a March 30 Pentagon ceremony honoring three former NATO ambassadors, President Gerald Ford announced the possibility of a veto if Congress refuses to approve what he deems adequate defense funding for FY '77.



The H-53. The return-trip ticket.

Some will always call the H-53 the jolly green giant. But after four of the most heroic rescue missions in modern annals, it's earned another name, as well. And for four good reasons.

Mayaguez. Air Force HH-53's and CH-53's were the key vehicles used to transport the Marines who stormed the Cambodian island of Koh Tang under heavy anti-aircraft fire to bring the Marines and Mayaguez crewmen back to the safety of U.S. Navy vessels.

Son Tay. Flying hundreds of miles in darkness and bad weather, Air Force HH-53's were again used in the Son Tay P.O.W. rescue operation. While no prisoners were found, the mission was successfully carried out in the face of the most adverse condition imaginable, which again demonstrated the H-53's capabilities in unconventional warfare.

Eagle Pull. Thirty Marine and Air Force CH-53's were used to airlift 340 ground security forces and to evacuate almost 300 people from Phnom Penh before it fell. Sorties were flown both day and night without incident or mishap.

Frequent Wind. The biggest helicopter airlift in history was accomplished when Marine and Air Force CH-53's participated in evacuating more than 7000 Americans and Vietnamese from Saigon in only two days – a mission that was conducted flawlessly despite the necessity to exceed recommended load limits and the hazards of ground fire.

For thousands of G.I.'s and civilians, the H-53 has indeed been "the return-trip ticket" to safety. Throughout U.S. involvement in Southeast Asia, the aircraft met every challenge – demonstrating that its unique capabilities as a rescue and unconventional warfare vehicle are both uncompromising and unmatched. Sikorsky Aircraft, Stratford, Conn. 06602.

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The F103-powered E-4A Advanced Airborne Command Post.

General Electric engines continue to prove they can handle the toughest Air Force assignment.

The B-1, for example, is now successfully airborne. Powered by four advanced-technology F101 augmented turbofans, the B-1 will fly from low-level penetration speeds just under Mach 1 to supersonic speeds at high altitudes. And it will cover a longer mission range with greater survivability and nearly twice the payload of America's current intercontinental bomber.

The A-10, powered by twin GE TF34 high bypass turbofans, is poised to meet its mission requirements, too. The TF34's high thrust-to-weight ratio and low fuel consumption provide the A-10 with unmatched performance capability for its close air support mission. Plus improved short-field takeoffs and landings, exceptional maneuverability and the capability for increased loiter time in the mission area.

Two advanced aircraft are powered by GE's F103 engine. Powering the YC-14 Advanced Medium STOL Transport (AMST), twin F103s will provide that aircraft with outstanding and reliable short-field capabilities plus excellent mission range and payload. Powering the E-4A Advanced Airborne Command Post, four F103 high bypass turbofans give that aircraft the power, reliability and low fuel consumption needed to meet its varied and complex mission objectives.

General Electric engines. Once again, the Task Masters for critical Air Force missions. 205-115

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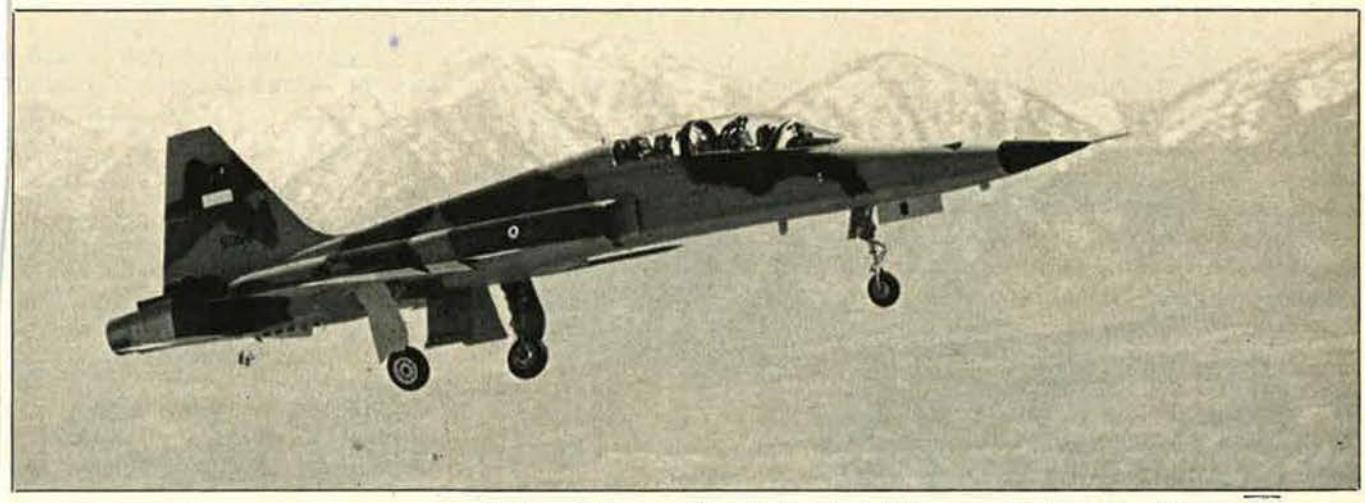


First production model of Northrop's F-5F two-place fighter-trainer lifts off the runway on its initial flight at Palmdale, Calif. It is the newest member of the company's family of fighters and trainers and is set for delivery to the Imperial Iranian Air Force.

from SAC's Communications-Electronics Directorate will be reassigned to man the SACCA.

Col. Gerald L. Prather will serve dually in his current post as Director of Communications-Electronics, Deputy Chief of Staff/Operations, Hq. SAC, and as SACCA Commander. In addition, he will assume command of communications personnel on CONUS bases where SAC is host command.

★ The Ford Administration is prepared to conduct exploratory negotiations with the Vietnamese Communists in order to "normalize" relations between the two nations.

The issues to be discussed would include the status of Americans still listed as missing in action in Southeast Asia.

The National League of Families expressed gratification at the change in Administration policy. "The League has been pressing for direct contact between the US government and the Vietnamese for a year now," said League Director Earl Hopper.

A government spokesman said that the talks are expected to begin "in the near future," possibly in Paris, site of December's meeting between Vietnamese officials and members of the House Select Committee on Missing Persons in Southeast Asia *(see February issue, p. 16)*.

Besides the critical issue of the American MIAs, the negotiations are certain to include the US's embargo on trade with Vietnam and the highly controversial subject of postwar US aid to Vietnam.

If and when the meeting occurs, it will be the first official attempt to rekindle a diplomatic dialogue between the two countries since the fall of South Vietnam in April 1975.

★ USAF has directed Boeing Aerospace Co. of Seattle, Wash., to proceed with a modified version (the "B") of the E-4A Advanced Airborne Command Post.

AABNCPs are designed to take control of US forces during national emergencies. The decision for the go-ahead on the "B" version of the converted Boeing 747 came recently from a top-level DoD group—the World Wide Military Command and Control System Council.

Work on the command post program had been slowed while USAF studied alternatives to a completely redesigned command control and communications system for the E-4B.

Three E-4As, containing equipment once a part of the older EC-135 command post aircraft, are already operational. The original plan was for the E-4B to be equipped with electronics being developed especially for it.

The latest decision, however, now calls for the E-4B to use some features common to the E-4A but with significant improvements and additions, officials said. These include improved nuclear survivability and the option of being operated by SAC or as the National Emergency Airborne Command Post.

One key feature of the E-4B will be its extensively improved communications, based largely on the use of satellites.

In all, USAF is planning on a total of six AABNCP aircraft. Contracts for the remaining two and their modification are expected in 1979.

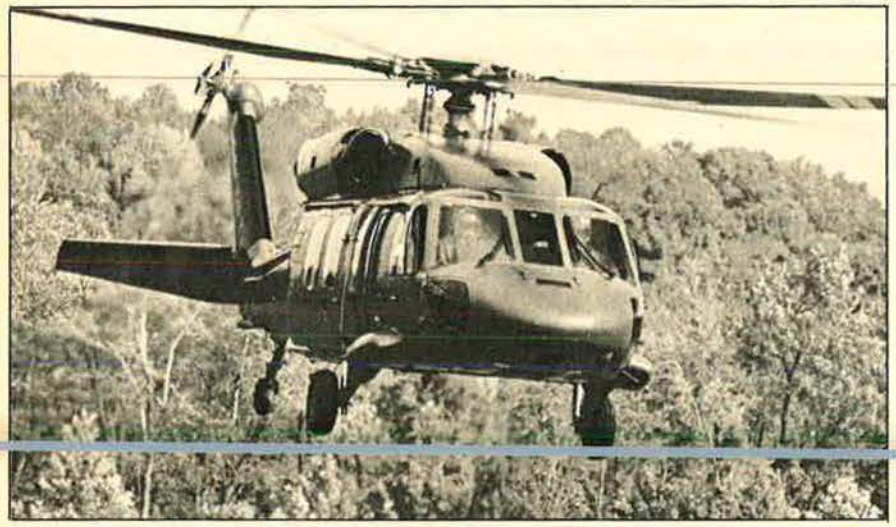
★ General Dynamics' Convair Division, San Diego, Calif., was picked over Vought Corp.'s Systems Division to develop the Navy's new Tomahawk cruise missile.

The Navy announced the successful air launch of a tactical Tomahawk from an A-6 Intruder aircraft over the Pacific Missile Test Center in California late in March, three weeks ahead of schedule. Next autumn, the missile will be flown as a complete weapon system, following the integration of strategic and tactical guidance systems provided by a McDonnell Douglas subsidiary.

Tomahawk was designed as a long-range weapon that could have either a strategic or tactical mission. Although sized for torpedo-tube launch, the missile is also capable of deployment from a variety of air, surface, and land platforms, officials said.

Full-scale development of the missile depends on a decision by the

Aerospace World



The Army has begun testing the two competitors in the Utility Tactical Transport Aircraft System (UTTAS) program. Top, the Boeing-Vertol contender and, above, the Sikorsky product. A production contract for the winning entry is expected in January. See adjacent item.

Defense System Acquisition Review Council (DSARC II), set to meet in January '77.

The subsonic Tomahawk, weighing about 4,000 pounds (1,814 kg), has a range of 2,000 nm. It is powered by a USAF-developed turbofan engine and can fly at low altitudes in a terrain-following mode in any weather.

On launch, the missile is powered underwater by a solid propellant rocket motor using thrust vector control through surface broach. The rocket then accelerates to a speed that permits the sustainer engine to start for the cruise part of the flight.

As with USAF's Air-Launched Cruise Missile, the wings and control surfaces are stowed within the missile. These are deployed at surface broach.

The tactical antiship Tomahawk is to use an adaptation of Harpoon's guidance system and turbojet engine. It will match the range of cruise missiles currently deployed by the USSR.

★ The Army has begun testing two competing helicopter types designed specifically to fill the role of Utility Tactical Transport Aircraft System (UTTAS) through the 1980s.

On selection—a contract is expected in January 1977—the winning UTTAS will replace or supplement Army's current utility helicopter, the aging "Huey" UH-1 Iroquois.

Specifications call for a two-engine helicopter with wheeled landing gear that is air-transportable aboard USAF C-130, C-141, and C-5 transports. UTTAS is to cruise at 145 to 175 knots while carrying a crew of three and eleven combat troops, with a minimum flight endurance of two and a third hours at 4,000 feet (1,219 m) altitude. The craft is to have other design and performance features to ensure maximum survivability in a hostile environment, Army officials said.

Sikorsky Aircraft of Stratford, Conn., and Boeing-Vertol Co. of Philadelphia built the competing craft, both of which are powered by a GE engine designed especially for UTTAS.

Testing is taking place simultaneously at Ft. Rucker, Ala., and Edwards AFB, Calif. The third phase in the three-phase flight-test program will be conducted beginning in June by the 101st Airmobile Division (Air Assault), which will put the craft through operational paces at Ft. Campbell, Ky.

★ UFOs, anyone?

USAF has turned over its files on Project Blue Book to the National Archives, where they will be available for public inspection.

Project Blue Book involved Air Force investigations of unidentified flying objects from 1947 to December 1969, at which time then Secretary of the Air Force Robert C. Seamans, Jr., ordered the operation terminated.

That decision created some controversy among UFO believers, but was far from arbitrary, being based on a review of a University of Colorado report by the National Academy of Sciences and the Air Force's own UFO investigations over a two-decade span.

In preparing the files for the Archives, USAF deleted the names of witnesses to preclude unwarranted invasions of their privacy, officials said.

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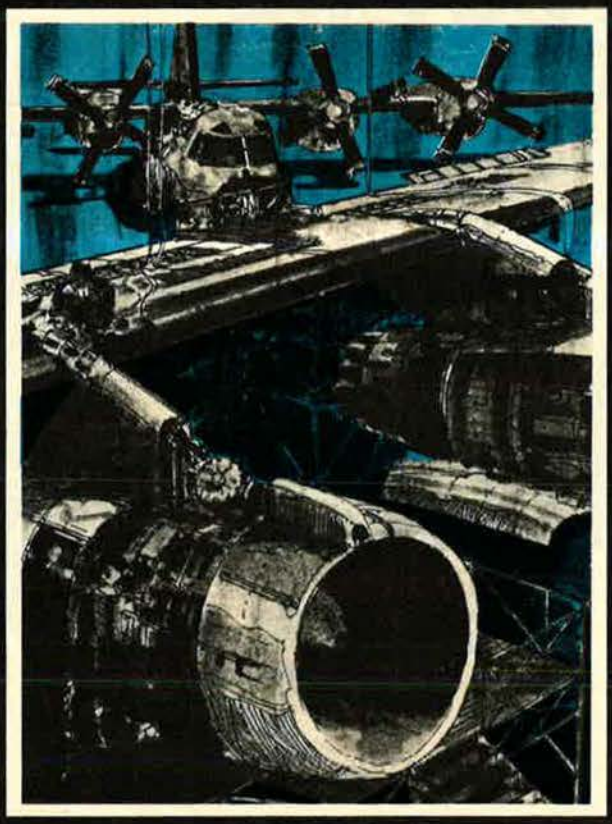

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IAI responds

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Israel Aircraft Industries' assembly line producing Kfir aircraft. Touting the plane's multirole capability, the company hopes to establish an international market for it. See adjacent item for performance details.

›roduces the Kfir fighter-bomber for he Israeli Air Force, has begun a ›ampaign to sell the Mach 2.3 air-›raft on the world market.

The company claims a multirole ›apability for Kfir, as an air-superiority fighter, interceptor, and ground-attack aircraft. The single-seat, delta-wing aircraft has a maximum takeoff weight of 32,200 pounds (14,600 kg).

Among selling points being stressed is the aircraft's superior handling qualities at high angles of attack, during high G-loadings, and at low speeds. The plane also is said to have a "stabilized combat load service ceiling of more than 50,000 feet" and "exceptional maneuverability throughout its extended flight envelope."

Kfir is armed with twin internally mounted 30-mm cannon with a firing rate of 1,200 rounds per minute. The Israeli-built plane is powered by a GE J79 jet engine that provides 17,900 pounds (8,120 kg) of thrust.

In gauging Kfir as "an excellent surface attack platform," the Israelis point to Kfir's "low gust sensitivity at all operational altitudes."

The aircraft, equipped with a zero-zero ejection seat, will sell for about $4.5 million a copy.

Aerospace World

★ NASA has initiated development of an experimental flight research aircraft to test technology aimed at cutting airport noise and congestion while increasing fuel economy and safety.

Since short-haul trips of less than 600 miles (966 km) account for about half of all US air travel, the objective is to design aircraft specifically suited for such operations. These planes then could use the shorter 2,000 to 4,000 foot (600 to 1,200 m) runways at existing smaller airports or STOLports of the future especially designed to relieve traffic at major airports.

To this end, NASA has contracted Boeing Commercial Airplane Co., Seattle, Wash., to modify a government-furnished de Havilland C-8 Buffalo aircraft into a quiet, short-haul transport to be used in the flight research program at NASA's Ames Research Center, Mountain View, Calif. The aircraft will be powered by government-furnished Avco-Lycoming YF-102 turbofan engines.

The aircraft is to be modified so as to operate at very low airspeeds, thus permitting the use not only of shorter runways but of steeper approach and takeoff angles.

When completed, the QSRA (for quiet short-haul aircraft) will join other short-haul concepts currentl under development at Ames: th Augmentor Wing Jet STOL Aircra (a joint NASA/Canadian progran and the Tilt Rotor Research Aircra (two being built under a joint NASA US Army project).

Future aircraft utilizing techno ogy stemming from QSRA researc are expected to be highly manet verable and will have military a well as commercial applications.

★ Cranking up for a full schedul during the Bicentennial year, th Thunderbirds, USAF's aerial dem onstration team, appeared first a Davis-Monthan AFB, Ariz., on March 13.

In all, the Thunderbirds will do 107 shows at ninety-eight sites in 1976, including three in Canada and three in Alaska.

Fittingly, the Thunderbirds will appear in the nation's capital area on July 3 and 4, when they'll be at Andrews AFB, Md.

For the first time since 1968, the team consists of six aircraft, with aircraft five and six to perform concurrent solo maneuvers.

Flying the T-38 Talon, the Thunderbirds are backed up by a ground-support organization of more than seventy people, a crack group that enables the Thunderbirds to average 100 air shows a year—the busiest aerial demonstration team in the world.

★ The Air Force has established a separate operating agency to oversee its Management Engineering Program. The USAF Management

An Air Force YC-15 AMST prototype undergoes equipment test loading. In foreground is a 155-mm self-propelled howitzer; near the aircraft is a Mechanized Infantry Combat Vehicle (MICV).

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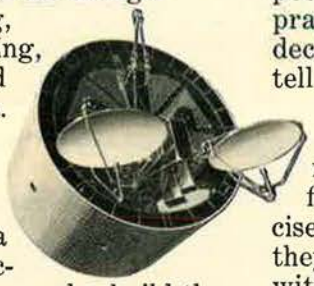
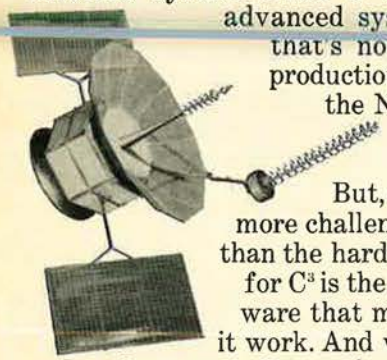
Conversation Pieces

C^3-Key to crisis management.

Every time there's a flare-up in Xenobia or Whereistan, staff officers have to work overtime. And, nowadays, crises seem to be erupting almost continuously. Tidal waves of data come in from all over the world, but what senior commanders need is *significant* information for making decisions. It's the age-old problem of command, control, and communications, or C^3 for short, but it's much more complicated than it used to be. So, we rely on sophisticated electronics to do the drudgework of sorting, storing, retrieving, correlating, and displaying data.



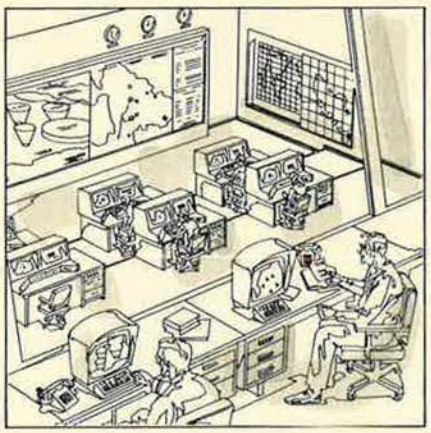
TRW builds a lot of these electronic systems; we also build the Air Force's global communication satellite system... and a more advanced system that's now in production for the Navy.



But, even more challenging than the hardware for C^3 is the software that makes it work. And we're using the term software, here, to mean more than just computer programming. It includes an enormous amount of front-end analysis and systems engineering. We emphasize this because we've found it's the only way to deliver systems that work properly, and do it without delays or over-runs.

For example, we've developed ASSIST, the Army System for Standardized Intelligence Support Terminals. It will eventually centralize the data from intelligence-gathering units and make it readily accessible.

We've also built a combined Arms Tactical Training Simulator for the Army. CATTS is a computer-based system that gives potential commanders low-cost practice in making battlefield decisions. Users at Fort Benning tell us it provides such realistic simulations that students get much more out of field exercises than they would without such training.



Then there are the Fleet Command Centers we're developing with the Navy. These systems help FLTCINCs and the CNO to manage any level of crisis; they also interface with WWMCCS, the Worldwide Military Command and Control System.

At the uppermost levels of command and control, we are supporting the Defense Communications Agency's development of a master plan for MEECN, the Minimum Essential Emergency Communications Network. Our modeling of advanced systems and concepts helps to give decision-makers a quantitative basis for achieving an optimum balance between adding to network survivability and meeting other vital defense objectives.

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Aerospace World

Engineering Agency (AFMEA) at Randolph AFB, Tex., is to go fully operational on July 1.

AFMEA will be responsible for command and control of functional Management Engineering Teams (METs) and technical direction of USAF's management engineering activities.

AFMEA will have a total of about 290 people at Randolph and at the ten METs at other CONUS bases. It will absorb the Civil Engineering functional MET at Dover AFB, Del.; the Personnel functional MET at Randolph; and the Maintenance functional MET at Wright-Patterson AFB, Ohio. In addition, said officials, functional METs will be set up for Medical, Transportation, Security Police, Comptroller, Support, and Special Staff.

Resources for AFMEA will be made available through the consolidation and regionalization of existing Air Force-wide management engineering authorizations.

AFMEA's team of full-time specialists will be responsible for holding manpower authorizations to mission-essential minimums. AFMEA's Commander, Brig. Gen. Jack I. Posner, is also Director, Manpower and Organization, DCS/ Programs and Resources, at USAF Headquarters.

★ **NEWS NOTES**—The seventh Air Force Academy **Military History Symposium** is scheduled for September 30 and October 1. Theme: "The American Military on the Frontier."

The **Air Force Historian of the Year Award** for 1975 has been presented to **Capt. Eldon H. Capener** of the 1931st Communications Group, Elmendorf AFB, Alaska.

David S. Lewis, Chairman of General Dynamics Corp., and the USAF-industry team that produced the F-16 have been designated recipients of the **Robert J. Collier Trophy** for 1975, an award sponsored by the National Aeronautic Association.

Dr. Leslie L. Thomason, Professor of Aeronautical Technology, Arizona State College, is to be presented another NEA award—the **Frank G. Brewer Trophy**—for "outstanding contributions to aerospace education of the nation's youth."

The US's first woman major general, **Jeanne M. Holm,** USAF (Ret.), was named in March as President Ford's **Special Assistant for Women's Affairs.**

In March was celebrated the **fiftieth anniversary** of the first flight of a liquid-fueled rocket designed by **Dr. Robert H. Goddard,** an event that marked the beginning of the space age, most experts concur.

Dr. Robert A. Goldwin, Special Consultant to the President, has also been named as **Advisor to Secretary of Defense Donald Rumsfeld.**

Died: Charles S. "Casey" Jones, a legendary aviation figure and AFA Life Member whose career dated back to the Wright brothers' flying school during World War I, in the Virgin Islands, where he had resided for the past twenty-five years. He was eighty-two.

Died: Richard W. Darrow, longtime aviation public relations counselor and head of Hill & Knowlton, Inc., of cancer in New York in March. He was sixty.

Died: Britain's **Field Marshal Viscount Montgomery,** the controversial general whose victory at El Alamein turned the course of World War II, at his home in Hampshire County. He was eighty-eight. ■

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AIR FORCE
MAY 1976

One of the country's leading intelligence officers describes the CIA methodology that for a decade resulted in grossly underestimating Soviet military expenditures, presents convincing evidence that the USSR's military costs are at least fifty percent higher than ours, and explodes the persistent myth that the price of military manpower is lower in the Soviet Union than in the US.

THE SOVIET MILITARY BUDGET CONTROVERSY

BY LT. GEN. DANIEL O. GRAHAM, USA (RET.)
FORMER DIRECTOR, DEFENSE INTELLIGENCE AGENCY

IN THE fall of 1975, shortly before the abrupt dismissal of Dr. James Schlesinger as Secretary of Defense, I found myself embroiled in a sharp public debate over the size of the Soviet defense budget. The row was sparked by the Secretary's public statement that the Soviets were spending as much as fifty percent more on military forces than was the United States. Congressional budget-cutters and some elements of the press sharply criticized this estimate, accusing Dr. Schlesinger of distorting intelligence. Sen. William Proxmire maintained that both William Colby, then Director of the Central Intelligence Agency (CIA), and I, as Director of the Defense Intelligence Agency (DIA), supported his claim that the Secretary's figures were inflated. In fact, Dr. Schlesinger's figures came from Mr. Colby's CIA, and my view was that the Secretary, far from overstating the case, was *under*stating it. In March 1976, after Mr. Colby's forced retirement, CIA published figures that again supported Dr. Schlesinger's warnings about the gross imbalance between Soviet and US military outlays. *(See also "New CIA Assessment of Soviet Military Expenditures," p. 42.—The Editors.)* The CIA analysis again, in my view, is too conservative and tends to understate the actual Soviet defense burden.

Wheels Within Wheels

Estimating Soviet military costs has been one of the toughest jobs for American intelligence analysts. This is an area in which the new information-gathering satellites don't help much. The military analysts in the Pentagon today can state with remarkable precision how many missiles, aircraft, ships, and divisions the Soviets have. Further, they can do a pretty good job of using such data to estimate how many Soviet soldiers and sailors it takes to man the USSR's military machine. But when it comes to estimating with reasonable confidence how much it

all *costs,* analysts have been faced with a nearly impossible task.

The task would be a lot easier if the Soviets openly published their defense expenditure figures as the US does and if there were open debates in Moscow about the costs of various defense programs. Of course, this is not the case. If there are debates about military spending, they are among very few persons in Moscow, and they are held in utmost secrecy. The Soviets do publish the total state budget, but the figures for military expenditures are patently phony. For instance, Brezhnev recently announced the official military budget figures for 1976—17.4 billion rubles. At the Soviet official rate of exchange for foreign trade purposes—1.35 dollars to the ruble—this amounts to about $23.5 billion, a totally unbelievable figure.

Ostensibly, the 17.4 billion figure is a decrease of 200 million rubles from last year. All this means absolutely nothing except as an indicator of what figure best suits the needs of Kremlin propagandists. It must be high enough in comparison to previous figures to assure the faithful that the socialist guard will not be let down, low enough to allay any guns-vs.-butter worries in the general Soviet populace. The figure must also be both low enough and trending in the right direction to back up the Soviet peace offensive in Western minds. No reputable scholar of Soviet economics gives the slightest credence to these announced Soviet military expenditures. Moscow's official figures have remained at seventeen-point-something billion rubles for many years.

To make matters worse, we would still have serious intelligence problems even if the Soviets *did* release an accurate account of military expenditures. There are a number of large items that Western countries count as military expenditures, but the Soviets do not. For instance, retired pay for military people is carried in the budget of the Soviet Welfare Ministry. Much of the basic training of Soviet soldiers takes place in secondary and higher civilian schools. This is paid for by the Ministry of Education. Most of the costs of moving military units and materiel in the USSR are carried in the budget of the Ministry of Transportation. The wages of the hundreds of thousands of reservists periodically called to active-duty training are borne by the factories and farms where they work. Thus, even if the Soviets should release a frank presentation of the Ministry of Defense budget, it could not be taken as a fair presentation of Soviet military costs when compared with those of the United States or any other Western power.

Also, when it comes to comparisons, we would have the problem of Soviet budget figures expressed in rubles. And what is a ruble worth? Well, in the USSR it is worth whatever the Soviets say it is, because all prices are determined and manipulated by the Soviet government. Further, the Soviets don't set a given price for a particular item. There are different prices for the same items sold in different markets. For instance, a given type of Soviet-manufactured truck sold to a collective farm is priced at 40,000 rubles; sold to a state enterprise, it is priced at 10,000 rubles; sold outside the USSR, it costs only 4,000 rubles. We are not sure what the Soviet Army "pays" for this truck, but probably near the lower end of the price scale. This means that the other parts of the Soviet economy, say the collective farms, are actually paying a huge subsidy for military trucks, and it wouldn't show in a budget. Thus, even if the Soviets were not so secretive about their defense budgets, intelligence analysts would have a terrible time converting the figures to dollars to compare them to our defense budgets.

CIA's Misleading Methodology

For many years, intelligence people, both at CIA and in the Pentagon, simply didn't try to estimate the Soviet military budget. It was not until the early '60s that CIA felt compelled to try to express the Soviet military budget in dollars. The pressure came from Mr. McNamara's "whiz kids." At that time, "systems analysis" and "cost-effectiveness studies" became the big game in Washington as far as military planning was concerned. The indispensable yardstick in such studies is the dollar. Nothing would do but to come up with dollar figures attached to Soviet military programs.

CIA, with its usual "can-do" attitude, responded to the pressure for dollar estimates of Soviet defense expenditures and gave it a try. The basic approach was to take a Soviet weapon system, *e.g.,* a missile, estimate what it would cost to build it in the US, estimate the relative efficiencies of the Soviet and US industries involved to obtain a "ruble-dollar" ratio, and multiply the results by an estimated number of such missiles in the Soviet inventory. The room for error in the process so far was considerable. But that wasn't the end of the problem. It was also necessary to calculate the costs of the men to man the weapons, maintain the equipment, train the crews, build the launch pads, and so on. One can imagine the enormous complexity of such efforts covering thousands of weapon systems from aircraft carriers to pistols. Naturally, the process was computerized to a large extent.

Initially, most CIA analysts connected with this effort recognized some of the method's inherent drawbacks and inaccuracies. What was not recognized was that the results of the system consistently and seriously understated the total burden of military expenditures on the Soviet budget. This fact did not become apparent for several years after the method had begun to crank out estimates of the Soviet military budget in dollars and rubles. When the costing methodology came under attack, however, many of its adherents had forgotten their initial misgivings. It became a matter of institutional and professional pride to defend the cost estimates. Figures originally suspect had become sacred cows.

The first challenge to the costing method came in 1970 from the Defense Intelligence Agency. That agency has the responsibility for projecting ten years into the future the numbers and types of Soviet

Lt. Gen. Daniel O. Graham, USA (Ret.), graduated from West Point in 1946. After a series of staff and command assignments, he entered the intelligence field in 1959 as an Army specialist in Soviet affairs. In 1963, he was assigned to the CIA Office of National Estimates, leaving that position to command a battalion in the Pacific and serve as Chief of Current Intelligence and Estimates for Generals Westmoreland and Abrams in Vietnam. Following a second tour in National Estimates, he served for three years as a Deputy Director of DIA prior to his return to CIA, where he became Deputy to the Director in March 1974. Later that year, he was appointed Director of DIA. General Graham requested retirement on November 3, 1975, in protest to the discharge of Defense Secretary James Schlesinger and CIA Director William Colby.

weapons and units. Since such projections are bound to be imprecise, DIA always gives a range of possibilities for each weapon system projected. There is a low figure, a high figure, and one between the two representing a best guess. The high figure usually represents what would happen if the Soviets made very strong efforts to acquire quantity and quality in a particular type of weaponry. We are always worried that someone might try to add up all the high figures for the various types of weapons and units, that is, all the worst cases, and exaggerate the threat. Therefore, all such projections have for many years carried the warning to users that the high side figures should not be added together because their totality would "place an intolerable strain on the Soviet economy."

In fact, Soviet efforts resulting in all the high side estimates coming true *would* dislocate their economy, but not according to our costing methodology. When that methodology was applied to all the high figures, it produced a strange result. Not only did it appear that the Soviets could go all out on all types of military capabilities, but they could do so at an ever-decreasing percentage of Gross National Product! From that time forward, DIA never used the results of the CIA costing methodology in its publications.

Shortly thereafter, the validity of the costing methodology came under fire again. This time the analysis was a National Intelligence Estimate, a paper that has to be agreed to by all intelligence agencies—CIA, DIA, the State Department, and others. During the process the same case was made against the method, but from an historical rather than a futuristic point of view. CIA provided cost figures covering the Soviet military budgets for the time frame 1960–71. These figures indicated a very modest two or three percent annual increase in the Soviet budget, which to DIA estimators was incredibly low. During that time frame the Soviets had deployed 1,500 or more ICBM launchers; built more than fifty missile-launching nuclear submarines; deployed most of 700 medium and intermediate-range missile launchers, some 7,000 surface-to-air missile launchers, and a large theater force opposite China; created twenty new divisions; and introduced on a broad scale five or six new fighter aircraft. And that is only a partial list. This simply could not have been done at the low costs indicated by the methodology.

The most dubious figures were those ascribed to Soviet strategic attack forces. In 1960, the Soviet strategic offensive force consisted of four intercontinental ballistic missile launchers, no missile subs, 200 heavy bombers, and 200 or so medium-range ballistic missiles. By 1971, the Soviets had overmatched the US in ICBMs, had nearly matched us in missile subs, deployed more than 700 medium and intermediate-range missiles, and still had the 200 heavy bombers. Further, they were undertaking a massive construction program to accommodate the four new ICBM systems under test. We were to believe that costs for strategic forces in 1971 were only one-third of one percent higher than in 1960! From that point on, DIA would never agree to the inclusion of such cost figures in National Estimates even though CIA continued to produce these figures on a regular basis.

Making Moscow's Case

As Deputy Director for Estimates at DIA during this period, I became chief antagonist of the low cost estimates. I became even more determined to correct this anomaly in intelligence when I found that these underestimates were being used by the whole world. The US was publishing an annual unclassified report on worldwide arms spending as a service to the UN. The Soviet and Warsaw Pact figures in that document were simply the totals derived from the CIA direct costing methodology, cleaned up a bit to protect intelligence sources and methods. As a result, the report, which found its way into the reference files of most universities and research institutes around the globe, stated that NATO outspent the Warsaw Pact on arms by about $30 billion a year! The Soviets must have been enormously pleased to see the US making Moscow's case for them.

Although my DIA estimators and I were the first to balk at the Soviet budget figures, I would not like to leave the impression that the controversy was a purely Pentagon-vs.-CIA issue. There were analysts in DIA who supported the figures, and analysts at CIA who shared my doubts. A doubter from the outside was Joe Alsop, the well-known columnist, whose pungent criticisms of low intelligence estimates of the Soviet military budget sparked half-joking barbs directed at me by my CIA colleagues. Alsop seemed to use a number of my arguments in his columns, and there was a strong suspicion that I was leaking them to him. I wasn't, but I must confess to enjoying his efforts.

This controversy boiled and bubbled along for about three years. CIA continued to publish the results of the suspect methodology; indeed, they had no other choice because there was a constant demand for such figures. There was no other official source for them. And we continued to get into controversies over

dollar costs of Soviet and even Chinese efforts. During the debate over continuing aid to South Vietnam, we were asked by Congress to estimate the dollar cost of Communist aid to North Vietnam. The minute we were asked, I knew we were in for another round of outraged expressions from some congressmen based on the proposition that the US had put more dollars into South Vietnam than the Soviets and Chinese had put into North Vietnam. Later, we had the same problem with regard to North and South Korea. It seemed impossible to avoid providing these rather useless dollar figures, and all the warnings of intelligence people about our lack of respect for the figures could not prevent them from becoming the centerpiece of arguments over policy.

Both DIA and CIA, meanwhile, were trying to find alternate ways of assessing the defense expenditures of the USSR. Experts on Soviet economics from academia and the "think-tank" world were assembled on the subject. Only one of them, however, had a strikingly different approach. That was a Mr. William T. Lee, a persistent, extremely objective analyst who had been previously employed at CIA. [Mr. Lee is the author of the article "Military Economics in the USSR," which appeared in the March "Soviet Aerospace Almanac" issue of AIR FORCE Magazine.]

Mr. Lee's approach was essentially this: In order for the Soviets to manage their economy, they must publish real budget figures; otherwise, they would confuse their own bureaucrats and managers. Therefore, the *real* defense expenditures are somewhere in the overall budget figures. The trick then was to find those sums that could not be accounted for in *non*-defense outlays. The residual then would probably represent the hidden defense expenditures. This all made some sense, but unfortunately for Bill Lee, his method indicated that the results from the old direct costing method were not just a *little* too low, they were *100 percent too low.* His results showed an expenditure of some sixty billion rubles a year vs. about thirty billion estimated by CIA. Neither CIA nor DIA analysts could swallow that big an admission of error. Thus, Bill Lee's results were rejected with much criticism of his analytical approach. But Lee was eventually to have the last laugh. His method may or may not have serious flaws, but his results were far closer to the truth than those of his critics.

Senator Proxmire's Pernicious Ploy

The whole matter of Soviet defense spending came to a head again in the spring of 1975. As is the case with most intelligence controversies, this one was solved by the acquisition of good evidence. By April 1975, evidence from a variety of sources combined to provide solid proof that we had indeed been underestimating the Soviet budget by *at least* 100 percent. In terms of percentage of GNP, the new evidence showed that our old estimates of six to eight percent were wrong. At a minimum, the Soviets are spending fifteen percent of their GNP on the military. In my view, the actual figure is probably closer to twenty percent, because the fifteen percent figure still excludes pensions, much training, and transportation costs, which remain hidden in the budgets of various nonmilitary ministries of the USSR.

This new information came to light right in the middle of the first big US defense budget fight with the new post-Watergate Congress, one that promised to be the most hostile to the military establishment in many years. Evidence of the substantially larger Soviet defense expenditures, particularly compared to those of the US, could conceivably be used to persuade the Congress to increase, or at least maintain, the existing level of defense spending. If one chooses to believe the conventional wisdom around Washington, one would expect military intelligence to have immediately used this bombshell to help fend off broadax cuts in the Defense budget. This was not the case. With the agreement of Dr. Schlesinger, Mr. Colby, the CIA Director, and I, now Director of DIA, elected not to release the new evidence pending a thorough redo of cost estimates. We judged that its use at this time in the congressional arena would evoke a furious attack on the validity of the evidence and endanger the sources of the information.

We were able to continue this policy until July, when Senator Proxmire requested Mr. Colby and me to testify on the Soviet budget. We did so, and we both mentioned the new evidence and informed the Senator that our estimates of the Soviet budget were going to rise sharply. Senator Proxmire asked that we be as liberal as possible in declassification of the testimony for publication. We were, and the declassified testimony was ready for publication within a few days. It seemed strange to me that the testimony remained unpublished and unreleased for three months. I cannot escape the suspicion that had Mr. Colby and I testified that the Soviet military budget was *lower* than we had previously held, that testimony would have been released with alacrity.

Senator Proxmire finally released the testimony in October 1975, in a press conference following Secretary of Defense Schlesinger's public statement that the Soviets were outspending us on military matters. To my astonishment—and, I am sure, to Mr. Colby's—Proxmire's press conference managed to convey the impression to newsmen that both of us would quarrel with Dr. Schlesinger on the ground that he was overstating the case. The facts were that Dr. Schlesinger was using Mr. Colby's estimates of dollar costs of Soviet military expenditure, and my only quarrel would have been that, the revisions notwithstanding, the dollar estimates still tended to *understate* Soviet expenditures. Upon rereading my testimony to Senator Proxmire, I find it inconceivable that he would come up with the opposite impression.

Manpower Cost: An Anomaly

In the controversy over Soviet military spending, the military pay factor is consistently cited by the

who believe the *dollar* figures too high. The rank and file of the Soviet Army are draftees and are paid very little in rubles. If their wages are translated directly into dollars, the Soviets obviously get them very cheaply when compared to US soldiers. The dollar figures provided by the CIA for the Soviet military budget, however, represent an effort to state what their forces would cost if they had to be purchased in dollars. Thus, those estimates charge the Soviets US wages for their military men.

On the face of it, this would appear to *inflate* the estimates of Soviet military expenditure. In reality, it does not. The dollar estimates are made for the purpose of comparing Soviet military costs to those of the US. The ruble prices and wages of the USSR, which are easily manipulated by the Kremlin, simply don't count in such an equation. The *actual* cost to the general economy of the USSR of putting a man in uniform is greater than it is in the United States. The Soviet economy is manpower intensive. Not only is everyone employed, the economy is short of manpower. In agriculture the shortage is so acute that the Army is called out at harvest time to assist. In the US one can reasonably deduct from the wages paid servicemen the costs that would be incurred by the country if a million or so able-bodied men were *not* in uniform and were added to the ranks of the unemployed. The problem of explaining these matters to congressmen, newsmen, and others is one of the reasons I have been a severe critic of dollar comparisons of US and Soviet military budgets.

The uproar over the size of the Soviet military budget will wax and wane, but is sure to crop up frequently during the presidential campaign. As a participant in the intelligence debates over the issue for the past five years, I am convinced that Dr. Schlesinger did not overstate the case when he said that the Soviets may be outspending us in military matters by fifty percent in dollar terms. I am also convinced that good evidence that the Soviets are expending in rubles about twenty percent of their Gross National Product on the military. The Soviet GNP is around $750–$900 billion. Twenty percent of that gives a rough estimate of $150 to $180 billion in defense expenditures, which, in my view, is a much more accurate figure than any derived by the discredited method that has produced the erroneous figures provided by intelligence in the past.

The figure $180 billion in Soviet military spending is and should be a shockingly high one to US citizens. It would not shock the dissident Soviet academician Andre Sakharov, recent Nobel Prize winner. In fact, he would consider the estimate of twenty percent of GNP to be an understatement. In 1972, he was quoted as having calculated the burden of Soviet military expenditures at *forty percent* of GNP. This figure was roundly pooh-poohed by US intelligence experts at the time. I agree with the experts that the forty percent figure is too high, and it remains unclear as to whether Sakharov was talking about GNP or budget percentages. But I would point out to those experts that they would have roundly pooh-poohed a figure as high as fifteen percent of GNP one year ago.

Strategic Implications

In December 1975, the Soviet government announced the civilian economic output for the year had been drastically short of expectations, particularly in agriculture. Further, Moscow announced that 1976 was going to be another bad year. Of course, part of the reason for this remarkably poor performance was bad weather, which reduced harvests, as well as the chronic bungling of an overcentralized economic system. But to these factors must be added the impact of enormous military outlays over the past several years. It is not just weather that caused a ten percent drop in agricultural output; it was also a lack of good farm machinery. Soviet military hardware is produced in the same factories with farm machinery. In a Soviet plant that turns out both tractors for farms and tanks for the military, high tank production lowers tractor production. In a plant producing both war gases and insecticides, the more gas manufactured, the less insecticide. And so it goes. Heavy military expenditures are putting a severe strain on other sectors of the Soviet economy, and the Soviet leaders seem determined to endure that strain rather than check the growth of military power. They would rather expend their limited hard currency to buy grain from America than alter military priorities.

The huge Soviet military expenditures alone do not lead to the conclusion that the US is today in a militarily inferior position. They do, however, demonstrate Moscow's resolve to extend Soviet military advantages where they exist, cancel out the few remaining US advantages where they exist, and achieve recognition as the prime military power in the world. If this happens, US intelligence officers can throw away that comforting lexicon of words used in past intelligence appraisals to describe Soviet behavior in the world—"pragmatic," "cautious," "nonadventurous," "defensive," and so on. Already such adjectives fit poorly current Soviet behavior, *e.g.*, the thrust into southern Africa.

I hope that the internal intelligence struggles with the problems of estimating the Soviet military budget are behind us. My only worry is that it is very hard for some analysts to accept a 100 percent error in their long-held views, and there is bound to be a tendency to try to obscure that magnitude. But solution of an intelligence anomaly is not nearly as important as the strategic implications of very high Soviet expenditures on military matters. The Soviets are spending twenty percent of their GNP on their armed forces and civil defense; Adolf Hitler's Germany was spending somewhat less—fifteen percent of GNP—for armaments in 1938 just prior to the outbreak of World War II. Can the United States continue to deter the growing Soviet military threat with a grudging 5.4 percent outlay on defense? ■

USAF's New Soviet Awareness Program

In order to make a leaner Air Force more effective against the steadily growing air, ground, and naval forces of the Soviet bloc, USAF is making major adjustments in its training, planning, threat assessment procedures, and hardware.

BY EDGAR ULSAMER
SENIOR EDITOR

THE Defense Department's latest official assessment asserts laconically that the Soviet/Warsaw Pact threat to NATO "is real, not hypothetical." Gen. George S. Brown, Chairman of the Joint Chiefs of Staff, says about ninety USSR/Pact divisions are "immediately available" in case of war with NATO, while an additional 130 divisions could be deployed, given sufficient mobilization time. Paralleling the numerical growth of the Pact's military manpower is the "maturing" of these forces into a "modern sophisticated force comparable to that of the Western armies," General Brown reported to Congress.

The Pact's lead in force levels reflects a ratio of at least three to two. General Brown testified, however, that the restructuring of some NATO forces—notably those of Germany, the United Kingdom, Canada, Italy, and the Netherlands—to reduce personnel costs is causing "heavy dependence on mobilization." As a consequence, the "two essential foundations of a forward NATO defense, namely immediately available forward-based forces and adequate, rapidly generated reserves, are marginal."

Defense Secretary Donald H. Rumsfeld termed the NATO/Pact frontier in Central Europe "one of the most heavily armed in the world . . . the Soviet forces deployed in Eastern Europe are much larger than would be justified for defense or even the most repressive kind of occupation. To the best of our knowledge, moreover, the doctrine which governs these forces is offensive in spirit and inspired by the blitzkrieg tactics of World War II." These Pact forces can probably march on as little as a few hours' notice. The clear superiority of the Pact forces over the non-US NATO forces—an initial lead in ground forces of 1,000,000 vs. 600,000 and 3,000 vs. 1,300 aircraft—justifies the assumption that they "might succeed in a sudden attack, if no US forces were present. However, when five deployed US divisions and eight tactical fighter wings are added to the NATO total, the disparity is greatly reduced," according to Secretary Rumsfeld.

Over the past decade, Soviet/Pact tactical air capabilities have been modernized with the apparent goal of becoming able to win a large conventional war in Europe without having to use theater nuclear weapons. Recent doctrinal and hardware changes have modernized and broadened the scope of these tac air forces to carry the "war to the enemy by destroying NATO theater nuclear reserves and tactical air forces, and by providing tactical air support to advancing Pact ground forces," according to Secretary Rumsfeld.

US intelligence estimates place the number of tactical aircraft in all the Pact's operational units (mainly Soviet) at more than 5,000, made up of about 4,000 ground attack and counterair and about 1,000 reconnaissance and ECM aircraft. These figures reflect an increase of 1,300 aircraft from the 1968 level, but more dramatic in DoD's view is the "increasing ground attack capability that has enabled the Pact's tactical forces to engage in a broader range of offensive as well

as defensive missions, in particular the capability to conduct strikes against most of European NATO's airfields without prior redeployment." This capability is expected to increase as additional Flogger and Fencer aircraft are assigned to the ground-attack role.

Complementing the Pact's ground-attack aircraft are various new air-launched weapons, including a family of tactical air-to-surface missiles and bombs. This leads to greatly improved sortie effectiveness, especially against hardened ground targets. (To date, about 650 aircraft shelters for US aircraft stationed in Europe and committed to NATO in case of mobilization have been built or funded. Additional shelters are being funded by the US and the NATO infrastructure.)

Also affecting the airpower balance are the Soviet Backfire bombers that facilitate penetration of NATO's air defenses. Equally important is the extensive, hardened air base system and the associated logistic support scattered throughout Eastern Europe that permit flexible, massive air attack operations over extended periods. Augmenting these capabilities are steadily spreading nets of hardened command and control and electronic warfare systems.

US Counteractions

Short-term actions sought in the FY '77 budget to counter the growth of the Pact's tac air threat include deployment of Loran-D to Germany to assist all-weather navigation and bombing; increases in the number of aircrews for fighter and attack aircraft; deployment of an additional tactical air control system (TACS) unit to Germany; improvements in air combat crew training by stationing an "Aggressor Squadron" of F-5s in England (similar in performance to the Pact's MiG-21 fighters, these aircraft will be used to simulate enemy tactics for US combat training); and deployment of an F-15 force to Europe earlier than previously planned. According to Secretary Rumsfeld, this action will provide an earlier increase in NATO force capability and also demonstrate to our allies and adversaries our commitment to a strong European defense." The F-15s will provide NATO with an air-superiority capability against even the newest and most sophisticated Soviet combat aircraft.

Over the longer term, entrance into USAF's inventory of weapon systems tailored to European war scenarios will reduce the Pact's geographic and numerical advantages. The F-16 Air Combat Fighter, for instance, being developed primarily to defeat the large number of enemy fighters that would provide top cover in support of the Pact's expected armored breakthrough attempt in Central Europe. The underlying assumption is that there will be an extremely intense air battle, involving large numbers of aircraft. The F-16s' task, in conjunction with the F-15s, would be to clear the skies of enemy fighters while other US/NATO ground attack aircraft and ground forces repulse the Pact's armored fists.

The A-10, armed with an internal GAU-8 30-mm cannon, Maverick missiles, and Rockeye bombs, is unmatched in ability to kill tanks. The Pact's lead over NATO in tank forces is about four to one. (The A-10 will team with the Army's Advanced Attack Helicopter [AAH], an agile and hardened vehicle to be armed with the laser-guided "launch and leave" Hellfire missile. The latter uses the triservice laser seeker developed for USAF's Maverick. A third tank killer system optimized for NATO application, the Cannon-Launched Guided Projectile, is under development by the US Army. In a recent test, this 155-mm projectile scored a direct hit on a target illuminated by a laser designator operated from a Remotely Piloted Vehicle.)

AWACS—The Force-Effectiveness Multiplier

A prime requirement for successful NATO defense is effective airborne early warning and control. At present, the Pentagon recognizes that there are some deficiencies in the warning and control posture in Europe. Except for those air defense areas where NADGE (NATO Air Defense Ground Environment Equipment) provides a limited degree of automated coordination support, the NATO net consists of vulnerable standard communication facilities and nonautomated command support equipment.

AWACS, rated as the top-priority general-purpose system in the current budget cycle, should go a long way toward curing existing NATO warning, control, and reporting flaws. According to Air Force Chief of Staff Gen. David C. Jones, the E-3 Airborne Warning and Control System will provide US and NATO national decision-makers and military leaders with the warning information and reporting and control capabilities needed for any combination of land, sea, or air war involvements. This high-flying sophisticated radar-*cum*-computer system is a "force-level multiplier that makes everything else [in the general-purpose force inventory] better." The system's ability to detect air mobilization activities well within the Pact's own territory from a standoff position and to provide, as the Director of DDR&E Dr. Malcolm Currie put it, "an aggregated and organized view of air, land, and sea operations on a minute-to-minute basis," is tailor-made for NATO application.

The Defense Department informed Congress early in 1976 of a "letter of offer" to NATO involving up to thirty-two AWACS aircraft at a cost of up to $2.2 billion. Both figures represent estimated "not-to-exceed" limits. NATO is considering—at the recommendation of its Military Committee—acquiring between twenty and thirty-two AWACS as well as modification of the ground-based portion of its proposed new early warning (AEW) system. The NATO Defense Ministers have agreed "to consider a NATO AWACS commitment" in May 1976. USAF's eventual E-3A force size will be influenced by the number of AWACS acquired by NATO, with twenty-five representing the minimum and thirty-four the maximum force recommended by DoD. AWACS is scheduled to enter the operational inven-

tory in March of next year. Added to the system's capability are a number of "enhancement items," including modification of the radar to boost maritime surveillance; expanded command and control capabilities; a self-defense warning receiver for use against enemy aircraft and SAM radars; and electronic counter-countermeasure features. These enhancements, in the main, are meant to increase AWACS's effectiveness in a high-threat European war environment.

USAF's Operational Net Assessment Task Force

Early last year, General Jones directed formation of an Air Force-wide task force to intensify the analysis of Soviet doctrine, planning, tactics, training, and equipment with the goal of pinpointing exploitable weaknesses. There is high confidence that the product of this effort will significantly improve the ability of the US Air Force to fight effectively. The central objective of the task force, according to Lt. Gen. John W. Pauly, USAF Deputy Chief of Staff/Plans and Operations, was to "recommend actions designed to ensure that awareness of and responsiveness to the vulnerabilities and strengths of Soviet military forces become a way of life in the Air Force."

While the focus of the original task force effort was on Europe, a follow-on program involving Korea is now in progress. The products of this Air Force net assessment program are aimed at producing a sharpened focus for the employment of USAF tactical airpower as a critical part of US defense forces.

The Tilting Balance in Theater Nuclear Forces

There is evidence, according to Defense Secretary Donald H. Rumsfeld, that the Warsaw Pact "fully appreciates the initial advantage to be gained by a first use of theater nuclear forces [TNFs]," even in the absence of any indication that NATO might be considering initiating the use of TNFs. In their doctrine and exercises, Pact forces stress "theater-wide nuclear strikes" by surface-to-surface missiles with "relatively poor accuracy and large yield," he told Congress.

The Pact's TNFs are increasing in quantity as well as quality. With refire, the about 600 Soviet S-4 and S-5 launchers deployed against NATO targets can fire more than 1,000 medium-range and intermediate-range (MR/IRBM) missiles. Joining this arsenal soon may be the MIRVed, mobile SS-X-20, an IRBM derived from the new SS-X-16 ICBM that is undergoing intensive testing. (Neither the US nor any other NATO member has an equivalent capability.)

Augmenting these missiles are large numbers of such new nuclear-capable fighters and fighter bombers as Fitter-C, Fencer, and Flogger; sea-based ballistic and cruise missiles; and such tactical nuclear rockets as Frog. Possibly the most telling evidence of the Pact's "first-use" posture is mounting emphasis of its preparations for mobile ground forces to operate in a nuclear or chemical environment.

DoD leaders are not sure that this systematically emphasized nuclear capability would be used. Conversely, the Soviets can't be certain that US/NATO assertions about a possible first use of nuclear weapons in case of a Pact sneak attack reflect firm intent or are simply deterrent rhetoric.

DoD's answer to the mounting TNF challenge, according to Secretary Rumsfeld, is increased survivability and flexibility of US theater nuclear forces. Survivability is to be increased through various means, including greater mobility, improved aircraft shelters, camouflage of fixed systems, active defenses, and increased communications security.

Flexibility and credibility of US TNFs are to be boosted by several programs, some in an exploratory state. Operational TNF options sought by DoD include: destruction of enemy armored units near the forward edge of the battle and in rear areas, and suppression of tactical and logistics support, all with minimum collateral damage and maximum all-weather capability. Under consideration are an "improved tactical bomb to significantly reduce collateral effects associated with surface and near-surface bursts," a "tactical earth penetrator" to substitute for atomic demolition munitions, and a new or modified 155-mm howitzer projectile to increase range, accuracy, reliability, and security.

On the drawing boards are a variety of systems to improve delivery of tactical nuclear bombs through USAF and Navy "smart-weapons technology." Promising candidates, according to DoD, are the Modular Glide Weapon Systems, Maverick, Condor, and a tactical version of the Short-Range Attack Missile (SRAM). Weapons of this type will have a highly accurate, low-altitude, standoff capability for either air or surface bursts against preplanned targets or moving targets that require visual verification.

Increased security features are being added to all B-61 nuclear bombs coming off the line, presumably special mechanisms to prevent unauthorized use.

In the related area of chemical warfare, DoD's budget request for funds to buy "warning and protective equipment" has increased from $9 million last year to $74 million in FY '77. Although the "Soviet Union maintains the world's largest lethal chemical capacity," Secretary Rumsfeld told Congress that the US is not acquiring new chemical munitions this year. He added, however, that "R&D programs on new chemical agents and munitions continue . . . as needs for modernizing US retaliatory CW capability are reviewed." (Both steps were strongly urged by the Air Force Association's 1975 Statement of Policy.)

General Jones underscored for AIR FORCE Magazine the importance of these net assessment analyses that involved in its first study a task force of about 600 experts from throughout the Air Force, other services, and the academic community:

"The creation of the Net Assessment Task Force (NATF) is proving to be one of the Air Force's most significant new initiatives, one which promises a high payoff in the effective employment of airpower. I am particularly pleased that the net assessment process has fostered a growing relationship among analysts and scholars of the government and academic communities, and commanders and staff officers across the Air Force. This ensures that Task Force recommendations (which have far-reaching implications in such areas as aircrew training, professional military education, intelligence, doctrine, targeting, and hardware) are derived from a broad base of informed views and reflect an understanding of intelligence capabilities, operational requirements, and the context in which airpower may be employed. Through its analysis of potential adversaries' vulnerabilities, net assessment provides the Air Force an excellent alternative to worst case planning and greater precision in the use of its limited resources."

In explaining the net assessment process as employed by the Air Force, General Pauly said that "the initial job was to consolidate all available knowledge of the Soviets—from political inculcation to hardware, strategy, doctrine, planning, logistics, and so on—that is applicable to a NATO/Warsaw Pact war, to identify gaps in the Air Force's corporate knowledge, and then attempt to acquire the missing information."

Keyed to expected Pact blitzkrieg tactics, the first task force assumed preplanned, time-sensitive movements of large concentrations of troops and supplies to support rapid advances by tanks and motorized rifle divisions. From this followed the conclusion that disruption of these offensive thrusts depends critically upon applying airpower at precisely the right place and time in order to generate chain-reaction breakdowns of the Pact's strategy. The same conclusion applied also to the associated Pact air campaign.

The second element of the net assessment process focused on Soviet capabilities to execute specific military missions within the framework of their overall doctrine and planning as these are applied to purely conventional, CBR (chemical, bacteriological, and radiological), and theater nuclear warfare. Vulnerability assessment is at the nub of the methodology. According to General Pauly, "vulnerability analysis makes the bridge from what the pure threat appears to be and what part of that threat we can do something about."

By way of illustration, an intelligence report may disclose the location of ten MiG-21s configured for a ground-attack role. Instinctively, a commander would equate the information with net military capability, without analyzing what it takes to make effective combat use of the aircraft. In reality, translating pure military capability into on-the-line combat effectiveness

Lt. Gen. John W. Pauly, USAF's Deputy Chief of Staff for Plans and Operations, believes that "vulnerability analysis makes the bridge from what the pure threat appears to be and what part of that threat we can do something about."

New CIA Assessment of Soviet Military Expenditures

In a recently completed study entitled "A Dollar Comparison of Soviet and US Defense Activities, 1965–1975," the Central Intelligence Agency disclosed important details of intensifying Soviet efforts in all functional areas. The CIA document asserts that if retired pay is excluded on both sides, Soviet military programs in 1975 "exceed those of the US by fifty percent." *(See March '76 issue, "The Soviet Juggernaut: Racing Faster Than Ever.")*

In general-purpose forces, a category in which the US led until about 1970, the Soviet Union outspent this country by seventy percent last year. The US still leads by more than twenty-five percent in tactical air forces, but lags behind the Soviet Union by a like ratio in funding general-purpose naval forces. The CIA estimates that the dollar cost of Soviet ground forces is more than three times that of the US. CIA gives no discrete figure for Soviet costs in the command, support, and other general areas including nuclear weapons programs, but estimates that they "are slightly higher than the US."

In the category of "Intercontinental Attack Forces," the CIA finds that the Soviet lead of fifty percent in the late 1960s increased to seventy percent in the early 1970s, and that by "1975 they exceed the US level by 100 percent." The CIA's estimated dollar cost of Soviet submarine-launched ballistic missiles (SLBMs) in 1975 is thirty percent greater than the US. US authorizations for intercontinental bomber programs during the ten-year period covered by the study "are about five times the estimated dollar costs" of the comparable Soviet programs.

Counting Soviet peripheral attack forces (medium-range missiles and bombers) intended for use on the Eurasian continent, the aggregate costs of all Soviet strategic attack programs for the ten-year period "are more than twice the cumulative US level," the CIA study concludes.

Because of the uncertainties and difficulties associated with expressing the cost of Soviet military R&D in dollars, the CIA did not give specific estimates in that area.

usually creates specific and predictable vulnerabilities that can be exploited through proper tactics and weapon capabilities.

As General Pauly also points out, "an effective air war depends not just on the quality of the pilot and his aircraft but upon an entire system, including effective command and control, the ability to acquire and dispense time-sensitive information rapidly, an adequate logistics system, and many other factors. Each of these factors in the enemy's air war system entails some vulnerabilities. If the most critical of these vulnerabilities can be appropriately exploited, the enemy's apparent war-making capability can become his chief military problem."

The Net Assessment Task Force also addressed operational adequacy and effectiveness of USAF doctrine, plans, combat capabilities, and readiness in terms of broad-based recommendations. These recommendations respond to the analysis of specific Soviet vulnerabilities and are focused on either countering threats or on improving specific areas of USAF effectiveness. The recommendations range from providing new directions in Professional Military Education (PME) to outlining the required characteristics of new aircraft and hardware. For example, in the area of PME, two initiatives have already begun. The first initiative involved the creation of an Air Force Soviet Awareness Task Force sponsored by the Assistant Chief of Staff for Intelligence (AFIN). AFIN has packaged a series of lectures, films and literature to improve the general knowledge and awareness of the Soviet threat throughout the Air Force. The second initiative involves a major new direction for the Air University (AU) curriculum. AU is structuring the curriculum at Squadron Officer School, Air Command and Staff College, and Air War College to provide courses of instruction and research on the Soviet military—its doctrine, strategy, tactics, and history, as well as its capabilities.

Readiness Initiatives Group

In a more direct sense and in an effort to make maximum capital from the net assessment technique, the Chief of Staff has formed a Readiness Initiatives Group within the Air Staff. The basic purpose of this group, as described by General Pauly, "is simply to assess ourselves in the greatest possible detail. We are leaving no stone unturned to analyze every element of what it takes to successfully counter a strong opponent in modern air warfare. Our effort has already revealed areas where some improvement could be made, and we are moving quickly to complete those actions indicated." The Readiness Initiatives Group thus attempts to identify the weaknesses and vulnerabilities of our own Air Force and to take appropriate actions to redress the problems. In short, the Readiness Initiatives Group uses analytical methods similar to vulnerability analysis techniques to evaluate Air Force capabilities.

General Pauly thinks that the analyses to date have tended to confirm that "our pilots are the best trained in the world even though there has been a reduction of flying hours because of skyrocketing fuel costs. By and large, we have been able to compensate for this cut—almost twenty-five percent since 1973—by what we call event-oriented flying, meaning that we cram more action such as ground attack, air-to-air, and air defense events into the available flying time."

The end product of the total assessment effort will be specific action by relevant USAF commands to adjust training procedures, hardware requirements, and tactics to the findings of both the Net Assessment Task Force study and the on-going work of the Readiness Initiatives Group. "We expect," General Pauly stressed, "high payoff in terms of increasing the effectiveness of our combatant forces and heavy impact on our concepts for the use of air forces in the future." ■


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How does the B-1 compare to the airplane it will eventually replace?

It can get airborne and safely away from its base in case of an attack warning much faster than the venerable Strategic Air Command B-52.

It can fly much faster at high altitudes than the subsonic B-52. It can carry twice the weapons payload, over the same distance, burning less fuel. It can fly lower and faster during the most important strategic mission of low altitude penetration. And we'll need far fewer to do the job.

The B-1's ability to follow the natural terrain at tree top heights, through valleys, zipping just over hills, at just under the speed of sound will make it almost invisible to radar detection.

The most important thing the B-1 has in common with the B-52 is that both have man in the cockpit. Man doesn't have to be programmed. He can respond to unusual situations. And in the age of nuclear weapons, the manned bomber can be recalled. A missile, once launched, can not. (Some have called the manned bomber the "safest" strategic weapon because it allows time to negotiate even while on its way to a target.)

America can get an airplane designed to serve well into the 21st century. A supersonic "Insurance Policy" for this and future generations.

If we have the B-1, waiting to retaliate, an aggressor will think long and hard before attacking the U.S. And that deterrence—along with land-based and sea-based missiles — is the primary mission of the B-1.

Rockwell International

Some challenges to the Air Force that long have been "promised" for the future are now realities. The key word among Air Force leaders is "balance" in addressing these issues of personnel, R&D, acquisition costs, support, and readiness as USAF passes into . . .

THE PROMISED LAND

BY THE HON. THOMAS C. REED, SECRETARY OF THE AIR FORCE

Past Secretaries of the Air Force have "promised" for a number of years that intensified challenges await in the future—conditions that would demand our best efforts, our keenest management sense, our most selfless dedication.

My first few weeks on the job indicate to me that we have indeed reached the "Promised Land." And much as Moses in the Old Testament Book of Numbers, we have all been told there are "giants" in the countryside—giant-size problems and trends that defy easy solutions and suggest, unless we are careful, a form of gracious and gradual abdication.

My reaction to these forebodings is much like Mark Twain's description of Wagner's music: "It's not as bad as it sounds." Air Force people are a very straightforward lot, so we can discuss some tough subjects in candid but positive terms.

If one word could characterize the necessary approach to the issues we face, the most appropriate choice would be "balance"—balance in weighing the needs of our people with other priorities; even-handedness in the modernization of our aircraft and support systems.

There are those in the military community who argue that concern for our people has been subordinated in recent years to modernizing our equipment. Others dispute that charge and continue to stress our pressing hardware needs: To begin production this fall on the B-1; to buy the AWACS; to bolster our airlift capability; to strengthen our air-superiority and close-air-support forces. There is no easily identifiable, precisely correct compromise between these two viewpoints. The goal—indeed, the pressing need—is both equipment modernization *and* personnel strength. We must have quality people who are properly trained and keenly committed to the Air Force mission. These same people, however, are not likely to accomplish the objective with obsolescent equipment.

Secretary Reed with a model of the Air-Launched Cruise Missile at a recent news briefing on new weapon systems.

We have done a reasonably balanced job in the past in accomplishing both ambitions. Our research and development efforts have paid handsome dividends, and a number of weapon systems—providing quantum increases in capability—are in advanced stages of development. At the same time, our people have not been trampled in a mad dash to field new equipment. Approximately forty percent of recent Air Force budgets has gone to pay, house, feed, train, clothe, and otherwise care for our people. The $5,100 per member we were spending in FY '64 has now climbed to $13,000 per member.

If the Vietnam era stripped the bloom from the rose in terms of public support for the military, recent months have evidenced a budding—if not blossoming—revival of that backing. We will continue to face tough choices as we seek a balance between our people programs and equipment requirements. On the people side, I foresee a better ordering—certainly not a dissolution—of our benefits program. As for equipment, we must strive for additional efficiency and economy in the development and operational use of our weapon systems.

Much of what we hope to accomplish hinges on the FY '77 budget recently submitted to Congress. The loss of purchasing power in the Defense budget—down forty percent since 1964—has been the driving force in the reductions we have made in recent years, both in people and equipment.

Outlook for FY '77: Personnel

The FY '77 budget as submitted to Congress represents a reversal, to some degree, of the purchasing-power trend. It is not a "get well at once" proposal. It has been scrubbed, scrutinized, and carefully weighed. It does strike, I believe, a reasonable balance between national security priorities and economic affordability. It reflects the Administration's strong support of an adequate military capability.

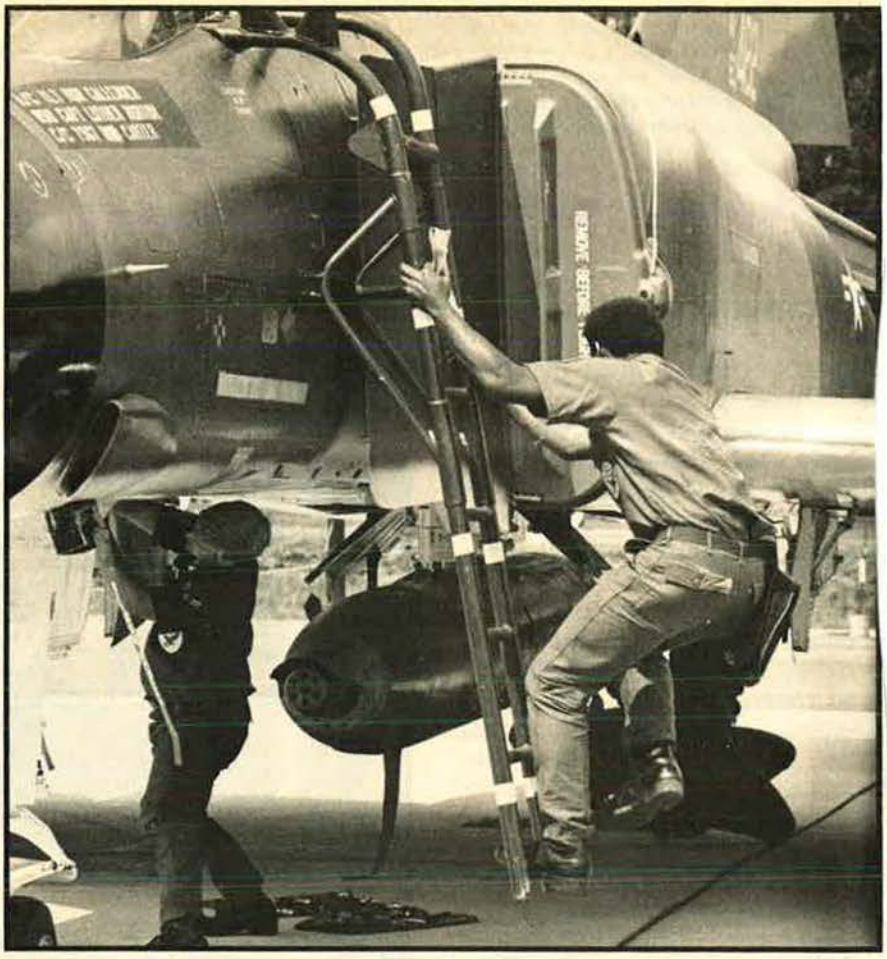
The Air Force share of the FY '77 budget—just over $32 billion—provides six percent real growth with a needed concentration in procurement, particularly aircraft procurement. Submission is not to be confused with approval, but I do feel that Congress is genuinely concerned about the recent reductions in our Defense resources, particularly within the context of growing Soviet strength. Beyond that optimistic appraisal lie our own responsibilities for efficiency, economy, and balanced perspectives.

No issue strikes a more resounding and emotional chord than personnel programs. For those—both civilian and military—who have been with the Air Force since 1964, some trends have been particularly disturbing. There have been reductions of thirty-three percent in our active-duty force and twenty-four percent in civilian employees. Accompanying these reductions has been unavoidable turbulence in our personnel management, including unprogrammed transfers, manning imbalances, recruiting reductions, and—most unfortunate of all—involuntary separations.

In some respects, FY '77 will appear to bring more of the same. Air Force civilian and active-duty military totals are programmed to be down almost 21,000 compared to those projected for the end of this fiscal year—reductions made possible because of decreases in support activities, cutbacks in strategic alert rates, and greater reliance on the Reserve components. In so doing, I believe we will reach the force level we need to maintain in the foreseeable future. Further cuts will not produce the wholesale economies of the past and will seriously threaten our combat capabilities. We cannot evade the rising costs of national security by cutting the force or withdrawing benefits from our people.

Overall, I believe the Air Force personnel system is the finest in the Defense Department. However, some aspects of this system require greater emphasis.

We must assure that channels for career progression remain open and that rated or nonrated, specialist or technician, individuals who have demonstrated top abilities have an equal shot at and a viable path to E-9 or O-10 in his or her specialty. Consistent



"We must assure that channels for career progression remain open and that . . . individuals who have demonstrated top abilities have an equal shot and a viable path to E-9 or O-10 in his or her specialty."

Secretary Reed stresses the importance of support areas, including the security of information systems, a function of this "Elephant Cage" antenna, which covers fifty-six acres and provides secure communications.

Thomas C. Reed, a 1956 Distinguished AFROTC graduate of Cornell University and its top-ranking student in mechanical engineering, spent four years on active duty as an AFSC project officer, and at Lawrence Radiation Laboratory. Subsequently, he organized and managed an engineering company in Texas and a development corporation in California. Mr. Reed was appointed Assistant to the Secretary and Deputy Secretary of Defense in 1973. The next year he was named Director, Telecommunications and Command and Control, OSD, and became USAF's eleventh Secretary on January 2, 1976.

with this objective is the reinstatement of the Airman Education and Commissioning Program (AECP), the swift passage by Congress of the Defense Officer Personnel Management Act (DOPMA), and the continuation of equal opportunity for people of both sexes and all races.

Equipment Modernization

Balancing that concern for our people is the very real need to continue modernization of our equipment—not only aircraft but our support systems as well.

Fiscal Year '77 will be the year of decision on the B-1, and because of the strategic urgency and enormous costs involved, this follow-on strategic bomber continues to dominate the development picture. The first test aircraft has been flying since December 1974 and as of mid-March had logged more than 134 hours at speeds up to 1.6 Mach and at altitudes from 200 to 50,000 feet. By the time a contract decision is made this fall, we plan to have three aircraft flying, the offensive avionics operating, and engine endurance testing completed.

The B-1, although the most visible, is certainly not our only area of hardware emphasis. We must continue with improvements in our Intercontinental Ballistic Missile programs, including enhancement of our Minuteman force and continued development of the MX. The AWACS, F-16, F-15, and A-10 initiatives must not falter.

As our overseas, forward basing becomes increasingly unreliable, bolstering our airlift fleet becomes an even more vital task. The wing modification program for our C-5 cargo fleet needs enthusiastic support. The Civil Reserve Air Fleet, by a factor of ten the most economical means to enhance our airlift capability, needs special emphasis.

But despite the "fly and fight" image the Air Force has maintained and our necessary emphasis on aircraft development, the support elements cannot be forsaken as we seek this balanced allocation of resources. One mission, obscure to most people and yet of unparalleled importance to our national survival, involves our space and information systems. Fully seventy percent of the World Wide Military Command and Control System (WWMCCS) is provided by the Air Force; it is the viability of this system that could provide the edge we need during a major conflict. The initiatives in this area range from the protection of voice communication networks to development of a new generation of airborne command posts. Each command and control improvement acts not as a separate entity, but has a multiplier effect on the capabilities of the nation's other weapon systems.

Other areas that greatly concern me are our weapons acquisition procedures and overall combat readiness. In view of the intensified demand for scarce resources, we must ensure that our weapons development is accomplished in an impartial, economical manner—avoiding the waste and problems that accompany technical leveling and buying-in. As for readiness, we must act immediately to replenish war reserve and peacetime spares and remove the depot maintenance backlog.

The Keystone: Dedication and Commitment

The challenges we face are indeed formidable. In that regard, we have clearly reached the "Promised Land." In a more pervasive sense, if our nation is to retain the "promise" of equality, justice, and freedom—values that are being reinforced during this Bicentennial year—we must fashion the type of Air Force capable of meeting our military commitments.

As we, with limited resources, face that overall challenge, we must retain a balanced perspective. We must continue taking a tough, candid look at both people and equipment programs. Yet, we must continue to support both modernization and the welfare and morale of our people.

We all share today's and tomorrow's growing responsibilities. The Air Force must have men and women who are aware of the tough choices that have to be made in keeping our forces strong and well equipped. We need people who are not only dedicated to their jobs, but also committed to performing their tasks better than anyone before them. Our people must have extraordinary ability, immense integrity, great wisdom, and vast maturity.

