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AIR FORCE MAGAZINE

JOURNAL OF THE AIR FORCE ASSOCIATION

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May 2006, Vol. 89, No. 5

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About the cover: A bald eagle photographed by Tom and Pat Leeson. "USAF Almanac 2006" starts on p. 34.

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Editorial

By Robert S. Dudney, Editor in Chief

Wing-Walking Into the Future

For many observers, the signs all suggest that 2006 will be a relatively quiet year for the Air Force. The base realignment and closure campaign—bitterly opposed by many in the Air National Guard—is history. The Pentagon has wrapped up its bruising year-long Quadrennial Defense Review. The big mobility study is at an end. What many viewed as a "perfect storm" of troubles seems to have blown itself out.

Maybe. The new Secretary of the Air Force, Michael W. Wynne, and USAF Chief of Staff, Gen. T. Michael Moseley, certainly are striving to steady the service after the battles of 2005. They have had some successes, but the game is not over.

We now can see that the recent upheavals, far from settling matters, left some important issues in dispute. Serious questions are unresolved. The fluidity of the situation was made evident in remarks by Moseley at an April 11 meeting of the Defense Writers Group in Washington, D.C. Here are some of the X factors that he discussed, any of which could produce fireworks. If so, remember you heard it here first.

■ DOD cut the F-22 program in half—from 381 to 183 fighters. According to Moseley, DOD gave "assurances" it would go no lower. Even so, Deputy Defense Secretary Gordon R. England is pressing on with a "fighter optimization" study, with results due in August. Asked if it posed a new threat, Moseley replied, "I can't imagine a study that comes in with less than 183." Elsewhere, however, others say DOD's anti-Raptor cabal remains active.

■ The F-35 Joint Strike Fighter is now behind schedule. Moseley noted, "This whole [fighter] inventory is dependent on ... the F-35. If it continues to slip—and we're hoping that it won't—this will drive us into some other decisions" about the shape of the fighter force. "The F-35 eventually will be a wonderful airplane," he added, "but we're not there yet."

■ If the F-35 falters, F-22 production could increase. Fighter management, Moseley said, is like wing-walking; you don't let go of a handhold until you have a grip on another.

■ The uncertainties have complicated planning for "legacy" fighters—F-15s, F-16s, and A-10s. At present, USAF might want to keep 196 F-15Cs, but it depends on what happens with the newer fighters. Affordability is an issue. "What do we need to do to the airplane to keep it a while?" asked Moseley. With the F-16s and A-10s, the story is much the same, though even more complicated. "A lot of this goes back to the question on the F-35," he said.

We now can see that the recent upheavals, far from settling matters, left some important issues in dispute.

■ What to do with the Air Force's old C-5A airlifter? USAF is examining whether the A, like the newer C-5B, is worthy of a C-5 Reliability Enhancement and Re-engining Program—RERP for short. "I want the RERP test to play out," said Moseley, "and see what options we have for ... maybe or maybe not RERPing the As." That would free up some $5 billion for other needs, such as a new aerial tanker or more C-17s. Yet Congress and DOD lean toward fixing the C-5A. Which view will prevail? "I don't know yet," said Moseley.

■ USAF's C-17 transports are wearing out faster than expected because of heavy use. To maintain a planned fleet of 180, the Air Force seeks to buy seven replacements. Moseley hinted USAF could pay for some of this by tapping into millions of dollars set aside to preserve C-17 tooling. "Do you really need to keep that tooling?" said the Chief. "You know, Boeing still has tooling on B-52s. We haven't built any B-52s in a while." Without tooling, however, DOD could not resume production in a crunch.

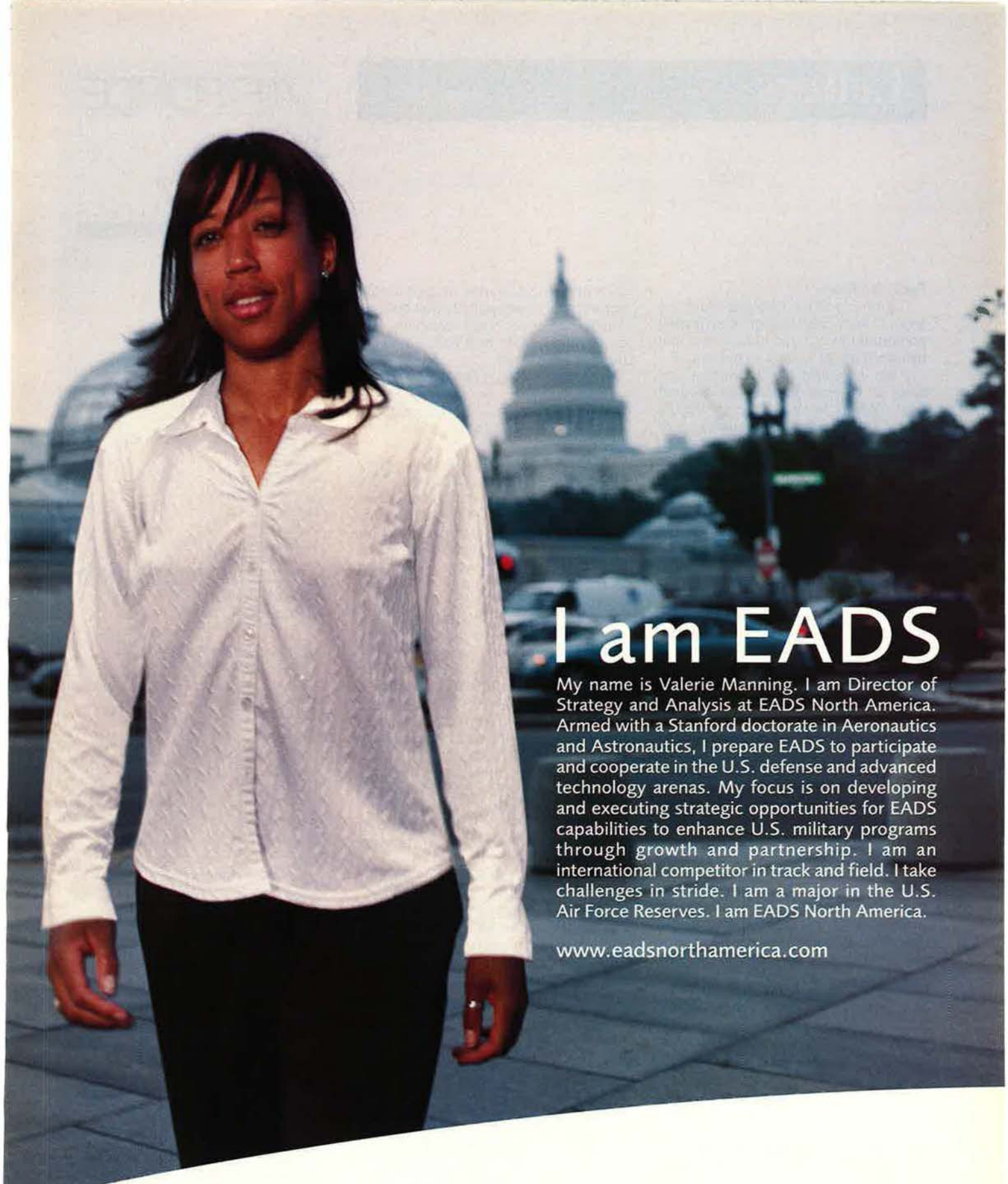
■ Moseley said USAF has structured its program to avoid a "bow wave" of unfunded liabilities that would come crashing in during future years. Yet he was quick to agree that the Air Force has not yet budgeted for a new long-range bomber proposed by Pentagon officials. It has only set aside $1.6 billion to study options for what is sure to be a multibillion-dollar program. "I don't know about the bomber yet," he said. "We're going to have to think about this one."

■ DOD had planned to retire the U-2 spyplane and the F-117 stealth fighter, both aging systems, and replace their capabilities with those of newer and more capable aircraft—the Global Hawk UAV and stealthy F-22, respectively. However, said Moseley, it "doesn't make sense" to shed these older warhorses before the Air Force has demonstrated the operational capability of their successors in all critical missions. As a result, he said, "the Air Force may have to buy back"—that is, find the money for—continued operation of the older aircraft for another few years.

■ USAF wants to "partner" with the Army whenever possible, but the Army's concept of fighting on a "nonlinear" battlefield—in small, fast-moving units against widely dispersed enemies—poses questions and problems. "How do you then support land component activities in nonlinear, distributed battlespace?" Moseley asked. "How do you provide the signals from sensors? How do you provide resupply at near real time?" All of these issues have resource implications.

■ Conversely, said the Chief, there are questions about how the new Army will support the Air Force, defending airfields and rear areas in this new, nonlinear battlespace. Moseley said these issues have yet to be sorted out among the services.

■ Total Air Force personnel—active, Guard, and Reserve—will have to shrink by some 40,000 full-time-equivalent positions over the next few years. This is a touchy subject—especially for the Air National Guard. State governors and adjutants general are poised to resist any cuts, saying that would keep the Guard from carrying out its state and federal missions. Moseley said the Guard and Reserve are exempt this year and next. "We've asked their leaders to take some time and look at this, and then come back and tell us what they think," said Moseley. "I don't know what that answer will be." ■



I am EADS

My name is Valerie Manning. I am Director of Strategy and Analysis at EADS North America. Armed with a Stanford doctorate in Aeronautics and Astronautics, I prepare EADS to participate and cooperate in the U.S. defense and advanced technology arenas. My focus is on developing and executing strategic opportunities for EADS capabilities to enhance U.S. military programs through growth and partnership. I am an international competitor in track and field. I take challenges in stride. I am a major in the U.S. Air Force Reserves. I am EADS North America.

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Letters

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Faith No More

[When I read the editorial "Faith No More?," April, p. 2] I thought that (finally) somebody was thinking as I was, but the word never seems to get out.

I am a retired Navy Seabee and have a 19-year-old college student son. When he was a high school junior, he expressed a desire to join the military; I talked him out of it and told him that I would be much happier if he would go to college because the government will not honor his service once he leaves the military! I am an example of that thought.

I joined in 1965, did two tours in Vietnam, and was wounded once. I chose to stay for a career, but by doing so I had absolutely no GI Bill education benefits waiting for me when I retired in 1987; the Vietnam-era GI bill had expired by then, and because I chose to stay in uniform, I lost out. Had I gotten out after my first hitch, I would have had the opportunity to use it.

The erosion of my "entitlements" since retiring has left me with a bad taste in my mouth, and I could not subject my son to the same broken promises. Now we have Tricare, and I am told that I will pay twice as much for something that was "promised" to be free for life.

I don't want to sound like a disgruntled UAW worker, but I laid my life on the line and was promised things that never came true.

My son will never serve, and I have told his friends of the downfall of a military career.

Incidentally, I used to be a Navy recruiter in 1984. In the Enlisted Navy Recruiter Orientation (ENRO) course, they showed 30 years of different versions of the DD-214. Look them up. The wording and politics are obvious to all!

Leonard R. Webber
Gulfport, Miss.

The QDR Has Landed, Sort Of

Regarding the Pentagon's new ideas *["Editorial: The QDR Has Landed, Sort Of," March, p. 2]:* I am particularly enthralled by the "joint capability areas" idea. The only "joint capabilities" are air capabilities. There are no joint armored divisions or joint frigate squadrons. The capability that defines "joint" is airpower. That capability may be ground-based, or it may be naval, but it is always air.

Gen. Michael J. Dugan,
USAF (Ret.)
Dillon, Colo.

Lima Site 85

I read with great interest your story in the recent *Air Force* Magazine , "The Fall of Lima Site 85" *[April, p. 66].* Chief Master Sergeant Etchberger was my father. It might interest you to know that the March 1969 issue of *Air Force and Space Digest* has a very short description and picture of my mother accepting the Air Force Cross from then Chief of Staff General McConnell on p. 130. The other thing that may be of interest is that my father is now being considered for the Medal of Honor. There is a Bill (HR 2674) in Congress to award him the MOH; in addition, there is paperwork that has made it as far as the Pentagon which would upgrade his Air Force Cross to the MOH.

Thank you so much for telling this story so that other Air Force personnel can learn about their heritage.

Cory Etchberger
Overland Park, Kan.

■ *Also in the April issue, we erred in identifying Gerald Clayton as a lieutenant colonel. Though he was a lieutenant colonel when he deployed on the Lima Site 85 mission in fall 1967, he was promoted to colonel on Dec. 24, 1967 and retired in that grade.—THE EDITORS*

Do you have a comment about a current article in the magazine? Write to "Letters," *Air Force* Magazine, 1501 Lee Highway, Arlington, VA 22209-1198. (E-mail: letters@afa.org.) Letters should be concise and timely. We cannot acknowledge receipt of letters. We reserve the right to condense letters. Letters without name and city/base and state are not acceptable. Photographs cannot be used or returned.—THE EDITORS

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Determination of a Sandy

John T. Correll has given us another excellent article about bravery under fire in Southeast Asia (literally) with "Determination of a Sandy," March, p. 42. I would like to make two comments related to the A-1 photo caption on p. 44. First, aircraft No. 738 is famous for more than just Bill Jones' Medal of Honor. That same aircraft was flown by Capt. Ron Smith as Sandy 1 during the June 2, 1972 SAR mission that recovered Roger Locher from deep inside North Vietnam. Captain Smith received the Air Force Cross for his actions, making No. 738 the only aircraft in Air Force history to have been directly involved in both an MOH and an AFC mission.

Second, No. 738 may have been the last USAF A-1 lost in Southeast Asia, but given that we transferred our remaining A-1s to the VNAF in November 1972, I would be surprised if it was the last of its type to go down in that conflict.

Please continue to publish similar articles about USAF activities in Southeast Asia—it is important history that we all need to be aware of.

Col. Ron Thurlow,
USAF (Ret.)
Beavercreek, Ohio

A great article on the heroism of Bill Jones! I first flew into [Nakhon Phanom, Thailand] in May 1966, landing on the sometimes treacherous rain slick PSP runway. In fact, one of our 22 TCS C-124s skidded off the runway and buried the nose gear in the soft Thai mud. The last mission I flew to Nakhon Phanom Air Base was in January 1967 when I landed on the new 8,000-foot-long asphalt runway. The PSP main runway was replaced a "skoshi" earlier than the September 1968 date stated in the article. Nimrod (A-26), Sandys, Fireflys, Pony Express, etc., did a yeoman's job in taking the war to the NVA from NKP! God bless 'em all!

Lt. Col. Jimmy B. Pickens,
USAF (Ret.)
Abilene, Tex.

Recognition Due

[The photo in the lower left corner of p. 56, March issue, "Tough Old Birds," shows an unidentified pilot inspecting battle damage to a propeller:] He is 2nd Lt. Ellis A. Wallenberg, 73rd Fighter Squadron (not the 7th), 318th Fighter Group, shown on Ie Shima (not Okinawa). During an engagement with Japanese fighters over Kyushu, Wallenberg had his canopy shot away, radio destroyed, and was slightly wounded. His engine

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had also been hit and was losing oil. A 20 mm round had gone through the prop of his P-47N causing vibration. Escorted by a squadron mate, he managed to make it the 300 miles back to Ie Shima when his engine quit. He dead-sticked it onto the runway for this photo. Three weeks later, over the Ryukyu Islands, his plane was hit by flak and he had to parachute and was seen to fall to his death. Please give him the bit of recognition that is his due.

Jack Lambert
St. Paul, Minn.

Who Shot Down Yamamoto?

Having been a participant in the Yamamoto mission, I read your article with great interest and found it to be very accurate except in one small detail: the 30-foot altitude and a major disagreement with its conclusion about [1st Lt.] Rex Barber and [Capt.] Tom Lanphier, who were both very good friends of mine *["Magic and Lightning," March, p. 62].*

In the 13th Fighter Command report "Subject: Fighter Interception," it stated we flew at 30 feet and, in another place, we flew 10 to 30 feet above the water. In truth, John Mitchell briefed us to maintain 50 feet of altitude, which I and my team mates did all the way to Bougainville. Ten to 30 feet above the ocean is ridiculous in that if one engine quits, only the most skillful of pilots could prevent crashing into the ocean before they could safely convert to single engine flying.

After Japanese records revealed that only two Betty bombers were shot down, not three, and no Zeros were shot down, Tom wrote an unpublished book (I have a copy) in which he claimed that only he should have full credit for shooting down Yamamoto's plane. Up to that time, Rex was willing to accept half credit, but after Tom let Rex and [Maj.] John Mitchell read it, they were in strong disagreement from then on.

My personal interest started the day after the mission when I asked Tom about the Betty bomber he said he had shot down. He told me that after he turned into the three Zeros on the right side of Yamamoto's plane (which in my mind was fabulous in that it gave Rex an unimpeded path to Yamamoto's plane), he shot at the oncoming Zeros and, as they passed, he made a 180-degree turn after which he saw a Betty bomber at about 90 degrees to him and at some distance. He fired his guns using lead, and the Betty's right wing came off and the Betty rapidly descended to a crash.

In 1988, the Nimitz Foundation at Fredricksburg, Tex., held its first symposium with its subject "The Yamamoto Mission." There were seven of us from the mission, plus Yanagua, the only survivor of the six Japanese Zero pilots. Through an interpreter, he told the audience that no Zeros were shot down, five landing at Kahili and one at Ballalae, and then at about two o'clock the six took off, joined up, and flew back to Rabaul. After the talks, through an interpreter, he told me he was the only one still living because, in a fight with an F6F, he had his right hand hit, which had to be amputated and he could not fly any more. The other five were killed in combat later on. When he saw a P-38 about to attack Yamamoto's airplane (because they had had their radios removed to lighten the plane), he was unable to warn Yamamoto's pilot. He flew ahead and fired his guns in the hope that his tracers would warn the pilot, but to no avail. After the Betty was fired at, Yanagua stated it crashed after 20 to 30 seconds. (I have a copy of his sworn statement as to this fact.) Another book has a part of Admiral Ugaki's diary in which he said he saw the attack and that after Yamamoto's plane was hit, it took only 20 seconds before it hit the ground.

There is no way that the P-38G models that we flew with no aileron boost could make a 180-degree turn and fly to the fray in the cited 20 to 30 seconds. However, in Tom's unpublished book, he states that he followed Yamamoto's Betty bomber to near its crash site. [He] gave a very accurate description of the scene, and also how he had shot down Yamamoto's plane for the second time (of course,

not mentioned by him was that it was the second time), which brings up the question: Should future review boards give him credit for shooting down one-and-a-half bombers? Without question, that would be ridiculous. It is my strong opinion that Tom never fired one round at any Betty bomber. Also, after Yanagua and Admiral Ugaki confirmed they had seen a P-38 shoot down Yamamoto's plane and said so, only Rex should be credited with this victory because their statements and Rex's are practically identical.

Douglas S. Canning
Maitland, Fla.

Thank you for an excellent article by Rebecca Grant on the interception and shootdown of Admiral Yamamoto. In the late 1980s, George Chandler, a World War II ace who knew all the principals in the story, began a quest to get Rex Barber sole credit for shooting down Yamamoto. He came to VFW headquarters in Kansas City where I worked and asked if we would support him. Though we did not offer money, we gave him morale support and encouraged the effort.

As a retired Air Force officer, I became so interested in the project that I volunteered to fly on my own time and money to Bougainville and film the bomber wreckage and the area over which the battle took place. Unfortunately, before I could get over there, the locals began fighting with each other and a small civil war took place. One night at a Military Officers Association of America dinner, I mentioned the project to Col. Jim Jarman, USAF (Ret.). "Oh," he said, "I knew both of those guys, Barber and Lanphier. Barber was the one who got Yamamoto."

I was stunned. Here sat a man who had all the information that dozens of others were searching for. He recounted how the mission had been kept secret even after it was over, to keep the Japanese from learning that we were decoding their messages. But someone from Guadalcanal who had gone back to the States had let the cat out of the bag. Immediately the story was released. Jarman, in his quarters on Guadalcanal, heard the radio broadcast and went out to find Barber and Lanphier. He learned that they were at the base theater.

As Jarman approached the theater, the two fliers walked out. Jarman gave them the news. Lanphier immediately turned to Barber, shook his hand, and said, "Congratulations, you got him."

I relayed that story to George Chandler, but he never followed it up, and he lived just a few hours away in Pratt, Kan. Jarman died a couple of months later. Had the Jarman statement been made part of the record, Barber might have received the credit he was due.

Maj. Vern J. Pall,
USAF (Ret.)
Tucson, Ariz.

March Roundup and Memories

I was really hyped after reading "Aggressors Come Back With F-15s" in the March issue of *Air Force* Magazine *["Aerospace World," p. 18]*. I was with the 64th Fighter Squadron during WWII, and the squadron has seen continuous service these many years with only name changes to the 64th Fighter Interceptor Squadron and Aggressor Squadron. After a hiatus of 17 years, the 65th is back in the fold, sharing ramp space with the 64th at Nellis. Both squadrons, along with the 66th, formed the 57th Fighter Group during WWII, and it was the group, not the squadron, that received Distinguished Unit Citations (we called them Presidential Citations), and I recall it was four, not three, as reported in the story.

I once attended a reunion with the much younger guys of the 64th FIS and was introduced as the only guy in the room who won his war.

It seems as though the March issue was written just for me. Reading the remarkable story of Bill Jones *["Determination of a Sandy," p. 42]*, I had a flashback to April 15, 1945 when my P-47 exploded in a ball of fire half way through a dive bomb run. Like Jones, I was the flight leader and felt a loud "Ka-Boom" under the fuselage as we neared the target. My Air Medal states, "Upon approaching the target area the flight encountered an intense barrage of anti-aircraft fire, and Captain Berry's aircraft was hit and damaged. Nevertheless, he led the flight to the target and from a precision bomb run scored a direct hit upon an enemy occupied house." The last part must be a lie; I jettisoned my bombs from about 4,500 feet the instant after the cockpit was enveloped in flame. I did prove it was possible for a blind pilot who could not locate the emergency canopy release to get out of a diving P-47 in less than 10 seconds—in time for a parachute to swing one time before striking the ground.

Jones' burns were far more serious than mine, but unfortunately 12 days MIA led to infections that kept me hospitalized for seven months. There were other similarities: Part of my clothing was burned off, and my parachute was also damaged. Fortunately that chute was in for repacking, where it was found eaten up with urine (I blamed it on one of the new guys who must have peed in his pants on his first mission.). I was wearing Squadron Commander Bob Barnum's chute that day.

Reading a little further in the March

issue I found "Tough Old Birds," *[p. 54]*, where the only surviving fighters were P-47s. How that jogged my memory: Bobby Neilsen landing on my wing at a Spitfire base, with cylinders shot off, piston rods pounding the air, and wearing a blanket of oil. One single mission says it all. Bob Barnum was my element leader, with Woody Fears on his wing. Sam Durfee was my wingman. Barnum flew through a tree strafing a truck; Woody flew too low in a bomb run and turned his P-47 into Swiss cheese with his own bomb fragments; and Sam knocked off four inches of a prop blade strafing a tank. All came back unscathed, but the rumor was "Berry almost got three guys killed on the same mission."

Col. William F. Berry,
USAF (Ret.)
Marion, Ill.

Thanks To Fogleman

I was deployed to Dhahran, Kingdom of Saudi Arabia, 4404th Wing (Provisional) Base Supply, departing just two weeks before the bombing of Khobar Towers, where 19 were killed and numerous wounded. *["Letters: Perspectives on Khobar Towers," February, p. 4]*. Shortly after finishing my first month there, I changed rooms in the supply dormitory, and my room was on the street side where I had a great view overlooking the separating fence where kids played soccer, the locals walked and drove their vehicles, and lived in the housing designed just for them. Daily, there were cars and large trucks just over the wall, sometimes parking in the sand at the wall. ... The street that surrounded the dormitory compound was no more than three feet from the wall, and my dorm room was just another maybe 20 feet past that.

I just couldn't figure why there was no real barrier or better protection around this compound, so I went to the wing commander, then Brig. Gen. Terry Schwalier. I met with his SEA to explain my concern for our safety. The chief told me that they were not able to do anything to further enhance our safety and that the Saudi government would not allow the additional barrier between our dormitory area and the Dhahran local populace, but there would soon be security police patrolling the inside perimeter, plus there would be armed guards on the rooftops of the dorm units that overlooked that wall. In a sense, their hands were tied by the Saudi government. The [airmen] were killed not from a lack of concern on the general's part, but from the unwillingness of the Saudi government to allow the US to protect us. ...

I called back and spoke to the base supply master sergeant that got my dorm room and a chaplain I'd gotten most acquainted with during my stay and was appalled and thankful that I was not in that room. ... I find it most distressing that the good general lost a most deserved star, thus ending his career. I guess, since we (the US) could not call a rose a rose, one of our best had to take the fall. Politics and politicians, you just got to love 'em.

Thank you, General Fogleman, for wholeheartedly trying to set things straight for General Schwalier.

MSgt. William Martin,
USAF (Ret.)
Warsaw, Mo.

Correction

"Aerospace World: Could Boeing Tankers Be Built at Long Beach?," April, p. 19, reported that Boeing Chief Financial Officer James Bell said that 767 tankers would probably be built at the company's Long Beach, Calif., facility, where C-17s are now built. Bell actually said that Long Beach is a leading candidate among several locations to build the 767 if the company wins the tanker contract and if the Air Force actually shuts down the C-17 line.

Verbatim

By John T. Correll, Contributing Editor

You Can Ask

"I'm told there's time for questions and answers. Or at least for questions."***—Secretary of Defense Donald H. Rumsfeld, following his speech at the Truman Museum,*** **Kansas City Star,** ***March 3.***

It's OK, Really

"We make sure there are assurances in place, in general, sufficient to satisfy us that the deal is appropriate from a national security standpoint."***—Homeland Security Director Michael Chertoff on a plan, later scuttled, from the Committee on Foreign Investments for a United Arab Emirates company to take over operations at six major US seaports, ABC's "This Week," Feb. 19.***

The Guard at Home

"The regular and reserve forces should defend our overseas national security interests, but the National Guard should focus on its core mission—homeland defense."***—Joseph E. Muckerman II, director of emergency planning, Office of the Secretary of Defense, 1986-92, letter to the*** **Washington Post,** ***Feb. 23.***

Generalists for the Long Term

"As you grow in our Air Force, the Air Force will ask more of you. We do not expect someone to enter a career field and spend their 20- or 30-year career doing just that. We expect, as you move through your Air Force career, you will become a generalist who will develop expert knowledge in various fields."***—Gen. William R. Looney III, commander of Air Education and Training Command, speech to Air University students, Air Force Print News, Feb. 28.***

Terrorists Keep Coming

"We are not killing them faster than they are being created."***—Army Brig. Gen. Robert L. Caslen, Pentagon deputy director for the war on terrorism,*** **Washington Times,** ***March 2.***

The "Wartime" Defense Budget

"Just as we strongly support the war on terrorism, we must also recognize that there is no such thing as an unlimited budget. Difficult choices must be made."***—Sen. Judd Gregg (R-N.H.), Senate Budget Committee chairman, on defense budget that consumes 3.8 percent of GDP,*** **Wall Street Journal,** ***March 10.***

Misguided Measure of Merit

"Someone at the *Post* has a fixation on 'weapons systems killed' as proof of leadership ability in the Defense Department. That fixation reduces change in national security to a narrow and inaccurate calculation."***—Newt Gingrich, former speaker of the House of Representatives, on tendency to equate good defense management with cancellation of weapons programs,*** **Washington Post** ***op-ed column, March 4.***

Peace Buildup

"I wish to emphasize that China is a peace-loving nation. China is committed to a path of peaceful development."***—Jiang Enzhu, spokesman for China's parliament, as Chinese military budget increases by 14.7 percent this year, Associated Press, March 4.***

Marine Corps Not Cuttable

"In a period of instability and uncertainty, we know that there is no technological substitute for boots on the ground. If anything, we need more soldiers and marines, certainly not fewer."***—Sen. John Kerry (D-Mass.), attacking the idea of downsizing the Marine Corps,*** **Inside the Navy,** ***Feb. 27.***

Joint STARS Is Watching

"Think about where you live at home and then think of a place 125 miles from that location. If you were to move out of your driveway and we were orbiting 125 miles away, we would see you move."***—Air National Guard Maj. Thomas Grabowski, senior director of an E-8C Joint STARS surveillance aircraft deployed to Iraq, Air Force Print News, Feb. 24.***

Desperation

"I like to remind people that terrorism is a desperate act. It means all your other options have run out. The Japanese kamikazes appeared at the end of World War II when that empire was on its last legs. The suicidal jihadists have appeared just as self-government and markets and American-backed democratic power have come to dominate the globe over the past 30 years. The jihadists have little political power, no conventional military power, and no economic power. They have had to resort to killing innocent civilians, and more often than not Islamic civilians, and blowing themselves up in the process. That is not a great option for worldly, political success."***—Merrick Carey, Lexington Institute, Feb. 28.***

Crossing the Line

"The foreign policy of this Administration has been taken over by people who would do something we've never done in our history, and that is to attempt to export our ideology at the point of a gun."***—James H. Webb, Secretary of the Navy during the Reagan Administration, declaring candidacy for US Senate in Virginia Democratic primary,*** **Washington Post,** ***March 8.***

Work Rules in Court

"Taken as a whole, the design of these regulations appears to rest on the mistaken premise that Congress intended flexibility to trump collective bargaining rights."***—US District Judge Emmet G. Sullivan, blocking implementation of Pentagon's new civilian personnel system,*** **Washington Post,** ***Feb. 28.***

A Question of Will

"Nearly 56 years ago, in 1950, the Truman Administration issued what would become a framework for America's Cold War strategy for four decades. In a formerly classified document called NSC 68, the Truman Administration said, quote, 'Our fundamental purpose is more likely to be defeated from lack of will to maintain it than from any mistakes we may make or assault we may undergo because of asserting that will,' unquote. Today our nation is again in a long struggle. And again, the toughest challenge will be to maintain our national will to persevere and to prevail."***—Rumsfeld, Pentagon news briefing, March 7.***

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Washington Watch

By John A. Tirpak, Executive Editor

Are We Losing Nuke Expertise?; Modernizing the Arsenal; Iran, North Korea, and Friends ....

Strategic Strike: Fund It or Lose It

Unless steps are taken to create new programs and attract new expertise, US strategic missile capabilities will soon become extinct, warns a Defense Science Board task force.

In a March report titled "Future Strategic Strike Skills," the DSB task force said the Defense Department has failed to make long-term plans for strategic systems or adequately fund their modernization. This neglect, the DSB said, has already rendered the industry and government talent base in these endeavors "marginally thin."

So grave is the situation, said the task force, that today's generation of rocket engineers "may not be able to cope with unanticipated failures" in the inventory of strategic missiles if the fixes require "testing and redesign."

Aggravating the problem is the fact that a large percentage of industry experts are retiring or are expected to do so in the near future. Without new missile programs on the books, industry will have no reason to recruit replacements.

Funding is simply "not sufficient to maintain skills," and there might not be enough qualified engineers "available for potential next generation systems," according to the report.

Attracting what the DSB called a "new talent base" already will be tough. Even now, defense companies are struggling to compete with faster growing and more lucrative telecom, computer, and nanotechnology industries. Working on strategic weapons no longer has the cachet it had in the post-Sputnik days. Moreover, few—if anyone—now in the business have had experience actually working on the design of a new ICBM. The last such missile, the Peacekeeper, was designed in the 1970s.

The task force study was chaired by Walter E. Morrow Jr., director of MIT's Lincoln Laboratories from 1977 to 1998. The study was launched in 2004 by Michael W. Wynne, then the acting undersecretary of defense for acquisition, technology, and logistics and now the Secretary of the Air Force.

"Experienced personnel are nearing retirement with few replacements. This situation could lead to the potential loss of critical strategic strike systems knowledge," the group asserted.

The task force argued that Defense Secretary Donald H. Rumsfeld should give "direction" on what the next generation of strategic strike systems will be and how the government and industry should work to provide it.

The group also wants Rumsfeld to create a special office within the Defense Advanced Research Projects Agency. It would be "charged with defining and funding the exploratory development of future strategic strike concepts, to include the application of new technologies." This office would report annually.

Because critical design skills are "rapidly disappearing," the task force wants a concerted effort to make young engineers, early in their careers, knowledgeable about the area of ballistic missiles. The group wants Rumsfeld to direct the Navy and Air Force to fund advance development projects that would support design of new ballistic missiles, even if there's no formal program to develop and produce a next generation missile. Such initiatives have "not been fully funded" for 15 years.

USAF photo by Amn. John Parie

Silo-based Minuteman ICBM at Malmstrom AFB, Mont.

To address the problem of attracting new talent, the DSB wants strategic strike offices to fund internships and co-op programs that include mandatory work with either the Defense Department or industry, encourage graduate studies, and make full use of the National Defense Education Act, which provides assistance to colleges to fund scholarships and research into areas of interest to the defense industrial base.

Finally, the task force suggested new programs to create and maintain a base of relevant skills in all the affected agencies.

The task force noted that, overall, the US is experiencing a decline in engineers, with a 10 percent reduction since 2001. There also has been a drop in bachelor's degrees awarded in engineering at US universities since 1990. About 70,000 engineers and scientists graduate every year in the US, compared with about 200,000 each in India and China.

Graduations in engineering master's and doctoral programs have increased since 1990, but "the percent of US citizens graduating with advanced degrees has significantly declined since 1994," the DSB said. Only citizens can work on secret US defense programs.

Making things even harder is the long time needed to obtain a security clearance, which for the most compartmentalized and secret programs now takes from one to two years. As a result, prospective experts who might work on strategic systems tire of waiting and accept jobs in other fields.

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AP photo by Scott Fraker

Brooks promises a new plan is forthcoming.

... And On Cue, Nuclear Update Plans

Even as the Defense Science Board was warning about the withering away of the nation's strategic strike expertise, the Bush Administration announced plans to modernize the nuclear arsenal.

Linton F. Brooks, administrator of the National Nuclear Security Administration, told a House Armed Services subcommittee on strategic forces March 1 that "we will ... adapt an existing weapon within 18 months, and design, develop, and begin production of a new design within three to four years of a decision to enter engineering development."

A full plan for modernizing the nuclear force by 2030 was to be delivered to Congress this spring, Brooks told the House panel. He acknowledged, however, that it could "take a couple of decades" to build the infrastructure required for sustained capability in nuclear weapons.

Modernization will depend on the Reliable Replacement Warhead, Brooks said. The RRW program will design new components for previously tested nuclear weapons to "reduce the chance [of] resuming nuclear testing," which is dangerous and expensive. If the capability can be developed to build new nukes "on a time scale in which geopolitical threats could emerge," the US would not have to retain large numbers of old warheads as a hedge against the rise of a peer nuclear competitor, he said.

The number of warheads in the US arsenal also will be reduced to between 1,700 and 2,200 by 2012, Brooks noted.

Defense officials have previously stated that the US seeks to maintain about 2,000 warheads in a strategic reserve, not mounted on any operational aircraft or missiles. If the RRW program pans out, this strategic reserve could be reduced.

Brooks also wants funds to build a facility that can produce "pits," or plutonium triggers for thermonuclear weapons.

A facility has already been built at the Los Alamos National Laboratory in Los Alamos, N.M., but its capacity to build 30 to 40 pits a year by 2012 is insufficient to meet RRW needs. The defense consensus, he said, is that such triggers have a usable lifetime of 45 to 60 years, but recent tests and simulation have thrown that assumption into doubt.

Iran, North Korea Top New Threats List

Iran poses the greatest near-term security threat to the United States, followed by North Korea, according to the latest version of the "National Security Strategy of the United States of America."

New names have been added to the list of nations hostile to the interests of the US, but China is not among them.

The new 49-page strategy document, which by law is supposed to be updated annually but hadn't been revised since 2002, appeared in mid-March and carries the signature of President George W. Bush.

"We may face no greater challenge from a single country than from Iran," Bush said, noting Iran's 20-year effort to obtain nuclear weapons while insisting it is doing no such thing.

The regime's "true intentions" have been revealed by its unwillingness "to negotiate in good faith" about nuclear arms or to comply with international demands to open its nuclear activities for inspection, and its leader's threat to wipe Israel "off the face of the earth." Iran must yield to diplomatic efforts to curtail its nuclear weapons program "if confrontation is to be avoided," Bush said.

Referring to Iran, Bush said, "We will continue to take all necessary measures to protect our national and economic security against the adverse effects of ... bad conduct." Besides developing illicit nukes, Iran sponsors terrorism, tries to thwart peace in the Middle East, "disrupts democracy in Iraq," and denies "the aspirations of its people."

America's strategy will be to "block" Iran's threats "while expanding our engagement and outreach to the people the regime is oppressing."

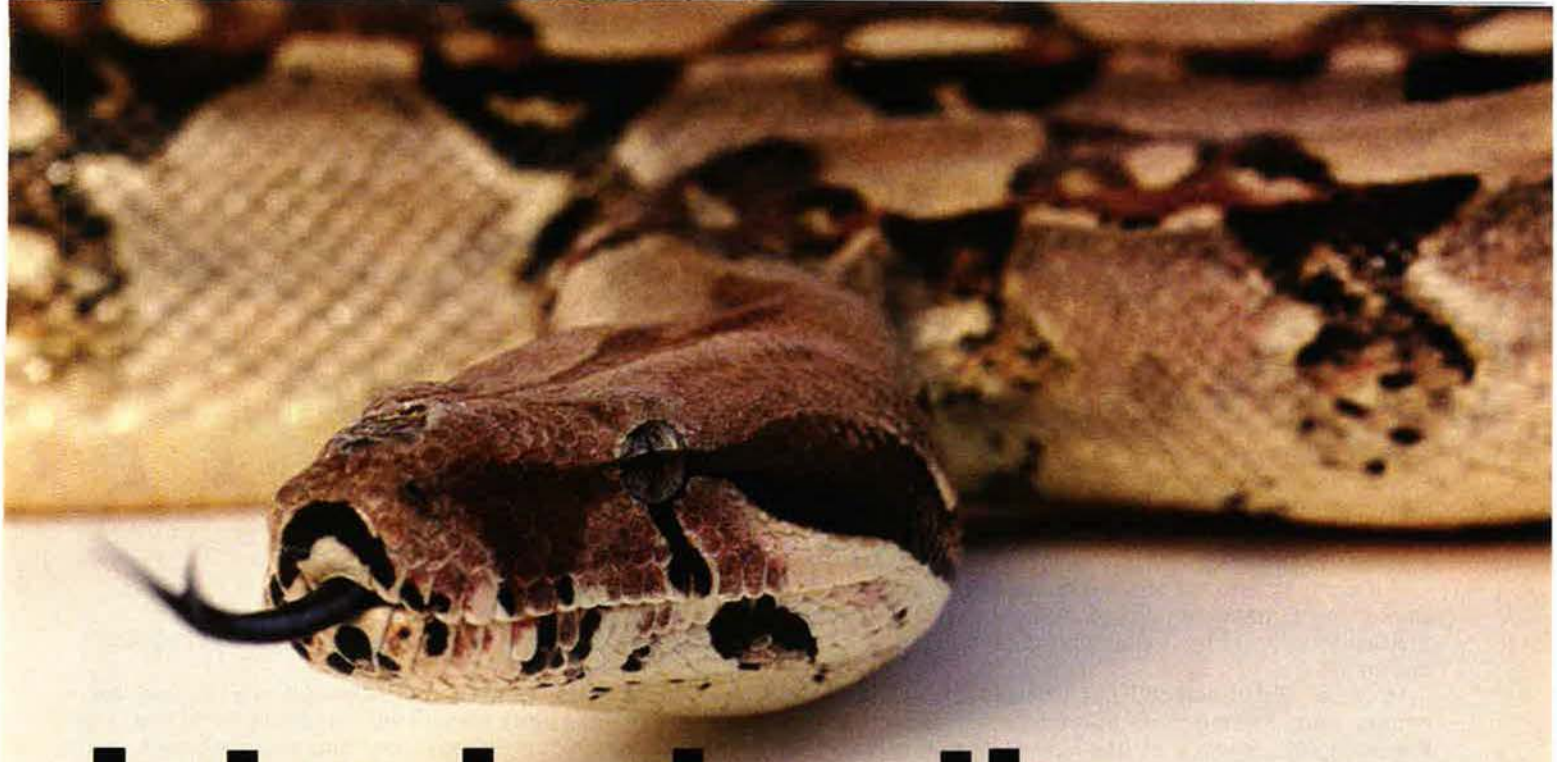
The document expressed a tacit acceptance of North Korea's claims to possessing nuclear weapons, and Bush said the regime in Pyongyang "poses a serious nuclear proliferation challenge," but he did not specify any steps to remove North Korea's nuclear capability. Rather, he noted that in six-party talks last fall, North Korea "agreed to abandon its nuclear weapons and all existing nuclear programs." Regional cooperation, he said, offers "the best hope" for a peaceful resolution to the situation.

Bush also cited North Korea as guilty of counterfeiting American currency, trafficking in narcotics, and threatening the security of South Korea. He said it is a nation that "brutalizes and starves its people." The US will take steps to protect itself from Pyongyang's "bad conduct," but Bush did not lay out a more aggressive course of action.

Besides Iran and North Korea, Bush named Belarus, Burma, Cuba, Syria, and Zimbabwe as "tyrannies," some of which—he did not specify which ones—are pursuing weapons of mass destruction or sponsoring terrorism and, in so doing, "threaten our immediate security interests."

AP photo

North Korea is always on the list.



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These nations threaten their neighbors either directly or by causing instability and provide a breeding ground for ideologies of hatred and a base for terrorists.

While not elevating these other nations to the status of the "axis of evil," as he had previously labeled Iraq, Iran, and North Korea, Bush said the nations of the world must "summon their collective action against the dangers tyrants pose" to world security. The nation will commit itself to take any measures necessary to prevent the proliferation of weapons of mass destruction, Bush said.

The US and the World's Big Powers

The strategy takes note of China's expressed desire to "walk the transformative path of peaceful development." Bush called on that nation to be a "responsible stakeholder" that "fulfills its obligations and works with the United States and others to advance the international system that has enabled [China's] success."

If it does so, the US will "welcome the emergence of a China that is peaceful and prosperous and that cooperates with us to address common challenges and mutual interests."

However, Bush scolded the Chinese on a number of counts, admonishing them that they can't expect to reap the economic rewards of capitalism without granting its people personal liberties.

He also said China worries the rest of the world by holding onto "old ways of thinking and acting." These include continuing the expansion of its military capabilities "in a nontransparent way," meaning that China does not publish a complete account of its military spending and is expanding its military more than self-defense would suggest is necessary.

Bush also chided China for "expanding trade, but acting as [if the country] can somehow 'lock up' energy supplies around the world or seek to direct markets rather than opening them up," a form of "mercantilism borrowed from a discredited era."

China also supports "resource-rich countries" that have poor records on domestic human rights or peaceful international relations—an apparent dig at China's warm economic and political relations with Iran.

Bush also insisted that China resolve its differences with Taiwan "peacefully, without coercion and without unilateral action" by either party.

"Our strategy," Bush concluded, "seeks to encourage China to make the right strategic choices for its people, while we hedge against other possibilities."

Russia has "great influence" in Europe and the nations that surround it, Bush said, and the US wants a stronger relationship with its former Cold War enemy. However, he noted a backsliding there away from democracy, saying that these adverse moves hinder Russia's relationships with other countries worldwide.

"Recent trends regrettably point toward a diminishing commitment to democratic freedoms and institutions" in Russia, Bush said, no doubt referring to moves by Russian President Vladimir Putin to consolidate regional leadership under his own authority, among other power grabs, such as taking increasing control of national media.

"We will work to try to persuade the Russian government to move forward, not backward, along freedom's path," Bush said, though he did not imply any consequences if Russia doesn't clean up its act, other than the displeasure of the US and other Western governments.

"Efforts to prevent democratic development at home and abroad will hamper the development of Russia's relations with the United States, Europe, and its neighbors," he said.

Bush congratulated his Administration for its delicate balancing act in maintaining relationships with both India and Pakistan.

AP/Xinhua photo by Li Gang

Chinese airpower keeps growing.

"For decades," he said, "outsiders acted as if good relations with India and Pakistan were mutually exclusive." His Administration has shown that "improved relations with each are possible and can help India and Pakistan make strides toward a lasting peace between themselves." He noted, though, that the US relationship with Pakistan "will not be a mirror image" of US dealings with India. India is the world's largest democracy, and the US has recently agreed to overlook India's development of nuclear weapons, while Pakistan, also a nuclear-armed nation, remains a dictatorship.

The Strategy's Ways and Means

The strategy also reasserts Bush's belief—first stated in the 2002 edition of the document—that the US has a right to take preemptive action to thwart an attack or if its vital security interests are threatened.

The US will protect itself with a "new triad" of "offensive strike systems (both nuclear and improved conventional capabilities); active and passive defenses, including missile defenses; and a responsive infrastructure," Bush said. Such an approach will offer more meaningful deterrence as well as add realistic defensive measures, he added.

Bush restated his goal of promoting democracy—both in terms of personal rights and liberties as well as economically—as the best weapon against terrorism and rogue nations.

Bush also outlined a four-step strategy to combat terrorism.

He pledged that the US will unceasingly track down and kill terrorists, who he said "cannot be deterred or reformed." The network of terrorism, he said, must be "disrupted and disabled by using a broad range of tools."

Secondly, the US will deny weapons of mass destruction "to rogue states and to terrorist allies who would use them without hesitation." He pledged closer cooperation with other countries on this aspect, softening the "go it alone if necessary" tone of the 2002 strategy document.

The US will deny terrorists "the support and sanctuary of rogue states," Bush said, asserting again that the US makes no distinction between terrorists and those who support or harbor them. Nations such as Syria or Iran, which choose "to be an ally of terror," will be held to account, Bush maintained.

Fourth, the US will "deny the terrorists control of any nation they would use as a base and launching pad for terror." The US, he added, "must prevent terrorists from exploiting ungoverned areas." ■

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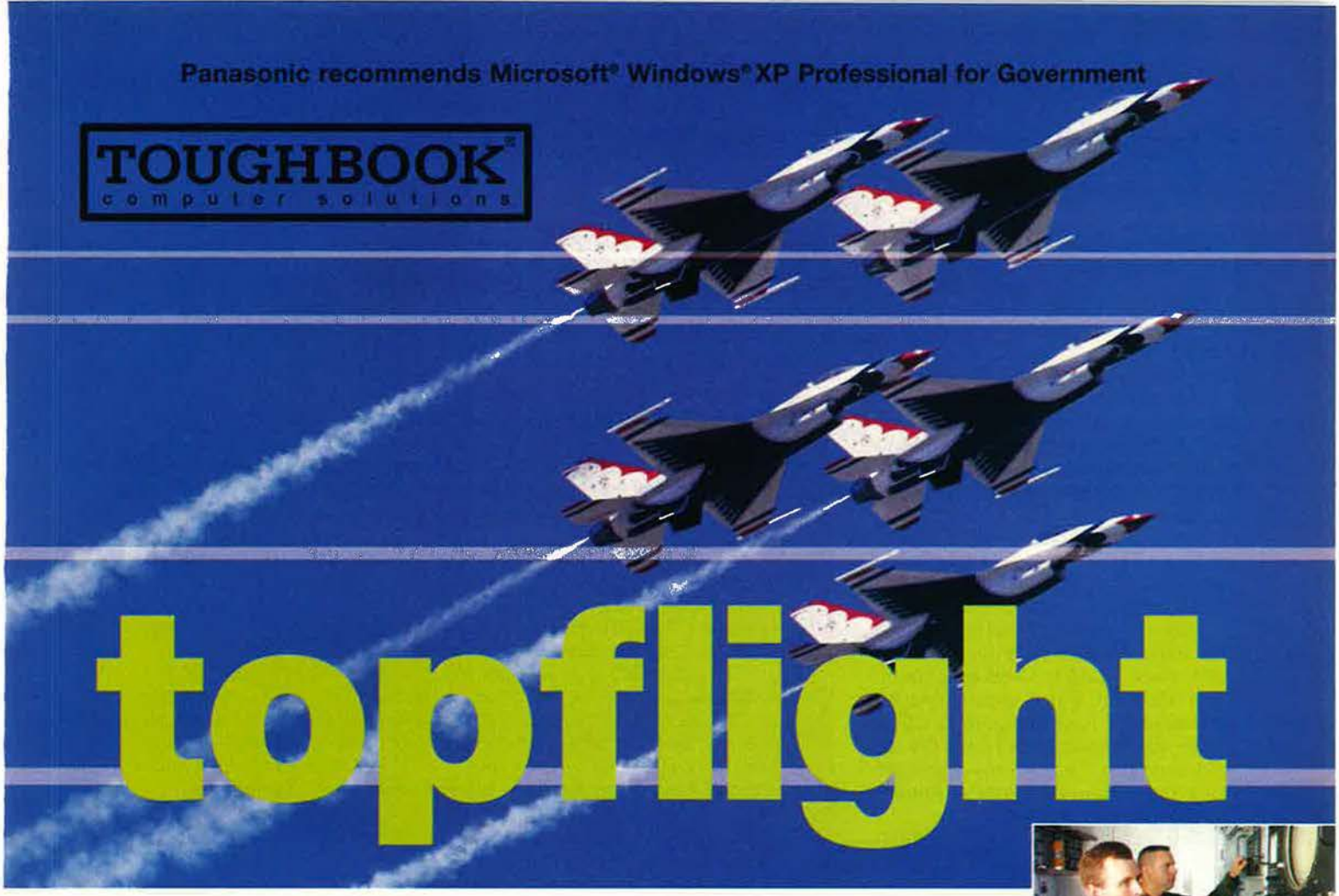

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Aerospace World

By Breanne Wagner, Associate Editor

Two Airmen Killed in Honduras

Two airmen were killed and one injured in a car crash outside of La Ceiba, Honduras, on March 15. The injured airman was taken to a Honduran hospital and treated for serious injuries.

The deceased, Capt. Heidi K. Palmer, an Air Force Reservist assigned to the 940th Civil Engineer Squadron, Beale AFB, Calif., and SSgt. Matthew L. Walrod, a medical technician with the 92nd Medical Group, Fairchild AFB, Wash., and the injured airman, Capt. Melvin K. Smith, were deployed in support of New Horizons 2006, a joint military exercise between the US and Honduras. They were assigned to Joint Task Force Asegurar el Futuro, or "Securing the Future."

The accident is under investigation.

Airman Dies in Training Accident

Maj. Bryan Adrian, a student with the 342nd Training Squadron, died Feb. 15 at Lackland AFB, Tex., the Air Force said. Adrian, 41, was permanently assigned to the 176th Wing of the Alaska National Guard.

He was taking part in water confidence training as part of a combat rescue officers course when he died. The accident is under investigation.

Those 50 Fewer Minuteman Missiles

Although the Pentagon has said it is cutting 50 Minuteman III missiles from the nuclear weapons inventory because they are "excess to need," it turns out they are needed: for testing and warhead inventory.

The Defense Department is "running out" of the Minuteman for test flights, according to a senior defense official, and test flying is a necessary element of ensuring the fleet is credible and operating properly. The 50 missiles being taken out of the operational inventory are "badly needed" for this function, he said.

The US policy goal is to deploy the Minuteman III with just one warhead per missile, the official said, but that policy may change in the future. If it does, the warheads being taken out of operational service now will be available to put on the remaining 450 missiles later, in a multiwarhead configuration. The Minuteman fleet today is mixed: Some have a single warhead, others have up to three.

AP photo by Matt Rourke

A massive C-5A airlifter crashed on April 3 near Dover AFB, Del. Fortunately, all 17 people (14 crew members and three passengers) aboard survived the crash. The aircraft had just taken off, en route to the Middle East, when an engine went out and the crew attempted to bring it back for an emergency landing. The C-5, loaded with cargo and a quarter-million pounds of jet fuel, crashed and broke into three pieces just short of Dover's runway but did not catch fire. An investigation board is probing the mishap.

Air Missions Up in SWA

Airpower is playing a bigger role in Afghanistan and Iraq, both to attack insurgents and move equipment and personnel, according to US Central Command.

There were 86 air strikes flown against enemy targets in Afghanistan in 2004, according to CENTCOM. However, in 2005, the figure leaped to 157. Over the same period, air strikes flown in Iraq increased seven percent, from 285 to 306.

At the same time, airlift missions were also increasing in the two theaters, with C-130 sorties increasing from 48,100 in 2004 to 52,000 in 2005. The number of passengers transported jumped from 699,000 in 2004 to 953,000 in 2005.

The US has been using transport aircraft to move personnel and equipment in order to avoid the hazard posed by roadside bombs, which claim the majority of casualties in the two conflicts.

ANG Joins B-2 Mission

The Air National Guard has been given a role in the mission of the B-2 stealth bomber.

Missouri Congressmen announced in March that the Air Force had decided to pair ANG's 131st Fighter Wing, currently based at Lambert Airport in St. Louis, with the active duty B-2 bomber force at Whiteman AFB, Mo.

The 131st will be giving up its F-15 fighter mission as a result of the Base Realignment and Closure process, and the USAF move allows the unit to remain active, as an associate to the 509th Bomb Wing. Guardsmen will both fly and maintain the stealth bomber. The 131st's F-15 Eagles are to be reassigned or retired; they will not move to Whiteman. The Guard unit is to give up its Eagles sometime before 2011.

Weldon Backs Second F-35 Engine

Rep. Curt Weldon (R-Pa.), chairman of the House Armed Services tactical air and land forces subcommittee, has joined the fight to keep the Pentagon from terminating the F-35 alternative engine program.

Weldon told a group of top military officials during a subcommittee hearing on March 16 that it is a "mistake" to cancel the General Electric-Rolls Royce F136 engine, saying that while the move might save money up front, it will cost more in the long run.

DOD has requested roughly $1.1 billion since 1997 for the second engine program and Congress added $157 million through FY06. The overall cost of the second engine program is estimated at $2.4 billion.

Caspar W. Weinberger, 1917-2006

Caspar W. Weinberger, one of the longest-serving Secretaries of Defense and architect of the Reagan Administration's military buildup of the 1980s, died March 28. He was 88.

Weinberger oversaw the reconstitution of the US military after the so-called "hollow force" era following the Vietnam War, presiding over the spending of more than $2 trillion to upgrade American conventional and nuclear forces.

The program is credited by many with helping bring about the collapse of the Soviet Union and the end of the Cold War.

Weinberger maintained that the US needed to increase its military power to negotiate from a position of strength, and he was deeply wary of the arms agreements that President Reagan struck with the Soviets.

Weinberger invested heavily in the US strategic deterrent, producing the B-1 and B-2 bombers, modernizing the submarine-based ballistic missile force, and fielding the Peacekeeper ICBM.

Regarding conventional forces, he increased the Army by two divisions and the Navy by 90 ships, and set a goal—never fully achieved—of expanding the Air Force fighter fleet to 40 wings. USAF topped out at 37.5 wings.

He was also a supporter of Reagan's Strategic Defense Initiative, which spent many billions in pursuit of a defense against ballistic missiles.

He also developed a series of tests, dubbed by many as "The Weinberger Doctrine," to determine whether and how the US should commit its military forces to combat. His doctrine called for the US to fight only when its most vital interests were threatened, when chances of success were good, and when military action had the support of the people and the Congress.

Weinberger was drawn into the infamous Iran-Contra endeavor—the secret trading of weapons to Iran in exchange for influence with terrorists and cash that was funneled to anticommunist forces in Nicaragua. Weinberger was indicted for this by a special counsel, but he was pardoned by President George H.W. Bush for his role in the affair.

Weinberger was a Harvard-educated lawyer who served in the Army during World War II on the intelligence staff of Gen. Douglas MacArthur.

Under President Nixon, as director of the Office of Management and Budget, Weinberger earned the nickname "Cap the Knife" for his aggressive trimming of federal spending, particularly on social programs. Under President Ford, Weinberger was Secretary of Health, Education, and Welfare.

After a stint as an executive with Bechtel Group, Weinberger returned to government service in 1981, when Reagan appointed him the 15th Secretary of Defense. During his tenure, he supervised the 1983 invasion of Grenada and the 1986 raid on Libya—Operation El Dorado Canyon—in retaliation for terrorist attacks on Americans in Germany. He also supported the operation to reflag and escort Kuwaiti tankers that were under threat in the Persian Gulf during the Iran-Iraq war.

After leaving government, he claimed to have resisted sending marines to Lebanon in 1982 as part of an international peacekeeping force, saying that their mission was untenable and their position vulnerable. In 1983, 241 American troops were killed in Lebanon by a suicide bomber, and the US withdrew from the country soon afterward.

Reagan presented Weinberger with the Presidential Medal of Freedom, the nation's highest civilian decoration, in 1987.

On leaving the Pentagon, Weinberger wrote a number of books, including *In the Arena*, about his government work, and a well-received fiction thriller, *Chain of Command*, with Peter Schweizer. He also signed on as publisher and later chairman of *Forbes* Magazine, which carried his columns and commentaries.

Jack Gross (center) in 1976 discusses defense issues with Donald Rumsfeld (left), then serving his first term as Defense Secretary, and Gen. David Jones, Air Force Chief of Staff, at an AFA-sponsored event.

Jack B. Gross, AFA Leader, 1911-2006

Jack B. Gross, a charter member of the Air Force Association and one of its most influential early leaders and benefactors, died March 23 in Harrisburg, Pa. He was 94.

Gross was born in Gratz, Pa., in 1911. He graduated from Lafayette College in Easton, Pa., and began a business career. Upon the outbreak of World War II, he joined the Army Air Forces and was in uniform for exactly four years. During the war, he served in both the European and North African Theaters, where he was the executive officer of a fighter group.

At the end of the war, Gross returned home to Pennsylvania, where he made his mark in civic affairs. He was a highly successful businessman, with profitable ventures in real estate, drilling operations, and auto dealerships. Through it all, he was generous with his time, money, and advice, supporting local, state, and national causes. Chief among these was AFA.

After returning home, Gross had quickly become one of the first veterans to join the Air Force Association, an organization created in 1946 to promote airpower and support the concept of an independent air arm—a goal which came to fruition in 1947.

That was the start of a 60-year relationship.

Gross played a major leadership role in the early years of AFA. He served 21 years as AFA's national treasurer, managing the association's complicated finances and guiding it through various down cycles, putting AFA on a solid foundation with a large and expanding asset base. He was a founder of AFA's affiliate, the Aerospace Education Foundation.

Moreover, he was in 1963 elected to a two-year term as AFA's Chairman of the Board. In 1958, AFA selected Gross as its "Man of the Year" for his outstanding work on behalf of the association, from the chapter level all the way up to the national level.

In 1981, AFA formally recognized Gross' deep imprint on the organization by dedicating its annual National Convention to him personally.

In the 1990s, Gross' engagement with AFA turned in a new direction. He launched and sponsored a number of financial awards aimed at giving recognition to AFA staff excellence. He provided funds for other benefit and loan programs for AFA staffers. He also sponsored the Jack Gross Membership Award, providing grants to AFA chapters as incentives to expand membership.

All in all, Gross was one of AFA's most generous benefactors over many years.

Gross' military service totaled 30 years in USAF's active and reserve components. He retired from uniformed life in 1971 as a Reserve colonel. At his retirement, then-Secretary of the Air Force Robert C. Seamans Jr.—flanked by Gen. John D. Ryan, the Chief of Staff—decorated Gross with the Legion of Merit for outstanding service with Headquarters Command.

Gross is survived by a niece. He was buried in Mount Moriah Cemetery in Colonial Park, Pa.

"If we want industry to give us affordable equipment, industry needs stability in programs," Weldon insisted. "We cannot continue to have on again, off again programming as has been the recent record."

Senate Armed Services Committee Chairman Sen. John W. Warner (R-Va.) held two separate Senate hearings on the program in March after being lobbied in February to save the engine program by Sen. George V. Voinovich (R-Ohio) and Sen. Mike DeWine (R-Ohio). (See "Aerospace World: Congress Hits JSF Engine Cut, April, p. 17.) Warner held the hearings to evaluate the risk of having only one engine for the international Joint Strike Fighter program, which is expected to produce as many as 5,000 aircraft.

Stevens Pushes UAV Program

The Pentagon's myriad of unmanned aircraft programs is confusing and wasteful and should be consolidated, according to Sen. Ted Stevens (R-Alaska), chairman of the Senate appropriations defense subcommittee.

Stevens lambasted Pentagon leaders at a March 15 hearing, saying the many programs are redundant and should be combined under a single office.

"Why don't we just have a national program instead of all these separate offices that cost money?" Stevens asked Navy and Marine Corps leaders at the hearing.

Navy Secretary Donald C. Winter later countered that unmanned aerial vehicles are an evolving technology and that he supports having many efforts because they promote the "competition of ideas." They cannot be managed as if they were mature programs, Winter said.

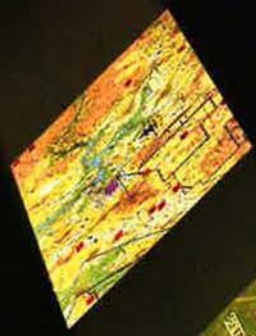
Does JCS Need a Guard Chief?

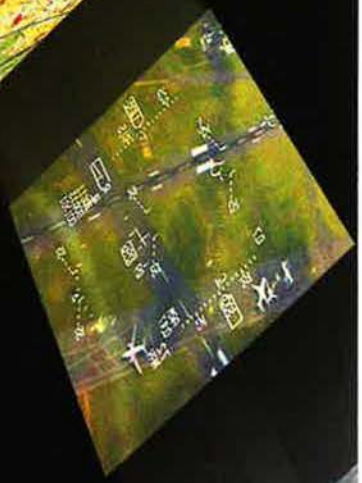
Sen. Christopher S. Bond (R-Mo.) and Sen. Patrick J. Leahy (D-Vt.), co-chairs of the Senate National Guard Caucus, said in March they are drafting legislation that would put a four-star National Guard officer on the Joint Chiefs of Staff.

The officer would be the Chief of the Guard Bureau. Bond and Leahy want a four-star on the Joint Chiefs to recognize the Guard's growing importance in regular operations and give the Guard more clout in decision-making on matters of personnel, readiness, and budget. The Senators outlined their ideas at a hearing of the Commission on the National Guard and Reserves in March.

Bond and Leahy have other changes in mind, as well. They want to make it a

Empowering the digital battlefield





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Poll Shows Americans Support Space Exploration

A solid majority of Americans support a new plan for space exploration, according to a 2005 Gallup poll.

Gallup found that 77 percent of Americans support a new space plan that would return the space shuttle to flight, complete assembly of the International Space Station, go back to the moon, and then travel to Mars and beyond.

Pollsters also found that space exploration enjoys bipartisan support, with 77 percent of Democrats and 84 percent of Republicans supporting the plan described above.

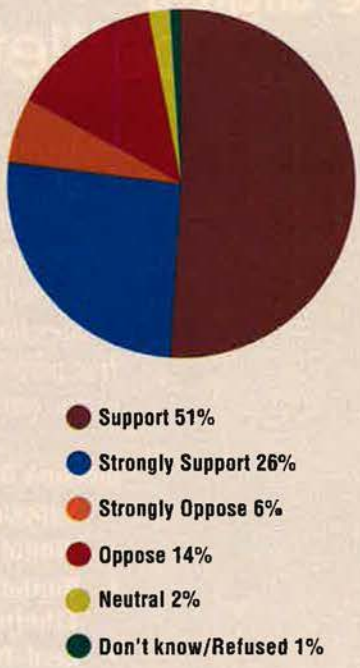
Support for space exploration continues to grow: Only 68 percent of those polled supported the space program in 2004.

Americans also want NASA adequately funded, with 73 percent saying the space agency's budget should either stay the same (36 percent) or increase (37 percent).

Eight in 10 adults say they "somewhat agree" or "strongly agree" that the space program gives America the scientific and technological edge it needs to compete with other nations.

The Gallup survey results were based on a nationally representative sample of 1,001 telephone interviews with a general population sample of adults age 18 and over. The margin of error is estimated to be plus or minus three percentage points.

The survey was sponsored by the Coalition for Space Exploration, a group of companies, nonprofits, and trade associations dedicated to supporting space exploration.



rule that the deputy commander of US Northern Command is a member of the Guard and give the Guard a procurement budget that is separate from the accounts of the other services.

The National Guard has represented nearly 50 percent of the combat force in Iraq and 40 percent of the Total Force.

AFSOC Gets First Combat Osprey

The first combat-configured CV-22 tilt-rotor aircraft was handed over to Air Force Special Operations Command in March. The aircraft will be used to transport special operations forces into and out of hostile territory at greater speed and farther range than existing helicopters can.

News Notes

• The Army and Air Force have agreed to call their new light transport the Joint Cargo Aircraft, USAF Chief of Staff Gen. T. Michael Moseley said in March. Confirmation of the agreement between the services to join the Air Force's Light Cargo Aircraft program with the Army's Future Cargo Aircraft came in March. The JCA is slated to replace the Army's aging fleet of Sherpa small transports and fill an empty niche in the USAF inventory, and service leaders are expected to approve a formal agreement by May.

• More air training space is needed in Korea, Army Gen. Burwell B. Bell III, US Forces Korea commander, told a House Armed Services Committee in March. He shut down the Koon-Ni Range in August due to complaints and lawsuits from local residents. South Korean officials have met stiff resistance from residents at other possible range sites, but Bell maintained that he is "trying to resolve this" with South Korea.

• Australia will be the first foreign customer for the Lockheed Martin Joint Air-to-Surface Standoff Missile. The Royal Australian Air Force plans to integrate JASSM on its F/A-18 aircraft, giving it long-range land and maritime strike capabilities. Lockheed Martin will deliver the weapon to RAAF starting in 2009.

• Wounded troops have a much better chance of surviving, thanks to the C-17, USAF Secretary Michael Wynne said in March. Troops hurt in Iraq today have a 91 percent survival rate, versus 75 percent during the Vietnam War, because the C-17 can operate much closer to the battle zone than could its predecessor the C-141. Speaking at a Capitol Hill seminar, Wynne said the survival rate increases to 93.5 percent if the troops make it to Balad AB, Iraq.

• Lockheed Martin began delivering new Digital Stores Management Software in March that will expand the precision attack capabilities of the A-10. The software ties smart munitions to either the Litening or Sniper pod to enhance close air support capabilities. It automates targeting functions previously performed by the pilot. The DSMS is part of a broader upgrade of the Warthog fleet to A-10C configuration, now in flight test. Deployments of upgraded aircraft will begin next year.

• Cope Taufan 06, an exercise staged in March by US forces from Kadena AB, Japan, and the Royal Malaysian Air Force, pitted American F-15 Eagles against Malaysian MiG-29 Fulcrums, Hawk 208s, and F/A-18 Hornets. The exercises were aimed at sharpening air combat skills and fostering cooperation between the US and Malaysia. The exercise is held every other year in Butterworth, Malaysia, home of the Royal Malaysian Air Force.

• The Pentagon has announced the Advanced Concept Technology Demonstration programs for Fiscal 2006. The ACTDs are meant to rapidly move new technologies from the laboratory to the battlefield. More than 100 proposals were received and 10 selected. Among them are Extended Space Sensors Architecture to address gaps in space situational awareness; Multiservice Advanced Sensors to Counter Obscured Targets which will allow troops to identify camouflaged and concealed threats; and Small UAVs which will introduce new technology, tactics, and techniques for all small unmanned aircraft across the military services.

• USAF awarded Boeing a $240 million contract on March 6 for 10,000 Joint Direct Attack Munition tail kits to equip 500-, 1,000-, and 2,000-pound bombs for both the Air Force and the Navy. The kits are to be delivered by February 2008. Boeing has produced more than 140,000 JDAM kits for the services since 1998.

• Airmen from Kadena AB, Japan, rescued a US marine and an Okinawan citizen who were stranded on rocks in rough seas in March. The two had been scuba diving. Four aircrew and two pararescuers aboard an HH-60 Pave Hawk helicopter worked with Japanese rescuers on the ground to locate the divers, scaling wet cliffs in rain and 15-foot waves to bring the divers to safety. Both divers were taken to a local hospital and released that day.

• USAF awarded Boeing a $148 million engineering contract for the Wideband Gap-filler System program satellite Vehicle 4. The contract covers redesigns to address system obsolescence. Work is scheduled to be completed by July 2007.

• Air Force medical specialists, doctors, and dentists deployed on a medical humanitarian mission to Cambodia in March, screening 13,000 patients, treating about 3,500, and educating all about sanitation, dental hygiene, and infectious diseases. Working in concert with the US embassy, the US Agency for International Development, and the Cambodian Ministry of Health, the airmen also handed out donated clothing, toys, school supplies, and hygiene kits.

• Boeing was awarded a $96 million contract for the Joint Helmet Mounted Cueing System for USAF F-15s and F-16s and also in support of foreign military sales to Turkey (F-16C), the Netherlands (F-16), Poland (F-16), Australia (F/A-18), Switzerland (F/A-18), and Canada (F/A-18). Work is scheduled to be completed by December 2008.

• In Oklahoma, Altus Air Force Base and local firefighters battled a brushfire that consumed 100 acres around the installation March 12, singeing the ground at the base perimeter. Altus officials evacuated 300 dorm and base housing residents, and no injuries were reported. ■

USAF photo by MSgt. John E. Lasky

The C-17 Globemaster III marked its one millionth flying hour March 19, flying from Ramstein AB, Germany, to Balad AB, Iraq, on an aeromedical evacuation mission. The C-17 fleet maintains an 84.7 percent mission capable rate.

The aircraft turned over on March 1 will be used by the 71st Special Operations Squadron for aircrew training at Kirtland AFB, N.M. It differs from the Marine Corps "standard" V-22 with additional weapons and self-defense devices, among other improvements.

The Air Force plans to buy 50 CV-22s and field them by 2009. The aircraft replaces the MH-53 Pave Low.

At a ceremony marking the handover, Maj. Gen. Donald C. Wurster, AFSOC vice commander, said the CV-22 is the "single most significant" development in Air Force special operations since the introduction of the helicopter.

USAF photo by TSgt. Scott T. Sturkol

SSgt. Doug Ranke and SrA. Michael Tucker crawl under wire during the Air Force Phoenix Raven Course 06-D at Ft. Dix, N.J., in March. Students, including Air Force security forces, are trained in combat first aid, tactical self-defense, and aircraft security. The course is taught by the Air Mobility Warfare Center's 421st Combat Training Squadron.

Keesler Up To Speed

Training at Keesler AFB, Miss., is back up to speed months ahead of expectations, the Air Force reported in March.

Keesler took $950 million worth of damage from Hurricane Katrina last August, but the base's training output is expected to be higher than 2004's levels, according to Maj. Gen. William T. Lord.

Lord is director of information services and integration for the Secretary of the Air Force Office of Warfighting Integration and Chief Information Officer at the Pentagon. Until November 2005, he was commander of the 81st Training Wing at Keesler. Brig. Gen. Paul F. Capasso now serves as commander of the 81st.

Speaking with reporters at the Pentagon in March, Lord said Keesler's training facilities survived the hurricane intact, but training was stopped because some key instructors and many students had been evacuated.

Training resumed just three weeks after the hurricane, rather than the six

months projected, when the extent of the damage was more fully understood and repairs could be tackled with full force.

About 95 percent of the base suffered structural damage ranging from uprooted trees to complete destruction of buildings.

The base was quickly repaired with help from the 832rd RED HORSE, the 5th Combat Communications Group, the 97th Air Expeditionary Group, the 615th Contingency Response Wing, Combat Camera, and 83rd Communications Squadron mobile satellite communications teams called Hammer ACE.

"All of the industrial area has now been, at least temporarily, fixed, so that it's useful," noted Lord.

The primary problem Keesler now faces is a shortage of on-base housing, because all the housing projects that were in the works before the storm were delayed, Lord said. Many of the new base houses were flooded with nine feet of water, completely destroying them. Under a new housing plan at Keesler, 1,200 military homes will be constructed and 800 privatized within 10 years.

Other plans for Keesler's full reconstruction include building a seawall behind the hospital and waterproofing its basement, which was flooded during Katrina, causing millions of dollars in damage.

Lord said he is using the disaster response skills he learned at Keesler to teach wing commanders crisis preparation. He teaches a two-hour course on "preparation and leadership during a crisis" at every wing commander seminar held at Maxwell AFB, Ala. Lord was invited to teach the course by Air University.

Lt. Gen. John F. Regni, superintendent of the Air Force Academy in Colorado Springs, Colo., also has asked Lord to teach a similar course for the cadets to prepare them for their future leadership roles.

China Boosts Arms Budget

China will boost its defense spending 14.7 percent this year, to an equivalent of more than $35 billion, according to plans announced at the National People's Congress in early March.

The additional funds will be used to increase troop pay and enhance other aspects of the Chinese military, according to China's official news agency. However, a Chinese spokesman also acknowledged the increase will help defray the rising cost of petroleum products needed by the People's Liberation Army.

China claims the budgeted amount

The War on Terrorism

Operation Iraqi Freedom—Iraq

Iraq Casualties

As of April 7, a total of 2,350 Americans had died in Operation Iraqi Freedom. This total includes 2,343 troops and seven Defense Department civilians. Of those fatalities, 1,846 were killed in action by enemy attack, and 504 died in noncombat incidents.

There have been 17,469 troops wounded in action during OIF. This includes 9,454 who returned to duty within 72 hours and 8,015 who were unable to quickly return to action.

Troops in Iraq: Fewer, Longer Stays

Iraqi forces will outnumber US troops in that country by the end of this year, President Bush said in March. It was his first suggestion that large numbers of US troops could be withdrawn from Iraq.

In a speech March 13 to the Foundation for the Defense of Democracies, Bush said that as more Iraqi troops "come on line" and take over patrols and other constabulary functions, US forces can be spared for "hunting down high-value targets" such as terrorist leader Abu Musab al-Zarqawi, and not as many will be needed in Iraq overall. Bush counted police among the Iraqi forces.

However, at a White House press conference March 21, Bush said that the ultimate withdrawal of US forces from Iraq would be "decided by future Presidents and future governments of Iraq," meaning he anticipates that full withdrawal will come no earlier than January of 2009, when his term expires.

Bush maintained that appropriate troop levels for now will be decided by Army Gen. George W. Casey Jr., commander of Multinational Force-Iraq, and Casey's subordinates.

Operation Enduring Freedom—Afghanistan

Afghanistan Casualties

As of April 7, a total of 280 Americans had died in Operation Enduring Freedom, primarily in and around Afghanistan. The total includes 142 troops and one Defense Department civilian killed in action and 137 who died in nonhostile incidents such as accidents.

A total of 711 troops have been wounded in Enduring Freedom. They include 289 who were able to return to duty in three days and 422 who were not.

C-17 Airdrop Record in Afghanistan

A C-17 broke an airdrop record March 23 when it air-dropped 32,400 pounds of humanitarian aid in just 40 minutes to four locations around central and eastern Afghanistan.

The historic airdrop marked the most cargo air-dropped to multiple drop-zones in the shortest amount of time from a single aircraft, according to Lt. Col. Charles Ciuzio, chief of the Air Mobility Division at the combined air operations center in Afghanistan.

The C-17 delivered 24 bundles of supplies, including winter survival gear, tools, school supplies, food, and blankets.

More than 2.2 million pounds of aid has been delivered to Afghans since October 2004, according to CENTCOM.

Six million people in Afghanistan and 1.5 million Afghan refugees depend on international relief programs for survival, according to the White House.

USAF photo by Maj. Gabriel Greiss

Pallets of humanitarian aid sit aboard an Air Force C-17 Globemaster III that air-dropped 32,400 pounds of aid within 40 minutes to four locations in central and eastern Afghanistan in March.

Senior Staff Changes

RETIREMENT: Maj. Gen. Bentley B. **Rayburn.**

PROMOTION: To Major General: Charles J. **Dunlap Jr.**

CHANGES: Brig. Gen. (sel.) Gregory L. **Brundidge,** from Dep. Dir., Operational Spt. Modernization, Warfighting Integration & Chief Info. Officer, OSAF, Pentagon, to Dir., Comm., ACC, Langley AFB, Va. ... Brig. Gen. Bradley W. **Butler,** from Dep. Dir., Strat. Plans & Future Systems, USAF, Pentagon, to Dir., Log. & Warfighting Integration, AFSPC, Peterson, Colo. ... Brig. Gen. William A. **Chambers,** from Dir., General Officer Mgmt., DCS, Manpower & Personnel, USAF, Pentagon, to Dep. Cmdr., Combined Forces Command-Afghanistan, CENTCOM, Afghanistan ... Maj. Gen. (sel.) Kurt A. **Cichowski,** from Cmdr., 49th FW, ACC, Holloman AFB, N.M., to DCS, Strategy, Plans, & Assessment, MNF-Iraq, CENTCOM, Baghdad, Iraq ... Brig. Gen. Kathleen D. **Close,** from Dir., Mission Spt., AFMC, Wright-Patterson AFB, Ohio, to Dir., Maintenance, DCS, Instl., Log., & Mission Spt., USAF, Pentagon ... Maj. Gen. Michael A. **Collings,** from Cmdr., Warner Robins ALC, AFMC, Robins AFB, Ga., to Chief, US Office of Mil. Cooperation-Cairo, CENTCOM, Cairo, Egypt ... Maj. Gen. (sel.) Charles J. **Dunlap Jr.,** from Staff Judge Advocate, ACC, Langley AFB, Va., to Deputy JAG, USAF, Pentagon ... Maj. Gen. (sel.) Delwyn R. **Eulberg,** from Dir., Instl. & Mission Spt., AMC, Scott AFB, Ill., to the Civil Engineer, DCS, Log., Instl. & Mission Spt., USAF, Pentagon ... Maj. Gen. Vern. M. **Findley II,** from DCS, Strategy, Plans, & Assessment, MNF-Iraq, CENTCOM, Baghdad, Iraq, to Special Asst. to the Asst.Vice C/S, USAF, Pentagon ... Brig. Gen. Patrick D. **Gillett Jr.,** from Dir., Maintenance, DCS, Instl., Log., & Mission Spt., USAF, Pentagon, to Dir., Maintenance & Log., ACC, Langley AFB, Va. ... Brig. Gen. (sel.) David L. **Goldfein,** from Cmdr., 52nd FW, USAFE, Spangdahlem AB, Germany, to Cmdr., 49th FW, ACC, Holloman AFB, N.M. ... Brig. Gen. (sel.) Susan J. **Helms,** from Dep. Dir., Ops. (Technical Tng.), AETC, Randolph AFB, Tex., to Cmdr., 45th SW, Patrick AFB, Fla. ... Brig. Gen. Mary Kay **Hertog,** from Cmdr., 37th Tng. Wg., AETC, Lackland AFB, Tex., to Dir., Security Forces & Force Protection, DCS, Log., Instl., & Mission Spt., USAF, Pentagon ... Brig. Gen. Robert H. **Holmes,** from Dir., Security Forces & Force Protection, DCS, Log., Instl., & Mission Spt., USAF, Pentagon, to Dep. Dir., Ops.-Force Protection, CENTCOM, MacDill AFB, Fla. ... Maj. Gen. Gilmary M. **Hostage III,** from Dir., Intel. & Air, Space, & Info. Ops., AETC, Randolph AFB, Tex., to Dir., Rqmts. & Integration, JFCOM, Norfolk, Va. ... Brig. Gen. Darrell D. **Jones,** from Dir., Manpower & Personnel, CENTCOM, MacDill AFB, Fla., to Cmdr., 37th Tng. Wg., AETC, Lackland AFB, Tex. ... Brig. Gen. Duane A. **Jones,** from Cmdr., AFDW, Bolling AFB, D.C., to Dir., Log., USAFE, Ramstein AB, Germany ... Brig. Gen. (sel.) Noel T. **Jones,** from IG, ACC, Langley AFB, Va., to Cmdr., 56th FW, AETC, Luke AFB, Ariz. ... Maj. Gen. (sel.) Kevin J. **Kennedy**, from Asst. DCS, Intel., USAF, Pentagon, to Cmdr., C2ISR Center, Warfighting Integration and Chief Info. Officer, OSAF, Langley AFB, Va. ... Maj. Gen. (sel.) John W. **Maluda,** from Dir., Comm., ACC, Langley AFB, Va., to Vice Cmdr., 8th AF, ACC, Barksdale AFB, La. ... Brig. Gen. Mark H. **Owen,** from Cmdr., 45th SW, AFSPC, Patrick AFB, Fla., to Dep. Dir., Strat. Security, DCS, Air, Space, & Info. Ops., P&R, USAF, Pentagon ... Maj. Gen. (sel.) Thomas J. **Owen,** from Dir., Log., Instl., & Mission Spt., AETC, Randolph AFB, Tex., to Cmdr, Warner Robins ALC, AFMC, Robins AFB, Ga. ... Brig. Gen. Robin **Rand,** from Cmdr., 56th FW, AETC, Luke AFB, Ariz., to Cmdr., 332nd Air Expeditionary Wng., ACC, Balad, Iraq ... Maj. Gen. (sel.) Robertus C.N. **Remkes,** from Cmdr., AF Recruiting Service, AETC, Randolph AFB, Tex., to Dir., P&P, EUCOM, Stuttgart-Vaihingen, Germany ... Brig. Gen. Albert F. **Riggle,** from Dir., Jt. Security, CENTCOM, MacDill AFB, Fla., to Mil. Rep. to the Sr. Interagency Strategy Team, Natl. Counterterrorism Center, Jt. Staff, Arlington, Va. ... Brig. Gen. (sel.) Mark O. **Schissler,** from Asst. Dep. Dir., War on Terrorism, Jt. Staff, Pentagon, to Dep. Dir., War on Terrorism, Jt. Staff, Pentagon ... Brig. Gen. Larry O. **Spencer,** from Vice Cmdr., Oklahoma City ALC, AFMC, Tinker AFB, Okla., to Dir., Budget Ops. & Personnel, Office of the Asst. SECAF (Financial Mgmt. & Comptroller), Pentagon ... Brig. Gen. (sel.) Suzanne M. **Vautrinot,** from Dep. Dir., Strat. Security, DCS, Air, Space, & Info. Ops., P&R, USAF, Pentagon, to Cmdr., AF Recruiting Service, AETC, Randolph AFB, Tex. ... Brig. Gen. (sel.) Brett T. **Williams,** from Cmdr., 33rd FW, ACC, Eglin AFB, Fla., to IG, ACC, Langley AFB, Va. ... Brig. Gen. Janet C. **Wolfenbarger,** from Dir., Acq. Center of Excellence, Office of the Asst. SECAF (Acq.), Pentagon, to Vice Cmdr., Oklahoma City ALC, Tinker AFB, Okla. ... Brig. Gen. (sel.) Daniel P. **Woodward,** from Chief, Forces Div., Jt. Staff, Pentagon, to Dep. Dir., Force Mgmt., Jt. Staff, Pentagon ... Maj. Gen. (sel.) Mark R. **Zamzow,** from IG, AMC, Scott AFB, Ill., to Dir., Intel., & Air, Space, & Info. Ops., AETC, Randolph AFB, Tex.

COMMAND CHIEF MASTER SERGEANT CHANGE: CMSgt. Joseph E. **Barron Jr.,** to CCMS, AMC, Scott AFB, Ill.

SENIOR EXECUTIVE SERVICE RETIREMENTS: Allen W. **Beckett,** John M. **Frazier.**

SES CHANGES: Richard P. **Deavel,** to Dep. Gen. Counsel (Dispute Resolution), Office of the General Counsel, Pentagon ... Michael S. **Elliott,** to Dep. Dir., Plans & Policy, STRATCOM, Offutt AFB, Neb. ... Martha J. **Evans,** to Dir., Info. Dominance, Asst. SECAF (Acq.), Pentagon ... Kathleen F. **Graham,** to Dep. Dir., Resource Integration, DCS, Log., Instl., & Mission Spt., USAF, Pentagon ... David M. **Jerome,** to Dep. Dir., Ops., AFMC, Wright-Patterson AFB, Ohio ... Mark D. **Johnson,** Dep. Dir., Maintenance, DCS, Log., Instl., & Mission Spt., USAF, Pentagon ... Richard E. **Knoll,** Dir., Mobility Systems Wg., ASC, AFMC, Wright-Patterson AFB, Ohio ... Martin M. **Mazick,** to Air Cmdr., 22nd AF, AFRC, Dobbins ARB, Ga. ... Hanferd J. **Moen,** to Dir., Ops., AFRC, Robins AFB, Ga. ... George E. **Mooney,** to Dir., Center for Systems Engineering, AFIT, Wright-Patterson AFB, Ohio ... Chris G. **Patterakis,** to Dep. Asst. Secy., Strat. Diversity Integration, Office of the Asst. SECAF (Manpower & Reserve Affairs), Pentagon ... Eugenio G. **Pino,** to Dir., Jt. Exercises & Tng., NORAD & NORTHCOM, Peterson AFB, Colo. ... Bobby W. **Smart**, to Assoc. Dir., Programs, DCS, Strat. P&P, USAF, Pentagon ... Douglas D. **Thomas,** to Exec. Dir., Office of Spec. Investigations, Andrews AFB, Md. ... Debra K. **Walker,** to Dep. Asst. Secy. (Log.), Asst. SECAF (Instl., Env., & Log.), Pentagon. ■

will account for 1.4 percent of China's gross domestic product, although the Pentagon estimates that China's defense spending is actually up to three times the amount it publicly states. (See "Aerospace World: Rumsfeld Goes to China," January, p. 14, and "The Chart Page: America's Defense Burden," March, p. 8.)

The Pentagon's Quadrennial Defense Review, released in February, noted that since 1996, China has increased its defense spending by more than 10 percent every year except 2003. Last year, China's defense spending increased by just under 13 percent.

The QDR also said that China has "the greatest potential to compete militarily with the United States and field disruptive military technologies."

USAF Departs Iceland

The US military will end its mission of providing air defense for Iceland in September, when four F-15 Eagles and a rescue helicopter squadron are withdrawn from NAS Keflavik. The US has provided military protection for Iceland since 1951.

Pentagon officials decided the aircraft are no longer needed at Keflavik and will be moved to address evolving threats in other parts of the world.

More than 1,200 US military personnel and 100 Defense Department civilian employees also will leave, and more than 600 Icelandic employees could lose their jobs.

NATO asked the US to provide defense for Iceland 55 years ago. Iceland was considered a key location from which to monitor North Atlantic sea-lanes and to serve as a bridge to Europe. It has hosted fighter and patrol aircraft over the years, but the numbers of US aircraft deployed there have been reduced since the end of the Cold War.

The US spends $260 million per year to defend Iceland. After the US leaves, Iceland will have no military defenses. Officials say the US will continue to honor its defense agreement with Iceland, which is protected by NATO's "Article 5" mutual defense policy.

House Passes War Supplemental

The House of Representatives on March 16 passed a $68 billion supplemental spending bill to cover the wars in Iraq and Afghanistan as part of a $92 billion package that also pays for hurricane relief and foreign aid.

About $4.9 billion would be used to train and equip Iraqi and Afghan security forces. Another $2 billion would be spent to counter improvised explosive devices, a leading cause of

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Pentagon Describes Conventional Trident Plan

The Pentagon plans to convert 24 Trident D-5 missiles into conventional weapons, with two aboard each of 12 Trident submarines, a defense official reported, offering new details on a plan first unveiled in the Fiscal 2007 defense budget and the Quadrennial Defense Review.

The concept is viewed by US Strategic Command as offering the best option (other than nuclear weapons) for destroying hardened and deeply buried targets. Although originally planned to be kept secret, it was decided that the idea should be made public to obtain its value as a deterrent.

The Navy Trident was selected over the Minuteman III missile for the mission because the D-5 is a newer design offering better accuracy. The D-5 also is still in production, whereas the last Minuteman missiles were produced nearly 30 years ago.

Moreover, a launch of the land-based Minuteman would cause boosters to fall on Canadian soil. It also would likely require overflight of Russian territory to reach a meaningful target, raising concerns that such a launch could be misinterpreted as a nuclear attack on that nation.

As mobile launch platforms, submarines can get closer to their intended targets. Basing conventional ICBMs at the US coast would not overcome their other disadvantages, the official said.

The missiles would have an accuracy of within 33 feet after a flight of 6,000 miles. They also would be able to strike anywhere in the world within an hour of the order to launch.

Two types of warheads—neither involving an explosive—are being considered for the conventional Tridents. One would use a concrete weight, called a "slug" or "slump," of a type similar to that lofted in tests of the missile. The other would involve a steel rod, also called a flechette. The speed of the warhead at impact would be such that its kinetic energy would make an explosive unnecessary.

US casualties since the 2003 invasion of Iraq.

Congress has already passed a $50 billion war supplemental this fiscal year. If the $68 billion package is approved by the Senate and President Bush, it would bring the total cost of war operations in Iraq and Afghanistan to nearly $400 billion.

The Senate was to take up its version of the supplemental in April.

The additional funds in the supplemental were for hurricane relief in the Gulf Coast region ($19 billion), as well as democracy programs in Iraq and foreign aid to African countries ($4.1 billion).

Australia Selects C-17s

Australia has decided to buy up to four Boeing C-17 Globemaster IIIs to provide strategic mobility for its armed forces. The move was prompted in part by the US Air Force's plans to close the C-17 production line. (See "Aerospace World: C-17 Halt Brings Penalties," April, p. 14.)

Australia decided to order three aircraft with an option for a fourth, depending on the final price, Defense Minister Brendan Nelson announced March 3.

The Royal Australian Air Force needs an aircraft larger than its C-130 Hercules transport and that can carry its new M1A1 Abrams main battle tank. Australia also wants the C-17s in part to fulfill its contributions to international humanitarian missions.

"This is the only aircraft currently in production which has a proven capability to meet ADF [Australian Defense Force] operational commitments, in Australia, the region, and globally," Nelson said.

The aircraft could be delivered by mid-2008, a fact that helped the C-17 win out over the EADS A400M propeller-driven transport, which will not be available until 2009 at the earliest.

According to Boeing, the first C-17, with standard US configuration, could be delivered to Australia by December 2006, with the other three coming within 15 months.

The Australian buy would mark the second foreign operator of the C-17. The British Royal Air Force flies four of the aircraft under a long-term lease that is expected to end with a purchase.

ROTC Cadets Get Cyber Training

Twenty-five ROTC cadets have been picked for a 10-week cyber-security "boot camp" sponsored by the Air Force Research Laboratory and Syracuse University.

The program is officially called the Advanced Course in Engineering, or ACE, program. The cadets—20 Air Force, three

Index to Advertisers

Army, and two Navy, as well as eight National Science Foundation fellows and three other civilians—will attend the course in Rome, N.Y., this summer.

The course will include lectures on analyzing malicious code and wireless security, as well as network defense and attack, legal and policy issues, and cryptography. It concludes with a two-day cyber security exercise that course leaders dub "hackfest."

The 36 students selected for the course have grade point averages of 3.5 or higher in computer science or engineering, electrical engineering, or related disciplines. Four additional participants are graduate students who have taken the course previously.

The program was launched in 2002 and is part of AFRL's efforts to cultivate experts in cyber-warfare. Air Force Secretary Michael W. Wynne has recently elevated cyberspace to a status on par with air and space as a domain where USAF must excel and prevail. (See "Aerospace World: Wynne Elevates Cyber-war," February, p. 21.)

The course will be taught by educators from Syracuse University, the US Military Academy at West Point, and Norwich University, as well as experts from AFRL and industry.

F-16 Mods Take Flight

The Air Force expects to finish its Block 50/52 F-16 Common Configuration Implementation Program upgrade this month and is on track to complete the program on all its F-16s by 2010, the service said.

The CCIP is the largest F-16 upgrade ever, comprising a $2 billion-plus avionics and mission capabilities improvement for about 650 Block 40, 42, 50, and 52 Air Force and Air National Guard F-16 fighter aircraft. The program began in 2001.

The CCIP extends the "utility, capability, and supportability of the F-16 with increased/improved avionics and software," according to the Aeronautical Systems Center.

Upgrades include a new avionics suite, a new mission computer, color displays, Link 16 capability, and dual carriage of the High-speed Anti-Radiation Missile targeting system and Advanced Targeting Pod.

Block 50/52 F-16 aircraft also received an air-to-air interrogator that will allow beyond line of sight use of the AIM-120 Advanced Medium-Range Air-to-Air Missile. The final leg of the modernization program will be for the Block 40/42 F-16 aircraft, and they are scheduled to be upgraded by 2010.

All the upgrades are being performed at Hill AFB, Utah. Falcons already upgraded are supporting US European Command and Operation Noble Eagle in the US.

Is It "Son of J-UCAS"?

The Air Force hasn't completely given up on the Joint Unmanned Combat Air System (J-UCAS), even though the USAF portion of the program has been scrapped.

At a Capitol Hill seminar in March, Air Force Secretary Michael Wynne said his service "is completing its work on refueling unmanned vehicles," which is the J-UCAS technology of the most immediate interest to USAF.

The Navy is continuing the program, according to direction given by the Office of the Secretary of Defense. Wynne said he believes there will be a competition between the Boeing X-45 and the Northrop Grumman X-47 concepts. Once a winner is selected, "the Air Force could show back up on [the Navy's] doorstep" and buy some of the aircraft, remarked Wynne. ■

Action in Congress

By Tom Philpott, Contributing Editor

Retirees Fire Back on Tricare; Thumbs Down on Veterans Fees; Updating the GI Bill ....

Tricare Fee Plan Blasted

The Pentagon's plan to raise Tricare fees for retirees quickly bogged down on Capitol Hill.

Sen. Lindsey O. Graham (R-S.C.), chairman of the Senate Armed Services personnel subcommittee, saw waves of blistering e-mails and letters from retirees. They were angered by DOD's move to impose new costs on under-65 military retirees and members of their families. (See "Editorial: Faith No More?," April, p. 2.)

In February, Graham had praised Defense Secretary Donald H. Rumsfeld and Marine Corps Gen. Peter Pace, Chairman of the Joint Chiefs of Staff, for finding "new ways of looking at military health care." By March, however, Graham had altered course, suggesting the proposed increase was politically unrealistic.

Rep. John McHugh (R-N.Y.), already skeptical of the fee increases, called for an independent review of DOD's estimate of projected savings. (See "Action in Congress: Keeping Pace With Costs," April, p. 25.)

Defense officials had hoped to begin phasing in the higher rates as early as October. Within two years, enrollment fees for Tricare Prime, the managed care program, would triple for retired officers, double for senior enlisted, and rise by 41 percent for retired enlisted in grades E-6 and below.

Deductibles for Tricare Standard, the fee-for-service option, also would rise sharply. For the first time, Standard users would pay an annual enrollment fee. Prime and Standard fees, once reset, would be raised annually to keep pace with health care inflation. Tricare retail pharmacy co-payments also would be increased.

AP photo by Greg Campbell

Graham got lots of incoming from retirees.

Powerful Opposition Emerges

The Tricare plan went off the rails in the House in early March when Rep. Duncan Hunter (R-Calif.), chairman of the House Armed Services Committee, and Rep. Ike Skelton (D-Mo.), the ranking minority member, said they would not support the Tricare increases for Fiscal 2007, and, therefore, the defense budget ceiling should not assume savings.

A week later, Rep. Walter Jones (R-N.C.) and Rep. Chet Edwards (D-Tex.) introduced the Military Retirees' Health Care Protection Act to block the fee increases. Jones and Edwards particularly criticized raising the fees in wartime. Within two weeks, their bill had 118 co-sponsors.

McHugh described the proposed increases as "huge" and suggested including provisions in the final defense authorization bill delaying action on the plan for at least a year. In the Senate, Graham declared, "There is no way we're going to have 115 percent fee increases over the next few years. Period."

VA Fees Rejected Again

The Senate raised the VA health care budget ceiling by $795 million for Fiscal 2007.

At the same time, it rejected, once again, the Bush Administration's call to set a $250 enrollment fee for VA health care and to raise VA drug co-payments from $8 to $15 for veterans with above-poverty incomes and no service-related disabilities. (See "Action in Congress: VA Fee Increases: Take Four," April, p. 25.) The Senate action came on an amendment proposed by Sen. Conrad Burns (R-Mont.). It passed unanimously.

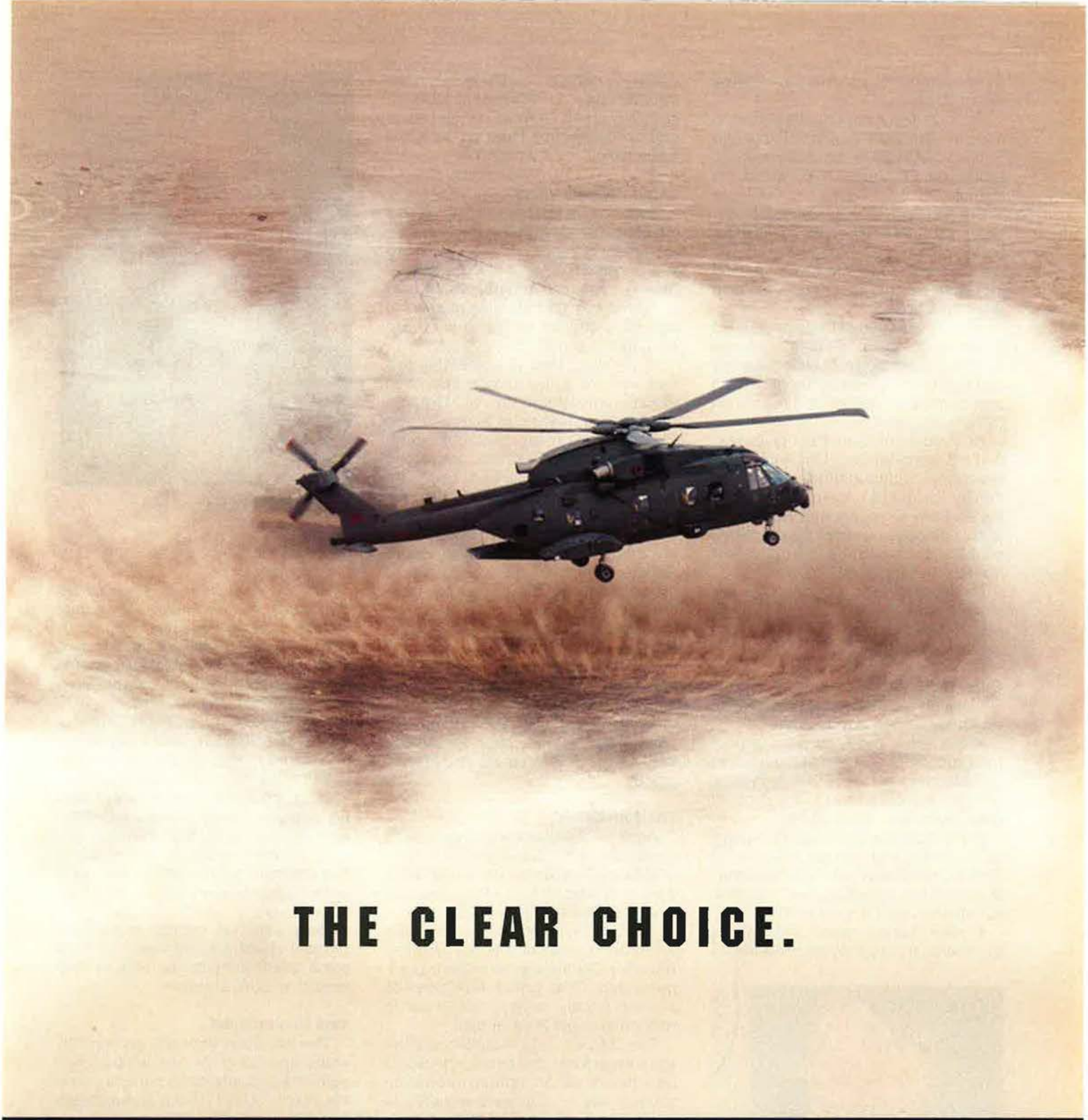
"These fees [would] lead us down the road to turn the VA into another HMO, which will make it harder and harder for our veterans to be able to afford basic care," Burns said.

Sen. Larry E. Craig (R-Idaho), chairman of the veterans' affairs committee, said he supported Burns' amendment but also was "sobered" by its implications. The VA medical budget will be 70 percent higher than it was in 2001, the largest rise in VA programs in history.

"I urge my colleagues to engage in a serious and candid dialogue about sustainability of this system," Craig said.

Self-Storage Issues

Rep. John McHugh (R-N.Y.) has warned the exchange services not to establish self-storage facilities on bases



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where adequate commercial storage exists off base.

McHugh said Army officials argued to allow the Army and Air Force Exchange Service (AAFES) to run a self-storage facility on Ft. Drum, N.Y., within his district.

But McHugh later saw that "literally within 150 yards of the front gates there are dozens of self-storage areas. And we were being told there was nothing for single soldiers who need a place to store their bikes."

AAFES eyes self-storage operations to serve troops and offset revenue declines expected from base closures and a return of overseas troops. Profits pay for morale, welfare, and recreation (MWR) programs.

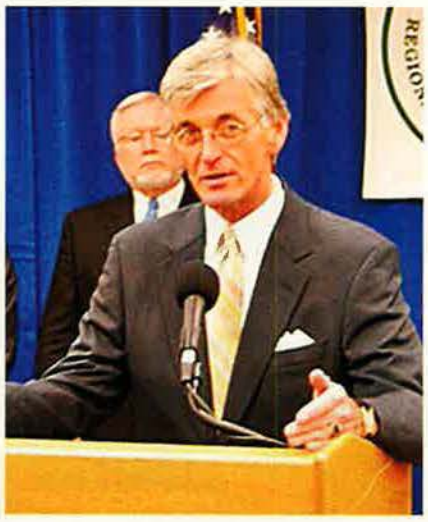
Air Force Maj. Gen. Paul W. Essex, AAFES commander, told McHugh's personnel subcommittee in March that by Fiscal 2011, the restationing of forces from Germany and Korea and Stateside base closures due to BRAC could slice exchange dividends for MWR activities by $77 million.

McHugh said the subcommittee will strive to strike a balance between the needs of service members and damaging local businesses.

Other MWR Issues

McHugh also raised other MWR and exchange issues, saying that:

- The Navy and Army have a poor track record for allocating appropriated tax dollars to fund their MWR programs. The two services have fallen short of goals every year since 2004.
- The Defense Commissary Agency is becoming increasingly efficient. In Fiscal 2007, DeCA will spend fewer tax dollars to run commissaries, adjusting for inflation, than it used in 2000.
- "After several years and millions of dollars, we seem to be no closer to making a decision on the best course for exchange consolidation," McHugh said. He urged DOD to cut its losses and "recognize that there are no great advantages" to consolidation.



McHugh seeks balance in services.

Some Reserve Ideas

Sen. Lindsey Graham (R-S.C.) favors legislation that would allow reserve retirement a year earlier for every two years served beyond 20. A 22-year reserve career, therefore, would lead to retired pay and benefits starting at age 59; a 30-year career would mean full benefits at age 55.

"If we don't look at something like that, we are going to lose people at the 20-year point in droves," Graham warned at a hearing in March for the Commission on the National Guard and Reserves. Families are being stressed to the breaking point, he claimed.

Sen. Christopher S. Bond (R-Mo.) asked the commission to study proposals from the Senate National Guard Caucus that give the Guard "more bureaucratic muscle so that the force will not continually be pushed around in policy and budget debates within the Pentagon."

One proposal would make the National Guard chief a four-star officer and a member of the Joint Chiefs. Another would provide the Guard its own procurement budget. (See "Aerospace World: Does JCS Need a Guard Chief?," p. 20.)

The 10th QRMC

Another Congressionally mandated panel, the 10th Quadrennial Review of Military Compensation, began work April 1. Retired Air Force Brig. Gen. Jan D. Eakle will lead the 10th QRMC.

The starting point will be to review the recommendations of the Defense Advisory Committee on Military Compensation. That panel recommends a more flexible military retirement to replace the rigid 20-year plan.

The 20-year plan wouldn't end for the current force, but a new plan would be offered as an option, promising at least some retirement benefits to members who don't expect to serve for 20 years.

The advisory panel also recommends an end to a pay disparity by eliminating the "without dependents" rate for basic and overseas housing allowances. This would raise tax-free housing allowances in Stateside areas by an average of $5,300 a year for single officers and $4,400 a year for single enlisted.

GI Bill Modernization

The House Veterans' Affairs Committee is holding a series of hearings this year on ways to modernize the Montgomery GI Bill.

AP photo/ by A.J. Mast

Buyer wants MGIB flexibility.

Rep. Steve Buyer (R-Ind.), committee chairman, said he wants active duty members to have greater flexibility to use their MGIB benefits. Also, he might support making Reserve MGIB benefits more "portable" so they can be used after reservists leave service.

Mike Brink, staff director of a veterans' affairs subcommittee, said Buyer wants to encourage more MGIB enrollees to use benefits by allowing them to cover training costs for a wider variety of jobs. For example, the law allows accelerated payment of benefits for short-term, high-cost technical training. Buyer wants that option for some nontechnical jobs such as training to become long-haul truck drivers.

Reservists now commit to an initial six-year obligation and then can draw some MGIB benefits as long as they remain in a drill status.

Vets Unemployed

The unemployment rate among veterans age 20 to 24 has jumped four percentage points, to 15 percent, since the attacks of 9/11. That is about double the jobless rate of same age non-veterans, said the Government Accountability Office in a report to the Senate Veterans' Affairs Committee.

Committee Chairman Craig called the trend "startling."

Richard F. Weidman, director of government relations for the Vietnam Veterans of America, said the employment assistance system for veterans "is every bit as broke today as it was before the passage of the Jobs for Veterans Act, with even more financial and operational problems." ■

Side by Side with The Air Force.

GENERAL DYNAMICS
C4 Systems

USAF Alma

Photo © Tom and Pat Leeson

nac 2006

About the Almanac

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 Public Affairs, Air Staff agencies, major commands, and reserve components in bringing up to date the comparable data from last year's Almanac.

A word of caution: Personnel figures that appear in this section in different forms will not always agree (nor will they always agree with figures in major command, field operating agency, and direct reporting unit reports or in the "Guide to USAF Installations Worldwide") because of different cutoff dates, rounding, differing methods of reporting, or categories of personnel that are excluded in some cases. These figures do illustrate trends, however, and may be helpful in placing force fluctuations in perspective.

—THE EDITORS

Photo © Corbis

Edited by Tamar A. Mehuron, Associate Editor

The Air Force in Facts and Figures

2006 USAF Almanac

Structure of the Force

How the Air Force Is Organized

There is considerable variation in how the major commands and subordinate units of the Air Force are organized. This overview describes both the typical organization chain and USAF's Air and Space Expeditionary Force.

The **Department of Defense (DOD)** is a Cabinet agency headed by the Secretary of Defense. It was created in 1947 to consolidate pre-existing military agencies—the War Department and the Navy Department. Subordinate to DOD are the three military departments (Army, Navy, and Air Force), each headed by a civilian secretary.

