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AIR FORCE MAGAZINE

JOURNAL OF THE AIR FORCE ASSOCIATION

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May 2009, Vol. 92, No. 5

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About the cover: A bald eagle photographed by Tom and Pat Leeson. "USAF Almanac 2009" starts on p. 22.

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Editorial

By **Robert S. Dudney,** Editor in Chief

The Air Force That Comes Next

THAT was some news conference that Robert Gates held on April 6. Numerous expensive programs—especially USAF weapons—were put to the sword. Not for money reasons, evidently. These steps would have been taken, Gates said, "regardless of the department's top-line budget number."

If what the Secretary of Defense said was true—and why would anyone doubt him; Gates is an honorable man—he was not caving in to political pressure to cut defense spending. He was only killing weapons that needed killing.

Gates lofted two charges that seemingly were aimed at USAF. He criticized buying weapons merely to "overinsure against a remote or diminishing risk." And he spoke against what he saw as the tendency to "run up the score in capability where the United States is already dominant."

These perceived problems were cited in defense of cutbacks in areas of USAF superiority. The defense chief halted production of the F-22 stealth fighter, scrapped the Next Generation Bomber, refused to authorize more new C-17 airlifters, and dropped plans for a new combat search and rescue aircraft, among other moves.

There is no denying that, at this point, Gates' thinking has become clear to everyone, and so has the general drift of his attitude toward USAF's needs. No one doubts that the future Air Force won't be what its leaders expected it to be.

We don't intend to use this space to refight the past year's policy battles. Gates has made up his mind that the Air Force does not need those aircraft. USAF has little option but to accept matters as they are, step up to the mission, and make the best of things.

The Air Force that we know will certainly do that. We hope, however, that the Air Force's best—whatever it is—proves to be good enough for the nation. About that, regrettably, we do have concerns.

In his remarks, Gates said he wants to focus on the "irregular" wars, such as those in Iraq and Afghanistan. He sees this type of war, not big conventional conflicts, as the more likely type to face US armed forces in the future, and that budgets should be "rebalanced" accordingly.

We do not doubt that Secretary Gates wants to keep a strong air arm for conventional combat. Indeed, was it not he who wrote (in "A Balanced Strategy," *Foreign Affairs,* January/February 2009) that the US "still has to contend" with "military forces of other countries," and that "Russia and China" have "air defense and fighter capabilities that in some cases approach [our] own"? It hardly seems logical that Gates would fail to heed his own warning.

Yet his makeover of USAF's fighter plans and budgets surely is puzzling. His decision to let go of the stealthy F-22 fighter in 2011 after production of 187 models will leave USAF nowhere close to the 381-fighter goal it held for many years, and far short of even the 243-jet "moderate-risk" force USAF recently sought. If 243 equates to "moderate-risk," what can be said of 187?

The future Air Force won't be what its leaders expected it to be.

Gates stated, "The military advice that I got was that there is no military requirement for numbers of F-22s beyond the 187," and both the Air Force Secretary and Air Force Chief of Staff backed him up.

Gates said he wants to increase the production rate of the joint service F-35 multirole fighter, but the F-35 is not in the F-22's class as an air supremacy weapon and thus is no substitute. It won't enter operational service until 2013, at best.

As for the decision to defer a new bomber, Gates said DOD needs a "better understanding of the need, the requirement, and the technology." USAF, having studied the matter for the past three years, would not have fielded this bomber until 2018. Now it will be pushed further into the future.

The nation's critical powers of long-range strike will continue to reside in a stalwart but admittedly small and aged fleet of bombers. The youngest B-52s are 46 years old. The B-1Bs date to the mid-1980s. The relative youngsters of the fleet—USAF's 20 stealthy B-2s—have been around nearly 20 years. The bomber force has become a critical weapon in the war in Afghanistan. The new bomber, with its long range and penetration powers, was emerging as the US offset to defended "sanctuaries" in certain parts of the world.

Secretary Gates reported that he had a "strong analytical base" for his proposed cut decisions. They "emanate," he said, from the new National Defense Strategy issued in mid-2008. We would have advised the Secretary to point out that he himself played a major role in shaping that strategy, and that all four service chiefs of the time (mid-2008) strongly opposed it. That is not to imply the strategy is wrong, only that it should not be taken as a faultless guide to military program decisions.

As we said, there seems to be no stopping the Air Force's transition to something different. Over the years ahead, it will come to possess less and less world-class tactical airpower and modern long-range strike capability. The airlift logjam will continue. Everything will get older. On the other hand, ISR will boom, with the service going up to at least 50 orbits of Predator and Reaper UAVs and probably lots of turboprop aircraft equipped with modern sensors. New tankers will enter the fleet. Service special operations forces will probably grow, too.