Yes, we have all reached the "Promised Land." And yet, as in the Old Testament, that milestone was only the beginning of the challenge. The Book of Ecclesiastes, then as now, holds profitable advice: "Whatsoever thy hand findeth to do, do it with all thy might." ■

THE SECRETARIES OF THE AIR FORCE

Stuart Symington	Sept. 18, 1947	Apr. 24, 1950
Thomas K. Finletter	Apr. 24, 1950	Jan. 20, 1953
Harold E. Talbott	Feb. 4, 1953	Aug. 13, 1955
Donald A. Quarles	Aug. 15, 1955	Apr. 30, 1957
James H. Douglas, Jr.	May 1, 1957	Dec. 10, 1959
Dudley C. Sharp	Dec. 11, 1959	Jan. 20, 1961
Eugene M. Zuckert	Jan. 24, 1961	Sept. 30, 1965
Harold Brown	Oct. 1, 1965	Feb. 15, 1969
Robert C. Seamans, Jr.	Feb. 15, 1969	May 14, 1973
John L. McLucas	July 18, 1973	Nov. 23, 1975
Thomas C. Reed	Jan. 2, 1976	

The Chief of Staff reviews accomplishments of the past year and describes the initiatives USAF is pursuing in its successful drive to maintain . . .

THE CUTTING EDGE: COMBAT CAPABILITY

BY GEN. DAVID C. JONES, CHIEF OF STAFF, UNITED STATES AIR FORCE

General Jones: "The requirement has never been stronger for . . . pride in being a part of the US Air Force."

Last year at this time, I outlined a number of trends and challenges with which the Air Force had to come to grips if we were to remain the No. 1 air force in the world. In the intervening twelve months, the trends have not moderated appreciably (although some faint and tentative signs of a turnabout are discernible) and the challenges are no less complex. Yet, as I look back on the achievements of the past year, I feel a profound pride in the way all officers and enlisted, men and women, Active, Guard, and Reserve Forces have closed ranks and responded with characteristic professionalism to the heavy burdens of defense. America approaches her Bicentennial secure in the knowledge that her Air Force is unequaled in capability and dedication.

The road has not been easy. The purchasing power of the Defense budget has been continuously declining—down about forty percent since 1964, the last year prior to the Southeast Asia buildup. The Air Force received a $28.1 billion budget for FY '76, $2.1 billion below the level requested to accommodate inflationary cost increases and provide for modest program growth. Nevertheless, Air Force people are not strangers to austere budgets and tight belts and, through a mixture of improved management efficiencies, organizational streamlining, and careful strength reductions, we will be able to get through the year without dulling the vital cutting edge of combat capability. My major worry this year has been not current capability, but the future consequences of accumulated reductions in the face of an unparalleled Soviet arms program. Despite an economic base roughly half the size of our own, the Soviet buildups in both strategic and general-purpose forces show no sign of slackening.

In contrast, US defense spending, in terms of real dollars, has diminished, and our military force has been cut to about 2,000,000 members—less than one-half of the Soviet total—and is still declining. In the two-year period from end FY '75 to end FY '77, Air Force strength reductions alone will total 62,300, more than ninety-one percent of the whole DoD cut for the period. Moreover, the Air Force has been able to procure fewer than 200 aircraft in each of the past five years. There is simply no way to preserve a modernized, effective force with this level of procurement. The FY '77 request for 239 aircraft, which is by no means a "get-well" program, marks a reversal of this recent trend and, if approved, is a hopeful sign that our combat capability will not be eroded by "age creep" and by block obsolescence of our aircraft.

As I recently reported to the Congress, while we now have the smallest, leanest Air Force in terms of people, air bases, and aircraft since the beginning of the Korean War, it is also the best that it has ever been and the best in the world today. One reason is that we bought a number of capable, durable aircraft and missiles in the 1960s, but the most important factor in our superiority is our emphasis on quality, and nowhere is this more evident than in the caliber of our people. The requirement has never been stronger for pride in excellence, and, more importantly, pride in being a part of the US Air Force.

In our commitment to improved readiness, we have initiated "Red Flag" exercises designed to provide maximum combat realism in our training. Unlike previous exercises, in "Red Flag" the opposing forces are fully noncooperative. "Red Flag" training will integrate all Air Force combat elements into a team effort—the way they would fight—and provide commanders with a better opportunity to determine the actual combat capability of their units. Although it initially involved only TAC wings (and their "gained" ANG and Reserve units), "Red Flag" is expanding to include SAC, PACAF, USAFE, MAC, ADCOM, as well as Army and Navy forces. At the same time, we are improving our procedures and training in support of joint service actions, particularly in the areas of mobility enhancement, close air support, and our collateral mission of assisting the US Navy in many of its sea control functions. We also are continuing dissimilar air combat training (DACT), using the

T-38 and the F-5 in the role of MiG aggressors.

New Weapon Systems

Looking at the new generation of weapon systems in development or entering the inventory, the B-1 development program is clearly of paramount importance. A recent study by the Library of Congress on the US/USSR military balance observed, "Replacing B-52s with B-1s is the only strategic nuclear procurement/deployment plan directly related to current U.S. shortcomings." The development program is on schedule, and this extensively tested system continues to meet or exceed our expectations in all critical areas of reliability and performance. There are a number of test milestones to be met and certain official reviews before we actually go to contract, but we believe the strategic need is compelling and the mission capability sufficiently confirmed to begin funding full production. We are moving ahead with development of the Air Launched Cruise Missile to enhance B-52 effectiveness in the 1980s and are modifying our Minuteman and bomber forces with state-of-the-art improvements to assure their continued capability and effectiveness.

Deployment of the E-3A Airborne Warning and Control System (AWACS) remains our No. 1 General Purpose Forces priority. In my judgment, AWACS represents the greatest single quantum jump in command and control capability since the development of radar. We consider AWACS highly cost-effective in its own right and even more so because it multiplies the effectiveness of the multibillion dollar combat assets it will control.

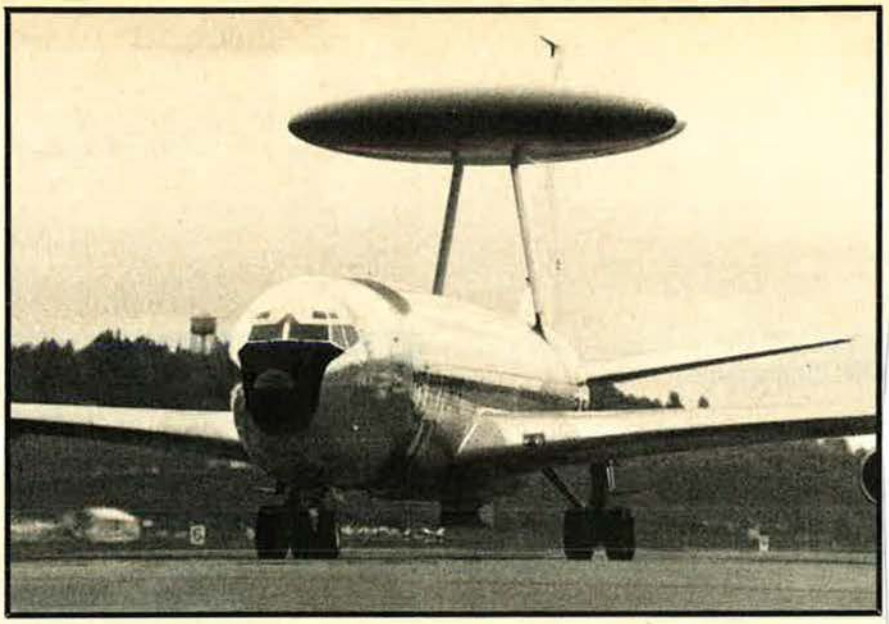
We have been highly pleased with the performance of the F-15 since it entered the active inventory last November. It promises to outperform any aircraft an adversary can put in the air in the immediate future. Tactical Air Command's 1st Tactical Fighter Wing at Langley AFB, Va., received its first F-15 in January. In addition, the F-16, still undergoing testing, will serve as a low-cost, high-performance, multipurpose complement to the F-15. The A-10, which was delivered to TAC in March, will significantly enhance our ability to support ground forces with a "tank-killing" gun, its great payload and firepower, loiter time, and battlefield survivability. These modernized systems, comprising a high-low mix of quality and quantity, will assure that we maintain a balanced and potent tactical air capability into the 1980s and beyond.

Under the Total Force Concept, Air National Guard and Air Force Reserve units are getting such first-line aircraft as the A-7 (above), the KC-135, and the F-4. Some units will receive A-10s direct from the factory.

A key consideration is the potential short-fall in oversize cargo capability and the subsequent development of wide-body aircraft. Because the C-5 is our only aircraft currently capable of transporting outsize cargo, we believe it essential to make the necessary modifications to its wing in order to achieve the full utility of this unique system. Our airlift enhancement program also includes modifying wide-body Civil Reserve Air Fleet (CRAF) aircraft with a wartime military cargo capability. The successful and timely completion of this program will permit the wide-body CRAF aircraft to carry oversize military cargo in an emergency, and will provide the Air Force a cost-effective means of complementing our organic airlift resources.

The Air Force is also vitally interested in the Advanced Tanker

Gen. David C. Jones, USAF's ninth Chief of Staff, has held command positions in SAC, TAC, and ARRS. A combat pilot during the Korean War, he served as DCS Operations and Vice Commander of Seventh Air Force in Vietnam. General Jones has had extensive experience in Europe as IG, DCS/Plans and Operations, Chief of Staff, Vice Commander, and Commander in Chief of US Air Forces in Europe. He is a graduate of the National War College.



The E-3A AWACS (above) rates top priority among General Purpose Forces systems. The Chief of Staff believes AWACS is "the greatest single quantum jump in command and control . . . since the development of radar."

Cargo Aircraft (ATCA), an off-the-shelf commercial wide-body jet modified for aerial refueling. ATCA is essential for increasing the range and versatility of our strategic airlift force, enabling the C-5, for example, to carry heavy loads of outsize equipment practically any place in the world without need for en-route refueling bases. Additionally, ATCA will allow tactical fighters—of the Navy and Marines as well as the Air Force—to deploy to trouble spots with their own supporting personnel, spares, and equipment accompanying them aboard the tankers.

In our space programs, designs for all segments of the NAVSTAR Global Positioning System were completed in 1975, contracts were awarded, and hardware development was begun. With NASA concurrence, we approved a solid-fuel propellant concept for the Interim Upper Stage of the Space Transportation System, for which the Air Force serves as the Defense Department's executive agent.

Enhancing Efficiency

In obtaining new weapon systems, we have been vitally concerned with developing better techniques for defining requirements, improving competition, reducing costs, and providing greater incentives for efficiency in the manufacturing processes. The cornerstone of our procurement philosophy is our emphasis on lower life-cycle costs for Air Force systems. We do this in one of two ways.

In one category, we look for very high unit quality, but buy limited numbers of higher unit cost systems. Having fewer numbers requires less fuel, a smaller spare parts inventory, fewer people to operate and maintain and, therefore, a reduced life-cycle cost over a very long life. In this category are such systems as the B-1, the AWACS, and the Advanced Tanker Cargo Aircraft.

A second category involves those missions for which quality alone is insufficient and for which we need a certain degree of mass. While quality is still built in, we buy larger numbers of more austere systems at lower unit cost. Because of the lower total investment cost and greater simplicity in maintenance and operation, we again achieve a minimum life-cycle cost. Such aircraft as the F-16 and the A-10 fall within this category.

To reduce overhead and find new ways of attaining our goals, we have undertaken several management initiatives during the past year. We have disestablished both our Southern Command and Headquarters Command and consolidated strategic and tactical airlift forces under Military Airlift Command. Action was begun to improve combat capabilities by fully equipping the existing twenty-six tactical fighter wings. In order to save fuel and reduce expenditures, we have initiated a low-cost aircraft augmentation test, and we are planning to make even more extensive use of simulators. As a prudent management action, we have consolidated the development, acquisition, and test resources of avionics development under a single control activity. A similar consolidation also has been implemented for simulator development.

Our Total Force Concept calls for the assumption of full partnership by our Air National Guard and Air Force Reserve units. They are recognized as highly competent members of the team in carrying out the Air Force mission. To this end, we are providing them with first-line aircraft such as the KC-135, A-7, and F-4, and some units will receive A-10s direct from the factory.

Programs for People

Transcending all other objectives is the emphasis on professionalism. We are committed to maintaining a highly qualified, well-disciplined Air Force whose members and leadership are dedicated to its mission. Discipline in today's Air Force is best equated with "selflessness." There's no room in today's Air Force for part-time professionals. All of our people

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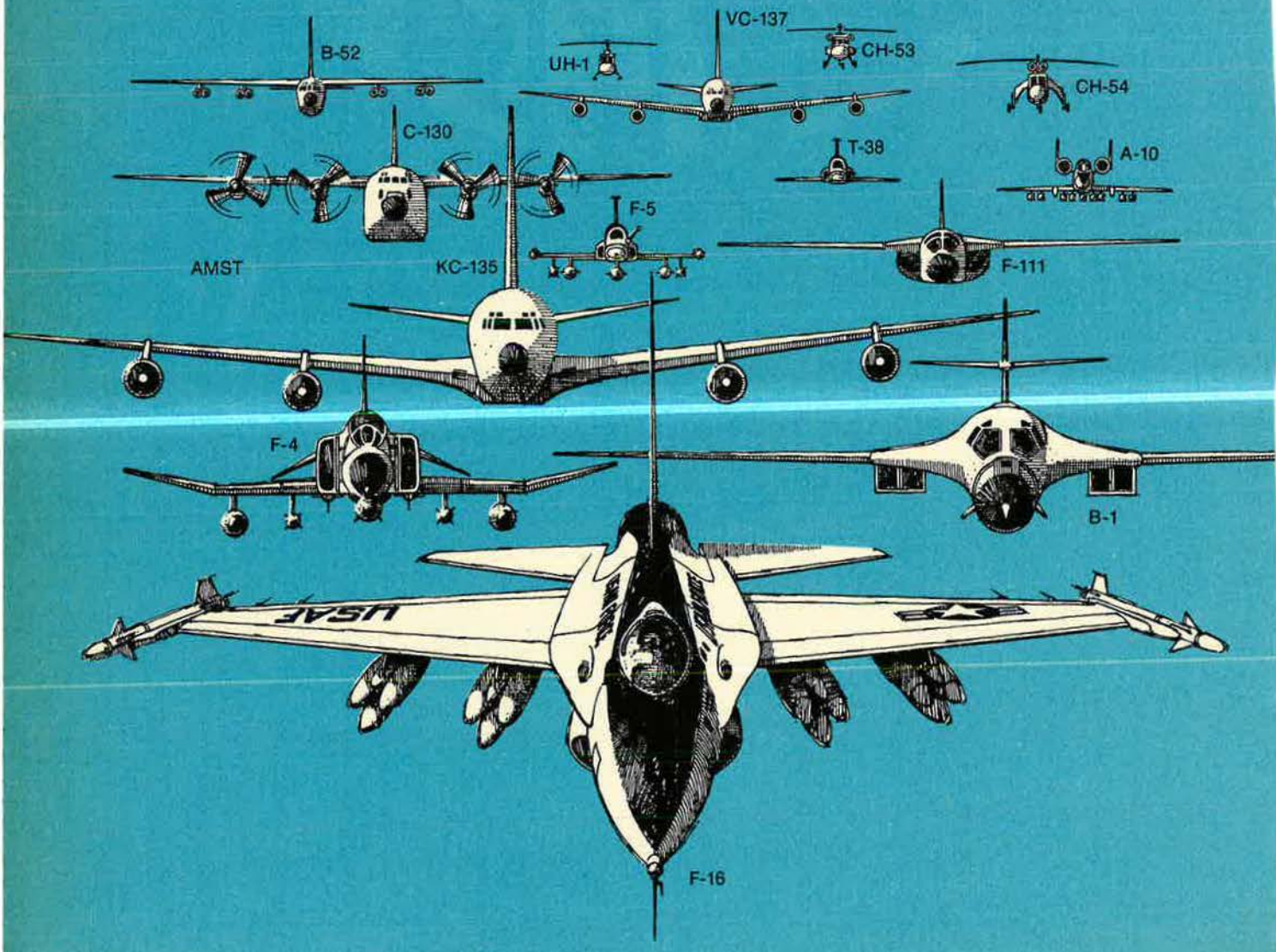


must be "all the way in" or "all the way out."

Our personnel efforts have been directed toward better human resources development and a long-term program to improve standards. Last July, we established the Directorate of Human Resources Development to improve personnel management. Our race-relations programs have been modified with the addition of human relations subject areas as a means of improving interpersonal communication. We chartered a personnel management team to get "grassroots" feedback on how the "people programs" were operating. Our new OER met its first evaluation by a promotion board, and the results verify that it can be a useful management tool in measuring actual performance while projecting the individual officer's potential.

Our NCO Force Utilization Program is currently under scrupulous review to ensure that we are making effective use of this valuable resource. We have specifically redefined NCO roles and implemented programs to improve the visibility, responsibility, and prestige of the NCO force. For instance, we are now providing an opportunity for individuals to achieve E-4 "below-the-zone" promotions in recognition of high standards and outstanding performance. In our continuing effort to achieve equality for all members, we will enter our first women into the Air Force Academy this June. Additionally, we will begin a test program for women in pilot training this fall.

Through these types of initiatives, we are taking important strides toward institutionalized programs that will return large profits in the years to come. I believe this to be critical to ensure emphasis on both discipline and human relations in that we are melding the programs that assure a qualified, dedicated force with those that focus on mission capability.

I believe our accomplishments over the past year have been truly significant. We have reevaluated our force structure and trimmed where appropriate. We have continued to evaluate and test our evolving weapon systems while constantly searching for better ways to manage the R&D dollar. We have examined and improved those programs that impact directly on our most important resource—our people—to ensure that they are, in fact, beneficial.

New Perspectives

At the beginning of this article I referred to trends, many of which cause grave concern. However, I see evidence of a different, broader, and much more favorable trend I would like to mention in closing. I have observed many clear indications that the nation is recovering from the "national vertigo" that seemed to beset us in the wake of economic reverses, political turmoil, and the divisiveness of our Southeast Asia experience. I am encouraged by the apparent reawakening of clear perception and common sense, which are the bedrock of our democracy. The nation seems to be taking a fresh look at the world and our role in it. The people are wary of Soviet rhetoric accompanied by explosive growth in every category of armaments and bolder ventures beyond her borders.

In the nation at large and in Congress, I see a greater appreciation for the self-inflicted wounds to our nation's military capability and a renewed determination to dissipate our strength no further with piecemeal cuts. And although we will always have our critics, I am particularly encouraged by the general reversal of popular attitudes toward the professional military. More and more people recognize that the old stereotype of the self-serving, resource-gobbling bureaucracy was a phony and that the nation's armed forces are deeply concerned not only with security issues, but with the broader problems facing our country. If my reading of the signs is accurate, I believe we can look forward to a new era of mutual respect and confidence between the public and the citizens who defend our nation.

In this regard, I want to commend the men and women of the Air Force for their unparalleled spirit of dedication and unselfishness in a period of almost unprecedented national austerity. I am keenly sensitive to the morale impact of what has been characterized as "erosion of benefits." No one is cheerful about reductions, large or small, in programs affecting the pocketbook. I think it is to the Air Force's credit that the great majority of her people were able to place these recent changes in the balanced context of significantly higher total compensation, job security, national economic distress, and the fact that, unless we can maintain an adequate, modern combat force structure, the question of military compensation is academic.

Nevertheless, morale is a critical and inseparable element of combat capability, and both Secretary Reed and I are firmly committed to doing all in our power to assure a continued level of total compensation appropriate to the unique demands of military service.

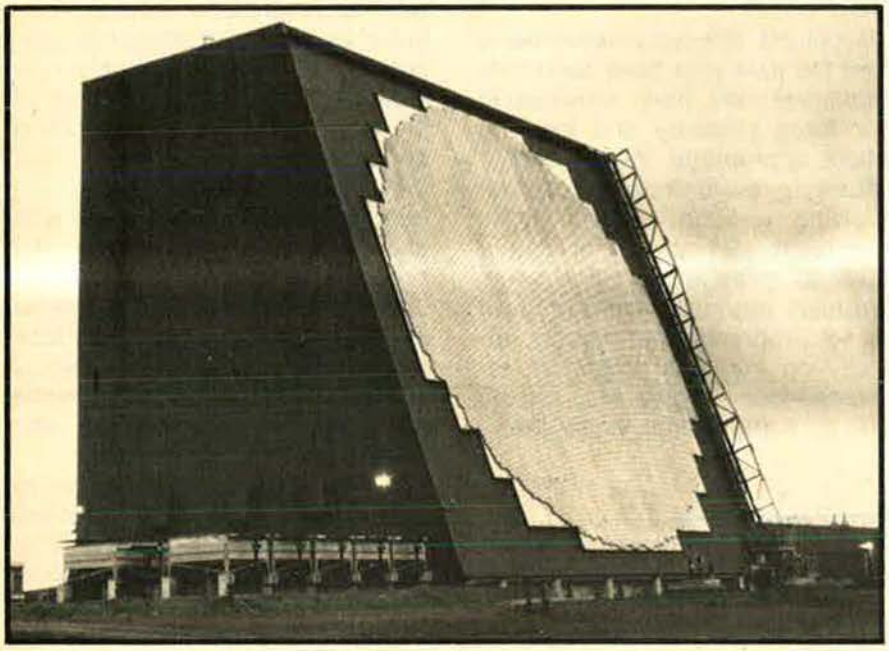
I am proud of the selfless dedication and willing sacrifices Air Force men and women have made and continue to make in the service of our country. I am confident that the Air Force has ably demonstrated during 1975 that it will be equal to any task assigned it by our nation in 1976 and beyond, into America's third century. ■

THE UNITED STATES AIR FORCE CHIEFS OF STAFF

Gen. Carl A. Spaatz	Sept. 26, 1947	Apr. 29, 1948
Gen. Hoyt S. Vandenberg	Apr. 30, 1948	June 29, 1953
Gen. Nathan F. Twining	June 30, 1953	June 30, 1957
Gen. Thomas D. White	July 1, 1957	June 30, 1961
Gen. Curtis E. LeMay	June 30, 1961	Jan. 31, 1965
Gen. John P. McConnell	Feb. 1, 1965	July 31, 1969
Gen. John D. Ryan	Aug. 1, 1969	July 31, 1973
Gen. George S. Brown	Aug. 1, 1973	June 30, 1974
Gen. David C. Jones	July 1, 1974	

A MAJOR AIR COMMAND

Aerospace Defense Command



This phased-array radar at Shemya Island, Alaska, is scheduled to go operational in 1976. It will monitor Soviet missile launches and track satellites.

A new designation, more responsibility, and the promise of better things to come were the 1975 hallmarks of progress for the Aerospace Defense Command (ADCOM).

Operational control of all US aerospace defense forces was transferred to ADCOM on the disestablishment, last July, of the Continental Air Defense Command. ADCOM is now a specified command directly responsible to the Joint Chiefs of Staff.

As principal component of the joint US/Canadian North American Air Defense Command (NORAD), ADCOM provides warning of and defense against airborne attack and hostile acts in space. With its 29,350 people (including 5,220 civilians), ADCOM would have full responsibility for defending the CONUS and Alaska if only the US were involved. For this reason, new authority in Alaska was added to meet the command's responsibilities.

Continued phaseout of older fighter-interceptor aircraft occurred in 1975. By mid-1977, all Air National Guard F-101B Voodoo squadrons are programmed to reequip with other types of aircraft. Remaining to patrol continental airspace and provide a nucleus of antibomber forces are twelve F-106 Delta Dart squadrons—six manned by the Air National Guard and six by active ADCOM units—and two F-4-equipped ANG units. Alert augmentation from Tactical Air Command F-4s will increase over the next two years.

These changes in force posture and responsibilities reflect recent direction from the Secretary of Defense to put more emphasis on ADCOM's warning and surveillance capability. The byword for the entire defense force has become quality rather than quantity.

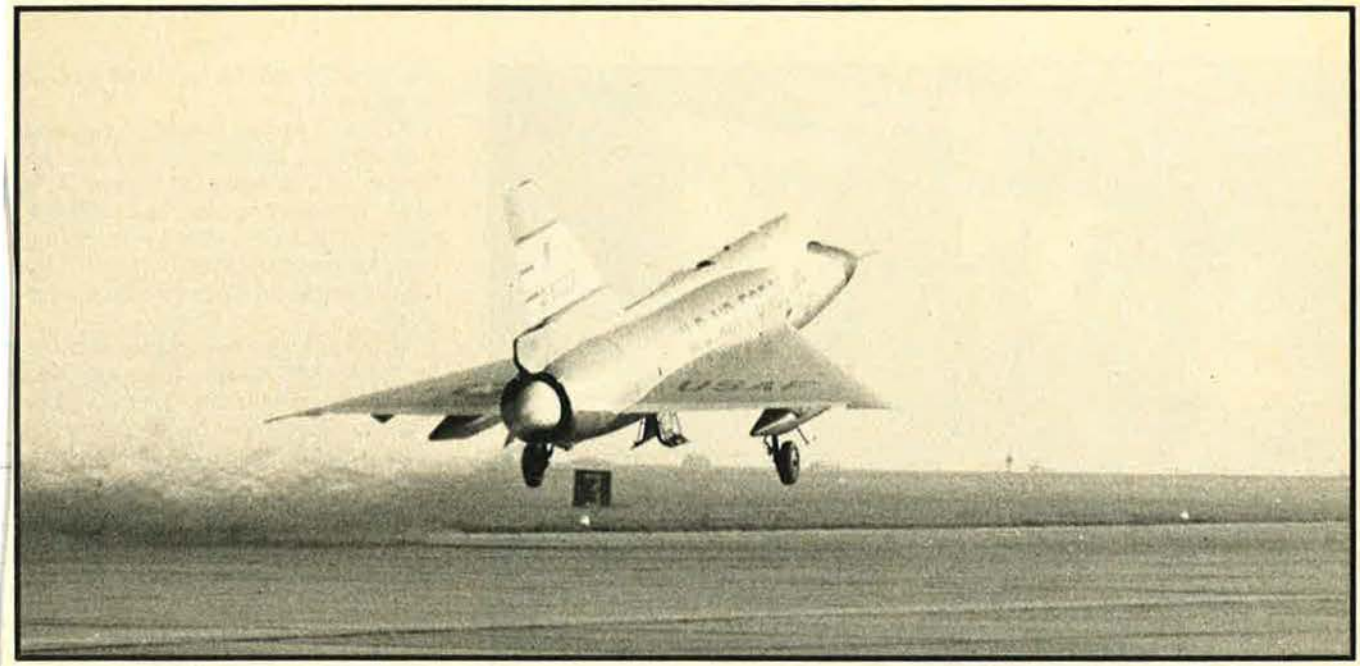
To provide improved long-range warning of aircraft approaching North America, an over-the-horizon backscatter radar is being developed. A contract was let last March to General Electric for a limited capability prototype in Maine. If the prototype is successful, operational sites will be built in the northeast and northwest. The system will theoretically have the capability to detect aircraft to a distance of almost 2,000 miles from our coasts.

In 1976, more conventional radars will be integrated into the Joint Surveillance System under which the Federal Aviation Administration and ADCOM will share tracking data from sixty-two continental US and Alaskan sites for both civilian traffic and air defense needs. More than twenty radar sites have already been converted to joint use. Ultimately, five continental US and twelve Alaskan radars will remain under exclusive Air Force ownership, one of which will be a balloon-borne radar that is now under development at Cudjoe Key, Fla.

ADCOM's airborne radar aircraft, the EC-121 Warning Stars, will soon end years of operations from McClellan AFB, Calif., and move to Homestead AFB, Fla., to augment the Air Force Reserve's 79th Airborne Early Warning and Control Squadron. The

Gen. Daniel James, Jr., Commander in Chief of NORAD and ADCOM.

CMSgt. James J. Forman, Senior Enlisted Advisor to CINC ADCOM.



ADCOM's manned interceptor force now consists largely of twelve F-106 Delta Dart squadrons, six in the Air National Guard. They are supported by two F-4 equipped ANG units and augmented on alert by Tactical Air Command F-4s.

venerable "Connie" will provide extended radar surveillance of the North Atlantic while on detachment to Iceland.

Active evaluation of new-generation fighter aircraft continues in recognition of a requirement for a follow-on manned interceptor.

As ADCOM Commander in Chief Gen. Daniel James, Jr., has pointed out, there is a new possible military arena to contend with—space. The Aerospace Defense Command has full operational responsibility in this new dimension.

To refine ADCOM's missile detection and space-tracking capability, a new phased-array radar, Cobra Dane, will enter service at Shemya, Alaska, in 1976.

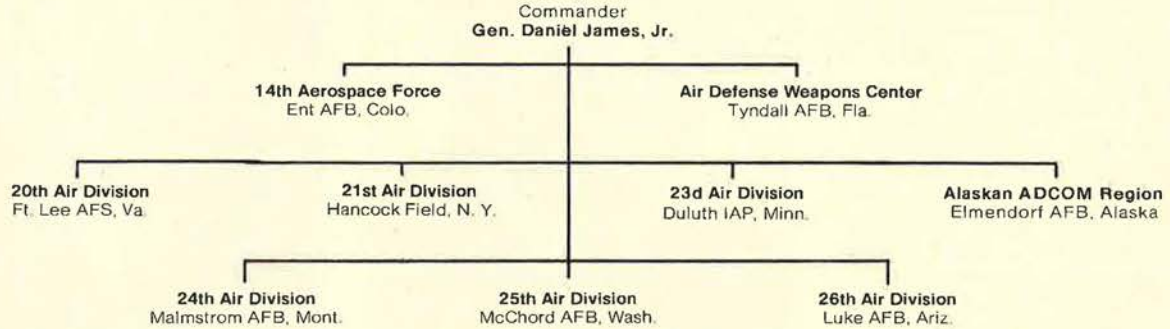
Construction is expected to start this year on another pair of large phased-array radars that will replace the existing system of six conventional sea-launched ballistic missile warning radars. These new complexes, one each on the US east and west coasts, will team up with the large phased-array radar at Eglin AFB, Fla., which has been modified to detect sub-launched missiles in the southern approaches to the continental US.

Improving deep-space detection at ranges out to 20,000 miles will move ahead with completion of the Ground Electro-Optical Deep Space surveillance test facility in New Mexico.

These advances, coupled with others programmed further in the future, will give ADCOM the high order of improvement necessary to ensure a timely and credible capability to detect and warn of any aerospace threat. ■

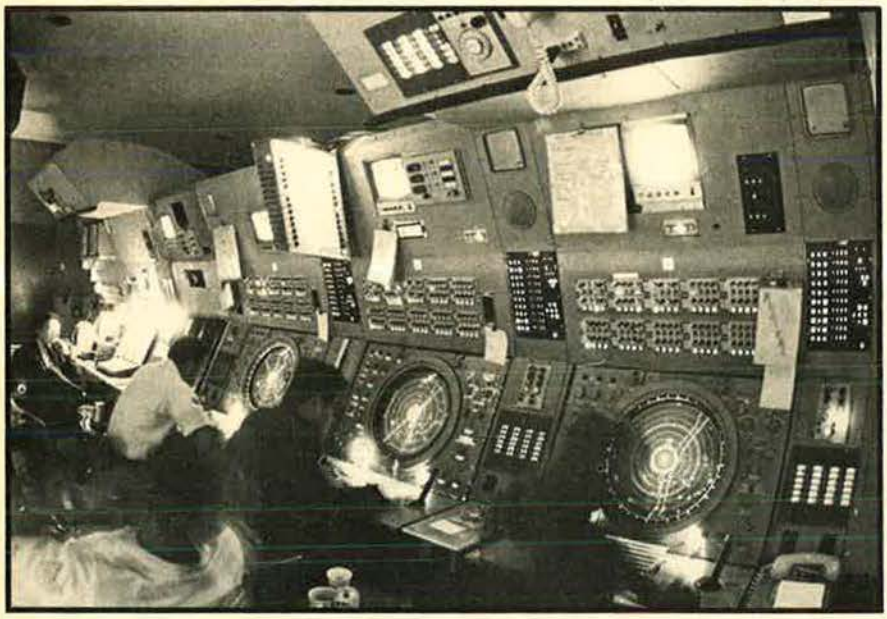
AEROSPACE DEFENSE COMMAND

Headquarters, Ent AFB, Colo.



A MAJOR AIR COMMAND

Air Force Communications Service



AFCS, responsible for USAF air traffic control operations, manages and maintains such installations as this air traffic control facility at Yokota, Japan.

From the lantern in Old North Church to sophisticated satellite relays, communications has come a long way since the birth of our nation 200 years ago.

The Air Force Communications Service (AFCS), the single manager of Air Force communications, has played a major role in communications developments since its formation on July 1, 1961.

AFCS, headquartered at Richards-Gebaur AFB, Mo., is responsible for engineering and installing communications - electronics - meteorological (CEM) facilities for all Air Force commands. It also operates and maintains long-haul intercontinental and local base communications, air traffic control (ATC) and navigational aid facilities, and services for the Air Force and selected government and civilian agencies. To meet these worldwide commitments, AFCS is divided into five communications areas and is authorized 35,900 military and 7,900 civilian personnel. More than thirty-eight percent of the military force is at overseas locations. In addition, AFCS uses some 950 foreign nationals overseas. AFCS's active forces are augmented by nearly 14,000 personnel in 182 Air National Guard and Air Force Reserve units.

AFCS, as principal manager for USAF ATC programs, manages Air Force ATC facilities, personnel in the air traffic controller force, all Air Force Traffic Control and Landing Systems (TRACALS), and the aircraft and crews who inspect and evaluate AFCS facilities. Some 6,000 AFCS controllers provided aircraft control and navigational assistance for 13,279,718 ATC operations in 1975. During this period, eighty controllers saved fifty-eight imperiled aircraft (worth $47.6 million) with 166 people aboard.

AFCS's three facility checking squadrons, based in Europe, the Pacific, and at Richards-Gebaur AFB have amassed more than 106,000 hours of accident-free flying during the past eleven years in flight checking command facilities throughout the world.

Major changes are being made to the USAF ATC system. Over the next five years, some fifty precision approach radars will be replaced by pilot-interpreted, solid-state instrument landing systems. Another step in modernizing USAF's ATC system is the use of computers to aid the controller by assisting in "writing" call signs and other information on the radar indicator.

A recent development is the installation of the AN/TPX-42A Air Traffic Control Radar Beacon System that provides a real-time, direct numerical readout of aircraft altitude, separate coding of up to ten aircraft, and an alerting/identification feature for aircraft in emergencies. This program will be completed by the end of FY '77.

In another area, 109 simulators are being developed to meet air traffic control training needs. They will be installed in virtually all operational ATC facilities over the next four years.

Playing a key role in automation

Maj. Gen. Rupert H. Burris, Commander, AFCS.

CMSgt. Richard A. Rivard, Senior Enlisted Advisor, AFCS.

is AFCS's Communications Computer Programming Center (CCPC) located at Tinker AFB, Okla. The Center is responsible for analysis, design, development, programming, testing, implementation, and maintenance of computer software in support of communications automation requirements for such systems as the Automatic Digital Network (AUTODIN), the Automated Weather Network, the Real-Time AUTODIN Interface and Distribution System (RAIDS), and the Worldwide Military Command and Control System.

A large majority of AFCS people are involved in the command's communications operations that support USAF, and as the major military contributor to the Defense Communications System (DCS).

To conserve communications resources, the Strategic Air Command (SAC) and AFCS have agreed to consolidate and realign their collocated communications units under AFCS. AFCS will establish the Strategic Communications Area (SACCA) at Offutt AFB, Neb., to manage the consolidated resources at SAC bases.

Members of Maine ANG's 243d Electronics Installation Squadron splice a cable at Loring AFB, Me.

Total manning will be reduced by approximately 300, and some 6,000 personnel will be shifted to AFCS control.

In another move, the 2d Combat Communications Group has been relocated from the European Theater to Patrick AFB, Fla. A small, fast-response force, the 1st Combat Communications Squadron, was retained in Europe. AFCS has three other combat communications groups, two of which are under operational control of the Tactical Air Command.

During 1975, AFCS deactivated five communications sites along the remote eastern coasts of Canada and Greenland, comprising the Canadian Northeast Wideband System (CNEWS). This action included the first installation of a satellite ground station at extreme northern latitude, and rerouting of vital defense circuits to ensure continued operation at a saving of some $5.5 million a year.

As both AFCS and the United States celebrate significant birthdays this summer, the command looks forward with renewed faith that it will continue to "Provide the Reins of Command" for those who command and control aerospace forces. ■

AIR FORCE COMMUNICATIONS SERVICE

Headquarters, Richards-Gebaur AFB, Mo.

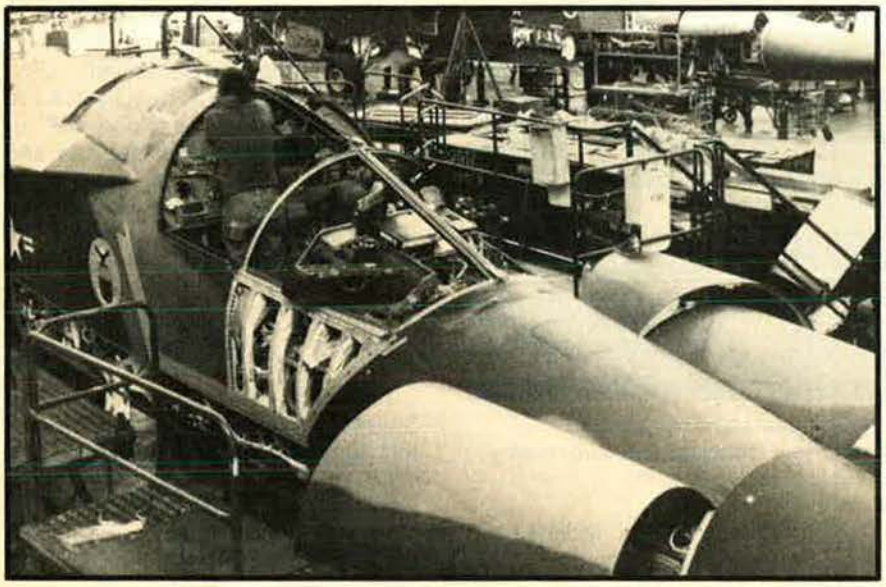
Commander
Maj. Gen. Rupert H. Burris

Pacific Communications Area Hickam AFB, Hawaii	**Tactical Communications Area** Langley AFB, Va.	**European Communications Area** Ramstein AB, Germany
Northern Communications Area Griffiss AFB, N. Y.	**Strategic Communications Area** (A/O July 1, 1976) Offutt AFB, Neb.	**Southern Communications Area** Oklahoma City AFS, Okla.
1840th Air Base Wing Richards-Gebaur AFB, Mo.	2d Combat Communications Group Patrick AFB, Fla.	3d Combat Communications Group Tinker AFB, Okla.
1866th Facility Checking Squadron Richards-Gebaur AFB, Mo.	1931st Communications Group Elmendorf AFB, Alaska	Communications Computer Programming Center Tinker AFB, Okla.
1842d Electronics Engineering Group Richards-Gebaur AFB, Mo.	2199th Computer Service Squadron Richards-Gebaur AFB, Mo.	2000th Management Engineering Squadron Richards-Gebaur AFB, Mo.
1814th Communications Squadron Ft. Myer, Va.	1815th Test Squadron Richards-Gebaur AFB, Mo.	1801st Support Squadron Richards-Gebaur AFB, Mo.
1872d School Squadron Richards-Gebaur AFB, Mo.		

A MAJOR AIR COMMAND

Air Force Logistics Command

Air Force Logistics Command (AFLC) is unique among the major commands of the US Air Force. Structured along traditional military lines, AFLC is basically industrial, production-oriented, and corporate in nature. Its job is to "keep the Air Force flying."



AFLC's Sacramento Air Logistics Center in California is system manager for the F-111 and fourteen other types of Air Force aircraft.

Led by Gen. F. Michael Rogers, the command's 88,000 civilians and 10,000 military personnel maintain aircraft, missiles, and equipment; procure material, equipment, and services to do this job; and manage, store, distribute, and transport this materiel.

The mission is carried out through five large air logistics centers: Warner Robins ALC, Robins AFB, Ga.; San Antonio ALC, Kelly AFB, Tex.; Oklahoma City ALC, Tinker AFB, Okla.; Ogden ALC, Hill AFB, Utah; and Sacramento ALC, McClellan AFB, Calif.

It is at the ALCs—which resemble giant civilian industrial complexes—that the work of keeping the Air Force flying takes place. Each center is assigned responsibility for certain aircraft, missiles, and equipment. For example, the newest air-superiority fighter—the F-15 Eagle—is supported by the Warner Robins ALC, the giant C-5 Galaxy by San Antonio ALC, the Minuteman and Titan missiles by Ogden ALC, the E-3A AWACS aircraft by Oklahoma City ALC, and the A-10 close-support aircraft by Sacramento ALC. No matter where the weapon system is assigned, its operating unit looks to the appropriate AFLC center for logistics support.

Two additional AFLC organizations also play key roles in the command's worldwide logistics support mission. The Aerospace Guidance and Metrology Center (AGMC) at Newark AFS, Ohio, repairs and calibrates inertial guidance systems for missiles and aircraft, and is responsible for maintaining physical and measurement standards for USAF.

Storage of surplus aircraft against the possibility of their being needed in the future is also an AFLC responsibility. This task is carried out by the Military Aircraft Storage and Disposition Center (MASDC) at Davis-Monthan AFB, Ariz. MASDC also disassembles aircraft that are no longer needed. Their parts are redistributed throughout the Department of Defense for use on operational aircraft.

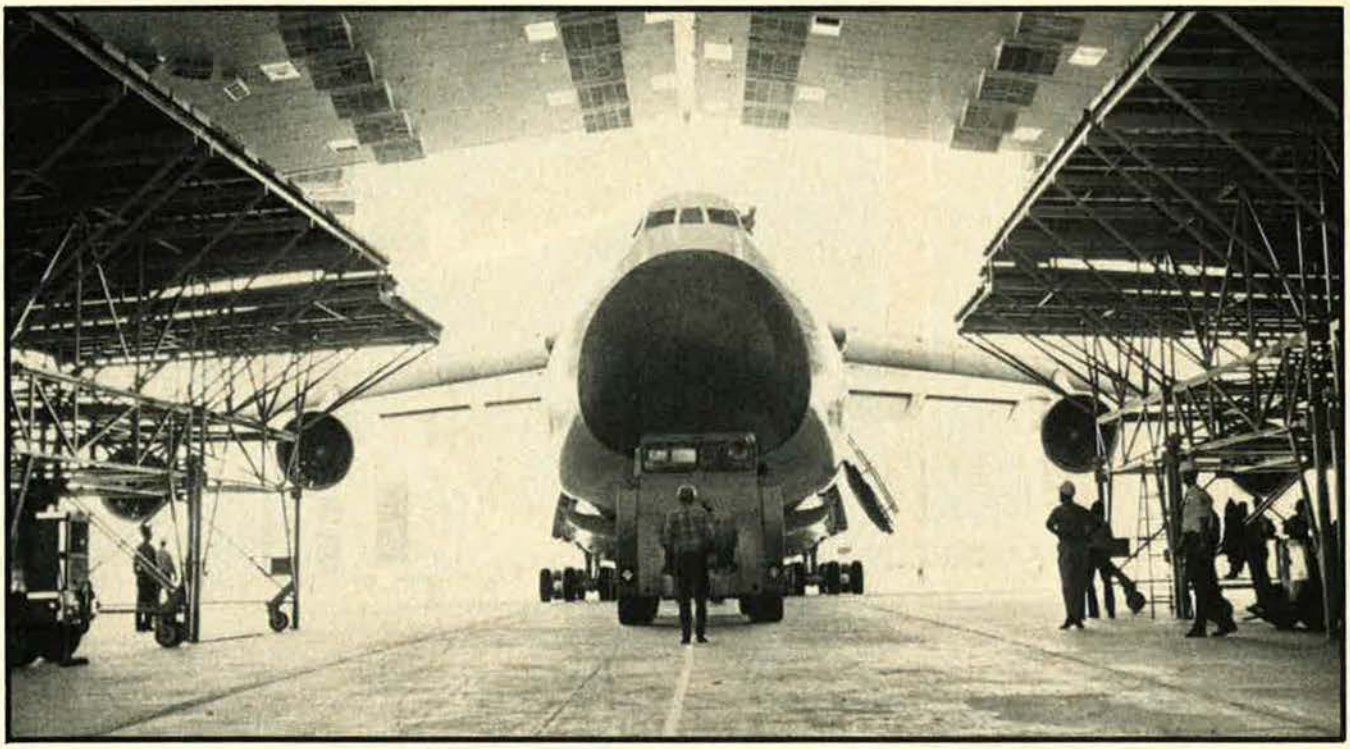
The work force at these command units—as at its headquarters at Wright-Patterson AFB, Ohio—is unique in the Air Force. It is predominantly civilian and includes scientists and sheet metal mechanics, engineers and clerk-typists, technicians and physicians, mathematicians and morticians, computer specialists and firemen, fighter pilots and contract specialists. Some 800 professions and skills are represented in the AFLC civilian work force.

Statistically, the command's workload during FY '75 was impressive:

- AFLC managed a financial program amounting to some $12 billion.
- The command obligated more than $2.8 billion in operations and maintenance funds to purchase sup-

Gen. F. Michael Rogers, Commander, AFLC.

CMSgt. Anthony J. Madonna, Senior Enlisted Advisor, AFLC.



A giant C-5 transport dwarfs workers as it is eased into a maintenance facility at Kelly AFB, Tex. AFLC's San Antonio Air Logistics Center at Kelly is responsible for depot-level work on the huge planes.

plies, equipment, material, and services for the Air Force.

- It managed for the Air Force an inventory of 1,620,000 different items with a gross value of nearly $28 billion.
- It received and processed 5,433,000 requisitions for supplies, equipment, material, and services.
- A total of 4,999 jet engines, more than 1,000 reciprocating engines, and 1,947 gas turbine engines were overhauled.
- More than 1,900 aircraft went to the command's air logistics centers and to contractors for programmed depot maintenance. Modifications were performed on 750 aircraft.

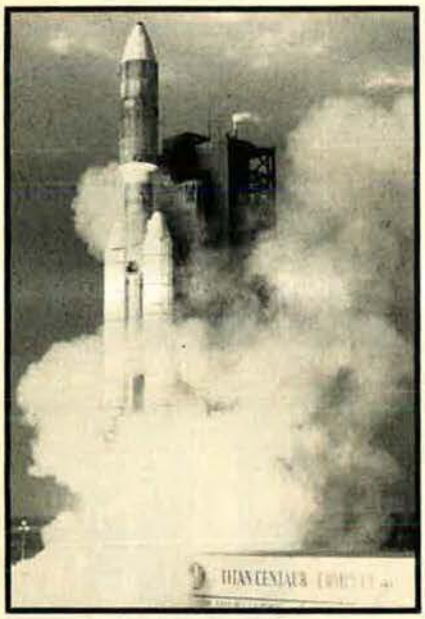
Although the general image of AFLC is not one of a "fly and fight" organization, without the command the Air Force could not carry out its traditional role. ■

AIR FORCE LOGISTICS COMMAND

Headquarters, Wright-Patterson AFB, Ohio

A MAJOR AIR COMMAND

Air Force Systems Command



Left, a Titan-Centaur prepares for liftoff at AFSC's Eastern Test Range. Above, the radome of a new USAF system, the E-3A AWACS.

Headquartered at Andrews AFB, Md., Air Force Systems Command (AFSC) is responsible for research, development, test, evaluation, and procurement and production of Air Force missiles, aircraft, and related hardware.

AFSC's budget in FY '76 was $8 billion, or twenty-eight percent of the total Air Force budget. In calendar year 1975, the command administered 19,247 individual contracts with a $4.7 billion face value. AFSC installations worldwide are valued at more than $2 billion.

In FY '76, nearly 53,000 military and civilian personnel worked for AFSC—9,676 officers, 15,445 airmen, and 27,716 civilians. This is a reduction from 1975, and is among the reasons why AFSC is "doing more with less."

To do that has required the most efficient management of resources in increasingly complex circumstances. To cite a few examples: 871 management initiatives were implemented to conserve $254 million for use in high-priority areas; management engineering teams completed twenty-five studies that cost $975,000 but saved $15 million for a return of $15 on each dollar invested; and the stage has been set to slash money- and time-consuming paperwork through the new, computerized Acquisition Management Information System, scheduled to become operational in mid-1976, which will handle details of the thousands of AFSC contracts.

Technological advances in 1975 included using composite materials for lighter, more efficient aircraft; applying laser holography in such areas as weapon guidance, mass data storage, and signal processing; and employing isothermal forging to produce aircraft parts more efficiently and cheaply.

AFSC is involved in more than 200 weapon systems programs, each in a different development stage. They range in complexity from relatively simple aircraft radios to sophisticated areas of avionics, space satellites, strategic and tactical aircraft, and intercontinental ballistic missiles.

Among AFSC's most significant achievements of 1975 were these:

- Six preproduction and first production close air support A-10 aircraft were delivered for test and training.
- The first production model of

Gen. William J. Evans, Commander, AFSC.

CMSgt. Francis W. Roper, Senior Enlisted Advisor, AFSC.

the Air-Launched Cruise Missile (ALCM) was rolled out.

- Two prototype YC-15 Advanced Medium Short Takeoff and Landing Transport (AMST) aircraft made their first flights.
- A contract for the fourth B-1 advanced strategic bomber was awarded, and more than 100 hours of flight testing were completed on the first B-1.
- Successful flights of a long-range Remotely Piloted Vehicle (RPV) system (Compass Cope) were carried out.
- The E-3A Airborne Warning and Control System (AWACS) prototype was demonstrated successfully in Europe and the first operational AWACS was flight-tested.
- Three E-4 Advanced Airborne Command Post (AABNCP) aircraft were procured and transferred to operational units.
- A contract for eight full-scale development F-16 Air Combat Fighters was awarded and a coproduction memorandum of understanding signed with four NATO countries.
- Aircraft for the first operational F-15 squadron were delivered to TAC in October.
- The operational force mix of 450 Minuteman IIs and 550 Minuteman IIIs was achieved.
- Contracts were awarded for satellites, ground support, and user equipment for the NAVSTAR Global Positioning System.

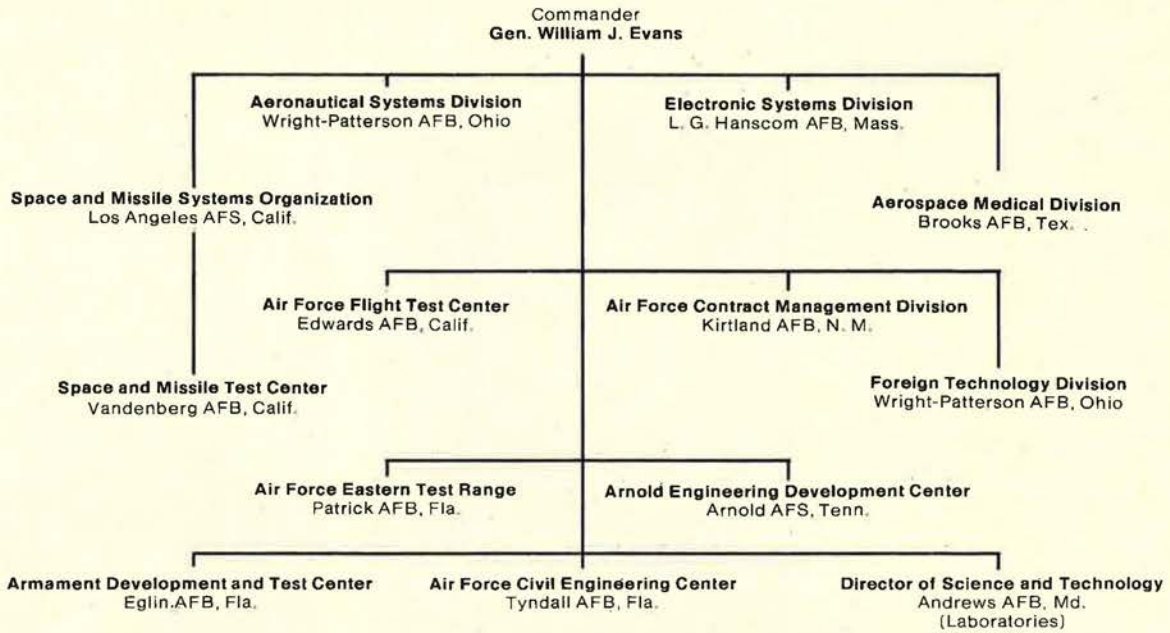
During the year, AFSC managed more than 350 foreign military sales transactions, involving $4.8 billion, a figure projected to rise to $7 billion in 1976. These sales bolster the national economy and result in more efficient, lower-cost weapon systems for the United States and its allies.

The trends of the past few years seem likely to continue in the near future. "Doing more with less" is not only an appropriate way to characterize 1975, but the future as well. Dealing with this continuing situation, while creating the advanced weapon systems of the future and delivering them at acceptable cost, is the real challenge for AFSC planners as they prepare for the realities of tomorrow. ■

An AFSC F-16 prepares to refuel from a KC-135 as part of its flight-test program.

AIR FORCE SYSTEMS COMMAND

Headquarters, Andrews AFB, Md.



A MAJOR AIR COMMAND

Air Training Command

The drill pads of Lackland AFB, Tex., helped train more than 79,000 recruits in 1975.

Initial military, technical, and flying training and all Air Force recruiting remain the missions of Air Training Command (ATC), headquartered at Randolph AFB, Tex.

At the close of 1975, the command's $2.9 billion inventory spread to fourteen bases, three survival schools, sixty-two field training detachments, and nearly 1,000 recruiting offices. As a result of declining Undergraduate Pilot Training (UPT) requirements, Moody AFB, Ga., was transferred to Tactical Air Command on December 1, 1975; and in March 1976, Craig AFB, Ala., and Webb AFB, Tex., were identified by the Air Force as candidates for closure.

The command's inventory at the start of the Bicentennial year also included 1,671 training aircraft (713 T-37s, 843 T-38s, ninety-six T-41s, and nineteen T-43s). With about 120,000 people including students and tenants—98,000 military and 22,000 civilians—and an operating budget of $1.4 billion, ATC is one of the world's largest training systems.

To meet the Air Force's personnel needs, Recruiting Service attracted more than 79,000 young men and women last year. Recruiters met all regular goals, enlisting the best qualified people in the history of the all-volunteer Air Force.

During 1975, five Schools of Applied Aerospace Sciences trained nearly 146,000 students in 2,627 technical courses. ATC's field training detachments, located throughout the world, trained more than 130,000 personnel in 950 courses. Through the Community College of the Air Force (CCAF), this training has taken on increased value for enlisted personnel. Since 1972, CCAF has conferred 361 Career Education Certificates and produced more than 130,000 transcripts. Its active enrollment exceeds 25,000.

In its flying training activities, ATC flew almost 700,000 hours with the lowest accident rate of any major flying command. ATC shared the 1975 Secretary of the Air Force Safety Award with the Alaskan Air Command, and received the Maj. Gen. Benjamin D. Foulois Memorial Award.

Undergraduate pilot training (UPT) production decreased from 2,400 in 1974 to about 2,300 in 1975, with production expected to drop to about 1,100 pilots in FY '78. ATC also trained some 250 foreign students in specialized UPT courses. The UPT Instrument Flight Simulator, scheduled for installation and initial testing at Reese AFB., Tex., in late 1976, is expected to replace all instrument flight training except validation flights.

Undergraduate navigator training (UNT) at ATC's Mather AFB, Calif., will become an interservice program in July 1976, with Air Force as the executive agent for Navy, Marine, and Coast Guard undergraduate aerial navigation training. In May 1975, the sophisticated T-45 navigation simulator joined the all-jet fleet of T-43s and T-37s, allowing students to "navigate" the world without leaving the ground. UNT production dipped from about 1,400 in 1974 to nearly 1,000 in 1975.

In the fall of 1976, women will begin entering flying training programs for the first time.

As primary manager for Air Force's security assistance training in the United States, ATC managed more than $100 million worth of flying, technical, and professional training provided to about 6,000 students from fifty-five nations. Approximately eighty

Lt. Gen. John W. Roberts, Commander, ATC.

CMSgt. Brian Bullen, Senior Enlisted Advisor, ATC.

RECRUITING

Recruiting the numbers of qualified men and women to meet requirements of today's all-volunteer aerospace force is the responsibility of the USAF Recruiting Service, headquartered at Randolph AFB, Tex.

More than 79,000 young men and women were recruited in 1975, including nearly 76,000 without prior military service, some 600 candidates for Officers Training School, approximately 600 registered nurses, more than 1,400 prior-service personnel, and some 500 physicians, dentists, veterinarians, and Biomedical Science Corps personnel.

Overall quality is up, with ninety-five percent of the new recruits having a high school diploma or equivalency certificate, providing the highest quality of enlistees in almost a decade.

The quality of the new recruits is contributing to a lower Basic Military Training dropout rate, a higher percentage of graduates from technical training, and a more dedicated, professional enlisted force.

Also aiding this effort is the new "Spirit of '76" campaign, offering a chance for the youth of today to build their own future through service to their country and a commitment to the Air Force way of life, with its standards and disciplines.

Another innovative program is the Recruiter/Customer Awareness Program (RECAP), which puts the recruiter back on the bases to talk with first-term airmen. This action completes the cycle and results in continuous direct recruiting involvement with enlistees from initial contact through basic training, into the initial duty assignment.

The 3,700 military and civilian people in Recruiting Service are commanded by Maj. Gen. Andrew P. Iosue.

Women are joining USAF in increasing numbers. Here, they scale an obstacle on Lackland's confidence course.

percent of the training was conducted by ATC. Under one program initiated in 1975, ATC will manage the training of 1,200 Royal Saudi Air Force airmen from basic through technical training. ■

AIR TRAINING COMMAND

Headquarters, Randolph AFB, Tex.

Commander
Lt. Gen. John W. Roberts

Technical Training Center
Chanute AFB, Ill.

Technical Training Center
Keesler AFB, Miss.

Technical Training Center
Lowry AFB, Colo.

3320th Retraining Group

Technical Training Center
Sheppard AFB, Tex.

USAF School of Health Care Sciences

Air Force Military Training Center
Lackland AFB, Tex.

Basic Military Training School

USAF Occupational Measurement Center

Undergraduate Pilot Training

Columbus AFB, Miss.
(14th Flying Training Wing)
Craig AFB, Ala.
(29th FTW)
Laughlin AFB, Tex.
(47th FTW)
Reese AFB, Tex.
(64th FTW)
Vance AFB, Okla.
(71st FTW)
Webb AFB, Tex.
(78th FTW)
Williams AFB, Ariz.
(82d FTW)
Sheppard AFB, Tex.*
(80th FTW)

12th Flying Training Wing
Randolph AFB, Tex.

Pilot Instructor Training
USAF Instrument Flight Center

3636th Combat Crew Training Wing*
(Survival)

Fairchild AFB, Wash.*
(Eielson AFB, Alaska)*
(Homestead AFB, Fla.)*

557th Flying Training Squadron*
US Air Force Academy, Colo.

USAF Recruiting Service
Randolph AFB, Tex.

Recruiting Groups:
3501st—Hanscom AFB, Mass.
3503d—Robins AFB, Ga.
3504th—Lackland AFB, Tex.
3505th—Chanute AFB, Ill.
3506th—Mather AFB, Calif.

Community College of the Air Force
Randolph AFB, Tex.

Navigator Training Wing
Mather AFB, Calif.
(323d FTW)

Officer Training School
Lackland AFB, Tex.

*Tenant Unit

A MAJOR AIR COMMAND

Air University

In 1976, Air University (AU) will mark its thirtieth year of answering the Air Force's need for developing professional leadership. With today's more complex environment, sophisticated systems, resource limitations, and continuing technological breakthroughs, competent professional leadership is the key to effective and efficient mission accomplishment. AU provides professional military education (PME), graduate engineering and management programs, and continuing career education for the officers, NCOs, and civilians who will be the leaders of tomorrow's Air Force.

Named for AU's first commander, Gen. Muir S. Fairchild, the library is the heart of the academic complex.

Each year, nearly half of the Air Force population—active duty, civilian, and Ready Reserve—as well as selected personnel from the sister services, other government agencies, and many allied forces study in one or more of AU's professional education programs.

AU's headquarters and most of its major activities are located at Maxwell AFB, Montgomery, Ala. Three of AU's PME schools—Air War College for senior officers, Air Command and Staff College for mid-career officers, and Squadron Officer School for junior officers—are located on Chennault Circle at Maxwell. The fourth PME school, the USAF Senior Non-commissioned Officer Academy, joined the AU system in 1972 and is located at nearby Gunter AFS. These schools have graduated more than 75,000 officers and 2,500 senior NCOs.

AU's specialized schools meet specific USAF educational requirements. The Air University Institute for Professional Development operates personnel management, comptroller, judge advocate, and chaplain courses, and a seminar for USAF commanders.

Academic Instructor and Allied Officer School (AIAOS) serves in two capacities. It conducts the USAF teachers' college for instructors and prepares allied officers for attendance at USAF schools. AIAOS this year celebrated twenty-one years of serving the Air Force through its Allied Officer Familiarization Course. Since its creation, AIAOS has graduated more than 2,700 officers from seventy foreign countries.

The Extension Course Institute (ECI) administers approximately 380 correspondence courses in professional military and specialized education, and career-development fields of instruction. With some 300,000 students participating annually, the Institute has handled more than 7,000,000 enrollments.

USAF requirements in scientific, technological, managerial, and other designated professional areas are met through the Air Force Institute of Technology, located on AU's northern campus at Wright-Patterson AFB, Ohio.

Air Force Reserve Officer Training Corps (AFROTC), headquartered at Maxwell AFB, is the major source of new USAF officers. It operates detachments at colleges throughout the US and Puerto Rico. AU's Junior

Lt. Gen. Raymond B. Furlong, Commander, Air University.

CMSgt. Richard C. Buxton, Senior Enlisted Advisor, AU.

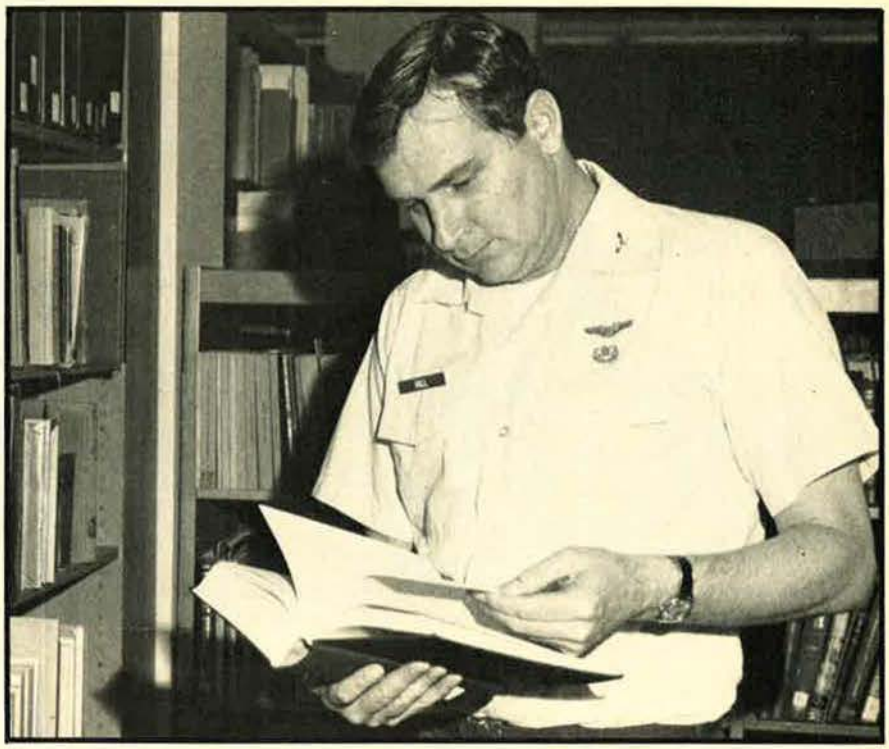
AFROTC program, started in 1966, is conducted at approximately 275 high schools throughout the nation, in Europe, and on Guam.

Supporting the academic complex is the Air University Library, with vast resources that include bibliographic, documentary, and circulating facilities. Collocated with the library is the Albert F. Simpson Historical Center, operated by the Air Force Chief of History. Together, these libraries represent a unique resource on airpower and the Air Force.

In response to changing requirements, two new programs have been established by AU. One is the focal point of leadership and management education in the Air Force. The other is coordinating a comprehensive research program involving the talents of government, business, and the academic community in improvement of the Air Force logistics support programs.

PME and continuing education resident, seminar, and correspondence curricula are being revised to include increased emphasis on mission-oriented subjects. Course formats are being altered to be even more responsive to Air Force needs.

AU maintains close contact with the world of civilian education through such special events as the National Security Forum, Military Media Symposium, and special seminars on a variety of topics.



AU's educational philosophy places major emphasis on the student's individual research and study.

As it has been for the past thirty years, the overriding consideration throughout AU is total commitment to quality education, using the latest educational developments, in keeping with its motto, *Proficimus More Irretenti*—"We Progress Unhindered by Tradition." ■

AIR UNIVERSITY

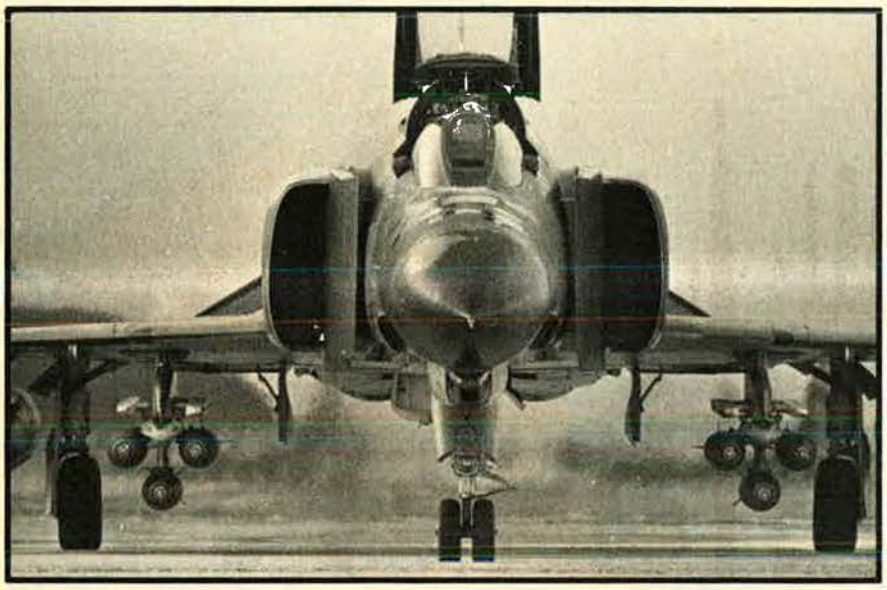
Headquarters, Maxwell AFB, Ala.

Commander
Lt. Gen. Raymond B. Furlong

- **3843d Computer Services Squadron**, Maxwell AFB, Ala.
- **3840th Support Squadron**, Maxwell AFB, Ala.
- **Air War College**, Maxwell AFB, Ala.
- **Air Command and Staff College**, Maxwell AFB, Ala.
- **Squadron Officer School**, Maxwell AFB, Ala.
- **Air University Institute for Professional Development**, Maxwell AFB, Ala.
- **Academic Instructor and Allied Officer School**, Maxwell AFB, Ala.
- **USAF Senior NCO Academy**, Gunter AFS, Ala.
- **AF Institute of Technology**, Wright-Patterson AFB, Ohio
- **Air Force Reserve Officers Training Corps**, Maxwell AFB, Ala.
- **Extension Course Institute**, Gunter AFS, Ala.
- **Air University Library**, Maxwell AFB, Ala.
- **3825th Academic Services Group**, Maxwell AFB, Ala.
- **USAF Regional Hospital**, Maxwell AFB, Ala.
- **Logistics Management Center**, Maxwell AFB, Ala.
- **3800th Air Base Wing**, Maxwell AFB, Ala.
- **Leadership and Management Development Center**, Maxwell AFB, Ala.

A MAJOR AIR COMMAND

Alaskan Air Command



An Alaskan Air Command F-4E runs up its engines to take off on a practice air-to-surface mission.

The Alaskan Air Command (AAC), one of the oldest major commands, continues to provide top cover for the North American continent. Commanded by Lt. Gen. James E. Hill, AAC was created on December 21, 1945, from the Eleventh Air Force of World War II.

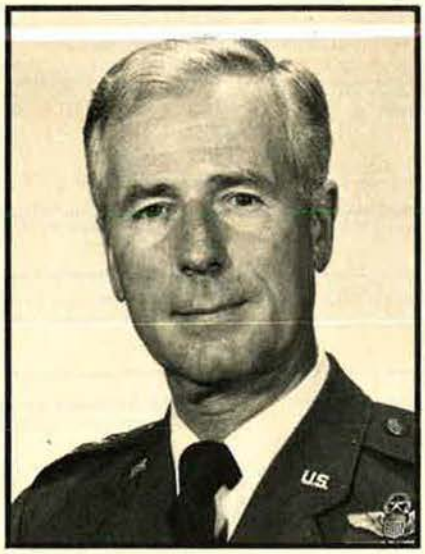
AAC's primary mission is to provide early air attack warning for the US and Canada, sovereignty of US airspace, and air support for ground forces assigned to Alaska. AAC conducts aerospace defense operations according to tasks assigned by the Commander in Chief, North American Air Defense Command/Aerospace Defense Command. The Commander, AAC, also serves as Commander, Alaskan NORAD/ADCOM Region. Additionally, the Commander, AAC, is the coordinating authority for all joint military administrative and logistical matters in Alaska and military point of contact for the state of Alaska.

A Joint Task Force (JTF) may be established for contingency/emergency operations other than aerospace defense. Normally, the Commander, AAC, as the senior military officer in Alaska, will be JTF Commander. AAC will plan, conduct, and coordinate offensive and defensive air operations according to tasks assigned by the Commander, JTF, when activated. Military forces from all services are assigned within the state, and in contingency situations these existing forces could be augmented by Readiness Command forces stationed within the forty-eight contiguous states.

Always of strategic importance because of its size, location, and natural resources, the developing oil deposits and Trans-Alaska pipeline have added to the importance of Alaska. Scheduled for completion in mid-1977, the forty-eight-inch oil pipeline that runs from the Arctic Ocean south for 800 miles to the Gulf of Alaska, will deliver 1.2 million barrels each day. The oil reserves at Prudhoe Bay, estimated at 9.6 billion barrels, are approximately one-fourth of the total US proven reserves. The pipeline, when completed and operating at full capacity, will satisfy about twelve percent of the US daily requirements.

The Alaskan Air Command operates three air bases, thirteen aircraft control and warning squadrons, and two airbase squadrons. The bases are Elmendorf AFB, bordering Anchorage; Eielson AFB, near Fairbanks; and Shemya AFB, near the tip of the Aleutian Islands chain. The ACW squadrons border the western coast of the state with some strategically placed in the interior. The civilian airports of Galena and King Salmon have tenant air base squadrons to provide forward operating bases for fighter aircraft.

The approximately 10,000 military and civilian personnel authorized to AAC provide logistical, administrative, and other support to a variety of units from other services, commands, and agencies. Tenant units receiving support from AAC include the Military Airlift Command, Strategic Air Command, Aerospace Defense Command, Air Force Communications Service, Defense Communications Agency, Defense Mapping Agency,



Lt. Gen. James E. Hill, Commander, Alaskan Air Command.

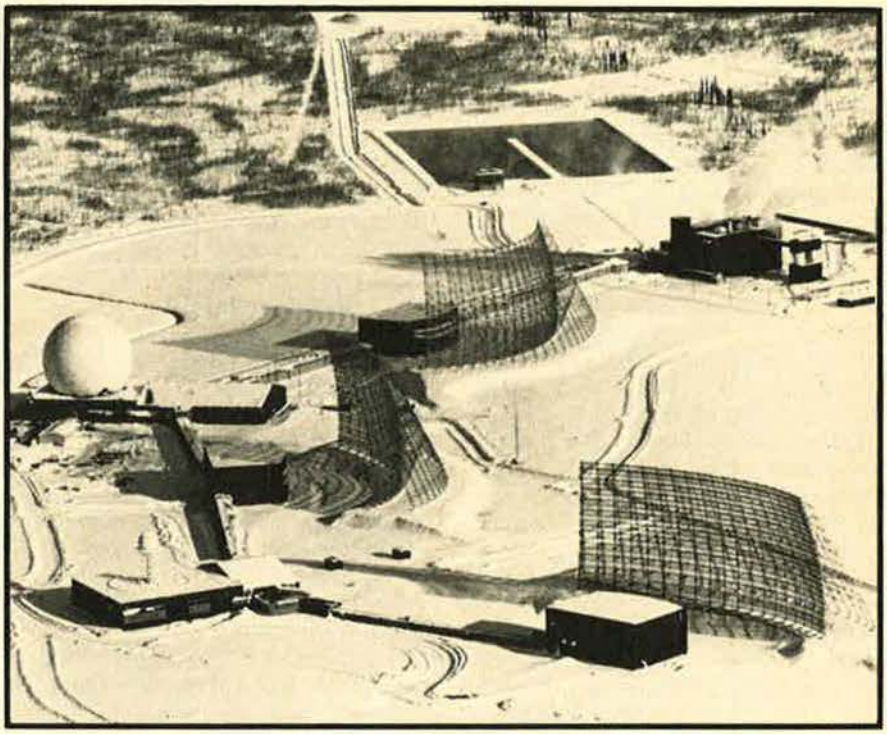
CMSgt. Wesley H. Skinner, Senior Enlisted Advisor, AAC.

Defense Investigative Agency, US Navy, US Army, and Department of Transportation.

The 21st Composite Wing at Elmendorf AFB is the main aerial arm of AAC. The wing is composed of two flying and six support squadrons, and an air base group. The flying units are the 43d Tactical Fighter Squadron equipped with F-4E Phantoms, and the 5041st Tactical Operations Squadron, which operates a mix of T-33s, EB-57s, and a T-39. Major flying tenant units include the 17th Tactical Airlift Squadron equipped with C-130Es and the 71st Aerospace Rescue and Recovery Squadron equipped with HC-130s and HH-3 Jolly Green Giants.

The 5010th Combat Support Group at Eielson AFB is the only other unit in AAC with aircraft assigned. The group's 25th Tactical Air Support Squadron flies the O-2A. The group also has T-33s assigned to provide targets for air and ground training for AAC's air defense mission. Eielson's largest tenant unit is SAC's 6th Strategic Wing, equipped with KC-135 Stratotankers.