The **Joint Chiefs of Staff (JCS)** constitute the corporate military leadership of DOD. The Chairman and vice chairman of the JCS serve full-time in their positions. The service chiefs are the military heads of their respective services, although JCS responsibilities take precedence.

The **Department of the Air Force** is headed by the Secretary of the Air Force, who is supported by a staff called the Secretariat. The Chief of Staff, USAF, heads the Air Staff, and the military heads of the major commands report to the Chief of Staff.

Most units of the Air Force are assigned to one of the **major commands.** Major commands are headed by general officers and have broad functional responsibilities. Commands may be divided into **numbered air forces.**

The fundamental unit of the working Air Force is the **wing.** The typical Air Force base is built around a wing. Some wings are commanded by a general officer, while others are headed by a colonel. An objective wing contains an **operations group,** which includes aircrews, intelligence units, and others; a **maintenance group,** which includes maintenance squadrons; a **support group,** which includes such functions as civil engineers, logistics readiness, and security forces; and a **medical group.**

Most individual officers and airmen are assigned to a **squadron,** which may be composed of several **flights.**

In addition to these units, there are numerous others, including centers, field operating agencies, and direct reporting units.

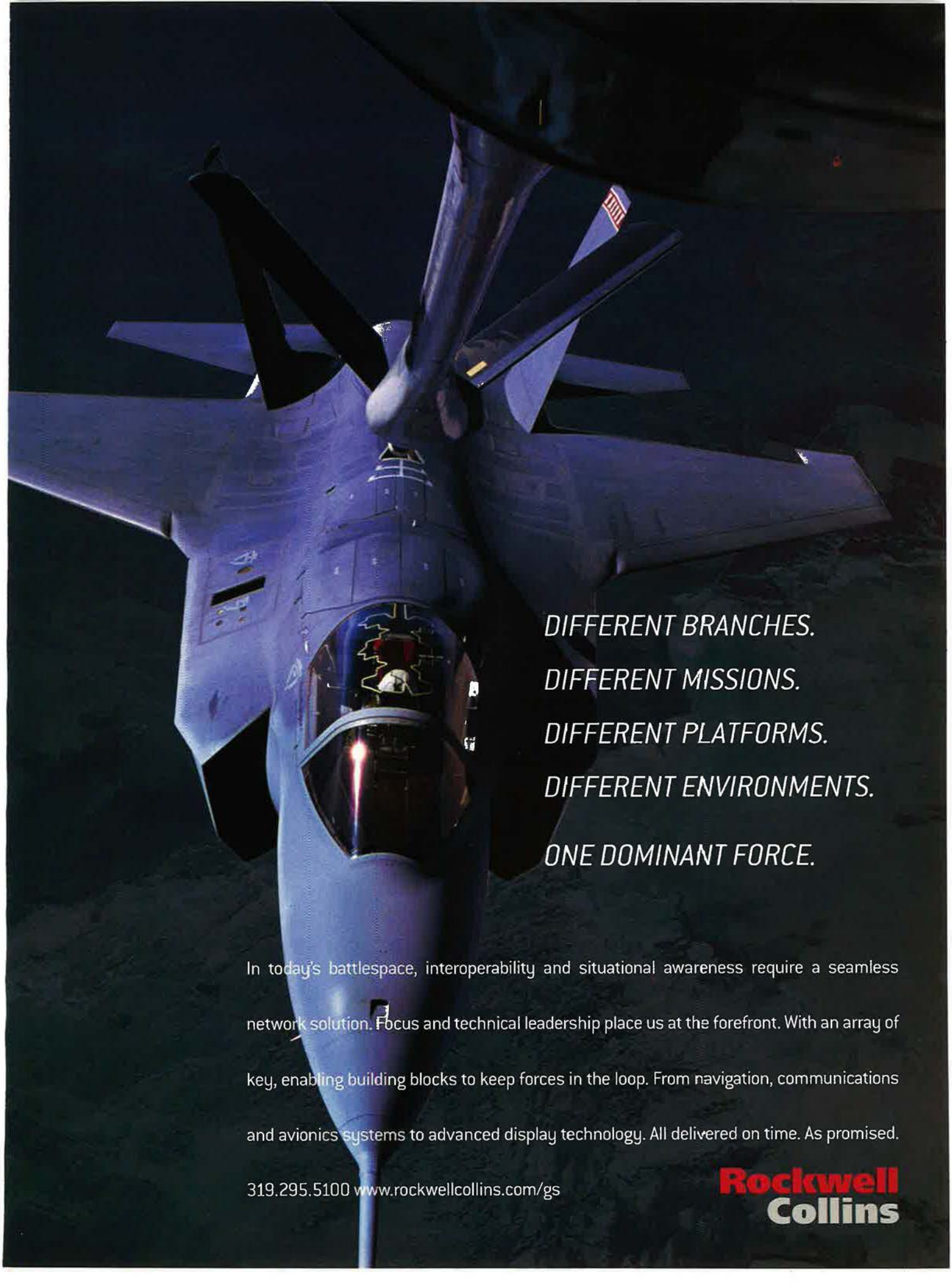
The Air and Space Expeditionary Force

To relieve chronic optempo problems stemming from back-to-back deployments and operations, the Air Force developed an expeditionary concept initially called the Expeditionary Aerospace Force. The term EAF has since been supplanted by the term Air and Space Expeditionary Force (**AEF**). The term AEF also refers to a basic organizational unit. USAF groups its power projection and support forces into 10 AEF "buckets of capability." The 10 AEFs are grouped into five pairs. Initially, these five pairs of AEFs rotated through a 15-month cycle, with each pair assigned to one of five 90-day periods. In Fall 2004, USAF revised its AEF arrangement, extending the cycles to 20 months, divided into five 120-day periods. The Air Force also incorporated its on-call forces into the standard AEF rotation.

During each 120-day period, a designated pair of AEFs is vulnerable to deployment. Each AEF comprises combat air forces **(CAF),** mobility air forces **(MAF),** and low-density, high-demand **(LD/HD)** forces consisting of various active duty, ANG, and AFRC units.

USAF's LD/HD forces include battle management, combat search and rescue, command and control, and reconnaissance assets. They are in near constant use and, consequently, rotate more frequently than most CAF and MAF elements.

The new expeditionary system began with Cycle 1 in October 1999. Cycle 4, which began June 1, 2003, included two temporary stopgap AEFs, designated AEF Blue (June 1-Oct. 31, 2003) and AEF Silver (Nov. 1, 2003-Feb. 29, 2004), formed in the wake of Operation Iraqi Freedom. They mostly comprised forces not used in the war. During the Blue and Silver deployments, USAF was able to reconstitute its wartime forces for return to the standard rotation cycle. ▪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AEF The Air and Space Expeditionary Force

AEF Cycle 6: May 1, 2006-Dec. 31, 2007

AEF Rotational Combat Air Forces

	May 1, 2006-Aug. 31, 2006 AEF 1/AEF 2		Sept. 1, 2006-Dec. 31, 2006 AEF 3/AEF 4		Jan. 1, 2007-April 30, 2007 AEF 5/AEF 6		May 1, 2007-Aug. 31, 2007 AEF 7/AEF 8		Sept. 1, 2007-Dec. 31, 2007 AEF 9/AEF 10	
	Unit	**Aircraft**	**Unit**	**Aircraft**	**Unit**	**Aircraft**	**Unit**	**Aircraft**	**Unit**	**Aircraft**
Active	81st FS	A/OA-10	75th FS	A/OA-10	74th FS	A/OA-10	354th FS	A/OA-10	355th FS	A/OA-10
	9th BW	B-1B	20th BS	B-52	23rd BS	B-52	37th BS	B-1B	34th BS	B-1B
	12th FS	F-15C	96th BS	B-52	44th FS	F-15C	67th FS	F-15C	60th FS	F-15C
	58th FS	F-15C	19th FS	F-15C	390th FS	F-15C/D	94th FS	F-15C	71st FS	F-15C
	90th FS	F-15E	493rd FS	F-15C	391st FS	F-15E	492nd FS	F-15E	336th FS	F-15E
	335th FS	F-15E	494th FS	F-15E	510th FS	F-16CG	555th FS	F-16CG	4th FS	F-16CG
	421st FS	F-16CG	523rd FS	F-16C	14th FS	F-16CJ	13th FS	F-16CJ	18th FS	F-16CG
	23rd FS	F-16CJ	34th FS	F-16CG	55th FS	F-16CJ	522nd FS	F-16CJ	22nd FS	F-16CJ
	79th FS	F-16CJ	524th FS	F-16CG	27th FS	F-22			389th FS	F-16CJ
			77th FS	F-16CJ						
ANG	102nd FW	F-15A	113th Wing	F-16C	103rd FW	A/OA-10	104th FW	A/OA-10	125th FW	F-15A
	159th FW	F-15A	144th FW	F-16C	111th FW	A/OA-10	110th FW	A/OA-10	142nd FW	F-15A
	131st FW	F-15C	174th FW	F-16C	175th Wing	A/OA-10	124th FW	A/OA-10	154th FW	F-15A
	115th FW	F-16C	192nd FW	F-16C	119th FW	F-16A	114th FW	F-16C	120th FW	F-16C
	183rd FW	F-16C	169th FW	F-16CJ	147th FW	F-16C	127th FW	F-16C	122nd FW	F-16C
	187th FW	F-16C			148th FW	F-16C	181st FW	F-16C	140th FW	F-16C
					188th FW	F-16C			150th FW	F-16C
					132nd FW	F-16CG			158th FW	F-16C
					138th FW	F-16CG			177th FW	F-16C
					180th FW	F-16CG				
AFRC	442nd FW	A/OA-10	93rd BW	B-52			301st FW	F-16C		
	926th FW	A/OA-10					482nd FW	F-16C		

AEF Cycles Through the Years

Number	Dates
Cycle 1	Oct. 1, 1999-Nov. 30, 2000
Cycle 2	Dec. 1, 2000-Feb. 28, 2002
Cycle 3	March 1, 2003-May 31, 2003
Cycle 4	June 1, 2003-Aug. 31, 2004
Cycle 5	Sept. 1, 2004-April 30, 2006

Acronyms

AACS	Airborne Air Control Squadron
ACS	Air Control Squadron
AG	Airlift Group
AMW	Air Mobility Wing
ARG	Airlift Refueling Group
ARW	Air Refueling Wing
AW	Airlift Wing
BS	Bomb Squadron
BW	Bomb Wing
ECS	Electronic Combat Squadron
FS	Fighter Squadron
FW	Fighter Wing
LD/HD	Low Density, High Demand
RS	Reconnaissance Squadron
RQS	Rescue Squadron

USAF photo by SSgt. Joshua Strang

An F-15 from the 336th Expeditionary Fighter Squadron prepares for takeoff at a forward operating location in Southwest Asia. The 336th is based at Seymour Johnson AFB, N.C.

AEF Rotational Mobility Air Forces

	May 1, 2006-Aug. 31, 2006 AEF 1/AEF 2		Sept. 1, 2006-Dec. 31, 2006 AEF 3/AEF 4		Jan. 1, 2007-April 30, 2007 AEF 5/AEF 6		May 1, 2007-Aug. 31, 2007 AEF 7/AEF 8		Sept. 1, 2007-Dec. 31, 2007 AEF 9/AEF 10	
	Unit	**Aircraft**	**Unit**	**Aircraft**	**Unit**	**Aircraft**	**Unit**	**Aircraft**	**Unit**	**Aircraft**
Active	43rd AW	C-130	43rd AW	C-130	43rd AW	C-130	43rd AW	C-130	43rd AW	C-130
	317th AG	C-130	317th AG	C-130	317th AG	C-130	317th AG	C-130	317th AG	C-130
	463rd AG	C-130	463rd AG	C-130	463rd AG	C-130	463rd AG	C-130	463rd AG	C-130
	60th AMW	KC-10	60th AMW	KC-10	60th AMW	KC-10	60th AMW	KC-10	60th AMW	KC-10
	305th AMW	KC-10	305th AMW	KC-10	305th AMW	KC-10	305th AMW	KC-10	305th AMW	KC-10
	6th AMW	KC-135R	6th AMW	KC-135R	6th AMW	KC-135R	6th AMW	KC-135R	6th AMW	KC-135R
	19th ARG	KC-135R	19th ARG	KC-135R	19th ARG	KC-135R	19th ARG	KC-135R	19th ARG	KC-135R
	22nd ARW	KC-135R	22nd ARW	KC-135R	22nd ARW	KC-135R	22nd ARW	KC-135R	22nd ARW	KC-135R
	92nd ARW	KC-135R	92nd ARW	KC-135R	92nd ARW	KC-135R	92nd ARW	KC-135R	92nd ARW	KC-135R
	319th ARW	KC-135R	319th ARW	KC-135R	319th ARW	KC-135R	319th ARW	KC-135R	319th ARW	KC-135R
ANG	118th AW	C-130	109th AW	C-130	133rd AW	C-130	123rd AW	C-130	137th AW	C-130
	136th AW	C-130	127th Wing	C-130	145th AW	C-130	124th Wing	C-130	139th AW	C-130
	152nd AW	C-130	143rd AW	C-130	182nd AW	C-130	130th AW	C-130	165th AW	C-130
	166th AW	C-130	146th AW	C-130			153rd AW	C-130	176th Wing	C-130
			156th AW	C-130					179th AW	C-130
			175th Wing	C-130						
AFRC	302nd AW	C-130	403rd Wing	C-130						
	913th AW	C-130								
	914th AW	C-130								

AEF Rotational Low-Density, High-Demand Forces

	May 1, 2006-Aug. 31, 2006 AEF 1/AEF 2		Sept. 1, 2006-Dec. 31, 2006 AEF 3/AEF 4		Jan. 1, 2007-April 30, 2007 AEF 5/AEF 6		May 1, 2007-Aug. 31, 2007 AEF 7/AEF 8		Sept. 1, 2007-Dec. 31, 2007 AEF 9/AEF 10	
	Unit	**Aircraft**	**Unit**	**Aircraft**	**Unit**	**Aircraft**	**Unit**	**Aircraft**	**Unit**	**Aircraft**
Active	963rd AACS	E-3	962nd AACS	E-3	964th AACS	E-3	960th AACS	E-3	965th AACS	E-3
	12th AACS	E-8	964th AACS	E-3	12th AACS	E-8	12th AACS	E-8	12th AACS	E-8
	16th AACS	E-8	12th AACS	E-8	16th AACS	E-8	16th AACS	E-8	16th AACS	E-8
	128th AACS	E-8	16th AACS	E-8	128th AACS	E-8	128th AACS	E-8	128th AACS	E-8
	41st ECS	EC-130H	128th AACS	E-8	41st ECS	EC-130H	41st ECS	EC-130H	41st ECS	EC-130H
	43rd ECS	EC-130H	41st ECS	EC-130H	43rd ECS	EC-130H	43rd ECS	EC-130H	43rd ECS	EC-130H
	41st RQS	HH-60	43rd ECS	EC-130H	66th RQS	HH-60	41st RQS	HH-60	41st RQS	HH-60
	66th RQS	HH-60	41st RQS	HH-60	79th RQS	HC-130	71st RQS	HC-130	55th RQS	HH-60
	71st RQS	HC-130	55th RQS	HH-60	38th RS	RC-135V/W	38th RS	RC-135V/W	71st RQS	HC-130
	38th RS	RC-135V/W	71st RQS	HC-130	15th RS	MQ-1	15th RS	MQ-1	38th RS	RC-135V/W
	15th RS	MQ-1	79th RQS	HC-130	99th RS	U-2	99th RS	U-2	15th RS	MQ-1
	99th RS	U-2	38th RS	RC-135V/W	603rd ACS		606th ACS		99th RS	U-2
	606th ACS		15th RS	MQ-1	729th ACS		726th ACS		606th ACS	
	728th ACS		99th RS	U-2					729th ACS	
			726th ACS							
ANG							101st RQS	HH-60		
							129th RQS	HH-60		
							102nd RQS	HC-130		
							130th RQS	HC-130		
							211th RQS	HC-130		
							210th RQS			
AFRC					301st RQS	HH-60				
					305th RQS	HH-60				
					39th RQS	HC-130				
					970th AACS	E-3				

AEF Rotation Cycle, Expeditionary Combat Support Forces

	May 1, 2006-Aug. 31, 2006 **AEF 1/AEF 2** **Base**	Sept. 1, 2006-Dec. 31, 2006 **AEF 3/AEF 4** **Base**	Jan. 1, 2007-April 30, 2007 **AEF 5/AEF 6** **Base**	May 1, 2007-Aug. 31, 2007 **AEF 7/AEF 8** **Base**	Sept. 1, 2007-Dec. 31, 2007 **AEF 9/AEF 10** **Base**
Active	Andersen AFB, Guam Altus AFB, Okla. Charleston AFB, S.C. Columbus AFB, Miss. Dover AFB, Del. Dyess AFB, Tex. Eglin AFB, Fla. Elmendorf AFB, Alaska Hanscom AFB, Mass. Keesler AFB, Miss. Laughlin AFB, Tex. Luke AFB, Ariz. MacDill AFB, Fla. Maxwell AFB, Ala. McGuire AFB, N.J. Moody AFB, Ga. Patrick AFB, Fla. Peterson AFB, Colo. Pope AFB, N.C. Ramstein AB, Germany Robins AFB, Ga. Scott AFB, Ill. Seymour Johnson AFB, N.C. Shaw AFB, S.C. Sheppard AFB, Tex. Spangdahlem AB, Germany Tinker AFB, Okla.	Andrews AFB, Md. Arnold AFB, Tenn. Barksdale AFB, La. Beale AFB, Calif. Brooks City-Base, Tex. Buckley AFB, Colo. Cannon AFB, N.M. Davis-Monthan AFB, Ariz. Edwards AFB, Calif. Eielson AFB, Alaska Ellsworth AFB, S.D. Fairchild AFB, Wash. F.E. Warren AFB, Wyo. Goodfellow AFB, Tex. Grand Forks AFB, N.D. Hill AFB, Utah Holloman AFB, N.M. Hurlburt Field, Fla. Lajes Field, Azores, Portugal Los Angeles AFB, Calif. McChord AFB, Wash. Misawa AB, Japan NAS Keflavik, Iceland Nellis AFB, Nev. Offutt AFB, Neb. RAF Lakenheath, UK Randolph AFB, Tex. Schriever AFB, Colo. Travis AFB, Calif. Tyndall AFB, Fla. Vandenberg AFB, Calif. Whiteman AFB, Mo. Yokota AB, Japan	Aviano AB, Italy Bolling AFB, D.C. Charleston AFB, S.C. Dover AFB, Del. Hanscom AFB, Mass. Hickam AFB, Hawaii Incirlik AB, Turkey Kadena AB, Japan Keesler AFB, Miss. Kirtland AFB, N.M. Lackland AFB, Tex. Langley AFB, Va. Laughlin AFB, Tex. Little Rock AFB, Ark. Luke AFB, Ariz. MacDill AFB, Fla. Malmstrom AFB, Mont. Maxwell AFB, Ala. McConnell AFB, Kan. McGuire AFB, N.J. Minot AFB, N.D. Mountain Home AFB, Idaho RAF Mildenhall, UK Robins AFB, Ga. Scott AFB, Ill. Shaw AFB, S.C. USAF Academy, Colo. Vance AFB, Okla. Wright-Patterson AFB, Ohio	Altus AFB, Okla. Andersen AFB, Guam Arnold AFB, Tenn. Buckley AFB, Colo. Cannon AFB, N.M. Columbus AFB, Miss. Davis-Monthan AFB, Ariz. Dyess AFB, Tex. Edwards AFB, Calif. Eglin AFB, Fla. Elmendorf AFB, Alaska Ellsworth AFB, S.C. Grand Forks AFB, N.D. Hill AFB, Utah Hurlburt Field, Fla. Lajes Field, Azores, Portugal Los Angeles AFB, Calif. McChord AFB, Wash. Misawa AB, Japan Moody AFB, Ga. NAS Keflavik, Iceland Nellis AFB, Nev. Offutt AFB, Neb. Patrick AFB, Fla. Peterson AFB, Colo. Pope AFB, N.C. RAF Lakenheath, UK Ramstein AB, Germany Seymour Johnson AFB, N.C. Sheppard AFB, Tex. Spangdahlem AB, Germany Tinker AFB, Okla. Travis AFB, Calif. Tyndall AFB, Fla. Vandenberg AFB, Calif.	Andrews AFB, Md. Aviano AB, Italy Barksdale AFB, La. Beale AFB, Calif. Bolling AFB, D.C. Brooks City-Base, Tex. Eielson AFB, Alaska Fairchild AFB, Wash. F.E. Warren AFB, Wyo. Goodfellow AFB, Tex. Hickam AFB, Hawaii Hill AFB, Utah Holloman AFB, N.M. Incirlik AB, Turkey Kadena AB, Japan Kirtland AFB, N.M. Lackland AFB, Tex. Langley AFB, Va. Little Rock AFB, Ark. Malmstrom AFB, Mont. McConnell AFB, Kan. Minot AFB, N.D. Mountain Home AFB, Idaho RAF Mildenhall, UK Randolph AFB, Tex. Schriever AFB, Colo. USAF Academy, Colo. Vance AFB, Okla. Whiteman AFB, Mo. Wright-Patterson AFB, Ohio Yokota AB, Japan
ANG	Abraham Lincoln Capital Arpt., Ill. Birmingham Arpt., Ala. Charlotte/Douglas Arpt., N.C. Hickam AFB, Hawaii Key Field, Miss. Lambert-St. Louis Arpt., Mo. Lincoln Arpt., Neb. Louisville Arpt./AGS, Ky. Mansfield Lahm Arpt., Ohio Memphis Arpt., Tenn. Minneapolis-St. Paul Arpt./ARS, Minn. Montgomery Regional Arpt., Ala. NAS JRB New Orleans, La. Niagara Falls Arpt., N.Y. Otis ANGB, Mass. Volk Field ANGB, Wis.	Andrews AFB, Md. Channel Islands ANGS, Calif. Fresno Yosemite Arpt., Calif. Hancock Field, N.Y. Klamath Falls Arpt./Kingsley Field, Ore. Little Rock AFB, Ark. McEntire ANGS, S.C. McGuire AFB, N.J. NAS JRB Fort Worth, Tex. Quonset State Arpt., R.I. Richmond Arpt., Va. Salt Lake City Arpt., Utah Schenectady County Arpt., N.Y. Scott AFB, Ill. Springfield-Beckley Arpt., Ohio Will Rogers World Arpt., Okla.	Bangor Arpt., Maine Bradley Arpt., Conn. Des Moines Arpt., Iowa Duluth Arpt., Minn. Ellington Field, Tex. Forbes Field, Kan. Hector Arpt., N.D. Fort Smith Arpt., Ark. Greater Peoria Arpt., Ill. Martin State Arpt., Md. McConnell AFB, Kan. McGhee Tyson Arpt., Tenn. New Castle County Arpt., Del. Pittsburgh Arpt./ARS, Pa. Reno/Tahoe Arpt., Nev. Robins AFB, Ga. Savannah-Hilton Head Arpt., Ga. Stewart ANGB, N.Y. Toledo Express Arpt., Ohio Tulsa Arpt., Okla. Sky Harbor Arpt., Ariz. Willow Grove ARS, Pa.	Barnes Arpt., Mass Boise Air Terminal, Idaho Cheyenne Arpt., Wyo. Eastern West Virginia Arpt., W.Va. Eielson AFB, Alaska Fairchild AFB, Wash. Francis S. Gabreski Arpt., N.Y. Hulman Arpt., Ind. Joe Foss Field, S.D. Kelly City-Base, Tex. Kulis ANGB, Alaska Luis Munoz Marin Arpt., Puerto Rico Moffett Field, Calif. Pease Intl. Tradeport ANGS, N.H. Selfridge ANGB, Mich. Sioux Gateway Arpt./Col. Bud Day Field, Iowa W.K. Kellogg Arpt., Mich.	Atlantic City Arpt., N.J. Buckley AFB, Colo. Burlington Arpt., Vt. Fort Wayne Arpt., Ind. General Mitchell Arpt./ARS, Wis. Great Falls Arpt., Mont. Harrisburg Arpt., Pa. Jacksonville Arpt., Fla. Kirtland AFB, N.M. March ARB, Calif. Nashville Arpt., Tenn. Portland Arpt., Ore. Rickenbacker ANGB, Ohio Rosecrans Memorial Arpt., Mo. Tucson Arpt., Ariz. Yeager Arpt., W.Va.
AFRC	Charleston AFB, S.C. Dover AFB, Del. Duke Field, Fla. Lackland AFB, Tex. NAS JRB New Orleans, La. Scott AFB, Ill. Westover ARB, Mass. Whiteman AFB, Mo.	Barksdale AFB, La. March ARB, Calif. Maxwell AFB, Ala. McConnell AFB, Kan. Pittsburgh Arpt./ARS, Pa. Seymour Johnson AFB, N.C. Tinker AFB, Okla.	Davis-Monthan AFB, Ariz. Dobbins ARB, Ga. Minneapolis-St. Paul Arpt./ARS, Minn. Niagara Falls Arpt./ARS, N.Y. Peterson AFB, Colo. Portland Arpt., Ore. Patrick AFB, Fla. Tinker AFB, Okla. Wright-Patterson AFB, Ohio	Beale AFB, Calif. Grissom ARB, Ind. Homestead ARB, Fla. Keesler AFB, Miss. NAS/JRB Fort Worth, Tex. Luke AFB, Ariz. Selfridge ANGB, Mich. Youngstown-Warren Arpt./ARS, Ohio	Andrews AFB, Md. General Mitchell Arpt./ARS, Wis. Hill AFB, Utah McChord AFB, Wash. McGuire AFB, N.J. Willow Grove ARS, Pa. Travis AFB, Calif.

Note: USAF draws expeditionary combat support (ECS) personnel from the facilities listed here. ECS forces include communicators, contracting personnel, engineers, logisticians, medics, security forces, services, and others needed to establish air expeditionary force locations anywhere in the world.

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Designation	Commander (at highest rank)	Dates of Service
Aeronautical Division, US Signal Corps	**Chief, Aeronautical Division**	
Aug. 1, 1907-July 18, 1914	Capt. Charles deForest Chandler	Aug. 1, 1907-June 30, 1910
	Capt. Arthur S. Cowan	July 1, 1910-June 19, 1911
	Capt. Charles deForest Chandler	June 20, 1911-Sept. 9, 1913
	Maj. Samuel Reber	Sept. 10, 1913-July 17, 1914
Aviation Section, US Signal Corps	**Chief, Aviation Section**	
July 18, 1914-May 20, 1918	Lt. Col. Samuel Reber	July 18, 1914-May 5, 1916
	Lt. Col. George O. Squier	May 20, 1916-Feb. 19, 1917
	Lt. Col. John B. Bennet	Feb. 19, 1917-May 20, 1918
Division of Military Aeronautics, Secretary of War	**Director of Military Aeronautics**	
May 20, 1918-May 24, 1918	Maj. Gen. William L. Kenly (Kept same title three months into absorption by Air Service)	May 20, 1918-August 1918
Army Air Service	**Director of Air Service**	
May 24, 1918-July 2, 1926	John D. Ryan	Aug. 28, 1918-Nov. 27, 1918
	Maj. Gen. Charles T. Menoher	Jan. 2, 1919-June 4, 1920
	Chief of Air Service	
	Maj. Gen. Charles T. Menoher	June 4, 1920-Oct. 4, 1921
	Maj. Gen. Mason M. Patrick	Oct. 5, 1921-July 2, 1926
Army Air Corps	**Chief of Air Corps**	
July 2, 1926-Sept. 18, 1947[a]	Maj. Gen. Mason M. Patrick	July 2, 1926-Dec. 13, 1927
	Maj. Gen. James E. Fechet	Dec. 14, 1927-Dec. 19, 1931
	Maj. Gen. Benjamin D. Foulois	Dec. 20, 1931-Dec. 21, 1935
	Maj. Gen. Oscar Westover	Dec. 22, 1935-Sept. 21, 1938
	Maj. Gen. Henry H. Arnold	Sept. 29, 1938-June 20, 1941
Army Air Forces	**Chief, Army Air Forces**	
June 20, 1941-Sept. 18, 1947	Lt. Gen. Henry H. Arnold	June 20, 1941-March 9, 1942
	Commanding General, AAF	
	Gen. of the Army Henry H. Arnold	March 9, 1942-Feb. 9, 1946
	Gen. Carl A. Spaatz	Feb. 9, 1946-Sept. 26, 1947
United States Air Force	**Chief of Staff, USAF**	
Sept. 18, 1947	Gen. Carl A. Spaatz	Sept. 26, 1947-April 29, 1948

The title General of the Army for Henry H. Arnold was changed to General of the Air Force by an act of Congress May 7, 1949. The position of Chief of Staff was established by a DOD-approved Army-Air Force Transfer Order issued Sept. 28, 1947.

[a]The Army Air Corps became a subordinate element of the Army Air Forces June 20, 1941. Since the Army Air Corps had been established by statute in 1926, its disestablishment required an Act of Congress, which did not take place until 1947. Between March 9, 1942, and Sept. 18, 1947, the Army Air Corps continued to exist as a combatant arm, and personnel of the Army Air Forces were still assigned to the Army Air Corps.

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USAF Leaders Through the Years

Secretaries of the Air Force

Stuart Symington	Sept. 18, 1947	April 24, 1950
Thomas K. Finletter	April 24, 1950	Jan. 20, 1953
Harold E. Talbott	Feb. 4, 1953	Aug. 13, 1955
Donald A. Quarles	Aug. 15, 1955	April 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 (acting)	May 15, 1973	July 18, 1973
John L. McLucas	July 18, 1973	Nov. 23, 1975
James W. Plummer (acting)	Nov. 24, 1975	Jan. 1, 1976
Thomas C. Reed	Jan. 2, 1976	April 6, 1977
John C. Stetson	April 6, 1977	May 18, 1979
Hans Mark (acting)	May 18, 1979	July 26, 1979
Hans Mark	July 26, 1979	Feb. 9, 1981
Verne Orr	Feb. 9, 1981	Nov. 30, 1985
Russell A. Rourke	Dec. 9, 1985	April 7, 1986
Edward C. Aldridge Jr. (acting)	April 8, 1986	June 8, 1986
Edward C. Aldridge Jr.	June 9, 1986	Dec. 16, 1988
James F. McGovern (acting)	Dec. 16, 1988	April 29, 1989
John J. Welch Jr. (acting)	April 29, 1989	May 21, 1989
Donald B. Rice	May 22, 1989	Jan. 20, 1993
Michael B. Donley (acting)	Jan. 20, 1993	July 13, 1993
Gen. Merrill A. McPeak (acting)	July 14, 1993	Aug. 5, 1993
Sheila E. Widnall	Aug. 6, 1993	Oct. 31, 1997
F. Whitten Peters (acting)	Nov. 1, 1997	July 30, 1999
F. Whitten Peters	July 30, 1999	Jan. 20, 2001
Lawrence J. Delaney (acting)	Jan. 20, 2001	June 1, 2001
James G. Roche	June 1, 2001	Jan. 20, 2005
Peter B. Teets (acting)	Jan. 20, 2005	March 25, 2005
Michael L. Dominguez (acting)	March 25, 2005	July 29, 2005
Preston M. Geren (acting)	July 29, 2005	Nov. 3, 2005
Michael W. Wynne	Nov. 3, 2005	

USAF Chiefs of Staff

Gen. Carl A. Spaatz	Sept. 26, 1947	April 29, 1948
Gen. Hoyt S. Vandenberg	April 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	June 20, 1978
Gen. Lew Allen Jr.	July 1, 1978	June 30, 1982
Gen. Charles A. Gabriel	July 1, 1982	June 30, 1986
Gen. Larry D. Welch	July 1, 1986	June 30, 1990
Gen. Michael J. Dugan	July 1, 1990	Sept. 17, 1990
Gen. John Michael Loh (acting)	Sept. 18, 1990	Oct. 29, 1990
Gen. Merrill A. McPeak	Oct. 30, 1990	Oct. 25, 1994
Gen. Ronald R. Fogleman	Oct. 26, 1994	Sept. 1, 1997
Gen. Ralph E. Eberhart (acting)	Sept. 2, 1997	Oct. 5, 1997
Gen. Michael E. Ryan	Oct. 6, 1997	Sept. 6, 2001
Gen. John P. Jumper	Sept. 6, 2001	Sept. 2, 2005
Gen. T. Michael Moseley	Sept. 2, 2005	

USAF Vice Chiefs of Staff

Gen. Hoyt S. Vandenberg	Oct. 10, 1947	April 28, 1948
Gen. Muir S. Fairchild	May 27, 1948	March 17, 1950
Lt. Gen. Lauris Norstad (acting)	May 22, 1950	Oct. 9, 1950
Gen. Nathan F. Twining	Oct. 10, 1950	June 29, 1953
Gen. Thomas D. White	June 30, 1953	June 30, 1957
Gen. Curtis E. LeMay	July 1, 1957	June 30, 1961
Gen. Frederic H. Smith Jr.	July 1, 1961	June 30, 1962
Gen. Willliam F. McKee	July 1, 1962	July 31, 1964
Gen. John P. McConnell	Aug. 1, 1964	Jan. 31, 1965
Gen. William H. Blanchard	Feb. 19, 1965	May 31, 1966
Lt. Gen. Hewitt T. Wheless (acting)	June 13, 1966	July 31, 1966
Gen. Bruce K. Holloway	Aug. 1, 1966	July 31, 1968
Gen. John D. Ryan	Aug. 1, 1968	July 31, 1969
Gen. John C. Meyer	Aug. 1, 1969	April 30, 1972
Gen. Horace M. Wade	May 1, 1972	Oct. 31, 1973
Gen. Richard H. Ellis	Nov. 1, 1973	Aug. 18, 1975
Gen. William V. McBride	Sept. 1, 1975	March 31, 1978
Gen. Lew Allen Jr.	April 1, 1978	June 30, 1978
Gen. James A. Hill	July 1, 1978	Feb. 29, 1980
Gen. Robert C. Mathis	March 1, 1980	May 31, 1982
Gen. Jerome F. O'Malley	June 1, 1982	Oct. 5, 1983
Gen. Lawrence A. Skantze	Oct. 6, 1983	July 31, 1984
Gen. Larry D. Welch	Aug. 1, 1984	July 31, 1985
Gen. John L. Piotrowski	Aug. 1, 1985	Jan. 31, 1987
Gen. Monroe W. Hatch Jr.	Feb. 1, 1987	May 24, 1990
Gen. John Michael Loh	May 25, 1990	March 25, 1991
Gen. Michael P.C. Carns	May 16, 1991	July 28, 1994
Gen. Thomas S. Moorman Jr.	July 29, 1994	July 11, 1997
Gen. Ralph E. Eberhart	July 11, 1997	May 26, 1999
Gen. Lester L. Lyles	May 27, 1999	April 17, 2000
Gen. John W. Handy	April 17, 2000	Nov. 5, 2001
Gen. Robert H. Foglesong	Nov. 5, 2001	Aug. 11, 2003
Gen. T. Michael Moseley	Aug. 12, 2003	Sept. 2, 2005
Gen. John D.W. Corley	Sept. 2, 2005	

Chief Master Sergeants of the Air Force

CMSAF Paul W. Airey	April 3, 1967	July 31, 1969
CMSAF Donald L. Harlow	Aug. 1, 1969	Sept. 30, 1971
CMSAF Richard D. Kisling	Oct. 1, 1971	Sept. 30, 1973
CMSAF Thomas N. Barnes	Oct. 1, 1973	July 31, 1977
CMSAF Robert D. Gaylor	Aug. 1, 1977	July 31, 1979
CMSAF James M. McCoy	Aug. 1, 1979	July 31, 1981
CMSAF Arthur L. Andrews	Aug. 1, 1981	July 31, 1983
CMSAF Sam E. Parish	Aug. 1, 1983	June 30, 1986
CMSAF James C. Binnicker	July 1, 1986	July 31, 1990
CMSAF Gary R. Pfingston	Aug. 1, 1990	Oct. 25, 1994
CMSAF David J. Campanale	Oct. 26, 1994	Nov. 4, 1996
CMSAF Eric W. Benken	Nov. 5, 1996	July 30, 1999
CMSAF Frederick J. Finch	July 30, 1999	July 1, 2002
CMSAF Gerald R. Murray	July 1, 2002	

Air Combat Command

Gen. John Michael Loh	June 1, 1992	June 22, 1995
Gen. Joseph W. Ralston	June 23, 1995	Feb. 27, 1996
Lt. Gen. Brett M. Dula (acting)	Feb. 28, 1996	April 4, 1996
Gen. Richard E. Hawley	April 5, 1996	June 11, 1999
Gen. Ralph E. Eberhart	June 11, 1999	Feb. 8, 2000
Gen. John P. Jumper	Feb. 8, 2000	Sept. 6, 2001
Lt. Gen. Donald G. Cook (acting)	Sept. 6, 2001	Nov. 14, 2001
Gen. Hal M. Hornburg	Nov. 14, 2001	Nov. 17, 2004
Lt. Gen. Bruce A. Wright (acting)	Nov. 17, 2004	Feb. 6, 2005
Lt. Gen. William M. Fraser III (acting)	Feb. 6, 2005	May 26, 2005
Gen. Ronald E. Keys	May 26, 2005	

Air (Aerospace) Defense Command

Lt. Gen. George E. Stratemeyer	March 27, 1946	Nov. 30, 1948
Maj. Gen. Gordon P. Saville	Dec. 1, 1948	Sept. 1, 1949
Lt. Gen. Ennis C. Whitehead	Jan. 1, 1951	Aug. 24, 1951
Gen. Benjamin W. Chidlaw	Aug. 25, 1951	May 31, 1955
Maj. Gen. Frederic H. Smith Jr. (acting)	June 1, 1955	July 19, 1955
Gen. Earle E. Partridge	July 20, 1955	Sept. 16, 1956
Lt. Gen. Joseph H. Atkinson	Sept. 17, 1956	Feb. 28, 1961
Lt. Gen. Robert M. Lee	March 1, 1961	July 5, 1963
Maj. Gen. Robert H. Terrill (acting)	July 6, 1963	July 31, 1963
Lt. Gen. Herbert B. Thatcher	Aug. 1, 1963	July 31, 1967
Lt. Gen. Arthur C. Agan Jr.	Aug. 1, 1967	Feb. 28, 1970
Lt. Gen. Thomas K. McGehee	March 1, 1970	June 30, 1973
Gen. Seth J. McKee	July 1, 1973	Sept. 30, 1973
Gen. Lucius D. Clay Jr.	Oct. 1, 1973	Aug. 31, 1975
Gen. Daniel James Jr.	Sept. 1, 1975	Dec. 6, 1977
Gen. James E. Hill	Dec. 6, 1977	Dec. 31, 1979
Gen. James V. Hartinger	Jan. 1, 1980	March 31, 1980

Established March 21, 1946. Reassigned to Continental Air Command (1948). Discontinued July 1, 1950. Re-established as a major command and organized Jan. 1, 1951. Redesignated Aerospace Defense Command Jan. 15, 1968. Inactivated March 31, 1980.

Air Education and Training Command

Lt. Gen. John K. Cannon	April 13, 1946	Oct. 13, 1948
Lt. Gen. Robert W. Harper	Oct. 14, 1948	June 30, 1954
Maj. Gen. Glenn O. Barcus (acting)	July 1, 1954	July 25, 1954
Lt. Gen. Charles T. Myers	July 26, 1954	July 31, 1958
Lt. Gen. Frederic H. Smith Jr.	Aug. 1, 1958	July 31, 1959
Lt. Gen. James E. Briggs	Aug. 1, 1959	July 31, 1963
Lt. Gen. Robert W. Burns	Aug. 1, 1963	Aug. 10, 1964
Lt. Gen. William W. Momyer	Aug. 11, 1964	June 30, 1966
Lt. Gen. Sam Maddux Jr.	July 1, 1966	Aug. 30, 1970
Lt. Gen. George B. Simler	Sept. 1, 1970	Sept. 9, 1972
Lt. Gen. William V. McBride	Sept. 9, 1972	Aug. 31, 1974
Lt. Gen. George H. McKee	Sept. 1, 1974	Aug. 28, 1975
Gen. John W. Roberts	Aug. 29, 1975	April 1, 1979
Gen. Bennie L. Davis	April 1, 1979	July 28, 1981
Gen. Thomas M. Ryan Jr.	July 29, 1981	June 22, 1983
Gen. Andrew P. Iosue	June 23, 1983	Aug. 27, 1986
Lt. Gen. John A. Shaud	Aug. 28, 1986	June 5, 1988
Lt. Gen. Robert C. Oaks	June 6, 1988	June 24, 1990
Lt. Gen. Joseph W. Ashy	June 25, 1990	Dec. 9, 1992
Gen. Henry Viccellio Jr.	Dec. 10, 1992	June 19, 1995
Gen. Billy J. Boles	June 20, 1995	March 17, 1997
Gen. Lloyd W. Newton	March 17, 1997	June 22, 2000
Gen. Hal M. Hornburg	June 22, 2000	Nov. 14, 2001
Lt. Gen. John D. Hopper Jr. (acting)	Nov. 14, 2001	Dec. 17, 2001
Gen. Donald G. Cook	Dec. 17, 2001	June 17, 2005
Gen. William R. Looney III	June 17, 2005	

Established as Army Air Corps Flying Training Command Jan. 23, 1942. Redesignated AAF Flying Training Command March 1942, then AAF Training Command July 31, 1943. Redesignated ATC July 1, 1946. Redesignated AETC July 1, 1993.

Air Force Communications Command

Maj. Gen. Harold W. Grant	July 1, 1961	Feb. 15, 1962
Maj. Gen. Kenneth P. Bergquist	Feb. 16, 1962	June 30, 1965
Maj. Gen. J. Francis Taylor (acting)	July 1, 1965	Oct. 18, 1965
Maj. Gen. Richard P. Klocko	Oct. 19, 1965	July 2, 1967
Maj. Gen. Robert W. Paulson	July 15, 1967	Aug. 1, 1969
Maj. Gen. Paul R. Stoney	Aug. 1, 1969	Oct. 31, 1973
Maj. Gen. Donald L. Werbeck	Nov. 1, 1973	Aug. 24, 1975
Maj. Gen. Rupert H. Burris	Aug. 25, 1975	Oct. 31, 1977
Maj. Gen. Robert E. Sadler	Nov. 1, 1977	June 21, 1979
Maj. Gen. Robert T. Herres	June 22, 1979	July 27, 1981
Maj. Gen. Robert F. McCarthy	July 27, 1981	June 1, 1984
Maj. Gen. Gerald L. Prather	June 1, 1984	Aug. 28, 1986
Maj. Gen. John T. Stihl	Aug. 28, 1986	March 29, 1988
Maj. Gen. James S. Cassity Jr.	March 29, 1988	May 16, 1989
Maj. Gen. Robert H. Ludwig	May 16, 1989	Nov. 9, 1990
Maj. Gen. John S. Fairfield	Nov. 9, 1990	July 1, 1991

Formerly Air Force Communications Service. Redesignated Air Force Communications Command Nov. 15, 1979. Redesignated Air Force Command, Control, Communications, and Computer Agency, an FOA, July 1, 1991.

Air Force Intelligence Command

Maj. Gen. Gary W. O'Shaughnessy	Oct. 1, 1991	June 1, 1993
Maj. Gen. Kenneth A. Minihan	June 2, 1993	Oct. 1, 1993

See Electronic Security Command.

Air Force Logistics Command

Lt. Gen. Nathan F. Twining	March 9, 1946	Oct. 13, 1947
Gen. Joseph T. McNarney	Oct. 14, 1947	Aug. 31, 1949
Lt. Gen. Benjamin W. Chidlaw	Sept. 1, 1949	Aug. 20, 1951
Gen. Edwin W. Rawlings	Aug. 21, 1951	Feb. 28, 1959
Lt. Gen. William F. McKee (acting)	March 1, 1959	March 14, 1959
Gen. Samuel E. Anderson	March 15, 1959	July 31, 1961
Gen. William F. McKee	Aug. 1, 1961	June 30, 1962
Gen. Mark E. Bradley Jr.	July 1, 1962	July 31, 1965
Gen. Kenneth B. Hobson	Aug. 1, 1965	July 31, 1967
Gen. Thomas P. Gerrity	Aug. 1, 1967	Feb. 24, 1968
Lt. Gen. Lewis L. Mundell (acting)	Feb. 24, 1968	March 28, 1968
Gen. Jack G. Merrell	March 29, 1968	Sept. 11, 1972
Gen. Jack J. Catton	Sept. 12, 1972	Aug. 31, 1974
Gen. William V. McBride	Sept. 1, 1974	Aug. 31, 1975
Gen. F. Michael Rogers	Sept. 1, 1975	Jan. 31, 1978
Gen. Bryce Poe II	Feb. 1, 1978	July 31, 1981
Gen. James P. Mullins	Aug. 1, 1981	Nov. 1, 1984
Gen. Earl T. O'Loughlin	Nov. 1, 1984	July 31, 1987
Gen. Alfred G. Hansen	July 31, 1987	Oct. 31, 1989
Gen. Charles C. McDonald	Oct. 31, 1989	July 1, 1992

Organized as AAF Materiel and Services July 17, 1944. Redesignated AAF Technical Service Command Aug. 31, 1944. Redesignated Air Technical Service Command July 1, 1945. Redesignated Air Materiel Command March 9, 1946. Redesignated Air Force Logistics Command April 1, 1961. Inactivated July 1, 1992.

Air Force Materiel Command

Gen. Ronald W. Yates	July 1, 1992	June 30, 1995
Gen. Henry Viccellio Jr.	June 30, 1995	May 9, 1997
Lt. Gen. Kenneth E. Eickmann (acting)	May 9, 1997	May 29, 1997
Gen. George T. Babbitt Jr.	May 29, 1997	April 20, 2000
Gen. Lester L. Lyles	April 20, 2000	Aug. 22, 2003
Gen. Gregory S. Martin	Aug. 22, 2003	Aug. 19, 2005
Gen. Bruce Carlson	Aug. 19, 2005	

Air Force Reserve Command

Maj. Gen. Rollin B. Moore Jr.	Aug. 1, 1968	Jan. 26, 1972
Brig. Gen. Alfred Verhulst (acting)	Jan. 27, 1972	March 15, 1972
Maj. Gen. Homer I. Lewis	March 16, 1972	April 8, 1975
Maj. Gen. William Lyon	April 16, 1975	April 16, 1979
Maj. Gen. Richard Bodycombe	April 17, 1979	Oct. 31, 1982
Maj. Gen. Sloan R. Gill	Nov. 1, 1982	Oct. 31, 1986
Maj. Gen. Roger P. Scheer	Nov. 1, 1986	Oct. 31, 1990
Maj. Gen. John J. Closner III	Nov. 1, 1990	Oct. 31, 1994
Maj. Gen. Robert A. McIntosh	Nov. 1, 1994	June 9, 1998
Maj. Gen. David R. Smith (acting)	June 9, 1998	Sept. 25, 1998
Lt. Gen. James E. Sherrard III	Sept. 25, 1998	June 1, 2004
Maj. Gen. J.J. Batbie Jr. (acting)	June 1, 2004	June 24, 2004
Lt. Gen. John A. Bradley	June 24, 2004	

Formerly Air Force Reserve, AFRC became a major command Feb. 17, 1997.

Air Force Space Command

Gen. James V. Hartinger	Sept. 1, 1982	July 30, 1984
Gen. Robert T. Herres	July 30, 1984	Oct. 1, 1986
Maj. Gen. Maurice C. Padden	Oct. 1, 1986	Oct. 29, 1987
Lt. Gen. Donald J. Kutyna	Oct. 29, 1987	March 29, 1990
Lt. Gen. Thomas S. Moorman Jr.	March 29, 1990	March 23, 1992
Gen. Donald J. Kutyna	March 23, 1992	June 30, 1992
Gen. Charles A. Horner	June 30, 1992	Sept. 13, 1994
Gen. Joseph W. Ashy	Sept. 13, 1994	Aug. 26, 1996
Gen. Howell M. Estes III	Aug. 26, 1996	Aug. 14, 1998
Gen. Richard B. Myers	Aug. 14, 1998	Feb. 22, 2000
Gen. Ralph E. Eberhart	Feb. 22, 2000	April 19, 2002
Gen. Lance W. Lord	April 19, 2002	April 1, 2006
Lt. Gen. Frank G. Klotz (acting)	April 1, 2006	

Air Force Special Operations Command

Maj. Gen. Thomas E. Eggers	May 22, 1990	June 30, 1991
Maj. Gen. Bruce L. Fister	June 30, 1991	July 22, 1994
Maj. Gen. James L. Hobson Jr.	July 22, 1994	July 9, 1997
Maj. Gen. Charles R. Holland	July 9, 1997	Aug. 5, 1999
Lt. Gen. Maxwell C. Bailey	Aug. 5, 1999	Jan. 16, 2002
Lt. Gen. Paul V. Hester	Jan. 16, 2002	July 1, 2004
Lt. Gen. Michael W. Wooley	July 1, 2004	

Air Force Systems Command

Maj. Gen. David M. Schlatter	Feb. 1, 1950	June 24, 1951
Lt. Gen. Earle E. Partridge	June 24, 1951	June 20, 1953
Lt. Gen. Donald L. Putt	June 30, 1953	April 14, 1954
Lt. Gen. Thomas S. Power	April 15, 1954	June 30, 1957
Maj. Gen. John W. Sessums (acting)	July 1, 1957	July 31, 1957
Lt. Gen. Samuel E. Anderson	Aug. 1, 1957	March 9, 1959
Maj. Gen. John W. Sessums (acting)	March 10, 1959	April 24, 1959
Gen. Bernard A. Schriever	April 25, 1959	Aug. 31, 1966
Gen. James Ferguson	Sept. 1, 1966	Aug. 30, 1970
Gen. George S. Brown	Sept. 1, 1970	July 31, 1973
Gen. Samuel C. Phillips	Aug. 1, 1973	Aug. 31, 1975
Gen. William J. Evans	Sept. 1, 1975	July 31, 1977
Gen. Law Allen Jr.	Aug. 1, 1977	March 13, 1978
Gen. Alton D. Slay	March 14, 1978	Feb. 1, 1981
Gen. Robert T. Marsh	Feb. 1, 1981	Aug. 1, 1984
Gen. Lawrence A. Skantze	Aug. 1, 1984	July 17, 1987
Gen. Bernard P. Randolph	July 17, 1987	April 1, 1990
Gen. Ronald W. Yates	April 1, 1990	July 1, 1992

Formerly Air Research and Development Command. Redesignated Air Force Systems Command April 1, 1961. Inactivated July 1, 1992.

Air Mobility Command

Gen. Hansford T. Johnson	June 1, 1992	Aug. 22, 1992
Gen. Ronald R. Fogleman	Aug. 23, 1992	Oct. 17, 1994
Gen. Robert L. Rutherford	Oct. 18, 1994	July 15, 1996
Gen. Walter Kross	July 15, 1996	Aug. 3, 1998
Gen. Charles T. Robertson Jr.	Aug. 3, 1998	Nov. 5, 2001
Gen. John W. Handy	Nov. 5, 2001	Sept. 7, 2005
Lt. Gen. Christopher A. Kelly (acting)	Sept. 7, 2005	Oct. 14, 2005
Gen. Duncan J. McNabb	Oct. 14, 2005	

Air National Guard

Col. William A.R. Robertson	Nov. 28, 1945	October 1948
Maj. Gen. George G. Finch	October 1948	Sept. 25, 1950
Maj. Gen. Earl T. Ricks	Oct. 13, 1950	Jan. 4, 1954
Maj. Gen. Winston P. Wilson	Jan. 26, 1954	Aug. 5, 1962
Maj. Gen. I.G. Brown	Aug. 6, 1962	April 19, 1974
Maj. Gen. John J. Pesch	April 20, 1974	Jan. 31, 1977
Maj. Gen. John T. Guice	Feb. 1, 1977	April 1, 1981
Maj. Gen. John B. Conaway	April 1, 1981	Nov. 1, 1988
Maj. Gen. Philip G. Killey	Nov. 1, 1988	Jan. 28, 1994
Maj. Gen. Donald W. Shepperd	Jan. 28, 1994	Jan. 28, 1998
Maj. Gen. Paul A. Weaver Jr.	Jan. 28, 1998	Dec. 3, 2001
Brig. Gen. David A. Brubaker (acting)	Dec. 3, 2001	June 3, 2002
Lt. Gen. Daniel James III	June 3, 2002	

Air Proving Ground Command

Maj. Gen. Carl A. Brandt	October 1946	August 1948
Maj. Gen. William E. Kepner	August 1948	June 1950
Maj. Gen. Bryant L. Boatner	July 1950	July 1952
Maj. Gen. Patrick W. Timberlake	July 1952	April 1955
Maj. Gen. Robert W. Burns	August 1955	July 1957

Designated a center December 1957.

Air University

Maj. Gen. Muir S. Fairchild	March 15, 1946	May 17, 1948
Maj. Gen. Robert W. Harper	May 17, 1948	Oct. 15, 1948
Gen. George C. Kenney	Oct. 16, 1948	July 27, 1951
Lt. Gen. Idwal H. Edwards	July 28, 1951	Feb. 28, 1953
Maj. Gen. John DeF. Barker (acting)	March 1, 1953	April 14, 1953
Lt. Gen. Laurence S. Kuter	April 15, 1953	May 31, 1955
Lt. Gen. Dean C. Strother	June 1, 1955	June 30, 1958
Lt. Gen. Walter E. Todd	July 15, 1958	July 31, 1961
Lt. Gen. Troup Miller Jr.	Aug. 1, 1961	Dec. 31, 1963
Lt. Gen. Ralph P. Swofford Jr.	Jan. 1, 1964	July 31, 1965
Lt. Gen. John W. Carpenter III	Aug. 1, 1965	July 31, 1968
Lt. Gen. Albert P. Clark	Aug. 1, 1968	July 31, 1970
Lt. Gen. Alvan C. Gillem II	Aug. 1, 1970	Oct. 31, 1973
Lt. Gen. F. Michael Rogers	Nov. 1, 1973	Aug. 31, 1975
Lt. Gen. Raymond B. Furlong	Sept. 1, 1975	July 1, 1979
Lt. Gen. Stanley M. Umstead	July 1, 1979	July 24, 1981
Lt. Gen. Charles G. Cleveland	July 24, 1981	Aug. 1, 1984
Lt. Gen. Thomas C. Richards	Aug. 1, 1984	Nov. 6, 1986
Lt. Gen. Truman Spangrud	Nov. 6, 1986	July 12, 1988
Lt. Gen. Ralph E. Havens	July 12, 1988	Oct. 6, 1989
Maj. Gen. David C. Reed	Oct. 6, 1989	Jan. 4, 1990
Lt. Gen. Charles G. Boyd	Jan. 4, 1990	Oct. 26, 1992
Lt. Gen. Jay W. Kelley	Oct. 27, 1992	June 30, 1993

Established as AAF School of Applied Tactics Oct. 16, 1943 (assumed history of Air Services School, dating from 1920). Redesignated AAF School June 1, 1945. Given Majcom status Nov. 29, 1945. Redesignated AU May 12, 1946. Part of ATC between May 1978 and July 1983. Ceased to be a Majcom and was assigned to AETC July 1, 1993.

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Alaskan Air Command

Brig. Gen. Joseph H. Atkinson	Oct. 1, 1946	Feb. 25, 1949
Brig. Gen. Frank A. Armstrong Jr.	Feb. 26, 1949	Dec. 27, 1950
Maj. Gen. William D. Old	Dec. 27, 1950	Oct. 14, 1952
Brig. Gen. W.R. Agee	Oct. 27, 1952	Feb. 26, 1953
Maj. Gen. George R. Acheson	Feb. 26, 1953	Feb. 1, 1956
Brig. Gen. T. Alan Bennett (acting)	Feb. 1, 1956	Feb. 24, 1956
Lt. Gen. Joseph H. Atkinson	Feb. 24, 1956	July 16, 1956
Maj. Gen. Frank A. Armstrong Jr.	July 17, 1956	Oct. 23, 1956
Maj. Gen. James H. Davies	Oct. 24, 1956	June 27, 1957
Lt. Gen. Frank A. Armstrong Jr.	June 28, 1957	Aug. 18, 1957
Brig. Gen. Kenneth H. Gibson	Aug. 19, 1957	Aug. 13, 1958
Maj. Gen. C.F. Necrason	Aug. 14, 1958	July 19, 1961
Brig. Gen. Jack A. Gibbs (acting)	July 20, 1961	July 25, 1961
Maj. Gen. Wendell W. Bowman	July 26, 1961	Aug. 8, 1963
Col. Alfred Walton (acting)	Aug. 9, 1963	Aug. 14, 1963
Maj. Gen. James C. Jensen	Aug. 15, 1963	Nov. 14, 1966
Maj. Gen. Thomas E. Moore	Nov. 15, 1966	July 24, 1969
Maj. Gen. Joseph A. Cunningham	July 25, 1969	July 31, 1972
Maj. Gen. Donavon F. Smith	Aug. 1, 1972	June 5, 1973
Maj. Gen. Charles W. Carson Jr.	June 18, 1973	March 2, 1974
Col. David T. Stockman (acting)	March 3, 1974	March 18, 1974
Maj. Gen. Jack K. Gamble	March 19, 1974	June 30, 1975
Lt. Gen. James E. Hill	July 1, 1975	Oct. 14, 1976
Lt. Gen. M.L. Boswell	Oct. 15, 1976	June 30, 1978
Lt. Gen. Winfield W. Scott Jr.	July 1, 1978	April 1, 1981
Lt. Gen. Lynwood E. Clark	April 1, 1981	Aug. 31, 1983
Lt. Gen. Bruce K. Brown	Sept. 1, 1983	Sept. 26, 1985
Lt. Gen. David L. Nichols	Sept. 27, 1985	May 22, 1988
Lt. Gen. Thomas G. McInerney	May 22, 1988	Aug. 9, 1990

Activated as Alaskan Air Force (1942). Redesignated Eleventh Air Force (1942). Redesignated Alaskan Air Command (1945). Redesignated 11th Air Force Aug. 9, 1990, under PACAF.

Continental Air Command

Lt. Gen. George E. Stratemeyer	Dec. 1, 1948	April 15, 1949
Lt. Gen. Ennis C. Whitehead	April 15, 1949	Dec. 14, 1950
Maj. Gen. Willis H. Hale	Dec. 14, 1950	Feb. 18, 1952
Lt. Gen. Leon W. Johnson	Feb. 18, 1952	Dec. 14, 1955
Lt. Gen. Charles B. Stone III	Dec. 15, 1955	June 30, 1957
Lt. Gen. William E. Hall	July 1, 1957	Sept. 30, 1961
Lt. Gen. Gordon A. Blake	Sept. 30, 1961	June 30, 1962
Lt. Gen. Edward J. Timberlake	July 1, 1962	July 1966
Lt. Gen. Henry Viccellio Sr.	Aug. 1, 1966	Aug. 1, 1968

Established Dec. 1, 1948. Inactivated Aug. 1, 1968.

Electronic Security Command

Col. Roy H. Lynn	Oct. 26, 1948	July 5, 1949
Col. Travis M. Hetherington	July 6, 1949	Feb. 21, 1951
Maj. Gen. Roy H. Lynn	Feb. 22, 1951	Feb. 13, 1953
Maj. Gen. Harold H. Bassett	Feb. 14, 1953	Jan. 3, 1957
Maj. Gen. Gordon L. Blake	Jan. 4, 1957	Aug. 5, 1959
Maj. Gen. John B. Ackerman	Aug. 6, 1959	Sept. 20, 1959
Maj. Gen. Millard Lewis	Sept. 21, 1959	Aug. 31, 1962
Maj. Gen. Richard P. Klocko	Sept. 1, 1962	Oct. 15, 1965
Maj. Gen. Louis E. Coira	Oct. 16, 1965	July 18, 1969
Maj. Gen. Carl W. Stapleton	July 19, 1969	Feb. 23, 1973
Maj. Gen. Walter T. Galligan	Feb. 24, 1973	May 16, 1974
Maj. Gen. Howard P. Smith	May 17, 1974	July 31, 1975
Maj. Gen. Kenneth D. Burns	Aug. 1, 1975	Jan. 18, 1979
Maj. Gen. Doyle E. Larson	Jan. 19, 1979	July 31, 1983
Maj. Gen. John B. Marks	Aug. 1, 1983	April 16, 1985
Maj. Gen. Paul H. Martin	April 17, 1985	Aug. 14, 1989
Maj. Gen. Gary W. O'Shaughnessy	Aug. 15, 1989	Oct. 1, 1991

Formerly USAF Security Service. Redesignated: Electronic Security Command Aug. 1, 1979; Air Force Intelligence Command Oct. 1, 1991; Air Intelligence Agency. Oct. 1, 1993.

Headquarters Command

Brig. Gen. Burton M. Hovey	Jan. 3, 1946	Dec. 13, 1948
Brig. Gen. Sydney D. Grubbs	Dec. 14, 1948	Oct. 1, 1950
Brig. Gen. Morris J. Lee	Oct. 2, 1950	June 13, 1952
Brig. Gen. Stoyte O. Ross	June 14, 1952	July 4, 1956
Maj. Gen. Reuben C. Hood Jr.	Aug. 1, 1956	June 30, 1959
Maj. Gen. Brooke E. Allen	Aug. 3, 1959	Dec. 31, 1965
Maj. Gen. Rollen H. Anthis	Jan. 10, 1966	Nov. 30, 1967
Maj. Gen. Milton B. Adams	Dec. 1, 1967	June 30, 1968
Maj. Gen. Nils O. Ohman	July 5, 1968	April 30, 1972
Maj. Gen. John L. Locke	May 1, 1972	Feb. 25, 1974
Maj. Gen. Maurice R. Reilly	Feb. 26, 1974	August 1975
Maj. Gen. William C. Norris	Sept. 1, 1975	June 30, 1976

Established as Bolling Field Command (1946). Redesignated Headquarters Command, USAF, March 17, 1958. Inactivated in 1976.

Military Airlift Command

Maj. Gen. Robert W. Harper	July 1, 1947	June 1, 1948
Lt. Gen. Laurence S. Kuter	June 1, 1948	Oct. 28, 1951
Lt. Gen. Joseph Smith	Nov. 15, 1951	June 30, 1958
Lt. Gen. William H. Tunner	July 1, 1958	May 31, 1960
Gen. Joe W. Kelly Jr.	June 1, 1960	July 18, 1964
Gen. Howell M. Estes Jr.	July 19, 1964	July 31, 1969
Gen. Jack J. Catton	Aug. 1, 1969	Sept. 12, 1972
Lt. Gen. Jay T. Robbins (acting)	Sept. 12, 1972	Sept. 25, 1972
Gen. Paul K. Carlton	Sept. 26, 1972	March 31, 1977
Gen. William G. Moore Jr.	April 1, 1977	June 30, 1979
Gen. Robert E. Huyser	July 1, 1979	June 26, 1981
Gen. James R. Allen	June 26, 1981	June 30, 1983
Gen. Thomas M. Ryan Jr.	July 1, 1983	Sept. 19, 1985
Gen. Duane H. Cassidy	Sept. 20, 1985	Sept. 20, 1989
Gen. Hansford T. Johnson	Sept. 20, 1989	June 1, 1992

Antecedents: AAC Ferrying Command (1941); AAF Ferrying Command (1942); Air Transport Command (1942, inactivated June 1, 1948). Military Air Transport Service established June 1, 1948. Redesignated Military Airlift Command Jan. 1, 1966. In 1982, the inactivated Air Transport Command was consolidated with MAC. Inactivated June 1, 1992.

Northeast Air Command

Maj. Gen. Lyman P. Whitten	Oct. 6, 1950	March 14, 1952
Maj. Gen. Charles T. Myers	March 14, 1952	July 26, 1954
Lt. Gen. Glenn O. Barcus	July 26, 1954	March 31, 1957

Newfoundland Base Command, part of Military Air Transport Service, reorganized and redesignated Northeast Air Command, a new major command, Oct. 1, 1950. Inactivated March 31, 1957.

Pacific Air Command/Seventh Air Force

Maj. Gen. Ralph H. Wooten	April 1947	Aug. 31, 1948
Brig. Gen. Robert F. Travis	Sept. 1, 1948	June 1, 1949

Formerly Seventh Air Force. Redesignated Pacific Air Command Dec. 15, 1947. Discontinued June 1, 1949.

Pacific Air Forces

Lt. Gen. Ennis C. Whitehead	Dec. 30, 1945	April 25, 1949
Lt. Gen. George E. Stratemeyer	April 26, 1949	May 20, 1951
Lt. Gen. Earle E. Partridge (acting)	May 21, 1951	June 9, 1951
Gen. Otto P. Weyland	June 10, 1951	March 25, 1954
Gen. Earle E. Partridge	March 26, 1954	May 31, 1955
Gen. Laurence S. Kuter	June 1, 1955	July 31, 1959
Gen. Emmett O'Donnell Jr.	Aug. 1, 1959	July 31, 1963
Gen. Jacob E. Smart	Aug. 1, 1963	July 31, 1964
Gen. Hunter Harris Jr.	Aug. 1, 1964	Jan. 31, 1967
Gen. John D. Ryan	Feb. 1, 1967	July 31, 1968
Gen. Joseph J. Nazzaro	Aug. 1, 1968	July 31, 1971
Gen. Lucius D. Clay Jr.	Aug. 1, 1971	Sept. 30, 1973
Gen. John W. Vogt	Oct. 1, 1973	June 30, 1974
Gen. Louis L. Wilson Jr.	July 1, 1974	May 31, 1977
Lt. Gen. James A. Hill	June 1, 1977	June 14, 1978
Lt. Gen. James D. Hughes	June 15, 1978	July 1, 1981
Lt. Gen. Arnold W. Braswell	July 1, 1981	Sept. 30, 1983
Gen. Jerome F. O'Malley	Oct. 8, 1983	Nov. 1, 1984
Gen. Robert W. Bazley	Nov. 1, 1984	Dec. 16, 1986
Gen. Jack I. Gregory	Dec. 16, 1986	July 22, 1988
Gen. Merrill A. McPeak	July 22, 1988	Oct. 30, 1990
Lt. Gen. James B. Davis	Nov. 5, 1990	Feb. 19, 1991
Gen. Jimmie V. Adams	Feb. 19, 1991	Jan. 25, 1993
Gen. Robert L. Rutherford	Jan. 26, 1993	Oct. 12, 1994
Gen. John G. Lorber	Oct. 12, 1994	July 7, 1997
Gen. Richard B. Myers	July 7, 1997	July 23, 1998
Gen. Patrick K. Gamble	July 23, 1998	April 9, 2001
Lt. Gen. Lansford E. Trapp (acting)	April 9, 2001	May 4, 2001
Gen. William J. Begert	May 4, 2001	July 2, 2004
Gen. Paul V. Hester	July 2, 2004	

Activated as Far East Air Forces Aug. 3, 1944. Redesignated Pacific Air Command, US Army, Dec. 6, 1945. Redesignated FEAF Jan. 1, 1947. Redesignated Pacific Air Forces July 1, 1957.

Strategic Air Command

Gen. George C. Kenney	March 21, 1946	Oct. 18, 1948
Gen. Curtis E. LeMay	Oct. 19, 1948	June 30, 1957
Gen. Thomas S. Power	July 1, 1957	Nov. 30, 1964
Gen. John D. Ryan	Dec. 1, 1964	Jan. 31, 1967
Gen. Joseph J. Nazzaro	Feb. 1, 1967	July 28, 1968
Gen. Bruce K. Holloway	July 29, 1968	April 30, 1972
Gen. John C. Meyer	May 1, 1972	July 31, 1974
Gen. Russell E. Dougherty	Aug. 1, 1974	July 31, 1977
Gen. Richard H. Ellis	Aug. 1, 1977	July 31, 1981
Gen. Bennie L. Davis	Aug. 1, 1981	July 31, 1985
Gen. Larry D. Welch	Aug. 1, 1985	June 30, 1986
Gen. John T. Chain	July 1, 1986	Jan. 31, 1991
Gen. George L. Butler	Feb. 1, 1991	June 1, 1992

Established as Continental Air Forces Dec. 13, 1944. Redesignated Strategic Air Command March 21, 1946. Inactivated June 1, 1992.

Tactical Air Command

Lt. Gen. Elwood R. Quesada	March 21, 1946	Nov. 23, 1948
Maj. Gen. Robert M. Lee	Dec. 24, 1948	June 20, 1950
Maj. Gen. Glenn O. Barcus	July 17, 1950	Jan. 25, 1951
Gen. John K. Cannon	Jan. 25, 1951	March 31, 1954
Gen. Otto P. Weyland	April 1, 1954	July 31, 1959
Gen. Frank F. Everest	Aug. 1, 1959	Sept. 30, 1961
Gen. Walter C. Sweeney Jr.	Oct. 1, 1961	July 31, 1965
Gen. Gabriel P. Disosway	Aug. 1, 1965	July 31, 1968
Gen. William W. Momyer	Aug. 1, 1968	Sept. 30, 1973
Gen. Robert J. Dixon	Oct. 1, 1973	April 30, 1978
Gen. W.L. Creech	May 1, 1978	Nov. 1, 1984
Gen. Jerome F. O'Malley	Nov. 1, 1984	April 20, 1985
Gen. Robert D. Russ	May 22, 1985	March 26, 1991
Gen. John Michael Loh	March 27, 1991	June 1, 1992

Established March 21, 1946. Reassigned to Continental Air Command (1948). Removed from CAC and returned to major command status Dec. 1, 1950. Inactivated June 1, 1992.

US Air Forces in Europe

Brig. Gen. John F. McBlain (acting)	Aug. 14, 1947	Oct. 20, 1947
Lt. Gen. Curtis E. LeMay	Oct. 20, 1947	Oct. 15, 1948
Lt. Gen. John K. Cannon	Oct. 16, 1948	Jan. 20, 1951
Gen. Lauris Norstad	Jan. 21, 1951	July 26, 1953
Lt. Gen. William H. Tunner	July 27, 1953	June 30, 1957
Gen. Frank F. Everest	July 1, 1957	July 31, 1959
Gen. Frederic H. Smith Jr.	Aug. 1, 1959	June 30, 1961
Gen. Truman H. Landon	July 1, 1961	July 31, 1963
Gen. Gabriel P. Disosway	Aug. 1, 1963	July 31, 1965
Gen. Bruce K. Holloway	Aug. 1, 1965	July 31, 1966
Gen. Maurice A. Preston	Aug. 1, 1966	July 31, 1968
Gen. Horace M. Wade	Aug. 1, 1968	Jan. 31, 1969
Gen. Joseph R. Holzapple	Feb. 1, 1969	Aug. 31, 1971
Gen. David C. Jones	Sept. 1, 1971	June 30, 1974
Gen. John W. Vogt	July 1, 1974	Aug. 31, 1975
Gen. Richard H. Ellis	Sept. 1, 1975	July 31, 1977
Gen. William J. Evans	Aug. 1, 1977	Aug. 1, 1978
Gen. John W. Pauly	Aug. 1, 1978	Aug. 1, 1980
Gen. Charles A. Gabriel	Aug. 1, 1980	June 30, 1982
Gen. Billy M. Minter	July 1, 1982	Nov. 1, 1984
Gen. Charles L. Donnelly Jr.	Nov. 1, 1984	May 1, 1987
Gen. William L. Kirk	May 1, 1987	April 12, 1989
Gen. Michael J. Dugan	April 12, 1989	June 26, 1990
Gen. Robert C. Oaks	June 26, 1990	July 29, 1994
Gen. James L. Jamerson	July 29, 1994	July 16, 1995
Gen. Richard E. Hawley	July 17, 1995	April 4, 1996
Gen. Michael E. Ryan	April 4, 1996	Oct. 5, 1997
Lt. Gen. William J. Begert (acting)	Oct. 6, 1997	Dec. 5, 1997
Gen. John P. Jumper	Dec. 5, 1997	Jan. 13, 2000
Gen. Gregory S. Martin	Jan. 13, 2000	Aug. 12, 2003
Gen. Robert H. Foglesong	Aug. 12, 2003	Dec. 6, 2005
Gen. William T. Hobbins	Dec. 6, 2005	

Activated as 8th Air Force (1942). Redesignated Eighth Air Force Sept. 18, 1942. Redesignated US Strategic Air Forces in Europe (1944). Redesignated USAFE Aug. 7, 1945.

US Air Forces Southern Command/Caribbean

Maj. Gen. Hubert R. Harmon	July 31, 1946	Oct. 3, 1947
Brig. Gen. Glen C. Jamison (acting)	Oct. 4, 1947	Nov. 12, 1947
Maj. Gen. Willis H. Hale	Nov. 13, 1947	Oct. 19, 1949
Brig. Gen. Rosenham Beam	Oct. 20, 1949	Nov. 5, 1950
Brig. Gen. Emil C. Kiel	Nov. 6, 1950	June 10, 1953
Maj. Gen. Reuben C. Hood Jr.	June 11, 1953	June 16, 1956
Maj. Gen. Truman H. Landon	June 20, 1956	June 1, 1959
Maj. Gen. Leland S. Stranathan	Aug. 3, 1959	Sept. 8, 1963
Maj. Gen. Robert A. Breitweiser	Sept. 11, 1963	July 9, 1966
Maj. Gen. Reginald J. Clizbe	Aug. 6, 1966	June 14, 1968
Maj. Gen. Kenneth O. Sanborn	June 14, 1968	April 7, 1972
Maj. Gen. Arthur G. Salisbury	April 7, 1972	October 1974
Maj. Gen. James M. Breedlove	October 1974	Jan. 1, 1976

Activated as Panama Canal Air Force (1940). Redesignated Caribbean Air Force (1941). Redesignated 6th Air Force Feb. 5, 1942, then Sixth Air Force Sept. 18, 1942. Redesignated Caribbean Air Command July 31, 1946. Redesignated US Air Forces Southern Command July 8, 1963. Inactivated Jan. 1, 1976.

USAF Academy Superintendents

Lt. Gen. Hubert R. Harmon	July 27, 1954	July 27, 1956
Maj. Gen. James E. Briggs	July 28, 1956	Aug. 16, 1959
Maj. Gen. William S. Stone	Aug. 17, 1959	June 30, 1962
Maj. Gen. Robert H. Warren	July 1, 1962	June 30, 1965
Lt. Gen. Thomas S. Moorman Sr.	July 1, 1965	July 31, 1970
Lt. Gen. Albert P. Clark	Aug. 1, 1970	July 31, 1974
Lt. Gen. James R. Allen	Aug. 1, 1974	June 27, 1977
Lt. Gen. Kenneth L. Tallman	June 28, 1977	June 15, 1981
Maj. Gen. Robert E. Kelley	June 16, 1981	June 15, 1983
Lt. Gen. Winfield W. Scott Jr.	June 16, 1983	June 25, 1987
Lt. Gen. Charles R. Hamm	June 26, 1987	July 1, 1991
Lt. Gen. Bradley C. Hosmer	July 1, 1991	July 7, 1994
Lt. Gen. Paul E. Stein	July 8, 1994	July 31, 1997
Lt. Gen. Tad J. Oelstrom	Aug. 1, 1997	June 9, 2000
Lt. Gen. John R. Dallager	June 9, 2000	June 1, 2003
Lt. Gen. John W. Rosa Jr.	June 1, 2003	Oct. 24, 2005
Lt. Gen. John F. Regni	Oct. 24, 2005	

DOD Leaders Through the Years

Secretaries of Defense

James V. Forrestal	Sept. 17, 1947	March 28, 1949
Louis A. Johnson	March 28, 1949	Sept. 19, 1950
George C. Marshall	Sept. 21, 1950	Sept. 12, 1951
Robert A. Lovett	Sept. 17, 1951	Jan. 20, 1953
Charles E. Wilson	Jan. 28, 1953	Oct. 8, 1957
Neil H. McElroy	Oct. 9, 1957	Dec. 1, 1959
Thomas S. Gates	Dec. 2, 1959	Jan. 20, 1961
Robert S. McNamara	Jan. 21, 1961	Feb. 29, 1968
Clark M. Clifford	March 1, 1968	Jan. 20, 1969
Melvin R. Laird	Jan. 22, 1969	Jan. 29, 1973
Elliot L. Richardson	Jan. 30, 1973	May 24, 1973
James R. Schlesinger	July 2, 1973	Nov. 19, 1975
Donald H. Rumsfeld	Nov. 20, 1975	Jan. 20, 1977
Harold Brown	Jan. 21, 1977	Jan. 20, 1981
Caspar W. Weinberger	Jan. 21, 1981	Nov. 23, 1987
Frank C. Carlucci	Nov. 23, 1987	Jan. 20, 1989
Richard B. Cheney	March 21, 1989	Jan. 20, 1993
Les Aspin	Jan. 21, 1993	Feb. 3, 1994
William J. Perry	Feb. 3, 1994	Jan. 23, 1997
William S. Cohen	Jan. 24, 1997	Jan. 20, 2001
Donald H. Rumsfeld	Jan. 20, 2001	

Chairmen of the Joint Chiefs of Staff

Gen. of the Army Omar N. Bradley	Aug. 16, 1949	Aug. 15, 1953
Adm. Arthur W. Radford, USN	Aug. 15, 1953	Aug. 15, 1957
Gen. Nathan F. Twining, USAF	Aug. 15, 1957	Sept. 30, 1960
Gen. Lyman L. Lemnitzer, USA	Oct. 1, 1960	Sept. 30, 1962
Gen. Maxwell D. Taylor, USA	Oct. 1, 1962	July 1, 1964
Gen. Earle G. Wheeler, USA	July 3, 1964	July 2, 1970
Adm. Thomas H. Moorer, USN	July 2, 1970	July 1, 1974
Gen. George S. Brown, USAF	July 1, 1974	June 20, 1978
Gen. David C. Jones, USAF	June 21, 1978	June 18, 1982
Gen. John W. Vessey Jr., USA	June 18, 1982	Sept. 30, 1985
Adm. William J. Crowe Jr., USN	Oct. 1, 1985	Sept. 30, 1989
Gen. Colin L. Powell, USA	Oct. 1, 1989	Sept. 30, 1993
Adm. David Jeremiah, USN (acting)	Oct. 1, 1993	Oct. 24, 1993
Gen. John M. Shalikashvili, USA	Oct. 25, 1993	Sept. 30, 1997
Gen. Henry H. Shelton, USA	Oct. 1, 1997	Oct. 1, 2001
Gen. Richard B. Myers, USAF	Oct. 1, 2001	Sept. 30, 2005
Gen. Peter Pace, USMC	Sept. 30, 2005	

Vice Chairmen of the Joint Chiefs of Staff

Gen. Robert T. Herres, USAF	Feb. 6, 1987	Feb. 28, 1990
Adm. David E. Jeremiah, USN	March 1, 1990	Feb. 28, 1994
Adm. William A. Owens, USN	March 1, 1994	Feb. 27, 1996
Gen. Joseph W. Ralston, USAF	March 1, 1996	Feb. 29, 2000
Gen. Richard B. Myers, USAF	March 1, 2000	Oct. 1, 2001
Gen. Peter Pace, USMC	Oct. 1, 2001	Aug. 12, 2005
Adm. Edmund P. Giambastiani Jr., USN	Aug. 12, 2005	

US Central Command

Gen. Robert C. Kingston, USA	Jan. 1, 1983	Nov. 27, 1985
Gen. George B. Crist, USMC	Nov. 27, 1985	Nov. 23, 1988
Gen. H. Norman Schwarzkopf, USA	Nov. 23, 1988	Aug. 9, 1991
Gen. Joseph P. Hoar, USMC	Aug. 9, 1991	Aug. 5, 1994
Gen. J.H. Binford Peay III, USA	Aug. 5, 1994	Aug. 13, 1997
Gen. Anthony C. Zinni, USMC	Aug. 13, 1997	July 6, 2000
Gen. Tommy R. Franks, USA	July 6, 2000	July 7, 2003
Gen. John Abizaid, USA	July 7, 2003	

US European Command

Gen. Matthew B. Ridgway, USA	Aug. 1, 1952	July 11, 1953
Gen. Alfred M. Gruenther, USA	July 11, 1953	Nov. 20, 1956
Gen. Lauris Norstad, USAF	Nov. 20, 1956	Nov. 1, 1962
Gen. Lyman L. Lemnitzer, USA	Nov. 1, 1962	May 5, 1969
Gen. Andrew J. Goodpaster, USA	May 5, 1969	Nov. 1, 1974
Gen. Alexander M. Haig Jr., USA	Nov. 1, 1974	June 27, 1979
Gen. Bernard W. Rogers, USA	June 27, 1979	June 25, 1987
Gen. John R. Galvin, USA	June 25, 1987	June 23, 1992
Gen. John M. Shalikashvili, USA	June 23, 1992	Oct. 21, 1993
Gen. George A. Joulwan, USA	Oct. 21, 1993	July 10, 1997
Gen. Wesley K. Clark, USA	July 10, 1997	May 2, 2000
Gen. Joseph W. Ralston, USAF	May 2, 2000	Jan. 16, 2003
Gen. James L. Jones, USMC	Jan. 16, 2003	

US Joint Forces Command

Adm. William H.P. Blandy, USN	Feb. 3, 1947	Feb. 1, 1950
Adm. William M. Fechteler, USN	Feb. 1, 1950	Aug. 15, 1951
Adm. Lynde D. McCormick, USN	Aug. 15, 1951	April 12, 1954
Adm. Jerauld Wright, USN	April 12, 1954	Feb. 28, 1960
Adm. Robert L. Dennison, USN	Feb. 28, 1960	April 30, 1963
Adm. Harold P. Smith, USN	April 30, 1963	April 30, 1965
Adm. Thomas H. Moorer, USN	April 30, 1965	June 17, 1967
Adm. Ephraim P. Holmes, USN	June 17, 1967	Sept. 30, 1970
Adm. Charles K. Duncan, USN	Sept. 30, 1970	Oct. 31, 1972
Adm. Ralph W. Cousins, USN	Oct. 31, 1972	May 30, 1975
Adm. Isaac C. Kidd Jr., USN	May 30, 1975	Sept. 30, 1978
Adm. Harry D. Train II, USN	Sept. 30, 1978	Sept. 30, 1982
Adm. Wesley D. McDonald, USN	Sept. 30, 1982	Nov. 27, 1985
Adm. Lee Baggett Jr., USN	Nov. 27, 1985	Nov. 22, 1988
Adm. Frank B. Kelso II, USN	Nov. 22, 1988	May 18, 1990
Adm. Leon A. Edney, USN	May 18, 1990	July 13, 1992
Adm. Paul D. Miller, USN	July 13, 1992	Oct. 31, 1994
Gen. John J. Sheehan, USMC	Oct. 31, 1994	Sept. 24, 1997
Adm. Harold W. Gehman Jr., USN	Sept. 24, 1997	Sept. 5, 2000
Gen. William F. Kernan, USA	Sept. 5, 2000	Oct. 2, 2002
Adm. Edmund P. Giambastiani Jr., USN	Oct. 2, 2002	Aug. 1, 2005
Lt. Gen. Robert W. Wagner, USA (acting)	Aug. 1, 2005	Nov. 10, 2005
Gen. Lance L. Smith, USAF	Nov. 10, 2005	

Formerly US Atlantic Command, established Dec. 1, 1947, redesignated Oct. 7, 1999.

US Northern Command

Gen. Ralph E. Eberhart, USAF	Oct. 1, 2002	Nov. 5, 2004
Adm. Timothy J. Keating, USN	Nov. 5, 2004	

US Pacific Command

Adm. John H. Towers, USN	Jan. 1, 1947	Feb. 28, 1947
Adm. Louis E. Denfeld, USN	Feb. 28, 1947	Dec. 3, 1947
Adm. Dewitt C. Ramsey, USN	Dec. 3, 1947	April 30, 1949
Adm. Arthur W. Radford, USN	April 30, 1949	July 10, 1953
Adm. Felix B. Stump, USN	July 10, 1953	July 31, 1958
Adm. Harry D. Felt, USN	July 31, 1958	June 30, 1964
Adm. U.S. Grant Sharp, USN	June 30, 1964	July 31, 1968
Adm. John S. McCain Jr., USN	July 31, 1968	Sept. 1, 1972
Adm. Noel A.M. Gayler, USN	Sept. 1, 1972	Aug. 30, 1976
Adm. Maurice E. Weisner, USN	Aug. 30, 1976	Oct. 31, 1979
Adm. Robert L.J. Long, USN	Oct. 31, 1979	July 1, 1983
Adm. William J. Crowe Jr., USN	July 1, 1983	Sept. 18, 1985
Adm. Ronald J. Hays Jr., USN	Sept. 18, 1985	Sept. 30, 1988
Adm. Huntington Hardisty, USN	Sept. 30, 1988	March 1, 1991
Adm. Charles R. Larson, USN	March 1, 1991	July 11, 1994
Lt. Gen. Harold T. Fields, USA	July 11, 1994	July 19, 1994
Adm. Richard C. Macke, USN	July 19, 1994	Jan. 31, 1996
Adm. Joseph W. Prueher, USN	Jan. 31, 1996	Feb. 20, 1999
Adm. Dennis C. Blair, USN	Feb. 20, 1999	May 2, 2002
Adm. Thomas B. Fargo, USN	May 2, 2002	Feb. 26, 2005
Adm. William J. Fallon, USN	Feb. 26, 2005	

It's nice to have friends in very high places

In breaking records and crossing oceans, the U.S. Air Force RQ-4 Global Hawk, produced by Northrop Grumman, has shown it can fly higher, farther and stay aloft longer than any unmanned aircraft in the fleet. In addition, it has supported our troops in the Middle East with more than 5,400 combat hours flown. Rolls-Royce is proud to be a member of the Industry Team that supports this amazing UAV. From its first flight to surveillance in the skies above Southwest Asia, the Rolls-Royce F137-RR-100 turbofan engine has provided Global Hawk with constant, reliable power for its most extreme and unique missions. What the world's most sophisticated UAV does at over 60,000 feet is serious business to the warfighter on the ground. At Rolls-Royce, our business is making sure it has the power to get there and back. **Trusted to deliver excellence**

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US Southern Command

Lt. Gen. Willis Crittenberger, USA	November 1947	June 1948
Lt. Gen. Matthew B. Ridgway, USA	June 1948	October 1949
Lt. Gen. William H.H. Morris, USA	October 1949	April 1952
Lt. Gen. Horace L. McBride, USA	April 1952	June 1954
Lt. Gen. William K. Harrison, USA	June 1954	January 1957
Lt. Gen. Robert M. Montague, USA	January 1957	February 1958
Lt. Gen. Ridgely Gaither, USA	April 1958	July 1960
Lt. Gen. Robert F. Sink, USA	July 1960	January 1961
Lt. Gen. Andrew P. O'Meara, USA	January 1961	June 1963
Gen. Andrew P. O'Meara, USA	June 1963	February 1965
Gen. Robert W. Porter, USA	February 1965	February 1969
Gen. George R. Mather, USA	February 1969	September 1971
Gen. George V. Underwood, USA	September 1971	January 1973
Gen. William B. Rosson, USA	January 1973	July 1975
Lt. Gen. Dennis P. McAuliffe, USA	August 1975	September 1979
Lt. Gen. Wallace H. Nutting, USA	October 1979	May 1983
Gen. Paul F. Gorman, USA	May 1983	March 1985
Gen. John R. Galvin, USA	March 1985	June 1987
Gen. Fred F. Woerner, USA	June 1987	July 1989
Gen. Maxwell R. Thurman, USA	September 1989	November 1990
Gen. George A. Joulwan, USA	November 1990	November 1993
Maj. Gen. W.A. Worthington, USA	December 1993	January 1994
Gen. Barry McCaffrey, USA	February 1994	February 1996
RAdm. James Perkins, USN	March 1996	June 1996
Gen. Wesley K. Clark, USA	July 1996	July 1997
Gen. Charles E. Wilhelm, USMC	August 1997	Sept. 8, 2000
Gen. Peter Pace, USMC	Sept. 8, 2000	Sept. 30, 2001
Maj. Gen. G.D. Speer, USA (acting)	Sept. 30, 2001	Aug. 18, 2002
Gen. James T. Hill, USA	Aug. 18, 2002	Nov. 9, 2004
Gen. B. John Craddock, USA	Nov. 9, 2004	

Formerly US Caribbean Command (1947). Activated in 1963.

US Space Command

Gen. Robert T. Herres, USAF	Sept. 23, 1985	Feb. 5, 1987
Gen. John L. Piotrowski, USAF	Feb. 6, 1987	March 30, 1990
Gen. Donald J. Kutyna, USAF	April 1, 1990	June 30, 1992
Gen. Charles A. Horner, USAF	June 30, 1992	Sept. 12, 1994
Gen. Joseph W. Ashy, USAF	Sept. 13, 1994	Aug. 26, 1996
Gen. Howell M. Estes III, USAF	Aug. 27, 1996	Aug. 13, 1998
Gen. Richard B. Myers, USAF	Aug. 14, 1998	Feb. 22, 2000
Gen. Ralph E. Eberhart, USAF	Feb. 22, 2000	Oct. 1, 2002

Deactivated Oct. 1, 2002, when its functions merged with US Strategic Command.

US Special Operations Command

Gen. James J. Lindsay, USA	April 16, 1987	June 27, 1990
Gen. Carl W. Stiner, USA	June 27, 1990	May 20, 1993
Gen. Wayne A. Downing, USA	May 20, 1993	Feb. 29, 1996
Gen. Henry H. Shelton, USA	Feb. 29, 1996	Sept. 25, 1997
Gen. Peter J. Schoomaker, USA	Nov. 5, 1997	Oct. 27, 2000
Gen. Charles R. Holland, USAF	Oct. 27, 2000	Sept. 2, 2003
Gen. Bryan D. Brown, USA	Sept. 2, 2003	

US Strategic Command

Gen. G. Lee Butler, USAF	June 1, 1992	Feb. 13, 1994
Adm. Henry G. Chiles Jr., USN Gen.	Feb. 14, 1994	Feb. 21, 1996
Gen. Eugene E. Habiger, USAF	Feb. 22, 1996	June 25, 1998
Adm. Richard W. Mies, USN	June 26, 1998	Nov. 30, 2001
Adm. James O. Ellis Jr., USN	Nov. 30, 2001	July 9, 2004
Gen. James E. Cartwright, USMC	July 9, 2004	

Merged the functions of US Space Command into STRATCOM Oct. 1, 2002.

US Transportation Command

Gen. Duane H. Cassidy, USAF	July 1, 1987	Sept. 21, 1989
Gen. H.T. Johnson, USAF	Sept. 22, 1989	Aug. 24, 1992
Gen. Ronald R. Fogleman, USAF	Aug. 25, 1992	Oct. 17, 1994
Gen. Robert L. Rutherford, USAF	Oct. 18, 1994	July 14, 1996
Gen. Walter Kross, USAF	July 15, 1996	Aug. 2, 1998
Gen. Charles T. Robertson Jr., USAF	Aug. 3, 1998	Nov. 5, 2001
Gen. John W. Handy, USAF	Nov. 5, 2001	Sept. 7, 2005
Gen. Norton A. Schwartz, USAF	Sept. 7, 2005	

NORAD Leaders Through the Years

North American Aerospace Defense Command

Gen. Earle E. Partridge, USAF	Sept. 12, 1957	July 30, 1959
Gen. Laurence S. Kuter, USAF	Aug. 1, 1959	July 30, 1962
Gen. John K. Gerhart, USAF	Aug. 1, 1962	March 30, 1965
Gen. Dean C. Strother, USAF	April 1, 1965	July 29, 1966
Gen. Raymond J. Reeves, USAF	Aug. 1, 1966	July 31, 1969
Gen. Seth J. McKee, USAF	Aug. 1, 1969	Sept. 30, 1973
Gen. Lucius D. Clay Jr., USAF	Oct. 1, 1973	Aug. 29, 1975
Gen. Daniel James Jr., USAF	Sept. 1, 1975	Dec. 5, 1977
Gen. James E. Hill, USAF	Dec. 6, 1977	Dec. 31, 1979
Gen. James V. Hartinger, USAF	Jan. 1, 1980	July 30, 1984
Gen. Robert T. Herres, USAF	July 30, 1984	Feb. 5, 1987
Gen. John L. Piotrowski, USAF	Feb. 6, 1987	March 30, 1990
Gen. Donald J. Kutyna, USAF	April 1, 1990	June 30, 1992
Gen. Charles A. Horner, USAF	June 30, 1992	Sept. 12, 1994
Gen. Joseph W. Ashy, USAF	Sept. 13, 1994	Aug. 26, 1996
Gen. Howell M. Estes III, USAF	Aug. 27, 1996	Aug. 13, 1998
Gen. Richard B. Myers, USAF	Aug. 14, 1998	Feb. 22, 2000
Gen. Ralph E. Eberhart, USAF	Feb. 22, 2000	Nov. 5, 2004
Adm. Timothy J. Keating, USN	Nov. 5, 2004	

People

2006 USAF Almanac

USAF Total Force

(As of Sept. 30, 2005)

	FY00	FY01	FY02	FY03	FY04	FY05	FY06
Air Force active duty							
Officers	69,023	68,862	72,032	73,758	74,109	73,252	70,578
Enlisted	282,356	280,410	292,061	297,219	298,314	276,117	277,222
Cadets	4,275	4,299	4,158	4,085	4,193	4,327	4,000
Total Air Force active duty	**355,654**	**353,571**	**368,251**	**375,062**	**376,616**	**353,696**	**351,800**
Career re-enlistments (second term)	32,042	30,380	34,093	31,026	27,266	23,338	20,889
Rate	84%	84%	88%*	90%*	91%	84%	84%
First-term re-enlistments	9,917	10,485	10,666	8,232	9,232	10,128	11,190
Rate	52%	56%	72%*	61%*	63%	54%	55%
Civilian personnel							
Direct hire (excluding technicians)	122,619	122,474	123,439	122,419	124,959	125,809	127,330
ANG technicians	22,782	22,987	21,246	20,718	22,416	22,322	23,321
AFRC technicians	9,662	9,959	8,825	8,159	9,204	9,445	9,943
Indirect hire—foreign nationals	6,122	6,450	6,296	6,410	6,146	6,589	6,136
Total civilian personnel	**161,185**	**161,870**	**159,806**	**157,706**	**162,725**	**164,165**	**166,730**
Guard and Reserve							
Air National Guard, Selected Reserve	106,365	108,485	112,075	108,137	106,715	106,430	106,800
AFRC, Selected Reserve	72,340	74,869	76,632	74,754	75,322	75,802	74,000
AFRC, Individual Ready Reserve	50,304	47,940	41,095	36,665	37,015	48,750	48,750
Total Ready Reserve	**229,009**	**231,294**	**229,802**	**219,556**	**219,052**	**230,982**	**229,550**
Standby	16,429	17,826	17,430	17,587	17,340	15,241	13,976
Total Guard and Reserve	**245,438**	**249,120**	**247,232**	**237,143**	**236,392**	**246,223**	**243,526**

FYs 2000-05 are actual figures; FY 2006 is an estimate. *FY02 and FY03 rates higher due to Stop-Loss.

Armed Forces Manpower Trends, End Strength in Thousands

(As of Sept. 30, 2005)

	FY00	FY01	FY02	FY03	FY04	FY05	FY06
Active duty military							
Air Force	356	354	368	375	377	354	352
Army	482	481	487	499	500	493	482
Marine Corps	173	173	174	178	178	180	175
Navy	373	378	383	382	373	363	353
Total	**1,384**	**1,386**	**1,412**	**1,434**	**1,427**	**1,390**	**1,362**
Selected Guard and Reserve							
Air National Guard	106	109	112	108	107	106	107
AFRC	72	75	77	75	75	76	74
Army National Guard	353	352	351	351	343	333	350
Army Reserve	207	206	207	212	204	189	205
Marine Corps Reserve	40	40	40	41	40	40	40
Naval Reserve	87	88	88	88	83	76	73
Total	**865**	**870**	**875**	**875**	**851**	**821**	**849**
Direct-hire civilian (full-time equivalents)							
Air Force	155	155	154	149	154	155	157
Army	230	229	231	226	209	221	221
Navy/Marine Corps	185	183	185	182	183	179	181
Defense agencies	107	104	101	86	105	108	108
Total	**677**	**671**	**671**	**643**	**651**	**663**	**667**

FY06 numbers are estimates.

USAF Educational Levels

(As of Sept. 30, 2005)

	Number	Percent
Enlisted		
High school	15,159	5.5
Some college (< 2 years)	203,222	73.6
AA/AS degree or equivalent hours	43,074	15.6
Bachelor's degree	12,701	4.6
Master's degree	1,933	0.7
Professional or doctoral degree	28	0.01
Total	**276,117**	**100**
Officers		
Bachelor's degree	37,798	51.6
Master's degree	28,422	38.8
Doctoral degree	1,026	1.4
Professional degree	6,007	8.2
Total	**73,252**	**100**

Does not include 4,327 cadets.

USAF Marital Status

(As of Sept. 30, 2005)

Total percent married	60.8
Percent of enlisted	58.1
Percent of officers	71.0
Number of USAF couples	20,366
Number married to members of other services	1,400

Air Force Personnel Strength

(As of Sept. 30, 2005)

Year	Strength	Year	Strength	Year	Strength
1907	3	1941	152,125	1975	612,551
1908	13	1942	764,415	1976	585,207
1909	27	1943	2,197,114	1977	570,479
1910	11	1944	2,372,292	1978	569,491
1911	23	1945	2,282,259	1979	559,450
1912	51	1946	455,515	1980	557,969
1913	114	1947	305,827	1981	570,302
1914	122	1948	387,730	1982	582,845
1915	208	1949	419,347	1983	592,044
1916	311	1950	411,277	1984	597,125
1917	1,218	1951	788,381	1985	601,515
1918	195,023	1952	973,474	1986	608,199
1919	25,603	1953	977,593	1987	607,035
1920	9,050	1954	947,918	1988	576,446
1921	11,649	1955	959,946	1989	570,880
1922	9,642	1956	909,958	1990	535,233
1923	9,441	1957	919,835	1991	510,432
1924	10,547	1958	871,156	1992	470,315
1925	9,670	1959	840,028	1993	444,351
1926	9,674	1960	814,213	1994	426,327
1927	10,078	1961	820,490	1995	400,409
1928	10,549	1962	883,330	1996	389,001
1929	12,131	1963	868,644	1997	377,385
1930	13,531	1964	855,802	1998	367,470
1931	14,780	1965	823,633	1999	360,590
1932	15,028	1966	886,350	2000	355,654
1933	15,099	1967	897,426	2001	353,571
1934	15,861	1968	904,759	2002	368,251
1935	16,247	1969	862,062	2003	375,062
1936	17,233	1970	791,078	2004	376,616
1937	19,147	1971	755,107	2005	353,696
1938	21,089	1972	725,635	2006	351,800
1939	23,455	1973	690,999		
1940	51,165	1974	643,795		

2006 number is an estimate.

Active Duty Force Demographics

(As of Sept. 30, 2005)

Rank	Men	Women	Total
Officers			
General	12	0	12
Lieutenant General	37	1	38
Major General	81	5	86
Brigadier General	125	12	137
Colonel	3,124	424	3,548
Lieutenant Colonel	8,819	1,310	10,129
Major	13,216	2,394	15,610
Captain	19,576	5,065	24,641
First Lieutenant	8,105	2,300	10,405
Second Lieutenant	6,686	1,960	8,646
Total	**59,781**	**13,471**	**73,252**
Enlisted			
Chief Master Sergeant of the Air Force	1	0	1
Chief Master Sergeant	2,383	315	2,698
Senior Master Sergeant	4,933	626	5,559
Master Sergeant	24,717	3,472	28,189
Technical Sergeant	38,134	7,264	45,398
Staff Sergeant	56,659	16,259	72,918
Sergeant/Senior Airman	44,961	13,127	58,088
Airman First Class	36,482	10,166	46,648
Airman	5,626	1,798	7,424
Airman Basic	7,315	1,879	9,194
Total	**221,211**	**54,906**	**276,117**
Academy Cadets	3,553	774	4,327
Total personnel	**284,545**	**69,151**	**353,696**

Average ages of military personnel : Officers **35,** Enlisted **28**

The Civilian Force

(As of Sept. 30, 2005)

General Schedule/ Other

Grade	Force
1	12
2	733
3	1,439
4	2,315
5	7,178
6	4,824
7	8,986
8	1,614
9	12,252
10	754
11	16,722
12	18,832
13	11,644
14	3,896
15	1,302
16	0
17	0
18	0
ST[a]	35
SES[b]	213
Other	44
Total	**92,795**

Wage Grade

Grade	Force
1	20
2	122
3	274
4	124
5	743
6	943
7	1,470
8	3,088
9	2,780
10	12,029
11	3,177
12	1,425
13	219
14	35
15	2
16	0
17	0
18	0
Total	**26,451**

Wage Grade Leader

Grade	Force
1	0
2	5
3	5
4	5
5	17
6	25
7	51
8	107
9	256
10	832
11	197
12	74
13	8
14	0
15	1
16	0
17	0
18	0
Total	**1,583**

Wage Grade Supervisory

Grade	Force
1	9
2	16
3	18
4	27
5	49
6	79
7	118
8	200
9	773
10	1,042
11	427
12	220
13	138
14	179
15	84
16	48
17	29
18	15
Total	**3,471**

Air Force Civilian Personnel: Average Age and Length of Service

General schedule	**48**
Federal wage system	**45**
Average age	**47**
Average length of service (overall)	**15.3 years**

Includes active Title 5 civilians with permanent appointments, US citizens only.

Excludes Title 32 technicians, temporary employees, and foreign/local nationals.

Does not include approximately 2,380 personnel in pay band demonstration projects.

[a]Scientific and Technical.

[b]Senior Executive Service (Includes ES, IE, and IP).

USAF Personnel Strength by Commands, FOAs, and DRUs

(As of Sept. 30, 2005)

	Military	Civilian	Total
Major commands			
Air Combat Command (ACC)	95,346	12,073	107,419
Air Education and Training Command (AETC)	62,622	14,841	77,463
Air Force Materiel Command (AFMC)	21,703	56,295	77,998
Air Force Reserve Command (AFRC)	367	14,131	14,498
Air Force Space Command (AFSPC)	19,122	6,438	25,560
Air Force Special Operations Command (AFSOC)	12,968	1,141	14,109
Air Mobility Command (AMC)	50,578	8,795	59,373
Pacific Air Forces (PACAF)	32,824	8,042	40,866
United States Air Forces in Europe (USAFE)	28,412	5,424	33,836
Total major commands	**323,942**	**127,180**	**451,122**
Field Operating Agencies (FOAs)			
Air Force Agency for Modeling and Simulation	17	15	32
Air Force Audit Agency	0	781	781
Air Force Center for Environmental Excellence	31	358	389
Air Force Civil Engineer Support Agency	96	110	206
Air Force C2ISR Center*	228	57	285
Air Force Communications Agency	217	315	532
Air Force Cost Analysis Agency	25	39	64
Air Force Flight Standards Agency	120	38	158
Air Force Frequency Management Agency	11	25	36
Air Force Historical Research Agency	1	60	61
Air Force Inspection Agency	103	25	128
Air Force Legal Services Agency	359	105	464
Air Force Logistics Management Agency	52	23	75
Air Force Manpower Agency	91	0	91
Air Force Medical Operations Agency	30	7	37
Air Force Medical Support Agency	227	112	339
AFNSEPA*	16	5	21
Air Force News Agency	305	94	399
AFNWCA*	15	16	31
Air Force Office of Special Investigations	1,625	676	2,301
Air Force Operations Group	68	0	68
Air Force Pentagon Communications Agency	47	108	155
Air Force Personnel Center	604	1,037	1,641
Air Force Personnel Operations Agency	35	57	92
Air Force Real Property Agency	0	143	143
Air Force Review Boards Agency	9	50	59
Air Force Safety Center	63	50	113
Air Force Security Forces Center	414	13	427
Air Force Services Agency	71	180	251
Air Force Technical Applications Center	537	480	1,017
Air Force Weather Agency	629	200	829
Air National Guard Readiness Center	132	0	132
Total FOA	**6,178**	**5,179**	**11,357**
Direct Reporting Units (DRUs)			
Air Force Doctrine Center	52	17	69
Air Force Operational Test and Evaluation Center	593	195	788
Air Force Studies and Analyses Agency	70	29	99
United States Air Force Academy (not cadets)	2,250	1,293	3,543
Air Force District of Washington	1,641	701	2,342
Total DRUs	**4,606**	**2,235**	**6,841**
Other			
Other units	14,643	29,571	44,214
USAFA cadets	4,327	0	4,327
Total for all categories	**353,696**	**164,165**	**517,861**

*AFC2ISR Center is Air Force Command & Control, Intelligence, Surveillance, and Reconnaissance Center; AFNSEPA is Air Force National Security Emergency Preparedness Agency; AFNWCA is Air Force Nuclear Weapons & Counterproliferation Agency.

USAF Personnel by Geographic Area

(As of Sept. 30, 2005)

Total military personnel	**353,696**
US territory and special locations	**276,155**
Total in foreign countries	**77,541**
Western and southern Europe	**33,947**
Germany	15,460
UK	9,477
Italy	4,425
Turkey	1,686
Spain	319
All other countries	2,580
East Asia and Pacific	**22,752**
Japan/Okinawa	13,535
South Korea	9,044
All other countries	173
Africa, Near East, South Asia	**2,575**
Kuwait	1,717
Saudi Arabia	70
Egypt	45
All other countries	743
Western hemisphere	**370**
Canada	89
All other countries	281
Other areas	**17,897**

Specialties in the Enlisted Force

(As of Sept. 30, 2005)

Code	Career Field	Assigned	Percent
1A	Aircrew Operations	8,661	3.1
1C	Command Control Systems Operations	11,688	4.2
1N	Intelligence	11,167	4.0
1S	Safety	370	0.1
1T	Aircrew Protection	2,484	0.9
1W	Weather	2,480	0.9
2A	Manned Aerospace Maintenance	58,946	21.3
2E	Communications-Electronics Systems	11,721	4.2
2F	Fuels	4,126	1.5
2G	Logistics Plans	756	0.3
2M	Missile & Space Systems Maintenance	2,401	0.9
2P	Precision Measurement	864	0.3
2R	Maintenance Management Systems	1,542	0.6
2S	Supply	8,199	3.0
2T	Transportation & Vehicle Maintenance	12,595	4.6
2W	Munitions & Weapons	15,397	5.6
3A	Information Management	8,536	3.1
3C	Communications-Computer Systems	14,222	5.2
3E	Civil Engineering	17,908	6.5
3H	Historian	73	0.0
3M	Morale, Welfare, Recreation, & Services	4,023	1.5
3N	Public Affairs	1,461	0.5
3P	Security Forces	23,868	8.6
3S	Mission Support	8,090	2.9
3V	Visual Information	1,313	0.5
4A-V	Medical	19,189	6.9
4Y	Dental	2,495	0.9
5J	Paralegal	969	0.4
5R	Chapel Services Support	446	0.2
6C	Contracting	1,344	0.5
6F	Financial	3,016	1.1
7S	Special Investigation	887	0.3
8	Special Duty Identifiers	7,158	2.6
9	Reporting Identifiers	7,419	2.7
	Unassigned	303	0.1
	Total	**276,117**	**100**

Percentages have been rounded.