This is not the Air Force we wanted. However, the evidence suggests it probably is the Air Force that we will get. Gates has prevailed in getting his program, but he will face an uphill struggle getting it to cover all national requirements.

Nobody can predict the future. Let us hope that the new Air Force and overall US defense force proves to be sufficient to see us through the years ahead.

During April, Gates labored to incorporate his decisions into a $534 billion Pentagon budget, which now goes before Congress. The lawmakers, as they consider its merits, might keep in mind the words of a recent *Wall Street Journal* editorial:

"It's worth remembering that the reason our enemies have resorted to terrorism and insurgency is because US conventional forces overwhelmingly dominate on the ground, in the sea, and in the air. That's not an advantage we can take for granted." ■

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Letters

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Vulnerable Bases

Having been stationed at Tan Son Nhut Air Base in Vietnam when it was attacked during the 1968 Tet Offensive, and having studied the key role that bases have played in air campaigns, air base operability (and availability) has long been an intense interest of mine. Unfortunately, I see little evidence that the Air Force has ever really learned what is needed to ensure our bases will remain operable in war *["The Lessons of Salty Demo," March, p. 54].* Despite organizing to be "expeditionary" and fielding aircraft like the F-22 designed to counter highly capable adversaries, air base operability remains an unexamined assumption causing our bases to be far too vulnerable.

As was sadly the case in World War II, we cannot wait until our bases are attacked to take seriously the threat to their operability. One way we will know that the Air Force has finally learned the lessons of Salty Demo will be when the requirements for our fighters don't ignore their operating surface requirements.

Lt. Col. Price T. Bingham,
USAF (Ret.)
Melbourne, Fla.

The Balkan Air War

In the article "The Balkan Air War" *[March, p. 42], Air Force* Magazine does a disservice to the men and women of the US Air Force and nation they serve by continuing to publish distorted accounts of the Balkan war of the '90s.

The purpose of this letter is not to question the performance of the aircrews in that war. As a Vietnam combat veteran, I fully appreciate the difficulty of operating under unrealistic rules of engagement and confusing mission objectives. However, to claim that this was a war won "with airpower alone" is factually wrong. Slobodan Milosevic's only objective was to remain in power. That goal was threatened by the terms of the proposed Rambouillet Treaty, presented by then-Secretary of State Madeleine Albright as a non-negotiable ultimatum that would have surrendered Serbian sovereignty to NATO occupation. It was only after 78 days of bombing, growing concern over civilian deaths, embarrassing mistakes, and weakening resolve by some NATO members that the objectionable clause was removed. Milosevic had saved his skin by making a show of trying to save Kosovo.

Col. George Jatras,
USAF (Ret.)
Camp Hill, Pa.

Regardless of how well our airmen performed their mission, I take no pride in my Air Force's participating in the establishment of a new Islamic terror state in southern Europe.

Even as I write this, the non-Muslim population of Kosovo is being purged, their history and their culture expunged, their churches and property confiscated, looted, and destroyed, and any lingering resistors to this cultural genocide are being killed, converted by force, or driven out in a relentless wave of Islamic purification. Even as I write this, Islamic agitators and "immigrants" are infiltrating from Kosovo into Serbia proper and all the surrounding countries of Europe, for the express purpose of spreading sedition and terror, and then repeating this successful Kosovo landgrab on behalf of a newly resurgent Islamic global totalitarian empire.

Maj. Robert D. Klimek,
USAF (Ret.)
Fort Smith, Ark.

The Pararescuemen

I believe the article titled "The Pararescuemen" in the March issue (p. 48) was mistitled. A more appropriate title would have been "The Combat Search and Rescue Team" as evidenced by the content of the article's photos. By my count, more than half the photos included members of the CSAR team other than PJs. PJs may be the "tip of

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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the spear" of the team, but without the other team members, the PJs would be unable to do their job.

I have great admiration for the PJs and their myriad accomplishments and heroic efforts; however, since becoming acquainted with the efforts of the CSAR team in the mid-'60s, I have observed that PJs have received an abundance of publicity at the expense of the other members of the CSAR team.

Col. J. M. Nall,
USAF (Ret.)
Bay Minette, Ala.