AAC continues to participate in large joint-service field training exercises. More than 24,000 active-duty, National Guard, and Reserve personnel from Air Force, Army, Navy, Marine, Coast Guard, and Canadian units participated in Jack Frost '76. This major winter exercise, sponsored by the US Readiness Command and using a simulated Alaska pipeline in the scenario, involved the establishment of a Joint Task Force (JTF) to augment Alaska-based forces threatened by an enemy.



On guard at the top of the world, a BMEWS complex casts long shadows on the snow at Clear, Alaska. Station also monitors orbiting satellites.

AAC also operates a Rescue Coordination Center that directed Air Force, Army, Air National Guard, and Civil Air Patrol aircraft in 1,532 sorties, totaling 2,575 flying hours, during 1975. The RCC provided emergency assistance to 451 military and civilians in the forty-ninth state, and was credited with saving ninety-nine lives in the past year.

AAC's mission makes the command one of the more unusual in the Air Force. Whether they are assisting in disaster relief, participating in exercises, or saving lives, AAC personnel stand ready to provide "Top Cover for America." ■

ALASKAN AIR COMMAND

Headquarters, Elmendorf AFB, Alaska

Commander
Lt. Gen. James E. Hill

- 2 Air Base Squadrons and 13 ACW Squadrons located throughout Alaska
- **USAF Hospital Elmendorf** — Elmendorf AFB, Alaska
- **21st Composite Wing** — Elmendorf AFB, Alaska
  - **21st Air Base Group** — Elmendorf AFB, Alaska
  - **43d Tactical Fighter Squadron** — Elmendorf AFB, Alaska
  - **5041st Tactical Operations Squadron** — Elmendorf AFB, Alaska
- **5010th Combat Support Group** — Eielson AFB, Alaska
  - **25th Tactical Air Support Squadron** — Eielson AFB, Alaska
- **5073d Air Base Group** — Shemya AFB, Alaska

A MAJOR AIR COMMAND

Headquarters Command, USAF

Under the leadership of Maj. Gen. William C. Norris, who assumed command in August 1975, Headquarters Command, United States Air Force (HQ COMD USAF) serves Air Force people assigned to USAF Headquarters and to many other organizations here and overseas.

The command, which was established in March 1948, operates Bolling and Andrews AFBs, the only air bases in the National Capital Region (NCR). Its 20,000 people are assigned to units at more than 1,200 locations around the world. Some 8,000 of these officers and airmen are outside the normal Air Force structure in such organizations as Supreme Headquarters Allied Powers Europe; in military advisory groups; and serving as air attachés in many countries.

Under a plan announced by Gen. David C. Jones, Air Force Chief of Staff, in late January, HQ COMD USAF will be disestablished this summer. The major mission of the command in the NCR will be transferred to the Military Airlift Command (MAC), with missions outside the NCR going to other USAF organizations. The 76th Airlift Division (MAC) has been established at Andrews to manage both Andrews and Bolling AFBs.

HQ COMD USAF's major operational units are the 1100th Air Base Wing at Bolling and the 1st Composite Wing at Andrews, the Malcolm Grow USAF Medical Center at Andrews, the USAF Postal and Courier Service, and the Civil Air Patrol-USAF.

According to present plans, the USAF Postal and Courier Service will be disestablished this summer. Its overseas postal mission in sixty countries will be assumed by the overseas major commands; it is proposed that Stateside postal responsibilities be assumed by the US Postal Service. Courier operations have been assigned to the Air Force element of the Armed Forces Courier Service.

Headquarters, Civil Air Patrol-USAF, Maxwell AFB, Ala., is manned by Air Force personnel who provide support and guidance to the Civil Air Patrol (CAP), the official auxiliary of the Air Force. CAP is organized into eight geographic regions and fifty-two wings, and has a membership of 64,000 volunteers. Under the HQ COMD USAF disestablishment plan, Civil Air Patrol-USAF will be organizationally assigned to Air University.

In addition to its educational and disaster-relief activities, CAP, under the supervision of the Aerospace Rescue and Recovery Service, saved fifty-seven persons in 1975 through its air-search missions, twenty-one more than during 1974.

Andrews AFB, one of the most active and important air facilities in the Department of Defense, has more than thirty DoD, Air Force, Navy, and Marine Corps tenant units. Included are Hq., Air Force Systems Command and the 89th Military Airlift Wing (MAC), which will eventually be assigned to the new 76th Airlift Division (MAC).

The 1st Composite Wing hosts more than 9,000 distinguished visitors arriving and departing Andrews each year. The wing's 1st Helicopter Squadron provides local area search and rescue capability. In November, the wing-operated National Emergency Airborne Command Post E-4A aircraft became a Strategic Air Command resource.

The Malcolm Grow USAF Medical Center at Andrews serves medical needs of military personnel and dependents in the NCR, with clinics at Bolling AFB and in the Pentagon. It is one of the major instructional hospitals in the Air Force.

Bolling AFB, established in 1917, is one of USAF's oldest and most historic bases. Bolling's 1100th Air Base Wing provides facilities and services for personnel working in the NCR to include record maintenance and housing for NCOs and officers. The USAF Honor Guard, an elite, 150-man (soon to include women) unit of the 1100th, renders honors at military and state functions in the NCR and other parts of the nation.

The Bolling wing supports a number of important tenants such as the Air Force Chief of Chaplains, the Air Force Office of Scientific Research, which moved to the base in October, and several separate operating agencies. Another organization, the 1139th Comptroller Services Squadron, provides data automation and accounting and finance support for elements of eighteen other major commands and agencies in addition to HQ COMD USAF.

The USAF Band, another HQ COMD USAF unit, has its home at Bolling. The band and its specialty units have performed before more than 35,000,000 people throughout the world. A rock band, Mach One, was added to the organization last fall, giving yet another dimension to the USAF Band's capability.

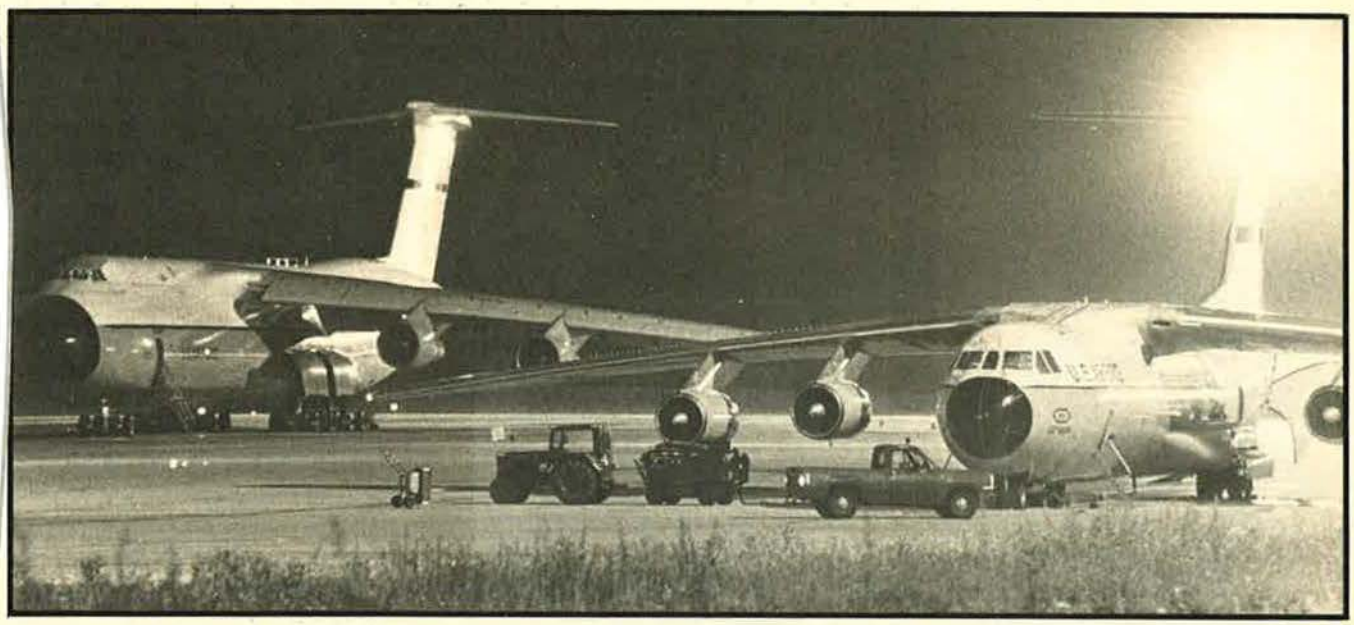
The HQ COMD USAF NCO Academy provides professional military education to the command NCOs, including those assigned to such overseas agencies as SHAPE and NATO. ■

Maj. Gen. William C. Norris, Commander, HQ COMD USAF.

CMSgt. Conley E. Broome, Senior Enlisted Advisor, HQ COMD USAF.

A MAJOR AIR COMMAND

Military Airlift Command



The key performers in MAC's strategic airlift mission—the giant C-5 Galaxy and the versatile C-141 StarLifter.

The role of the Military Airlift Command (MAC) is summarized by its Bicentennial slogan, "Lifeline to Freedom."

MAC's primary mission is the deployment and resupply of combat forces and their support equipment. Strategic airlift missions are flown by C-5 Galaxys and C-141 StarLifters, while MAC's tactical mission is flown by C-130 Hercules aircraft. Air Force Reserve and Air National Guard units operating C-130s, C-123s, and C-7s can be activated to augment MAC if required. Air Force Reserve also augments the strategic airlift forces through the Reserve Associate Program.

Of MAC's 86,100 people, 68,700 are military and 17,400 civilians.

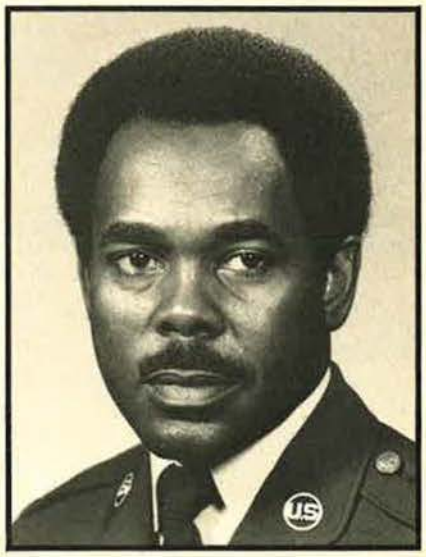
The command is also executive agent for contracting Department of Defense commercial airlift. Through contractual arrangements under provisions of the Civil Reserve Air Fleet (CRAF), turbine-powered equipment of many of the nation's commercial airlines could be used to virtually double MAC's strategic airlift capability in a crisis.

All airlift forces were consolidated under MAC in 1975. On March 31, 1975, MAC assumed responsibility for USAF overseas tactical and aeromedical airlift resources in Europe, the Pacific, and Southern Command and Alaskan Air Command areas.

Command responsibility for Rhein-Main AB, Germany, was transferred from USAFE to MAC on June 30, 1975. The host unit was redesignated the 435th Tactical Airlift Wing. On January 15, 1976, the MAC Military Airlift Center, Europe, at Ramstein AB, Germany, assumed responsibility for managing all airlift to US forces in Europe.

MAC exercised its combat airlift capability twelve times during 1975, carrying a total of 31,664 troops and 28,242 tons of combat equipment to various points of the globe. For example, in April, during US Readiness Command's Gallant Shield '75—the largest joint training exercise ever held in the US—some 10,900 troops and 15,246 tons of equipment were flown to Ft. Bliss, Tex. Another 10,537 troops and their equipment were airlifted to West Germany and returned in the fall for the annual Reforger exercise that tests the dual-

Gen. Paul K. Carlton, Commander, Military Airlift Command.



CMSgt. Joe W. Ward, Senior Enlisted Advisor, MAC.

In support of the NATO mission, MAC airlifted 10,537 troops from the US to Europe and back during the annual Reforger exercise.

based concept in support of NATO.

Throughout the year, MAC demonstrated the humanitarian value of its airlift. In April 1975, just before the fall of Saigon, the US launched Operation Babylift to evacuate orphans from South Vietnam. C-141 StarLifters and MAC-contracted commercial flights brought some 2,700 orphans to join their adopted families in America.

During Operation New Life in the spring and summer of 1975, MAC airlifted 50,493 refugees from South Vietnam and Cambodia to staging areas in the Pacific. Another 80,000 refugees made their way to American bases by sea. By summer's end, 121,562 refugees were airlifted from the Pacific to resettlement centers in the US by MAC C-141s and MAC-contracted commercial flights.

On January 15, 1976, the USAF Airlift Center was opened at Pope AFB, N. C. The Center serves as the focal point for test and evaluation of new airlift equipment and techniques.

In 1975, a prototype contract was awarded to the Lockheed-Georgia Co. to lengthen one C-141 StarLifter and install in-flight refueling equipment. Initial funds were also made available and a contract awarded for engineering, design, and test of a C-5 wing modification.

This summer, MAC will gain Bolling AFB, D. C., and Andrews AFB, Md., when Headquarters Command is disestablished.

In 1975, the Aerospace Rescue and Recovery Service (ARRS)—one of MAC's three technical services—was credited with saving 824 lives, bringing its thirty-year total to more than 16,000. ARRS crews played a major role in freeing the SS *Mayaquez* and her crew in May 1975. HH-53s airlifted Marines to and from Koh Tang Island, while HC-130s served as airborne refueling platforms and communications relay facilities. In addition to its primary mission of combat aircrew recovery, ARRS also assumed the weather reconnaissance and atmospheric sampling missions formerly assigned to the Air Weather Service (AWS). The 41st Rescue and Weather Reconnaissance Wing (RWRW) at McClellan AFB, Calif., now performs that mission.

AWS, another MAC technical service, operates a worldwide network of weather facilities to provide round-the-clock weather support to Air Force and Army units. Forecasts are provided by the Air Force Global Weather Central, Offutt AFB, Neb., which uses data from all parts of the world plus information from the Defense Meterological Satellite Program.

The Aerospace Audio-Visual Service (AAVS), whose primary mission is combat documentation, is the third of MAC's technical services. AAVS professionals provide a pictorial record of all significant events, current activities, and actions of USAF.

The 89th Military Airlift Wing at Andrews AFB, Md., provides worldwide airlift for top government officials, including the President, Vice President, cabinet members, congressmen, and foreign dignitaries. By the end of 1975, the 89th had logged nearly 567,000 consecutive accident-free flying hours in its twenty-seven-year history.

In 1975, 105 Air Force T-39 Sabreliners were assigned to the 89th. T-39s provide continuation pilot training, and administrative airlift as a by-product. The three T-39 squadrons are based at Norton AFB, Calif., Scott AFB, Ill., and Andrews AFB, Md.

OPERATIONAL AIRCRAFT ASSIGNED TO MAC

TYPE	NUMBER
T/UH-1F/P	40
UH-1N	45
HH-1	11
C/HH-3	46
C-5	76
VC-6A	1
C-9	23
T-39	105
HH-43	2
C/HH-53	33
C-130	267
HC-130	36
WC-130	14
C-131	4
C-135	16
C-137	5
C-140	11
C-141	273
TOTAL	1,008

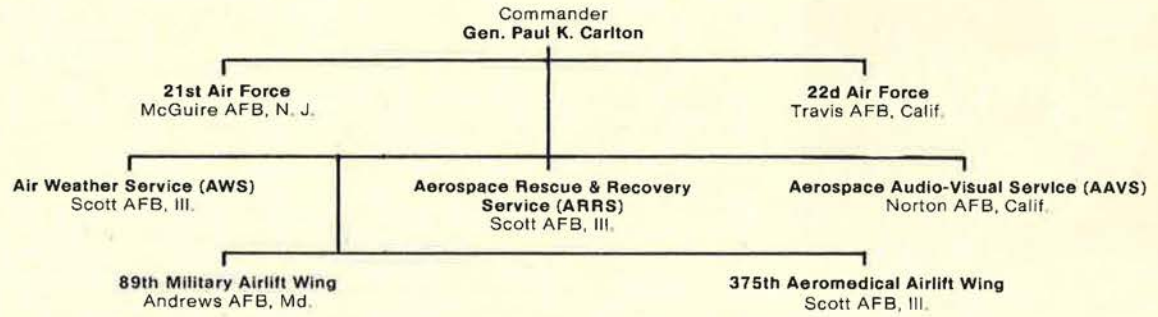
The 375th Aeromedical Airlift Wing flies all domestic medical airlift with C-9A Nightingales based at Scott AFB, Ill. Other MAC C-9As and C-130s fly intratheater air evacuation overseas, and C-141s return patients to the US. Medical crews from the 375th support the aeromedical missions that serve 724 government operated medical facilities worldwide. An average of 6,200 patients and nonmedical attendants are airlifted each month by MAC.

Training for MAC aircrews is provided by the 443d MAW at Altus AFB, Okla., the 314th TAW at Little Rock AFB, Ark., and the 1550th Aircrew Training and Test Wing (ARRS) that has just been relocated from Hill AFB, Utah, to Kirtland AFB, N. M.

In 1975, MAC's Commander, Gen. Paul K. Carlton, was the first recipient of the Milwaukee Trans-Aire Exposition's Humanitarian Award, recognizing his leadership and extraordinary humanitarian efforts during recent years. ■

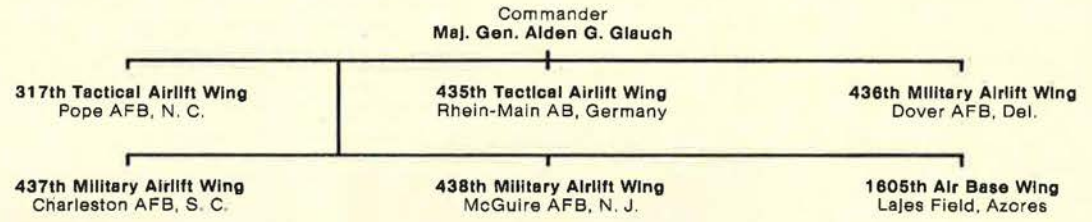
MILITARY AIRLIFT COMMAND

Headquarters, Scott AFB, Ill.



TWENTY-FIRST AIR FORCE (MAC)

Headquarters, McGuire AFB, N. J.



TWENTY-SECOND AIR FORCE (MAC)

Headquarters, Travis AFB, Calif.

A MAJOR AIR COMMAND

Pacific Air Forces

PACAF's SSgt. B. J. Harms administers in-flight refueling during Operation Babylift early in 1975.

Pacific Air Forces (PACAF), as the Air Force component of the Pacific Command (PACOM), plans, conducts, and coordinates offensive and defensive air operations in the Western Pacific.

With headquarters at Hickam AFB, Hawaii, PACAF's Commander in Chief, Gen. Louis L. Wilson, Jr., is responsible to the Commander in Chief Pacific (CINCPAC) and the Air Force Chief of Staff. He thus is charged with accomplishing assigned Air Force operational missions and serves as principal adviser to CINCPAC on employment of USAF airpower within PACOM.

PACAF maintains operational and support units in Japan, Okinawa, Korea, Taiwan, the Philippines, Thailand, Australia, Hawaii, and Wake Island.

Operationally, 1975 was a very busy year for PACAF. The near-simultaneous collapse of the governments of Cambodia and South Vietnam foreshadowed the conclusion of PACAF's combat role in Southeast Asia.

The evacuation of Americans from embattled Phnom-Penh (Operation Eagle Pull) and Saigon (Frequent Wind) took place shortly after Babylift began on April 1, 1975, at the direction of President Ford. Before Babylift ended, some 2,700 orphans were airlifted out of Southeast Asia, most of them aboard Air Force planes or military charters.

As those operations were going on, what was to become the largest humanitarian airlift in history was getting under way. Before it ended, Operation New Life airlifted more than 120,000 Southeast Asians, mostly Vietnamese, to the United States. En route to their new homes and new lives, many of the refugees had their first contact with Americans at Clark AB, R. P., which had become the main staging point in their exodus.

Wake Island AFB was also on the route. Its population swelled from 200 to nearly 8,000 virtually overnight as the influx of refugees grew.

While New Life was in progress, the SS *Mayaguez* was pirated by overzealous Communists still flushed with their victories in Cambodia. The question of recovering the ship and its crew became a matter of national determination. PACAF units were committed to every phase of recovery: air surveillance, TACAIR, airlift and helicopter support, and joint operations with US Navy and Marine Corps elements. The ship and its crew were recovered, but not before an intense and bloody battle at Koh Tang, a small island off the Cambodian coast. Particularly inspiring was the performance of the chopper crews who, under intense enemy fire, participated in the landing and recovery of the Marines on Koh Tang.

With our military involvement in SEA virtually ended, and in line with our foreign policy and related military strategy for PACOM, PACAF accelerated the removal of men and machines from Thailand.

The command underwent drastic reductions. PACAF's authorized strength at the beginning of 1975 was approximately 40,000 military and 16,000 civilians; one year later it was down to some 23,300 military and 13,500 civilians.

In Thailand, Ubon RTAFB closed down in June, Nakhon Phanom in October, Udorn in January 1976, and Korat in February. Gone were the F-111s, F-4s, "Thuds," the "Wolfpack," the "Hunters," USSAG/7AF, and gone was that long line of distinguished flying units with nicknames and call signs like Zorro, Sandy, Nimrod, Stinger, Jolly Green, Candlestick, Nail, and Knife.

The removal of USAF resources from Thailand enabled PACAF to strengthen other units in the Western Pacific. Some aircraft were sent to previously unequipped squadrons, while other squadrons were upgraded with later model aircraft.

Throughout the reorganization and alignment of forces during 1975, PACAF remained a viable force in the Pacific. ■

Gen. Louis L. Wilson, Jr., CINC of Pacific Air Forces.

CMSgt. Charles L. Reynolds, Senior Enlisted Advisor, PACAF.

PACAF units—including helicopter support—were committed to every phase of the Air Force, Navy, and Marine Corps effort to recover the Mayaguez, *seized by Cambodian Communists during the SEA takeover.*

THE MAJOR OPERATIONAL UNITS OF PACIFIC AIR FORCES (PACAF)

UNIT	LOCATION	AIRCRAFT
15th Air Base Wing	Hickam AFB, Hawaii	EC-135, T-33, O-2
326th Air Division	Wheeler AFB, Hawaii (Kunia Facility)	F-4, F-102 (Hawaiian Air National Guard based at Hickam)
FIFTH AIR FORCE HQ., YOKOTA AB, JAPAN		
8th Tactical Fighter Wing	Kunsan AB, Korea	F-4
18th Tactical Fighter Wing	Kadena AB, Okinawa	F-4, RF-4, C-130, T-39
51st Composite Wing (Tactical)	Osan AB, Korea	F-4, OV-10, T-33
313th Air Division	Kadena AB, Okinawa	
314th Air Division	Osan AB, Korea	
475th Air Base Wing	Yokota AB, Japan	T-39, UH-1
THIRTEENTH AIR FORCE HQ., CLARK AB, PHILIPPINES		
3d Tactical Fighter Wing	Clark AB, Philippines	F-4, T-38, T-39, T-33
635th Aerospace Support Group	U-Tapao Royal Thai Navy Airfield, Thailand	

PACIFIC AIR FORCES

Headquarters, Hickam AFB, Hawaii

A MAJOR AIR COMMAND

Strategic Air Command

Strategic Air Command (SAC) celebrates its thirtieth anniversary this year. Throughout those thirty years, the men and women of SAC have stood ready to protect this country and our allies from aggression, coercion, or blackmail by any nuclear power.

SAC's role as a deterrent force, and as the nation's first line of defense, grew in significance after 1949, when the Russians demonstrated a nuclear capability.

To carry out its mission of protecting the peace, SAC has maintained a state of wartime readiness for three decades. Its peacetime training program has been the most realistic ever devised for a modern military force, and its global scope is breathtaking.

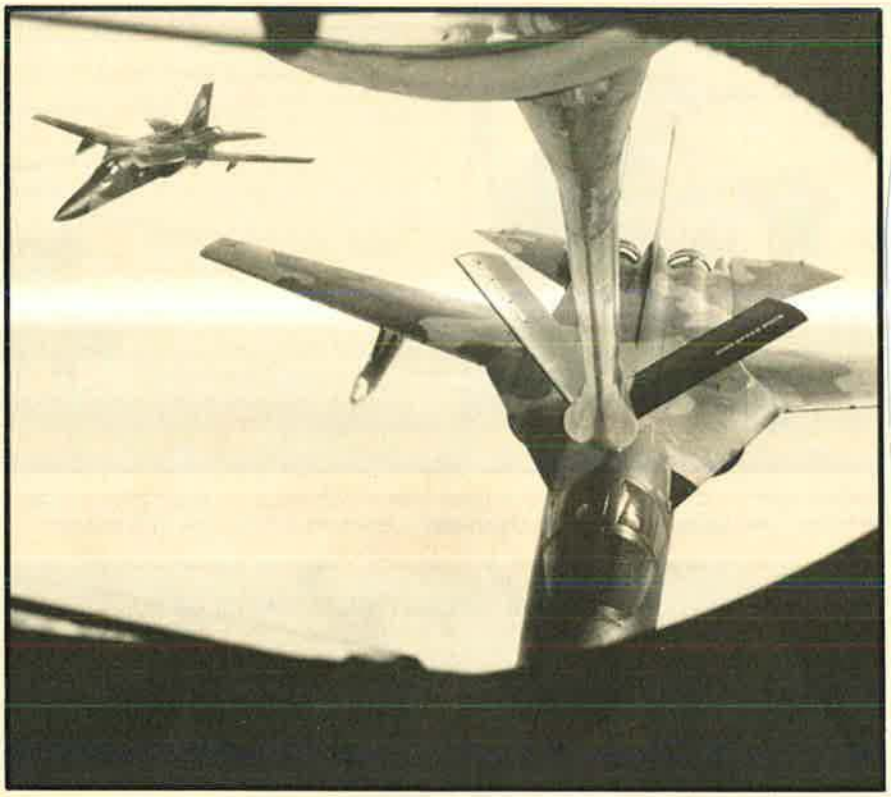
As the command grew, it continued to modernize. It has gone from a force of more than 1,000 B-29, B-17, and B-36 propeller-driven bombers to an all-jet strategic bomber force of B-52s and FB-111s teamed with intercontinental ballistic missiles (ICBMs).

SAC's land-launched ICBMs and manned bombers, combined with the US Navy's ballistic missile submarine fleet, form the Triad of strategic offensive forces. Each arm of the strategic Triad contributes unique characteristics to our deterrent objectives.

In order to carry out its present-day commitment, SAC is assigned nearly 144,000 men and women who serve at bases throughout the US, including Alaska, and at overseas bases in Guam, Spain, and England.

The Strategic Air Command's nuclear force includes:

- **400 B-52 Stratofortresses:** The mainstay of SAC's bomber force, the B-52 can deliver a wide range of weapons including a large payload of conventional bombs, gravity-fall nuclear weapons, and nuclear-armed, air-to-ground missiles. The B-52G and H models can carry the inertially guided, high-speed Short-Range Attack Missile (SRAM).
- **Seventy FB-111 Swingwing Bombers:** A Mach 2 bomber at high altitude, the FB-111 is also capable of supersonic speed at sea level. It can carry a variety of weapons, including the SRAM.
- **600 KC-135 Stratotankers:** SAC, as single manager for all Air Force KC-135 tankers, supports its own forces and those of other commands with aerial refueling for all tactical and cargo aircraft.
- **Reconnaissance Aircraft:** SAC's strategic reconnaissance aircraft—U-2s, RC-135s, and SR-71s—constitute a sophisticated reconnaissance capability essential to SAC's deterrence role.
- **E-4 AABNCP:** In December 1975, SAC assumed responsibility for management of the E-4 Advanced



The swingwing FB-111, capable of supersonic speed at sea level, provides an important segment of SAC's nuclear bomber force.

Gen. Russell E. Dougherty, CINC, Strategic Air Command.

CMSgt. James M. McCoy, Senior Enlisted Advisor, SAC.

Airborne Command Post (AABNCP). As manager, SAC is responsible for scheduling and maintaining the new modified 747B (E-4) aircraft.

• **450 Minuteman II and 550 Minuteman III ICBMs:** SAC maintains its ICBMs on strategic alert around the clock and under the constant control of SAC's missile combat crews. The newer Minuteman III has multiple independently targetable reentry vehicle (MIRV) warheads.

• **Fifty-four Titan II Missiles:** Deployed in hardened underground silos, the Titans—two-stage, storable-liquid-fuel missiles carrying the largest missile warheads—are the heavyweights of the ICBM force.

Beyond its basic deterrent function, SAC has several important collateral missions. These missions are a reflection not only of the unified/specified command structure, but the inherent flexibility of strategic aircraft. Their long range, speed of response, and large payload allow them to perform such collateral missions as sea

STRATEGIC AIR COMMAND

Headquarters, Offutt AFB, Neb.

Commander in Chief
Gen. Russell E. Dougherty

8th Air Force
Hq. Barksdale AFB, La.

19th Air Division
40th Air Division
42d Air Division
45th Air Division

1st Strategic Aerospace Division
Hq. Vandenberg AFB, Calif.

3d Air Division
Hq. Andersen AFB, Guam

43d Strategic Wing
Andersen AFB, Guam
(B-52/KC-135)

376th Strategic Wing
Kadena AB, Okinawa
(KC-135)

15th Air Force
Hq. March AFB, Calif.

4th Air Division
12th Air Division
14th Air Division
47th Air Division
57th Air Division

1st Combat Evaluation Group
Barksdale AFB, La.

544th Aerospace Reconnaissance Technical Wing
Offutt AFB, Neb.

98th Strategic Wing*
Torrejon AB, Spain

3902d Air Base Wing
Offutt AFB, Neb.

*Tenant Unit

EIGHTH AIR FORCE

Headquarters, Barksdale AFB, La.

Commander
Lt. Gen. Richard M. Hoban

19th Air Division
Carswell AFB, Tex.

11th Air Refueling Squadron*
Altus AFB, Okla.
(KC-135)

2d Bomb Wing
Barksdale AFB, La.
(B-52/KC-135)

7th Bomb Wing
Carswell AFB, Tex.
(B-52/KC-135)

381st Strategic Missile Wing
McConnell AFB, Kan.
(Titan II)

384th Air Refueling Wing
McConnell AFB, Kan.
(KC-135)

45th Air Division
Pease AFB, N. H.

416th Bomb Wing
Griffiss AFB, N. Y.
(B-52/KC-135)

380th Bomb Wing(M)
Plattsburgh AFB, N.Y.
(FB-111/KC-135)

509th Bomb Wing (M)
Pease AFB, N.H.
(FB-111/KC-135)

42d Bomb Wing
Loring AFB, Me.
(B-52/KC-135)

40th Air Division
Wurtsmith AFB, Mich.

379th Bomb Wing
Wurtsmith AFB, Mich.
(B-52/KC-135)

410th Bomb Wing
K. I. Sawyer AFB, Mich.
(B-52/KC-135)

305th Air Refueling Wing
Grissom AFB, Ind.
(KC-135)

449th Bomb Wing
Kincheloe AFB, Mich.
(B-52/KC-135)

351st Strategic Missile Wing
Whiteman AFB, Mo.
(Minuteman)

42d Air Division
Blytheville AFB, Ark.

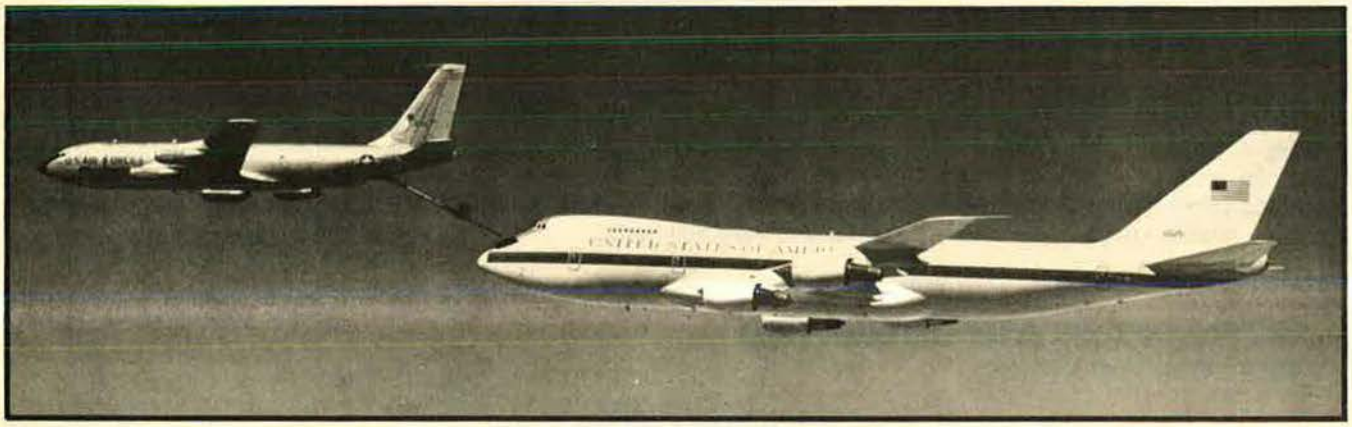
19th Bomb Wing*
Robins AFB, Ga.
(B-52/KC-135)

68th Bomb Wing*
Seymour Johnson AFB, N.C.
(B-52/KC-135)

308th Strategic Missile Wing
Little Rock AFB, Ark.
(Titan II)

97th Bomb Wing
Blytheville AFB, Ark.
(B-52/KC-135)

* Tenant Unit



An E-4 Advanced Airborne Command Post aircraft, a modified Boeing 747B, being refueled by a SAC KC-135 tanker.

surveillance, aerial mine-laying, and sea-lane interdiction.

SAC's weapon systems are continually reviewed, improved, and new systems developed. The missile force is being modernized with a number of improvements, including the Command Data Buffer system that enables rapid retargeting of the Minuteman III missile. Three of SAC's six missile wings have been converted to the new Minuteman III, which incorporates an improved third-stage engine and the new multiple independently targetable reentry vehicle (MIRV).

Many of SAC's B-52G and H models have been fitted with an electro-optical viewing system, designed to provide crews with the capability to better perform their missions in a completely closed thermal-curtain environment.

The future outlook for strategic forces includes continued modernization of the bomber and missile forces. The B-1 strategic bomber that will modernize the bomber force is undergoing extensive flight testing at Edwards AFB, Calif. A production decision on the B-1 is expected later this year. If the decision is favorable, the new bomber could enter the operational inventory early in the 1980s.

Continued modernization and upgrading are essential, if SAC is to maintain the strategic preeminence that has been successful for thirty years in deterring an attack on the US. ■

FIFTEENTH AIR FORCE (SAC)

Headquarters, March AFB, Calif.

Commander
Lt. Gen. Bryan M. Shotts

4th Air Division
F. E. Warren AFB, Wyo.

28th Bomb Wing
Ellsworth AFB, S. D.
(B-52/KC-135)

44th Strategic Missile Wing
Ellsworth AFB, S. D.
(Minuteman)

90th Strategic Missile Wing
F. E. Warren AFB, Wyo.
(Minuteman)

12th Air Division
Davis-Monthan AFB, Ariz.

100th Strategic Reconnaissance Wing
Davis-Monthan AFB, Ariz.
(U-2/DC-130)

390th Strategic Missile Wing
Davis-Monthan AFB, Ariz.
(Titan II)

22d Bomb Wing
March AFB, Calif.
(B-52/KC-135)

96th Bomb Wing
Dyess AFB, Tex.
(B-52/KC-135)

14th Air Division
Beale AFB, Calif.

6th Strategic Wing*
Eielson AFB, Alaska
(RC-135)

9th Strategic Reconnaissance Wing
Beale AFB, Calif.
(SR-71)

17th Bomb Wing
Beale AFB, Calif.
(B-52/KC-135)

55th Strategic Reconnaissance Wing
Offutt AFB, Neb.
(RC/EC-135)

916th Air Refueling Squadron*
Travis AFB, Calif.
(KC-135)

320th Bomb Wing*
Mather AFB, Calif.
(B-52/KC-135)

57th Air Division
Minot AFB, N. D.

5th Bomb Wing
Minot AFB, N. D.
(B-52/KC-135)

91st Strategic Missile Wing
Minot AFB, N. D.
(Minuteman)

319th Bomb Wing
Grand Forks AFB, N. D.
(B-52/KC-135)

321st Strategic Missile Wing
Grand Forks AFB, N. D.
(Minuteman)

47th Air Division
Fairchild AFB, Wash.

92d Bomb Wing
Fairchild AFB, Wash.
(B-52/KC-135)

341st Strategic Missile Wing
Malmstrom AFB, Mont.
(Minuteman)

*Tenant Unit

A MAJOR AIR COMMAND

Tactical Air Command

This year marks the thirtieth anniversary of Tactical Air Command, the training base and Ready Reserve of the United States Air Force tactical air forces. The command's mission is to organize, equip, and train forces and to maintain a combat-ready Reserve capable of rapid, worldwide deployment. A second equally important task is to plan for the tactical requirements of the future. Sweeping changes in equipment, tactics, employment, and training concepts will help TAC meet those challenges independently, with our sister services, with NATO forces, or with other allies.

On January 1, TAC assumed major command responsibilities for Air Force operations south of the continental United States, replacing the United States Air Forces Southern Command. New F-4 Phantom wings have been established at Hill AFB, Utah, and Moody AFB, Ga., the latter becoming a TAC base.

As a result of these changes, TAC manpower resources increased to more than 87,500, and TAC's authorized aircraft strength at the first of the year was:

58	F-15s	24	C/AC/DC-130s
679	F-4s	58	T-38s
263	F-111s	5	EC-135s
44	F-105s	61	O-2s
234	A-7s	42	OV-10s
48	F-5s	11	CH-3s
121	RF-4s	4	CH-53s

This inventory, like USAFE's and PACAF's, is entering a period of modernization.

The F-15 Eagle, the most advanced fighter in the world, leads the way in modernization of tactical aircraft. In January, TAC received its first operational F-15 in the 1st Tactical Fighter Wing at Langley AFB, Va., to be followed by an operational F-15 wing in USAFE. Delivery of the first A-10 specialized close-air-support aircraft came in March at Davis-Monthan AFB, Ariz.

The F-16 is being developed for the tactical force as a multimission aircraft to complement both the F-15 and the A-10 and, through sales to our NATO partners, will provide a commonality of weapon systems for the Alliance.

Future systems will include the E-3A airborne warning and control aircraft (AWACS), which will enter TAC's inventory in March 1977. The E-3A will give commanders the means of controlling the air-land battle in near real time to achieve maximum effectiveness from available forces. Gen. Robert J. Dixon, TAC's Commander, has explained the system as more than a flying radar. "It's a management tool for peacetime, crisis, and wartime. It's a technical marvel, and it has an enormous mission—to give civil authorities and commanders the ability to see, to comprehend, to anticipate, and to act with logic."

To ensure that the new aircraft, as

Maintenance crews prepare a Tactical Air Command RF-4 from the 62d Tactical Reconnaissance Squadron for a mission.

Gen. Robert J. Dixon, Commander, TAC.

CMSgt. Robert N. Harris, Chairman, Senior Enlisted Advisory Council, TAC.

well as the F-4 Phantoms, F-111s, A-7D Corsair IIs, and the other combat-proven aircraft in TAC, are used most efficiently, the command is clarifying procedures, doctrine, and concepts of employment and providing ultra realism in training internally, with USAFE, PACAF, and particularly with the other services.

General Dixon singled out the importance of these steps: "When we effectively mass and employ the com-

A 1st Special Operations Wing Combat Control team on training maneuvers near Hurlburt Field, Fla.

TACTICAL AIR COMMAND

Headquarters, Langley AFB, Va.

Commander
Gen. Robert J. Dixon

9th Air Force
Hq. Shaw AFB, S. C.

12th Air Force
Hq. Bergstrom AFB, Tex.

Albrook AFS, C. Z.
US Air Force
Southern Air Division

Eglin AFB, Fla. (AFSC)
USAF Tactical Air
Warfare Center

Eglin AAF No. 9, Fla.
(Hurlburt Field)
1st Special Operations Wing
(O-2, OV-10, UH-1, C-130, AC-130)
USAF Air-Ground Operations School
USAF Special Operations School

Langley AFB, Va.
4500th Air Base Wing
2d Aircraft
Delivery Group

Seymour Johnson AFB, N. C.
8th Tactical Deployment
Control Squadron
(EC-135)

Nellis AFB, Nev.
USAF Tactical Fighter Weapons Center
57th Fighter Weapons Wing
(F-4, F-111A/E, T-38, F-5E)
USAF Air Demonstration Squadron

NINTH AIR FORCE (TAC)

Headquarters, Shaw AFB, S. C.

Commander
Lt. Gen. James V. Hartinger

MacDill AFB, Fla.
56th Tactical Fighter Wing
(F-4E)

Shaw AFB, S. C.
363d Tactical Recon Wing
(RF-4C)
507th Tactical Air Control Gp.
(O-2A, CH-3E, OV-10)

Seymour Johnson AFB, N. C.
4th Tactical Fighter Wing
(F-4E)

Keesler AFB, Miss. (ATC)
7th Airborne Command
and Control Sqdn.*
(C-130)

Homestead AFB, Fla.
31st Tactical Fighter Wing
(F-4E)

Myrtle Beach AFB, S. C.
354th Tactical Fighter Wing
(A-7D)

England AFB, La.
23d Tactical
Fighter Wing
(A-7D)

Moody AFB, Ga.
347th Tactical Fighter Wing
(F-4E)

Eglin AFB, Fla. (AFSC)
33d Tactical Fighter Wing
(F-4E)

Eglin AAF No. 9, Fla.
(Hurlburt Field)
823d Civil
Engineering Sqdn.

Langley AFB, Va.
1st Tactical Fighter Wing
(F-15)
9th Tactical
Intelligence Sqdn.

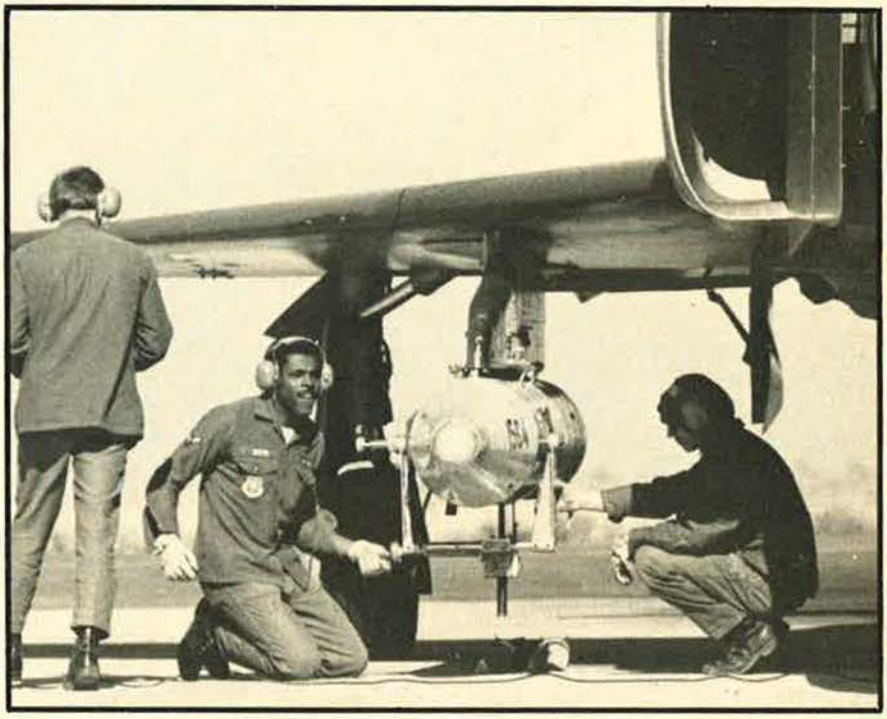
*Reports to 507th TACGp, Shaw AFB, S. C.

bined firepower assets of the Army and Air Force at the critical point on the battlefield, we make the most of the quantitative advantage we seek. Essential to this is a quantum improvement in joint procedures, tactics, employment concepts, and realism in training."

Refining joint employment is under way through unparalleled efforts of TAC and the Army's Training and Doctrine Command. The results are being tested and refined in joint field exercises, joint tests, studies, and analyses. Similar joint efforts are being pursued with the Navy.

In cooperation with USAFE, TAC has established an aircrew exchange program and increased tactical deployments to Europe to improve the operational readiness of both active and Air National Guard units.

Among the most impressive of TAC's readiness projects is "Red Flag," a training program at Nellis AFB, Nev., managed by TAC for the Air Force. "Red Flag" is a major stride forward in training—hence readiness—under real-world conditions. The program will provide, for the first time, a training situation for aircrews that closely parallels combat. The "Red Flag" program will use electronically simulated threats, "enemy fighters" in the form of TAC's T-38- and F-5-equipped "Aggressor" squadrons, and escape-and-evasion challenges to present realistic training in managing and fighting a diversified combat force. The command also is updating its active ranges, to ensure they provide realistic targets and learning situations.



Members of the 49th Munitions Maintenance Squadron prepare a 49th TFW F-4D at Holloman AFB, N. M., for an armament training mission.

The legacy of TAC is one of challenge and change to anticipate the future. In the words of General Dixon, "Today, tactical air-equipment, concepts, and operations are in a period of unparalleled transition . . . to meet the constant increase in our potential adversary's capability. The men and women of TAC—active and Reserve—are joined to meet this challenge." ■

TWELFTH AIR FORCE (TAC)

Headquarters, Bergstrom AFB, Tex.

Commander
Lt. Gen. James D. Hughes

George AFB, Calif.
35th Tactical Fighter Wing
(F-4C/D/F, F-105G)

Bergstrom AFB, Tex.
67th Tactical Recon Wing
(RF-4C)
602d Tactical Air Control Gp.
(O-2A, OV-10, CH-53)

Cannon AFB, N. M.
27th Tactical Fighter Wing
(F-111D)

Nellis AFB, Nev.
474th Tactical Fighter Wing
(F-111A)
820th Civil Engineering Sqdn.

Holloman AFB, N. M.
49th Tactical Fighter Wing
(F-4D, T-38)

Luke AFB, Ariz.
58th Tactical Fighter
Training Wing
(F-15, F-4D, T-38)

Hill AFB, Utah (AFLC)
388th Tactical Fighter Wing
(F-4D)

Williams AFB, Ariz. (ATC)
425th Tactical Fighter
Training Sqdn.*
(F-5A/B/F)

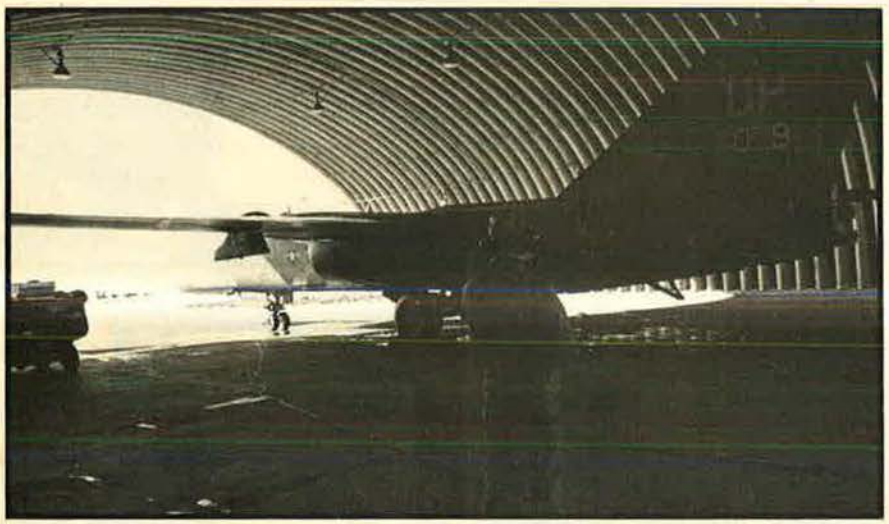
Mountain Home AFB, Idaho
366th Tactical
Fighter Wing
(F-111F)

Davis-Monthan
AFB, Ariz. (SAC)
355th Tactical
Fighter Wing
(A-10, A-7D,
DC-130A, CH-3)

*Reports to 58th TFTW, Luke AFB, Ariz.

A MAJOR AIR COMMAND

United States Air Forces in Europe



A 20th TFW (USAFE) F-111 prepares to taxi from its alert shelter.

The United States Air Forces in Europe (USAFE) traces its origin to early 1942. Although old by Air Force standards, youthful innovation, flexible development, and streamlined operation continue to characterize the command.

USAFE's primary mission is support for United States airpower commitments to the North Atlantic Treaty Organization (NATO). The command's peacetime emphasis is on training and equipping its units to carry out the NATO mission and assisting the air forces of other NATO members in developing their combat capabilities.

USAFE units, under the command of Gen. Richard H. Ellis, stretch from the United Kingdom to Turkey. As a component of the US European Command, USAFE's 67,000 Air Force members support US military plans and operations throughout the unified command's vast area of responsibility.

USAFE's tactical fighter inventory consists of two basic aircraft types, the F-4 Phantom and the F-111. Some 450 F-4s are based in Germany, the Netherlands, the United Kingdom, and Spain. The C, D, and E model Phantoms perform the attack, strike, and air defense roles with the E assigned the air defense alert mission. Some sixty-five RF-4s provide an all-weather, day or night reconnaissance capability.

USAFE's approximately seventy swingwing F-111s with their long range, advanced penetration aids, heavy payload, and low-level supersonic speed give NATO an all-weather "heavy punch."

Other aircraft in the command include approximately thirty OV-10 Broncos and four C-9 Nightingale flying hospitals. About thirty C-130 tactical airlift aircraft are under USAFE operational control while on rotational duty in Europe. USAFE forces are also backed up by NATO-committed, dual-based tactical fighter, reconnaissance, air-refueling, and airlift aircraft located in the US.

Most of USAFE's forces are NATO-committed and would in time of crisis be under the overall operational control of Allied Air Force, Central Europe (AAFCE). AAFCE, also commanded by General Ellis, consists of air force units from six NATO countries: Belgium, Canada, Germany, the Netherlands, the United Kingdom, and the US. AAFCE is presently collocated with USAFE Headquarters and reports directly to NATO's Allied Forces Central Europe Headquarters, located in Brunssum, the Netherlands.

The assignment of a new commander, unprecedented deployments of aircraft and crews from the US to Europe, and continued force modernization highlighted the accomplishments of the command in 1975.

US-based F-111s, F-4s, RF-4s, F-100 Super Sabres, EB-57 Canberras, EC-121 Super Constellations, and F-106 Delta Darts exercised their deployment procedures and trained in the unique European flying environment, demonstrating the US capability to rapidly reinforce permanently assigned USAFE forces in the event of hostilities.

Increased command and control, greater support for ground forces, and a continued support of NATO requirements marked the command's achievements in the area of force modernization. During the year, the command continued to assist AAFCE to increase its capability to command and control combat air forces during hostilities. AAFCE is scheduled to obtain a highly effective, hardened static war headquarters in the near future and USAFE is assisting by de-

Gen. Richard H. Ellis, Commander in Chief, USAFE.

CMSgt. Jackson L. Davidson, Senior Enlisted Advisor, USAFE.

veloping a computerized system to help NATO air commanders collect and evaluate information for wartime decision-making.

Plans were completed during 1975 for the activation of the F-5-equipped 527th Tactical Fighter Training Aggressor Squadron, to be located at RAF Alconbury. The unit, to become operational in 1976, will fly simulated enemy tactics to provide USAFE aircrews with realistic air combat training.

To accommodate an additional brigade of the US Army in Europe, USAFE and the United States Army Europe began exchanging facilities in the Wiesbaden and Kaiserslautern areas of Germany. The move, to be completed by 1977, will shift USAFE units currently in Wiesbaden to the Kaiserslautern area, while the Army will move a number of units into the Wiesbaden area.

Throughout 1975, USAFE stressed improvements in adverse weather and night delivery capabilities. The LORAN navigation system, presently in use by US commercial aviation, has been adopted for weapons delivery assistance in the European theater. The system, using ground transmitting stations to provide signals to LORAN-equipped F-4 aircraft, allows for highly accurate weapons delivery in all weather conditions. Using the time-proven pathfinder technique of positioning aircraft not equipped with the system in formation with LORAN-equipped aircraft, USAFE can now guide other NATO aircraft to a target, regardless of the weather.

Training with German and Royal Air Force aircraft was conducted in 1975 and will be expanded in the coming year.

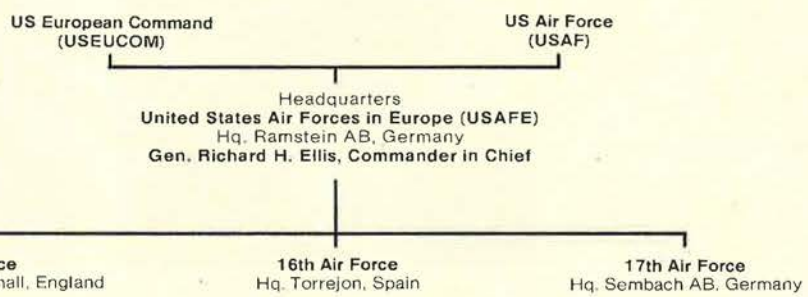
The primary goals of the command in 1976 will be to refine command and control procedures, modernize the existing aircraft fleet and weapons inventory to increase all-weather flying and fighting capability, and develop more effective ways to provide the soldier on the ground with close air support. The eagerly awaited F-15 Eagle, the F-16 Air Combat Fighter, the A-10 close air support aircraft, and the Airborne Warning and Control aircraft will add greatly to USAFE's fighting capability. ■

THE MAJOR OPERATIONAL UNITS OF USAFE

UNIT	*LOCATION*	*AIRCRAFT/MISSION*
	England	
10th Tac Recon Wing	RAF Alconbury, England	RF-4C, F-5E
48th Tac Fighter Wing	RAF Lakenheath, England	F-4D
20th Tac Fighter Wing	RAF Upper Heyford, England	F-111E
81st Tac Fighter Wing	RAF Bentwaters/Woodbridge, England	F-4D, MAC Rescue HC-130, HH-53
513th Tac Airlift Wing	RAF Mildenhall, England	MAC Rotational C-130, SAC Rotational KC-135
	Spain	
401st Tac Fighter Wing	Torrejon AB, Spain	F-4C, SAC Rotational KC-135
406th Tac Fighter Tng. Wing	Zaragoza AB, Spain	Tactical Range Support, Weapons Training School
	Italy	
40th Tac Air Control Gp.	Aviano AB, Italy	Rotational USAFE Aircraft, Command and Control
	Turkey	
Hq. TUSLOG	Ankara AS, Turkey	Command and Communications
Det. 10, TUSLOG	Incirlik CDI, Turkey	Rotational USAFE Aircraft
	Greece	
7206th Air Base Gp.	Athenai Airport, Greece	Support and Communications
	The Netherlands	
32d Tac Fighter Sqdn.	Camp New Amsterdam, The Netherlands	F-4E
	Germany	
Det. 5, 601st Tac Comm. Wing	Wiesbaden AB, Germany	Communications, Command and Control
601st Tac Comm. Wing	Sembach AB, Germany	OV-10, CH-53, Communications, Command and Control
7350th Air Base Gp.	Tempelhof Central Airport, Berlin	Support and Communications
86th Tac Fighter Wing	Ramstein AB, Germany	F-4E, MAC
322d Tac Airlift Wing	Rhein-Main AB, Germany	C-9, MAC Rotational C-130, ANG Rotational KC-97
26th Tac Recon Wing	Zweibrücken AB, Germany	RF-4C
36th Tac Fighter Wing	Bitburg AB, Germany	F-4E
50th Tac Fighter Wing	Hahn AB, Germany	F-4E, F-4D
52d Tac Fighter Wing	Spangdahlem AB, Germany	F-4C, F-4D

UNITED STATES AIR FORCES IN EUROPE

Headquarters, Ramstein AB, Germany



A MAJOR AIR COMMAND

USAF Security Service

A USAFSS technician adjusts a camouflaged mobile monitoring unit.

The United States Air Force Security Service (USAFSS) provides signals intelligence, communications security (COMSEC), and electronic warfare analysis services for Air Force commands throughout the world. USAFSS also serves as the Air Force element of the National Security Agency/Central Security Service.

To accomplish this highly technical and important mission, USAFSS has people in seventy locations throughout the United States and eleven allied countries. Brig. Gen. Kenneth D. Burns, Commander of USAFSS since August 1975, directs the operations of this globally dispersed major air command from his Kelly AFB, Tex., headquarters.

Due to its worldwide responsibilities, USAFSS has strategically located many of its operational units at fixed sites in the Pacific and European theaters. Specially trained and equipped airborne teams, flying aboard aircraft of other major air commands, also augment these fixed sites.

Additionally, mobile emergency reaction units are maintained in a constant state of readiness to support Air Force component commanders anywhere in the world in the event of actual emergencies.

In 1975, USAFSS increased emphasis on its ability to provide quick-reaction mission support to field commanders from mobile Direct Support Units (DSUs). During the year, USAFSS deployed DSUs to tactical field training exercises in the United States and Europe to evaluate the effectiveness and capabilities of the DSUs under simulated hostile conditions. The field test of this new concept of providing immediate cryptologic support to commanders from mobile units proved very successful.

During the year, DSUs were deployed to exercises Solid Shield 75 in North Carolina, Brave Shield XII in Texas, Brave Shield XIII in Florida, and Cold Fire 75 in Germany.

Once in place, under protective camouflage, a DSU can provide US forces with direct support from mobile tactical support vans on a near real-time basis. Both men and women DSU technicians also gather and analyze data and provide advice on techniques and materials to keep USAF communications links secure.

Additionally, they can evaluate the electronic warfare capabilities of friendly forces and provide commanders with on-the-spot analysis of the success of their electronic jamming and countermeasures techniques.

USAFSS was activated at Arlington Hall Station, Va., on October 20, 1948. As the Air Force expanded during the Korean and Vietnam eras, so did USAFSS, reaching its peak strength of nearly 29,000 people in 1969.

Today, the command has some 18,000 military and civilian employees, two-thirds of whom are stationed in overseas locations. In San Antonio, USAFSS has more than 3,300 manpower authorizations at Kelly, Lackland, and Brooks AFBs.

The vital support that USAFSS provides the rest of the Air Force dictates the use of the most sophisticated electronic and cryptographic equipment available. The command's equipment inventory ranges from small, inexpensive cryptographic devices through modern sophisticated recorders to specially designed receivers and antenna systems. Some antennas cover as much as fifty-six acres and stand up to 120 feet in height.

Because of the type of equipment used and the deployment pattern required to spot-check communications for security evaluation, USAFSS units also perform direction-finding and range-estimation functions in support of search and rescue operations.

Since 1948, USAFSS units have earned more than one hundred Air Force Outstanding Unit Awards, two Presidential Unit Citations, the Navy Meritorious Unit Commendation, and special awards for outstanding contributions to the national cryptologic effort. The US Air Force Security Service, a small but vitally important command, is charged with providing the Air Force combat arms essential direct service and support. ■

Brig. Gen. Kenneth D. Burns, Commander, USAFSS.

CMSgt. Thomas J. Echols, Senior Enlisted Advisor, USAFSS.

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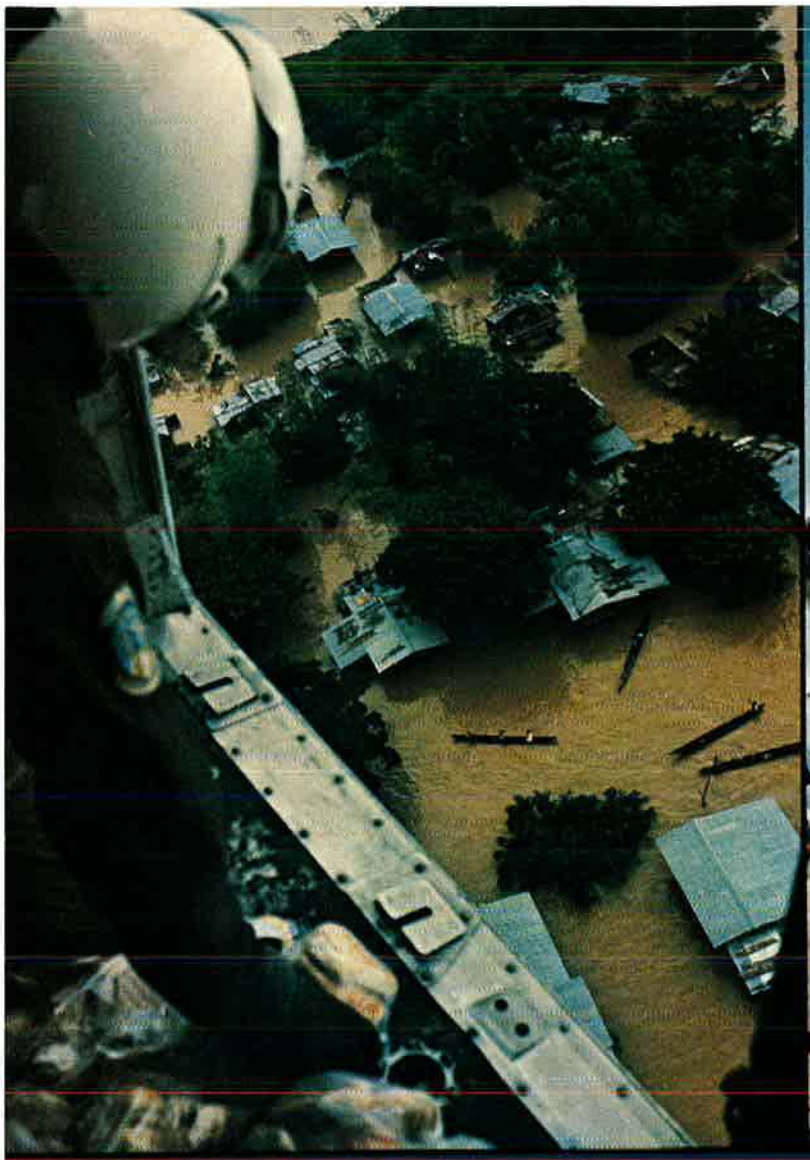
USAF AT WORK

Photo Feature by SSgt. Herman J. Kokojan, USAF

The photographs on this and the following pages are from the portfolio of USAF photo-journalist SSgt. Herman J Kokojan, a talented member of MAC's Aerospace Audio-Visual Service and winner of DoD's 1975 Military Photographer of the Year award. Representative of worldwide photographic assignments during Sergeant Kokojan's eighteen-year Air Force career, the photos project, through his lens, the image of today's Air Force at work. AIR FORCE Magazine is honored to present Sergeant Kokojan's work as part of this twenty-sixth annual Air Force Almanac Issue, which, as always, is dedicated to the professional men and women who make up the United States Air Force.



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At the commander's fingertips is all the information he needs to make command decisions. In a centralized, but highly mobile, command post that can provide effective management of his entire resources.

What makes AWACS work the way it should is its electronic heart – an IBM System/4 Pi CC-1 multiprocessor. It's the CC-1 that ties everything together. It can operate anywhere, under any conditions, performing as many as a million operations a second. It even carries its own built-in spares.

For AWACS, IBM is helping make a complex system work to a common purpose. A challenge that reflects IBM's experience in related programs of design-to-price systems for command and control, navigation, electronic countermeasures, ASW helicopters, shipboard and submarine sonar, ground tracking and launch control.

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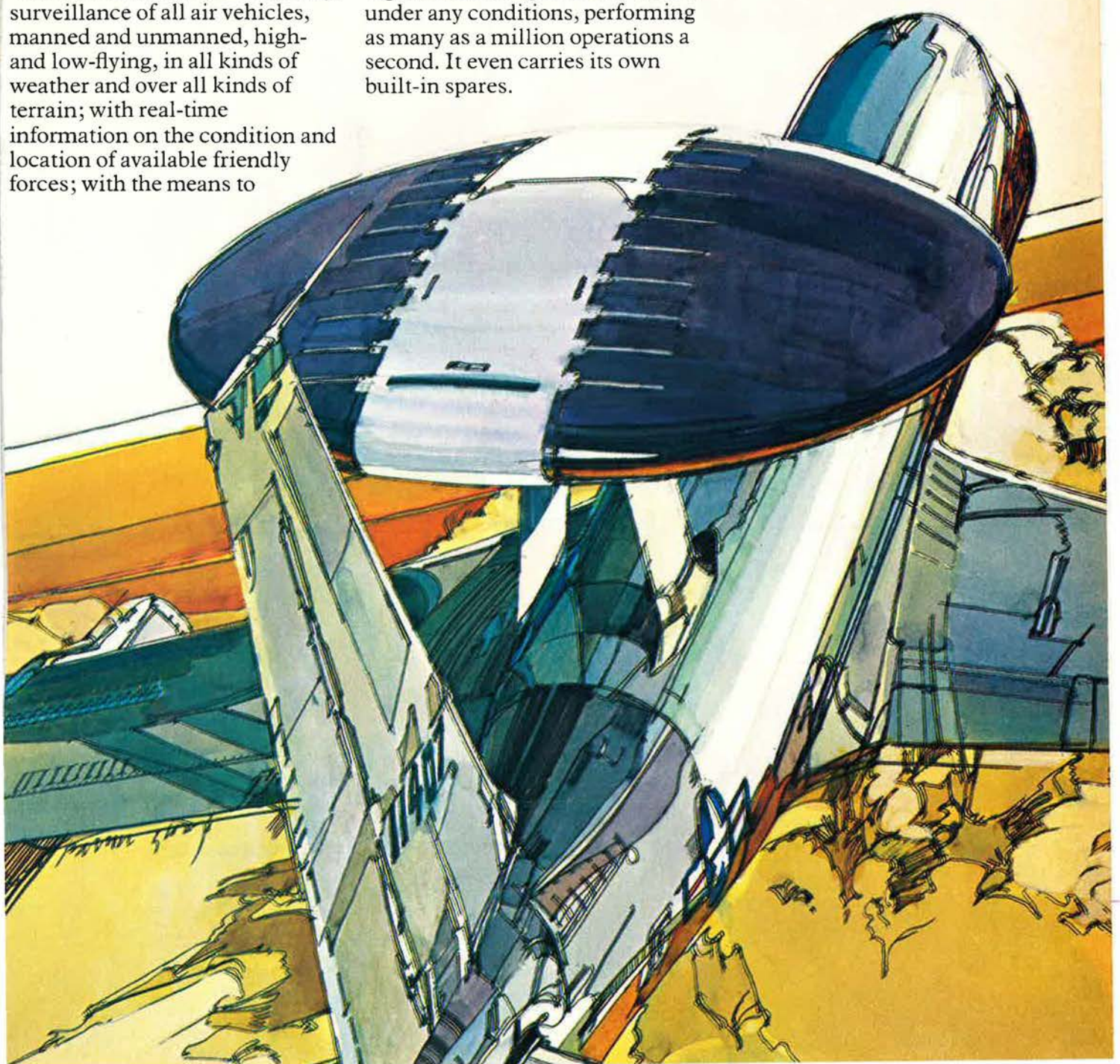

THE ELEC-TRONIC AIR FORCE 1976

In July, AIR FORCE Magazine proudly presents its annual "Electronic Air Force" issue.

Editorially the issue will cover a broad range of subject matter including a report from Electronic Systems Division. . .command, control and communications. . .air traffic control. . .EW update plus a checklist of major Air Force electronics projects and prime contractors.

In addition, the July issue will feature highlights of the AFA-sponsored Strategic Weapons Development seminar at Vandenberg AFB, California.

Here is an issue which will have wide appeal throughout the Air Force and aerospace industry. You can participate with your advertising.

Closing for reservations is May 28, copy is required by June 9.

AIR FORCE

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Listed below are the Industrial Associates of the Air Force Association. Through this affiliation, these companies have tangibly indicated their readiness to participate as "Partners in Aerospace Power" in the interest of national security.

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Westinghouse Electric Corp.
Westinghouse Electronic Systems Support Div.
World Airways, Inc.
Wyman-Gordon Co.
Xonics, Inc.

A SEPARATE OPERATING AGENCY

Air Force Accounting and Finance Center

The Air Force Accounting and Finance Center celebrates its twenty-fifth anniversary in 1976—a quarter-century of providing increasingly more efficient financial management for the Air Force.

AFAFC's misson falls into three general areas: operational policy and procedural guidance for the worldwide Air Force accounting and finance network, centralized payment of all Air Force personnel, and accounting for the entire Air Force budget.

- The Center develops the operational policy by which the Air Force accounting and finance network performs its mission, and tests the systems that put this policy into effect. The accounting and finance network looks to AFAFC for technical expertise and guidance in its operations.
- The Center serves as paymaster for the Air Force. It pays all 1,134,000 members, including 584,000 active-duty, 400,000 retired, and 150,000 Air National Guard and Reserve personnel.
- The Center accounts for all money appropriated to the Air Force by Congress—some $32 billion for FY '77. From the data submitted to AFAFC, reports are sent to the Air Staff, the Office of the Secretary of Defense, the Office of Management and Budget, the US Treasury, and Congress. In the austere budgetary climate of today, government money managers require the accurate and fast financial reporting provided by the Center.

The man responsible for carrying out this mission is Maj. Gen. Lucius Theus, who serves both as Director of Accounting and Finance for the Comptroller of the Air Force, and as Commander of AFAFC in Denver, where he commands thirty-seven officers, 229 airmen and 1,950 civilians.

To accomplish its mission more efficiently, AFAFC has consolidated all pay and accounting matters under its own roof. Within the past few years, AFAFC implemented the Joint Uniform Military Pay System (JUMPS), which became fully operational in August 1974. Under JUMPS, pay and leave information for all active-duty members, along with data on allotments and deductions, are maintained on the AFAFC computers in Denver.

The automated accounts are kept up to the minute through thousands of daily inputs recording changes in pay or leave data. This provides the capability for instant responses to inquiries from members and accounting and finance offices around the world.

The central location of computerized financial data also provides for speedy reporting to those who control the Air Force budget.

In its continuing drive for more efficient pay operations, AFAFC is implementing an Electronic Funds Transfer System (EFTS). The new system will be "live" across the US by June 30. In this system, AFAFC prepares pay information on a single computer tape for all Air Force members who have their pay sent to financial institutions. A single check is written to pay all these members. Both the data and the money are then distributed through the Federal Reserve System. The result is elimination of vast amounts spent on checks, postage, and processing. These savings directly benefit the US taxpayer. The Air Force member benefits from greater convenience, safety, and confidence. The Air Force was an innovator for the federal government in this field.

Through its twenty-five-year history, the Air Force Accounting and Finance Center has earned a reputation for fast, accurate, courteous pay service. The next twenty-five years will see continued emphasis on service in this unique organization. ■

Maj. Gen. Lucius Theus, Commander, AFAFC.

CMSgt. Melvin D. Bauer, Senior Enlisted Advisor, AFAFC.

A SEPARATE OPERATING AGENCY

Air Force Audit Agency

The Air Force Audit Agency (AFAA) provides independent, objective, and constructive review and appraisal of the effectiveness and efficiency with which managerial responsibilities (financial, operational, and support) are carried out at all levels of Air Force management. The Audit Agency's primary objective is to improve the Air Force's capabilities through more efficient use of available resources. Currently, audits emphasize whether financial management procedures and internal controls are adequate in concept, effective in application, and provide financial integrity, efficient use of resources, and effective accomplishment of manage-

ment objectives throughout USAF.

Through its worldwide deployment of auditors at more than 100 locations, AFAA maintains continual contact with all levels of Air Force management, permitting timely response to local management problems as well as to conditions that are Air Force-wide.

The Agency traces its mission to public law that requires each military service to establish an internal audit function as a responsibility of the Comptroller. Within the Air Force, this function has been delegated solely to AFAA.

The Commander of the AFAA, Brig. Gen. Thomas G. Bee, is also designated The USAF Auditor General. He reports directly to the Comptroller of the Air Force and also has authority to communicate directly with the Assistant Secretary of the Air Force for Financial Management.

The Auditor General, his Deputy—Mr. Trenton D. Boyd—and all staff directorates are located at Norton AFB, Calif. The Assistant Auditor General—Col. Merle E. Banszak—represents and acts for The Auditor General in liaison with Hq. USAF.

AFAA will get a new Commander the middle of this month, when Brig. Gen. Joseph B. Dodds will take over from General Bee.

As of January 31, 1976, the Audit Agency was authorized 1,123 people (556 military and 567 civilian) to provide audit service to commanders and managers throughout the Air Force.

Operationally, the AFAA has two functional directorates and four geographic regions. The Acquisition and Logistic Systems Directorate has two divisions and provides for centralized control over audit of all aspects of a weapon system's life cycle from the conception, validation, development, and production phases through the operational logistic support functions. The Acquisition Systems Division serves the Air Force Systems Command and manages the audit effort at AFSC's buying divisions. The Logistic Systems Division audits the function and operations of the Air Force Logistics Command and supervises audits of the Air Logistics Centers.

Brig. Gen. Thomas G. Bee, Commander, AFAA.

CMSgt. Robert S. Wise, Senior Enlisted Advisor, AFAA.

The Service-Wide Systems Directorate manages audits of standard Air Force-wide accounting and management systems. This Directorate is primarily responsible for evaluating the efficiency, effectiveness, and financial management of operational and support activities at multiple locations.

AFAA directs audits of the more significant Air Force programs and activities from Norton AFB. These audits are performed at selected Air Force installations and then centrally summarized and reported to the management level best able to act on the recommendations.

The four geographic regions—Western, Central, Eastern, and European—provide for overall supervision and support of local resident audit offices. The on-site managers, known as resident auditors, provide audit service to local installation commanders as well as input for reports being summarized for higher management levels.

During FY '75, AFAA issued ninety-seven summary audit reports and more than 5,400 local reports to base-level and major command managers.

Specific areas of current emphasis include audits of weapon systems development, Military Assistance Programs, and the financial aspects of military operations. ■

A SEPARATE OPERATING AGENCY

Air Force Data Automation Agency

The Air Force Data Automation Agency (AFDAA) was established as a separate operating agency on February 29, 1972, to provide centralized management and common organizational alignment of similarly engaged Automatic Data Processing (ADP) activities. It is responsible for automatic data processing support to Hq. USAF, major commands, bases, the Office of the Secretary of Defense (OSD), and other federal and separate operating agencies.

The agency consists of a headquarters element at Gunter AFS, Ala., and three subordinate centers: the Air Force Data Services Center (AFDSC), the Air Force Data Systems Design Center (AFDSDC), and the Federal Computer Performance Evaluation and Simulation Center (FEDSIM). Approximately 1,250 military people and 880 civilians are assigned to AFDAA.

Brig. Gen. Frederick L. Maloy, AFDAA Commander, serves in the Pentagon in a dual capacity as the Air Force Director of Data Automation. The agency Vice Commander, Col. Gearald D. McCrea, is assigned to Gunter AFS and directs the daily activities of the headquarters staff.