Specialties in the Officer Force

(As of Sept. 30, 2005)

Code	Utilization Field Title	Assigned	Percent
XO	Commander & Director	1,244	1.7
11	Pilot	12,483	17.0
12	Navigator	3,850	5.3
13	Space, Missile, Command & Control	5,073	6.9
14	Intelligence	3,119	4.3
15	Weather	707	1.0
16	Operations Support	1,345	1.8
21	Logistics	4,273	5.8
31	Security Forces	940	1.3
32	Civil Engineering	1,485	2.0
33	Communications-Computer Systems	4,371	6.0
34	MWR & Services	596	0.8
35	Public Affairs	478	0.7
36	Personnel	1,748	2.4
38	Manpower	303	0.4
4X	Medical	11,381	15.5
51	Law	1,278	1.7
52	Chaplain	604	0.8
61	Scientific/Research	947	1.3
62	Developmental Engineering	2,698	3.7
63	Acquisition	2,876	3.9
64	Contracting	1,004	1.4
65	Financial	915	1.2
71	Special Investigations	396	0.5
8X	Special Duty Identifiers	1,492	2.0
9X	Reporting Identifiers	7,184	9.8
	Other	462	0.6
	Total	**73,252**	**100**

Total does not include 4,327 cadets. Percentages have been rounded.

USAF photo by A1C Miranda Moorer

SrA. William Glidewell loads his weapon as Capt. Matthew Gibson looks on during a sniper training and rifle advancement course at Andersen AFB, Guam. Both airmen are with the 736th Security Forces Squadron.

Budgets

2006 USAF Almanac

Terms Explained

Funding levels can be expressed in several ways. **Budget authority** is the value of new obligations that the federal government is authorized to incur. These include some obligations to be met in later years. Figures can also be expressed in **outlays** (actual expenditures, some of which are covered by amounts that were authorized in previous years).

Another difference concerns the value of money. When funding is in **current** or **then-year** dollars, no adjustment for inflation has taken place. This is the actual amount of dollars that has been or is to be spent, budgeted, or forecast. When funding is expressed in **constant dollars,** or **real dollars,** the effect of inflation has been factored out to make direct comparisons between budget years possible. A specific year, often the present one, is chosen as a baseline for constant dollars.

Normally, Congress first authorizes payment, then appropriates it. **Authorization** is an act of Congress that establishes or continues a federal program or agency and sets forth guidelines to which it must adhere. **Appropriation** is an act of Congress that enables federal agencies to spend money for specific purposes.

Air Force Budget—A 10-Year Perspective

(Budget authority in millions of current and constant FY07 dollars)

Current dollars	**FY97**	**FY98**	**FY99**	**FY00**	**FY01**	**FY02**	**FY03**	**FY04**	**FY05**	**FY06**
Military personnel	$19,186	$19,111	$19,357	$20,217	$20,956	$24,751	$28,732	$29,681	$28,230	$29,760
Operation & maintenance	22,728	25,174	27,107	27,254	29,328	34,364	43,254	39,252	33,748	39,153
Procurement	14,247	15,258	18,434	18,755	22,054	23,229	31,380	32,460	32,194	32,498
RDT&E	14,017	14,265	13,807	14,511	14,297	14,519	18,825	20,290	20,754	22,612
Military construction	1,567	1,537	862	1,174	1,410	1,806	1,634	1,831	1,352	1,449
Family housing	1,135	1,114	1,082	1,158	1,084	1,374	1,536	1,441	1,667	2,018
Rev. & mgmt. funds	790	234	1,510	434	515	292	31	690	0	42
Trust & receipts	-453	-409	-246	-453	-95	-108	-147	-110	-121	-125
Total	**$73,217**	**$76,284**	**$81,913**	**$83,050**	**$89,549**	**$100,227**	**$125,245**	**$125,535**	**$117,824**	**$127,407**
Constant FY07 dollars										
Military personnel	$24,555	$24,074	$23,859	$24,100	$24,300	$28,249	$32,055	$32,244	$29,659	$30,415
Operation & maintenance	29,089	31,712	33,412	32,488	34,008	39,221	48,257	42,641	35,456	40,014
Procurement	18,234	19,221	22,722	22,357	25,574	26,512	35,010	35,262	33,824	33,213
RDT&E	17,940	17,970	17,018	17,298	16,579	16,571	21,002	22,042	21,804	23,109
Military construction	2,006	1,936	1,062	1,399	1,635	2,061	1,823	1,989	1,420	1,481
Family housing	1,453	1,403	1,334	1,380	1,257	1,568	1,714	1,565	1,751	2,062
Rev. & mgmt. funds	1,011	295	1,861	517	597	333	35	750	0	43
Trust & receipts	-580	-515	-303	-540	-110	-123	-164	-119	-127	-128
Total	**$93,708**	**$96,095**	**$100,965**	**$99,000**	**$103,840**	**$114,392**	**$139,732**	**$136,373**	**$123,788**	**$130,210**
Percentage real growth										
Military personnel	-2.9	-2.0	-0.9	1.0	0.8	16.2	13.5	0.6	-8.0	2.5
Operation & maintenance	-5.5	9.0	5.4	-2.8	4.7	15.3	23.0	-11.6	-16.8	12.9
Procurement	-10.5	5.4	18.2	-1.6	14.4	3.7	32.1	0.7	-4.1	-1.8
RDT&E	10.3	0.2	-5.3	1.6	-4.2	0.0	26.7	4.9	-1.1	6.0
Military construction	19.2	-3.5	-45.1	31.7	16.8	26.1	-11.6	9.1	-28.6	4.3
Family housing	-1.3	-3.4	-5.0	3.5	-8.9	24.8	9.3	-8.7	11.9	17.8
Total	**-1.9**	**2.5**	**5.1**	**-1.9**	**4.9**	**10.2**	**22.2**	**-2.4**	**-9.2**	**5.2**

Numbers do not add due to rounding.

Air Force Major Force Programs

(Total obligation authority in billions of constant FY07 dollars)

	FY97	**FY98**	**FY99**	**FY00**	**FY01**	**FY02**	**FY03**	**FY04**	**FY05**	**FY06**
Forces										
Strategic Forces	$4.7	$5.3	$5.2	$4.8	$4.5	$5.3	$5.8	$6.0	$4.3	$7.5
General-Purpose Forces	20.2	20.7	22.1	22.6	25.7	30.5	39.3	35.6	55.3	35.6
Airlift Forces	10.5	11.1	12.6	12.3	12.1	13.9	16.8	14.8	13.3	14.2
Guard and Reserve Forces	8.6	9.1	9.4	9.4	9.9	10.3	11.2	11.5	12.1	13.0
Special Operations Forces	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.7	0.7	0.0
Total	**$44.5**	**$46.6**	**$49.7**	**$49.6**	**$52.6**	**$60.5**	**$73.6**	**$68.5**	**$85.6**	**$70.4**
Support										
Intelligence & Communications	$22.3	$23.1	$23.7	$22.9	$24.8	$26.1	$34.0	$34.7	$35.4	$37.0
Research & Development	10.0	9.8	8.8	9.1	8.2	7.9	9.7	10.6	9.1	10.6
Central Supply & Maintenance	4.7	4.8	5.2	5.4	5.7	5.7	6.7	5.9	5.0	5.3
Training, Medical, & Personnel	10.0	10.1	10.1	10.1	10.6	11.8	13.2	13.4	6.2	13.1
Administration & Other	1.8	1.8	1.8	1.9	2.0	2.1	2.5	2.7	2.3	2.4
Total	**$48.8**	**$49.5**	**$49.6**	**$49.4**	**$51.3**	**$53.5**	**$66.0**	**$67.2**	**$58.0**	**$68.5**

Defense Department Budget Topline

(In billions of current and constant FY07 dollars)

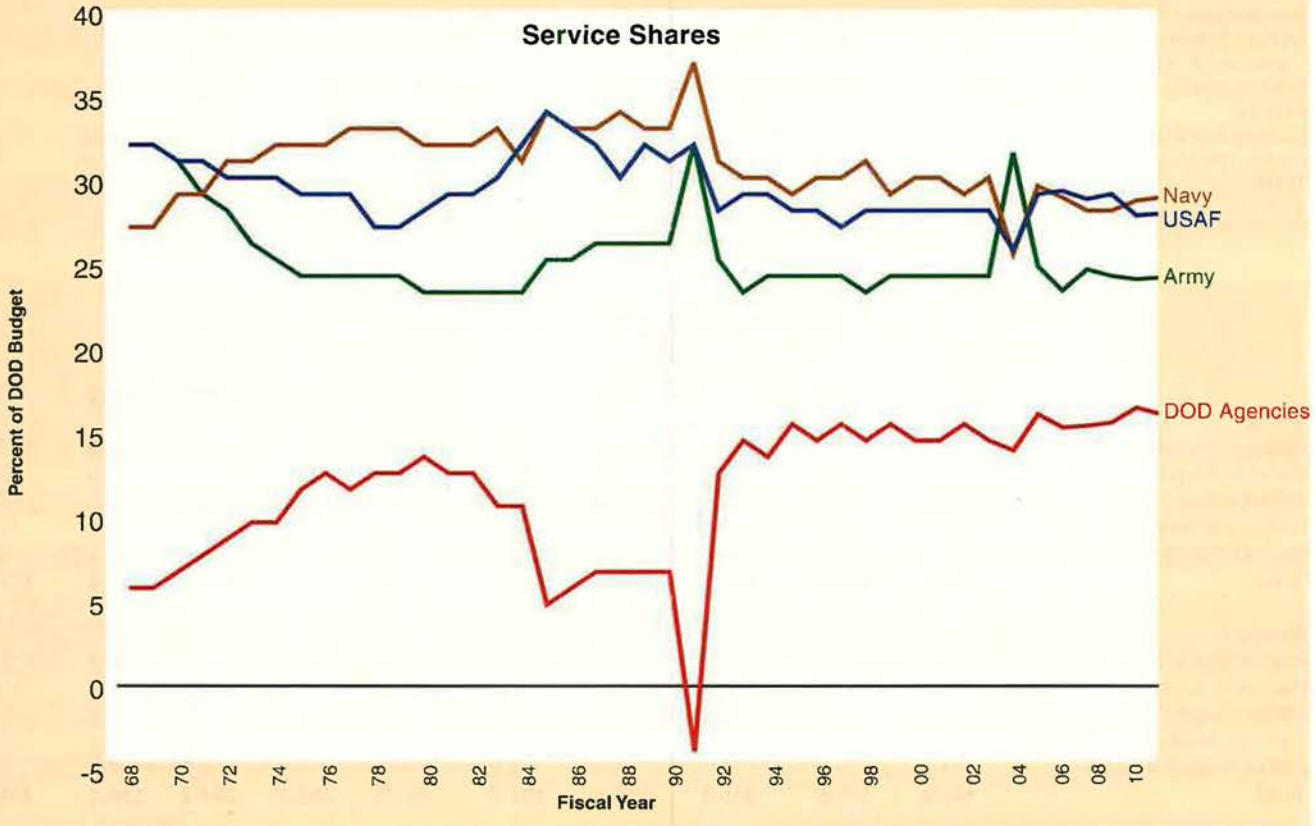
	FY05	FY06	FY07	FY08	FY09	FY10	FY11
Budget authority (current $)	$400.1	$410.8	$439.3	$464.2	$483.8	$493.9	$504.2
Budget authority (constant FY07 $)	$420.4	$419.8	$439.3	$454.0	$462.7	$462.0	$461.3
Outlays (current $)	$473.7	$510.4	$503.1	$473.2	$473.0	$486.1	$500.9
Outlays (constant FY07 $)	$497.7	$521.6	$503.1	$462.8	$452.4	$454.7	$458.3

Numbers have been rounded.
Does not include supplemental appropriations to cover costs of the war in Iraq.

Service Shares

(In billions of constant FY07 dollars)

Budget authority	FY05	FY06	FY07	FY08	FY09	FY10	FY11
Air Force	$126.2	$126.8	$130.4	$136.1	$132.6	$132.9	$132.6
Army	107.7	101.3	111.8	113.5	115.0	114.9	114.6
Navy	128.4	125.2	127.4	131.5	136.9	137.8	137.5
Defense agencies, DOD-wide	69.8	66.5	69.7	73.1	78.6	76.8	76.6
Total	**$420.4**	**$419.8**	**$439.3**	**$454.0**	**$462.7**	**$462.0**	**$461.3**
Percent of budget authority							
Air Force	30.0%	30.2%	29.7%	30.0%	28.7%	28.8%	28.7%
Army	25.6%	24.1%	25.4%	25.0%	24.8%	24.9%	24.9%
Navy	30.5%	29.8%	29.0%	29.0%	29.6%	29.8%	29.8%
Defense agencies, DOD-wide	16.6%	15.8%	15.9%	16.1%	17.0%	16.6%	16.6%



Monthly Military Basic Rates of Pay in Dollars

(Effective Jan. 1, 2006)

Commissioned Officers

Pay Grade	Years of Service: <2	2	3	4	6	8	10	12	14	16	18	20	22	24	26
O-10[a]												13,365	13,430	13,710	14,196
O-9[a]												11,690	11,858	12,101	12,526
O-8[a]	8,271	8,542	8,722	8,772	8,996	9,371	9,458	9,814	9,916	10,223	10,666	11,075	11,349		
O-7[a]	6,873	7,192	7,340	7,457	7,670	7,880	8,123	8,365	8,608	9,371	10,016	10,016	10,016	10,016	10,067
O-6	5,094	5,596	5,963	5,963	5,986	6,243	6,277	6,277	6,633	7,264	7,634	8,004	8,215	8,428	8,841
O-5	4,247	4,784	5,115	5,177	5,384	5,507	5,779	5,979	6,236	6,631	6,818	7,004	7,214		
O-4	3,664	4,241	4,524	4,588	4,850	5,132	5,482	5,756	5,945	6,054	6,118				
O-3	3,221	3,652	3,942	4,298	4,503	4,729	4,875	5,116	5,241						
O-2	2,783	3,170	3,651	3,774	3,852										
O-1	2,416	2,515	3,040												
O-3E[b]				4,298	4,503	4,729	4,875	5,116	5,318	5,435	5,593				
O-2E[b]				3,774	3,852	3,975	4,181	4,342	4,461						
O-1E[b]				3,040	3,246	3,366	3,489	3,609	3,774						

Enlisted Members

E-9							4,022	4,113	4,228	4,364	4,499	4,718	4,902	5,097	5,394
E-8						3,293	3,438	3,528	3,636	3,753	3,965	4,072	4,254	4,355	4,604
E-7	2,289	2,498	2,594	2,721	2,819	2,990	3,085	3,180	3,350	3,436	3,516	3,566	3,733	3,841	4,114
E-6	1,980	2,178	2,274	2,368	2,465	2,685	2,771	2,865	2,949	2,978	2,999				
E-5	1,814	1,935	2,029	2,125	2,274	2,402	2,497	2,527							
E-4	1,663	1,748	1,843	1,936	2,018										
E-3	1,501	1,596	1,692												
E-2	1,427														
E-1 4 mos.+	1,274														
E-1<4 mos.	1,178														

Amounts have been rounded to the nearest dollar.
[a]Basic pay for pay grades O-7 through O-10 is limited to $12,666.60. Basic pay for O-6 and below is limited to $11,158.20.
[b]Commissioned officers with more than four years' active service as enlisted members.
While serving as Chairman of the Joint Chiefs of Staff or Chief of Staff of the Air Force, basic pay is $15,615.90.
For the Chief Master Sergeant of the Air Force, basic pay is $6,499.50.

Aviation Career Incentive Pay

(Effective Jan. 1, 2006)

Monthly Rate	Years of Aviation Service as an Officer	Monthly Rate	Years of Aviation Service as an Officer
$125	2 or fewer	$585	more than 22
156	more than 2	495	more than 23
188	more than 3	385	more than 24
206	more than 4	250	more than 25
650	more than 6		
840	more than 14		

Provided to qualified rated officers.
Continuous pay ends following the 25th year of service.

Hazardous Duty Pay

(Effective Jan. 1, 2006)

Pay Grade	Monthly Rate
O-10	$150
O-9	150
O-8	150
O-7	150
O-6	250
O-5	250
O-4	225
O-3	175
O-2	150
O-1	150
E-9	240
E-8	240
E-7	240
E-6	215
E-5	190
E-4	165
E-3	150
E-2	150
E-1	150

Annual Pay for Federal Civilians

(Effective Jan. 1, 2006)

General Schedule

Grade	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7	Step 8	Step 9	Step 10
GS-1	$16,352	$16,898	$17,442	$17,983	$18,527	$18,847	$19,383	$19,925	$19,947	$20,450
GS-2	18,385	18,822	19,431	19,947	20,169	20,762	21,355	21,948	22,541	23,134
GS-3	20,060	20,729	21,398	22,067	22,736	23,405	24,074	24,743	25,412	26,081
GS-4	22,519	23,270	24,021	24,772	25,523	26,274	27,025	27,776	28,527	29,278
GS-5	25,195	26,035	26,875	27,715	28,555	29,395	30,235	31,075	31,915	32,755
GS-6	28,085	29,021	29,957	30,893	31,829	32,765	33,701	34,637	35,573	36,509
GS-7	31,209	32,249	33,289	34,329	35,369	36,409	37,449	38,489	39,529	40,569
GS-8	34,563	35,715	36,867	38,019	39,171	40,323	41,475	42,627	43,779	44,931
GS-9	38,175	39,448	40,721	41,994	43,267	44,540	45,813	47,086	48,359	49,632
GS-10	42,040	43,441	44,842	46,243	47,644	49,045	50,446	51,847	53,248	54,649
GS-11	46,189	47,729	49,269	50,809	52,349	53,889	55,429	56,969	58,509	60,049
GS-12	55,360	57,205	59,050	60,895	62,740	64,585	66,430	68,275	70,120	71,965
GS-13	65,832	68,026	70,220	72,414	74,608	76,802	78,996	81,190	83,384	85,578
GS-14	77,793	80,386	82,979	85,572	88,165	90,758	93,351	95,944	98,537	101,130
GS-15	91,507	94,557	97,607	100,657	103,707	106,757	109,807	112,857	115,907	118,957

Senior Executive Service

As part of the 2004 defense budget, Congress authorized DOD to implement a new performance-based pay system for SES members. On Jan. 1, 2004, a new SES pay scale reflecting only the minimum and maximum levels of pay replaced the old fixed SES pay levels (ES-1 through ES-6). The pay scale does not include locality pay.

SES Pay System Structure	Minimum	Maximum
Certified SES performance appraisal system	$109,808	$165,200
Noncertified SES performance appraisal system	$109,808	$152,000

Housing Allowance

(Effective Jan. 1, 2006)

Pay Grade	With Dependents	Without Dependents
O-10	$1,429.20	$1,161.60
O-9	1,429.20	1,161.60
O-8	1,429.20	1,161.60
O-7	1,429.20	1,161.60
O-6	1,286.70	1,065.60
O-5	1,240.20	1,026.00
O-4	1,093.20	950.70
O-3	904.50	762.30
O-2	771.90	604.20
O-1	690.90	509.40
O-3E	972.30	822.90
O-2E	877.20	699.30
O-1E	810.90	601.80
E-9	928.50	704.40
E-8	856.50	646.80
E-7	795.00	552.30
E-6	734.40	499.80
E-5	660.90	461.10
E-4	574.20	400.80
E-3	534.30	393.30
E-2	509.40	319.50
E-1	509.40	285.30

Subsistence Allowance

(Effective Jan. 1, 2006)

Officers	$187.49/month
Enlisted Members	$272.26/month

Historical Federal Budget Data

Current dollars
(In billions)

Year	Total Outlays	Deficit/ Surplus	Entitlements	Defense
1962	$106.8	$5.9	$34.7	$52.6
1963	111.3	4.0	36.2	53.7
1964	118.5	6.5	38.9	55.0
1965	118.2	1.6	39.7	51.0
1966	134.5	3.1	43.4	59.0
1967	157.5	12.6	50.9	72.0
1968	178.1	27.7	59.7	82.2
1969	183.6	0.5	64.6	82.7
1970	195.6	8.7	72.5	81.9
1971	210.2	26.1	86.9	79.0
1972	230.7	26.1	100.8	79.3
1973	245.7	15.2	116.0	77.1
1974	269.4	7.2	130.9	80.7
1975	332.3	54.1	169.4	87.6
1976	371.8	69.4	189.1	89.9
1977	409.2	49.9	203.7	97.5
1978	458.7	55.4	227.4	104.6
1979	504.0	39.6	247.0	116.8
1980	590.9	73.1	291.2	134.6
1981	678.2	73.9	339.4	158.0
1982	745.7	120.6	370.8	185.9
1983	808.4	207.7	410.6	209.9
1984	851.9	185.3	405.6	228.0
1985	946.4	221.5	448.2	253.1
1986	990.4	237.9	461.8	273.8
1987	1,004.1	168.4	474.2	282.5
1988	1,064.5	192.3	505.1	290.9
1989	1,143.8	205.4	549.8	304.0
1990	1,253.1	277.6	626.9	300.1
1991	1,324.3	321.4	702.3	319.7
1992	1,381.6	340.4	716.8	302.6
1993	1,409.5	300.4	738.0	292.4
1994	1,461.9	258.8	786.1	282.3
1995	1,515.9	226.4	818.6	273.6
1996	1,560.6	174.0	858.8	266.0
1997	1,601.3	103.2	896.4	271.7
1998	1,652.7	29.9	938.7	270.2
1999	1,702.0	1.9	976.9	275.5
2000	1,789.2	86.4	1,030.0	295.0
2001	1,863.2	32.4	1,094.5	306.1
2002	2,011.2	317.4	1,196.9	348.9
2003	2,160.1	538.4	1,281.8	404.9
2004	2,293.0	568.0	1,346.2	454.1
2005	2,472.2	493.6	1,446.1	493.6

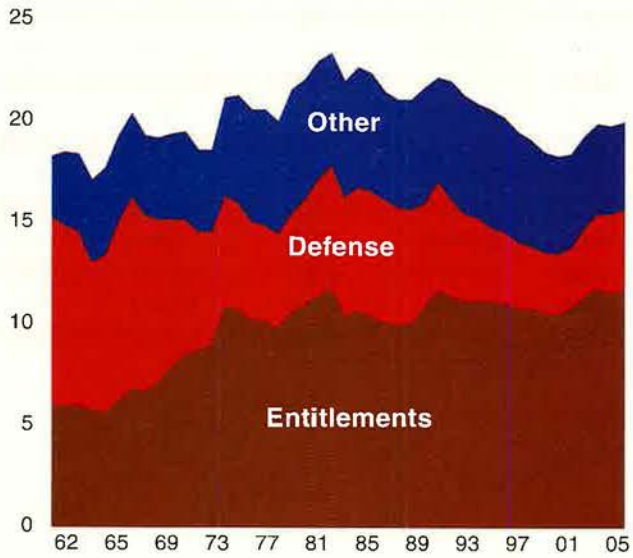
Constant FY07 dollars
(In billions)

Year	Total Outlays	Deficit/ Surplus	Entitlements	Defense
1962	$726.3	$40.1	$236.0	$357.7
1963	747.2	26.9	243.0	360.5
1964	785.3	43.1	257.8	364.5
1965	771.0	10.4	259.0	332.7
1966	852.6	19.7	275.1	374.0
1967	968.4	77.5	312.9	442.7
1968	1,050.9	163.4	352.3	485.0
1969	1,026.9	2.8	361.3	462.5
1970	1,035.0	46.0	383.6	433.4
1971	1,065.3	132.3	440.4	400.4
1972	1,133.0	128.2	495.0	389.5
1973	1,136.2	70.3	536.4	356.5
1974	1,122.4	30.0	545.3	336.2
1975	1,268.9	206.6	646.9	334.5
1976	1,341.9	250.5	682.5	324.5
1977	1,386.8	169.1	690.3	330.4
1978	1,444.7	174.5	716.2	329.5
1979	1,426.2	112.1	699.0	330.5
1980	1,473.3	182.3	726.0	335.6
1981	1,533.0	167.0	767.2	357.1
1982	1,587.2	256.7	789.2	395.7
1983	1,667.3	428.4	846.9	432.9
1984	1,684.6	366.4	802.1	450.9
1985	1,806.4	422.8	855.5	483.1
1986	1,855.2	445.6	865.0	512.9
1987	1,815.5	304.5	857.4	510.8
1988	1,848.9	334.0	877.3	505.2
1989	1,895.6	340.4	911.2	503.8
1990	1,970.4	436.5	985.7	471.9
1991	1,998.4	485.0	1,059.8	482.4
1992	2,024.1	498.7	1,050.1	443.3
1993	2,004.8	427.3	1,049.7	415.9
1994	2,026.7	358.8	1,089.8	391.4
1995	2,044.3	305.3	1,103.9	369.0
1996	2,043.3	227.8	1,124.4	348.3
1997	2,049.4	132.1	1,147.3	347.7
1998	2,081.9	37.7	1,182.5	340.4
1999	2,097.9	2.3	1,204.1	339.6
2000	2,132.8	103.0	1,227.8	351.7
2001	2,160.5	37.6	1,269.2	355.0
2002	2,295.4	362.3	1,366.1	398.2
2003	2,410.0	600.7	1,430.1	451.7
2004	2,491.0	617.0	1,462.4	493.3
2005	2,597.3	518.6	1,519.3	518.6

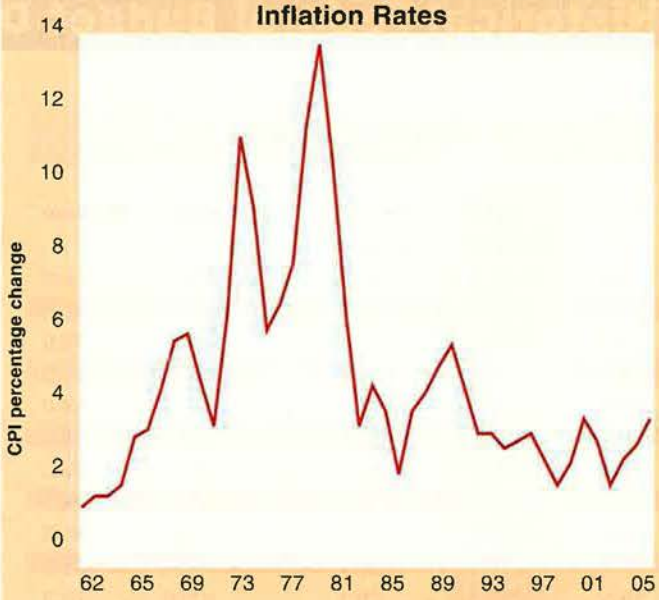
Source: "The Budget and Economic Outlook: Fiscal Years 2007-16," published by the Congressional Budget Office, January 2006; Budget of the United States Government Historical Tables, Fiscal Year 2007. (Constant dollar figures are derived.)

Percentages of GDP

Year	Total Outlays	Deficit/ Surplus	Entitlements	Defense
1962	18.8	1.0	6.1	9.3
1963	18.6	0.7	6.0	9.0
1964	18.5	1.0	6.1	8.6
1965	17.2	0.2	5.8	7.4
1966	17.8	0.4	5.7	7.8
1967	19.4	1.6	6.3	8.9
1968	20.5	3.2	6.9	9.5
1969	19.4	0.1	6.8	8.7
1970	19.3	0.9	7.2	8.1
1971	19.5	2.4	8.0	7.3
1972	19.6	2.2	8.6	6.7
1973	18.7	1.2	8.8	5.9
1974	18.7	0.5	9.1	5.6
1975	21.3	3.5	10.9	5.6
1976	21.4	4.0	10.9	5.2
1977	20.7	2.5	10.3	4.9
1978	20.7	2.5	10.3	4.7
1979	20.1	1.6	9.9	4.7
1980	21.7	2.7	10.7	4.9
1981	22.2	2.4	11.1	5.2
1982	23.1	3.7	11.5	5.8
1983	23.5	6.0	11.9	6.1
1984	22.1	4.8	10.5	5.9
1985	22.8	5.3	10.8	6.1
1986	22.5	5.4	10.5	6.2
1987	21.6	3.6	10.2	6.1
1988	21.2	3.8	10.1	5.8
1989	21.2	3.8	10.2	5.6
1990	21.8	4.8	10.9	5.2
1991	22.3	5.4	11.8	5.4
1992	22.1	5.5	11.5	4.8
1993	21.4	4.6	11.2	4.4
1994	21.0	3.7	11.3	4.1
1995	20.7	3.1	11.2	3.7
1996	20.3	2.3	11.2	3.5
1997	19.6	1.3	10.9	3.3
1998	19.2	0.3	10.9	3.1
1999	18.6	**0.0**	10.7	3.0
2000	18.4	**0.9**	10.6	3.0
2001	18.5	0.3	10.9	3.0
2002	19.4	3.1	11.5	3.4
2003	20.0	5.0	11.9	3.7
2004	19.9	4.9	11.7	3.9
2005	20.1	4.0	11.8	4.0



Inflation Rates



CPI=Consumer Price Index

Year	% change
1962	1.0
1963	1.3
1964	1.3
1965	1.6
1966	2.9
1967	3.1
1968	4.2
1969	5.5
1970	5.7
1971	4.4
1972	3.2
1973	6.2
1974	11.0
1975	9.1
1976	5.8
1977	6.5
1978	7.6
1979	11.3
1980	13.5
1981	10.3
1982	6.2
1983	3.2
1984	4.3
1985	3.6
1986	1.9
1987	3.6
1988	4.1
1989	4.8
1990	5.4
1991	4.2
1992	3.0
1993	3.0
1994	2.6
1995	2.8
1996	3.0
1997	2.3
1998	1.6
1999	2.2
2000	3.4
2001	2.8
2002	1.6
2003	2.3
2004	2.7
2005	3.4

Equipment
2006 USAF Almanac

Total active inventory (TAI): aircraft assigned to operating forces for mission, training, test, or maintenance. Includes primary, backup, and attrition reserve aircraft.
Primary aircraft inventory (PAI): aircraft assigned to meet primary aircraft authorization (PAA).

Active Duty Inventory

(As of Sept. 30, 2005)

Type	TAI	PAI
Bomber		
B-1	67	51
B-2	21	16
B-52	85	54
Total	**173**	**121**
Fighter/Attack		
A-10	129	120
OA-10	75	54
F-15	583	498
F-16	733	644
F-22	47	45
F-117	55	40
Total	**1,622**	**1,401**
Helicopter		
HH-60	68	61
UH-1	101	68
Total	**169**	**129**
Reconnaissance/BM/C3I		
E-3	32	28
E-4	4	3
EC-130	16	10
MQ-9	7	0
M/RQ-1	5	4
NC-135	1	0
OC-135	2	2
RC-135	22	16
RQ-4	9	3
U-2	34	30
WC-135	2	1
Total	**134**	**97**
Special Ops Forces		
AC-130	21	20
CV-22	1	0
MC-130	43	39
MH-53	33	29
Total	**98**	**88**

Type	TAI	PAI
Tanker		
HC-130	18	18
KC-10	59	54
KC-135	208	166
Total	**285**	**238**
Trainer		
T-1	179	149
T-3	110	0
T-6	217	155
T-37	213	188
T-38	485	380
T-41	4	4
T-43	8	7
T-51	3	0
TC-135	3	3
Glider	42	40
UV-18	3	2
Total	**1,267**	**928**
Transport		
C-5	63	54
C-9	4	3
C-12	28	27
C-17	130	121
C-20	10	10
C-21	74	72
C-32	4	4
C-37	9	9
C-40	4	4
C-130	196	164
C-135	1	1
VC-25	2	2
Total	**525**	**471**
Total Active	**4,273**	**3,473**

Air National Guard Inventory

(As of Sept. 30, 2005)

Type	TAI	PAI
Fighter/Attack		
A-10	76	72
OA-10	26	18
F-15	139	96
F-16	523	448
Total	**764**	**634**
Helicopter		
HH-60G	18	15
Reconnaissance/BM/C3I		
EC-130	8	5
E-8	18	14
Total	**26**	**19**
Special Ops Forces		
MC-130	4	4
Tanker		
HC-130	9	7
KC-135	243	189
Total	**252**	**196**
Transport		
C-5	17	16
C-17	8	8
C-21	2	2
C-26	11	11
C-32	2	0
C-38	2	2
C-40	3	0
C-130	194	186
LC-130	10	10
Total	**249**	**235**
Total ANG	**1,313**	**1,103**

Air Force Reserve Command Inventory

(As of Sept. 30, 2005)

Type	TAI	PAI
Bomber		
B-52	9	8
Fighter/Attack		
A-10	44	39
OA-10	7	6
F-16	69	60
Total	**120**	**105**
Helicopter		
HH-60	15	13
Reconnaissance/ BM/C3I		
WC-130	20	10
Special Ops Forces		
MC-130	14	12
Tanker		
HC-130	5	5
KC-135	84	64
Total	**89**	**69**
Transport		
C-5	32	28
C-9	1	1
C-17	2	2
C-130	90	87
C-141	8	8
Total	**133**	**126**
Total AFRC	**400**	**343**

Total Number of USAF Aircraft in Service Over Time

(As of Sept. 30, 2005)

Type of aircraft	FY99	FY00	FY01	FY02	FY03	FY04	FY05
Bomber	179	181	181	183	173	172	173
Fighter/attack	1,666	1,658	1,619	1,631	1,628	1,627	1,622
Helicopter	123	130	126	126	129	160	169
Reconnaissance/BM/C3I	138	141	140	143	135	132	134
Special Ops Forces	118	107	107	102	101	99	98
Tanker	327	328	330	322	325	301	285
Trainer	1,274	1,289	1,289	1,342	1,308	1,277	1,267
Transport	588	567	546	538	529	516	525
Total active duty	**4,413**	**4,401**	**4,338**	**4,387**	**4,328**	**4,284**	**4,273**
Air National Guard	1,360	1,362	1,361	1,350	1,312	1,326	1,313
AFRC	430	442	445	446	433	408	400
Total active duty, ANG, and AFRC	**6,203**	**6,205**	**6,144**	**6,183**	**6,073**	**6,018**	**5,986**
Total aircraft, including foreign-government-owned	6,302	6,304	6,245	6,286	6,167	6,107	6,057

Age of the Active Duty Fleet

(As of Sept. 30, 2005)

	Age in Years										
	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-24	24+	Total	Average
A-10								112	92	204	23.8
B-1B						28	39			67	18.1
B-2			2	13	5	1				21	11.1
B-52									85	85	43.8
C-5						31	19		13	63	21.0
C-9									4	4	31.2
C-10						3	32	19	5	59	20.7
C-12						4		8	16	28	25.3
C-17	38	37	28	19	8					130	5.6
C-20				2			8			10	16.7
C-21							49	25		74	20.7
C-25					1	1				2	14.9
C-32			4							4	7.0
C-37		7	2							9	4.7
C-40	4									4	1.6
C-130	4			14	17	10	9		240	294	32.9
C-135									239	239	43.6
CV-22	1									1	0.0
E-3								9	23	32	25.8
E-4									4	4	31.3
F-15	9	14	3	9	92	118	106	98	134	583	18.9
F-16	3	22	9	133	237	234	92	3		733	14.3
F-22	41	5	1							47	1.5
F-117					1	14	21	19		55	19.6
H-1									101	101	34.2
H-53									33	33	35.2
H-60			6		25	28		9		68	15.4
Q-1		4	1							5	4.9
Q-4	6	1	2							9	2.9
Q-9	5	2								7	1.7
T-1			24	106	49					179	10.9
T-3				110						110	10.6
T-6	137	79	1							217	2.3
T-37									213	213	41.1
T-38									485	485	38.4
T-41									4	4	36.1
T-43									8	8	31.4
T-51	3									3	0.1
U-2						5	14	10	5	34	22.2
UV-18			1						2	3	21.5
Glider	21	20		1						42	3.2
Total	**272**	**191**	**84**	**407**	**435**	**477**	**389**	**312**	**1,706**	**4,273**	**22.8**
Percent	6%	5%	2%	10%	10%	11%	9%	7%	40%		

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Age of the Air National Guard Fleet

(As of Sept. 30, 2005)

Age in Years

	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-24	24+	Total	Average
A-10								33	69	102	24.8
C-5									17	17	33.9
C-17	8									8	1.5
C-21							2			2	18
C-26				8	3					11	11.3
C-32	2									2	2.2
C-38			2							2	7.5
C-40	1	2								3	2.3
C-130	4	15	11	45	25	17	30	14	64	225	20.0
C-135									243	243	45.2
E-8	3	9	4	1	1					18	5.5
F-15							1	19	119	139	26.6
F-16				18	46	186	224	49		523	17.9
H-60				5	2	11				18	14.8
Total	**18**	**26**	**17**	**77**	**77**	**214**	**257**	**115**	**512**	**1,313**	**24.5**
Percent	1%	2%	1%	6%	6%	16%	20%	9%	39%		

Age of the Air Force Reserve Command Fleet

(As of Sept. 30, 2005)

Age in Years

	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-24	24+	Total	Average
A-10								4	47	51	25.0
B-52									9	9	43.5
C-5									32	32	34.1
C-9									1	1	33.4
C-17	2									2	0.1
C-130	4	10	5	23	9	17	18	6	37	129	21.1
C-135									84	84	44.4
C-141									8	8	39.1
F-16						43	26			69	17.7
H-60					15					15	14.7
Total	**6**	**10**	**5**	**23**	**24**	**60**	**44**	**10**	**218**	**400**	**27.5**
Percent	2%	3%	1%	6%	6%	15%	11%	3%	55%		

ICBMs and Spacecraft in Service

(As of Sept. 30, 2005)

Type of system	FY99	FY00	FY01	FY02	FY03	FY04	FY05
Minuteman III ICBM	500	500	500	500	500	500	500
Peacekeeper ICBM	50	50	50	50	23	6	0
Total ICBMs	**550**	**550**	**550**	**550**	**523**	**506**	**500**
DMSP satellite	2	2	2	2	2	2	2
DSCS satellite	5	5	5	5	10	11	9
DSP satellite (data classified)	—	—	—	—	—	—	—
GPS satellite	26	24	27	28	28	30	29
Milstar satellite	2	2	3	4	5	5	5
Total satellites	**35**	**33**	**37**	**39**	**45**	**48**	**45**

DMSP: Defense Meteorological Satellite Program **DSCS:** Defense Satellite Communications System **DSP:** Defense Support Program **GPS:** Global Positioning System

As of FY02, satellite data show the number of satellites that are primary mission capable.

USAF Aircraft Flying Hours*

(In thousands, as of Sept. 30, 2005)

	FY99	FY00	FY01	FY02	FY03	FY04	FY05
Active duty	1,633	1,555	1,579	1,768	1,700	1,708	1,615
ANG	357	342	341	410	426	393	368
AFRC	142	139	146	186	193	177	160
Total	**2,132**	**2,036**	**2,066**	**2,364**	**2,319**	**2,278**	**2,143**

*Includes contingency support hours but not AFSOC or RDT&E flying hours.

USAF Squadrons by Mission Type

(As of Sept. 30, 2005)

	FY01	FY02	FY03	FY04	FY05
Active forces					
Bomber	9	9	9	9	9
Air refueling	26	26	26	17	16
Strategic command & control	2	2	2	2	2
Fighter	46	46	46	45	43
Reconnaissance	4	4	9	10	10
Electronic warfare	2	2	2	2	2
Special operations	14	21	21	21	22
Ground theater air control	7	2	2	2	2
Airborne theater air control	8	8	8	8	8
Rescue	6	6	8	8	8
Theater airlift	12	12	12	6	6
Long-range airlift	18	18	18	13	13
Aeromedical airlift	3	3	0	0	0
ICBM	14	14	11	11	10
Space operations	8	8	8	9	8
Space communications	1	0	0	6	7
Space warning	7	8	8	6	6
Space surveillance	4	3	3	3	0
Space launch	3	3	4	4	3
Range	2	2	2	2	2
Space control & tactics	3	3	3	3	5
Space aggressor	0	0	1	1	1
Total	**199**	**200**	**203**	**188**	**183**
Reserve forces					
ANG Selected Reserve					
Flying	101	101	101	102	101
Space operations	1	1	3	3	3
Space warning	1	1	1	1	1
AFRC					
Flying	60	60	61	61	68
Space operations	4	4	4	4	4
Space warning	1	1	1	1	1
Space aggressor	0	0	1	1	1
Total	**168**	**168**	**172**	**173**	**179**
Grand total	**367**	**368**	**392**	**361**	**362**

Aircraft per Active Duty USAF Squadron

(As of Sept. 30, 2005)

Aircraft	Number
A/OA-10	18/24
AC-130H	8
AC-130U	13
B-1B	12
B-2	8
B-52	12
C-5	11/12
C-17	12
C-130	14
E-3	2/5
E-8	8
EC-130	6/10
F-15	18/24
F-15E	18/24
F-16	18/24
F-22	24
F-117A	18
HC-130	3/4
HH-60	12/14
KC-10	12/15
KC-135	11/12
MC-130E	14
MC-130H/P	10/12
MH-53	16/17
U-2	29

Air National Guard Air Defense Unit Fin Flashes

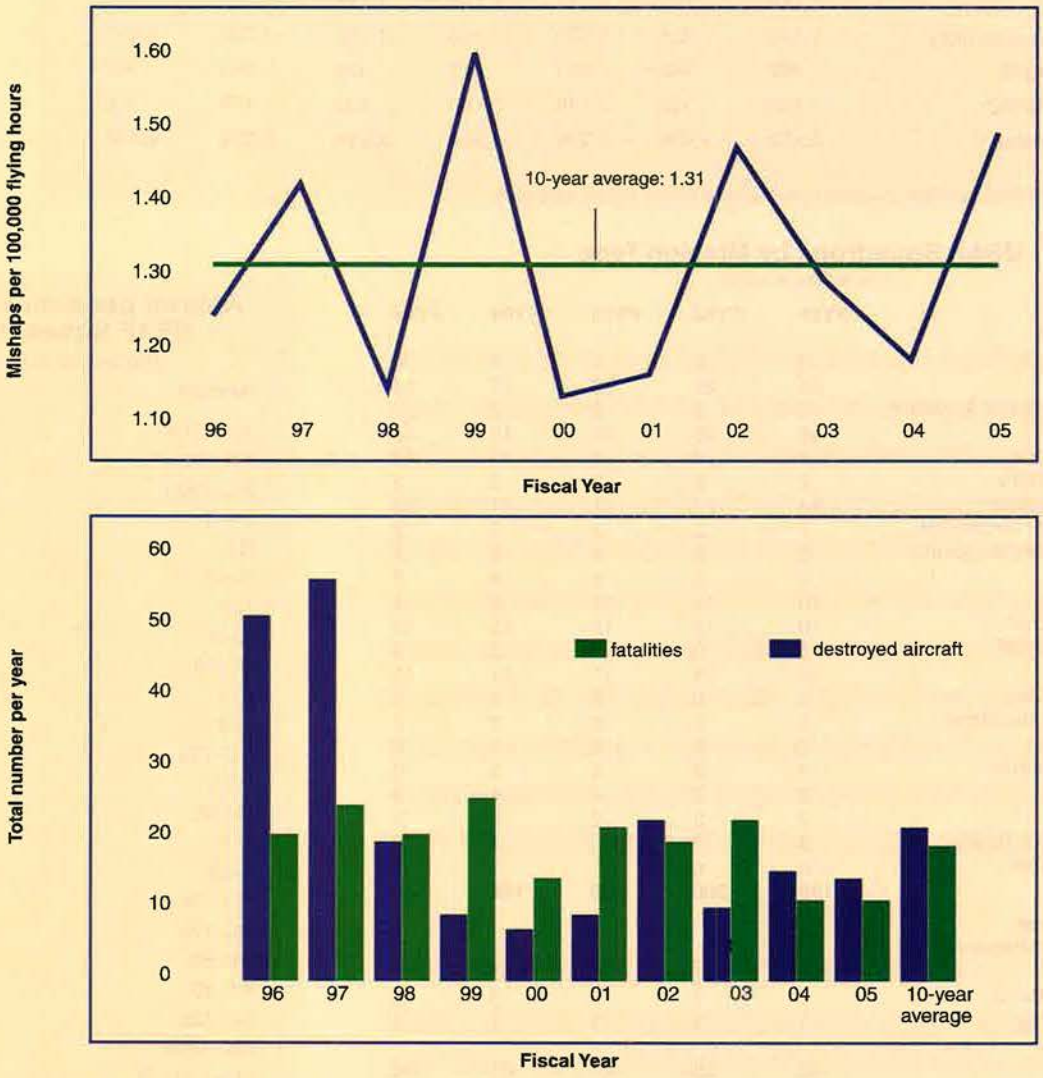
Description	Aircraft	Unit and Location
Minuteman over Massachusetts	F-15A/B	102nd FW, Otis ANGB, Mass.
Subdued eagle and "Oregon" logo	F-15A/B	114th FS (173rd FW), Klamath Falls Arpt., Ore.[a]
Red stripe with "Happy Hooligans" logo	F-16A/B	119th FW, Hector Arpt., N.D.
Dark gray bison's skull against prairie/mountain profile	F-16C/D	120th FW, Great Falls Arpt., Mont.[b]
Subdued hawk with banner in talons	F-15A/B	123rd FS (142nd FW), Portland Arpt., Ore.
Blue lightning bolt, blue stripe with "Florida" logo	F-15A/B	125th FW, Jacksonville Arpt., Fla.
Black falcon with talons extended and "California" logo	F-16C/D	144th FW, Fresno Yosemite Arpt., Calif.
Texas star on subdued jagged stripes with "Houston" logo	F-16C/D	147th FW, Ellington Field, Tex.[b]
Blue stripe and "Duluth" logo	F-16C	148th FW, Duluth Arpt., Minn.
Green stripe with "Vermont" on top of tail with figure of Ethan Allen	F-16C/D	158th FW, Burlington Arpt., Vt.[b]
Starburst state flag and AZ	F-16A/B/C/D	162nd FW, Tucson Arpt., Ariz.[a]
Red stripe with "New Jersey" logo and AC above it	F-16C/D	177th FW, Atlantic City Arpt., N.J.[b]

[a] ANG training units.
[b] General-purpose units (no longer air defense only).

Class A Aircraft Mishaps

(As of Sept. 30, 2005)

(Loss of life, permanent total disability, destroyed aircraft, or more than $1 million in property damage)



Data provided by USAF

USAF photo by SSgt. Bennie J. Davis III

A B-1B from the 28th Bomb Wing, Ellsworth AFB, S.D., flies over the Pacific Ocean on a refueling training mission.

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USAF Aircraft Tail Markings

Code	Aircraft	Unit and Location
AC	F-16C/D	177th FW (ANG), Atlantic City Arpt., N.J.
AF	C-150, DA-20, gliders, T-41, UV-18	USAF Academy, Colo.
AK	C-12, C-130H, E-3B/C, F-15C/D/E	3rd Wing, Elmendorf AFB, Alaska
AK	A/OA-10A, F-16C/D	354th FW, Eielson AFB, Alaska
AL	F-16C/D	187th FW (ANG), Montgomery Regional Arpt., Ala.
AL	KC-135	117th ARW (ANG), Birmingham Arpt., Ala.
AN	C-130H, HC-130N, HH-60G	176th Wing (ANG), Kulis ANGB, Alaska
AV	F-16C/D	31st FW, Aviano AB, Italy
AZ	F-16A/B/C/D	162nd FW (ANG), Tucson Arpt., Ariz.
BB	T-38A, RQ-4, U-2	9th RW, Beale AFB, Calif.
BB	RQ-4, U-2	Det. 2, 53rd Wing, Beale AFB, Calif.
BC	A/OA-10A	110th FW (ANG), W.K. Kellogg Arpt., Mich.
BD	B-52H, A/OA-10A	917th Wing (AFRC), Barksdale AFB, La.
CA	HC-130P, HH-60G	129th RQW (ANG), Moffett Field, Calif.
CB	T-1A, T-37B, T-38C	14th FTW, Columbus AFB, Miss.
CC	F-16C/D	27th FW, Cannon AFB, N.M.
CI	C-130E	146th AW, Channel Islands ANGS, Calif.
CO	F-16C/D	140th Wing (ANG), Buckley AFB, Colo.
CR	C-130H	302nd AW (AFRC), Peterson AFB, Colo.
CT	A/OA-10A	103rd FW (ANG), Bradley Arpt., Conn.
DC	F-16C/D	113th Wing (ANG), Andrews AFB, Md.
DE	C-130H	166th AW (ANG), New Castle Co. Arpt., Del.
DM	A/OA-10A	355th Wing, Davis-Monthan AFB, Ariz.
DM	EC-130E/H	55th Wing, Davis-Monthan AFB, Ariz.
DR	HH-60G	305th RQS (AFRC), Davis-Monthan AFB, Ariz.
DY	B-1B	7th BW, Dyess AFB, Tex.
DY	B-1B	337th TES, 53rd Wing, Dyess AFB, Tex.
ED	Various	412th TW, Edwards AFB, Calif.
EF	F-16C/D	147th FW (ANG), Ellington Fld., Tex.
EG	F-15C/D	33rd FW, Eglin AFB, Fla.
EL	B-1B	28th BW, Ellsworth AFB, S.D.
EN	AT-38B, T-37B, T-38A/C	80th FTW, Sheppard AFB, Tex.
ET	A-10A, F-15A/B/C/D/E, F-16A/B/C/D, UH-1N	46th TW, Eglin AFB, Fla.
FC	UH-1N	336th TRG, Fairchild AFB, Wash.
FE	UH-1N	90th SW, F.E. Warren AFB, Wyo.
FF	F-15C/D, F-22A	1st FW, Langley AFB, Va.
FL	HC-130N/P, HH-60G	920th RQG (AFRC), Patrick AFB, Fla.
FM	F-16C/D	482nd FW (AFRC), Homestead ARB, Fla.
FS	F-16C/D	188th FW (ANG), Fort Smith Arpt., Ark.
FT	A/OA-10A	23rd FG, Pope AFB, N.C.
FW	F-16C/D	122nd FW (ANG), Fort Wayne Arpt., Ind.
GA	E-8C	116th ACW (ACC, ANG), Robins AFB, Ga.
GA	C-130H	165th AW (ANG), Savannah Hilton Head Arpt., Ga.
HA	KC-135	185th ARW (ANG), Sioux Gateway Arpt./Col. Bud Day Field, Iowa
HD	QF-4	Det. 1, 53rd Wing, Holloman AFB, N.M.
HH	C-17, C-130H, F-15A/B, KC-135R	154th Wing (ANG), Hickam AFB, Hawaii
HI	F-16C/D	419th FW (AFRC), Hill AFB, Utah
HL	F-16C/D	388th FW, Hill AFB, Utah
HO	F-117A, T-38A	49th FW, Holloman AFB, N.M.
HV	UH-1N	30th SW, Vandenberg AFB, Calif.
IA	F-16C/D	132nd FW (ANG), Des Moines Arpt., Iowa
ID	A/OA-10A, C-130E	124th Wing (ANG), Boise Air Term., Idaho
IL	C-130E	182nd AW (ANG), Greater Peoria Arpt., Ill.
IS	HH-60G	85th Group, NAS Keflavik, Iceland
JZ	F-15A/B	159th FW (ANG), NAS JRB New Orleans
KC	A/OA-10	442nd FW (AFRC), Whiteman AFB, Mo.
KS	C-21A	45th AS, Keesler AFB, Miss.
LA	B-52H	2nd BW, Barksdale AFB, La.
LF	F-16C/D	56th FW, Luke AFB, Ariz.
LI	HC-130P, HH-60G	106th RQW (ANG), F.S. Gabreski Arpt., N.Y.
LK	C-130E/J	314th AW, Little Rock AFB, Ark.
LN	F-15C/E	48th FW, RAF Lakenheath, UK
LR	F-16C/D	944th FW (AFRC), Luke AFB, Ariz.
MA	F-15A/B	102nd FW (ANG), Otis ANGB, Mass.
MA	A/OA-10A	104th FW (ANG), Barnes Arpt., Mass.
MD	A/OA-10A, C-130J	175th Wing (ANG), Martin State Arpt., Md.
MI	F-16C/D, C-130E	127th Wing (ANG), Selfridge ANGB, Mich.
MI	KC-135R	927th ARW (AFRC), Selfridge ANGB, Mich.
MM	UH-1N	341st SW, Malmstrom AFB, Mont.
MN	C-130H	133rd AW (ANG), Minn.-St. Paul Arpt./ARS
MN	F-16C	148th FW (ANG), Duluth Arpt., Minn.
MO	F-15C/D/E, F-16CJ/D	366th FW, Mountain Home AFB, Idaho
MT	B-52H	5th BW, Minot AFB, N.D.
MT	UH-1N	91st SW, Minot AFB, N.D.
MY	HC-130P, HH-60G	347th Rescue Wing, Moody AFB, Ga.
MY	T-6A, T-38C	479th FTG, Moody AFB, Ga.
NC	C-130H	145th AW, Charlotte Arpt., N.C.
NM	F-16C/D	150th FW (ANG), Kirtland AFB, N.M.
NO	A/OA-10A	926th FW (AFRC), NAS JRB New Orleans
NV	C-130E	152nd AW (ANG), Reno/Tahoe Arpt., Nev.
NY	F-16C/D	174th FW (ANG), Hancock Fld., N.Y.
OF	RC-135S/U/V/W, TC-135, OC-135B, WC-135	55th Wing, Offutt AFB, Neb.
OH	F-16C/D	178th FW (ANG), Springfield-Beckley Arpt., Ohio
OH	C-130H	179th AW (ANG), Mansfield Lahm Arpt., Ohio
OH	F-16C/D	180th FW (ANG), Toledo Exp. Arpt., Ohio
OK	C-130H	137th AW (ANG), Will Rogers World Arpt., Okla.
OK	F-16C/D	138th FW (ANG), Tulsa Arpt., Okla.
OK	E-3B/C	552nd ACW, Tinker AFB, Okla.
OS	A/OA-10A, C-12, F-16C/D	51st FW, Osan AB, South Korea
OT	F-15C/D/E, F-16C/D	85th TES, 53rd Wing (ACC), Eglin AFB, Fla.
OT	A-10, F-15, F-16A/C, F-22	422nd TES, 53rd Wing, Nellis AFB, Nev.
OT	F-117	Det. 1, 53rd Wing, Holloman AFB, N.M.
OT	B-52	49th TES, 53rd Wing, Barksdale AFB, La.
OT	MQ/RQ-1	Det. 4, 53rd Wing, Creech AFB, Nev.
PA	A/OA-10A	111th FW (ANG), Willow Grove ARS, Pa.
PD	KC-135R	939th ARW (AFRC), Portland Arpt., Ore.
PR	C-130E	156th AW (ANG), Luis Munoz Marin Arpt., Puerto Rico
RA	T-1A, T-6A, T-37B, T-38C, T-43A	12th FTW, Randolph AFB, Tex.
RI	C-130E, C-130J-30	143rd AW (ANG), Quonset State Arpt., R.I.
RS	C-130E	86th AW, Ramstein AB, Germany
SA	F-16C/D	149th FW (ANG), Lackland AFB, Tex.
SC	F-16C/D	169th FW (ANG), McEntire ANGS, S.C.
SD	F-16C/D	114th FW (ANG), Joe Foss Fld., S.D.
SI	F-16C/D	183rd FW (ANG), Abraham Lincoln Capital Arpt., Ill.
SJ	F-15E	4th FW, Seymour Johnson AFB, N.C.
SL	F-15A/B	131st FW (ANG), Lambert-St. Louis Arpt., Mo.
SP	A/OA-10A, F-16CJ	52nd FW, Spangdahlem AB, Germany
SW	F-16C/CJ/D	20th FW, Shaw AFB, S.C.
TD	QF-4	53rd Wing, Tyndall AFB, Fla.
TH	F-16C/D	181st FW (ANG), Hulman Arpt., Ind.
TX	C-130H	136th AW (ANG), NAS JRB F.W., Tex.
TX	F-16C/D	301st FW (AFRC), NAS JRB F.W., Tex.
TY	F-15C/D, F-22	325th FW, Tyndall AFB, Fla.
VA	F-16C/D	192nd FW (ANG), Richmond Arpt., Va.
VN	T-1A, T-6A, T-37B, T-38C	71st FTW, Vance AFB, Okla.
WA	Various	57th Wing, Nellis AFB, Nev.
WI	F-16C/D	115th FW (ANG), Truax Fld., Wis.
WM	B-2	72nd TES, 53rd Wing, Whiteman AFB, Mo.
WM	B-2A, T-38A	509th BW, Whiteman AFB, Mo.
WP	F-16C/D	8th FW, Kunsan AB, South Korea
WV	C-130H	130th AW (ANG), Yeager Arpt., W.Va.
WV	C-130E	167th AW (ANG), East. W.Va. Arpt., W.Va.
WW	F-16C/D	35th FW, Misawa AB, Japan
WY	C-130H	153rd AW (ANG), Cheyenne Arpt., Wyo.
XL	T-1A, T-6A, T-38C	47th FTW, Laughlin AFB, Tex.
XP	C-130H	139th AW (ANG), Rosecrans Arpt., Mo.
YJ	C-21A, C-130E/H, UH-1N	374th AW, Yokota AB, Japan
ZZ	E-3B/C, F-15C/D, KC-135R, HH-60G	18th Wing, Kadena AB, Japan

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Just one, 40-skeet SFW works suddenly, surgically and overwhelmingly to defeat a wide range of hard and soft target types in its 30-acre coverage area. Trucks, parked aircraft, rocket launchers, APCs, radar, artillery and more.

SFW's 40 dual sensor directed skeets don't miss. And if one of them does not detect a target, it has two built in, self-destruct systems and a timed deactivation mode to render any unexploded ordnance harmless minutes after delivery.

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TEXTRON Systems

USAF Grades and Insignia

Officer

Second Lieutenant
(O-1)

Brigadier General
(O-7)

First Lieutenant
(O-2)

Major General
(O-8)

Captain
(O-3)

Lieutenant General
(O-9)

Major
(O-4)

General
(O-10)

Lieutenant Colonel
(O-5)

Colonel
(O-6)

Enlisted

Airman Basic
(E-1)
No insignia

Airman
(E-2)

Airman First Class
(E-3)

Senior Airman
(E-4)

Staff Sergeant
(E-5)

Technical Sergeant
(E-6)

Master Sergeant
(E-7)

Senior Master Sergeant
(E-8)

Chief Master Sergeant
(E-9)

Chief Master Sergeant of
the Air Force

First Sergeant
The diamond device, shown here on senior master sergeant stripes, denotes an E-7 through E-9 who advises and assists a squadron commander in managing unit activities.

Command Chief Master Sergeant
The star device shown here denotes an E-9 who serves in a 9E000 position, formerly known as a senior enlisted advisor.

Awards and Decorations—Currently Awarded Ribbons

*Also awarded with gold, silver, or bronze devices. The gold frame on the ribbon denotes a unit citation; without, an individual citation.

Awards and Decorations—Previously Awarded Ribbons

Pre-World War I

Mexican Service Medal

World War I

Victory Medal

World War II Through Korean War (in order of precedence)

American Defense Service Medal

Women's Army Corps Service Medal

American Campaign Medal

Asiatic–Pacific Campaign Medal

European–African–Middle Eastern Campaign Medal

World War II Victory Medal

Army of Occupation Medal

Medal for Humane Action

Korean Service Medal

Philippine Defense Ribbon

Philippine Liberation Ribbon

Philippine Independence Ribbon

Philippine Presidential Unit Citation

ROK Presidential Unit Citation

United Nations Service Medal

Republic of Korea Korean War Service Medal

Currently Awarded Devices

Bronze Star
represents participation in campaigns or operations, multiple qualifications, or an additional award to any of the various ribbons on which it is authorized.

Silver Star
is worn in the same manner as the bronze star, but each is worn in lieu of five bronze service stars.

Silver and Bronze Stars
When worn together on a single ribbon, silver stars will be worn to the wearer's right of any bronze star.

Bronze Oak Leaf Cluster
represents second and subsequent entitlements of awards.

Silver Oak Leaf Cluster
represents the sixth, 11th, etc., entitlements or is worn in lieu of five bronze OLCs.

Silver/Bronze Oak Leaf Clusters
Silver OLCs are worn to the wearer's right of the bronze OLCs on the same ribbon.

Valor Device
represents valor and does not denote an additional award. Only one may be earned on any ribbon. It is worn to the wearer's right of any clusters on the same ribbon.

A Device
is worn with the Overseas Ribbon Short to denote service north of the Arctic Circle. Only one is worn on the ribbon. It is worn to the wearer's right of any clusters on the same ribbon.

Mobility Device
is worn with the Armed Forces Reserve Medal to denote active duty for at least one day during a contingency. A number to the right of the device denotes the total number of mobilizations.

Hourglass Device
is issued for the Armed Forces Reserve Medal in bronze for 10 years of service, silver for 20, and gold for 30 years.

Previously Awarded Devices

Berlin Airlift Device
is worn with the Army of Occupation Medal to denote service of 90 consecutive days in direct support of the Berlin Airlift, June 26, 1948, to Sept. 30, 1949.

Arrowhead Device
is worn with Army and Air Force campaign medals to denote participation in combat parachute, glider, or amphibious assault landing.

Disk "Wintered Over" Device
is worn with the Antarctica Service Medal to denote multiple "winters over"—bronze for one winter; gold, two; silver, three.

Berets

Five USAF career fields are authorized to wear a colored beret along with the crest of that particular field. Below are those badges on their particular beret color.

Combat Control Team

Combat Weather

Force Protection

Pararescue

Tactical Air Control Party

USAF Badges

Shown here are current wings and badges as seen in AFI 36-2923. The basic level of wings or badges is illustrated. Most wings and badges have two other categories of accomplishment—senior and either commander, master, or chief. A star centered above the badge indicates the senior level, while a star surrounded by a wreath above the badge represents the master level.


Pilot


Navigator/Observer


Enlisted Aircrew


Astronaut


Flight Surgeon


Flight Nurse


Officer Aircrew Member


Air Battle Manager


Air Force Space


Parachutist


Transportation


Missile


Missile With Operations Designator


Space/Missile


Civil Engineer


Force Protection


Command and Control


Communications and Information


Paralegal


Intelligence


Services


Chaplain Service Support


Operations Support


Manpower and Personnel


Acquisition and Financial Management


Maintenance


Public Affairs


Meteorologist


Supply/Fuels


Band


Explosive Ordnance Disposal


Logistics


Historian


Information Management


Judge Advocate


Air Traffic Control


Weapons Director


Nurse Corps


Biomedical Science Corps


Dental Corps


Medical Corps


Enlisted Medical


Medical Service Corps


Christian


Jewish


Buddhist


Muslim

AIR FORCE Magazine's

Guide to Aces and Heroes

■ 2006 USAF Almanac

Capt. James Jabara, the first USAF ace of the Korean War, is shown here in the cockpit of his F-86 Sabre after returning from a mission over Korea. Jabara counted 15 victories before the end of the war.

Some Famous US Fighter Firsts

May 28, 1918	First AEF-trained AEF ace: Capt. Edward V. Rickenbacker
Dec. 7, 1941	First AAF victories (WW II at Pearl Harbor): Lts. Harry W. Brown, Philip M. Rasmussen, Lewis M. Sanders, Gordon H. Sterling Jr., Kenneth M. Taylor, George S. Welch
Dec. 16, 1941	First AAF ace (WW II): 1st Lt. Boyd D. Wagner
Nov. 8, 1950	First jet-to-jet victory (Korean War): 1st Lt. Russell J. Brown
May 20, 1951	First USAF ace of the Korean War: Capt. James Jabara
Nov. 30, 1951	First USAF ace of two wars (WW II and Korea): Maj. George A. Davis Jr. (7 in WW II and 14 in Korea)
Jan. 2, 1967	First (and only) USAF ace with victories in WW II and Vietnam: Col. Robin Olds (12 in WW II and 4 in Vietnam)
Aug. 28, 1972	First USAF ace of Vietnam: Capt. Richard S. Ritchie

By tradition, anyone with five official aerial victory credits is an ace. In compiling this list of aces who flew with the US Air Force and predecessor organizations (the Air Service, Air Corps, and Army Air Forces), *Air Force* Magazine relies on USAF's official accounting of aerial victory credits, which is the responsibility of the Air Force Historical Research Agency, Maxwell AFB, Ala.

Air Force historians have kept the official records of aerial victories by USAF pilots and crew members since 1957. The Office of the Air Force Historian initially published four separate listings—for World War I, World War II, the Korean War, and the Vietnam War. The four volumes were corrected, updated, and combined into one comprehensive volume. AFHRA continues to correct records and updates its online listing (www.maxwell.af.mil/au/afhra).

The criteria that the Air Force established for awarding aerial victory credits varied from war to war, and therefore one cannot make direct comparisons of aces across all wars.

In many cases during World War I, several aviators worked together to down a single aircraft. The Air Service awarded one whole credit to each aviator who contributed to the victory. A single victory could—and often did—result in three or four victory credits.

In World War II and Korea, the criteria were changed. The service divided one credit among all aviators who contributed to destruction of an enemy airplane. With the awarding of fractional credits, a single victory could result in no more than one credit.

The rules were changed again in the Vietnam War. When an F-4 downed an enemy aircraft, USAF would award two full aerial victory credits—one to the frontseater and one to the backseater. As in World War I, a single victory resulted in multiple victory credits.

Thus, the standards for World War II and Korea were more restrictive than those for World War I and Vietnam.

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American Aces of World War I

Capt. Eddie Rickenbacker (26)

In World War I, pilots who shared victories were each given one credit. This list uses the World War I counting rule.

Rickenbacker, Capt. Edward V.	26
Luke, 2nd Lt. Frank Jr.	18
Vaughn, 1st Lt. George A.	13
Kindley, 1st Lt. Field E.	12
Springs, 1st Lt. Elliott W.	12
Landis, 1st Lt. Reed G.	10
Swaab, 1st Lt. Jacques M.	10
Baer, 1st Lt. Paul P.	9
Cassady, 1st Lt. Thomas G.	9
Hamilton, 1st Lt. Lloyd A.	9
Wright, 1st Lt. Chester E.	9
Clay, 1st Lt. Henry R. Jr.	8
Coolidge, Capt. Hamilton	8
Donaldson, 2nd Lt. John O.	8
Erwin, 1st Lt. William P.	8
Hunter, 1st Lt. Frank O'D.	8
Jones, 2nd Lt. Clinton	8
Meissner, Capt. James A.	8
Stenseth, 1st Lt. Martinus	8
White, 2nd Lt. Wilbert W.	8
Burdick, 2nd Lt. Howard	7
Chambers, 1st Lt. Reed M.	7
Cook, 1st Lt. Harvey W.	7
Creech, 1st Lt. Jesse O.	7
Holden, 1st Lt. Lansing C.	7
Robertson, 1st Lt. Wendel A.	7
Rummell, 1st Lt. Leslie J.	7
Schoen, 1st Lt. Karl J.	7
Sewall, 1st Lt. Sumner	7
Beane, 1st Lt. James D.	6
Biddle, Capt. Charles J.	6
Brooks, 2nd Lt. Arthur R.	6
Campbell, 1st Lt. Douglas	6
Curtis, 1st Lt. Edward P.	6
Easterbrook, 1st Lt. Arthur E.	6
Guthrie, 1st Lt. Murray K.	6
Hammond, 1st Lt. Leonard C.	6
Hays, 2nd Lt. Frank K.	6
Hudson, 1st Lt. Donald	6
Knotts, 2nd Lt. Howard C.	6
Lindsay, 1st Lt. Robert O.	6
MacArthur, 2nd Lt. John K.	6
Ponder, 2nd Lt. William T.	6
Putnam, 1st Lt. David E.	6
Stovall, 1st Lt. William H.	6
Tobin, 1st Lt. Edgar G.	6
Vasconcells, 1st Lt. Jerry C.	6
Badham, 2nd Lt. William T.	5
Bair, 1st Lt. Hilbert L.	5
Bissell, 1st Lt. Clayton L.	5
Buckley, 1st Lt. Harold R.	5
Cook, 1st Lt. Everett R.	5
D'Olive, 1st Lt. Charles R.	5
Furlow, 1st Lt. George W.	5
George, 1st Lt. Harold H.	5
Grey, 1st Lt. Charles G.	5
Haight, 1st Lt. Edward M.	5
Healy, 1st Lt. James A.	5
Keating, 1st Lt. James A.	5
Knowles, 1st Lt. James Jr.	5
Larner, 1st Lt. G. DeFreest	5
Luff, 1st Lt. Frederick E.	5
O'Neill, 2nd Lt. Ralph A.	5
Owens, 2nd Lt. John S.	5
Porter, 2nd Lt. Kenneth L.	5
Ralston, 1st Lt. Orville A.	5
Seerley, 1st Lt. John J.	5
Strahm, Capt. Victor H.	5
Todd, 2nd Lt. Robert M.	5
Vernam, 1st Lt. Remington D.	5
Wehner, 1st Lt. Joseph F.	5

2nd Lt. Frank Luke Jr. (18)

Army Air Forces Aces of World War II

Maj. Richard Bong (40)

Ranks are as of last victory in World War II.

Bong, Maj. Richard I.	40
McGuire, Maj. Thomas B. Jr.	38
Gabreski, Lt. Col. Francis S.	28
Johnson, Capt. Robert S.	27
MacDonald, Col. Charles H.	27
Preddy, Maj. George E.	26.83
Meyer, Lt. Col. John C.	24
Schilling, Col. David C.	22.50
Johnson, Lt. Col. Gerald R.	22
Kearby, Col. Neel E.	22
Robbins, Maj. Jay T.	22
Christensen, Capt. Fred J.	21.50
Wetmore, Capt. Ray S.	21.25
Voll, Capt. John J.	21
Mahurin, Maj. Walker M.	20.75
Lynch, Lt. Col. Thomas J.	20
Westbrook, Lt. Col. Robert B.	20
Gentile, Capt. Don S.	19.83
Duncan, Col. Glenn E.	19.50
Carson, Capt. Leonard K.	18.50
Eagleston, Maj. Glenn T.	18.50
Beckham, Maj. Walter C.	18
Green, Maj. Herschel H.	18
Herbst, Lt. Col. John C.	18
Zemke, Col. Hubert	17.75
England, Maj. John B.	17.50
Beeson, Capt. Duane W.	17.33
Thornell, 1st Lt. John F. Jr.	17.25
Varnell, Capt. James S. Jr.	17
Johnson, Maj. Gerald W.	16.50

TO TAKE THE AOC WEAPON SYSTEM INTO THE FUTURE, LOOK TO THE EXPERIENCED TEAM YOU TRUST TODAY.

U.S. Air Force photo by Tech. Sgt. Ben Bloker

Warfighters know that behind every successful mission are trusted, experienced partners. For over a decade, Lockheed Martin has been providing the innovative technologies and integrated solutions that power the AOC. Bringing today's AOC into the future requires a visionary integrator. One who sees the AOC as a true weapons system. Capabilities-based, and sharply focused on net-centric battlespace management. And above all, one who will deliver a system that will help ensure warfighter success, now and in the future. That integrator is Lockheed Martin's Team AOC. Forward thinking. New technologies. Unprecedented experience.

LOCKHEED MARTIN

RAYTHEON SAIC CSC DYNAMICS RESEARCH GESTALT IBM ISS L3 COMMUNICATIONS

Maj. Thomas McGuire Jr. (38)

Godfrey, Capt. John T.	16.33
Anderson, Capt. Clarence E. Jr.	16.25
Dunham, Lt. Col. William D.	16
Harris, Lt. Col. Bill	16
Welch, Capt. George S.	16
Beerbower, Capt. Don M.	15.50
Brown, Maj. Samuel J.	15.50
Peterson, Capt. Richard A.	15.50
Whisner, Capt. William T. Jr.	15.50
Bradley, Lt. Col. Jack T.	15
Cragg, Maj. Edward	15
Foy, Maj. Robert W.	15
Hofer, 2nd Lt. Ralph K.	15
Homer, Capt. Cyril F.	15
Landers, Lt. Col. John D.	14.50
Powers, Capt. Joe H.	14.50
Brown, Capt. Henry W.	14.20
Carr, 1st Lt. Bruce W.	14
Curtis, Maj. Robert C.	14
Dahlberg, Capt. Kenneth H.	14
DeHaven, Capt. Robert M.	14
Emmer, Capt. Wallace N.	14
Goodson, Maj. James A.	14
Jeffrey, Lt. Col. Arthur F.	14
McComas, Lt. Col. Edward O.	14

Col. Hubert Zemke (17.75)

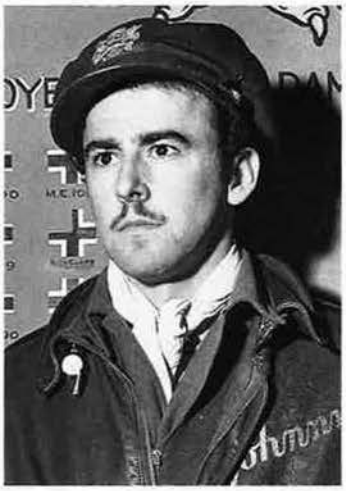
Roberts, Capt. Daniel T. Jr.	14
West, Capt. Richard L.	14
Bochkay, Maj. Donald H.	13.83
Strait, Maj. Donald J.	13.50
Bryan, Capt. Donald S.	13.33
Carpenter, Maj. George	13.33
Brooks, 1st Lt. James L.	13
Hampshire, Capt. John F. Jr.	13
Head, Capt. Cotesworth B. Jr.	13
Holloway, Col. Bruce K.	13
Millikan, Capt. Willard W.	13

Capt. Robert Johnson (27) **and Lt. Col. Francis Gabreski** (28)

Moran, 1st Lt. Glennon T.	13
Parker, Capt. Harry A.	13
Stephens, Maj. Robert W.	13
Williamson, Capt. Felix D.	13
Brueland, Maj. Lowell K.	12.50
Brown, Maj. Quince L.	12.33
Brezas, 1st Lt. Michael	12
Chase, Lt. Col. Levi R.	12
East, Capt. Clyde B.	12
Gleason, Capt. George W.	12
Hively, Maj. Howard D.	12
Ladd, Capt. Kenneth G.	12

Maj. Donald Strait (13.50)

Moore, Maj. Robert W.	12
Olds, Maj. Robin	12
Schreiber, Capt. Leroy A.	12
Skogstad, 1st Lt. Norman C.	12
Sloan, 1st Lt. William J.	12
Watkins, Capt. James A.	12
Megura, Capt. Nicholas	11.83
Blakeslee, Col. Donald J.M.	11.50
Conger, Maj. Paul A.	11.50
Kirla, 1st Lt. John A.	11.50
McDonald, Maj. Norman L.	11.50
Stewart, Maj. James C.	11.50
Yeager, Capt. Charles E.	11.50
Norley, Maj. Louis H.	11.33
Frantz, 1st Lt. Carl M.	11
Goebel, Capt. Robert J.	11
Lawler, Capt. John B.	11
Lent, 1st Lt. Francis J.	11
Leverette, Lt. Col. William L.	11
Loisel, Maj. John S.	11
Lowry, 1st Lt. Wayne L.	11
McCorkle, Col. Charles M.	11
McKennon, Maj. Pierce W.	11
Mitchell, Lt. Col. John W.	11
Molland, Capt. Leland P.	11
Quirk, Capt. Michael J.	11
Riddle, 1st Lt. Robert E.	11
Shubin, 1st Lt. Murray J.	11
Smith, Capt. Cornelius M. Jr.	11
Sparks, 1st Lt. Kenneth C.	11
Turner, Maj. Richard E.	11
O'Connor, Capt. Frank Q.	10.75
Ceuleers, Lt. Col. George F.	10.50
Clark, Lt. Col. James A. Jr.	10.50
Doersch, Capt. George A.	10.50
Halton, Maj. William T.	10.50
Hovde, Maj. William J.	10.50
Littge, Capt. Raymond H.	10.50
Storch, Lt. Col. John A.	10.50
Glover, Maj. Fred W.	10.33
Anderson, 1st Lt. Charles F.	10
Aschenbrener, Capt. Robert W.	10
Blickenstaff, Lt. Col. Wayne K.	10
England, Maj. James J.	10



Capt. John Godfrey (16.33)

Giroux, Capt. William K.	10
Gladych,* SL Michael	10
Goehausen, Capt. Walter J. Jr.	10
Harris, Capt. Ernest A.	10
Lines, 1st Lt. Ted E.	10
Rankin, 1st Lt. Robert J.	10
Reynolds, 1st Lt. Andrew J.	10
Scott, Col. Robert L. Jr.	10
Stanch, Capt. Paul M.	10
Summer, Capt. Elliot	10
Bankey, Capt. Ernest E. Jr.	9.5
Spencer, 1st Lt. Dale F.	9.5
Adams, Capt. Fletcher E.	9
Andrew, Maj. Stephen W.	9
Banks, Maj. William M.	9
Beyer, Capt. William R.	9
Boggs, Capt. Hampton E.	9
Champlin, Capt. Frederic F.	9
Collins, Maj. Frank J.	9
Curdes, 1st Lt. Louis E.	9
Dahl, Capt. Perry J.	9
Dalglish, Maj. James B.	9
Dunkin, Capt. Richard W.	9
Emmons, 1st Lt. Eugene H.	9
Fanning, 1st Lt. Grover E.	9
Feld, 1st Lt. Sylvan	9
Fiebelkorn, 1st Lt. Ernest C.	9
Forster, 1st Lt. Joseph M.	9
Gallup, Lt. Col. Kenneth W.	9
Hill, Capt. Allen E.	9
Hurlbut, Flight Officer Frank D.	9
Juchheim, Capt. Alwin M.	9
Kiser, Capt. George E.	9
Lesicka, 1st Lt. Joseph J.	9
Meroney, Capt. Virgil K.	9
Morrill, 1st Lt. Stanley B.	9
Overfield, 1st Lt. Loyd J.	9
Paris, Capt. Joel B. III	9
Roberts, Lt. Col. Eugene P.	9
Smith, Lt. Col. Meryl M.	9
Stewart, Capt. John S.	9
White, Capt. Robert H.	9
Wolfe, Capt. Judge E.	9
Bennett, Capt. Joseph H.	8.5
Cesky, Capt. Charles J.	8.5
Dorsch, Capt. Frederick J. Jr.	8.5
Hayes, Lt. Col. Thomas L. Jr.	8.5
Hoefker, Capt. John H.	8.5
Jenkins, 2nd Lt. Otto D.	8.5
Johnson, 1st Lt. Arthur G. Jr.	8.5
Luksic, 1st Lt. Carl J.	8.5
McDowell, 1st Lt. Don	8.5
McGrattan, Capt. Bernard L.	8.5
Moats, 1st Lt. Sanford K.	8.5
Schlegel, Capt. Albert L.	8.5
Ainlay, 1st Lt. John M.	8
Allen, 1st Lt. David W.	8
Benz, Maj. Walter G. Jr.	8
Booth, 1st Lt. Robert J.	8
Bostwick, Maj. George E.	8
Broadhead, Maj. Joseph E.	8
Carroll, 1st Lt. Walter J. Jr.	8
Cruikshank, Maj. Arthur W. Jr.	8
Damstrom, 1st Lt. Fernley H.	8
Douglas, Lt. Col. Paul P. Jr.	8
Elder, Maj. John L. Jr.	8
Fiedler, Capt. Arthur C. Jr.	8
Fowle, 1st Lt. James M.	8
Gardner, Capt. William A.	8
Gaunt, Capt. Frank L.	8
Gerard, Capt. Francis R.	8
Grosshuesch, Capt. Leroy V.	8
Harris, Capt. Frederick A.	8
Hart, 1st Lt. Kenneth F.	8
Ilfrey, Capt. Jack M.	8
Jackson, Maj. Michael J.	8
Jones, Capt. John L.	8
Kinnard, Lt. Col. Claiborne H. Jr.	8
Maloney, Capt. Thomas E.	8
Momyer, Col. William W.	8
Morehead, 1st Lt. James B.	8
Novotny, 1st Lt. George P.	8
O'Neill, 1st Lt. John G.	8
Paisley, 1st Lt. Melvyn R.	8
Richardson, Maj. Elmer W.	8
Roddy, Capt. Edward F.	8
Rowland, Col. Robert R.	8
Sangermano, 1st Lt. Philip	8

Lt. Col. Boyd Wagner (8)

Schiltz, 1st Lt. Glen D. Jr.	8
Shaw, 1st Lt. Robert M.	8
Shomo, Capt. William A.	8
Smith, Maj. Carroll C.	8
Stanton, Maj. Arland	8
Sublett, Capt. John L.	8
Tapp, Maj. James B.	8
Tovrea, 1st Lt. Philip E. Jr.	8
Tyler, Maj. James O.	8
Vogt, Maj. John W. Jr.	8
Wagner, Lt. Col. Boyd D.	8
Warford, Maj. Victor E.	8
Weaver, Capt. Charles E.	8
Lang, Capt. Joseph L.	7.83
Stewart, Lt. Col. Everett W.	7.83
Bryan, Maj. William E. Jr.	7.5
Cutler, Capt. Frank A.	7.5
Davis, Capt. Glendon V.	7.5
Glenn, Maj. Maxwell H.	7.5
Karger, 1st Lt. Dale E.	7.5
Lamb, Maj. George M.	7.5
Lasko, Capt. Charles W.	7.5
Lowell, Lt. Col. John H.	7.5
Miklajcyk, Capt. Henry J.	7.5
Righetti, Lt. Col. Elwyn G.	7.5

Capt. William Shomo (8)

*Squadron Leader Gladych was Polish and flew in service with American units, but because the Polish government in exile was headquartered in London, Polish pilots had British designations.

Garrison, 1st Lt. Vermont	7.33
Morris, Capt. James M.	7.33
Goodnight, 1st Lt. Robert E.	7.25
Adams, Capt. Burnell W.	7
Allen, 1st Lt. Calvin D. Jr.	7
Anderson, 1st Lt. William Y.	7
Becker, Capt. Robert H.	7
Blair, Capt. Samuel V.	7
Browning, Capt. James W.	7
Carder, 1st Lt. John B.	7
Chapman, Maj. Philip G.	7
Cramer, Maj. Darrell S.	7
Crenshaw, 1st Lt. Claude J.	7
Davis, 1st Lt. George A. Jr.	7
Dean, 1st Lt. Zach W.	7
Duke, Capt. Walter F.	7
Dunaway, 1st Lt. John S.	7
Edens, 2nd Lt. Billy G.	7
Elliott, 1st Lt. Vincent T.	7
Fisher, Capt. Edwin O.	7
Fisk, Capt. Jack A.	7
Franklin, 1st Lt. Dwaine R.	7
Graham, Lt. Col. Gordon M.	7
Grant, 1st Lt. Marvin E.	7
Gregg, 1st Lt. Lee O.	7
Griffin, Maj. Joseph H.	7
Hennon, Capt. William J.	7
Hill, Maj. Frank A.	7
Hockery, Capt. John J.	7
Howard, Col. James H.	7
Jackson, Lt. Col. Willie O. Jr.	7
Jamison, Capt. Gilbert L.	7
Jett, Capt. Verl E.	7
Johnson, Capt. Clarence O.	7
Keen, 1st Lt. Robert J.	7
King, Capt. Benjamin H.	7
Kinsey, 2nd Lt. Claude R. Jr.	7
Klibbe, 2nd Lt. Frank W.	7
Kuentzel, 2nd Lt. Ward A.	7
Lamb, Capt. Robert A.	7
Lewis, Maj. Warren R.	7
Lewis, Lt. Col. William H.	7
Liebers, 2nd Lt. Lawrence P.	7
Little, 1st Lt. James W.	7
Lombard, Maj. John D.	7
Maguire, Capt. William J.	7
Marshall, Maj. Bert W. Jr.	7
McLaughlin, Capt. Murray D.	7
Moore, Maj. John T.	7
O'Brien, 1st Lt. Gilbert M.	7
Older, Lt. Col. Charles H.	7
Pierce, 1st Lt. Joseph F.	7
Pierce, 1st Lt. Sammy A.	7
Poindexter, Capt. James N.	7
Popek, Maj. Edward S.	7
Purdy, 1st Lt. John E.	7
Reynolds, 1st Lt. Robert	7
Rogers, Capt. Felix M.	7
Ross, Maj. Herbert E.	7
Sears, 1st Lt. Meldrum L.	7
Shafer, Lt. Col. Dale E. Jr.	7
Shipman, 1st Lt. Ernest	7
Shuler, 1st Lt. Lucien B.	7
Simmons, 1st Lt. John M.	7
Smith, Maj. Leslie C.	7
Smith, 1st Lt. Richard E.	7
Stone, 2nd Lt. Robert J.	7
Strand, Capt. William H.	7
Truluck, 1st Lt. John H.	7
Turner, Lt. Col. William L.	7
Tyler, 1st Lt. Gerald E.	7
Vaughn, Maj. Harley C.	7
Waters, 1st Lt. Edward T.	7
Wheadon, Capt. Elmer M.	7
Whittaker, Capt. Roy E.	7
Wicker, Maj. Samuel J.	7
Wilkinson, Capt. James W.	7
Wire, 1st Lt. Calvin C.	7
Woods, Lt. Col. Sidney S.	7
Woody, Capt. Robert E.	7
Zoerb, Capt. Daniel J.	7
Murphy, Lt. Col. John B.	6.75
Cummings, Capt. Donald M.	6.5
Gray, Maj. Rockford V.	6.5
Hoffman, 1st Lt. James E. Jr.	6.5
Hubbard, Lt. Col. Mark E.	6.5
Hunt, 1st Lt. Edward E.	6.5
Koenig, 1st Lt. Charles W.	6.5
Kruzel, Lt. Col. Joseph J.	6.5
Moseley, Capt. Mark L.	6.5
Rader, 1st Lt. Valentine S.	6.5
Riley, 1st Lt. Paul S.	6.5
Welden, 1st Lt. Robert D.	6.25
Adams, 1st Lt. Charles E. Jr.	6
Alison, Lt. Col. John R.	6
Anderson, 1st Lt. Wyman D.	6
Andrews, 1st Lt. Stanley O.	6
Baker, 1st Lt. Ellis C. Jr.	6
Baseler, Lt. Col. Robert L.	6
Bille, Maj. Henry S.	6
Blumer, Capt. Laurence E.	6
Brown, 1st Lt. Harley L.	6
Brown, Capt. Harry W.	6
Brown, Capt. Meade M.	6
Buck, Capt. George T. Jr.	6
Callaway, Maj. Raymond H.	6
Campbell, 1st Lt. Richard A.	6
Candelaria, 1st Lt. Richard G.	6
Care, Capt. Raymond C.	6
Carlson, Capt. Kendall E.	6
Carter, Capt. James R.	6
Chick, Lt. Col. Lewis W. Jr.	6
Coffey, Lt. Col. Robert L. Jr.	6
Collinsworth, Capt. J.D.	6
Cook, Capt. Walter V.	6
Crawford, 2nd Lt. Ray	6
Crim, Maj. Harry C. Jr.	6
Cundy, 1st Lt. Arthur C.	6
Czarnecki, 1st Lt. Edward J.	6

Col. James Howard (7)

1st Lt. Urban Drew (6)

Davis, 1st Lt. Barrie S.	6
Dean, 2nd Lt. Cecil O.	6
Degraffenreid, 2nd Lt. Edwin L.	6
Dent, Capt. Elliott E. Jr.	6
Dillard, Capt. William J.	6
Drew, 1st Lt. Urban L.	6
Drier, Capt. William C.	6
Eason, 1st Lt. Hoyt A.	6
Emerson, Capt. Warren S.	6
Emmert, 1st Lt. Benjamin H.	6
Evans, Lt. Col. Andrew J. Jr.	6
Evans, Maj. Roy W.	6
Everhart, Capt. Lee R.	6
Fleischer, Capt. Richard H.	6
Foulis, Capt. William B. Jr.	6
Froning, 1st Lt. Alfred C.	6
Gallup, Capt. Charles S.	6
Goss, Maj. Edmund R.	6
Gresham, 1st Lt. Billy M.	6
Gumm, 1st Lt. Charles F. Jr.	6
Hagerstrom, 1st Lt. James P.	6
Hall, 1st Lt. George F.	6
Hanes, 1st Lt. William F. Jr.	6
Harmeyer, 1st Lt. Raymond F.	6
Hart, Capt. Cameron M.	6
Haviland, Capt. Fred R. Jr.	6
Hill, Col. David L.	6
Hogg, Capt. Roy B.	6
Holloway, 1st Lt. James D.	6
Howard, 1st Lt. Robert L.	6
Howes, 1st Lt. Bernard H.	6
Hurd, 1st Lt. Richard F.	6
Ince, 1st Lt. James C.	6
Johnston, Lt. Col. Robert D.	6
Jones, 1st Lt. Cyril W. Jr.	6
Jordan, Maj. Wallace R.	6
Karr, Capt. Robert A.	6
Kemp, 2nd Lt. William T.	6
Kienholz, 1st Lt. Donald D.	6
Lane, 1st Lt. John H.	6
Larson, Maj. Donald A.	6
Larson, 2nd Lt. Leland A.	6
Lubner, Capt. Martin W.	6
Lucas, Capt. Paul W.	6
Lustic, 1st Lt. Stanley J.	6
McDaniel, 1st Lt. Gordon H.	6
McGee, Capt. Donald C.	6
McKeon, Capt. Joseph T.	6
Meigs, 1st Lt. Henry II	6

Maj. John Alison (6), **Maj. David Hill** (6), **and Capt. Albert Baumler** (5)

Meuten, 1st Lt. Donald W.	6
Miller, Capt. Armour C.	6
Mills, Maj. Henry L.	6
Mugavero, 1st Lt. James D.	6
Murphey, Capt. Paul C. Jr.	6
Murphy, Capt. Alva C.	6
Ohr, Capt. Fred F.	6
Olson, Capt. Norman E.	6
Pietz, 1st Lt. John Jr.	6
Pissanos, 1st Lt. Spiros N.	6
Pugh, Capt. John F.	6
Reed, Capt. William N.	6
Reeves, 1st Lt. Horace B.	6
Reeves, 1st Lt. Leonard R.	6
Roberson, 1st Lt. Arval J.	6
Scheible, Capt. Wilbur R.	6
Schildt, 1st Lt. William J.	6
Schimanski, Capt. Robert G.	6
Simmons, 1st Lt. William J.	6
Smith, 1st Lt. John C.	6
Starck, Capt. Walter E.	6
Starnes, Capt. James R.	6
Taylor, Capt. Ralph G. Jr.	6
Thwaites, Capt. David F.	6
Turley, 2nd Lt. Grant M.	6
Vincent, Col. Clinton D.	6
Wainwright, 2nd Lt. John H.	6
Walker, 1st Lt. Thomas H.	6
Wandrey, Capt. Ralph H.	6
Welch, Capt. Robert E.	6
Wenige, 1st Lt. Arthur E.	6
Whalen, 1st Lt. William E.	6
White, 2nd Lt. Thomas A.	6
Williams, 1st Lt. James M.	6
Witt, Capt. Lynn E. Jr.	6
Wright, Capt. Ellis W. Jr.	6
Zubarik, 1st Lt. Charles J.	6
Fortier, Capt. Norman J.	5.83
Koraleski, Capt. Walter J. Jr.	5.53
Amoss, 1st Lt. Dudley M.	5.5
Bickel, 1st Lt. Carl G.	5.5
Burdick, 1st Lt. Clinton D.	5.5
Buttke, Capt. Robert L.	5.5
Compton, Capt. Gordon B.	5.5
Edwards, 1st Lt. Edward B. Jr.	5.5
Gailer, 1st Lt. Frank L.	5.5
Graham, Capt. Lindol F.	5.5
Hatala, Capt. Paul R.	5.5
Heller, Capt. Edwin L.	5.5
Holmes, 1st Lt. Besby F.	5.5
Horne, 1st Lt. Francis W.	5.5
King, 1st Lt. William B.	5.5
Lampe, 1st Lt. Richard C.	5.5
Lenfest, Capt. Charles W.	5.5
Long, Capt. Maurice G.	5.5
McCauley, 1st Lt. Frank E.	5.5
Minchew, Capt. Leslie D.	5.5
O'Brien, Capt. William R.	5.5
Pascoe, 1st Lt. James J.	5.5
Pompetti, 1st Lt. Peter E.	5.5
Ruder, 1st Lt. Leroy A.	5.5
Shoup, 1st Lt. Robert L.	5.5
Smith, 1st Lt. Donovan F.	5.5
Tanner, Capt. William F.	5.5
Vanden Heuvel, 1st Lt. George R.	5.5
Waits, 1st Lt. Joe W.	5.5
Wang, 1st Lt. Kuang Fu	5.5
Winks, 1st Lt. Robert P.	5.5
Biel, 1st Lt. Hipolitus T.	5.33
Vinson, Capt. Arnold E.	5.33
Dorris, Maj. Harry W.	5.25

Col. Clinton Vincent (6)

Miller, 2nd Lt. Thomas F.	5.25
Thompson, 1st Lt. Robert D.	5.25
Duffy, Capt. James E. Jr.	5.2
Abernathy, Capt. Robert W.	5
Adams, 1st Lt. Robert H.	5
Allen, 1st Lt. William H.	5
Ambort, 2nd Lt. Ernest J.	5
Ammon, 1st Lt. Robert H.	5
Andersen, 1st Lt. Leslie E.	5
Anderson, 1st Lt. Richard H.	5
Arasmith, 1st Lt. Lester L.	5
Archibald, 1st Lt. David B.	5
Aron, 1st Lt. William E.	5
Aust, Capt. Abner M. Jr.	5
Axtell, 1st Lt. Eugene D.	5
Baccus, Lt. Col. Donald A.	5
Bade, 1st Lt. Jack A.	5
Bank, 1st Lt. Raymond M.	5
Barber, 1st Lt. Rex T.	5
Barkey, 1st Lt. Robert M.	5
Barnes, 1st Lt. Truman S.	5
Baumler, Capt. Albert J.	5
Bearden, 2nd Lt. Aaron L.	5
Beavers, Capt. Edward H. Jr.	5
Benne, 1st Lt. Louis	5
Bolyard, Capt. John W.	5
Bonner, 1st Lt. Stephen J.	5
Bostrom, 1st Lt. Ernest O.	5
Bradley, Maj. John L.	5
Brown, Capt. Gerald	5
Byrne, 1st Lt. Robert J.	5
Byrnes, Capt. Robert C.	5
Castle, 2nd Lt. Nial K.	5
Chandler, Capt. George T.	5
Chandler, 1st Lt. Van E.	5
Cleaveland, 2nd Lt. Arthur B.	5
Clinger, Capt. Dallas A.	5
Cloud, Capt. Vivian A.	5
Cochran, 2nd Lt. Paul R.	5
Colman, 1st Lt. Philip E.	5
Comstock, Maj. Harold E.	5
Condon, Capt. Henry L. II	5
Coons, Capt. Merle M.	5
Cox, Capt. Ralph L.	5
Cranfill, Maj. Niven K.	5
Cullerton, 1st Lt. William J.	5
Curton, 1st Lt. Warren D.	5
Daniel, Col. William A.	5
Daniell, 1st Lt. J.S.	5
Davis, Capt. Clayton E.	5
Day, 1st Lt. William C. Jr.	5
Deakins, 1st Lt. Richard S.	5
Della, 1st Lt. George	5
Dick, Capt. Frederick E.	5
Dikovitsky, 1st Lt. Michael	5
Donaldson, 2nd Lt. I.B. Jack	5
Dregne, Lt. Col. Irwin H.	5
Dubisher, Maj. Francis E.	5
Dubois, 1st Lt. Charles H.	5
Duffy, 2nd Lt. Richard E.	5
Egan, 1st Lt. Joseph L. Jr.	5
Elder, Maj. Robert A.	5
Empey, 1st Lt. James W.	5
Ernst, 1st Lt. Herman E.	5
Faxon, 1st Lt. Richard D.	5
Felts, 1st Lt. Marion C.	5
Fenex, Capt. James E. Jr.	5

Capt. Edwin Heller (5.5)

Fiedler, 1st Lt. William F. Jr.	5
Fields, Capt. Virgil C. Jr.	5
Fischette, 1st Lt. Charles R.	5
Fisher, 1st Lt. Rodney W.	5
Fisk, Capt. Harry E.	5
Flack, Capt. Nelson D. Jr.	5
Ford, Maj. Claude E.	5
Gardner, Maj. Warner F.	5
Gerick, 2nd Lt. Steven	5
Gholson, Capt. Grover D.	5
Gibb, 1st Lt. Robert D.	5
Gladen, 1st Lt. Cyrus R.	5
Goodrich, 1st Lt. Burdett C.	5
Gordon, Capt. Mathew M. Jr.	5
Graham, 2nd Lt. Robert F.	5
Griffith, 1st Lt. Robert C.	5
Gross, Capt. Clayton K.	5
Grosvenor, Capt. William Jr.	5
Gupton, 1st Lt. Cheatham W.	5
Hammer, 1st Lt. Samuel E.	5
Hanna, 2nd Lt. Harry T.	5
Hanseman, 1st Lt. Chris J.	5
Harris, Capt. Thomas L.	5
Hartley, Capt. Raymond E. Jr.	5
Hatch, 2nd Lt. Herbert B. Jr.	5
Hauver, 1st Lt. Charles D.	5
Haworth, 1st Lt. Russell C.	5
Hendricks, Maj. Randall W.	5
Hill, Maj. James E.	5
Hiro, Maj. Edwin W.	5
Hnatio, 1st Lt. Myron M.	5
Hodges, Capt. William R.	5
Hoffman, 1st Lt. Cullen J.	5
House, 1st Lt. A.T. Jr.	5
Howe, 1st Lt. David W.	5
Hoyt, Capt. Edward R.	5
Hunter, Capt. Alvaro J.	5
Icard, 2nd Lt. Joe W.	5
Johnson, Capt. Evan M.V.	5
Jones, Capt. Curran L.	5
Jones, Capt. Frank C.	5
Jones, Capt. Lynn F.	5
Jones, 2nd Lt. Warren L.	5
Julian, Maj. William H.	5
Kennedy, 1st Lt. Daniel	5
King, Maj. Charles W.	5
King, 1st Lt. David L.	5
Kirby, 1st Lt. Marion F.	5
Kirkland, 1st Lt. Lenton F. Jr.	5
Knapp, Capt. Robert H.	5
Knott, 1st Lt. Carroll S.	5
Kopsel, 1st Lt. Edward H.	5
Lathrope, 2nd Lt. Franklin C.	5
Lazear, 1st Lt. Earl R. Jr.	5
Lee, 1st Lt. Richard J.	5
Leikness, Capt. Marlow J.	5
Lenox, 2nd Lt. Jack Jr.	5
Liles, Maj. Robert L.	5
London, Capt. Charles P.	5
Loving, Capt. George G. Jr.	5
Lutton, 1st Lt. Lowell C.	5
Mackay, 2nd Lt. John A.	5
Magoffin, Col. Morton D.	5
Mahon, Capt. Keith	5
Mahony, Lt. Col. Grant	5
Mankin, Capt. Jack C.	5
Markham, Capt. Gene E.	5
Marsh, 1st Lt. Lester C.	5
Martin, Col. Kenneth R.	5
Mason, Col. Joe L.	5
Mathis, 1st Lt. William H.	5
Mathre, 2nd Lt. Milden E.	5
Matte, 1st Lt. Joseph Z.	5
Maxwell, Capt. Chester K.	5
McArthur, 1st Lt. Paul G.	5
McArthur, Capt. T.H.	5
McDonough, Maj. William F.	5
McElroy, Capt. James N.	5
McGinn, Lt. Col. John L.	5
McGuyrt, 1st Lt. John W. Jr.	5
McMinn, Flight Officer Evan D.	5
Merritt, Maj. George L. Jr.	5
Miller, 1st Lt. Everett	5
Miller, Capt. Joseph E. Jr.	5
Milliken, 1st Lt. Robert C.	5
Monk, 1st Lt. Franklin H.	5
Mooney, 2nd Lt. Raymond P.	5
Morriss, Capt. Paul V.	5
Mulhollem, 1st Lt. Robert F.	5
Myers, 1st Lt. Jennings L.	5
Myers, Lt. Col. Raymond B.	5
Nichols, Maj. Franklin A.	5
Nollmeyer, Maj. Edward M.	5
Oberhansly, Maj. Jack J.	5
Olson, 1st Lt. Paul E.	5
O'Neill, Capt. Eugene W. Jr.	5
O'Neill, 1st Lt. Lawrence F.	5
Osher, Capt. Ernest K.	5

Lt. Col. Harrison Thyng (5)

Overcash, 1st Lt. Robert J.	5
Owens, Maj. Joel A. Jr.	5
Parham, Capt. Forrest F.	5
Paulk, 2nd Lt. Edsel	5
Payne, Capt. Carl W.	5
Perdomo, 1st Lt. Oscar F.	5
Pool, 1st Lt. Kenneth R.	5
Porter, 1st Lt. Philip B.	5
Powers, 2nd Lt. Macarthur	5
Price, Maj. Jack C.	5
Priest, 1st Lt. Royce W.	5
Pryor, Capt. Roger C.	5
Quigley, Maj. Donald L.	5
Ray, 1st Lt. C.B.	5
Reese, 1st Lt. William C.	5
Ritchey, 1st Lt. Andrew J.	5
Roberts, Capt. Newell O.	5
Rose, 1st Lt. Franklin Jr.	5
Rounds, 1st Lt. Gerald L.	5
Rudolph, 1st Lt. Henry S.	5
Rynne, Capt. William A.	5
Schank, 1st Lt. Thomas D.	5
Schriber, Capt. Louis	5
Schuh, 1st Lt. Duerr H.	5
Schultz (Shoals), Capt. Robert B.	5
Sears, 1st Lt. Alexander F.	5
Seidman, 1st Lt. Robert K.	5
Smith, Capt. Jack R.	5
Smith, Capt. Kenneth G.	5
Smith, 1st Lt. Paul A.	5
Smith, 1st Lt. Virgil H.	5
Stangel, Capt. William J.	5
Stanley, 1st Lt. Morris A.	5
Suehr, 1st Lt. Richard C.	5
Sullivan, Capt. Charles P.	5
Sutcliffe, 1st Lt. Robert C.	5
Sykes, 1st Lt. William J.	5
Talbot, Maj. Gilbert F.	5
Taylor, Col. Oliver B.	5
Thyng, Lt. Col. Harrison R.	5
Tierney, 1st Lt. Robert E.	5
Tilley, 1st Lt. John A.	5
Tordoff, Capt. Harrison B.	5
Trafton, 1st Lt. Frederick O. Jr.	5
Troxell, Capt. Clifton H.	5
Vaught, Capt. Robert H.	5
Visscher, 1st Lt. Herman W.	5
Vogt, Capt. John E.	5
Waggoner, 1st Lt. Horace Q.	5
Walker, 1st Lt. Walter B. Jr.	5
Warner, Capt. Jack A.	5
Warren, Capt. Jack R.	5
Watson, Maj. Ralph J.	5
Watts, Capt. Oran S.	5
Weatherford, 1st Lt. Sidney W.	5
Webb, Maj. Willard J.	5
Welch, Capt. Darrell G.	5
Wesson, 1st Lt. Warren M.	5
White, 1st Lt. John H.	5
Wilhelm, Capt. David C.	5
Wilkins, 2nd Lt. Paul H.	5
Williams, 1st Lt. Russell D.	5
Wilson, Capt. William F.	5
Wire, Maj. Ralph L.	5
Wiseman, Capt. Lee V.	5
Wolford, 1st Lt. John L.	5
Wright, Capt. Max J.	5
Yaeger, Capt. Robert R. Jr.	5
York, 1st Lt. Robert M.	5

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From the leader of the pack.

The JTRS HMS Manpack will be the first to fill the gap and meet the U.S. government's uncompromising standards for:

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  - Ch 2: SRW
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**JTRS HMS (Handheld, Manpack, Small Form Fit) formerly known as JTRS Cluster 5*

GENERAL DYNAMICS

THALES Rockwell Collins BAE SYSTEMS

USAF Aces of the Korean War

Capt. Joseph McConnell Jr. (16)

McConnell, Capt. Joseph C. Jr.	16
Jabara, Maj. James	15
Fernandez, Capt. Manuel J. Jr.	14.50
Davis, Maj. George A. Jr.	14
Baker, Col. Royal N.	13
Blesse, Maj. Frederick C.	10
Fischer, Capt. Harold E.	10
Garrison, Lt. Col. Vermont	10
Johnson, Col. James K.	10
Moore, Capt. Lonnie R.	10
Parr, Capt. Ralph S. Jr.	10
Foster, Capt. Cecil G.	9
Low, 1st Lt. James F.	9
Hagerstrom, Maj. James P.	8.50
Risner, Capt. Robinson	8
Ruddell, Lt. Col. George I.	8
Buttelmann, 1st Lt. Henry	7
Jolley, Capt. Clifford D.	7
Lilley, Capt. Leonard W.	7
Adams, Maj. Donald E.	6.50
Gabreski, Col. Francis S.	6.50
Jones, Lt. Col. George L.	6.50
Marshall, Maj. Winton W.	6.50
Bolt, Maj. John F.	6
Kasler, 1st Lt. James H.	6
Love, Capt. Robert J.	6
Whisner, Maj. William T. Jr.	5.50
Baldwin, Col. Robert P.	5
Becker, Capt. Richard S.	5
Bettinger, Maj. Stephen L.	5
Creighton, Maj. Richard D.	5
Curtin, Capt. Clyde A.	5
Gibson, Capt. Ralph D.	5
Kincheloe, Capt. Iven C. Jr.	5
Latshaw, Capt. Robert T. Jr.	5
Moore, Capt. Robert H.	5
Overton, Capt. Dolphin D. III	5
Thyng, Col. Harrison R.	5
Wescott, Maj. William H.	5

Maj. William Whisner Jr. (5.50)

USAF Aces of the Vietnam War

DeBellevue, Capt. Charles B.	6
Feinstein, Capt. Jeffrey S.	5
Ritchie, Capt. Richard S.	5

Capt. Jeffrey Feinstein (5)

Capt. Charles DeBellevue (6) **and Capt. Richard Ritchie** (5)

AAF/USAF Aces With Victories in Both World War II and a Later War

	WW II	Korean/Other	Total
Gabreski, Col. Francis S.	28	6.50	34.50
Meyer, Col. John C.	24	2	26
Mahurin, Col. Walker M.	20.75	3.50	24.25
Davis, Maj. George A. Jr.	7	14	21
Whisner, Maj. William T. Jr.	15.50	5.50	21
Eagleston, Col. Glenn T.	18.50	2	20.50
Garrison, Lt. Col. Vermont	7.33	10	17.33
Baker, Col. Royal N.	3.50	13	16.50
Jabara, Maj. James	1.50	15	16.50
Olds, Col. Robin	12	4[a]	16
Mitchell, Col. John W.	11	4	15
Brueland, Maj. Lowell K.	12.50	2	14.50
Hagerstrom, Maj. James P.	6	8.50	14.50
Hovde, Lt. Col. William J.	10.50	1	11.50
Johnson, Col. James K.	1	10	11
Ruddell, Lt. Col. George I.	2.50	8	10.50
Thyng, Col. Harrison R.	5	5	10
Colman, Capt. Philip E.	5	4	9
Heller, Lt. Col. Edwin L.	5.50	3.50	9
Chandler, Maj. Van E.	5	3	8
Hockery, Maj. John J.	7	1	8
Creighton, Maj. Richard D.	2	5	7
Emmert, Lt. Col. Benjamin H.	6	1	7
Bettinger, Maj. Stephen L.	1	5	6
Visscher, Maj. Herman W.	5	1	6
Liles, Capt. Brooks J.	1	4	5
Mattson, Capt. Conrad E.	1	4	5
Shaeffer, Maj. William F.	2	3	5

[a]Olds's four additional victories came during the Vietnam War.