Bullet Vs. Bullet

I'm surprised and dismayed that *Air Force* Magazine reiterates the daily press' mantra that the national missile defense system is akin to a bullet hitting a bullet *["Bullet Vs. Bullet," March, p. 58].* It's not that difficult. You omitted a description of the final moments of the interception.

Your article adequately explains the radar systems deployed to detect, track, and handoff the incoming missile to the interceptors. What's lacking is how the interceptor actually works.

The technology for this endgame is simple in concept, difficult to achieve.

The interceptor contains its own detection, guidance, and propulsion system. It stares at a hot, incoming target against the cold blackness of space with its infrared detectors, calculates where the target is heading, and moves laterally to hit it head-on. Small, onboard thrusters accomplish the movement. This rapid sidewise movement is the key to the interception because at a closing speed of 10,000 to 20,000 miles per hour, the last millisecond before contact is most important. Numerous tests and one actual interception show it will work when required.

Frank P. Klatt
St. Marys, Ohio

The Matterhorn Missions

[In regard to the article, "The Matterhorn Missions," March, p. 62:] The truth is finally emerging about the disastrous convoluted deployment of the B-29s, in the Matterhorn missions to the Pacific Theatre, that validated General Claire Chennault's theory that they would eat up valuable resources and accomplish little. Strapped with a late-arriving and trouble-plagued airplane, we waited an unbelievable three years after Pearl Harbor before we were in a position to attack Tokyo. (See *Point of No Return,* by Wilbur Morrison.) That and many other failures finally convinced our leaders that single airplane nighttime bombing, later described as safer than training missions over Kansas, should be accepted. This entire disaster could all have been avoided had the Air Force recognized the potential of aerial refueling in 1943, when first presented by B-24 copilots, instead of 1948.

This relatively simple idea had the potential to bring Japan to the peace table at least six months sooner, saving thousands of American casualties that were incurred in fighting for airfields closer to Japan that would not have then been needed. The atomic bombings of Hiroshima and Nagasaki, the five-day Soviet entry, the division of Korea, and its ongoing war could all have been avoided.

Did we learn a lesson from all this? Probably not. Former President Jimmy Carter would be the first to admit he handed the White House over to Ronald Reagan on a silver platter when he let his fellow naval friends talk him into not using the Army's aerial refueled helicopters to save the hostages in Iran. The Navy claimed the Army pilots were not capable of flying off carriers, forgetting their fantastic performance on the same carriers during our retreat from Saigon. The Air Force to this day still has its writers following the bizarre statement in an official training film that aerial refueling was not needed during World War II because our bases were close enough to our enemies.

William J. Spelliscy,
Orange, Calif.

Washington Watch

By John A. Tirpak, Executive Editor

Keeping up with the geezers; Combat air forces in crisis; After Manas ....

Air Methuselah

Air Force depots have become geriatric wards due to the increasing age of USAF fleets and the need to keep them flying past their economic lifetimes, and the service has even had to start planning a life extension program for its newest fighter, the F-22, according to Air Force Materiel Command chief Gen. Donald J. Hoffman.

In an interview, Hoffman said the Air Force has been lurching from one potentially fleet-grounding mechanical issue to another with its legacy combat forces. He noted the need to unexpectedly rewing the A-10 fleet, fix numerous F-16s with cracked bulkheads, and cope with last year's grounding of F-15s due to longeron problems.

Hoffman said the Air Force will "get through" the current spate of structural problems, but he can't provide any assurances that such events won't become the rule.

"Is there another event behind any of those? Sure, could be," Hoffman said. "We could have the whole fleet back on the ground with another event."

Living with a mixed fleet of fairly new, fifth generation fighters and aged legacy aircraft will pose many tactical and logistical challenges, Hoffman noted. It will cost more to keep aircraft flying when they keep breaking in new ways. Funds are short for the upgrades that could make them cheaper or easier to maintain, though.

He noted that a new radar in the F-15E offers a profound reduction in mean time between failure rates. Over time, the new radar "pays for itself" in cost avoidance. However, it's "going to take us 20 years to actually install it," given the funds available. After only a few years, he said, he's certain that USAF will face a "vanishing vendor" issue wherein some of the parts will be out of production. The upgrade would more sensibly have been done over three or four years, but the lack of up-front investment dollars blunts the savings.

As a result, Hoffman thinks the Air Force should adopt a new strategy for upgrades. They should be smaller and more focused—sized to be completed "within a FYDP" or future years defense program.

"Maybe we ought to have two major programs instead of one humongous" one, Hoffman said, specifically noting that the C-5 re-engining and avionics upgrade is probably an overly ambitious program to do all at once. Shortening the deadlines will also make upgrades easier to afford, and get technology into the field more quickly. Stretching them out risks obsolescence before most of the fleet is improved, he said.