Through its centers, AFDAA participates in and performs ADP support, beginning with the conceptual state of a system and extending through its operational life.

The operating philosophy of AFDAA assures a high degree of autonomy for the centers in carrying out assigned missions. AFDAA's organizational structure provides proper

management and grouping of data automation skills necessary to respond to major command requirements. Direct access to the centers by activities served ensures prompt response to the users.

The Air Force Data Services Center is the principal Automatic Data Processing arm of Hq. USAF and OSD. The Commander, AFDSC, has ADPS single manager responsibilities, and works directly with the Air Staff and OSD in providing a full range of ADP support and services. Located in the Pentagon, the AFDSC provides ADP and management science services to all functional elements of Hq. USAF and OSD, and supports the Hq. USAF portion of the OSD-directed Worldwide Military Command and Control System (WWMCCS) program. AFDSC is also responsible for operation of the only regionalized computer service center currently operational in the Air Force—Detachment 1, located in San Antonio, Tex. This San Antonio Data Services Center (SADSC) provides data automation support to five commands in the San Antonio area on a fee-for-service basis.

AFDAA's largest organizational element, the Air Force Data Systems Design Center, located at Gunter AFS, Ala., was established in 1967. Major responsibilities of AFDSDC are to analyze, design, develop, program, test, initiate the use of, and maintain assigned automated data systems for standard management supporting systems; establish the use of common computer techniques approved by USAF for assigned automated data systems, and recommend areas for additional applications; and develop and maintain general-purpose software.

AFDSDC also develops and recommends standards for programming languages, establishes documentation requirements for automated data systems according to Air Force policies, participates in the development of related standards for equipment, and acts as the Automatic Data Processing Systems Manager for base and major command Automated Data Processing Systems.

AFDAA's newest organization is the Federal Computer Performance Evaluation and Simulation Center, which is unique in the government. It was established near Washington, D. C., in February 1972, by the General Services Administration (GSA) to provide computer performance/evaluation services to all federal government agencies. Because of recognized expertise in this developing discipline, the USAF was designated executive agent to operate this center for the GSA.

FEDSIM provides a source for advanced techniques of computer performance/evaluation services on a fully reimbursable basis. It has a full range of computer performance tools, including simulation languages and packages, hardware and software monitors, and analytical routines. New developments in the field are regularly applied to ensure that the center remains at the forefront of the state of the art in performance evaluation. ■

Brig. Gen. Frederick L. Maloy, Commander, AFDAA.

A SEPARATE OPERATING AGENCY

Air Force Intelligence Service

Established as a separate operating agency on June 27, 1972, the Air Force Intelligence Service provides specialized intelligence services and intelligence to Hq. USAF and USAF commanders worldwide. That is, AFIS collects, evaluates, correlates, and disseminates Air Force intelligence as set forth by the National Security Act of 1947. Moreover, Department of Defense directives call for the Air Force to provide an organization capable of furnishing adequate, timely, and reliable intelligence for DoD use. AFIS is a major element of the Air Force intelligence organization established to satisfy these responsibilities.

The Assistant Chief of Staff for Intelligence (ACS/I), Hq. USAF, Maj. Gen. George J. Keegan, Jr., serves in the dual capacity as ACS/I, and as Commander of AFIS.

AFIS is comprised of the following organizational elements:

Maj. Gen. George J. Keegan, Jr., Commander, AFIS.

CMSgt. Wayne E. Ford, Senior Enlisted Advisor, AFIS.

• The Directorate of Operational Intelligence provides the Air Force with all source intelligence pertaining to or affecting Air Force policies, resources, force deployment and employment, indications and warning, intelligence analysis of current operations, and special intelligence research. It also provides targeting, weaponeering, and cartographic expertise. This directorate is the Air Force point of working contact with the Defense Mapping Agency. The Aerospace Intelligence Division of the Directorate of Operational Intelligence ensures that the Secretary of the Air Force, the Chief of Staff, and key Air Staff officers receive the vital, timely, and accurate intelligence necessary to assess critical situations that develop during such world crises as the Arab-Israeli war.

• The Directorate of Security and Communications Management oversees the worldwide Air Force Special Security Office and Special Activities Office systems by ensuring compliance with special intelligence security, intelligence telecommunications, and communications security policies.

• The Intelligence Data Management Division plans, coordinates, and exercises management control of worldwide Air Force intelligence data-handling capabilities.

• The Directorate of Attaché Affairs operates the Air Force attaché program, supports the Defense Attaché System (DAS), and monitors all matters concerning Air Force participation in DAS.

• The Directorate of Intelligence Reserve Forces manages the Air Force Intelligence Service Reserve Program. Responsibilities include recruitment, administration, training, and utilization of intelligence mobilization augmentees who provide an immediate support capability under the Total Force Policy to active-force peacetime, contingency, and mobilization requirements.

• The Communist Strategic Affairs Office conducts basic research in the disciplines of Communist military doctrine and strategy, and produces expository materials for use in assessing their impact on USAF plans and operations.

• The 7602d Air Intelligence Group (AINTELG), the major operating element of AFIS, is headquartered at Fort Belvoir, Va., and is responsible for management and collection of worldwide human source intelligence, as well as evasion and escape, and prisoner-of-war intelligence.

During Operation Homecoming, the Group provided active and Reserve personnel skilled in debriefing to assist in processing prisoners of war returning from Southeast Asia. The Group is sifting and reviewing data from POW "lessons learned" to better prepare the Air Force in the event the US is faced with a potential prisoner-of-war situation again.

The Air Force Intelligence Service participates in a number of joint and Air Force training exercises each year to improve the readiness of active-duty and Reserve Forces intelligence personnel. ■

A SEPARATE OPERATING AGENCY

Air Force Inspection and Safety Center

The Air Force Inspection and Safety Center (AFISC), located at Norton AFB, Calif., was established as a separate operating agency on December 3, 1971.

The Center's Commander, Maj. Gen. Ranald T. Adams, Jr., also serves in a dual capacity as the Deputy Inspector General for Inspection and Safety, Hq. USAF.

The Center is responsible for planning, directing, and monitoring the Air Force inspection system and safety programs to help assure that the Air Force's fighting capability is sustained and managed effectively.

On January 31, 1976, AFISC's work force totaled 515 (373 military and 142 civilians), including forty-five people at Kirtland AFB, N. M. In addition, twenty-five are attached to the Center, including foreign exchange officers, safety engineers from six major aerospace companies, and two Federal Aviation Administration employees.

The Center conducts an Inspection School for all newly assigned USAF, major command, and separate operating agency inspectors. The curriculum is geared to identifying problems, root causes, impact on operations, and making corrective recommendations.

Maj. Gen. Ranald T. Adams, Jr., Commander, AFISC.

CMSgt. Edward H. Johnston, Senior Enlisted Advisor, AFISC.

AFISC has five directorates—Inspection, Aerospace Safety, Medical Inspection, Nuclear Surety, and Programs. The last-named supports the others in such functional areas as program development analysis scheduling, budget, and administration.

The Center's Directorate of Inspection ensures that products or services measure up to specified standards and that the Air Force is getting the most for its dollar.

The Directorate conducts three

types of inspections: The Functional Management Inspection (FMI) evaluates well-defined activities and programs, and the payoff, in resource savings, comes from this inspection. The System Acquisition Management Inspection (SAMI) looks into all aspects of the acquisition process to identify problems early in developmental stages of new weapon systems. The Command Inspection System Inspection (CISI) evaluates MAJCOM/SOA Inspector General performance and the results of actions taken.

The Directorate of Aerospace Safety, which administers worldwide programs of accident prevention and investigation in the fields of flight, ground, missile, space, and explosives safety, scored some noteworthy achievements and innovations last year. In 1975, there were 2.7 major aircraft accidents per 100,000 flying hours—third lowest in Air Force annals. USAF ground fatalities dropped below 300 for the first time.

The Directorate took its longest strides toward before-the-fact accident prevention. Personnel and functions were realigned to take greater advantage of the Center's sophisticated computer capabilities. This will help the Air Staff and major commands improve both long-range decisions concerning weapon-system safety as well as related R&D modifications and systems procurement.

The Directorate's Reports Division formed a new branch devoted entirely to safety analysis. Through advanced computer programs and analysis techniques, it began developing accident trend data and corrective action information for current operational systems. These data and lessons learned from older systems are being provided to action teams working closely with AFSC, AFLC, test agencies, operating commands, and major contractors involved with such new systems as the F-15, F-16, B-1, and A-10.

The Directorate also established a new Weapons Safety Division, consolidating missile, drone, space, and explosives safety functions. Complementing these new analytical capabilities are a Safety Policy and Programs Office and five other divisions —Life Sciences, Flight Safety, Ground Safety, System Safety, and Safety Education.

The Directorate increased its emphasis on human factors and safety education. Supplementing *Driver* and *Aerospace Safety* magazines and the *Safety Officer's Study* Kits was a new publication, *Maintenance* magazine.

Safety courses conducted by the University of Southern California were transferred from Los Angeles to Norton AFB during 1975, thus saving thousands of dollars in military student per diem costs.

The mission of the Directorate of Medical Inspection is to perform Health Services Management Inspections (HSMIs) of all active-duty and Air Force Reserve medical units. Major command medical inspection teams were dissolved in 1974. The inspectors look at the health care system to determine the best methods of providing quality care for the maximum number of people.

In addition to inspecting medical units or components, the Directorate conducts functional management inspections (FMIs) Air Force-wide. Three recent subjects of FMIs were the administration of the USAF Cancer Program, USAF Medical Education and Training Systems, and Assignment and Career Development Practices and Policies Affecting the USAF Medical Service.

The Directorate of Nuclear Surety at Kirtland AFB is the focal point for administering USAF nuclear surety programs. Its primary responsibility is to develop, direct, and evaluate Air Force nuclear inspection and safety programs to ensure that Air Force nuclear resources are efficiently managed and that the programs provide maximum safety, consistent with operational requirements. ■

A SEPARATE OPERATING AGENCY

Air Force Test and Evaluation Center

The Air Force Test and Evaluation Center (AFTEC) is an independent test management agency responsible for providing operational assessments of emerging weapon systems. Established in 1974 as a separate operating agency, the Center provides the Air Force a unique organization for objectively judging and reporting operational capabilities of new hardware.

Essentially, AFTEC seeks to answer how well hardware proposed for Air Force procurement meets the combat needs of the personnel who will use and maintain it. The results of its early testing, normally conducted on prototype and preproduction versions, play an important role in the Defense Systems Acquisition Review Council's decision whether or not to give a production go-ahead on major new systems. AFTEC's follow-on testing helps the Air Force verify the military utility, operational effectiveness, and suitability of production items, which

Maj. Gen. Robert A. Rushworth, Commander, AFTEC.

CMSgt. Martin J. Kuettel, Senior Enlisted Advisor, AFTEC.

are normally in a fully operational configuration.

A staff of operational and technical personnel located at its headquarters at Kirtland AFB, N. M., forms the nucleus of the AFTEC organization. As of January 31, 1976, AFTEC had 172 military people and forty-one civilians assigned.

AFTEC staff members design tests intended to answer a series of critical operational questions and issues that must be addressed in testing each new system. The Center is then provided operations and maintenance people from appropriate using and supporting commands to help fly, use, and maintain the hardware in an environment resembling as closely as possible an operational situation.

Day-to-day operational test activities at test sites, *e.g.,* Edwards AFB, Calif., for programs like the F-16, B-1, and YC-14/15, are managed by AFTEC field test directors. It is their job to properly execute the test and collect data on which to base an assessment. After careful analysis of the data, an independent report is made to the Chief of Staff of the Air Force.

In 1975, its first full year of operation, AFTEC managed several ongoing operational tests, including the A-10/GAU-8, AFSATCOM, AIM-9L, B-1, E-3A, F-5F, F-15, F-16, and YC-15.

AFTEC will continue active testing and evaluation of most of these major systems in 1976 while also looking critically at the Cobra Dane phased-array radar, E-4, F-4G Wild Weasel, Laser Maverick missile, and the YC-14.

Additionally, AFTEC will monitor approximately 130 other operational test programs being conducted by the using commands, *i.e.,* ADCOM, MAC, SAC, and TAC. AFTEC also serves as a focal point for Air Force involvement in joint service operational tests sponsored by the Deputy Director for Test and Evaluation in the Office of the Director, Defense Research and Engineering.

Maj. Gen. Robert A. Rushworth, AFTEC's Commander, characterizes the role of the Center and its people as "helping to ensure that the United States Air Force gets the best equipment possible to meet its combat needs. The evaluation task is challenging and the payoff rewarding." ■

A SEPARATE OPERATING AGENCY

Air Force Military Personnel Center

With eight years of declining force levels, emphasis on better personnel management is, of necessity, even stronger now than at any time in the past. That emphasis is reflected in programs managed by some 1,800 Air Force Military Personnel Center (AFMPC) men and women who drive the USAF "people program" machinery.

Helping Air Force managers do more with a smaller force, lessening the impact of manpower reductions, and maintaining promotion equity are major factors accenting AFMPC's personnel programs, policies, and procedures. Assignment actions, further influenced by a tight permanent change of station (PCS) budget, are highly visible examples of the changing trend.

A somewhat transient life-style often seemed to go with the Air Force job during the Southeast Asia conflict. Surveys have consistently shown that PCS turbulence and frequent moves were major career irritants to USAF members, and considerable attention has been focused on assignment stabilization.

While the number of moves has decreased, partly because the Air Force now has fewer people, costs have climbed. Close to 500,000 PCSs in FY '75 cost USAF more than $500 million. With rising transportation, household goods shipment, and other costs, the price tag promises to climb even higher.

Maj. Gen. Walter D. Druen, Jr., Commander, AFMPC.

CMSgt. Lealon E. Young, Senior Enlisted Advisor, AFMPC.

In this era of spiraling costs and tight budgets, an AFMPC action group has picked up where earlier studies left off. Attacking the problem head on, they are actively seeking workable ways to reduce PCS turbulence. The focus is on high cost areas with critical examination of some long-standing policies.

Cost-conscious programs already established include a home-basing policy that provides for a member's return assignment, at the end of a short overseas tour, to the CONUS base from which he or she departed. Automatic reassignment at the end of "special" controlled tours has also been eliminated. Overseas tour extensions and consecutive overseas tours are being encouraged, and a new extended overseas assignment program gives priority consideration to volunteers opting for the accompanied tour plus twelve months.

Since publication of last year's Almanac Issue, AFMPC has completed the first year of operation using the Advanced Personnel Data System (APDS) which, for the first time, links active and Air Reserve (ANG and USAFR) forces to a common data system. The system has

been expanded to include the civilian force, as well. APDS-Civilian provides more timely, accurate personnel data to managers of civilian employees.

Phased implementation of the new Officer Evaluation System was completed effective with the December 31 OER cycle closeout for majors. New OERs have now been written on officers in all grades. Initial results indicate the new program has eliminated the inflation problem that plagued the previous system.

The temporary colonel board, which convened at AFMPC in October, was the first to use the new OER for selections. Officials said the board results, and feedback from promotion board members, confirmed the value of the new rating technique.

A system for the top three enlisted grades, similar to the one for officers and also employing controlled ratings, was field-tested at sixteen bases during February and March. A decision is anticipated this July. If implemented, first reports will be written in 1977 for use by E-8 and E-9 boards that are scheduled to be convened in the spring of 1978.

The widespread, far-reaching activities of the Air Force Military Personnel Center are considerably more extensive than can be listed here. Assignments, promotions, morale, welfare and recreation, uniform and grooming standards, personal affairs, awards and decorations, career motivation, retention, separations and retirements—to name a few of the more visible—are all in AFMPC's sphere of responsibility as the Center implements Air Force and Department of Defense policy. ■

Some thirty centralized USAF boards, like the one in session above, convene annually at MPC to select people for promotion, Regular appointment, and professional military education.

A SEPARATE OPERATING AGENCY

Air Force Office of Special Investigations

When any USAF commander needs assistance in dealing with fraud, counterintelligence, or criminal activities, he requests the help of the Air Force Office of Special Investigations (AFOSI).

AFOSI provides professional investigators to ferret out the facts and present them to the commander in detailed, objective reports of investigations. The commander, in turn, takes the action he deems appropriate.

While AFOSI is currently authorized about 1,870 special agents and administrative people to service commanders around the world, the organization itself is administered through its own centrally directed chain of command. Operational control over thirty-one districts and 123 detachments and operating locations is maintained from Hq. AFOSI, in Washington, D. C. The AFOSI Commander, Col. Roy C. Tucker, Jr., also serves in a dual capacity as Director of Special Investigations, Hq. USAF.

To perform its mission, AFOSI divides its investigative task into three major categories: Fraud, Counterintelligence, and Criminal Directorates.

The Fraud Directorate is responsible for the direction and staff supervision of investigations of fraudulent activities, major administrative irregularities, and violations of public trust involving Air Force procurement, disposal, pay and allowance matters, and nonappropriated fund activities. This Directorate also supervises AFOSI investigative surveys that are used to determine the existence, location, and extent of fraud, major administrative irregularities, and violations of public trust in Air Force operations or programs.

The Fraud Directorate recruits and trains special agents in an intensive

three-phase program designed to aid in the detection of fraud or major administrative irregularities, especially at major procurement impact areas, and directs a fraud intelligence collections program geared to keep Air Force commanders apprised of patterns or trends in fraudulent activities. This Directorate also coordinates investigative support to the Army and Air Force Exchange Service worldwide, AFOSI having been designated the Executive Agency for such support, and coordinates AFOSI support to more than 180 Defense Supply Agency field offices here and abroad under a 1974 agreement.

The Directorate of Counterintelligence is primarily concerned with countering threats to Air Force security posed by foreign intelligence services and terrorist organizations. This includes investigation of all allegations of espionage, sabotage, treason, sedition, terrorism, and major security violations.

In addition, the Directorate supervises a centrally directed information collection, analysis, and dissemination program concerning overall threats to Air Force security and discipline, upon which commanders can take appropriate defensive measures. Related activities include the physical protection of senior Air Force and other designated US government officials.

The Criminal Directorate provides staff direction for the investigation of criminal offenses against persons, their property, or the USAF. Included are offenses ranging from housebreaking to homicide. Generally, jurisdiction is limited to crimes committed on Air Force installations by persons subject to the Uniform Code of Military Justice.

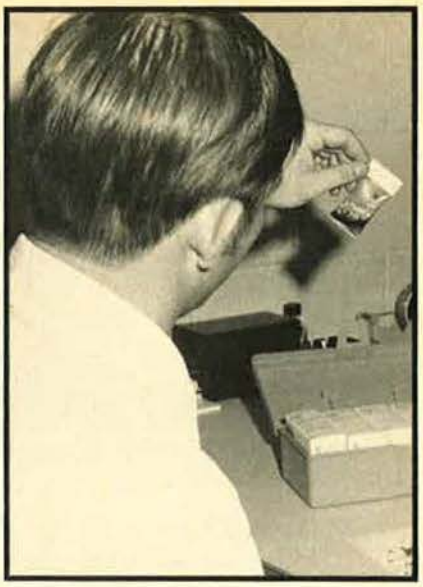
To aid in criminal fact finding, AFOSI directs the USAF polygraph/Identi-kit programs, maintains the USAF terminal to the FBI National Crime Information Center, provides a highly trained Forensic Science cadre, and performs continuing analysis of patterns and trends.

Since many investigative matters extend beyond Air Force personnel or the boundaries of Air Force bases, AFOSI maintains liaison with law enforcement and investigative organizations at the international, federal, state, and local levels. Such cooperation ensures the preservation of jurisdictional responsibilities and assures the Air Force commander of getting the most exhaustive investigative result.

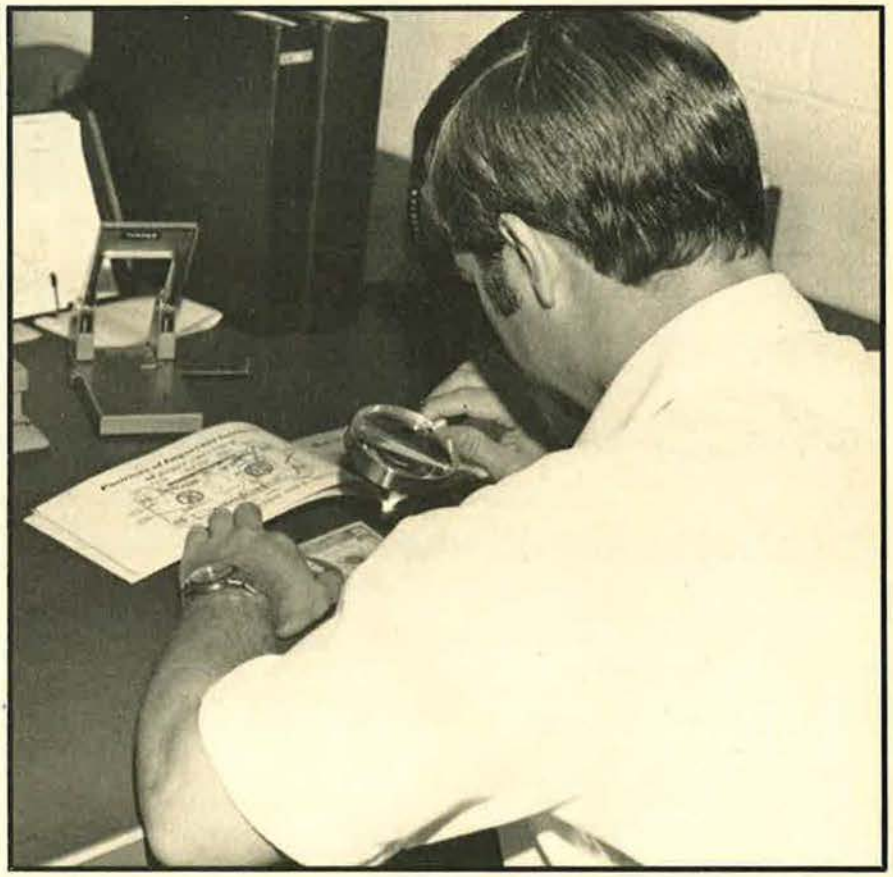
To maintain the integrity of a truly professional force of investigators, AFOSI selects and trains its own special agents from among the most highly qualified and capable Air Force officers, NCOs, and civilians. Selectees attend a ten-week investigator's course at the Air Force Special Investigations School in Washington, D. C. The course includes approximately 350 hours of administrative, investigative, and military law work. Upon graduation, students are awarded badges and official credentials as AFOSI special agents.

After gaining experience as working investigators, most special agents return to the school for advanced or specialized training, further enhancing the investigative professionalism of AFOSI. ■

Col. Roy C. Tucker, Jr., Commander, AFOSI.



AFOSI agents use drug ID kits to confirm suspected narcotic samples.



An AFOSI Special Agent checks a suspected counterfeit bill against a list of key identifiers.

A SEPARATE OPERATING AGENCY

Air Force Reserve

"Your Air Force Reserve—in the Spirit of '76" is the Bicentennial theme for citizen-airmen across the country joining in celebrating the nation's 200th anniversary. Since Concord, the Reserve concept has expanded to include modern-day citizen-airmen ready to answer the same call to defend freedom. Today, this force is 53,000 strong, organized and equipped, ready to respond when needed.

Air Force Reservists in an unmobilized training mode make many valuable contributions to the country as a by-product of training requirements. These range from aerial fire suppression in forest fires to assisting the National Park Service in civil-engineering projects. Other Bicentennial programs include planting 1,776 trees as a living legacy to local communities and sponsorship of refugee Vietnamese families, assisting them in their citizenship efforts.

Equipment modernization continues with the addition of such new missions as weather reconnaissance, strategic air refueling, and gunship operations, as examples of increased reliance on Headquarters Air Force Reserve (AFRES) as a vital part of the Department of Defense Total Force.

Reserve crews tallied 44,801 by-product flying hours during calendar year 1975, in AFRES aircraft ranging from rescue helicopters to four-engine transports. During that period, 10,720 tons of cargo were airlifted 8,508,281 ton-miles. Additionally, 90,780 persons were flown 65,233,-420 passenger-miles. Tactical air-drops included 35,266 and 1,235 tons of cargo in support of active forces and Reserve training.

During the same period, AFRES aircrews in the Associate program flew 11,239 hours in Military Airlift Command (MAC) C-5 Galaxy transports, 62,045 hours in MAC C-141 StarLifter transports, and 3,960 hours in C-9 Nightingale air-evac transports. Aircrew members participate both as members of mixed active and Reserve crews, as well as all-Reserve aircrews.

Air Force Reservists concluded a successful program to eradicate the screw worm in Puerto Rico, airdropping 300,000 sterile screw worm flies from January 1 until the successful conclusion of the program at the end of June 1975. Flying in support of the US Department of Agriculture, AFRES transports flew 155 sorties during the year. In similar operations to curb infectious diseases in 1975, AFRES aircrews flew 553 hours while spraying 345,000 acres.

Operational headquarters for AFRES is Robins AFB, Ga., where the nationwide Reserve unit program is administered. Nonflying organizations include all support elements of the flying units, in addition to medical service, aeromedical evacuation, civil engineering, mobile maintenance and supply, and aerial port units.

Recruiting continues to be a priority program to assure top manning of AFRES units. AFRES recruiters enlisted more than 12,000 personnel in 1975.

The Air Force Reserve combat-ready units and trained individuals are poised to respond immediately to any Air Force requirements in time of war or national emergency. ■

Maj. Gen. William Lyon, Chief, AFRES.

CMSgt. Olin B. Colwell, Senior Enlisted Advisor, AFRES.

AFRES forces are being reequipped with modern aircraft such as the KC-135 tanker here refueling Reserve F-105s.

AIR FORCE RESERVE FLYING WINGS AND ASSIGNED UNITS

AIR FORCE RESERVE REGION	WING HQ.	GROUP	SQUADRON	TYPE AIRCRAFT	LOCATION
Eastern Region (Hq., Dobbins AFB, Ga.)			79th AEW&CS	EC-121T	Homestead AFB, Fla.
		919th SOG	711th SOS	AC-130A	Eglin AFB, Fla. (Aux. 3)
	94th TAW		700th TAS	C-7	Dobbins AFB, Ga.
		908th TAG	357th TAS	C-7	Maxwell AFB, Ala.
	302d TAW		355th TAS	C-123	Rickenbacker AFB, Ohio
			356th TAS	C-123	Rickenbacker AFB, Ohio
		911th TAG	758th TAS	C-123	Greater Pittsburgh AP, Pa.
	439th TAW		731st TAS	C-123	Westover AFB, Mass.
			337th TAS	C-130	Westover AFB, Mass.
		914th TAG	328th TAS	C-130	Niagara Falls IAP, N. Y.
	459th TAW		756th TAS	C-130	Andrews AFB, Md.
		927th TAG	63d TAS	C-130	Selfridge ANG Base, Mich.
		913th TAG	327th TAS	C-130	Willow Grove NAS, Pa.
	315th MAW (A)		300th MAS (Assoc)	C-141	Charleston AFB, S. C.
			701st MAS (Assoc)	C-141	Charleston AFB, S. C.
			707th MAS (Assoc)	C-141	Charleston AFB, S. C.
	512th MAW (A)		326th MAS (Assoc)	C-5	Dover AFB, Del.
			709th MAS (Assoc)	C-5	Dover AFB, Del.
	514th MAW (A)		335th MAS (Assoc)	C-141	McGuire AFB, N. J.
			702d MAS (Assoc)	C-141	McGuire AFB, N. J.
			732d MAS (Assoc)	C-141	McGuire AFB, N. J.
Central Region (Hq., Bergstrom AFB, Tex.)		932d AAG (Assoc)	73d AAS (Assoc)	C-9	Scott AFB, Ill.
	301st TFW		457th TFS	F-105	Carswell AFB, Tex.
		507th TFG	465th TFS	F-105	Tinker AFB, Okla.
		508th TFG	466th TFS	F-105	Hill AFB, Utah
	433d TAW		68th TAS	C-130	Kelly AFB, Tex.
		924th TAG	704th TAS	C-130	Bergstrom AFB, Tex.
	434th TFW		45th TFS	A-37	Grissom AFB, Ind.
			46th TFS	A-37	Grissom AFB, Ind.
		910th TFG	757th TFS	A-37	Youngstown Municipal AP, Ohio
		917th TFG	47th TFS	A-37	Barksdale AFB, La.
	440th TAW		95th TAS	C-130	Gen. Billy Mitchell Fld., Wis.
		928th TAG	64th TAS	C-130	Chicago-O'Hare IAP, Ill.
		934th TAG	96th TAS	C-130	Minneapolis-St. Paul IAP, Minn.
	442d TAW		303d TAS	C-130	Richards-Gebaur AFB, Mo.
		926th TAG	706th TAS	C-130	NAS, New Orleans, La.
Western Region (Hq., McClellan AFB, Calif.)			302d SOS	CH-3E	Luke AFB, Ariz.
		920th WRG	815th WRS	WC-130H	Keesler AFB, Miss.
	403d ARRW		305th ARRS	HH-3E, HC-130H	Selfridge ANG Base, Mich.
			301st ARRS	HH-1H, HH-3E	Homestead AFB, Fla.
			303d ARRS	HC-130H	March AFB, Calif.
			304th ARRS	HH-1H	Portland IAP, Ore.
	349th MAW (A)		301st MAS (Assoc)	C-5	Travis AFB, Calif.
			312th MAS (Assoc)	C-5	Travis AFB, Calif.
			708th MAS (Assoc)	C-141	Travis AFB, Calif.
			710th MAS (Assoc)	C-141	Travis AFB, Calif.
	445th MAW (A)		728th MAS (Assoc)	C-141	Norton AFB, Calif.
			729th MAS (Assoc)	C-141	Norton AFB, Calif.
			730th MAS (Assoc)	C-141	Norton AFB, Calif.
	446th MAW (A)		97th MAS (Assoc)	C-141	McChord AFB, Wash.
			313th MAS (Assoc)	C-141	McChord AFB, Wash.
	452d TAW		336th TAS	C-130	March AFB, Calif.
		940th TAG	314th TAS	C-130	McClellan AFB, Calif.

AEW&CS	Airborne Early Warning & Control Squadron	SOG/S	Special Operations Group/Squadron
AAG (Assoc)	Aeromedical Airlift Group (Assoc)	TAW/G/S	Tactical Airlift Wing/Group/Squadron
ARRW/S	Aerospace Rescue & Recovery Wing/Squadron	TFW/G/S	Tactical Fighter Wing/Group/Squadron
MAW/S (Assoc)	Military Airlift Wing/Squadron (Assoc)	WRG/S	Weather-Recon Group/Squadron

VITAL ADJUNCT TO THE ACTIVE AIR FORCE

Air National Guard

The Air National Guard is the only air reserve force with a dual mission. This dual federal/state role enables a single body of men and women to fulfill two vital tasks. In its state mission, the Guard provides each of the states, the Commonwealth of Puerto Rico, and the District of Columbia an organized military body for its use to protect lives and property and maintain order in times of local emergencies. This is provided for in the US Constitution and Title 32, United States Code.

The Air National Guard's federal mission—its primary mission—is to train and maintain a force of combat-ready units and to assure the immediate availability of those units as needed to augment the Air Force.

For mobilization purposes, all Air Guard units are assigned to active Air Force major commands which, during peacetime, in coordination with the National Guard Bureau, establish training standards and objectives and safety programs. The major commands also evaluate through inspections the training effectiveness, readiness, and safety of Guard units.

Upon mobilization, Air Guard units take their place in the organizational structure of their respective gaining commands: TAC, SAC, ADCOM, PACAF, MAC, and AFCS. The Air Guard is involved in many Air Force mission areas with prime emphasis placed on tactical, aerospace defense, airlift, air refueling, civil engineering, and communications functions.

The inspection and evaluation of Air Guard units receives great emphasis from the Air Force. This scrutiny is now much more detailed than ever before. The ANG is proud that its flying units have maintained a pass rate for operational readiness inspection that is comparable to that of the active Air Force. The combat readiness and high inspection pass rates are due to improved and expanded training and growing support of the Guard at all levels.

The Air Guard's programmed strength for end FY '75 was 96,000. It ended the fiscal year with 95,360 men and women serving in all fifty states, the Commonwealth of Puerto Rico, and the District of Columbia. An additional 399 persons were awaiting entry into initial active duty for training. The number of women and the number of minority persons in the Air Guard also continued to grow.

Maj. Gen. John J. Pesch, Director, ANG.

CMSgt. Theodore H. Jackson, Senior Enlisted Advisor, ANG.

Seventy-seven percent of the Air National Guard personnel are dedicated to the direct support of its flying mission. The force structure encompasses twenty-four wings and ninety-one flying squadrons. The remaining people are engaged in tactical air control, mobile communications, electronic installations, weather forecasting, and miscellaneous combat support units.

The flying squadrons operate eighteen different types of mission aircraft. In keeping with the total-force policy, the Guard is issued first-line equipment in the quantity, and with the priority, required for the performance of quality training to assure accomplishment of its wartime missions.

In complying with the Air Force program for modernization, the Air National Guard has converted eighty-five percent of its flying units to more modern and effective aircraft within the past five years. Major changes are experienced by some units as they convert from large four-engine transports into jet fighters or vice versa. The conversion process temporarily affects the combat capability of some units; however, seventy-five to eighty percent of ANG units are in a combat-ready status, with the remaining units approaching this level of readiness.

During FY '75, twelve unit aircraft conversions and two unit aircraft model changes marked the continued modernization and updating of Air National Guard forces. Two units began conversion to the aerospace rescue and recovery mission. These conversions represented "firsts" for the ANG in both the rescue mission and in rotary-wing aircraft. Unit aircraft include both HC-130s and HH-3s.

The transfer of KC-135 aircraft to the ANG began in April 1975 at Rickenbacker AFB, Ohio. Eventually, thirteen ANG units will be involved in the KC-135 refueling mission, which will mark the first association of the ANG with SAC as the gaining command. The first SAC-gained ANG unit will be operationally ready and will assume its role in the strategic mission by July 1, 1976.

In support of its state mission, the ANG provides personnel and equipment to aid civil authorities in times of natural disasters and civil disturbances. For example, during the past year, members of the ANG airlifted empty sandbags to Puerto Rico during flooding conditions that resulted from hurricane Eloise. The ANG used its Modular Airborne Fire Fighting System (MAFFS)-equipped C-130s in an effort to control forest fires in the San Bernardino, Calif., area. Air National Guardsmen were also called to keep the Kansas City International Airport open during the local firemen's strike. These examples are typical of ANG involvement in aiding strife-torn communities. ■

THE AIR NATIONAL GUARD BY MAJOR COMMAND ASSIGNMENT

(As of April 1, 1976)

AEROSPACE DEFENSE COMMAND

F-101 Voodoo

107th Fighter Interceptor Gp.	Niagara Falls, N. Y.
119th Fighter Interceptor Gp.	Fargo, N. D.
142d Fighter Interceptor Wg.	Spokane, Wash.
142d Fighter Interceptor Gp.	Portand, Ore.
147th Fighter Interceptor Gp.	Ellington AFB, Tex.

F-106 Delta Dart

102d Fighter Interceptor Wg.	Otis AFB, Mass.
120th Fighter Interceptor Gp.	Great Falls, Mont.
125th Fighter Interceptor Gp.	Jacksonville, Fla.
144th Fighter Interceptor Wg.	Fresno, Calif.
177th Fighter Interceptor Gp.	Atlantic City, N. J.
191st Fighter Interceptor Gp.	Mt. Clemens, Mich.

EB-57

158th Defense System Eval. Gp.	Burlington, Vt.
190th Defense System Eval. Gp.	Forbes AFB, Kan.

PACIFIC AIR FORCES

F-4 Phantom

154th Fighter Interceptor Gp.	Hickam AFB, Hawaii

TACTICAL AIR COMMAND

F-100 Super Sabre

103d Tactical Fighter Gp.	Windsor Locks, Conn.
104th Tactical Fighter Gp.	Westfield, Mass.
114th Tactical Fighter Gp.	Sioux Falls, S. D.
116th Tactical Fighter Wg.	Dobbins AFB, Ga.
122d Tactical Fighter Wg.	Fort Wayne, Ind.
127th Tactical Fighter Wg.	Mt. Clemens, Mich.
131st Tactical Fighter Wg.	St. Louis, Mo.
132d Tactical Fighter Wg.	Des Moines, Iowa
138th Tactical Fighter Gp.	Tulsa, Okla.
149th Tactical Fighter Gp.	Kelly AFB, Tex.
159th Tactical Fighter Gp.	New Orleans, La.
162d Tactical Fighter Tng. Gp.	Tucson, Ariz.
178th Tactical Fighter Gp.	Springfield, Ohio
180th Tactical Fighter Gp.	Toledo, Ohio
181st Tactical Fighter Gp.	Terre Haute, Ind.
185th Tactical Fighter Gp.	Sioux Falls, S. D.
188th Tactical Fighter Gp.	Fort Smith, Ark.

A-7D Corsair II

112th Tactical Fighter Gp.	Pittsburgh, Pa.
121st Tactical Fighter Wg.	Rickenbacker AFB, Ohio
140th Tactical Fighter Wg.	Buckley ANG Base, Colo.
150th Tactical Fighter Gp.	Kirtland AFB, N. M.
169th Tactical Fighter Gp.	Eastover, S. C.

F-105 Thunderchief

108th Tactical Fighter Wg.	McGuire AFB, N. J.
113th Tactical Fighter Wg.	Andrews AFB, Md.
184th Tactical Fighter Tng. Gp.	McConnell AFB, Kan.
192d Tactical Fighter Gp.	Sandston, Va.

A-37B Dragonfly

174th Tactical Fighter Gp.	Syracuse, N. Y.
175th Tactical Fighter Gp.	Baltimore, Md.

RF-4 Phantom

117th Tactical Reconnaissance Wg.	Birmingham, Ala.
124th Tactical Reconnaissance Gp.	Boise, Idaho
148th Tactical Reconnaissance Gp.	Duluth, Minn.
152d Tactical Reconnaissance Gp.	Reno, Nev.
155th Tactical Reconnaissance Gp.	Lincoln AFB, Neb.
187th Tactical Reconnaissance Gp.	Montgomery, Ala.

RF-101 Voodoo

123d Tactical Reconnaissance Wg.	Louisville, Ky.
186th Tactical Reconnaissance Gp.	Meridian, Miss.

KC-97L

126th Air Refueling Wg.	Chicago, Ill.
128th Air Refueling Gp.	Milwaukee, Wis.
134th Air Refueling Gp.	Knoxville, Tenn.
136th Air Refueling Wg.	Dallas, Tex.
139th Air Refueling Gp.	St. Joseph, Mo.
151st Air Refueling Gp.	Salt Lake City, Utah
161st Air Refueling Gp.	Phoenix, Ariz.
171st Air Refueling Gp.	Pittsburgh, Pa.

C/EC-121 Warning Star

193d Tactical Electronic Warfare Gp.	Middletown, Pa.

O-2 Super Skymaster

105th Tactical Air Support Wg.	White Plains, N. Y.
110th Tactical Air Support Gp.	Battle Creek, Mich.
111th Tactical Air Support Gp.	Willow Grove, Pa.
128th Tactical Air Support Wg.	Madison, Wis.
135th Tactical Air Support Gp.	Baltimore, Md.
163d Tactical Air Support Gp.	Ontario, Calif.
182d Tactical Air Support Gp.	Peoria, Ill.

MILITARY AIRLIFT COMMAND

C-130 Hercules

109th Tactical Airlift Gp.	Schenectady, N. Y.
118th Tactical Airlift Wg.	Nashville, Tenn.
130th Tactical Airlift Gp.	Charleston, W. Va.
133d Tactical Airlift Wg.	St. Paul, Minn.
137th Tactical Airlift Wg.	Oklahoma City, Okla.
143d Tactical Airlift Gp.	Providence, R. I.
145th Tactical Airlift Gp.	Charlotte, N. C.
146th Tactical Airlift Wg.	Van Nuys, Calif.
153d Tactical Airlift Gp.	Cheyenne, Wyo.
164th Tactical Airlift Gp.	Memphis, Tenn.
165th Tactical Airlift Gp.	Savannah, Ga.
166th Tactical Airlift Gp.	Wilmington, Del.
167th Tactical Airlift Gp.	Martinsburg, W. Va.
172d Tactical Airlift Gp.	Jackson, Miss.
176th Tactical Airlift Gp.	Anchorage, Alaska
179th Tactical Airlift Gp.	Mansfield, Ohio

C-7 Caribou

170th Tactical Airlift Gp.	McGuire AFB, N. J.

HC-130 Hercules/HH-3 Jolly Green Giant

106th Aerospace Rescue & Recovery Gp.	Hayward, Calif.
129th Aerospace Rescue & Recovery Gp.	Suffolk Co., N. Y.

STRATEGIC AIR COMMAND

KC-135 Stratotanker

101st Air Refueling Wg.	Bangor, Me.
157th Air Refueling Gp.	Pease AFB, N. H.
160th Air Refueling Gp.	Rickenbacker AFB, Ohio
189th Air Refueling Gp.	Little Rock AFB, Ark.

A SEPARATE OPERATING AGENCY

Air Reserve Personnel Center

Although maintaining preparedness for mobilization remains its primary mission, the Air Reserve Personnel Center (ARPC), located in Denver, Colo., is increasingly concerned with enhancing the capacity of the nation's Air Reserve Force to support the active force in its peacetime role.

ARPC's personnel support of Reservists throughout their entire military life cycle—from procurement to retirement—is essential to the maintenance of a combat-ready Air Force Reserve (AFRES). To ensure that the Reserves are ready to meet their expanded role under the Total Force Policy, ARPC's 850 military and civilian personnel accomplish myriad personnel actions for some 200,000 active members of the Air Force Reserve and maintain master personnel records of some 11,000 Air National Guard officers.

The Center tested its mobilization capabilities through participation in two major mobilization exercises during 1975. These exercises simulated the call-up of Guard and Reserve units, mobilization augmentees, and individual replacements from the Ready Reserve pool. The tests helped refine ARPC's interface with the new Advanced Personnel Data System (APDS) and exercised coordination with the Air Force Military Personnel Center and the major commands.

Recruiting continued as a high priority during FY '75. ARPC works closely with Reserve recruiters and major commands in identifying vacancies. Managers of the Reserve Supplement Officer (RSO) Program conducted a successful recruiting drive for Reservists in twenty-six career fields, with vacancies remaining primarily in the engineering, science, and aircraft maintenance AFSCs. More than 1,100 RSOs are now assigned to replace active-force rated supplement pilots and navigators who would return to the cockpit in the event of a crisis.

AF Reservists check their records during a visit to the ARPC.

Brig. Gen. James E. Dalton, Commander, ARPC.

CMSgt. John W. Spencer, Senior Enlisted Advisor, ARPC.

To improve awareness of the full spectrum of Reserve opportunities, ARPC developed new fact sheets, brochures, briefings, films, and newsletters for distribution to the active force and to Air Force Reserve Officer Training Corps (AFROTC) graduates. The fact sheets and brochures are now included in the officer separation package distributed by AFMPC.

Toll-free telephone service into the Center has been expanded to handle inquiries on assignments and officer career development. Officers desiring assignment and career information may dial 800-525-3086; airman assignment information is available at 800-525-4836. The new extensions on 800-525-9984 provide direct access to the Chaplain, Information Office, Judge Advocate, Surgeon, Records, Promotions, Separations, Procurement, Retirements, and Point Credit Accounting and Reporting System (PCARS) offices. Another new line, 800-525-2347, enables Reservists to deal with the Consolidated Reserve Personnel Office.

Recent improvements in Reserve administration include the consolidation of pay, point accounting, and orders publication for Reservists assigned to all USAF commands except Headquarters and Systems Commands. These and other administrative responsibilities have made ARPC the largest "mail order" base personnel office in the world.

At the end of its first full year of operation, ARPC's Officer Career Development Program has proved to be an outstanding management tool. It provides commands with the best qualified Reservists to fill existing vacancies and for accelerating advancement of top-quality officers into key positions. The program also provides a valuable career counseling service to Reserve officers.

Managers of the Reserve Chaplain, Surgeon, Judge Advocate, and Information Officer programs increased the utilization of their professionals in direct support of the active force. In addition to their normal training requirements, many Reservists in these categories served on active duty in FY '75 to help meet Air Force mission requirements.

With Reserve components performing increasingly important Air Force missions, ARPC will continue its focus on the most important element of Total Force—people. ■

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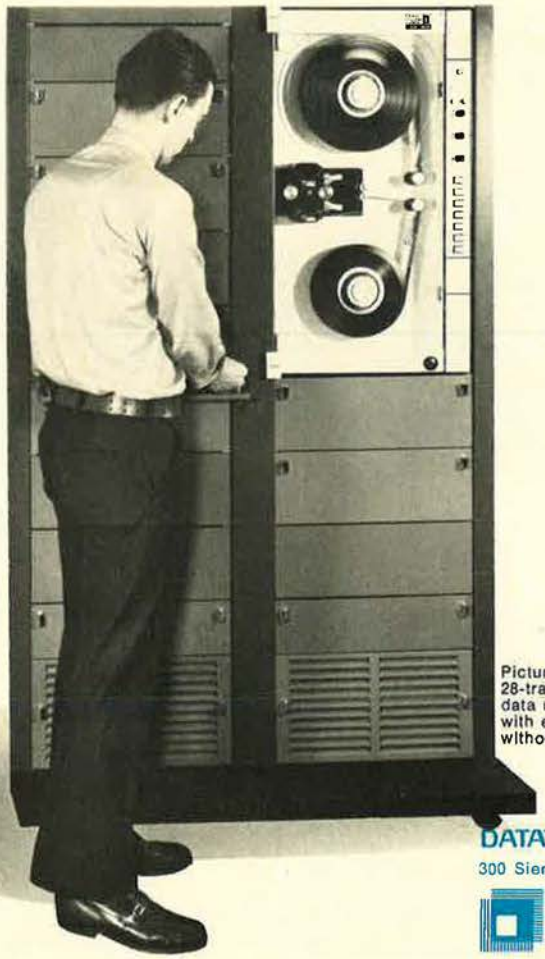

Pictured is a single transport, 28-track system capable of accepting data up to 92 megabits per second with errors as low as 1 in 10^5 without EDAC.

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Teaming with Ku-band experience.

THE LOW RISK TEAM

The Shuttle Orbiter needs a completely integrated Ku-band radar and communications subsystem to successfully perform its mission in space.

The builder must have in-depth, in-space experience in Ku-band communications, radar, and antenna design. And they have to know how to implement the communication system to work through the Tracking and Data Relay Satellite System (TDRSS).

That need brought together a special team. Motorola's Government Electronics Division working with Teledyne Ryan Electronics and Boeing Aerospace.

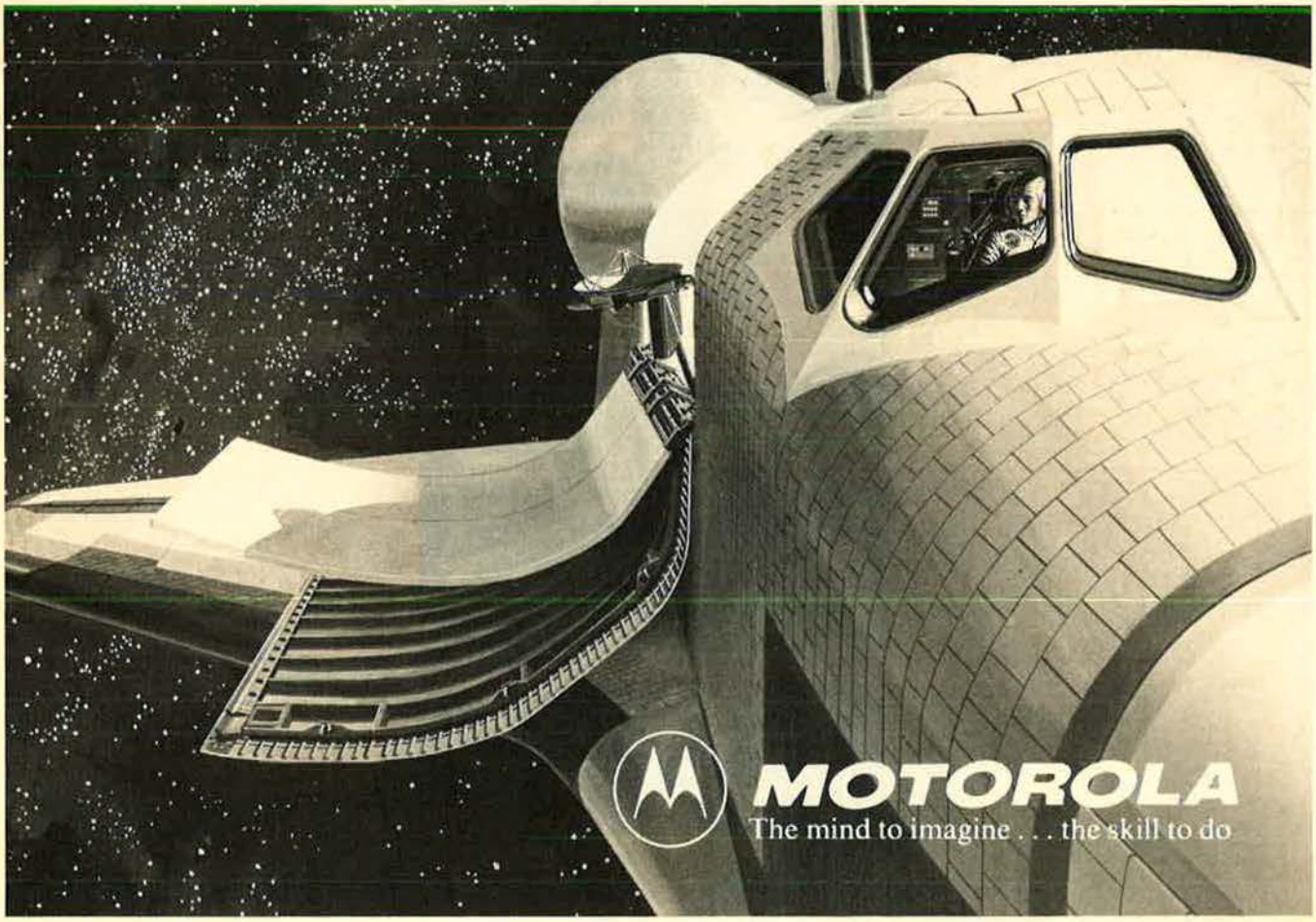
Why these three? Because of the in-depth, in-space experience.

Communications equipment for every U.S. manned space mission and most of the unmanned space flights, with 100% mission success. Add long-term commitment to Shuttle marked by Ku-band and TDRSS study and development programs with major NASA centers. That's Motorola.

There are several excellent radar suppliers including Motorola. We selected Teledyne Ryan electronics because their experience includes not only building the *first* but the *most* NASA space radars. Their success box score? Also 100%.

For the antenna a number of other companies might have been qualified. We are convinced that Boeing Aerospace is best, simply because they're way out front with *space qualified,* high-gain, lightweight, composite material antenna structures.

This team did its homework years ago . . . but not just at home. In space where it counts. The bottom line . . . a low risk Ku-band subsystem.



A SEPARATE OPERATING AGENCY

Air Force Academy

Under the leadership of Lt. Gen. James R. Allen, Superintendent, the Air Force Academy provides instruction and experience to cadets so they are graduated with the knowledge and character essential to leadership, and with the motivation to become career Air Force officers.

In existence since April 1, 1954, and graduating its first class in 1959, the Academy will this year experience its most historic change. About 150 women will be enrolled with the Class of 1980 on June 28, 1976, the first time women have attended the Academy. *(See April '76 issue, pp. 50–54.)*

Admittance of women will not increase the authorized strength of the Cadet Wing, now set at 4,417 when academic classes begin each August. On January 31, 1976, 4,126 cadets were enrolled. There are 1,142 officers, 1,484 enlisted people, and 2,100 civilian employees assigned to the Academy and tenant units.

After completing four years of academic, military, and physical education courses, a cadet is graduated with a bachelor of science degree and a regular commission as an Air Force second lieutenant.

Lt. Gen. James R. Allen, Superintendent, USAFA.

CMSgt. Elmer W. Wienecke, Senior Enlisted Advisor, USAFA.

Since 1959, the Academy has graduated 9,358 cadets, including nineteen Rhodes Scholars. More than 900 cadets in the Class of 1976 will be graduated June 3 this year.

Brig. Gen. William T. Woodyard, Dean of the Faculty, administers academic instruction organized under four divisions—basic sciences, engineering science, humanities, and social science.

The predominately military faculty numbers 540. Each officer holds a master's degree, and thirty percent have doctorates in the subjects they teach. The faculty also includes two visiting civilian professors, two State Department foreign service officers, and about a dozen officers from the other services.

Each cadet must complete one of twenty-two academic majors and at least 145 semester hours of course work, with about half of the cadets participating in a special enrichment program that includes additional courses. Cadets also take fourteen hours of physical education and twenty-seven hours of military training.

The Academy and the Air Force identify the top fifteen percent of each graduating class, who may be offered graduate education some time between three and eight years after graduation, depending on their performance as officers and upon Air Force requirements.

The leadership, military training, and flight program is directed by Brig. Gen. Stanley C. Beck, Com-

Women cadets will soon join male cadets at the USAFA. They will be eligible to select any of the twenty-two academic areas offered to cadets, including such majors as electrical engineering.

Women Air Training Officers are currently undergoing training at the USAFA in preparation for arrival of the first women cadets this summer.

mandant of Cadets. Along with formal classes in professional military subjects, cadets gain leadership experience as officers and NCOs in the Cadet Wing.

The Wing is divided into four groups of ten squadrons each. Seniors (cadets first class) hold officer rank in command and staff positions while juniors and sophomores (cadets second and third class) perform NCO duties.

Prospective cadets arrive at the Academy each summer and enter basic cadet training (BCT), a six-week course of intensive military training and physical conditioning. Succeeding summers are spent in a combination of leave, participating in field training programs, and in leadership positions at the Academy training members of the lower classes and the incoming cadets.

Two of the programs open to cadets away from the Academy are "Operation Third Lieutenant" and "Operation Non-Com." In Third Lieutenant, juniors and seniors perform junior officer duties with operational Air Force units. Under Non-Com, sophomores work with NCOs at bases in the US to gain an understanding of the duties and responsibilities of the enlisted force.

In the airmanship program, the Academy uses fifty-two T-41 and two U-4 aircraft, three hot air balloons, fifteen sailplanes, seven aero club aircraft, and twenty-four T-37s based at nearby Peterson Field. Most pilot-qualified seniors are taught to fly the T-41 by instructor pilots of the 557th Flying Training Squadron (ATC), supplemented by other Academy pilots.

The airmanship program offers cadets the opportunity to earn private licenses in powered aircraft, gliders, and hot air balloons. Cadets serve as instructors in the basic freefall parachuting course, in the parasailing orientation given to all freshmen cadets, and in the basic soaring program. The cadet parachute team is the current 1975–76 National Collegiate Parachute Champion.

Aviation courses give cadets a basic understanding of aviation physiology, the Air Force mission, and space navigation. Practical application of a professional flight crews' duties is gained in Air Training Command T-43 jet navigation aircraft flying out of Peterson Field. Cadets also receive flights in T-37 jet trainers to gain an appreciation of aviation skills, aircrew responsibilities, and jet aircraft capabilities.

Col. John J. Clune heads the Department of Athletics, which oversees the physical education, intramural, and intercollegiate athletic programs. Cadets who do not participate in one of eighteen different intercollegiate sports must compete in intramural sports, choosing a different sport each fall, winter, and spring. All cadets are required to take physical education courses and physical fitness tests throughout their four years at the Academy.

The Academy's athletic program has produced twenty-one National Collegiate Athletic Association Scholar/Athletes, more than any other school in the nation.

Located on the Academy grounds is the Air Force Academy Preparatory School, where selected enlisted people from the Regular and Reserve Force undergo a year of intensive study in math, English, and military training to prepare for an Academy appointment. Air Force women entered a shortened program at the prep school for the first time in January. If they successfully complete the program, these women cadet candidates may be among the first group of women cadets to enter the Academy this summer.

To be eligible for admission to the Academy, young men and women must be at least seventeen years old but not yet twenty-two on July 1 of the year they are admitted. They must be US citizens, unmarried, of good moral character, and in good physical condition. They must show adequate academic preparation, demonstrated leadership potential, and a desire to be cadets and pursue military careers. Academy nominations come through congressional or other authorized channels. ■

Boxing is one of the many intramural sports offered to cadets.

MEETING THE CHALLENGE

The United States Air Force has successfully met a lot of challenges during its first 29 years. And many more lie ahead. Keeping a credible deterrent capability, advancing technology and countering threats from potential aggressors is a tall order. Particularly in the face of rising systems complexity, limited budgets and inflation.

In the critical years ahead, the Air Force can rely on another organization accustomed to meeting challenges – System Development Corporation. For almost two decades, SDC has provided advanced technology computer-based systems and services for the nation's defense. Systems technology of the highest quality for government-sponsored programs in the national interest.

SDC tactical, strategic, space, airspace management, surveillance/control and data management systems are an integral part of America's continuing supremacy in military and space technology. We're helping design, develop and support the interoperable joint-service systems of tomorrow. Wherever military organizations employ computer technology, SDC computer-based systems are there.

System Development Corporation

Rain falls. Fog builds. But security stays tight as a drum with the UH-1N

It's no surprise because Bell's twin-turbine UH-1N is fully equipped for IFR. And it's on 24-hour duty at Air Force bases right now.

The UH-1N provides an immediate solution for the increased Reaction Force requirement for missile convoy escort. With a total capacity of 15 counting the two man crew, the UH-1N can carry two Reaction Teams to provide required security where and when it's needed.

And a conversion to the UH-1N from the mission proven UH-1F carries the added advantages of training standardization for pilots and maintenance crews and reduced logistics impact because of inventory commonality.

Whether it's escorting a missile convoy, delivering critical supplies and personnel, or carrying out a search and rescue mission day or night, even in marginal weather, the doubly dependable Bell UH-1N will be on the job.

peacekeepers the world over depend on Bell HELICOPTER

GALLERY OF USAF WEAPONS

BY S. H. H. YOUNG, ASSOCIATE COMPILER, JANE'S ALL THE WORLD'S AIRCRAFT

EDITED BY JOHN W. R. TAYLOR, EDITOR, JANE'S ALL THE WORLD'S AIRCRAFT

Bombers

B-1

In USAF's FY '77 budget requests, top priority is given to procurement of the first three production B-1s of a planned total of 240 of these advanced strategic bombers. The current development program includes three prototype B-1s, with a fourth R&D aircraft approved in the FY '76 budget. The first prototype flew on December 23, 1974, in what was also the initial flight of the YF101 engine. Test flying of the third prototype, equipped as testbed for the avionics systems, was scheduled to begin this spring, with the second B-1 scheduled to join the flight program in the fall after load tests. The B-1 is a variable-geometry aircraft of blended wing-body configuration, intended to maintain the viability of USAF's strategic bomber force through the present century. It would normally cruise at least part of the way to its target at subsonic speed, then attack either at high subsonic speed at low altitude or in an over-the-target supersonic dash at high altitude. Its radar signature is approximately 5% that of the B-52; it carries nearly twice the latter's payload and can use shorter runways. A unique structural mode control system (SMCS) is fitted, to minimize the effects of turbulence on crew and airframe during high-speed, low-level penetration flights, which are made practicable by a computerized terrain-following radar system. Production B-1s will not have the crew escape capsule fitted to the first three prototypes, or the originally-planned variable-geometry engine inlets. Deletion of these items has reduced program cost, complexity, and maximum speed, the highest Mach number achieved to date being Mach 1.5 during the 20th flight last October. Protective devices under study for the B-1 include active and passive ECM, electronic jamming or other counter-countermeasures (ECCM), radio frequency surveillance equipment, homing and warning systems, and other countermeasures such as expendable types (*i.e.*, chaff) or infrared.

Contractor: Rockwell International Corporation, North American Aircraft Operations, B-1 Division.

Power Plant: four General Electric F101-GE-100 afterburning turbofan engines; each approx 30,000 lb thrust.

Accommodation: four, in pairs.

Dimensions: span spread 136 ft 8½ in, fully swept 78 ft 2½ in, length overall 150 ft 2½ in, height 33 ft 7¼ in.

Weight: gross 389,800 lb.

Performance (estimated): max speed at 50,000 ft Mach 1.6, max range without refueling 6,100 miles.

Armament: three internal weapon bays, accommodating a total of 24 SRAMs on three rotary dispensers, or 75,000 lb of free-fall bombs. Provision for 8 more SRAMs or 40,000 lb of free-fall weapons externally.

B-52 Stratofortress

About 450 of the 744 production Stratofortress eight-jet long-range bombers built between 1954 and 1962 constitute the major piloted component of the current SAC inventory, 330 of them as UE (unit equipment). Progressive refinement of the B-52 design, and the installation of new equipment and more powerful engines, led to a series of variants, of which the "G" and "H" are currently the most numerous. Versions still operational are: **B-52D,** total of 170 built with J57-P-29W turbojet engines, with delivery from December 1956. **B-52F,** with uprated J57-P-43W engines, first flown in May 1958; 89 built; those remaining in inventory now used for training purposes. **B-52G,** introduced important changes including a redesigned wing containing integral fuel tankage, fixed underwing tanks, a new tail fin of reduced height and broader chord, a remotely controlled tail turret which allowed the gunner to be repositioned with the rest of the crew, and the ability to carry two AGM-28 Hound Dog air-to-surface missiles on missions of a round-trip range of more than 10,000 miles. Deliveries of the B-52G began in February 1959, and 193 were built. **B-52H,** the final version, switched to TF33 turbofan engines and had improved defensive armament, including a Vulcan multi-barrel tail gun and underwing pods of penetration rockets; 102 were built, with deliveries starting in May 1961. Under a major USAF program initiated in 1971, the B-52Gs and "H"s are being modified to carry 20 AGM-69A Short Range Attack Missiles, six under each

B-1

B-52H with SRAM and EVS

wing and eight in the bomb-bay. In addition, about two-thirds of the B-52Gs and "H"s have been equipped with an AN/ASQ-151 Electro-optical Viewing System (EVS), using forward looking infrared (FLIR) and low-light-level TV sensors to improve low-level flight capability. (Data for B-52G.)

Contractor: The Boeing Aerospace Company.

Power Plant: eight Pratt & Whitney J57-P-43W turbojet engines; each 13,750 lb thrust.

Accommodation: two pilots, side-by-side, plus navigator, radar-navigator, ECM operator, and tail gunner.

Dimensions: span 185 ft 0 in, length 157 ft 7 in, height 40 ft 8 in.

Weight: gross 480,000 lb.

Performance (approx): max speed at 20,000 ft 660 mph, service ceiling 55,000 ft, range 10,000 miles.

Armament: four 0.50 caliber guns in tail turret; two AGM-28 Hound Dog air-to-surface missiles under wings; bombs and Quail diversionary missiles internally. Alternative provision for 20 SRAM missiles.

FB-111

FB-111A

Developed originally to provide SAC with a replacement for some of its B-52C/F versions of the Stratofortress and the B-58A Hustler, the FB-111A is a two-seat medium-range strategic bomber version of the basic swing-wing F-111. The first of 76 production aircraft flew in July 1968, and the initial delivery was made in October 1969 to the 340th Bomb Group. Operational units equipped with the FB-111A are the 380th and 509th Bomb Wings.

Contractor: General Dynamics Corporation.

Power Plant: two Pratt & Whitney TF30-P-7 turbofan engines; each 20,350 lb thrust with afterburning.

Accommodation: two, side-by-side.

Dimensions: span spread 70 ft 0 in, fully swept 33 ft 11 in, length 73 ft 6 in, height 17 ft 1.4 in.

Weight (approx): gross 100,000 lb.

Performance: max speed at 36,000 ft Mach 2.5, service ceiling more than 60,000 ft, range 4,100 miles with external fuel.

Armament: up to four AGM-69A SRAM air-to-surface missiles on external pylons, plus two in the weapons bay, or six nuclear bombs, or combinations of these weapons; provision for up to 31,500 lb of conventional bombs.

Fighters

F-4 Phantom II

Continued updating maintains the effectiveness of this mid-1950s all-weather fighter. Latest equipment produced for USAF Phantoms includes the Pave Spike day tracking/laser ordnance designator pod, for use with "smart" weapons, and the advanced ALQ-131 ECM system capable of covering the complete range of threat radars. First Phantom version supplied to USAF was the **F-4C,** a two-seat tactical fighter developed from the basic F-4B naval version, with provision for a large external weapon load. Modifications included dual controls, an inertial navigation system, improved weapon aiming system, and boom flight refueling, instead of drogue. First F-4C flew in May 1963. With deliveries completed by May 1966, the 583 aircraft ordered were deployed by TAC, PACAF, and USAFE for close-support, attack, and air-superiority duties, and with ANG from January 1972. Two squadrons are operational in a "Wild Weasel" defense suppression role, carrying ECM warning sensors, jamming pods, chaff dispensers, and anti-radiation missiles. The **F-4D** was developed from the F-4C and replaced it in production. Major systems changes were introduced, including new weapon ranging and release computers to increase accuracy in air-to-air and air-to-surface weapon delivery. First F-4D flew in December 1965, with deliveries beginning in March 1966. Total of 843 built, primarily for USAF, but 32 were supplied to Iran and 18 were transferred from USAF to the Republic of Korea. The **F-4E** is a multirole fighter capable of performing air-superiority, close-support, and interdiction missions. A 20 mm Vulcan multi-barrel gun is fitted, together with an improved fire-control system in the nose, as a result of operational experience with earlier aircraft, some of which had been equipped with pod-mounted guns. An additional fuselage fuel tank extends the F-4E's radius of action. Leading-edge slats, as developed for the F-4F to improve maneuverability, are being retrofitted to all the USAF's F-4Es. In addition, from early 1973, these models were fitted with Northrop's target-identification system electro-optical (TISEO) as an aid to positive long-range visual identification of airborne or ground targets. Several hundred have been built for USAF. Current improvements include deployment of the Pave Tack system, which provides a day/night all-weather capability to acquire, track, and designate ground targets for laser, infrared, and electro-optically guided weapons. The **F-4G** (Advanced Wild Weasel) is a modified F-4E with sophisticated electronic warfare equipment that enables it to detect, identify, and locate enemy radars, and to direct against them weapons for their destruction or suppression. Changing EW threats are covered by use of reprogrammable software. Primary armament will include Shrike (AGM-45), Standard ARM (AGM-78), and HARM (AGM-88), with optional availability of the CBU Rockeye area weapon for suppression purposes, and the Maverick missile. A force of 116 F-4Gs is planned, with installation of the first operational kit now beginning. (Data for F-4E.)

F-4E Phantom II

Contractor: McDonnell Aircraft Company, Division of McDonnell Douglas Corporation.

Power Plant: two General Electric J79-GE-17 turbojets; each 17,900 lb thrust with afterburning.

Accommodation: pilot and weapon systems operator in tandem.

Dimensions: span 38 ft 5 in, length 62 ft 10 in, height 16 ft 3 in.

Weights: empty 30,425 lb, gross 58,000 lb.

Performance: max speed at 40,000 ft Mach 2.27, range with typical tactical load 1,300 miles.

Armament: one 20 mm M-61A1 multibarrel gun; provision for up to four AIM-7E Sparrow and four AIM-9 Sidewinder air-to-air missiles, or up to 16,000 lb external stores.

F-5E Tiger II

F-5E Tiger II

First flown in August 1972, this advanced version of the F-5 export aircraft was developed primarily to provide America's allies with an uncomplicated air-superiority tactical fighter, capable of relatively inexpensive maintenance and operation. The F-5E is basically a VFR day/night fighter with limited all-weather capability. The design emphasis is on maneuverability rather than high speed, notably through the use of maneuvering flaps. More than 800 single-seat F-5Es and two-seat F-5Fs have been ordered by a dozen countries. TAC, assisted by ATC, is training pilots and technicians of user air forces. For this purpose, 20 F-5Es were supplied to USAF, beginning in April 1973 with the 425th TF Squadron, before deliveries to foreign governments began late that year. TAC is scheduled to operate two "aggressor squadrons" of camouflaged F-5Es, simulating late-model MiG threat aircraft, in "Red Flag" exercises at Nellis AFB, Nev., from the end of next fiscal year.

Contractor: Northrop Corporation, Aircraft Division.

Power Plant: two General Electric J85-GE-21 turbojet engines; each 5,000 lb thrust with afterburning.

Accommodation: pilot only.

Dimensions: span 26 ft 8 in, length 48 ft 3¾ in, height 13 ft 4½ in.

Weights: empty 9,425 lb, gross 25,488 lb.

Performance (at 13,220 lb): max level speed at 36,000 ft Mach 1.63, service ceiling 52,000 ft, range with max fuel, with reserve fuel for 20 min max endurance at

S/L (with external tanks retained) 1,974 miles.

Armament: two AIM-9 Sidewinder missiles on wingtip launchers; two M-39A2 20 mm cannon in nose, with 280 rounds per gun; up to 7,000 lb of mixed ordnance can be carried on four underwing attachments and one under-fuselage station.

F-15 Eagle

A total of 164 F-15s has been ordered to date for operational use by USAF, including 72 authorized under the FY '75 budget. A further 108 aircraft are requested in FY '77 and planned total procurement is 729 (436 UE). First flown in July 1972, the **F-15** is a single-seat fixed-wing all-weather fighter designed specifically for an air-superiority role, but has also an inherent air-to-surface attack capability. Specialized equipment includes a lightweight Hughes radar system for long-range detection and tracking of small high-speed objects operating at all heights down to treetop level, and for ensuring effective delivery of weapons, with a head-up display for close-in dogfights; a Hazeltine interrogator for the IFF system to inform the pilot if an aircraft seen visually or on radar is friendly; and an inertial navigation system. Equipment specially developed for the F-15 includes a pair of low-drag fuel pallets, known as Fast Packs (Fuel And Sensor Tactical Packs). As well as obviating the need for tanker support on global missions, these packs extend the F-15's capabilities, enabling it to carry a heavier bomb load to distant targets, and providing space for cameras and other sensors for reconnaissance missions, a laser designator, or Wild Weasel equipment for missile-site suppression. Thirty-five training aircraft delivered to Luke AFB, Ariz., since November 1974 include **TF-15** two-seat transition and proficiency trainers. The first aircraft for a combat squadron was delivered to Langley AFB, Va., in January this year. Six of the eight time-to-height records set by the F-15 *Streak Eagle* one year earlier remain unbeaten, including climb to 20,000 m (65,616 ft) in 2 min 2.94 sec. (Data for F-15.)

Contractor: McDonnell Aircraft Company, Division of McDonnell Douglas Corporation.

Power Plant: two Pratt & Whitney F100-PW-100 turbofan engines; each 25,000 lb thrust.

Accommodation: pilot only.

Dimensions: span 42 ft 9¾ in, length 63 ft 9 in, height 18 ft 5½ in.

Weight: gross about 40,000 lb.

Performance: max speed more than Mach 2.5, absolute ceiling 100,000 ft, ferry range more than 2,878 miles.

Armament: one internally mounted M-61A1 20 mm multibarrel cannon; four AIM-9L Sidewinder and four AIM-7F Sparrow air-to-air missiles carried externally. Provision for carrying up to 12,000 lb of ordnance on three weapon stations.

F-16

This high-performance, highly maneuverable new multipurpose fighter evolved from the YF-16/YF-17 Lightweight Fighter Prototype program begun in April 1972. Two General Dynamics YF-16s were built under Air Force contract, the first of which made its official first flight on February 2, 1974. The protoypes were designed to exploit and flight test emerging advanced technologies such as: decreased structural weight through the use of composites, decreased drag resulting from reduced static stability margins, fly-by-wire flight controls with side stick force controller, high *g* tolerance/high visibility cockpit with a 30 degree reclined seat and single-piece bubble canopy, blended wing-body aerodynamics with forebody strakes and automatically variable wing leading-edges to enhance the exceptional maneuverability provided by the light weight/low wing loading design and the high thrust provided by the single F100-PW-100 engine. The interchangeability of this engine with that of the F-15 contributed to the lower acquisition and operating costs of the F-16 in the Air Force's evaluation of the two prototype fighter designs. This, together with the performance advantages demonstrated in test flights, led to the decision to develop and procure the F-16 for USAF. Under an April 1975 contract, six single-seat **F-16As** and two **F-16B** tandem two-seat fighter-trainers are being built, with the first scheduled to fly late this year. Compared with the prototypes, the production models have lower gross weights, lengthened fuselage and radome, increased wing area, an added self-contained jet-fuel engine starter, and increased external stores-carrying capability on nine stations. An advanced all-digital stores management system feeds information concerning weapons selection and delivery mode to the fire control computer. Other equipment includes a High Resolution Ground Map (HRGM) display, an advanced radar warning receiver, a Marconi-Elliott head-up display, and internal chaff or flare dispensers; ECM can be carried. Procurement of at least 650 aircraft is planned, of which 16 are requested in the FY '77 budget. It was announced in June 1975 that four NATO countries had selected the F-16 to replace their F-104s. (Data for F-16A.)

Contractor: General Dynamics Corporation.

Power Plant: one Pratt & Whitney F100-PW-100 (3) turbofan engine; about 25,000 lb thrust with afterburning.

Accommodation: pilot only.

Dimensions: span 32 ft 10 in, length 48 ft 4¾ in, height 16 ft 4¾ in.

Weights (approx): empty 15,000 lb, design gross 23,000 lb.

Performance: max speed Mach 2 class, ferry range more than 2,200 miles.

Armament: one M-61A1 20 mm multibarrel cannon with 500 rounds, mounted in fuselage; infrared missile mounted on each wingtip; underwing attachments for other stores including air-to-ground weapons.

F-100 Super Sabre

Around 400 Super Sabres remain operational with the ANG. The original prototype, flown in May 1953, was the first operational fighter capable of supersonic speed in level flight. The **F-100A,** with a J57-P-7 or -39 engine, was the basic single-seat interceptor version. Two hundred and three were delivered, of which some were later converted to camera-carrying RF-100As. The **F-100C** introduced a strengthened wing with four attachments for up to 6,000 lb of bombs, other weapons, or drop tanks, and could be flight refueled. Four hundred and seventy-six were built, being superseded in production by the **F-100D,** with bomb-load increased to 7,500 lb, a Minneapolis Honeywell supersonic autopilot, tail-warning radar, and other refinements; 1,274 were built. Final version was the **F-100F,** a two-seat variant for use as a fighter-bomber, air-superiority fighter, or trainer, of which 339 were built in 1957–59, with full operational equipment apart from having two instead of the standard four guns. (Data for F-100D.)

Contractor: North American Aviation, Inc.