Lt. Col. John Meyer (26)

Maj. George Davis Jr. (21)

Leading Air Service/AAF/USAF Aces of All Wars

Bong, Maj. Richard I.	40	WW II
McGuire, Maj. Thomas B. Jr.	38	WW II
Gabreski, Col. Francis S.	34.50	WW II, Korea
Johnson, Capt. Robert S.	27	WW II
MacDonald, Col. Charles H.	27	WW II
Preddy, Maj. George E.	26.83	WW II
Meyer, Col. John C.	26	WW II, Korea
Rickenbacker, Capt. Edward V.	26[b]	WW I
Mahurin, Col. Walker M.	24.25	WW II, Korea
Schilling, Col. David C.	22.50	WW II
Johnson, Lt. Col. Gerald R.	22	WW II
Kearby, Col. Neel E.	22	WW II
Robbins, Maj. Jay T.	22	WW II
Christensen, Capt. Fred J.	21.50	WW II
Wetmore, Capt. Ray S.	21.25	WW II
Davis, Maj. George A. Jr.	21	WW II, Korea
Voll, Capt. John J.	21	WW II
Whisner, Capt. William T. Jr.	21	WW II, Korea
Eagleston, Col. Glenn T.	20.50	WW II, Korea
Lynch, Lt. Col. Thomas J.	20	WW II
Westbrook, Lt. Col. Robert B.	20	WW II
Gentile, Capt. Don S.	19.83	WW II

[b]Under World War II and Korean War counting rules, Rickenbacker would have been credited with 24.33 victories. The change would not alter his position on this list.

Maj. George Preddy (26.83)

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OUT IN FRONT FOR 75 YEARS.
Continuous innovation built on real combat experience. That's what has made Boeing the leader in aerial refueling for 75 years. By first pioneering and then continually innovating "flying boom" technology, Boeing's legacy of combat-proven tankers is unmatched. All leading to the KC-767, already in production for Italy and Japan. It's the world's most advanced refueling aircraft. Out in front and ready to fuel the future.
BOEING
Forever New Frontiers

USAF Recipients of the Medal of Honor

*Living Medal of Honor recipient.

Names, Alphabetically by Wars, and Rank at Time of Action	Place of Birth	Date of Action	Place of Action
World War I			
Bleckley, 2nd Lt. Erwin R.	Wichita, Kan.	Oct. 6, 1918	Binarville, France
Goettler, 1st Lt. Harold E.	Chicago	Oct. 6, 1918	Binarville, France
Luke, 2nd Lt. Frank Jr.	Phoenix	Sept. 29, 1918	Murvaux, France
Rickenbacker, 1st Lt. Edward V.	Columbus, Ohio	Sept. 25, 1918	Billy, France
World War II			
Baker, Lt. Col. Addison E.	Chicago	Aug. 1, 1943	Ploesti, Romania
Bong, Maj. Richard I.	Superior, Wis.	Oct. 10-Nov. 15, 1944	Southwest Pacific
Carswell, Maj. Horace S. Jr.	Fort Worth, Tex.	Oct. 26, 1944	South China Sea
Castle, Brig. Gen. Frederick W.	Manila, Philippines	Dec. 24, 1944	Liège, Belgium
Cheli, Maj. Ralph	San Francisco	Aug. 18, 1943	Wewak, New Guinea
Craw, Col. Demas T.	Traverse City, Mich.	Nov. 8, 1942	Port Lyautey, French Morocco
Doolittle, Lt. Col. James H.	Alameda, Calif.	April 18, 1942	Tokyo
Erwin, SSgt. Henry E.	Adamsville, Ala.	April 12, 1945	Koriyama, Japan
Femoyer, 2nd Lt. Robert E.	Huntington, W.Va.	Nov. 2, 1944	Merseburg, Germany
Gott, 1st Lt. Donald J.	Arnett, Okla.	Nov. 9, 1944	Saarbrücken, Germany
Hamilton, Maj. Pierpont M.	Tuxedo Park, N.Y.	Nov. 8, 1942	Port Lyautey, French Morocco
Howard, Lt. Col. James H.	Canton, China	Jan. 11, 1944	Oschersleben, Germany
Hughes, 2nd Lt. Lloyd H.	Alexandria, La.	Aug. 1, 1943	Ploesti, Romania
Jerstad, Maj. John L.	Racine, Wis.	Aug. 1, 1943	Ploesti, Romania
Johnson, Col. Leon W.	Columbia, Mo.	Aug. 1, 1943	Ploesti, Romania
Kane, Col. John R.	McGregor, Tex.	Aug. 1, 1943	Ploesti, Romania
Kearby, Col. Neel E.	Wichita Falls, Tex.	Oct. 11, 1943	Wewak, New Guinea
Kingsley, 2nd Lt. David R.	Portland, Ore.	June 23, 1944	Ploesti, Romania
Knight, 1st Lt. Raymond L.	Houston	April 25, 1945	Po Valley, Italy
Lawley, 1st Lt. William R. Jr.	Leeds, Ala.	Feb. 20, 1944	Leipzig, Germany
Lindsey, Capt. Darrell R.	Jefferson, Iowa	Aug. 9, 1944	Pontoise, France
Mathies, Sgt. Archibald	Scotland	Feb. 20, 1944	Leipzig, Germany
Mathis, 1st Lt. Jack W.	San Angelo, Tex.	March 18, 1943	Vegesack, Germany
McGuire, Maj. Thomas B. Jr.	Ridgewood, N.J.	Dec. 25-26, 1944	Luzon, Philippines
Metzger, 2nd Lt. William E. Jr.	Lima, Ohio	Nov. 9, 1944	Saarbrücken, Germany
Michael, 1st Lt. Edward S.	Chicago	April 11, 1944	Brunswick, Germany
Morgan, 2nd Lt. John C.	Vernon, Tex.	July 28, 1943	Kiel, Germany
Pease, Capt. Harl Jr.	Plymouth, N.H.	Aug. 7, 1942	Rabaul, New Britain
Pucket, 1st Lt. Donald D.	Longmont, Colo.	July 9, 1944	Ploesti, Romania
Sarnoski, 2nd Lt. Joseph R.	Simpson, Pa.	June 16, 1943	Buka, Solomon Islands
Shomo, Maj. William A.	Jeannette, Pa.	Jan. 11, 1945	Luzon, Philippines
Smith, Sgt. Maynard H.	Caro, Mich.	May 1, 1943	St. Nazaire, France
Truemper, 2nd Lt. Walter E.	Aurora, Ill.	Feb. 20, 1944	Leipzig, Germany
Vance, Lt. Col. Leon R. Jr.	Enid, Okla.	June 5, 1944	Wimereaux, France
Vosler, TSgt. Forrest L.	Lyndonville, N.Y.	Dec. 20, 1943	Bremen, Germany
Walker, Brig. Gen. Kenneth N.	Cerrillos, N.M.	Jan. 5, 1943	Rabaul, New Britain
Korea			
Davis, Maj. George A. Jr.	Dublin, Tex.	Feb. 10, 1952	Sinuiju,Yalu River, N. Korea
Loring, Maj. Charles J. Jr.	Portland, Maine	Nov. 22, 1952	Sniper Ridge, N. Korea
Sebille, Maj. Louis J.	Harbor Beach, Mich.	Aug. 5, 1950	Hamch'ang, S. Korea
Walmsley, Capt. John S. Jr.	Baltimore	Sept. 14, 1951	Yangdok, N. Korea
Vietnam			
Bennett, Capt. Steven L.	Palestine, Tex.	June 29, 1972	Quang Tri, S. Vietnam
Day, Maj. George E.*	Sioux City, Iowa	Conspicuous gallantry while POW	
Dethlefsen, Maj. Merlyn H.	Greenville, Iowa	March 10, 1967	Thai Nguyen, N. Vietnam
Fisher, Maj. Bernard F.*	San Bernardino, Calif.	March 10, 1966	A Shau Valley, S. Vietnam
Fleming, 1st Lt. James P.*	Sedalia, Mo.	Nov. 26, 1968	Duc Co, S. Vietnam
Jackson, Lt. Col. Joe M.*	Newnan, Ga.	May 12, 1968	Kham Duc, S. Vietnam
Jones, Col. William A. III	Norfolk, Va.	Sept. 1, 1968	Dong Hoi, N. Vietnam
Levitow, A1C John L.	Hartford, Conn.	Feb. 24, 1969	Long Binh, S. Vietnam
Pitsenbarger, A1C William H.	Piqua, Ohio	April 11, 1966	Cam My, S. Vietnam
Sijan, Capt. Lance P.	Milwaukee	Conspicuous gallantry while POW	
Thorsness, Maj. Leo K.*	Walnut Grove, Minn.	April 19, 1967	N. Vietnam
Wilbanks, Capt. Hilliard A.	Cornelia, Ga.	Feb. 24, 1967	Dalat, S. Vietnam
Peacetime			
Lindbergh, Col. Charles A.	Detroit	May 20-21, 1927	New York City-Paris record flight
Mitchell, Maj. Gen. William	Milwaukee	Posthumous award	Foresight in military aviation

Hq. Air Force

2006 USAF Almanac

The Department of the Air Force incorporates all elements of the Air Force and is administered by a civilian Secretary and supervised by a military Chief of Staff. The Secretariat and the Air Staff help the Secretary and the Chief of Staff direct the Air Force mission.

Headquarters Air Force

HAF

Headquarters Pentagon, Washington, D.C.

Established Sept. 18, 1947

Secretary Michael W. Wynne

Chief of Staff Gen. T. Michael Moseley

ROLE

Organize, train, and equip air and space forces

MISSION

Deliver sovereign options for the defense of the United States of America and its global interests—to fly and fight in air, space, and cyberspace

FORCE STRUCTURE—SECRETARIAT

One Secretary
One undersecretary
Four assistant secretaries
Two deputy undersecretaries
Four directors
Five offices

FORCE STRUCTURE—AIR STAFF

One Chief of Staff
One vice chief of staff
One Chief Master Sergeant of the Air Force
Four deputy chiefs of staff
One assistant chief of staff
Three directors
Eight offices

PERSONNEL

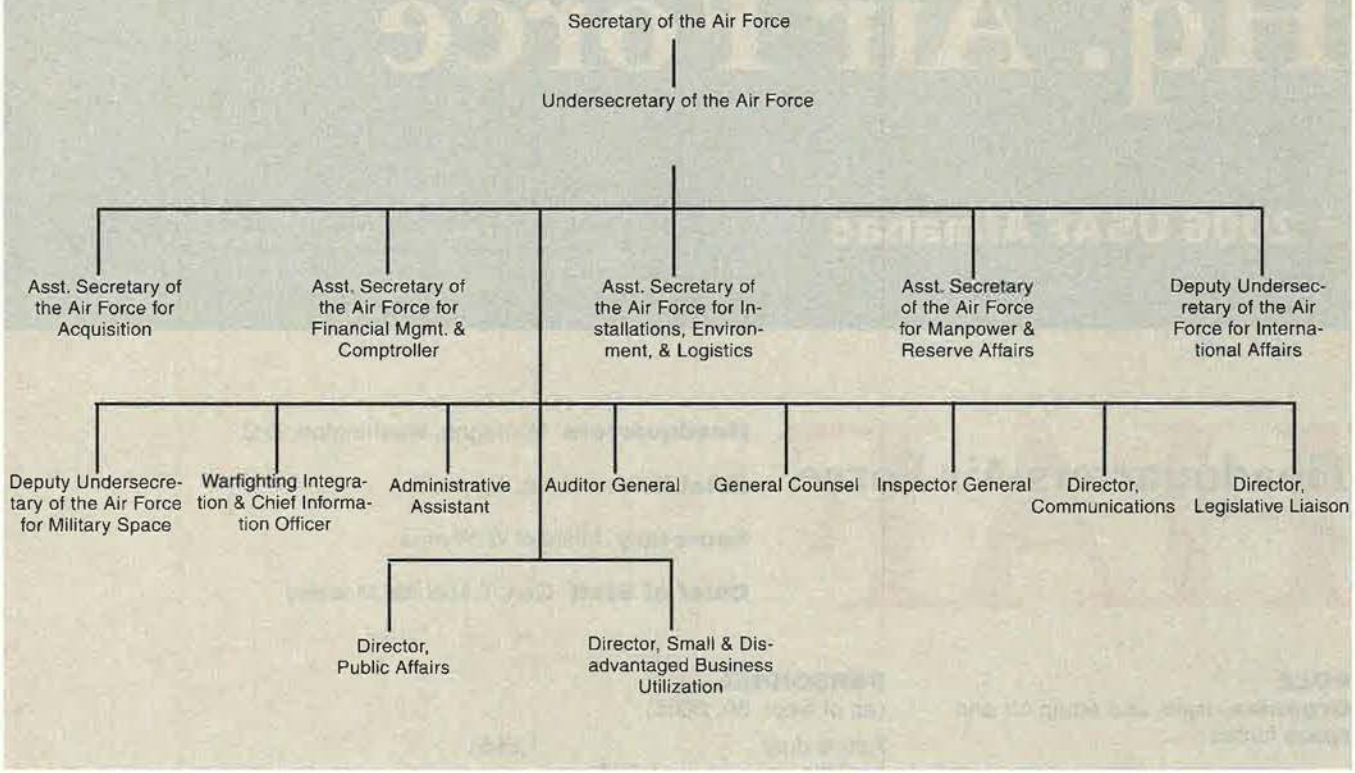
(as of Sept. 30, 2005)

Active duty		1,565
Officers	1,327	
Enlisted	238	
Reserve components		581
ANG	14	
AFRC	567	
Civilian		853
Total		**2,999**

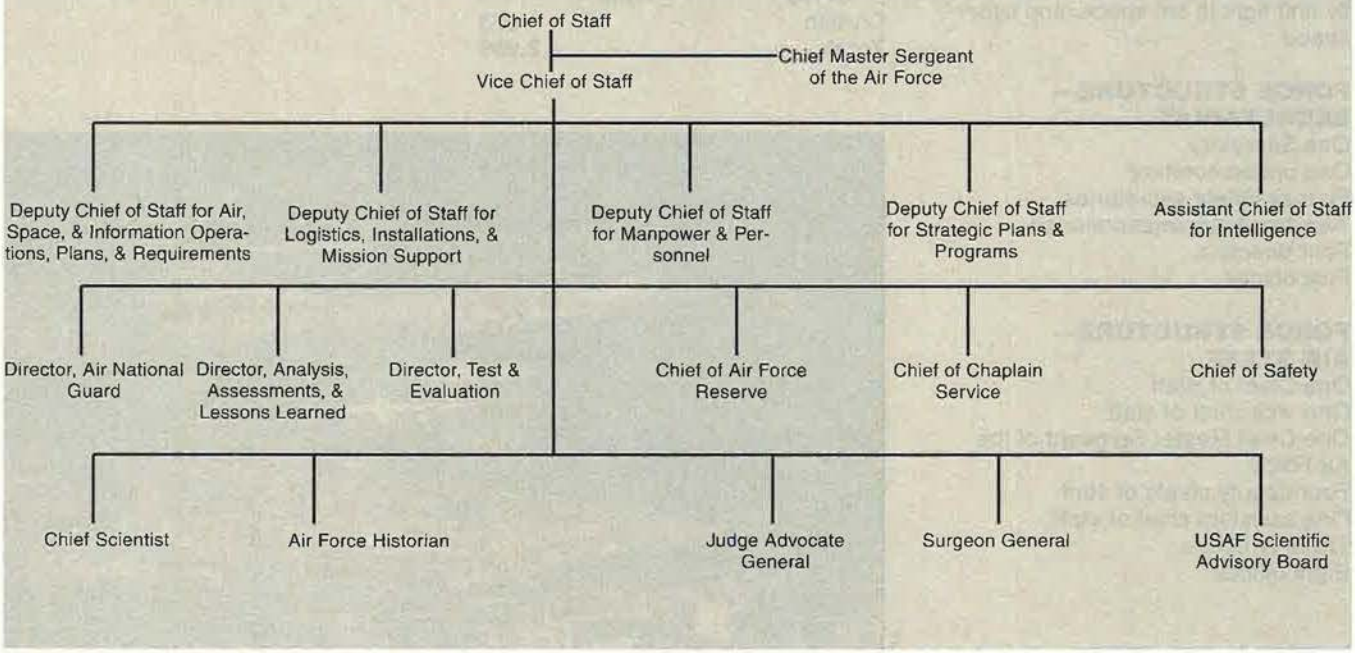
USAF photo by SSgt. Aaron D. Allmon II

An F-16 assigned to the 20th Fighter Wing at Shaw AFB, S.C., flies near the Pentagon as part of Operation Noble Eagle.

SECRETARIAT, PENTAGON, WASHINGTON, D.C.



AIR STAFF, PENTAGON, WASHINGTON, D.C.



Major Commands

2006 USAF Almanac

A major command is a subdivision of the Air Force assigned a major part of the Air Force mission and directly subordinate to Hq. USAF. In general, there are two types of major commands: functional and geographical.

Air Combat Command

ACC

Headquarters Langley AFB, Va.

Established June 1, 1992

Commander Gen. Ronald E. Keys

MISSIONS

Operate USAF bombers (active and ANG and AFRC gained); USAF's CONUS-based (active and gained) fighter and attack, reconnaissance, battle management, and command and control aircraft and intelligence and surveillance systems

Organize, train, equip, and maintain combat-ready forces for rapid deployment and employment to meet the challenges of peacetime air sovereignty and wartime combat requirements

Provide combat airpower to America's warfighting commands (Central, European, Northern, Pacific, and Southern); nuclear, conventional, and information operations forces to STRATCOM; air defense forces to NORAD

COROLLARY MISSIONS

Monitor and intercept illegal drug traffic

Test new combat equipment

FORCE STRUCTURE

Four numbered air forces: **1st,** Tyndall AFB, Fla.; **8th,** Barksdale AFB, La.; **9th,** Shaw AFB, S.C.; **12th,** Davis-Monthan AFB, Ariz.

Three primary subordinate units: Air and Space Expeditionary Force Center, Langley AFB, Va.; Air Intelligence Agency, Lackland AFB, Tex.; USAF Warfare Center, Nellis AFB, Nev.

26 wings

Three groups

OPERATIONAL ACTIVITY

Flying hours: 30,330 per month

Major operations

Enduring Freedom (Afghanistan); Iraqi Freedom (Iraq); Noble Eagle (US)

Major training exercises

Accurate Test; Air Warrior I and II; Amalgam Dart Series; Amalgam Phantom; Ardent Century; Blue Advance; Blue Flag; Bright Star; Clean Hunter; Eager Tiger; Eagle Resolve; Eastern Falcon; Ellipse Echo; Falcon Nest; Falcon Talon; Foal Eagle; Fuertas Defensas; Global Lightning; Global Thunder; Initial Link; Internal Look; Iron Cobra; Iron Falcon; Maple Flag; New Horizons Series; Northern Edge; Panamax; Positive Force; Red Flag; Roving Sands; Unified Endeavor; Unitas; Vigilant Shield; Virtual Flag

PERSONNEL

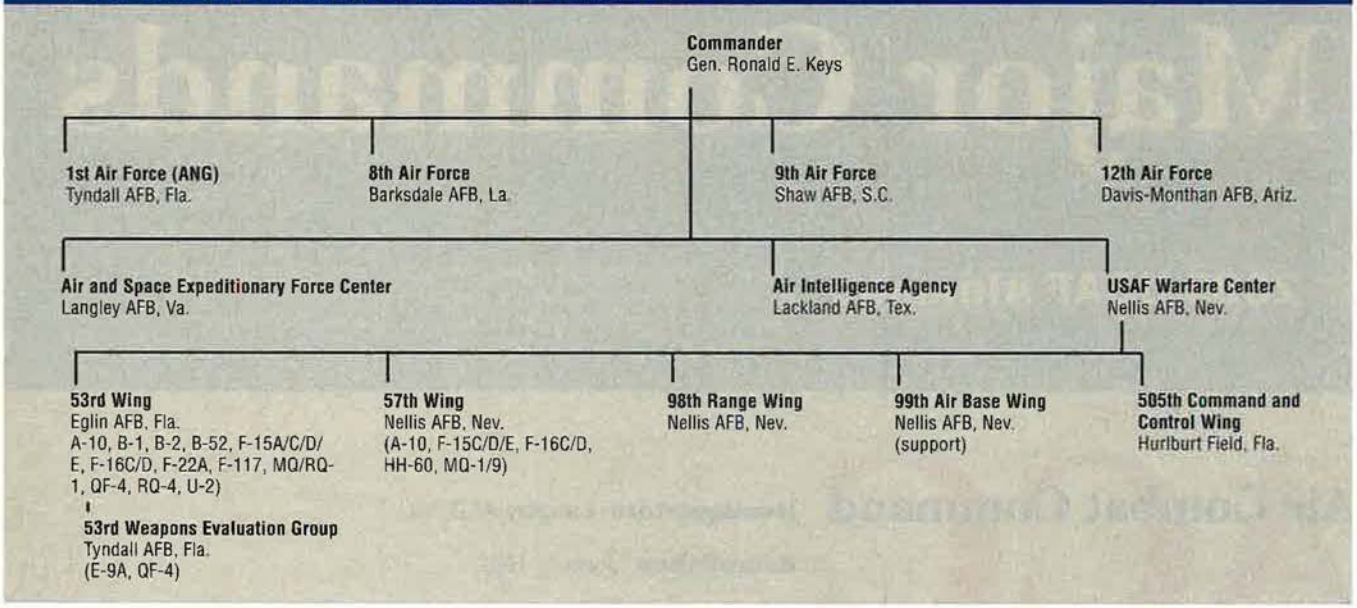
(as of Sept. 30, 2005)

Active duty		95,346
Officers	13,890	
Enlisted	81,456	
Reserve components		53,456
ANG	43,898	
AFRC	9,558	
Civilian		12,073
Total		**160,875**

USAF photo by TSgt. Ben Bloker

An F-22 flies en route to Langley AFB, Va., where it will go into service with USAF's 27th Fighter Squadron.

AIR COMBAT COMMAND, LANGLEY AFB, VA.



EQUIPMENT

(Primary aircraft inventory as of Sept. 30, 2005)

Bomber	118	Recon/BM/C3I	87
Fighter/Attack	668	Trainer	42

UNIT	BASE	WEAPONS
1st Fighter Wing[c]	Langley AFB, Va.	F-15C/D, F-22A
2nd Bomb Wing	Barksdale AFB, La.	B-52H
4th Fighter Wing	Seymour Johnson AFB, N.C.	F-15E
5th Bomb Wing	Minot AFB, N.D.	B-52H
7th Bomb Wing	Dyess AFB, Tex.	B-1B
9th Reconnaissance Wing	Beale AFB, Calif.	RQ-4, T-38, U-2R/S,
20th Fighter Wing	Shaw AFB, S.C.	F-16C/CJ/D
23rd Fighter Group[a]	Pope AFB, N.C.	A/OA-10
27th Fighter Wing	Cannon AFB, N.M.	F-16C/D
28th Bomb Wing	Ellsworth AFB, S.D.	B-1B
33rd Fighter Wing	Eglin AFB, Fla.	F-15C/D
49th Fighter Wing	Holloman AFB, N.M.	F-117A, QF-4, T-38B
53rd Wing	Eglin AFB, Fla.	A-10, B-1, B-2, B-52, E-9A, F-15A/C/D/E, F-16C/D, F-22A, F-117, MQ/RQ-1, QF-4, RQ-4, U-2
53rd Weapons Evaluation Group[b]	Tyndall AFB, Fla.	E-9A, QF-4
55th Electronic Combat Group	Davis-Monthan AFB, Ariz.	EC-130H
55th Wing	Offutt AFB, Neb.	E-4B, OC-135B, RC-135S/U/V/W, TC-135S/W, WC-135
57th Wing	Nellis AFB, Nev.	A-10, F-15C/D/E, F-16C/D, HH-60, MQ-1/9
67th Information Operations Wing	Lackland AFB, Tex.	
70th Intelligence Wing	Ft. Meade, Md.	
98th Range Wing	Nellis AFB, Nev.	
99th Air Base Wing	Nellis AFB, Nev.	
116th Air Control Wing[c]	Robins AFB, Ga.	E-8C
355th Wing	Davis-Monthan AFB, Ariz.	A/OA-10
366th Fighter Wing	Mountain Home AFB, Idaho	F-15C/D/E, F-16CJ/D
388th Fighter Wing	Hill AFB, Utah	F-16C/D
480th Intelligence Wing	Langley AFB, Va.	
505th Command and Control Wing	Hurlburt Field, Fla.	
509th Bomb Wing	Whiteman AFB, Mo.	B-2, T-38
552nd Air Control Wing	Tinker AFB, Okla.	E-3B/C

[a]Part of 4th Fighter Wing. [b]Part of 53rd Wing. [c]Blended wing with active duty and ANG personnel.

U.S. Air Force photo

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USAF photo by SSgt. Nathan Bevier

MSgt. Tracey Shook of the 77th Aircraft Maintenance Unit prepares to marshal an F-16 on the ramp at Shaw AFB, S.C.

8th AIR FORCE (ACC), BARKSDALE AFB, LA.

Commander
Lt. Gen. Kevin P. Chilton

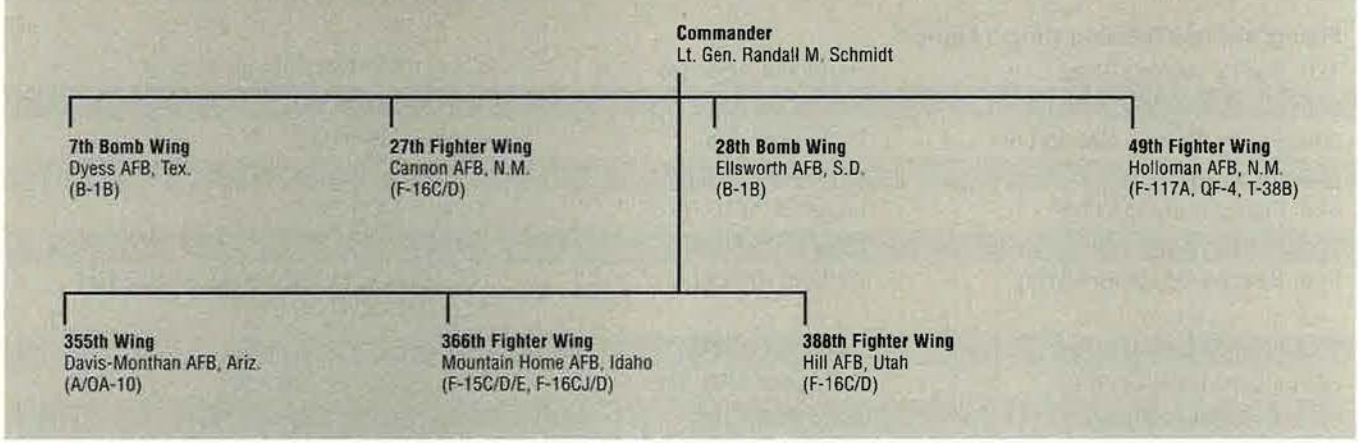
- **2nd Bomb Wing**
  Barksdale AFB, La.
  (B-52H)
- **5th Bomb Wing**
  Minot AFB N.D.
  (B-52H)
- **9th Reconnaissance Wing**
  Beale AFB, Calif
  (RQ-4, T-38, U-2R/S)
- **55th Wing**
  Offutt AFB, Neb.
  (E-4B, OC-135B, RC-135S/U/V/W, TC-135S/W, WC-135)
  - **55th Electronic Combat Group**
    Davis-Monthan AFB, Ariz.
    (EC-130H)
- **67th Information Operations Wing**
  Lackland AFB, Tex.
- **70th Intelligence Wing**
  Ft. Meade, Md.
- **116th Air Control Wing**
  Robins AFB, Ga.
  (E-8C)
- **480th Intelligence Wing**
  Langley AFB, Va.
- **509th Bomb Wing**
  Whiteman AFB, Mo.
  (B-2, T-38)
- **552nd Air Control Wing**
  Tinker AFB, Okla.
  (E-3B/C)

9th AIR FORCE (ACC), SHAW AFB, S.C.

Commander
Lt. Gen. Gary L. North

- **1st Fighter Wing**
  Langley AFB, Va.
  (F-15C/D, F-22A)
- **4th Fighter Wing**
  Seymour Johnson AFB, N.C.
  (F-15E)
  - **23rd Fighter Group**
    Pope AFB, N.C.
    (A/OA-10)
- **20th Fighter Wing**
  Shaw AFB, S.C.
  (F-16C/CJ/D)
- **33rd Fighter Wing**
  Eglin AFB, Fla.
  (F-15C/D)

12th AIR FORCE (ACC), DAVIS-MONTHAN AFB, ARIZ.



AETC Air Education and Training Command

Headquarters Randolph AFB, Tex.

Established July 1, 1993

Commander Gen. William R. Looney III

MISSIONS

Recruit, train, and educate professional, expeditionary-minded airmen to sustain the combat capability of America's Air Force

Provide basic military training, initial and advanced technical training, flying training, and professional military and degree-granting professional education

Conduct joint, readiness, and Air Force security assistance training

FORCE STRUCTURE

Two numbered air forces and an educational headquarters: **2nd,** Keesler AFB, Miss.; **19th,** Randolph AFB, Tex.; **Air University,** Maxwell AFB, Ala.

Three DRUs: Air Force Recruiting Service and Air Force Security Assistance Training Squadron, Randolph AFB, Tex., and 59th Medical Wing, Lackland AFB, Tex.

16 wings

Four groups

Two squadrons

OPERATIONAL ACTIVITY

Flying hours: 44,217 per month

PERSONNEL

(as of Sept. 30, 2005)

Active duty		62,622
Officers	15,621	
Enlisted	47,001	
Reserve components		7,955
ANG	4,700	
AFRC	3,255	
Civilian		14,841
Total		**85,418**

EQUIPMENT

(PAI as of Sept. 30, 2005)

Fighter/Attack	239
Helicopter	39
Special operations forces	16
Tanker	24
Trainer	878
Transport	60

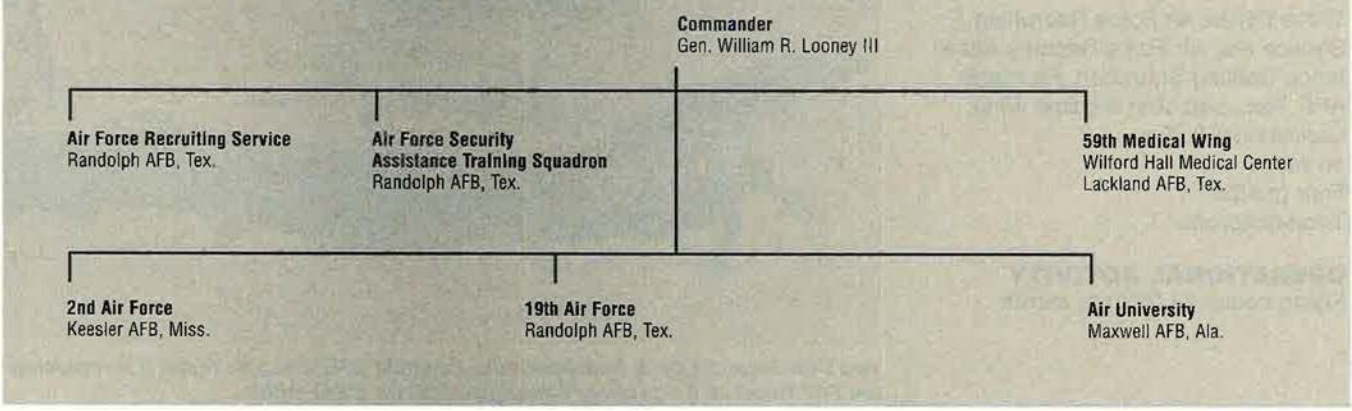
USAF photo by TSgt. Jeffrey Allen

Two T-6A Texan IIs fly in formation over Laughlin AFB, Tex. The Texan II is replacing the T-37 Tweet as the primary training aircraft for USAF pilots.

	BASE	WEAPONS
Flying/Aircrew Training Units (Active)		
12th Flying Training Wing	Randolph AFB, Tex.	T-1A, T-6A, T-37B, T-38C, T-43A
14th Flying Training Wing	Columbus AFB, Miss.	T-1A, T-37B, T-38C
23rd Flying Training Squadron[a]	Ft. Rucker, Ala.	UH-1H, UH-1V
45th Airlift Squadron[b]	Keesler AFB, Miss.	C-21A
47th Flying Training Wing	Laughlin AFB, Tex.	T-1A, T-6A, T-38C
56th Fighter Wing	Luke AFB, Ariz.	F-16C/D
58th Special Operations Wing	Kirtland AFB, N.M.	HC-130N/P, MC-130H, MC-130P, HH-60G, MH-53J, UH-1N
71st Flying Training Wing	Vance AFB, Okla.	T-1A, T-6A, T-37B, T-38C
80th Flying Training Wing	Sheppard AFB, Tex.	AT-38B, T-37B, T-38A/C
97th Air Mobility Wing	Altus AFB, Okla.	C-5A, C-17A, KC-135R
306th Flying Training Group	USAF Academy, Colo.	T-41D, T-51A, TG-10B/C/D, TG-14A, TG-15A/B, UV-18B
314th Airlift Wing	Little Rock AFB, Ark.	C-130E/J
325th Fighter Wing	Tyndall AFB, Fla.	F-15C/D, F-22
336th Training Group	Fairchild AFB, Wash.	UH-1N
479th Flying Training Group	Moody AFB, Ga.	T-6A, T-38C
Technical Training Units		
17th Training Wing	Goodfellow AFB, Tex.	
37th Training Wing	Lackland AFB, Tex.	
81st Training Wing	Keesler AFB, Miss.	
82nd Training Wing	Sheppard AFB, Tex.	
381st Training Group	Vandenberg AFB, Calif.	
Other Major Units		
Air University	Maxwell AFB, Ala.	
Air Force Recruiting Service	Randolph AFB, Tex.	
42nd Air Base Wing	Maxwell AFB, Ala.	
59th Medical Wing	Lackland AFB, Tex.	

[a]Part of 58th Special Operations Wing
[b]Part of 314th Airlift Wing.

AIR EDUCATION AND TRAINING COMMAND, RANDOLPH AFB, TEX.



2nd AIR FORCE (AETC), KEESLER AFB, MISS.

Commander
Maj. Gen. Michael C. Gould

- **17th Training Wing** — Goodfellow AFB, Tex.
- **37th Training Wing** — Lackland AFB, Tex.
- **381st Training Group** — Vandenberg AFB, Calif.
- **81st Training Wing** — Keesler AFB, Miss.
- **82nd Training Wing** — Sheppard AFB, Tex.

19th AIR FORCE (AETC), RANDOLPH AFB, TEX.

Commander
Maj. Gen. Marc E. Rogers

- **12th Flying Training Wing** — Randolph AFB, Tex. (T-1A, T-6A, T-37B, T-38C, T-43A)
- **14th Flying Training Wing** — Columbus AFB, Miss. (T-1A, T-37B, T-38C)
- **47th Flying Training Wing** — Laughlin AFB, Tex. (T-1A, T-6A, T-38C)
- **56th Fighter Wing** — Luke AFB, Ariz. (F-16C/D)
- **58th Special Operations Wing** — Kirtland AFB, N.M. (HC-130N/P, MC-130H, MC-130P, HH-60G, MH-53J, UH-1N)
  - **23rd Flying Training Squadron** — Ft. Rucker, Ala. (UH-1H, UH-1V)
- **71st Flying Training Wing** — Vance AFB, Okla. (T-1A, T-6A, T-37B, T-38C)
- **80th Flying Training Wing** — Sheppard AFB, Tex. (AT-38B, T-37B, T-38A/C)
- **97th Air Mobility Wing** — Altus AFB, Okla. (C-5A, C-17A, KC-135R)
- **306th Flying Training Group** — USAF Academy, Colo. (T-41D, T-51A, TG-10B/C/D, TG-14A, TG-15A/B, UV-18B)
- **314th Airlift Wing** — Little Rock AFB, Ark. (C-130E/J)
  - **45th Airlift Squadron** — Keesler AFB, Miss. (C-21A)
- **325th Fighter Wing** — Tyndall AFB, Fla. (F-15C/D, F-22)
- **336th Training Group** — Fairchild AFB, Wash. (UH-1N)
- **479th Flying Training Group** — Moody AFB, Ga. (T-6A, T-38C)

AIR UNIVERSITY (AETC), MAXWELL AFB, ALA.

Commander
Lt. Gen. Stephen R. Lorenz

- **Civil Air Patrol-USAF** — Maxwell AFB, Ala.
  - **Civil Air Patrol** — Maxwell AFB, Ala.
- **Air Command and Staff College** — Maxwell AFB, Ala.
- **Air Force Institute for Advanced Distributed Learning** — Maxwell AFB, Ala.
- **Air Force Institute of Technology** — Wright-Patterson AFB, Ohio
- **Air Force Officer Accession and Training Schools** — Maxwell AFB, Ala.
- **Air University Library** — Maxwell AFB, Ala.
- **Air War College** — Maxwell AFB, Ala.
- **College of Aerospace Doctrine, Research, and Education** — Maxwell AFB, Ala.
- **College for Enlisted Professional Military Education** — Maxwell AFB, Gunter Annex, Ala.
- **Community College of the Air Force** — Maxwell AFB, Ala.
- **Ira C. Eaker College for Professional Development** — Maxwell AFB, Ala.
- **School of Advanced Airpower Studies** — Maxwell AFB, Ala.
- **Squadron Officer College** — Maxwell AFB, Ala.
- **42nd Air Base Wing** — Maxwell AFB, Ala.

Air Force Materiel Command

AFMC

Headquarters Wright-Patterson AFB, Ohio

Established July 1, 1992

Commander Gen. Bruce Carlson

MISSIONS

Deliver war-winning expeditionary capabilities to the warfighter through development and transition of technology, professional acquisition management, exacting test and evaluation, and world-class sustainment of all Air Force weapon systems

FORCE STRUCTURE

Three major product centers
Two test centers
Three air logistics centers
Three specialized centers
One laboratory with multiple directorates at 10 major CONUS locations and 40 worldwide sites
35 wings

OPERATIONAL ACTIVITY

Flying hours: 1,600 per month

PERSONNEL

(as of Sept. 30, 2005)

Active duty		21,703
Officers	6,891	
Enlisted	14,812	
Reserve components		5,135
ANG	1,910	
AFRC	3,225	
Civilian		56,295
Total		**83,133**

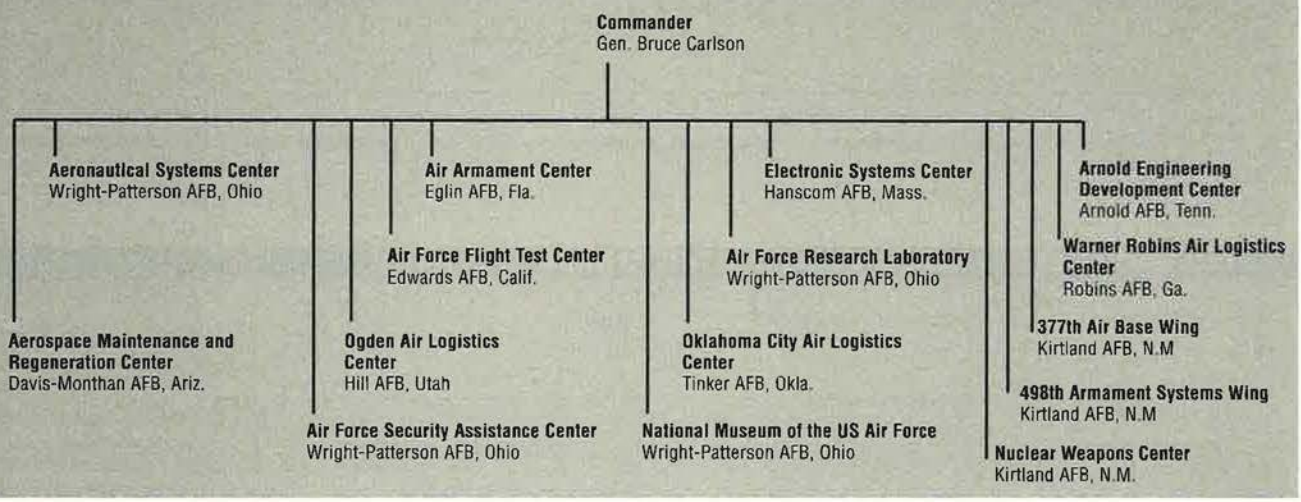
EQUIPMENT

(PAI as of Sept. 30, 2005)

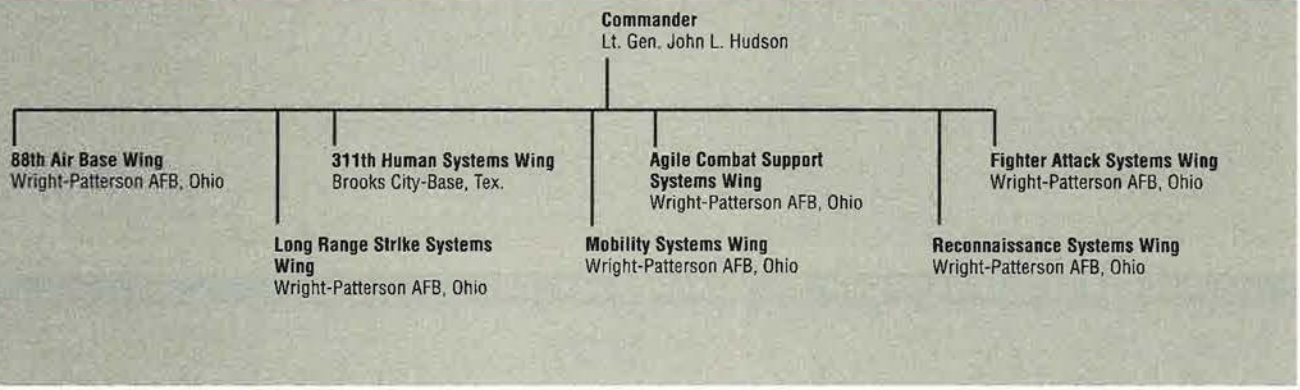
Bomber	3
Fighter/Attack	56
Helicopter	4
Tanker	3
Trainer	13
Transport	25

UNIT	BASE
Aeronautical Systems Center	Wright-Patterson AFB, Ohio
Aerospace Maintenance & Regeneration Center	Davis-Monthan AFB, Ariz.
Air Armament Center	Eglin AFB, Fla.
Air Force Flight Test Center	Edwards AFB, Calif.
Air Force Research Laboratory	Wright-Patterson AFB, Ohio
Air Force Security Assistance Center	Wright-Patterson AFB, Ohio
Arnold Engineering Development Center	Arnold AFB, Tenn.
Electronic Systems Center	Hanscom AFB, Mass.
Nuclear Weapons Center	Kirtland AFB, N.M.
Ogden Air Logistics Center	Hill AFB, Utah
Oklahoma City Air Logistics Center	Tinker AFB, Okla.
Warner Robins Air Logistics Center	Robins AFB, Ga.
46th Test Wing	Eglin AFB, Fla.
66th Air Base Wing	Hanscom AFB, Mass.
72nd Air Base Wing	Tinker AFB, Okla.
75th Air Base Wing	Hill AFB, Utah
76th Maintenance Wing	Tinker AFB, Okla.
78th Air Base Wing	Robins AFB, Ga.
84th Combat Sustainment Wing	Hill AFB, Utah
88th Air Base Wing	Wright-Patterson AFB, Ohio
95th Air Base Wing	Edwards AFB, Calif.
96th Air Base Wing	Eglin AFB, Fla.
309th Maintenance Wing	Hill AFB, Utah
311th Human Systems Wing	Brooks City-Base, Tex.
327th Aircraft Sustainment Wing	Tinker AFB, Okla.
330th Aircraft Sustainment Wing	Robins AFB, Ga.
377th Air Base Wing	Kirtland AFB, N.M.
402nd Maintenance Wing	Robins AFB, Ga.
412th Test Wing	Edwards AFB, Calif.
448th Combat Sustainment Wing	Tinker AFB, Okla.
498th Armament Systems Wing	Kirtland AFB, N.M.
508th Aircraft Sustainment Wing	Hill AFB, Utah
526th ICBM Systems Wing	Hill AFB, Utah
542nd Combat Sustainment Wing	Robins AFB, Ga.
Agile Combat Support Systems Wing	Wright-Patterson AFB, Ohio
Air-to-Air Missile Systems Wing	Eglin AFB, Fla.
Air-to-Ground Munitions Systems Wing	Eglin AFB, Fla.
Battle Management Systems Wing	Hanscom AFB, Mass.
C2ISR Systems Wing	Hanscom AFB, Mass.
Fighter Attack Systems Wing	Wright-Patterson AFB, Ohio
Long Range Strike Systems Wing	Wright-Patterson AFB, Ohio
Mobility Systems Wing	Wright-Patterson AFB, Ohio
Network Centric Ops/Integration Systems Wing	Hanscom AFB, Mass.
Operations Support Systems Wing	Hanscom AFB, Mass.
Reconnaissance Systems Wing	Wright-Patterson AFB, Ohio
National Museum of the US Air Force	Wright-Patterson AFB, Ohio

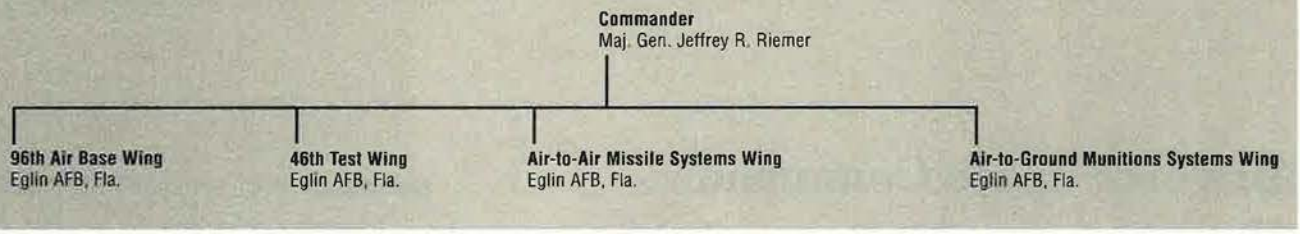
AIR FORCE MATERIEL COMMAND, WRIGHT-PATTERSON AFB, OHIO



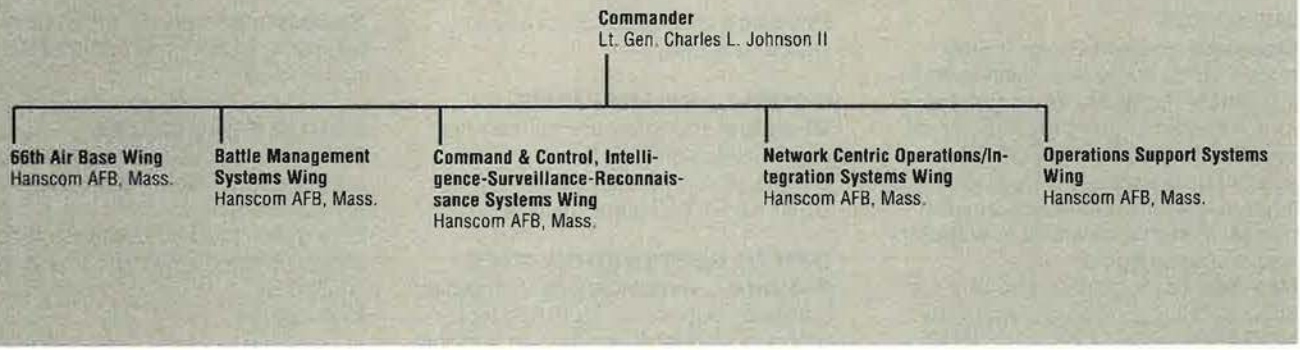
AERONAUTICAL SYSTEMS CENTER, WRIGHT-PATTERSON AFB, OHIO



AIR ARMAMENT CENTER, EGLIN AFB, FLA.



ELECTRONIC SYSTEMS CENTER, HANSCOM AFB, MASS.



OGDEN AIR LOGISTICS CENTER, HILL AFB, UTAH

Commander
Maj. Gen. Kevin J. Sullivan

- **75th Air Base Wing** — Hill AFB, Utah
- **84th Combat Sustainment Wing** — Hill AFB, Utah
- **309th Maintenance Wing** — Hill AFB, Utah
- **508th Aircraft Sustainment Wing** — Hill AFB, Utah
- **526th ICBM Systems Wing** — Hill AFB, Utah

OKLAHOMA CITY AIR LOGISTICS CENTER, TINKER AFB, OKLA.

Director
Robert J. Conner

- **72nd Air Base Wing** — Tinker AFB, Okla.
- **76th Maintenance Wing** — Tinker AFB, Okla.
- **327th Aircraft Sustainment Wing** — Tinker AFB, Okla.
- **448th Combat Sustainment Wing** — Tinker AFB, Okla.

WARNER ROBINS AIR LOGISTICS CENTER, ROBINS AFB, GA.

Commander
Maj. Gen. Michael A. Collings

- **78th Air Base Wing** — Robins AFB, Ga.
- **330th Aircraft Sustainment Wing** — Robins AFB, Ga.
- **402nd Maintenance Wing** — Robins AFB, Ga.
- **542nd Combat Sustainment Wing** — Robins AFB, Ga.

AIR FORCE FLIGHT TEST CENTER, EDWARDS AFB, CALIF.

Commander
Maj. Gen. Curtis M. Bedke

- **95th Air Base Wing** — Edwards AFB, Calif.
- **412th Test Wing** — Edwards AFB, Calif.

Air Force Space Command

AFSPC

Headquarters Peterson AFB, Colo.

Established Sept. 1, 1982

Commander Lt. Gen. Frank G. Klotz (acting)

MISSIONS

Operate and test USAF ICBM forces for STRATCOM; missile warning radars, sensors, and satellites; national space-launch facilities and operational boosters; worldwide space surveillance radars and optical systems; worldwide space environmental systems; position, navigation, and timing systems

Provide command and control for DOD satellites; missile warning to NORAD/NORTHCOM and STRATCOM; space weather support to entire DOD

Produce and acquire advanced space systems

COROLLARY MISSIONS

Develop and integrate space support for the warfighter

Serve as lead command for all USAF UH-1 helicopter programs

OTHER RESPONSIBILITIES

Provide communications, computer, and base support to NORAD; technology safeguard monitors to support launches of US satellites on foreign launch vehicles

Supply range and launch facilities for military, civil, and commercial space launch

FORCE STRUCTURE

Two numbered air forces: **14th,** Vandenberg AFB, Calif.; **20th,** F.E. Warren AFB, Wyo.

One major product center: Space and Missile Systems Center, Los Angeles AFB, Calif.

Eight wings

PERSONNEL

(as of Sept. 30, 2005)

Active duty		19,122
Officers	5,266	
Enlisted	13,856	
Reserve components		1,526
ANG	589	
AFRC	937	
Civilian		6,438
Total		**27,086**

EQUIPMENT

(as of Sept. 30, 2005)

Missile warning systems: DSP satellites, Ballistic Missile Early Warning System, Pave PAWS radars, Perimeter Acquisition Radar Attack Characterization System, Space Based Infrared System, and conventional radars

Helicopters: 18

ICBMs: Minuteman III 500

Satellite command and control system: Air Force Satellite Control Network

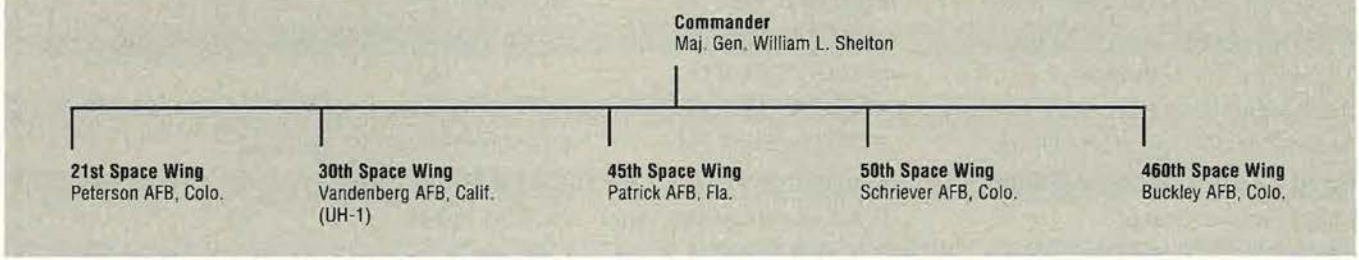
Satellite systems (as of Jan. 1, 2006):

GPS: Block II/IIA/IIR	29
DMSP	2
DSCS III	9
Milstar	5
Interim Polar System	2

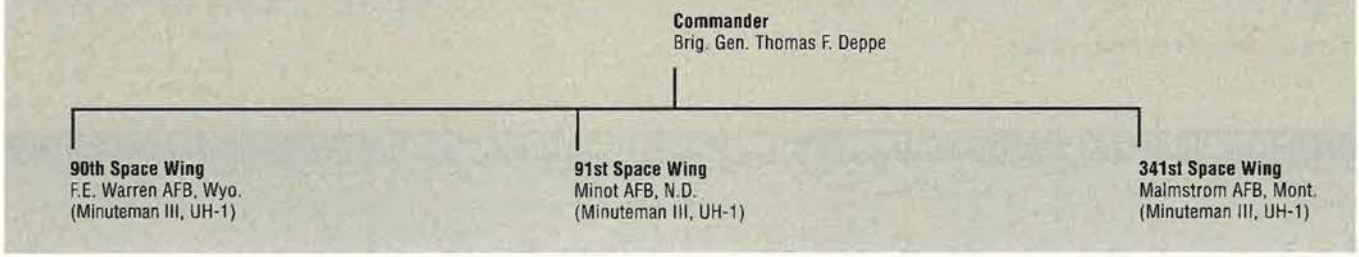
Space surveillance systems: Electro-Optical Deep Space Surveillance System and phased-array, mechanical tracking, and passive surveillance radars

AIR FORCE SPACE COMMAND, PETERSON AFB, COLO.

14th AIR FORCE (AFSPC), VANDENBERG AFB, CALIF.



20th AIR FORCE (AFSPC), F.E. WARREN AFB, WYO.



UNIT	BASE	WEAPONS/FUNCTIONS
21st Space Wing	Peterson AFB, Colo.	Missile warning and space control
30th Space Wing	Vandenberg AFB, Calif.	Launch, range operations, support for space and ICBM test, UH-1
45th Space Wing	Patrick AFB, Fla., and Cape Canaveral AFS, Fla.	Launch, range operations, support for shuttle program, and US Navy Trident test
50th Space Wing	Schriever AFB, Colo.	Satellite command and control
90th Space Wing	F.E. Warren AFB, Wyo.	Minuteman III ICBM, UH-1
91st Space Wing	Minot AFB, N.D.	Minuteman III ICBM, UH-1
341st Space Wing	Malmstrom AFB, Mont.	Minuteman III ICBM, UH-1
460th Space Wing	Buckley AFB, Colo.	Missile warning and global surveillance
Space & Missile Systems Center	Los Angeles AFB, Calif.	R&D, purchase of military space systems

Air Force Special Operations Command

AFSOC

Headquarters Hurlburt Field, Fla.

Established May 22, 1990

Commander Lt. Gen. Michael W. Wooley

MISSIONS

Serve as America's specialized airpower, providing combat search and rescue and delivering special operations power anytime, anywhere

Provide Air Force special operations and CSAR forces for worldwide deployment and assignment to regional unified commands

Tasked for seven mission areas: shaping the battlefield; information operations; precision engagement; SOF mobility; agile combat support; aerospace interface; and personnel recovery/recovery operations

FORCE STRUCTURE

Two wings
Four groups
Two squadrons
Air Force Rescue Coordination Center
USAF Special Operations School

OPERATIONAL ACTIVITY

Flying hours: 5,487 per month

Major operations

Enduring Freedom (Afghanistan); Iraqi Freedom (Iraq); Global War on Terror; Noble Eagle (US)

PERSONNEL

(as of Sept. 30, 2005)

Active duty		12,968
Officers	2,259	
Enlisted	10,709	
Reserve components		5,538
ANG	2,883	
AFRC	2,655	
Civilian		1,141
Total		**19,647**

EQUIPMENT

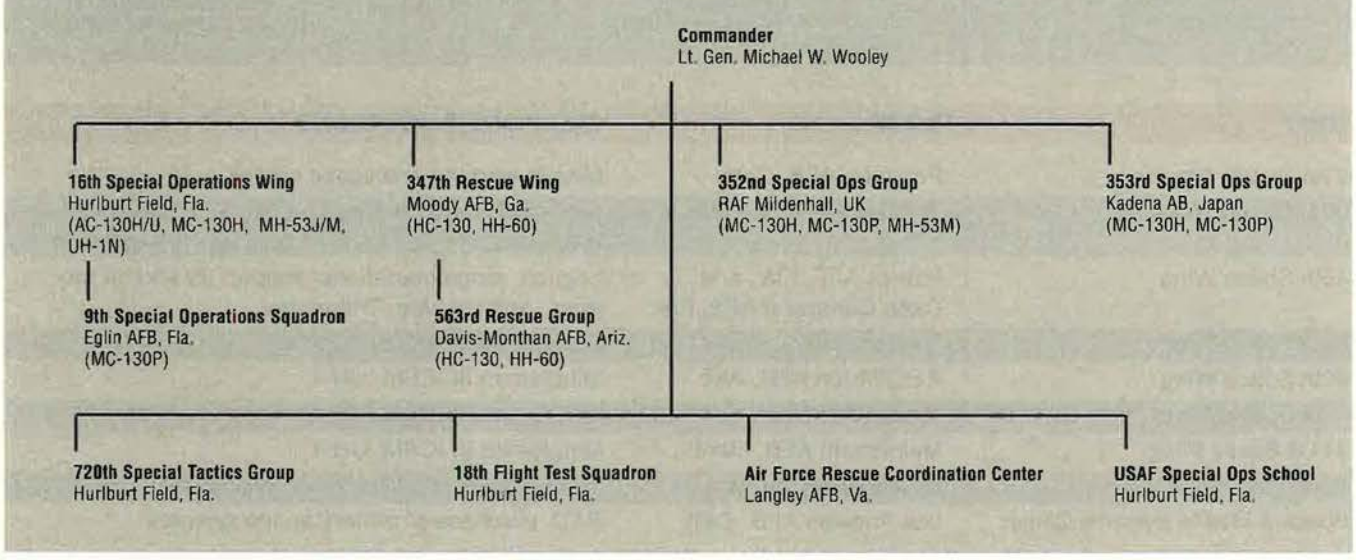
(PAI as of Sept. 30, 2005)

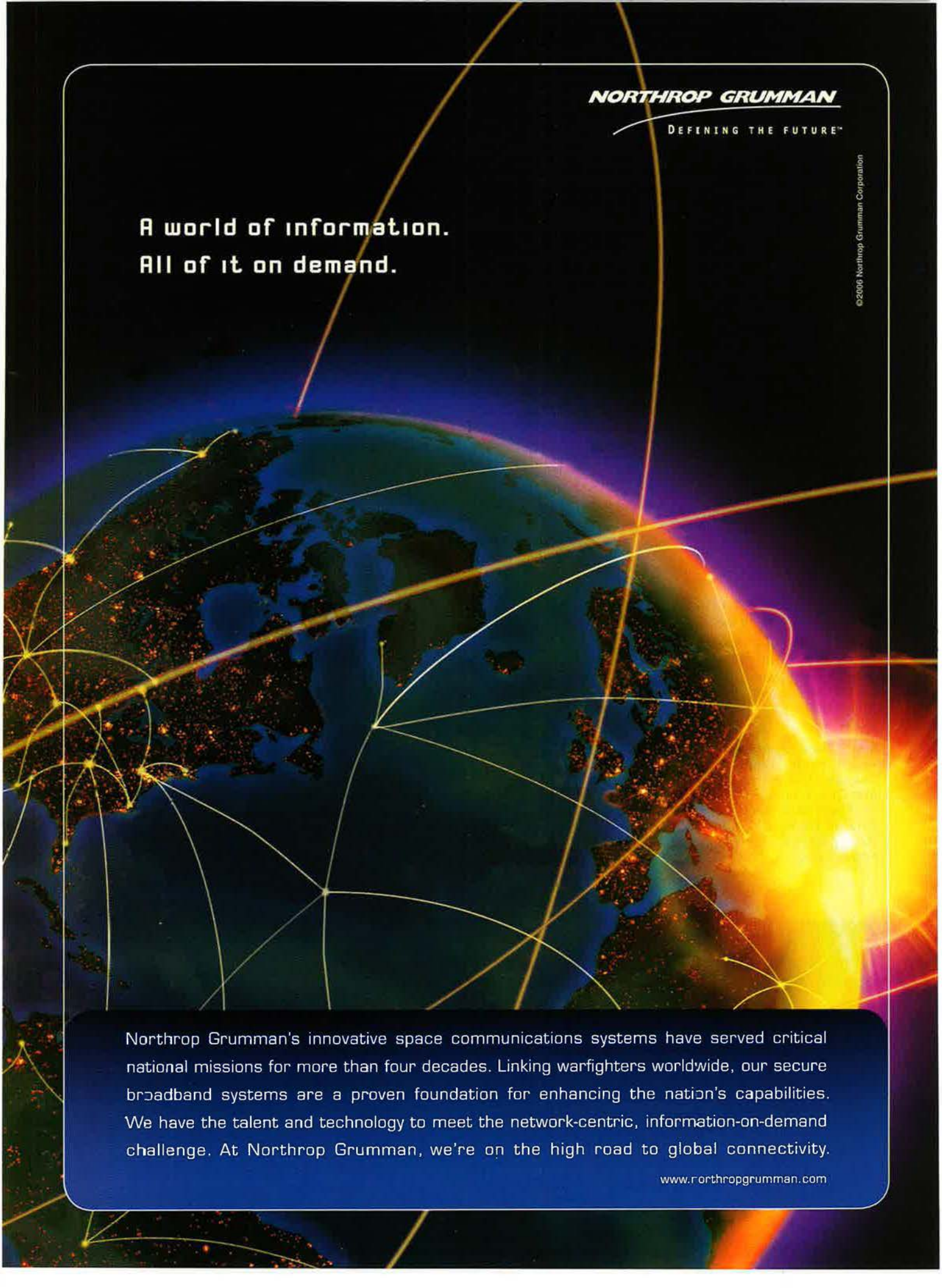
Helicopter	38
SOF	90

UNIT	BASE	WEAPONS
9th Special Operations Squadron[a]	Eglin AFB, Fla.	MC-130P
16th Special Operations Wing	Hurlburt Field, Fla.	AC-130H/U, MC-130H, MH-53J/M, UH-1N
18th Flight Test Squadron	Hurlburt Field, Fla.	
347th Rescue Wing	Moody AFB, Ga.	HC-130, HH-60
352nd Special Operations Group	RAF Mildenhall, UK	MC-130H, MC-130P, MH-53M
353rd Special Operations Group	Kadena AB, Japan	MC-130H, MC-130P
563rd Rescue Group[b]	Davis-Monthan AFB, Ariz.	HC-130, HH-60
720th Special Tactics Group	Hurlburt Field, Fla.	
Air Force Rescue Coordination Center	Langley AFB, Va.	
USAF Special Operations School	Hurlburt Field, Fla.	

[a]Part of 16th SOW. [b]Part of 347th Rescue Wing.

AIR FORCE SPECIAL OPERATIONS COMMAND, HURLBURT FIELD, FLA.

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Air Mobility Command

Headquarters Scott AFB, Ill.

Established June 1, 1992

Commander Gen. Duncan J. McNabb

MISSIONS

Provide rapid global mobility and sustainment through tactical and strategic airlift and aerial refueling for US armed forces

COROLLARY MISSIONS

Provide special duty and operational support aircraft and global humanitarian support

Perform peacetime and wartime aeromedical evacuation missions

FORCE STRUCTURE

One numbered air force: **18th,** Scott AFB, Ill.

Two expeditionary mobility task forces: 15th, Travis AFB, Calif.; 21st, McGuire AFB, N.J.

Two DRUs: Air Mobility Warfare Center, Ft. Dix, N.J.; Tanker Airlift Control Center, Scott AFB, Ill.

14 wings

Five groups

OPERATIONAL ACTIVITY

Flying hours: 36,478 per month

Major operations

Earthquake relief; Enduring Freedom (Afghanistan); Hurricane relief; Iceland tanker alert; Iraqi Freedom (Iraq); Noble Eagle (US); SOUTHCOM

Major training exercises

Ardent Sentry; Bright Star; Global Thunder; Immediate Response; Iron Cobra; Joint Red Flag; JTFEX 05-1 and 05-2; Reception, Staging, Onward Movement, & Integration; Roving Sands; Terminal Fury; Ulchi Focus Lens

PERSONNEL

(as of Sept. 30, 2005)

Active duty		50,578
Officers	8,904	
Enlisted	41,674	
Reserve components		86,897
ANG	39,081	
AFRC	47,816	
Civilian		8,795
Total		**146,270**

EQUIPMENT

(PAI as of Sept. 30, 2005)

Helicopter	15
Tanker	165
Transport	316

USAF photo by Scott H. Spitzer

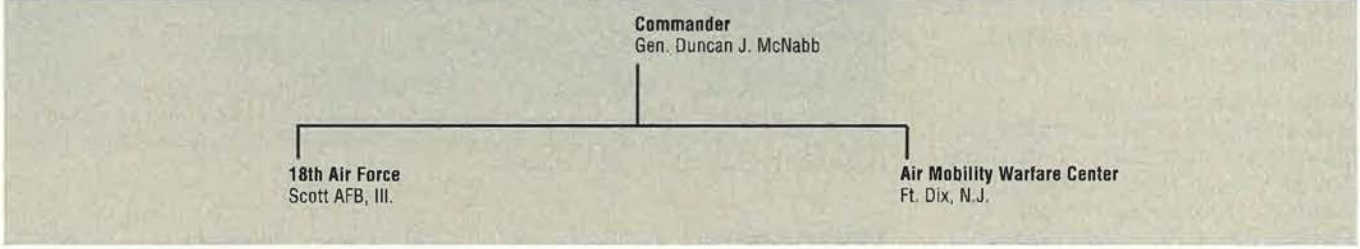
A1C David Eskew directs a C-17 to a parking spot on the flight line at McGuire AFB, N.J. This C-17 was deployed with the 818th Contingency Response Group on its mission to provide humanitarian assistance to Pakistan after the devastating Oct. 8, 2005 earthquake.

USAF photo by Denise Gould

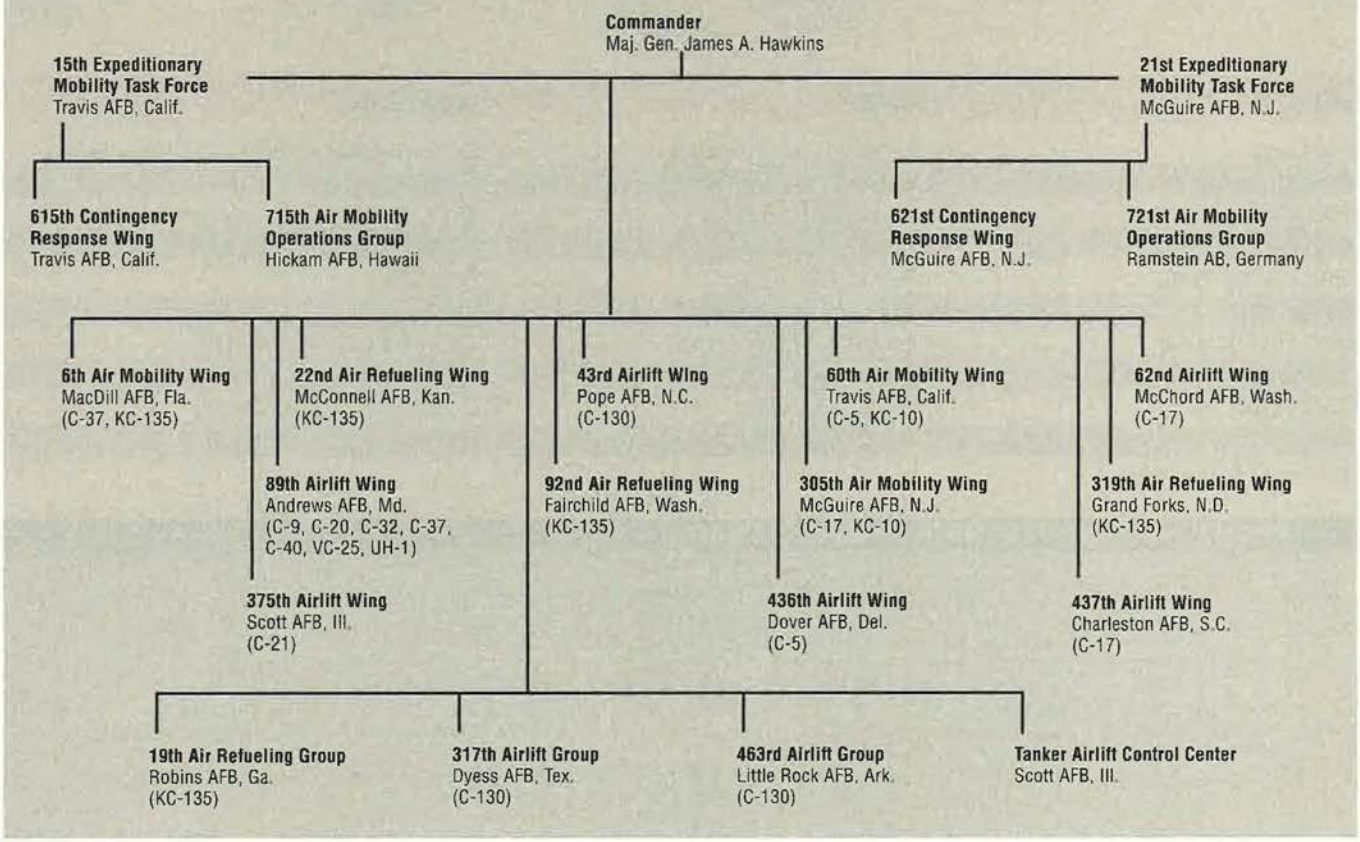
A KC-10 parks on the flight line at McGuire AFB, N.J. The aircraft has three large fuel tanks that carry more than 356,000 pounds of fuel.

UNIT	BASE	WEAPONS
6th Air Mobility Wing	MacDill AFB, Fla.	C-37, KC-135
19th Air Refueling Group	Robins AFB, Ga.	KC-135
22nd Air Refueling Wing	McConnell AFB, Kan.	KC-135
43rd Airlift Wing	Pope AFB, N.C.	C-130
60th Air Mobility Wing	Travis AFB, Calif.	C-5, KC-10
62nd Airlift Wing	McChord AFB, Wash.	C-17
89th Airlift Wing	Andrews AFB, Md.	C-20, C-32, C-37, C-40, VC-25, UH-1
92nd Air Refueling Wing	Fairchild AFB, Wash.	KC-135
305th Air Mobility Wing	McGuire AFB, N.J.	C-17, KC-10
317th Airlift Group	Dyess AFB, Tex.	C-130
319th Air Refueling Wing	Grand Forks AFB, N.D.	KC-135
375th Airlift Wing	Scott AFB, Ill.	C-21
436th Airlift Wing	Dover AFB, Del.	C-5
437th Airlift Wing	Charleston AFB, S.C.	C-17
463rd Airlift Group	Little Rock AFB, Ark.	C-130
615th Contingency Response Wing	Travis AFB, Calif.	
621st CRW	McGuire AFB, N.J.	
715th Air Mobility Operations Group	Hickam AFB, Hawaii	
721st AMOG	Ramstein AB, Germany	

AIR MOBILITY COMMAND, SCOTT AFB, ILL.



18TH AIR FORCE (AMC), SCOTT AFB, ILL.



Pacific Air Forces

PACAF

Headquarters Hickam AFB, Hawaii

Established July 1, 1957

Commander Gen. Paul V. Hester

MISSIONS

Provide ready air and space power to promote US interests in the Asia-Pacific region during peacetime, crisis, and war

FORCE STRUCTURE

Four numbered air forces: **5th,** Yokota AB, Japan; **7th,** Osan AB, South Korea; **11th,** Elmendorf AFB, Alaska; **13th,** Hickam AFB, Hawaii
Nine wings
One squadron

OPERATIONAL ACTIVITY

Flying hours: 10,027 per month

Major operations
Enduring Freedom (Afghanistan); Iraqi Freedom (Iraq)

Major training exercises
Balikatan; Cobra Gold; Commando Sling; Cope India; Cope North; Cope Thunder; Cope Tiger; Foal Eagle; Geronimo Thrust; Keen Sword; Positive Force; Reception, Staging, Onward Movement, & Integration; Tandem Thrust; Ulchi Focus Lens

USAF photo by TSgt. Richard Freeland

A formation of F-15 Eagles target and fire on a decoy as part of a joint service training exercise near Okinawa, Japan. The exercise tested the capabilities of the 18th Wing and Pacific Command's assets.

PERSONNEL

(as of Sept. 30, 2005)

Active duty		32,824
Officers	4,491	
Enlisted	28,333	
Reserve components		5,251
ANG	4,465	
AFRC	786	
Civilian		8,042
Total		**46,117**

UNIT	BASE	WEAPONS
3rd Wing	Elmendorf AFB, Alaska	C-12, C-130H, E-3B/C, F-15C/D, F-15E
8th Fighter Wing	Kunsan AB, South Korea	F-16C/D
15th Airlift Wing	Hickam AFB, Hawaii	C-17, C-37, C-40
18th Wing	Kadena AB, Japan	E-3B/C, F-15C/D, KC-135R, HH-60G
35th Fighter Wing	Misawa AB, Japan	F-16C/D
36th Wing	Andersen AFB, Guam	
51st Fighter Wing	Osan AB, South Korea	A/OA-10A, C-12, F-16C/D
354th Fighter Wing	Eielson AFB, Alaska	A/OA-10A, F-16C/D
374th Airlift Wing	Yokota AB, Japan	C-21A, C-130E/H, UH-1N
497th Fighter Training Squadron	Paya Lebar Airfield, Singapore[a]	Rotational fighter aircraft

[a]Base owned by Singapore government.

PACIFIC AIR FORCES, HICKAM AFB, HAWAII

5th AIR FORCE (PACAF), YOKOTA AB, JAPAN

Commander
Lt. Gen. Bruce A. Wright

- **18th Wing**
  Kadena AB, Japan
  (E-3B/C, F-15C/D, KC-135R, HH-60G)
- **35th Fighter Wing**
  Misawa AB, Japan
  (F-16C/D)
- **374th Airlift Wing**
  Yokota AB, Japan
  (C-21A, C-130E/H, UH-1N)

7th AIR FORCE (PACAF), OSAN AB, SOUTH KOREA

Commander
Lt. Gen. Garry R. Trexler

- **8th Fighter Wing**
  Kunsan AB, South Korea
  (F-16C/D)
- **51st Fighter Wing**
  Osan AB, South Korea
  (A/OA-10A, C-12, F-16C/D)

11th AIR FORCE (PACAF), ELMENDORF AFB, ALASKA

Commander
Lt. Gen. Douglas M. Fraser

- **3rd Wing**
  Elmendorf AFB, Alaska
  (C-12, C-130H, E-3B/C, F-15C/D, F-15E)
- **354th Fighter Wing**
  Eielson AFB, Alaska
  (A/OA-10A, F-16C/D)

EQUIPMENT

(PAI as of Sept. 30, 2005)

Fighter/Attack	264
Helicopter	11
Recon	4
Tanker	13
Transport	37

USAF photo by MSgt. Val Gempis

Amn. Michael Womack, 374th Maintenance Squadron, uses a flashlight to check the main landing gear battery assembly of a C-130 as the aircraft undergoes an annual inspection at Yokota AB, Japan.

13th AIR FORCE/KENNEY WARFIGHTING HQ. (PROVISIONAL) (PACAF), HICKAM AFB, HAWAII

Commander
Maj. Gen. Edward A. Rice Jr.

- **36th Wing**
  Andersen AFB, Guam
- **497th Fighter Training Squadron**
  Paya Lebar Airfield, Singapore[a]
  (Rotational fighter aircraft)

[a]Base owned by Singapore government.

USAFE
US Air Forces in Europe

Headquarters Ramstein AB, Germany

Established Aug. 7, 1945

Commander Gen. William T. Hobbins

MISSIONS
Provide the joint force commander rapidly deployable expeditionary aerospace forces

COROLLARY MISSIONS
Plan, conduct, coordinate, and support air and space operations to achieve US national and NATO objectives based on EUCOM taskings
Develop and maintain light, lean, lethal, and rapid expeditionary aerospace forces
Establish and maintain expeditionary bases
Support US military plans and operations in Europe, the Mediterranean, the Middle East, and Africa

FORCE STRUCTURE
One numbered air force: **16th,** Ramstein AB, Germany
10 wings

OPERATIONAL ACTIVITY
Flying hours: 7,515 per month

Major operations
Enduring Freedom (Afghanistan); Iraqi Freedom (Iraq); Joint Forge (Bosnia); Joint Guardian (Kosovo)

USAF photo by SSgt. Tony R. Tolley

F-15Es from the 494th Fighter Squadron, RAF Lakenheath, Britain, fly a training mission over the North Sea.

Major training exercises
Able Ally; Able Gain; African Eagle; African Lion; Agile Leader; Agile Response; Anatolian Eagle; Atlas Drop; Baltops; Blue Game; Cannon Cloud; Clean Hunter; Combined Endeavor; Cooperative Key; Destined Glory; Dimming Sun; Flintlock; Immediate Response; Juniper Stallion; Medflag; Positive Force; Rescuer/Medceur; Senior Commander Warfighting Seminar; Sentry White Eagle; Union Flash; Victory Strike

US AIR FORCES IN EUROPE, RAMSTEIN AB, GERMANY

Commander
Gen. William T. Hobbins

16th Air Force/Warfighting Hq.
Ramstein AB, Germany

The USAFE organizational chart above shows peacetime lines of command. The chart below shows the NATO wartime command lines.

Allied Command Operations (ACO)

JFC Hq. Naples
Naples, Italy

CC Air Hq. Izmir
Izmir, Turkey

501st CS Wing
RAF Mildenhall, UK

JFC Hq. Brunssum
Brunssum, Netherlands

CC Air Hq. Ramstein
Ramstein AB, Germany

5th Combined Air Operations Center
Vicenza, Italy

6th Combined Air Operations Center
Eskisehir, Turkey

Interim Deployable CAOC
Ramstein AB, Germany

PERSONNEL
(as of Sept. 30, 2005)

Active duty		28,412
Officers	3,722	
Enlisted	24,690	
Reserve components		546
ANG	184	
AFRC	362	
Civilian		5,424
Total		**34,382**

EQUIPMENT
(PAI as of Sept. 30, 2005)

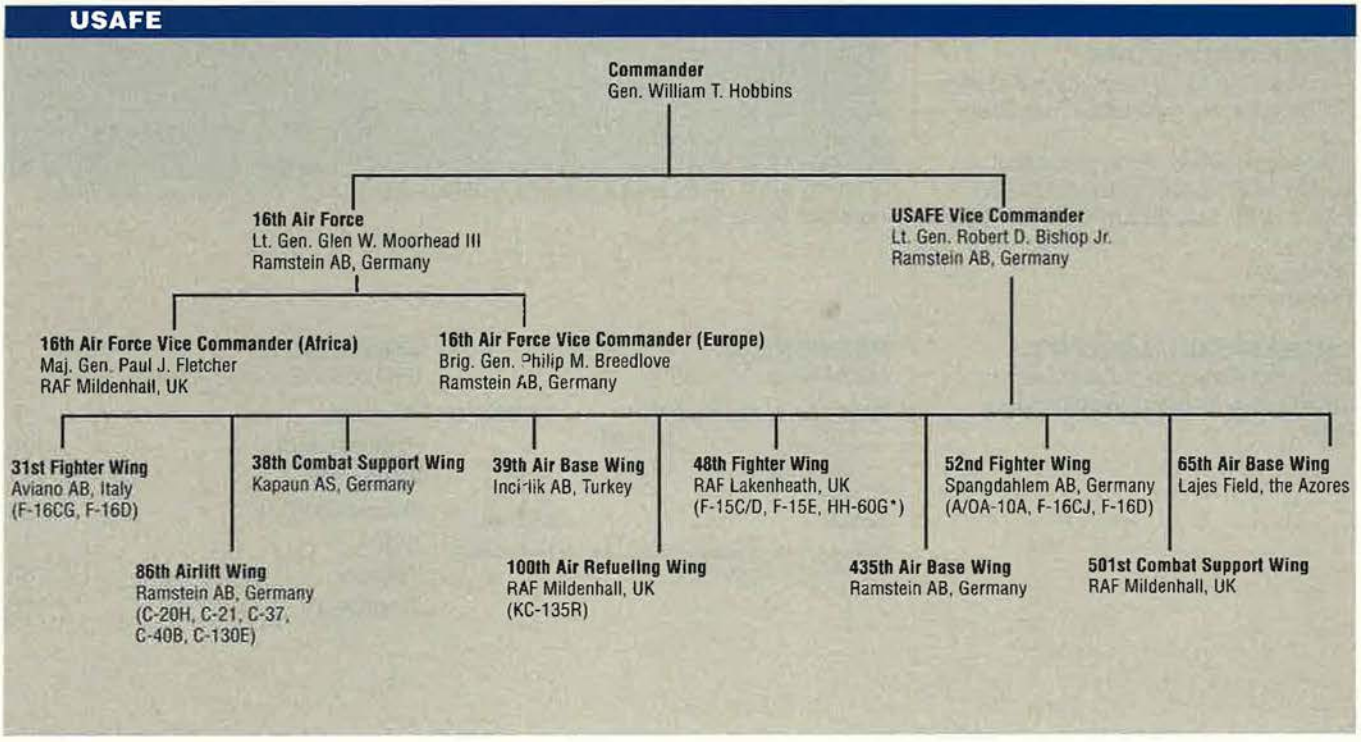
Fighter/Attack	174
Helicopter	4
Tanker	15
Transport	33

USAF photo by A1C Stacy Moless

SSgt. Mark Basnight (left) and SrA. Lucas Newman load munitions onto an F-16 during the 2005 Sure Fire Weapons Load Competition at Spangdahlem AB, Germany. Both airmen were with the 31st Fighter Wing based at Aviano AB, Italy.

UNIT	BASE	WEAPONS
31st Fighter Wing	Aviano AB, Italy	F-16CG, F-16D
38th Combat Support Wing	Sembach AB, Germany	
39th Air Base Wing	Incirlik AB, Turkey	Tactical range and contingency support, rotational aircraft
48th Fighter Wing	RAF Lakenheath, UK	F-15C/D, F-15E, HH-60G*
52nd Fighter Wing	Spangdahlem AB, Germany	A/OA-10A, F-16CJ, F-16D
65th Air Base Wing	Lajes Field, the Azores	
86th Airlift Wing	Ramstein AB, Germany	C-20H, C-21, C-37, C-40B, C-130E
100th Air Refueling Wing	RAF Mildenhall, UK	KC-135R
435th Air Base Wing	Ramstein AB, Germany	
501st Combat Support Wing	RAF Mildenhall, UK	

* Located at NAS Keflavik, Iceland.



Air Reserve Components

2006 USAF Almanac

The Air Reserve Components for USAF are the Air National Guard and Air Force Reserve Command. Air Force Reserve Command stood up as a major command Feb. 17, 1997. The change in status, authorized by Congress in the Fiscal 1997 National Defense Authorization Act, was based on the experience gained from the Air Force Reserve component mobilization for Operations Desert Shield and Desert Storm.

Air Force Reserve Command

Headquarters Robins AFB, Ga.

Established Feb. 17, 1997

Commander Lt. Gen. John A. Bradley

MISSIONS

Support the active duty force
Serve in such missions as fighter, bomber, airlift, aerial port operations, aerial refueling, rescue, special operations, aeromedical evacuation, aerial fire fighting, weather reconnaissance, space operations, airborne air control, flying training, flight testing, and aerial spraying
Provide support and disaster relief in the US
Support national counterdrug efforts
Handle administration of USAF's individual mobilization augmentees

FORCE STRUCTURE

Air Force Reserve Recruiting Service
Air Reserve Personnel Center, Denver
Three numbered air forces: **4th,** March ARB, Calif.; **10th,** NAS JRB Fort Worth, Tex.; **22nd,** Dobbins ARB, Ga.
36 wings
Five groups

USAF photo by MSgt. Bill Kimble

A C-17A turns on its final approach to March ARB, Calif. The Globemaster III has replaced the C-141.

OPERATIONAL ACTIVITY

Enduring Freedom (Afghanistan); Iraqi Freedom (Iraq); Noble Eagle (US)

PERSONNEL

(as of Sept. 30, 2005)

Total (selected reserve)		*75,802
Officers	16,676	
Enlisted	59,126	
Civilian		14,142
Total		**89,944**

*Numbers for AFRC personnel assigned to Majcoms, FOAs, and DRUs are included here.

EQUIPMENT

(PAI as of Sept. 30, 2005)

Bomber	8
Fighter/Attack	105
Helicopter	13
Recon/BM/C3I	10
SOF	12
Tanker	69
Transport	126

AIR FORCE RESERVE COMMAND, ROBINS AFB, GA.

Commander
Lt. Gen. John A. Bradley

- **4th Air Force**
  March ARB, Calif.
- **10th Air Force**
  NAS JRB Fort Worth, Tex.
- **22nd Air Force**
  Dobbins ARB, Ga.
- **AFRC Recruiting Service**
  Col. Francis M. Mungavin
  Robins AFB, Ga.
- **Air Reserve Personnel Center**
  Col. James L. Playford
  Denver

4th AIR FORCE (AMC), MARCH ARB, CALIF.

Commander
Maj. Gen. Robert E. Duignan

- **349th Air Mobility Wing**
  Travis AFB, Calif.
  (C-5A/B, KC-10[a])
  - **452nd Air Mobility Wing**
    March ARB, Calif.
    (C-17, KC-135R)
    - **932nd Airlift Wing**
      Scott AFB, Ill.
      (C-9A)
- **433rd Airlift Wing**
  Lackland AFB, Tex.
  (C-5A)
  - **459th Air Refueling Wing**
    Andrews AFB, Md.
    (KC-135R)
    - **939th Air Refueling Wing**
      Portland Arpt., Ore.
      (KC-135R)
- **434th Air Refueling Wing**
  Grissom ARB, Ind.
  (KC-135R)
  - **507th Air Refueling Wing**
    Tinker AFB, Okla.
    (KC-135R)
    - **940th Air Refueling Wing**
      Beale AFB, Calif.
      (KC-135E/R)
- **445th Airlift Wing**
  Wright-Patterson AFB, Ohio (C-5A)
  - **916th Air Refueling Wing**
    Seymour Johnson AFB, N.C.
    (KC-135R)
    - **931st Air Refueling Group**
      McConnell AFB, Kan.
      (KC-135R[a])
- **446th Airlift Wing**
  McChord AFB, Wash.
  (C-17A[a])
  - **927th Air Refueling Wing**
    Selfridge ANGB, Mich.
    (KC-135R)

10th AIR FORCE (ACC), NAS JRB FORT WORTH, TEX.

Commander
Maj. Gen. Richard C. Collins

- **301st Fighter Wing**
  NAS JRB Fort Worth, Tex.
  (F-16C/D)
  - **919th Special Ops Wing**
    Duke Field, Fla.
    (MC-130E[b]/P[a])
    - **310th Space Group**
      Schriever AFB, Colo.
- **419th Fighter Wing**
  Hill AFB, Utah
  (F-16C/D)
  - **920th Rescue Wing**
    Patrick AFB, Fla.
    (HC-130P/N, HH-60G)
    - **340th Flying Training Group**
      Randolph AFB, Tex.
      (AT/T-38, T-1, T-37, T-38)[a]
- **442nd Fighter Wing**
  Whiteman AFB, Mo.
  (A/OA-10A)
  - **926th Fighter Wing**
    NAS JRB New Orleans
    (A/OA-10A)
    - **513th Air Control Group**
      Tinker AFB, Okla.
      (E-3[a])
- **482nd Fighter Wing**
  Homestead ARB, Fla.
  (F-16C/D)
  - **944th Fighter Wing**
    Luke AFB, Ariz.
    (F-16C/D)[c]
    - **943rd Rescue Group**
      Davis-Monthan AFB, Ariz.
      (HH-60G)
- **917th Wing**
  Barksdale AFB, La.
  (B-52H, A/OA-10A)
  - **307th Fighter Squadron**
    Langley AFB, Va.
    (A-10, F-15, F-16C/D)[a]

22nd AIR FORCE (AMC), DOBBINS ARB, GA.

Commander
Maj. Gen. James D. Bankers

- **94th Airlift Wing**
  Dobbins ARB, Ga.
  (C-130H)
  - **440th Airlift Wing**
    General Mitchell Arpt./ ARS, Wis. (C-130H)
    - **911th Airlift Wing**
      Pittsburgh Arpt./ARS
      (C-130H)
- **302nd Airlift Wing**
  Peterson AFB, Colo.
  (C-130H)
  - **512th Airlift Wing**
    Dover AFB, Del.
    (C-5A/B[a])
    - **913th Airlift Wing**
      Willow Grove ARS, Pa.
      (C-130E)
- **315th Airlift Wing**
  Charleston AFB, S.C.
  (C-17[a])
  - **514th Air Mobility Wing**
    McGuire AFB, N.J.
    (C-17, KC-10A)[a]
    - **914th Airlift Wing**
      Niagara Falls Arpt./ARS, N.Y.
      (C-130H)
- **403rd Wing**
  Keesler AFB, Miss.
  (C-130J, WC-130H/J)
  - **908th Airlift Wing**
    Maxwell AFB, Ala.
    (C-130H)
    - **934th Airlift Wing**
      Minneapolis-St. Paul Arpt./ ARS, Minn. (C-130H)
- **439th Airlift Wing**
  Westover ARB, Mass.
  (C-5A)
  - **910th Airlift Wing**
    Youngstown-Warren Arpt./ARS, Ohio (C-130H)

[a]Associate aircraft.
[b]Active-associate (owned by AFRC, flown by active).
[c]AFRC-owned and associate aircraft.

ANGB Air National Guard Base
ARB Air Reserve Base
Arpt. Airport
ARS Air Reserve Station
JRB Joint Reserve Base
NAS Naval Air Station

Air National Guard

ANG

Headquarters Washington, D.C.

Established Sept. 18, 1947

Director Lt. Gen. Daniel James III

MISSONS

Provide combat capability to the warfighter and security for the homeland
Provide ready units to support national security objectives
Protect life and property and preserve peace, order, and public safety

FORCE STRUCTURE

One numbered air force: **1st,** Tyndall AFB, Fla.
88 wings
Two squadrons

OPERATIONAL ACTIVITY

Enduring Freedom (Afghanistan); Iraqi Freedom (Iraq); Noble Eagle (US)

PERSONNEL

(as of Sept. 30, 2005)

Total ANG military*		106,430
Officers	13,672	
Enlisted	92,758	
Civilian		23,461
Total		**129,891**

*Includes ANG personnel assigned to MAJCOMS, FOAs, and DRUs.

EQUIPMENT

(PAI as of Sept. 30, 2005)

Fighter/Attack	634
Helicopter	15
Recon/BM/C3I	19
SOF	4
Tanker	196
Transport	235

USAF photo by TSgt. Ben Bloker

An F-22 (foreground) flies in formation with two F-16s on a training mission off the coast of Virginia. The Virginia ANG is transitioning to the F-22 Raptor and will replace the F-16s in 2007. Below, an ANG member with the 159th Fighter Wing inspects the fuselage of an F-15 during a readiness exercise in Gulfport, Miss.

USAF photo by MSgt. Daniel P. Farrell

1st AIR FORCE (ACC), TYNDALL AFB, FLA.

Commander
Maj. Gen. M Scott Mayes

Southeast Air Defense Sector (ANG)
Tyndall AFB, Fla.

Northeast Air Defense Sector (ANG)
Rome, N.Y.

Western Air Defense Sector (ANG)
McChord AFB, Wash.

Raytheon AESA

Active Electronically Scanned Array Radar

Raytheon's proven multi-mode, multi-platform AESA technology can simultaneously guide multiple weapons to multiple targets widely spaced in azimuth, elevation and range, with unprecedented precision. It enables various platforms to gather, process and share information, air-to-air and air-to-ground, with a speed and reliability far greater than any other radar. In short, it provides today's aircraft with a revolutionary level of situational awareness and the vast operational advantages that go with it.

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Raytheon

Customer Success Is Our Mission

The Air National Guard by Major Command Assignment

(As of April 1, 2006)

Air Combat Command

A/OA-10A	
103rd Fighter Wing	Bradley Arpt., Conn.
104th Fighter Wing	Barnes Arpt., Mass.
110th Fighter Wing	W.K. Kellogg Arpt., Mich.
111th Fighter Wing	Willow Grove ARS, Pa.
124th Wing[a]	Boise Air Terminal, Idaho
175th Wing[a]	Martin State Arpt., Md.
C-130	
156th Airlift Wing	Luis Munoz Marin Arpt., Puerto Rico
E-8C	
116th Air Control Wing[b]	Robins AFB, Ga.
F-15	
131st Fighter Wing	Lambert-St. Louis Arpt., Mo.
159th Fighter Wing	NAS JRB New Orleans, La.
F-15—air defense	
102nd Fighter Wing	Otis ANGB, Mass.
125th Fighter Wing	Jacksonville Arpt., Fla.
142nd Fighter Wing	Portland Arpt., Ore.
F-16	
113th Wing	Andrews AFB, Md.
114th Fighter Wing	Joe Foss Field, S.D.
115th Fighter Wing	Truax Field, Wis.
120th Fighter Wing	Great Falls Arpt., Mont.
122nd Fighter Wing	Fort Wayne Arpt., Ind.
127th Wing[a]	Selfridge ANGB, Mich.
132nd Fighter Wing	Des Moines Arpt., Iowa
138th Fighter Wing	Tulsa Arpt., Okla.
140th Wing	Buckley AFB, Colo.
147th Fighter Wing	Ellington Field, Tex.
148th Fighter Wing	Duluth Arpt., Minn.
150th Fighter Wing	Kirtland AFB, N.M.
158th Fighter Wing	Burlington Arpt., Vt.
169th Fighter Wing	McEntire ANGS, S.C.
174th Fighter Wing	Hancock Field, N.Y.
177th Fighter Wing	Atlantic City Arpt., N.J.
180th Fighter Wing	Toledo Express Arpt., Ohio
181st Fighter Wing	Hulman Arpt., Ind.
183rd Fighter Wing	Abraham Lincoln Capital Arpt., Ill.
187th Fighter Wing	Montgomery Regional Arpt., Ala.
188th Fighter Wing	Fort Smith Arpt., Ark.
192nd Fighter Wing	Richmond Arpt., Va.
F-16—air defense	
119th Fighter Wing	Hector Arpt., N.D.
144th Fighter Wing	Fresno Yosemite Arpt., Calif.

Air Education and Training Command

F-15	
173rd Fighter Wing	Klamath Falls Arpt., Ore.
F-16	
149th Fighter Wing	Kelly Field, Tex.
162nd Fighter Wing	Tucson Arpt., Ariz.
178th Fighter Wing	Springfield-Beckley Arpt., Ohio
C-130 (training)	
189th Airlift Wing	Little Rock AFB, Ark.

Air Force Space Command

137th Space Warning Sq.	Greeley ANGB, Colo.
148th Space Ops Sq.	Vandenberg AFB, Calif.

Air Force Special Operations Command

EC-130E	
193rd Special Ops Wing	Harrisburg Arpt., Pa.
HC-130/HH-60	
106th Rescue Wing	Francis S. Gabreski Arpt., N.Y.
MC-130/HH-60	
129th Rescue Wing	Moffett Field, Calif.

Air Mobility Command

C-5A	
105th Airlift Wing	Stewart ANGB, N.Y.
164th Airlift Wing	Memphis Arpt., Tenn.
C-17	
172nd Airlift Wing	Allen C. Thompson Field, Miss.
C-130	
109th Airlift Wing	Schenectady County Arpt., N.Y.
118th Airlift Wing	Nashville Arpt., Tenn.
123rd Airlift Wing	Louisville Arpt./AGS, Ky.
130th Airlift Wing	Yeager Arpt., W.Va.
133rd Airlift Wing	Minneapolis-St. Paul Arpt./ARS, Minn.
136th Airlift Wing	NAS JRB Fort Worth, Tex.
137th Airlift Wing	Will Rogers World Arpt., Okla.
139th Airlift Wing	Rosecrans Memorial Arpt., Mo.
143rd Airlift Wing	Quonset State Arpt., R.I.
145th Airlift Wing	Charlotte/Douglas Arpt., N.C.
146th Airlift Wing	Channel Islands ANGS, Calif.
152nd Airlift Wing	Reno/Tahoe Arpt., Nev.
153rd Airlift Wing	Cheyenne Arpt., Wyo.
165th Airlift Wing	Savannah Hilton Head Arpt., Ga.
166th Airlift Wing	New Castle County Arpt., Del.
167th Airlift Wing	Eastern West Virginia Arpt., W.Va.
179th Airlift Wing	Mansfield Lahm Arpt., Ohio
182nd Airlift Wing	Greater Peoria Arpt., Ill.
KC-135	
101st Air Refueling Wing	Bangor Arpt., Maine
107th Air Refueling Wing	Niagara Falls Arpt./ARS, N.Y.
108th Air Refueling Wing	McGuire AFB, N.J.
117th Air Refueling Wing	Birmingham Arpt., Ala.
121st Air Refueling Wing	Rickenbacker ANGB, Ohio
126th Air Refueling Wing	Scott AFB, Ill.
128th Air Refueling Wing	General Mitchell Arpt./ARS, Wis.
134th Air Refueling Wing	McGhee Tyson Arpt., Tenn.
141st Air Refueling Wing	Fairchild AFB, Wash.
151st Air Refueling Wing	Salt Lake City Arpt.
155th Air Refueling Wing	Lincoln Arpt., Neb.
157th Air Refueling Wing	Pease Intl. Tradeport ANGS, N.H.
161st Air Refueling Wing	Sky Harbor Arpt., Ariz.
163rd Air Refueling Wing	March ARB, Calif.
171st Air Refueling Wing	Pittsburgh Arpt./ARS
184th Air Refueling Wing	McConnell AFB, Kan.
185th Air Refueling Wing	Sioux Gateway Arpt./Col. Bud Day Field, Iowa
186th Air Refueling Wing	Key Field, Miss.
190th Air Refueling Wing	Forbes Field, Kan.

Pacific Air Forces

C-17	
154th Wing (assoc.)	Hickam AFB, Hawaii
C-130	
154th Wing (204th Airlift Sq.)	Hickam AFB, Hawaii
176th Wing[c]	Kulis ANGB, Alaska
F-15	
154th Wing[d] (199th FS)	Hickam AFB, Hawaii
HC-130/HH-60	
176th Wing (210th RQS)	Kulis ANGB, Alaska
KC-135	
154th Wing (203rd ARS)	Hickam AFB, Hawaii
168th Air Refueling Wing	Eielson AFB, Alaska

[a] Also flies C-130s.
[b] Blended wing with active duty and ANG personnel.
[c] Includes 210th Rescue Squadron with HC-130 and HH-60G aircraft.
[d] Includes 203rd Air Refueling Squadron with KC-135 aircraft.

FOAs, DRUs, and Auxiliary

2006 USAF Almanac

Field Operating Agencies

A field operating agency (FOA) is a subdivision of the Air Force that carries out field activities under the operational control of an Hq. USAF functional manager. FOAs have the same administrative and organizational responsibilities as major commands.

Air Force Agency for Modeling and Simulation

Hq.: Orlando, Fla.
Estab.: June 3, 1996
Cmdr.: Col. David M. Votipka

MISSION, PURPOSE, OPERATIONS

Responsible for supporting development and use of Joint Synthetic Battlespace (JSB) for training, analysis, test and evaluation, and operations

Implement Air Force, joint, and DOD modeling and simulation (M&S) policies and standards

Manage, coordinate, and integrate major USAF and joint M&S programs and initiatives

Support corporate USAF M&S operations while promoting and supporting technology improvements

STRUCTURE

Three divisions in Orlando, Fla.
C4ISR Visualization Center, Pentagon

PERSONNEL

Active duty		17
Officers	14	
Enlisted	3	
Civilians		15
Total		**32**

Air Force Audit Agency

Hq.: Washington, D.C.
Estab.: July 1, 1948
Dir.: Robert E. Dawes

MISSION, PURPOSE, OPERATIONS

Provide all levels of Air Force management with independent and quality internal audit service

Produce audit products that evaluate the efficiency, effectiveness, and economy of Air Force programs and activities

STRUCTURE

Four directorates at Arlington, Va., Brooks City-Base, Tex., March ARB, Calif., and Wright-Patterson AFB, Ohio
Three regional offices
16 field offices

PERSONNEL

Civilians	781

The director of AFAA is the USAF auditor general.

Air Force Center for Environmental Excellence

Hq.: Brooks City-Base, Tex.
Estab.: July 23, 1991
Dir.: Paul A. Parker

MISSION, PURPOSE, OPERATIONS

Provide Air Force leaders with the comprehensive expertise to protect, preserve, restore, develop, and sustain the nation's environmental and installation resources

STRUCTURE

10 directorates at Brooks City-Base with regional environmental offices in Atlanta, Dallas, and San Francisco

PERSONNEL

Active duty		31
Officers	29	
Enlisted	2	
Reserve components		15
ANG	0	
AFRC	15	
Civilians		358
Total		**404**

Air Force Civil Engineer Support Agency

Hq.: Tyndall AFB, Fla.
Estab.: Aug. 1, 1991
Cmdr.: Col. Gus G. Elliott Jr.

MISSION, PURPOSE, OPERATIONS

Provide the best tools, practices, and professional support to maximize Air Force civil engineer capabilities in base and contingency operations

STRUCTURE

Six directorates

PERSONNEL

Active duty		96
Officers	19	
Enlisted	77	
Reserve components		25
ANG	0	
AFRC	25	
Civilians		110
Total		**231**

Air Force Command and Control and Intelligence, Surveillance, and Reconnaissance Center

Hq.: Langley AFB, Va.
Estab.: Aug. 1, 1997
Cmdr.: Maj. Gen. Tommy F. Crawford

MISSION, PURPOSE, OPERATIONS

Develop the science of control to enable the art of command by influencing, integrating, and improving Air Force C2ISR capabilities

Represent all major commands and provide operational warfighter perspective to Air Force C2ISR spiral development and system acquisition commands and processes

Deliver interoperability and combat capability to the joint warfighter

STRUCTURE

One major field unit
11 subordinate organizations

PERSONNEL

Active duty		228
Officers	165	
Enlisted	63	
Reserve Components		16
ANG	0	
AFRC	16	
Civilians		57
Total		**301**

USAF photo by MSgt. Lance Cheung

Maj. Tom Grabowski directs air assets aboard an E-8C Joint STARS aircraft.

Air Force Communications Agency

Hq.: Scott AFB, Ill.
Estab.: June 13, 1996
Cmdr.: Col. Robert J. Steele

MISSION, PURPOSE, OPERATIONS

Provide C4ISR capabilities to the warfighter through architecture and lead command management of the Air Force ground, air, and space network—the ConstellationNet
Direct integration of systems into the network, assuring decision superiority; drive innovative information technology solutions for Air Force warfighters by generating progressive standards, architectures, and force structure policies and guidance
Deploy engineering and network operations strike teams worldwide for assured Air Force network combat power

STRUCTURE

Five functional areas

PERSONNEL

Active duty		217
Officers	107	
Enlisted	110	
Reserve Components		4
ANG	0	
AFRC	4	
Civilians		315
Total		**536**

Air Force Cost Analysis Agency

Hq.: Arlington, Va.
Estab.: Aug. 1, 1992
Exec. Dir.: Richard K. Hartley

MISSION, PURPOSE, OPERATIONS

Develop independent life-cycle cost estimates of major weapon and information systems; estimates and cost factors for modernization planning, long-range planning, divestiture, and flying hour program; cost-estimation tools, techniques, methodologies, and databases
Conduct special cost reviews for the Air Force Secretariat and for other organizations as directed
Research emerging changes in technologies, acquisition priorities, and industry

STRUCTURE

Five divisions

PERSONNEL

Active duty		25
Officers	23	
Enlisted	2	
Civilians		39
Total		**64**

Air Force Flight Standards Agency

Hq.: Andrews AFB, Md.
Estab.: Oct. 1, 1991
Cmdr.: Col. Christopher S. Ceplecha

MISSION, PURPOSE, OPERATIONS

Develop, standardize, evaluate, and certify USAF policy, procedures, and equipment for flight operations and centrally manage USAF air traffic control and landing systems
Represent USAF in FAA airspace management and ATC issues and DOD in international airspace and ATC issues
Provide procedures for ATC, airfield, operational evaluation of ATC systems, airspace management, and terminal instrument procedures

STRUCTURE

One detachment at Oklahoma City
Three directorates

PERSONNEL

Active duty		120
Officers	51	
Enlisted	69	
Reserve components		4
ANG	0	
AFRC	4	
Civilians		38
Total		**162**

Air Force Frequency Management Agency

Hq.: Alexandria, Va.
Estab.: Oct. 1, 1991
Cmdr.: Col. Richard J. Petrassi

MISSION, PURPOSE, OPERATIONS

Plan, provide, and preserve access to the electromagnetic spectrum for Air Force and selected DOD activities in support of national policy objectives, systems development, and global operations
Develop and implement spectrum guidelines and instructions to support the Air Force mission
Coordinate actions to resolve spectrum interference incidents involving DOD, private sector, federal, and international users; instrumental in formulating and articulating US positions at World Radio Conference
Coordinate orbital locations and spectrum needs for DOD satellites at the international level
Provide functional management for the spectrum management career field and oversee curriculum for the Electromagnetic Spectrum Management Course and the JTF Spectrum Management Course

STRUCTURE

Two directorates
Technical director

PERSONNEL

Active duty		11
Officers	3	
Enlisted	8	
Civilians		25
Total		**36**

Air Force Historical Research Agency

Hq.: Maxwell AFB, Ala.
Estab.: May 25, 1979
Dir.: Charles F. O'Connell Jr.

MISSION, PURPOSE, OPERATIONS

Collect, preserve, and manage historical document collection and oral history program
Research, write, and publish books and other studies on USAF history
Provide historical support to USAF, DOD, other government agencies, and the public
Record and disseminate USAF history, including the role of airpower in national security
Operate research facilities and automated historical data system
Determine the lineage and honors of USAF units; maintain official emblem records
Verify Air Force aerial victory credits

STRUCTURE

Three divisions

PERSONNEL

Active duty		1
Officers	0	
Enlisted	1	
Reserve components		22
ANG	0	
AFRC	22	
Civilians		60
Total		**83**

Air Force Inspection Agency

Hq.: Kirtland AFB, N.M.
Estab.: Aug. 1, 1991
Cmdr.: Col. Thomas F. Berardinelli

MISSION, PURPOSE, OPERATIONS

Provide independent and timely assessments of acquisition, nuclear surety, operations, logistics, support, and health care to SECAF, CSAF, SAF/IG, and commanders of major commands
Serve as primary action arm of SECAF inspection system
Identify critical deficiencies and recommend improvements for accomplishing peacetime/wartime missions; evaluate USAF activities and policies
Provide by-law and compliance oversight of all USAF-level FOAs and DRUs
Publish *TIG Brief* magazine

STRUCTURE

Four directorates

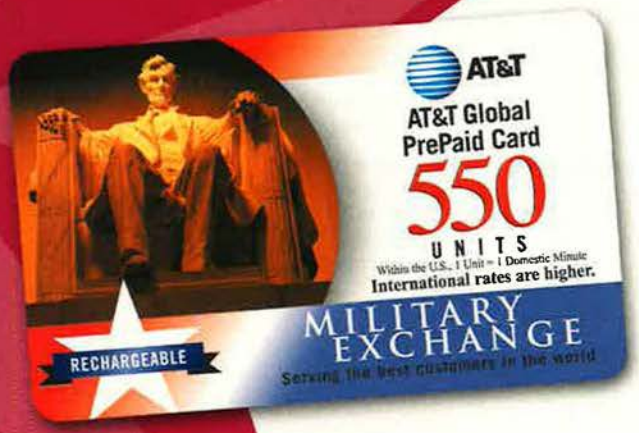
PERSONNEL

Active duty		103
Officers	80	
Enlisted	23	
Reserve components		5
ANG	0	
AFRC	5	
Civilians		25
Total		**133**

USAF photo by SSgt. Karen Z. Silcott

SrA. John Ervin from the 52nd Communications Squadron configures a router to communicate with a remote site.

Make a Connection
Wherever You're Heading



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Air Force Legal Services Agency

Hq.: Bolling AFB, D.C.
Estab.: Sept. 1, 1991
Cmdr.: Col. Steven J. Lepper

MISSION, PURPOSE, OPERATIONS

Provide commanders and personnel with specialized legal services: administering military justice to protect individual rights and ensure good order and discipline; preserving command freedom of action through robust defense of USAF interests in civil litigation; training and advising the headquarters and field in military justice and civil law matters; providing programs to benefit the Air Force family; and supporting legal services worldwide with state-of-the-art, specialized information technology

STRUCTURE

Three directorates

PERSONNEL

Active duty		359
Officers	245	
Enlisted	114	
Reserve Components		116
ANG	0	
AFRC	116	
Civilians		105
Total		**580**

Air Force Logistics Management Agency

Hq.: Maxwell AFB, Gunter Annex, Ala.
Estab.: Sept. 30, 1975
Cmdr.: Col. Sean P. Cassidy

MISSION, PURPOSE, OPERATIONS

Develop, analyze, test, evaluate, and recommend new or improved concepts, methods, systems, policies, and procedures to enhance logistics efficiency and effectiveness
Publish the *Air Force Journal of Logistics*

STRUCTURE

Six divisions

USAF photo by Capt. Aaron Burgstein

MSgt. Michael Bares and other members of the 386th Expeditionary Logistics Readiness Squadron's vehicle maintenance flight repair nearly 180 vehicles a month.

PERSONNEL

Active duty		52
Officers	30	
Enlisted	22	
Civilians		23
Total		**75**

Air Force Manpower Agency

Hq.: Randolph AFB, Tex.
Estab.: November 1975
Cmdr.: Col. Kenneth Keskel

MISSION, PURPOSE, OPERATIONS

Provide Air Force leaders with the tools to identify essential manpower required to support Air Force concepts of operations
Determine manpower requirements
Develop programming factors
Manage Air Force performance management programs
Assist with execution of competitive sourcing initiatives
Conduct special studies

STRUCTURE

Five squadrons at Randolph AFB, Tex., Langley, Va., Scott AFB, Ill., Buckley Annex, Colo., and Tinker AFB, Okla.
Four divisions
Operating locations at Washington, D.C., Ft. Detrick, Md., and McGhee Tyson Arpt., Tenn.

PERSONNEL

Active duty		91
Officers	32	
Enlisted	59	
Total		**91**

Air Force Medical Operations Agency

Hq.: Pentagon
Estab.: July 1, 1992
Cmdr.: Col. Kenneth Knight

MISSION, PURPOSE, OPERATIONS

Support the Air Force assistant surgeon general, health care operations, and the Air Force surgeon general in the planning and execution of operational policies
Coordinate and track worldwide Air Force Medical Service expeditionary operations working with the services, unified commands, and Joint Staff
Create and operate statistical tools to collect and analyze data to shape the delivery of health care
Directly support health care professionals at military treatment facilities and special duty assignments worldwide

STRUCTURE

Two divisions
Two offices

PERSONNEL

Active duty		30
Officers	25	
Enlisted	5	
Reserve Components		10
ANG	0	
AFRC	10	
Civilians		7
Total		**47**

Air Force Medical Support Agency

Hq.: Bolling AFB, D.C.
Estab.: July 1, 1978
Cmdr.: Col. Paul B. Christianson

MISSION, PURPOSE, OPERATIONS

Oversee execution of Air Force surgeon general policies and programs in support of USAF global capability and national security strategies
Provide expert consultative leadership for entire Air Force Medical Service

STRUCTURE

Six directorates
28 divisions
11 geographically separated units

PERSONNEL

Active duty		227
Officers	166	
Enlisted	61	
Civilians		112
Total		**339**

Air Force National Security Emergency Preparedness Agency

Hq.: Arlington, Va.
Estab.: Sept. 1, 1988
Cmdr.: Col. Gary A. Brand

MISSION, PURPOSE, OPERATIONS

Facilitate Air Force support to civil authorities for natural or man-made disasters/emergencies

STRUCTURE

Two divisions
Three offices in Arlington, Va., Ft. McPherson, Ga., and Tyndall AFB, Fla.
Reserve personnel assigned to each state and emergency action agencies

PERSONNEL

Active duty		16
Officers	8	
Enlisted	8	
Reserve components		97
ANG	0	
AFRC	97	
Civilians		5
Total		**118**

Air Force News Agency

Hq.: San Antonio
Estab.: June 1, 1978
Cmdr.: Col. Janice L. Gunnoe

MISSION, PURPOSE, OPERATIONS

Create, print, and broadcast Web-based products that support Air Force and DOD communication goals
Provide news, information, and entertainment programs through American Forces Radio and Television Service
Provide senior Air Force leaders with the means of communicating news and information to the Air Force community and the public

Organize, train, and equip AFNEWS to accomplish its mission
Create an IT environment that ensures the efficient and secure production and delivery of information

STRUCTURE
Directorate of News Operations
Air Force Broadcasting Service
Army and Air Force Hometown News Service
Directorate of Staff

PERSONNEL

Active duty		305
Officers	288	
Enlisted	17	
Reserve components		34
ANG	0	
AFRC	34	
Civilians		94
Total		**433**

Air Force Nuclear Weapons and Counterproliferation Agency

Hq.: Pentagon
Estab.: August 1998
Cmdr.: Lt. Col. Kris G. Rongone

MISSION, PURPOSE, OPERATIONS
Provide the warfighter with chemical, biological, radiological, nuclear, and high explosive science and technology to ensure effective nuclear stockpile stewardship and operational and technological options for countering CBRNE threats
Provide technical S&T advice on nuclear weapons and counterproliferation issues to OSD, combatant commanders, major commands, and Air Staff

STRUCTURE
Three divisions
One operating location at Pentagon

PERSONNEL

Active duty		15
Officers	8	
Enlisted	7	
Civilians		16
Total		**31**

Air Force Office of Special Investigations

Hq.: Andrews AFB, Md.
Estab.: Aug. 1, 1948
Cmdr.: Brig. Gen. Dana A. Simmons

MISSION, PURPOSE, OPERATIONS
Deliver special investigations and services to protect Air Force and DOD people, operations, and interests
Identify and resolve crime that threatens Air Force readiness or good order and discipline
Detect and provide early warning of worldwide threats to the Air Force
Combat threats to Air Force information systems and technologies
Detect and defeat fraud impacting Air Force acquisitions and base level capabilities
Serve as DOD's executive agent for Defense Cyber Crime Center

STRUCTURE
Eight regional offices
Seven squadrons
200 detachments and operating locations
USAF Special Investigations Academy located at the Federal Law Enforcement Training Center

PERSONNEL

Active duty		1,625
Officers	403	
Enlisted	1,222	
Reserve components		372
ANG	0	
AFRC	372	
Civilians		676
Total		**2,673**

Air Force Operations Group

Hq.: Pentagon
Estab.: July 26, 1977
Cmdr.: Col. Steven Pennington

MISSION, PURPOSE, OPERATIONS
Support USAF Chief of Staff and DCS for Air and Space Operations on current operational issues, including a 24-hour watch on all current operations and processing emergency messages
Provide facilities, policy, procedures, training, and staffing for Crisis Action Team during crises, contingencies, and exercises
Coordinate actions among major USAF organizations for JCS and USAF taskings
Prepare and provide weather data to the President, Secretary of Defense, JCS, National Military Command Center, Army Operations Center, and other federal agencies

STRUCTURE
Four divisions

PERSONNEL

Active duty		68
Officers	29	
Enlisted	39	
Reserve components		9
ANG	0	
AFRC	9	
Total		**77**

Air Force Pentagon Communications Agency

Hq.: Pentagon
Estab.: Oct. 1, 1984
Cmdr.: Col. Kim M. Johnson

MISSION, PURPOSE, OPERATIONS
Provide communications and information technology systems and services for the National Military Command Center, Hq. USAF, and other organizations and within the National Capital Region as directed by Hq. USAF

STRUCTURE
Six directorates

PERSONNEL

Active duty		47
Officers	4	
Enlisted	43	
Civilians		108
Total		**155**

Air Force Personnel Center

Hq.: Randolph AFB, Tex.
Estab.: Oct. 1, 1995
Cmdr.: Maj. Gen. Anthony F. Przybyslawski

MISSION, PURPOSE, OPERATIONS
Provide service in worldwide personnel operations to Air Force commanders, military members, civilian employees, families, retirees, and other customers
Manage programs for individual career development, awards and decorations, assignments, retirements, promotions, and civilian personnel operations

STRUCTURE
Seven directorates

PERSONNEL

Active duty		604
Officers	231	
Enlisted	373	
Reserve components		14
ANG	0	
AFRC	14	
Civilians		1,037
Total		**1,655**

AFPC was formerly the Air Force Military Personnel Center and the Air Force Civilian Personnel Management Center.

Air Force Personnel Operations Agency

Hq.: Pentagon
Estab.: Aug. 15, 1993
Dir.: Timothy A. Beyland

MISSION, PURPOSE, OPERATIONS
Provide in-depth analytical insight across the personnel life cycle to DCS for Personnel decision-makers
Develop and operate officer, enlisted, and civilian models
Support DCS for Personnel

STRUCTURE
One division

PERSONNEL

Active duty		35
Officers	19	
Enlisted	16	
Civilians		57
Total		**92**

USAF photo by MSgt. Val Gempis

SSgt. Lee Hoover uses an Avid Video Editing system to produce a program on Air Force News Agency's 24-hour radio and TV services out of Yokota AB, Japan.

Air Force Real Property Agency

Hq.: Arlington, Va.
Estab.: Nov. 1, 2002
Dir.: Kathryn M. Halvorson

MISSION, PURPOSE, OPERATIONS

Acquire, dispose, and manage all Air Force-controlled real property worldwide

STRUCTURE

Regional divisions
Base-level operating locations

PERSONNEL

Civilians	143

Air Force Review Boards Agency

Hq.: Andrews AFB, Md.
Estab.: June 1, 1980
Dir.: Joe G. Lineberger

MISSION, PURPOSE, OPERATIONS

Manage military and civilian appellate processes for the Secretary of the Air Force
Develop overall policy of the organization and oversee the activities and operations of the agency

STRUCTURE

Air Force Board for Correction of Military Records
Air Force Civilian Appellate Review Office
Secretary of the Air Force Personnel Council
Review Boards Support Office, Randolph AFB, Tex.

PERSONNEL

Active duty		9
Officers	4	
Enlisted	5	
Reserve components		6
ANG	0	
AFRC	6	
Civilians		50
Total		**65**

Air Force Safety Center

Hq.: Kirtland AFB, N.M.
Estab.: Jan. 1, 1996
Cmdr.: Maj. Gen. Maurice L. McFann Jr.

MISSION, PURPOSE, OPERATIONS

Manage USAF mishap prevention, risk management, and nuclear surety programs
Develop regulatory guidance
Provide technical assistance in flight, ground, weapons, and space safety disciplines
Maintain USAF database for all safety mishaps
Oversee all major command mishap investigations and evaluate corrective actions for applicability and implementation USAF-wide
Direct safety education programs for all safety disciplines

STRUCTURE

10 divisions

PERSONNEL

Active duty		63
Officers	47	
Enlisted	16	
Reserve components		3
ANG	0	
AFRC	3	
Civilians		50
Total		**116**

The commander is also the Air Force chief of safety. AFSC publishes *Flying Safety, Road and Rec,* and *Weapons Journal.*

Air Force Security Forces Center

Hq.: Lackland AFB, Tex.
Estab.: March 17, 1997
Cmdr.: Col. Michael C. Vendzules

MISSION, PURPOSE, OPERATIONS

Develop USAF security forces guidance, policy, and training requirements to safeguard and protect personnel and resources
Prepare guidance on air base defense operations and security forces continuation training; mission-related security and law enforcement operations; resource protection; anti-terrorism; conduct USAF-level installation vulnerability assessments
Develop and implement base-level and combat arms training and ground combat weapons maintenance programs
Manage USAF corrections program and activities; DOD military working dog activities; contingency taskings

STRUCTURE

Three divisions
Force Protection Battlelab
Three detachments at Ft. Leavenworth, Kan., NAS Miramar, Calif., and Charleston NWC, S.C.

PERSONNEL

Active duty		414
Officers	53	
Enlisted	361	
Reserve components		8
ANG	0	
AFRC	8	
Civilians		13
Total		**435**

Air Force Services Agency

Hq.: San Antonio
Estab.: Feb. 5, 1991
Cmdr.: Col. Timothy J. Hanson

MISSION, PURPOSE, OPERATIONS

Provide combat support to commanders directly in support of the Air Force mission
Provide community service programs that enhance the quality of life for Air Force members and their families
Manage Air Force nonappropriated central funds and operate central systems such as banking, investments, purchasing, data flow, insurance, and benefit programs

STRUCTURE

Eight directorates

PERSONNEL

Active duty		71
Officers	25	
Enlisted	46	
Reserve components		8
ANG	0	
AFRC	8	
Civilians		180
Total		**259**

Air Force Technical Applications Center

Hq.: Patrick AFB, Fla.
Estab.: July 7, 1959
Cmdr.: Col. Guy D. Turner

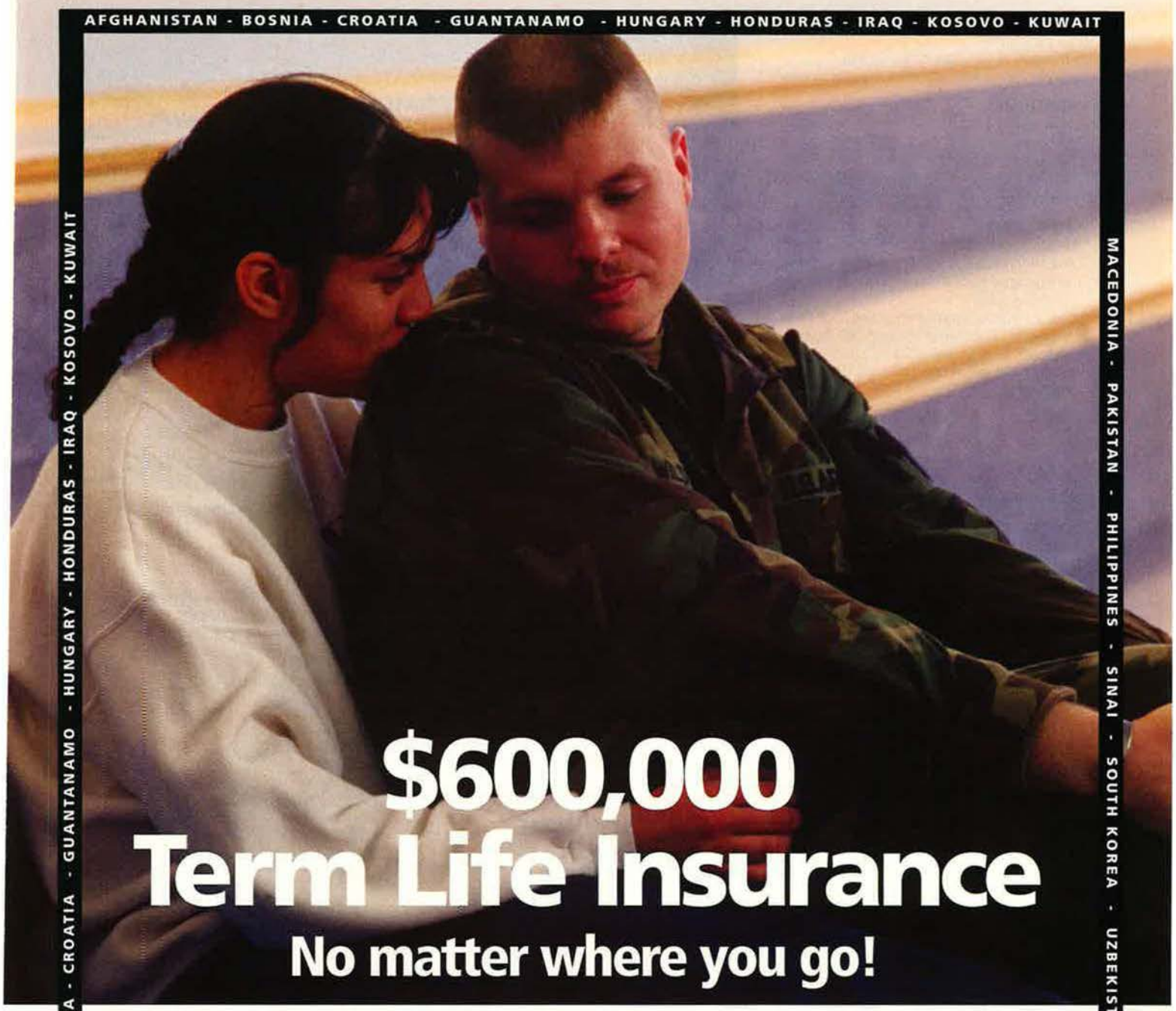
MISSION, PURPOSE, OPERATIONS

Monitor compliance with several international treaties, including the 1974 Threshold Test Ban Treaty and 1976 Peaceful Nuclear Explosions Treaty
Operate the US Atomic Energy Detection System, a global network of subsurface, surface, airborne, and space-based sensors that detect nuclear explosions

USAF photo by SSgt. Adrian Cadiz

SSgt. David Howe, 823rd Security Forces Squadron, scans a field for suspicious activity.

AFGHANISTAN - BOSNIA - CROATIA - GUANTANAMO - HUNGARY - HONDURAS - IRAQ - KOSOVO - KUWAIT



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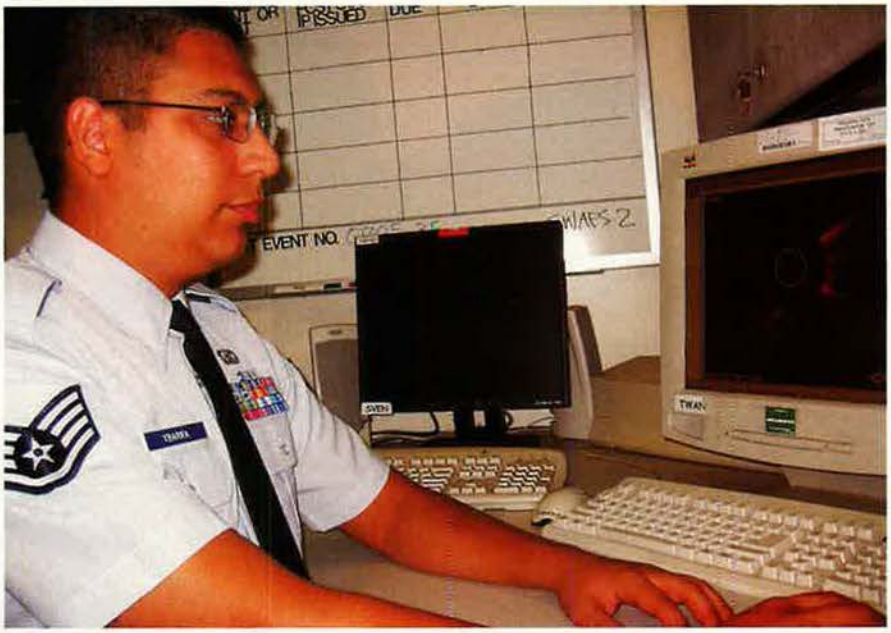
STRUCTURE
Analysis Center, Patrick AFB, Fla.
Operational sites/detachments worldwide

PERSONNEL

Active duty		537
Officers	130	
Enlisted	407	
Civilians		480
Total		**1,017**

EQUIPMENT
Multiple seismic arrays and single-instrument locations consisting of seismometers and associated data acquisition systems and workstations
Several hydroacoustic recording locations
More than 100 sensors and 35 support satellites, with associated ground systems instrumentation and data-processing equipment



USAF photo by TSgt. Joy Josephson

SSgt. Guillermo Ybarra III, assigned to the Air Force Weather Agency, monitors solar flare activity.

Air Force Weather Agency

Hq.: Offutt AFB, Neb.
Estab.: Oct. 15, 1997
Cmdr.: Col. John M. Lanicci

MISSION, PURPOSE, OPERATIONS
Maximize the nation's aerospace and ground combat effectiveness by providing accurate, relevant, and timely air and space weather information to DOD, coalition, and national users and by providing standardized training and equipment to Air Force weather

STRUCTURE
Air Force Combat Climatology Center, Asheville, N.C.
Air Force Combat Weather Center, Hurlburt Field, Fla.
Solar observatories, operating locations, and detachments around the world

PERSONNEL

Active duty		629
Officers	119	
Enlisted	510	
Reserve components		8
ANG	0	
AFRC	8	
Civilians		200
Total		**837**

Formerly Air Weather Service, established July 1, 1937.

ANG Readiness Center

Hq.: Andrews AFB, Md.
Estab.: August 1997
Cmdr.: Col. Susan A. Wassermann

MISSION, PURPOSE, OPERATIONS
Provide combat capability to the warfighter and security to the homeland

STRUCTURE
201st Mission Support Squadron
13 directorates

PERSONNEL

Active duty		132
Officers	84	
Enlisted	48	
Reserve Components		1,130
ANG	1,125	
AFRC	5	
Civilians		363
Total		**1,625**

Direct Reporting Units

A direct reporting unit (DRU) is a subdivision directly subordinate to Hq. USAF, separate from any major command or FOA because of a unique mission, legal requirements, or other factors. DRUs have the same administrative and organizational responsibilities as major commands.

Air Force Doctrine Center

Hq.: Maxwell AFB, Ala.
Estab.: Feb. 24, 1997
Cmdr.: Maj. Gen. Bentley B. Rayburn

MISSION, PURPOSE, OPERATIONS
Develop basic and operational doctrine and represent these positions in service, joint, and multinational doctrine development
Review the application of air and space doctrine in the education of USAF personnel
Collect and coordinate doctrinal inputs from USAF's lessons learned process
Advocate doctrinally correct representation and execution at the operational level of war in service, joint, and multinational operations, exercises, and other events
Participate in the investigation of future operational concepts and strategies to capture emerging doctrine

STRUCTURE
Headquarters at Maxwell AFB, Ala.
Five operating locations

PERSONNEL

Active duty		52
Officers	45	
Enlisted	7	
Civilians		17
Total		**69**

Air Force Operational Test and Evaluation Center

Hq.: Kirtland AFB, N.M.
Estab.: Jan. 1, 1974
Cmdr.: Maj. Gen. Robin E. Scott

MISSION, PURPOSE, OPERATIONS
Assess the capability of new systems to meet warfighter needs by planning, executing, and reporting independent operational evaluations
Provide effectiveness, suitability, and operational impact expertise in the battlespace environment

STRUCTURE
Six detachments at Edwards AFB, Calif., Eglin AFB, Fla., Nellis AFB, Nev., Peterson AFB, Colo., and Kirtland AFB, N.M.
More than 20 operating locations

PERSONNEL

Active duty		593
Officers	422	
Enlisted	171	
Reserve components		1
ANG	0	
AFRC	1	
Civilians		195
Total		**789**

Air Force Studies and Analyses Agency

Hq.: Pentagon
Estab.: May 1, 2001
Dir.: Jacqueline R. Henningsen

MISSION, PURPOSE, OPERATIONS

Provide independent, timely, and objective analyses of key USAF capabilities and critical operational issues in direct support of senior USAF decision-makers
Ensure quality of USAF analysis in defense reviews, force structure assessments, resource allocation processes, and AEF capability enhancement
Lead USAF-wide centers of analytic excellence community
Oversee USAF operational and combat analyst career development programs

STRUCTURE

Four directorates and one support group
USAF Analytic Community Steering Group

PERSONNEL

Active duty		70
Officers	63	
Enlisted	7	
Civilians		29
Total		**99**

US Air Force Academy

Hq.: Colorado Springs, Colo.
Estab.: April 1, 1954
Supt.: Lt. Gen. John F. Regni

MISSION, PURPOSE, OPERATIONS

Develop and inspire young men and women to become Air Force officers with knowledge, character, and discipline
Produce dedicated Air Force officers and leaders
Instill leadership through academics, military training, athletic conditioning, and character development

STRUCTURE

The cadet student body is designated the Cadet Wing. The wing is composed of four groups consisting of nine squadrons each, with more than 100 cadets assigned to a squadron. Each squadron consists of members of all four classes.

PERSONNEL

Active duty		2,250
Officers	960	
Enlisted	1,290	
Reserve components		152
ANG	0	
AFRC	152	
Civilians		1,293
Total		**3,695**

EQUIPMENT

73 aircraft

Cadets complete four years of study for a bachelor of science degree, choosing from 32 different academic majors. Four primary areas of military development are stressed in military art and science, theoretical and applied leadership experiences, aviation science and airmanship programs, and military training.

Air Force District of Washington

Hq.: Bolling AFB, D.C.
Estab.: July 15, 1994
Cmdr.: Brig. Gen. Duane A. Jones

MISSION, PURPOSE, OPERATIONS

Provide Air Force component to the Joint Force Hq.-National Capital Region; USAF voice for planning and implementing cross-service solutions throughout the National Capital Region
Organize, train, equip, and deploy forces for AEFs and homeland defense, civil support, national special security events; flagship ceremonial and musical capability in support of NCR and global interests
Ensure 40,000 USAF members assigned worldwide have operating and UCMJ support
Perform MAJCOM-level responsibilities

USAF photo by John Van Winkle

Cadet 3rd Class Kelsey Bryant of Cadet Squadron 27 calls for reinforcements during an Air Force Academy exercise.

STRUCTURE

Headquarters staff
Three groups: Mission Support Group, Medical Group, and Operations Group

PERSONNEL

Active duty		1,641
Officers	213	
Enlisted	1,428	
Reserve components		73
ANG	0	
AFRC	73	
Civilians		701
Total		**2,415**

Auxiliary

An Air Force auxiliary is an organization created by statute which the Secretary of the Air Force may use to fulfill the Air Force's noncombat programs and missions. The Civil Air Patrol (CAP) is the only USAF auxiliary to date.

Civil Air Patrol

Hq.: Maxwell AFB, Ala.
Estab.: Dec. 1, 1941
Natl. Cmdr.: Maj. Gen. Antonio J. Pineda, CAP
Exec. Dir.: Don Rowland

MISSION, PURPOSE, OPERATIONS

Provide vital operational capabilities in support of aerial and ground search and rescue (SAR), disaster relief, a nationwide communications network, and counterdrug and homeland security missions
Conduct 95 percent of all inland SAR missions as tasked by the Air Force Rescue Coordination Center, Langley AFB, Va.
Build strong citizens for the future by providing leadership training, technical education, scholarships, and career education to young men and women, ages 12 to 21, in the CAP Cadet Program
Promote and support aerospace education, both for its own members and the general public

STRUCTURE

CAP is a nonprofit, 501(3) corporation with a national headquarters that oversees:
Eight regions
52 wings (each state, Puerto Rico, and Washington, D.C.)
1,550 squadrons

PERSONNEL

Hq. staff		153
Volunteers		56,874
Senior members	33,634	
Cadets	23,240	
Total		**57,027**

EQUIPMENT

550 single-engine, piston aircraft
1,000 vehicles
Communications equipment

USAF photo by MSgt. Lance Cheung

Civil Air Patrol members prepare for a mission to assess Hurricane Rita's impact.

Guide to Air Force Installations Worldwide

2006 USAF Almanac

Major Active Duty Installations

Altus AFB, Okla. 73523-5000; 120 mi. SW of Oklahoma City. **Phone:** 580-482-8100; DSN 866-1110. **Majcom:** AETC. **Host:** 97th Air Mobility Wing. **Mission:** trains aircrew members for C-5, C-17, and KC-135 aircraft. **History:** activated January 1943; inactivated May 1945; reactivated January 1953. **Area:** 6,593 acres. **Runways:** 13,440 ft., 9,000-ft. parallel runway, and 3,515-ft. assault strip. **Altitude:** 1,381 ft. **Personnel:** permanent party military, 2,409; DOD civilians, 1,302 **Housing:** single family, 963; visiting, VOQ/VAQ, 315; TLF, 30. **Clinic.**

Andersen AFB, Guam, APO AP 96543-5000; 2 mi. N of Yigo. **Phone:** (cmcl, from CONUS) 671-366-1110; DSN 315-366-1110. **Majcom:** PACAF. **Host:** 36th Wing. **Mission:** Pacific center for power projection, regional cooperation, and multinational training; serves as a logistic support and staging base for aircraft operating in the Pacific and Indian Oceans. **Major tenants:** Det. 5, 22nd Space Operations Sq. (AFSPC); 613th Contingency Response Gp. (AMC); 734th Air Mobility Sq. (AMC); Helicopter Combat Support Sq. 5 (US Navy). **History:** activated 1945. Named for Gen. James Roy Andersen, who was chief of staff, Hq. AAF, Pacific Ocean Areas, and lost at sea in February 1945. **Area:** 20,270 acres. **Runways:** 11,182 ft. and 10,555 ft. **Altitude:** 612 ft. **Personnel:** permanent party military, 2,108; DOD civilians, 1,561. **Housing:** single family, officer, 235, enlisted, 1,153; unaccompanied, UOQ, 74, UAQ/UEQ, 1,018; visiting, VOQ, 23, VAQ/VEQ, 519, TLF, 232. **Clinic.**

Andrews AFB, Md. 20762-5000; 10 mi. SE of Washington, D.C. **Phone:** 301-981-1110; DSN 858-1110. **Majcom:** AMC. **Host:** 89th Airlift Wing. **Mission:** gateway to nation's capital and home of Air Force One. Provides worldwide airlift for the President, vice president, top US officials, and foreign heads of state. Also responsible for Presidential support and base operations; supports all branches of the armed services, several major commands, and federal agencies. **Major tenants:** Air Force Flight Standards Agency; Hq. AFOSI; AFOSI Academy; Air National Guard Readiness Center; 113th Wing (ANG), F-16; 459th ARW (AFRC), KC-135; Naval Air Facility; Marine Aircraft Gp. 49, Det. A; Air Force Review Boards Agency. **History:** activated May 1943. Named for Lt. Gen. Frank M. Andrews, military air pioneer and WWII commander of the European Theater, killed in aircraft accident May 3, 1943 in Iceland. **Area:** 6,853 acres. **Runways:** 9,755 ft. and 9,300 ft. **Altitude:** 281 ft. **Personnel:** permanent party military, 5,522; DOD civilians, 3,247. **Housing:** single family, officer, 383 (including 96 govt.-leased), enlisted, 1,667 (including 318 govt.-leased); unaccompanied, UAQ/UEQ, 923; visiting, VOQ, 136, VAQ/VEQ, 66, TLF, 68. **Hospital.**

Arnold AFB, Tenn. 37389; approx. 7 mi. SE of Manchester. **Phone:** 931-454-4204; DSN 340-4204. **Majcom:** AFMC. **Host:** Arnold Engineering Development Center. **Mission:** supports acquisition and sustainment of aerospace systems by conducting flight simulation research, development, and evaluation testing for DOD, other government agencies, and commercial aerospace firms with the world's largest complex of wind tunnels, jet and rocket engine test cells, space simulation chambers, and hyperballistic ranges. **History:** base dedicated June 25, 1951. Named for Gen. of the Army H.H. "Hap" Arnold, wartime Chief of the Army Air Forces. **Area:** 39,081 acres. **Runway:** 6,000 ft. **Altitude:** 1,100 ft. **Personnel:** permanent party military, 86; DOD civilians, 208. **Housing:** single family, officer, 12, enlisted, 28; visiting, 40. **Medical aid station and small VA clinic.**

Aviano AB, Italy, APO AE 09604; adjacent to Aviano, 50 mi. N of Venice. **Phone:** (cmcl, from CONUS) 011-39-0434-66-7111; DSN 632-1110. **Majcom:** USAFE. **Host:** 31st Fighter Wing. **Mission:** maintains two LANTIRN-equipped F-16 fighter squadrons, the 510th and the 555th, and 603rd Air Control Sq. **Major tenants:** Hq. 401st Air Expeditionary Wing (USAFE). **Geographically Separated Units (GSUs):** Det. 2, 401st AEW Pristina (Kosovo) Serbia; Det. 1, 401st AEW, Sarajevo, Bosnia; 774th Expeditionary Air Base Gp., Istres AB, France; 31st RED HORSE Flt. and 31st Munitions Sq., Camp Darby, Italy; 31st Munitions Support Sq., Ghedi AB, Italy; 99th Ex. Recon. Sq., RAF Akrotiri, Cyprus; 496th Air Base Sq., Morón AB, Spain. **History:** one of the oldest Italian air bases, dating to 1911. USAF began operations 1954. **Area:** 1,467 acres. **Runway:** 8,596 ft. **Altitude:** 413 ft. **Personnel:** permanent party military, 3,500; DOD civilians, 260. **Housing:** 681 govt.-leased (189 officer, 592 enlisted); unaccompanied, UAQ/UEQ, 812; visiting, 74, DV, 6. **Clinic** (contracted with local hospital).

Barksdale AFB, La. 71110-5000; in Bossier City. **Phone:** 318-456-1110; DSN 781-1110. **Majcom:** ACC. **Host:** 2nd Bomb Wing. **Mission:** B-52H operations and training. **Major tenants:** 8th Air Force (ACC); 917th Wing (AFRC), A-10, B-52H; 8th Air Force Museum. **History:** activated Feb. 2, 1933. Named for Lt. Eugene H. Barksdale, WWI airman killed in an August 1926 crash. **Area:** 22,000 acres (18,000 acres reserved for recreation). **Runway:** 11,756 ft. **Altitude:** 166 ft. **Personnel:** permanent party military, 7,442; DOD civilians, 1,122. **Housing:** single family, officer, 135, enlisted, 594; unaccompanied, 876; visiting, VOQ, 118, VAQ, 102, TLF, 24. **Superclinic.**

Beale AFB, Calif. 95903-5000; 13 mi. E of Marysville. **Phone:** 530-634-3000; DSN 368-1110. **Majcom:** ACC. **Host:** 9th Reconnaissance Wing. **Mission:** U-2, KC-135, and Global Hawk missions. **Major tenants:** 940th ARW (AFRC), KC-135; 7th Space Warning Sq. (AFSPC), PAVE PAWS; 548th Intelligence Gp. (ACC). **History:** originally US Army's Camp Beale; transferred to Air Force in 1948; became Air Force base in April 1951. Named for Brig. Gen. E.F. Beale, Indian agent in California prior to Civil War. **Area:** 22,944 acres. **Runway:** 12,000 ft. **Altitude:** 113 ft. **Personnel:** permanent party military, 3,742; DOD civilians, 718. **Housing:** single family, officer, 159, enlisted, 1,294; unaccompanied, 545; visiting, VOQ, 53, VAQ/VEQ, 125, TLF, 46. **Clinic.**

Bolling AFB, D.C. 20032-5000; 3 mi. S of US Capitol. **Phone:** 703-545-6700; DSN 227-0101. **Host:** 11th Wing, which includes the USAF Band and USAF Honor Guard. **Mission:** Provides support responsibilities for Hq. USAF and 40,000 USAF members worldwide. **Major tenants:** Air Force Chief of Chaplains; Air Force District of Washington; Air Force Surgeon General; Air Force Medical Operations Agency; Defense Intelligence Agency; Air Force Legal Services Agency; 497th Intelligence Gp. (ACC). **History:** activated October 1917. Named for Col. Raynal C. Bolling, first high-ranking Army Air Service officer

killed in WWI. **Area:** 607 acres. **Runway:** Helipad only. **Altitude:** 20 ft. **Personnel:** permanent party military, 2,058; DOD civilians, 851. **Housing:** single family, officer, 285, enlisted, 950; unaccompanied, UAQ/UEQ, 262; visiting, VOQ, 62, VAQ/VEQ, 87, TLF, 100. **Clinic.**

Buckley AFB, Colo. 80011-9524; 8 mi. E of Denver. **Phone:** 720-847-9011 DSN 847-9011. **Majcom:** AFSPC. **Host:** 460th Space Wing. **Mission:** provides to combatant commanders superior global surveilllance, worldwide missile warning, homeland defense, and expeditionary forces. Focal point for transition to Space Based Infrared System. **Major tenants:** 2nd SWS, 140th Wing (ANG); Aerospace Data Facility; Navy/Marine Reserve Center; Air Reserve Personnel Center; Army Aviation Support Facility; Defense Finance and Accounting Center-Denver. **History:** activated April 1, 1942 as a gunnery training facility. Named for 1st Lt. John H. Buckley, a WW I flier, killed Sept. 17, 1918. ANG assumed control from US Navy in 1959. Became active duty Air Force base Oct. 2, 2000. **Area:** 3,832 acres. **Runway:** 11,000 ft. **Altitude:** 5,663 ft. **Personnel:** permanent party military, 3,626; DOD civilians, 3,337. **Housing:** unaccompanied, UAQ/UEQ, 380 **Clinic.**

Cannon AFB, N.M. 88103-5000; 7 mi. W of Clovis. **Phone:** 505-784-1110; DSN 681-1110. **Majcom:** ACC. **Host:** 27th FW. **Mission:** F-16 operations. **History:** activated August 1942. Named for Gen. John K. Cannon, WWII commander of all Allied air forces in the Mediterranean Theater and former commander, Tactical Air Command. **Area:** 3,789 acres, excluding range. **Runways:** 10,000 ft. and 8,200 ft. **Altitude:** 4,295 ft. **Personnel:** permanent party military, 3,471; DOD civilians, 622. **Housing:** single family, officer, 143, enlisted, 1,501; unaccompanied, 835; visiting, 57, TLF, 36. **Ambulatory care clinic.**

Charleston AFB, S.C. 29404-5000; 10 mi. from downtown Charleston. **Phone:** 843-963-2100; DSN 673-2100. **Majcom:** AMC. **Host:** 437th AW. **Mission:** C-17 operations. **Major tenant:** 315th AW (AFRC assoc.), C-17. **History:** activated October 1942; inactivated March 1946; reactivated August 1953. **Area:** 6,033 acres (including auxiliary airfield). **Runway:** 9,000 ft.; joint-use airfield. **Altitude:** 46 ft. **Personnel:** permanent party military, 4,169; DOD civilians, 984. **Housing:** single family, officer, 148, enlisted, 1,178; unaccompanied, UAQ/UEQ, 587; visiting, VOQ, 156, VAQ/VEQ, 40, TLF, 40. **Clinic.**

Columbus AFB, Miss. 39710-1000; 7.5 mi. NW of Columbus. **Phone:** 662-434-7322; DSN 742-1110. **Majcom:** AETC. **Host:** 14th Flying Training Wing. **Mission:** Specialized Undergraduate Pilot Training (T-1, T-37, T-38). **History:** activated 1942 for pilot training. **Area:** 5,325 acres. **Runways:** 12,000 ft., 8,000 ft., and 6,300 ft. **Altitude:** 219 ft. **Personnel:** permanent party military, 1,452; DOD civilians, 601. **Housing:** single family, 538; unaccompanied, UOQ, 234, UAQ/UEQ, 166; visiting, 73, DV, 4, TLF, 20. **Clinic.**

Davis-Monthan AFB, Ariz. 85707-5000; within Tucson. **Phone:** 520-228-1110; DSN 228-1110. **Majcom:** ACC. **Host:** 355th Wing. **Mission:** A-10 combat crew training; OA-10 and FAC HC-130 training and operations; EC-130H; HH-60 Pavehawk; and CSAR operations. **Major tenants:** 12th Air Force (ACC); Aerospace Maintenance and Regeneration Center (AFMC), DOD's single location for regeneration, maintenance, parts reclamation, preservation, storage, and disposal of excess DOD and government aerospace vehicles; 943rd Rescue Gp. (AFRC), HH-60; 55th ECG (ACC); 563rd RQG (AFSOC); US Customs and Border Protection. **History:** activated 1927. Named for two local aviators: 2nd Lt. Samuel H. Davis, killed Dec. 28, 1921, and 2nd Lt. Oscar Monthan, killed March 27, 1924. **Area:** 10,633 acres. **Runway:** 13,643 ft. **Altitude:** 2,404 ft. **Personnel:** permanent party military, 6,900; DOD civilians, 1,970. **Housing:** single family, officer, 125, enlisted, 1,129; unaccompanied, 756; visiting, VOQ, 20, VAQ/VEQ, 61, DV, 165, TLF, 50. **Clinic.**

Dover AFB, Del. 19902-7209; 6 mi. SE of Dover. **Phone:** 302-677-3000; DSN 445-3000. **Majcom:** AMC. **Host:** 436th AW. **Mission:** C-5 operations; operates largest DOD aerial port facility; houses military's East Coast mortuary. **Major tenant:** 512th AW (AFRC assoc.). **History:** activated December 1941; inactivated 1946; reactivated February 1951. **Area:** 3,908 acres. **Runways:** 12,900 ft. and 9,600 ft. **Altitude:** 28 ft. **Personnel:** permanent party military, 4,400; DOD civilians, 1,800. **Housing:** single family, officer, 139, enlisted, 866; unaccompanied, UAQ/UEQ, 533; visiting, VOQ, 238, VAQ/VEQ, 34, TLF, 19. **Clinic.**

Dyess AFB, Tex. 79607-1980; WSW border of Abilene. **Phone:** 325-696-1110; DSN 461-1110. **Majcom:** ACC. **Host:** 7th BW. **Mission:** B-1 operations. **Major tenant:** 317th Airlift Gp. (AMC), C-130. **History:** activated April 1942; deactivated December 1945; reactivated as Abilene AFB September 1955. In December 1956, renamed for Lt. Col. William E. Dyess, WWII fighter pilot who escaped from a Japanese prison camp, killed in P-38 crash in December 1943. **Area:** 6,342 acres (including off-base sites). **Runway:** 13,500 ft. **Altitude:** 1,789 ft. **Personnel:** permanent party military, 5,810; DOD civilians, 417. **Housing:** single family, officer, 153, enlisted, 824; unaccompanied, 808; visiting, 160, TLF, 39. **Clinic.**

Edwards AFB, Calif. 93524; adjacent to Rosamond. **Phone:** 661-277-1110; DSN 527-3510. **Majcom:** AFMC. **Host:** 95th Air Base Wing. **Mission:** The Air Force Flight Test Center is AFMC's center of excellence for conducting and supporting research, development, test, and evaluation of aerospace systems from concept to combat. It operates the US Air Force Test Pilot School and is home to NASA's Dryden Research Center and considerable test activity conducted by America's commercial aerospace industry. **Major tenants:** AFRL's Propulsion Directorate (AFMC); Dryden Flight Research Center (NASA); USMC Air Reserve helicopter squadrons and detachments HMM 764 and HMH 769. **History:** activities began in September 1933 when the Muroc Bombing and Gunnery Range was established. In 1942, it was designated Muroc Army Air Base. Renamed in 1949 for Capt. Glen W. Edwards, killed June 5, 1948 in crash of a YB-49 "Flying Wing." **Area:** 301,000 acres. **Runways:** 21, from 4,000 to 39,000 ft. **Altitude:** 2,302 ft. **Personnel:** permanent party military, 3,510; DOD civilians, 8,024. **Housing:** Family housing is limited due to downsizing and ongoing construction through FY07. After project is complete: officer, 194; enlisted, 603. **Medical and dental clinics.**

Eglin AFB, Fla. 32542; 2 mi. SW of the twin cities of Niceville and Valparaiso; 7 mi. NE of Fort Walton Beach. **Phone:** 850-882-1110; DSN 872-1110. **Majcom:** AFMC. **Host:** 96th ABW. **Mission:** supporting the Eglin Air Armament Center and associate units with traditional military services as well as civil engineering, personnel, logistics, communications, computer, medical, security, and all other host services. **Major tenants:** AFRL's Munitions Directorate (AFMC); 33rd FW (ACC), F-15; 53rd Wing (ACC); 919th Special Operations Wing (AFRC) at Duke Field, MC-130; Air Force Armament Museum; Army 6th Ranger Training Battalion; Naval School Explosive Ordnance Disposal. **History:** activated 1935. Named for Lt. Col. Frederick I. Eglin, WWI flier killed in aircraft accident Jan. 1, 1937. **Area:** 463,452 acres. Eglin is the nation's largest Air Force base in terms of acreage, covering an area roughly two-thirds the size of Rhode Island. **Runways:** 12,000 ft. and 10,000 ft. **Altitude:** 85 ft. **Personnel:** permanent party military, 4,302; DOD civilians, 3,012 (excluding Hurlburt Field). **Housing:** single family, officer, 218, enlisted, 2,116; unaccompanied, UAQ/UEQ, 1,212; visiting, VOQ, 169, VAQ/VEQ, 156, TLF, 87. **Hospital.**

Eielson AFB, Alaska 99702-5000; 26 mi. SE of Fairbanks. **Phone:** 907-377-1110; DSN 317-377-1110. **Majcom:** PACAF. **Host:** 354th FW. **Mission:** F-16C/D and A/OA-10 operations. **Major tenants:** Arctic Survival School (AETC); 168th Air Refueling Wing (ANG), KC-135; 353rd Combat Training Sq. **History:** activated October 1944. Named for Carl Ben Eielson, Arctic aviation pioneer who died in an Arctic rescue mission in November 1929. **Area:** 19,790 acres (including 16 remote sites, 63,195 acres). **Runway:** 14,500 ft. **Altitude:** 534 ft. **Personnel:** permanent party military, 2,953; DOD civilians, 641. **Housing:** single family, officer, 181, enlisted, 1,243; unaccompanied, UOQ, 8, UAQ, 522, UEQ, 16; visiting, VOQ, 206, VAQ/VEQ, 328, TLF, 40. **Outpatient clinic.**

Ellsworth AFB, S.D. 57706-5000; 12 mi. ENE of Rapid City. **Phone:** 605-385-5056; DSN 675-5056. **Majcom:** ACC. **Host:** 28th BW. **Mission:** B-1 operations. **Major tenants:** Det. 21, Belle Fourche Electronic Scoring Site; Det. 8, 372nd Training Sq. (AETC); Det. 226, AFOSI. **History:** activated January 1942 as Rapid City AAB; renamed June 13, 1953 for Brig. Gen. Richard E. Ellsworth, killed March 18, 1953 in RB-36 crash. **Area:** 5,411 acres. **Runway:** 13,500 ft. **Altitude:** 3,276 ft. **Personnel:** permanent party military, 4,130; DOD civilians, 645. **Housing:** single family, officer, 311, enlisted, 1,535, unaccompanied, 728; visiting, 80, TLF, 29. **Clinic.**

Elmendorf AFB, Alaska 99506-5000; bordering Anchorage. **Phone:** 907-552-1110; DSN 317-552-1110. **Majcom:** PACAF. **Host:** 3rd Wing. **Mission:** C-12, C-130, E-3 Airborne Warning and Control System, F-15C/D, and F-15E operations. Hub for air traffic to and from Far East. **Major tenants:** Alaskan Command; 11th Air Force (PACAF); Alaskan NORAD Region. **History:** activated July 1940. Named for Capt. Hugh Elmendorf, killed Jan. 13, 1933. **Area:** 13,100 acres. **Runways:** 10,000 ft. and 7,500 ft. **Altitude:** 213 ft. **Personnel:** permanent party military, 7,123; DOD civilians, 1,006. **Housing:** single family, officer, 172, enlisted, 1,640; unaccompanied, UAQ/UEQ, 1,044; visiting, VOQ, 196, VAQ/VEQ, 203, TLF, 86. **Hospital.**

Fairchild AFB, Wash. 99011-9588; 10 mi. WSW of Spokane. **Phone:** 509-247-1110; DSN 657-1110. **Majcom:** AMC. **Host:** 92nd Air Refueling Wing. **Mission:** KC-135R operations. **Major tenants:** 2nd SS (ACC) Munition Maintenance; 336th Training Gp. (USAF Survival School, AETC); 141st ARW (ANG), KC-135E. **History:** activated January 1942. Named for Gen. Muir S. Fairchild, USAF vice chief of staff at his death in 1950. **Area:** 5,823 acres; 530,205 acres used for survival school. **Runway:** 13,901 ft. **Altitude:** 2,426 ft. **Personnel:** permanent party military, 3,560; DOD civilians, 512. **Housing:** single family, officer, 144, enlisted, 1,092; unaccompanied, UAQ/UEQ, 642; visiting, VOQ, 85, VAQ/VEQ, 222, TLF, 18. **Clinic.**

F.E. Warren AFB, Wyo. 82005-5000; adjacent to Cheyenne. **Phone:** 307-773-1110; DSN 481-1110. **Majcom:** AFSPC. **Host:** 90th SW. **Mission:** Minuteman III ICBMs; UH-1N. **Major tenants:** 20th Air Force (AFSPC); Air Force ICBM Museum. **History:** activated as Ft. D.A. Russell July 4, 1867; under Army jurisdiction until 1949, when reassigned to USAF; renamed in 1930 for Francis Emory Warren, Wyoming Senator and first state governor.

Area: 5,866 acres. Missile site area covering more than 12,600 sq. mi. in Wyoming, Colorado, and Nebraska. **Runway:** none. **Altitude:** 6,142 ft. **Personnel:** permanent party military, 3,764; DOD civilians, 956. **Housing:** single family, officer, 114, enlisted, 717; unaccompanied, officer, 12, enlisted, 767; visiting, 30, TLF, 39. **Clinic.**

Goodfellow AFB, Tex. 76908-4410; SE of San Angelo. **Phone:** 325-654-3231; DSN 477-3231. **Majcom:** AETC. **Host:** 17th Training Wing. **Mission:** trains intelligence, fire protection, and special instruments personnel for US military and DOD and international agencies. **Major tenants:** 344th Military Intelligence Battalion (Army); Center for Information Dominance det. (Navy); USMC det.; NCO Academy. **History:** activated January 1941. Named for Lt. John J. Goodfellow Jr., WWI observation airplane pilot killed in combat Sept. 14, 1918. **Area:** 1,136 acres. **Runway:** none. **Altitude:** 1,900 ft. **Personnel:** permanent party military, 1,550; DOD civilians, 851. **Housing:** single family, officer, 2, enlisted, 296; unaccompanied, UOQ, 51, UAQ/UEQ, 206; visiting, VOQ, 206, VAQ/VEQ, 351, TLF, 31. **Clinic.**

Grand Forks AFB, N.D. 58205-5000; 16 mi. W of Grand Forks. **Phone:** 701-747-3000; DSN 362-3000. **Majcom:** AMC. **Host:** 319th ARW. **Mission:** KC-135R operations. **History:** activated 1956. Named after town of Grand Forks, whose citizens bought the property for the Air Force. **Area:** 5,418 acres. **Runway:** 12,351 ft. **Altitude:** 911 ft. **Personnel:** permanent party military, 2,842; DOD civilians, 388. **Housing:** single family, officer, 168, enlisted, 1,036; unaccompanied, UAQ/UEQ, 587; visiting, VOQ, 31, VAQ/VEQ, 17, TLF, 27. **Hospital.**

Hanscom AFB, Mass. 01731-5000; 17 mi. NW of Boston. **Phone:** 781-377-4441; DSN 478-5980. **Majcom:** AFMC. **Host:** 66th ABW. **Mission:** Electronic Systems Center manages development and acquisition of command and control systems. **Major tenants:** AFRL's Space Vehicles Directorate-Hanscom; AFRL's Sensors Directorate-Hanscom. **History:** activated 1941. Named for Laurence G. Hanscom, a pre-WWII advocate of private aviation, killed in a lightplane accident in 1941. **Area:** 846 acres. **Runway:** no flying mission; transient USAF aircraft use runways of Laurence G. Hanscom Field, state-operated airfield adjoining the base. **Altitude:** 133 ft. **Personnel:** permanent party military, 1,842; DOD civilians, 1,398. **Housing:** single family, officer, 314, enlisted, 383; unaccompanied, UAQ/UEQ, 122; visiting, 148, TLF, 47. **Clinic.**

Hickam AFB, Hawaii 96853-5000; 9 mi. W of Honolulu. **Phone:** 808-449-7110 (Oahu military operator); DSN 315-449-7110. **Majcom:** PACAF. **Host:** 15th AW. **Mission:** provides base and logistical support for 140 associate and tenant units in Hawaii and other Pacific-region locations; airlift for commander, PACOM, and commander, PACAF; and maintenance and refueling support for aircraft transiting between the US mainland and the western Pacific. **Major tenants:** PACAF; 13th AF/Kenney Warfighting Hq. (Provisional); 154th Wing (ANG), C-17, C-130, F-15, KC-135R; Joint POW/MIA Accounting Command. **History:** activated September 1938. Named for Lt. Col. Horace M. Hickam, aviation pioneer killed in crash Nov. 5, 1934. **Area:** 2,761 acres. **Runways:** Four joint-use runways shared with Honolulu Arpt.: 12,357 ft., 12,000 ft., 9,000 ft., and 6,952 ft. **Altitude:** 13 ft. **Personnel:** permanent party military, 4,968; DOD civilians, 1,301. **Housing:** single family, officer, 461, enlisted, 2,044; unaccompanied, UAQ/UEQ, 766; visiting, VOQ, 200, VAQ/VEQ, 115, TLF, 40. **Clinic.**

Hill AFB, Utah 84056-5990; 25 mi. N. of Salt Lake City. **Phone:** 801-777-1110; DSN 777-1110. **Majcom:** AFMC. **Host:** 75th ABW. **Mission:** Ogden Air Logistics Center provides worldwide engineering and logistics management for F-16s; maintains the A-10, C-130, and F-16; handles logistics management and maintenance for Minuteman ICBMs; provides sustainment and logistics support for space and C3I programs; overhauls and repairs landing gear for all USAF (and 70 percent of DOD) aircraft; leading provider of rocket motors, small missiles, air munitions and guided bombs, photonics imaging and reconnaissance equipment, simulators and training devices, avionics, hydraulics and pneudraulics instruments, and software. **Major tenants:** 388th FW (ACC); 419th FW (AFRC), F-16; Hill Aerospace Museum; Defense Enterprise Computing Center (DISA); Defense Distribution Depot Hill Utah; Defense Logistics Agency; 372nd Recruiting Gp. (USAF). **History:** activated 1940. Named for Maj. Ployer P. Hill, killed Oct. 30, 1935 while test flying the first B-17. **Area:** 6,797 acres; manages 962,076 acres (Utah Test and Training Range). **Runway:** 13,500 ft. **Altitude:** 4,789 ft. **Personnel:** permanent party military, 4,700; DOD civilians, 13,000. **Housing:** single family, officer, 178, enlisted, 960; unaccompanied, UAQ/UEQ, 786; visiting, VOQ, 13, VAQ/VEQ, 147, TLF, 61. **Clinic.**

Holloman AFB, N.M. 88310; 8 mi. SW of Alamogordo. **Phone:** 505-572-1110; DSN 572-1110. **Majcom:** ACC. **Host:** 49th FW. **Mission:** F-117A operations; Basic Expeditionary Airfield Resources (BEAR Base Assets) and two air transportable clinics. **Major tenants:** 46th Test Gp. (AFMC); 4th Space Control Sq. (AFSPC); German Air Force Flying Training Center. **History:** activated 1941. Named for Col. George Holloman, guided-missile pioneer. **Area:** 58,000 acres. **Runways:** 12,000 ft., 10,500 ft., and 8,000 ft. **Altitude:** 4,350 ft. **Personnel:** permanent party military, 3,383; DOD civilians, 835. **Housing:** single family, officer, 190, enlisted, 1,223; unaccompanied, 945; visiting, 192, TLF, 49. **Clinic.**

Hurlburt Field, Fla. 32544-5000; 5 mi. W of Fort Walton Beach. **Phone:** 850-884-7464; DSN 579-7464. **Majcom:** AFSOC. **Host:** 16th Special Operations Wing. **Mission:** specialized airpower, equipped with AC-130H/U, MC-130E/H, MC-130P (located at Eglin), MH-53J/M, U-28A. **Major tenants:** AFSOC; 823rd RED HORSE Sq.; USAF Combat Weather Center; USAF Special Operations School; Joint Special Operations University; 505th Command and Control Wing; 605th Test and Evaluation Sq.; 25th Information Operations Sq.; 18th Flight Test Sq.; 720th Special Tactics Gp.; Det. 3, 342nd Training Sq. **History:** activated 1943. Named for Lt. Donald W. Hurlburt, WWII pilot killed Oct. 1, 1943. **Area:** 6,600 acres. **Runway:** 6,900 ft. **Altitude:** 38 ft. **Personnel:** permanent party military, 8,000; DOD civilians, 700. **Housing:** single family, officer, 52, enlisted, 628; unaccompanied, UAQ/UEQ, 1,231; visiting, VOQ, 163, VAQ/VEQ, 51, TLF, 24. **Clinic.**

Incirlik AB, Turkey, APO AE 09824; 6 mi. E of Adana. **Phone:** (cmcl, from CONUS) 011-90-322-316-6060; DSN (from CONUS) 676-6060. **Majcom:** USAFE. **Host:** 39th ABW. **Mission:** provides full spectrum, forward operating base support to expeditionary forces. **History:** activated May 1954. Present unit began operations March 1966. Incirlik, in Turkish, means fig orchard. **Area:** 3,400 acres. **Runway:** 10,000 ft. **Altitude:** 240 ft. **Personnel:** permanent party military, 1,500; DOD civilians, 65. **Housing:** single family, 750; unaccompanied, UOQ, 105, UEQ, 756; visiting, VOQ, 91, VAQ/VEQ, 192, DV, 18, TLF, 80. **Clinic.**

Kadena AB, Japan, APO AP 96368-5000; 15 mi. N of Naha. **Phone:** (cmcl, from CONUS) 011-81-6117-34-1110; DSN 315- 634-1110. **Majcom:** PACAF. **Host:** 18th Wing. **Mission:** E-3, F-15C/D, KC-135R, and HH-60 operations. **Major tenants:** 353rd Special Operations Gp. (AFSOC); 390th Intelligence Sq.; 82nd Reconnaissance Sq. (ACC); 733rd Air Mobility Support Sq. (AMC); Commander, Fleet Activities Okinawa (Navy). **History:** occupied by US forces in April 1945. Named for city of Kadena, Okinawa. **Area:** 11,210 acres. **Runway:** 12,100 ft. **Altitude:** 146 ft. **Personnel:** permanent party military, 8,000; DOD civilians, 1,300. **Housing:** single family, officer, 1,677, enlisted, 5,800; unaccompanied, UOQ, 47, UAQ/UEQ, 2,080; visiting, VOQ, 226, VAQ/VEQ, 222, TLF, 122. **Clinic.**

Keesler AFB, Miss. 39534-5000; located in Biloxi. **Phone:** 228-377-1110; DSN 597-1110. **Majcom:** AETC. **Host:** 81st TRW. **Mission:** conducts Air Force, joint service, and international training for basic electronics, communications electronic systems, communications computer systems, air traffic control, airfield management, command post, air weapons control, weather, precision measurement, education and training, financial management and comptroller, information management, manpower and personnel, and medical, dental, and nursing specialties. **Major tenants:** 2nd Air Force (AETC); 45th Airlift Sq. (AETC), C-21; 403rd Wing (AFRC), C-130, WC-130. **History:** activated June 12, 1941. Named for 2nd Lt. Samuel R. Keesler Jr., a native of Mississippi and WWI aerial observer killed in action Oct. 9, 1918. **Area:** 3,554 acres, excluding off-base housing. **Runway:** 6,600 ft. **Altitude:** 33 ft. **Personnel:** permanent party military, 4,257; DOD civilians, 2,860. **Housing:** single family, officer, 280, enlisted, 1,551; unaccompanied, UAQ/UEQ, 809; visiting, 1,306, TLF, 79. **Keesler Medical Center.**

Air Force Installations

Major installations	FY01	FY02	FY03	FY04	FY05	FY06
US and possessions	74	72	72	72	72	72
Foreign	13	13	13	13	13	12
Worldwide	87	85	85	85	85	84
Minor installations						
US and possessions	80	80	80	80	80	80
Foreign	2	2	2	2	2	2
Worldwide	82	82	82	82	82	82

Includes Air National Guard and Air Force Reserve Command.


Major Air Force Installations in the US
McChord AFB (AMC)
Fairchild AFB (AMC)
Wash.
Malmstrom AFB (AFSPC)
Minot AFB (ACC)
Grand Forks AFB (AMC)
N.D.
Mont.
Ore.
Idaho
Minn.
Mich.
Maine
Vt.
N.H.
S.D.
Mountain Home AFB (ACC)
Wyo.
Ellsworth AFB (ACC)
Wis.
N.Y.
Hanscom AFB (AFMC)
Mass.
Otis ANGB (ANG)
Mich.
R.I.
Conn.
Hill AFB (AFMC)
Selfridge ANGB (ANG)
Westover ARB (AFRC)
Beale AFB (ACC)
F.E. Warren AFB (AFSPC)
Iowa
Pa.
N.J.
McGuire AFB (AMC)
Nev.
Neb.
Grissom ARB (AFRC)
Ohio
Travis AFB (AMC)
Offutt AFB (ACC)
Del.
Schriever AFB (AFSPC)
Ill.
Ind.
Wright-Patterson AFB (AFMC)
Dover AFB (AMC)
Utah
Buckley AFB (AFSPC)
Calif.
Md.
USAF Academy
Peterson AFB (AFSPC)
W. Va.
Kan.
Whiteman AFB (ACC)
Scott AFB (AMC)
Va.
Colo.
Mo.
Langley AFB (ACC)
Nellis AFB (ACC)
Ky.
McConnell AFB (AMC)
Arnold AFB (AFMC)
Vandenberg AFB (AFSPC)
Seymour Johnson AFB (ACC)
Vance AFB (AETC)
Tenn.
N.C.
Ariz.
Kirtland AFB (AFMC)
Okla.
Pope AFB (AMC)
Edwards AFB (AFMC)
Tinker AFB (AFMC)
Little Rock AFB (AETC)
Los Angeles AFB (AFSPC)
N.M.
Dobbins ARB (AFRC)
S.C.
Shaw AFB (ACC)
Luke AFB (AETC)
Altus AFB (AETC)
Charleston AFB (AMC)
March ARB (AFRC)
Cannon AFB (ACC)
Ark.
Tex.
Columbus AFB (AETC)
Davis-Monthan AFB (ACC)
Holloman AFB (ACC)
Robins AFB (AFMC)
Miss.
Barksdale AFB (ACC)
Maxwell AFB (AETC)
Ga.
Ala.
Goodfellow AFB (AETC)
Moody AFB (AFSOC)
La.
Dyess AFB (ACC)
Sheppard AFB (AETC)
Keesler AFB (AETC)
Fla.
Laughlin AFB (AETC)
Hurlburt Field (AFSOC)
Eglin AFB (AFMC)
Tyndall AFB (AETC)
Patrick AFB (AFSPC)
MacDill AFB (AMC)
Homestead ARB (AFRC)
Randolph AFB (AETC)
Lackland AFB (AETC)
Washington, D.C.
Md.
Hq. USAF
Bolling AFB
Va.
Andrews AFB (AMC)
Eielson AFB (PACAF)
Elmendorf AFB (PACAF)
Alaska
Hickam AFB (PACAF)
Oahu
Hawaii

Kirtland AFB, N.M. 87117-5606; SE quadrant of Albuquerque. **Phone:** 505-853-0011; DSN 263-0011. **Majcom:** AFMC. **Host:** 377th ABW. **Mission:** provide world-class nuclear surety, expeditionary forces, and support to base operations. **Major tenants:** 498th Armament Systems Wing (AFMC); 58th SOW (AETC), HC-130, MC-130, HH-60, MH-53, UH-1, receiving CV-22 in 2006; Airborne Laser Program Office; Air Force Nuclear Weapons and Counterproliferation Agency; Air Force Pararescue and Combat Officer School; Air Force Office of Aerospace Studies; Air Force Operational Test and Evaluation Center; Air Force Research Laboratories (AFMC); 150th FW (ANG), F-16; Defense Threat Reduction Agency; Nuclear Weapons Center (AFMC); Nuclear Weapons Directorate (AFMC); Sandia National Laboratories; National Nuclear Security Administration (DOE); Space and Missile Systems Center Det. 12 (AFSPC); Defense Nuclear Weapons School; Air Force Inspection Agency; Air Force Safety Center. **History:** activated January 1941. Named for Col. Roy C. Kirtland, aviation pioneer who died May 2, 1941. **Area:** 52,678 acres. **Runways:** two, each 13,000 ft.; 10,000 ft.; and 6,000 ft. **Altitude:** 5,352 ft. **Personnel:** permanent party military, 6,834; DOD civilians, 3,968. **Housing:** single family, officer, 136, enlisted, 892; unaccompanied, UAQ/UEQ, 828; visiting, VOQ, 181, VAQ/VEQ, 216, DV, 38, TLF, 39. **Air Force-VA joint medical center.**

Kunsan AB, South Korea, APO AP 96264-5000; 8 mi. SW of Kunsan City. **Phone:** (cmcl, from CONUS) 011-82-63-470-1110; DSN 782-1110. **Majcom:** PACAF. **Host:** 8th FW. **Mission:** F-16C/D operations; home of the "Wolf Pack" and the first active overseas F-16 wing (September 1981). **Major tenants:** US Army's Charlie and Delta Batteries, 2nd Battalion, 1st Air Defense Artillery; US Army Contracting Command Korea. **History:** built by the Japanese in 1938. **Area:** 2,157 acres. **Runway:** 9,000 ft. **Altitude:** 29 ft. **Personnel:** permanent party military, 2,550; DOD civilians, 25. **Housing:** unaccompanied, UOQ, 245, UAQ/UEQ, 2,475; visiting, VOQ, 26, VAQ/VEQ, 60. **Clinic.**

Lackland AFB, Tex. 78236-5000; 8 mi. SW of downtown San Antonio. **Phone:** 210-671-1110; DSN 473-1110. **Majcom:** AETC. **Host:** 37th TRW. **Mission:** One of the largest USAF training wings. Provides basic military training for civilian recruits entering Air Force, ANG, and AFRC; conducts courses in ground combat (base support) functions, English language training for international and US military students, and specialized maintenance and security training in Spanish to military forces and government agencies from 26 Latin American nations. **Major tenants:** Air Intelligence Agency; 433rd AW (AFRC); 149th FTW (ANG); 67th Information Operations Wing (ACC); National Security Agency/Central Security Service Texas; 59th Medical Wing; Air Force Security Forces Center; Force Protection Battlelab; Cryptologic Systems Gp. **History:** activated 1941. Named for Brig. Gen. Frank D. Lackland, early commandant of Kelly Field flying school, who died in 1943. **Area:** 9,572 acres. **Runway:** 11,550 ft. **Altitude:** 691 ft. **Personnel:** permanent party military, 3,353; DOD civilians, 4,339. **Housing:** single family, officer, 151, enlisted, 1,060; unaccompanied, enlisted, 1,477; visiting, 2,838, TLF, 96. **Wilford Hall Medical Center.**

Lajes Field, Azores, Portugal, APO AE 09720-5000; Terceira Island, 900 mi. W of Portugal. **Phone:** (cmcl, from CONUS) 011-351-295-57-1110; DSN from US 535-1110, from Europe 312-535-1110. **Majcom:** USAFE. **Host:** 65th ABW. **Mission:** provides support to US and allied aircraft and personnel transiting the Atlantic, through US military and host-nation coordination. **Major tenants:** 65th ABW; 729th AMS (AMC). **History:** US operations began at Lajes Field 1943. **Area:** 1,192 acres. **Runway:** 10,865 ft. **Altitude:** 180 ft. **Personnel:** permanent party military, 919; DOD civilians, 101. **Housing:** single family, officer, 80, enlisted, 336; unaccompanied, UOQ, 20, UAQ/UEQ, 269; visiting, 252, TLF, 30. **Clinic.**

Langley AFB, Va. 23665-5000; 3 mi. N of Hampton. **Phone:** 757-764-1110; DSN 574-1110. **Majcom:** ACC. **Host:** 1st FW. **Mission:** F-15 and F-22A air dominance operations. **Major tenants:** Air Combat Command; Air Force Rescue Coordination Center; Aerospace C2ISR Center; USAF Heritage of America Band; 480th Intelligence Wg. (ACC); Air and Space Expeditionary Force Center (ACC). **History:** activated Dec. 30, 1916. Langley is the first military base in the US purchased and built specifically for military aviation. Named for aviation pioneer and scientist Samuel Pierpont Langley, who died in 1906. **Area:** 2,900 acres. **Runway:** 10,000 ft. **Altitude:** 11 ft. **Personnel:** permanent party military, 8,861; DOD civilians, 2,016. **Housing:** single family, officer, 328, enlisted, 1,053; unaccompanied, 1,053; visiting, VOQ, 78, VAQ/VEQ, 153, TLF, 60. **Hospital.**

Laughlin AFB, Tex. 78843-5000; 6 mi. E of Del Rio. **Phone:** 830-298-3511; DSN 732-1110. **Majcom:** AETC. **Host:** 47th FTW. **Mission:** SUPT (T-1, T-6, T-38). **History:** activated July 1942. Named for 1st Lt. Jack Thomas Laughlin, Del Rio native, B-17 pilot, killed Jan. 29, 1942. **Area:** 5,343 acres. **Runways:** 8,858 ft., 8,316 ft., and 6,236 ft. **Altitude:** 1,081 ft. **Personnel:** permanent party military, 883; DOD civilians, 879. **Housing:** single family, officer, 298, enlisted, 218; unaccompanied, UOQ, 320, UAQ/UEQ, 184; visiting, 96, TLF, 20. **Clinic.**

Little Rock AFB, Ark. 72099-4940; 17 mi. NE of Little Rock (Jacksonville). **Phone:** 501-987-1110; DSN 731-1110. **Majcom:** AETC. **Host:** 314th AW. **Mission:** largest C-130 training base in the world; trains crew members from all services and 28 allied nations. **Major tenants:** 463rd Airlift Gp. (AMC), C-130; 189th AW (ANG), C-130; US Air Force Mobility Weapons School (AMC); Hq. Ark. ANG. **History:** activated Oct. 9, 1955. **Area:** 6,130 acres. **Runway:** 12,000 ft. **Altitude:** 310 ft. **Personnel:** permanent party military, 5,636; DOD civilians, 490. **Housing:** single family, officer, 185, enlisted, 1,286; unaccompanied, 840; visiting, VOQ, 102, VAQ/VEQ, 52. **Clinic.**

Los Angeles AFB, Calif. 90245-4657; in El Segundo, 3 mi. SE of Los Angeles Arpt.; base housing and support facilities 18 mi. S of the main base, in San Pedro. **Phone:** 310-363-1110; DSN 833-1110. **Majcom:** AFSPC. **Host:** Space and Missile Systems Center. **Mission:** responsible for research, development, acquisition, on-orbit testing, and sustainment of military space and missile systems. **History:** activated as Air Research and Development Command's Western Development Division July 1, 1954. **Area:** 112 acres at Los Angeles AFB and 127 acres at Ft. MacArthur Military Family Housing Annex. **Runway:** none. **Altitude:** 95 ft. **Personnel:** permanent party military, 1,357; DOD civilians, 2,068. **Housing:** 645 units, TLF, 25. **Clinic.**

Luke AFB, Ariz. 85309-5000; 20 mi. WNW of downtown Phoenix. **Phone:** 623-856-1110; DSN 896-1110. **Majcom:** AETC. **Host:** 56th FW. **Mission:** F-16 operations; conducts USAF and allied F-16 pilot and crew chief training. **Major tenant:** 944th FW (AFRC), F-16. **History:** activated 1941. Named for 2nd Lt. Frank Luke Jr., observation balloon-busting ace of WWI and first American aviator to receive the Medal of Honor, killed in action Sept. 29, 1918. Luke is the largest fighter training base in the world. **Area:** 4,200 acres, plus 1.9 million-acre Barry M. Goldwater Range. **Runways:** 10,000 ft. and 9,910 ft. **Altitude:** 1,090 ft. **Personnel:** permanent party military, 5,469; DOD civilians, 1,495. **Housing:** single family, 724; unaccompanied, UAQ/UEQ, 730; visiting, 186, TLF, 84. **Clinic.**

MacDill AFB, Fla. 33621-5000; on the Interbay Peninsula in southern Tampa. **Phone:** 813-828-1110; DSN 968-1110. **Majcom:** AMC. **Host:** 6th AMW. **Mission:** KC-135 operations; provides worldwide air refueling and combatant commander support. **Major tenants:** SOCOM; CENTCOM; Joint Communications Support Element; NOAA Aircraft Operations Center. **History:** activated April 15, 1941. Named for Col. Leslie MacDill, killed in aircraft accident Nov. 8, 1938. **Area:** 5,767 acres. **Runways:** 11,420 ft. and 7,167 ft. **Altitude:** 6 ft. **Personnel:** permanent party military, 4,182; DOD civilians, 1,271. **Housing:** single family, officer, 45, enlisted, 629; unaccompanied, UAQ/UEQ, 610; visiting, VOQ, 112, VAQ/VEQ, 130, TLF, 5. **Hospital.**

Malmstrom AFB, Mont. 59402-5000; 1.5 mi. E of Great Falls. **Phone:** 406-731-1110; DSN 632-1110. **Majcom:** AFSPC. **Host:** 341st SW. **Mission:** Minuteman III ICBM operations, UH-1N. **Major tenant:** 819th RED HORSE Sq. (ACC). **History:** activated Dec. 15, 1942. Named for Col. Einar A. Malmstrom, WWII fighter commander killed in air accident Aug. 21, 1954. Site of SAC's first Minuteman wing. **Area:** 3,716 acres, plus about 23,500 sq. mi. for missile sites. **Runway:** closed. **Altitude:** 3,460 ft. **Personnel:** permanent party military, 3,600; DOD civilians, 400. **Housing:** single family, officer, 210, enlisted, 974; unaccompanied, UAQ/UEQ, 834; visiting, 53, TLF, 30. **Clinic.**

Maxwell AFB, Ala. 36112-5000; 1 mi. WNW of Montgomery. **Phone:** 334-953-1110; DSN 493-1110. **Majcom:** AETC. **Host:** 42nd ABW. **Mission:** Air University conducts professional military, graduate, and professional continuing education for precommissioned and commissioned officers, enlisted personnel, and civilians. **Major tenants:** Air University; Air War College; Air Command and Staff College; Air University Library; College of Aerospace Doctrine, Research, and Education; School of Advanced Air and Space Studies; Air Force Officer Accession and Training Schools; Ira C. Eaker College for Professional Development; College for Enlisted Professional Military Education; Community College of the Air Force; Air Force Institute for Advanced Distributed Learning; Squadron Officer College; Civil Air Patrol; 908th AW (AFRC), C-130; Air Force Historical Research Agency; Air Force Doctrine Center; Headquarters Operations and Sustainment Systems Gp.; USAF Counterproliferation Center. **History:** activated 1918. Named for 2nd Lt. William C. Maxwell, killed in air accident Aug. 12, 1920. **Area:** 4,221 acres (includes Gunter Annex). **Runway:** 8,000 ft. **Altitude:** 172 ft. **Personnel:** permanent party military, 3,141; DOD civilians, 2,879. **Housing:** single family, officer, 372, enlisted, 588; unaccompanied, UAQ/UEQ, 280; visiting, 2,304, TLF, 30. **Clinic.**

McChord AFB, Wash. 98438-1109; 8 mi. S of Tacoma. **Phone:** 253-982-1110; DSN 382-1110. **Majcom:** AMC. **Host:** 62nd AW. **Mission:** C-17 operations. Base is adjacent to Ft. Lewis, its primary customer for strategic airlift worldwide. **Major tenant:** 446th AW (AFRC assoc.). **History:** activated May 5, 1938. Named for Col. William C. McChord, killed Aug. 18, 1937. **Area:** 4,639 acres. **Runway:** 10,100 ft. **Altitude:** 4,639 ft. **Personnel:** permanent party military, 3,391; DOD civilians, 1,318. **Housing:** single family, officer, 113, enlisted, 867; unaccompanied, UOQ, 2, UAQ/UEQ, 752; visiting, VOQ, 68, VAQ/VEQ, 232, TLF, 20. **Dispensary.** Madigan Army Medical Center is located 4 mi. SE.

McConnell AFB, Kan. 67221-5000; SE corner of Wichita. **Phone:** 316-759-6100; DSN 734-1110.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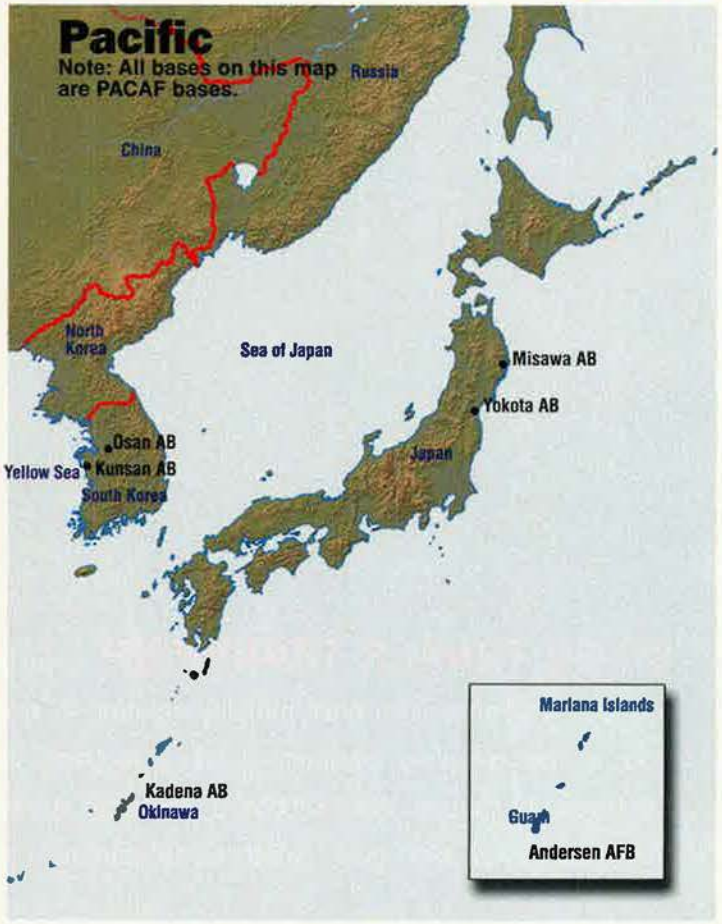
Major Air Force Installations Overseas



Bases in Gulf Cooperation Council nations do not meet criteria for major installations; however, thousands of USAF personnel are deployed in these locations.

Majcom: AMC. **Host:** 22nd ARW. **Mission:** KC-135 operations. **Major tenants:** 184th ARW (ANG); 931st Air Refueling Gp. (AFRC assoc.). **History:** activated June 5, 1951. Named for the three McConnell brothers, WWII B-24 pilots from Wichita—Lt. Col. Edwin M. McConnell (died Sept. 1, 1997), Capt. Fred J. McConnell (died in a private airplane crash Oct. 25, 1945), and 2nd Lt. Thomas L. McConnell (killed July 10, 1943). **Area:** 3,533 acres. **Runways:** two, 12,000 ft. each. **Altitude:** 1,371 ft. **Personnel:** permanent party military, 2,940; DOD civilians, 403. **Housing:** single family, officer, 83, enlisted, 506; unaccompanied, UAQ/UEQ, 615; visiting, VOQ, 42, VAQ/VEQ, 44, TLF, 45. **Clinic.**

McGuire AFB, N.J. 08641-5000; 18 mi. SE of Trenton. **Phone:** 609-754-1100; DSN 650-1100. **Majcom:** AMC. **Host:** 305th AMW. **Mission:** C-17 and KC-10 operations. **Major tenants:** 21st Expeditionary Mobility Task Force (AMC); Air Mobility Warfare Center, Ft. Dix, N.J.; N.J. Civil Air Patrol; 108th ARW (ANG), KC-135; 514th AMW (AFRC assoc.). **History:** adjoins Army's Ft. Dix. Formerly Ft. Dix AAB; activated as Air Force base 1949. Named for Maj. Thomas B. McGuire Jr., P-38 pilot, second leading US ace of WWII, Medal of Honor recipient, killed in action Jan. 7, 1945. **Area:** 3,598 acres. **Runways:** 10,001 ft. and 7,129 ft. **Altitude:** 133 ft. **Personnel:** permanent party military, 5,238, DOD civilians, 1,419. **Housing:** single family, officer, 223, enlisted, 1,658; unaccompanied, UAQ/UEQ, 1,162; visiting, VOQ, 33, VAQ/VEQ, 385, TLF, 55. **Clinic.**

Minot AFB, N.D. 58705-5000; 13 mi. N of Minot. **Phone:** 701-723-1110; DSN 453-1110. **Majcom:** ACC. **Host:** 5th BW. **Mission:** B-52 operations. **Major tenant:** 91st SW (AFSPC), Minuteman III, UH-1N. **History:** activated January 1957. Named after the city of Minot, whose citizens donated $50,000 toward purchase of the land for USAF. **Area:** 4,732 acres, plus additional 330 acres for missile sites spread over 8,500 sq. miles. **Runway:** 13,200 ft. **Altitude:** 1,668 ft. **Personnel:** permanent party military, 4,951; DOD civilians, 518. **Housing:** single family, officer, 324, enlisted, 1,521; unaccompanied, 813; visiting, 51, TLF, 15. **Clinic.**

Misawa AB, Japan, APO AP 96319-5000; within Misawa city limits. **Phone:** (cmcl, from CONUS) 011-81-176-53-5181 ext. 226-3075; DSN 315-226-5181. **Majcom:** PACAF. **Host:** 35th FW. **Mission:** F-16C/D operations. **Major tenants:** 301st Intelligence Sq. (ACC); Naval Air Facility; Naval Security Gp. Activity; 750th Military Intelligence Det. (Army); Co. E, US Marine Support Battalion; Northern Air Defense Force (JASDF). **History:** occupied by US forces September 1945. **Area:** 3,865 acres. **Runway:** 10,000 ft. **Altitude:** 119 ft. **Personnel:** permanent party military, 4,564; DOD civilians, 122. **Housing:** single family, officer, 298, enlisted, 1,810; unaccompanied, UOQ, 40, UAQ/UEQ, 951; visiting, VOQ, 82, VAQ/VEQ, 44, TLF, 40. **Hospital.**

Moody AFB, Ga. 31699-5000; 10 mi. NNE of Valdosta. **Phone:** 229-257-1110; DSN 460-1110. **Majcom:** AFSOC. **Host:** 347th Rescue Wing. **Mission:** HC-130 and HH-60 operations. **Major tenants:** 479th Flying Training Gp. (AETC); 820th Security Forces Gp. (ACC). **History:** activated June 1941. Named for Maj. George P. Moody, killed May 5, 1941. **Area:** 6,050 acres. **Runways:** 9,300 ft. and 8,000 ft. **Altitude:** 235 ft. **Personnel:** permanent party military, 4,438; DOD civilians, 377. **Housing:** single family, officer, 32, enlisted, 271; unaccompanied, 714; visiting, VOQ, 37, VAQ/VEQ, 19, TLF, 32. **Clinic.**

Mountain Home AFB, Idaho 83648-5000; 50 mi. SE of Boise. **Phone:** 208-828-6800; DSN 728-6800. **Majcom:** ACC. **Host:** 366th FW. **Mission:** F-15C/D, F-15E, and F-16CJ/D operations. **Major tenants:** Air Warfare Battlelab; 266th Range Sq. **History:** activated August 1943. **Area:** 9,112 acres. **Runway:** 13,500 ft. **Altitude:** 3,000 ft. **Personnel:** permanent party military, 4,465; DOD civilians, 460. **Housing:** single family, officer, 175, enlisted, 1,170; unaccompanied, 883; visiting, VOQ, 43, VAQ/VEQ, 54, TLF, 15. **Hospital.**

Nellis AFB, Nev. 89191-5000; 8 mi. NE of Las Vegas. **Phone:** 702-652-1110; DSN 682-1110. **Majcom:** ACC. **Host:** 99th ABW. **Mission:** USAF Warfare Center manages advanced pilot training and tactics development and integrates test and evaluation programs. Its 98th Range Wing oversees a 15,000 sq.-mile Nellis Range Complex and two emergency airfields. 57th Wing, A-10A, F-15C/D/E, F-16C/D, HH-60G, and Predator MQ-1/9 UAV. 57th Wing missions include Red Flag exercises (414th Combat Training Sq.); graduate-level pilot training (USAF Weapons School); support for Army exercises (549th Combat Training Sq.); training for international personnel in joint firepower procedures and techniques (Hq. USAF Air Ground Operations School); and USAF Air Demonstration Sq. (Thunderbirds). 53rd Wing, at 17 locations nationwide, serves as focal point for combat air forces in electronic warfare, armament and avionics, chemical defense, reconnaissance, and aircrew training devices, and operational testing and evaluation of proposed new equipment and systems. 505th Command and Control Wing builds the predominant air and space command and control ability for combined joint warfighters through training, testing, exercising, and experimentation. **Major tenants:** Aerospace Integration Center; Triservice Reserve Center; 58th and 67th Intelligence Gp. (ACC); 58th and 66th RQS (AFSOC); 820th RED HORSE Sq. (ACC); and 896th Munitions Sq. (AFMC). **History:** activated July 1941 as Las Vegas AAF with Army Air Corps Flexible Gunnery School; closed 1947; reopened 1948. Named for 1st Lt. William H. Nellis, WWII P-47 fighter pilot, killed Dec. 27, 1944. **Area:** Main base is 14,000 acres. NRC occupies 3 million acres of restricted air-land use and an additional 7,000 sq.-mile military operating area shared with civilian aircraft. **Runways:** 10,119 ft. and 10,051 ft. **Altitude:** 1,868 ft. **Personnel:** permanent party military, 8,251; DOD civilians, 2,808. **Housing:** single family, officer, 88, enlisted, 1,190; unaccompanied, 1,190; visiting, VOQ, 340, VAQ/VEQ, 354, TLF, 60. **Air Force-VA joint hospital.**

Offutt AFB, Neb. 68113-5000; 8 mi. S of Omaha. **Phone:** 402-294-1110; DSN 271-1110. **Majcom:** ACC. **Host:** 55th Wing. **Mission:** provides worldwide reconnaissance, intelligence, information warfare, treaty verification, and command and control to warfighting commanders and national leadership. **Major tenants:** STRATCOM; Joint Intelligence Center (STRATCOM); Air Force Weather Agency; National Airborne Operations Center (JCS); USAF Heartland of America Band. **History:** activated 1896 as Army's Ft. Crook. Landing field named for 1st Lt. Jarvis J. Offutt, WWI pilot who died Aug. 13, 1918. **Area:** 4,039 acres. **Runway:** 11,700 ft. **Altitude:** 1,048 ft. **Personnel:** permanent party military, 7,748; DOD civilians, 2,052. **Housing:** single family, officer, 344, enlisted, 2,256; unaccompanied, 793; visiting, 171, TLF, 60. **Clinic.**

Osan AB, South Korea, APO AP 96278-5000; 38 mi. S of Seoul. **Phone:** (cmcl, from CONUS) 011-82-31-661-1110; DSN 315-784-1110. **Majcom:** PACAF. **Host:** 51st FW. **Mission:** A/OA-10, C-12, and F-16C/D operations. **Major tenants:** 7th Air Force (PACAF); 5th RS (ACC); 31st SOS (AFSOC); 33rd Rescue Sq. (PACAF); 303rd Intelligence Sq. (AIA); 731st Air Mobility Sq. (AMC); Charlie and Delta Batteries, 1st Battalion, 43rd Air Defense Artillery (Army). **History:** originally designated K-55; runway opened December 1952. Renamed Osan AB in 1956 for nearby town that was the scene of first fighting between US and North Korean forces in July 1950. **Area:** 1,674 acres. **Runway:** 9,000 ft. **Altitude:** 38 ft. **Personnel:** permanent party military, 6,300; DOD civilians, 235. **Housing:** single family, 211; unaccompanied, UOQ, 457, UAQ/UEQ, 3,615; visiting, VOQ, 57, VAQ/VEQ, 20, DV, 350, TLF, 15. **Hospital.**

Patrick AFB, Fla. 32925-3237; 2 mi. S of Cocoa Beach. **Phone:** 321-494-1110; DSN 854-1110. **Majcom:** AFSPC. **Host:** 45th SW. **Mission:** supports DOD, NASA, Navy (Trident), and other government agency and commercial missile and space programs. Host responsibilities include Cape

Minor Active Duty Installations

In addition to the installations listed above, the Air Force has a number of minor installations. These air stations perform various missions, including space operations and missile warning. Here is a listing of such installations with state (or APO), ZIP code, and major command.

Brooks City-Base, San Antonio, Tex. 78235-5115 (AFMC)	DSN 240-1110
Cape Canaveral AFS, Fla. 32925-5000 (AFSPC)	DSN 467-1110
Cape Cod AFS, Mass. 02561-0428 (AFSPC)	DSN 557-2235
Cavalier AFS, N.D. 58220-9314 (AFSPC)	DSN 330-3695
Cheyenne Mountain AFS, Colo. 80914-6066 (AFSPC)	DSN 268-1110
Clear AFS, Alaska, APO AP 99704-0013 (AFSPC)	DSN 317-585-6110
Creech AFB, Nev. 89018-1230 (ACC)	DSN 682-1110
Onizuka AFS, Calif. 94088-3430 (AFSPC)	DSN 561-3000
Thule AB, Greenland, APO AE 09704-5000 (AFSPC) (ask for Thule operator)	DSN 268-3840

Canaveral AFS and tracking stations on Antigua and Ascension islands. **Major tenants:** Defense Equal Opportunity Management Institute; Air Force Technical Applications Center; 920th Rescue Wing (AFRC), HC-130, HH-60; 2nd Brigade, 87th Division (Army); Naval Ordnance Test Unit (Navy); Joint Task Force for Joint STARS at Melbourne, Fla. **History:** activated 1940. Named for Maj. Gen. Mason M. Patrick, Chief of AEF's Air Service in WWI and Chief of the Air Service/Air Corps, 1921-27. **Area:** 2,341 acres. **Runway:** 9,000 ft. **Altitude:** 9 ft. **Personnel:** permanent party military, 3,700; DOD civilians, 1,900. **Housing:** single family, enlisted, 550; unaccompanied, UAQ/UEQ, 204; visiting, VOQ, 52, VAQ/VEQ, 163, TLF, 51. **Clinic.**

Peterson AFB, Colo. 80914-5000; at eastern edge of Colorado Springs. **Phone:** 719-556-7321; DSN 834-7321. **Majcom:** AFSPC. **Host:** 21st SW. **Mission:** provides missile warning and space control; detects, tracks, and catalogs objects in space. **Major tenants:** NORAD; AFSPC; NORTHCOM; US Army Space and Missile Defense Command; 302nd AW (AFRC), C-130. **History:** activated 1942. Named for 1st Lt. Edward J. Peterson, killed Aug. 8, 1942. **Area:** 1,277 acres. **Runway:** shared with city. **Altitude:** 6,200 ft. **Personnel:** permanent party military, 5,805; DOD civilians, 4,848. **Housing:** single family, officer, 103, enlisted, 384; unaccompanied, UAQ/UEQ, 704; visiting, VOQ, 100, VAQ/VEQ, 54, TLF, 68. **Clinic.**

Pope AFB, N.C. 28308-2391; 12 mi. NNW of Fayetteville. **Phone:** 910-394-1110; DSN 424-1110. **Majcom:** AMC. **Host:** 43rd AW. **Mission:** C-130 operations. Adjoins Army's Ft. Bragg and provides intratheater combat airlift and close air support for airborne forces and other personnel, equipment, and supplies. **Major tenants:** 23rd Fighter Gp. (ACC), A/OA-10; 18th Air Support Operations Gp. (ACC); 21st and 24th STSs (AFSOC); USAF Combat Control School. **History:** activated 1919. Named after 1st Lt. Harley H. Pope, WWI pilot, killed Jan. 7, 1919. **Area:** 2,198 acres. **Runway:** 7,500 ft. **Altitude:** 218 ft. **Personnel:** permanent party military, 5,805; DOD civilians, 4,848. **Housing:** single family, officer, 84, enlisted, 543; unaccompanied, UAQ/UEQ, 668; visiting, VOQ, 8, VAQ/VEQ, 159, TLF, 22. **Clinic.**

RAF Lakenheath, UK, APO AE 09461-5000; 70 mi. NE of London; 25 mi. NE of Cambridge. **Phone:** (cmcl, from CONUS) 011-44-1638-52-3000; DSN 226-1110. **Majcom:** USAFE. **Host:** 48th FW (USAFE). **Mission:** F-15C/D and F-15E operations. **GSU:** 85th Group, NAS Keflavik, Iceland. **History:** activated 1941. US forces arrived August 1948; the 48th FW arrived January 1960. Named after nearby village. **Area:** 2,290 acres. **Runway:** 9,000 ft. **Altitude:** 32 ft. **Personnel:** permanent party military, 4,800; DOD civilians, 260; **Housing:** single family, officer, 196, enlisted, 1,869; unaccompanied, UAQ/UEQ, 984; visiting, VOQ, 88, VAQ/VEQ, 48, TLF, 33. **Regional medical center.**

RAF Mildenhall, UK, APO AE 09459-5000; 20 mi. NE of Cambridge. **Phone:** (cmcl, from CONUS) 011-44-1638-54-3000; DSN 238-3000. **Majcom:** USAFE. **Host:** 100th ARW. **Mission:** KC-135R operations. **Major tenants:** 16th Air Force (USAFE); 352nd SOG (AFSOC), MC-130, MH-53; 95th RS (ACC); 488th Intelligence Sq. (ACC); Naval Air Facility. **History:** activated 1934; US presence began July 1950. Named after nearby town. **Area:** 1,144 acres. **Runway:** 9,227 ft. **Altitude:** 33 ft. **Personnel:** permanent party military, 3,900; DOD civilians, 440. **Housing:** single family, officer, 64, enlisted, 137; unaccompanied, UAQ/UEQ, 783; visiting, 328, TLF, 36.

Ramstein AB, Germany, APO AE 09094-0385; adjacent to the city of Ramstein, 10 mi. W of Kaiserslautern. **Phone:** (cmcl, from CONUS) 011-49-6371-47-1110; DSN 314-480-1110. **Majcom:** USAFE. **Host:** 86th AW. **Mission:** C-20, C-21, C-40, and C-130E operations; provides expeditionary airlift for first-in base opening capabilities; 86th AW commander also serves as commander of the Kaiserslautern Military Community; also at Ramstein is the 435th Air Base Wing and the 38th Combat Support Wing. The 435th ABW provides expeditionary combat support and quality of life services for the Kaiserslautern community; the 38th CSW provides mission support to geographically separated units delivering American and European alliance combat support. **Major tenant:** USAFE. **History:** activated and US presence began 1953. **Area:** 3,212 acres. **Runways:** 10,498 ft. and 8,015 ft. **Altitude:** 782 ft. **Personnel:** permanent party military, 14,761; DOD civilians, 6,698. **Housing:** single family, officer, 473, enlisted, 4,588; unaccompanied, UOQ, 32, UAQ/UEQ, 1,795; visiting, 547, TLF, 70. **Clinic.**

Randolph AFB, Tex. 78150-5000; 17 mi. NE of San Antonio. **Phone:** 210-652-1110; DSN 487-1110. **Majcom:** AETC. **Host:** 12th FTW. **Mission:** conducts T-1, T-6, T-37, and T-38 instructor pilot training and combat systems officer training in the T-43. **Major tenants:** AETC; 19th Air Force; Air Force Personnel Center; Air Force Manpower Agency; Air Force Services Agency; Air Force Recruiting Service. **History:** dedicated June 1930. Named for Capt. William M. Randolph, killed Feb. 17, 1928. **Area:** 5,044 acres. **Runways:** two, 8,350 ft. each. **Altitude:** 761 ft. **Personnel:** permanent party military, 3,800; DOD civilians, 4,325. **Housing:** single family, officer, 218, enlisted, 427; unaccompanied, UOQ, 200, UEQ, 276; visiting, VOQ, 376, VAQ/VEQ, 164, TLF, 30. **Clinic.**

Robins AFB, Ga. 31098; 15 mi. SSE of Macon at Warner Robins. **Phone:** 478-926-1110; DSN 468-1001. **Majcom:** AFMC. **Host:** 78th ABW. **Mission:** Warner Robins Air Logistics Center provides worldwide logistics management for the C-5, C-17, C-130, E-8, F-15, U-2, and various special operations forces aircraft and helicopters. Support for general-purpose computers, avionics, missiles, aircraft propellers, vehicles, airborne electronic warfare and communications equipment, airborne bomb- and gun-directing systems, fire-fighting equipment, Joint Tactical Information Distribution System, and emergency software programming of Air Force, other DOD, and allied electronic warfare systems. **Major tenants:** Air Force Reserve Command; 116th Air Control Wing (ACC), E-8; 19th ARG (AMC), KC-135; 5th Combat Communications Gp. (ACC). **History:** activated March 1942. Named for Brig. Gen. Augustine Warner Robins, an early chief of the Materiel Division of the Army Air Corps, who died June 16, 1940. **Area:** 8,700 acres. **Runway:** 12,000 ft. **Altitude:** 294 ft. **Personnel:** permanent party military, 6,452; DOD civilians, 13,247. **Housing:** single family, officer, 108, enlisted, 1,043; visiting, VOQ, 134, VAQ/VEQ, 157, TLF, 50. **Clinic.**

Schriever AFB, Colo. 80912-5000; 10 mi. E of Colorado Springs. **Phone:** 719-567-1110; DSN 560-1110. **Majcom:** AFSPC. **Host:** 50th SW. **Mission:** command and control of DOD satellites. **Major tenants:** Joint National Integration Center; Space Battlelab; 310th Space Gp. (AFRC). **History:** designated as Falcon AFB June 1988. Renamed in June 1998 for Gen. Bernard A. Schriever. **Area:** 3,840 acres. **Runway:** none. **Altitude:** 6,267 ft. **Personnel:** permanent party military, 2,418; DOD civilians, 645. **Housing:** none. **Medical and dental clinics.**

Scott AFB, Ill. 62225-5000; 6 mi. ENE of Belleville. **Phone:** 618-256-1110; DSN 576-1110. **Majcom:** AMC. **Host:** 375th AW. **Mission:** C-9 and C-21 operations. **Major tenants:** TRANSCOM; AMC; 18th Air Force; Air Force Communications Agency; Defense Information Technology Contracting Office; 126th ARW (ANG), KC-135; 932nd AW (AFRC), C-9. **History:** activated June 14, 1917. Named for Cpl. Frank S. Scott, the first enlisted man to die in an aircraft accident, killed Sept. 28, 1912. **Area:** 3,230 acres. **Runways:** 10,000 ft. and 8,000 ft. (joint-use airfield). **Altitude:** 453 ft. **Personnel:** permanent party military, 5,753; DOD civilians, 3,246. **Housing:** single family, officer, 298, enlisted, 1,122; unaccompanied, UAQ/UEQ, 569; visiting, VOQ, 222, VAQ/VEQ, 173, TLF, 60. **Hospital.**

Seymour Johnson AFB, N.C. 27531; within city limits of Goldsboro. **Phone:** 919-722-1110; DSN 722-1110. **Majcom:** ACC. **Host:** 4th FW. **Mission:** F-15E operations and training. **Major tenant:** 916th ARW (AFRC), KC-135R. **History:** activated June 12, 1942. Named for Navy Lt. Seymour A. Johnson, Goldsboro native, killed March 5, 1941. **Area:** 3,558 acres. **Runway:** 11,758 ft. **Altitude:** 110 ft. **Personnel:** permanent party military, 6,409; DOD civilians, 1,091. **Housing:** single family, officer, 150, enlisted, 1,210; unaccompanied, 652; visiting, VOQ, 63, VAQ/VEQ, 40, DV, 10, TLF, 49. **Clinic.**

Shaw AFB, S.C. 29152-5000; 8 mi. WNW of Sumter. **Phone:** 803-895-1110; DSN 965-1110. **Majcom:** ACC. **Host:** 20th FW. **Mission:** F-16CJ operations. **Major tenants:** 9th Air Force (ACC); CENTCOM Air Forces. **History:** activated Aug. 30, 1941. Named for 1st Lt. Ervin D. Shaw, one of the first Americans to see air action in WWI, killed in France July 9, 1918. **Area:** 121,930 acres. **Runways:** 10,000 ft. and 8,000 ft. **Altitude:** 242 ft. **Personnel:** permanent party military, 5,600; DOD civilians, 1,038. **Housing:** single family, officer, 164, enlisted, 1,042; unaccompanied, 1,112; visiting, 97, TLF, 39. **Hospital** (no emergency room).