Power Plant: one Pratt & Whitney J57-P-21A turbojet engine; 17,000 lb thrust with afterburning.

Accommodation: pilot only.

Dimensions: span 38 ft 9 in, length 47 ft 0 in, height 15 ft 0 in.

Weights: empty 21,000 lb, gross 34,832 lb.

Performance: max speed at 36,000 ft Mach 1.3, range, with two external tanks, 1,500 miles.

Armament: four 20 mm M-39E guns in fuselage; underwing pylons for six 1,000 lb bombs, two Sidewinder or Bullpup missiles, rockets, etc.

F-101B Voodoo

A development of the basic F-101 single-seat tactical fighter-bomber, the F-101B is a two-seat long-range all-weather interceptor, first flown in March 1957, and designed originally for service with the Air Defense Command (now Aerospace Defense Command—ADCOM). About 84 remain in service with the ANG, with others in Canadian Armed Forces under NORAD control. The US aircraft are scheduled for phase-out by FY '77. For reconnaissance versions, see page 116.

Contractor: McDonnell Aircraft Corporation.

Power Plant: two Pratt & Whitney J57-P-55

F-15 Eagle

F-16

F-100 Super Sabre

F-101B Voodoo

F-105G "Wild Weasel" Thunderchief

F-106 Delta Dart

F-111A

A-7D Corsair II

turbojet engines; each 14,990 lb thrust with afterburning.
Accommodation: pilot and radar operator in tandem.
Dimensions: span 39 ft 8 in, length 67 ft 4¾ in, height 18 ft 0 in.
Weight: gross 46,500 lb.
Performance: max speed at 40,000 ft Mach 1.85, service ceiling 51,000 ft, max range 1,550 miles.
Armament: two AIM-4D Falcon air-to-air missiles carried externally, and two AIR-2A Genie nuclear-warhead unguided rockets carried internally.

F-105 Thunderchief

Still in service with the ANG and AF Reserve are several squadrons of **F-105D** single-seat all-weather fighter-bombers, equipped with NASARR monopulse radar system, for use in both high- and low-level missions, and Doppler for night or bad weather operations. First F-105D flew in June 1959. More than 600 were built, of which about 30 were modified to carry the T-Stick II system to improve all-weather bombing capability. Also in ANG and Reserve service is the **F-105F** two-seat dual-purpose trainer/tactical fighter version of the F-105D with lengthened fuselage and higher tail fin, of which 143 were built. Two squadrons of the active Air Force fly the **F-105G** all-weather "Wild Weasel" version of the two-seat F-105, intended for the suppression of surface-to-air missile sites, with electronic countermeasures pods mounted on the underfuselage. Typical armament load comprises four Shrike missiles or two Standard ARMs. (Data for F-105D.)
Contractor: Fairchild Republic Division of Fairchild Industries.
Power Plant: one Pratt & Whitney J75-P-19W turbojet engine; 26,500 lb thrust with afterburning and water injection.
Accommodation: pilot only.
Dimensions: span 34 ft 11¼ in, length 67 ft 0¼ in, height 19 ft 8 in.
Weights: empty 27,500 lb, gross 52,546 lb.
Performance: max speed at 38,000 ft Mach 2.1, service ceiling 52,000 ft, max range more than 1,842 miles.
Armament: one General Electric 20 mm Vulcan multibarrel gun and more than 14,000 lb of stores under fuselage and wings.

F-106 Delta Dart

The F-106 all-weather fighter was developed in the mid-1950s from the F-102 to accommodate the larger J75 engine. Constant updating has enabled the Aerospace Defense Command to deploy the aircraft throughout the '60s and '70s, and 231 continue to serve with active USAF squadrons. About 40 percent of these will have been transferred to the ANG by FY '77. The two production versions are: **F-106A,** single-seat interceptor with J75 engine, first flown in January 1957; 277 were built, with deliveries beginning in July 1959. **F-106B,** a tandem two-seat dual-purpose combat trainer, of which 63 were built. The F-106's MA-1 electronic guidance and fire-control system has been updated periodically. Other modifications have included installation of supersonic drop tanks, in-flight refueling, and the approval of a 20 mm cannon, which gives greater effectiveness against low altitude/ECM/maneuvering targets. These have improved the F-106's capability in such a way as to permit its operation in global roles as well as for continental US defense in conjunction with USAF E-3A AWACS aircraft. (Data for F-106A.)
Contractor: Convair Division of General Dynamics.
Power Plant: one Pratt & Whitney J75-P-17 turbojet engine; 24,500 lb thrust with afterburning.
Accommodation: pilot only.
Dimensions: span 38 ft 3½ in, length 70 ft 8¾ in, height 20 ft 3⅓ in.
Weights (approx): empty 23,650 lb, gross 35,500 lb.
Performance (approx): max speed at 40,000 ft Mach 2.3, service ceiling 57,000 ft, range 1,200 miles.
Armament: one AIR-2A Genie unguided nuclear-warhead rocket and four AIM-4F/G Falcon air-to-air missiles carried internally; 20 mm cannon now under production and installed on one test aircraft. Installation of gun on all operational F-106s is in progress.

F-111

Four versions of this pioneer variable-geometry tactical fighter are deployed with four USAF tactical fighter wings: **F-111A,** the initial aircraft of this type delivered for service with the 4480th TF Wing, a training unit, in July 1967 were development models. First operational wing was the 474th TFW, with deliveries beginning in October 1967. A total of 141 production F-111As was built, and this version served with distinction in SEA in 1972–73. The "A" was superseded in production by the **F-111E,** a version with modified air intakes which improve engine performance above Mach 2.2. Ninety-four were built, and most of these serve with the 20th TFW, based in the UK in support of NATO, with the remainder in the 474th TFW. The **F-111D** has more advanced avionics, offering improvements in navigation and air-to-air weapon delivery. Ninety-six were built and equip the 27th TFW. The **F-111F,** of which 106 were built for the 366th TFW, has uprated turbofans. It can carry in its weapons bay the Pave Tack system, which provides a day/night all-weather capability to acquire, track, and designate ground targets for laser, infrared, and electro-optically guided weapons. The F-111's EW capabilities are being updated, with the new ALQ-131 ECM system scheduled to enter production this year, and the ALQ-137 internal ECM repeater system planned for the F-111F. In addition, the **EF-111A,** an ECM conversion of the F-111A, is under development by Grumman as a potential replacement for USAF's EB-66s. The first of two prototypes is flying, with a further 40 conversions envisaged. Basic equipment comprises ALQ-99A jammers. The EF-111A will also be capable of locating enemy radars and directing F-4G "Wild Weasel" fighters to attack them. SAC has a strategic bomber version of the F-111, designated **FB-111A** (*see page 112*). The Royal Australian Air Force acquired 24 **F-111Cs** for strike duties.
Contractor: General Dynamics Corporation.
Power Plant: F-111A/E: two Pratt & Whitney TF30-P-3 turbofan engines; each 18,500 lb thrust with afterburning. F-111D: two TF30-P-9 turbofan engines; each 19,600 lb thrust wih afterburning. F-111F: two TF30-P-100 turbofan engines; each approx 25,100 lb thrust with afterburning.
Accommodation: crew of two, side-by-side in escape module.
Dimensions: span spread 63 ft 0 in, fully swept 31 ft 11.4 in, length 73 ft 6 in, height 17 ft 1.4 in.
Weights (F-111A): empty 46,172 lb, gross 91,500 lb.
Performance (F-111A): max speed at S/L Mach 1.2, max speed at altitude Mach 2.2, service ceiling more than 51,000 ft, range with max internal fuel more than 3,165 miles.
Armament: one 20 mm M-61A1 multibarrel cannon or two 750 lb bombs in internal weapon bay; four swivelling and four fixed wing pylons carrying total external load of up to 25,000 lb of bombs, rockets, missiles, or fuel tanks.

Attack and Observation Aircraft

A-7D Corsair II

The A-7D is a single-seat tactical fighter of outstanding target kill capacity, as demonstrated by the 354th TFW in Southeast Asia. Its accuracy is achieved with the aid of a continuous-solution navigation and weapon-delivery system, including all-weather radar bomb delivery. The first of the initial two

production aircraft, each powered by a TF30-P-8 engine, flew in April 1968, followed five months later by the first flight of the TF41-engined model. Deliveries to USAF began in December of the same year. The 354th TFW was the first operational unit equipped with A-7Ds. Deliveries have also been made since 1973 to ANG units in New Mexico, Colorado, Ohio, Pennsylvania, and South Carolina, representing the first new aircraft received by these units in more than 20 years. Production totaled 459 aircraft. In addition, several hundreds of the A-7A, B, and E versions are used by the USN, which made the first combat sorties from the USS *Ranger* in the Gulf of Tonkin on December 3, 1967.

Contractor: Vought Corporation, subsidiary of The LTV Corporation.

Power Plant: one Allison TF41-A-1 non-afterburning turbofan engine; 14,250 lb thrust.

Accommodation: pilot only.

Dimensions: span 38 ft 9 in, length 46 ft 1½ in, height 16 ft 0¾ in.

Weights: empty 19,781 lb, gross 42,000 lb.

Performance: max speed at S/L 698 mph, ferry range with external tanks 2,871 miles.

Armament: one M-61A1 20 mm multibarrel gun; up to 15,000 lb of air-to-air or air-to-surface missiles, bombs, rockets, or gun pods on 6 underwing and two fuselage attachments.

A-10

The A-10 was selected for large-scale production as USAF's new close air support aircraft after competitive fly-off with the Northrop A-9A and a comparative flight evaluation with the A-7D. Its maximum speed is modest, but it can deliver a very heavy weapon load when weather conditions include a ceiling of only 1,000 ft and visibility of one to two miles, where high-speed jets begin to lose their effectiveness. It is highly maneuverable, and is built around a massive 30 mm seven-barrel gun. Equipment includes a head-up display, laser seeker, target penetration aids, and associated equipment for Maverick and other missile systems, and the A-10 is hardened to survive in a high threat environment. Two prototypes, six preproduction, and 52 production A-10s have been fully funded to date, with a further 100 requested in the FY '77 budget. The first squadron began to form at Davis-Monthan AFB, Ariz., recently, with initial operational capability scheduled for FY '78. Total procurement of 733 aircraft is envisaged.

Contractor: Fairchild Republic Company, Division of Fairchild Industries.

Power Plant: two General Electric TF34-GE-100 turbofan engines; each approx 9,065 lb thrust.

Accommodation: pilot only.

Dimensions: span 57 ft 6 in, length 53 ft 4 in, height 14 ft 8 in.

Weight: max gross weight 46,624 lb.

Performance: combat speed at S/L, clean 449 mph, range with 9,500 lb of weapons and 2.2 hr loiter, 20 min reserve, 288 miles.

Armament: one 30 mm GAU-8/A gun; ten underwing hard points and one under fuselage for up to 16,000 lb of ordnance, including various types of free-fall or guided bombs, gun pods, or 6 AGM-65 Maverick missiles, and chaff or other jammer pods.

A-37B Dragonfly

Intended for use in armed counterinsurgency (COIN) missions from short unimproved airstrips, the A-37 was evolved from the T-37 trainer, and the first 39 production models (A-37As), with derated (2,400 lb thrust) engines were, in fact, converted T-37Bs. The A-37B, which first flew in September 1967, represents the main production version. A total of 511 A-37Bs had been delivered by February 1976, of which many served in Southeast Asia. Since 1970, USAF has been transferring A-37Bs to the Air Force Reserve and to the Air National Guard. Others have been delivered to foreign air forces, mainly in Latin America.

Contractor: Cessna Aircraft Company.

Power Plant: two General Electric J85-GE-17A turbojet engines; each 2,850 lb thrust.

Accommodation: two, side-by-side.

Dimensions: span over tip-tanks 35 ft 10½ in, length excluding fuel probe 28 ft 3¼ in, height 8 ft 10½ in.

Weights: empty 6,211 lb, gross 14,000 lb.

Performance: max level speed at 16,000 ft 507 mph, service ceiling 41,765 ft, range with max payload, including 4,100 lb ordnance, 460 miles.

Armament: one GAU-2B/A 7.62 mm Minigun installed in forward fuselage; four pylons under each wing able to carry various combinations of rockets and bombs.

AC-130A/H

Seven of these gunship conversions of the Hercules were ordered in the summer of 1967, following prototype trials at Wright-Patterson AFB, Ohio, and were used from 1970 in Vietnam. Each was fitted originally with four 20 mm Vulcan cannon, four 7.62 mm Miniguns, searchlight, and sensors, including forward-looking infrared target-acquisition equipment and low-light-level TV and laser target designators. A ninth AC-130A was produced by USAF ASD under the Surprise Package project, with two 20 mm guns replaced by 40 mm guns, a digital fire control computer, and other improvements. AC-130s are now equipped with two 40 mm cannon, two 20 mm cannon, and two 7.62 mm guns. In the AC-130H, one of the 40 mm cannon is replaced by a 105 mm howitzer. Surviving AC-130s are to be transferred to the Air Force Reserve this year.

Contractor: Greenville (Tex.) Division of E-Systems, Inc. Other data basically as for C-130 (page 118).

O-2A

Designated O-2A, this military version of the "push-and-pull" Cessna 337 Skymaster was originally selected by USAF to replace the Cessna O-1 in the forward air controller role in Vietnam in 1966. A total of 346 aircraft was ordered. Specialized equipment and electronics permit control of air strikes, visual reconnaissance, target identification and marking, ground-air coordination, and damage assessment. The O-2B version is no longer in operation.

Contractor: Cessna Aircraft Company.

Power Plant: two Continental IO-360-C/D piston engines; each 210 hp.

Accommodation: pilot and observer side-by-side; two passengers optional.

Dimensions: span 38 ft 2 in, length 29 ft 9 in, height 9 ft 2 in.

Weights: empty 2,848 lb, gross 5,400 lb.

Performance: max speed at S/L 199 mph, service ceiling 19,300 ft, range 1,060 miles.

Armament: four underwing pylons can carry light ordnance, including a 7.62 mm Minigun pack.

OV-10A Bronco

This two-seat counterinsurgency combat aircraft was first flown in August 1967; 157 were acquired by USAF for use in the forward air control role and for limited quick-response ground support pending the arrival of tactical fighters. Production of the OV-10A for the US services ended in April 1969, and 15 aircraft that had been specially modified for the night forward air control and strike designation role reverted to the original OV-10A configuration in 1974. Versions of the OV-10 are in service with the USN, US Marine Corps, and foreign air forces.

Contractor: Rockwell International Corporation, North American Aircraft Operations.

Power Plant: two AiResearch T76-G-410/411 turboprop engines; each 715 hp.

Accommodation: two in tandem.

Dimensions: span 40 ft 0 in, length 41 ft 7 in, height 15 ft 2 in.

Weights: empty 6,969 lb, overload gross weight 14,466 lb.

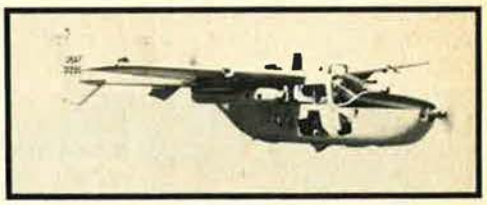
Performance: max speed at S/L, without weapons, 281 mph; service ceiling 28,800 ft; combat radius with max weapon load, no loiter, 228 miles.

Armament: four fixed forward-firing M-60C 7.62 mm machine-guns; four external weapon attachment points under short sponsons, for up to 2,400 lb of rockets, bombs, etc; fifth point, capacity 1,200 lb, under center fuselage. Provision for carrying one Sidewinder missile on each wing and, by use of a wing pylon kit, various stores, including rocket and flare pods, and free-fall ordnance. Max weapon load 3,600 lb.

A-10

A-37B Dragonfly

AC-130



O-2A

OV-10A Bronco

Reconnaissance and Special-Duty Aircraft

SR-71

U-2 HASP modification

RF-4C Phantom II

EC-121D

EC-135N

E-3A AWACS

SR-71A/C

Known unofficially as the "Blackbird," this strategic reconnaissance aircraft was developed initially as a successor to the U-2. The prototype flew for the first time in December 1964; delivery of production aircraft began in January 1966, for operation by the 9th Strategic Reconnaissance Wing at Beale AFB, Calif. At least 30 SR-71As are thought to have been built, each carrying complex equipment ranging from simple battlefield surveillance systems to multiple-sensor, high-performance systems capable of specialized surveillance of up to 60,000 sq miles of territory in one hour. Mission details are highly classified, but SR-71As and Teledyne Ryan AQM-34L RPVs are known to have been the only USAF reconnaissance aircraft permitted to overfly North Vietnam after the cessation of bombing in January 1973. Other sorties were made in the Middle East during and after the Yom Kippur war in late 1973. In September 1974, an SR-71A flew from New York to London, England, in 1 hr 54 min 56.4 sec, at an average speed of 1,806.987 mph.

The **SR-71C** is a tandem two-seat training version.

Contractor: Lockheed Aircraft Corporation.

Power Plant: two Pratt & Whitney JT11D-20B (J58) turbojet engines; each 34,000 lb thrust with afterburning.

Accommodation: crew of two in tandem.

Dimensions: span 55 ft 7 in, length 107 ft 5 in, height 18 ft 6 in.

Weights (estimated): empty 60,000 lb, gross 170,000 lb.

Performance (estimated): max speed at 78,750 ft more than Mach 3, operational ceiling above 80,000 ft, range Mach 3.0 (1,980 mph) at 78,750 ft 2,982 miles.

Armament: none.

U-2A/D

Although initial production of this type dates back to the late 1950s, several U-2s remain in service for special high-altitude reconnaissance and weather flights, with some of the weather reconnaissance aircraft redesignated **WU-2.** Essentially a powered glider with sailplane-like high aspect ratio wing and lightweight structure, the design resulted from original requirements for an aircraft capable of carrying out strategic reconnaissance for long periods at very high altitudes over Communist territory. Fifty-five are believed to have been built, including 2 prototypes, 48 single-seat **U-2A/B** versions, and 5 two-seat **U-2Ds.** The J57-P-37A turbojet of the U-2A was replaced by a more powerful J75-P-13, adapted to run on low-volatility fuel, in the U-2B. Versions such as the U-2D, U-2R, U-2CT tandem-cockpit trainer, U-2EPX (electronics patrol experimental), and HASP U-2 (high-altitude sampling program) are conversions of basic models. All have similar dimensions except for the U-2R, which is 63 ft long, with a span of 103 ft and height of 16 ft.

Contractor: Lockheed Aircraft Corporation.

Power Plant: one Pratt & Whitney J75-P-13 turbojet engine; 17,000 lb thrust, in all current models.

Dimensions: span 80 ft 0 in, length 49 ft 7 in, height 13 ft 0 in.

Weights: gross, with slipper tanks, 17,270 lb; max permissible more than 21,000 lb.

Performance: max speed at 40,000 ft 528 mph, operational ceiling about 80,000 ft, range about 4,000 miles.

RF-101

The RF-101 Voodoo was the USAF's first supersonic-daylight tactical reconnaissance aircraft. Original RF-101As and "C"s, with nose-mounted cameras, were supplemented in 1967–68 by RF-101Gs and "H"s, converted from F-101-A/C fighters, for service with the ANG. Three of the four currently operational squadrons will be deactivated during this fiscal year. Data similar to F-101B.

RF-4C

Developed to replace the RF-101 in USAF service, the RF-4C is a multisensor reconnaissance version of the F-4C Phantom II. First production model flew in May 1964. Radar and photographic systems are housed in a modified nose, increasing the overall length of the aircraft by 33 in. The three basic reconnaissance systems, operated from the rear seat, comprise side-looking radar, an infrared sensor, and forward- and side-looking cameras. Taken into ANG service in February 1972. A total of 505 aircraft had been built when production ended in December 1973. Data similar to F-4.

EC-121

Derived from the C-121 Super Constellation transport, a few versions of this early-warning, fighter-control, and reconnaissance aircraft continue in service, easily distinguished by the massive radomes above and below the fuselage. The **EC-121D** is a development of the EC-121C, with added wingtip fuel tanks, first delivered in May 1954. Under subsequent modification programs, some "D"s became **EC-121Hs,** with additional electronics to feed data into NORAD's SAGE defense system; others became **EC-121Ts,** which remain operational on radar picket duties covering the seas east of Iceland. (Data for EC-121D.)

Contractor: Lockheed Aircraft Corporation.

Power Plant: four Wright R-3350-91 piston engines; each 3,250 hp.

Dimensions: span 126 ft 2 in, length 116 ft 2 in, height 27 ft 0 in.

Weights: empty 80,611 lb, gross 143,600 lb.

Performance: max speed at 20,000 ft 321 mph, service ceiling 20,600 ft, range 4,600 miles.

Armament: none.

EC-135, etc.

Several aircraft in the KC-135 Stratotanker series were modified for specialized roles, during production or at a later date. The **EC-135C** (originally designated KC-135B) is basically similar to the KC-135A but with 18,000 lb st TF33 turbofans. It is equipped as a Flying Command Post in support of SAC's airborne alert role, and is fitted with extensive communications equipment. EC-135Cs can be refueled by SAC tankers. Fourteen were built and have been adapted to provide control of Minuteman ICBMs. At least one SAC EC-135C is airborne at all times, accommodating a flight crew of 5, a general officer, and a staff of 18. Versions of the C-135 Stratolifter series used for reconnaissance include 12 turbofan **RC-135Vs,** equipped also for electronic reconnaissance with SAC; 2 **RC-135Bs,** and 2 **RC-135Vs;** and 10 **WC-135Bs,** converted C-135Bs, are used by MAC for long-range weather reconnaissance missions. In addition, 8 **EC-135Ns** were equipped as airborne radio and telemetry stations for the Apollo program. Data basically as C-135 (page 118).

E-3A AWACS

Production of the first six E-3A AWACS (Airborne Warning and Control System) aircraft for TAC is in progress as a result of successful completion of the System Integration Demonstration (SID) in December 1974. A further six aircraft have been requested in the FY '77 budget. AWACS was conceived essentially as a mobile, flexible, survivable, and jamming-resistant surveillance and command, control and communications (C^3) system, capable of all-weather, long-range, high- or low-level surveillance of all air vehicles, manned or unmanned, above all kinds of terrain. A modified Boeing 707-320B carries an extensive complement of mission avionics, including computer, radar, IFF, communications, display and navigation systems. Two test-bed aircraft were built to allow a competitive fly-off between two competing brassboard radar systems developed by two different contractors. The winning aircraft was converted into the SID vehicle, to conduct the tests which were the basis of the production decision. Three additional RDT&E aircraft, one of which is the losing brassboard machine, will be used primarily for routine operational suitability and technical order verification testing. The unique capability of AWACS is provided by its Westinghouse Electronic Corporation look-down radar, which makes possible all-altitude surveillance over land or water, thus correcting a serious deficiency in existing surveillance systems. AWACS can support a variety of tacti-

cal and/or air defense missions with no change in configuration. It is expected to enter the TAC inventory in March 1977, and the last of 34 aircraft should be delivered in November 1981.

Contractor: The Boeing Aerospace Company.

Power Plant (production aircraft): four Pratt & Whitney TF33-P100/100A turbofan engines; each 21,000 lb thrust.

Accommodation: operational crew of 17.

Dimensions: span 130 ft 10 in, height 41 ft 4 in.

Performance: max speed 530 mph, ceiling above 29,000 ft, endurance 5 hr on station 1,150 miles from base.

E-4A/B (AABNCP)

The Advanced Airborne Command Post (AABNCP) is basically a Boeing 747, modified to serve as the National Emergency Airborne Command Post (NEACP) and Hq. Strategic Air Command airborne command post. Three **E-4As** provide an interim NEACP capability, utilizing existing EC-135 command, control and communications (C^3) equipment. The fourth aircraft will serve as a test-bed for advanced C^3 equipment now under development and is designated **E-4B.** The procurement of two additional E-4B aircraft, and retrofit of the E-4As to E-4B configuration, is planned, with further funding requested in the FY '77 budget.

Contractor: The Boeing Aerospace Company.

Power Plant: four General Electric F103-GE-100 turbofan engines; each 52,500 lb thrust. Aircraft No. 1 and 2 were delivered with Pratt & Whitney JT9D-7AW engines and will be retrofitted with F103-GE-100 engines at a later date.

Dimensions: span 195 ft 8 in, length 231 ft 4 in, height 63 ft 5 in.

Weight (E-4A): gross 778,000 lb.

Performance: unrefueled endurance 12 hours.

EB-57

Both single-seat and two-seat versions of the EB-57 are operated by the 17th Defense Systems Evaluation Squadron (DSES) of ADCOM at Malmstrom AFB, Mont. Equipped with the latest devices for jamming and penetrating air defenses, their task is to simulate an enemy bomber force, and attempt to find gaps in air defense systems by day or night, at variable altitudes and from any point of the compass.

Contractor: The Martin Company.

Power Plant: two Wright J65-W-5F turbojet engines; each 7,200 lb thrust.

Dimensions: span 64 ft 0 in, length 65 ft 5 in, height 15 ft 6 in.

Performance: max speed more than 500 mph, ceiling above 45,000 ft, range more than 1,800 miles.

WC-130B/E/H

Nineteen modified C-130 Hercules transports, designated WC-130B, E, and H, are equipped for weather reconnaissance duties, including penetration of tropical storms to obtain data for forecasting of storm movements. All are assigned to the 41st Rescue and Weather Reconnaissance Wing of MAC's Aerospace Rescue and Recovery Service. Data similar to C-130.

E-4A AABNCP

EB-57

WC-130B

Transports and Tankers

C-5 Galaxy

Currently the largest aircraft in service anywhere in the world, the C-5 first flew in June 1968, after five years of design and development study. Deliveries to MAC began in December 1969, and the last of the 81 aircraft ordered for USAF was accepted in May 1973. In service, loads such as two M-48 tanks, each weighing 99,000 lb, or three CH-47 Chinook helicopters, have been airlifted over transoceanic ranges. The 70 aircraft in first-line service are capable of in-flight refueling. USAF is requesting funds that would permit flight testing by 1980 of a wing modification kit to extend the C-5s' service life.

Contractor: Lockheed-Georgia Company.

Power Plant: four General Electric TF39-GE-1 turbofan engines; each 41,000 lb thrust.

Accommodation: crew of five, rest area for 15 (relief crew, etc.); 73 troops and 36 standard 463L pallets or assorted vehicles, or additional 270 troops.

Dimensions: span 222 ft 9 in, length 247 ft 10 in, height 65 ft 1 in.

Weights: empty 323,000 lb, gross (for 2.25 *g*) 764,500 lb.

Performance: max speed at 25,000 ft 571 mph, service ceiling (at 615,000 lb) 34,000 ft, range with max fuel 5,350 miles.

C-7A Caribou

Built in Canada, the prototype of this twin-engine STOL utility transport flew in July 1958. The US Army was the principal customer and in January 1967 still had 134 C-7As in service, all of which were transferred to USAF. Their ability to operate from short, unprepared runways in all weather conditions led to the widespread use of the C-7As in Southeast Asia. All have since been transferred to the AFRES and ANG.

Contractor: de Havilland Aircraft of Canada Ltd.

Power Plant: two Pratt & Whitney R-2000-7M2 piston engines; each 1,450 hp.

Accommodation: crew of two or three; 31 troops, 25 paratroops, or 14 litters and 9 other persons.

Dimensions: span 95 ft 7½ in, length 72 ft 7 in, height 31 ft 9 in.

Weights: empty 18,335 lb, gross 28,500 lb.

Performance: max speed at 6,000 ft 216 mph, service ceiling 27,100 ft, range 200 to 1,175 miles.

C-9A Nightingale

Utilized by USAF aeromedical evacuation operations, the C-9A is essentially an off-the-shelf DC-9 Series 30 commercial transport, modified to include a special-care compartment with separate atmospheric and ventilation controls. The first of 21 was delivered in August 1968 to MAC's 375th Aeromedical Airlift Wing; orders were completed by February 1973. The Nightingale is also currently performing overseas theater aeromedical evacuation missions in Europe and the Pacific.

Contractor: Douglas Aircraft Company, Division of McDonnell Douglas Corporation.

Power Plant: two Pratt & Whitney JT8D-9 turbofan engines; each 14,500 lb thrust.

Accommodation: crew of two; 30 to 40 litter patients, more than 40 ambulatory patients, or a combination of both, plus five medical staff.

Dimensions: span 93 ft 5 in, length 119 ft 3½ in, height 27 ft 6 in.

Weight: gross 108,000 lb.

Performance: max cruising speed at 25,000 ft 565 mph, ceiling 35,000 ft, range more than 2,000 miles.

KC-97L

Eight air refueling groups and wings of the Air National Guard (ANG) continue to fly KC-97Ls. These aircraft were built between 1953 and 1956 as KC-97G tankers. When replaced with KC-135As, they were modified to KC-97L standard by the addition of J47-GE-25A jet pods before being handed over to the ANG for operation as tankers for TAC fighters.

Contractor: The Boeing Airplane Company.

Power Plant: four Pratt & Whitney R-4360-59 piston engines; each 3,500 hp. Two General Electric J47-GE-25A auxiliary turbojets; each 5,200 lb thrust.

Dimensions: span 141 ft 3 in, length 110 ft 4 in, height 38 ft 3 in.

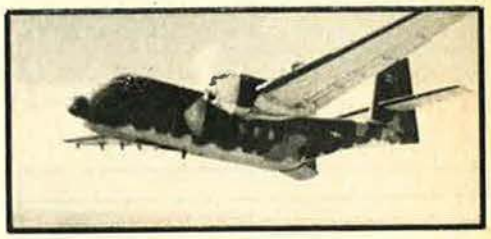
Weights (KC-97G): empty 82,500 lb, gross 175,000 lb.

Performance (KC-97G): max speed at 25,000 ft 375 mph, service ceiling 35,000 ft, range at 297 mph 4,300 miles.

C-123 Provider

One modified version of the basic C-123B, which entered service in 1955 as a troop and supply transport, is still in the USAF inventory. The **C-123K,** which first flew in 1966, features two underwing pylon-mounted auxiliary turbojets, improved landing gear, and a new stall warning system. This version was widely used during the Vietnam War for transport and special duties. The Air Force Reserve has three C-123K squadrons and one UC-123K aerial spray

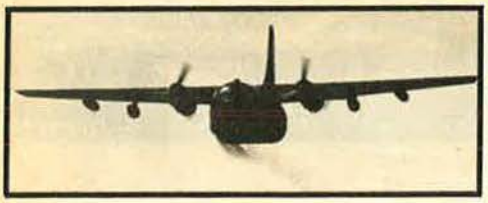
C-5 Galaxy



C-7A Caribou

C-9A Nightingale

KC-97L



C-123K Provider

HC-130

C-131B Samaritan

KC-135 Stratotanker

C-135 Stratolifter

VC-137C

squadron. (Data for C-123K.)

Contractor: The Fairchild Engine and Airplane Corporation.

Power Plant: two Pratt & Whitney R-2800-99W piston engines; each 2,500 hp; and two General Electric J85-GE-17 turbojet engines; each 2,850 lb thrust.

Accommodation: crew of three; 58 troops, 50 litters, or 21,000 lb of cargo.

Dimensions: span 110 ft 0 in, length 76 ft 4 in, height 34 ft 6 in.

Weights: empty 35,366 lb, gross 60,000 lb.

Performance: max speed at 10,000 ft 228 mph, service ceiling above 25,000 ft, range with 15,000 lb payload 1,035 miles.

C-130 Hercules

Many versions of the Hercules transport have entered USAF service since the specification on which the type is based was issued by TAC in 1951. The initial production model was the **C-130A,** first flown in April 1955, powered by 3,750 ehp Allison T56-A-11 or -9 turboprops; 219 were ordered, with deliveries beginning in December 1956. Two special variants, **DC-130As** (originally GC-130As), were built as drone launchers/directors for ARDC (now AFSC), carrying up to four drones on underwing pylons. All special equipment was removable, permitting the aircraft to be used as freighters, assault transports, or ambulances, as required. The **C-130B** was a developed version with improved range and higher weights, powered by 4,050 ehp Allison T56-A-7 turboprops; the first of 134 entered USAF service in April 1959. Twelve **C-130Ds** were modified C-130As for use in the Arctic, with wheel-ski landing gear, increased fuel capacity, and provision for JATO. The **C-130E** is an extended-range development of the C-130B, with larger underwing fuel tanks; 389 were ordered for MAC and TAC with deliveries beginning in April 1962. Basically similar to the "E," the **C-130H** has uprated T56-A-15 turboprop engines, a redesigned outer wing, and other minor improvements; delivery began in April 1975. Approximately 234 C-130s are currently active in USAF airlift squadrons. Variants include **HC-130H** for the Aerospace Rescue and Recovery Service, **RC-130B/S** aerial survey and reconnaissance versions, and the **AC-130A/H** and WC-130B/E/H described separately. (Data for C-130H.)

Contractor: Lockheed-Georgia Company.

Power Plant: four Allison T56-A-15 turboprop engines; each 4,508 ehp.

Accommodation: crew of five; up to 92 troops or 6 standard freight pallets, etc.

Dimensions: span 132 ft 7 in, length 97 ft 9 in, height 38 ft 3 in.

Weights: empty 75,331 lb, gross 175,000 lb.

Performance: max speed 386 mph, service ceiling at 130,000 lb AUW 33,000 ft, range with max payload 2,487 miles.

HC-130

An extended-range version of the C-130, the **HC-130H** was first ordered in 1963 for the Aerospace Rescue and Recovery Service. A total of 66 was built with 4,910 ehp (limited to 4,500 ehp) Allison T56-A-15 turboprop engines. Initial flight was made in December 1964. Crew comprises 10 to 12 members. Four modified as **JHC-130H** with added equipment for aerial recovery of reentering space capsules. Under a USAF contract dated December 1974, another aircraft has been modified by LAS to **DC-130H** standard, with four pylons, each capable of carrying a 10,000 lb new-generation RPV. The **HC-130N** is a further search and rescue version for the recovery of aircrew and retrieval of space capsules after reentry, using advanced direction-finding equipment, and for refueling helicopters in flight; 15 ordered in 1969. Twenty HC-130Hs have been modified into **HC-130Ps,** also capable of refueling helicopters in flight and of retrieving parachute-borne payloads in mid-air. Other data similar to C-130 above, except length, which is 98 ft 9 in with recovery system folded.

JC-130B

Delivery was made in 1961 of six modified C-130Bs to replace the C-119s of the 6593d Test Squadron at Hickam AFB, Hawaii. Designated **JC-130B,** these aircraft are equipped for air-snatch recovery of classified USAF satellites. Data similar to C-130.

C-131 Samaritan

Derived from the Convair 240, 26 **C-131As** were delivered to MATS (now MAC) in 1954 for air-evacuation duties; each could accommodate 37 passengers, 27 litters, or a combination of both, in a pressurized cabin. For testing electronic equipment, USAF acquired 36 **C-131Bs,** based on the Convair 340, which could, additionally, carry 48 passengers. Also developed from the Model 340 and the Model 440, with improved soundproofing, were the 44-passenger **C-131D** and **VC-131D,** 33 of which were delivered. In 1956–57, 15 **C-131Es** were built for use as ECM trainers by SAC, but 7 were later converted to RC-131s for use by MAC. (Data for C-131B.)

Contractor: Convair Division of General Dynamics Corporation.

Power Plant: two Pratt & Whitney R-2800-99W piston engines; each 2,500 hp.

Accommodation: crew of four and 48 passengers.

Dimensions: span 105 ft 4 in, length 79 ft 2 in, height 28 ft 2 in.

Weights: empty 29,248 lb, gross 47,000 lb.

Performance: max speed 293 mph, service ceiling 24,500 ft, max range 2,000 miles.

KC-135 Stratotanker

Developed from the Model 367-80 (prototype for the 707 series), the **KC-135A** can be used either as a standard flight refueling tanker for SAC bombers, tactical fighters, and transports, with high-speed and high-altitude capabilities, or as a long-range passenger and/or cargo transport. A total of 732 were built, of which the first flew in August 1956; 615 remain operational. Variants include the **KC-135Q,** adapted to refuel Lockheed SR-71s; and **KC-135R** and **KC-135T** for special reconnaissance. (Data for KC-135A).

Contractor: The Boeing Company.

Power Plant: four Pratt & Whitney J57-P-59W turbojet engines; each 13,750 lb thrust.

Accommodation: crew of four or five; up to 80 passengers.

Dimensions: span 130 ft 10 in, length 136 ft 3 in, height 38 ft 4 in.

Weights: empty 98,466 lb, gross 297,000 lb.

Performance: max speed at 30,000 ft 585 mph, service ceiling 50,000 ft, range with 120,000 lb of transfer fuel 1,150 miles, ferry mission 9,200 miles.

C-135 Stratolifter

Pending delivery of the C-141, MATS (now MAC) ordered the C-135 to serve as an interim Jet passenger/cargo transport. Derived from the KC-135A, the Stratolifter version differed primarily in having had the tanker's refueling equipment deleted; minor internal changes adapted the cabin for personnel transport, with other modifications to facilitate cargo handling. The first of three converted KC-135As, known as **C-135A** "Falsies," flew in May 1961. The 15 genuine production C-135As, with J57-P-59W turbojets, could be identified by their taller fin and rudder, as standardized for commercial 707s. Thirty **C-135Bs** followed, powered by Pratt & Whitney TF33-P-5 turbofans, and first flew in February 1962. Eleven "B"s were subsequently converted to **VC-135Bs** with revised interior for VIP transportation; others became **WC-135B** and **RC-135E/M.** Data similar to KC-135, except:

Dimensions: length 134 ft 6 in.

Weights (C-135B): operating weight empty 102,300 lb, gross 275,500 lb.

Accommodation: 126 troops; 44 litters and 54 sitting casualties; or 87,100 lb of cargo.

Performance (C-135B); max speed 600 mph, range with 54,000 lb payload 4,625 miles.

VC-137

Best known of the modified Boeing 707 transports acquired by USAF for VIP duties is "Air Force One," a **VC-137C** operated by MAC's 89th Military Airlift Wing from Andrews AFB, Md., for use by the President. It is basically a 707-320B with a special VIP interior for a crew of seven or eight and 49 passengers. A second VC-137C also serves with the 89th Wing, together with three smaller 707-120s, originally designated VC-137As but later modified to **VC-137B** standard by the installation of turbofan engines.

Contractor: The Boeing Company.

Power Plant: four Pratt & Whitney JT3D-3 turbofan engines; each 18,000 lb thrust.

Dimensions: VC-137B span 130 ft 10 in, length 144 ft 6 in, height 42 ft 0 in; VC-137C span 145 ft 9 in, length 152 ft 11 in, height 42 ft 5 in.

Weights: VC-137B gross 258,000 lb; VC-137C

gross 322,000 lb.
Performance (VC-137C): max speed 627 mph, service ceiling 42,000 ft, range about 7,000 miles.

C-140 JetStar

Five **C-140As** are used by Air Force Communications Service (AFCS) for inspecting worldwide military navigation aids. Eleven transport versions, **VC-140Bs,** are in service with the 89th Military Airlift Wing (Special Missions) of MAC, operating from Andrews AFB, Md. Deliveries began in late 1961.
Contractor: Lockheed-Georgia Company.
Power Plant: four Pratt & Whitney J60-P-5A turbojet engines; each 3,000 lb thrust.
Accommodation: C-140A crew of five; VC-140B crew of three and 8 or 13 passengers.
Dimensions: span 54 ft 5 in, length 60 ft 5 in, height 20 ft 5 in.
Weight: gross 40,920 lb.
Performance: max cruising speed at 20,000 ft 550 mph, ceiling above 45,000 ft, range with reserves 2,280 miles.

C-141 StarLifter

Initiated as the flying element of Logistics Support System 463L, with an all-weather landing system standard, the C-141 began squadron operations with MAC in April 1965 and was soon making virtually daily flights to Southeast Asia. A total of 284 aircraft was built, some of which were modified to carry Minuteman ICBMs, with local structure strengthening to accommodate this 86,207 lb load. To utilize more fully the capability of the C-141, of which 234 serve with active USAF airlift squadrons, USAF is investigating the practicality of lengthening the fuselage by 23 ft 4 in, so increasing usable payload by 30%. The prototype conversion will provide several options, including flight refueling capability, upon which USAF will decide whether or not to seek funds to modify its entire fleet of C-141s.
Contractor: Lockheed-Georgia Company.
Power Plant: four Pratt & Whitney TF33-P-7 turbofan engines; each 21,000 lb thrust.
Accommodation: crew of four: 154 troops; 122 paratroops; or 64,000 lb of freight.
Dimensions: span 159 ft 11 in, length 145 ft 0 in, height 39 ft 3 in.
Weights: empty 136,000 lb, gross 323,100 lb.
Performance: max speed at 25,000 ft 571 mph, service ceiling 41,600 ft, range with max fuel 4,750 miles.

AMST (YC-14 and YC-15)

Contracts were awarded to Boeing and McDonnell Douglas in November 1972 to develop their proposals for an advanced medium STOL transport (AMST), which might eventually replace the C-130 Hercules in USAF service, with each company building two prototypes to compete in a prototype fly-off competition. Basically, both aircraft use a supercritical unswept high-wing T-tail airframe, with rear-loading ramp, and fuselage-side fairings to house the main-wheel bogies when retracted. The fuselage diameter is considerably greater than that of the C-130 to accommodate most essential Army divisional combat equipment. The aircraft will be capable of airlifting 27,000 lb payloads into and out of 2,000 ft unprepared dirt runways (S/L 103°F) at a 400 nautical mile radius. In conventional operation, the aircraft will transport 65,000 lb. Ferry range for the production AMST will be in excess of 3,500 nautical miles.

Boeing YC-14

The Boeing design uses upper surface blowing and inboard Coanda flaps to achieve the propulsive lift necessary for STOL performance. This requires a highly unconventional power plant installation. Two General Electric CF6-50D engines, each approx 50,000 lb thrust, are mounted close to the fuselage, above and forward of the wing. Benefits resulting from this layout include the presentation of low infrared signature to ground-based detectors; an uncluttered underwing surface, simplifying the carriage of external stores, including RPVs; and a reduced noise footprint. Maximum gross weight is estimated at 169,500 lb for STOL operation or 249,000 lb for conventional operation. First flight is scheduled for the middle of this year.
Dimensions: span 129 ft 0 in, length 131 ft 8 in, height 48 ft 2 in.

McDonnell Douglas YC-15

The McDonnell Douglas AMST is more conventional in configuration. It has triple inboard spoilers/airbrakes, and externally blown flaps to achieve propulsive lift. The first YC-15 prototype flew in August 1975, followed by the second aircraft in December. The prototypes are powered by four Pratt & Whitney JT8D-17 turbofans, each of 16,000 lb thrust. Maximum gross weight is estimated at 219,000 lb.
Dimensions: span 110 ft 4 in, length 124 ft 0 in, height 43 ft 4 in.
Performance: max level speed 535 mph.


C-140 JetStar


C-141 StarLifter

Artist's concept of YC-14


YC-15

Trainers

T-33A

Although replaced as USAF's standard jet advanced trainer by the T-38, this version of the Shooting Star jet fighter is still widely used for combat support missions, and for proficiency and radar target evaluation training. A lengthened fuselage accommodates a second cockpit in tandem, with the canopy extended to cover both; the armament of the fighter was replaced by an all-weather "navigational nose." Production ended in August 1959, with deliveries to USAF having totaled more than 4,000. More than 300 remain in service with regular and ANG units.
Contractor: Lockheed Aircraft Corporation.
Power Plant: one Allison J33-A-35 turbojet engine; 4,600 lb thrust.
Accommodation: crew of two, in tandem.
Dimensions: span 38 ft 10½ in, length 37 ft 9 in, height 11 ft 4 in.
Weights: empty 8,084 lb, gross 11,965 lb.
Performance: max speed at 25,000 ft 543 mph, service ceiling 47,500 ft.
Armament: two 0.50 caliber machine-guns on some early aircraft only.

T-37B

The original T-37A version of this two-seat primary trainer was the first USAF jet trainer designed as such from the start. From November 1959, deliveries switched to the T-37B, and all "A" models were subsequently converted to "B" standard. USAF uses its T-37Bs for Undergraduate Pilot Training (UPT), and 743 are currently in service with Air Training Command. Well over a thousand T-37s have been built, and versions are used by many foreign countries for their pilot training programs, as well as for military surveillance and low-level attack duties. (Data for T-37B.)
Contractor: Cessna Aircraft Company.
Power Plant: two Continental J69-T-25 turbojet engines; each 1,025 lb thrust.
Accommodation: two, side-by-side.
Dimensions: span 33 ft 9.3 in, length 29 ft 3 in, height 9 ft 2.3 in.
Weights: empty, 3,870 lb, gross 6,600 lb.
Performance: max speed at 20,000 ft 425 mph, service ceiling 35,100 ft, range at 360 mph, standard tankage 870 miles.

T-38 Talon

This lightweight twin-jet advanced trainer, which was in continuous production from 1956 to 1972, has maintained constantly the best safety record of any USAF supersonic aircraft. Like the F-5 tactical fighter, the Talon was derived from Northrop's private-venture N-156 design and is almost identical in structure to the F-5. The first T-38 flew in April 1959, and production models entered operational service in March 1961. More than 1,100 of the total 1,187 T-38s built were delivered to USAF; 856 are currently in service with ATC.
Contractor: Northrop Corporation.
Power Plant: two General Electric J85-GE-5 turbojet engines; each 2,680 lb thrust dry, 3,850 lb thrust with afterburning.
Accommodation: student and instructor, in tandem.
Dimensions: span 25 ft 3 in, length 46 ft 4½

T-33A


T-37B

T-38 Talon

T-39 Sabreliner

T-41A Mescalero

T-43A

HH-1H

UH-1N

CH-3E

in, height 12 ft 10½ in.
Weights: empty 7,164 lb, gross 12,093 lb.
Performance: max level speed at 36,000 ft more than Mach 1.23 (812 mph), ceiling above 55,000 ft, range, with reserves, 1,093 miles.

T-39 Sabreliner

Built as a private venture to meet USAF requirements for a combat-readiness trainer and utility aircraft, the prototype Sabreliner made its first flight in September 1958, powered by two General Electric J85 turbojets. Subsequent production models utilized by USAF are T-39B basic utility trainers with J60 turbojet engines, of which 143 were delivered for service throughout the Air Force. Of the remaining T-39s, 105 are assigned to MAC as single manager for continuation pilot training and administrative airlift.
Contractor: Sabreliner Division of Rockwell International Corporation.
Power Plant: two Pratt & Whitney J60-P-3 turbojet engines; each 3,000 lb thrust.
Accommodation: crew of two; 4 to 7 passengers.
Dimensions: span 44 ft 5 in, length 43 ft 9 in, height 16 ft 0 in.
Weights: empty 9,300 lb, gross 17,760 lb.
Performance: max speed at 36,000 ft 595 mph, service ceiling 39,000 ft, range 1,950 miles.

T-41A Mescalero

USAF pilot candidates undergo a flight screening program with about 14 hours in a standard Cessna Model 172 light aircraft, bought by USAF as a trainer under the designation **T-41A.** An initial order for 170 aircraft in 1964 was supplemented by a further 34 in July 1967. In October the same year, 45 **T-41Cs,** a more powerful version of the Model 172, were ordered for cadet flight training at the USAF Academy. (Data for the T-41A.)
Contractor: Cessna Aircraft Company.
Power Plant: one Continental O-300-C piston engine; 145 hp.
Accommodation: crew of two, side-by-side.
Dimensions: span 35 ft 10 in, length 26 ft 11 in, height 8 ft 9½ in.
Weights: empty 1,285 lb, gross 2,300 lb.
Performance: max speed at S/L 139 mph, service ceiling 13,100 ft, range 720 miles.

T-43A

The first of these navigation trainers, selected by USAF to replace the piston-engine T-29, made its initial flight on April 10, 1973. Basically a military version of the commercial Boeing Model 737-200, the T-43A is equipped with the same on-board avionics as the most advanced USAF operational aircraft, including celestial, radar, and inertial navigation systems, LORAN, and other radio systems. Deliveries of the 19 aircraft ordered by USAF were completed in July 1974.
Contractor: The Boeing Aerospace Company.
Power Plant: two Pratt & Whitney JT8D-9 turbofan engines; each 14,500 lb thrust.
Accommodation: crew of two; 12 students, 4 advanced students, and 3 instructors.
Dimensions: span 93 ft 0 in, length 100 ft 0 in, height 37 ft 0 in.
Weight: gross 115,500 lb.
Performance: econ cruising speed at 35,000 ft Mach 0.7, operational range 2,995 miles.

Helicopters

UH-1F and HH-1H

Used for missile site support duties, 146 **UH-1Fs** were built for USAF between 1963 and 1967 following success in a design competition. Developed from the basic Bell Model 204 design, this version first flew in February 1964; deliveries began to the 4486th Test Squadron in September of the same year. A few UH-1Fs were modified to **UH-1Ps** for classified psychological warfare missions in Vietnam. **TH-1F** is a version of the UH-1F used for instrument and hoist training. Production of these versions has been completed, but in November 1970 USAF placed an initial order for 30 **HH-1Hs,** a larger 12- to 15-seat helicopter based on the Model 205, to replace the HH-43 for local base rescue duties. Deliveries, begun in 1972, are complete. (Data for UH-1F.)
Contractor: Bell Helicopter Textron.
Power Plant: one General Electric T58-GE-3 turboshaft engine; 1,272 shp (derated to 1,100 shp).
Accommodation: one pilot and 10 passengers; or two crew and 2,000 lb of cargo.
Dimensions: rotor diameter 48 ft 0 in, length of fuselage 39 ft 7½ in, height 14 ft 8 in.
Weight: gross 9,000 lb.
Performance: max speed 138 mph, service ceiling at mission gross weight 13,450 ft, max range, no allowances, at mission gross weight 347 miles.

UH-1N

Developed originally to meet a Canadian government requirement, the UH-1N is a twin-engine version of the UH-1 utility helicopter capable of sustained cruising flight on one engine. Initial orders on behalf of the US services, placed simultaneously with Canadian orders in 1969, included 79 for USAF. Deliveries began in the following year, and UH-1Ns have now replaced all USAF HH-43F Huskies.
Contractor: Bell Helicopter Textron.
Power Plant: Pratt & Whitney (Canada) T400-CP-400 Turbo "Twin-Pac," consisting of two PT6 turboshaft engines coupled to a combining gearbox with a single output shaft; flat-rated to 1,250 shp.
Accommodation: pilot and 14 passengers or cargo; or external load of 3,383 lb.
Dimensions: rotor diameter (with tracking tips) 48 ft 2¼ in, length of fuselage 42 ft 4¾ in, height 14 ft 4¾ in.
Weight: gross 10,500 lb.
Performance: max speed at S/L 126 mph, service ceiling 15,000 ft, max range, no reserves, 248 miles.
Armament (optional): two General Electric 7.62 mm Miniguns or two 40 mm grenade launchers; two seven-tube 2.75 in rocket launchers.

CH-3E

Important design changes incorporated in this twin-engine amphibious transport helicopter, based on the US Navy's SH-3A, permit speedier cargo handling and ease of maintenance, with built-in equipment for the removal and replacement of all major components in remote areas. The initial version was the CH-3C, of which 41 were built for USAF. Introduction of uprated engines led to the new designation CH-3E in February 1966, applicable to both new production aircraft and the 41 re-engined CH-3Cs. A total of 83 new and uprated aircraft was produced, of which 50 were adapted as HH-3Es *(see below).*
Contractor: Sikorsky Aircraft, Division of United Technologies Corporation.
Power Plant: two General Electric T58-GE-5 turboshaft engines; each 1,500 shp.
Accommodation: crew of two or three; 25 or 30 fully equipped troops, 15 litters, or 5,000 lb of cargo.
Dimensions: rotor diameter 62 ft 0 in, length of fuselage 57 ft 3 in, height 18 ft 1 in.
Weights: empty 13,255 lb, gross 22,050 lb.
Performance: max speed at S/L 162 mph, service ceiling 11,100 ft, max range, with 10% reserve, 465 miles.
Armament: General Electric 7.62 mm machine gun.

HH-3E Jolly Green Giant

Variant of the CH-3E for USAF's Aerospace Rescue and Recovery Service, developed originally to facilitate penetration deep into North Vietnam on rescue missions. Additional equipment includes self-sealing fuel tanks, armor, defensive armament, a rescue hoist, and a retractable flight refueling probe. Some HH-3Es are modifications of CH-3Cs. An unarmed version (HH-3F) is used by the US Coast Guard. Other data basically similar to CH-3E above.

HH-53B

Ordered in September 1966 for USAF's Aerospace Rescue and Recovery Service to supplement the HH-3E, this twin-turbine heavy-lift helicopter carries the same general equipment as the Jolly Green Giant, including the flight refueling probe and all-weather avionics and armament, but is faster and larger. The first

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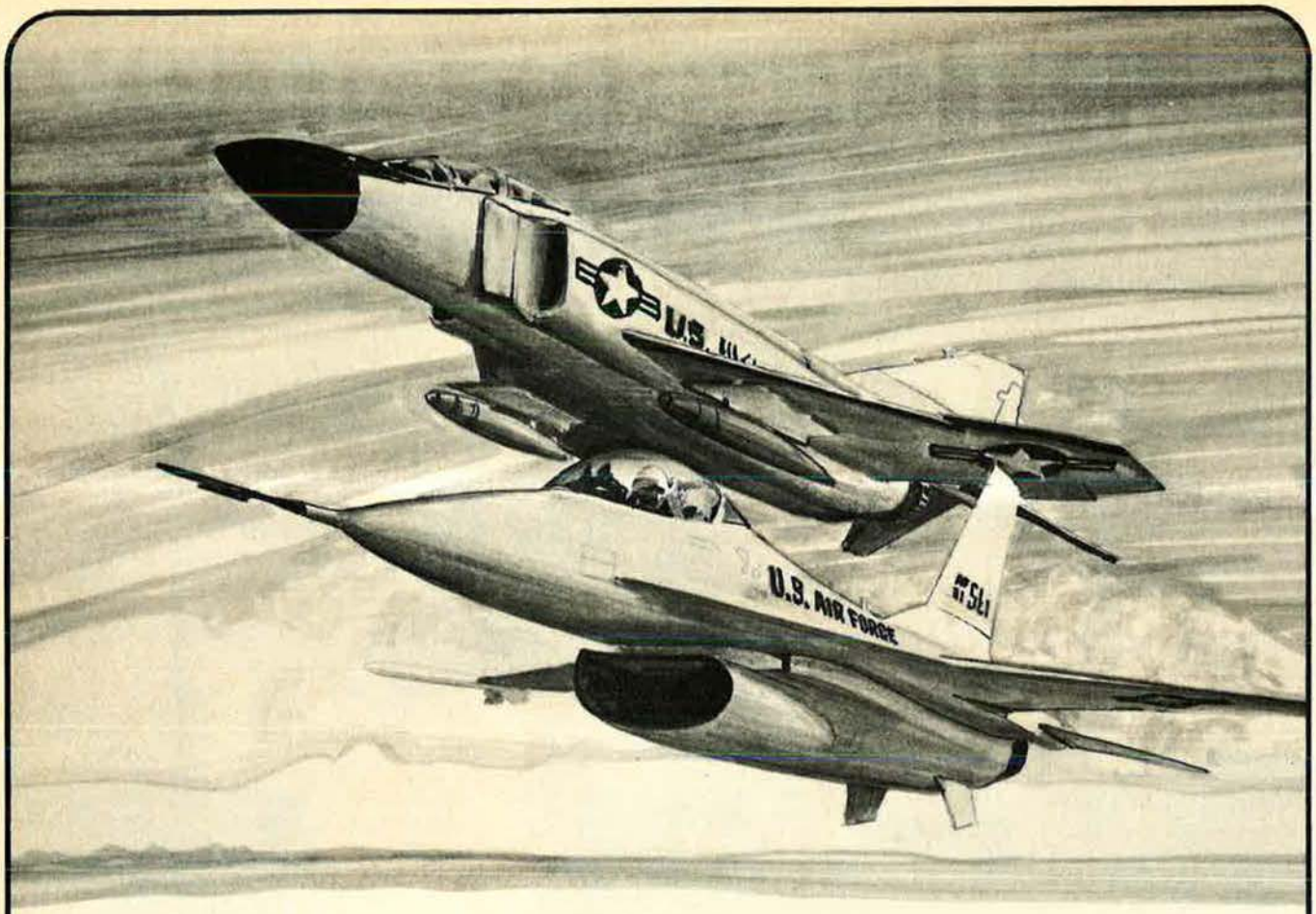

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of eight HH-53Bs flew in March 1967, and, following delivery, which began in June the same year, the type was used extensively for rescue operations in Southeast Asia.

Contractor: Sikorsky Aircraft, Division of United Technologies Corporation.

Power Plant: two General Electric T64-GE-3 turboshaft engines; each 3,080 shp.

Accommodation: crew of three; basic accommodation for 38 combat-equipped troops or 24 litters and 4 attendants.

Dimensions: rotor diameter 72 ft 3 in, length of fuselage (without refueling probe) 67 ft 2 in, height 24 ft 11 in.

Weights: empty 23,125 lb, gross 42,000 lb.

Performance: max speed at S/L 186 mph, service ceiling 18,400 ft, max range, with 10% reserve, 540 miles.

HH-53C and CH-53C

The **HH-53C** is an improved version of the HH-53B, powered by 3,435 shp T64-GE-7 turboshaft engines. It was first delivered to USAF in August 1968. With a maximum speed of 196 mph, the **HH-53C** is faster than the "B" model; it can transport 60 passengers or 18,500 lb of freight and has an external cargo hook of 20,000 lb capacity. Other data basically as for HH-53B above. A total of 66 HH-53B/Cs was built, and funding for four more "C"s is requested in the FY '77 budget. A similar version, the **CH-53C**, is used to provide battlefield mobility for the Air Force mobile Tactical Air Control System.

HH-3E Jolly Green Giant

HH-53B

HH-53C

Strategic Missiles

LGM-25C Titan II

In service since 1963, this two-stage ICBM is deployed in six squadrons, each with nine missiles, based at Davis-Monthan AFB, Ariz.; McConnell AFB, Kan.; and Little Rock AFB, Ark. Titan II is fitted with a thermonuclear warhead having the largest yield of any carried by a US missile and has a launch reaction time of one minute from its fully hardened underground silo. During flight, the second stage shuts down once a speed of 17,000 mph is attained; vernier nozzles then adjust the velocity and correct the trajectory for the proper ballistic delivery of the ablative-type reentry vehicle, which finally separates from the burnt-out second stage. Advanced penetration aids are carried to hinder detection and destruction by enemy ABMs.

Contractor: Martin Marietta Corporation.

Power Plant: first stage: Aerojet-General LR87 storable liquid-propellant engine; 430,000 lb thrust; second stage: Aerojet-General LR91 storable liquid-propellant engine; 100,000 lb thrust.

Guidance: AC Electronics inertial guidance system.

Warhead: thermonuclear, in General Electric Mk 6 ablative reentry vehicle.

Dimensions: length 103 ft 0 in, max body diameter 10 ft 0 in.

Weight: launch weight 330,000 lb.

Performance: max speed 17,000 mph (approx), max range 6,300 miles.

LGM-30F/G Minuteman

Of similar range, though smaller and lighter in weight than the liquid-propellant Titan, this three-stage solid-propellant second-generation missile was designed to supersede earlier ICBMs and has a smaller payload. The current operational versions are:

LGM-30F Minuteman II: similar in configuration to the original Minuteman I, Minuteman II has increased range and targeting coverage; also increased accuracy and payload capacity. Operational since 1965, it is currently based at Wings I, II, and IV.

LGM-30G Minuteman III: with MIRV capability, this version increases the possibility of penetrating enemy defense systems. First highly successful test launch was made in 1968, and Minuteman III is now operational in Wings III, V, and VI.

With the Minuteman force now made up of the planned 450 Minuteman IIs and 550 Minuteman IIIs, FY '77 funding is for force modernization and R&D. Current efforts involve development of the Mk 12A reentry vehicle, which increases the yield of the Minuteman III warhead, and refinements to improve accuracy. The technology necessary to increase the number of warheads on Minuteman III has been tested, and studies of terminally guided maneuvering reentry vehicles (MARV) are continuing.

Assembly and Integration: The Boeing Aerospace Company.

Power Plant: first stage: Thiokol M-55E solid-propellant motor; 200,000 lb thrust; second stage: Aerojet-General SR19-AJ-1 solid-propellant motor; 60,600 lb thrust; third stage: LGM-30F Hercules, Inc., solid-propellant motor; LGM-30G Aerojet-General SR73-AJ-1 solid-propellant motor; 34,000 lb thrust.

Guidance: Autonetics Division of Rockwell International inertial guidance system.

Warhead: LGM-30F single thermonuclear warhead in Avco reentry vehicle; LGM-30G multiple thermonuclear warheads, each in a General Electric Mk 12 reentry vehicle.

Dimensions: length 59 ft 10 in, diameter of first stage 5 ft 6 in.

Weights: launch weight (approx) LGM-30F 70,000 lb; LGM-30G 76,000 lb.

Performance: speed at burn-out more than 15,000 mph, highest point of trajectory approx 700 miles, range with max operational load LGM-30F more than 6,000 miles; LGM-30G more than 7,000 miles.

AGM-28B Hound Dog

Developed to arm B-52G and "H" aircraft, this long-range air-to-surface strategic standoff missile was first launched in 1959 and entered service in 1961 under the original designation GAM-77A. Each aircraft carries two Hound Dogs, one beneath each wing on pylons that contain the astro-tracking system and launching equipment.

Capable of high- or low-level attack, of changing course or altitude, and of making dogleg or feint runs, all of the several hundred Hound Dogs still operational are of the AGM-28B version.

Contractor: North American Aviation, Inc.

Power Plant: Pratt & Whitney J52-P-3 turbojet; 7,500 lb thrust.

Guidance: North American Autonetics inertial guidance system, supplemented by a star-tracking system produced by Kollsman Instrument Company.

Warhead: thermonuclear.

Dimensions: length 42 ft 6 in, body diameter 2 ft 4½ in, wing span 12 ft 2 in.

Weight: launch weight 9,600 lb.

Performance: cruising speed Mach 2, max range 600 miles.

AGM-69A SRAM

Delivery of the 1,500 SRAMs (Short Range Attack Missiles) ordered to equip 17 B-52 wings and two FB-111 wings at 18 SAC bases was completed in 1975. Funding requested in the FY '77 budget is intended to procure additional SRAMs for B-1 bombers, and to finance development and manufacture of a new motor for the missile. The supersonic air-to-surface SRAM, which has a nuclear warhead, was designed fundamentally to attack and neutralize enemy terminal defenses, such as SAM missile sites. An inertial guidance system makes the missile impossible to jam; its radar signature is said to be no larger than that of a machine-gun bullet. Each SAC B-52G/H can carry 20 SRAMs, twelve in three-round underwing clusters and eight on a rotary dispenser in the aft bomb-bay, together with up to four Mk 28 thermonuclear weapons. Alternatively, the rotary launcher can be carried simultaneously with two underwing AGM-28B Hound Dogs and decoy missiles. An FB-111A can carry four SRAMs on swiveling underwing pylons and two internally. When carried externally, a tailcone, 22.2 in long, is added to the missile for aerodynamic reasons.

Contractor: The Boeing Aerospace Company.

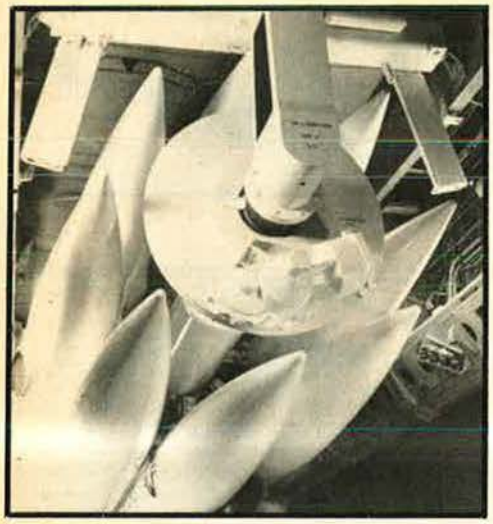
Power Plant: Lockheed Propulsion Company LPC-415 restartable solid-propellant two-pulse rocket engine.

Guidance: General Precision/Kearfott inertial

Titan II

Minuteman III

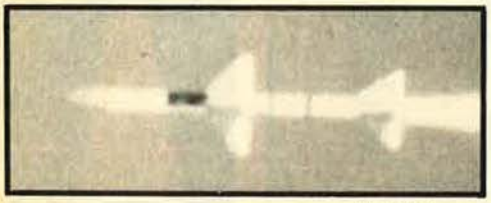
AGM-28A Hound Dog



AGM-69A SRAM

AIR-2A Genie

AIM-4D Falcon



AIM-7F Sparrow

AIM-9J Sidewinder

system, permitting attack at high or low levels, and dog-leg courses. CEP stated to be well within lethal radius of warhead.
Warhead: nuclear, of similar yield to that of single Minuteman III warhead.
Dimensions: length 14 ft 0 in, body diameter 1 ft 5½ in.
Weight: launch weight approx 2,230 lb.
Performance: speed up to Mach 2.5, range 100 miles at high altitude, 35 miles at low altitude.

Airborne Tactical and Defense Missiles

AIR-2A Genie

When, on July 19, 1957, a Genie was launched from an F-89J Scorpion, it became the first nuclear-tipped air-to-air rocket ever tested in a live firing. Production ended in 1962, but thousands were delivered and continue in first-line service with F-101B and F-106 squadrons of USAF, as well as with the Canadian Armed Forces. Unguided in flight, Genie is normally fired automatically by the Hughes fire-control system fitted in the launching aircraft. As one of many safety precautions, the missile remains inert in a nuclear sense until it is armed in the air, a few moments before firing. A training version, without nuclear warhead, is also in service.
Contractor: McDonnell Douglas Astronautics Company.
Power Plant: Thiokol SR49-TC-1 solid-propellant rocket motor; 36,000 lb thrust.
Guidance: no guidance system.
Warhead: nuclear, with reported yield of 1.5 kilotons.
Dimensions: length 9 ft 7 in, body diameter 1 ft 5.35 in, fin span 3 ft 3½ in.
Weight: launch weight 820 lb.
Performance: max speed Mach 3, max range 6 miles.

AIM-4A/C/D Falcon

Falcon was the first air-to-air guided weapon to come into USAF service. Versions include:
AIM-4A: improved version of the original radar-homing production model; about 12,000 built between 1956 and 1959.
AIM-4C: similar airframe to AIM-4A but with infrared guidance system. About 9,500 were delivered simultaneously with the "A"s.
AIM-4D: "cross-bred" version, combining the improved infrared homing head of the AIM-4G Super Falcon with the basic airframe of the AIM-4C. Used to arm F-4 fighters of Tactical Air Command and F-101 fighters of the ANG. Thousands of older Falcons were converted to AIM-4D standard.
Contractor: Hughes Aircraft Company.
Power Plant: Thiokol M58-E4 solid-propellant rocket motor; 6,000 lb thrust.
Guidance: AIM-4A; Hughes semiactive radar homing system; AIM-4C/D: infrared homing system.
Warhead: high-explosive.
Dimensions: length AIM-4A 6 ft 6 in, AIM-4C/D 6 ft 7½ in, body diameter 6.4 in, wing span 1 ft 8 in.
Weights: launch weight AIM-4A 110 lb; AIM-4C 122 lb; AIM-4D 134 lb.
Performance (AIM-4D): max speed Mach 4, range 6 miles.

AIM-4F/G Super Falcon

Arming the F-106 Delta Dart, the Super Falcon is a developed version of the AIM-4A/C Falcon, having reduced susceptibility to enemy countermeasures and higher performance. A mixed armament of four AIM-4F/Gs is carried internally. The two versions were introduced simultaneously in 1960, superseding the interim AIM-4E.
Contractor: Hughes Aircraft Company.
Power Plant: Thiokol M46 two-stage solid-propellant motor; first-stage rating of 6,000 lb thrust.
Guidance: AIM-4F: Hughes semiactive radar homing guidance; AIM-4G: infrared homing system.
Warhead: high-explosive, weighing 40 lb.
Dimensions: length AIM-4F 7 ft 2 in; AIM-4G 6 ft 9 in, body diameter 6.6 in, wing span 2 ft 0 in.
Weights: launch weight AIM-4F 150 lb; AIM-4G 145 lb.
Performance: max speed Mach 2.5, max range 7 miles.

AIM-7E/F Sparrow

About 34,000 of the AIM-7C, D, and E versions of Sparrow were produced, and this radar-homing air-to-air missile is one of the most important guided weapons in service with NATO air forces and their allies. Basic current operational model, the all-weather all-altitude **AIM-7E,** is standard armament of the F-4 Phantom II and is suited also for use against shipping targets from aircraft or ships. The **AIM-7E-2** is similar but has better maneuverability to improve its "dogfight" capability. In production for both USAF and USN is the advanced solid-state **AIM-7F,** with larger motor, Doppler guidance, and good capability over both dogfight and medium ranges. USAF procurement of the "F" is expected to total 5,415, to supersede the AIM-7E and to arm the F-15, with a further increment of 880 requested in the FY '77 budget. Development of a monopulse seeker for the AIM-7F was started in 1975, aimed at reducing cost and improving performance in the ECM and lookdown/clutter areas; initial operational capability is planned for 1981. (Data for AIM-7F.)
Contractor: Raytheon Company.
Power Plant: Hercules MK 58 Mod O solid-propellant rocket motor.
Guidance: Raytheon semiactive Doppler radar homing system.
Warhead: high-explosive.
Dimensions: length 12 ft 0 in, body diameter 8 in, wing span 3 ft 4 in.
Weight: launch weight 500 lb.
Performance (estimated): max speed more than Mach 3.5, range AIM-7E 14 miles; AIM-7F 28 miles.

AIM-9 Sidewinder

The AIM-9 Sidewinder is a close-range air-to-air missile using infrared guidance. More than 80,000 of the basic **AIM-9Bs** were produced by Philco and General Electric for USAF, USN, and many foreign armed services, including NATO air forces. Later versions of Sidewinder under development for USAF or in service are:
AIM-9E: with improved guidance and control. Produced by Philco by modification of AIM-9Bs.
AIM-9G: advanced model with airframe changes, new motor and guidance, improved target acquisition and lock-on, produced by Raytheon.
AIM-9H: version with improved close-range capability, produced for USN; one-time procurement of 800 by USAF in FY '76. Solid-state guidance, off-boresight acquisition/launch capability. Lead bias function moves missile impact point forward to more vulnerable area on target aircraft.
AIM-9J: advanced version of AIM-9E with both increased range and improved maneuvering capability for dogfighting. Being produced for 1977–78 delivery to USAF by Aeronutronic Ford, to equip the F-15 and other Sidewinder-compatible aircraft, by modification of remaining 590 AIM-9Bs in USAF inventory and 1,410 acquired from USN.
AIM-9J+ (J-3): all-aspect version with solid-state electronics and same fuze as AIM-9L. Delivery in 1978–80 by conversion of AIM-9Es and Js.
AIM-9L: third-generation Sidewinder for USAF and USN. New Mk 36 Mod 6 solid motor. Double-delta nose fins for improved inner boundary performance and maneuverability. AM-FM conical scan for increased seeker sensitivity and improved tracking stability. Annular blast fragmentation warhead, rate bias, and active optical

MINUTEMAN III

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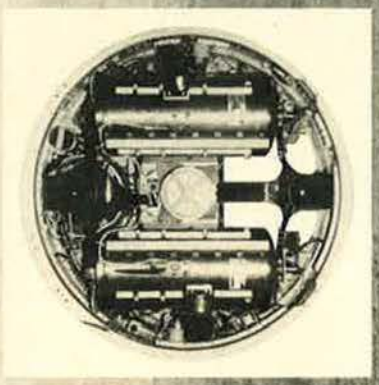

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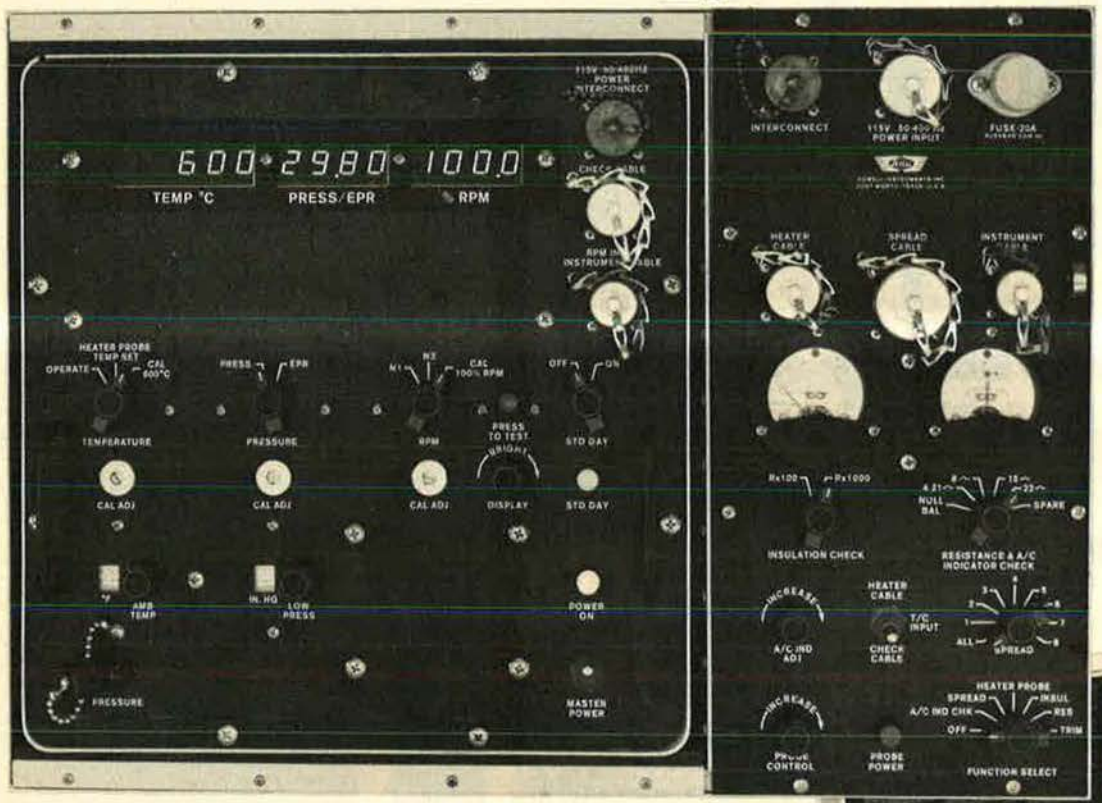

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fuze for increased lethality and low susceptibility to countermeasures. Planned USAF procurement is 4,810 between FY '76 and FY '80. (Data for AIM-9B.)
Contractor: Naval Weapons Center.
Power Plant: Naval Propellant Plant solid-propellant rocket motor.
Guidance: infrared homing guidance.
Warhead: high-explosive, weighing 25 lb.
Dimensions: length 9 ft 3½ in, body diameter 5 in, fin span 1 ft 10 in.
Weight: launch weight 159 lb.
Performance: max speed Mach 2.5, max range 2 miles.