Sheppard AFB, Tex. 76311-5000; 5 mi. N of Wichita Falls. **Phone:** 940-676-1110; DSN 736-2511. **Majcom:** AETC. **Host:** 82nd TRW. **Mission:** second largest of AETC's four technical training centers. Conducts resident training in aircraft maintenance, aircraft avionics, aerospace propulsion, fuels, ammo and munitions, armament, aerospace ground equipment, life support, civil engineering, communications, and various medical and dental specialties; provides instruction in a wide range of specialties at more than 40 USAF installations worldwide. **Major tenant:** 80th FTW (AETC), conducts T-37 and T-38 UPT, instructor pilot training in the Euro-NATO Joint Jet Pilot Training program, and Introduction to Fighter Fundamentals course with AT-38 aircraft. **History:** activated June 14, 1941. Named for US Sen. Morris E. Sheppard, who died April 9, 1941. **Area:** 6,158 acres. **Runways:** 13,100 ft., 10,000 ft., 7,000 ft., and 6,000 ft. **Altitude:** 1,019 ft. **Personnel:** permanent party military, 3,767; DOD civilians, 1,421. **Housing:** single family, officer, 200, enlisted, 1,010; unaccompanied, UOQ, 196, UAQ/UEQ, 396; visiting, 1,584, TLF, 95. **Clinic.**

Spangdahlem AB, Germany, APO AE 09126-5000; 20 mi. NE of Trier; 9 mi. E of Bitburg. **Phone:** (cmcl, from CONUS) 011-49-6565-61-1110; DSN 452-1110. **Majcom:** USAFE. **Host:** 52nd FW. **Mission:** A/OA-10A and HARM-equipped F-16CJ operations; air control squadron operations with logistics responsibilities at dozens of GSUs. **History:** built by the French in 1951 and turned over to US in 1952. Named after nearby town. **Area:** 1,616 acres. **Runway:** 10,000 ft. **Altitude:** 1,196 ft. **Personnel:** permanent party military, 5,500; DOD civilians, 230. **Housing:** single family, officer, 126, enlisted, 1,299; unaccompanied, UAQ/UEQ, 856, UOQ, 8; visiting, 114, TLF, 52. **Hospital.**

Tinker AFB, Okla. 73145-3010; 8 mi. SE of Oklahoma City. **Phone:** 405-732-7321; DSN 884-

1110. **Majcom:** AFMC. **Host:** 72nd ABW. **Mission:** Oklahoma City Air Logistics Center manages and repairs the engines that power cruise missiles and a variety of Air Force and Navy aircraft. The center also accomplishes aircraft modifications and repairs and maintains bombers, refuelers, and reconnaissance aircraft, including the B-1, B-2, B-52, C/KC-135, E-3 AWACS, and E-6 Mercury. **Major tenants:** 552nd Air Control Wing (ACC), E-3; Navy Strategic Communications Wing One, E-6; 507th ARW (AFRC), KC-135; 513th Air Control Gp. (AFRC assoc.), E-3; Defense Information Systems Agency; Defense Logistics Agency; Defense Distribution Center Oklahoma; 3rd Combat Communications Gp. (ACC); 38th Engineering Installation Gp. (AFMC). **History:** activated March 1942. Named for Maj. Gen. Clarence L. Tinker, who went down at sea June 7, 1942 while leading a group of LB-30 bombers against Japan. **Area:** 5,033 acres. **Runways:** 11,100 ft. and 10,000 ft. **Altitude:** 1,291 ft. **Personnel:** permanent party military, 8,400; DOD civilians, 15,242. **Housing:** single family, officer, 107, enlisted, 587; unaccompanied, UAQ/UEQ, 1,220; visiting, VOQ, 109, VAQ/VEQ, 50, TLF, 40. **Clinic.**

Travis AFB, Calif. 94535-5000; 50 mi. NE of San Francisco at Fairfield. **Phone:** 707-424-1110; DSN 837-1110. **Majcom:** AMC. **Host:** 60th AMW. **Mission:** C-5 and KC-10 operations. **Major tenants:** 615th Contingency Response Wing; 15th Expeditionary Mobility Task Force (AMC); 349th AMW (AFRC assoc.); USAF Band of the Golden West; Air Museum. **History:** activated May 17, 1943. Named for Brig. Gen. Robert F. Travis, killed Aug. 5, 1950. **Area:** 6,383 acres. **Runways:** two, approx. 11,000 ft. each. **Altitude:** 62 ft. **Personnel:** permanent party military, 7,944; DOD civilians, 3,554. **Housing:** single family, officer, 177, enlisted, 1,143; unaccompanied, UAQ/UEQ, 1,627; visiting, VOQ, 139, VAQ/VEQ, 212, TLF, 84. **David Grant Medical Center.**

Tyndall AFB, Fla. 32403-5000; 12 mi. E of Panama City. **Phone:** 850-283-1113; DSN 523-1113. **Majcom:** AETC. **Host:** 325th FW. **Mission:** F-15 and F-22 operations; trains USAF F-15 and F-22 pilots. **Major tenants:** 1st Air Force (ANG); Southeast Air Defense Sector (ANG); 53rd Weapons Evaluation Gp. (ACC); Air Force Civil Engineer Support Agency. **History:** activated Dec. 7, 1941. Named for 1st Lt. Frank B. Tyndall, WWI fighter pilot killed July 15, 1930. **Area:** 29,102 acres. **Runways:** 10,000 ft., 9,000 ft., and 7,000 ft. **Altitude:** 18 ft. **Personnel:** permanent party military, 3,421; DOD civilians, 565. **Housing:** single family, officer, 111, enlisted, 737; unaccompanied, UAQ/UEQ, 448; visiting, 648, TLF, 52. **Clinic.**

US Air Force Academy, Colo. 80840-5025; N of Colorado Springs. **Phone:** 719-333-1110; DSN 333-1110. **Host:** USAFA. **Mission:** inspires and develops outstanding young men and women to become Air Force officers with knowledge, character, and discipline. **History:** established April 1, 1954. Moved to permanent location August 1958. **Area:** 18,500 acres. **Runways:** 4,500 ft., 3,500 ft., and 2,300 ft. **Altitude:** 7,200 ft. **Personnel:** permanent party military, 2,213; DOD civilians, 1,988. **Housing:** single family, officer, 231, enlisted, 978; unaccompanied, 130; visiting, 90, TLF, 30. **Hospital.**

Vance AFB, Okla. 73705-5000; 3 mi. SSW of Enid. **Phone:** 580-213-5000; DSN 448-7110. **Majcom:** AETC. **Host:** 71st FTW. **Mission:** provides Joint SUPT in T-1, T-6, T-37, and T-38 aircraft. **History:** activated November 1941. Named for Lt. Col. Leon R. Vance Jr., Enid native, 1939 West Point graduate, and Medal of Honor recipient, killed July 26, 1944. **Area:** 3,066 acres. **Runways:** 9,200 ft., 9,200 ft., and 5,001 ft. **Altitude:** 1,307 ft. **Personnel:** permanent party military, 1,192; DOD civilians, 133. **Housing:** single family, officer, 115, enlisted, 115; unaccompanied, UOQ, 202, UAQ/UEQ, 108; visiting, 64, TLF, 10. **Clinic.**

Vandenberg AFB, Calif. 93437-5000; 8 mi. NNW of Lompoc. **Phone:** 805-606-1110; DSN 276-1110. **Majcom:** AFSPC. **Host:** 30th SW. **Mission:** conducts polar-orbiting space launches and supports R&D tests and launch range operations for DOD, USAF, and NASA space, ballistic missile, and aeronautical systems and commercial space launches; provides test support for DOD space and ICBM systems; furnishes facilities and essential services to more than 36 aerospace contractors. **Major tenants:** 14th Air Force (AFSPC); 381st Training Gp. (AETC); 576th Flight Test Sq. (Space Warfare Center). **History:** originally Army's Camp Cooke. Activated October 1941; taken over by USAF June 7, 1957. Renamed for Gen. Hoyt S. Vandenberg, USAF's second Chief of Staff. **Area:** 98,400 acres. **Runway:** 15,000 ft. **Altitude:** 367 ft. **Personnel:** permanent party military, 3,400; DOD civilians, 1,400. **Housing:** single family, officer, 403, enlisted, 1,566; unaccompanied, dorm rooms, 670, UOQ, 43, UAQ/UEQ, 59; visiting, VOQ, 111, VAQ/VEQ, 124, DV, 18, TLF, 26. **Clinic.**

Whiteman AFB, Mo. 65305-5000; 2 mi. S of Knob Noster. **Phone:** 660-687-1110; DSN 975-1110. **Majcom:** ACC. **Host:** 509th BW. **Mission:** B-2 operations. **Major tenants:** 442nd FW (AFRC), A/OA-10; 1st Battalion, 135th Aviation Regiment (ARNG); Mobile Inshore Undersea Warfare Unit 114 (Navy Reserve). **History:** activated 1942. Named for 2nd Lt. George A. Whiteman, first pilot to die in aerial combat during the attack on Pearl Harbor. **Area:** 4,993 acres. **Runway:** 12,400 ft. **Altitude:** 871 ft. **Personnel:** permanent party military, 5,480; DOD civilians, 707. **Housing:** single family, officer, 116, enlisted, 968; unaccompanied, 674; visiting, VOQ, 52, VAQ/VEQ, 35, TLF, 31. **Clinic.**

Wright-Patterson AFB, Ohio 45433; 10 mi. ENE of Dayton. **Phone:** 937-257-1110; DSN 787-1110. **Majcom:** AFMC. **Host:** 88th ABW. **Mission:** Aeronautical Systems Center develops, acquires, modernizes, and sustains aerospace systems. **Major tenants:** Air Force Materiel Command; Development and Fielding Systems Gp.; Air Force Research Laboratory (AFMC); Air Force Security Assistance Center (AFMC); 445th AW (AFRC), C-141 (converting to C-5); Air Force Institute of Technology (AETC); National Museum of the US Air Force. **History:** originally separate, Wright Field and Patterson Field were merged and redesignated Wright-Patterson AFB Jan. 13, 1948. Named for aviation pioneers Orville and Wilbur Wright and for 1st Lt. Frank S. Patterson, killed June 19, 1918. The Wright brothers did much of their early flying on Huffman Prairie, now in Area C of the present base. The prairie is part of the Dayton Aviation Heritage National Historical Park. Site of US Air Force Marathon, held annually on Saturday nearest Sept. 18. **Area:** 8,357 acres. **Runway:** 12,600 ft. **Altitude:** 824 ft. **Personnel:** permanent party military, 5,517; DOD civilians, 8,102. **Housing:** single family, officer, 914, enlisted, 1,098; unaccompanied, UAQ/UEQ, 300; visiting, 414, TLF, 41. **Wright-Patterson Medical Center.**

Yokota AB, Japan, APO AP 96328-5000; approx. 28 mi. W of downtown Tokyo. **Phone:** (cmcl, from CONUS) 011-81-311-755-1110; DSN 315-225-1110. **Majcom:** PACAF. **Host:** 374th AW. **Mission:** C-21, C-130, and UH-1N operations. Primary aerial port in Japan. **Major tenants:** US Forces, Japan; 5th Air Force (PACAF); 730th AMS (AMC); Det. 1, Air Force Band of the Pacific-Asia; American Forces Network Tokyo; DFAS-Japan. **History:** opened as Tama AAF by the Japanese in 1939. **Area:** 1,750 acres. **Runway:** 11,000 ft. **Altitude:** 457 ft. **Personnel:** permanent party military, 3,414; DOD civilians, 199. **Housing:** single family, officer, 683, enlisted, 1,956; unaccompanied, UOQ, 184, UAQ/UEQ, 896; visiting, VOQ, 202, VAQ/VEQ, 23, TLF, 189. **Hospital.**

USAF photo by SSgt. Marie Cassetty

The* Spirit of Berlin,** ***a C-17, takes off during the Rhein-Main AB, Germany, base closure ceremony Oct. 10, 2005, officially marking the end of 60 years of airlift at Rhein-Main.

ANG and AFRC Installations

This section consolidates Air National Guard and Air Force Reserve Command facilities into a single listing. Units are listed by base names or according to the airports whose facilities they share. In addition, some ANG and AFRC units are located on USAF bases and are included as major tenants on those bases in the "Major Active Duty Installations" section.

ANG and AFRC personnel are organized into two categories. Part-time personnel are traditional Guardsmen and Reservists who work in the private sector during the week, serve in ANG or AFRC one weekend each month, and go on active duty for two weeks during the year. If called up by the President, they go on active military status.

ANG's second category, full-time support personnel, are Title 32 Active Guard Reserve (AGR), Title 32 civilians, and Title 5 civilians. Guard AGR positions are controlled by the state. They do not serve at the national level. They receive the same benefits as regular active duty military. Title 32 civilian personnel are civilians employed full-time by the Guard and must also serve in military status one weekend per month and for two weeks of training per year. They can also be activated and mobilized during times of national crisis. Title 5 civilian personnel are federal civilian employees who hold administrative positions in ANG.

AFRC's second category, full-time support personnel, are Title 32 AGR, Title 32 Air Reserve Technicians (ART), and Title 5 civilians. Reservists in AGR positions serve primarily in flight training and flight testing units, as recruiters, or at the headquarters level. They receive the same benefits as regular active duty military. Title 32 ARTs are full-time federal civilian employees who serve in the same position as Reservists at least one weekend per month and for two weeks of training per year. They can also be activated and mobilized during times of national crisis. Title 5 personnel are federal civilian employees who hold administrative positions in AFRC.

Abraham Lincoln Capital Arpt., Ill. 62707-5001; 4 mi. NW of Springfield. **Phone:** 217-757-1219; DSN 892-8219. **Unit:** 183rd Fighter Wing (ANG). **Area:** 91 acres. **Runways:** 8,000 ft., 7,000 ft., and 5,300 ft. **Altitude:** 588 ft. **Full-time personnel:** 304.

Allen C. Thompson Field, Miss. 39232-8881; 6 mi. E of Jackson. **Phone:** 601-936-8370; DSN 731-9370. **Unit:** 172nd Airlift Wing (ANG). **Area:** 140 acres. **Runway:** 8,500 ft. **Altitude:** 346 ft. **Full-time personnel:** 449.

Alpena County Regional Arpt., Mich. 49707; 5 mi W of Alpena. **Phone:** 989-354-6210; DSN 741-3210. **Unit:** Combat Readiness Training Center (ANG). **Area:** 610 acres. **Runways:** 9,000 ft. and 5,030 ft. **Altitude:** 682 ft. **Full-time personnel:** 83.

AGS	Air Guard Station
ANGB	Air National Guard Base
ANGS	Air National Guard Station
ARB	Air Reserve Base
Arpt.	Airport
ARS	Air Reserve Station
JRB	Joint Reserve Base
NAS	Naval Air Station

Atlantic City Arpt., N.J. 08234-9500; 9 mi. NW of Atlantic City. **Phone:** 609-645-6000; DSN 455-6000. **Unit:** 177th Fighter Wing (ANG). **Area:** 296 acres. **Runways:** 10,000 ft. and 6,144 ft. **Altitude:** 71 ft. **Full-time personnel:** 272.

Bangor Arpt., Maine 04401-8009; within city of Bangor. **Phone:** 207-990-7700; DSN 698-7700. **Units:** 101st Air Refueling Wing (ANG); 776th Radar Sq. (ACC). **Area:** 503 acres. **Runway:** 11,400 ft. **Altitude:** 178 ft. **Full-time personnel:** 370. Commissary; exchange.

Barnes Arpt., Mass. 01085-1482; 3 mi. N of downtown Westfield. **Phone:** 413-568-9151; DSN 636-9210. **Unit:** 104th Fighter Wing (ANG). **Area:** 186 acres. **Runway:** 9,000 ft. **Altitude:** 271 ft. **Full-time personnel:** 263.

Birmingham Arpt., Ala. 35217-3545, 7 mi. E of Birmingham. **Phone:** 205-714-2000; DSN 778-2210. **Unit:** 117th Air Refueling Wing (ANG). **Area:** 145 acres. **Runway:** 10,000 ft. **Altitude:** 644 ft. **Full-time personnel:** 240.

Boise Air Terminal (Gowen Field), Idaho 83705-8006; 1 mi. S of Boise. **Phone:** 208-422-5322; DSN 422-5322. **Units:** 124th Wing (ANG). Also host for the Army National Guard (ARNG); Army Reserve; Army Research Institute; Navy/Marine Corps Reserves; and Civil Air Patrol. **History:** named for Lt. Paul R. Gowen, killed in B-10 crash in Panama July 11, 1938. **Area:** 576 acres. **Runway:** 9,800 ft. **Altitude:** 2,836 ft. **Full-time personnel:** 542. Limited transient facilities available during ARNG camps.

Bradley Arpt., Conn. 06026-9309; 15 mi. N of Hartford. **Phone:** 860-292-2526; DSN 636-8310. **Units:** 103rd Fighter Wing (ANG); ARNG aviation battalion. **History:** named for Lt. Eugene M. Bradley, killed in P-40 crash August 1941. **Area:** 148 acres. **Runway:** 9,600 ft. **Altitude:** 172 ft. **Full-time personnel:** 278.

Burlington Arpt., Vt. 05403-5872; 1 mi. E of Burlington. **Phone:** 802-660-5215; DSN 220-5215. **Unit:** 158th Fighter Wing (ANG). **Area:** 230 acres. **Runway:** 7,800 ft. **Altitude:** 355 ft. **Full-time personnel:** 297.

Channel Islands ANGS, Calif. 93041-4002, 3 mi. SE of Oxnard. **Phone:** 805-986-8000; DSN 893-7000. **Unit:** 146th Airlift Wing (ANG). **Area:** 206 acres. **Runway:** 11,100 ft. **Altitude:** 12 ft. **Full-time personnel:** 290.

Charlotte/Douglas Arpt., N.C. 28208, 6 mi. W of downtown Charlotte. **Phone:** 704-391-4100; DSN 583-9129. **Unit:** 145th Airlift Wing (ANG). **Area:** 79 acres. **Runway:** 10,000 ft. **Altitude:** 745 ft. **Full-time personnel:** 285.

Cheyenne Arpt., Wyo. 82009. **Phone:** 307-772-6110; DSN 943-6110. **Unit:** 153rd Airlift Wing (ANG). **Area:** 77 acres. **Runway:** 9,202 ft. **Altitude:** 6,250 ft. **Full-time personnel:** 252.

Des Moines Arpt., Iowa 50321-2799; within Des Moines. **Phone:** 515-256-8210; DSN 946-8210. **Unit:** 132nd Fighter Wing (ANG). **Area:** 162 acres. **Runway:** 9,000 ft. **Altitude:** 942 ft. **Full-time personnel:** 304.

Dobbins ARB, Ga. 30069-4904; 16 mi. NW of Atlanta. **Phone:** 678-655-5467; DSN 625-1110. **Units:** Hq. 22nd Air Force (AFRC); 94th Airlift Wing (AFRC); Hq. Ga. ANG; Army Aviation Group (Ga. ARNG); US Army Reserve Center; 283rd Combat Communications Sq.; and Marine Corps Reserve Center Atlanta. **History:** activated 1943. Named for Capt. Charles Dobbins, pilot killed in WWII. **Area:** 1,660 acres. NAS Atlanta and Lockheed Martin Aeronautical Systems Co./Air Force Plant 6 adjoin Dobbins ARB and use airfield facilities. **Runway:** 10,000 ft. **Altitude:** 193 ft. **Full-time personnel:** AFRC, 385, ANG, 29.

Duke Field, Fla. 32542-6644; 6 mi. S of Crestview. **Phone:** 850-883-6347; DSN 875-6347. **Unit:** 919th Special Operations Wing (AFRC). **History:** Named for Lt. Robert L. Duke, pilot killed Dec. 29, 1943 in test flight. **Area:** 1,348 acres. **Runway:** 8,000 ft. **Altitude:** 193 ft. **Full-time personnel:** active duty, 300; ARTs, 300, ANG, 1.

Duluth Arpt., Minn. 55811-6036; 5 mi. WNW of Duluth. **Phone:** 218-788-7210; DSN 825-7210. **Unit:** 148th Fighter Wing (ANG). **Area:** 285 acres. **Runway:** 10,150 ft. **Altitude:** 1,430 ft. **Full-time personnel:** 282.

Eastern West Virginia Arpt. (Shepherd Field), W. Va. 25401-7702; 4 mi. S of Martinsburg. **Phone:** 304-616-5100; DSN 242-5100. **Unit:** 167th Airlift Wing (ANG). **Area:** 340 acres. **Runway:** 7,000 ft. **Altitude:** 556 ft. **Full-time personnel:** 309.

Ellington Field, Tex. 77034-5586; a city of Houston airport 10 mi. SE of downtown Houston. **Phone:** 281-929-2337; DSN 454-2337. **Units:** 147th Fighter Wing (ANG); 111th FIS; NASA Flight Operations; US Coast Guard; ARNG; FAA. **History:** named for Lt. Eric L. Ellington, pilot killed November 1913. **Area:** 190 acres. **Runway:** 9,000 ft. **Altitude:** 34 ft. **Full-time personnel:** 272.

Forbes Field, Kan. 66619-5370; 6 mi. S of Topeka. **Phone:** 785-861-4210; DSN 720-4210. **Unit:** 190th Air Refueling Wing (ANG). **History:** named for Maj. Daniel H. Forbes Jr., pilot killed June 5, 1948 test-flying the Northrop YB-49 "Flying Wing." **Area:** 193 acres. **Runway:** 12,819 ft. **Altitude:** 1,079 ft. **Full-time personnel:** 253.

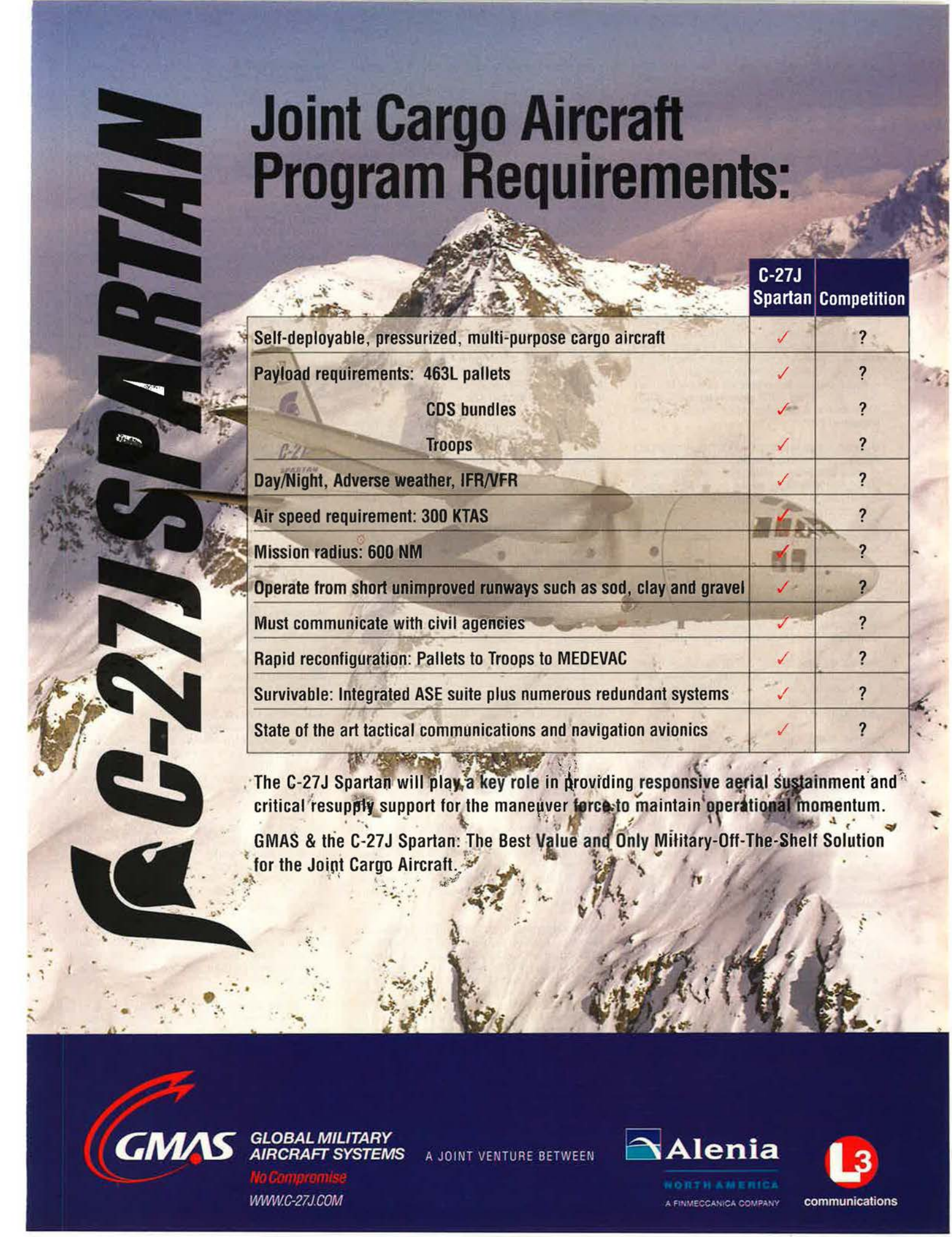
Fort Smith Arpt., Ark. 72903; within Fort Smith. **Phone:** 479-573-5188; DSN 778-5188. **Unit:** 188th Fighter Wing (ANG). **Area:** 130 acres. **Runway:** 8,000 ft. **Altitude:** 468 ft. **Full-time personnel:** 280.

Fort Wayne Arpt., Ind. 46809-0122; 8 mi. SSW of downtown Fort Wayne. **Phone:** 260-478-3210; DSN 786-1210. **Unit:** 122nd Fighter Wing (ANG). **Area:** 166 acres. **Runway:** 12,000 ft. **Altitude:** 802 ft. **Full-time personnel:** 330.

Francis S. Gabreski Arpt., N.Y. 11978-1201; 1 mi. N of Westhampton Beach. **Phone:** 631-288-7335; DSN 456-7335. **Unit:** 106th Rescue Wing (ANG). **History:** named for Col. Francis S. Gabreski, WWII and Korean War ace. **Area:** 88 acres. **Runways:** 9,000 ft., 5,000 ft., and 3,000 ft. **Altitude:** 68 ft. **Full-time personnel:** 245.

Fresno Yosemite Arpt., Calif. 93727-2199; within Fresno. **Phone:** 559-454-5100; DSN 949-9100. **Unit:** 144th Fighter Wing (ANG). **Area:** 111 acres. **Runway:** 9,222 ft. **Altitude:** 332 ft. **Full-time personnel:** 278.

General Mitchell Arpt./ARS, Wis. 53207-6299; SW corner of Milwaukee. **AFRC phone:** 414-482-5488;



Joint Cargo Aircraft Program Requirements:

	C-27J Spartan	Competition
Self-deployable, pressurized, multi-purpose cargo aircraft	✓	?
Payload requirements: 463L pallets	✓	?
CDS bundles	✓	?
Troops	✓	?
Day/Night, Adverse weather, IFR/VFR	✓	?
Air speed requirement: 300 KTAS	✓	?
Mission radius: 600 NM	✓	?
Operate from short unimproved runways such as sod, clay and gravel	✓	?
Must communicate with civil agencies	✓	?
Rapid reconfiguration: Pallets to Troops to MEDEVAC	✓	?
Survivable: Integrated ASE suite plus numerous redundant systems	✓	?
State of the art tactical communications and navigation avionics	✓	?

The C-27J Spartan will play a key role in providing responsive aerial sustainment and critical resupply support for the maneuver force to maintain operational momentum.

GMAS & the C-27J Spartan: The Best Value and Only Military-Off-The-Shelf Solution for the Joint Cargo Aircraft.

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DSN 741-5488. **ANG phone:** 414-944-8410; DSN 580-8410. **Units:** 440th Airlift Wing (AFRC); 128th Air Refueling Wing (ANG). **History:** named for Maj. Gen. William "Billy" Mitchell. **Area:** AFRC, 103 acres; ANG, 70 acres. **Runway:** 9,690 ft. **Altitude:** 670 ft. **Full-time personnel:** AFRC, 181; ANG, 18.

Greater Peoria Arpt., Ill. 61607-5023; 5 mi. SW of Peoria. **Phone:** 309-633-5210; DSN 724-5210. **Unit:** 182nd Airlift Wing (ANG). **Area:** 339 acres. **Runways:** 10,000 ft. and 8,006 ft. **Altitude:** 656 ft. **Full-time personnel:** 289.

Great Falls Arpt., Mont. 59404-5570; 5 mi. SW of Great Falls. **Phone:** 406-791-6285; DSN 279-2285. **Unit:** 120th Fighter Wing (ANG). **Area:** 141 acres. **Runways:** 10,502 ft. and 6,357 ft. **Altitude:** 3,679 ft. **Full-time personnel:** 290.

Grissom ARB, Ind. 46971-5000; 15 mi. N of Kokomo. **Phone:** 765-688-3348; DSN 928-3348. **Unit:** 434th Air Refueling Wing (AFRC). **History:** activated January 1943 as Bunker Hill NAS. Reactivated June 1954 as Bunker Hill AFB. Renamed in May 1968 for Lt. Col. Virgil I. "Gus" Grissom, killed Jan. 27, 1967 in Apollo capsule fire. Realigned as an AFRC base Oct. 1, 1994. **Area:** 1,127 acres. **Runway:** 12,500 ft. **Altitude:** 800 ft. **Housing:** 485 transient. **Full-time personnel:** 327.

Gulfport-Biloxi Arpt., Miss. 39507; within Gulfport. **Phone:** 228-214-6002; DSN 363-6002. **Units:** Combat Readiness Training Center; 255th Air Control Sq. (ANG); 209th Civil Engineering Sq. An air-to-ground gunnery range is located 70 mi. N of site. **History:** established as a Permanent Field Training Site in 1954 and redesignated as a CRTC in 1990. **Area:** 224 acres. **Runway:** 9,000 ft. **Altitude:** 26 ft. **Full-time personnel:** 119.

Hancock Field, N.Y. 13211-7099; 4 mi. NE of Syracuse. **Phone:** 315-454-6100; 1-800-982-3696; DSN 489-9100. **Units:** 174th Fighter Wing (ANG); 152nd Air Operations Gp.; 274th Air Support Operations Sq. (N.Y. ARNG). **Area:** 356 acres. **Runways:** 9,300 ft. and 7,500 ft. **Altitude:** 410 ft. **Full-time personnel:** 325.

Harrisburg Arpt., Pa. 17057; 6 mi. SE of Harrisburg. **Phone:** 717-948-2200; DSN 423-2200. **Unit:** 193rd Special Operations Wing (ANG). **Area:** 39 acres. **Runway:** 9,501 ft. **Altitude:** 355 ft. **Full-time personnel:** 297.

Hector Arpt., Fargo, N.D. 58102-1051. **Phone:** 701-451-2110; DSN 362-8110. **Unit:** 119th Fighter Wing (ANG). **Area:** 260 acres. **Runways:** 9,500 ft., 6,300 ft., and 3,800 ft. **Altitude:** 895 ft. **Full-time personnel:** 350.

Homestead ARB, Fla. 33039-1299; 5 mi. NE of Homestead. **Phone:** 305-224-7303; DSN 791-7303. **Units:** 482nd Fighter Wing (AFRC); Det. 1, 125th Fighter Wing (Fla. ANG, NORAD); US Customs Miami Aviation Branch; Fla. ARNG 50th ASG; Defense Logistics Agency; Civil Air Patrol Sq. 279; AFOSI; Naval Intelligence; FBI. **Area:** approx. 1,000 acres. **Runway:** 11,200 ft. **Altitude:** 11 ft. **Full-time personnel:** AFRC, 253.

Hulman Arpt., Ind. 47803; 6 mi. E of Terre Haute. **Phone:** 812-877-5210; DSN 724-1210. **Unit:** 181st Fighter Wing (ANG). **Area:** 279 acres. **Runways:** 9,025 ft. and 7,250 ft. **Altitude:** 585 ft. **Full-time personnel:** 274.

Jacksonville Arpt., Fla. 32218-7933; within Jacksonville. **Phone:** 904-741-7100; DSN 641-7100. **Unit:** 125th Fighter Wing (ANG). **Area:** 332 acres. **Runway:** 10,000 ft. **Altitude:** 25 ft. **Full-time personnel:** 359.

Joe Foss Field, S.D. 57104-0264; N side of Sioux Falls. **Phone:** 605-988-5700; DSN 798-7700. **Unit:** 114th Fighter Wing (ANG). **History:** named for Brig. Gen. Joseph J. Foss, WWII ace, former governor, former AFA national president, and founder of the S.D. ANG. **Area:** 214 acres. **Runways:** 9,000 ft. and 8,000 ft. **Altitude:** 1,420 ft. **Full-time personnel:** 348.

Kelly Field Annex, Tex. 78236-0112; 5 mi. SW of San Antonio. **Phone:** 210-671-1110; DSN 473-1110. **Units:** 149th Fighter Wing (ANG); 433rd Airlift Wing (AFRC). **History:** activated Nov. 21, 1916 and deactivated July 13, 2001. Named for Lt. George E.M. Kelly, first Army pilot to lose his life flying a military aircraft, killed May 10, 1911. **Area:** 4,660 acres. **Runway:** 11,550 ft. **Altitude:** 689 ft. **Full-time personnel:** 323.

Key Field, Miss. 39307-7112; 3 mi. S of Meridian. **Phone:** 601-484-9000; DSN 778-9000. **Units:** 186th Air Refueling Wing (ANG); 238th Air Support Operations Sq. (ANG). **History:** named after Fred and Al Key, pioneers in air-to-air refueling and holders of flight endurance record (27 continuous days) in 1935 in *Ole Miss,* on permanent display at the National Air and Space Museum. **Area:** 117 acres. **Runways:** 10,000 ft. and 5,000 ft. **Altitude:** 295 ft. **Full-time personnel:** 426.

Klamath Falls Arpt./Kingsley Field, Ore. 97603; 5 mi. S of Klamath Falls. **Phone:** 541-885-6198; DSN 830-6198. **Units:** 173rd Fighter Wing (ANG); 114th FS (ANG); 116th OLAA (ANG); 270th ATCS (ANG). **Area:** 381 acres. **Runway:** 10,301 ft. **Altitude:** 4,088 ft. **Full-time personnel:** 479.

Kulis ANGB, Alaska 99502-1988. **Phone:** 907-249-1176; DSN 317-626-1176. **Units:** 176th Wing (ANG); 144th Airlift Sq. (ANG); 210th Rescue Sq. (ANG). **History:** named for Lt. Albert Kulis, killed in training flight in 1954. **Area:** 129 acres. **Runway:** 10,897 ft. **Altitude:** 94 ft. **Full-time personnel:** 433.

Lambert-St. Louis Arpt., Mo. 63044-2371; 20 mi. NW of downtown St. Louis. **Phone:** 314-527-7000; DSN 824-7000. **Unit:** 131st Fighter Wing (ANG). **Area:** 48 acres. **Runway:** 11,000 ft. **Altitude:** 604 ft. **Full-time personnel:** 368.

Lincoln Arpt., Neb. 68524-1880; 4 mi. NW of downtown Lincoln. **Phone:** 402-458-1234; DSN 946-1234. **Units:** 155th Air Refueling Wing (ANG); ARNG unit. **Area:** 179 acres. **Runways:** 13,500 ft. and 8,620 ft. **Altitude:** 1,050 ft. **Full-time personnel:** 280.

Louisville Arpt./AGS (Standiford Field), Ky. 40213; 5 mi. S of downtown Louisville. **Phone:** 502-364-9400; DSN 989-4400. **Units:** 123rd Airlift Wing (ANG); 223rd Communications Sq. (ANG). **Area:** 81 acres. **Runways:** 10,000 ft. and 7,800 ft. **Altitude:** 500 ft. **Full-time personnel:** 318.

Luis Munoz Marin Arpt., Puerto Rico 00979-1502; E of San Juan. **Phone:** 787-253-5101; DSN 860-9101. **Units:** 156th Airlift Wing (ANG); 612th ASOS Det. Coronet Oak. **Area:** 95 acres. **Runway:** 10,000 ft. **Altitude:** 6 ft. **Full-time personnel:** 305.

Mansfield Lahm Arpt., Ohio 44903-0179; 3 mi. N of Mansfield. **Phone:** 419-520-6100; DSN 696-6100. **Unit:** 179th Airlift Wing (ANG). **History:** named for nearby city and aviation pioneer Brig. Gen. Frank P. Lahm in 1948. **Area:** 67 acres. **Runways:** 9,000 ft. and 6,795 ft. **Altitude:** 1,299 ft. **Full-time personnel:** 230.

March ARB, Calif. 92518-9888; 9 mi. SE of downtown Riverside. **Phone:** 951-655-4137; DSN 447-4137. **ANG Phone:** 951-655-2556; DSN 447-2556. **Units:** 4th Air Force (AFRC); 452nd Air Mobility Wing (AFRC); Det.1, 144th FW (Calif. ANG); 163rd Air Refueling Wing (Calif. ANG); 4th Combat Camera Sq.; American Forces Radio and Television Broadcast Center; Defense Visual Information Center; Air Force Audit Agency directorate; US Customs Service Domestic Air Interdiction Coordination Center. **History:** activated March 1, 1918; named for 2nd Lt. Peyton C. March Jr., who died of crash injuries Feb. 18, 1918. **Area:** 2,300 acres. **Runway:** 13,300 ft. **Altitude:** 1,530 ft. **Full-time personnel:** AFRC, 669; ANG, 262. **Housing:** VOQ, 138, VAQ, 302.

Martin State Arpt., Md. 21220-2899; 8 mi. NE of Baltimore. **Phone:** 410-918-6210; DSN 243-6210. **Unit:** 175th Wing (ANG). **Area:** 175 acres. **Runway:** 8,100 ft. **Altitude:** 21 ft. **Full-time personnel:** 383.

McEntire ANGS, S.C. 29044; 15 mi. E of Columbia. **Phone:** 803-647-8300; DSN 583-8201. **Units:** 169th Fighter Wing (ANG); 240th Combat Communications Sq. (ANG); 245th Air Traffic Control Sq. (ANG); Combined Support Maintenance Shop (ARNG); 1/151st Aviation Battalion (ARNG). **History:** named for ANG Brig. Gen. B.B. McEntire Jr., killed in 1961 F-104 accident. **Area:** 2,301 acres. **Runway:** 9,000 ft. **Altitude:** 252 ft. **Full-time personnel:** 330.

McGhee Tyson Arpt., Tenn. 37777; 10 mi. SW of Knoxville. **Phone:** 865-985-3200; DSN 266-3200. **Units:** 134th Air Refueling Wing (ANG); 119th Air Control Sq.; 228th Combat Communications Sq.; ANG's I.G. Brown Training and Education Center. **Area:** 346 acres. **Runway:** 9,008 ft. **Altitude:** 923 ft. **Full-time personnel:** 332.

Memphis Arpt., Tenn. 38118; within Memphis. **Phone:** 901-291-7111; DSN 726-7120. **Unit:** 164th Airlift Wing (ANG). **Area:** 103 acres. **Runway:** 11,120 ft. **Altitude:** 332 ft. **Full-time personnel:** 278. Fitness center and mini-exchange.

Minneapolis-St. Paul Arpt./ARS, Minn. 55450-2100; in Minneapolis, near confluence of the Mississippi and Minnesota Rivers. **AFRC phone:** 612-713-1217; DSN 783-1217. **ANG phone:** 612-713-2501; DSN 783-2501. **Units:** 934th Airlift Wing (AFRC), C-130; 133rd Airlift Wing (ANG), C-130; 210th Engineering Installation Sq. (ANG); Naval Reserve Readiness Command, Region 16; Civil Air Patrol, NCLR, and MNLO; Rothe Development Inc. (AFRC). **Area:** AFRC, 300 acres; ANG, 128 acres. **Runways:** 11,006 ft., 10,000 ft., and 8,200 ft. **Altitude:** 840 ft. **Full-time personnel:** AFRC, 176; ANG, 267. Lodging, clubs, fitness center, and exchange.

Moffett Field, Calif. 94035; 2 mi. N of Mountain View. **Phone:** 650-603-9129; DSN 359-9129. **Unit:** 129th Rescue Wing (ANG). **Area:** 97 acres. **Runway:** 9,200 ft. **Altitude:** 34 ft. **Full-time personnel:** 271.

Montgomery Regional Arpt., Ala. 36108; 7 mi. SW of downtown Montgomery. **Phone:** 334-394-7200; DSN 358-9200. **Units:** 187th Fighter Wing (ANG); 232nd Combat Communications Sq. **History:** originally named for Ens. Clarence Dannelly, Navy pilot killed during WWII. **Area:** 143 acres. **Runway:** 9,000 ft. **Altitude:** 221 ft. **Full-time personnel:** 268.

NAS JRB Fort Worth, Tex. 76127-6200, 7 mi. NW of Fort Worth. **Navy hosted switchboard:** 817-782-5000; DSN 739-5000. **ANG Phone:** 817-852-3202; DSN 874-3202. **Units:** 10th Air Force and 301st Fighter Wing (AFRC); 136th Airlift Wing (ANG). **Area:** Navy hosted base is 1,805 acres; ANG, 81 acres. **Runway:** 12,000 ft. **Altitude:** 650 ft. **Full-time personnel:** AFRC, 402; ANG, 244.

NAS JRB New Orleans, La. 70143-0050, 15 mi. S of New Orleans. **ANG Phone:** 504-391-8600; DSN 457-8600. **AFRC Phone:** 504-391-8501; DSN 457-8501. **Units:** 159th Fighter Wing (ANG); 926th Fighter Wing (AFRC). **Area:** 3,239 acres. **Runways:** 8,000 ft. and 6,000 ft. **Altitude:** 3 ft. **Full-time personnel:** ANG, 324; AFRC, 214.

Nashville Arpt., Tenn. 37217-2538; 6 mi. SE of downtown Nashville. **Phone:** 615-399-5410; DSN 788-6210. **Unit:** 118th Airlift Wing (ANG). **Area:** 88 acres. **Runway:** 11,150 ft. **Altitude:** 570 ft. **Full-time personnel:** 297.

New Castle County Arpt., Del. 19720; 5 mi. S of Wilmington. **Phone:** 302-323-3500; DSN 445-7500. **Unit:** 166th Airlift Wing (ANG). **Area:** 79 acres. **Runways:** 7,170 ft. and 7,000 ft. **Altitude:** 80 ft. **Full-time personnel:** 240.

Niagara Falls Arpt./ARS, N.Y. 14304-5001; 6 mi. E of Niagara Falls. **Phone:** 716-236-2138; DSN 238-2138. **Units:** 914th Airlift Wing (AFRC), C-130H; 107th Air Refueling Wing (ANG), KC-135. **History:** activated January 1952. **Area:** 979 acres; ANG area, 108 acres. **Runway:** 9,135 ft. **Altitude:** 590 ft. **Full-time personnel:** AFRC, 185; ANG, 257. Lodging, exchange, and consolidated club.

Otis ANGB, Mass. 02542-1330; 7 mi. NNE of Falmouth. **Phone:** 508-968-4667; DSN 557-4667. **Units:** 102nd Fighter Wing (ANG), F-15A/B; 101st Fighter Sq. (ANG). **Tenant Units:** 202nd Weather Flt. (ANG); 253rd CCG (ANG); 267th CCS (ANG). **History:** named for 1st Lt. Frank J. Otis, Mass. ARNG flight surgeon and pilot killed in 1937 crash. **Area:** 4,069 acres. **Runways:** 9,500 ft. and 8,000 ft. **Altitude:** 103 ft. **Full-time personnel:** 374.

Pease Intl. Tradeport ANGS, Portsmouth, N.H. 03803-0157. **Phone:** 603-430-2453; DSN 852-2453. **Unit:** 157th Air Refueling Wing (ANG). **Area:** 218 acres. **Runway:** 11,318 ft. **Altitude:** 101 ft. **Full-time personnel:** 320.

Pittsburgh Arpt./ARS, Pa. 15108-4403; 12 mi. NW of Pittsburgh. **AFRC phone:** 412-474-8750; DSN 277-8750. **ANG phone:** 412-474-7359; DSN 277-7359. **Units:** 911th Airlift Wing, C-130H; 171st Air Refueling Wing (ANG), KC-135E. **History:** activated 1943. **Area:** AFRC, 115 acres; ANG, 179 acres. **Runway:** 11,500 ft. **Altitude:** 1,203 ft. **Full-time personnel:** AFRC, 184; ANG, 376. **Housing:** VOQ, 24, VEQ, 230. No on-base housing. Limited exchange.

Portland Arpt., Portland, Ore. 97218-2797. **Phone:** 503-335-4000; DSN 638-4000. **Units:** 142nd Fighter Wing (ANG); 125th Special Tactics Sq. (ANG); 272nd Combat Communications Sq. (ANG); Oregon Wing, CAP; 939th Air Refueling Wing (AFRC); Ore. ARNG. **Area:** 246 acres. **Runways:** 11,000 ft., 8,000 ft., and 7,000 ft. **Altitude:** 18 ft. **Full-time personnel:** ANG, 460; AFRC, 287.

Quonset State Arpt., R.I. 02852; 20 mi. S of Providence. **Phone:** 401-886-1210; DSN 476-3210. **Unit:** 143rd Airlift Wing (ANG). **Area:** 94 acres. **Runway:** 7,800 ft. **Altitude:** 19 ft. **Full-time personnel:** 230.

Reno/Tahoe Arpt. (May Field), Nev. 89502; 5 mi. SE of downtown Reno at 1776 NG Way. **Phone:** 775-788-4500; DSN 830-4500. **Unit:** 152nd Airlift Wing (ANG); 152nd Intel. Sq. (ANG). **History:** named for Maj. Gen. James A. May, Nevada adjutant general, 1947-67. **Area:** 64 acres. **Runways:** 10,00 ft., 9,000 ft., and 6,101 ft. **Altitude:** 4,660 ft. **Full-time personnel:** 280.

Richmond Arpt. (Byrd Field), Va. 23150; 7 mi. SE of downtown Richmond. **Phone:** 804-236-6000; DSN 864-6000. **Unit:** 192nd Fighter Wing (ANG). **History:** named for Adm. Richard E. Byrd, Arctic and Antarctic explorer. **Area:** 143 acres. **Runway:** 9,000 ft. **Altitude:** 168 ft. **Full-time personnel:** 319.

Rickenbacker ANGB, Ohio 43217-1161; 13 mi. SSE of Columbus. **Phone:** 614-492-4468; DSN 696-4468. **Units:** 121st Air Refueling Wing (ANG); 164th Weather Flight (ANG); 52nd CST. **History:** activated 1942. Formerly Lockbourne AFB; renamed May 7, 1974 for Capt. Edward V. Rickenbacker. Base transferred from SAC to ANG April 1, 1980. **Area:** 203 acres. **Runway:** 12,100 ft. **Altitude:** 744 ft. **Full-time personnel:** 357.

Rosecrans Memorial Arpt., Mo. 64503; 4 mi. W of St. Joseph. **Phone:** 816-236-3300; DSN 356-3300. **Unit:** 139th Airlift Wing (ANG). **Area:** 102 acres. **Runway:** 8,059 ft. **Altitude:** 813 ft. **Full-time personnel:** 302.

Salt Lake City Arpt., Utah 84116; 3 mi. W of downtown Salt Lake City. **Phone:** 801-245-2200; DSN 245-2200. **Units:** 151st Air Refueling Wing (ANG); 169th Intel. Sq. (ANG); 130th Engineering Installation Sq. (ANG); 109th Air Control Sq. (ANG); 299th Range Control Sq. (ANG); 101st Information Warfare Flt. (ANG). **Area:** 135 acres. **Runway:** 12,000 ft. **Altitude:** 4,226 ft. **Full-time personnel:** 451.

Savannah Hilton Head Arpt., Ga. 31408; 4 mi. NW of Savannah. **Phone:** 912-966-8204; DSN 860-8204. **Units:** 165th Airlift Wing (ANG); Combat Readiness Training Center. **Area:** 234 acres. **Runway:** 9,351 ft. **Altitude:** 51 ft. **Full-time personnel:** 319.

Schenectady County Arpt. (Stratton ANGB), N.Y. 12302-9752; 2 mi. N of Schenectady. **Phone:** 518-344-2300; DSN 974-9300. **Unit:** 109th Airlift Wing (ANG), 14 C-130s, 10 with skis for Antarctic and Greenland missions. **Area:** 122 acres. **Runway:** 7,000 ft. **Altitude:** 328 ft. **Full-time personnel:** 474.

Selfridge ANGB, Mich. 48045-5046; 3 mi. NE of Mount Clemens. **Phone:** 586-307-4011; DSN 273-4011. **Units:** 127th Wing (ANG); 927th Air Refueling Wing (AFRC); Air Force, Army, Navy, and Marine Corps Reserve units; ARNG; Coast Guard Air Station for Detroit. **History:** activated July 1917; transferred to Mich. ANG July 1971. Named for 1st Lt. Thomas E. Selfridge, killed Sept. 17, 1908 at Ft. Myer, Va., when airplane piloted by Orville Wright crashed. **Area:** 3,070 acres. **Runway:** 9,000 ft. **Altitude:** 580 ft. **Full-time personnel:** ANG, 454; AFRC, 247.

Sioux Gateway Arpt./Col. Bud Day Field, Iowa 51111-1300; 7 mi. S of downtown Sioux City. **Phone:** 712-233-0210; DSN 585-0210. **Unit:** 185th Air Refueling Wing (ANG). **Area:** 288 acres. **Runway:** 9,000 ft. **Altitude:** 1,089 ft. **Full-time personnel:** 281.

Sky Harbor Arpt., Phoenix, Ariz. 85034. **Phone:** 602-302-9000; DSN 853-9000. **Unit:** 161st Air Refueling Wing (ANG). **Area:** 60 acres. **Runway:** 12,000 ft. **Altitude:** 1,000 ft. **Full-time personnel:** 256.

Springfield-Beckley Arpt., Ohio 45502-8783; 5 mi. S of Springfield. **Phone:** 937-327-2100; DSN 346-2100. **Units:** 178th Fighter Wing (ANG); 251st Combat Communications Gp. (ANG); 269th Combat Communications Sq. (ANG). **Area:** 114 acres. **Runway:** 8,999 ft. **Altitude:** 1,053 ft. **Full-time personnel:** 385.

Stewart ANGB, N.Y. 12550-5042; 15 mi. N of US Military Academy (West Point). **Phone:** 914-563-2001; DSN 636-2001. **Units:** 105th Airlift Wing (ANG). **History:** Stewart AFB until 1969; acquired by state of New York in 1970. **Area:** ANG, 267 acres. **Runway:** 12,000 ft. **Altitude:** 491 ft. **Full-time personnel:** 605 (ANG). Most military services available through West Point or subpost.

Toledo Express Arpt., Ohio 43558; 14 mi. W of Toledo. **Phone:** 419-868-4078; DSN 580-4078. **Unit:** 180th Fighter Wing (ANG). **Area:** 135 acres. **Runways:** 10,600 ft. and 5,600 ft. **Altitude:** 664 ft. **Full-time personnel:** 272.

Truax Field, Wis. 53704-2591; at Dane County Arpt. 2 mi. N of downtown Madison. **Phone:** 608-245-4300; DSN 724-8300. **Unit:** 115th Fighter Wing (ANG). **History:** activated June 1942 as AAF base; taken over by Wis. ANG April 1968. Named for Lt. T.L. Truax, killed in P-40 training accident in 1941. **Area:** 130 acres. **Runway:** 12,000 ft. **Altitude:** 800 ft. **Full-time personnel:** 350.

Tucson Arpt., Ariz. 85706-6052; within Tucson. **Phone:** 520-295-6210; DSN 924-6210. **Unit:** 162nd Fighter Wing (ANG). **Area:** 92 acres. **Runways:** 11,000 ft., 9,000 ft., and 7,000 ft. **Altitude:** 2,556 ft. **Full-time personnel:** 996.

Tulsa Arpt., Okla. 74115-1699; 6 mi. NE of downtown Tulsa. **Phone:** 918-833-7370; DSN 894-7370. **Units:** 138th Fighter Wing (ANG); 219th Engineering Installation Sq. **Area:** 81 acres. **Runway:** 10,000 ft. **Altitude:** 677 ft. **Full-time personnel:** 298.

Volk Field ANGB, Wis. 54618-5001; 87 mi. NW of Madison. **Phone:** 608-427-1210; DSN 871-1210. **Units:** Combat Readiness Training Center (ANG) featuring air-to-air and air-to-ground gunnery ranges; 128th Air Control Sq. **History:** named for Lt. Jerome A. Volk, first Wis. ANG pilot to be killed in the Korean War. **Area:** 2,336 acres. **Runway:** 9,000 ft. **Altitude:** 912 ft. **Full-time personnel:** 199.

W.K. Kellogg Arpt., Mich. 49015-5512; 1 mi. W of Battle Creek. **Phone:** 616-969-3400; DSN 580-3210. **Unit:** 110th Fighter Wing (ANG). **Area:** 320 acres. **Runway:** 10,003 ft. **Altitude:** 929 ft. **Full-time personnel:** 267.

Westover ARB, Mass. 01022-1825; 10 mi. NE of Springfield. **Phone:** 413-557-3500; DSN 589-3500. **Units:** 439th Airlift Wing (AFRC); Army, Navy, and Marine Corps Reserve units. **History:** dedicated April 6, 1940. Named for Maj. Gen. Oscar Westover, Chief of the Air Corps, killed Sept. 21, 1938. **Area:** 2,386 acres. **Runway:** 11,600 ft. **Altitude:** 245 ft. **Full-time personnel:** ARTs, 456; ANG, 27. **Housing:** VOQ, 41, VAQ, 142 beds.

Will Rogers World Arpt., Oklahoma City. 73179-1090; 9 mi. SW of downtown. **Phone:** 405-686-5210; DSN 720-5210. **Units:** 137th Airlift Wing (ANG); 205th Engineering Installation Sq. (ANG). **Area:** 133 acres. **Runways:** two, 9,800 ft. each, and 7,800 ft. **Altitude:** 1,272 ft. **Full-time personnel:** 263.

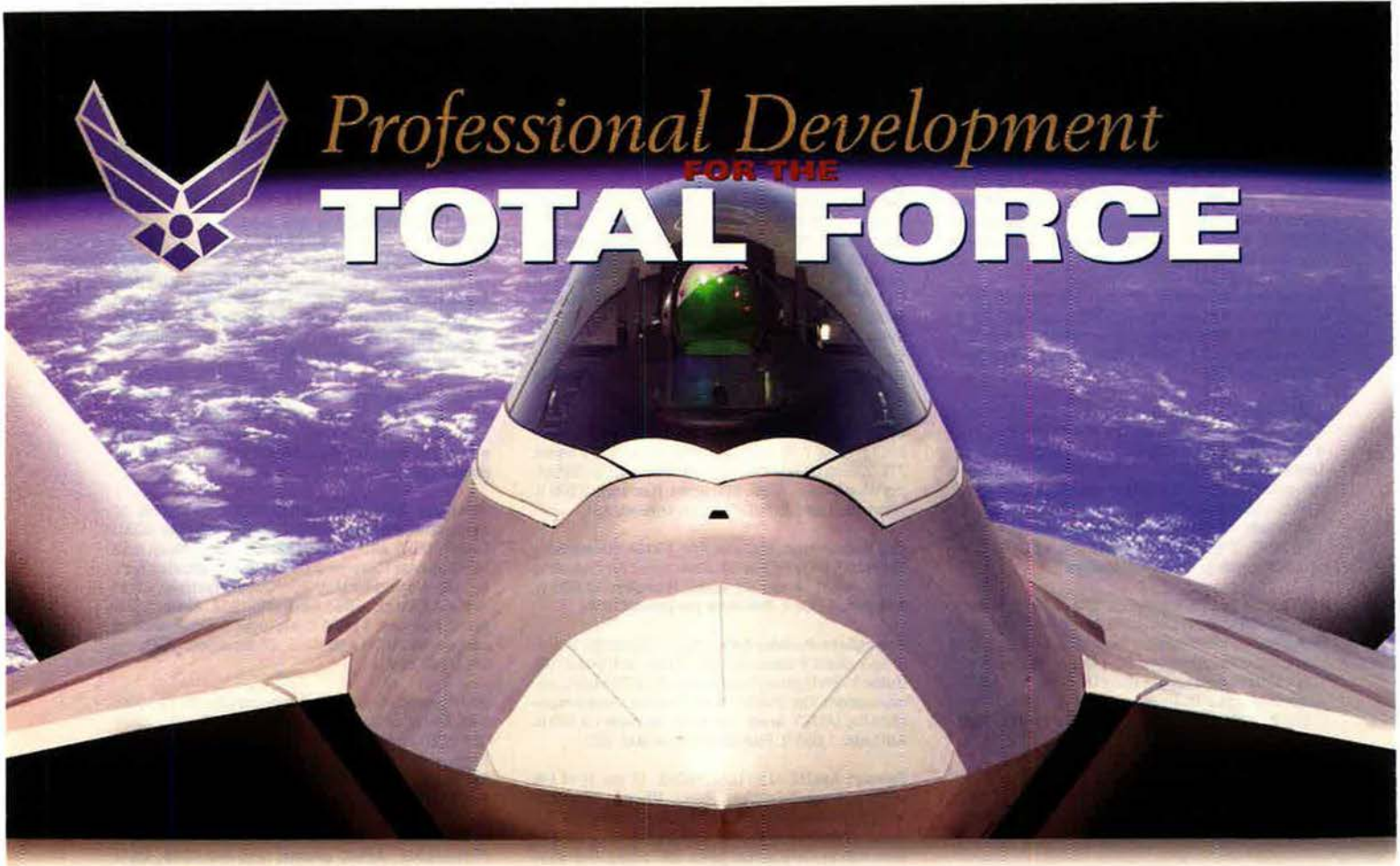
Willow Grove ARS, Pa. 19090-5300; 14 mi. N of Philadelphia. **AFRC phone:** 215-443-1000; DSN 991-1000. **ANG phone:** 215-443-1500; DSN 991-1500. **Units:** 913th Airlift Wing (AFRC); 111th Fighter Wing (ANG). **History:** activated August 1958 (AFRC); activated 1924 (ANG). **Area:** AFRC, 162 acres; ANG, 55 acres. **Altitude:** 356 ft. **Runway:** share use of NAS JRB Willow Grove runway (8,000 ft.). **Full-time personnel:** AFRC, 290; ANG, 273.

Yeager Arpt., W.Va. 25311; 4 mi. NE of downtown Charleston. **Phone:** 304-341-6126; DSN 366-6210. **Unit:** 130th Airlift Wing (ANG). **History:** named for Brig. Gen. Charles E. "Chuck" Yeager. **Area:** 109 acres. **Runway:** 6,300 ft. **Altitude:** 982 ft. **Full-time personnel:** 242.

Youngstown-Warren Arpt./ARS, Ohio 44473-5912; 14 mi. N of Youngstown. **Phone:** 330-609-1364; DSN 346-1364. **Units:** 910th Airlift Wing (AFRC); Army Corps of Engineers; Army, Navy, and Marine Corps Reserve units; FAA. **History:** activated 1953. **Area:** 230 acres. **Runways:** three, primary length 9,000 ft. **Altitude:** 1,196 ft. **Full-time personnel:** ARTs, 278; ANG, 17. **Lodging:** 142 beds. Limited exchange.

USAF photo

Cargo is loaded onto a C-130 from Air Force Reserve Command's 913th Airlift Wing, Willow Grove ARS, Pa.



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The premier **Air & Space Conference and Technology Exposition** is scheduled to land in **Washington, DC, September 25-27, 2006,** at the **Marriott Wardman Park Hotel.**

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Records and Trophies

2006 USAF Almanac

Absolute Aviation World Records

The desirability of a standard procedure to certify air records was recognized early in the history of powered flight. In 1905, representatives of Belgium, France, Germany, Great Britain, Italy, Spain, Switzerland, and the US met in Paris to form the Federation Aeronautique Internationale, the world body of national aeronautic sporting interests. The FAI today comprises the national aero clubs of some 100 nations and certifies national records as world records. Since 1922, the National Aeronautic Association, based in Arlington, Va., has been the US representative to the FAI. The NAA supervises all attempts at world and world-class records in the United States. Absolute world records are the supreme achievements of all the records open to flying machines.

Speed around the world, nonstop, nonrefueled: 342.24 mph (550.8 kph). Steve Fossett in Virgin Atlantic *GlobalFlyer* at Salina, Kan., Feb. 28-March 3, 2005.

Great circle distance without landing: 25,766 miles (41,467 kilometers). Steve Fossett in Virgin Atlantic *GlobalFlyer* from NASA Kennedy Space Center to Bournemouth, England, Feb. 8-11, 2006.

Distance in a closed circuit without landing: 24,986.727 miles (40,212.139 kilometers). Richard G. Rutan and Jeana L. Yeager in *Voyager* at Edwards AFB, Calif., Dec. 14-23, 1986.

Altitude: 123,523.58 feet (37,650.00 meters). Alexander Fedotov flying E-266M, a modified MiG-25, at Podmoskovnoye, USSR, Aug. 31, 1977.

Altitude in horizontal flight: 85,068.997 feet (25,929.031 meters). USAF Capt. Robert C. Helt (pilot) and USAF Maj. Larry A. Elliott (RSO) in Lockheed SR-71A Blackbird at Beale AFB, Calif., July 28, 1976.

Speed over a straight course: 2,193.16 mph (3,529.56 kph). USAF Capt. Eldon W. Joersz (pilot) and USAF Maj. George T. Morgan Jr. (RSO) in Lockheed SR-71A Blackbird at Beale AFB, Calif., July 28, 1976.

Speed over a closed circuit: 2,092.294 mph (3,367.221 kph). USAF Majs. Adolphus H. Bledsoe Jr. (pilot) and John T. Fuller (RSO) in Lockheed SR-71A Blackbird at Beale AFB, Calif., July 27, 1976.

On July 27, 1976, USAF Maj. Adolphus Bledsoe Jr. (left) and USAF Maj. John Fuller set the world record for speed over a closed course. Their SR-71A exceeded 2,092 mph.

The Robert J. Collier Trophy

This award, presented by the National Aeronautic Association, is the most prestigious in American aviation. It recognizes the "greatest achievement in aeronautics or astronautics in America, with respect to improving the performance, efficiency, and safety of air or space vehicles, the value of which has been thoroughly demonstrated by actual use during the preceding year." The award is named for a prominent publisher, sportsman, and aviator. Collier, the first person to purchase a Wright airplane for personal use, commissioned the trophy and presented it to the Aero Club of America (the forerunner of the NAA) in 1911.

1911 Glenn H. Curtiss. Hydro-aeroplane.
1912 Glenn H. Curtiss. Flying boat.
1913 Orville Wright. Automatic stabilizer.
1914 Elmer A. Sperry. Gyroscopic control.
1915 W. Sterling Burgess. Burgess-Dunne hydro-aeroplane.
1916 Elmer A. Sperry. Drift indicator.
1917 No award.
1918 No award.
1919 No award.
1920 No award.
1921 Grover Loening. Aerial yacht.
1922 US Air Mail Service. One year without fatality.
1923 US Air Mail Service. Commercial night flying.
1924 US Army Air Service. First aerial flight around world.
1925 S. Albert Reed. Metal propeller.
1926 Maj. E.L. Hoffman. Practical parachute.
1927 Charles L. Lawrance. Radial air-cooled engine.
1928 Commerce Dept., Aeronautics Branch. Airways, air navigation facilities.
1929 National Advisory Committee for Aeronautics. Cowling for radial air-cooled engines.
1930 Harold Pitcairn and staff. Autogiro.
1931 Packard Motor Car. Diesel aircraft engine.
1932 Glenn L. Martin. Two-engined, high-speed, weight-carrying airplane.
1933 Hamilton Standard Propeller, Frank W. Caldwell. Controllable-pitch propeller.
1934 Maj. Albert F. Hegenberger. Blind-landing experiments.
1935 Donald Douglas and staff. DC-2.
1936 Pan American Airways. Trans-Pacific and overwater operations.
1937 Army Air Corps. Design, flight test of XC-35 first pressurized cabin.
1938 Howard Hughes and crew. Around-the-world flight.
1939 US airlines. Air travel safety record.
1940 Sanford Moss, Army Air Corps. Turbo-supercharger.
1941 US Army Air Forces and US airlines. Pioneering worldwide operations.
1942 Gen. H.H. Arnold. Leadership of US Army Air Forces.
1943 Capt. Luis De Florez (USNR). Synthetic training devices.
1944 Gen. Carl A. Spaatz. US air campaign against Germany.
1945 Luis W. Alvarez. Ground-control approach radar landing system.
1946 Lewis A. Rodert. Thermal ice-prevention system.
1947 Lawrence D. Bell, John Stack, Capt. Charles E. Yeager. Supersonic flight.
1948 Radio Technical Commission for Aeronautics. All-weather air traffic control system.
1949 William P. Lear. F-5 automatic pilot, automatic approach control coupler system.
1950 Helicopter industry, military services, Coast Guard. Rotary-wing aircraft in air rescue.
1951 John Stack, associates at Langley Aeronautical Laboratory, NACA. Transonic wind tunnel throat.
1952 Leonard S. Hobbs. J57 jet engine.
1953 James H. Kindelberger, Edward H. Heinemann. Supersonic airplanes (F-100, F4D).
1954 Richard Travis Whitcomb. Discovery, verification of area rule, yielding higher speed and greater range.
1955 William M. Allen, Boeing Airplane, Gen. Nathan F. Twining, US Air Force. B-52 bomber.
1956 Charles J. McCarthy; Chance-Vought Aircraft; Vice Adm. James S. Russell; US Navy Bureau of Aeronautics. F8U Crusader.
1957 Edward P. Curtis. "Aviation Facilities Planning" report. USAF/Lockheed/GE F-104 team. F-104.
1958 Clarence L. Johnson, airframe design; Neil Burgess, Gerhard Neumann, J79 turbojet engines; Maj. Howard C. Johnson, landplane altitude record; Capt. Walter W. Irwin, straightaway speed record.
1959 USAF, General Dynamics-Convair, Space Technology Laboratories. Atlas ICBM.
1960 Vice Adm. William F. Raborn. Polaris ballistic missile.
1961 A. Scott Crossfield, Cmdr. Forrest Petersen, Joseph A. Walker, Maj. Robert M. White. X-15 test flights.
1962 Lt. Col. John H. Glenn Jr. (USMC), Cmdr. Walter M. Schirra Jr., Cmdr. Alan B. Shepard Jr., Lt. Cmdr. M. Scott Carpenter, Maj. L. Gordon Cooper, Maj. Virgil I. Grissom, Maj. Donald K. Slayton. Pioneering US manned spaceflight.
1963 Clarence L. Johnson. A-11 (A-12) Mach 3 aircraft.
1964 Gen. Curtis E. LeMay. Expanding frontiers of American aeronautics and astronautics.
1965 James E. Webb, Hugh L. Dryden. Gemini spaceflight program.
1966 James S. McDonnell. F-4 Phantom and Gemini space vehicles.
1967 Lawrence A. Hyland, Hughes Aircraft, Jet Propulsion Laboratory, associated organizations. Surveyor program.
1968 Col. Frank Borman, Capt. James A. Lovell Jr. (USN), Lt. Col. William A. Anders. Apollo 8, first manned lunar orbit mission.
1969 Col. Edwin E. Aldrin Jr., Neil A. Armstrong, Col. Michael Collins. Apollo 11 moon landing.
1970 Boeing with Pratt & Whitney and Pan Am. Commercial 747 service.
1971 Robert T. Gilruth, Col. James B. Irwin, Col. David R. Scott, Lt. Col. Alfred M. Worden. Apollo 15 mission.
1972 Adm. Thomas H. Moorer, USAF 7th and 8th Air Forces, Navy Task Force 77. Operation Linebacker II.
1973 Skylab Program, William C. Schneider, Skylab astronauts. Skylab operations.
1974 John F. Clark, NASA; Daniel J. Fink, GE; RCA; Hughes. Resource and environmental management in space technology; LANDSAT.
1975 David S. Lewis, General Dynamics, USAF-industry team. F-16 aviation technologies.
1976 USAF, Rockwell, B-1 industry team. B-1 bomber.
1977 Gen. Robert J. Dixon; Tactical Air Command. Red Flag.
1978 Sam B. Williams, Williams Research. Turbofan cruise missile engines.
1979 Paul B. MacCready, AeroEnvironment, Inc., Bryan Allen. *Gossamer Albatross.*
1980 NASA's Voyager mission team, Edward Stone. Voyager flyby of Saturn.
1981 NASA, Rockwell, Martin Marietta, Thiokol, government-industry shuttle team, and astronauts Capt. Robert L. Crippen (USN), Col. Joe H. Engle, Capt. Richard H. Truly (USN), John W. Young. First flights of *Columbia,* first shuttle.
1982 T.A. Wilson, Boeing, supported by FAA, industry, airlines. 757 and 767 airliners.
1983 US Army, Hughes Helicopters, industry team. AH-64A Apache helicopter.
1984 NASA, Martin Marietta, Walter W. Bollendonk, astronaut Capt. Bruce McCandless II (USN), Charles

E. Whitsett Jr. Manned maneuvering units, satellite rescues.
1985 Russell W. Meyer, Cessna Aircraft, Cessna Citation business jets. Outstanding safety.
1986 Jeana L. Yeager, Richard G. Rutan, Elbert L. Rutan, Bruce Evans, team of volunteers. *Voyager* flight.
1987 NASA Lewis Research Center, NASA-industry team. Advanced turboprop propulsion concepts.
1988 Rear Adm. Richard H. Truly. Manned space recovery program.
1989 Ben R. Rich, Lockheed-USAF team. F-117A.
1990 Bell-Boeing team. V-22 Osprey.
1991 Northrop-USAF industry team. B-2.
1992 Global Positioning System team: USAF, US Naval Research Lab, Aerospace Corp., Rockwell, IBM Federal Systems. Navstar GPS system.
1993 Hubble Space Telescope recovery team. Successful orbital recovery and repair.
1994 USAF, McDonnell Douglas, US Army, C-17 industry team. C-17.
1995 Boeing 777 team. Boeing 777.
1996 Cessna Citation X design team. Cessna Citation X.
1997 Gulfstream Aerospace, Gulfstream V industry team. Gulfstream V.
1998 Lockheed Martin, GE Aircraft Engines, NASA, Air Combat Command, Defense Intelligence Agency. U-2S/ER-2.
1999 Boeing, Hornet industry team, and US Navy. F/A-18E/F.
2000 Northrop Grumman, Rolls Royce, Raytheon, L-3 Communications, USAF, DARPA. Global Hawk.
2001 Pratt & Whitney, Rolls Royce, Lockheed Martin, Northrop Grumman, BAE Systems, JSF Program Office. Integrated lift fan propulsion system.
2002 Sikorsky Aircraft and the S-92 industry team. S-92 helicopter.
2003 Gulfstream G550 team. Ultra long-range business jet.
2004 Paul G. Allen, Elbert L. Rutan, Michael W. Melvill, and entire *SpaceShipOne* team.

The Mackay Trophy

The Mackay Trophy was established by Clarence H. Mackay, an industrialist, philanthropist, communications pioneer, and aviation enthusiast. Presented by the National Aeronautic Association, the trophy recognizes "the most meritorious flight of the year" by an Air Force member, members, or organization.

1912 2nd Lt. H.H. Arnold.
1913 2nd Lts. J.E. Carberry and F. Seydel.
1914 Capt. T.F. Dodd and Lt. S.W. Fitzgerald.
1915 Lt. B.Q. Jones.
1916 No award.
1917 No award.
1918 Capt. E.V. Rickenbacker.
1919 Lt. Col. H.E. Hartney; Capts. J.O. Donaldson, L.H. Smith, and F. Steinle; Lts. B.G. Bagby, D.B. Gish, E.M. Manzelman (posthumously), B.N. Maynard, R.S. Northington, and A. Pearson Jr.
1920 Capt. St.C. Streett; 1st Lt. C.C. Nutt; 2nd Lts. C.H. Crumrine, R.C. Kirkpatrick, and E.H. Nelson; Sgts. J.E. English, E. Henriques, and A.T. Vierra.
1921 Lt. J.A. Macready.
1922 Lts. J.A. Macready and O.G. Kelly.
1923 Lts. J.A. Macready and O.G. Kelly.
1924 Capt. L.H. Smith; 1st Lts. L.P. Arnold, E.H. Nelson, and L. Wade; 2nd Lts. J. Harding Jr. and H.H. Ogden.
1925 Lts. C.K. Bettis and J. Doolittle.
1926 Pan American Goodwill Fliers: Maj. H.A. Dargue; Capts. I.C. Eaker, A.B. McDaniel, and C.F. Woolsey (posthumously); 1st Lts. J.W. Benton (posthumously), M.S. Fairchild, C.McK. Robinson, B.S. Thompson, L.D. Weddington, and E.C. Whitehead.
1927 Lts. A.F. Hegenberger and L.J. Maitland.
1928 1st Lt. H.A. Sutton.
1929 Capt. A.W. Stevens.
1930 Maj. R. Royce.
1931 Brig. Gen. B.D. Foulois.
1932 11th Bombardment Sq., March Field, Calif., 1st Lt. C.H. Howard.
1933 Capt. W.T. Larson.
1934 Brig. Gen. H.H. Arnold.
1935 Capts. O.A. Anderson and A.W. Stevens.
1936 Capt. R.E. Nugent; 1st Lts. J.A. Miller and E.G. Simenson; 2nd Lts. B.W. Armstrong, H. Morgan Jr., and W.P. Ragsdale Jr.; TSgt. G.W. Olson; SSgt. H.M. Miller; Cpl. Air Mechanic 2nd Class F.B. Connor.
1937 Capts. C.J. Crane and G.V. Holloman.
1938 2nd Bombardment Group, Lt. Col. R. Olds.
1939 Majs. C.V. Haynes and W.D. Old; Capt. J.A. Samford; 1st Lts. R.S. Freeman and T.G. Wold; MSgt. A. Cattarius; TSgts. W.J. Heldt, H.L. Hines, and D.L. Spicer; SSgts. R.E. Junior and J.E. Sands.
1940 No award.
1941 No award.
1942 No award.
1943 No award.
1944 No award.
1945 No award.
1946 No award.
1947 Capt. C.E. Yeager.
1948 Lt. Col. E. Beaudry.
1949 Capt. J.G. Gallagher and crew of *Lucky Lady II*.
1950 27th Fighter Wing.
1951 Col. F.J. Ascani.
1952 Majs. L.H. Carrington Jr. and F.W. Shook; Capt. W.D. Yancey.
1953 40th Air Division, SAC.
1954 308th Bombardment Wing (M) and 38th Air Div., SAC.
1955 Col. H.A. Hanes.
1956 Capt. I.C. Kincheloe Jr., Air Research and Development Command.
1957 93rd Bombardment Wing, SAC.
1958 TAC Air Strike Force, X-Ray Tango.
1959 US Air Force Thunderbirds.
1960 6593rd Test Sq., Hickam AFB, Hawaii.
1961 Lt. Col. W.R. Payne and Majs. W.L. Polthemus and R.R. Wagener, 43rd Bomb Wing, SAC.
1962 Maj. R.G. Sowers and Capts. R. MacDonald and J.T. Walton.
1963 Capts. D.R. Mack, J.R. Ordemann, and W.P. Tomsett; TSgt. E.P. Inlow; SSgts. F.C. Barrett and J.E. Morgan.
1964 464th Troop Carrier Wing, TAC.
1965 YF-12A Test Force (Col. R.L. Stephens; Lt. Col. D. Andre; Majs. W.F. Daniel and N.T. Warner; Capt. J.P. Cooney).

1966 Lt. Col. A.R. Howarth.
1967 Maj. J.H. Casteel; Capts. D.L. Hoar and R.L. Trail; MSgt. N.C. Campbell.
1968 Lt. Col. D.D. Cole.
1969 49th Tactical Fighter Wing, TAC.
1970 Capt. A.D. Milacek and AC-119K crew (Capts. R.E. Clancy, R.C. Jones, B.C. O'Brien, and J.A. Russell; TSgt. A.A. Nash; SSgts. A. Lopez Jr. and R.R. Wilson; Sgt. K.E. Firestone; A1C D.H. Cofer).
1971 Lt. Col. T.B. Estes and Maj. D.C. Vick.
1972 Capts. C.B. DeBellevue, J.S. Feinstein, and R.S. Ritchie.
1973 MAC aircrews.
1974 Majs. W.R. MacFarlane, D.W. Peterson, and R.J. Smith.
1975 Maj. R.W. Undorf.
1976 Capt. J.A. Yule.
1977 C-5 aircrew (Capt. D.M. Sprinkel and crew).
1978 C-5 aircrews (Lt. Col. R.F. Schultz and crew and Capt. T.H. Hohberger and crew, 436th Military Airlift Wing).
1979 Maj. J.E. McArdle Jr.
1980 Crews S-21 and S-31, 644th Bombardment Sq.
1981 Capt. J.J. Walters.
1982 B-52 Crew E-21, 19th Bombardment Wing.
1983 Capt. R.J. Goodman and his crew, 42nd Bombardment Wing, SAC.
1984 Lt. Col. J.L. Hobson Jr.
1985 Lt. Col. D.E. Faught.
1986 KC-10 crew (Capts. M.D. Felman and T.M. Ferguson; MSgts. C. Bridges Jr., P.S. Kennedy, and G.G. Treadwell; TSgts. L.G. Bouler and G.M. Lewis; SSgts. S.S. Flores, S.A. Helms, and G.L. Smith), 68th Air Refueling Group, SAC.
1987 Det. 15, USAF Plant Representative Office, and B-1B SPO.
1988 C-5 crew, 436th Military Airlift Wing.
1989 B-1B crew, 96th Bomb Wing.
1990 AC-130 crew, 16th Special Operations Sq.
1991 MH-53 crew, 20th Special Operations Sq.
1992 C-130 crew, 310th Airlift Sq., ACC, Howard AFB, Panama.
1993 B-52 crew, 668th Bomb Sq., ACC.
1994 HH-60G crew of Air Force Rescue 206 and 208, 56th Rescue Sq., ACC, NAS Keflavik, Iceland.
1995 Aircrew BAT 01, Dyess AFB, Tex.
1996 Aircrew Duke 01, 2nd Bomb Wing, Barksdale AFB, La.
1997 Crew of Whiskey 05, 7th Special Operations Sq., RAF Mildenhall, UK.
1998 Crew of Air Force Rescue 470, 210th Rescue Sq., Kulis ANGB, Alaska.
1999 Capt. J.G.J. Hwang, 173rd FW, Oregon ANG, Klamath Falls Airport, Ore.
2000 Crew of Air Evac 10E1/10E2, 86th AES and 75th AS, Ramstein AB, Germany.
2001 Crew of Knife 04, 20th SOS, Hurlburt Field, Fla.
2002 Crew of Grim 31, 16th SOS, Hurlburt Field, Fla.
2003 Crew of Vijay 10, 62nd AW, McChord AFB, Wash.
2004 Crews of Jolly 11 and Jolly 12, 41st and 38th Rescue Sqs. (respectively), Moody AFB, Ga.

Gen. Thomas Power (right), commander in chief of Strategic Air Command, greets the B-58 Hustler crew that set three speed records and was later awarded the 1962 Mackay Trophy. From left are Maj. Robert Sowers and Capts. Robert MacDonald and John Walton. For their record-setting flight, the crew flew round-trip between New York and Los Angeles in four hours, 42 minutes.

The Gen. Thomas D. White USAF Space Award

The Gen. Thomas D. White USAF Space Award is named for the fourth Air Force Chief of Staff, a longtime champion of USAF's role in space. The Air Force selects the recipients among USAF individuals or organizations that made the year's outstanding progress in the field of aerospace. It was established in 1961 and, until 1996, sponsored by the National Geographic Society. It is now an AFA national award sponsored by the Gen. B.A. Schriever Los Angeles Chapter.

1961 Capt. Virgil I. Grissom.
1962 Maj. Robert M. White.
1963 Maj. L. Gordon Cooper.
1964 Air Force Systems Command.
1965 Lt. Col. Edward H. White II.
1966 Alexander H. Flax.
1967 Gen. John P. McConnell.
1968 Col. Frank Borman, Capt. James A. Lovell Jr. (USN), Lt. Col. William A. Anders.
1969 Col. Edwin E. Aldrin Jr., Neil A. Armstrong, Col. Michael Collins.
1970 Brig. Gen. Robert A. Duffy.
1971 Lt. Gen. Samuel C. Phillips.
1972 Hon. Robert C. Seamans Jr.
1973 Lt. Col. Henry Hartsfield Jr.
1974 No award.
1975 Maj. Gen. Thomas P. Stafford.
1976 Gen. William J. Evans.
1977 Lt. Col. Charles G. Fullerton, Fred W. Haise Jr.
1978 No award.
1979 Maj. Gen. John E. Kulpa Jr.
1980 Gen. Lew Allen Jr.
1981 Col. Joe Engle, Capt. Richard H. Truly (USN).
1982 Lt. Gen. Richard C. Henry.
1983 Gen. James V. Hartinger.
1984 Lt. Gen. Forrest S. McCartney.
1985 Maj. Gen. Donald W. Henderson.
1986 Gen. Donald J. Kutyna.
1987 Col. Victor W. Whitehead.
1988 Robert R. Barthelemy.
1989 Launch Systems Directorate, Space Systems Division.
1990 Gen. John L. Piotrowski, USAF (Ret.), Lt. Gen. Donald L. Cromer.
1991 Lt. Gen. Thomas S. Moorman Jr.
1992 Maj. Gen. Nathan J. Lindsay, USAF (Ret.).
1993 Gen. Merrill A. McPeak.
1994 Gen. Charles A. Horner.
1995 Gen. Joseph W. Ashy.
1996 No award.
1997 Lt. Gen. Patrick P. Caruana.
1998 Gen. Howell M. Estes III.
1999 Lt. Gen. Lance W. Lord.
2000 Gen. Richard B. Myers.
2001 Gen. Ralph E. Eberhart.
2002 Lt. Gen. Roger G. DeKok, USAF (Ret.).
2003 Maj. Robert K. Sheehan.
2004 Brig. Gen. Duane W. Deal.

The Raytheon Hughes Achievement Award

The Raytheon Hughes Achievement Award (formerly the Hughes Trophy) is presented annually to the top Air Force squadron with an air defense/air superiority mission.

Year	Unit, Base	Aircraft
1953	58th FIS, Otis AFB, Mass.	F-94C
1954	96th FIS, New Castle County Airport, Del.	F-94C
1955	496th FIS, Landstuhl AB, West Germany	F-86D
1956	317th FIS, McChord AFB, Wash.	F-86D/F-102A
1957	512th FIS, RAF Bentwaters, UK	F-86D
1958	31st FIS, Elmendorf AFB, Alaska	F-102A
1959	54th FIS, Ellsworth AFB, S.D.	F-89J
1960	460th FIS, Portland Arpt., Ore.	F-102A
1961	83rd FIS, Hamilton AFB, Calif.	F-101B
1962	444th FIS, Charleston AFB, S.C.	F-101B
1963	497th FIS, Torrejon AB, Spain	F-102A
1964	329th FIS, George AFB, Calif.	F-106A/B
1965	317th FIS, Elmendorf AFB, Alaska	F-102A
1966	32nd FIS, Soesterberg AB, Netherlands	F-102A
1967	317th FIS, Elmendorf AFB, Alaska	F-106A/B
1968	64th FIS, Clark AB, Philippines	F-102A
1969	71st FIS, Malmstrom AFB, Mont.	F-106A/B
1970	57th FIS, NAS Keflavik, Iceland	F-102A
1971	48th FIS, Langley AFB, Va.	F-106A/B
1972	43rd TFS, Elmendorf AFB, Alaska	F-4E
1973	555th TFS, Udorn RTAB, Thailand	F-4D
1974	119th FIG (ANG), Hector Field, N.D.	F-101B
1975	318th FIS, McChord AFB, Wash.	F-106A/B
1976	57th FIS, NAS Keflavik, Iceland	F-4C
1977	43rd TFS, Elmendorf AFB, Alaska	F-4E
1978	49th FIS, Griffiss AFB, N.Y.	F-106A/B
1979	32nd TFS, Soesterberg AB, Netherlands	F-15A/B
1980	32nd TFS, Soesterberg AB, Netherlands	F-15A/B
1981	12th TFS, Kadena AB, Japan	F-15C/D
1982	44th TFS, Kadena AB, Japan	F-15C/D
1983	67th TFS, Kadena AB, Japan	F-15C/D
1984	318th FIS, McChord AFB, Wash.	F-15A/B
1985	120th FIG (ANG), Great Falls Arpt., Mont.	F-106A/B
1986	67th TFS, Kadena AB, Japan	F-15C/D
1987	57th FIS, NAS Keflavik, Iceland	F-15C/D
1988	22nd TFS, Bitburg AB, West Germany	F-15C/D
1989	67th TFS, Kadena AB, Japan	F-15C/D
1990	58th TFS, Eglin AFB, Fla.	F-15C/D
1991	58th TFS, Eglin AFB, Fla.	F-15C/D
1992	59th FS, Eglin AFB, Fla.	F-15C/D
1993	71st FS, Langley AFB, Va.	F-15C
1994	178th FS (ANG), Hector Arpt., N.D.	F-16A/B
1995	27th FS, Langley AFB, Va.	F-15C/D
1996	60th FS, Eglin AFB, Fla.	F-15C/D
1997	493rd FS, RAF Lakenheath, UK	F-15C
1998	71st FS, Langley AFB, Va.	F-15C/D
1999	493rd FS, RAF Lakenheath, UK	F-15C
2000	19th FS, Elmendorf AFB, Alaska	F-15C/D
2001	71st FS, Langley AFB, Va.	F-15C/D
2002	27th FS, Langley AFB, Va.	F-15C/D
2003	67th FS, Kadena AB, Japan	F-15C
2004	60th FS, Eglin AFB, Fla.	F-15C/D

Gallery of USAF Weapons

2006 USAF Almanac

By Susan H.H. Young

Note: Inventory numbers are total active inventory figures as of Sept. 30, 2005.

B-1B Lancer (Richard VanderMeulen)

Bombers

B-1 Lancer

Brief: A long-range, air refuelable multirole bomber capable of flying missions over intercontinental range, then penetrating enemy defenses with the largest payload of guided and unguided weapons in the Air Force inventory.

Function: Long-range conventional bomber.

Operator: ACC, AFMC.

First Flight: Dec. 23, 1974 (B-1A); Oct. 18, 1984 (B-1B).

Delivered: June 1985-May 1988.

IOC: Oct. 1, 1986, Dyess AFB, Tex. (B-1B).

Production: 104.

Inventory: 67.

Unit Location: Dyess AFB, Tex., Ellsworth AFB, S.D., Edwards AFB, Calif.

Contractor: Boeing; AIL Systems; General Electric.

Power Plant: four General Electric F101-GE-102 turbofans, each 30,780 lb thrust.

Accommodation: four, pilot, copilot, and two systems officers (offensive and defensive), on zero/zero ejection seats.

Dimensions: span spread 137 ft, swept aft 79 ft, length 146 ft, height 34 ft.

Weights: empty equipped 192,000 lb, max operating weight 477,000 lb.

Ceiling: more than 30,000 ft.

Performance: max speed at low level high subsonic; 900+ mph (Mach 1.2 at S/L); range intercontinental.

Armament: three internal weapons bays capable of accommodating a wide range of weapons incl up to 84 Mk 82 (500-lb) bombs or Mk 62 Quick Strike naval mines; up to 30 CBU-87/103 Combined Effects Munitions (CEMs), 30 CBU-89 Gator munitions, and 30 CBU-97 Sensor Fuzed Weapons (SFWs); potentially a combination of up to 30/15/15 (fwd/mid/aft bay) CBU-103/104/105 Wind-Corrected Munitions Dispensers (WCMD); up to 24 GBU-31 (2,000-lb) Joint Direct Attack Munitions (JDAMs), and AGM-158A Joint Air-to-Surface Standoff Missiles (JASSMs). GBU-38 (500-lb) JDAM integration under way.

COMMENTARY

Of blended wing/body configuration, the B-1's variable-geometry design and turbofan engines combine to provide greater range and high speed at low level, with enhanced survivability. Unswept wing settings provide for maximum range during high-altitude cruise. The fully swept position is used in supersonic flight and for high subsonic, low-altitude penetration.

The bomber's offensive avionics include a strategic Doppler radar, enabling aircrews to navigate, update target coordinates in flight and precision bomb. Radar features include synthetic aperture radar (SAR), ground moving target indicator (GMTI), ground moving target track (GMTT), and terrain-following. Offensive avionics also include an extremely accurate Global Positioning System/inertial navigation system (GPS/INS) and computer-driven avionics.

The current defensive avionics package, built around the ALQ-161 electronic countermeasures (ECM) system, is supplemented by the ALE-50 towed decoy and chaff and flares to protect against radar-guided and heat-seeking missiles. Aircraft structure and radar-absorption materials reduce the aircraft's radar signature to approximately one percent that of a B-52. The ALE-50 provides greater protection against RF threats.

B-1A. USAF acquired four prototype flight-test models of this new strategic bomber in the 1970s, but the program was canceled in 1977. Flight-test of the four B-1A models continued through 1981.

B-1B. Initiated in 1981, the first production model of the improved variant B-1 flew in October 1984. USAF produced a total of 100. The active B-1B inventory was recently reduced to 67 aircraft (from the remaining 92) along with a consolidation to two main operating bases within Air Combat Command at Dyess AFB, Tex., and Ellsworth AFB, N.D. First used in combat against Iraq during Desert Fox in December 1998, the B-1B has since supported operations in Afghanistan in Enduring Freedom and in Iraqi Freedom.

B-1B's speed, superior handling qualities, and large payload make it a key element of any joint/composite strike force, combining long endurance with the flexibility to deliver a wide range of guided or unguided weapons to strike emerging targets rapidly and efficiently.

The ongoing conventional mission upgrade program (CMUP) has significantly enhanced B-1B lethality and survivability. Completed Block D upgrades include GPS receivers, a MIL-STD-1760 weapon interface, secure interoperable radios, and improved computers to support precision weapons, initially the GBU-31 JDAM. Block E, now completing production, includes follow-on computer and software upgrades permitting simultaneous carriage of mixed guided and unguided weapons and WCMD/JASSM integration. Integration of the GBU-38 JDAM will be fielded in FY06. Future upgrades will provide improved network centric warfighting capability with cockpit avionics upgrades to enhance crew communications and situational awareness. A program to provide a fully integrated data link capability, including Link 16 and Joint Range Extension along with upgraded displays at the rear crew stations, began in FY05. In addition, a radar modernization effort began in FY06, to be followed by integration of a targeting pod capability beginning in FY09.

B-2 Spirit

Brief: Stealthy, long-range multirole bomber that can deliver conventional and nuclear munitions anywhere on the globe by flying through previously impenetrable defenses.

Function: Long-range heavy bomber.

Operator: ACC.

First Flight: July 17, 1989.

Delivered: Dec. 11, 1993-2002.

IOC: April 1997, Whiteman AFB, Mo.

Production: 21.

Inventory: 21.

Unit Location: Whiteman AFB, Mo.

Contractor: Northrop Grumman; Boeing; LTV.

Power Plant: four General Electric F118-GE-100 turbofans, each 17,300 lb thrust.

Accommodation: two, mission commander and pilot, on zero/zero ejection seats.

Dimensions: span 172 ft, length 69 ft, height 17 ft.

Weight: empty 125,000-153,700 lb, typical T-O weight 336,500 lb.

Ceiling: 50,000 ft.

Performance: minimum approach speed 140 mph, typical estimated unrefueled range for a hi-lo-hi mission with 16 B61 nuclear free-fall bombs 5,000 miles, with one aerial refueling more than 10,000 miles.

Armament: in a nuclear role: up to 16 nuclear weapons (B61 Mod 7, B61 Mod 11, B83) on rotary launchers. In a conventional role, 80 Mk 82 500-lb bombs, 36 750-lb M117s, 34 tactical munitions dispensers, 80 Mk 62 sea mines, or 80 GBU-38 (500-lb) JDAMs mounted on bomb rack assemblies, or up to 16 rotary launcher-mounted weapons: 16 GBU-31 (2,000-lb) JDAMs, or a penetration version of a BLU-109, or 16 Mk 84 2,000-lb bombs; 16 JSOWs, 16 JASSMs, or eight 4,700-lb GBU-37/GBU-28B/B guided weapons. Wind-Corrected Munitions Dispenser to follow.

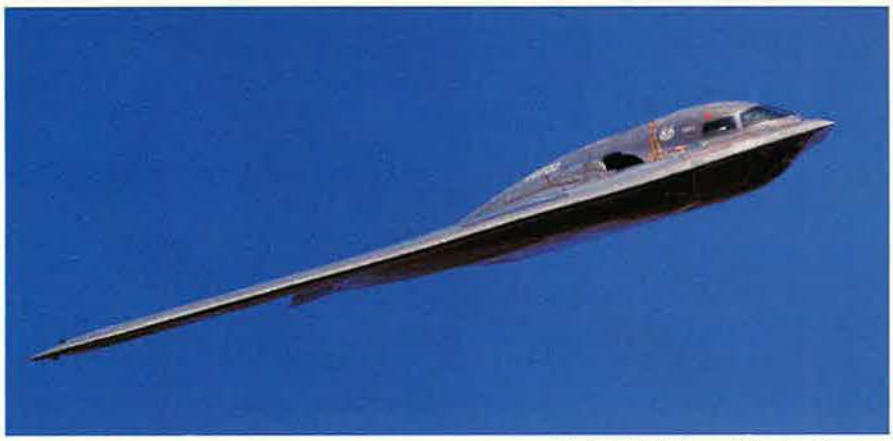
COMMENTARY

The B-2 bomber is a unique, highly advanced system, combining sophisticated technologies, notably low observable (LO) stealth design, with high aerodynamic efficiency, enabling it to attack heavily defended targets and neutralize enemy defenses.

Based on the flying wing concept, the B-2 has no vertical tail surfaces. The smoothly blended "fuselage" section accommodates two flight crew and two large weapons bays side by side in the lower centerbody. These bays contain rotary launchers or bomb rack assemblies capable of carrying up to 40,000 lb of weapons.

Four nonafterburning turbofan engines are mounted in pairs within the wing structure, with scalloped over-wing intake ducts and shielded over-wing trailing edge nozzles. The aircraft has a quadruple-redundant fly-by-wire digital flight-control system, actuating moving surfaces at the wing trailing edges that combine aileron, elevator, and rudder functions. A landing gear track of 40 ft enables the B-2 to use any runway that can handle a Boeing 727 airliner.

B-2A. B-2 production represents three successive blocks



B-2 Spirit (Richard VanderMeulen)

of capability. Block 10 aircraft carried B83 nuclear bombs or 16 Mk 84 2,000-lb conventional munitions. Block 20 aircraft additionally carried B61/7 and B61/11 nuclear bombs, as well as GPS-aided munitions (GAMs), and GBU-36B, on two rotary launcher assemblies, providing an interim, near-precision strike capability. All Block 10 and 20 aircraft have been upgraded to Block 30. (The last original Block 20 B-2, used as a test aircraft at Edwards AFB, Calif., was refurbished as an operational bomber and entered operational service in September 2002.)

Block 30 configuration retains weapons capability introduced in Block 10 and 20 and adds significant new capability. Using the rotary launcher assembly, all B-2s are capable of employing 16 Mk 84 JDAMs, 16 JSOWs, 16 JASSMs, 16 BLU-109 JDAMs or eight GBU-37s or GBU-28B/Bs. All B-2s are also capable of substituting bomb rack assemblies in place of the rotary launchers, providing the capability to employ 80 500-lb Mk 82s, 34 tactical munitions dispensers, or 80 Mk 62 sea mines. Modifications to the bomb racks add carriage of 80 independently targeted Mk 82 (500-lb) JDAMs. Other Block 30 enhancements include fully operational defensive and offensive avionics, a more sophisticated mission planning system, and additional operating modes for the synthetic aperture radar (SAR). A new stealth coating introduced under the Alternative High Frequency Material (AHFM) program is showing promise in dramatically improving combat readiness.

Beyond Block 30, USAF plans to add UHF/EHF satellite communications systems and Link 16 digital data sharing capability and to replace the current mechanically scanned phased-array antenna with an active electronically scanned array.

The first use of B-2s in combat took place March 24, 1999, against Serb targets in Allied Force, with two aircraft each dropping 16 JDAMs. In October 2001, B-2s flew the longest combat sorties during Enduring Freedom, flying 44-hour sorties from Whiteman AFB, Mo., striking targets in Afghanistan, then landing in Diego Garcia for an engine running crew change, the second crew flying a 29-hour sortie back to Whiteman. B-2s operate from three forward locations—Andersen AFB, Guam, RAF Fairford, UK, and Diego Garcia in the Indian Ocean.

B-52 Stratofortress

Brief: A long-range, heavy multirole bomber that can carry nuclear or conventional ordnance or cruise missiles, with worldwide precision navigation capability.

Function: Long-range heavy bomber.

Operator: ACC, AFMC, AFRC.

First Flight: April 15, 1952 (YB-52 prototype).

Delivered: November 1955-October 1962.

IOC: June 19, 1955.

Production: 744.

Inventory: 94.

Unit Location: Barksdale AFB, La. (ACC, AFRC), Edwards AFB, Calif. (AFMC), Minot AFB, N.D.

Contractor: Boeing.

Power Plant: eight Pratt & Whitney TF33-P-3 turbofans, each 17,000 lb thrust.

Accommodation: two pilots, side by side, plus navigator, radar navigator, and electronic warfare officer.

Dimensions: span 185 ft, length 159.3 ft, height 40.7 ft.

Weight: empty approx 188,000 lb, gross 488,000 lb.

Ceiling: 50,000 ft.

Performance (approx): max level speed 449 mph, range more than 10,000 miles.

Armament: 12 AGM-86B Air Launched Cruise Missiles (ALCMs) or AGM-129A Advanced Cruise Missiles (ACMs) externally, with provision for eight more ALCMs or gravity weapons internally. Conventional weapons incl AGM-86C/D Conventional ALCMs (CALCMs), naval mines, bombs up to 2,000 lb, CBU 87/89/97 unguided munitions, CBU-103/104/105 Wind-Corrected Munitions Dispenser (WCMD)-guided munitions, GBU-31 JDAMs, and JASSMs. Future weapons incl CBU-113/115 WCMD-Extended Range (WCMD-ER) and the Miniature Air Launched Decoy (MALD), as well as laser guided bombs.

COMMENTARY

The B-52's still-expanding weapons capability reflects its continued ability to perform a wide range of missions, including show of force, maritime operations, long-range precision strikes, close air support (CAS), offensive counterair, air interdiction, and defense suppression. USAF plans to use B-52s as standoff electronic warfare platforms have been cancelled.

Equipment includes GPS, ARC-210 radios, Have Quick II antijam radio, KY-100 secure radio, an electro-optical (EO) viewing system that uses forward-looking infrared (FLIR) and high-resolution low-light-level television (LLLTV) sensors to augment the targeting, battle assessment, flight safety, and terrain avoidance systems, improving combat and low-level flight capability. Pilots have night vision goggles (NVGs) to further enhance operation. Some B-52s are modified to carry weapons targeting pods. Future plans include modification of the entire fleet with an integrated self-targeting and battle damage assessment (BDA) capability. B-52s support a MIL-STD-1760 interface resulting in an improved weapons capability for precision weapons externally, including naval mines, precision guided weapons, and advanced weapons such as JDAM, JSOW, JASSM, and WCMD. The B-52's ECM suite uses a combination of electronic detection, jamming, and infrared (IR) countermeasures to protect against hostile air defense systems.

Several versions of the Stratofortress were produced, including:

B-52A. Initial production version, with J57-P-1W engines and provision for in-flight refueling. First flown Aug. 5, 1954, the three aircraft built were used by Boeing for technical development purposes. Delivered to SAC November 1957. Finally retired 1969.

B-52B. First operational version, 23 of which were built. Also, 27 RB-52B dual-role bomber/reconnaissance variants. First flown January 1955, with deliveries between June 1955-August 1956; powered by J57-P-1W, -19W, -29W, or -29WA engines. Retired in the mid-1960s.

B-52C. Multimission version with increased gross weight and larger under-wing tanks. Powered by J57-P-19W or -29WA engines. First flown March 1956; 35 were delivered June-December 1956. Majority retired 1971.

B-52D. Long-range bomber version, first flown June 1956 and used during the Vietnam War. Total of 170 built, with deliveries beginning late 1956. Retired 1982-83.

B-52E. Version with improved bombing, navigation, and electronics systems. First flown October 1957. One hundred delivered October 1957-June 1958. Retired 1969-70.

B-52F. Version with uprated J57-P-43WA engines, first flown in May 1958. Eighty-nine delivered June 1958-February 1959. Retired 1978.

B-52G. Introduced important design changes, including a redesigned wing containing integral fuel tanks for increased range, fixed under-wing external tanks, a shorter tail fin of greater chord, and a remotely controlled tail gun turret that allowed the gunner to be repositioned with the rest of the crew. Initial flight August 1958, with the first of 193 aircraft entering service in February 1959. Operated as the primary bomber during the first Gulf War. Retired 1994.

B-52H. The only version still in service, the H introduced TF33 turbofans, providing increased unrefueled range, and improved defensive armament. First flown July 1960, 102 were built, with deliveries between May 1961 and October 1962.

B-52H Stratofortress (Richard VanderMeulen)

The B-52 currently is employable for both conventional and nuclear missions. As the Air Force's only cruise missile carrier, it performs multiple cruise missile launches at high altitude, often followed by B-52 penetration to attack other targets. When tasked with precision weapons delivery, it conducts close air support and attacks targets using GPS/INS guided weapons.

Ongoing modernization of its conventional capabilities is extending the B-52's service life well into this century, with the ability to provide massive firepower in low- to mid-threat environments supplemented by a standoff attack capability. Iraqi Freedom saw B-52s delivering laser guided bombs for the first time using newly installed Litening targeting pods. Use of heavy stores adapter beams enable aircraft to carry most B-52-certified munitions. ALCMs, CALCMs, or ACMs are carried on unique pylons or internally on a rotary launcher. Avionics improvements include the avionics midlife improvement (AMI) program, which replaces the current system processors, inertial navigation unit (INU), and data transfer system (DTS) cartridges. Electronic attack improvements include the ECM improvement upgrade to the ALQ-172 set. The Combat Network Communications Technology (CONECT) improvement will provide a modern cockpit information avionics architecture, in-flight beyond line of sight (BLOS) and LOS Link 16 intratheater data link connectivity and mission/weapon reprogramming capability.

Fighter and Attack Aircraft

A-10 Thunderbolt II

Brief: A simple, effective, and survivable twin-engine aircraft specifically designed for close air support (CAS) of ground forces against a wide range of ground targets, including tanks and other armored vehicles.

Function: Attack aircraft.

Operator: ACC, AFMC, PACAF, USAFE, ANG, AFRC.

First Flight: Feb. 15, 1975 (preproduction).

Delivered: November 1975-March 1984.

IOC: October 1977.
Production: 713.
Inventory: 249 (A-10); 108 (OA-10).
Unit Location: Active: Davis-Monthan AFB, Ariz., Eglin AFB, Fla., Eielson AFB, Alaska, Nellis AFB, Nev., Osan AB, South Korea, Pope AFB, N.C., Spangdahlem AB, Germany. ANG: Barnes Arpt., Mass., Boise Air Terminal, Idaho, Bradley Arpt., Conn., Martin State Arpt., Md., W.K. Kellogg Arpt., Mich., Willow Grove ARS, Pa. AFRC: Barksdale AFB, La., NAS JRB New Orleans, La., Whiteman AFB, Mo.
Contractor: Fairchild Republic; now Lockheed Martin.
Power Plant: two General Electric TF34-GE-100 turbofans, each 9,065 lb thrust.
Accommodation: pilot only, on zero-height/518 mph-zero-speed ejection seat.
Dimensions: span 57.5 ft, length 53.3 ft, height 14.7 ft.
Weight: empty 28,000 lb, max gross 51,000 lb.
Ceiling: 37,000 ft.
Performance: speed 518 mph, combat range with 9,500 lb of weapons and 1.7 hr loiter, 20 min reserve, 288 miles.
Armament: one 30 mm, seven-barrel, 1,174-rd capacity GAU-8 Gatling gun capable of carrying inert target practice (TP) rds, straight high-explosive incendiary (HEI), or anti-armor tailored HEI/API "combat mix"; 11 hardpoints for up to 16,000 lb of ordnance, incl various types of free-fall or guided bombs such as Mk 82, Mk 84, GBU-10/12/38, CBU-87 Combined Effects Munition (CEM), 2.75-in high-explosive, white phosphorous, and covert illumination rockets. SUU-25 overt/covert flare dispensers, up to six AGM-65B/D/G/H/K Maverick missiles, and up to four AIM-9 Sidewinder missiles. Up to 480 chaff and flares carried internally to counter radar or IR threats. Up to three 600-gallon fuel tanks can also be carried. Future weapons incl JDAM and Wind-Corrected Munitions Dispenser (WCMD) and possibly Small Diameter Bomb II and Hellfire.

COMMENTARY

Supporting the CAS, airborne forward air controller (FAC(A)), interdiction, combat search and rescue (CSAR) ("Sandy") missions, and special operations forces (SOF) support, the A-10 combines large diverse weapons payload, long loiter, austere airfield capability, maneuverability, and wide combat radius with the ability to operate under 1,000-ft ceilings, with 1.5-mile visibility, in darkness with NVGs and advanced targeting pods, and around 20,000 ft. In a typical mission, the A-10, nicknamed Warthog, can fly 150 miles with a standard payload and remain on station (loiter) for two hours or much longer with air refueling. The 30 mm GAU-8 gun provides a cost-effective weapon with which to defeat a wide array of ground targets, including heavily armored tanks. The gun-rocket-Maverick medley provides a unique combination of "point-shoot," low-collateral damage, and mobile target capabilities demanded by the danger-close proximity to friendly forces or urban terrain. The cockpit is protected with titanium armor, capable of withstanding projectiles up to 23 mm. A-10s were used extensively in Desert Storm, Kosovo, Enduring Freedom, and Iraqi Freedom, the last operation seeing several A-10 combat firsts, including first use of Litening II targeting pod, first self-lased laser guided bomb (LGB) delivery, and first AGM-65H/K employment. The A-10 is projected to serve well into the 2020s.

A-10A equipment includes an enhanced GPS/INS (EGI), head-up display (HUD), NVGs, and an Integrated Flight and Fire Control Computer (IFFCC) to enhance weapons delivery accuracy, cockpit presentations, targeting pod integration, and terrain avoidance. Other equipment consists of Pave Penny laser target identification pod and self-protection/penetration aids to include ALQ 131/184 ECM pods, ALR-69 radar warning receiver and countermeasures system (CMS) to digitally integrate the ALE-40 chaff-flare dispenser.

A-10C is the new designation for A model aircraft now being upgraded for precision engagement, with new glass cockpit displays, full targeting pod integration, hands-on throttle and stick (HOTAS), digital stores management, a Joint Tactical Radio System (JTRS) data link, and JDAM/WCMD integration. Low-rate initial production (LRIP) of upgrade kits began in 2004, and debut flight occurred in January 2005. An upgraded automated chaff and flare system is planned for 2006. Other planned improvements include enhanced communication and situational awareness systems, as well as Sniper and Litening targeting pod capability as well as Rover.

Aircraft designated **OA-10A/C** primarily are used for FAC(A), combat escort, CSAR, and visual reconnaissance missions. The OA-10 is identical to the A-10. Mission configurations typically include large weapons loads of white phosphorous marking rockets and covert/overt illumination rockets/flares to mark/illuminate targets for strike aircraft or friendly ground forces. The first OA-10 unit reached initial operational capability (IOC) in October 1987. All squadrons are now A/OA-10 mix configuration.

***A-10A** Thunderbolt II* (SrA. Christina D. Ponte)

AC-130 Gunship

Brief: Heavily armed aircraft using side-firing weapons integrated with sophisticated sensor, navigation, and fire-control systems to provide precise firepower or area saturation for long periods, at night and in adverse weather.
Function: Attack aircraft.
Operator: AFSOC.
First Flight: 1967.
Delivered: 1968-present.
IOC: 1972 (AC-130H); 1996 (AC-130U).
Production: 39; conversion of four additional C-130s to AC-130 standard contracted.
Inventory: eight (AC-130H); 13 (AC-130U).
Unit Location: Hurlburt Field, Fla.
Contractor: Lockheed Martin (airframe); Boeing (AC-130H); Rockwell, now Boeing (AC-130U).
Power Plant: four Allison T56-A-15 turboprops, each 4,910 shp.
Accommodation: AC-130H crew of 14; AC-130U crew of 13.
Dimensions: span 132.6 ft, length 99 ft, height 38.5 ft.
Weight: gross 155,000 lb.
Ceiling: 25,000 ft.
Performance: speed 289 mph, range 1,500 miles, with air refueling unlimited.
Armament: two 20 mm Vulcan cannons with 3,000 rd (AC-130H); one 25 mm Gatling gun (AC-130U); one 40 mm Bofors cannon with 256 rd, and one 105 mm Howitzer with 100 rd.

COMMENTARY

The AC-130 is a C-130 modified with gun systems, electronic and EO sensors, fire-control systems, enhanced navigation systems, sophisticated communications, defensive systems, and in-flight refueling capability. These systems give the gunship crew the capability to acquire and identify targets day or night, coordinate with ground forces and command and control (C2) agencies, and deliver surgical firepower in support of both conventional and special operations missions. During operations in Afghanistan and Iraq, the AC-130 gunships worked in conjunction with the MQ-1 Predator, the latter providing live video and target referencing information.