AGM-45A Shrike

Designed to home automatically on enemy radar installations, this supersonic air-to-surface missile entered operational service in Vietnam during 1965 and subsequently played an important role in the US air offensive. It became a standard penetration aid on US tactical aircraft, and its effectiveness has been increased progressively by many improvements. Twelve versions are known to have been produced for USAF and USN, differing primarily in the frequency coverage of the front end detachable seeker sections. By FY '75, USAF had procured 9,908 Shrikes, with a further 2,955 to be requested in 1976/77. Late models are planned to equip the "Wild Weasel" F-4Gs.
Contractor: Naval Weapons Center.
Power Plant: Rocketdyne Mk 39 Mod 7 or Aerojet Mk 53 solid-propellant rocket motor.
Guidance: passive homing head by Texas Instruments.
Warhead: high-explosive/fragmentation, weighing 145 lb.
Dimensions: length 10 ft 0 in, body diameter 8 in, span 3 ft 0 in.
Weight: launch weight 400 lb.
Performance: classified.

AGM-65 Maverick

The basic **AGM-65A** version of this tactical air-to-surface missile differs from earlier US TV-guided weapons in having a self-homing capability. This enables the pilot of the launch aircraft to seek other targets or leave the target area once Maverick has been launched. Production was initiated in 1971, following successful test launches over distances ranging from a few thousand feet to many miles, and from high altitudes down to treetop level. The AGM-65A is carried by the A-7D, A-10, F-4D, and F-4E, normally in three-round underwing clusters, and is intended for use against pinpoint targets such as tanks and columns of vehicles. It is also carried by Teledyne Ryan BGM-34 RPVs. By the end of FY '76 a total of 17,000 Mavericks will have been delivered, including **AGM-65Bs** with a modified "scene-magnification" TV seeker. Engineering development of the "B" was completed by January 1975 and 4,000 were ordered in August, with deliveries to begin in December 1975.

To overcome limitations of the TV Maverick, which can be used only in daylight clear-weather conditions, two new versions are under development:

AGM-65C: laser-guided version intended for close air support by day or night against targets marked by airborne or ground designator. Initial 100 requested in FY '77 budget.

AGM-65D: with imaging infrared seeker (IIR).

Later development will include adaptation of Maverick to carry the 250 lb Mk 19 warhead. (Data for AGM-65A.)
Contractor: Hughes Aircraft Company.
Power Plant: Thiokol TX-481 solid-propellant rocket motor.
Guidance: self-homing electro-optical guidance system.
Warhead: high-explosive, shaped charge.
Dimensions: length 8 ft 1 in, body diameter 1 ft 0 in, wing span 2 ft 4 in.
Weight: launch weight 462 lb.
Performance: classified.

AGM-78 Standard ARM

Designed to provide a significant increase in capability over earlier weapons in countering the threat of radar-controlled antiaircraft guided missiles and guns, the AGM-78 Standard ARM (Anti-Radiation Missile) has been in production since 1968, with several advanced models developed subsequently. The initial **AGM-78A** version used the passive homing target-seeking head of the Shrike missile; current models have improved seeker heads and avionics for better target selection, increased effectiveness against target countermeasures, and still greater attack range. Standard ARM is deployed on USAF's F-105 and also by USN. Late production version is **AGM-78D.**
Contractor: General Dynamics Corporation, Pomona Division.
Power Plant: Aerojet-General Mk 27 Mod 4 dual-thrust solid-propellant rocket motor.
Guidance: passive homing guidance system, using seeker head that homes on enemy radar emissions.
Warhead: high-explosive.
Dimensions: length 15 ft 0 in, body diameter 1 ft 1½ in, wing span 3 ft 6 in.
Weight: launch weight, basic version 1,400 lb.
Performance: max speed Mach 2, max range 15.5 miles.

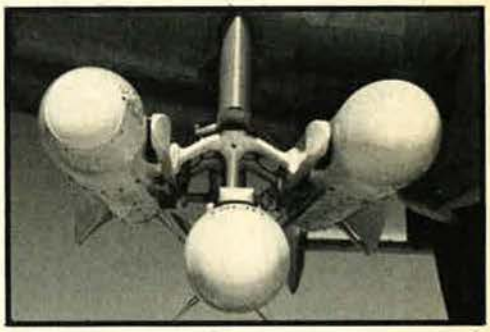
Electro-Optical Guided Bomb (EOGB)

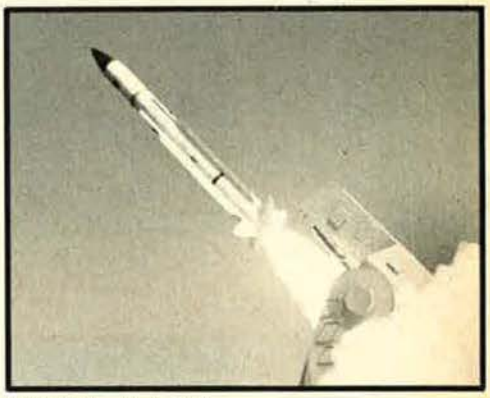
USAF's GBU-8, HOBO, is an unpowered 2,000 lb TV-guided air-to-surface weapon, produced in the form of a kit that converts a standard Mk 84 bomb into a highly accurate guided weapon with moderate/long-range capability. The weapon's guidance is automatic once it has been locked on to a target, enabling the pilot to leave the target area after the weapon has been launched. EOGB consists of a forward guidance assembly, the warhead, an interconnect section, and an aft control section, including an autopilot. It was used in Southeast Asia.
Contractor: Rockwell International Corporation.
Guidance: TV, automatic tracking.
Warhead: Mk 84 bomb (2,000 lb, unitary).
Dimensions: length 12 ft 5 in, body diameter 1 ft 6 in, wing span 3 ft 8 in.
Weight: 2,240 lb.

Modular Glide Weapon System (GBU-15)

Under development in 1976, GBU-15 is an unpowered munition in the 2,000 lb class that can be equipped with alternative aerodynamic components, warheads, and guidance units. The initial versions will be TV-guided, with data-link options that permit the weapon to be controlled from the cockpit of the launch aircraft. The weapon can be assembled in a cruciform configuration for low-altitude attack, or in a planar (flip-out wing) configuration for high-altitude standoff attack. Provisions are made for the addition of advanced seekers to provide night and adverse weather capabilities.
Contractor: Rockwell International Corporation.
Guidance: TV self-homing or data link (DME, laser, and IIR options).
Warhead: Mk 84 bomb (2,000 lb, unitary) or CBU-75 (cluster).
Dimensions: length 12 ft 10 in, body diameter 1 ft 6 in, wing span 11 ft 4 in.
Weight: 2,450–2,990 lb.


AGM-45A Shrike


AGM-65 Maverick


AGM-78 Standard ARM

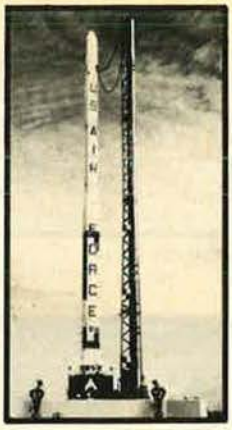

Electro-Optical Guided Bomb

Launch Vehicles

Agena

A payload section (nose cone) able to accommodate a variety of earth-orbiting and space probes weighing up to several hundred pounds gives this space vehicle an inherent versatility. Agena is normally utilized as the upper stage of such launchers as Atlas and Titan III. With its attached payload, it has functioned for longer than six months on some USAF missions. An Agena spacecraft was the first to accomplish a rendezvous and docking by spacecraft in orbit and to provide propulsion power in space

Atlas-Agena



Blue Scout

Titan III

Titan IIIC

Titan IIID

for another spacecraft. Current version is **Agena D;** tested successfully in June 1962, this is able to accept a variety of payloads, unlike the earlier "A" and "B," which had integrated payloads. Agena is used in most USAF reconnaissance satellite launchings, except for Big Bird missions.

Prime Contractor: Lockheed Missiles and Space Company, Inc.

Power Plant: Bell Aerosystems YLR81-BA-11 liquid-propellant rocket engine; 16,000 lb thrust.

Dimensions (Agena D): length (typical) 23 ft 3 in, diameter 5 ft 0 in.

Weights (typical Agena D): launch weight 15,037 lb; weight in orbit, less payload, 1,277 lb.

Atlas Launchers

Atlas-Agena: Used by the USAF for military satellite and scientific launchings, this is a general-purpose space launch vehicle (SLV), consisting of the Atlas SLV standardized launcher with an Agena upper stage. Atlas-Agena vehicles have successfully launched Ranger lunar probes, Mariner Mars and Venus probes, Vela nuclear detection satellites, and OAO, OGO, and ATS satellites.

Atlas SLV-3A: An uprated version of the earlier SLV-3, with lengthened propellant tanks, the SLV-3A was evolved primarily for use with the Agena upper stage, but it could serve as a direct-ascent vehicle or in conjunction with other upper stages. Of the fourteen SLV-3As produced under initial contracts, seven were for use by the USAF in classified missions, with the remainder for NASA.

Atlas SLV-3D: Although intended for use primarily with the Centaur D-1A upper stage, the SLV-3D is standardized like the SLV-3A and can be used on other missions. In 1972, Pioneer 10 was launched on its flight path to Jupiter with the highest velocity ever imparted to a spacecraft, the launch vehicle being an Atlas/Centaur with an additional TE-M-364-4 solid-propellant rocket motor.

Prime Contractor: General Dynamics Corporation, Convair Aerospace Division.

Power Plant: uprated Rocketdyne MA-5 propulsion system, comprising central sustainer motor and two boosters; total S/L thrust approx 431,040 lb (60,000 lb from the central sustainer motor, 370,000 lb total from the boosters, 1,040 lb from two verniers).

Dimensions (Atlas SLV-3A): height 71 ft 0 in, max body diameter 10 ft 0 in.

Launch Weight (SLV-3A): 314,000 lb.

Performance (SLV-3A-Agena): capable of putting payload of 8,800 lb into a 115-mile circular orbit, or of launching 2,920 lb into synchronous transfer orbit.

Centaur

First US high-energy upper stage and first to utilize liquid hydrogen as a propellant. The latest version, Centaur D-1, retains the same propulsion and structural features as its predecessor, Centaur D, but has several redesigned or repackaged astrionics components. Used in conjunction with the Atlas SLV-3D or the Titan IIIE, it provides widely ranging applications and capabilities: the nose section of the former is modified to a constant 10 ft diameter to accommodate the Centaur D-1A which, in turn, generates most of the electronic command and control systems for the launch vehicle; the Centaur D-1T also provides guidance for its Titan booster. A 10 ft diameter fairing protects payloads for Centaur D-1A; a 14 ft shroud encloses both the payload and the Centaur D-1T on Titan/Centaur. Atlas/Centaur D-1A launch missions have been assigned into 1978. Primary mission of Titan IIIE/Centaur was the placing of two Viking spacecraft on Mars this year, followed by the 1977 Mariner Jupiter/Saturn missions.

Prime Contractor: General Dynamics Corporation, Convair Division.

Power Plant: two Pratt & Whitney RL10A-3 liquid hydrogen engines; each 15,000 lb thrust.

Guidance: inertial guidance system.

Dimensions: Centaur: length 30 ft 0 in, diameter 10 ft 0 in.

Launch Weight (approx): 37,000 lb.

Performance: Atlas/Centaur: 11,200 lb into 115-mile circular orbit, or 4,100 lb into synchronous transfer orbit, or 1,300 lb to nearest planet; Titan/Centaur: 34,000 lb into 115-mile circular orbit, or 7,300 lb into synchronous equatorial orbit, or 8,200 lb to nearest planet.

Scout

Designed to make possible space, orbital, and reentry research by NASA and the Department of Defense at comparatively low cost, using "off-the-shelf" major components where available, Scout is a four/five-stage launch vehicle, first ordered in 1959, which can be launched at any angle from vertical to 20° from vertical. A subsequent version with an improved fourth stage was launched successfully for the first time in August 1965. In addition to increasing the payload, this version can be maneuvered in yaw and can send a 100 lb payload more than 16,000 miles into space. A fifth-stage velocity package is being developed, which will increase the Scout's hypersonic reentry performance, make possible highly elliptical deep-space orbits, and extend the vehicle's probe capabilities to the sun. Using the latest Algol III first-stage motor, Scouts can put 425 lb payloads (320 lb with the earlier motor) into a 310-mile easterly orbit, and have been used to launch many unmanned spacecraft, including classified military satellites.

Prime Contractor: Vought Corporation.

Power Plant: first stage: Aerojet-General Algol IIB solid-propellant motor; 115,000 lb thrust or Algol III; 140,000 lb thrust; second stage: Thiokol Castor II solid-propellant motor; 60,000 lb thrust; third stage: Hercules Antares II solid-propellant motor; 21,000 lb thrust; fourth stage: UTC FW-4S solid-propellant motor; 6,000 lb thrust; fifth stage under development.

Guidance: simplified Honeywell gyro guidance system.

Dimensions: height overall 75 ft 2½ in, max body diameter 3 ft 9 in.

Launch Weight: 47,185 lb.

Titan III

As the US's standard heavy-duty space "workhorse" booster, Titan III can be modified to launch a wide variety of payloads, both manned and unmanned, ranging from 35,000 lb in earth orbit to 7,000 lb for planetary missions. The basic core section consists of two booster stages evolved from the Titan II ICBM and an upper stage, known as Transtage, capable of functioning both in the boost phase of flight and as a restartable space propulsion vehicle. Principal configurations are:

Titan IIIB: basically the first two stages of the core section, able to accommodate various upper stages. First launched in July 1966 and used subsequently with Agena upper stages to launch classified USAF payloads.

Titan IIIC: consisting of the core section with two five-segment strap-on motors functioning as a booster before ignition of the main engines. First launched in June 1965; payloads include USAF early warning satellites.

Titan IIID: basically similar to IIIC but using only the first two stages of the core section and able to accept a variety of upper stages. Radio guidance is used instead of the standard inertial guidance. Production order placed by USAF in 1967; first used in June 1971 to orbit the first Lockheed Big Bird photo-reconnaissance spacecraft.

Titan IIIE-Centaur: basically a Titan IIID that has been modified to accommodate a Centaur high-energy upper stage. Primary mission was to place two Viking spacecraft on Mars this year.

Titan IIIs have achieved well over 80 successful launchings since 1966, and additional contracts have extended production of various models through 1979.

Prime Contractor: Martin Marietta Corporation.

Power Plant: first and second stages: Aerojet liquid-propellant engines; first stage 526,000 lb thrust; second stage 102,000 lb thrust; Transtage Aerojet twin-chamber liquid-propellant engine; 16,000 lb thrust; Titan IIIC/Ds also have two UTC five-segment solid-propellant booster rocket motors; each more than 1,200,000 lb thrust.

Dimensions: first and second stages of core: height 96 ft 3½ in, diameter 10 ft 0 in; Transtage: height 15 ft 0 in, diameter 10 ft 0 in.

Launch Weight: Titan IIIB: 345,000 lb; Titan IIIC: 1,390,000 lb.

Performance (Titan IIIC, approx): speed at burn-out: solid-propellant boosters 4,100 mph, first stage 10,200 mph, second stage 17,100 mph, Transtage 17,500 mph.

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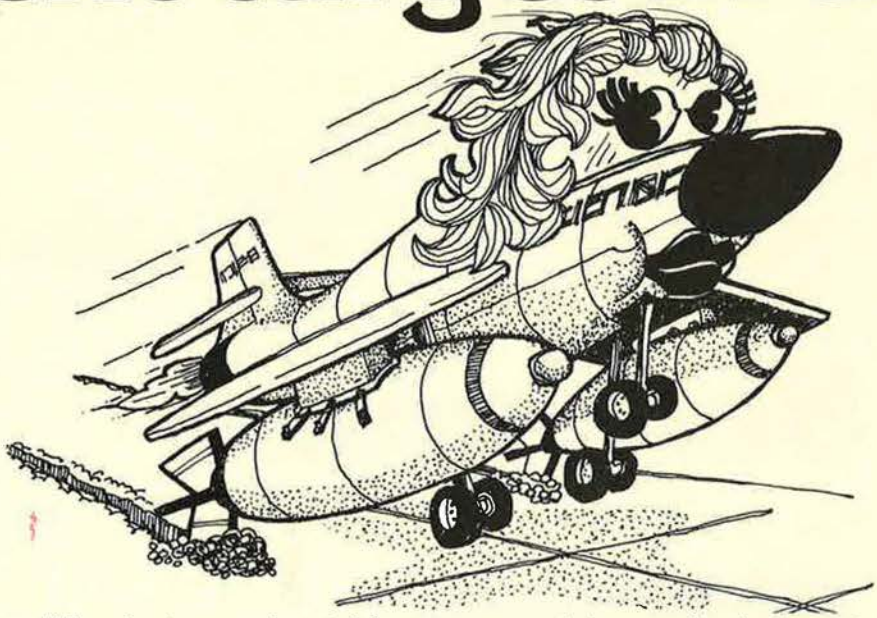

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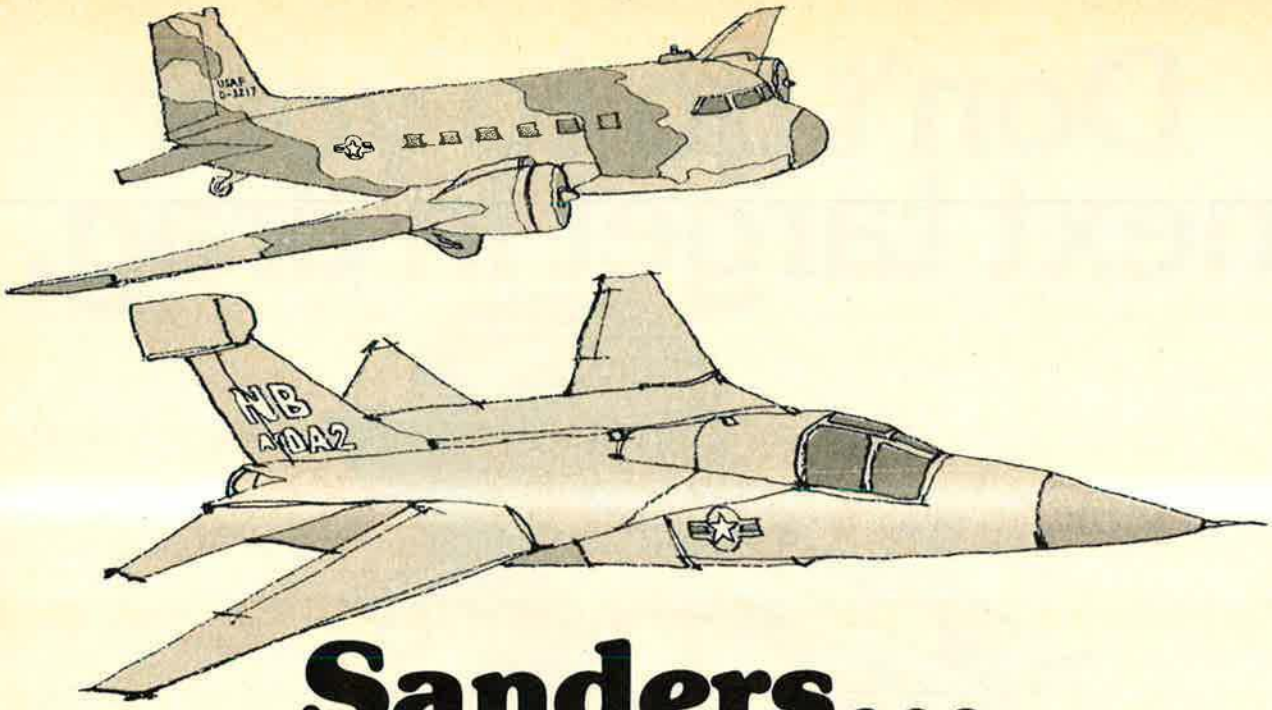

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Remotely Piloted Vehicles (RPVs)

Boeing YQM-94A

Under the USAF's Compass Cope program, Boeing and Teledyne Ryan *(see below)* received contracts for prototypes of a long-endurance high-altitude RPV for evaluation. Such an aircraft could be used for signal intelligence collection and other missions requiring a high-altitude long-endurance platform.

An all-fiberglass fuselage permits the YQM-94A's (known as Compass Cope B) use as a "flying radome" in which radar and other sensing equipment can be installed. A TV camera mounted in the nose enables a pilot to control the aircraft from a ground station. The prototypes were each powered by a single J97 turbojet, pod-mounted above the fuselage to reduce vulnerability to infrared missiles launched from below. Re-engined with a turbofan, more than twice the endurance of the RC-135s, used currently in electronic intelligence collection, could be expected. Unlike present RPVs, the YQM-94A takes off and lands from a conventional runway and so requires an all-weather landing capability, plus a main undercarriage track of 21 ft for maximum ground stability. The first of two prototypes ordered in 1971 flew on July 28, 1973, five months after delivery to the USAF, but crashed a week later. The second vehicle was subsequently delivered to USAF and made two successful flights in 1974. The future of the program is still under consideration.

Contractor: Boeing Aerospace Company.
Power Plant: one General Electric J97-GE-100 turbojet engine; 5,270 lb thrust.
Dimensions: span 90 ft 0 in, length (excluding nose probe) 40 ft 0 in.
Weights: payload for 24 hr mission 700 lb, gross approx 13,000 lb.
Performance (prototype): cruising speed at altitudes from 50,000 ft to 70,000 ft Mach 0.5 to 0.6, max endurance 30 hr.

Ryan YQM-98A

Because the prototype contract was not received until spring 1972, development of the Teledyne Ryan YQM-98A (Compass Cope R) was some months behind that of the Boeing vehicle. Construction began in February 1973 and the two prototypes were rolled out eleven months later, in January 1974. Delivery was made to Edwards AFB, Calif., in April 1974 and the first flight took place in July; sixteen flights have since been made, one of which exceeded 25 hours' duration. Flight testing at Cape Canaveral, Fla., since June 1975 has been part of a program of system engineering studies to determine any design changes necessary to produce a Compass Cope RPV for operational use. Representing a third-generation aircraft, superseding the Ryan AQM-34N(H) and AQM-91A, the YQM-98A (the Ryan Model 235) is very similar to the latter vehicle in general configuration, with extremely high aspect ratio wings and an over-fuselage pod mounting for its power plant which, in the prototypes, is a Garrett AiResearch ATF 3 turbofan. A decision regarding the power plant of production models has not yet been made. Method of operation and applications are generally similar to those of the Boeing YQM-94A.

Contractor: Teledyne Ryan Aeronautical, Division of Teledyne Inc.
Power Plant: one Garrett AiResearch ATF 3 (XF104-GA-100) turbofan engine; 5,000 lb design thrust.
Dimensions: span 81 ft 2.5 in, length 38 ft 4 in.
Weights (approx): empty 5,600 lb, gross 14,310 lb.
Performance (estimated): cruising speed at altitudes from 50,000 ft to 70,000 ft Mach 0.5 to 0.6, max endurance 30 hours.

Ryan AQM-34

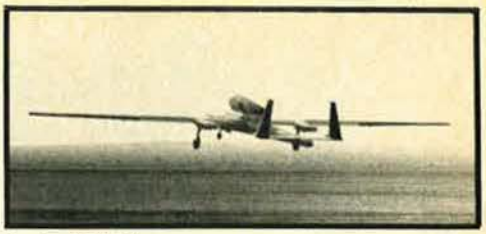
Of the large "family" of surveillance/reconnaissance RPVs encompassed within this basic USAF designation and the Ryan Model number 147, a total of twenty-four versions has been revealed, all evolved from the BQM-34A Firebee I target drone. Many hundreds of Model 147s have been delivered for operational use, while versions have also been widely utilized in testing the effectiveness of new combat equipment in a combat environment without risk to personnel. The original 147A was no more than a modified Firebee I, with a new guidance system and increased fuel capacity. Typical subsequent versions are: **AQM-34H,** Ryan 147NC, a medium-altitude ECM version, with two underwing hard points able to carry Hughes ALQ-71 noise jammers, Westinghouse QRC-335 noise/deception jammers, or ALE-2 chaff dispensing pods; equipment includes Sperry Univac APW-25 or -26 transponder. Like USAF's other tactical drones, this one is air-launched from DC-130s of the 11th Tactical Drone Squadron of TAC. **AQM-34L,** Ryan 147SC, a low-altitude reconnaissance RPV, with nose-mounted camera or other sensor. Long used for missions over North Vietnam, this vehicle and the Lockheed SR-71 manned strategic reconnaissance aircraft were the only USAF reconnaissance types permitted to overfly that country after the cessation of bombing in January 1973. **AQM-34M,** Ryan 147SD, very similar to the AQM-34L, is an improved vehicle that has almost replaced the AQM-34L in operational use. Seventy-eight have been ordered, including eight for flight testing. **AQM-34Q/R,** Ryan 147TE/TF, high-altitude surveillance drones with span extended to 27 ft. These two models form part of USAF's Combat Dawn program, and are used in electronic intelligence operations, with mid-air recovery by helicopter. **AQM-34V,** an improved version of the AQM-34H, incorporates internal electronic warfare equipment while retaining wing hard points. (Data for AQM-34L.)

Contractor: Teledyne Ryan Aeronautical, Division of Teledyne Inc.
Power Plant: Teledyne CAE J69-T-41A turbojet engine; 1,920 lb thrust.
Dimensions: span 13 ft 0 in, length 30 ft 0 in, body diameter 3 ft 1.2 in.
Weight: gross 3,065 lb.
Performance: range at low altitude variable from 177 miles at 645 mph to 748 miles at 485 mph.

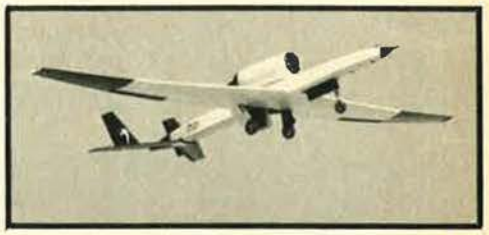
Ryan BGM-34

Plans to evolve combat drones for a variety of missions that at present require manned aircraft are reflected in this RPV which, though sharing the Firebee I parentage of the AQM-34, is intended to fulfill a more aggressive role. There are two current versions: **BGM-34B:** Eight ordered. At least one BGM-34B was fitted with an extended, modified nose housing target acquisition and designation equipment of the kind contained in the Aeronutronic Ford Pave Knife pods carried by F-4D Phantoms for use with laser-guided "smart bombs"; this enabled the RPV to be used in a pathfinder role. One other BGM-34B has been fitted with a Hughes high-resolution FLIR (forward-looking infrared) nose sensor instead of the TV installation. BGM-34Bs have made successful single and multiple passes against a variety of targets, launching a number of live and inert weapons, including SPASMs (self-propelled air-to-surface missiles) and Maverick TV-guided missiles. Evaluation of this version in a weapon-carrying role, for precision air-to-ground strikes, is continuing. **BGM-34C** is an interim multimission RPV, for air or ground launch, with modular nose sections for reconnaissance, electronic warfare, or strike missions. Capable of carrying twice the weapon payload of the "B" version, including four Maverick missiles. Eight ordered in 1974 with DT&E and IOT&E due to begin this year. Prototypes are converted from AQM-34L and YAQM-34U RPVs. A DC-130H has been specially modified to control up to eight drones at once.

Contractor: Teledyne Ryan Aeronautical, Division of Teledyne Inc.
Power Plant: Teledyne CAE J69-T-41A turbojet; 1,920 lb thrust.
Dimensions: span 14 ft 6 in, length 26 ft 0 in, body diameter 3 ft 1.2 in.
Weights: gross, BGM-34B 3,230 lb, BGM-34C 6,000 lb.



Boeing YQM-94A



Ryan YQM-98A

Ryan AQM-34 on DC-130A

Ryan BGM-34

AN AIR FORCE ALMANAC

THE UNITED STATES AIR FORCE IN FACTS AND FIGURES

On the following pages appears a variety of information and statistical material about the US Air Force—its people, organization, equipment, funding, activities, bases, and heroes. This "Almanac" section was compiled by the staff of AIR FORCE Magazine. We especially acknowledge the help of the Secretary of the Air Force Office of Information in its role as liaison with Air Staff agencies in bringing up to date the comparable data from last year's "Almanac." Also, we welcome suggestions from readers about the kinds of information they would like to see in future editions of this Almanac Issue. A word of caution: Personnel figures that appear in this section in different forms will not always agree because of differing cutoff dates, rounding off, or categories of personnel (such as those serving outside the Air Force) that are excluded in some cases. These figures do illustrate trends, however, and may be helpful in placing force fluctuations in perspective.

—THE EDITORS

USAF—HOW IT GOT ITS NAME

FROM	TO	DESIGNATION
Aug. 1, 1907	July 18, 1914	Aeronautical Div., US Signal Corps
July 18, 1914	Apr. 6, 1917	Aviation Section, US Signal Corps
Apr. 6, 1917	May 21, 1918	Aeronautical Div., US Signal Corps*
May 21, 1918	June 4, 1920	Div. of Military Aeronautics, US Army
June 4, 1920	July 2, 1926	Army Air Service
July 2, 1926	June 20, 1941	Army Air Corps
June 20, 1941	Sept. 18, 1947	Army Air Forces
Sept. 18, 1947		United States Air Force

* During World War I, the air arm of the American Expeditionary Force (AEF) was designated "Air Service," but this designation did not apply to the entire Aeronautical Division of the Signal Corps.

UNITED STATES AIR FORCE PERSONNEL STRENGTH—1907 THROUGH 1977

YEAR	STRENGTH	YEAR	STRENGTH	YEAR	STRENGTH	YEAR	STRENGTH
1907	3	1925	9,670	1943	2,197,114	1961	820,490
1908	13	1926	9,674	1944	2,372,292	1962	883,330
1909	27	1927	10,078	1945	2,282,259	1963	868,644
1910	11	1928	10,549	1946	455,515	1964	855,802
1911	23	1929	12,131	1947	305,827	1965	823,633
1912	51	1930	13,531	1948	387,730	1966	886,350
1913	114	1931	14,780	1949	419,347	1967	897,426
1914	122	1932	15,028	1950	411,277	1968	904,759
1915	208	1933	15,099	1951	788,381	1969	862,062
1916	311	1934	15,861	1952	973,474	1970	791,078
1917	1,218	1935	16,247	1953	977,593	1971	755,107
1918	195,023	1936	17,233	1954	947,918	1972	725,635
1919	25,603	1937	19,147	1955	959,946	1973	690,999
1920	9,050	1938	21,089	1956	909,958	1974	643,795
1921	11,649	1939	23,455	1957	919,835	1975	612,551
1922	9,642	1940	51,165	1958	871,156	1976	584,071*
1923	9,441	1941	152,125	1959	840,028	1977	571,000*
1924	10,547	1942	764,415	1960	814,213		

* Projected

USAF AND AIR RESERVE FORCES PERSONNEL BY CATEGORIES

CATEGORY	FY '64	FY '68	FY '74	FY '75	FY '76	FY '77
AIR FORCE MILITARY						
Officers	133,000	140,000	110,000	105,000	100,000	96,000
Airmen	720,000	762,000	529,000	503,000	480,000	471,000
Cadets	3,000	4,000	4,000	4,000	4,000	4,000
TOTAL, AIR FORCE MILITARY	**856,000**	**906,000**	**643,000**	**612,000**	**584,000**	**571,000**
Career Reenlistments	59,000	56,600	46,500	50,200	52,600	49,000
Rate	90%	88%	90%	90%	90%	90%
First-Term Reenlistments	17,000	10,700	19,500	17,300	18,300	18,600
Rate	30%	18%	31%	40%	39%	40%
CIVILIAN PERSONNEL						
Direct Hire	289,000	316,000	274,000	264,000	250,000	241,000
Indirect Hire Foreign Nationals	33,000	26,000	16,000	14,000	15,000	16,000
TOTAL, CIVILIAN PERSONNEL	**322,000** [1]	**342,000** [1]	**290,000**	**278,000**	**265,000**	**257,000**
TOTAL, AIR FORCE MILITARY AND CIVILIAN PERSONNEL	**1,178,000**	**1,248,000**	**933,000**	**890,000**	**849,000**	**828,000**
AIR RESERVE FORCES						
Air National Guard, Paid	73,000	75,000	94,000	95,000	95,000	93,000
Air Force Reserve, Paid	59,000	46,000	48,000	55,000	57,000	56,000
Air Force Reserve, Nonpaid	119,000	145,000	135,000	89,000	81,000	77,000
TOTAL, READY RESERVE	**251,000**	**266,000**	**277,000**	**239,000**	**233,000**	**226,000**
Standby	130,000	101,000	46,000	42,000	38,000	40,000
TOTAL, AIR RESERVE FORCES [2]	**381,000**	**367,000**	**323,000**	**281,000**	**271,000**	**266,000**

[1] Excludes Air National Guard Technicians who were State Employees until FY '69 when they were changed to Federal Employees by Public Law.
[2] Excludes Retired Air Force Reserve.

NOTE: Personnel data for FY '76–77 are programmed.

UNITED STATES AIR FORCE—PERSONNEL STRENGTH BY COMMANDS AND AGENCIES

COMMAND	OFFICERS	AIRMEN	TOTAL MILITARY	CIVILIANS	TOTAL PERSONNEL
Aerospace Defense Command (ADCOM)	3,745	23,280	27,025	5,181	32,206
Air Force Communications Service (AFCS)	2,635	36,205	38,840	6,559	45,399
Air Force Logistics Command (AFLC)	2,609	6,798	9,407	87,603	97,010
Air Force Systems Command (AFSC)	9,646	16,994	26,640	28,814	55,454
Air Training Command (ATC)	11,182	70,927	82,109	16,858	98,967
Air University (AU)	4,892	2,682	7,574	2,192	9,766
Alaskan Air Command (AAC)	814	7,526	8,340	1,907	10,247
Headquarters Command, USAF (HQ COMD USAF)	7,809	11,756	19,565	2,888	22,453
Military Airlift Command (MAC)	12,616	59,700	72,316	15,319	87,635
Pacific Air Forces (PACAF)	3,756	28,048	31,804	11,600	43,404
Strategic Air Command (SAC)	21,770	102,228	123,998	19,854	143,852
Tactical Air Command (TAC)	10,341	65,311	75,652	11,070	86,722
United States Air Forces in Europe (USAFE)	5,961	39,883	45,844	2,981	48,825
USAF Security Service (USAFSS)	1,028	14,150	15,178	1,712	16,890
USAF Southern Command (USAFSO)	190	1,252	1,442	701	2,143
TOTALS	**98,994**	**486,740**	**585,734**	**215,239**	**800,973**

SEPARATE OPERATING AGENCIES	OFFICERS	AIRMEN	TOTAL MILITARY	CIVILIANS	TOTAL PERSONNEL
Air Force Accounting and Finance Center (AFAFC)	36	208	244	1,971	2,215
Air Force Audit Agency (AFAA)	414	101	515	515	1,030
Air Force Data Automation Agency (AFDAA)	391	900	1,291	836	2,127
Air Force Inspection and Safety Center (AFISC)	285	82	367	134	501
Air Force Intelligence Service (AFIS)	169	241	410	156	566
Air Force Military Personnel Center (AFMPC)	459	795	1,254	604	1,858
Air Force Office of Special Investigations (AFOSI)	486	1,039	1,525	308	1,833
Air Force Test and Evaluation Center (AFTEC)	148	26	174	47	221
Hq. Air Force Reserve (AFRES)	176	562	738	10,858	11,596
Air Reserve Personnel Center (ARPC)	54	89	143	711	854
United States Air Force Academy (USAFA)	1,019	5,628	6,647	1,986	8,633
TOTALS	**3,637**	**9,671**	**13,308**	**18,126**	**31,434**

NOTE: Military and civilian strength figures are current as of December 31, 1975.
Military figures are assigned strength. Civilian figures are total direct chargeable employees.

USAF TOTAL ACTIVE-DUTY STRENGTH BY GRADE

(As of December 31, 1975)

OFFICERS

GRADE	NUMBER
GENERAL	13
LIEUTENANT GENERAL	43
MAJOR GENERAL	110
BRIGADIER GENERAL	213
COLONEL	5,160
LIEUTENANT COLONEL	12,487
MAJOR	19,774
CAPTAIN	40,878
FIRST LIEUTENANT	14,175
SECOND LIEUTENANT	9,562
WARRANT OFFICER	27
TOTAL	**102,442**
CADETS	4,247
AIRMEN	492,188
TOTAL STRENGTH	**598,877**

AIRMEN

GRADE	NUMBER
CHIEF MASTER SERGEANT	4,611
SENIOR MASTER SERGEANT	9,591
MASTER SERGEANT	34,742
TECHNICAL SERGEANT	60,280
STAFF SERGEANT	100,127
SERGEANT	119,855
AIRMAN FIRST CLASS	96,314
AIRMAN	44,243
AIRMAN BASIC	22,425
TOTAL	**492,188**

USAF MILITARY PERSONNEL BY GRADE, RACE, AND SEX

(As of December 31, 1975)

OFFICERS

GRADE	FORCE	BLACK (%)	OTHER (%)	WOMEN (%)
GENERALS	379	5 (1.3)	1 (0.3)	2 (0.5)
COLONELS	5,160	77 (1.5)	27 (0.5)	55 (1.1)
LIEUTENANT COLONELS	12,487	175 (1.4)	72 (0.6)	280 (2.2)
MAJORS	19,774	378 (1.9)	166 (0.8)	679 (3.4)
CAPTAINS	40,878	946 (2.3)	289 (0.7)	1,700 (4.3)
FIRST LIEUTENANTS	14,175	531 (3.7)	100 (0.7)	1,221 (8.6)
SECOND LIEUTENANTS	9,562	622 (6.5)	85 (0.9)	1,035 (10.8)
WARRANT OFFICERS	27	1 (3.7)	0	0
TOTALS	**102,442**	**2,735 (2.7)**	**740 (0.7)**	**5,032 (4.9)**

AIRMEN

GRADE	FORCE	BLACK (%)	OTHER (%)	WOMEN (%)
CHIEF MASTER SERGEANT	4,611	289 (6.3)	22 (0.5)	12 (0.3)
SENIOR MASTER SERGEANT	9,591	787 (8.2)	50 (0.5)	30 (0.3)
MASTER SERGEANT	34,742	3,654 (10.5)	235 (0.7)	79 (0.2)
TECHNICAL SERGEANT	60,280	8,229 (13.7)	430 (0.7)	175 (0.3)
STAFF SERGEANT	100,127	14,360 (14.3)	897 (0.9)	1,360 (1.4)
SERGEANT	119,855	20,165 (16.8)	1,651 (1.4)	6,621 (5.5)
AIRMAN FIRST CLASS	96,314	16,243 (16.9)	1,493 (1.6)	10,826 (11.2)
AIRMAN	44,243	5,782 (13.1)	526 (1.2)	5,659 (12.8)
AIRMAN BASIC	22,425	2,697 (12.0)	442 (2.0)	2,753 (12.3)
TOTALS	**492,188**	**72,206 (14.7)**	**5,746 (1.2)**	**27,515 (5.6)**
TOTALS, INCLUDING OFFICERS	**594,630**	**74,941 (12.6)**	**6,486 (1.1)**	**32,547 (5.5)**

AVERAGE AGES OF MILITARY PERSONNEL

(As of December 31, 1975)

Officers	Average 33.2 years of age
Noncommissioned Officers (Top 6 Grades)	Average 29.9 years of age
Airmen	Average 26.9 years of age

AIR FORCE FULL-TIME CIVILIAN EMPLOYMENT BY GRADE

(As of December 31, 1975)

GS		WP		WS		WL		WG	
GR	POP	GR	POP	GR	POP	GR	POP	GR	POP
1	106	4	1	1	68	1	1	1	256
2	1,386	5	1	2	44	2	44	2	2,227
3	12,323	8	2	3	149	3	25	3	1,018
4	19,007	9	7	4	216	4	141	4	2,881
5	20,503	10	5	5	421	5	90	5	5,200
6	7,325	11	8	6	602	6	101	6	6,160
7	11,178	12	14	7	908	7	56	7	5,925
8	2,603	13	1	8	1,052	8	280	8	10,467
9	16,691	14	8	9	1,799	9	490	9	9,572
10	1,077	15	3	10	1,710	10	1,201	10	25,229
11	14,839	16	6	11	885	11	127	11	6,011
12	12,746	17	4	12	467	12	4	12	3,005
13	8,213	18	2	13	353	13	4	13	512
14	2,929	20	1	14	283	14	4	14	140
15	978	21	2	15	123			15	2
16	99	23	1	16	62				
17	22			17	22				
18	7			18	11				
				19	8				
TOTALS	**132,032**		**66**		**9,183**		**2,568**		**78,605**

GR = Grade
GS = General Schedule
POP = Population
WP = Printing and Lithographic Pay Schedules
WS = Supervisory (Foreman) Pay Schedules
WL = Leader Pay Schedules
WG = Non-Supervisory Pay Schedules

FEDERAL CIVILIAN PAY SCALE

General Schedule
(Effective October 1, 1975)

GRADE	1	2	3	4	5	6	7	8	9	10
GS- 1	$5,559	$5,744	$5,929	$6,114	$6,299	$6,484	$6,669	$6,854	$7,039	$7,224
GS- 2	6,296	6,506	6,716	6,926	7,136	7,346	7,556	7,766	7,976	8,186
GS- 3	7,102	7,339	7,576	7,813	8,050	8,287	8,524	8,761	8,998	9,235
GS- 4	7,976	8,242	8,508	8,774	9,040	9,306	9,572	9,838	10,104	10,370
GS- 5	8,925	9,223	9,521	9,819	10,117	10,415	10,713	11,011	11,309	11,607
GS- 6	9,946	10,278	10,610	10,942	11,274	11,606	11,938	12,270	12,602	12,934
GS- 7	11,046	11,414	11,782	12,150	12,518	12,886	13,254	13,622	13,990	14,358
GS- 8	12,222	12,629	13,036	13,443	13,850	14,257	14,664	15,071	15,478	15,885
GS- 9	13,482	13,931	14,380	14,829	15,278	15,727	16,176	16,625	17,074	17,523
GS-10	14,824	15,318	15,812	16,306	16,800	17,294	17,788	18,282	18,776	19,270
GS-11	16,255	16,797	17,339	17,881	18,423	18,965	19,507	20,049	20,591	21,133
GS-12	19,386	20,032	20,678	21,324	21,970	22,616	23,262	23,908	24,554	25,200
GS-13	22,906	23,670	24,434	25,198	25,962	26,726	27,490	28,254	29,018	29,782
GS-14	26,861	27,756	28,651	29,546	30,441	31,336	32,231	33,126	34,021	34,916
GS-15	31,309	32,353	33,397	34,441	35,485	36,529	37,573	38,617 *	39,661 *	40,705 *
GS-16	36,338	37,549	38,760 *	39,971 *	41,182 *	42,393 *	43,604 *	44,815 *	46,026 *	
GS-17	42,066 *	43,468 *	44,870 *	46,272 *	47,674 *					
GS-18	48,654 *									

* The rate of basic pay for employees at these rates is limited by Section 5308 of Title 5 of the United States Code to the rate for level V of the Executive Schedule (currently $37,800).

MONTHLY MILITARY BASIC PAY RATES

(Effective October 1, 1975)

PAY GRADE	YEARS OF SERVICE: UNDER 2	2	3	4	6	8	10	12	14	16	18	20	22	26
COMMISSIONED OFFICERS														
O-10	$2,841	$2,940	$2,940	$2,940	$2,940	$3,053	$3,053	$3,287*	$3,287*	$3,522*	$3,522*	$3,758*	$3,758*	$3,992*
O-9	2,517	2,584	2,639	2,639	2,639	2,706	2,706	2,818	2,818	3,053	3,053	3,287*	3,287*	3,522*
O-8	2,280	2,349	2,404	2,404	2,404	2,584	2,584	2,706	2,706	2,818	2,940	3,053	3,176*	3,176*
O-7	1,894	2,024	2,024	2,024	2,114	2,114	2,237	2,237	2,349	2,584	2,761	2,761	2,761	2,761
O-6	1,404	1,543	1,644	1,644	1,644	1,644	1,644	1,644	1,699	1,968	2,069	2,114	2,237	2,426
O-5	1,123	1,319	1,410	1,410	1,410	1,410	1,453	1,530	1,633	1,755	1,856	1,912	1,979	—
O-4	947	1,152	1,230	1,230	1,252	1,308	1,397	1,476	1,543	1,610	1,655	—	—	—
O-3	880	983	1,051	1,163	1,219	1,263	1,330	1,397	1,431	—	—	—	—	—
O-2	767	838	1,006	1,040	1,062	—	—	—	—	—	—	—	—	—
O-1	666	693	838	—	—	—	—	—	—	—	—	—	—	—
COMMISSIONED OFFICERS WITH MORE THAN 4 YEARS ACTIVE SERVICE AS ENLISTED MEMBERS														
O-3	—	—	—	1,163	1,219	1,263	1,330	1,397	1,453	—	—	—	—	—
O-2	—	—	—	1,040	1,062	1,095	1,152	1,197	1,230	—	—	—	—	—
O-1	—	—	—	833	894	928	961	995	1,040	—	—	—	—	—
WARRANT OFFICERS														
W-4	896	961	961	983	1,028	1,073	1,118	1,197	1,252	1,296	1,330	1,374	1,420	1,530
W-3	815	884	884	894	905	972	1,028	1,062	1,095	1,128	1,163	1,208	1,252	1,296
W-2	713	771	771	794	838	884	917	950	983	1,018	1,051	1,084	1,128	—
W-1	594	681	681	738	771	805	838	872	905	939	972	1,006	—	—
ENLISTED MEMBERS														
E-9	—	—	—	—	—	—	1,018	1,041	1,065	1,089	1,113	1,135	1,195	1,311
E-8	—	—	—	—	—	854	878	901	925	949	971	995	1,053	1,171
E-7	596	643	667	691	715	737	760	784	820	843	867	878	937	1,053
E-6	515	561	585	609	632	656	679	715	737	760	772	—	—	—
E-5	452	492	516	538	573	597	621	643	656	—	—	—	—	—
E-4	435	459	486	524	544	—	—	—	—	—	—	—	—	—
E-3	418	441	459	477	—	—	—	—	—	—	—	—	—	—
E-2	402	—	—	—	—	—	—	—	—	—	—	—	—	—
E-1	361	—	—	—	—	—	—	—	—	—	—	—	—	—

NOTE: Amounts less than $1 have been omitted.

Basic pay while serving as Chairman of the Joint Chiefs of Staff or as Chief of Staff of the Air Force is $4,140.59, regardless of cumulative years of service.

Basic pay for the highest enlisted rank, while serving as Chief Master Sergeant of the Air Force, is $1,594.50, regardless of cumulative years of service.

* Basic pay is limited to $3,150 by Level V of the Executive Schedule.

BASIC ALLOWANCE FOR QUARTERS (BAQ)

Pay Grade	Without Dependents	With Dependents
C/S and O-10	$255.30	$319.20
O-9	255.30	319.20
O-8	255.30	319.20
O-7	255.30	319.20
O-6	234.60	286.20
O-5	219.60	264.60
O-4	198.00	238.80
O-3	175.50	216.60
O-2	153.60	194.70
O-1	120.60	156.90
W-4	191.10	230.40
W-3	172.20	212.40
W-2	151.80	192.60
W-1	137.40	178.20
M/S and E-9	144.90	204.00
E-8	135.00	190.80
E-7	115.80	178.80
E-6	106.20	166.20
E-5	102.60	153.60
E-4	90.30	134.40
E-3	80.10	116.10
E-2	70.80	116.10
E-1	66.60	116.10

AVIATION CAREER INCENTIVE PAY SCHEDULE

PHASE I

Monthly Rate	Years of Aviation Service *(including flight training)* As an Officer
$100	2 or less
$125	over 2
$150	over 3
$165	over 4
$245	over 6

PHASE II

Monthly Rate	Years of Service as an Officer
$225	over 18
$205	over 20
$185	over 22
$165	over 24 but not over 25
0	over 25

NOTE: An officer in pay grade O-7 may not be paid at a rate greater than $160 a month. And an officer in pay grade O-8 or above may not be paid at a rate greater than $165 a month.

BASIC ALLOWANCE FOR SUBSISTENCE (BAS)

Officers (Monthly)	Enlisted (Daily)		
	Separate Rations	Rations in Kind Not Available	Emergency Rations
$53.05	$2.53	$2.85	$3.79

COMPARISON OF DoD BUDGETS FOR FY 1975–77

By Military Programs and Components

(Billions of dollars)

Military Program	Total Obligational Authority FY '75	FY '76	FY '77
Strategic Forces	$ 7.2	$ 7.3	$ 9.4
General-Purpose Forces	28.1	33.4	40.2
Intelligence and Communications	6.3	6.7	7.7
Airlift and Sealift	.9	1.3	1.6
Guard and Reserve Forces	4.8	5.5	5.9
Research and Development	7.7	8.7	10.5
Central Supply and Maintenance	9.1	9.7	10.9
Training, Medical, Other	20.1	21.8	23.0
Administration and Associated Activities	2.0	2.2	2.1
Support of Other Nations	1.8	1.8	1.4
Totals	**$87.9**	**$98.3**	**$112.7**
Components			
Department of the Army	$21.7	$24.1	$ 26.7
Department of the Navy	27.9	31.6	37.4
Department of the Air Force	26.1	28.6	32.1
Defense Agencies/OSD	10.6	12.2	13.7
Defense-wide Contingencies	—	.1	1.6
Civil Defense	.1	.1	.1
Military Assistance Programs	1.5	1.5	1.2
Totals	**$87.9**	**$98.3**	**$112.7**

EDUCATIONAL LEVELS—AIR FORCE LINE OFFICERS

Level	End June 1975 No.	%
Below high school	1	nil
High school, less than baccalaureate	5,086	5.6
Baccalaureate, no master's degree	62,571	68.8
Master's degree, no doctorate	22,074	24.3
Doctorate	1,155	1.3
TOTALS	**90,887**	**100.0**

Note: Small numbers coded "N/A" or "Unknown" not included.

EDUCATIONAL LEVELS—AIR FORCE ENLISTED FORCE

Level	End June 1975 No.	%
Below High School (No GED)	9,410	1.9
GED passed (old system) no diploma or civilian equivalency certificate	27,745	5.5
High school diploma or equivalency certificate based on GED (new System)	4,788	
High school completion (diploma or certificate)	386,938	
Total recognized high school diploma or certificate	391,726	78.2
Some postsecondary education, below bachelor	63,827	12.7
Baccalaureate or higher	8,436	1.7
TOTALS	**501,144**	**100**

INSTALLATIONS OF THE UNITED STATES AIR FORCE

Major Installations	**FY '64**	**FY '68**	**FY '72**	**FY '73**	**FY '74**	**FY '75**
Total in the Continental United States	151	129	112	111	109	107
Total Overseas (incl. Alaska and Hawaii)	65	69	49	46	45	41
TOTALS	**216**	**198**	**161**	**157**	**154**	**148**
By Function						
Operational	126	109	90			
Operational Flying Support	12	10	10			
Operational Nonflying Support	16	14	10			
Operational Foreign-Owned	5	18	8			
Training	38	30	29			
Research and Test	9	9	8			
Logistical	10	8	6			
TOTALS	**216**	**198**	**161**	**157**	**154**	**148**

(These installation classifications were eliminated from the automated system because of limited use.)

Other Installations	**FY '64**	**FY '68**	**FY '72**	**FY '73**	**FY '74**	**FY '75**
Ancillary	2,849	1,899	1,655			
Ballistic Missile	1,083	1,158	1,157			
Industrial	55	43	36		(See	
Radar	331	182	108		Note,	
Air National Guard	103	107	109		Below)	
Tenant, Non-Air Force	348	358	288			
For Use in Wartime Only	49	44	44			
TOTALS (Worldwide)	**4,818**	**3,791**	**3,397**	**3,074**	**3,083**	**3,043**
Located in the Continental United States	3,435	2,524	2,316	2,204	2,227	2,192
Located Overseas	1,383	1,267	1,081	870	856	851
Plus Major Installations *(see above)*	216	198	161	157	154	148
TOTALS, ALL INSTALLATIONS	**5,034**	**3,989**	**3,558**	**3,231**	**3,237**	**3,191**

NOTE: "Other Installations" for FY '73, '74, and '75 have been reclassified in the automated systems as follows:

Missile Sites	1,156	1,157	1,157
Electronics Stations or Sites	609	603	599
General Support Annexes	1,171	1,184	1,140
Air National Guard Installations	115	117	125
Auxiliary Airfields	23	22	22
TOTALS	**3,074**	**3,083**	**3,043**

AIR FORCE BUDGET AND FINANCE—FISCAL YEARS 1964–77

(Figures in millions of dollars)

	FY '64	FY '68	FY '74	FY '75	FY '76	FY '77
Gross National Product	616,400	830,300	1,358,600	1,440,000	1,593,000	1,837,000
Federal Budget Outlays	118,584	178,833	268,392	324,601	373,535	394,237
DoD Budget Outlays	50,786	78,027	78,445	86,019	91,200	100,100
DoD Percent of: GNP	8.3%	9.4%	5.8%	5.9%	5.7%	5.5%
Federal Budget	42.8%	43.6%	29.2%	26.5%	24.4%	25.4%
Air Force Budget Outlays						
Current Dollars	20,456	25,734	23,928	25,042	26,234	27,734
Constant FY 1976 Prices	44,997	49,809	30,970	28,702	28,207	27,734
AF Percent of: GNP	3.3%	3.1%	1.8%	1.7%	1.6%	1.5%
Federal Budget	17.3%	14.4%	8.9%	7.7%	7.0%	7.0%
DoD Budget	40.3%	33.0%	30.5%	29.1%	28.8%	27.7%
Total Obligational Authority						
Current Dollars	19,959	24,974	24,737	26,056	28,644	32,098
Constant FY 1976 Prices	44,772	48,903	31,086	29,735	30,674	32,098
Appropriations, TOA (Current $)						
Aircraft Procurement (3010)	3,620	5,306	2,824	3,065	3,982	6,345
Missile Procurement (3020)	2,220	1,408	1,416	1,543	1,712	1,599
Other Procurement (3080)	876	2,358	1,641	1,649	2,079	2,425
Military Construction-AF (3300)	497	481	306	385	559	802
RDT&E (3600)	3,627	3,412	3,062	3,299	3,609	3,925
Operations and Maintenance (3400)	4,339	5,904	6,882	7,285	7,683	8,225
Military Personnel-AF (3500)	4,423	5,678	7,479	7,487	7,496	7,169
Reserve Personnel-AF (3700)	57	63	126	142	163	153
Military Construction-AFR (3730)	3	4	10	16	18	10
Operations and Maintenance-AFR (3740)	—	—	239	296	332	359
Military Construction-ANG (3830)	17	10	19	35	63	28
Operations and Maintenance-ANG (3840)	220	266	551	653	715	785
National Guard Personnel-AF (3850)	60	84	182	202	217	198
Stock Fund (4921)	—	—	—	—	15	77
Programs, TOA (Current $)						
I Strategic Forces	6,527	5,186	4,332	4,471	4,646	5,404
II General-Purpose Forces	3,030	7,272	5,593	5,983	7,085	8,294
III Intelligence and Communications	2,977	3,618	3,334	3,482	3,552	3,949
IV Airlift and Sealift Forces	1,010	1,736	757	889	1,251	1,538
V Reserve and Guard Forces	503	621	1,220	1,399	1,633	1,664
VI Research and Development	2,065	1,561	2,401	2,854	3,266	3,966
VII Central Supply and Maintenance	1,768	2,375	2,758	2,999	3,061	3,453
VIII Training, Medical, and Other General Activities	1,726	2,079	3,438	3,390	3,517	3,240
IX Admin and Assoc Activities	342	352	551	549	593	565
X Support of Other Nations	11	173	353	41	40	24
Total Funds Avail. for Exp. Air Force	29,144	38,690	34,032	36,398	40,137	44,802
Outlays (Excludes MAP/FMS)	20,456	25,734	23,928	25,042	26,234	27,734
Unexpended Balance	8,688	12,956	10,104	11,356	13,903	17,068

USAF AIRCRAFT PROCUREMENT—FY '64–77

CATEGORY	FY '64	FY '68	FY '73	FY '74	FY '75	FY '76	FY '77
Fixed-Wing Aircraft							
Total Budgeted	778	1,152	161	165	195	181	235
Accepted/Scheduled Acceptances	726	935	255	117	94	278	185
Helicopters							
Total Budgeted	43	38	6	0	0	0	4
Accepted/Scheduled Acceptances	37	36	29	1	5	0	0

NOTE: Excludes MASF, Navy, NASA, MAP, and FMS funded aircraft. Data in FY '64–75 columns are actual. FY '76–77 data are programmed.

THE NUMBER OF SQUADRONS IN THE US AIR FORCE

MAJOR FORCE SQUADRONS	FY '64	FY '68	FY '74	FY '75	FY '76	FY '77
Bomber	75	40	28	27	26	25
ECM/Reconnaissance	5	3	1	1	1	1
IRBM/ICBM (IRBM in FY '64 only)	35	26	26	26	26	26
Tanker	55	41	38	38	35	33
Interceptor	49	34	7	6	6	6
Bomarc	8	6	—	—	—	—
Command, Control, and Surveillance	13	13	8	8	6	6
Tactical Bomber	2	1	—	—	—	—
Mace/Matador	8	2	—	—	—	—
Fighter	75	92	74	71	74	74
Reconnaissance	8	21	13	12	9	9
Tactical Air Control System	1	9	11	9	9	9
Special Operations Force	6	22	5	5	5	5
Tactical Airborne Command Control System	—	—	—	2	2	2
Tactical Airlift	26	31	17	17	15	15
Strategic Airlift	35	32	17	17	17	17
Aeromed Evacuation	5	6	3	3	3	3
Special Mission	2	2	2	2	2	2
Mapping	2	2	1	—	—	—
Weather	6	6	3	3	2	2
Air Rescue and Recovery	12	14	12	9	6	6
Intelligence	—	15	9	6	7	6
Other	11	9	2	3	2	2
TOTAL, USAF	**439**	**427** [2]	**277**	**265**	**253**	**249**
Air National Guard	92	78	91	91	91	91
Air Force Reserve [1]	50	37	53	53	53	53
TOTAL, MAJOR FORCE SQUADRONS	**581**	**542**	**421**	**409**	**397**	**393**

[1] Includes Associate Squadrons.
[2] Includes 20 Mobilized Units.

NOTE: Data in FY '64–75 columns are actual; FY '76 and FY '77 data are programmed.

THE NUMBER OF ACTIVE AIRCRAFT AND FLYING HOURS

TYPE OF AIRCRAFT	FY '64	FY '68	FY '74	FY '75	FY '76	FY '77
Bomber, Strategic	1,364	714	500	498	422	420
Bomber, Other	145	65	—	—	—	—
Tanker	998	667	657	657	621	585
Fighter/Interceptor/Attack	3,538	3,985	2,387	2,299	2,495	2,552
Reconnaissance/Electronic Warfare	595	1,009	610	494	411	398
Cargo/Transport	2,327	2,358	1,253	928	884	876
Search and Rescue (Fixed Wing)	100	91	56	44	36	35
Helicopter (includes Rescue)	401	465	317	269	258	256
Special Research	3	5	—	—	—	—
Trainer	2,873	2,584	1,996	1,861	1,808	1,806
Utility/Observation	345	663	154	189	188	193
TOTAL, USAF	**12,689**	**12,606**	**7,930**	**7,239**	**7,123**	**7,121**
Plus Air National Guard total	1,806	1,438	1,798	1,647	1,650	1,630
Plus Air Force Reserve total	719	426	428	448	484	488
Plus Free World Military Forces total	—	692	1,976	243	—	—
Plus aircraft earmarked (MAP, USN, and Other Non-AF)	166	165	—	—	—	—
TOTAL ACTIVE AIRCRAFT: USAF, AFRES, ANG	**15,380**	**15,327**	**12,132**	**9,577**	**9,257**	**9,239**
FLYING HOURS (000)						
USAF	6,028	7,068	3,272	3,078	2,754	2,683
ANG	432	465	405	417	405	422
AFRES	202	164	128	142	139	150
TOTAL FLYING HOURS	**6,662**	**7,697**	**3,805**	**3,637**	**3,298**	**3,255**

UNITED STATES AIR FORCE MEDAL OF HONOR WINNERS—1918–1976

NAMES, ALPHABETICALLY BY WARS AND RANK AT TIME OF ACTION	HOME TOWN	DATE AND PLACE OF ACTION	PRESENT ADDRESS OR DATE OF DEATH
WORLD WAR I			
Bleckley, 2d Lt. Erwin R.	Wichita, Kan.	Oct. 6, 1918, Binarville, France	KIA, Oct. 6, 1918
Goettler, 2d Lt. Harold E.	Chicago, Ill.	Oct. 6, 1918, Binarville, France	KIA, Oct. 6, 1918
Luke, 2d Lt. Frank, Jr.	Phoenix, Ariz.	Sept. 29, 1918, Murvaux, France	KIA, Sept. 29, 1918
Rickenbacker, Capt. Edward V.	Columbus, Ohio	Sept. 25, 1918, Billy, France	Deceased, July 23, 1973
WORLD WAR II			
Baker, Lt. Col. Addison E.	Chicago, Ill.	Aug. 1, 1943, Ploesti, Romania	KIA, Aug. 1, 1943
Bong, Maj. Richard I.	Superior, Wis.	Oct. 10–Nov. 15, 1944, Southwest Pacific	Killed, Aug. 6, 1945, Burbank, Calif.
Carswell, Maj. Horace S., Jr.	Fort Worth, Tex.	Oct. 26, 1944, South China Sea	KIA, Oct. 26, 1944
Castle, Brig. Gen. Frederick W.	Manila, P.I.	Dec. 24, 1944, Liège, Belgium	KIA Dec. 24, 1944
Cheli, Maj. Ralph	San Francisco, Calif.	Aug. 18, 1943, Wewak, New Guinea	Died as POW, Mar. 6, 1944
Craw, Col. Demas T.	Traverse City, Mich.	Nov. 8, 1942, Port Lyautey, French Morocco	KIA, Nov. 8, 1942
Doolittle, Lt. Col. James H.	Alameda, Calif.	Apr. 18, 1942, Tokyo, Japan	Los Angeles, Calif. (Ret. Lt. Gen.)
Erwin, SSgt. Henry E.	Adamsville, Ala.	Apr. 12, 1945, Korlyama, Japan	Birmingham, Ala.
Femoyer, 2d Lt. Robert E.	Huntington, W. Va.	Nov. 2, 1914, Merseburg, Germany	KIA, Nov. 2, 1944
Gott, 1st Lt. Donald J.	Arnett, Okla.	Nov. 9, 1944, Saarbrücken, Germany	KIA, Nov. 9, 1944
Hamilton, Maj. Pierpont M.	Tuxedo, N.Y.	Nov. 8, 1942, Port Lyautey, French Morocco	Santa Barbara, Calif. (Ret. Maj. Gen.)
Howard, Maj. James H.	Canton, China	Jan. 11, 1944, Oschersleben, Germany	Washington, D.C. (Ret. Brig. Gen.)
Hughes, 2d Lt. Lloyd H.	Alexandria, La.	Aug. 1, 1943 Ploesti, Romania	KIA, Aug. 1, 1943
Jerstad, Maj. John L.	Racine, Wis.	Aug. 1, 1943 Ploesti, Romania	KIA, Aug. 1, 1943
Johnson, Col. Leon W.	Columbia, Mo.	Aug. 1, 1943 Ploesti, Romania	McLean, Va. (Ret. Gen.)
Kane, Col. John R.	McGregor, Tex.	Aug. 1, 1943 Ploesti, Romania	Barber, Ark. (Ret. Col.)
Kearby, Col. Neel E.	Wichita Falls, Tex.	Oct. 11, 1943, Wewak, New Guinea	KIA, Mar. 5, 1944, Wewak, New Guinea
Kingsley, 2d Lt. David R.	Portland, Ore.	June 23, 1944, Ploesti, Romania	KIA, June 23, 1944
Knight, 1st Lt. Raymond L.	Houston, Tex.	Apr. 25, 1945, Po Valley, Italy	KIA, Apr. 25, 1945
Lawley, 1st Lt. William R., Jr.	Leeds, Ala.	Feb. 20, 1944, Leipzig, Germany	Montgomery, Ala. (Ret. Col.)
Lindsey, Capt. Darrell R.	Jefferson, Iowa	Aug. 9, 1944, Pontoise, France	KIA, Aug. 9, 1944
Mathies, SSgt. Archibald	Scotland	Feb. 20, 1944, Leipzig, Germany	KIA, Feb. 20, 1944
Mathis, 1st Lt. Jack W.	San Angelo, Tex.	Mar. 18, 1943, Vegesack, Germany	KIA, Mar. 18, 1943
McGuire, Maj. Thomas B., Jr.	Ridgewood, N.J.	Dec. 25–26, 1944, Luzon, P.I.	KIA, Jan. 7, 1945, Negros, P.I.
Metzger, 2d Lt. William E., Jr.	Lima, Ohio	Nov. 9, 1944, Saarbrücken, Germany	KIA, Nov. 9, 1944
Michael, 1st Lt. Edward S.	Chicago, Ill.	Apr. 11, 1944, Brunswick, Germany	Fairfield, Calif. (Ret. Col.)
Morgan, F/O John C.	Vernon, Tex.	July 28, 1943, Kiel, Germany	Greenwich, Conn. (Ret. Col.)
Pease, Capt. Harl, Jr.	Plymouth, N.H.	Aug. 7, 1942, Rabaul, New Britain	KIA, Aug. 7, 1942
Pucket, 1st Lt. Donald D.	Longmont, Colo.	July 9, 1944, Ploesti, Romania	KIA, July 9, 1944
Sarnoski, 2d Lt. Joseph R.	Simpson, Pa.	June 16, 1943, Buka, Solomon Is.	KIA, June 16, 1943
Shomo, Capt. William A.	Jeannette, Pa.	Jan. 11, 1945, Luzon, P.I.	Pittsburgh, Pa. (Ret. Lt. Col.)
Smith, SSgt. Maynard H.	Caro, Mich.	May 1, 1943, St. Nazaire, France	Long Island City, N.Y.
Truemper, 2d Lt. Walter E.	Aurora, Ill.	Feb. 20, 1944, Leipzig, Germany	KIA, Feb. 20, 1944
Vance, Lt. Col. Leon R., Jr.	Enid, Okla.	June 5, 1944, Wimereaux, France	Killed July 26, 1944, near Iceland
Vosler, TSgt. Forrest L.	Lyndonville, N.Y.	Dec. 20, 1943, Bremen, Germany	Poland, N.Y.
Walker, Brig Gen. Kenneth N.	Cerrillos, N.M.	Jan. 5, 1943, Rabaul, New Britain	KIA, Jan. 5, 1943
Wilkins, Maj. Raymond H.	Portsmouth, Va.	Nov. 2, 1943, Rabaul, New Britain	KIA, Nov. 2, 1943
Zeamer, Capt. Jay, Jr.	Carlisle, Pa.	June 16, 1943, Buka, Solomon Is.	Hyannis, Mass. (Ret. Lt. Col.)
KOREA			
Davis, Lt. Col. George A., Jr.	Dublin, Tex.	Feb. 10, 1952, Sinuiju-Yalu River, No. Korea	KIA, Feb. 10, 1952
Loring, Maj. Charles J., Jr.	Portland, Me.	Nov. 22, 1952, Sniper Ridge, No. Korea	KIA, Nov. 22, 1952
Sebille, Maj. Louis J.	Harbor Beach, Mich.	Aug. 5, 1950, Hamch'ang, So. Korea	KIA, Aug. 5, 1950
Walmsley, Capt. John S., Jr.	Baltimore, Md.	Sept. 14, 1951, Yangdok, No. Korea	KIA, Sept. 14, 1951
VIETNAM			
Bennett, Capt. Steven L.	Palestine, Tex.	June 29, 1972, Quang Tri, So. Vietnam	KIA, June 29, 1972
Day, Col. George E.	Sioux City, Iowa	Conspicuous gallantry while POW	Active duty, Col., Eglin AFB, Fla.
Dethlefsen, Maj. Merlyn H.	Greenville, Iowa	Mar. 10, 1967, Thai Nguyen, No. Vietnam	Active duty, Col., Beale AFB, Calif.
Fisher, Maj. Bernard F.	San Bernardino, Calif.	Mar. 10, 1966, A Shau Valley, So. Vietnam	Kuna, Idaho (Ret. Col.)
Fleming, 1st Lt. James P.	Sedalia, Mo.	Nov. 26, 1968, Duc Co, So. Vietnam	Active duty, Capt., Maxwell AFB, Ala.
Jackson, Lt. Col. Joe M.	Newnan, Ga.	May 12, 1968, Kham Duc, So. Vietnam	Chicopee, Mass. (Ret. Col.)
Jones, Lt. Col. William A. III	Norfolk, Va.	Sept. 1, 1968, Dong Hoi, No. Vietnam	Killed, Nov. 15, 1969, Woodbridge, Va.
Levitow, A1C John L.	Hartford, Conn.	Feb. 24, 1969, Long Binh, So. Vietnam	Glastonbury, Conn.
Sijan, Capt. Lance P.	Milwaukee, Wis.	Conspicuous gallantry while POW	Died while POW, Jan. 1968
Thorsness, Lt. Col. Leo K.	Walnut Grove, Minn.	Apr. 19, 1967, No. Vietnam	Alexandria, Va. (Ret. Lt. Col.)
Wilbanks, Capt. Hilliard A.	Cornelia, Ga.	Feb. 24, 1967, Dalat, So. Vietnam	KIA, Feb. 24, 1967
Young, Capt. Gerald O.	Ancortes, Wash.	Nov. 9, 1967, Da Nang area, So. Vietnam	Active duty, Lt. Col., Andrews AFB, Md.

AIR FORCE MAGAZINE'S GUIDE TO ACES

In compiling this list of aces who flew with USAF and its predecessor organizations (the Air Service and the Army Air Forces), AIR FORCE Magazine has used official USAF sources except for World War I. During that war, many Americans scored victories serving with foreign countries. As a result, these men do not appear on official lists as "American" aces. We have included in our list of World War I aces both those who flew with the American Air Service and with the British or French. The lists for World War II, Korea, and Vietnam include only AAF/USAF airmen.

The Albert F. Simpson Historical Research Center, Maxwell AFB, Ala., has completed a detailed accounting of the Air Service victory credits in World War I and USAF victory credits in Korea and Southeast Asia. The Center is still preparing the list of Army Air Forces victory credits for World War II. This has taken much time as a result of the great number of victories and the many different procedures used to record them. The final documented list of all World War II combat scores will not be available for several years. All World War II awards are still tentative, and all are open to further change or challenge.

Although some World War I totals (notably Frank Luke's) include balloons, all entries for subsequent conflicts are for air-to-air victories.

—The Editors

LEADING AMERICAN ACES OF WORLD WAR I

(Ten or more victories)

Rickenbacker, Capt. Edward V. (AEF)	26	Iaccaci, Capt. Paul T. (RFC)	18	Baylies, Lt. Frank L. (FFC/LE)	12
Rosevear, Capt. S. C. (RFC)	23	Luke, 2d Lt. Frank, Jr. (AEF)	18	Bennett, 1st Lt. Louis B. (RFC)	12
Lambert, Capt. William C. (RFC)	22	Lufbery, Maj. Raoul G. (FFC/LE)	17	Kindley, Capt. Field E. (AEF)	12
Gillette, Capt. Frederick W. (RFC)	20	Kullberg, Lt. Harold A. (RFC)	16	Putnam, 1st Lt. David E. (LE/AEF)	12
Malone, Capt. John J. (RN)	20	Rose, Capt. Oren J. (RFC)	16	Springs, Capt. Elliott W. (AEF)	12
Wilkinson, Maj. Alan M. (RFC)	19	Warman, Lt. C. T. (RFC)	15	Iaccaci, Lt. Thayer A. (RFC)	11
Hale, Capt. Frank L. (RFC)	18	Libby, Capt. Frederick (RFC)	14	Landis, Capt. Reed G. (AEF)	10
		Vaughn, 1st Lt. George A. (AEF)	13	Swaab, Capt. Jacques M. (AEF)	10

AEF—American Expeditionary Force
FFC—French Flying Corps
LE—Lafayette Escadrille
RFC—Royal Flying Corps (British)
RN—Royal Navy (British)

LEADING ARMY AIR FORCE ACES OF WORLD WAR II

(Fourteen and a half or more victories)

Bong, Maj. Richard T.	40	Duncan, Col. Glenn E.	19.50	Anderson, Lt. Col. Clarence E., Jr.	16.25
McGuire, Maj. Thomas B.	38	Carson, Maj. Leonard K.	18.50	Dunham, Col. William D.	16
Gabreski, Col. Francis N.	28*	Eagleston, Lt. Col. Glenn T.	18.50*	Harris, Lt. Col. Bill	16
Johnson, Lt. Col. Robert S.	27	Hill, Maj. David L. (AVG/USAF)	18.25†	Welch, Maj. George S.	16
MacDonald, Col. Charles H.	27	Older, Lt. Col. Charles H. (AVG/USAF)	18.25†	Beerbower, Capt. Donald M.	15.50
Preddy, Maj. George E.	26.83	Beckham, Col. Walter C.	18	Peterson, Maj. Richard A.	15.50
Meyer, Col. John C.	24*	Green, Col. Herschel H.	18	Whisner, Maj. William T., Jr.	15.50*
Schilling, Col. David C.	22.50	Zemke, Col. Hubert	17.75	Blakeslee, Col. Donald J. M. (ES/USAF)	15†
Johnson, Lt. Col. Gerald R.	22	England, Lt. Col. John B.	17.50	Bradley, Col. Jack T.	15
Kearby, Col. Neel E.	22	Beeson, Maj. Duane W.	17.33	Brown, Capt. Samuel J.	15
Robbins, Col. Jay T.	22	Thornell, Maj. John F., Jr.	17.25	Cragg, Maj. Edward	15
Christensen, Capt. Fred J.	21.50	Foy, Maj. Robert W.	17	Herbst, Col. John C.	15
Wetmore, Capt. Ray S.	21.25	Reed, Maj. William N. (AVG/USAF)	17†	Hofer, 1st Lt. Ralph K.	15
Mahurin, Lt. Col. Walker M.	20.75*	Varnell, Capt. James S., Jr.	17	Homer, Maj. Cyril F.	15
Voll, Maj. John J.	20.50	Johnson, Col. Gerald W.	16.50	Bochkay, Lt. Col. Donald H.	14.84
Lynch, Lt. Col. Thomas J.	20	Godfrey, Capt. John T.	16.33	Powers, Capt. Joe H., Jr.	14.50
Westbrook, Lt. Col. Robert B.	20				
Gentile, Capt. Donald S.	19.83				

* Aces who added to these scores by victories in the Korean War.

AVG—American Volunteer Group
ES—Eagle Squadron

†—The Simpson Center has no way of verifying kills made while flying with AVG or ES.

USAF ACES OF THE KOREAN WAR

McConnell, Capt. Joseph, Jr.	16	Hagerstrom, Maj. James P.	8.50*	Baldwin, Col. Robert P.	5
Jabara, Lt. Col. James	15*	Risner, Capt. Robinson	8	Becker, Capt. Richard S.	5
Fernandez, Capt. Manuel J.	14.5	Ruddell, Lt. Col. George I.	8*	Bettinger, Maj. Stephen L.	5
Davis, Lt. Col. George A., Jr.	14*	Buttlemann, 1st. Lt. Henry	7	Creighton, Maj. Richard D.	5*
Baker, Col. Royal N.	13*	Jolley, Capt. Clifford D.	7	Curtin, Capt. Clyde A.	5
Blesse, Maj. Frederick C.	10	Lilley, Capt. Leonard W.	7	Gibson, Capt. Ralph D.	5
Fischer, 1st Lt. Harold E.	10	Adams, Maj. Donald E.	6.50*	Kincheloe, Capt. Iven C., Jr.	5
Garrison, Lt. Col. Vermont	10*	Gabreski, Col. Francis S.	6.50*	Latshaw, Capt. Robert T., Jr.	5
Johnson, Col. James K.	10*	Jones. Lt. Col. George L.	6.50	Moore, Capt. Robert H.	5
Moore, Capt. Lonnie R.	10	Marshall, Maj. Winton W.	6.50	Overton, Capt. Dolphin D., III	5
Parr, Capt. Ralph S., Jr.	10	Kasler, 1st Lt. James H.	6	Thyng, Col. Harrison R.	5*
Foster, Capt. Cecil G.	9	Love, Capt. Robert J.	6	Westcott, Maj. William H.	5
Low, 1st Lt. James F.	9	Whisner, Maj. William T., Jr.	5.50*		

* These are in addition to World War II victories.

AAF/USAF ACES OF WORLD WAR II AND LATER WARS

	WWII	KOREA	TOTAL		WWII	KOREA	TOTAL
Gabreski, Col. Francis S.	28	6.5	34.5	Johnson, Col. James K.	1	10	11
Meyer, Col. John C.	24	2	26	Adams, Maj. Donald E.	4	6.5	10.5
Mahurin, Col. Walker M.	20.75	3.5	24.25	Ruddell, Lt. Col. George I.	2.5	8	10.5
Davis, Maj. George A., Jr.	7	14	21	Thyng, Col. Harrison R.	5	5	10
Whisner, Maj. William T.	15.5	5.5	21	Colman, Capt. Philip E.	5	4	9
Eagleston, Col. Glenn T.	18.5	2	20.5	Heller, Lt. Col. Edwin L.	5.5	3.5	9
Garrison, Lt. Col. Vermont	7.33	10	17.33	Chandler, Maj. Van E.	5	3	8
Baker, Col. Royal N.	3.5	13	16.5	Hockery, Maj. John J.	7	1	8
Jabara, Maj. James	1.5	15	16.5	Creighton, Maj. Richard D.	2	5	7
Olds, Col. Robin	12	4*	16	Emmert, Lt. Col. Benjamin H., Jr.	6	1	7
Mitchell, Col. John W.	11	4	15	Bettinger, Maj. Stephen L.	1	5	6
Brueland, Maj. Lowell K.	12.5	2	14.5	Visscher, Maj. Herman W.	5	1	6
Hagerstrom, Maj. James P.	6	8.5	14.5	Liles, Capt. Brooks J.	1	4	5
Hovde, Lt. Col. William J.	10.5	1	11.5	Mattson, Capt. Conrad E.	1	4	5

* Colonel Olds's 4 additional victories came in Vietnam.

AMERICAN ACES OF THE VIETNAM WAR

DeBellevue, Capt. Charles D. (USAF)	6
Cunningham, Lt. Randy (USN)	5
Driscoll, Lt. William (USN)	5
Feinstein, Capt. Jeffrey S. (USAF)	5
Ritchie, Capt. Richard S. (USAF)	5

LEADING AIR SERVICE/ AAF/USAF ACES OF ALL WARS

Bong, Maj. Richard T.	40	WW II	Kearby, Col. Neel E.	22	WW II
McGuire, Maj. Thomas B.	38	WW II	Robbins, Col. Jay T.	22	WW II
Gabreski, Col. Francis S.	34.50	WW II, Korea	Christensen, Capt. Fred J.	21.50	WW II
Johnson, Lt. Col. Robert S.	27	WW II	Wetmore, Capt. Ray S.	21.25	WW II
MacDonald, Col. Charles H.	27	WW II	Davis, Maj. George A., Jr.	21	WW II, Korea
Preddy, Maj. George E.	26.83	WW II	Whisner, Maj. William T., Jr.	21	WW II, Korea
Meyer, Col. John C.	26	WW II, Korea	Eagleston, Col. Glenn T.	20.50	WW II, Korea
Rickenbacker, Capt. Edward V.	26	WW I	Voll, Maj. John J.	20.50	WW II
Mahurin, Lt. Col. Walker M.	24.25	WW II, Korea	Lynch, Lt. Col. Thomas J.	20	WW II
Schilling, Col. David C.	22.50	WW II	Westbrook, Lt. Col. Robert B.	20	WW II
Johnson, Lt. Col. Gerald R.	22	WW II	Gentile, Capt. Donald S.	19.83	WW II

SOME FAMOUS FIRSTS IN THE ANNALS OF AVIATION

First American to shoot down five enemy aircraft during World War I	Capt. Frederick Libby (serving with RFC)
First American ace of World War I	Capt. Alan M. Wilkinson (RFC)
First American ace to serve with the AEF	Capt. Raoul G. Lufbery (FFC/LE)
First American AEF ace of World War I	Capt. Douglas Campbell (FFC/LE)
First American ace of World War II	Pilot Officer William R. Dunn (RAF)
First American USAAF ace of World War II	Lt. Boyd D. "Buzz" Wagner
First American ace of the Korean War and USAF's first jet ace	Capt. James Jabara (May 20, 1951)
First American to score an aerial victory in Korea	1st Lt. William G. Hudson (F-82 pilot; downed a Yak-11, June 27, 1950)
First jet-to-jet kill of the Korean War	1st Lt. Russell J. Brown, (F-80 pilot; downed a MiG-15, November 8, 1950)
First American ace of two wars	Maj. A. J. "Ajax" Baumler (8 victories in the Spanish Civil War and 5 in World War II)
First USAF ace with victories in World War II and the Vietnam War	Brig. Gen. Robin Olds (12 victories in WW II and 4 in Vietnam)

Source: *Fighter Aces*, by Col. Raymond F. Toliver and Trevor J. Constable, Macmillan Co., N.Y., 1965

AIR FORCE MAGAZINE'S

GUIDE TO USAF BASES AT HOME AND ABROAD

Altus AFB, Okla. 73521; 3 mi. NE of Altus. Phone: (405) 482-8100. AUTOVON: 866-1110. MAC base. 443d Military Airlift Training Wing; transition training for C-141 and C-5 crews. Formerly SAC base; SAC's 11th ARS continues tanker operations as tenant. AFCS's 4th Combat Communications Group has tenant status. Base activated Jan. 1943; inactivated May 1945; reactivated Jan. 1953. Area: 2,487 acres. Altitude: 1,376 ft. M—4,124; C—675; TP—$56.4M; O—269; N—431; H (25).

Andrews AFB, Md. 20331; 11 mi. SE of Washington, D. C. Phone: (301) 981-9111. AUTOVON: 858-1110. Headquarters Command base transfers to MAC on disestablishment of HQ COMD (*see p. 68*). Hq. Air Force Systems Command; high-priority airlift for HQ COMD; also proficiency flying for HQ COMD, AFRES, ANG, Navy, Marines. Other units: 1st Composite Wing; 89th Military Airlift Special Missions Wing; 459th Tactical Airlift Wing, AFRES; 113th Tactical Fighter Wing, ANG; weather squadron. Base activated June 1943; named for Lt. Gen. Frank M. Andrews, military air pioneer, killed in an aircraft accident, May 3, 1943. Area: 4,279 acres. Altitude: 279 ft. M—5,800; C—4,-135; TP—$139M; O—392; N—1,351; T/G—82; H (250).

Arnold AFS, Tenn. 37389; approximately 7 mi. SE of Manchester. Phone: (615) 455-2611. AUTOVON: 882-1520. AFSC installation; site of the Arnold Engineering Development Center, the free world's largest complex of wind tunnels, jet and rocket engine test cells, space simulation chambers, and hyperballistic ranges, which support the acquisition of new aerospace systems by conducting research, development, and evaluation testing for the Air Force, other military services, and government agencies. Base activated Jan. 1, 1950; named for Gen. H. H. "Hap" Arnold, wartime Chief of the AAF. Area: 40,118 acres. Altitude: 950 to 1,150 ft. M—100; C—3,380; TP—$55.7M; O—24; N—16; D.

Barksdale AFB, La. 71110; in Bossier City. Phone: (318) 456-2252. AUTOVON: 781-1110. SAC base. Hq. 8th Air Force; 2d Bomb Wing. Base is also site of 917th Tactical Fighter Group. Base activated Feb. 2, 1933; named for Lt. Eugene H. Barksdale, WW I airman killed in Aug. 1926 aircraft accident. Area: 22,000 acres (20,000 acres reserved for recreational area). Altitude: 167 ft. M—6,624; C—1,758; TP—$73.1M; O—360; N—702; T/G—33; H (65).

Beale AFB, Calif. 95903; 13 mi. E of Marysville. Phone: (916) 634-3000. AUTOVON: 368-1110. SAC base. 14th Air Division; 9th Strategic Reconnaissance Wing; 17th Bombardment Wing. Beale is the only USAF base having SR-71 strategic recce aircraft. Originally US Army's Camp Beale; became AF installation in Nov. 1948; became AFB in Dec. 1951; named for Brig. Gen. E. F. Beale, Indian agent in Calif. prior to Civil War. Area: 22,944 acres. Altitude: 113 ft. M—5,115; C—619; TP—$53M; O—401; N—1,336; H (30).

Bellows AFS, Hawaii (APO San Francisco 96553); approximately 12 mi. NE of Honolulu. Phone: (808) 259-9469. PACAF base. It is a closed airfield presently used by the Marine Corps as a tactical maneuver area, by the Army National Guard as an armory, and by the Air Force as a radio-transmitter site and recreation center. Activated in 1930 as Bellows Field in honor of 2d Lt. Franklin D. Bellows, killed in France during WW I. Became Bellows AFS on March 28, 1948. Area: 1,492 acres. Altitude: 15 ft. M—60; C—3; TP—see Hickam AFB; D.

Bergstrom AFB, Tex. 78743; 8 mi. SE of downtown Austin. Phone: (512) 385-4100. AUTOVON: 685-1110. TAC base. Hq. 12th Air Force; 67th Tactical Reconnaissance Wing; 602d Tactical Air Control Center. TAC NCO Academy; Hq., Central Air Force Reserve Region and 924th Tactical Airlift Group (AFRES). Base activated Sept. 22, 1942; named for Capt. John A. E. Bergstrom, first Austin serviceman killed in WW II. Area: 3,147 acres. Altitude: 541 ft. M—5,159; C—622; TP—$66.2M; O—80; N—624; H (40).

Blytheville AFB, Ark. 72315; 4 mi. NW of Blytheville. Phone: (501) 763-3931. AUTOVON: 637-1110. SAC base. 42d Air Division; 97th Bomb Wing. Base activated June 1942; inactivated Feb. 1947; reactivated Aug. 1955. Area: 3,067 acres. Altitude: 254 ft. M—2,783; C—831; TP—$33.9M; O—248; N—582; H (25).

Bolling AFB, D. C. 20332; 3 mi. S of the US Capitol. Phone: (202) 767-4522. AUTOVON: 297-1110. Hq. Headquarters Command, USAF (HQ COMD to be disestablished and base transferred to MAC control; *see p. 68).* Base activated Oct. 1917; named for Col. Raynal C. Bolling, Ass't Chief of Air Service, killed during WW I. Area: 602 acres. Altitude 16 ft. M—1,918; C—1,433; TP—$32.8M; O—171; N—850; T/G—15; D.

Brooks AFB, Tex. 78235; 7 mi. SE of San Antonio. Phone: (512) 536-1110. AUTOVON: 240-1110. AFSC base. Home of Aerospace Medical Division, USAF School of Aerospace Medicine, and USAF Human Resources Lab; tenant units include Armed Forces Central Medical Registry, a security squadron, and a communications squadron. Base activated Dec. 8, 1917; named for Cadet Sidney J. Brooks, Jr., killed Nov. 13, 1917, on his final solo flight before commissioning. Area: 1,330 acres. Altitude: 600 ft. M—1,200; C—900; TP—$29M; O—70; N—100; T/G—8; D.

Cannon AFB, N. M. 88101; 7 mi. west of Clovis. Phone: (505) 784-3311. AUTOVON: 681-1110. TAC base. 27th Tactical Fighter Wing. Activated Aug. 1942; named for Gen. John K. Cannon, WW II Commander of all Allied Air Forces in Mediterranean. Area: 11,339 acres. Altitude: 4,295 ft. M—4,188; C—708; TP—$40M; O—200; N—812; H (30).

Carswell AFB, Tex. 76127; 7 mi. WNW of downtown Fort Worth. Phone: (817) 738-3511. AUTOVON: 739-1110. SAC base. 19th Air Division; 7th Bomb Wing; 301st Tactical Fighter Wing (AFRES). Activated Aug. 1942; named Jan. 30, 1948, for Maj. Horace S. Carswell, Jr., native of Fort Worth, WW II B-24 pilot and posthumous Medal of Honor winner. Area: 2,000 acres. Altitude: 650 ft. M—5,184; C—1,002; TP—$67.7M; O—190; N—277; T/G—4; H (135).

At the end of each entry in this Guide to Bases are data on base population and facilities, designated by the following symbols: M and C—assigned military and civilian personnel, including, where applicable, contractor, BX, and nonappropriated fund employees; TP—total military and civilian annual payroll; O, N, T/G—on-base Officer, NCO, and Transient/Guest housing units; H ( ), D—hospital, dispensary medical facilities with number of hospital beds in parentheses. In some instances, information was not available.

Castle AFB, Calif. 95342; 8 mi. NW of Merced. Phone: (209) 726-2011. AUTOVON: 347-1110. SAC base. 93d Bomb Wing. Conducts training of SAC B-52 and KC-135 crews. Also houses ADCOM fighter-interceptor squadron. Activated Sept. 1941; named for Brig. Gen. Frederick W. Castle, WW II B-17 pilot and posthumous Medal of Honor winner. Area: 2,700 acres. Altitude: 188 ft. M—5,704; C—551; TP—$60.6M; O—239; N—696; H (30).

Chanute AFB, Ill. 61866; 1 mi. S of Rantoul; 14 mi. N of Champaign. Phone: (217) 495-1110. AUTOVON: 862-1110. ATC base. Provides technical training in missile and aircraft maintenance and weather school. Base has museum, Chanute Technical Training Display Center. Base activated May 21, 1917; named for Octave Chanute, aeronautical engineer and glider pioneer. Area: 2,100 acres. Altitude: 737 ft. M—10,000; C—3,000; TP—$103.7M; O—234; N—620; T/G—8; H (65).

Charleston AFB, S. C. 29404; in North Charleston. Phone: (803) 554-0230. AUTOVON: 583-0111. MAC base. 437th Military Airlift Wing and Associate 315th MAW (AFRES). Base activated June 1942; inactivated Feb. 1946; reactivated Aug. 1953. Area: 3,900 acres. Altitude: 45 ft. M—4,891; C—298; TP—$68M; O—347; N—608; D.

Columbus AFB, Miss. 39701; 10 mi. NNW of Columbus. Phone: (601) 434-7322. AUTOVON: 742-1110. ATC base. 14th Flying Training Wing, undergraduate pilot training. Base activated in 1941 for pilot training. Area: 4,606 acres. Altitude: 214 ft. M—2,540; C—590; TP—$32.8M; O—282; N—538; H (15).

Craig AFB, Ala. 36701; 5 mi. SE of Selma. Phone: (205) 874-7431. AUTOVON: 485-1110. ATC base is candidate for closure. 29th Flying Training Wing, undergraduate pilot training. Base activated Aug. 1940; named for Bruce K. Craig, flight engineer for B-24 manufacturer, killed in 1941 crash. Area: 2,064 acres. Altitude: 176 ft. M—2,095; C—567; TP—$31.3M; O—166; N—359; T/G—10; D.

Davis-Monthan AFB, Ariz. 85707; 4 mi. SE of Tucson. Phone: (602) 748-3900. AUTOVON: 361-1110. SAC base. 12th Air Division; 390th Strategic Missile Wing (Titan II); 100th Strategic Reconnaissance Wing; 355th Tactical Fighter Wing. TAC A-7D combat crew training. Also site of AFLC's Military Aircraft Storage and Disposition Center. Base activated in 1927; named in 1928 for two Tucson accident victims—1st Lt. Samuel H. Davis, killed Dec. 28, 1921; and 2d Lt. Oscar Monthan, killed Mar. 27, 1924. Area: 15,000 acres. Altitude: 2,705 ft. M—8,000; C—1,700; TP—$104M; O—282; N—973; H (80).

Dobbins AFB, Ga. 30060; 2 mi. S of Marietta; 10 mi. NW of Atlanta. Phone: (404) 424-8811. AUTOVON: 925-1110. AFRES base. Hq. Eastern AFRES Region; 94th Tactical Airlift Wing (AFRES); 116th Tactical Fighter Wing (ANG); Naval Air Station Atlanta. Base activated in 1943; named for Capt. Charles Dobbins, WW II pilot, killed in action. Area: 2,095 acres. Altitude: 1,068 ft. M—527; C—1,212; TP—$15.5M; O—3; N—6; D.

Dover AFB, Del. 19901; 4 mi. SE of Dover. Phone: (302) 678-7011. AUTOVON: 455-1110. MAC base. 436th Military Airlift Wing; air transport units; 512th Military Airlift Wing (Assoc.) (AFRES). Dover is largest air freight terminal on East Coast. Base activated Dec. 1941; inactivated Sept. 1946; reactivated Feb. 1951. Area: 3,600 acres. Altitude: 28 ft. M—5,300; C—1,500; TP—$70M; O—286; N—1,254; T/G—104; H (35).

Duluth International Airport, Minn. 55814; 5 mi. NW of Duluth. Phone: (218) 727-8211. AUTOVON: 825-0011. ADC base. Hq. 23d Air Division, ADCOM, and 23d NORAD Region and 23d Air Division; ANG tactical reconnaissance group; SAGE region control center, NORAD. Activated Mar. 1951. Area: 2,191 acres. Altitude: 1,429 ft. M—1,300; C—450; TP—$20M; O—126; N—219; T/G—2; D.

Dyess AFB, Tex. 79607; 2 mi. WSW of Abilene. Phone: (915) 696-0212. AUTOVON: 461-1110. SAC base. 96th Bomb Wing; 463d Tactical Airlift Wing. Base activated Apr. 1942; inactivated Dec. 1945; reactivated Sept. 1955; named for Lt. Col. William E. Dyess, WW II fighter pilot killed in accident Dec. 1943. Area: 5,186 acres. Altitude: 1,774 ft. M—5,300; C—600; TP—$66.2M; O—433; N—566; H (150).

Edwards AFB, Calif. 93523; 2 mi. E of Rosamond. Phone: (805) 277-1110. AUTOVON: 350-1110. AFSC base. AF Flight Test Center. Also trains aerospace test pilots, engineers, and project managers. Base houses NASA Flight Research Center, concerned with supersonic and transonic flight research, and is home for Army Aviation's Test Activity. Home of AF Rocket Propulsion Laboratory. Base activated Sept. 1933; named for Capt. Glen W. Edwards, killed June 5, 1948, in crash of a YB-49 "Flying Wing" experimental bomber. Area: 301,000 acres. Altitude: 2,302 ft. M—3,987; C—7,207; TP—$66M; O—520; N—1,584; T/G—43; H (60).

Eglin AFB, Fla. 32542; 2 mi. SW of Valparaiso; 7 mi. SE of Fort Walton Beach. Phone: (904) 881-6668. AUTOVON: 872-1110. AFSC base. Air Force Armament Development and Test Center; AF Armament Laboratory; 3246th Test Wing; 39th Aerospace Rescue & Recovery Wing; 33d Tactical Fighter Wing; Tac Air Warfare Center; 919th Special Operations Group (AFRES); new Air Force Armament Museum. Base activated in 1935; named for Lt. Col. Frederick I. Eglin, WW I flyer killed in aircraft accident, Jan. 1, 1937. Area: 464,980 acres. Altitude: 85 ft. M—11,405; C—4,097; TP—$182.7M; O—342; N—1,866; T/G—140; H (200).

Eielson AFB, Alaska (APO Seattle 98737); 26 mi. SE of Fairbanks. Phone: (907) 372-2181. AUTOVON: (317) 377-1292. AAC base. SAC tanker operations; air defense and search and rescue for AAC; communications for AFCS; 6th Strategic Wing. Activated Oct. 1944; named for Carl B. Eielson, Arctic aviation pioneer. Area: about 35,000 acres. Altitude: 534 ft. M—2,444; C—460; TP—$29.9M; O—159; N—1,004; T/G—20; D.

Ellsworth AFB, S. D. 57706; 11 mi. ENE of Rapid City. Phone: (605) 342-2400. AUTOVON: 747-1110. SAC base. 28th Bomb Wing; 44th Strategic Missile Wing; SAC post-attack command and control system squadron. Activated July 1942; named for Brig. Gen. Richard E. Ellsworth, killed Mar. 18, 1953, in crash of RB-36. Area: 5,675 acres. Altitude: 3,600 ft. M—5,913; C—741; TP—$36M; O—567; N—941; T/G—26; H (30).

Elmendorf AFB, Alaska (APO Seattle 98742); 1 mi. NW of Anchorage. Phone: (907) 752-1110. AUTOVON: (317) 752-1110. AAC base. Hq. Alaskan Air Command and 21st Composite Wing; 616th Military Airlift Group, MAC; aerospace rescue and recovery squadron, MAC; 1931st Communications Group, AFCS; security squadron, USAFSS. Base activated July 1940; named for Capt. Hugh M. Elmendorf, killed in air accident Jan. 13, 1933. Area: 13,400 acres. Altitude: 118 ft. M—6,401; C—1,837; TP—$217M

(includes Alaskan AFSs); O—446; N—1,643; T/G—38; H (145).

England AFB, La. 71301; 5 mi. W of Alexandria. Phone: (318) 448-2100. AUTOVON: 683-1110. TAC base. 23d Tactical Fighter Wing. Base activated Oct. 1942; named for Lt. Col. John B. England, WW II ace, killed Nov. 17, 1954, in a crash. Area: 2,282 acres. Altitude: 89 ft. M—2,700; C—600; TP—$37.3M; O—109; N—491; T/G—5; H (70).

Ent AFB, Colo. 80912; within Colorado Springs. Phone: (303) 635-8911. AUTOVON: 692-0111. Ent, along with Peterson Field (*see Peterson Field*), is home of two major commands—North American Air Defense Command and Aerospace Defense Command—plus Hq. 14th Aerospace Force (ADCOM). All units and activities will eventually be transferred to Peterson Field. Base activated Jan. 1951; named for Maj. Gen. Uzal G. Ent, WW II leader who died Mar. 5, 1948. Area: 36 acres. Altitude: about 6,000 ft. M—5,601; C—1,764; TP—$94.3M; D. (Figures include Peterson Field.)

Fairchild AFB, Wash. 99011; 12 mi. WSW of Spokane. Phone: (509) 247-1212. AUTOVON: 352-1110. SAC base. 47th Air Division; 92d Bomb Wing; 3636th Combat Crew Training Wing. Base activated Jan. 1942; named for Gen. Muir S. Fairchild, USAF Vice Chief of Staff at his death in 1950. Area: 5,450 acres. Altitude: 2,462 ft. M—4,400; C—800; TP—$33.1M; O—601; N—977; T/G—18; H (60).

Francis E. Warren AFB, Wyo. 82001; adjacent to Cheyenne. Phone: (307) 775-2510. AUTOVON: 481-1110. SAC base. 4th Air Division; 90th Strategic Missile Wing. Base activated July 4, 1867; under Army jurisdiction until 1947 when reassigned to USAF. Home of first Atlas-D ICBM missile wing (1960–65); named for Francis Emory Warren, Wyoming senator and early governor. Base has 7,600 acres, plus 200 Minuteman III missile sites distributed over some 15,000 sq. mi. Altitude: 6,000 ft. M—4,000; C—600; TP—$42.5M; O—190; N—166; T/G—13; H (40).

George AFB, Calif. 92392; 6 mi. NW of Victorville. Phone: (714) 269-1110. AUTOVON: 353-1110. TAC base. 35th Tactical Fighter Wing. Provides F-4 and F-105 transitional and upgrade training for aircrewmen. Home of USAF's only two operational F-105G "Wild Weasel" squadrons. ADCOM F-106 unit maintains operating location at George. Base activated in 1941; named for Brig. Gen. Harold H. George, WW I fighter ace killed in Australia in aircraft accident Apr. 29, 1942. Area: 5,247 acres. Altitude: 2,875 ft. M—4,956; C—480; TP—$52.1M; O—138; N—1,322; T/G—51; H (40).

Glasgow AFB, Mont. 59231; 19 mi. NW of Glasgow. Phone: (406) 524-7323. AUTOVON: 345-4110. SAC base. All Air Force activities to terminate by September 1976. Satellite operations; also houses Army Safeguard ABM depot. Base deactivated in June 1968, was reopened Jan. 1972. Area: 5,815 acres. Altitude: 2,775 ft. M—200; C—300; TP—$12M; O—259; N—296; D.

Goodfellow AFB, Tex. 76901; 2 mi. SE of San Angelo. Phone: (915) 653-3231. AUTOVON: 885-3450. USAF Security Service base. 6940th Security Wing; USAF School of Applied Cryptologic Sciences. Base activated Jan. 1941; named for 2d Lt. John J. Goodfellow, Jr., WW I fighter pilot killed in combat Sept. 17, 1918. Area: 1,127 acres. Altitude: 1,877 ft. M—1,883; C—577; TP—$40.4; O—3; D.

Grand Forks AFB, N. D. 58205; 16 mi. W of Grand Forks. Phone: (701) 594-6011. AUTOVON: 362-1110. SAC base. 319th Bomb Wing (Heavy); 321st Strategic Missile Wing (Minuteman III). Base activated in 1956. Area: 5,400 acres. Altitude: 911 ft. M—5,320; C—881; TP—$62.7M; O—564; N—1,450; T/G—80; H (30).

Griffiss AFB, N. Y. 13441; 1 mi. SE of Rome. Phone: (315) 330-1110. AUTOVON: 587-1110. SAC base. 416th Bomb Wing. Major tenant is Rome Air Development Center (RADC), part of AFSC. Base also houses hq. of AFCS's Northern Communications Area and ADCOM fighter-interceptor squadron. Base activated Feb. 1, 1942; named for Lt. Col. Townsend E. Griffiss, killed in aircraft accident Feb. 15, 1942. Area: 3,468 acres. Altitude: 515 ft. M—4,303; C—3,383; TP—$94M; O—295; N—440; T/G—57; H (70).

Grissom AFB, Ind. 46971; 9 mi. S of Peru. Phone: (317) 689-2211. AUTOVON: 928-1110. SAC base. 305th Air Refueling Wing; 434th Tactical Fighter Wing (AFRES). Activated Jan. 1943 for Navy flight training; reactivated June 1954 as Bunker Hill AFB; renamed May 1968 for Lt. Col. Virgil I. "Gus" Grissom, killed Jan. 27, 1967, with other Astronauts Edward White and Roger Chaffee, in Apollo capsule fire. Area: 2,810 acres. Altitude: 800 ft. M—4,175; C—714; TP—$36.1M; O—370; N—758; T/G—16; H (15).

Gunter AFS, Ala. 36114; 4 mi. NE of Montgomery. Phone: (205) 279-1110. AUTOVON: 921-1110. AU base. Hq. Air Force Data Automation Agency and site of AF Data Systems Design Center. USAF Extension Course Institute; USAF Senior

GUIDE TO AIR FORCE STATIONS

In addition to the major facilities listed in this "Guide to Bases," USAF has a number of Air Force Stations (AFS) throughout the United States and overseas. These stations, for the most part, perform an air defense mission and house radar, SAGE, or AC&W units. Here is AIR FORCE Magazine's listing of those stations, with state and ZIP code.

Albrook AFS, APO New York 09825
Almaden AFS, California 95042
Andersen AFS, APO San Francisco 96334
Antigo AFS, Wisconsin 54409
Baudette AFS, Minnesota 56623
Blaine AFS, Washington 98230
Bucks Harbor AFS, Maine 04618
Calumet AFS, Michigan 49913
Cambria AFS, California 93428
Campion AFS, APO Seattle 98703
Cape Canaveral AFS, Florida 32925
Cape Charles AFS, Virginia 23310
Cape Lisburne AFS, APO Seattle 98716
Cape Newenham AFS, APO Seattle 98745
Cape Romanzof AFS, APO Seattle 98706
Caswell AFS, Maine 04750
Charleston AFS, Maine 04426
Cold Bay AFS, APO Seattle 98711
Cudjoe Key AFS, Florida 33042
Dauphin Island AFS, Alabama 36528
Empire AFS, Michigan 49630
Finland AFS, Minnesota 55603
Finley AFS, North Dakota 58230
Fort Lee AFS, Virginia 23801
Fort Fisher AFS, North Carolina 28449
Fort Yukon AFS, APO Seattle 98710
Fortuna AFS, North Dakota 59275
Gentile AFS, Ohio 45401
Gibbsboro AFS, New Jersey 08026
Havre AFS, Montana 59501
Indian Mountain AFS, APO Seattle 98748
Kaala AFS, APO San Francisco 96786
Kalispell AFS, Montana 59922
Keno AFS, Oregon 97601
Klamath AFS, California 95548
Kotzebue AFS, APO Seattle 98709
Lake Charles AFS, Louisiana 70601
Lockport AFS, New York 14094
Makah AFS, Washington 98357
Martinsburg AFS, West Virginia 25401
Mica Peak AFS, Washington 99023
Mill Valley AFS, California 94941
Minot AFS, North Dakota 58759
Montauk AFS, New York 11954
Mt. Hebo AFS, Oregon 97122
Mt. Laguna AFS, California 92048
Newark AFS, Ohio 43055
No. Bend AFS, Oregon 97459
No. Charleston AFS, South Carolina 294
No. Truro AFS, Massachusetts 02652
Oklahoma City AFS, Oklahoma 73145
Opheim AFS, Montana 59250
Osceola AFS, Wisconsin 54020
Othello AFS, Washington 99344
Pillar Point AFS, California 94019
Point Arena AFS, California 95468
Port Austin AFS, Michigan 48467
Punamano AFS, FPO Hawaii 96515
Richmond AFS, Florida 33156
Roanoke Rapids AFS, North Carolina 278
San Antonio AFS, Texas 78209
Saratoga Springs AFS, New York 12866
San Pedro Hill AFS, California 90000
Sault Sainte Marie AFS, Michigan 49783
Savannah AFS, Georgia 31402
Sparrevohn AFS, APO Seattle 98746
St. Albans AFS, Vermont 05478
St. Louis AFS, Missouri 63118
Sunnyvale AFS, California 94088
Tatalina AFS, APO Seattle 98747
Tin City AFS, APO Seattle 98715
Tonopah AFS, Nevada 89049
Watertown AFS, New York 13601

NCO Academy. Base activated Aug. 27, 1940; named for William A. Gunter, former mayor of Montgomery, who died in 1940. Area: about 2 sq. mi. Altitude: 166 ft. M—5,623; C—2,666; TP—see Maxwell AFB; O—150; N—174; D.

Hancock Field, N. Y. 13225; 10 mi. NNE of Syracuse. Phone: (315) 458-5500. AUTOVON: 587-9110. ADCOM base. 21st NORAD Region/Air Division (ADCOM); also houses 174th Tactical Fighter Group (ANG); SAGE region control center. Base activated Sept. 1942. Area: 1,125 acres. Altitude: 421 ft. M—1,100; C—400; TP—$14M; O—91; N—137; T/G—2; D.

Hickam AFB, Hawaii (APO San Francisco 96553); 6 mi. W of Honolulu. Phone: (808) 422-0531. AUTOVON: 430-0111. PACAF base. Hq. Pacific Air Forces; 15th Air Base Wing, support organization for Air Force units in Hawaii and throughout the Pacific; ANG fighter group; Hq., Pacific Communications Area (AFCS); 1st Weather Wing; 61st Military Airlift Support Wing. Base activated Sept. 1937; named for Lt. Col. Horace M. Hickam, air pioneer killed in crash Nov. 5, 1934. Area: 2,544 acres. Altitude: sea level. M—5,300; C—2,400; TP—$64M; O—583; N—2,283; D. (Figures include Bellows and Wheeler AFBs.)

Hill AFB, Utah 84406; 7 mi. S of Ogden. Phone: (801) 777-7221; AUTOVON: 458-1110. AFLC base. Hq., Ogden Air Logistics Center; furnishes logistic support for Minuteman and Titan ICBMs; manager for F-4, F-101, and F-16 (Provisional) aircraft; also home of 388th Tactical Fighter Wing and drone test activity; 508th Tactical Fighter Group (AFRES). Base activated Nov. 1940; named for Maj. Ployer P. Hill, killed Oct. 30, 1935, test-flying the first B-17. Area: 7,000 acres. Altitude: 4,788 ft. M—2,973; C—14,851; TP—$245M; O—253; N—306; T/G—7; H (35).

Holloman AFB, N. M. 88330; 6 mi. SW of Alamogordo. Phone: (505) 479-3511; AUTOVON: 867-1110. TAC base. 49th Tactical Fighter Wing. AFSC also conducts test and evaluation of airborne missiles, drones, recon systems, and missile reentry vehicles, and operates Central Inertial Guidance Test Facility, AFSC track facility, and Radar Target Scatter Site (RATSCAT). Activated 1942; named for Col. George V. Holloman, guided-missile pioneer, killed in crash Mar. 19, 1946. Area: 97,877 acres. Altitude: 4,000 ft. M—5,370; C—1,167; TP—$56M; O—219; N—1,168; T/G—20; H (25).

Homestead AFB, Fla. 33030; 5 mi. ENE of Homestead. Phone: (305) 257-7011. AUTOVON: 791-0111. TAC base. 31st Tactical Fighter Wing; site of ATC sea-survival school; AFRES early warning and control squadron and aerospace rescue and recovery squadron. Base activated Apr. 1955. Area: 3,607 acres. Altitude: 7 ft. M—8,000; C—1,500; TP—$89.7M; O—321; N—1,294; T/G—10; H (75).

Hurlburt Field, Fla. 32544 (Eglin AFB Auxiliary Field #9); part of Eglin AFB (AFSC) reservation but TAC-operated base; 8 mi. W of Ft. Walton Beach; Phone: (904) 881-6668. AUTOVON: 872-1110. Home of 1st Special Operations Wing, focal point of all USAF special operations; reports directly to Hq. TAC; base houses USAF Special Operations School and USAF Air-Ground Operations School; C-130E (Combat Talon), AC-130H gunship, and UH-1N/CH-3E armed helicopter squadron; special operations Combat Control Team (TAC) and Combat Weather Team (MAC); air defense squadron (ADCOM); TAC Red Horse squadron. Base activated in 1943; named for 1st Lt. Donald W. Hurlburt, WW II bomber pilot killed Oct. 2, 1943, in crash on Eglin reservation. Altitude: 35 ft. M—3,320; C—472; TP—$18.8M; O—74; N—257; D.

Indian Springs AF Auxiliary Field, Nev. 89018; 45 mi. NW of Las Vegas. Phone: (702) 879-6204. AUTOVON: 682-6204. TAC base. Provides range support for TAC operations from nearby Nellis AFB; supports the Las Vegas Bombing and Gunnery Range, more than 3,000,000 acres, the largest reservation in the USAF inventory. Here the Atomic Energy Commission has conducted most of its tests, supported by a detachment of the AF Special Weapons Center. The base was activated in 1942. Altitude: 3,124 ft. M—200; C—40; TP—see Nellis AFB; O—12; N—66; D.

Keesler AFB, Miss. 39534; located in Biloxi. Phone: (601) 377-1110. AUTOVON: 868-1110. ATC base. Keesler Technical Training Center (communications, electronics, personnel, and administrative courses); Keesler USAF Medical Center; also provides technical training for foreign students. Hosts MAC and AFRES weather recon units, TAC airborne command and control squadron, plus AFCS installation group. Base activated June 12, 1941; named for 2d Lt. Samuel R. Keesler, Jr., WW I aerial observer, killed in action Oct. 9, 1918. Area: 1,576 acres. Altitute: 26 ft. M—13,300; C—3,100; TP—$158M; O—531; N—1,427; T/G—90; H (350).

Kelly AFB, Tex. 78241; 5 mi. SW of San Antonio. Phone: (512) 925-1110. AUTOVON: 945-1110. AFLC base. Hq. San Antonio Air Logistics Center; Hq. USAF Security Service; AF Communications Security Center; AF Special Communications Center; USAF Environmental Health Laboratory; 433d Tactical Airlift Wing (AFRES); tactical fighter group (ANG). Base activated May 7, 1917; named for 2d Lt. George E. M. Kelly, first Army pilot to lose his life in a military aircraft, killed May 10, 1911. Area: 3,924 acres. Altitude: 689 ft. M—4,357; C—20,592; TP—$337M; O—46; N—369; D.

Kincheloe AFB, Mich. 49788; 20 mi. S of Sault Ste. Marie. Phone: (906) 495-5611. AUTOVON: 741-1110. SAC base is candidate for closure. 449th Bomb Wing. Base first activated 1941 as Kinross AFB; later renamed for Capt. Iven C. Kincheloe, Jr., jet ace of Korean War and later X-2 test pilot, killed July 26, 1958, in F-104 crash. Area: 3,700 acres. Altitude: 799 ft. M—3,256; C—529; TP—$34.1M; O—379; N—1,004; T/G—5; H (20).

King Salmon Airport, Alaska (APO Seattle 98713); 300 mi. SW of Anchorage. Phone: (907) 721-3550. AAC base. Furnishes air defense and aircraft warning for Alaskan Air Command. Activated in 1950. Area: 1,700 acres. Altitude: 57 ft. M—450; C—20; TP—see Elmendorf AFB; D.

Kingsley Field, Ore. 97601; 5 mi. SE of Klamath Falls. Phone: (503) 882-4411. AUTOVON: 620-1470. ADCOM base. Fighter-interceptor dispersed operating base. Formerly a naval air station, base was activated by USAF in April 1956; named for 2d Lt. David R. Kingsley, WW II B-17 bombardier and Medal of Honor winner, who was KIA on June 23, 1944. Area: 1,640 acres. Altitude: 4,081 ft. M—337; C—209; TP—$7M; O—94; N—192; D.

Kirtland AFB, N. M. 87115; south of Albuquerque. Phone: (505) 264-0011. AUTOVON: 964-0011. AFSC base. Hq., AF Contract Management Division and AF Weapons Laboratory, AFSC. Furnishes contract management, nuclear and laser research, development and testing, operational test and evaluation services, and advanced helicopter training. Base houses AF Test and Evaluation Center, ARRS's (MAC) 1550th ATTW, New Mexico ANG, AFSC NCO Academy, AF Directorate of Nuclear Safety, Interservice Nuclear Weapons School, Defense Nuclear Agency Field Command, Naval Weapons Evaluation Facility, ERDA's Albuquerque Operations Office, and Sandia Laboratories. Base activated Jan. 1941; named for Col. Roy S. Kirtland, air pioneer and Commandant of Langley Field in the 1930s, died in 1941. Area: 47,466 acres. Altitude: 5,352 ft. M—5,300; C—4,200; TP—$201M; O—731; N—1,403; T/G—58; H (65).

K. I. Sawyer AFB, Mich. 49843; 16 mi. S of Marquette. Phone: (906) 346-6511. AUTOVON: 472-1110. SAC base. 410th Bomb Wing; ADCOM fighter-interceptor squadron. Base activated 1956; named for Kenneth I. Sawyer, who proposed site for a county airport, died in 1944. Area: 4,800 acres. Altitude: 1,220 ft. M—4,000; C—1,000; TP—$47M; O—423; N—1,270; H (25).

Lackland AFB, Tex. 78236; 8 mi. WSW of San Antonio. Phone: (512) 671-1110. AUTOVON: 473-1110. ATC base. Provides basic military training for airmen, precommissioning training for officers; technical training of basic, advanced security police/law enforcement personnel; patrol dog/handler courses; training of instructors, recruiters, and career-motivation counselors, social actions/drug abuse counselors; USAF marksmanship training; USAF Occupational Measurement Center; Defense Language Institute English Language Center, under US Army; Wilford Hall USAF Medical Center. Known as "The Gateway to the Air Force" for its role in providing basic training and indoctrination since activation in 1941; named for Brig. Gen. Frank D. Lackland, early Commandant of Kelly Field flying school, died in 1943. Area:

6,828 acres, including 4,017 acres at Lackland Training Annex. Altitude: 787 ft. M—24,071; C—5,362; TP—$205.3M; O—140; N—649; T/G—340; H (1,000).

Langley AFB, Va. 23665; 3 mi. N of Hampton. Phone: (804) 764-9990. AUTOVON: 432-1110. TAC base. Host unit 4500th Air Base Wing; Hq. Tactical Air Command; 1st Tactical Fighter Wing (TAC); 5th Weather Wing (MAC); 2d Aircraft Delivery Group (TAC); tactical intelligence squadron (TAC); command and control squadron (TAC). Base activated Dec. 30, 1916, is the oldest continuously active Air Force base in the US; named for aviation pioneer and scientist Samuel Pierpont Langley, who died in 1906. Area: 3,500 acres. Altitude: 10 ft. M—8,323; C—1,370; TP—$127.8M; O—384; N—989; T/G—40; H (110).

Laughlin AFB, Tex. 78840; 6 mi. E of Del Rio. Phone: (512) 298-3511. AUTOVON: 732-1110. ATC base, 47th Flying Training Wing, undergraduate pilot training. Base activated Oct. 1942; named for 1st Lt. Jack T. Laughlin, killed in action Jan. 29, 1942. Area: 3,908 acres. Altitude: 1,080 ft. M—2,500; C—615; TP—$31.8M; O—255; N—348; T/G—2; H (25).

Laurence G. Hanscom AFB, Mass. 01731, 17 mi. NW of Boston. Phone: (617) 861-4441. AUTOVON: 478-4441. AFSC base. Hq. Electronic Systems Div., AFSC; also site of AF Geophysics Lab, formerly AF Cambridge Research Laboratories, AFSC, providing basic and applied research in electronics and geophysics. Joint federal-state use of the base began in 1946; named for Laurence G. Hanscom, pre-WW II advocate of private flying, killed in 1941 in a lightplane accident. Area: 1,086 acres. Altitude: 133 ft. M—1,810; C—3,368; TP—$81.6M, O—339; N—357; T/G—19; D.

Little Rock AFB, Ark. 72076; 12 mi. NE of Little Rock. Phone: (501) 988-3131. AUTOVON: 731-1110. MAC base. 314th Tactical Airlift Wing; 308th Strategic Missile Wing; combat crew training; SAC Titan ICBM support base; SAC satellite base; 189th Air Refueling Group (ANG). Base activated in 1955. Area: 6,000 acres. Altitude: 310 ft. M—6,982; C—920; TP—$44.2M; O—373; N—1,162; H (30).

Loring AFB, Me. 04751; 4 mi. W of Limestone. Phone: (207) 999-1110. AUTOVON: 920-1110. SAC base. 42d Bomb Wing. Base activated Feb. 25, 1953; named for Maj. Charles J. Loring, Jr., F-80 pilot killed Nov. 22, 1952, in North Korea; posthumously awarded the Medal of Honor. Area: more than 13,000 acres. Altitude: 746 ft. M—3,900; C—2,000; TP—$28M; O—634; N—1,358; T/G—12; H (100).

Los Angeles AFS, Calif. 90045; 12 mi. SW of Los Angeles. Phone: (213) 643-1000. AUTOVON: 833-1110. AFSC support base. Hq. AFSC's Space and Missile Systems Organization (SAMSO); manages the development, production, test, and delivery of most of DoD's space and ballistic systems; 28 tenant units. Base activated Dec. 14, 1960. M—1,503; C—1,140; TP—$47.4M; D.

Lowry AFB, Colo. 80230; 1 mi. SE of Denver. Phone: (303) 388-5411. AUTOVON: 926-1110. ATC base. Technical training center. Air Force Accounting and Finance Center. Base activated Feb. 26, 1938; named for 1st Lt. Francis B. Lowry, killed in action Sept. 26, 1918. Area: 1,863 acres. Altitude: 5,400 ft. M—8,300; C—2,100; TP—$86.9M; O—95; N—772; T/G—40; D.

Luke AFB, Ariz. 85309; 20 mi. WNW of Phoenix. Phone: (602) 935-7411. AUTOVON: 853-1110. TAC base. 58th Tactical Fighter Training Wing; houses SAGE region control center, NORAD, and Hq. 26th Air Division, ADCOM. Because of its 2,500,000-acre Gila Bend gunnery range, Luke is the largest fighter training base in the free world. Programs include training USAF pilots in F-4 and F-15; West German students in F-104G; and MAP training in F-5 (at nearby Williams AFB). Base activated in 1941; named for 2d Lt. Frank Luke, Jr., America's balloon-busting ace in WW I, winner of Medal of Honor, killed in action Sept. 29, 1918. Area: 4,008 acres plus 2,500,000-acre range. Altitude: 1,101 ft. M—5,700; C—1,200; TP—$85M; O—240; N—635; T/G—51; H (65).

MacDill AFB, Fla. 33608; adjacent SSW of Tampa. Phone: (813) 830-1110. AUTOVON: 968-1110. TAC base. Hq. US Readiness Command; 56th Tactical Fighter Wing conducts replacement training in F-4E Phantoms. Base activated May 24, 1940; named for Col. Leslie MacDill, killed in airplane accident Nov. 8, 1938. Area: 6,000 acres. Altitude: 6 ft. M—6,349; C—1,328; TP—$70.5M; O—90; N—80; T/G—40; H (75).

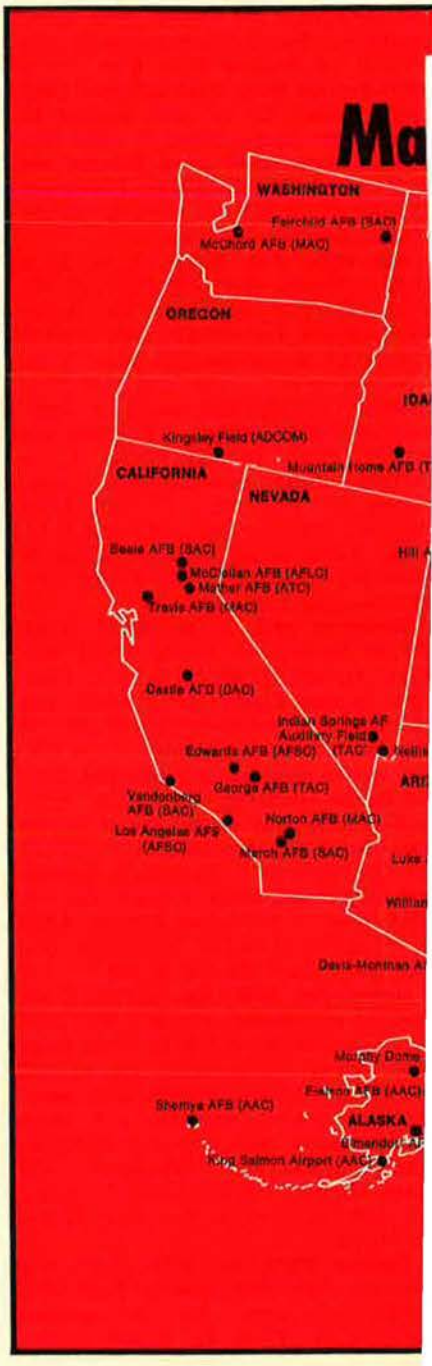
Malmstrom AFB, Mont. 59402; 4 mi. E of Great Falls. Phone: (406) 731-9990. AUTOVON: 632-1110. SAC base. 341st Strategic Missile Wing; also Hq. 24th Air Division, ADCOM; SAGE region control center, NORAD. Base activated Dec. 15, 1942; named for Col. Einar A. Malmstrom, WW II fighter commander, killed in T-33 accident Aug. 21, 1954. Site of SAC's first Minuteman wing, 1961. Area: 3,573 acres, plus about 23,000 sq. mi. in missile complex. Altitude: 3,525 ft. M—5,725; C—714; TP—$38.1M; O 481; N—922; T/G—40; H (25).

March AFB, Calif. 92508; 9 mi. SE of Riverside. Phone: (714) 655-1110. AUTOVON. 947-1110. SAC base. Hq. 15th AF; 22d Bomb Wing; 452d Tactical Airlift Wing; air rescue squadron (AFRES). Base activated Mar. 15, 1918; named for 2d Lt. Peyton C. March, Jr., who died in US of crash injuries Feb. 18, 1918. Area: 8,840 acres. Altitude: 1,530 ft. M—5,304; C—1,216; TP—$77M; O—242; N—450; T/G—1; H (200).

Mather AFB, Calif. 95655; 12 mi. ENE of Sacramento. Phone: (916) 364-1110. AUTOVON: 828-1110. ATC base. 323d Flying Training Wing; USAF's only training installation for navigators, navigator-bombardiers, and electronic-warfare officers; also houses SAC's 320th Bomb Wing. Base activated 1918; named for 2d Lt. Carl S. Mather, killed in US Jan. 30, 1918, in midair collision. Area: 5,800 acres. Altitude: 96 ft. M—5,280; C—1,190; TP—$97.4M; O—451; N—820; T/G—40; H (100).

Maxwell AFB, Ala. 36112; 1 mi. WNW of Montgomery. Phone: (205) 293-1110. AUTOVON: 875-1110. AU base. Hq. Air University, professional education center for USAF; site of Air War College, Air Command and Staff College, Squadron Officer School, Academic Instructor and Allied Officer School, AU Institute for Professional Development; Hq. Civil Air Patrol-USAF; tactical airlift group (AFRES). Base activated 1918; named for 2d Lt. William C. Maxwell, killed in air accident Aug. 12, 1920, Luzon, Philippines. Area: 3,161 acres. Altitude: 169 ft. M—5,623; C—2,666; TP—$136.8M; O—485; N—439; T/G—35; H (200). Includes Gunter AFB.

McChord AFB, Wash. 98438; 1 mi. S of Tacoma. Phone: (206) 984-1910. AUTOVON: 976-1110. MAC base. 62d Military Airlift Wing; Hq. 25th Air Division, ADCOM; fighter-interceptor squadron, ADCOM; SAGE region control center, NORAD; AFRES military airlift group; tactical airlift squadron (MAC). Base activated June 7, 1940; named for Col.



William C. McChord, killed in crash Aug. 18, 1937. Area: 4,500 acres. Altitude: 550 ft. M—5,790; C—1,507; TP—$87.1M; O—293; N—600; D.

McClellan AFB, Calif. 95652; 9 mi. NE of Sacramento. Phone: (916) 643-2111. AUTOVON: 633-1110. AFLC base. Hq. Sacramento Air Logistics Center; management, maintenance, and supply support of such USAF weapon systems as F-111, A-10, F-100, F-104, F-105, and various communications systems; houses 940th Tactical Airlift Group (AFRES); USAF Environmental Health Laboratory; 41st Rescue and Weather Reconnaissance Wing; Western AFRES Region. Base activated July 1936; named for Maj. Hezekiah McClellan, pioneer in Arctic aeronautical experiments, killed in crash May 25, 1936. Area: 2,583 acres. Altitude: 76 ft. M—5,113; C—13,943; TP—$287M; O—236; N—439; T/G—18; D.

McConnell, AFB, Kan. 67221; 5 mi. SE of Wichita. Phone: (316) 685-1151. AUTOVON: 962-1110. SAC base. 381st Strategic Missile Wing; 384th Air Refueling Wing; ANG F-105 squadron. Base activated June 5, 1951; named for Capt. Fred J. McConnell, WW II bomber pilot who died in crash of a private plane, Oct. 25, 1945; and for his brother, 2d Lt. Thomas L. McConnell, also a WW II bomber pilot, killed July 10, 1943, during attack on Bougainville. Area: 34,500 acres. Altitude: 1,371 ft. M—4,252; C—625; TP—$48M; O—200; N—390; H (35).

McGuire AFB, N. J. 08641; 18 mi. SE of Trenton. Phone: (609) 724-2100. AUTOVON: 440-0111. MAC base. Hq. 21st AF; 438th Military Airlift Wing and associate 514th MAW (AFRES); 108th Tactical Fighter Wing (ANG); Hq. N. J. ANG; 170th Tactical Airlift Group (ANG). Base adjoins Army's Ft. Dix; activated as AFB in 1949; named for Maj. Thomas B. McGuire, Jr., second leading US ace of WW II, holder of Medal of Honor, killed in action Jan. 7, 1945, in the Philippines. Area: 5,000 acres. Altitude: 133 ft. M—5,621; C—1,725; TP—$86M; O—491; N—1,264; T/G—30; D.

Minot AFB, N. D. 58701; 13 mi. N of Minot. Phone: (701) 727-4761. AUTOVON: 344-1110. SAC base. 57th Air Division; 91st Strategic Missile Wing; 5th Bomb Wing; also houses fighter-interceptor unit, ADCOM. Base activated Aug. 1959. Area: 5,151 acres plus additional 19,058 for missile sites. Altitude: 1,668 ft. M—6,300; C—900; TP—$37.1M; O—647; N—1,823; T/G—40; D.

Moody AFB, Ga. 31601; 10 mi. NNE of Valdosta. Phone: (912) 333-4211. AUTOVON: 460-1110. TAC base. 347th Tactical Fighter Wing. Base activated June 1941; named for Maj. George P. Moody, killed May 5, 1941, while testing Beech AT-10. Area: 5,000 acres. Altitude: 233 ft. M—

tive Air Force Installations in the US

2,446; C—517; TP—$57.3M; O—136; N—170; T/G—9; H (20).

Mountain Home AFB, Idaho 83648; 56 mi. SE of Boise. Phone: (208) 828-2111. AUTOVON: 857-1110. TAC base. 366th Tactical Fighter Wing (F-111s). Base activated April 1942. Area: 6,639 acres. Altitude: 3,000 ft. M—4,217; C—783; TP—$48M; O—246; N—1,289; T/G—15; H (40).

Murphy Dome AFS, Alaska (APO Seattle 98750); 20 mi. NW of Fairbanks. Phone: (907) 744-1202. AAC base. Air defense activities. Base activated Dec. 1950; named for veteran hard-rock miner John Murphy, who lived and worked in the area before the site was built. Area: 60 acres around immediate site but includes a total of 1,360 acres. Altitude: 2,990 ft. M—123; C—30; TP—see Elmendorf AFB; D.

Myrtle Beach AFB, S. C. 29577; 1 mi. SW of Myrtle Beach. Phone: (803) 238-7211. AUTOVON: 748-1110. TAC base. 354th Tactical Fighter Wing. Site of first operational A-7Ds. Base activated Mar. 1941. Area: 3,800 acres. Altitude: 25 ft. M—3,006; C—618; TP—$35.8M; O—218; N—582; H (15).

Nellis AFB, Nev. 89191; 8 mi. NE of Las Vegas. Phone: (702) 643-1800. AUTOVON: 682-1800. TAC base. 57th Fighter Weapons Wing; 474th Tactical Fighter Wing; tactical fighter training; including F-111 combat crew training, site of USAF Tactical Fighter Weapons Center for test and evaluation of air tactics and AF equipment; home of the USAF Thunderbirds aerial demonstration team. Base activated July 1941; named for 1st Lt. William H. Nellis, WW II fighter pilot, killed Dec. 27, 1944, in Europe. Area: 3,000,000 acres (*see Indian Springs*). Altitude: 1,868 ft. M—7,961; C—1,418; TP—$85M (includes Indian Springs Auxiliary Field); O—235; N—1,253; T/G—34; H (35).

Niagara Falls International Airport, N. Y. 14304; 6 mi. E of Niagara Falls. Phone: (716) 297-4100. AUTOVON: 822-1470. AFRES base. ANG fighter group, and AFRES tactical airlift group. Base activated Jan. 1952. Area: 979 acres. Altitude: 590 ft. M—1; C—591; TP—$8.8M; O—114; N—174.

Norton AFB, Calif. 92409; 59 mi. E of Los Angeles, within corporate limits of city of San Bernardino. Phone: (714) 382-1110. AUTOVON: 876-1110. MAC base. 63d Military Airlift Wing; Hq. Air Force Inspection and Safety Center; Hq. Air Force Audit Agency; Hq. Aerospace Audio-Visual Service, MAC; also 445th Military Airlift Wing (Assoc.), C-141 AFRES associate unit. Base activated Mar. 2, 1942; named for Capt. Leland F. Norton, WW II bomber pilot, killed in an aircraft accident in France, May 1944. Area: 2,396 acres. Altitude: 1,156 ft. M—5,864; C—3,259; TP—$119.4M; O—56; N—208; T/G—60; D.

Offutt AFB, Neb. 68113; 8 mi. S of Omaha. Phone: (402) 291-2100. AUTOVON: 271-1110. SAC base. Hq. Strategic Air Command; 55th Strategic Reconnaissance Wing; 544th Aerospace Reconnaissance Technical Wing; AF Global Weather Center; 3d Weather Wing; 3902d Air Base Wing. Base activated 1888 as the Army's Ft. Crook; landing field named in 1924 for 1st Lt. Jarvis J. Offutt, WW I pilot who died Aug. 13, 1918, from wounds; entire installation renamed Offutt AFB in 1946. Area: 1,907 acres. Altitude: 1,049 ft. M—11,500; C—2,500; TP—$187M; O—822; N—1,859; T/G—64; H (90).

Patrick AFB, Fla. 32925; 2 mi. S of Cocoa Beach. Phone: (305) 494-1110. AUTOVON: 854-1110. AFSC base. Operates the AF Eastern Test Range in support of DoD, NASA, and other agency missile and space programs. Major tenants are Defense Race Relations Institute; AF Technical Applications Center; 549th Tactical Air Support Group; and 2d Combat Communications Group (AFCS). Activated in 1940, base is airhead for Cape Canaveral AFS. Named for Maj. Gen. Mason M. Patrick, Chief of AEF's Air Service in WW I and Chief of the Air Service, 1921-27. Area: 2,332 acres. Altitude: 9 ft. M—2,593; C—3,475; TP—$62M; O—460; N—1,218; T/G—10; H (30).

Pease AFB, N. H. 03801; 3 mi. W of Portsmouth. Phone: (603) 436-0100. AUTOVON: 852-1110. SAC base. 45th Air Division; 509th Bomb Wing; also houses air refueling group (ANG). Base activated 1956; named for Capt. Harl Pease, Jr., WW II B-17 pilot and Medal of Honor winner, killed Aug. 7, 1942, during attack on Rabaul, New Britain Island. Area: 4,373 acres. Altitude: 101 ft. M—3,951; C—553; TP—$69.7M; O—436; N—676; H (70).

Peterson Field, Colo. 80914; 5 mi. E of Colorado Springs, Phone: (303) 591-7321. AUTOVON: 692-0111. Home of 46th Aerospace Defense Wing, which supports North American Air Defense Command. Aerospace Defense Command, Hq. 14th Aerospace Defense Force, and the NORAD Combat Operations Center in the Cheyenne Mountain complex. Peterson Field will eventually be home for all units and activities located at Ent AFB (*see Ent AFB*). Base activated in 1941; named for 1st Lt. Edward J. Peterson, who was killed Aug. 8, 1942, in aircraft crash at the field. Area: 980 acres. Altitude: 6,200 ft. O—148; N—342; T/G—40. For other data see Ent AFB.

Plattsburgh AFB, N. Y. 12903; 2 mi. SW of Plattsburgh. Phone: (518) 563-4500. AUTOVON: 689-1110. SAC base. 380th Bomb Wing; medium bomber and tanker operations; FB-111 combat crew training. Established as military installation in 1814; activated as an Air Force base in 1955. Area: 3,100 acres. Altitude: 235 ft. M—4,298; C—796; TP—$48.4M; O—584; N—1,073; H (20).

Pope AFB, N. C. 28308; 12 mi. NNW of Fayetteville. Phone: (919) 394-0001. AUTOVON: 486-1110. MAC base. 317th Tactical Airlift Wing; 1st Aeromedical Evacuation Group; USAF Airlift Center. Base adjoins Army's Ft. Bragg and provides tactical airlift support for airborne forces and other personnel, equipment, and supplies. Activated Sept. 1919; named for 1st Lt. Harley H. Pope, WW I flyer, killed Jan. 7, 1919, in a local crash. Area: 2,000 acres. Altitude: 218 ft. M—3,700; C—490; TP—$41.9M; O—89; N—370; D.

Randolph AFB, Tex. 78148; 20 mi. ENE of San Antonio. Phone: (512) 652-1110. AUTOVON: 487-1110. ATC base. Hq. Air Training Command; 12th Flying Training Wing; Instrument Flight Center; T-37 and T-38 pilot instructor training; site of Air Force Military Personnel Center; Hq. USAF Recruiting Service; and Community College of the Air Force. Base activated Oct. 1931; named for Capt. William M. Randolph, killed Feb. 17, 1928, in a crash. Area: 2,618 acres. Altitude: 761 ft. M—5,522; C—2,608; TP—$113.9M; O—361; N—298; T/G—13; D.

Reese AFB, Tex. 79401; 6 mi. W of Lubbock. Phone: (806) 885-4511. AUTOVON: 838-1110. ATC base. 64th Flying Training Wing, undergraduate pilot training. Base activated in 1942; named for 1st Lt. Augustus F. Reese, Jr., fighter pilot killed in Sardinia May 14, 1943. Area: 3,597 acres. Altitude: 3,338 ft. M—1,823; C—634; TP—$32.1M; O—171; N—238; T/G—12; H (10).

Richards-Gebaur AFB, Mo. 64030; 17 mi. S of Kansas City. Phone: (816) 348-2000. AUTOVON: 465-1110. AFCS base. Hq. Air Force Communications Service; 442d Tactical Airlift Wing (AFRES); AFCS NCO Academy. Base activated Mar. 1944; named for 1st Lt. John F. Richards and Lt. Col. Arthur W. Gebaur, Jr. Richards was killed Sept. 29, 1918, while on artillery-spotting mission. Gebaur was killed Aug. 29, 1952, over North Korea. Area: 2,418 acres. Altitude: 1,090 ft. M—2,730; C—1,650; TP—$49.7M; O—241; N—374; D.

Rickenbacker AFB, Ohio 43217; 13 mi. SSE of Columbus. Phone: (614) 492-8211. AUTOVON: 950-1110. SAC base. 301st Air Refueling Wing; 121st Tactical Fighter Wing (ANG); 302d Tactical Airlift Wing (AFRES). Base activated June 1942. Formerly Lockbourne AFB, renamed on May 18, 1974, in honor of Capt. Edward V. Rickenbacker, America's leading WW I ace and aviation pioneer who died July 23, 1973. Area: 4,100 acres. Altitude: 744 ft. M—2,300; C—988; TP—$31.6M; O—281; N—584; T/G—15; D.

Robins AFB, Ga. 31098; at Warner Robins, 18 mi. SSE of Macon. Phone: (912) 926-1110. AUTOVON: 468-1001. AFLC base. Hq. Warner Robins Air Logistics Center; Hq. AFRES; site of 19th Bomb Wing; 5th Combat Communications Group, AFCS. 3503d Recruiting Group. Base activated Sept. 1941; named for Brig. Gen. Augustine Warner Robins, an early Chief of the Materiel Division of the Air Corps, died June 16, 1940. Area: 7,625 acres. Altitude: 294 ft. M—4,176; C—15,365; TP—$247.7M; O—396; N—1,000; T/G—40; H (45).

Scott AFB, Ill. 62225; 6 mi. ENE of Belleville. Phone: (618) 256-1110. AUTOVON: 638-1110. MAC base. Hq. Military Airlift Command; hq. of two of MAC's services—Aerospace Rescue and Recovery Service and Air Weather Service; 375th Aeromedical Airlift Wing; AFRES

associate aeromedical airlift group. Base activated June 14, 1917; named for Cpl. Frank S. Scott, first enlisted man to die in an air accident, killed Sept. 28, 1912. Area: 2,310 acres. Altitude: 453 ft. M—5,000; C—3,300; TP—$91.9M; O—327; N—372; T/G—35; H (220).

Selfridge AGB (ANG), Mich. 48045; 3 mi. NE of Mount Clemens. Phone: (313) 465-1241. AUTOVON: 273-1110. ANG base. 127th Tactical Fighter Wing (ANG); 191st Fighter Interceptor Group (ANG); 403d Air Rescue and Recovery Wing (AFRES); 927th Tactical Airlift Group (AFRES); also hosts Navy Reserve, Marine Air Reserve, Army Reserve, Army units, and US Coast Guard Air Station for Detroit. Base activated July 1917, and transferred to Michigan ANG, July 1971; named for 1st Lt. Thomas E. Selfridge, first Army officer to fly in an airplane and first fatality of powered flight; killed Sept. 17, 1908, at Ft. Myer, Va., when plane piloted by Orville Wright crashed. Area: 3,660 acres. Altitude: 583 ft. M—707; C—1,779; TP—$38.3M; T/G—12; D.

Seymour Johnson AFB, N. C. 27531; adjacent to Goldsboro. Phone: (919) 736-0000. AUTOVON: 488-1110. TAC base. 4th Tactical Fighter Wing; 68th Bomb Wing (SAC); tactical deployment control squadron (TAC). Base first activated June 12, 1941; named for Navy Lt. Seymour A. Johnson, killed in plane crash, 1941. Area: 4,124 acres. Altitude: 109 ft. M—5,525; C—1,057; TP—$67.2M; O—524; N—1,175; H (40).

Shaw AFB, S. C. 29152; 7 mi. WNW of Sumter. Phone: (803) 668-8110. AUTOVON: 965-1110. TAC base. Hq. 9th AF (TAC); RF-4C recon operations and training; 363d Tac Recon Wing; 507th Tac Air Control Group. Base activated Aug. 30, 1941; named for 2d Lt. Ervin D. Shaw, one of first Americans to see air action in WW I; killed in action July 9, 1918. Area: 3,257 acres and supports another 10,000 acres. Altitude: 252 ft. M—5,612; C—632; TP—$67.9M; O—386; N—1,246; T/G—16; H (90).

Shemya AFB, Alaska (APO Seattle 98736); located at western tip of the Aleutian chain, midway between Anchorage, Alaska, and Tokyo, Japan. Phone: 572-3400. AAC base. Activated in 1943, Shemya was used as a bomber base in WW II. The International Date Line has been "bent" around Shemya so that local date is the same as elsewhere in the US. Area: about 4½ mi. long by 2½ mi. wide. Altitude: 270 ft.

Sheppard AFB, Tex. 76311; 4 mi. N of Wichita Falls. Phone: (817) 851-2511. AUTOVON: 736-1001. ATC base. Sheppard Technical Training Center; 80th Flying Training Wing; furnishes undergraduate pilot training for the German Air Force and for foreign students under Security Assistance Training (SAT). Base activated June 14, 1941; named for Morris E. Sheppard, US Senator from Texas, died in 1941. Area: 5,082 acres. Altitude: 1,015 ft. M—10,000; C—3,500; TP—$132M; O—332; N—787; T/G—55; H (230).

Tinker AFB, Okla. 73145; 8 mi. SE of Oklahoma City. Phone: (405) 732-7321. AUTOVON: 735-1110. AFLC base. Hq. Oklahoma City Air Logistics Center; furnishes logistic support for bombers, jet engines, instruments, and electronics; hq., AFCS's Southern Communications Area; 3d Combat Communications Group, AFCS; and 507th Tactical Fighter Group (AFRES). Base activated May 1941; named for Maj. Gen. Clarence L. Tinker. On June 7, 1942, at the end of the Battle of Midway, General Tinker's LB-30 (an early model B-24) apparently went down at sea after attacking enemy ships retreating toward Wake Island. Area: 4,359 acres. Altitude: 1,291 ft. M—3,500; C—15,800; TP—$286M; O—110; N—422; H (30).

Travis AFB, Calif. 94535; at Fairfield, 50 mi. NE of San Francisco. Phone: (707) 438-4011. AUTOVON: 837-1110. MAC base. Hq. 22d AF; 60th Military Airlift Wing; 349th Military Airlift Wing (AFRES); also houses SAC tanker operations; David Grant Medical Center. Base activated May 25, 1943; named for Brig. Gen. Robert F. Travis, killed Aug. 5, 1950, in a B-29 accident. Area: 6,000 acres. Altitude: 62 ft. M—9,751; C—2,764; TP—$145.7M; O—459; N—954; T/G—40; H (325).

Truax Field, Wis. 53704; 2 mi. E of Madison. Phone: (608) 249-0461. AUTOVON: 884-1590. ANG base. Hq. 128th Tactical Air Support Wing (ANG). Named for 1st Lt. Thomas L. Truax, killed in a crash on Nov. 2, 1941. Area: 153 acres. Altitude: 859 ft. M—4; C—163; TP—$3.3M.

Tyndall AFB, Fla. 32401; 7 mi. SE of Panama City. Phone: (904) 283-1113. AUTOVON: 970-1110. ADCOM base. Air Defense Weapons Center; 678th Air Defense Group; conducts combat crew training for F-106 pilots; AF Civil Engineering Center. Base activated Dec. 7, 1941; named for 1st Lt. Frank B. Tyndall, WW I fighter pilot, killed in crash July 15, 1930. Area: 28,000 acres. Altitude: 18 ft. M—4,000; C—1,181; TP—$60M; O—178; N—795; H (80).

Vance AFB, Okla. 73701; 3 mi. SSW of Enid. Phone: (405) 237-2121. AUTOVON: 962-7110. ATC base. 71st Flying Training Wing, undergraduate pilot training. Base activated Nov. 1941; named for Lt. Col. Leon R. Vance, Jr., Medal of Honor winner, killed July 26, 1944, when air-evac plane returning him to the United States went down in the Atlantic near Iceland. Area: 1,603 acres. Altitude: 1,307 ft. M—1,300; C—1,145; TP—$17.9M; O—154; N—76; T/G—1; D.

Vandenberg AFB, Calif. 93437; 8 mi. NNW of Lompoc. Phone: (805) 866-1611. AUTOVON: 276-1110. SAC base. Site of 1st Strategic Aerospace Division, SAC; Space and Missile Testing Center, AFSC; 6595th Aerospace Test Wing. Conducts missile crew training and provides facilities and support for operational ICBM tests; research and development testing of Air Force space and ballistic missile programs; and unmanned polar-orbiting space operations of USAF, NASA contractors, foreign allies, *et al.* Originally Army's Camp Cooke; activated Oct. 1941, base was taken over by USAF June 7, 1957; renamed for Gen. Hoyt S. Vandenberg, USAF's second Chief of Staff, died Apr. 2, 1954. Officers and airmen trained in computer-controlled simulators move on to alert duty with operational ICBM wings. It is the only AFB from which are launched operational ballistic missiles in the SAC deterrent force and polar-orbiting satellites in US space program. About 1,300 launches have taken place from Vandenberg since Dec. 1958. Area: 98,400 acres. Altitude: 400 ft. M—4,800; C—5,450; TP—$90M; O—582; N—1,498; T/G—20; H (60).

Warren AFB, Wyo. *(see Francis E. Warren AFB).*

Webb AFB, Tex. 79720; 4 mi. SW of Big Spring. Phone: (915) 267-2511. AUTOVON: 866-0111. ATC base is candidate for closure. 78th Flying Training Wing, undergraduate pilot training (foreign students and Air Force fixed-wing conversion programs only). Base activated Sept. 25, 1942; named for 1st Lt. James L. Webb, WW II fighter pilot, killed in a crash in Japan, June 16, 1949. Area: 2,311 acres. Altitude: 2,561 ft. M—2,151; C—694; TP—$32.5M; O—189; N—276; T/G—24; H (30).

Westover AFB, Mass. 01022; 5 mi. NE of Chicopee Falls. Phone: (413) 557-1110. AUTOVON: 589-1110. AFRES base. 439th Tactical Airlift Wing. Base activated Oct. 1939; named for Maj. Gen. Oscar Westover, Chief of the Air Corps, killed in 1938, in aircraft accident. Area: 2,500 acres. Altitude: 244 ft. M—300; C—1,000; TP—$14M; O—137; N—176; D.

Wheeler AFB, Hawaii (APO San Francisco 96515); located near center of the island of Oahu. Phone: (808) 422-0531. PACAF base. Furnishes administrative and logistic support to the Hawaiian Air Defense Division (326th Air Division); Joint Coordination Center, Far East; tactical air support squadron. Also supports US Army flying activities from adjacent Schofield Barracks. Base activated Feb. 1922; named for Maj. Sheldon H. Wheeler, killed July 13, 1921, during aerial exhibition. Area: 1,423 acres. Altitude: 845 ft. M—550; C—250; TP—see Hickam AFB; D.

Whiteman AFB, Mo. 65301; 1.5 mi. S of Knob Noster. Phone: (816) 563-5511. AUTOVON: 975-1110. SAC base. 351st Strategic Missile Wing. Base activated 1942; named for 2d Lt. George A. Whiteman, shot down while taking off in a fighter plane from Wheeler Field, Hawaii, on Dec. 7, 1941, the first AAF casualty of WW II. Area: 3,384 acres plus area encompassed by missile complex of about 15,660 sq. mi. Altitude: 869 ft. M—3,303; C—460; TP—$40.7M; O—317; N—675; T/G—5; H (25).

Williams AFB, Ariz. 85224; 16 mi. SE of Mesa; 10 mi. E of Chandler. Phone: (602) 988-2611. AUTOVON: 474-1011. ATC base. 82d Flying Training Wing, largest undergraduate pilot training base; also provides F-5 combat crew training for foreign students. Home of AFSC Human Resources Laboratory/Flying Training Division doing extensive research on flight simulators. Base activated July 1941; named for 1st Lt. Charles D. Williams, killed in crash July 6, 1927, during aerial demonstration. Area: 3,867 acres.