AC-130A was the initial version, deployed in Vietnam 1968-69. Eighteen produced.
AC-130E, an improved version, of which eight were built. Converted to H standard after service in Vietnam.
AC-130H Spectres serve with the 16th SOW. The unit has eight, each equipped with a digital fire-control computer. They employ EO sensors and target-acquisition systems, including FLIR and LLLTV, and are capable of in-flight refueling. Fire-control computers, navigation, communications, and sensor suites have been upgraded; an infrared suppression system (IRSS) overhaul is under way. In addition, USAF is evaluating wingtip tanks as replacements for the existing under-wing tanks as a means of improving performance.
AC-130U Spooky, gunship conversions by Rockwell, of which 13 were delivered to the 16th SOW's 4th SOS in 1994-95. Four additional aircraft have been contracted for conversion by Boeing to U standard. These AC-130Us have greater altitude capability and combine increased firepower, reliability, and superior accuracy with the latest methods of target location. All weapons can be subordinated to the APQ-180 digital fire-control radar, FLIR, or all-light-level television (ALLTV) for adverse weather attack operations. The AC-130U program currently is exploring Viper Strike, a small precision-attack munition already used in support of the Global War on Terrorism and capable of destroying mobile targets from standoff ranges.

Although the AC-130H Spectre and AC-130U Spooky gunships use dissimilar avionics and other systems, fire support to troops on the ground is generally comparable. The AC-130U will not be required for most fire support missions but provices benefits under certain circumstances (weather, dual target attack, and defensive avionics).

F-15 Eagle

Brief: A supersonic, all-weather, highly maneuverable tactical fighter designed to permit USAF to swiftly gain and maintain air superiority in aerial combat.
Function: Air superiority fighter.
Operator: ACC, AETC, AFMC, PACAF, USAFE, ANG.
First Flight: July 27, 1972.
Delivered: November 1974-85.
IOC: September 1975.
Production: 874.

***AC-130** Gunship* (USAF photo)

Inventory: 499.

Unit Location: Active: Eglin AFB, Fla., Elmendorf AFB, Alaska, Kadena AB, Japan, Langley AFB, Va., Mountain Home AFB, Idaho, Nellis AFB, Nev., RAF Lakenheath, UK, Robins AFB, Ga., Tyndall AFB, Fla. ANG: Hickam AFB, Hawaii, Jacksonville Arpt., Fla., Klamath Falls Arpt., Ore., Lambert-St. Louis Arpt., Mo., NAS JRB New Orleans, La., Otis ANGB, Mass., Portland Arpt., Ore.

Contractor: McDonnell Douglas (now Boeing); Raytheon.

Power Plant: F-15C: two Pratt & Whitney F100-PW-220 turbofans, each 25,000 lb thrust, with max afterburner.

Accommodation: pilot only in F-15A/C; two seats in F-15B/D.

Dimensions: span 42.8 ft, length 63.8 ft, height 18.7 ft.

Weight: empty 28,600 lb, gross 68,000 lb.

Ceiling: 65,000 ft.

Performance: F-15C: max speed Mach 2.5, T-O run 900 ft, landing run without braking parachute 3,500 ft, ferry range with external fuel tanks more than 2,878 miles.

Armament: one internally mounted M61A1 20 mm six-barrel cannon; up to four AIM-9L/M/X Sidewinder and up to four AIM-7 Sparrow air-to-air missiles, or up to eight AIM-120 Advanced Medium-Range Air-to-Air Missiles (AMRAAMs), carried externally.

COMMENTARY

Superior maneuverability and acceleration, range, weapons, and avionics enable the F-15 to penetrate hostile defenses and establish air superiority over enemy systems. F-15 fighters deployed to the Persian Gulf for Desert Storm accounted for 34 of the 37 USAF air-to-air victories, and in Iraqi Freedom F-15Cs led coalition aircraft in maintaining aerial dominance.

F-15A (single-seat) and **F-15B** (two-seat) fighters became USAF's front-line fighter immediately upon introduction in the mid-1970s. A multimission avionics system includes APG-63 pulse-Doppler radar for long-range detection and tracking of small high-speed objects down to treetop level and effective weapons delivery, a HUD for close-in combat, identification, friend or foe (IFF), and INS. F-15A/Bs now serve with ANG. In February 2004, Florida's 125th FW received the first F-15A/Bs retrofitted with E-kit upgrades, providing additional thrust and improved combat capability.

F-15C (single-seat) and **F-15D** (two-seat) models followed in June 1979. Improvements included 2,000 lb of additional internal fuel and provision for carrying conformal fuel tanks (CFTs), reducing in-flight refueling requirements and increasing time in the combat zone. From 1983 through 1997, tactical capabilities were enhanced extensively through the multistaged improvement program (MSIP), a program of installation of new or modification of existing avionics equipment, which allows for the carriage of more advanced weapons, and increased self-protection. The last 43 aircraft included improved APG-70 radar, and F-15C/Ds are receiving an APG-63 upgrade, the APG-63(V)1. One squadron in Alaska received the later APG-63(V)2, featuring an active electronically scanned array (AESA), permitting the aircraft to track multiple targets and to guide air-to-air missiles against them. The Joint Helmet Mounted Cueing System (JHMCS), a "look and shoot" head-mounted system, is intended, along with the AIM-9X, to significantly enhance lethality in close-range aerial combat. Other modifications include improved engines, GPS equipment, and the Link 16 fighter data link.

F-15E Strike Eagle

Brief: A heavily modified, two-seat, dual-role variant of the original F-15, with weapons systems totally integrated for all-weather deep interdiction missions as well as air-to-air combat.

Function: Dual-role fighter.

Operator: ACC, AFMC, PACAF, USAFE.

First Flight: Dec. 11, 1986.

Delivered: April 1988-2004.

IOC: May 1989.

Production: 236.

Inventory: 223.

Unit Location: Eglin AFB, Fla., Elmendorf AFB, Alaska, Mountain Home AFB, Idaho, Nellis AFB, Nev., RAF Lakenheath, UK, Robins AFB, Ga., Seymour Johnson AFB, N.C.

Contractor: McDonnell Douglas (now Boeing); Raytheon.

Power Plant: two Pratt & Whitney F100-PW-220, each 25,000 lb thrust; or F100-PW-229 turbofans, each 29,000 lb thrust with max afterburner.

Accommodation: crew of two, on zero/zero ejection seats.

Dimensions: span 42.8 ft, length 63.8 ft, height 18.5 ft.

Weight: empty 45,000 lb, gross 81,000 lb.

Ceiling: 50,000 ft.

Performance: max level speed at altitude Mach 2.5, ferry range with CFTs 3,000 miles.

Armament: one internally mounted M61A1 20 mm six-barrel cannon; up to four AIM-9 Sidewinder and up to four AIM-7 Sparrow air-to-air missiles, or up to eight AIM-120 AMRAAMs; up to six AGM-65 Maverick air-to-surface missiles; AGM-130; EGBU-15 and GBU 10/12/15/24/28 guided munitions; CBU 87/89/97 unguided munitions; unguided munitions; JDAM, CBU-103/104/105 Wind-Corrected Munitions Dispenser (WCMD)-guided munitions, and nuclear weapons.

COMMENTARY

F-15E has a strengthened airframe for increased gross weight at takeoff and maneuver at nine Gs throughout the flight envelope. Cockpit controls and displays are improved, and a wide-field-of-view (WFOV) HUD is included.

For low-altitude, high-speed penetration and precision attack on tactical targets at night and in adverse weather, the F-15E carries a high-resolution APG-70 radar which provides a high-resolution synthetic aperture radar (SAR) map and LANTIRN (Low-Altitude Navigation and Targeting Infrared for Night) pods, with wide-field FLIR. The APG-70 gives the F-15E, with its AMRAAM, AIM-7, and AIM-9 load, a true multirole capability with the inherent air-to-air capability of the F-15C. The triple-redundant digital flight-control system, in combination with the LANTIRN navigation pod and the WFOV HUD, permits automatic terrain following. Other improvements include an EGI and Link 16 data link. F-15E aircraft have been JSOW-, JDAM-, and WCMD-capable since 2003. In addition, some F-15E aircraft have been equipped with Litening and Sniper targeting pods for improved precision attack capability. External CFTs have been fitted to increase combat range while carrying ordnance. Ten aircraft delivered in FY02-04 have upgraded programmable armament control sets (PACS), ready-installed software for delivery of JDAM, JSOW, and WCMD, and an enhanced night vision capability. A future upgrade, known as the "Golden" F-15E, will provide new core processors ensuring increased capability and reliability, while a number of F-15Es will receive an active electronically scanned array (AESA) radar to improve targeting and mapping capabilities.

***F-15E** Strike Eagle* (MSgt. John E. Lasky)

During Desert Storm, 48 USAF F-15Es were deployed to the Persian Gulf where they operated mainly at night, hunting Scud missile launchers and artillery sites using the LANTIRN system; the ability to operate in conjunction with E-8 Joint STARS aircraft both then and in Iraqi Freedom proved critical to success.

F-16 Fighting Falcon

Brief: A compact, versatile, and low-cost multirole fighter aircraft that is highly maneuverable and has repeatedly proved itself in air-to-air combat and air-to-surface attack.

Function: Multirole fighter.

Operator: ACC, AETC, AFMC, PACAF, USAFE, ANG, AFRC.

First Flight: Dec. 8, 1976 (full-scale development).

Delivered: August 1978-2005.

IOC: October 1980, Hill AFB, Utah.

Production: 2,206.

Inventory: 1,325.

Unit Location: 13 active wings, 27 ANG, and five AFRC units (one associate).

Contractor: Lockheed Martin; Northrop Grumman.

Power Plant: one augmented turbofan. General Electric F110-GE-100 (27,600 lb thrust) and Pratt & Whitney F100-PW-220 (23,450 lb thrust) are alternative standard engines. Increased performance engines (IPEs) in aircraft delivered from late 1991: Block 50: F110-GE-129 (29,000 lb thrust); Block 52: F100-PW-229 (29,100 lb thrust).

Accommodation: pilot only, on zero/zero ejection seat.

Dimensions: wingspan with missiles 32.7 ft, length overall 49.4 ft, height 16.7 ft.

Weight: (F-16C) empty (F100-PW-229) 18,591 lb, (F110-GE-129) 18,917 lb; gross, with external load (Block 40/42) 42,000 lb.

Ceiling: 50,000 ft.

Performance: max speed Mach 2, radius of action: Block 40 with two 2,000-lb bombs, two AIM-9 missiles, and external fuel, hi-lo-lo-hi 852 miles; combat range 575 miles.

Armament: one M61A1 20 mm multibarrel cannon, with 511 rd, mounted in fuselage; wingtip-mounted missiles; seven other external stores stations for fuel tanks and a

***F-16** Fighting Falcon* (SrA. Austin Knox)

F-22A Raptor (Richard VanderMeulen)

range of air-to-air and air-to-surface munitions.

COMMENTARY

The F-16 is the workhorse of the USAF fighter fleet, constituting more than 50 percent of its strength through at least 2010. The 200+ USAF F-16 multimission fighters deployed to the Persian Gulf Theater flew more sorties than any other type during Desert Storm, with 13,500 missions. In Iraqi Freedom, the F-16 flew hundreds of missions helping to destroy the unit cohesion of the Republican Guard.

F-16A (single-seat) and **F-16B** (two-seat) versions, which entered service with the 388th TFW, Hill AFB, Utah, incorporated advanced technologies from the start, making these aircraft two of the most maneuverable fighters built. Equipment includes a multimode radar with a clutter-free look-down capability, advanced radar warning receiver (RWR), HUD, internal chaff/flare dispensers, and a 500-rd 20 mm internal gun.

Production of the F-16A and B for USAF ended in 1985. Most now belong to ANG. A midlife update program, undertaken cooperatively by USAF and NATO operators, includes improvement to the radar, fire-control computer, stores-management computer, and avionics software, giving F-16A/Bs the ability to use next generation air-to-air and air-to-surface weapons.

Reliability and maintainability improvements include a ring-laser gyro INS and installation of the upgraded F100-PW-220E turbofan engine.

The Multinational Staged Improvement Program, implemented in 1980, ensured the aircraft could accept systems under development, thereby minimizing retrofit costs. All F-16s delivered since November 1981 have had built-in structural and wiring provisions and systems architecture that expand the single-seater's multirole flexibility to perform precision strike, night attack, and beyond-visual-range intercept missions.

F-16C (single-seat) and **F-16D** (two-seat) aircraft were introduced at production Block 25 with MSIP II improvements in the cockpit, airframe, and core avionics and an increased-range APG-68 radar. Block 30 and 40 aircraft incorporate the General Electric F110-GE-100 engine. Deliveries began in 1984. With the exception of AFMC, all of the active and many of the Guard and Reserve units have since converted to F-16C/Ds.

ANG and AFRC Block 25/30/32 F-16s are receiving upgrades aimed at increasing throughput and memory for new weapon capabilities, including the 500-lb JDAM, plus Advanced Identification Friend/Foe (AIFF) to reduce the risk of fratricide. These aircraft also carry the Theater Airborne Reconnaissance System (TARS), a podded system with EO sensors and future high-capacity data link to move the imagery to users on the ground.

ANG F-16s are equipped with Litening II/Litening ER targeting pods.

F-16CG Block 40/42 aircraft specialize in night attack operations with precision guided weapons. Follow-on improvements include ALE-47 improved defensive countermeasures, ALR-56M advanced RWR (Block 40 only), Very High Speed Integrated Circuit (VHSIC) technology in the APG-68(V5) fire-control radar, a ring-laser gyro INS, GPS, a LANTIRN nav/attack system, core avionics hardware, enhanced-envelope gunsight, digital flight controls, automatic terrain following, increased takeoff weight and maneuvering limits, an 8,000-hour airframe, IPEs, and expanded envelope nine-G capability.

F-16CJ designated Block 50/52 aircraft are equipped with the High-speed Anti-Radiation Missile (HARM) targeting system (HTS) for suppression of enemy air defenses (SEAD). Block 50/52 F-16CJs have MSIP Stage III improvements, which also show up in selected retrofits of earlier F-16 blocks. These aircraft incorporate the General Electric F110 and Pratt & Whitney F100 increased performance engines (IPEs), the latest cockpit control and display technology, including a wide-angle HUD. Weapons improvements include multishot AMRAAM compatibility, AGM-154 JSOW, and Wind-Corrected Munitions Dispenser (WCMD).

Block 50/52 aircraft, followed by Block 40/42 from 2006-10, have been undergoing a program of retrofit with a new modular mission computer developed under an F-16 common configuration implementation program (CCIP), aimed at extending operational flexibility and maintenance commonality. This effort includes the participating European governments of the F-16 Multinational Fighter Program. CCIP also includes new color displays, Sniper XR targeting pod, JHMCS, AIM-9X, Link 16, and improved weapons capabilities. First delivery was made January 2002. The Block 50/52 aircraft will have dual/alternate carriage of HARM targeting system (HTS) and Smart Targeting and Identification via Networked Geolocation (STING) and advanced targeting pods (ATP) in FY07. Planned future upgrades include enhanced GPS/INS (CG/CJ aircraft) and upgraded radar with SAR capability (CJ aircraft).

Under Falcon STAR (STructural Augmentation Roadmap), all blocks of F-16 aircraft are undergoing a structural modification program to remedy fatigue problems caused by increased usage rates and heavier than forecast gross weights. Delivery of modified aircraft started October 2004.

F-22A Raptor

Brief: High-technology follow-on for the F-15C. An all-weather, multirole fighter that combines an extremely maneuverable airframe with stealth technologies, supercruise, and integrated avionics to penetrate advanced anti-air threats and achieve air dominance.

Function: Fighter.

Operator: ACC, AETC, AFMC, ANG.

First Flight: Sept. 7, 1997.

Delivery: 2001 (first production representative aircraft).

IOC: Dec. 15, 2005.

Production: TBD.

Inventory: 47.

Unit Location: Langley AFB, Va. (first operational location), Edwards AFB, Calif., Nellis AFB, Nev., Tyndall AFB, Fla. (fighter training unit).

Contractor: Lockheed Martin; Boeing.

Power Plant: two Pratt & Whitney F119-PW-100 turbofans, each in 35,000-lb thrust class.

Accommodation: pilot only, on zero/zero ejection seat.

Dimensions: span 44.5 ft, length 62 ft, height 16.6 ft.

Weight: gross 50,000 lb.

Ceiling: 50,000 ft.

Performance (design target): max level speed at S/L 900+ mph, range more than 2,000 miles.

Armament: one internal M61A2 20 mm gun, two AIM-9 Sidewinders stored internally in the side weapons bays; six AIM-120 AMRAAMs in the main weapons bay; for ground attack two 1,000-lb JDAMs replace four AMRAAMs internally; up to eight Small Diameter Bombs (SDBs) can be carried in place of the two JDAMs (projected by 2009).

COMMENTARY

Intended to lead USAF's "kick down the door" force, by day and night, and across the spectrum of missions, the F-22A presents an unparalleled combination of stealth, supercruise (ability to cruise at supersonic speed without using its afterburners), maneuverability, and integrated avionics allowing it to counter multiple anti-access threats. Integrated avionics and intraflight data link permit simultaneous engagement of multiple targets. The combination of flight controls, structural strength, and high-performance engines with thrust vectoring nozzles results in exceptional maneuverability. The cockpit is fitted with six color LCDs. The Projection Primary Multifunction Display provides a plan view of the air and ground tactical situation, including threat identity, threat priority, and tracking information. Two displays give navigation, communication, identification, and flight information, with three secondary displays showing air and ground threats, stores management, and air threat information. A HUD displays target status, weapon status, weapon envelopes, and shoot cues. Other equipment includes AN/APG-77 radar, an electronic warfare system with radar warning receiver and missile launch detector, JTIDS, IFF, laser gyroscope inertial reference, and GPS.

The F-22A entered engineering and manufacturing development (EMD) in August 1991. Nine aircraft were built, three without avionics to explore flight characteristics, flutter, loads, propulsion, envelope expansion, and weapons separation, and six with avionics to complete integration work, refine the pilot vehicle interface, and fly guided weapons launch tests. In addition, one static and one fatigue test airframe were built.

Initial operational test and evaluation (IOT&E) examining the Raptor's air dominance mission concluded mid-September 2004. JDAM capability was demonstrated that same month. Follow-on OT&E (FOT&E) started in August 2005. The F-22A had achieved air-to-air and air-to-ground attack capability when it reached IOC in December 2005.

F-35 Joint Strike Fighter (Lockheed Martin photo/Tom Reynolds)

Production aircraft have been delivered to Nellis AFB, Nev., and to Tyndall AFB, Fla., where they are used to train F-22 pilots, and to Langley AFB, Va., the first operational base. USAF plans to put F-22s at Elmendorf AFB, Alaska, Hickam AFB, Hawaii, and Holloman AFB, N.M.

F-35 Joint Strike Fighter

Brief: An affordable, highly common family of next generation strike aircraft.

Function: Multirole fighter.

Operator: ACC for USAF.

First Flight: Oct. 24, 2000 (concept demonstrator).

Delivery: 2009 (anticipated first production aircraft).

IOC: 2013 (USAF).

Production: planned: 1,763 total F-35A and F-35B (USAF), 680 total F-35B (USMC) and F-35C (USN), 150 (UK).

Inventory: TBD.

Unit Location: TBD.

Contractor: Lockheed Martin, with Northrop Grumman and BAE Systems; Pratt & Whitney is propulsion contractor; General Electric is second source engine contractor for the production phase.

Power Plant: one Pratt & Whitney F135 or General Electric F136 turbofan (production), in 35,000-lb thrust class.

Accommodation: pilot only, on zero/zero ejection seat.

Dimensions: TBD.

Weight: TBD.

Ceiling: TBD.

Performance (design targets): mil power level speed at S/L, 600 miles knots calibrated airspeed (KCAS) for the F-35B short takeoff and vertical landing (STOVL) aircraft, 630 KCAS for the F-35 carrier variant (CV) and for the F-35A conventional takeoff and landing (CTOL) variant (Mach 1 max power for CTOL only), combat radius more than 590 miles for CTOL variant, 600 miles for CV, and 450 miles for STOVL.

Armament: (main weapons bay): CTOL: one internal gun, two AMRAAMs, and two 2,000-lb JDAMs. CV: two AMRAAMs and two 2,000-lb JDAMs. STOVL: two AMRAAMs and two 1,000-lb JDAMs. External carriage also will be available. (Note: Numerous other weapons capabilities will be added as system development continues.)

COMMENTARY: The F-35 Joint Strike Fighter is a multinational cooperative development program aimed at developing and fielding an affordable, highly common family of next generation strike fighters. For USAF, the F-35 will replace its current force of F-16 and A-10 aircraft with a stealthy multirole fighter that will comprise the bulk of USAF's fighter fleet for up to 50 years. This advanced multimission fighter is designed to penetrate high-threat enemy airspace and engage all enemy targets in any conflict. In addition to its advanced stealth design, the F-35 incorporates maneuverability, long range, and highly advanced avionics to accomplish the bulk of USAF missions. Its fully integrated avionics and weapons systems will permit simultaneous engagement of multiple targets in enemy airspace. USAF has stated intent to buy approximately 250 **F-35B** STOVL variants.

The concept demonstration phase (CDP) of the program commenced November 1996, with competitive contract awards to Lockheed Martin (X-35A) and Boeing (X-32A). CDP concluded in fall 2001 with Lockheed Martin declared the winner. The system development and demonstration (SDD) phase, begun in October 2001, focuses on system development, test and evaluation, logistics support, and LRIP planning. Lockheed Martin completed assembly of the first F-35A flight-test aircraft in February 2006 with flight testing projected to begin in late 2006. The F-35 is powered by a derivative of the Pratt & Whitney F119 engine, called the F135. General Electric is developing a physically and functionally interchangeable power plant, the F136, for competition in production.

F-117 Nighthawk

Brief: World's first operational aircraft designed to exploit low observable (LO) stealth technology to expand the range of heavily defended critical targets that can be attacked.

Function: Attack aircraft.

Operator: ACC, AFMC.

First Flight: June 18, 1981.

Delivered: 1982-summer 1990.

IOC: October 1983.

Production: 59.

Inventory: 55.

Unit Location: Eglin AFB, Fla., Holloman AFB, N.M.

Contractor: Lockheed Martin; Raytheon.

Power Plant: two General Electric F404-GE-F1D2 nonafterburning turbojets, each 9,040 lb thrust.

Accommodation: pilot only, on zero/zero ejection seat.

Dimensions: span 43.3 ft, length 65.9 ft, height 12.4 ft.

Weight: empty (estimated) 29,500 lb, max gross 52,500 lb.

Ceiling: 35,000 ft.

Performance: high subsonic, top speed 646 mph (0.9 Mach), mission radius, unrefueled (5,000-lb weapons load) 656 miles.

Armament: full internal carriage of a variety of tactical weapons, incl laser- and GPS-guided 2,000-lb munitions, unguided general-purpose bombs, and cluster munitions. JDAM capability being introduced.

COMMENTARY

F-117 is the Air Force's primary attack aircraft for penetrating high-threat target areas with precision weapons. Its small radar signature, LO technologies, and advanced targeting system allow the aircraft to penetrate dense threat environments and to deliver precision weapons against heavily defended, high-value targets with pinpoint accuracy. Primary missions include precision attack, air interdiction, SEAD, and special operations.

Acknowledged publicly in November 1988, the F-117's first operational deployment was to Panama in 1989 for Just Cause.

F-117A development and manufacture began simultaneously in November 1978 within a highly classified environment, using many parts either transferred or modified from existing aircraft. The F-117As were deployed with the 4450th Tactical Group (redesignated 37th TFW in 1989) at Tonopah Test Range Airfield, Nev., where operations were restricted mainly to night flying to maintain secrecy. In 1992, they were transferred to the 49th FW at Holloman AFB, N.M.

To achieve the aircraft's minimal radar signature, the skin panels of the arrowhead-shaped airframe are divided into many small, perfectly flat surfaces (facets), which deflect at a variety of angles all signals from probing hostile ground or airborne radars. In addition, much of the aircraft's external surface is made of composites and radar-absorbent materials. The F-117A's dull black finish reflects little light, and the engine air intakes and exhaust nozzles are above the wings and rear fuselage, respectively, to shield them from IR seekers below. The two nonafterburning turbofans give the aircraft low noise signature and high subsonic performance.

Key features include a state-of-the-art digital avionics suite integrating sophisticated navigation and attack systems, complemented by a specially developed automated mission-planning system. A high-precision INS coupled to GPS is installed. An upgraded dual-turret IR targeting system, combined with boresight laser designators and autotracker, ensures precision attack.

Other improvements since 1989 have included upgraded cockpit display and instrumentation and adverse weather capability via advanced weapons. Current and ongoing modifications provide a single, fleet-wide, optimum LO configuration, upgraded avionics to Block 2 configuration, integration of new weapons including JDAM for all-weather strike capability, and replacement of obsolete components to sustain the fleet through its service life. USAF plans to retire the F-117 over the next five years.

J-UCAS

Brief: Joint Unmanned Combat Air System program was to produce Air Force (X-45) and Navy (X-47) concept vehicles that would lead to a networked system of affordable, sophisticated stealthy weaponized unmanned combat air vehicles (UCAVs) capable of performing SEAD, strike, electronic attack, and intelligence-surveillance-reconnaissance (ISR) missions.

Function: Concept demonstrator UCAVs for SEAD/strike/electronic attack/reconnaissance missions.

First Flight: May 22, 2002.

Delivered: TBD.

Contractor: X-45: Boeing; X-47: Northrop Grumman.

Production: TBD.

Inventory: TBD.

Unit Location: TBD.

Power Plant: X-45A Honeywell F124-GA-100 turbofan.

Dimensions: X-45A: span 33.8 ft, height 3.7 ft, length 26.5 ft. X-45C: span approx 48 ft; length 36 ft.

Weight: approx 35,000 lb.

COMMENTARY

Under DOD plans released with the FY07 budget proposal and the 2005 Quadrennial Defense Review, the Navy will continue with the Joint Unmanned Combat Air System (J-UCAS) program, but the Air Force will cancel its X-45 and apply J-UCAS technology to efforts to field a new long-range strike platform.

X-45C concept featured a flying-wing-design with dual internal weapons bays capable of carrying two 2,000-lb JDAMs or eight-plus Small Diameter Bombs and stealth characteristics.

YAL-1A Attack Airborne Laser

Brief: The prototype YAL-1A, using a modified 747-400F platform, will be the world's first operational airborne

***F-117** Nighthawk* (Richard VanderMeulen)

***J-UCAS: X-45A** UCAV concept demonstrator* (Boeing photo/Ron Bookout)

high-energy laser weapon system.

Function: Airborne laser.

Operator: ACC.

First Flight: July 18, 2002 (Block 04 test bed).

Delivered: First aircraft undergoing testing of beam control system; separate testing of COIL system, installation of laser system.

IOC: FY12 (planned).

Production: TBD.

Inventory: TBD.

Unit Location: TBD.

Contractor: Boeing (ABL platform; battle management (BM) system); TRW (now Northrop Grumman) (COIL and subsystems); Lockheed Martin (beam control system).

Power Plant: four GE CF6-80 turbofans, each 61,500 lb thrust.

Accommodation: flight crew of two, plus four mission specialists.

Dimensions: span 211.4 ft, length 228.8 ft, height 63.7 ft.

Weight: empty 423,882 lb, gross 800,000 lb.

Ceiling: 45,000 ft.

Performance: max operating speed Mach 0.83, max laser weapon range hundreds of miles, unrefueled endurance at 40,000 ft with operational laser weapon load approx six hr. Chemical fuel carried on board will enable more than 20 shots.

COMMENTARY

The Airborne Laser (ABL) will become the first directed energy weapon in the US arsenal. The Missile Defense Agency (MDA) assumed overall direction and budget authority for the program in summer 2001. USAF continues to man and develop the program through its Airborne Laser System Program Office at Kirtland AFB, N.M.

Air Combat Command will have operational responsibility and currently plans to base the attack laser in CONUS but could deploy the ABL with minimal airlift support to any region of the world. It will arrive in theater with its crew, laser fuel, and initial spares ready to fight. Operational concepts call for ABLs to fly continuous patrols over deployed US forces, at an altitude of 40,000 ft. The aircraft will detect and shoot down any ballistic missiles launched at US forces or nearby allied nations. The ABL also will have the capability of determining hostile launch locations and passing that information to other US assets. As US forces achieve air superiority, ABL will be able to move closer to enemy territory. Once the decision is made to proceed with full production, USAF's acquisition community will assume responsibility for procurement; fleet size has not been determined.

It will employ a Chemical-Oxygen Iodine Laser (COIL) system, running down the interior of the aircraft. Laser fire will emerge through a large ball turret in the nose. Intended targets are ballistic missiles in their boost, or very earliest, phase of flight. ABLs represent the only near-term boost-phase missile defense. The system will track ballistic missiles and maintain laser focus on their skin, which, when sufficiently heated, will cause the pressurized fuel within to explode. The ABL can target ballistic missiles hundreds of miles away and thus can remain over friendly territory to kill ballistic missiles as they are launched.

The lightweight, megawatt-class COIL technology can deliver high energy over a great distance largely because of its IR wavelength. In addition to the COIL, the ABL houses three other lasers: the active ranger system, which provides preliminary tracking data; the track illuminator laser, which produces more refined data; and the beacon illuminator laser, which measures atmospheric disturbance.

Following a two-year structural modification, the ABL platform's first flight took place July 18, 2002 from Boeing's Wichita, Kan., facility. A 10-month laser module test was completed in 2002, and, in late 2002, the platform was flown to Edwards AFB, Calif. With YAL-1A in the hangar, tests have been conducted independently on the ABL optical system and the six laser modules that make up the complete COIL system. All six modules were successfully tested on Nov. 10, 2004.

The FY07 defense budget downgraded the program to a demonstration project, but officials say a planned test destruction of a boosting ballistic missile over the Pacific in 2008 is still planned and, if successful, could see resurrection of the program.

Reconnaissance and Surveillance Aircraft

E-3 Sentry

Brief: Heavily modified Boeing 707-320B aircraft, fitted with an extensive complement of mission avionics providing all-weather air surveillance and command, control, and communications for tactical and air defense forces.

Function: Airborne early warning, tactical battle management, and C2 of theater air forces.

E-3C Sentry (Richard VanderMeulen)

Operator: ACC, PACAF, AFRC (assoc.).

First Flight: Oct. 31, 1975 (full avionics).

Delivered: March 1977-84.

IOC: 1977.

Production: 34.

Inventory: 32.

Unit Location: Elmendorf AFB, Alaska, Kadena AB, Japan, Tinker AFB, Okla. AFRC: (assoc.) Tinker AFB, Okla.

Contractor: Boeing; Northrop Grumman (radar); Lockheed Martin (computer).

Power Plant: four Pratt & Whitney TF33-PW-100/100A turbofans, each 21,000 lb thrust.

Accommodation: flight crew of four; 13-19 mission specialists.

Dimensions: span 145.8 ft, length 152.9 ft, height 41.5 ft.

Weight: gross 347,000 lb.

Ceiling: 38,000 ft.

Performance: optimum cruise Mach 0.78, endurance eight hr unrefueled.

COMMENTARY

A critical component of the USAF inventory, the E-3 Airborne Warning and Control System (AWACS) aircraft is capable of surveillance from Earth's surface up to the stratosphere, over land or water, at more than 200 miles. During conflict it will coordinate the actions of hundreds of strike, support, and cargo aircraft. As an integrated Air Force command control battle management (C2BM,) surveillance, target detection and tracking platform, AWACS is directly subordinate to the joint air operations center. Its extensive range of mission avionics enables it to provide an accurate real-time battlespace picture of friendly, neutral, and hostile activity; command and control of an area of responsibility; battle management of theater forces; all-altitude/all-weather surveillance of the battlespace; and early warning of enemy actions.

AWACS may be employed alone or horizontally integrated with other C2BM and ISR elements. It provides the theater with ability to find, fix, track, and target airborne or maritime threats and to locate and identify emitters. It can operate beyond the coverage of ground-based C2 and can exchange data with other C2 platforms and weapon systems.

E-3A. Of the 24 built for USAF in standard production configuration, 22 were later upgraded.

An improved US/NATO Standard E-3A configuration was initiated with the 25th USAF Sentry, delivered in December 1981, with a larger-memory computer and a maritime detection capability. Nine were built new for USAF, and one of the original E-3As was upgraded.

E-3B is the upgraded earliest version E-3A. Twenty-two product prototypes were produced. Improvements include much-enhanced computer capabilities, jam-resistant communications, austere maritime surveillance capability, additional radio communications, and five additional display consoles.

E-3C is an upgrade to the original 10 US/NATO Standard E-3A aircraft, with additional radio, console, and radar capabilities. Redelivered 1984.

A series of major sustainability, reliability, and availability upgrades for USAF E-3s has been undertaken to support the continuing demands on the system. Upgrades include new passive detection systems, known as electronic support measures (ESM), that complement the active beaming radar, enabling the aircraft to detect signals emitted by both hostile and friendly targets, improved Joint Tactical Information Distribution System (JTIDS), jam-resistant communications, increased computer capacity, and GPS capability. Radar system improvements permit AWACS aircraft operating in the pulse-Doppler mode to detect smaller, stealthier targets. Installation begun in 2005 of new air traffic management systems and advanced satellite communications will permit use of optimum altitudes and flight routes. A single, long-term contract awarded in 2001 provides for further improvement and management support.

E-8C Joint STARS

Brief: A modified Boeing 707 equipped with a large, canoe-shaped radome mounted under the forward part

E-8C Joint STARS (USAF photo)

of the fuselage, housing long-range, air-to-ground radar capable of locating, classifying, and tracking vehicles moving on Earth's surface out to distances in excess of 124 miles. Such data are then transmitted via data link to ground stations or other aircraft.

Function: Ground surveillance, battle management (BM), C2 aircraft.

Operator: ACC and ANG, as the blended 116th Air Control Wing.

First Flight: December 1988.

Delivered: May 1996-present

IOC: Dec. 18, 1997.

Production: 18.

Inventory: 18.

Unit Location: Robins AFB, Ga.

Contractor: Northrop Grumman; Motorola; Cubic; Raytheon.

Power Plant: four Pratt & Whitney TF33-102C turbojets, each 19,200 lb thrust.

Accommodation: mission crew of 21 Air Force/Army operators (can be augmented to 34).

Dimensions: span 145.8 ft, length 152.9 ft, height 42.5 ft.

MQ-1 Predator (Richard VanderMeulen)

Weight: gross 336,000 lb.

Ceiling: 42,000 ft.

Performance: max operating speed Mach 0.84, endurance with one in-flight refueling 20 hr.

COMMENTARY

Joint STARS (Surveillance Target Attack Radar System) is a battle management (BM) platform capable of providing commanders with transformational C2 and near-real time wide area surveillance ultimately passing targeting information to air and ground commanders. Joint STARS battle managers use the sensor and a robust communications suite to engage enemy forces in day, night, and adverse weather conditions. The radar subsystem features a multimode, side-looking, phased-array radar that provides interleaved moving target indicator (MTI) information, synthetic aperture radar (SAR) imagery, and fixed target indicator imagery. Joint STARS downlinks via a secure, jam-resistant digital data link and beyond line of sight satellite radio communications. Multiple receivers are in use, predominantly the US Army's Common Ground Station and Joint Services Work Station.

As part of their operational test and evaluation, Joint STARS aircraft flew more than 150 operational missions during Desert Storm (with two E-8A development aircraft) and Joint Endeavor (with one E-8A and one test bed E-8C). During Iraqi Freedom, EC-8C Joint STARS aircraft were airborne 24 hours a day to help coalition forces maintain battlefield awareness. The E-8C's unique, long-dwell MTI capability is being used in increasingly creative ways, keeping it relevant to the joint force commander.

E-8A. Prototype version, with specialized equipment installed aboard two specially modified 707-300 airframes. One was converted to an in-flight pilot trainer in 1997, and the second was scrapped.

E-8C. Production version, based on former commercial 707-300 airframes. Equipped with 18 operations and control consoles, two of which double as communications stations, all the aircraft have been modified to the more capable Block 20 aircraft, featuring more powerful computers and an Internet protocol local area network. The first E-8C became operational in 1996, and these aircraft are expected to remain airworthy until at least 2034. System improvements under way include Link 16 upgrade for improved control and battle management; enhanced radar modes; new satellite communications radios; upgrades to allow Joint STARS to assume the Airborne Battlefield Command and Control Center (ABCCC) mission of attack support to ground force commanders; installation of the Force XXI Battle Command Brigade and Below (FBCB2) terminal, greatly enhancing situational awareness to friendly forces; IP connectivity; and communications navigation surveillance air traffic management upgrades to permit use of optimum altitudes and flight routes in increasingly congested commercial airspace in response to new stringent international navigation standards.

E-10

Brief: A multisensor command and control aircraft (MC2A) that will provide ground surveillance and cruise missile defense as well as battlefield management command and control (BMC2).

Function: Ground surveillance, cruise missile defense, and BMC2 aircraft.

Production: TBD.

Inventory: TBD.

Unit Location: TBD.

Contractor: Northrop Grumman; Boeing; and Raytheon.

Power Plant: two General Electric CF6-80C2B8F or CF6-80C2B6FA turbofans.

Accommodation: TBD.

Dimensions: span 170.3 ft, length 201.3 ft, tail height 55.3 ft.

Weight: TBD.

Ceiling: TBD.

Performance: TBD.

COMMENTARY

The **E-10A** program is in a "strategic pause," according to Air Force officials. The Air Force plans to re-examine costs and joint requirements, including the possibility of joining with the other services on a single platform.

USAF envisioned the E-10 as a replacement for the E-8 Joint STARS and possibly taking on roles currently fulfilled by the E-3 AWACS and RC-135 Rivet Joint.

In May 2003, a team comprising Northrop Grumman, Boeing, and Raytheon was awarded a presystem development and demonstration contract for weapons system integration. Development of the demonstration radar system was awarded to Northrop Grumman, with Raytheon as a major subcontractor in April 2004.

MQ-1 Predator

Brief: A medium-altitude, long-endurance unmanned aerial vehicle (UAV), flown remotely. Joint force commander multimission asset, combining imagery sensors with strike capability.

Function: Unmanned reconnaissance and strike aircraft.

Operator: ACC; AFSOC and ANG (planned).

First Flight: July 1994.

Delivered: July 1994 (USAF from 1996)-present.

IOC: 2003.

Production: 157 air vehicles—ongoing.

Inventory: five.

Unit Location: Creech AFB, Nev., Nellis AFB, Nev.

Contractor: General Atomics Aeronautical Systems.

Power Plant: one Rotax 914 turbocharged engine.

Accommodation: unmanned system.

Dimensions: length 27 ft, height 7.2 ft, span 48.7 ft.

Weight: empty 950 lb, gross 2,250 lb.

Ceiling: 25,000 ft.

Performance: cruise speed 80 mph, up to 138 mph, endurance 24 hr (460 miles with 16 hr on station).

Armament: Two Hellfire missiles.

COMMENTARY

Operated currently by the 11th, 15th, and 17th RSs, the Predator UAV has evolved into a vital component of USAF's warfighting inventory. A Predator system includes four air vehicles, a ground control station, satellite link, and about 55 personnel for 24-hour operations. The Predator crew comprises a pilot and two sensor operators.

DOD first used the advanced concept technology demonstration (ACTD) Predator in 1995 to support Provide Promise. In 1997, USAF took over the Predator program, and in 1999, while the UAV was still in development, the service deployed the system operationally for surveillance missions over Bosnia and Iraq. In July 2001, USAF successfully experimented with Predators armed with Hellfire missiles, and the system has since been used to attack targets in Afghanistan, Yemen, and Iraq. USAF changed the designation for Predator A to MQ-1 to denote its multimission capability for both reconnaissance and strike. All RQ-1 aircraft have been or will be retrofitted for MQ-1 configuration.

MQ-1 designates the weaponized Predator A. It carries an MTS sensor ball supplied by Raytheon in place of the Wescam sensor ball. The MTS provides a laser target designator with EO/IR sensors in a single package. The SAR must be removed to make room for some of the laser designator equipment. The MQ-1 can be controlled via direct line of sight or via satellite from a remote location. Today, most Predator missions are controlled remotely from the US.

RQ-1A. The ACTD version of Predator A.

RQ-1B. The reconnaissance-only version of Predator A, with an internal 450-lb surveillance payload that includes two EO and one IR video cameras carried in a ball-shaped turret under the nose and produced by Wescam. The internal sensor payload also includes a SAR still imagery camera for a day/night, all-weather reconnaissance capability. USAF is retrofitting RQ-1Bs to MQ-1 configuration.

MQ-9

Brief: A medium-altitude, long-endurance UAV, flown remotely. Joint force commander multimission asset combining imagery sensors with expanded strike capability.

Function: Unmanned reconnaissance and strike aircraft.

Operator: ACC.

First Flight: February 2001.

Delivered: November 2003.

IOC: FY09.

Production: 60 (planned).

Inventory: seven.

Unit Location: Creech AFB, Nev.

Contractor: General Atomics Aeronautical Systems.

Power Plant: one Honeywell TPE-331-10T turboprop engine or Williams FJ44-2A turbojet engine.

Accommodation: unmanned system.

Dimensions: length 36.2 ft, span 64 ft.

Weight: empty 6,000 lb, gross 10,000 lb.

Ceiling: 50,000+ ft.

Performance: cruise speed 172 mph, up to 230 mph, endurance 30+ hours.

Armament: Hellfire, GBU-12, JDAM, and SDB.

COMMENTARY

Developed initially under an internal company research and development effort, USAF acquired two 7,500-lb gross UAV prototypes (known by General Atomics as Predator B) in October 2001 to evaluate their capability as a weapons platform and to carry an enhanced sensor payload. In June 2002, USAF issued a contract for a 10,000-lb prototype, based on the earlier models and has since committed to full production of this variant.

The MQ-9 hunter-killer UAV flies higher, faster, and has significantly greater payload capacity than the MQ-1. With its 750-lb internal payload capacity and a turboprop engine, the MQ-9 will be able to carry numerous payloads such as a larger, more capable camera system, SAR, MTS, and other detection systems. Its 3,000-lb external payload capacity will enable it to carry a combination of air-to-ground munitions. Like the MQ-1 Predator, the MQ-9 can be flown line of sight or remotely via satellite link. The official name for this version has yet to be determined.

OC-135 Open Skies

Brief: A modified C-135 aircraft that flies unarmed observation and verification flights over nations that are parties to the 1992 Open Skies Treaty.

Function: Reconnaissance aircraft.

Operator: ACC.

First Flight: June 1993.

Delivered: October 1993-96.

IOC: October 1993.

Production: three.

Inventory: two.

Unit Location: Offutt AFB, Neb.

Contractor: Boeing.

Power Plant: four Pratt & Whitney TF33-P-5 turbofans, each 16,050 lb thrust.

Accommodation: seating for 35, incl cockpit crew, aircraft maintenance crew, foreign representatives, and crew

members from the Defense Threat Reduction Agency.

Dimensions: span 131 ft, length 135 ft, height 42 ft.

Weight: gross 297,000 lb.

Ceiling: 50,000 ft (basic C-135).

Performance: speed: 500+ mph, unrefueled range 3,900 miles.

COMMENTARY

A mocified version of the WC-135, used for specialized arms control treaty observation and imagery collection missions with vertical-looking and panoramic optical cameras installed in the rear of the aircraft.

OC-135B modifications include one vertical and two oblique KS-87E framing cameras, used for photography approximately 5,000 ft above the ground, and one KA-91C panoramic camera, which pans from side to side to provide a wide sweep for each picture, used for high-altitude photography up to approximately 35,000 ft. Data is processed and recorded by a recording and annotation system.

RC-135

Brief: Specially configured variant of the Boeing C-135 Stratolifter, having an elongated nose and cheeks containing highly advanced electronic signal collection systems. Used to acquire real-time electronic intelligence (Elint) data for theater and tactical commanders.

Function: Electronic reconnaissance aircraft.

Operator: ACC.

First Flight: not available.

Delivered: circa 1973-99.

IOC: circa 1973 (Rivet Joint).

Production: (converted).

Inventory: 22.

Unit Location: Offutt AFB, Neb.

Contractor: Boeing (airframe); Raytheon; Textron.

Power Plant: four Pratt & Whitney TF33-P-5/9 turbofans, each 18,000 lb thrust. (Replaced with CFM International CFM-56s in one W version.)

Accommodation: flight crew of four; 25-35 mission crew.

Dimensions: (Cobra Ball) span 131 ft, length 140 ft, height 42 ft; (Cobra Sent) span 135 ft, length 136 ft; (Rivet Joint) height 38 ft.

Weight: max gross 299,000 lb.

Ceiling: 35,000 ft.

Performance: speed 500+ mph, range, with air refueling, unlimited.

COMMENTARY

The 55th Wing at Offutt AFB, Neb., operates a highly specialized fleet of RC-135s for worldwide reconnaissance missions. All are subject to ongoing modernization, with upgrade of avionics and primary mission equipment to expand capability and maintain effectiveness.

RC-135S Cobra Ball (CB). Three aircraft. Cobra Ball collects measurement and signature intelligence (Masint) data, providing the capability to monitor missile-associated signal activity and to track missiles during boost and re-entry phases of flight. Cobra Ball can deploy anywhere in the world in 24 hours and provide on-scene EO reconnaissance for treaty verification and theater ballistic missile proliferation. Equipment includes wide-area IR sensors, long-range optical cameras, and an advanced communications suite.

RC-135U Combat Sent (CS). Two aircraft. Each Combat Sent aircraft has a specifically designed signals intelligence (Sigint) suite used primarily to collect scientific and technical (S&T) electronic intelligence (Elint) data against air-, land-, and sea-based emitter systems. The accuracy of CS data is critical to the effective design, programming, and reprogramming of radar warning receivers as well as jammers, decoys, and anti-radiation missiles and to the development of effective threat simulators.

RC-135V/W Rivet Joint (RJ). Seventeen aircraft. Rivet Joint is a self-contained standoff airborne signals intelligence (Sigint) collection system. Its primary role is to exploit the "electronic" battlefield and deliver near-real-time (NRT) intelligence-surveillance-reconnaissance (ISR) information to tactical forces, unified commanders, and national command authorities across the full spectrum of conflict. Onboard collection capabilities encompass rapid search, detection, measurement, identification, demodulation, geolocation, and fusion of data from potentially thousands of electronic emitters.

TC-135S/W. Used for training purposes.

***U-2** Dragon Lady* (Lockheed Martin photo)

***RQ-4** Global Hawk* (Northrop Grumman photo)

RQ-4 Global Hawk

Brief: A high-altitude, long-range, long-endurance UAV.

Function: Unmanned reconnaissance aircraft.

Operator: ACC.

First Flight: Feb. 28, 1998.

Delivered: seven advanced concept technology demonstrators; five production vehicles.

IOC: Used operationally in Afghanistan and Iraq while still in development phase. Operational status achieved October 2004.

Production: 51 (planned).

Inventory: nine.

Unit Location: Beale AFB, Calif., Eglin AFB, Fla.

Contractor: Northrop Grumman (prime); Raytheon.

Power Plant: one Rolls Royce-North American AE 3007H turbofan, 7,600 lb thrust.

Accommodation: unmanned system.

Dimensions: RQ-4A: length 44.4 ft, height 15.2 ft, span 116.2 ft.; RQ-4B: length 47.6 ft, span 130.9 ft.

Weight: gross (RQ-4A) 25,600 lb; (RQ-4B) 32,250 lb.

Ceiling: 65,000+ ft.

Performance: objective endurance up to 40 hr (RQ-4B 33 hr) at a cruise speed of 400 mph and at an altitude of 65,000 ft allowing loiter on station 1,380 miles from base for 24 hr. Combat range 15,525 miles.

Armament: none.

COMMENTARY

The **RQ-4A** is a high-altitude endurance UAV carrying a 1,900-lb payload, incorporating EO/IR and SAR sensors that permit switching among radar, IR, and visible wavelengths as required. The Global Hawk system operates in conjunction with its ground launch recovery element and mission control element for command and control.

The **RQ-4B** system increases payload capacity to 3,000 lb for future sensors/capabilities, including signals collection and electronics intelligence. Navigation is by GPS/INS. Global Hawk flies autonomously from takeoff to landing, providing near-real-time imagery products for tactical and theater commanders. Vehicle ground track and mission plan can be updated in real time to respond to changing air traffic control needs and/or mission collection needs.

Global Hawk began as an advanced concept technology demonstrator in 1995. Engineering and manufacturing development (EMD) was approved in March 2001. While still a development system, Global Hawk deployed operationally to support Enduring Freedom in Afghanistan in November 2001, flying more than 50 missions and 1,000 combat hours.

Global Hawk provides continuous, all-weather, day/night, wide area surveillance. It will operate in low-to-moderate air defense threat environments with the ability to fly above or stand off from enemy defenses. The Navy has purchased two Global Hawks for a maritime demonstration.

U-2 Dragon Lady

Brief: Single-seat, single-engine, high-altitude endurance reconnaissance aircraft carrying a wide variety of sensors and cameras, providing continuous day or night, high-altitude, all-weather area surveillance in direct support of US forces.

Function: High-altitude reconnaissance.

Operator: ACC.

First Flight: Aug. 4, 1955 (U-2); 1967 (U-2R); October 1994 (U-2S).

Delivered: 1955-October 1989.

IOC: circa 1956.

Production: 35 (U-2S/ST).

Inventory: 34.

Unit Location: Beale AFB, Calif.

Contractor: Lockheed Martin.

Power Plant: F118-GE-101 turbojet.

Accommodation: one (two for trainer).

Dimensions: span 103 ft, length 63 ft, height 16 ft.

Weight: gross 40,000 lb.

Ceiling: above 70,000 ft.

Performance: speed 475 mph; range more than 4,500 miles; max endurance 10+ hr.

COMMENTARY

The U-2 is the Air Force's premier high-altitude reconnaissance platform, capable of carrying multi-int sensors simultaneously, making it USAF's only truly operational multi-intelligence platform and a key performer in combat operations.

Although the U-2 was designed initially in the 1950s, current aircraft were produced primarily in the 1980s, when the production line was reopened to produce the TR-1, a significantly larger and more capable version than the earlier aircraft. Deliveries ended in October 1989.

U-2R (single-seat) and **U-2RT** (two-seat) aircraft. In 1992, all existing U-2s and tactical TR-1s were consolidated under the designation U-2R.

U-2S (single-seat) and **TU-2ST** (two-seat). The current designations of all aircraft in the inventory. Conversion to S model configuration began in October 1994. Included in the on-going $1.5 billion improvement program are new F118-GE-101 engines, a complete electrical system replacement, a new glass cockpit using multifunction displays (MFDs), a digital autopilot, an electro-optical view sight, and a new electronic warfare system. Sensor upgrades include the ASARS-2A SAR sensor, which provides enhanced imaging modes and improves geo-location accuracy; the SYERS-2 EO imagery system provides

DOD's only multispectral and IR capability; enhanced RF-intelligence capability; and new data links enable the U-2 to connect in near real time with network-centric hubs as well as line of sight ground stations, airborne data relays, and beyond line of sight satellite data relays simultaneously.

NASA has two ER-2 versions of the U-2 used for high-altitude scientific experiments and atmospheric research, including investigation of global ozone depletion.

WC-130 Hercules

Brief: A high-wing, medium-range aircraft flown by AFRC for weather reconnaissance missions. It flies into the eye of tropical cyclones or hurricanes, collecting weather data from within the storm's environment.

Function: Weather reconnaissance aircraft.
Operator: AFRC.
First Flight: circa 1959.
Delivered: October 1999-2002.
IOC: 1959.
Production: no new-build WC-130H; 10 WC-130J.
Inventory: 10 (H); 10 (J).
Unit Location: AFRC: Keesler AFB, Miss.
Contractor: Lockheed Martin.
Power Plant: WC-130J: four Rolls Royce AE2100D3 turboprops, each 4,500 shp.
Accommodation: six.
Dimensions: WC-130J: span 132.6 ft, length 97.8 ft, height 38.9 ft.
Weight: WC-130J: gross 175,000 lb.
Ceiling: WC-130J: 30,500 ft.
Performance: speed 374 mph at 20,000 ft.
COMMENTARY

The WC-130 is flown by AFRC organizations known as the Hurricane Hunters. The hurricane reconnaissance area includes the Atlantic Ocean, Caribbean Sea, Gulf of Mexico, and central Pacific Ocean areas.

WC-130B/E. Early version C-130 modified for weather reconnaissance. Now retired.

WC-130H. Later version C-130s modified for weather reconnaissance duties, equipped with two external 1,400-gallon fuel tanks, an internal 1,800-gallon fuel tank, and uprated Allison T56-A-15 turboprops, each 4,910 shp. The 10 WC-130H aircraft still counted in the inventory have been recycled for other operational uses.

Function: Airborne operations center.
Operator: ACC.
First Flight: June 13, 1973 (E-4A); June 10, 1978 (E-4B).
Delivered: December 1974-85.
IOC: December 1974 (E-4A); January 1980 (E-4B).
Production: four.
Inventory: four.
Unit Location: Offutt AFB, Neb.
Contractor: Boeing; Rockwell; Raytheon E-Systems.
Power Plant: four General Electric CF6-50E2 turbofans, each 52,500 lb thrust.
Accommodation: up to 114 (63 crew/battle staff; 51 passengers.
Dimensions: span 195.7 ft, length 231.3 ft, height 63.4 ft.
Weight: gross 800,000 lb.
Ceiling: above 40,000 ft.
Performance: 6,900+ miles; unrefueled endurance in excess of 12 hr; with aerial refueling up to 72 hr.
COMMENTARY

A militarized version of the Boeing 747-200, E-4B aircraft perform the National Airborne Operations Center (NAOC) mission. The E-4B fleet provides a survivable C3 platform throughout the full threat spectrum, including sustained operations in a nuclear environment. First operational mission was flown in March 1980.

E-4Bs are hardened against the effects of nuclear explosions, including electromagnetic pulse, and have in-flight refueling capability. A 1,200-kVA electrical system supports advanced system electronics as well as state-of-the-art communications and data processing equipment such as EHF Milstar satellite terminals and six-channel International Maritime Satellite (Inmarsat). A triband radome also houses the E-4B's superhigh frequency (SHF) frequency division multiple access (FDMA) communications antenna, the only such system on an airborne platform.

The E-4B system is capable of linking with commercial telephone and radio networks and could be used for radio broadcasts to the general population. E-4Bs also support the Federal Emergency Management Agency (FEMA).

In early 2000, the E-4B entered the SDD phase of a modernization program aimed at updating the electronic infrastructure supporting the aircraft's primary mission equipment and increasing the bandwidth of external communications and onboard data transfer. These updates, along with changes to the aircraft's interior configuration, internal noise reduction modifications, BM improvements, and Global Air Traffic Management (GATM) avionics modifications, ensure the E-4B aircraft will effectively execute its NAOC mission, providing C3 in the homeland security environment and beyond for the foreseeable future.

EC-130 Commando Solo

Brief: A heavily modified C-130 used for EW and electronic combat.

Function: psychological warfare.
Operator: ANG.
First Flight: January 1990.
Delivered: March 1990 (J model from 2003).
IOC: December 1990.
Production: (no new-build E); seven (J).
Inventory: four (E); six (J).
Unit Location: ANG: Harrisburg Arpt., Pa.
Contractor: Lockheed Martin; Raytheon; General Dynamics.
Power Plant: (EC-130E) T-56-A-1S turboprops, each 4,200 shp; (EC-130J) four Rolls Royce-Allison AE2100D turboprops, each 4,591 shp.
Accommodation: three flight crew, six mission (J).
Dimensions: EC-130J: span 132.6 ft, length 97.8 ft, height 38.9 ft.
Weight: EC-130J: gross 175,000 lb.
Ceiling: EC-130J: 30,500 ft.
Performance: speed 299 mph, range in excess of 2,100 miles; (C-130J) 393 mph, range 4,140 miles.
COMMENTARY

EC-130E ABCCC Airborne Battlefield Command and Control Center. Seven aircraft were updated by Unisys to ABCCC III standard. The advanced JTIDS received data transmitted by AWACS aircraft and other systems, enabling the crew to see a real-time picture of air operations over a combat area. Now retired.

EC-130E Commando Solo. Version used by the ANG as a broadcasting station for psychological warfare operations. Specialized modifications include enhanced navigation systems, self-protection equipment, and world-wide color television configuration. Now being replaced by EC-130J version.

EC-130J Commando Solo II. Specialized versions of the latest-model C-130 aircraft, ordered to replace E models, with current mission equipment transferred from the older E model Commando Solo aircraft. Entered service mid-2003 with the 193rd SOW (ANG).

Commando Solo aircraft have been used in numerous military operations, including Iraqi Freedom. They also have a role in civil emergencies. Secondary mission is electronic attack in the military frequency spectrum.

EC-130H Compass Call

Brief: A heavily modified C-130 for electronic combat.

Function: Electronic warfare.
Operator: ACC.
First Flight: 1981.
Delivered: 1982.
IOC: 1983; (Block 30) February 1999.
Production: (converted).
Inventory: 14.
Unit Location: Davis-Monthan AFB, Ariz.
Contractor: Lockheed Martin.
Power Plant: four Allison T56-A-15 turboprops, each 4,910 shp.
Accommodation: standard crew 13, incl 9 mission.

***EC-130J** Commando Solo II* (Capt. Denise Boyd)

WC-130J. Weather-reconnaissance version of the latest C-130 model, operated by the 53rd WRS for weather reconnaissance duties, including penetration of tropical storms, to obtain data for forecasting storm movements. Features include improved radar, four Rolls Royce AE2100D3 turboprops, and Dowty 391 six-bladed composite propellers.

An average weather reconnaissance mission might last 11 hours and cover almost 3,500 miles while the crew collects and reports weather data every minute. Results are transmitted via satellite to the National Hurricane Center, Miami.

Special Duty Aircraft

E-4B National Airborne Operations Center

Brief: A four-engine, swept-wing, long-range, high-altitude airplane providing a highly survivable C3 center allowing national/defense leaders to direct US forces, execute emergency war orders, and coordinate actions by civil authorities.

***KC-135R** Stratotanker* (A1C Nathan Putz)

***MC-130P** Combat Shadow preparing to refuel HH-60* (SSgt. Lanie McNeal)

Dimensions: span 132.6 ft, length 99 ft, height 38 ft.
Weight: 155,000 lb.
Ceiling: 25,000 ft.
Performance: speed 374 mph at 20,000 ft.
COMMENTARY
A variant used as an airborne communications jamming and information warfare platform. The system disrupts enemy C2 communications. Modifications include electronic attack (EA) system and air refueling capability. Programmed upgrades will expand the EC-130Hs mission by procuring a secondary EA capability against early warning and acquisition radars. Completion expected FY11.

Tanker Aircraft

HC-130N/P
Brief: An extended-range, combat search and rescue (CSAR)-configured C-130 that extends the range of rescue helicopters through in-flight refueling and performs tactical delivery of pararescue jumper (PJ) specialists and/or equipment in hostile environments.
Function: Aerial refueling/transport.
Operator: AETC, AFSOC, ANG, AFRC.
First Flight: Dec. 8, 1964 (as HC-130H).
Delivered: from 1965.
IOC: 1986.
Production: (converted).
Inventory: 10 (N); 22 (P).
Unit Location: Active: Davis-Monthan AFB, Ariz., Kirtland AFB, N.M., Moody AFB, Ga. ANG: Francis S. Gabreski Arpt., N.Y., Kulis ANGB, Alaska. AFRC: Patrick AFB, Fla.
Contractor: Lockheed (now Lockheed Martin).
Power Plant: four Allison T56-A-15 turboprops, each 4,910 shp.
Accommodation: four flight crew, plus mission crew.
Dimensions: span 132.6 ft, length 98.8 ft, height 38.5 ft.
Weight: gross 155,000 lb.
Ceiling: 33,000 ft.
Performance: speed 289 mph, range more than 4,000 miles.
COMMENTARY
The HC-130 can perform extended visual/electronic searches over land or water and operate from unimproved airfields. A three-man PJ team, trained in emergency trauma medicine, harsh environment survival, and assisted evasion, is part of the normal mission crew complement.
Combat air forces' HC-130 aircraft are equipped with an integrated GPS/INS navigation package, radar/missile warning receivers, and chaff/flare countermeasures dispensers. Some aircraft have FLIR systems and personnel locating systems (PLS) compatible with aircrew survival radios. Additional modifications include an improved digital low-power color radar, integrated satellite communications radio, NVG-compatible interior/exterior lighting, and cockpit armor. The C-130 avionics modernization program (AMP) provides for complete update of the HC-130 avionics. Four retired EC-130E ABCCC and 10 WC-130H aircraft are converting to HC-130 standard.

KC-10 Extender
Brief: A modified McDonnell Douglas DC-10 that combines in a single aircraft the operations of aerial refueling and long-range cargo transport.
Function: Aerial refueling/transport.
Operator: AMC, AFRC (assoc.).
First Flight: April 1980.
Delivered: March 1981-April 1990.
IOC: August 1982.
Production: 60.
Inventory: 59.
Unit Location: McGuire AFB, N.J., Travis AFB, Calif. AFRC: (assoc.) Travis AFB, Calif., McGuire AFB, N.J.
Contractor: McDonnell Douglas (now Boeing).
Power Plant: three General Electric CF6-50C2 turbofans, each 52,500 lb thrust.
Accommodation: crew of four; additional seating possible for up to 75 persons with 17 pallets; max 27 pallets; max cargo payload 169,409 lb.
Dimensions: span 165.4 ft, length 181.6 ft, height 58.1 ft.
Weight: gross 593,000 lb.
Ceiling: 42,000 ft.
Performance: cruising speed Mach 0.825, range with max cargo 4,400 miles.
COMMENTARY
The KC-10 combines the tasks of tanker and cargo aircraft in a single unit, enabling it to support worldwide fighter deployments, strategic airlift, strategic reconnaissance, and conventional operations.
The KC-10 can be air refueled by a KC-135 or another KC-10, increasing its range and diminishing the need for forward bases, leaving vital fuel supplies in the theater of operations untouched.
KC-10A is a DC-10 Series 30CF, modified to include fuselage fuel cells, an air refueling operator's station, aerial refueling boom and integral hose reel/drogue unit, a receiver refueling receptacle, and military avionics. Wing-mounted pods enhance the aircraft's capabilities. Other modifications include the addition of communications, navigation, and surveillance equipment to meet civil air traffic control requirements.
Because it has both types of tanker refueling equipment installed, the KC-10A can service USAF, USN, USMC, and allied aircraft on the same mission. Special lighting permits night operations.

KC-135 Stratotanker
Brief: A short- to medium-range tanker aircraft, meeting the air refueling needs of USAF bomber, fighter, cargo, and reconnaissance forces. It also supports USN, USMC, and allied aircraft.
Function: Aerial refueling/airlift.
Operator: AETC, AFMC, AMC, PACAF, USAFE, ANG, AFRC.
First Flight: August 1956.
Delivered: January 1957-66.
IOC: June 1957, Castle AFB, Calif.
Production: 732.
Inventory: 117 (B/D/E); 364 (R); 54 (T).
Unit Location: Altus AFB, Okla., Fairchild AFB, Wash., Grand Forks AFB, N.D., Kadena AB, Japan, MacDill AFB, Fla., McConnell AFB, Kan., RAF Mildenhall, UK, Robins AFB, Ga. ANG: 21 units. AFRC: eight units.
Contractor: Boeing.
Power Plant: KC-135R/T: four CFM International F108-CF-100 turbofans, each 22,224 lb thrust; KC-135E: four Pratt & Whitney TF33-PW-102 turbofans, each 18,000 lb thrust.
Accommodation: crew of four; up to 80 passengers.
Dimensions: span 130.8 ft, length 136.2 ft, height 38.3 ft.
Weight: empty 119,231 lb, gross 322,500 lb (KC-135E 301,600 lb).
Ceiling: 50,000 ft.
Performance: max speed at 30,000 ft 610 mph, range with max fuel 11,015 miles.
COMMENTARY
Mainstay of the USAF tanker fleet, the long-serving KC-135 is similar in size and appearance to commercial 707 aircraft but was designed to military specifications, incorporating different structural details and materials. The KC-135 fuel tanks are located in the "wet wings" and in fuel tanks below the floor in the fuselage.
KC-135A. Original version with J57 turbojets. USAF built 732, since modified to other standards.
KC-135E/D. The JT3D re-engining program upgraded USAF, AFRC, and ANG KC-135As to KC-135E standard with JT3D turbofans and related components removed from surplus commercial 707s; fuel carrying capacity increased by 20 percent. The KC-135Es in service with the ANG and AFRC represent some of the oldest aircraft in the USAF inventory. Four KC-135Ds are similar but have minor configuration differences as they were converted from RC-135A aircraft.
KC-135R/T. Designation of re-engined KC-135A/Es with F108 turbofans. They embody modifications to 25 major systems and subsystems and not only carry more fuel farther but have reduced maintenance costs, are able to use shorter runways, and meet Stage III (noise abatement) requirements. The first KC-135R flight was in October 1982, and deliveries began in July 1984. KC-135T aircraft (formerly KC-135Q) were capable of refueling the now-retired SR-71s and retain the capability to carry different fuels in the wing and body tanks. Eight KC-135Rs are air refuelable. Twenty KC-135Rs have wing-mounted refueling pods for enhanced refueling of USN and NATO aircraft.
Ongoing modifications are extending the capability and operational utility of the KC-135. The Pacer CRAG avionics modernization program installed a new compass, radar, and GPS navigation systems, a traffic alert and collision avoidance system (TCAS), and new digital multifunctional cockpit displays. The Global Air Traffic Management (GATM) modification further improves the avionics, ensuring future access into premium airspace. Forty KC-135R/T aircraft are outfitted with the capability to relay Link 16 tactical information beyond line of sight of other aircraft.

MC-130P Combat Shadow
Brief: Aircraft that flies clandestine or low-visibility, low-level missions into denied areas to provide air refuel-

***C-5** Galaxy* (TSgt. Michael O'Halloran)

ing for special operations forces (SOF) helicopters or to air-drop small special operations teams, small bundles, and zodiac and combat rubber raiding craft.

Function: Air refueling for SOF helicopters/airdrop.
Operator: AETC, AFSOC, ANG, AFRC.
First Flight: Dec. 8, 1964 (as HC-130H).
Delivered: from 1965.
IOC: 1986.
Production: (converted).
Inventory: 27.
Unit Location: Active: Eglin AFB, Fla., Kadena AB, Japan, Kirtland AFB, N.M., RAF Mildenhall, UK. ANG: Moffett Field, Calif. AFRC: Duke Field, Fla.
Contractor: Lockheed Martin (airframe); Boeing.
Power Plant: four Allison T56-A-15 turboprops, each 4,910 shp.
Accommodation: four flight crew, plus four mission crew.
Dimensions: span 132.6 ft, length 98.8 ft, height 38.5 ft.
Weight: gross 155,000 lb.
Ceiling: 33,000 ft.
Performance: speed 289 mph, range more than 4,000 miles.
COMMENTARY
MC-130P Combat Shadow aircraft are currently tasked with clandestine formation or single-ship intrusion of hostile territory to provide aerial refueling of special operations helicopters and the infiltration, exfiltration, and resupply of SOF by airdrop or air-land operations. To perform these missions, depending upon the enemy threat, crews navigate using both visual and electronic means or visual means only. Primary emphasis is on NVG operations.

Modifications include improved secure communications, advanced integrated navigation equipment, including digital scan radar, ring-laser gyro INS, FLIR, GPS, and dual nav stations, and missile warning systems and countermeasures for refueling missions in hostile environments.

***C-17** Globemaster III* (Richard VanderMeulen)

Some aircraft have been modified with an in-flight refueling system allowing them to be air refuelable.

Strategic Transports

C-5 Galaxy
Brief: A heavy-lift, air refuelable cargo transport for massive strategic airlift over long ranges, including outsize cargo. Supports special operations missions.
Function: Cargo and troop transport.
Operator: AETC, AFMC, AMC, ANG, AFRC.
First Flight: June 30, 1968.
Delivered: October 1969-April 1989.
IOC: September 1970.
Production: 131.
Inventory: 112.
Unit Location: Active: Altus AFB, Okla., Dover AFB, Del., Travis AFB, Calif. ANG: Memphis Arpt., Tenn., Stewart Arpt., N.Y. AFRC: Dover AFB (assoc.), Del., Lackland AFB, Tex., Travis AFB (assoc.), Calif., Westover ARB, Mass., Wright-Patterson AFB, Ohio.
Contractor: Lockheed.
Power Plant: four General Electric TF39-GE-1C turbofans, each 41,000 lb thrust.
Accommodation: normal crew of six (two pilots, two engineers, and two loadmasters), plus rest area for 15 (relief crew, etc.) and seating for 73. There is no piece of Army combat equipment the C-5 can't carry. Possible loads: six Apache helicopters, two M1 main battle tanks (each weighing 135,400 lb), six Bradley vehicles, three CH-47 helicopters, the 74-ton mobile bridge, a quarter-million pounds of relief supplies, or a maximum of 340 passengers in an airbus configuration. Airdrop capability for single platforms weighing up to 42,000 lb.
Dimensions: span 222.8 ft, length 247.9 ft, height 65.1 ft.
Weight: empty 374,000 lb, gross 769,000 (wartime 840,000) lb.
Ceiling: 45,000 ft.
Performance: max speed at 25,000 ft 571 mph, 35,750 ft, T-O run at S/L 8,300 ft, landing run, max landing weight at S/L 2,380 ft, range with max payload 3,434 miles, range with max fuel 7,245 miles. Normal cruising speed at altitude 518 mph (Mach 0.77).
COMMENTARY
One of the world's largest aircraft, the C-5 is able to carry unusually large and heavy cargo for intercontinental ranges at jet speeds. It can take off and land in relatively short distances and taxi on substandard surfaces during emergency operations. Front and rear cargo openings permit simultaneous drive-through loading and off-loading.

C-5A. USAF took delivery of 81 of these basic models between December 1969 and May 1973. A major wing modification was subsequently undertaken, extending the aircraft's service life by 30,000 flight hours. Additionally, the avionics subsystems developed for the C-5B have been incorporated into the C-5A fleet. USAF has proposed retiring the C-5As but is pursuing a reliability and maintainability assessment.

C-5B. Generally similar to the C-5A but embodies all the improvements introduced since completion of C-5A production, including the strengthened wings, improved turbofans, and updated avionics, with color weather radar and triple INS. The first C-5B flew for the first time in September 1985 and was delivered to Altus AFB, Okla., in January 1986.

C-5C. Two C-5As assigned to Travis AFB, Calif., were modified to carry outsize space cargo for NASA by extending the cargo bay and modifying the aft doors.

All USAF Galaxys are undergoing a complete avionics modernization program (AMP) that will install a state-of-the-art cockpit and ensure global access navigation safety compliance by the end of 2006; first upgraded aircraft flew December 2002. Additionally, the Air Force has established a reliability enhancement and re-engining program (RERP) for all 112 C-5 aircraft to extend service life through 2040. Three production representative aircraft, designated **C-5M,** are to be completed in 2006; flight test will continue through FY07, with OT&E completing in FY08. Program completion is expected 2020. To enhance force protection, a number of C-5Bs have been equipped with an aerial defense system.

C-17 Globemaster III
Brief: A heavy-lift, air refuelable cargo transport for intertheater (strategic) and intratheater (tactical) direct delivery airlift of all classes of military cargo, including outsize items.
Function: Cargo and troop transport.
Operator: AETC, AFMC, AMC, ANG, AFRC, PACAF.
First Flight: Sept. 15, 1991.
Delivered: June 1993-July 2008 (contractual).
IOC: Jan. 17, 1995.
Production: 180 (contractual).
Inventory: 140.
Unit Location: Active: Altus AFB, Okla., Charleston AFB, S.C., Edwards AFB, Calif., Hickam AFB, Hawaii, McChord AFB, Wash., McGuire AFB, N.J., Travis AFB, Calif. ANG: Hickam AFB (assoc.), Hawaii, Allen C. Thompson Field, Miss. AFRC: Charleston AFB (assoc.), S.C., March ARB, Calif., McChord AFB (assoc.), Wash., McGuire AFB (assoc.), N.J., Travis AFB (assoc.), Calif.
Contractor: Boeing.
Power Plant: four Pratt & Whitney F117-PW-100 turbofans, each 40,440 lb thrust.
Accommodation: normal flight crew of three (two pilots plus loadmaster); additional pilot may be carried. Provisions for full range of military airlift missions, incl capacity for up to 189 passengers, 102 paratroops, or 36 litters; range of military cargo incl tanks and up to three AH-64A helicopters; three Bradley vehicles; one M1A2 main battle tank with other equipment; airdrop capability for single platforms weighing up to 60,000 lb; palletized passenger seats.
Dimensions: span over winglet tips 169.8 ft, length 173.9 ft, height 55.1 ft.
Weight: empty 277,000 lb, max payload 170,900 lb, gross 585,000 lb (extended range).
Ceiling: 45,000 ft.
Performance: normal cruising speed 484 mph at 35,000 ft or 518 mph (Mach .77) at 28,000 ft, unrefueled range with 160,000-lb payload 2,760 miles, additional 690 miles with extended-range fuel containment system (ERFCS), unlimited with refueling.
COMMENTARY
Developed to meet US force projection requirements, the C-17 is able to operate routinely into small, austere airfields (3,000 ft x 90 ft) previously limited to C-130s and provides the first capability to air-land or air-drop outsize cargo directly to the tactical environment.

C-17s have flown numerous operational and humanitarian missions and have assumed the special operations low level (SOLL) mission previously supported by the C-141. The C-17 was the only aircraft capable of delivering outsize cargo into austere operations in Afghanistan and Iraq. C-17s performed their first operational strategic brigade airdrop in March 2003, when a formation of 15 aircraft delivered a US Army brigade, complete with equipment, directly into northern Iraq.

C-17 is the first military transport to feature a full digital fly-by-wire control system and two-person cockpit, with two full-time, all-function HUDs and four multifunction electronic displays. Defensive systems include Large Aircraft Infrared Countermeasures (LAIRCM) and flares. Ongoing modernization through block upgrades continue to improve C-17 operational capability. Significant improvements since 2001 include: (Block 12) ERFCS upgrade, a terrain awareness warning system (TAWS), and Mobility 2000 (M2K) C2 modernization program; (Block 15) a new Communications Open System Architecture (COSA) radio system; and (Block 16) a weather radar replacement. Block 17 in 2006 marks the last block upgrade for the 180-aircraft fleet. Full retrofit up to Block 17 of previously delivered aircraft is scheduled to begin in 2007 and will take approximately 11 years. USAF now is proposing purchasing seven additional C-17s to offset a higher than anticipated use rate.

C-141 Starlifter
Brief: Workhorse of the US airlift force for 40 years, the Starlifter projected combat forces over long distances, injected those forces and their equipment either by air-land or airdrop, resupplied these employed forces, and extracted the sick and wounded from the hostile area to advanced medical facilities. Operated as primary strategic special operations and airdrop platform.
Function: Long-range, air refuelable troop and cargo airlift.
Operator: AFRC.
First Flight: Dec. 17, 1963.
Delivered: October 1964-June 1982.
IOC: May 1965.
Production: 285.
Inventory: eight.
Unit Location: Wright-Patterson AFB, Ohio.
Contractor: Lockheed Martin.
Power Plant: four Pratt & Whitney TF33-P-7 turbofans, each 21,000 lb thrust.
Accommodation: crew of five; cargo on 13 standard 463L pallets. Alternative freight or vehicle payloads, 200 fully equipped troops, 155 paratroops, or 103 litter patients plus attendants.
Dimensions: span 159.9 ft, length 168.3 ft, height 39.2 ft.
Weight: operating payload 38,000 lb; max payload 68,725 lb normal, 89,000 lb emergency war planning; gross 325,000 lb normal, 344,000 lb emergency war planning.
Ceiling: 45,000 ft.
Performance: max cruising speed 466 mph, range 5,290 miles without air refueling.
COMMENTARY
Longtime mainstay of USAF's airlift fleet, the C-141 was

the first jet aircraft designed to meet military standards as a troop and cargo carrier. The last active duty C-141 retired in September 2004. The last C-141 combat mission, flown by AFRC's 445th Airlift Wing, took place on Sept. 26, 2005 in Iraq. Aircrews will continue flying the C-141 within CONUS until final retirement in 2006.

C-141A entered service with MAC in April 1965; 285 were built, some of which were structurally modified to accommodate the Minuteman ICBM.

C-141B is a stretched C-141A with in-flight refueling capability. All C-141As (except four AFMC aircraft used for test purposes) were lengthened by 23 ft 4 in to expand lift capacity. First C-141B flew March 1977 and redeliveries took place between December 1979 and June 1982. The modification gave USAF the equivalent of 90 additional C-141A aircraft. Subsequent improvements include structural upgrades, a state-of-the-art autopilot and all-weather landing system, and improved airdrop systems. Modification of 13 C-141Bs increased their SOLL capability and survivability.

C-141C is a C-141B modified with computerized glass-cockpit instrumentation and digital flight-management system, with integrated GPS data for navigation and modern navigation safety equipment. The first version, which rolled out at Warner Robins ALC, Ga., Oct. 1, 1997, was assigned to AFRC's 452nd AMW.

Theater and Special Use Transports

C-9 Nightingale

Brief: A twin-engine, medium-range, swept-wing jet aircraft used for DV duties.

Function: DV duties.

Operator: AFRC.

First Flight: August 1968.

Delivered: August 1968-February 1975.

IOC: circa 1968.

Production: 24.

Inventory: five.

Unit Location: Scott AFB, Ill.

Contractor: Boeing (McDonnell Douglas).

Power Plant: two Pratt & Whitney JT8D-9A turbofans, each 14,500 lb thrust.

Accommodation: crew of three.

Dimensions: span 93.2 ft, length 119.2 ft, height 27.4 ft.

Weight: gross 108,000 lb.

Ceiling: 35,000 ft.

Performance: max cruising speed at 25,000 ft 565 mph, range 2,500 miles.

COMMENTARY

C-9A. A derivative of the DC-9 Series 30 commercial airliner, the C-9A was the only USAF aircraft modified specifically for the aeromedical evacuation mission, a role now undertaken by C-130 and C-17 aircraft.

C-9C. Three specially configured C-9s were delivered to Andrews AFB, Md., in 1975 for the special air mission (SAM) supporting the President and other US government officials. Upgrades include improvements to the passenger communications equipment, GATM, TAWS, and vertical separation equipment.

C-12 Huron

Brief: Aircraft to provide airlift support for attache and military advisory groups worldwide.

Function: Special airlift.

Operator: AFMC, PACAF.

First Flight: Oct. 27, 1972 (Super King Air 200).

Delivered: 1974-late 1980s.

IOC: circa 1974.

Production: 88.

Inventory: 28.

Unit Location: Elmendorf AFB, Alaska, Osan AB, South Korea, various overseas embassies.

Contractor: Beech.

Power Plant: (C-12J) two Pratt & Whitney Canada PT6A-65B turboprops, each 1,100 shp.

Accommodation: crew of two; C-12C: up to eight passengers; C-12J: up to 19 passengers.

Dimensions: (C-12J) span 54.5 ft, length 43.8 ft, height 15 ft.

Weight: (C-12J) empty 9,850 lb, gross 16,600 lb.

Ceiling: (C-12J) 25,000 ft.

Performance: (C-12J) max cruising speed at 16,000 ft 307 mph, range with 10 passengers 1,806 miles.

COMMENTARY

C-12C. Re-engined C-12As, with PT6A-41 turboprops, deployed to overseas embassies.

C-12D. Similar to C model and also deployed to overseas embassies.

C-12F. With uprated PT6A-42 engines, can support medical airlift.

C-12J. A military version of the larger Beechcraft Model 1900, operated by PACAF.

C-20 Gulfstream

Brief: A twin-engine turbofan aircraft acquired to provide airlift for high-ranking government and DOD officials.

Function: Operational support airlift; special air missions.

Operator: AMC, USAFE.

First Flight: December 1979.

Delivered: September 1983-89.

IOC: circa 1983.

Production: not available.

Inventory: 10.

Unit Location: Andrews AFB, Md., Ramstein AB, Germany.

Contractor: Gulfstream.

Power Plant: C-20A/B: two Rolls Royce-Spey MK511-8 turbofans, each 11,400 lb thrust; C-20H: two Rolls Royce-Tay MK611-8 turbofans, each 13,850 lb thrust.

Accommodation: crew of five; 12 passengers.

Dimensions: span 77.8 ft; length (C-20A/B) 83.1 ft, (C-20H) 88.3 ft; height 24.3 ft.

Weight: C-20A/B gross 69,700 lb; C-20H gross 74,600 lb.

Ceiling: 45,000 ft.

Performance: max cruising speed 576 mph, range 4,800 miles.

COMMENTARY

C-20A. Three Gulfstream III transports were acquired to replace aging C-140B aircraft. They provided USAFE's operational support airlift fleet with intercontinental range and ability to operate from short runways. Retired in September 2002.

C-20B. Five C-20B versions, with advanced mission communications equipment and revised interior, were acquired in the late 1980s.

C-20H. Two Gulfstream IV SP aircraft, with advanced-technology flight-management systems and upgraded Rolls Royce engines, were acquired by USAF to meet expanding SAM requirements. The two C-20H aircraft were reassigned to USAFE to replace retired C-20As.

Upgrade for C-20B/H aircraft includes GPS, vertical separation equipment, GATM, and TCAS.

C-21

Brief: Aircraft designed to provide cargo and passenger airlift and transport litters during medical evacuations.

Function: Pilot seasoning, passenger and cargo airlift.

Operator: AETC, AMC, PACAF, USAFE, ANG.

First Flight: January 1973.

Delivered: April 1984-October 1985.

IOC: April 1984.

Production: 84.

Inventory: 76.

Unit Location: Andrews AFB, Md., Keesler AFB, Miss., Langley AFB, Va., Maxwell AFB, Ala., Offutt AFB, Neb., Peterson AFB, Colo., Ramstein AB, Germany, Randolph AFB, Tex., Scott AFB, Ill., Stuttgart, Germany, Wright-Patterson AFB, Ohio, Yokota AB, Japan.

Contractor: Gates Learjet.

Power Plant: two AlliedSignal TFE731-2 turbofans, each 3,500 lb thrust.

Accommodation: crew of two and up to eight passengers or 3,153 lb cargo. Convertible to aeromedical evacuation configuration.

Dimensions: span 39.5 ft, length 48.6 ft, height 12.2 ft.

Weight: empty, equipped 10,119 lb, gross 18,300 lb.

Ceiling: 51,000 ft.

Performance: max level speed at 25,000 ft 542 mph, range with max passenger load 2,306 miles, with max cargo load 1,653 miles.

COMMENTARY

C-21A aircraft provide operational support airlift for time-sensitive movement of people and cargo throughout the US and the Pacific and European Theaters, including aeromedical missions if required. Upgrades include GATM and TCAS.

C-32

Brief: A modified Boeing 757-200 used to provide backup transportation for the President. It is the primary means of travel for the vice president, Cabinet, Congressional members, and other high-ranking US and foreign officials.

Function: VIP air transport.

Operator: AMC.

First Flight: Feb. 19, 1982 (USAF Feb. 11, 1998).

Delivery: June-December 1998.

IOC: 1998.

Production: six.

Inventory: six.

Unit Location: Andrews AFB, Md.

Contractor: Boeing.

Power Plant: two Pratt & Whitney PW2040 turbofans, each 41,700 lb thrust.

Accommodation: 16 crew and 45 passengers.

Dimensions: span 124.8 ft, length 155.2 ft, height 44.5 ft.

Weight: empty 127,800 lb, gross 255,000 lb.

Ceiling: 41,000 ft.

Performance: cruise speed Mach 0.8-0.86 (530 mph), range 5,750 miles.

COMMENTARY

A military version of the commercial Boeing 757-200, four new **C-32As** were purchased as replacements for C-137B/C aircraft. The commercial DV interior includes a crew rest area, DV stateroom, conference area, and general passenger area. The passenger communications system provides worldwide clear and secure voice and data communications. Modern flight deck avionics allow operations to any suitable airfield in the world and provide an upgrade path as new capabilities become available. Upgrades include installation of a digital communications management system and broadband data transmit and receive, providing an office-in-the-sky capability.

C-37A

Brief: A modified Gulfstream V utilized as part of the executive fleet, providing transportation for the vice president, Cabinet, Congressional members, Secretary of Defense, service Secretaries, and other prominent US and foreign officials.

Function: VIP air transport.

Operator: AMC, PACAF, USAFE.

First Flight: USAF October 1998.

Delivery: October 1998-present.

IOC: Dec. 9, 1998.

Production: 10.

Inventory: nine.

Unit Location: Andrews AFB, Md., Chievres, Belgium, Hickam AFB, Hawaii, MacDill AFB, Fla.

Contractor: Gulfstream.

Power Plant: two BMW-Rolls Royce BR710A1-10 turbofans, each 14,750 lb thrust.

Accommodation: five crew and 12 passengers.

Dimensions: span 93.5 ft, length 96.4 ft, height 25.8 ft.

Weight: empty 47,601 lb, gross 90,500 lb.

Ceiling: 51,000 ft.

Performance: cruise speed Mach 0.8 (530 mph), range 6,095 miles.

COMMENTARY

The **C-37A** is a military version of the Gulfstream V. Two C-37As, along with the C-32s, were purchased as replacements for the VC-137B/C aircraft. The interior includes separate DV and passenger areas and a communications system capable of worldwide clear and secure voice and data. Aircraft are capable of operations at any suitable civilian or military airfield worldwide. A third C-37A was purchased for combatant commander support airlift and was based at Chievres, Belgium. It has since been reassigned to Andrews AFB, Md. One C-37 was purchased for crisis response support. Five C-37As are being leased from Gulfstream Aerospace as combatant commander support aircraft; three are assigned to MacDill AFB, Fla.; one to Chievres; and one to Hickam AFB, Hawaii. Upgrades include GATM and continuing passenger communications system upgrades to the Andrews-based aircraft.

C-38A

Brief: A twin-engine transcontinental aircraft used to provide transportation for DVs such as Congressional or high-ranking military members. It can also be configured for medevac and a wide range of special missions including C3 in time of war.

Function: VIP air transport and operational support.

Operator: ANG.

First Flight: 1998.

Delivered: April-May 1998.

IOC: 1998.

Production: two.

Inventory: two.

Unit Location: Andrews AFB, Md.

Contractor: Tracor (Israel Aircraft Industries Ltd).

Power Plant: two AlliedSignal TFE731-40R-200G, each 4,250 lb thrust.

Accommodation: typically two crew and eight passengers. In medevac role: two Spectrum 500 Life Support Units and two medical attendants. All seats removable for cargo.

Dimensions: span 54.6 ft, length 55.6 ft, height 18.2 ft.

Weight: gross 24,800 lb.

Ceiling: cruise, 33,000 ft.

Performance: cruise speed Mach 0.87.

COMMENTARY

The **C-38A** is a military version of the Astra SPX produced by IAI and supported worldwide by Galaxy Aerospace. Equipment includes the most up-to-date navigation, communication, vertical separation, and safety equipment as well as state-of-the-art avionics.

C-40

Brief: A Boeing 737-700 used for medium-range airlift of personnel.

***C-130** Hercules* (MSgt. Dave Nolan)

Function: Passenger transportation.
Operator: AMC, PACAF, USAFE, ANG.
First Flight: USN C-40A: April 14, 1999.
Delivered: 2002.
Production: seven.
Inventory: seven.
Unit Location: Andrews AFB, Md., Hickam AFB, Hawaii, Ramstein AB, Germany.
Contractor: Boeing.
Power Plant: two General Electric CFM56-7 turbofans, each 24,000 lb thrust.
Accommodation: flight crew of four, plus three or four cabin crew; up to 89 passengers.
Dimensions: span 112 ft 7 in, length 110 ft 4 in, height 41 ft 2 in.
Weight: gross 171,000 lb.
Ceiling: 41,000 ft.
Performance: cruise speed 0.78-0.82 Mach, range 3,450 miles.

COMMENTARY

The C-40 is the military version of the commercial Boeing 737-700 increased gross weight aircraft. C-40s are used for transporting senior government officials and regional combatant commanders.

C-40B. The B model is equipped with a DV suite, staff work area, conference area, and worldwide secure communications and data capability. USAF purchased three and leased one C-40B. Two are assigned to Andrews and one each to Hickam and Ramstein.

C-40C. The C model has a DV seating area, general passenger seating area and secure communications capability. Three leased C-40Cs operate from Andrews.

C-130 Hercules

Brief: A rugged aircraft capable of operating from rough dirt strips to provide theater airlift and paradropping of troops and equipment into hostile areas.
Function: Inter- and intratheater airlift.
Operator: AETC, AFSOC, AMC, PACAF, USAFE, ANG, AFRC.
First Flight: August 1954 (C-130A).
Delivered: December 1956-present (C-130J).
IOC: circa 1958.
Production: more than 2,200.
Inventory: 171 (E); 283 (H); 26 (J).
Unit Location: Active: Dyess AFB, Tex., Elmendorf AFB, Alaska, Little Rock AFB, Ark., Pope AFB, N.C., Ramstein AB, Germany, Yokota AB, Japan. ANG: 23 units. AFRC: 10 units.
Contractor: Lockheed Martin.
Power Plant: (C-130H) four Rolls Royce-Allison T56-A-15 turboprops, each 4,300 shp. (C-130J) four Rolls Royce-Allison AE2100D3 turboprops, each 4,591 shp.
Accommodation: (C-130H) crew of five; up to 92 ground troops, 64 paratroops, 74 litter patients plus attendants, 54 passengers on palletized seating, or up to five 463L standard freight pallets, etc.; max load, 45,000 lb.
Dimensions: span 132.6 ft, length 97.8 ft, height 38.1 ft.
Weight: C-130H: empty 81,000 lb, fuel/cargo max gross 155,000 lb; C-130J: gross 175,000 lb.
Ceiling: 33,000 ft at 100,000 lb T-O weight.
Performance: (C-130H) max cruising speed 430 mph, T-O run 3,585 ft, landing run (at 130,000 lb) 1,700 ft, range with 40,000-lb payload 2,240 miles; range 3,450 miles.

COMMENTARY

First flown 50 years ago, the C-130 Hercules transport continues in production and has been delivered to more than 60 countries. Basic and specialized versions operate throughout USAF, performing diverse roles in both peace and war situations, including airlift support, Arctic ice cap resupply, aeromedical missions, aerial spray missions (AFRC), fire-fighting duties (AFRC and ANG) for the US Forest Service, and natural disaster and humanitarian relief missions.

C-130A, B, and D. Early versions, now retired. The initial production C-130A had four Allison T56-A-11 or -9 turboprop engines. USAF ordered a total of 219. The C-130B had improved range and higher weights and introduced Allison T56-A-7 turboprops; 134 were produced, with delivery from April 1959. Twelve were modified beginning 1961 as **JC-130Bs** for air-snatch satellite recovery together with three early H models. Twelve C-130Ds were modified As for Arctic operations.

C-130E is an extended-range development of the C-130B, with large under-wing fuel tanks; 389 were ordered, with deliveries beginning in April 1962. A wing modification to correct fatigue and corrosion extended the life of the aircraft well into this century. Other modifications include a self-contained navigation system, with an integrated communications/navigation management suite, GPS capability, and a state-of-the-art autopilot that incorporates a ground collision avoidance system.

C-130H is generally similar to the E model but has updated turboprops, a redesigned outer wing, and improved pneumatic systems; delivery began in July 1974. Subsequent improvements include updated avionics, improved low-power color radar, and other minor modifications. Night vision instrumentation system was introduced from 1993, TCAS II in new aircraft from 1994. ANG **LC-130H** aircraft are modified with wheel-ski gear to support Arctic and Antarctic operations. Two **DC-130Hs** were modified for UAV control duties.

A major AMP for the C-130E/H includes digital displays, flight-management systems, multifunction radar, new communications systems, and a single air data computer. Planned completion is for 2016. The AMP upgrade includes all C-130 models (LC/EC/MC/AC/HC) except the C-130J.

C-130J. Latest model featuring a three-crew flight operation system, 6,000 shp Rolls Royce-Allison AE2100D engines, all composite six-blade Dowty Aerospace R391 propeller system, digital avionics, and mission computers. Compared to earlier production C-130Es, its speed is up 21 percent, cruising altitude is 40 percent higher, and range 40 percent longer. The J also features improved reliability and maintainability. ANG and AFRC units began receiving J models in 1999. First active duty unit, the 48th AS at Little Rock AFB, Ark., received its first C-130J aircraft in March 2004. First wartime deployment occurred December 2004. The stretch version of the C-130J (**C-130J-30**), with an additional 15 feet of fuselage and capable of carrying up to 128 ground troops or 92 paratroops, is replacing the oldest 1960s-vintage C-130Es. Deliveries to ANG began in 2001 and to USAF and AFRC in 2004.

CV-22

Brief: A tilt-rotor, multimission transport aircraft designed to have the maneuverability and lift capability of a helicopter and the speed of a fixed-wing aircraft.
Function: Multimission airlift.
Operator: AFSOC.
First Flight: March 19, 1989 (V-22).
Delivery: 2006.
IOC: 2009 (planned).
Production: 50 (planned).
Inventory: one.
Unit Location: Hurlburt Field, Fla., Kirtland AFB, N.M.
Contractor: Bell Boeing; Raytheon.
Power Plant: two Rolls Royce-Allison AE1107C turboshafts, each 6,200 shp.
Accommodation: four (two pilots, two flight engineers); additional pilot for extended duration missions; up to 18 troops or 8,000 lb internal cargo.
Dimensions: proprotor diameter 38 ft, width, rotors turning 84.6 ft, fuselage length 57.3 ft, height 22 ft.
Weight: gross weight 34,900 lb, max VTO 52,870 lb; STO 57,000 lb, self-deploy T-O 60,500 lb.
Ceiling: 26,000 ft.
Performance: typically will carry troops or cargo over a 500-mile combat radius at 265 mph. Self-deployment range with one air refueling 2,417 miles.

COMMENTARY

CV-22 is the designation for the US Special Operations Command variant of the V-22 Osprey. The CV-22 is a multi-engine, dual-piloted, self-deployable, medium-lift vertical takeoff and landing (VTOL) tilt-rotor aircraft for the conduct of special operations, including nuclear, biological, and chemical (NBC) warfare conditions. It will operate from land bases and austere forward operating locations, as well as air capable ships without reconfiguration or modification. An in-flight refueling capability extends combat mission range when required, and the aircraft will be self-supporting to the maximum practical extent. The CV-22's mission is long-range clandestine penetration of denied areas in adverse weather and low visibility to infiltrate, exfiltrate, and resupply SOF.

CV-22 avionics include a fully integrated precision navigation suite, with GPS and INS; a digital cockpit management system oriented around four multifunction

CV-22 (Bell Helicopter photo)

displays (MFDs); FLIR; an integrated NVG HUD; terrain-following/terrain-avoidance (TF/TA) radar; and digital map system. Additionally, it is equipped with robust self-defensive avionics and secure antijam, redundant communications compatible with current and planned systems used by command and control agencies and ground forces. The CV-22 unrefueled combat range satisfies current and emergent major theater war (MTW) requirements, as well as national mission tasking. The aircraft is capable of completing most assigned missions during one period of darkness.

A third aircraft joined the two test aircraft based at Edwards AFB, Calif., in February 2005. The first production example was delivered to USAF in September 2005. Initial operational test and evaluation is planned to begin in summer 2006. Initial training capability is scheduled for late 2006 at Kirtland AFB, N.M., and IOC for early 2009 at Hurlburt Field, Fla. USAF may place detachments of CV-22s in US European Command and US Pacific Command theaters.

MC-130E/H Combat Talon

Brief: A modified C-130 able to provide global, day, night, and adverse weather capability to air-drop personnel and to deliver personnel and equipment to support US and allied SOF.

Function: SOF infiltration, exfiltration, and resupply.
Operator: AETC, AFSOC, AFRC.
First Flight: circa 1965 (E); January 1990 (H).
Delivered: initially 1966.
IOC: 1966 (E); June 1991 (H).
Production: 22 new-build Hs.
Inventory: 14 (E); 20 (H).
Unit Location: Active (assoc.) and AFRC MC-130Es at Duke Field, Fla. Active: MC-130H at Hurlburt Field, Fla., Kadena AB, Japan, Kirtland AFB, N.M., RAF Mildenhall, UK.
Contractor: Lockheed Martin (airframe); Boeing integrated weapons system support.
Power Plant: four Allison T56-A-15 turboprops, each 4,910 shp.
Accommodation: E: crew of nine; 53 troops or 26 paratroops; H: crew of seven; 77 troops, 52 paratroops, or 57 litters.
Dimensions: span 132.7 ft, height 38.6 ft, length 100.8 ft (E), 99.8 ft (H).
Weight: empty 72,892 lb, gross 155,000 lb.
Ceiling: 30,000 ft.
Performance: max speed 289 mph, range 3,110 miles, unlimited with refueling.

COMMENTARY

MC-130 Combat Talon aircraft are equipped with terrain following radars, precision navigation systems using INS/GPS, and electronic and infrared countermeasures for self-protection. Both aircraft are capable of in-flight refueling, are NVG-compatible and have a high-speed aerial delivery system. The primary mission of the aircraft is to conduct infiltration, resupply, and exfiltration of special operations forces (SOF). They are also capable of supporting psychological operations. Combat Talons are able to air-drop or to land on austere unmarked landing or drop zones.

MC-130E Combat Talon I. Fourteen modified C-130E aircraft are additionally equipped with a pod-based system to air refuel SOF helicopters. Two units are MC-130E-equipped, the 8th and the 711th SOS.

MC-130H Combat Talon II. New-build MC-130Hs modified with an integrated glass cockpit were acquired in the early 1990s to supplement the Combat Talon Is. All are currently being modified with a state-of-the-art pod-based aerial refueling system to augment the MC-130E and MC-130P aerial refueling fleet. The 1st, 7th, and 15th SOSs provide support to SOF in Europe, the Pacific, and CONUS, respectively. The 58th SOS at Kirtland AFB, N.M., is responsible for MC-130H mission qualification training.

VC-25 Air Force One

Brief: A specially configured Boeing 747-200B used for air transport of the President and his entourage. When the President is aboard, it has the radio call sign "Air Force One."

Function: Air transport of the President.
Operator: AMC.
First Flight: first flown as Air Force One Sept. 6, 1990.
Delivered: August-December 1990.
IOC: circa 1990.
Production: two.
Inventory: two.
Unit Location: Andrews AFB, Md.
Contractor: Boeing.
Power Plant: four General Electric CF6 turbofans, each 56,700 lb thrust.
Accommodation: crew of 26; up to 76 passengers.
Dimensions: span 195.7 ft, length 231.8 ft, height 63.4 ft.

***MC-130H** Combat Talon II* (Nate Leong)

Weight: long-range mission T-O weight 803,700 lb., gross 833,000 lb.
Ceiling: 45,000 ft.
Performance: speed 630 mph (Mach 0.92), normal cruising speed Mach 0.84, unrefueled range 7,820 miles.

COMMENTARY

Based on the Boeing 747-200B airframe, two **VC-25As** assigned to Andrews AFB, Md., support the President. Aircraft are equipped with staff work areas, a conference room, a general seating area, and an executive office. Communications capability includes worldwide secure and clear communications equipment. Upgrades include GATM and installation of a broadband data transmit and receive capability to provide video teleconferencing and office-in-the-sky capability.

Trainer Aircraft

T-1A Jayhawk

Brief: A medium-range, twin-engine jet trainer version of the Beechcraft 400A. It is used by the Air Force to train student pilots to fly airlift and tanker aircraft.

Function: Advanced pilot training.
Operator: AETC, AFRC.
First Flight: Sept. 22, 1989 (Beechcraft 400A).
Delivered: Jan. 17, 1992-July 1997.
IOC: January 1993.
Production: 180.
Inventory: 179.
Unit Location: Active: Columbus AFB, Miss., Laughlin AFB and Randolph AFB, Tex., Vance AFB, Okla., NAS Pensacola, Fla. (forward operating station). AFRC: (assoc.) Randolph AFB, Tex.
Contractor: Raytheon.
Power Plant: two Pratt & Whitney Canada JT15D-5B turbofans, each 2,900 lb thrust.
Accommodation: two, side by side, and one to the rear; rails are fitted to accommodate an extra four seats to permit transport of maintenance teams.
Dimensions: span 43.5 ft, length 48.4 ft, height 13.9 ft.
Weight: empty 5,200 lb, gross 16,100 lb.
Ceiling: 41,000 ft.
Performance: max speed at 27,000 ft 538 mph, range 2,400 miles.

COMMENTARY

The swept-wing **T-1A** Jayhawk is a military version of the Beech 400A used in the advanced phase of joint specialized undergraduate pilot training (JSUPT) for students selected to go on to fly transports such as the C-5 and C-17 or tankers such as the KC-10 and KC-135. It has cockpit seating for an instructor and two students. Special mission equipment includes GPS, an electronic flight instrument system (EFIS) avionics system, a single-point refueling system, an additional fuselage fuel tank, and increased bird-strike protection in the windshield and leading edges for sustained low-level operation. T-1As typically log 100,000 flying hours a year, supporting all-weather training operations at high and low altitudes.

T-6A Texan II

Brief: A single-engine turboprop aircraft used for training student pilots, combat systems officers, and naval flight officers in fundamentals of aircraft handling and instrument, formation, and night flying.

Function: Primary trainer.
Operator: AETC, AFRC, USN.
First Flight: July 15, 1998.

***T-6A** Texan II* (MSgt. David Fichards)

Delivery: May 2000-present (operational aircraft).
IOC: November 2001.
Production: Planned: USAF 372, USN 328.
Inventory: 217 (USAF).
Unit Location: USAF: Active: Laughlin AFB and Randolph AFB, Tex., Moody AFB, Ga., Vance AFB, Okla. Planned: Columbus AFB, Miss., Sheppard AFB, Tex. USN: NAS Corpus Christi, Tex., NAS Whiting, Fla.
Contractor: Raytheon.
Power Plant: one Pratt & Whitney Canada PT6A-68 turboprop, 1,100 shp.
Accommodation: two, in tandem, on zero/zero ejection seats.
Dimensions: span 33.5 ft, length 33.4 ft, height 10.7 ft.
Weight: empty (approx) 4,707 lb; gross 6,500 lb.
Ceiling: 31,000 ft.
Performance: max speed 368 mph, range 920 miles.
COMMENTARY
The Joint Primary Aircraft Training System (JPATS) **T-6A** Texan II is based on the Swiss Pilatus PC-9 aircraft, modified to include a strengthened fuselage, zero/zero ejection seats, increased aircrew accommodation, upgraded engine, increased fuel capacity, pressurized cockpit, larger, bird-resistant canopy, and new digital avionics. The JPATS replaces USAF's T-37Bs and USN's T-34Cs in primary pilot training, as well as supporting undergraduate naval flight officer and USAF combat systems officer training.

T-37 Tweet
Brief: A twin-engine jet used for training undergraduate pilots and undergraduate combat system officer students in fundamentals of aircraft handling and instrument, navigation, formation, and night flying.
Function: Primary trainer.
Operator: AETC, AFRC.
First Flight: September 1955.
Delivered: December 1956-68.
IOC: 1957.
Production: 985.
Inventory: 213.
Unit Location: Active: Columbus AFB, Miss., Randolph AFB and Sheppard AFB, Tex., Vance AFB, Okla. AFRC: (assoc.) Randolph AFB, Tex.
Contractor: Cessna.
Power Plant: two Continental J69-T-25 turbojets, each 1,025 lb thrust.
Accommodation: two, side by side, on ejection seats.
Dimensions: span 33.7 ft, length 29.2 ft, height 9.1 ft.
Weight: empty 3,870 lb, gross 6,625 lb.
Ceiling: 35,000 ft.
Performance: max speed at S/L 315 mph, range 460 miles.
COMMENTARY
USAF's first purpose-built jet trainer, the T-37 has been AETC's standard two-seat primary trainer for several decades. Its distinctive blue-and-white finish is intended to help formation training and ease maintenance.
T-37A, with J69-T-9 turbojets; all have been modified to T-37B standards.
T-37B. The original T-37A was superseded in November 1959 by the T-37B, with improved radio navigational equipment, UHF radio, and upgraded instruments. Kits were subsequently produced to extend the capability of the T-37 by modifying or replacing critical structural components. AETC has been replacing the T-37B with the T-6A Texan II since 2000.

T-38 Talon
Brief: A twin-engine, high-altitude, supersonic jet trainer used in a variety of roles, primarily for undergraduate pilot and pilot instructor training.
Function: Trainer.
Operator: ACC, AETC, AFMC, AFRC.
First Flight: April 1959.
Delivered: 1961-72.
IOC: March 1961.
Production: more than 1,100.
Inventory: 485.
Unit Location: Active: Beale AFB and Edwards AFB, Calif., Columbus AFB, Miss., Holloman AFB, N.M., Laughlin AFB, Randolph AFB, and Sheppard AFB, Tex., Moody AFB, Ga., Vance AFB, Okla., Whiteman AFB, Mo. AFRC: (assoc.) Randolph AFB, Tex.
Contractor: Northrop Grumman.
Power Plant: two General Electric J85-GE-5A turbojets, each 2,680 lb thrust dry, 2,900 lb thrust with afterburning.
Accommodation: two, in tandem, on ejection seats.
Dimensions: span 25.3 ft, length 46.3 ft, height 12.8 ft.
Weight: empty 7,164 lb, gross 12,500 lb.
Ceiling: above 55,000 ft.
Performance: max level speed 812 mph, range 1,000 miles.

T-38 Talon (SrA. Matthew C. Simpson)

COMMENTARY
Most of the T-38s in service are used by AETC for advanced bomber-fighter training track in JSUPT. Capabilities are being enhanced through an ongoing program of modifications and structural renewal, including a full avionics upgrade with a HUD and integrated GPS/INS, and a propulsion modernization. As a result of the reduction in the T-38's workload through introduction of the T-1A and JSUPT, the service life of the T-38s should extend well beyond 2020.
T-38A. Close in structure to the F-5A export tactical fighter, the T-38A was the world's first supersonic trainer aircraft. It is used to teach supersonic techniques, aerobatics, formation, night and instrument flying, and cross-country and low-level navigation. The aircraft is also used by AFMC to train test pilots and flight-test engineers at Edwards AFB, Calif., in experimental techniques, and by ACC to maintain pilot proficiency.
AT-38B. A slightly different version, with a gunsight and practice bomb dispenser, the AT-38B is used by AETC for Introduction to Fighter Fundamentals.
T-38C. All T-38A and AT-38B airframes will be redesignated as C models upon modification of the avionics systems begun in 2000. The first T-38C was received late summer 2002; planned program completion is 2008. The propulsion system is also being upgraded to improve performance and reliability. In addition, the Escape System Upgrade program is under way to further improve safety and sustainability of the aircraft and increase aircrew accommodation. Installations are scheduled to begin in 2006.