Altitude: 1,385 ft. M—2,900; C—1,300; TP—$47.6M; O—286; N—320; T/G—40; H (10).

Wright-Patterson AFB, Ohio 45433; Fairborn, 10 mi. ENE of Dayton. Phone: (513) 257-1110. AUTOVON: 782-1110. AFLC base. Hq. Air Force Logistics Command; Hq. Aeronautical Systems Division, AFSC; Foreign Technology Division, AFSC; AF Institute of Technology; USAF Medical Center, Wright-Patterson; Air Force Museum; plus more than 150 other DoD activities and government agencies. Originally separate, Wright Field and Patterson Field were finally merged and redesignated Wright-Patterson AFB on Jan. 13, 1948; named for aviation pioneers Orville and Wilbur Wright and for 1st Lt. Frank S. Patterson, killed June 19, 1918, in the crash of a DH-4. The Wright brothers did much of their early flying on Huffman Prairie, now Areas A and C of present base. Area: 8,147 acres. Altitude: 824 ft. M—7,700; C—16,600; TP—$444M; O—1,120; N—867; T/G—41; H (320).

Wurtsmith AFB, Mich. 48753; 3 mi. NW of Oscoda. Phone: (517) 739-2011. AUTOVON: 623-1110. SAC base. 40th Air Division; 379th Bomb Wing. Base activated in 1926; assigned to SAC Apr. 1, 1960; named for Maj. Gen. Paul B. Wurtsmith, killed Sept. 13, 1946, in crash. Area: 5,200 acres. Altitude: 634 ft. M—3,000; C—1,000; TP—$9.3M; O—321; N—1,034; H (20). ■

USAF'S MAJOR BASES OVERSEAS

Albrook AFS, Canal Zone
APO New York 09825
Hq. USAF Southern Air Division

Andersen AFB, Guam
APO San Francisco 96334
Hq. 3d Air Division, SAC

Ankara AS, Turkey
APO New York 09254
TUSLOG detachment, USAFE

Athenai Airport, Greece
APO New York 09223
Support base, USAFE

Aviano AB, Italy
APO New York 09293
Tactical group, USAFE

Bitburg AB, West Germany
APO New York 09132
Tactical fighter base, USAFE

Camp New Amsterdam, The Netherlands
APO New York 09292
Fighter-interceptor base, USAFE

Clark AB, Philippines
APO San Francisco 96274
Hq. 13th Air Force, PACAF

Frankfurt, West Germany
APO New York 09101
Support base, USAFSS

Goose AB, Labrador, Canada
APO New York 09677
Strategic bomber base, SAC

Hahn AB, West Germany
APO New York 09109
Tactical fighter base, USAFE

Howard AFB, Canal Zone
APO New York 09817
Support base, USAF Southern Air Division

Incirlik AB, Turkey
APO New York 09289
Tactical fighter base, USAFE

Iraklion AS, Crete
APO New York 09291
Support base, USAFSS

Izmir, Turkey
APO New York 09224
Support base, USAFE

Kadena AB, Okinawa
APO San Francisco 96239
Air division base, PACAF
Strategic operations, SAC

Keflavik Airport, Iceland
FPO (US Navy), New York 09571
Fighter-interceptor base, ADCOM

Kunsan AB, South Korea
APO San Francisco 96264
Tactical fighter base, PACAF

Kwangju AB, South Korea
APO San Francisco 96324
Combat support base, PACAF

Lajes Field, Azores
APO New York 09406
Airlift base, MAC

Lindsey AS, West Germany
APO New York 09633
Support base, USAFE

Misawa AB, Japan
APO San Francisco 96519
Support base, USAFSS

Moron AB, Spain
APO New York 09282
Support base, USAFE

Osan AB, South Korea
APO San Francisco 96570
Air division base, PACAF
Tactical fighter base, PACAF

RAF Alconbury, United Kingdom
APO New York 09238
Tactical reconnaissance base, USAFE

RAF Bentwaters, United Kingdom
APO New York 09755
Tactical fighter base, USAFE

RAF Chicksands, United Kingdom
APO New York 09193
Support base, USAFSS

RAF Lakenheath, United Kingdom
APO New York 09179
Tactical fighter base, USAFE

RAF Mildenhall, United Kingdom
APO New York 09127
Hq. 3d Air Force, USAFE
Tactical airlift base, USAFE

RAF Sculthorpe, United Kingdom
APO New York 09048
Support base, USAFE

RAF Upper Heyford, United Kingdom
APO New York 09194
Tactical fighter base, USAFE

RAF Wethersfield, United Kingdom
APO New York 09120
Support base, USAFE

RAF Woodbridge, United Kingdom
APO New York 09405
Tactical fighter base, USAFE

Ramstein AB, West Germany
APO New York 09012
Hq. USAFE
Tactical fighter base, USAFE
Hq. European Command Area, AFCS

Rhein-Main AB, West Germany
APO New York 09057
Tactical airlift base, MAC

San Vito dei Normanni AS, Italy
APO New York 09240
Support base, USAFSS

Sembach AB, West Germany
APO New York 09130
Hq. 17th Air Force, USAFE
Support base, USAFE

Shu-Lin-Kou AS, Taiwan
APO San Francisco 96360
Support base, USAFSS

Sondrestrom AB, Greenland
APO New York 09121
Support base, ADCOM

Spangdahlem AB, West Germany
APO New York 09123
Tactical fighter base, USAFE

Tachikawa AB, Japan
APO San Francisco 96323
Support base, PACAF

Taegu AB, South Korea
APO San Francisco 96213
Combat support base, PACAF

Tainan AS, Taiwan
APO San Francisco 96340
Support base, PACAF

Tempelhof Airport, Berlin, Germany
APO New York 09611
Support base, USAFE

Thule AB, Greenland
APO New York 09023
Aerospace defense base, ADCOM

Torrejon AB, Spain
APO New York 09283
Hq. 16th Air Force, USAFE
Tactical fighter base, USAFE

Wiesbaden AB, West Germany
APO New York 09332
Support base, USAFE
Weather base, MAC

Yokota AB, Japan
APO San Francisco 96328
Hq. 5th Air Force, PACAF

Zaragoza AB, Spain
APO New York 09286
Tactical fighter training base, USAFE

Zweibrücken AB, West Germany
APO New York 09860
Tactical fighter/reconnaissance base, USAFE

ALPHA-JET

biréacteur Larzac

L'AVION QUE TOUTES LES ARMÉES DE L'AIR SOUHAITENT

- **ÉCOLE DE BASE**
- **ENTRAINEMENT AVANCÉ**
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de FRANCE, d'ALLEMAGNE et de BELGIQUE

DASSAULT-BREGUET/DORNIER

A GUIDE TO USAF'S R&D FACILITIES

The United States Air Force is the product of a technological breakthrough —the airplane. From its inception, USAF has been the nation's principal user as well as provider of aerospace technology. The Air Force's dependence on technology increases steadily and with it the importance of USAF's role as a catalyst of scientific and technological advance. The Air Force Systems Command (AFSC) and its many diverse components formulate and manage USAF's scientific and technological activities and programs. Presented here is a guide to all key installations of the AFSC divisions, centers, and laboratories.

Principal R&D Facilities

From AFSC headquarters at Andrews AFB, Md., Gen. William J. Evans, AFSC Commander, directs the operations of the command's divisions, development and test centers, ranges, and laboratories. AFSC manages and controls approximately 200 installations, valued at more than $2 billion. Following is a descriptive listing of these organizations and facilities:

Special AFSC Divisions

Foreign Technology Division (FTD), Wright-Patterson AFB, Ohio—To prevent possible technological surprise by a potential enemy, the FTD acquires, evaluates, analyzes, and disseminates foreign aerospace technology, in concert with other divisions and centers. Information collected from a wide variety of sources undergoes screening and is processed in unique electronic data-handling and laboratory processing equipment. Then, it is analyzed by scientific and technical specialists who prepare reports, studies, and technical findings and assessments of potential hostile, technological, or operational environs with which USAF weapon systems must cope.

Aerospace Medical Division (AMD), Brooks AFB, Tex.—Conducts biomedical and biotechnical research, development, and test programs necessary to explore the capabilities and limitations of man in aerospace operations and enhance his ability to function as an integral part of the Air Force systems and operations. The Division provides clinical medical services and specialized advanced training and education in aerospace medical and paramedical specialties. AMD units include:

- **Wilford Hall USAF Medical Center,** Lackland AFB, Tex.—AMD's primary clinical facility has 1,100 beds and is the largest single-structure hospital in the Department of Defense. Postgraduate training in the form of internships, residencies, and fellowships is provided for medical, dental, administrative, and allied medical specialists.

- **6570th Aerospace Medical Research Laboratory,** Wright-Patterson AFB, Ohio —Specializes in theoretical and experimental medical research and development in the areas of biodynamics, human engineering, combined aerospace stress effects, and toxic hazards.

- **USAF School of Aerospace Medicine,** Brooks AFB, Tex.—Is concerned with research directed at the selection, care, and retention of pilots and other specialized Air Force personnel. The School specializes in research into the effects of electromagnetic and ionizing radiation, atmosphere composition, and control and development of medical equipment needed specifically for aerospace operations.

Product Organizations

Space and Missile Systems Organization (SAMSO), Los Angeles AFS, Calif.—Manages DoD space and ballistic missile systems. Its responsibility for space systems development encompasses engineering, test, program management, installation, on-orbit tracking, command and control, and evaluation. SAMSO manages development of space boosters and related aerospace ground equipment for the launch and tracking of a wide variety of DoD and NASA payloads.

- **The Air Force Satellite Control Facility (AFSCF),** headquartered at Los Angeles AFS, operates a worldwide tracking and control network, collects and processes data from satellites.

- **The Space and Missile Test Center (SAMTEC),** headquartered at Vandenberg AFB, Calif., provides field-test management for all DoD-directed ballistic and space programs. SAMTEC manages satellite launches from Vandenberg and Patrick AFB, Fla., as well as a variety of ICBM ballistic tests. The Test Center also operates the Western Test Range. Beginning in the early 1980s, Space Shuttle flights with astronaut crews will be launched and recovered from SAMTEC.

Aeronautical Systems Division (ASD), Wright-Patterson AFB, Ohio—Is responsible for the development and acquisition of aeronautical systems, as well as for tactical warfare and reconnaissance systems, subsystems, and related equipment.

Typical of the wide range of systems presently under ASD management are the B-1 advanced strategic bomber; the F-15 air-superiority fighter; the International Fighter, or F-5E; the F-16 Air Combat Fighter; the A-10 Close Air Support Aircraft; and the Maverick, a television-guided, air-to-surface weapon.

Not only does ASD acquire new and advanced systems for the future, but it modernizes aircraft and nonballistic missiles of the force-in-being. In recent years, ASD has been deeply involved in a tactical warfare modernization program. Old aircraft have been modified and new ones developed for this purpose. Noteworthy are the AC-47 and AC-130 gunships and the A-7D attack aircraft.

Electronic Systems Division (ESD), Laurence G. Hanscom AFB, Mass.—Responsible for developing, acquiring, and delivering electronic systems and equipment for the command control and communications (C^3) functions of aerospace forces.

These systems take many forms, such as undersea communications cables around the Indochina peninsula, line-of-sight and tropospheric scatter communications throughout the Mediterranean, the underground North American Air Defense Command (NORAD) combat operations center, long-range radars to warn of missile and aircraft attack, the air-defense control net for the North American continent, equipment for improved weather forecasting, the free world's satellite detection and tracking network, and a new airborne radar-and-communications post, which can give the Air Force an instant air-defense and tactical-control system anywhere in the world at jet speed.

ESD is heavily involved in the application of computers to command and control problems and is the Air Force's center for evaluating contract proposals by computer manufacturers.

Development Centers and Labs

Director of Science & Technology, Andrews AFB, Md.—Located at Systems Command headquarters, the Director of Science & Technology (DL) manages the command's research and development laboratories' programs and developments. Laboratories either under the Director of Science & Technology supervision, or for which DL has responsibility over technical direction of selected developments, and their respective functional areas, are:

- **Air Force Weapons Laboratory (AFWL),** Kirtland AFB, N. M.—Conducts research and development programs in weapon effects and safety, fuzing, civil engineering, laser technology, and nuclear survivability/vulnerability.

- **Rome Air Development Center (RADC),** Griffiss AFB, N. Y.—RADC is under the operational control of the Electronic Systems Division (ESD). Conducts research in electromagnetic energy conversion, signal detection and processing, computation and display, command control, and test and evaluation. RADC furnishes research and development and engineering support of intelligence devices, ground communications hardware, ground environment equipment for surveillance, aircraft approach and landing, ground-based navigation aids, and electronic warfare.

- **Air Force Rocket Propulsion Laboratory (AFRPL),** Edwards AFB, Calif.—AFRPL is responsible for conducting exploratory and advanced development programs in the areas of liquid rockets, solid rockets, hybrid rockets, advanced rocket propellants, and the development of ground support equipment. AFRPL carries out numerous system support programs for other units and divisions of AFSC, other branches of the armed services, and NASA.

- **Air Force Armament Laboratory (AFATL),** Eglin AFB, Fla.—AFATL is under the operational control of Armament Development and Test Center (ADTC). AFATL is the principal Air Force Laboratory performing research and development of free-fall and guided nonnuclear munitions and airborne targets and scorers. AFATL conducts exploratory and advanced development of aircraft armaments and performs engineering support to ADTC development activities that provide munitions products to operational forces. The wide span of interest includes chemical and fuel-air explosives, energy sources and conversions, electronic and mechanical devices, aerodynamics, terradynamics, etc., as well as bombs, dispensers, fuzes, flares, guns, and ammunition.

- **Air Force Human Resources Laboratory (AFHRL),** Brooks AFB, Tex.—AFHRL has operating locations at Lackland AFB, Tex.; Williams AFB, Ariz.; Lowry AFB, Colo.; Wright-Patterson AFB, Ohio; Maxwell AFB, Ala.; and the Air Force Academy. AFHRL is the principal Air Force organization planning and executing development programs in the fields of manpower, personnel, training, and education. AFHRL provides technical and management assistance to Hq. USAF, USAF major commands, other US military services, other US governmental agencies, and to military services of allied countries.

- **Air Force Geophysics Laboratory (AFGL),** Laurence G. Hanscom AFB, Mass.—AFGL is the center for basic and exploratory development involving the earth, atmosphere, and space environment.

- **The Frank J. Seiler Research Laboratory (FJSRL),** USAF Academy, Colo.—This in-house laboratory is engaged in basic research concerned with the physical and engineering sciences. The research usually centers around chemistry, applied mathematics, and gas dynamics. FJSRL sponsors related research conducted by the faculty and cadets of the USAF Academy.

- **Air Force Office of Scientific Research (AFOSR),** Bolling AFB, D. C.—The primary agency for all Air Force basic research in physics, aeromechanics and energetics, the chemical sciences, electronic and solid state sciences, life sciences, and mathematical and information sciences. The administration of the Frank J. Seiler Research Laboratory and European Office of Aerospace Research and Development also belongs to AFOSR.

- **European Office of Aerospace Research (EOAR),** London, England—This unit is the link between the Air Force and the scientific communities in Europe, Africa, and the Near East.

Wright Aeronautical Laboratories

The Air Force Wright Aeronautical Laboratories (AFWAL), established July 1, 1975, consolidates the functions of five laboratories at Wright-Patterson AFB, Ohio, into a single technical center.

The AFWAL mission is to plan and execute USAF exploratory development, advanced development, and selected research and engineering development programs for flight vehicles, aeropropulsion, avionics, and materials, and the USAF manufacturing methods program. It also provides support within its areas of technical competence for the planning, development, and operation of aerospace systems, and to Air Force, Department of Defense, and other government agencies.

The Air Force Wright Aeronautical Laboratories is an establishment directly subordinate to the Air Force Systems Command and is directly responsible to AFSC Director of Science and Technology for mission accomplishment.

Laboratories comprising the AFWAL include:

- **Air Force Aero Propulsion Laboratory (AFAPL)** works in the areas of air breathing, electric and advanced propulsion, fuels and lubricants, and flight vehicle power.

- **Air Force Materials Laboratory (AFML)** handles research in material sciences, metals and ceramics, nonmetallic materials, manufacturing technology, and materials application.

- **Air Force Flight Dynamics Laboratory (AFFDL)** is concerned with flight vehicle dynamics, performance, control, launching, alighting, and structures; crew station environmental control and escape; and aerodynamic decelerators.

- **Air Force Avionics Laboratory (AFAL)** conducts research and technology programs for electronic components, optics and photo materials, navigation and guidance, vehicle defense, electronic warfare, and communications.

Test and Evaluation Centers

Air Force Flight Test Center (AFFTC), Edwards AFB, Calif.—Responsible for test and evaluation of manned aircraft and aerospace vehicles. Conducts aircraft development testing and provides facilities for contractor tests and the functional tests and military demonstrations intended to determine the capability and suitability of a complete system in meeting established USAF requirements and design objectives. The B-1, F-15, F-5E, A-10, F-16, and E-3A Airborne Warning and Control System (AWACS) are currently being tested at AFFTC. The USAF Test Pilot School trains experimental test pilots to supervise and conduct flight tests of research, experimental, or production-type aerospace vehicles. Additionally, the school trains Aerospace Research Pilots for flight test, engineering design, and/or management in advanced aircraft and manned space research programs. The USAF Parachute Test Group, El Centro, Calif., develops recovery and retardation systems for DoD.

Armament Development and Test Center (ADTC), Eglin AFB, Fla.—The Center manages the Air Force's nonnuclear munitions program. ADTC's primary mission is the development, testing, and initial purchase of all nonnuclear munitions. The Center also is responsible for the development and test of all nonnuclear munitions for the Air Force as well as the initial purchase of these munitions for the Air Force's inventory. Among the items developed and tested by ADTC are bombs, mines, dispensers, and fuzes. In addition, the Center conducts research and development testing of aeronautical systems, such as aircraft and their associated missiles and airborne electronic warfare devices.

Arnold Engineering Development Center (AEDC), Arnold AFS, Tenn.—This Center is the largest complex of wind tunnels, high-altitude jet and rocket engine

test cells, space environmental chambers, and hyperballistic ranges in the free world. The Center's mission is to ensure that aerospace hardware—aircraft, missiles, spacecraft, jet and rocket propulsion systems, and other components—will "work right the first time they fly." Tests are conducted for federal agencies, the Army, Navy, Air Force, and private companies. These customers reimburse AEDC for the costs of conducting their tests. Currently valued at $1 billion, AEDC began its first tests in the early 1950s. ARO, Inc., is the operating contractor.

Among the Center's forty test units are some of the largest and most adaptable of their respective types currently available for testing. They subject aerospace systems to objective testing across a broad range of realistic and repeatable conditions—often with engines operating. Full-size hardware or scale models can be tested at Arnold under conditions precisely matching altitudes of up to 1,000 miles and velocities up to twenty-three times the speed of sound.

Air Force Civil Engineering Center (AFCEC), Tyndall AFB, Fla.—AFCEC has a two-fold mission aimed at upgrading the technology and capabilities of Air Force civil engineering. It functions as the lead center for civil engineering and environmental quality research and development; exploratory advanced and engineering development; and test and evaluation of civil engineering systems, techniques, and equipment. The Center also provides specialized technical and planning assistance to all commands.

Air Force Eastern Test Range (AFETR), Patrick AFB, Fla.—AFETR is an operational component and missile testing laboratory of the Air Force Systems Command. Executive management responsibility for AFETR is assigned to Hq. AFETR, Patrick AFB, Fla. The Eastern Test Range extends southeastward from Cape Canaveral across the Atlantic Ocean to ninety degrees east longitude in the Indian Ocean. Support capability is provided by a number of ground tracking stations, sites, and a fleet of instrumented ships and aircraft to provide mobile support in remote areas. Each station and tracking system is configured to complement the integrated range network.

GUIDE TO NASA'S RESEARCH CENTERS

The National Aeronautics and Space Administration (NASA) continues to operate a number of research, development, test, and evaluation (RDT&E) facilities that frequently participate in or coordinate their work with USAF R&D programs.

Following is a descriptive listing of key NASA installations:

Ames Research Center, Moffett Field, Calif.—Ames conducts laboratory and flight research such as atmospheric reentry, fundamental physics, materials, chemistry, life sciences, guidance and control, aircraft supersonic flight, aircraft operational problems, and V/STOL. It manages such spaceflight programs as Pioneer. Named for Dr. Joseph S. Ames (1864–1943), Chairman of the National Advisory Committee for Aeronautics (NACA) from 1927 to 1939.

Dryden Flight Research Center, Edwards AFB, Calif.—Dryden Flight Research Center is concerned with manned flight within and outside the atmosphere, including low-speed, supersonic, hypersonic, and reentry flight, and aircraft operations. Examples of its studies are lifting bodies (wingless vehicles whose bodies provide lift in the atmosphere) and integration between man and technological systems and vehicles. Named for Dr. Hugh L. Dryden (1898–1965), Director of NACA from 1949–58 and then Deputy Administrator of the new NASA.

Goddard Space Flight Center, Greenbelt, Md.—Goddard Space Flight Center is responsible for a broad variety of unmanned earth-orbiting satellites and sound-rocket projects. Among its projects are Orbiting Observatories, Explorers, Nimbus, Applications Technology satellites, and Earth Resources Technology satellites. Goddard is also the nerve center for the worldwide tracking and communications network for both manned and unmanned satellites. Named for Dr. Robert H. Goddard (1882-1945), "father" of rocketry and the space age.

Jet Propulsion Laboratory, Pasadena, Calif.—Jet Propulsion Laboratory is operated for NASA by the California Institute of Technology. The laboratory's primary role is investigation of the planets. It also designs and operates the Deep Space Network, which tracks, communicates with, and commands spacecraft on lunar, interplanetary, and planetary missions.

John F. Kennedy Space Center, Fla.—The Center makes preflight tests and prepares and launches manned and unmanned space vehicles for NASA. Launches from the Pacific Coast are conducted by the KSC Western Test Range Operations Division at Lompoc, Calif. Named for the late US President under whose leadership plans were made to land men on the moon.

Langley Research Center, Hampton, Va.—Oldest of the NASA centers, Langley has the task of providing technology for manned and unmanned exploration of space and for improvement and extension of performance, utility, safety of aircraft. Langley devotes more than half its efforts to aeronautics. The Center is charged with overall project management for Viking. Named for Samuel P. Langley (1834–1906), astronomer and aerodynamicist who pioneered in the theory and construction of heavier-than-air craft.

George C. Marshall Space Flight Center, Ala.—Launch vehicles for Apollo and other major missions are designed and developed by George C. Marshall Space Flight Center. The Center is concerned with launch vehicles of the Saturn class, as well as payloads, related research, and studies of advanced space transportation. The Center is responsible for development of Skylab components. Named for the late General of the Army George C. Marshall, recipient of the Nobel Peace Prize, who died in 1959.

Wallops Flight Center, Wallops Island, Va.—Wallops Station is one of the oldest and busiest ranges in the world. Some 300 experiments are sent aloft each year on vehicles that vary in size from small meteorological rockets to the four-stage Scout with orbital capability. A sizable effort is devoted to aeronautical research and development.

Lewis Research Center, Cleveland, Ohio—Aircraft and rocket propulsion and electric power generation in space are among the major programs of Lewis. These take the Center into such studies as metallurgy, fuels and lubricants, magnetohydrodynamics, and ion propulsion. Lewis has technical management of the Agena and Centaur rocket stages. Named for Dr. George W. Lewis (1882–1948), NACA Director of Aeronautical Research from 1924–47.

Lyndon B. Johnson Space Center, Houston, Tex.—The Center designs, tests, and develops manned spacecraft and selects and trains astronauts. It directs the Space Shuttle program. Mission Control for manned spaceflight is located at the Center. Named for the late President Johnson, during whose Administration the US manned space program gained its greatest impetus.

National Space Technology Laboratories, Bay St. Louis, Miss.—This laboratory complex conducts remote sensing as well as environmental and related research. Other responsibilities include developmental testing of the Space Shuttle's main engine. ■

Decades of adversity have not destroyed England's sense of history or conviction that she plays an essential role in world affairs. Those of us who served there share, with Shakespeare's Richard II, a faith in the future of . . .

This Earth, This Realm, This England

By Gen. T. R. Milton, USAF (Ret.)

Coming back to England, for anyone who was here in the World War II years, is always a time for memories. Besides, at some point in the aging process, the flashbacks make for better entertainment than do the coming attractions. These days, there is still another reason for looking back: The old view is so much better than the present one, let alone the one down the road.

When I was in London the second week in March, the pound had reached its all-time low, dropping down through the so-called two-dollar barrier to a dollar ninety-five, something more evocative of prices in a fast-food restaurant than of Her Majesty's pound sterling.

Long ago, in that war we fought to beat back Naziism, preserve freedom, and establish forever the democratic way of life, the pound was at nearly five dollars. Perhaps it was overvalued. Nonetheless, we were paid in it at that rate, and I do not remember any of us having to deny ourselves such necessities as black market eggs and comfortable stays in London. Stays, moreover, at the best Mayfair hotels, still there and elegant as ever but now priced out of reach of ordinary mortals. These days it is off to Bayswater for the likes of me.

The RAF Club on Piccadilly gives no sign that times have changed. Even if the Royal Air Force—still, in spite of everything, *The* Royal Air Force—is, like the Empire, greatly diminished, a visit to the RAF Club is somehow reassuring. The old boys are still around, at lunch, in the bar, and buried in the *Times*. The pictures, the plaques, the trophies all are there to remind you of the great days long ago. But the reassuring thing is the sense of continuity, the feeling that one way or another all this will remain no matter what. Hard times are in England now, and the role of the nation is increasingly circumscribed. Even the name, United Kingdom, has an ironic note in these days of violence in Ulster, bombs in London, and Scottish nationalism.

Nonetheless, there is this feeling that something has been handed along from the past, something that will put them back on the track. Maybe it is the display on the walls of the RAF Club, the pictures of the Spitfires, the squadron coats of arms. Or maybe it is Wellington Gate as evidence of more distant glories. Look where you like, there are reminders everywhere that this is not just another medium-size European nation. If you believe the Cassandras, like the Hudson Institute, it is all downhill from now on. But if you are the least bit of an Anglophile—who is not who spent World War II on that island?—you have an instinctive feeling that Great Britain, or England, or whatever you choose to call what is left of the Empire, will not, as some cynic has said, be the first nation to go from developed to underdeveloped.

Admittedly, you have to search for the encouraging signs, but they are there. There seems, for example, to be a general awakening in Britain to the inevitable consequences of a wage spiral accompanied by decreasing productivity, a growing realization that economic survival requires some hard work and a few sacrifices.

In the matter of defense there is cause for encouragement; not hilarity, but encouragement. The Defense Review of 1974 had in it some very bad tidings for the British armed forces. The Chancellor of the Exchequer was, as he is now, Denis Healey, a former Minister of Defense and a very tough man in an argument. The cards seemed stacked against the military, and yet, somehow, the British chiefs came out far better than anyone dared hope. The NATO commitment was left undisturbed and the principal new weapon systems survived, a tribute to the really exceptional men leading the British forces these days, and, not just incidentally, to the unwavering support every British government, Labor or Tory, has given to NATO.

The senior military Brits are men of vision and stature, with a sense of history and a conviction that Britain still has an important, even essential, role to play in the defense of Europe. It is, of course, a restricted role now, and the forces have been cut pretty brutally to fit it. The UK is out of the Far East, the Indian Ocean, and, for all practical purposes, the Mediterranean. They are back to their island. The encouraging thing is that it has been an orderly retreat, and that the forces that survived are high quality, professional, forces.

The British are by no means out of the woods, but this determination to hang on to a first-class military must be taken as a good omen. Their eyes are still very much on us, hoping to see signs that we are shaking off our post-Vietnam vapors, for we remain the key to Europe's survival. If we falter, they are through.

Meanwhile, the Brits struggle on. Compared to the old, great days they don't have much, but what they do have is very good indeed.

"Don't," said the RAF Chief, Sir Andrew Humphrey, "write us off." ■

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By James A. McDonnell, Jr., MILITARY RELATIONS EDITOR

Airman Force Has New Look

USAF's enlisted force of approximately 485,000 persons, though younger than when the all-volunteer force was initiated four years ago, is taking on dependents at a rapid clip. Promotions are holding up, and overall quality is rising. These are among the changing "characteristics" of the force from FY '72 as projected through FY '77, Hq. USAF disclosed recently.

EM strength stood at 600,000 four years ago, but will drop another 15,000 or so over the next seventeen months, leveling off at 470,000.

The changing pattern, with its various monetary and other implications, shows that matrimony is becoming more popular, with two-thirds of the EM force listed in the with-dependents category. E-4s with kin are up a surprising nineteen percent, as the accompanying chart reveals.

USAF also noted, as an indication of improved quality, that it recruited only 1,373 non-high school graduates and 188 persons in Mental Group IV during the first half of the present fiscal year. This compares with 11,363 NHS grads and 3,662 Cat IVs over the full FY '74.

The latest reenlistment figures for the first half of FY '76 put first-term re-ups at thirty-eight percent, second-term rates at seventy percent, and career re-up rates at ninety-five percent. Though just fair by USAF standards, they are much higher than the other services.

Elsewhere on the airman scene, Headquarters said that:

- In FY '72, EM received 137,889 promotions, and 73.15 percent of the force served in the top six grades. DoD pressured the service to reduce the latter figure, and now USAF's "top-six" percentage is down to 66.70 and headed for 66.00 next year. Total promotions are projected at only 91,495 this year, rising to 102,771 in FY '77. Considering the sharp drop in total strength, that's a reasonable program.
- The slow-down in promotions is confined to the top grades. For example, a decade ago the average promotee to E-9 won that grade after twenty-one years and seven months service; now it's one month shy of twenty-four years. But it takes eight months less on the average to make E-6 today than formerly, and two months less to make E-4. The big improvement is to E-5 where, in FY '67, the average promotee waited nearly eight years and five months. Today, the wait for E-5 averages five years and six months.

USAF's three-year-old Senior NCO Academy at Gunter AFB, Ala., is now producing 1,200 graduates a year from five nine-week classes of 240 students each. Only trouble: Just thirteen percent of the 15,000 E-8s and E-9s in the force have a chance to attend.

U-Haul Program Broadened

USAF's "do-it-yourself" optional household goods-moving program, tested at six bases last year, has been laid on at all ninety Stateside bases that have personal property shipping offices. Unfortunately, the expanded project does not give servicemen movers a share of the savings that Congress recently authorized. (*See "Speaking of People," December '75.*) When—and if—the Defense Department agrees to share these savings, by paying the congressionally approved "monetary allowance," up to twenty-five percent of the USAF population probably will move themselves, Air Force officials told AIR FORCE Magazine.

To use the expanded program at PCS, TDY, or separation time, members should contact their base Traffic Management Office. It will provide all needed assistance, including determination of the right-size haul vehicle. Under a service-wide contract with U-Haul International (or other rental companies expected to sign up), the TMO arranges for the member to pick up the vehicle. The contractor gives the serviceman mover a cash payment to cover gas, oil, and other expenses. U-haulers also get regular mileage allowances, and the government will pay them to hire people to help load and off-load.

The Defense Department has held up regulations that would implement the monetary allowance Congress approved as a means of slashing Defense's enormous goods payments to commercial van companies. Pressure from the moving industry, which stands to lose considerable business, has been cited as a major reason for Defense's reluctance to launch the monetary allowance. Under it, some officials indicated, do-it-yourselfers might pocket $400–$500 or more on a typical move.

THE CHANGING CHARACTERISTICS OF USAF'S ENLISTED FORCE

Category	FY '72	FY '77
Sergeant (E-4) or below	53 %	57.5%
Age 30 or below	70 %	73 %
With dependents (total)	62.5%	66 %
Sergeant (E-4) with dependents	44 %	63 %
A1C (E-3) with dependents	29 %	38 %
High school graduates (excluding GED)	89 %	93 %
Women	2 %	7.3%
Minorities	13.4%	15.8%
Average number of years of service	7.1	6.8

And the government would save an equal amount, because of the greatly reduced cost of U-hauling over commercial moving.

CAP Accomplishments Cited

Civil Air Patrol pilots, who participate in eighty percent of all search and rescue missions in the US, saved fifty-seven lives last year and were credited with 304 finds, during 24,500 hours of flying. This is a significant increase over 1974, when the Air Force auxiliary saved thirty-six lives and was credited with 184 finds (search objectives located).

CAP last year also increased both its cadet and senior membership rolls—the former from 26,176 to 28,574, and the latter from 35,271 to 36,404. Some 19,000 of the seniors are pilots, 5,500 of whom are aircraft owners.

These are some of the year's highlights cited at CAP's annual Congressional Reception held March 17 in the nation's capital. The guest list included Air Force Chief of Staff Gen. David C. Jones and AFA President George M. Douglas.

Rep. Lester L. Wolff (D-N. Y.) at the reception said that CAP should "enlist" in the war on drugs by flying spotting missions over key air routes from Mexico and the Caribbean into this country. Representative Wolff, who commands CAP's Congressional Squadron, has advanced the proposal among White House and other government leaders. He said they are considering it.

The drug surveillance plan, he maintained, is "a logical extension" of CAP's broad search-rescue program. Nearly 200 aircraft are registered to CAP pilots in the border states involved, and they could assist greatly in helping the undermanned Drug Enforcement Administration, Mr. Wolff added.

Guardsmen Ready Heritage Gallery

The National Guard Association of the US is assembling in the Nation's Capital what promises to be an outstanding military historical collection. It's called the "Heritage Gallery," and visitors to the Bicentennial Celebration should not miss it. The collection includes rare prints, paintings, authentic figures of colonial militiamen, battle flags, weapons, uniforms, etc. It tells the story of the Minutemen from the days of the founding fathers to the present. Army and Air Guardsmen have been asked to support the $500,000 project scheduled to open to the public July 1 at the NGAUS Memorial Building, 1 Massachusetts Ave., N. W., Washington, D. C.

At a recent ceremony in Washington, D. C., Marilyn Burrill accepts AFA's Maj. Gen. A. M. Minton Award for her husband, USAF Capt. Michael J. Burrill, an architect now stationed in Korea. He was honored for his article "Good Houses for Unknown Clients." At right, USAF Director of Engineering Services, Maj. Gen. Robert C. Thompson; left, AFA Executive Director James H. Straubel.

Clearer CHAMPUS Data Near

The confusion in the minds of service members and their families over CHAMPUS—what it does and doesn't cover, charges, deductibles, paperwork, etc.—may soon diminish. At least that's what Pentagon authorities expect, following the publication this summer or fall of detailed CHAMPUS regulations in the Federal Register. In addition, according to Dr. Sherman Lazrus, Deputy Assistant Defense Secretary for Health Resources and Programs, the Department will publish a CHAMPUS pamphlet in "layman's language."

Dr. Lazrus, in a recent briefing for service associations, also said he hoped the new regulations would simplify the complex CHAMPUS form (containing twice as many items to fill out as other government medical program forms). Lazrus acknowledged that the Pentagon has not done well in explaining CHAMPUS to the users and said the new regs should solve a lot of communications problems On related points, he said:

- The new regs probably will allow patients denied certificates of nonavailability to reclama. Dependents residing within forty miles of a military hospital must obtain CNAs to get CHAMPUS coverage at civilian facilities. It will take several months to determine the impact of the recently adopted forty-mile restriction, he said. Congress laid the curb on in an effort to fill up empty beds at service hospitals.
- Effective July 1, CHAMPUS will change its rules for reimbursing civilian hospitals. It will offer them a choice of (1) "cost reimbursement" (same as Medicare), or (2)

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"prospective reimbursement." The latter is a rate frozen at whatever they charged CHAMPUS in 1975 (to be CPI-adjusted each July 1). This will eventually help put a cap on hospital costs, he said.

AFROTC Grads Need Temporary Jobs

Although Air Force has reduced the delay in active-duty call-ups for AFROTC graduates, many still face waits of up to twelve months. And in the process they suffer employment and income problems. To ease the bind, AFA members in a position to provide temporary jobs are urged to consider these young officers. It should be a source of real quality. One point of contact is the placement offices on campuses where AFROTC units are located.

USAF's recent decision to limit AFROTC pilot training primarily to distinguished military graduates accounts for the reduction in the call-up delay (*see April '76 "Bulletin Board"*). Headquarters has since advised that up to 200 non-DMGs in the March–June 1976 graduating group also may be able to squeeze into pilot training. An "order-of-merit" screening board was to convene in April to determine pilot and navigator training entry dates.

The decision to shift hundreds of AFROTC graduates earmarked for flying training into nonrated or Reserve categories brought Hq. USAF a flood of complaints, both directly and through members of Congress. But the order stands, as officials are determined to reduce the service's large rated overage.

Heretofore, AFROTC cadets' eventual job categories—pilot, navigator, missile launch, etc.—were decided when they first joined the AFROTC program, up to four years before graduation. That's being changed; cadets slated to graduate in FY '78 and thereafter are being told that their category won't be officially determined until their last year in school. This should provide a better mesh between graduates and active-duty requirements by category.

USAF Has 65,000 "Individuals"

About 65,000 USAF members—eleven percent of the force—are officially known as "individuals." They are student trainees, Academy cadets, patients, and transients—all in a temporary nonproductive status. With total personnel strength now below the 600,000 mark, Hq. USAF is straining to shave the "individuals" category and get the maximum number into productive work. Officials forecast a cut of about 5,000 "individuals" in the next year, mostly in the transient group.

A veteran ADC and TAC fighter pilot and well-known Information Officer, Col. Sheldon I. Godkin, is the new Deputy Director of Operations, CINCPAC, Hickam AFB, Hawaii.

Civilian Profs at the Academy?

Defense Secretary Donald Rumsfeld announced recently that the service academies "will work toward a better faculty ratio of military and civilian instructors." USAF is moving cautiously.

Only four of the 562 Air Force Academy members are civilians; the rest, including seventeen from sister or foreign services, are military. The school has come under occasional fire for insisting on a virtually all-military faculty.

The school's four civilian professors, all serving on a short, non-tenured basis, include two State Department foreign service officers. "Before the ultimate number of civilian faculty members can be determined, the present programs must be evaluated," Hq. USAF told AIR FORCE Magazine. Thirty percent of the faculty hold doctorates.

The Naval Academy has a fifty-fifty military-civilian faculty ratio, but is gradually moving to a sixty military-forty civilian alignment.

In other Academy developments:

- A General Accounting Office report citing high attrition at all service academies *(e.g.,* forty-six percent in the Air Force Academy's class of 1975), touched off a brief congressional hearing. Deputy Defense Secretary William P. Clements, Jr., though noting the schools' dropout rates were in line with civilian institutions, said the Pentagon was studying GAO's recommendations. One suggests a financial obligation for Academy dropouts. USAF, meanwhile, reports that next month's Academy graduating class has a thirty-eight percent attrition rate.
- Air Force in April was wrapping up the selection of 150 female applicants for June enrollment at the Academy, from a list of 1,189 nominees.

VA, PHS Hospital Plans Differ

Two hospital systems closely related to the military establishment appear headed in opposite directions. The Veterans Administration system—including 171 hospitals and 213 outpatient clinics—is slated to receive some $4 billion in the President's FY '77 budget. That's a $308 million increase over the current year's spending total. It provides for a boost of more than 2,100 medical personnel, pushing VA's total medical staff past the 46,000 mark.

The same budget, on the other hand, would close or transfer the Public Health Service's eight hospitals and thirty-eight clinics. Coast Guard members and merchant seamen regularly use PHS facilities, while all service personnel and their families can use them on a space-available basis.

Previous efforts by the Administration to close PHS facilities were blocked, at least in part, by resis-

Ed Gates . . . Speaking of People

DoD Urges Retired Pay 'Restraints'

New statistics from the Pentagon tell us that the average age and length of service of military members at retirement time are forty-two and twenty-two years, respectively. It is also noted that more and more service people are electing retirement before it becomes mandatory.

The resulting forecast is that today's 1,100,000 military retirees will increase each year until late in this century, then level off at around 1,600,000.

All this, together with active-duty and retired pay raises—the most recent of the latter was a 5.3 percent boost effective March 1, 1976—accounts for the recent and projected climb in retirement costs. The escalation is causing ever-increasing concern in the executive and legislative branches. The Defense Department for the first time is declaring that if the growth of military retirement pay and certain other manpower costs is not slowed, there might not be enough money for weapons R&D and procurement.

Defense Secretary Donald Rumsfeld, in discussing military benefits, said recently that without "restraints," some vital equipment might be laid up for lack of spare parts. Air Force Secretary Thomas C. Reed said "there have to be some reductions. . . ."

In the eyes of Defense leaders, the most significant—and worrisome—retirement data coming out of the Pentagon are charts mirroring estimated future costs. They are accompanied by "restraints" Defense is urging Congress to impose, in order to drive down the projections.

Retired military pay is now put at $7.3 billion this fiscal year and $8.4 billion next year. Defense says that without changing the present system, and assuming annual six percent increases in basic pay and four percent boosts in the Consumer Price Index, retired pay will reach $34 billion annually by the year 2000. Pentagon officials, who find this intolerable, keep reminding Congress that as recently as 1964, military retired pay amounted to just $1.2 billion.

Pentagon managers recently outlined the main thrust of the Administration's drive to cut the growth of retirement pay:

1. Put an average 4.5 percent pay cap on next October's active-duty pay raise, thus reducing future retired pay growth.

2. Eliminate the one percent "add-on" used for several years in CPI adjustments. Removal, Defense says, will pare back the next CPI raise (expected in December) from an estimated 5.43 percent to 4.43 percent and save the government more than $400 million annually by FY '80.

3. Enact the Retirement Modernization Act. This is Defense's controversial measure that tampers adversely with some traditional retirement features but improves certain others. The Pentagon early this year was telling Congress that prompt enactment of RMA will bring a cumulative saving of about $11.4 billion by the turn of the century.

Late spring hearings on RMA in the House are anticipated. Decisions on the add-on, the pay cap, and other possible retirement formula changes should also come into focus soon. Whatever the outcome, it seems clear that it won't be long before the military retirement system undergoes extensive surgery. The key objective: shave that projected future price tag.

Other groups are plowing similar ground. Defense's Quadrennial Review of all military pays, now about to end, should have important recommendations on retired pay that may lead to changes next year. And there's the Defense Manpower Commission, whose final report may be published by the time this article appears in print. DMC has indicated strong support for computing retired pay on the average basic pay rate for a person's highest paid three active-duty years.

According to Defense, a "high-three" scheme would save the government $3.5 million next year, rising to nearly $2 billion a year by the end of the century. The difference, of course, comes from the reduced basis on which retired pay is computed; the ploy of retiring right after an active-duty pay raise, and taking the higher sum into retirement, would disappear.

A "high-three" system—or perhaps a "high-two" or even a "high-one" plan—does appear likely, though perhaps not for another year or two. The "high-one" proposition, which would compute retired pay on the average pay over a member's last twelve months of service, is contained in the RMA.

The possibility of a switch to a contributory military pay system also remains, although a recent General Accounting Office report cites many knotty problems associated with such a scheme. Various influential lawmakers continue to support it, however.

The Defense Department, in its determination to curb the growth of retired pay, even has a chart pricing out future costs on the assumption that there will be a "high-three" plan and no more active-duty or CPI raises. Not surprisingly, this projects an almost negligible outlay increase during the next two decades, even though the retired force will expand to the estimated 1,600,000. The chart is hardly realistic, though it does provide comparisons.

Also not realistic, but perhaps partially indicative of the growing concern over rising personnel costs, is a new bill that would delay the payment of military retirement pay until age fifty-five, even if the member retired earlier. Its sponsor, Rep. Les Aspin (D-Wis.), says most workers don't receive pensions until fifty-five or older, and anyway it would save $10 billion over the next five years.

No one's taking the Aspin ploy seriously, of course. But less drastic, though still significant, retirement restraints seem likely within the next year or two. ■

California—Most Popular Retirement State

California continues to boost its lead as the most popular retirement state for military people. At the start of FY '76, 171,014 retirees called California home, a net increase of 5,536 over the previous twelve months. Runners-up were Florida, with 88,782, Texas with 87,740, and Virginia with 56,101, according to recent Defense Department estimates.

Among Air Force retirees the leaders were California 49,538, Texas 43,215, Florida 35,806, Colorado 11,514, Virginia 11,309, and Arizona 11,111. The least popular states among USAF members were Vermont with 601 and North Dakota with 615.

There were 1,047,923 persons drawing military retired pay at the start of FY 76, including 363,701 USAF retirees. Though not giving a specific figure, Defense indicated that fewer than two percent of the retirees live abroad.

The Bulletin Board

tance from military-oriented groups, including AFA. The new close-down effort has been advanced as an economy step, but opponents say PHS patients will have to be sent to private hospitals with the government footing even larger bills.

Manpower Requests Endorsed

The House Armed Services Committee has recommended to the House Budget Committee Air Force personnel strengths for FY '77—571,000 active-duty members, 52,417 in the Air Force Reserve, and 92,554 in the Air Guard (both selected Reserve figures). The Committee, in approving the annual weapons authorization bill, also opposed cuts in Reserve Forces drill pay programs. It endorsed continuation of appropriated funds to support commissary stores.

Short Bursts

In early spring the betting in Washington was that the President will win his battle to impose **pay caps on military and civil service pay raises this year.** As reported here in March, he wants Congress to limit next October's raises to an average 4.5 percent for the military and 4.7 percent for the civilians. Among those supporting the caps is Rep. Brock Adams (D-Wash.), chairman of the House Budget Committee.

Veteran pay watchers also see Congress agreeing to **remove the one percent "add-on"** that has been included in past military-civil service retirement raises. The Administration's formal request for the removal went to Capitol Hill in late March, although Sen. James L. Buckley (C-N. Y.) earlier introduced a similar bill. If approved, the next CPI increase will be reduced a full percentage point, *e.g.,* from five to four percent.

Sen. Strom Thurmond (R-S. C.), who is also a retired Army Reserve major general, wants **no nonsense about military unions.** He's sponsoring a bill to outlaw them. "Collective bargaining, arbitration and the right to strike must remain alien to the uniformed members of our armed forces," he declared in introducing the measure. Rep. Floyd Spence (R-S. C.) introduced an identical bill in the House.

In a move officials say should eliminate about 100,000 physical examinations annually, Air Force has made **most retirement and separation physicals optional.** Many such examinations doubtless have proved a waste of time, but the leaving-the-service exam could flag a medical trouble spot. It could pinpoint problems leading to possible disability ratings, VA compensation, and accompanying tax deductions. Better take the time to have one, even though it's not required, some observers are cautioning departing troops.

"If a man working in the Pentagon has a classmate from one of the Academies, he cannot go to lunch with that man because he might work for some Defense contractor." So declared Sen. Barry Goldwater (R-Ariz.) in a recent blast at Defense Secretary Donald Rumsfeld's admonishing of Secretary of the Navy J. William Middendorf II, for going hunting at a Mary-

land lodge belonging to a defense contractor. "Stupidity," the Arizona legislator called it, noting that members of Congress "are just as subject to these pressures as any member of the Pentagon."

GI loan eligibility was restored to more than 12,300 veterans and servicemen who were released from liability for their former GI loans during 1975. And all veterans should request releases when they sell homes bought originally with GI loans, VA says. Reason: Without a liability release, the seller could be held liable should the purchaser default on the mortgage payment.

While its senior ROTC program is being cut, **USAF's Junior ROTC establishment grows.** Its average FY '76 student strength of 32,659 will increase about 4,000 during FY '77, Hq. USAF estimates. That will mean more instructor jobs for retired Air Force members. Helping Junior ROTC expansion is recent House Armed Services Committee action to raise the number of these units from 1,200 to 2,000 (all services).

Senior Staff Changes

RETIREMENT: B/G David O. **Williams, Jr.**

CHANGES: B/G William J. Becker, from DCS/Log., Hq. AFSC, Andrews AFB, Md., to V/C, Warner Robins ALC, AFLC, Robins AFB, Ga. . . . **Col. (B/G selectee) John T. Buck,** from Cmdr., 3245th ABG, AFSC, Hanscom AFB, Mass., to Dep. for Con. & Comm. Sys., ESD, AFSC, Hanscom AFB, Mass., replacing M/G Kenneth P. Miles . . . **B/G James C. Enney,** from Asst. Dep. Dir. for Info. Sys., DIA, Washington, D. C., to Chief, NSTL Div., JSTPS, Offutt AFB, Neb. . . . **Col. (B/G selectee) George J. Kertesz,** from Dep. Dir. of Inspect., AFISC, Norton AFB, Calif., to Dir. of Inspect., AFISC, Norton AFB, Calif., replacing B/G Thomas E. Clifford . . . **M/G Kenneth P. Miles,** from Dep. for Con. & Comm. Sys., ESD, AFSC, Hanscom AFB, Mass., to Chief, MAAG, Teheran, Iran . . . **Col. (B/G selectee) John L. Piotrowski,** from V/C, Keesler TTC, ATC, Keesler AFB, Miss., to Cmdr., 552d AW&CW, TAC, Tinker AFB, Okla. . . . **M/G Robert E. Sadler,** from Dir., J-6, Jt. Staff, OJCS, Washington, D. C., to Dep. Dir. (Comm. & Elect.), J-3, Jt. Staff, OJCS, Washington, D. C. ■

AFA News

By Don Steele, AFA AFFAIRS EDITOR

Dr. John L. McLucas, former Secretary of the Air Force and now the Administrator of the Federal Aviation Administration, was the guest of honor at a luncheon held during the recent AFA Leaders' Defense Policy Seminar in Arlington, Va. During the luncheon program, AFA President George M. Douglas, left, presented Dr. McLucas, right, a plaque as a token of AFA's gratitude and esteem, and in appreciation of his great support of the Air Force Association. The plaque, engraved with a portrait of Dr. McLucas, lists his many accomplishments ranging from his bachelor of science degree from Davidson College through his Air Force service; it also lists the top awards he received during his government service.

—USAF PHOTO

Brig. Gen. William E. Brown, Jr., 1st Composite Wing Commander, and also the host commander at Andrews AFB, Md., was the guest speaker at the Andrews Chapter's recent Charter Night Dinner in the Andrews AFB NCO Club. Richard C. Emrich, Vice President of AFA's Central East Region, presented the AFA charter to Chapter President Thomas "Tony" Anthony, who organized the chapter after serving two years as Northern Virginia Chapter President. Shown during the chartering ceremonies are, from left, Chapter Treasurer James E. Conner, Mr. Anthony, General Brown, Mr. Emrich, Chapter Vice President Stanley E. Stepnitz, and Chapter Secretary Robert J. Beatson.

COMING EVENTS . . . Colorado State AFA Convention, Stouffer's Denver Hotel, Denver, May 7–9 . . . **South Carolina State AFA Convention,** Shaw AFB, May 7–8 . . . **Utah State AFA Convention,** Defense Depot Ogden Officers' Club, Ogden, May 8 . . . **Florida State AFA Convention,** International Inn, Tampa, May 14–16 . . . **South Central Regional Convention,** including the Alabama, Arkansas, Louisiana, Mississippi, and Tennessee AFAs, Craig AFB, Ala., May 14–15 . . . **Ohio State AFA Convention,** Stouffer's University Inn, Columbus, May 15 . . . **California State AFA Convention,** Berkeley Marriott, Berkeley, May 21–23 . . . **Arizona Air Force Ball,** Phoenix, May 22 . . . **New Hampshire State AFA Convention,** May 22 . . . **AFA Golf Tournament and Reception,** The Boardmoor, Colorado Springs, Colo., May 28 . . . **AFA Nominating Committee and Board of Directors Meetings,** The Broadmoor, Colorado Springs, Colo., May 29 . . . AFA's annual dinner honoring the **Outstanding Squadron at the Air Force Academy,** The Boardmoor's International Center, Colorado Springs, Colo., May 29 . . . **New Jersey State AFA Convention,** June 4–5 . . . **New York State AFA Convention,** The Beeches, Rome, New York, June 10–13 . . . **Pennsylvania State AFA Convention,** Airport Hilton Inn, West Pittsburgh, June 11–12.

Oklahoma State AFA Convention, Tinker AFB Officers' Club, June 18–19 . . . **Michigan State AFA Convention,** Selfridge AFB, June 19 . . . **Georgia State AFA Convention,** Holiday Inn, Warner Robins, June 26 . . . **Oregon State AFA Convention,** Sheraton-Portland Hotel, Portland, June 26–27 . . . **Texas State AFA Convention,** Stouffer's Greenway Plaza Hotel, Houston, July 23–25 . . . **AFA's 30th Anniversary National Convention and Aerospace Development Briefings and Displays,** Sheraton-Park Hotel, Washington, D. C., September 19–23 . . . **Eighth Annual Bob Hope AFA Charity Golf Tournament,** March and Norton AFBs, Calif., October 1–2 . . . **The Air Force Ball,** Beverly Wilshire Hotel, Beverly Hills, Calif., October 23. ■

chapter and state photo gallery

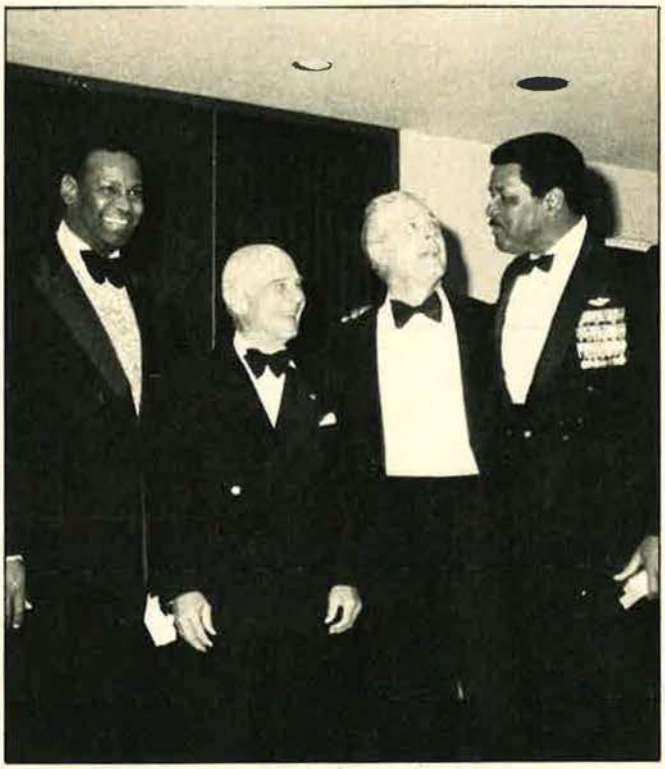
—USAF PHOTO

During recent ceremonies in the Pentagon, Iron Gate Chapter President J. William Bailey presented a check for $34,500 to Air Force Secretary Thomas C. Reed for the Air Force Assistance Fund. The check represented a portion of the proceeds from the Chapter's Twelfth National Air Force Salute. Participants in the presentation included, from left, Chapter Secretary Maj. Gen. J. Clarence Davies, USAF (Ret.); Gen. David C. Jones, USAF Chief of Staff; Mr. Bailey; Secretary Reed; and AFA National Director J. Gilbert Nettleton, Jr., general chairman of the Salute.

—USAF PHOTO

During AFA's February meetings for AFA leaders, the Hon. Thomas C. Reed, Secretary of the Air Force, hosted a reception for AFA's Board of Directors and State Presidents. In the photo, Secretary Reed, left, is shown visiting with AFA President George M. Douglas.

AFA's Chicagoland Chapter, Ill., recently honored Gen. Daniel James, Jr., right, Commander in Chief, NORAD, at a reception hosted by the Johnson Publishing Co. of Chicago. More than 200 civic and AFA leaders and members attended. During the brief program, AFA President George M. Douglas, left, presented John Johnson, center, President of Johnson Publishing Co., an AFA Citation in appreciation of the company's outstanding support of the Air Force and aerospace projects.



—PHOTO BY JOHN FOSTER

Gen. Daniel James, Jr., Commander in Chief, NORAD, was the recipient of the General Jimmy Doolittle Chapter's "Man of the Year" award and guest speaker at the chapter's Annual Awards Night. Shown are, from left, Chapter President Hal Parks; Lt. Gen. James H. Doolittle, USAF (Ret.), AFA's first national president and the man for whom the chapter is named; Gen. Jack J. Catton, USAF (Ret.); and General James.

This Is AFA

The Air Force Association is an independent, nonprofit, airpower organization with no personal, political, or commercial axes to grind; established January 26. 1946; incorporated February 4, 1946.

OBJECTIVES

The Association provides an organization through which free men may unite to fulfill the responsibilities imposed by the impact of aerospace technology on modern society; to support armed strength adequate to maintain the security and peace of the United States and the free world; to educate themselves and the public at large in the development of adequate aerospace power for the betterment of all mankind; and to help develop friendly relations among free nations, based on respect for the principle of freedom and equal rights to all mankind.

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Arnold Air Society
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CMSgt. David C. Noerr
(ex officio)
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AFA News

—USAF PHOTO BY CLIFF MUNKACSY

The Top Three NCO of the Year for Norton AFB, Calif., is CMSgt. David C. Noerr of the Air Force Inspection and Safety Center (AFISC). Sergeant Noerr is Chairman of AFA's Airmen Council, an ex-officio member of the San Bernardino Area Chapter's Board of Directors, and a member of the AFISC Commander's Board of Senior Enlisted Advisors. In the photo, AFA National Director Edward A. Stearn, right, is shown presenting Sergeant Noerr an AFA Citation naming him the California State AFA's "NCO of the Year."

—USAF PHOTO

AFA's Red River Valley Chapter, N. D., and the Grand Forks Chamber of Commerce Military Affairs Committee recently cosponsored a dinner meeting in the Grand Forks AFB NCO Club. More than 200 community, Air Force, and AFA leaders attended. Head-table guests included, from left, Red River Valley Chapter President Reginald G. Urness; Minot Chapter President Orin Baertsch; North Dakota State AFA President Leo P. Makelky; Brig. Gen. George D. Miller, Commander, 57th Air Division (SAC), Minot AFB; and AFA National President George M. Douglas, the guest speaker.

—USAF PHOTO BY SGT. SMITH

Dr. Walter B. LaBerge, Assistant Secretary of the Air Force (Research and Development), was the featured speaker at the Eglin Chapter's Annual AFA Formal honoring Eglin AFB, Fla., personnel. In the photo, honorees visit with Dr. LaBerge and Chapter President Howard Dimmig. They are, from left, Senior NCO of the Year CMSgt. Wesley H. Smith; Junior Officer of the Year 2d Lt. Dickey E. Maxwell; Dr. LaBerge; Career NCO of the Year SSgt. Richard G. Byrnes; First Term Airman of the Year A1C Donald L. Cooke; and Mr. Dimmig.

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The AFA Standard Plan

Insured's Age	New Benefit	Old Benefit	Extra Accidental Death Benefit*	Monthly Cost Individual Plan
20-24	$75,000	$66,000	$12,500	$10.00
25-29	70,000	60,000	12,500	10.00
30-34	65,000	50,000	12,500	10.00
35-39	50,000	40,000	12,500	10.00
40-44	35,000	25,000	12,500	10.00
45-49	20,000	15,000	12,500	10.00
50-54	12,500	10,000	12,500	10.00
55-59	10,000	10,000	12,500	10.00
60-64	7,500	7,500	12,500	10.00
65-69	4,000	4,000	12,500	10.00
70-75	2,500	2,500	12,500	10.00

The AFA High-Option Plan

20-24	$112,500	$100,000	$12,500	$15.00
25-29	105,000	90,000	12,500	15.00
30-34	97,500	75,000	12,500	15.00
35-39	75,000	60,000	12,500	15.00
40-44	52,500	37,500	12,500	15.00
45-49	30,000	22,500	12,500	15.00
50-54	18,750	15,000	12,500	15.00
55-59	15,000	15,000	12,500	15.00
60-64	11,250	11,250	12,500	15.00
65-69	6,000	6,000	12,500	15.00
70-75	3,750	3,750	12,500	15.00

Optional Family Coverage
(May be added either to the Standard or High-Option Plans)

Insured's Age	Spouse Benefit New	Spouse Benefit Old	Benefit, Each Child**	Monthly Cost Family Coverage
20-24	$10,000	$6,000	$2,000	$2.50
25-29	10,000	6,000	2,000	2.50
30-34	10,000	6,000	2,000	2.50
35-39	10,000	6,000	2,000	2.50
40-44	7,500	5,250	2,000	2.50
45-49	5,000	4,050	2,000	2.50
50-54	4,000	3,000	2,000	2.50
55-59	3,000	3,000	2,000	2.50
60-64	2,500	2,250	2,000	2.50
65-69	1,500	1,200	2,000	2.50
70-75	750	750	2,000	2.50

*In the event of an accidental death occuring within 13 weeks of the accident, the AFA plan pays a lump sum benefit of $12,500 **in addition** to your plan's regular coverage benefit, except as noted under AVIATION DEATH BENEFIT, below.

**Each child has $2,000 of coverage between the ages of six months and 21 years. Children under six months are provided with $250 protection once they are 15 days old and discharged from the hospital.

AVIATION DEATH BENEFIT: A total sum of $15,000 under the Standard Plan or $22,500 under the High-Option Plan is paid for death which is caused by an aviation accident **in which the insured is serving as pilot or crew member of the aircraft involved.** Under this condition, the Aviation Death Benefit is paid in lieu of all other benefits of this coverage.

AFA'S DOUBLE PROTECTOR—now with substantial benefit increases—gives you a choice of two great plans, both with optional family coverage. Choose either one for strong dependable protection, and get these advantages:

FAMILY PLAN. Protect your whole family (no matter how many) for only $2.50 per month. Insure newborn children as they become eligible just by notifying AFA. No additional cost.

Wide Eligibility. If you're on active duty with the U. S. Armed Forces (regardless of rank, a member of the Ready Reserve or National Guard (under age 60), A Service Academy or college or university ROTC cadet, you're eligible to apply for this coverage. (Because of certain limitations on group insurance coverage, Reserve or Guard personnel who reside in Ohio, Texas, Florida and New Jersey are not eligible for this plan, but may request special applications from AFA for individual policies which provide similar coverage.

No War Clause, hazardous duty restriction or geographical limitation.

Full Choice of Settlement Options, including trusts, are available by mutual agreement between the insured and the Underwriter, United of Omaha.

Disability Waiver of Premium, if you become totally disabled for at least nine months, prior to age 60.

Keep Your Coverage at Group Rates to Age 75, if you wish, even if you leave the military service.

Guaranteed Conversion Provision. At age 75 (or at any time on termination of membership) the amount of insurance shown for your age group at the time of conversion may be converted to a permanent plan of insurance, **regardless of your health at that time.**

Reduction of Cost by Dividends. Net cost of insurance to AFA insured persons has been reduced by payment of dividends in 10 of the last 13 years. However, dividends naturally cannot be guaranteed.

Convenient Premium Payment Plans. Premium payments may be made by monthly government allotment, or direct to AFA in quarterly, semi-annual or annual installments.

EFFECTIVE DATE OF YOUR COVERAGE. All certificates are dated and take effect on the last day of the month in which your application for coverage is approved. AFA Military Group Life Insurance is written in conformity with the insurance regulations of the State of Minnesota. The insurance will be provided under the group insurance policy issued by United of Omaha to the First National Bank of Minnesota as trustee of the Air Force Association Group Insurance Trust.

EXCEPTIONS. There are a few logical exceptions to this coverage. They are:

Group Life Insurance: Benefits for suicide or death from injuries intentionally self-inflicted while sane or insane shall not be effective until your coverage has been in force for 12 months.

The Accidental Death Benefit and Aviation Death Benefit shall not be effective if death results: (1) From injuries intentionally self-inflicted while sane or insane, or (2) From injuries sustained while committing a felony, or (3) Either directly or indirectly from bodily or mental infirmity, poisoning or asphyxiation from carbon monoxide, or (4) During any period a member's coverage is being continued under the waiver of premium provision, or (5) From an aviation accident, either military or civilian, in which the insured was acting as pilot or crew member of the aircraft involved, except as provided under AVIATION DEATH BENEFIT.

PLEASE RETAIN THIS MEDICAL INFORMATION BUREAU PRENOTIFICATION FOR YOUR RECORDS

Information regarding your insurability will be treated as confidential. United Benefit Life Insurance Company may, however, make a brief report thereon to the Medical Information Bureau, a nonprofit membership organization of life insurance companies, which operates an information exchange on behalf of its members. If you apply to another Bureau member company for life or health insurance coverage, or a claim for benefits is submitted to such a company, the Bureau, upon request, will supply such company with the information in its file.

Upon receipt of a request from you, the Bureau will arrange disclosure of any information it may have in your file. (Medical information will be disclosed only to your attending physician.) If you question the accuracy of information in the Bureau's file, you may contact the Bureau and seek a correction in accordance with the procedures set forth in the federal Fair Credit Reporting Act. The address of the Bureau's information office is P.O. Box 105, Essex Station, Boston, Mass. 02112. Phone (617) 426-3660.

United Benefit Life Insurance Company may also release information in its file to other life insurance companies to whom you may apply for life or health insurance, or to whom a claim for benefits may be submitted.

Increase in Premium
ILITARY GROUP LIFE INSURANCE

APPLICATION FOR
AFA MILITARY GROUP LIFE INSURANCE

United of Omaha

Group Policy GLG-2625
United Benefit Life Insurance Company
Home Office Omaha, Nebraska

Full name of member _____
Rank Last First Middle

Address _____
Number and Street City State ZIP Code

Date of birth Mo. Day Yr.	Height Weight	Social Security Number

Please indicate category of eligibility and branch of service.

☐ Extended Active Duty ☐ Air Force
☐ Ready Reserve or National Guard ☐ Other _____ (Branch of service)
☐ Air Force Academy ☐ _____ Academy
☐ ROTC Cadet _____ Name of college or university

Name and relationship of primary beneficiary

Name and relationship of contingent beneficiary

This insurance is available only to AFA members

☐ I enclose $10 for annual AFA membership dues (includes subscription ($9) to AIR FORCE Magazine).
☐ I am an AFA member.

Please indicate below the Mode of Payment and the Plan you elect.

HIGH OPTION PLAN			STANDARD PLAN	
Members Only	Members and Dependents	Mode of Payment	Members Only	Members and Dependents
☐ $ 15.00	☐ $ 17.50	**Monthly** government allotment. I enclose 2 months' premium to cover the period necessary for my allotment to be established.	☐ $ 10.00	☐ $ 12.50
☐ $ 45.00	☐ $ 52.50	**Quarterly.** I enclose amount checked.	☐ $ 30.00	☐ $ 37.50
☐ $ 90.00	☐ $105.00	**Semiannually.** I enclose amount checked.	☐ $ 60.00	☐ $ 75.00
☐ $180.00	☐ $210.00	**Annually.** I enclose amount checked.	☐ $120.00	☐ $150.00

Names of Dependents To Be Insured	Relationship to Member	Dates of Birth Mo. Day Yr.	Height Weight

Have your or any dependents for whom you are requesting insurance ever had or received advice or treatment for: kidney disease, cancer, diabetes, respiratory disease, epilepsy, arteriosclerosis, high blood pressure, heart disease or disorder, stroke, venereal disease or tuberculosis? Yes ☐ No ☐

Have you or any dependents for whom you are requesting insurance been confined to any hospital, sanitarium, asylum or similar institution in the past 5 years? Yes ☐ No ☐

Have you or any dependents for whom you are requesting insurance received medical attention or surgical advice or treatment in the past 5 years or are now under treatment or using medications for any disease or disorder? Yes ☐ No ☐

IF YOU ANSWERED "YES" TO ANY OF THE ABOVE QUESTIONS, EXPLAIN FULLY including date, name, degree of recovery and name and address of doctor. (Use additional sheet of paper if necessary.)

I apply to United Benefit Life Insurance Company for insurance under the group plan issued to the First National Bank of Minneapolis as Trustee of the Air Force Association Group Insurance Trust. Information in this application, a copy of which shall be attached to and made a part of my certificate when issued, is given to obtain the plan requested and is true and complete to the best of my knowledge and belief. I agree that no insurance will be effective until a certificate has been issued and the initial premium paid.

I hereby authorize any licensed physician, medical practitioner, hospital, clinic or other medical or medically related facility, insurance company, the Medical Information Bureau or other organization, institution or person, that has any records or knowledge of me or my health, to give to the United Benefit Life Insurance Company any such information. A photographic copy of this authorization shall be as valid as the original. I hereby acknowledge that I have a copy of the Medical Information Bureau's prenotification information.

Date _____, 19 ____ _____
Member's Signature

5/76
Form 3676GL App

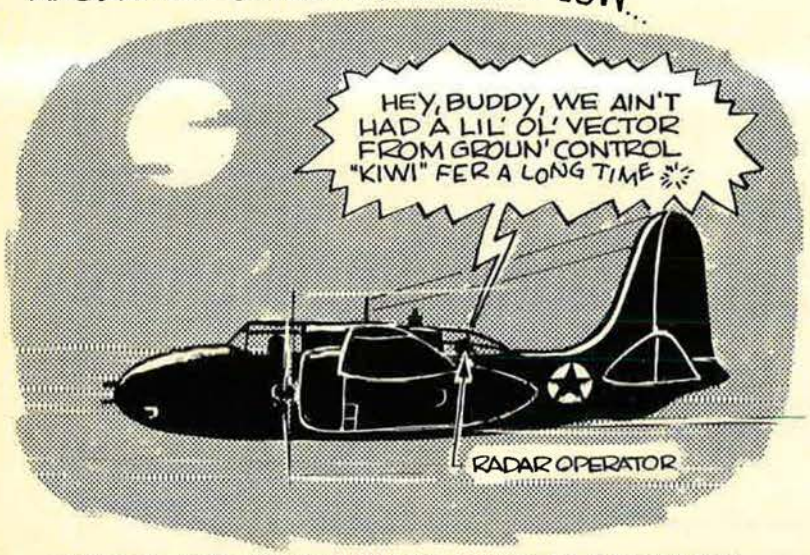
Application must be accompanied by check or money order. Send remittance to: Insurance Division, AFA, 1750 Pennsylvania Avenue, NW, Washington, D.C. 20006

Bob Stevens'

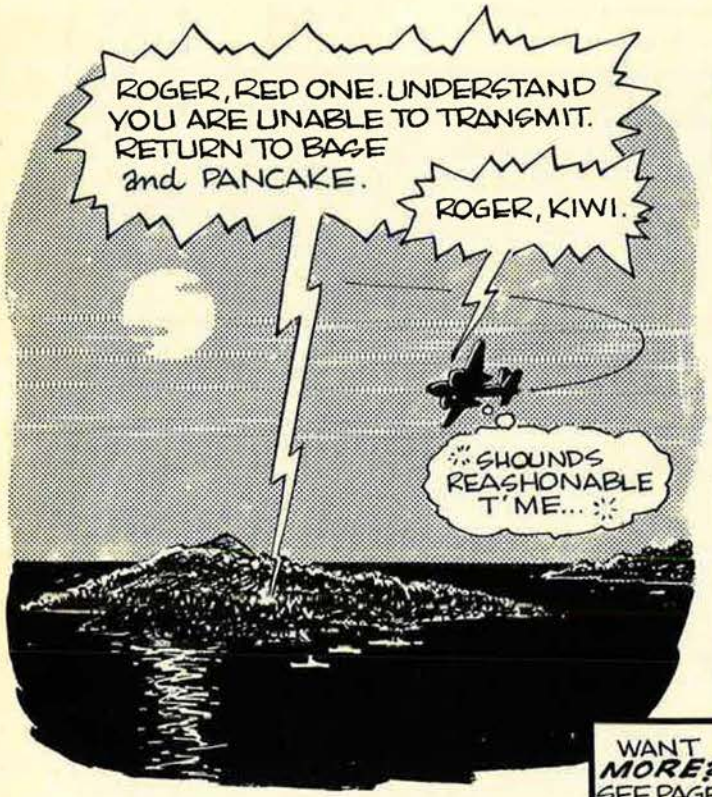
"There I was..."

"Communicate - v.t. 1. To give to another..., impart; transmit." WEBSTER DOESN'T SAY ANYTHING ABOUT ***RECEIVING.*** AND THAT, DEAR READERS, IS THE SUBJECT OF THIS MONTH'S EFFORT. THOMAS FULLER SAID IT ALL IN, *"Birds are entangled by their feet and men by their tongues."*

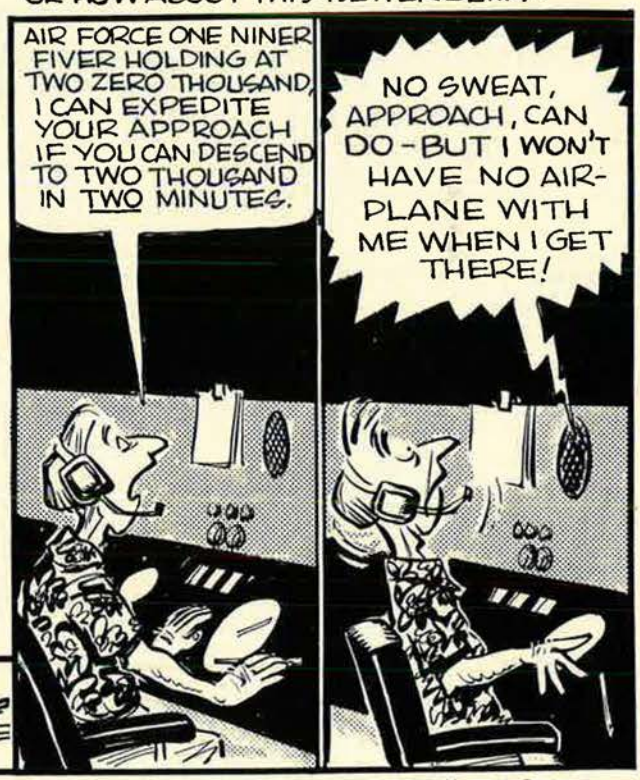
1943 - A P-70* IS OVER GUADALCANAL CHASING THE ELUSIVE "WASHING MACHINE CHARLIE" AT ANGELS 20 - OXYGEN IS RUNNING LOW...



* NIGHT-FIGHTER VERSION OF DOUGLAS A-20 HAVOC.



OR HOW ABOUT THIS NEWER GEM?:



WANT *MORE?* SEE PAGE 169

S'TRUE! SAYS DICK EHLERT FT. WALTON BEACH, FLA.

Bob Stevens

THANKS TO CAPT DON LARSON, EDWARDS AFB, CALIF.

HAVE A NICE YEAR.

E-SYSTEMS

We solve problems...systematically.

Dallas, Texas


"Eagle two,
we have 9 hostiles,
10 degrees port,
angels 70..."
When the best fighter you can buy is worth the little extra it costs.
The F-15
MCDONNELL DOUGLAS