T-41 Mescalero
Brief: Short-range, high-wing trainer used primarily for aerodynamic and navigation courses.
Function: Training, support.
Operator: US Air Force Academy.
Delivered: 1969.
Inventory: four.
Unit Location: USAFA, Colo.
Contractor: Cessna.
Power Plant: one Continental IO-360-DB piston engine, 210 hp thrust.
Accommodation: two, side by side.
Dimensions: span 36.1 ft, length 26.5 ft, height 8.9 ft.
Weight: gross 2,550 lb.
Ceiling: 16,000 ft.
Performance: speed 182 mph, range 690 miles.
COMMENTARY
The **T-41D,** a military version of the Cessna 172, is an all-metal, strut-braced high-wing monoplane. The aircraft is equipped with modern avionics, GPS, and other equipment appropriate to its mission. It is used for Aero 456 flight testing, USAFA flying team support, and orientation flights.

T-43
Brief: A medium-range, swept-wing jet aircraft equipped with navigation and communications equipment to train navigators for strategic and tactical aircraft.
Function: Navigation trainer.
Operator: AETC.
First Flight: April 1973.
Delivered: September 1973-July 1974.
IOC: 1974.
Production: 19.
Inventory: eight.
Unit Location: Randolph AFB, Tex.
Contractor: Boeing.
Power Plant: two Pratt & Whitney JT8D-9 turbofans, each 14,500 lb thrust.
Accommodation: crew of two; 12 students and six instructors.
Dimensions: span 93 ft, length 100 ft, height 37 ft.

TG-14A (USAF photo)

Weight: gross 115,500 lb.
Ceiling: 37,000 ft.
Performance: econ cruising speed 535 mph (Mach 0.7), operational range 2,995 miles.
COMMENTARY
T-43A. The T-43A was derived from the commercial Boeing Model 737-200 and was equipped with the same onboard avionics as most USAF operational aircraft, including mapping radar, VHF omnidirectional radio and Tacan radio systems, INS, radar altimeter, all required communications equipment, and celestial navigation capability. A number of T-43s are configured for passengers and provide operational support to assigned commands.

TG-10B Merlin
Brief: Two-seat medium-performance sailplane used for introductory glider training, instructor upgrade training, spin training, and basic cross-country soaring training.
Function: Trainer.
Operator: USAFA.
Delivered: May 2002.
IOC: December 2002.
Production: 12.
Inventory: 12.
Unit Location: USAFA, Colo.
Contractor: Blanik.
Accommodation: two.
Dimensions: span 55.4 ft, length 27.9 ft, height 6.2 ft.
Weight: 1,168 lb.
Performance: speed 142.6 mph, glide ratio 28:1.
COMMENTARY
The **TG-10B** is an L-23 Super Blanik dual sailplane, produced in the Czech Republic and used by USAFA to introduce cadets to flight through the Basic Soaring program.

TG-10C Kestrel
Brief: Two-seat medium-performance sailplane used for spin and aerobatic training.
Function: Trainer.
Operator: USAFA.
Delivered: May 2002.
IOC: December 2002.
Production: five.
Inventory: five.
Unit Location: USAFA, Colo.
Contractor: Blanik.
Accommodation: two.
Dimensions: span 46.6 ft, length 27.6 ft, height 6.9 ft.
Weight: 1,100 lb.
Performance: speed 146.1 mph, glide ratio 26:1.
COMMENTARY
The **TG-10C** is an L-13AC Blanik dual sailplane, produced in the Czech Republic and used primarily for spin and aerobatic training.

TG-10D Peregrine
Brief: Single-seat medium-performance sailplane used for cross-country soaring training and high-altitude wave flight.
Function: Trainer.
Operator: USAFA.
Delivered: May 2002.
IOC: December 2002.
Production: four.
Inventory: four.
Unit Location: USAFA, Colo.
Contractor: Blanik.
Accommodation: single.
Dimensions: span 46.3 ft, length 21.7 ft, height 4.7 ft.
Weight: 750 lb.
Performance: speed 149.5 mph, glide ratio 33:1.
COMMENTARY
The **TG-10D** is an L-33 Solo Blanik sailplane produced in the Czech Republic. It is a medium performance sailplane that allows students to master basic flight maneuvers while solo, before progressing to a more advanced sailplane. It is primarily used for cross-country training and high-altitude wave flight.

TG-14A
Brief: A two-place, side-by-side motorized glider for use by USAFA in its Introductory Flight Training Program (IFTP) flight screening/primary training program.
Function: Trainer.
Operator: USAFA.
Delivered: September 2002.
IOC: December 2002.
Production: 14.
Inventory: 14.
Unit Location: USAFA, Colo.
Contractor: Grupo Aeromot, Brazil.
Power Plant: one Rotax 912A, 81 hp engine.

***HH-60G** Pave Hawk* (A1C Veronica Pierce)

Accommodation: two, side by side.
Dimensions: span 57.3 ft, length 26.4 ft, height 6.3 ft.
Weight: gross 1,874 lb.
Performance: cruise speed 110 mph, glide ratio 31:1, range 690 miles at high-speed cruise, max endurance seven hr.
COMMENTARY
The **TG-14A** is a version of the Ximango AMT-200S Sport Grupo Aeromot selected for use at USAFA in IFTP, replacing the Enhanced Flight Screening Program performed by civilian flying schools since the grounding of the T-3A Firefly in 1997. Cockpit and avionics are arranged for military use. Students use it to practice multiple pattern, aerial maneuvers, and landing procedures, reducing by half the number of sorties needed to achieve a solo flight.

TG-15A
Brief: A two-seat high-performance advanced training/cross-country sailplane for use by USAFA cadets in support of glider competition events nationwide.
Function: Trainer/cross-country competition sailplane.
Operator: USAFA.
Unit Location: USAFA, Colo.
Inventory: two.
Contractor: Schempp-Hirth, Germany.
Accommodation: two-seat.
Dimensions: span 65.6 ft, length 28.3 ft.
Weight: gross 1,543 lb.
Performance: max permitted speed 155 mph, aspect ratio 24:4.
COMMENTARY
The **TG15A** is a high-performance advanced training/cross-country sailplane manufactured by Schempp-Hirth of Germany under the civilian designation Duo Discus. This world-class competition glider is dual seated and is intended for use nationwide by USAFA cadets for glider competition events.

TG-15B
Brief: A single-seat high-performance advanced training/cross-country sailplane for use by USAFA cadets for glider competition events nationwide.
Function: Trainer/cross-country competition sailplane.
Operator: USAFA.
Unit Location: USAFA, Colo.
Inventory: three.
Contractor: Schempp-Hirth, Germany.
Accommodation: single seat.
Dimensions: span 49.2 ft, length 32.3 ft.
Weight: gross 1,157 lb.
Performance: max permitted speed 155 mph, aspect ratio 22:2.
COMMENTARY
The **TG15B** is a high-performance advanced training/cross-country sailplane manufactured by Schempp-Hirth of Germany under the civilian designation Discus 2b. This world-class competition glider is single seated and is intended for use nationwide by USAFA cadets for glider competition events.

UV-18 Twin Otter
Brief: Modified utility transport used for parachute jump training.
Function: Paradrop.

***MH-53J** Pave Low III* (USAF photo)

Operator: USAFA.
First Flight: May 1965 (commercial version).
Delivered: 1977.
IOC: 1977.
Production: three.
Inventory: three.
Unit Location: USAFA, Colo.
Contractor: de Havilland Aircraft of Canada.
Power Plant: two Pratt & Whitney Canada PT6A-27 turboprops, each 620 ehp.
Accommodation: crew of two and up to 20 passengers.
Dimensions: span 65 ft, length 51.8 ft, height 19.5 ft.
Weight: gross 12,500 lb.
Ceiling: 26,700 ft.
Performance: max cruising speed 210 mph, range with 2,500 lb payload 806 miles.
COMMENTARY
The UV-18B is a military version of the DHC-6 Twin Otter STOL utility transport used for parachute jump training at USAFA.

Helicopters

HH-60G Pave Hawk
Brief: Specially modified helicopters used for SAR and support missions.
Function: SOF medium-lift helicopter.
Operator: ACC, AETC, AFMC, AFSOC, PACAF, USAFE, ANG, AFRC.
First Flight: October 1974.
Delivered: from 1982.
IOC: circa 1982.
Production: 105.
Inventory: 101.
Unit Location: Davis-Monthan AFB, Ariz., Eglin AFB, Fla., Kadena AB, Japan, Kirtland AFB, N.M., Moody AFB, Ga., NAS Keflavik, Iceland, Nellis AFB, Nev., Robins AFB, Ga. ANG: Francis S. Gabreski Arpt., N.Y., Kulis ANGB, Alaska, Moffett Field, Calif. AFRC: Davis-Monthan AFB, Ariz., Patrick AFB, Fla.
Contractor: Sikorsky.
Power Plant: two General Electric T700-GE-700/701C turboshafts, each 1,620 (continuous) shp.
Accommodation: crew of three or four; 11-14 troops, up to six litters, or internal or external cargo.
Dimensions: rotor diameter 53.6 ft, length of fuselage 64.7 ft, height 16.7 ft.
Weight: empty 12,330 lb, max gross 22,000 lb.
Ceiling: 14,200 ft.
Performance: max speed 173 mph, max range 373 miles (internal fuel), 500 miles (auxiliary tank).
Armament: two 7.62 mm miniguns, with provision for two .50-caliber machine guns in cabin doors.
COMMENTARY
Black Hawk helicopters were modified to **HH-60G** Pave Hawk configuration for use by active duty, ANG, and AFRC air rescue units for CSAR and mission activities worldwide. The Pave Hawk is a highly modified version of the Army Black Hawk helicopter, featuring an upgraded communications/navigation suite that includes INS/GPS/Doppler navigation systems, satellite communications (SATCOM), secure/antijam communications, and a PLS that provides range/steering data to compatible survivor radios.
Additional modifications include an automatic flight-control system, NVG lighting, FLIR, color weather radar, engine/rotor blade anti-ice system, retractable in-flight refueling probe, internal auxiliary fuel tanks, and an integral rescue hoist. Combat enhancements include RWR, IR jammer, flare and chaff countermeasures dispensing system, and two 7.62 mm or .50-caliber machine guns.

MH-53 Pave Low
Brief: Specially outfitted heavy-lift helicopters used by Air Force special operations forces for infiltration/exfiltration as well as CSAR missions.
Function: SOF heavy-lift helicopter.
Operator: AETC, AFSOC.
First Flight: March 1967.
Delivered: from July 1987 (MH-53J).
IOC: 1988 (MH-53J).
Production: not available.
Inventory: 11 (J); 22 (M).
Unit Location: AETC: Kirtland AFB, N.M. AFSOC: Hurlburt Field, Fla., RAF Mildenhall, UK.
Contractor: Sikorsky; Texas Instruments.
Power Plant: two General Electric T64-GE-100 turboshafts, each 4,330 shp.
Accommodation: crew of six; up to 38 troops.
Dimensions: rotor diameter 72.2 ft, length of fuselage (without refueling probe) 67.2 ft, height 25 ft.
Weight: gross 50,000 lb.
Ceiling: 16,000 ft.
Performance: speed 164 mph, max range 630 miles, unlimited with air refueling.
Armament: mounts for any combination of three 7.62 miniguns and .50-caliber machine guns.
COMMENTARY
MH-53H. Older version of the helicopter, all of which, together with all HH/CH-53B/Cs, were upgraded to MH-53J Pave Low III "Enhanced" standard from 1986.
MH-53J. A long-range deep penetration helicopter, adverse weather capable and equipped for extended operations when air refueled. Equipped with a nose-mounted FLIR, an integrated digital avionics suite that includes TF/TA radar, Kalman filtered navigation suite (GPS, INS, Doppler), projected map display, secure UHF, VHF, FM, HF communications, PLS, SATCOM, hover coupler, rescue hoist, mission commander's C2 panel, armor plating, and an ECM suite with radar and IR missile jammers, flare/chaff dispensers, RWR, and missile launch detectors.
A service life extension program (SLEP) upgraded the aircraft's hydraulics, wiring, and basic airframe structure for increased gross weight, and an automated blade/pylon fold system optimized for shipboard compatibility. All aircraft modified to support aircrew eye/respiratory protection system.
MH-53M. MH-53J helicopters upgraded to Pave Low IV standard, delivered from 1999. Upgrades include the interactive defensive avionics suite/multimission advanced tactical terminal capability which integrates onboard EW systems with off-board, over-the-horizon, near-real-time intelligence, and mission software improvements. Cockpit modifications include three MFDs, integrated digital map, and mission commander situation awareness panel in the cabin area.

UH-1
Brief: Modified Bell helicopter used to support Air Force ICBM facilities, undergraduate pilot training, and administrative airlift.
Function: Utility and training helicopter.
Operator: AETC, AFMC, AFSOC, AFSPC, AMC, PACAF.
First Flight: 1956.
Delivered: from September 1970.
IOC: circa 1970.
Production: 79 (USAF).
Inventory: 36 (H); 62 (N).
Unit Location: Andrews AFB, Md., Fairchild AFB, Wash., F.E. Warren AFB, Wyo., Ft. Rucker, Ala., Hurlburt Field, Fla., Kirtland AFB, N.M., Malmstrom AFB, Mont., Minot AFB, N.D., Robins AFB, Ga., Vandenberg AFB, Calif., Yokota AB, Japan.
Contractor: Bell.
Power Plant: UH-1H: one Lycoming T53-L-13B turboshaft, 1,400 shp. UH-1N: Pratt & Whitney Canada T400-CP-400 Turbo "Twin-Pac," 1,290 shp.
Accommodation: two pilots and 14 passengers or cargo, or external load of 4,000 lb.
Dimensions: UH-1H: rotor diameter 48.3 ft, fuselage length 57.1 ft, height 13 ft. UH-1N: rotor diameter (with tracking tips) 48.1 ft, fuselage length 42.3 ft, height 14.3 ft.
Weight: UH-1H: gross 9,500 lb. UH-1N: gross 11,200 lb.
Ceiling: UH-1H: 15,000 ft. UH-1N: 13,000 ft.
Performance: max cruising speed at S/L 115 mph, max range, no reserves, 261 miles.
Armament: (optional) two General Electric 7.62 mm miniguns or two 40 mm grenade launchers; two seven-tube 2.75-in rocket launchers.
COMMENTARY
UH-1H is a former Army-owned training helicopter transferred to USAF in 2004 for use by the 23rd Training Group at Ft. Rucker, Ala., for Air Force undergraduate helicopter pilot training.
UH-1N is a twin-engine version of the UH-1 utility helicopter (Bell Model 212), most of which are allocated for AFSPC missile site support and for administrative/DV airlift. The UH-1N is also used by AETC's 58th SOW, Kirtland AFB, N.M., for training purposes and by the 336th TG, Fairchild AFB, Wash., for aircrew survival training. Two UH-1N helicopters are maintained by AFSOC for aviation advisory aircrew flight proficiency.

***LGM-30** Minuteman III*
(USAF photo by Rodney Jones)

Strategic Missiles

AGM-86 Air Launched Cruise Missile
Brief: A small, subsonic, winged air vehicle, deployed on B-52H aircraft, which can be equipped with either a nuclear or conventional warhead and can be used to help dilute air defenses and complicate an enemy's air defense task.
Function: Strategic air-to-surface cruise missile.
Operator: ACC.
First Flight: June 1979 (full-scale development).
Delivered: from 1981.
IOC: December 1982, Griffiss AFB, N.Y.
Production: 1,700+.
Unit Location: Barksdale AFB, La., Minot AFB, N.D.
Contractor: Boeing.
Power Plant: Williams/Teledyne CAE F107-WR-10 turbofan, 600 lb thrust.
Guidance: AGM-86B: inertial plus Terrain Contour Matching (TERCOM); AGM-86C: inertial plus GPS.
Warhead: AGM-86B: W80-1 nuclear; AGM-86C: blast/fragmentation conventional; AGM-86D: hard target penetrating warhead.
Dimensions: length 20.8 ft, body diameter 2 ft, wingspan 12 ft.
Weight: 3,150 lb (B), 3,277 lb (C).
Performance (approx): speed 550 mph (Mach 0.6), range 1,500+ miles (AGM-86B).
COMMENTARY
AGM-86A. A prototype cruise missile, developed in the mid-1970s. Slightly smaller than the later versions, it never entered production.
AGM-86B. First production version, the B is programmed for strategic attack on surface targets. Small radar signature and low-level flight capability enhance the missile's effectiveness. The last of 1,715 production models was delivered in October 1986. Undergoing SLEP to extend life to FY30.
AGM-86C. A conventional warhead version, developed from June 1986, the Conventional Air Launched Cruise Missile (CALCM) was first used operationally during Gulf War I and has since been used widely in combat operations. CALCM provides the warfighter with an adverse weather, day/night, air-to-surface, accurate, standoff outside theater defenses strike capability, with a range greater than 500 miles and a 3,000-lb class warhead. CALCM is equally effective for stand-alone, clandestine/punitive strikes and fully integrated theater warfare. From 1986, Boeing converted 622 Bs to the conventional configuration, the first of which was delivered in December 1987. The remaining CALCMs have Block 1A enhancements with improved accuracy and increased immunity to electronic jamming. Since Iraqi Freedom, few CALCMs remain.
AGM-86D. CALCM penetrator version with a Lockheed Martin AUP-3(M) warhead. The CALCM penetrator provides the warfighter with a standoff outside theater defenses capability against a wide range of hardened, deeply buried targets. The CALCM penetrator was used with success in Iraqi Freedom.

AGM-129 Advanced Cruise Missile
Brief: A stealthy, long-range, winged air vehicle equipped with a nuclear warhead and designed to evade enemy air and ground-based defenses in order to strike hard, heavily defended targets at standoff distances.
Function: Strategic air-to-surface cruise missile.
Operator: ACC.
First Flight: July 1985.
Delivered: June 1990-August 1993.
IOC: circa 1991.
Production: 461.

AGM-88 HARM (MSgt. Michael Ammons)

Unit Location: Barksdale AFB, La., Minot AFB, N.D.
Contractor: General Dynamics (now Raytheon); McDonnell Douglas (now Boeing).
Power Plant: Williams International F112-WR-100 turbofan.
Guidance: inertial, with TERCOM update.
Warhead: W80-1 nuclear.
Dimensions: length 20.8 ft, body width 2.2 ft, wingspan 10.2 ft.
Weight: 3,700 lb.
Performance (approx): range 2,300+ miles, speed 550 mph.
COMMENTARY
AGM-129A. Embodying stealth technology, the AGM-129A is an air-launched strategic cruise missile with significant improvements over the AGM-86B in range, accuracy, and survivability. Armed with a W-80 warhead, it is designed to evade air- and ground-based defense systems in order to strike heavily defended, hardened targets at any location within an enemy's territory. Developed by General Dynamics, McDonnell Douglas was certified as second source for this advanced system, which is carried externally on B-52H aircraft. The ACM is undergoing modification to extend its service life to 2030.

LGM-30 Minuteman
Brief: A solid-fuel ICBM capable of being fired from silo launchers and delivering a thermonuclear payload of one to three warheads with high accuracy over great distances.
Function: Strategic surface-to-surface ballistic missile.
Operator: AFSPC.
First Flight: February 1961.
Delivered: 1962-December 1978.
IOC: December 1962, Malmstrom AFB, Mont.
Production: 1,800.
Unit Location: F.E. Warren AFB, Wyo., Malmstrom AFB, Mont., Minot AFB, N.D.
Contractor: Boeing.
Power Plant: stage 1: Thiokol M-55 solid-propellant motor, 210,000 lb thrust; stage 2: Aerojet General SR19-AJ-1 solid-propellant motor, 60,300 lb thrust; stage 3: Thiokol SR73-AJ-1 solid-propellant motor, 34,400 lb thrust.
Guidance: inertial guidance system.
Warheads: one-three Mk 12/12A MIRVs (downloaded to one).
Dimensions: length 59.8 ft, diameter of first stage 5.5 ft.
Weight: launch weight (approx) 78,000 lb.
Performance: speed at burnout more than 15,000 mph, highest point of trajectory approx 700 miles, range with max operational load more than 6,000 miles.
COMMENTARY
A key element in the US strategic deterrent posture, Minuteman is a three-stage, solid-propellant ICBM, housed in an underground silo.
LGM-30A/B. Minuteman I version deployed in the early 1960s. The last Minuteman I missile was removed from its silo at Malmstrom AFB, Mont., in February 1969. USAF had deployed 150 A and 650 B models in 16 squadrons.
LGM-30F. Minuteman II version incorporated a larger second stage, an improved guidance package, greater range and payload capability, and hardening against the effects of nuclear blast. IOC was reached in October 1965 at Grand Forks AFB, N.D. USAF deployed 450 in nine squadrons.
LGM-30G. The Minuteman III became operational in June 1970, providing improved range, rapid retargeting, and the capability to place three MIRVs on three targets with a high degree of accuracy. USAF initially deployed 550 in 11 squadrons.
A single re-entry vehicle configuration for some missiles has been demonstrated, planned for, and is being worked in accordance with strategic arms control negotiations. Currently a total of 500 Minuteman IIIs are based at Minot AFB, N.D.; F.E. Warren AFB, Wyo.; and Malmstrom.
An extensive life extension program is ensuring Minuteman III's viability to 2020. Major upgrades include refurbishment of liquid propulsion post-boost rocket engine, remanufacture of the solid-propellant rocket motors, replacement of the environmental control system, repair of launch facilities, installation of updated, survivable communications equipment, and a C2 sustainment program.

Tactical Missiles and Weapons

AGM-65 Maverick
Brief: A tactical, TV- or imaging infrared (IIR)-guided air-to-surface missile carried by fighters and designed for use in CAS, interdiction, and defense suppression missions, having standoff capability and high probability of strike against a wide range of targets.
Function: Air-to-surface guided missile.
First Flight: August 1969.
Delivered: from August 1972.
IOC: February 1973.
Production: sustainment phase.
Contractor: Raytheon.
Power Plant: Thiokol TX-481 solid-propellant rocket motor.
Guidance: self-homing, EO guidance system (IIR on D and G models).
Warhead: AGM-65A/B/D/H 125-lb high-explosive, shaped charge; AGM-65G/K 298-lb blast fragmentation.
Dimensions: length 8.2 ft, body diameter 1 ft, wingspan 2.3 ft.
Weight: launch weight (AGM-65A) 462 lb, (AGM-65G) 670 lb.
Performance: range about 9.2 miles.
COMMENTARY
Maverick missiles have a long and distinguished combat record. They were first employed by USAF in Vietnam and were used extensively during Gulf War I and II. They currently equip A-10, F-15E, and F-16 aircraft for use against tanks and columns of vehicles and in the SEAD role.
AGM-65A. The basic Maverick is a launch-and-leave, TV-guided air-to-surface missile that enables the pilot of the launch aircraft to seek other targets or leave the target area once the missile 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 to treetop level.
AGM-65B. A version with a "scene magnification" TV seeker that enables the pilot to identify and lock on to smaller or more distant targets.
AGM-65D. System developed to overcome limitations of the TV Maverick, which can be used only in daylight and clear-weather conditions. This version has an IIR seeker as well as a lower-smoke motor. IIR Maverick became operational in February 1986 on A-10 aircraft.
AGM-65G. Uses the IIR seeker with an alternate 298-lb blast fragmentation warhead for use against hardened targets. Software is modified to include options for targeting ships and large land targets as well as mobile armor. This version also has a digital autopilot and a pneumatic, rather than hydraulic, actuation system. USAF received its first G model in 1989.
AGM-65H. AGM-65B modified with an upgraded TV seeker providing significant reliability, maintainability, and performance improvements over the AGM-65B seeker and double the standoff range.
AGM-65K. AGM-65G modified with the same upgraded TV seeker as in the AGM-65H to provide a TV-guided version of the Maverick with the 298-lb blast fragmentation warhead.

AGM-88 HARM
Brief: An air-to-surface tactical missile designed to seek and destroy enemy radar-equipped air defense systems, using an advanced guidance system that senses and homes in on enemy radar emissions.
Function: Air-to-surface antiradiation missile.
First Flight: April 1979.
Delivered: 1982-98.
IOC: circa 1984.
Production: sustainment phase.
Contractor: Raytheon.
Power Plant: Thiokol smokeless, dual-thrust, solid-propellant rocket motor.
Guidance: passive homing guidance system, using seeker head that homes on enemy radar emissions.
Warhead: high-explosive fragmentation, weighing 145 lb.
Dimensions: length 13.7 ft, body diameter 10 in, wingspan 3.7 ft.
Weight: 795 lb.
Performance: cruising speed supersonic, altitude limits S/L to 40,000 ft, range more than 10 miles.
COMMENTARY
The High-speed Anti-Radiation Missile (HARM) exhibits great velocity along with an ability to cover a wide range of frequency spectrums through the use of programmable digital processors in both the carrier aircraft's avionics equipment and in the missile. The combination gives this second generation anti-radiation missile (ARM) greatly improved capability over first-generation Shrikes and Standard ARMs. The AGM-88 proved highly effective against enemy ground radar in Gulf War I and in subsequent operations. HARMs equip F-16 Block 50/52s (F-16CJ) dedicated to the SEAD mission.
AGM-88A. A factory-programmed version used to equip the now-retired F-4G Wild Weasel to increase its lethality in electronic combat. No longer operational.
AGM-88B. Incorporated erasable electronically programmable read-only memory, permitting changes to missile memory in the field. Older versions of the AGM-88B have software upgrades to satisfy current-standard capability requirements.
AGM-88C. This current production version has a more lethal warhead, containing tungsten alloy cubes, rather than steel, and the enhanced-capability AGM-88C-1 guidance head.
Upgrade initiatives are aimed at increasing capability of both B and C versions against target shutdown, blanking, and blinking and at reducing potential damage to friendly radars in the target area. Further upgrades being evaluated include GPS precision navigation capability through a modification of the control section known as the HARM Destruction of Enemy Air Defenses (DEAD) Attack Module, or HDAM.

AGM-154 Joint Standoff Weapon
Brief: Joint USAF and Navy family of low-cost, glide weapons with a standoff capability.
Function: Air-to-surface guided missile.
First Flight: December 1994.
Delivered: 2000-present.
IOC: 2000 (USAF).
Production: 6,114 (originally planned).
Contractor: Raytheon.
Guidance: INS/GPS.
Dimensions: length 13.3 ft.
Weight: 1,065-1,500 lb.
Performance: range: low-altitude launch 17 miles, high-altitude launch 40+ miles.
COMMENTARY
A medium-range, INS/GPS-guided, standoff air-to-ground

weapon designed to attack a variety of soft and armored area targets (fixed, relocatable, and mobile) during day/night/adverse weather conditions. JSOW enhances aircraft survivability by providing the capability for launch aircraft to stand off outside the range of enemy point defenses. JSOW accuracy and launch-and-leave capability allows several target kills per aircraft sortie. JSOW arms B-2 and F-16 aircraft. Last planned USAF buy was in FY04.

AGM-154A. The baseline BLU-97 variant for use against area targets; in full-rate production.

AGM-154B. The BLU-108 variant providing anti-armor capability; development complete, production deferred.

AGM-154C. The third variant (used by Navy only), JSOW/Unitary integrates an IIR terminal seeker and a 500-lb unitary warhead.

AGM-158A Joint Air-to-Surface Standoff Missile

Brief: An advanced weapon designed to attack heavily defended targets with high precision at great standoff range.

Function: Air-to-surface guided weapon.

First Flight: April 8, 1999.

Delivered: through FY19 (planned).

IOC: September 2003.

Production: 2,400, plus 2,500 JASSM-ER (planned).

Contractor: Lockheed Martin; Raytheon; Honeywell.

Guidance: INS, GPS, and IIR terminal seeker.

Power Plant: Teledyne Continental Motors.

Dimensions: length 14 ft.

Weight: 2,250 lb.

Performance: 1,000-lb class penetrator and blast-fragmentation warheads; standoff range greater than 200 miles.

COMMENTARY

JASSM is a next generation missile that enables Air Force fighters and bombers to destroy the enemy's war-sustaining capabilities from outside the ranges of enemy air defenses. This autonomous precision strike weapon has a range greater than 200 miles and can attack both fixed and relocatable targets, ranging from nonhardened above ground to moderately hardened buried targets. JASSM is equipped with INS/GPS guidance, an IIR terminal seeker, and a stealthy LO airframe. The system also offers low operational support costs. Required Assets Available (RAA) has been accomplished for B-52H and F-16 threshold aircraft as well as B-1B and B-2 objective aircraft. IOC has been declared on the B-52H and B-1B. The B-1B is the only aircraft capable of redirecting a JASSM route prior to launch. Integration planning for the F/A-18E/F is ongoing. Other potential JASSM integration efforts include the F-15E and F-117 aircraft. An extended-range version **(JASSM-ER),** with a range of more than 500 miles, began development in FY04.

AIM-7 Sparrow

Brief: A supersonic, medium-range, semiactive radar-guided air-to-air missile with all-weather, all-altitude, and all-aspect offensive capability and a high-explosive warhead, carried by fighter aircraft.

Function: Air-to-air guided missile.

First Flight: December 1983 (AIM-7M).

Delivered: from 1956.

IOC: April 1976 (AIM-7F).

Production: sustainment phase.

Contractor: Hughes; General Dynamics (now Raytheon).

Power Plant: Hercules Mk 58 Mod 0 4.5 sec boost-11 sec sustain rocket motor.

Guidance: AIM-7M: monopulse semiactive radar.

Warhead: high-explosive, blast fragmentation, weighing 86 lb.

***AIM-9** Sidewinder* (Photo by Judson Brohmer)

Dimensions: length 12 ft, body diameter 8 in, wingspan 3.3 ft.

Weight: launch weight 504 lb.

Performance (estimated): max speed more than 2,660 mph (Mach 3.5), range more than 34 miles.

COMMENTARY

Early versions. Production of Sparrow has been under way for nearly half a century. Approximately 34,000 early models (AIM-7A/B/C/D/E) were produced. Compared to the earlier versions, the advanced solid-state AIM-7F, introduced into USAF service in 1976, had a larger motor, Doppler guidance, improved ECM, and better capability over both medium and "dogfight" ranges. USAF produced approximately 5,000, but none are now in USAF service.

AIM-7M. A joint Navy-USAF project aimed at producing a monopulse version of Sparrow at reduced cost and with improved performance in the ECM and look-down clutter regions. It began operational service in FY83. This version provides all-weather, all-altitude, all-aspect capability and equips USAF F-15s and F-16s (ADF) and Navy F-14s and F-18s.

AIM-7P. Block 1 retrofit to AIM-7M guidance and control sections (GCSs), providing low-altitude guidance and fuzing capability. Block 2 provides new-build for AIM-7P GCSs.

AIM-9 Sidewinder

Brief: A supersonic, short-range, IR-guided air-to-air missile carried by fighter aircraft, having a high-explosive warhead.

Function: Air-to-air missile.

First Flight: September 1953.

Delivered: 1957-present. First production AIM-9X delivered May 1, 2002.

IOC: circa 1983 (AIM-9M).

Production: sustainment phase (AIM-9M); LRIP from November 2000, with full rate from November 2004 (AIM-9X).

Contractor: Raytheon; Loral.

Power Plant: Thiokol Mk 36 Mod 11 solid-propellant rocket motor.

Guidance: solid-state IR homing guidance.

Warhead: high-explosive, weighing 20.8 lb.

Dimensions: length 9.4 ft, body diameter 5 in, fin-span 2.1 ft.

Weight: launch weight 190 lb.

Performance: max speed Mach 2+, range 10+ miles.

COMMENTARY

Early versions. AIM-9A was the prototype version. The AIM-9B, initial production version, entered the inventory in 1957 and was effective only at close range during day. These shortcomings were eliminated on subsequent AIM-9E/H/J/P versions. The third generation Sidewinder, AIM-9L, added a more powerful solid-propellant rocket motor as well as tracking maneuvering ability. Production and delivery began in 1976; production ended in 1981.

AIM-9M. A joint Navy-USAF project aimed at producing an improved version of AIM-9L with all-altitude, all-aspect, launch-and-leave intercept capability. Can equip: A-10, F-14, F-15, F-16, F-16 ADF, and F-18 aircraft. This version has increased infrared counter-countermeasures (IRCCM) capability, improved background discrimination, and a reduced-smoke rocket motor. First flight of prototype was in February 1978. Full production began in FY81.

AIM-9M-9. A modification to improve IRCCM capability of early missiles. Complete.

AIM-9X. Deriving from a jointly funded Navy-USAF project, the AIM-9X entered LRIP in November 2000. USAF's F-15-equipped 12th and 19th FS, part of the 3rd Wing at Elmendorf AFB, Alaska, became the first operational units to receive AIM-9Xs in November 2003. The first full-rate production contract was signed in November 2004. USAF plans to buy 5,097 missiles.

The AIM-9X incorporates advanced technologies such as a focal plane array imaging seeker, high off-boresight sensor (HOBS), and a highly maneuverable jet-vane control system. The missile utilizes the existing AIM-9M rocket motor, warhead, and fuze. It will be integrated with the JHMCS to maximize its HOBS capability. Intended carrier aircraft include the F-15, F-16, F-22, F-35, and F/A-18.

AIM-120 AMRAAM

Brief: A new generation supersonic, medium-range, active radar-guided air-to-air missile with a high-explosive warhead.

Function: Air-to-air guided missile.

First Flight: December 1984.

Delivered: 1988-July 2010 (planned).

IOC: September 1991.

Production: 10,917+ planned for USAF/USN.

Contractor: Raytheon.

Power Plant: Alliant boost-sustain solid-propellant rocket motor.

Guidance: inertial/command, inertial with active radar terminal homing.

Warhead: high-explosive directed fragmentation weighing 48 lb.

Dimensions: (A/B models) length 12 ft, body diameter 7 in, span of tail control fins 2.1 ft.

Weight: 335 lb.

Performance: cruising speed approx Mach 4, range more than 23 miles.

COMMENTARY

A joint project between the Navy and USAF, the AIM-120 Advanced Medium-Range Air-to-Air Missile (AMRAAM) is a replacement for the AIM-7 Sparrow. The AIM-120 equips F-15, F-16, F-22, F-35, and F/A-18 fighters. Inertial and command inertial guidance and active radar terminal homing provide launch-and-maneuver capability. Significant improvements in operational effectiveness over the AIM-7 include increased average velocity, reduced miss distance, improved fuzing, increased warhead lethality, multiple target engagement capability, improved clutter rejection in low-altitude environments, enhanced electronic protection capability, increased maximum launch range, a reduced-smoke motor, and improved maintenance and handling.

***AIM-120** AMRAAM* (TSgt. Michael Ammons)

AIM-120A was the first production version, delivered by Hughes in 1988 to the 33rd TFW at Eglin AFB, Fla.

AIM-120B/C/D are upgraded, reprogrammable variants of the AIM-120. The AIM-120C currently in production has smaller, clipped control surfaces to provide for internal carriage capability in the F-22A and F-35, with HOBS launch capability. The latest development effort (AMRAAM Phase 4) adds GPS to improve navigational accuracy and enhanced data link capabilities in the AIM-120D version, due to enter production in 2006.

CBU-87/103 Combined Effects Munition

Brief: The CBU-87 CEM is an area munition effective against light armor, materiel, and personnel and used by USAF and Navy fighters and bombers for interdiction.

Function: Area munition.

Production: sustainment phase.

Contractor: Aerojet General; Honeywell; Alliant Tech.

Guidance: none (CBU-87).

Dimensions: length 7.7 ft; diameter 1.3 ft.

Weight: 949 lb.

Performance: dispenses 202 BLU-97 combined effects bomblets over an area roughly 800 ft by 400 ft.

COMMENTARY

The CBU-87 Combined Effects Munition dispenses 202 BLU-97 shaped charge antipersonnel/antimateriel fragmentary/incendiary bomblets over the target in a rectangular pattern. It is currently delivered by USAF and Navy aircraft as an unguided gravity weapon. Density and size of the area covered depends on release parameters and spin rates.

CBU-103. USAF is retrofitting a portion of its inventory of unguided CBU-87 CEMs with the Wind-Corrected Munitions Dispenser (WCMD) tail kit. The WCMD improves the munitions delivery accuracy when released from medium to high altitude.

CBU-89/104 Gator

Brief: The CBU-89 Gator is an anti-armor/antipersonnel mine dispenser used by USAF and Navy fighters and bombers for interdiction.

Function: Scatterable mines.

Production: sustainment phase.

Contractor: Honeywell; Aerojet General; Olan; Alliant Tech.

Guidance: none (CBU-89).

Dimensions: length 7.7 ft; diameter 1.3 ft.

Weight: 705 lb.

Performance: dispenses 72 BLU-91 anti-armor and 22 BLU-92 antipersonnel mines.

COMMENTARY

The CBU-89 Gator dispenser holds 94 mines, of which 72 are antitank and 22 are antipersonnel. The mines are dispersed over the target in a circular pattern. The antitank mines, which can be fuzed for three different time delay settings, have a magnetic influence fuze to sense armor.

CBU-104. USAF has retrofitted a portion of its inventory of Gators with the Wind-Corrected Munitions Dispenser (WCMD) tail kit, which improves the munitions delivery accuracy when released from medium to high altitude.

CBU-97/105/115 Sensor Fuzed Weapon

Brief: The CBU-97 SFW is an anti-armor munition used by fighters and bombers for multiple kills per pass against moving and stationary land combat vehicles.

Function: Wide-area munition.

First Flight: circa 1990.

Delivered: 1994-2013 (planned).

IOC: 1997.

Production: 6,500 (planned).

Contractor: Textron Systems.

Guidance: IR sensors in each warhead search for targets, then detonate over them.

Dimensions: length 7.7 ft; diameter 1.3 ft.

Weight: 920 lb.

Performance: delivers 40 lethal projectiles over an area of about 500 ft by 1,200 ft.

COMMENTARY

The **CBU-97** Sensor Fuzed Weapon (SFW) comprises an SUU-66/B tactical munitions dispenser with an FZU-39 fuze and a payload of 10 BLU-108 submunitions. Each tactical munitions dispenser contains 10 BLU-108 submunitions, and each submunition contains four "skeet" projectiles that, upon being thrown out, seek out their target and deliver an explosively formed penetrator. Each SFW can deliver a total of 40 lethal projectiles. The skeet's active laser and passive IR sensors can detect a vehicle's shape and IR signature; if no target is detected, the warhead detonates after a preset time. The SFW's primary targets are massed tanks, armored personnel carriers, and self-propelled targets. It also provides direct attack capability and interdiction against C2 centers.

The CBU-97 SFW is delivered as an unguided gravity weapon from the A-10, B-1, B-2, B-52H, F-15E, and F-16. The initial baseline SFW systems contained the BLU-108/B and BLU-108A/B submunition. A preplanned product improvement SFW submunition, the BLU-108B/B, entered production in 2001, incorporating improvements such as an active laser sensor, multimission warhead, and increased footprint.

CBU-105. Designation of an unguided CBU-97 equipped with a Wind-Corrected Munitions Dispenser (WCMD) tail kit. The CBU-105 can be accurately delivered from high altitude and in adverse weather from the B-1, B-52H, F-15E, and F-16. Combat debut for the CBU-105 occurred April 2003, during Iraqi Freedom, from a B-52H.

CBU-115. USAF plans to install WCMD-ER wing and tail kits on SFW P31 weapons beginning FY06. The WCMD-ER provides increased accuracy and standoff capability from outside point defense ranges.

CBU-107 Passive Attack Weapon

Brief: The CBU-107 Passive Attack Weapon (PAW) provides the capability to attack nonhardened surface targets, with a minimum of collateral and environmental damage.

Function: Wide-area munition.

First Flight: 2002.

Delivered: 2002-03.

IOC: December 2002.

Production: not available, but completed March 2003.

Contractor: General Dynamics (kinetic energy penetrator payload and cannister); Lockheed Martin (WCMD); Textron (tactical munition dispenser kit).

Guidance: via WCMD.

Dimensions: length 7.7 ft; diameter 1.3 ft.

Weight: 1,000 lb.

Performance: delivers a high-speed volley of 3,000+ metal "arrows" projected from a single canister; three types of projectiles: 350 x 15 in-long rods, 1,000 x 7 in-long rods, and 2,400 small-nail size.

COMMENTARY

The CBU-107 Passive Attack Weapon (PAW) was developed from September 2002 to provide USAF aircraft with a new weapon that destroys targets with kinetic energy rods rather than explosives, thereby minimizing collateral and environmental damage. Following release from an aircraft, the WCMD-equipped weapon glides toward its target. Before impact, the inner chamber containing the rods begins to rotate and the "arrows" are ejected in rapid succession by centrifugal force, penetrating a target within a 200-ft radius. Two CBU-107s were used during Iraqi Freedom. CBU-107s are intended for use on B-52, F-15E, and F-16 aircraft.

GBU-10 Paveway II

Brief: An unpowered laser guided bomb (LGB) used to destroy high-value enemy targets from short standoff distances.

Function: Air-to-surface guided munition.

First Flight: early 1970s.

Delivered: from 1976.

IOC: 1976.

Production: 10,000; continuing.

Contractor: Lockheed Martin; Raytheon.

Guidance: semiactive laser.

Warhead: GBU-10C/D/E/F: Mk 84 bomb (2,000-lb unitary); GBU-10G/H/J: BLU-109.

Dimensions: length GBU-10C/D/E/F: 14.1 ft; GBU-10G/H/J: 14 ft, body diameter GBU-10C/D/E/F: 1.5 ft; GBU-10G/H/J: 1.2 ft, wingspan 5.5 ft.

Weight: 1,985 lb.

Performance: circular error probable (CEP) 29.7 ft; range 9.2 miles.

COMMENTARY

Folding-wing Paveway II weapons are improved versions of the earlier fixed-wing Paveway I. The GBU-10 is used primarily for precision bombing against nonhardened targets but is capable of greater penetration than previous version. It can operate in cloud ceilings down to 2,500 ft. GBU-10 platforms include A-10, B-52, F-15E, F-16, and F-117 aircraft.

GBU-12 Paveway II

Brief: An unpowered LGB used to destroy high-value enemy targets from short standoff distances.

Function: Air-to-surface guided munition.

First Flight: early 1970s.

IOC: 1976.

Production: about 30,000; continuing.

Contractor: Lockheed Martin; Raytheon.

Guidance: semiactive laser.

Warhead: Mk 82 (500 lb) blast/fragmentation bomb.

Dimensions: length 10.9 ft, body diameter 10.7 in, wingspan 4.4 ft.

Weight: 603 lb.

Performance: CEP 29.7 ft; range about 6 miles.

COMMENTARY

Folding-wing Paveway II weapons are improved versions of the earlier fixed-wing Paveway I. The LGB is used primarily to strike fixed armor. It can operate in cloud ceilings down to 2,500 ft. GBU-12 platforms include A-10, B-52, F-15E, F-16, and F-117 aircraft.

GBU-15

Brief: An unpowered bomb carried by the F-15E and used to destroy high-value enemy targets from short standoff distances.

Function: Air-to-surface guided munition.

First Flight: 1975.

Delivered: 1983-complete.

IOC: 1983.

Production: more than 2,000.

Contractor: Boeing; Raytheon.

Guidance: TV or IIR seeker.

Warhead: Mk 84 bomb (2,000-lb unitary) or BLU-109.

Dimensions: length 12.8 ft, body diameter 1.5 ft, wingspan 4.9 ft.

Weight: 2,500 lb.

Performance: cruising speed subsonic; range about 17 miles; CEP about 10 ft.

COMMENTARY

GBU-15 is an air-launched, cruciform-wing glide bomb fitted with a guidance system designed to give it pinpoint accuracy from low or medium altitudes. It also has a standoff capability. Development began in 1974, based on experience gained in Vietnam with the earlier Pave Strike GBU-8 modular weapon program. The GBU-15 is intended for tactical use to suppress enemy defenses and to destroy heavily defended targets. The target-detecting device is carried on the front of the warhead. The control module, with autopilot and data link module, attaches to the rear.

The weapon has two modes of attack. In direct attack, the weapon is locked on to the target before launch and flies a near-line of sight profile to impact. In the indirect mode, the seeker can be locked on to the target after launch, or the operator can fly the weapon manually to impact, using guidance updates provided through the data link. A "buddy" system may be operated whereby the weapon is launched from one aircraft and controlled by another. The GBU-15 is deployed with the F-15E.

GBU-15(V)1/B. A TV-guided variant, qualified for operational service in 1983 (production complete).

GBU-15(V)2/B. IIR version entered service in 1987.

GBU-15-I. Combines accuracy of GBU-15 with the penetration capability of the improved 2,000-lb BLU-109/B penetrator bomb.

EGBU-15. GPS-guided variant, allowing pilot to select either TV, IR, or GPS guidance over the target, depending on weather and/or threat conditions. USAF had 100 initially produced for Allied Force, with field-level upgrade of over 1,200 existing GBU-15s.

GBU-16 Paveway II

Brief: An unpowered LGB used to destroy high-value enemy targets from short standoff distances.

Function: Air-to-surface glide munition.

First Flight: early 1970s.

IOC: 1976.

Production: not available.

Contractor: Lockheed Martin; Raytheon.

Guidance: semiactive laser.

Warhead: Mk 83 (1,000 lb) bomb.

Dimensions: length 12.1 ft, body diameter 1.2 ft, wingspan 5.5 ft.

Weight: approx 1,000 lb.

Performance: CEP about 29 ft; range 9.2 miles.

COMMENTARY

Folding-wing Paveway II weapons are improved versions of the earlier fixed-wing Paveway I. The GBU-16 LGB is used primarily to strike fixed armor. Its platforms include A-10, F-15E, and F-16 aircraft.

GBU-24 Paveway III

Brief: A precise air-to-ground low-level LGB (LLLGB) equipped with an advanced guidance kit.

Function: Air-to-surface penetrating glide bomb.

First Flight: GBU-24A/B (USAF) in service May 1985; GBU-24B/B (Navy) June 1992.

Delivered: from 1986.

IOC: 1986.

Production: USAF 14,000; Navy 12,000.

Contractor: Raytheon.

Guidance: semiactive laser.

Warhead: BLU-109.

Dimensions: length 14.2 ft.

Weight: 2,350 lb.

Performance: range more than 11.5 miles.

COMMENTARY

GBU-24A/B. An air-to-ground weapon equipped with the third generation Paveway III guidance kit, integrated with a BLU-109 penetrating warhead. The kit consists of an advanced guidance section and high-lift airframe. It is extremely precise and highly effective against a broad range of high-value hard targets. The system can be employed from low, medium, and high altitudes, provid-

ing operational flexibility through the use of an adaptive digital autopilot and large field-of-regard, highly sensitive scanning seeker. The GBU-24A/B was highly successful during Desert Storm.

The GBU-24 adapts to conditions of release, flies an appropriate midcourse, and provides trajectory shaping for enhanced warhead effectiveness. The weapon is deployed on USAF F-15E, F-16, and F-117 and Navy F/A-18.

GBU-27

Brief: A precise air-to-ground penetrating LGB equipped with an advanced guidance kit.

Function: Air-to-surface guided glide bomb.
First Flight: not available.
Delivered: from 1988.
IOC: 1988 (unconfirmed).
Production: approx 3,000.
Contractor: Raytheon.
Guidance: semiactive laser.
Dimensions: span 5.5 ft, length 13.9 ft.
Weight: 2,170 lb.
Performance: range more than 11.5 miles.
COMMENTARY

To meet the unique requirements of the F-117A, the GBU-24A/B was adapted to GBU-27 standard, incorporating specific guidance features to accomplish this mission. The GBU-27 is extremely precise and was used to great effect in Desert Storm.

EGBU-27. Integrates GPS/INS guidance into the existing GBU-27 laser seeker to provide adverse weather capability and improved target location. Entered production in FY98. First operational use was in Iraqi Freedom.

GBU-28

Brief: A large 5,000-lb class air-to-ground penetrating warhead (BLU-113/B) equipped with an advanced laser guidance kit, used for striking and destroying hard and deeply buried targets.

Function: Air-to-surface guided glide bomb.
First Flight: February 1991.
Delivered: circa 1991.
IOC: 1991.
Production: approx 500.
Contractor: Raytheon.
Guidance: laser.
Dimensions: length 19.2 ft, diameter 1.2 ft.
Weight: 4,676 lb.
Performance: range more than 5.75 miles.
COMMENTARY

Under USAF's rapid-response program, the GBU-28 bunker-busting LGB was developed for Desert Storm for use against deeply buried, hardened C2 facilities. Four of the GBU-28 weapons were used during the war: two for testing and two by F-111Fs against a bunker complex Feb. 27, 1991. Guidance is by a modified GBU-27 system.

GBU-28B/B. Integrates GPS/INS guidance into the existing GBU-28 guidance control unit to provide adverse weather capability and improved target location. Entered production in FY99.

GBU-28C/B. Utilizes the improved BLU-122/B warhead for increased penetration, lethality, and survivability. Guidance and control is provided by an Enhanced Paveway III system with GPS/INS and laser capability. Entered production in FY05.

GBU-31/32/38 Joint Direct Attack Munition

Brief: A joint USAF-Navy INS/GPS-guided weapon, carried by fighters and bombers, that provides highly accurate, autonomous, all-weather conventional bombing capability.

Function: Air-to-surface guided bomb.
First Flight: Oct. 22, 1996.
Delivered: 1998-2011 (planned).
IOC: 1998.
Production: 226,064 (planned).
Contractor: Boeing; Textron; Honeywell.
Guidance: INS/GPS.
Dimensions: Mk 84 with JDAM 12.8 ft; BLU-109 with JDAM 12.4 ft; Mk 83 with JDAM 10 ft.
Weight: Mk 84 2,036/2,056 lb (USAF/USN); BLU-109 2,115/2,135 lb; Mk 83 1,013/1,028 lb.
Performance: range up to 17 miles, CEP with GPS 42.9 ft; CEP with INS only 99 ft.
COMMENTARY

JDAM upgrades the existing inventory of general-purpose bombs by integrating them with a GPS/INS guidance kit to provide accurate all-weather attack from medium/high altitudes. While still aboard the launch aircraft, JDAM is passed target information through the aircraft's avionics system. Once released, the inertial guidance kit takes over and, with periodic GPS updates to the INS, guides the weapon to its target. JDAM is intended for AV-8B, B-1, B-2, B-52, F-14, F-15E, F-16, F-22, F-35, F-117A, and F/A-18C/D/E/F aircraft.

GBU-31. Variant that adds an INS/GPS guidance kit to the 2,000-lb general-purpose Mk 84 bomb or the 2,000-lb BLU-109 penetrator. First used in combat March 24, 1999.

GBU-32. Variant that adds an INS/GPS guidance kit to the 1,000-lb general-purpose Mk 83 bomb or the 1,000-lb BLU-110 penetrator.

GBU-38. Variant that adds an INS/GPS guidance kit to the 500-lb general-purpose Mk 82 bomb. First production deliveries were in 2004 for the B-2.

Planned upgrades include an antispoofing GPS receiver and low-cost antijam antenna.

GBU-39B Small Diameter Bomb

Brief: Extended range all-weather, day/night 250-lb class near-precision guided munition. Provides increased loadout to achieve multiple kills per sortie and decreases collateral damage.

Function: Air-to-surface guided munition.
First Flight: May 23, 2003 (guided).
Delivered: TBD.
IOC: 2007.
Production: 24,000 munitions and 2,000 carriages (planned).
Contractor: Boeing.
Guidance: GPS/INS augmented by Differential GPS.
Dimensions: length 70.8 in (munition); 126.4 in (carriage); 143.1 in (carriage with four munitions).
Weight: 285 lb (munition); 320 lb (carriage); 1,460 lb (carriage with four munitions).
Performance: near-precision capability at standoff range up to 46 miles.
COMMENTARY

The Small Diameter Bomb (SDB) system employs a BRU-61/A smart carriage capable of carrying four 250-lb class GBU-39/B near-precision guided air-to-surface munitions. It is capable of destroying high-priority fixed and stationary targets from both fighters and bombers in internal bays or on external hardpoints. SDBs can be targeted and released against single or multiple targets. Target coordinates are loaded in the weapon prior to release either on the ground or in the air by aircrew. Once the weapon is released, it relies on GPS/INS augmented by Differential GPS to self-navigate to the impact point. SDB increases loadout, decreases collateral damage, and improves aircraft sortie generation times. Threshold aircraft for SDB is the F-15E. Objective aircraft include the A-10, B-1, B-2, B-52, F-16, F-22, F-35, F-117, and MQ-9. Boeing was awarded the contract to develop the SDB in October 2003.

Massive Ordnance Air Blast (MOAB) Bomb

Brief: A massive precision guided munition (PGM) designed to be dropped by B-1, B-2, or B-52 bombers.

Function: Massive bomb.
Guidance: GPS/INS.
Warhead: 18,000 lb, high explosive.
Dimensions: length 30 ft, diameter 3.3 ft.
Weight: 21,500 lb.
COMMENTARY

On March 11, 2003, USAF live-tested the largest PGM developed to date. Unlike the earlier unguided "Daisy Cutter" bomb, the MOAB does not require a parachute.

Wind-Corrected Munitions Dispenser (WCMD) and WCMD-ER

Brief: A tail kit fitted to various dispenser weapons that provides inertial guidance system corrections for launch transients and wind effects to enhance accuracy.

Function: Guidance tail kit.
First Flight: February 1996.
Delivered: from 2000.
IOC: FY00.
Production: WCMD: 27,700 (planned). WCMD-ER: 100.
Contractor: Lockheed Martin.
Dimensions: length 1.4 ft, diameter 1.3 ft.
Weight: WCMD: 100 lb. WCMD-ER: about 200 lb.
Performance: WCMD: range about eight miles. WCMD-ER: about 40 miles.
COMMENTARY

WCMD. USAF is modifying standard SUU-64/65/66 tactical munition dispensers with guidance kits to compensate for wind drift on downward flight from high altitudes. The combat-proven WCMD kits include an INS guidance unit, movable tail fins that pop out in flight, and a signal processor. The kits when fitted on CBU-87/89/97 inventory cluster weapons are designated: CEM (CBU-103), Gator (CBU-104), SFW (CBU-105), and PAW (CBU-107). Successful flight testing began in February 1996; WCMDs are now operational on B-1, B-52, F-15E, and F-16 aircraft. Objective aircraft are A-10, B-2, F-35, and F-117.

WCMD-ER. Augments WCMD baseline capability by adding GPS guidance and a wing kit for CBU-97 SFW dispenser weapons to provide increased accuracy and standoff capability from outside point defense ranges. First flight took place in November 2005.

Satellite Systems

Advanced EHF (AEHF)

Brief: Joint service satellite communications system that provides global, secure, protected, and jam-resistant communications for high priority air, ground, and sea assets.

Function: near-worldwide, secure, survivable satellite communications.
Operator: AFSPC.
First Launch: April 2008 (planned).
IOC: 2010 (planned).
Constellation: three satellites.
Design Life: 14 years.
Launch Vehicle: Evolved Expendable Launch Vehicle (EELV).
Unit Location: Schriever AFB, Colo.
Orbit Altitude: 22,000+ miles (geosynchronous).
Contractor: Lockheed Martin, Northrop Grumman team for system development and demonstration.
Dimensions: length 32 ft (across payload axis), width 75.8 ft (across solar array axis).
Weight: approx 13,500 lb at launch, 9,000 lb on orbit.
Performance: 10 times the capability of the Milstar Block II satellite.
COMMENTARY

The Advanced Extremely High Frequency (AEHF) system comprises three satellites in geosynchronous orbit that provide at least 10 times the capacity of the 1990s-era Milstar Block II satellites. Advanced EHF allows the President, Secretary of Defense, and combat forces to control their tactical and strategic forces at all levels of conflict

***GBU-31** Joint Direct Attack Munition* (USAF photo)

through general nuclear war and supports the attainment of information superiority. AEHF will provide connectivity across the spectrum of mission areas, including air, land, and naval warfare; special operations; strategic nuclear operations; strategic defense; theater missile defense; and space operations and intelligence.

Defense Meteorological Satellite Program

Brief: Satellites that collect air, land, sea, and space environmental data to support worldwide strategic and tactical military operations. Also shares data with civil agencies.

Function: Environmental monitoring satellite.

Operator: National Polar-orbiting Operational Environmental Satellite System (NPOESS) program office.

First Launch: May 23, 1962.

IOC: classified but in use during Vietnam War.

Constellation/on-orbit: two.

Design Life: 48 months (Block 5D-2); 54 months (Block 5D-3).

Launch Vehicle: Titan II; EELV/Delta IV.

Unit Location: Suitland, Md.

Orbit Altitude: approx 575 miles.

Contractor: Lockheed Martin; Northrop Grumman.

Power Plant: solar arrays generating 1,200-1,300 watts.

Dimensions: length 20.2 ft (with array deployed), width 4 ft.

Weight: 2,545 lb (including 592-lb sensor).

Performance: DMSP satellites orbit Earth at about 500 miles altitude and scan an area 1,800 miles wide. Each system covers the Earth in about 12 hr.

COMMENTARY

For the last 40-plus years, the DMSP constellation has provided high-quality, timely weather information to strategic and tactical warfighters worldwide. In addition, DMSP satellites provide critical land, sea, and space environment data required by US forces across the globe. This data is also shared with civil agencies. The DMSP constellation will be replaced by the tri-agency NPOESS late in this decade.

Block 5D-2. Two operational DMSP Block 5D-2 satellites survey the entire Earth four times a day. The last of the Block 5D-2 satellites was launched in December 1999. The Block 5D-2 spacecraft "sees" visible and IR cloud-cover imagery to analyze cloud patterns with the operational linescan system. Secondary instruments include microwave imagers and sounders and a suite of space environment sensors.

Block 5D-3. DMSP F16, the first Block 5D-3 satellite, was launched successfully on Oct. 18, 2003. (DMSP F15, which used a 5D-3 satellite bus but 5D-2 sensors, was launched Dec. 12, 1999 and is credited as the first 5D-3 launch.) Block 5D-3 satellites have an improved spacecraft bus and sensors that provide for longer and more capable missions. Successful flyout of the DMSP Block 5D-3 satellites will help ensure a seamless transition to the NPOESS program for DOD.

Defense Satellite Communications System

Brief: A spacecraft traveling in geosynchronous orbit used to transmit SHF high-priority C2 communication.

Function: Communications satellite.

Operator: AFSPC.

First Launch: 1971 (DSCS II); 1982 (DSCS III); 2000 (DSCS III/SLEP).

IOC: Dec. 13, 1978 (DSCS II).

Constellation: five (III).

Design Life: 10 yr (III).

Launch Vehicle: Atlas II.

Unit Location: Schriever AFB, Colo.

Orbit Altitude: 22,000+ miles in geosynchronous orbit.

Contractor: Lockheed Martin.

Power Plant: solar arrays generating 1,269 watts, decreasing to 980 watts after 10 yr; 1,500 watts (SLEP).

Dimensions: rectangular body 6 x 6 x 7 ft; 38-ft span with solar arrays deployed.

Weight: 2,580 lb; 2,716 lb (SLEP).

Performance: DSCS satellites orbit Earth at about 22,000 miles altitude and employ six SHF transponder channels for secure voice and high-rate data communications.

COMMENTARY

DSCS III satellites support globally distributed DOD and national security users. The final four of 14 satellites received SLEP modifications, providing substantial capacity improvements through higher power amplifiers, more sensitive receivers, and additional antenna connectivity options. The DSCS communications payload includes six independent super high frequency (SHF) transponder channels that cover a 500 MHz bandwidth. Three receive and five transmit antennas provide selectable options for Earth coverage, area coverage, and/or spot beam coverage. A special-purpose single channel transponder is also on board.

The DSCS III system provides the capabilities needed for effective implementation of worldwide military communications. It can adapt to dynamic operating conditions and perform under stressed environments, providing nuclear hardened, antijam, high data rate, long-haul communications to military users globally. The final DSCS III satellite was launched in August 2003. The modernization of satellite communications will continue with the deployment of the Wideband Gap-filler System.

Defense Support Program

Brief: An early warning spacecraft that travels in geosynchronous orbit and provides alert of possible ballistic missile attack on US forces or homeland.

Function: Strategic and tactical launch detection system.

Operator: AFSPC.

First Launch: November 1970.

IOC: circa 1972.

Constellation: classified.

Design Life: three yr requirement and five yr goal.

Launch Vehicle: Titan IV with inertial upper stage; Delta IV Heavy EELV.

Unit Location: Buckley AFB and Schriever AFB, Colo.

Orbit Altitude: 22,000+ miles in geosynchronous orbit.

Contractor: TRW (now Northrop Grumman).

Power Plant: solar arrays generating 1,485 watts.

Dimensions: diameter 22 ft, height 32.8 ft, with solar paddles deployed.

Weight: 5,000 lb (approx).

Performance: orbits at approx 22,000 miles altitude in geosynchronous orbit; uses IR sensors to sense heat from missile and booster plumes against Earth's background.

COMMENTARY

The incredibly flexible Defense Support Program (DSP) satellite system was used extensively in Desert Storm to detect theater missile launches against coalition forces. Though not designed to spot and track smaller missiles, the system was highly successful in detecting launches, enabling timely warnings of Iraqi Scud attacks. The Space Based Infrared System (SBIRS) mission control station (MCS), located at Buckley AFB, Colo., became operational in December 2001 and now performs both the strategic and theater missile warning missions.

DSP satellites are a key part of the North American and theater early warning systems, capable of detecting missile launches and nuclear detonations. Warning data are fed to NORAD and US Strategic Command early warning centers at Cheyenne Mountain AFS, Colo. Since the first launch, DSP satellites have provided an uninterrupted early warning capability to the US. The final DSP is expected to be launched in 2006. America's early warning capability will be modernized with the introduction of the new SBIRS to be phased in at a future date.

Global Positioning System

Brief: A constellation of orbiting space vehicles that provides highly precise and reliable position navigation and timing data, 24 hours a day, to military and civilian users around the world. Signals permit calculation of location within less than 100 ft.

Function: Worldwide navigation satellite constellation.

Operator: AFSPC.

First Launch: Feb. 22, 1978.

IOC: Dec. 9, 1993.

Constellation: Nominal 24 satellites in six orbital planes; max 30 sats; currently 28 operational.

Design Life: 7.5 yr (II/IIA); 10 yr (IIR/IIR-M).

Launch Vehicle: Delta II, Delta IV, Atlas V.

Unit Location: Schriever AFB, Colo.

Orbit Altitude: 10,988 miles.

Contractor: Boeing (II, IIA, IIF); Lockheed Martin (IIR, IIR-M).

Power Plant: solar arrays generating 700 watts (II/IIA); up to 2,900 watts (IIF).

Dimensions: IIR: body 5 x 6.3 x 6.25 ft, span incl solar arrays 38 ft.

Weight: 2,370 lb (IIR) on orbit.

Performance: GPS satellites orbit the Earth every 12 hr, emitting continuous navigation signals. The signals are so accurate that time can be figured to within one-millionth of a second, velocity within a fraction of a mile per hr, and location to within a few ft. Receivers are used in aircraft, ships, and land vehicles and can also be handheld.

COMMENTARY

Worldwide military operations, such as precision bombing, CSAR, mapping, and rendezvous, are successful in part due to the 24-hour, worldwide navigation service provided by the Global Positioning System (GPS) navigation satellite constellation. Accurate three-dimensional (latitude, longitude, and altitude) position, velocity, and precise time are provided continuously in real time to support an unlimited number of users around the globe, both civilian and military. Concern over potential enemy denial of GPS is being addressed under GPS modernization efforts. The modified Block IIR-M GPS satellites, launched beginning September 2005, have two jam-resistant channels for military-only use. Block IIF satellites with extended design life, faster processors, and a new civil signal on a third frequency launches 2008. Future generation GPS satellites are slated for launch 2013.

Milstar Satellite Communications System

Brief: A satellite communications system that provides secure, jam-resistant worldwide C2 communications for tactical and strategic forces in all levels of conflict, linking command authorities to ground forces, ships, submarines, and aircraft.

Function: Communications satellite.

Operator: AFSPC.

First Launch: Feb. 7, 1994.

IOC: July 1997 (Milstar I).

Constellation: five.

Design Life: 10 yr.

Launch Vehicle: Titan IV/Centaur.

Unit Location: Schriever AFB, Colo.

Orbit Altitude: 22,300 miles.

Contractor: Lockheed Martin; Boeing; TRW (now Northrop Grumman).

Power Plant: solar arrays generating 8,000 watts.

Dimensions: length 51 ft, width 116 ft with full solar array extension.

Weight: 10,000 lb.

Performance: constellation consists of three satellites in low-inclined geosynchronous orbit, providing worldwide coverage between 65° north and 65° south latitude.

COMMENTARY

The backbone of strategic-tactical communications, Milstar is a joint service communications system that provides secure, jam-resistant EHF communications. Worldwide operations are made possible by this 24-hour, all-weather capability, ready to support any deployment at a moment's notice. The Milstar inventory was fully deployed in 2003, and modernization of satellite communications will continue with the Advanced EHF (AEHF) constellation deployment.

Polar MILSATCOM

Brief: Payload on a classified satellite that provides secure, survivable communications, supporting peacetime, contingency, and wartime operations in the North Pole region, above 65° north latitude.

Function: Communications satellite.

Operator: USN.

First Launch: late 1997.

IOC: 1997.

Constellation: three.

Design Life: host satellite dependent.

Launch Vehicle: not available.

Unit Location: Schriever AFB, Colo.

Orbit Altitude: 25,300 miles.

Contractor: classified.

Power Plant: 410 watts consumed by payload (power from host solar array).

Dimensions: numerous items integrated throughout host.

Weight: 470 lb (payload).

COMMENTARY

Augmenting the Milstar constellation, the Polar MILSATCOM payload is a cost-effective means of providing secure communications for the northern polar region. The system enables northern latitude operations by linking forces with secure, jam-resistant EHF communication links. Polar 2 and 3 availability will occur in 2006 and 2008 respectively. An improved next generation polar system is planned.

Space Based Infrared System High

Brief: Advanced surveillance system for missile warning, missile defense, battlespace characterization, and technical intelligence. System includes satellites in geosynchronous Earth orbit (GEO) and highly elliptical orbit.

Function: IR space surveillance.

Operator: AFSPC.

First Launch: (planned) High GEO: FY08.

IOC: TBD.

Constellation: High: four GEO sats, two highly elliptical orbit sensors.

Design Life: not available.

Launch Vehicle: Evolved Expendable Launch Vehicle (EELV) Heavy.

Unit Location: Buckley AFB, Colo.

Orbit Altitude: High at approx 22,300 miles.

Contractor: Lockheed Martin; Northrop Grumman.

Power Plant: solar array, 2,435 watts.

Dimensions: 6 x 7 x 17 ft.

Weight: 5,442 lb.

COMMENTARY

The follow-on to the DSP is the Space Based Infrared

System (SBIRS) High. The system includes GEO satellites, HEO payloads, and ground assets.

SBIRS is being fielded incrementally. Increment 1 consolidated all DSP ground processing in one CONUS master control station at Buckley AFB, Colo. IOC was declared Dec. 18, 2001. Increment 2 will field the space and ground assets. SBIRS High is in the EMD phase led by a Lockheed Martin team.

Space Tracking and Surveillance System

Brief: Advanced surveillance system with IR and visible sensors for detecting and tracking ballistic missiles. STSS (formerly SBIRS Low) will have satellites in low Earth orbit (LEO) that work in concert with SBIRS High and other missile defense systems.

Function: Missile defense.
Operator: Missile Defense Agency.
First Launch: FY07 (planned).
IOC: FY07.
Constellation: two demonstration sats; operational sats TBD.
Design Life: not available.
Launch Vehicle: Delta II.
Unit Location: Colorado Springs, Colo.
Orbit Altitude: 837 miles.
Contractor: Northrop Grumman (completion and launch of two R&D satellites); Raytheon (payload).
Power Plant: TBD.
Dimensions: not available.
Weight: not available.

COMMENTARY

The Missile Defense Agency manages the Space Tracking and Surveillance System (STSS), which, in December 2002, replaced the program known as SBIRS Low. In April 2002, MDA ended the SBIRS Low program definition and risk reduction competition and named TRW (purchased by Northrop Grumman) as prime contractor for a redefined space-based sensor R&D element of MDA's integrated Ballistic Missile Defense System (BMDS). The initial STSS contract calls for completion and launch of two LEO satellites in FY06-07 under Block 2006. New technologies will be inserted into subsequent R&D satellites under Block 2008 and beyond, leading to an operational system.

Wideband Gap-filler System (WGS)

Brief: Satellites that provide wideband communications for deployed tactical forces (air, land, and sea).

Function: Worldwide satellite communications.
Operator: AFSPC.
First Launch: 2006 (planned); two further launches planned within a year.
IOC: August 2007 (planned).
Constellation: three-five satellites.
Design Life: 14 years.
Launch Vehicle: EELV, Delta IV.
Unit Location: Schriever AFB, Colo.
Orbit Altitude: GEO.
Contractor: Boeing.
Power Plant: solar arrays generating 9,934 watts.
Dimensions: based on Boeing 702 Bus.
Weight: 13,200 lb at launch.
Performance: approx 12 times the capability of a DSCS satellite.

COMMENTARY

The WGS constellation is planned to bridge the gap between current DSCS and GBS systems and the next generation system. It will provide two-way services for national leaders, Diplomatic Telecommunications Service, Defense Information System Network, and all military ground fixed and mobile users. In addition, it will provide direct broadcast of digital multimedia, high-bandwidth imagery, and video information directly from global and theater sites to deployed warfighters. Primarily a commercial product, the satellites will have X-band (DSCS III-like), Ka-band broadcast (GBS Phase 2-like), two-way Ka-band services, and cross-channelization between its X- and Ka-band services.

Aerial Targets

BQM-34 Firebee

Brief: A jet-powered, variable speed, recoverable target drone.

Function: Aerial target.
Operator: ACC.
First Flight: 1951; 1958 (BQM-34A).
Delivered: from 1951.
IOC: circa 1951.
Production: 1,800+.
Inventory: 33.
Unit Location: Tyndall AFB, Fla.
Contractor: Teledyne Ryan.
Power Plant: one General Electric J85-GE-100 turbojet, 2,850 lb thrust.

BQM-34 Firebee (Northrop Grumman illustration)

Guidance and Control: remote-control methods incl choice of radar, radio, active seeker, and automatic navigator developed by Teledyne Ryan; the current model of the BQM-34A is configured to accommodate the GRDCUS, which allows multiple targets to be flown simultaneously.

Dimensions: length 22.9 ft, body diameter 3.1 ft, span 12.9 ft.
Weight: launch weight 2,500 lb.
Performance: max level speed at 6,500 ft 690 mph, operating height range 10 ft to more than 60,000 ft, max range 796 miles, endurance (typical configuration) 30 min.

COMMENTARY

Current BQM-34As, with an upgraded General Electric J85-100 engine that provides a thrust-to-weight ratio of 1:1, offer higher climb rates and six-G maneuvering capability. A new microprocessor flight-control system provides a prelaunch and in-flight self-test capability. BQM-34s are used for research, development, test, and evaluation and the Weapon System Evaluation Program.

BQM-167 Skeeter

Brief: A jet-powered, variable speed, recoverable target drone.

Function: Aerial target.
Operator: ACC.
First Flight: Jan. 3, 2005.
Production: initial production began in 2004.
Unit Location: Tyndall AFB, Fla.
Contractor: Composite Engineering Inc.
Power Plant: Microturbo Tri 60-5+ turbojet.
Guidance and Control: remote piloting methods.
Dimensions: length 20 ft, body diameter 2 ft, span 11 ft.
Weight: not available.
Performance: max level speed Mach 0.9 mph, operating height range 20,000-50,000 ft, endurance 3 hr.

COMMENTARY

BQM-167A is to replace both the aging MQ-107 and BQM-34A as the Air Force's subscale aerial target. It features an increased load capability, higher speeds and G-loads, a digital architecture for avionics, and a composite airframe making it significantly lighter than the earlier platforms. Future development on this target will take it to supersonic speeds, internalize and miniaturize many countermeasures systems, and expand the flight envelope beyond any target system in the inventory today.

MQM-107 Streaker

Brief: A jet-powered, variable speed, recoverable target drone.

Function: Aerial target.
Operator: ACC.
First Flight: not available.
Delivered: from 1984 (B).
IOC: 1987.
Production: 70 (B); 221 (D); 78 (E).
Unit Location: Tyndall AFB, Fla.
Contractor: Raytheon (D model); Marconi (formerly Tracor) (E model).
Power Plant: initially on D model, one Teledyne CAE 373-8 engine, 950 lb thrust; MQM-107Ds delivered since 1989 have 950 lb thrust TRI 60-5 turbojets. Microturbo TRI 60-5 engine, 1,061 lb thrust or TCAE 373-8B (E model).
Guidance and Control: analog or digital, for both ground control and preprogrammed flight (D model); high-G autopilot provisions; digital autopilot and remote control by the Gulf Range Drone Control Upgrade System (GRDCUS), a multifunction C2 multilateration system (E model).
Dimensions: length 18.1 ft, body diameter 1.3 ft, span 9.8 ft.
Weight: max launch weight (excl booster) 1,460 lb.
Performance: operating speed 207-630 mph, operating height 50-40,000 ft, endurance 2 hr 15 min.

COMMENTARY

MQM-107D. A third generation version of the MQM-107 Streaker, it is a recoverable, variable-speed target drone used for research, development, test, and evaluation and the Weapon System Evaluation Program.

MQM-107E. Improved performance follow-on to the MQM-107D. In operational service, it replaces the MQM-107D and expands the flight envelope.

MQM-107 Streakers are being replaced by the BQM-167 Skeeter.

QF-4

Brief: A converted, remotely piloted F-4 Phantom fighter used for full-scale training or testing.

Function: Aerial target.
Operator: ACC.
First Flight: August 1993.
IOC: not available.
Unit Location: Tyndall AFB, Fla. (detachment at Holloman AFB, N.M.)
Contractor: Marconi (formerly Tracor).
Power Plant: two General Electric J79-GE-17 turbojets, each with approx 17,000 lb thrust with afterburning.
Guidance and Control: remote-control methods incl the GRDCUS (Tyndall) and the Drone Formation and Control System (Holloman); will also accommodate the triservice Target Control System currently under development.
Dimensions: length 16 ft, height 6 ft, wingspan 38.4 ft.
Weight: mission operational weight 49,500 lb.
Performance: max speed Mach 2+, ceiling 55,000 ft, range (approx) 500 miles.

COMMENTARY

The QF-4 replaced the QF-106 Full-Scale Aerial Target (FSAT) in 1998 when the F-106 inventory was depleted. The QF-4 provides for a larger operational performance envelope (maneuvering) and greater payload capability compared with its predecessors.

More than 160 F-4 surplus aircraft have been converted to QF-4 FSATS since 1995. QF-4s are used for research, development, test, and evaluation and the Weapon System Evaluation Program. ▪

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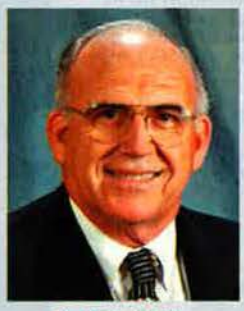

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AFA National Report

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By Frances McKenney, Assistant Managing Editor

From A to Z

Representing countries from Algeria to Zambia, foreign air attaches from more than 40 countries with embassies in Washington, D.C., accepted the invitation to *Air Force* Magazine's annual reception, held in their honor March 21 in Arlington, Va.

At this 26th annual event, the foreign military attaches had an opportunity to meet informally with Air Force senior leaders, including Ronald M. Sega, undersecretary of the Air Force, and Lt. Gen. Arthur J. Lichte, USAF assistant vice chief of staff. The Air Force Association's Industrial Associates, many of them representing US defense contractors, were also on hand, as well as AFA Chairman of the Board Stephen P. "Pat" Condon, Vice Chairman L. Boyd Anderson, and National President Robert E. "Bob" Largent.

The dean of the foreign air attache corps, Belgian Brig. Gen. Daniel Van de Ven, spoke to the gathering, highlighting the role of AFA. He thanked the association for inviting the attaches to the Air Warfare Symposium every February in Orlando, Fla., and said the group looked forward to September's Air & Space Conference in Washington, D.C. Van de Ven said the attaches feel that they are the adopted sons or daughters of AFA because they're included in so many of its activities.

He pointed out that attaches are responsible for reporting information and maintaining communication between countries and said this is what makes *Air Force* Magazine a "reference tool," invaluable for its "current and accurate information."

Staff photo by Darcy N. Harris

AFA Chairman of the Board Pat Condon and Belgian Brig. Gen. Daniel Van de Ven meet informally at* Air Force *Magazine's reception for foreign air attaches in Arlington, Va. Van de Ven is the dean of the foreign air attaches. See "From A to Z," at left.

Group of Four

In February, the **Snake River Valley Chapter** in Mountain Home, Idaho, and three other military associations hosted their first joint event—a banquet with AFA Executive Director Donald L. Peterson as guest speaker and retired USAF Col. Bernard F. Fisher, Medal of Honor recipient, as one of the VIPs.

Held at Mountain Home Air Force Base's all-ranks Gunfighter Club, the banquet was sponsored by the AFA chapter and the local Military Officers Association of America, Air Force Sergeants Association, and Order of Daedalians.

The diverse guest list included Gary A. Hoff, AFA's Northwest Region president, who traveled from Anchorage, Alaska; Col. Charles K. Shugg and Col. Robert E. Broderick, commander and vice commander of Mountain Home's 366th Fighter Wing; Mary Miracle, president of Mountain Home's Chamber of Commerce; Dale W. Smith from the Veterans of Foreign Wars (and an AFA member); Billy F. Richey, the governor's military affairs assistant; and many community business leaders.

Peterson said he covered "AFA 101"—basic information about the association—in his remarks. He also spoke about how the Air Force has changed since the Cold War, evolving from a forward deployed force to one that deploys forward.

The Snake River Valley Chapter, led by Lt. Col. Robert J. Capozella, is undergoing a revitalization, Peterson reported. He added that the base's "senior leadership is very supportive of AFA." Plans are under way to make the four-group February banquet an annual event.

Most Senior, Most Junior

In February, the **Lance P. Sijan Chapter** joined Air Force units in Colorado Springs, Colo., in hosting an annual Air Force Ball.

Gen. Lance W. Lord, then commander of Air Force Space Command, headed the guest list of more than 1,000. As the most senior airman, he later joined Amn. Amanda Easton, the most junior, in cutting a birthday cake for the ball guests. Easton had been assigned to the 21st Medical Group, Peterson AFB, Colo., for only two months.

Other guests included Lt. Gen. John F. Regni, Air Force Academy superintendent; Lt. Gen. Frank G. Klotz, AFSPC vice commander; Maj. Gen. Paul J. Sullivan, chief of staff, NORAD and NORTHCOM; CMSgt. Ronald G. Kriete, command chief for AFSPC; and CMSgt. Michael E. Eitnier, command chief at the academy.

Representing AFA were Robert Largent, National President; Joan Sell, president of the Colorado AFA; and Brian A. Binn, chapter president.

Binn noted that this year's gala was organized by chapter member Daniel J. Beatty Jr. and Lt. Col. Tim Howard

Staff photo by Ted Yorkshire

Air Force Association and Aerospace Education Foundation officials signed documents in March, officially merging the two organizations. The change took effect April 1. Front row, left to right, at the document signing are: David Cummock, formerly AEF Secretary-Treasurer; Mary Anne Thompson, formerly AEF President; Boyd Anderson, now AFA Vice Chairman; Pat Condon, AFA Board Chairman; Bob Largent, AFA National President; and Thomas Kemp, AFA National Secretary. Back row, l-r, are AFA Senior Leadership Advisory Group members William Spruance, John Alison, John Shaud, George Douglas, Doyle Larson, John Politi, AFA Executive Director Donald Peterson, Martin Harris, Gene Smith, James McCoy, Ollie Crawford, William McBride, Thomas McKee, and John Gray.

from AFSPC. Binn said their organizing committee rounded up Community Partners to sponsor tables, so junior enlisted airmen in the area could attend the ball, held at the five-star Broadmoor Hotel and Resort.

Get on the Bus

Once a month, members of the Chiefs Group at Luke AFB, Ariz., surprise an airman who has been selected as "Luke's Finest," showing up unannounced at the outstanding performer's workplace to present the award. The president of the **Frank Luke Chapter,** retired CMSgt. Harry Bailey, joins these drop-in visits to present the AFA portion of the airman's awards—a refurbished computer.

January's outstanding airman wasn't located on base, however. A1C Tiffany Mendoza of the 56th Training Squadron works at an Air National Guard facility some 15 miles from Luke. So the chiefs—10 of them active duty, and Bailey—rounded up a bus and rode out to the Papago Park Military Reservation, located outside Phoenix.

Having 11 chiefs suddenly show up at Mendoza's workplace definitely made an impression on the young airman, Bailey said.

The chapter has been donating refurbished computers to Luke's Finest for about three years. Mendoza received the 31st. Bailey said that in 2004, when the chapter began running low on computers to fix up, a newspaper article mentioning his role in this award program generated a flood of donations. "Ordinary citizens still remember to call when they are ready to upgrade their equipment," he said.

Lifetime Achievement

Bailey's efforts on behalf of Luke airmen over the years have spanned a range of activities, including morale-boosting pizza parties, donations to families separated because of deployments, free movies for airmen in dormitories, and donations to the base chapel's programs.

In recognition of these initiatives, the 56th Fighter Wing at Luke honored Bailey with a Lifetime Achievement Award. It was presented at the wing's annual awards dinner—an event supported, of course, by the **Frank Luke Chapter.**

Fellow Luke Chapter member Geno Piccoli also received a Lifetime Achievement Award at the banquet. The retired chief master sergeant works in the 56th Mission Support Squadron and manages a military family support organization.

These were the first Lifetime Achievement Awards bestowed by the wing in its 24 years of annual awards ceremonies. CMSgt. Scott Dearduff, the 56th's command chief master sergeant and a Luke Chapter member, told the base newspaper that Bailey and Piccoli have given "far above and beyond for the enlisted men and women here at Luke."

Addressing the Tigers

The Air Force's new chief of warfighting integration and chief information officer addressed a luncheon meeting of the **Strom Thurmond Chapter** in Clemson, S.C., in March.

Lt. Gen. Michael W. Peterson spoke about USAF operations, the Global War on Terror, and AFA's role in informing the public on key Air Force issues. Peterson had taken on his current position last November.

Col. Lance S. Young, chapter VP, said that Community Partners received recognition during this chapter meeting, with presentation of CP plaques to new members. The chapter has increased Community Partner membership by 800 percent, he said.

Young, who commands the AFROTC detachment at Clemson University, said Peterson later was guest speaker at a joint Air Force-Army ROTC Military Ball on campus. The more than 200 guests at the event included Justin Mastrangelo,

AFA Conventions

May 5-6	**South Carolina State Convention,** Clemson, S.C.
May 12-13	**Tennessee State Convention,** Arnold AFB, Tenn.
June 3	**Alabama State Convention,** Montgomery, Ala.
June 9-10	**New York State Convention,** Hammondsport, N.Y.
June 16-17	**Oklahoma State Convention,** Oklahoma City
July 14-15	**Florida State Convention,** Fort Walton Beach, Fla.
July 21-23	**Texas State Convention,** Houston
Aug. 5	**Georgia State Convention,** Warner Robins, Ga.
Aug. 11-12	**Colorado State Convention,** Pueblo, Colo.
Aug. 19	**Indiana State Convention,** Indianapolis
Aug. 26	**Midwest Region Convention,** Galesburg, Ill.
Sept. 22-23	**AFA National Convention,** Washington, D.C.
Sept. 24-27	**Air and Space Conference,** Washington, D.C.

AFA In Action

The Air Force Association's Board of Directors on Feb. 27, 2006 issued the following re-affirmations of, and elaborations on, two key association positions first declared in the AFA 2005-2006 Statement of Policy, as adopted by the National Convention's delegates on Sept. 25, 2005.

Resources for Defense

"We are a nation at war. The United States Armed Forces are currently tasked with defending American interests, both at home and abroad, in the increasingly complex post-9/11 world. Further complicating the issue is the fact that the US military is being asked to confront these terrorist and other threats amidst an austere budget environment.

"Historically, when our nation has been threatened, Americans have willingly provided the Armed Forces with the resources needed to remain strong and defeat the enemy. Even though the nation is engaged in a deadly Global War on Terrorism, we are now committing less than four percent of Gross Domestic Product (GDP) to the Armed Forces, ranking 29th in the world in that measure. By comparison, in 1986, during the Cold War, our nation devoted 6.2 percent of the GDP to defense. In 1968, during the Vietnam War, we devoted 9.4 percent of GDP to defense. Pre-9/11 defense spending was roughly three percent of GDP.

"As the world's pre-eminent superpower with worldwide responsibilities to protect American interests, the United States today faces several critical challenges. Our country is currently at war in two simultaneous conflicts that have now lasted longer than World War II. In this setting, the US, despite our worldwide commitments and the ongoing conflicts, operates with a defense budget of only 3.9 percent of the GDP, while World War II expenditures approached 40 percent of GDP. Our current situation is exacerbated by the 'procurement holiday' taken during the 1990s that resulted in a situation where many Air Force weapon systems are wearing out and require recapitalization to maintain their combat effectiveness and efficiency. The Air Force Association again strongly urges a significant and responsible increase in defense spending to allow appropriate recapitalization of the Air Force and other services.

"Our nation is being threatened today as it has not been in recent history. Our enemies will be satisfied with nothing less than our total destruction as a society. Wartime is not the right time to be shortchanging ourselves on defense. The threats facing America demand that our Armed Forces receive a significant and responsible funding increase. History dictates—and the future demands—that we change the current budget-driven defense to one that provides the capabilities required to defeat global terrorism and other threats that we face. It is essential to our national survival."

The Total Force

..."Our future success depends not only on sufficient defense budgets and recapitalization as described above, but also hinges on maintaining and making effective use of the Total Force concept, introduced by former Secretary of Defense Melvin Laird.

"The US Air Force has been a leader among all services in its adoption of the Total Force policy. Air Force leadership has repeatedly stated its belief in the value and capabilities of the Air National Guard and Air Force Reserve. The Guard and Reserve have repeatedly proven their capabilities and availability in combat and combat support by becoming part of regular operations and rotations worldwide as key components of the Expeditionary Air Force. These two components also represent a significant capability to garner and maintain public support for the United States Air Force through community presence in fifty-four states and territories. The Guard and Reserve are particularly suited—because of location, equipment, and legal statute—to participate in the Homeland Defense mission, are a cost-effective way to maintain equipment and personnel in a strategic reserve status, and have definitely proven their value—not only in combat but also in disaster and humanitarian relief roles.

"Today, our United States Air Force is facing significant budget pressure and personnel reductions directed by DOD. The Air Force Association supports an Air Force of uniformed and civilian members that includes a modern, well-equipped Air National Guard and Air Force Reserve that share combat and support missions and equipment alongside active duty forces. This concept includes various types of Guard, Reserve, and active units designed to increase combat efficiency and take advantage of locations, facilities, and reduced costs, with appropriate opportunities to attract trained members of the Air Force who leave active duty.

"We support the US Air Force's effort to remain dedicated at all levels to produce a team of active, Guard, and Reserve units that respect each other and work together to provide for the defense of US policies and interests worldwide and support the other services in an interdependent joint environment. We must ensure that we maintain a Total Force that takes maximum advantage of the individual and synergistic capabilities of the Air National Guard, the Air Force Reserve, and active duty components." ■

national commander of the Arnold Air Society, an affiliate of AFA. AAS is headquartered this year at Clemson, home of the "Tigers."

Looking to the Future

A group of AFROTC cadets got a glimpse of what might be in their futures when they visited Boeing facilities in Seattle for a day of information sessions organized by the **Greater Seattle Chapter.**

Accompanied by Washington State President Ernest L. Hansen, some two dozen cadets and cadre from the University of Washington and Central Washington University listened to briefings on the F-22, the C-17, and Airborne Warning and Control System aircraft operations and upgrades.

Other presentations covered the Army's Future Combat Systems and the Navy's P-8A Multimission Maritime Aircraft. Boeing Integrated Defense Systems hosted the young cadets.

At the end of the information sessions, the cadets toured the manufacturing area where Boeing builds the F-22's wings and aft fuselage.

The chapter has been arranging cadet visits to Boeing's Seattle Developmental Center and plants since 2003. I. Fred Rosenfelder, chapter president, said, "The program provides the cadets with a unique opportunity to talk to the people who are designing and developing the weapons systems they will be operating and supporting when they are commissioned."

Robert L. Carr, 1925-2006

Robert L. Carr, an AFA national director emeritus, died March 21 at age 80.

He was born in Pittsburgh and returned there from duty with the Army Air Corps, joining AFA in 1947 and becoming a charter member and a founding member of the Greater Pittsburgh Chapter that same year.

While maintaining a career in real estate in the Pittsburgh area, he established a continuous record of service to AFA, serving in various capacities, including state president and national vice president, before being elected to the board of directors in 1976. He served several elected terms on the board before becoming a permanent director in 1985 and a national director emeritus in 1997.

He was president of the Greater Pittsburgh Chapter at the time of his death.

More AFA News

■ On March 18, the **Thomas B. McGuire Jr. Chapter (N.J.)** hosted its annual awards banquet at McGuire Air Force Base's Community Center. Maj. Gen. David S. Gray, commander of Air Mobility Warfare Center at Ft. Dix,

was guest speaker for an evening that honored all quarterly award recipients from McGuire. Geraldine Jones, chapter president, said 27 people were named Scott Associate Fellows, that evening.

■ In Colorado, the **Gen. Robert E. Huyser Chapter** helped judge the 50th annual Western Colorado Regional Science Fair. Chapter President Michael E. Peterson said local Air Force recruiter SSgt. Jeremy Montgomery got the idea of turning to the AFA chapter to find knowledgeable judges. Most of the other judges came from Mesa State College in Grand Junction, Colo., where the fair took place over two days in February.

■ Several members of the **Cape Canaveral Chapter** joined Richard A. Ortega of the **Central Florida Chapter** in attending the Civil Air Patrol Group 4 Awards Banquet at Patrick AFB, Fla., in February. Chris G. Bailey, Cape Canaveral Chapter president; David Froiseth, chapter VP; and member Kenneth Frey were among those representing AFA. Ortega, the evening's guest speaker, highlighted the efforts of the CAP Florida Wing and the local AFA chapters in promoting aerospace education. He encouraged more collaboration between the two organizations.

■ In Belleville, Ill., Lee W. Niehaus, president of the **Total Force Chapter** (Pa.) presented the AFA award at the CAP Group 19 Awards Banquet to CAP cadet Christopher L. Sommer. Guest speaker for the event was Maj. Gen. Thomas P. Kane, director of plans and programs at Air Mobility Command, Scott AFB, Ill. Kane spoke about USAF's air mobility capabilities and about the importance of CAP in homeland security.

■ Miss Indiana visited patients at the Veterans Affairs hospital in Fort Wayne, Ind., on Valentine's Day, with behind-the-scenes help from the **Fort Wayne Chapter.** Susan Guilkey posed with each bedridden patient, while Chapter Treasurer Everitt Padgitt took a photo. Miss Indiana then presented the photo, a rose, gifts, and valentines to the patient. Jeanne L. Hissem, chapter secretary, said fellow chapter officers each year spend at least three days beforehand sorting valentines that come from all over the Hoosier State, as well as neighboring states, for the VA patients. Hundreds of valentines were distributed this year, Hissem reported. ■

Have AFA News?

Contributions to "AFA National Report" should be sent to *Air Force* Magazine, 1501 Lee Highway, Arlington, VA 22209-1198. Phone: (703) 247-5828. Fax: (703) 247-5855. E-mail: natrep@afa.org. Digital images submitted for consideration should have a minimum pixel count of 900 by 1,500 pixels.

More AFA In Action

The Air Force Association works closely with lawmakers on Capitol Hill, bringing to their attention issues of importance to the Air Force and its people.

AFA Speaks Out Against Tricare Fee Increase

Air Force Association Executive Director Donald L. **Peterson** joined Rep. Chet **Edwards** (D-Tex.), Rep. Walter B. **Jones Jr.** (R-N.C.), and leaders from The Military Coalition at a press conference March 20 to announce HR 4949, the Military Retirees' Health Care Protection Act.

Edwards and Jones introduced HR 4949 in response to proposals in the President's budget for Fiscal 2007 that would increase Tricare fees for military retirees under age 65. (See "Action in Congress," p. 32.)

Speaking on behalf of the 130,000 members of AFA, Peterson stated, "Now is the time to put a hold on any and all [TRICARE fee] increases until this issue receives a thorough review and hearing and all parties are heard." He said, "We should not ask our military retirees to bear the burden to balance the budget and to provide resources that the services need for active duty personnel or modernization initiatives."

Hill Staffers Meet Head of ACC

AFA and the Air Force Legislative Liaison Office recently hosted a lunch for Capitol Hill professional staff members, so they could meet Gen. Ronald E. **Keys,** commander of Air Combat Command. Keys briefed staffers about ACC operations and future challenges, while reserving much of the session for a question and answer period. This was a phenomenal opportunity for Hill staffers to meet a top leader of the Air Force.

Depot Caucus Receives Briefing

AFA recently helped sponsor a briefing for members of the Depot Caucus in the House of Representatives. Briefers included Brig. Gen. P. David **Gillett Jr.,** director of maintenance, and Debra K. **Walker,** then deputy director of resource integration, both from the Office of the Air Force Deputy Chief of Staff for Logistics, Installations, and Mission Support. Gillett and Walker provided detailed information on the status of major Air Force depot initiatives and summaries of challenges and lessons.

Reunions

reunions@afa.org

11th BG (WWII). Aug. 31-Sept. 4 in Washington, DC. **Contact:** Phil Gudenschwager (480-945-9119).

39th BG, Guam (1945). Aug. 10-13 in Branson, MO. **Contacts:** James Wyckoff, 2714 E. Hayts Corner Rd., Ovid, NY 14521 (607-869-2574) or Bob Weiler, 2045 Hyde Park St. #3, Sarasota, FL (941-365-8287) (bobweiler@39th.org) (http://39th.org).

56th FG Assn. June 28-July 2 at the Holiday Inn in Fairborn, OH. **Contact:** Ron Brubaker, PO Box 57, Red Creek, WV 26289 (304-866-4415) (rclif@frontier.net)).

58th BW (WWII). Sept. 13-16 at the New England Air Museum in Windsor Locks, CT. **Contact:** Debbie Reed (860-623-3305) (debbier@neam.org).

92nd BW, Fairchild AFB, WA. July 28-30 at the Coeur d'Alene Resort in Coeur d'Alene, ID. **Contact:** Guy Perham, 2820 E. Snowberry Ln., Spokane, WA 99223 (509-535-9865) (perhgd@ieway.com).

426th TFTS. Aug. 11-13 at the Wigwam Resort in Litchfield Park, AZ. **Contact:** Robert Keeney (817-421-9466) (keeneye@comcast.net).

483rd BG Assn (WWII). Sept. 3-10 in Arlington, VA. **Contact:** George Stovall, 825 N.E. Lawndale Pl., Corvallis, OR 97330 (phone: 541-758-0009 or fax: 541-758-9115) (gstovall@peak.org).

510th FS Assn. Sept. 9-12 at the Academy Hotel in Colorado Springs, CO. **Contact:** Stephen W. Tanner, 6219 Billinsgate Dr., Katy, TX 77449 (281-550-5518) (buzzardroost@charter.net) (www.510fs.org).

551st AEW&C Wg, Otis AFB, MA. Aug. 29-31 in Plymouth, MA. **Contact:** Floyd Shank (508-746-5713) (easy12@adelphia.net).

774th TAS/TCS/BS. July 28-29. **Contact:** Butch Stratton (phone: 325-893-4754 or fax: 325-893-4770) (richphyl@camalott.com).

3650th Basic Military Tng. & Indoctrination Wg, Sampson AFB, NY. Sept. 7-10 in Romulus, NY. **Contact:** Chip Phillips, PO Box 331, Williamsville, NY 14231 (phone: 716-633-1119 or fax: 716-633-9118) (chip34@aol.com).

Aeromedical Evacuation Assn. June 7-10 in San Antonio. **Contact:** John Stephens (210-333-3400) (www.aeromedevac.org).

BAD 2 Assn (WWII). July 12-18 at the Savoy Hotel in Blackpool, England. **Contact:** Ralph Scott, 3777 North US 23, Oscoda, MI 48750 (989-739-2685) (scottyrose@juno.com).

Brady AB/Camp Hakata, Kyushu, Japan. Aug. 21-24 at the Fidalgo Country Inn in Anacortes, WA. **Contacts:** Gus Cone (253-531-1783) (guscone@msn.com) or Ray Mitchell (rmitch@serv.net).

Hahn AB, Germany (1966-74), air traffic controllers and weather station personnel. June 8-10 in Dayton, OH. **Contact:** Ron Axley (317-850-3504) (msgtron@aol.com).

Khe Sanh Veterans Assn (1964-73), including all services. June 26-July 1 at the Riverview Plaza Hotel in Mobile, AL. **Contact:** Jim Wodecki (972-727-2997) (www.khesanh.org).

Nagoya/Komaki AB Reunion Assn, 5th AF, Japan/Korea. June 19-22 in Anaheim, CA. **Contact:** John Campo, 8905 N.E. 109th Terr., Kansas City, MO 64157 (816-407-0055) (jaymcee@aol.com).

Old Antarctic Explorers Assn., military and civilians who served in or visited Antarctica. Aug. 17-20 at the Crowne Plaza Hotel in Warwick, RI. **Contact:** Marty Diller, PO Box 597, Brunswick, ME 04011 (207-729-0197)(www.oaea-ne-net).

Pennsylvania AACS. July 11-13 at the Hampton Inn in DuBois, PA. **Contact:** Ed Rutkowski, 301 Blakley Ave., DuBois, PA 15801 (814-371-7167).

Pilot Class 43-K. Sept. 6-10 in Chattanooga, TN. **Contacts:** Marshall Dean (334-514-6877) (yoe43k@elmore.rr.com) or Hal Jacobs (jakes43k@aol.com).

Pilot Training Classes 52-G & 52-H. Sept. 8-10 at the Marriott Hotel Sea-Tac in Seattle. **Contact:** Mike Spaight (903-455-8053).

Pilot Training Class 53-D, Bartow, FL. May 11-13 in Costa Mesa, CA. **Contact:** Dave Gueldner (714-549-3283 or 714-553-6714) (davegueldner@hotmail.com).

Pilot Training Class 57-B. June 1-4 in Englewood, CA. **Contact:** Don Crandall (303-680-1652) (djcportone@aolcom). ■

E-mail unit reunion notices four months ahead of the event to reunions@afa.org, or mail notices to "Unit Reunions," *Air Force* Magazine, 1501 Lee Highway, Arlington, VA 22209-1198. Please designate the unit holding the reunion, time, location, and a contact for more information. We reserve the right to condense notices.

AFA Directory Project Under Way

As a result of numerous requests for membership directory updates, work has begun on your 2006/2007 Air Force Association Membership Directory.

Directory questionnaires will be sent to all members and patrons in May and June. The publisher will follow up by telephone to confirm directory listings and to provide purchase information.

Directory listing information is being compiled now. Final printed edition will be delivered to purchasers in early 2007. The 2006/2007 AFA Membership Directory is in commemoration of both the Air Force Association's (2006) and the United States Air Force's (2007) 60th anniversaries.

Members who do not return a directory questionnaire or provide the information to representatives by telephone will not be listed in the directory. You may also choose to opt out of a listing in the directory.

This directory will be copyrighted. It cannot be used for marketing or mailing lists of any type.

Listings will include residential, professional, academic, and military and civilian career highlights.

Watch your mailbox (both e-mail and USPS) for your 2006/2007 AFA Membership Directory questionnaire.

Airpower Classics

Artwork by Zaur Eylanbekov

C-54 Skymaster

Born of World War II necessity, the C-54 Skymaster became one of the first great airlifters. It began as a DC-4, designed by Douglas for civilian use. After Pearl Harbor, US Army Air Forces pulled 24 off the line, redesignated them C-54s, and opened military production. The C-54 served with distinction not only in World War II but also in the Berlin Airlift and Korean War.

In the C-54, the US had, for the first time, a four-engined, long-range transport. Tricycle landing gear gave it a horizontal attitude, easing loading and unloading. It had a wide cargo door, strong floor, large wing tanks, and boom hoist for heavy freight. What's more, it was highly reliable; in 79,642 C-54 crossings of the Atlantic and Pacific, for example, only three Skymasters were lost.

The C-54 became the core of Air Transport Command's global system. By war's end, 1,000 were in action, hauling trucks, ammo, supplies, paratroopers—anything and everything needed for war. C-54s flew one million miles a month across the North Atlantic—20 round trips a day. The VC-54C *Sacred Cow*—a modified Skymaster—was the first special Presidential aircraft, used by Franklin D. Roosevelt and Harry S. Truman. Winston Churchill and Gen. Douglas MacArthur also used C-54s for air travel.

USAF kept 400 C-54s in service after the war. At the height of the 1948-49 Berlin Airlift, USAF put 319 of them to work, and one Skymaster was landing at Tempelhof Airport every three minutes. Nine months after the airlift ended, North Korea invaded South Korea, and the C-54 was back at war. Eventually, this World War II veteran served in many other roles and remained in USAF service until 1972. It may still be flying in some corner of the world.

This aircraft: C-54G-DO Skymaster #45-0536, as it looked in June 1970 in Columbus, Ohio. It was built in 1945 in Santa Monica, Calif.

In Brief

Designed, built by Douglas ★ first flight Feb. 14, 1942 ★ crew of four ★ number built 1,163 ★ four P&W 14-cylinder engines ★ no armament ★ **Specific to C-54A:** max speed 265 mph ★ cruise speed 192 mph ★ capacity, 50 troops ★ max payload 22,000 lb ★ max range 2,000 mi ★ weight 62,000 lb ★ span 117 ft 6 in ★ length 93 ft 10 in ★ height 27 ft 6 in.

Famous Fliers and Passengers

President Franklin D. Roosevelt ★ Prime Minister Winston Churchill ★ President Harry S. Truman ★ USAF 1st Lt. Gail S. Halvorsen, "Candy Bomber" pilot of Berlin Airlift, 126 missions.

Interesting Facts

Made 31-hour Tokyo-Washington flight to deliver film of Japanese surrender ★ flew final mission of Berlin Airlift (Sept. 30, 1949) ★ first USAF aircraft destroyed in Korean War (June 25, 1950) ★ served in US Navy and 15 foreign air services.

USAF 1st Lt. Gail Halvorsen (the "Candy Bomber") dropped parachute-borne bags of candy to German children in the Berlin Airlift.

Electro-optical image of a palace looting in northern Iraq taken by Global Hawk from above 60,000 feet.

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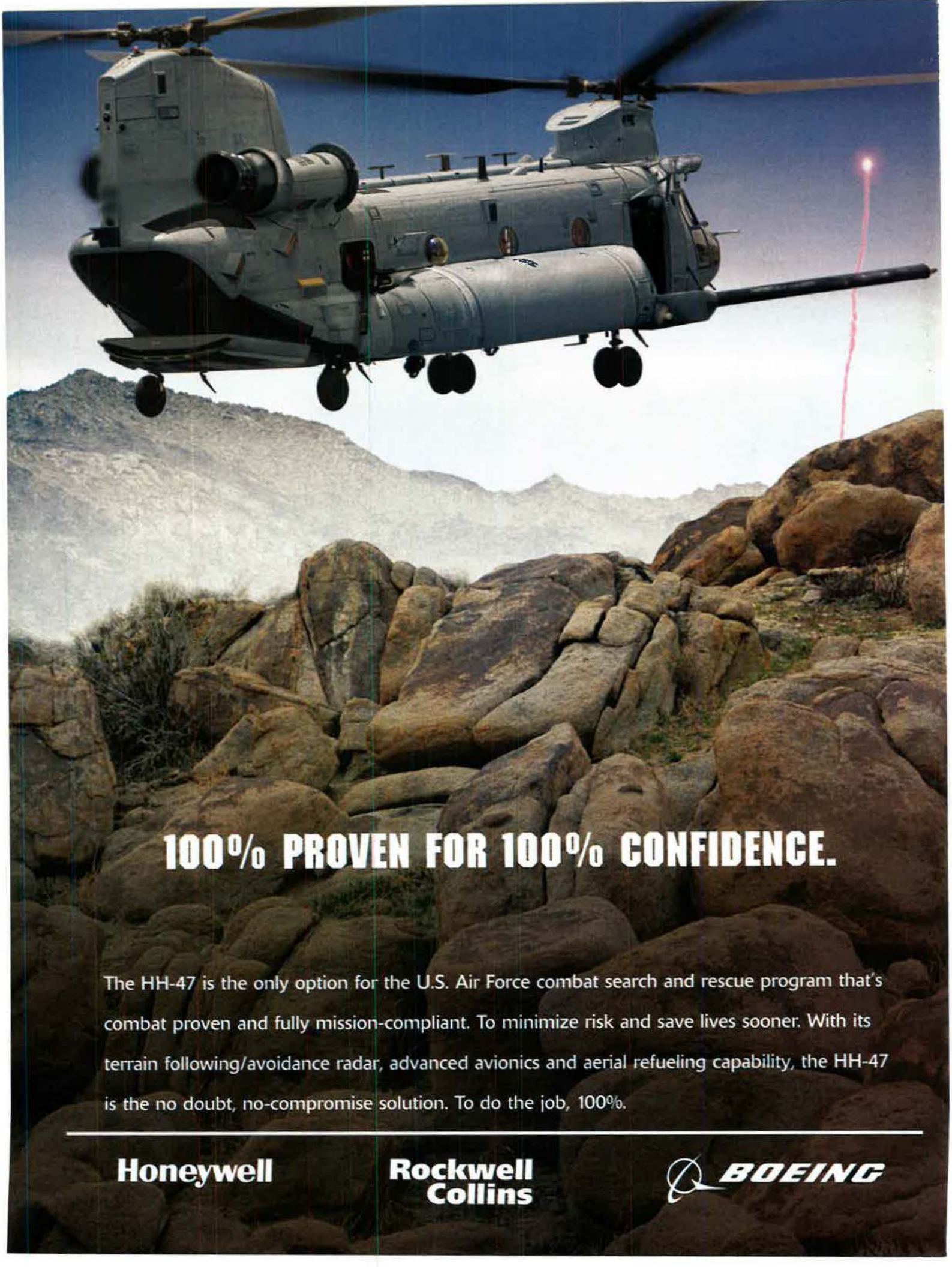
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