"Get the learning curve up, make it efficiently, and then get out, and move on to the next," he said.

Although he feels confident USAF can keep old aircraft flying safely for a long while, the real issue is "whether they're still relevant" militarily.

The F-22 may be the newest aircraft on the ramp, but within a decade, the first operational models will near their planned service lives of 8,000 hours, Hoffman said. To reduce wear and tear on the Raptors and get them to last longer, the Air Force reduced the amount of close-in dogfight training that F-22 pilots do.

USAF photo by A1C Amanda Grabiec

Already fitted for a rocking chair.

Further, "I've tasked the system to think forward into the later 'teens about what a life extension program would look like on that aircraft," Hoffman said. He thinks the wings could be replaced, but the complex composite materials and sophisticated electronics would be trickier.

Still, "we'll be retiring [F-22s] while we're still flying A-10s. Something doesn't seem quite right about that."

Because upgrades can only be installed on a few aircraft at a time, common configurations might be possible within a wing or in blocks, but a common fleetwide configuration will be almost impossible to achieve, Hoffman said.

The F-35 will be built over such a long period of time that Hoffman fully expects many variations to be in service at once, although efforts will be made to keep the cockpit as common as possible. New pilots need to "step to [a] jet that looks the same every day."

Day 1 Vs. Week 2

Fighting with a mixed fleet will require the Air Force to sort its capabilities into "Day 1, Day 2" systems that can penetrate enemy airspace, and "Week 2" capabilities that can only operate when defenses have been beaten down, Hoffman observed.

"In extremis," he said, the Air Force may have to "put more risk on the operators."

To defeat enemy defenses, Hoffman said USAF will have to think in terms of persistent systems that will have to be survivable—through stealth, speed, or standoff range—or expendable items such as drones or missiles whose loss can be tolerated. He prefers to frame the choices in that context rather than in terms of "stand in [and] stand off."

Hoffman said he can envision a stealthy unmanned air vehicle dedicated to air defense suppression, in conjunction with the expendable Miniature Air Launched Decoy. He also sees the F-22 and F-35 radars as communication devices and jamming sources, given their high power and focusable beams.

Future technologies that will help the Air Force leap ahead of potential adversaries include lasers and the ability to operate in—and possibly control—the weather, Hoffman asserted.

"I predict that someday, weather will be our friend," he said, just as today, if given a choice, the US acts at night, because "others can't operate in the night to the extent we can." Weather control he called "the holy grail" of defense technologies.

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Other future revolutionary watersheds include the ability to destroy hard and deeply buried targets, and cyber weapons.

In fact, today, cyber combat "is limited less by technology than it is by policy," Hoffman noted. Despite long effort with hypersonics, "I think we'll be in the experimental lane for quite a while" with ultrafast speed. Meanwhile, he thinks engine technology of today may have gone as far as it can go, with few big improvements in efficiency or power still to be captured.

Combat Air Forces in Crisis

The Air Force's combat fleet is in crisis in large part because the Pentagon hasn't applied a consistent formula for deciding how many aircraft are needed, what capabilities they should have, or how often they should be bought. Now, there aren't enough, and most of the inventory is aging out.

So said retired Gen. Gregory S. Martin, former head of Air Force Materiel Command, who noted that most of the choices made in the last decade about USAF's future combat inventory were arbitrary, based on cost rather than strategy. He urged that the Air Force adopt a firm formula, with measurable elements, that will clearly justify the pacing of new aircraft buys.

"Where we may have gone astray as a nation [is] in following basic principles of force structure development and force sizing and force structure replacement," Martin said.

"We are in a crisis ... brought about by not having a rule set that is basic, easy to articulate, and [able to] ... sustain a modernization or recapitalization program." The Navy, he said, has been successful in laying out and defending such a plan, based on the number of carrier traps each aircraft endures. The commercial airline industry uses a standard based on number of flights, after which aircraft are retired because new technology offers operating savings.

Martin was speaking at a press conference called to unveil a new study, "Combat Air Forces in Crisis," prepared under the auspices of the AFA-supported Mitchell Institute for Airpower Studies. It was researched and written by the institute's director, Dr. Rebecca Grant.

Standard methods of calculating the right numbers of aircraft haven't kept up with either new threats or the condition of the combat air forces, Martin noted, and don't properly take account of the need for force rotation, forward presence, the cost of ownership of old airplanes, or the simple fact of technological obsolescence.

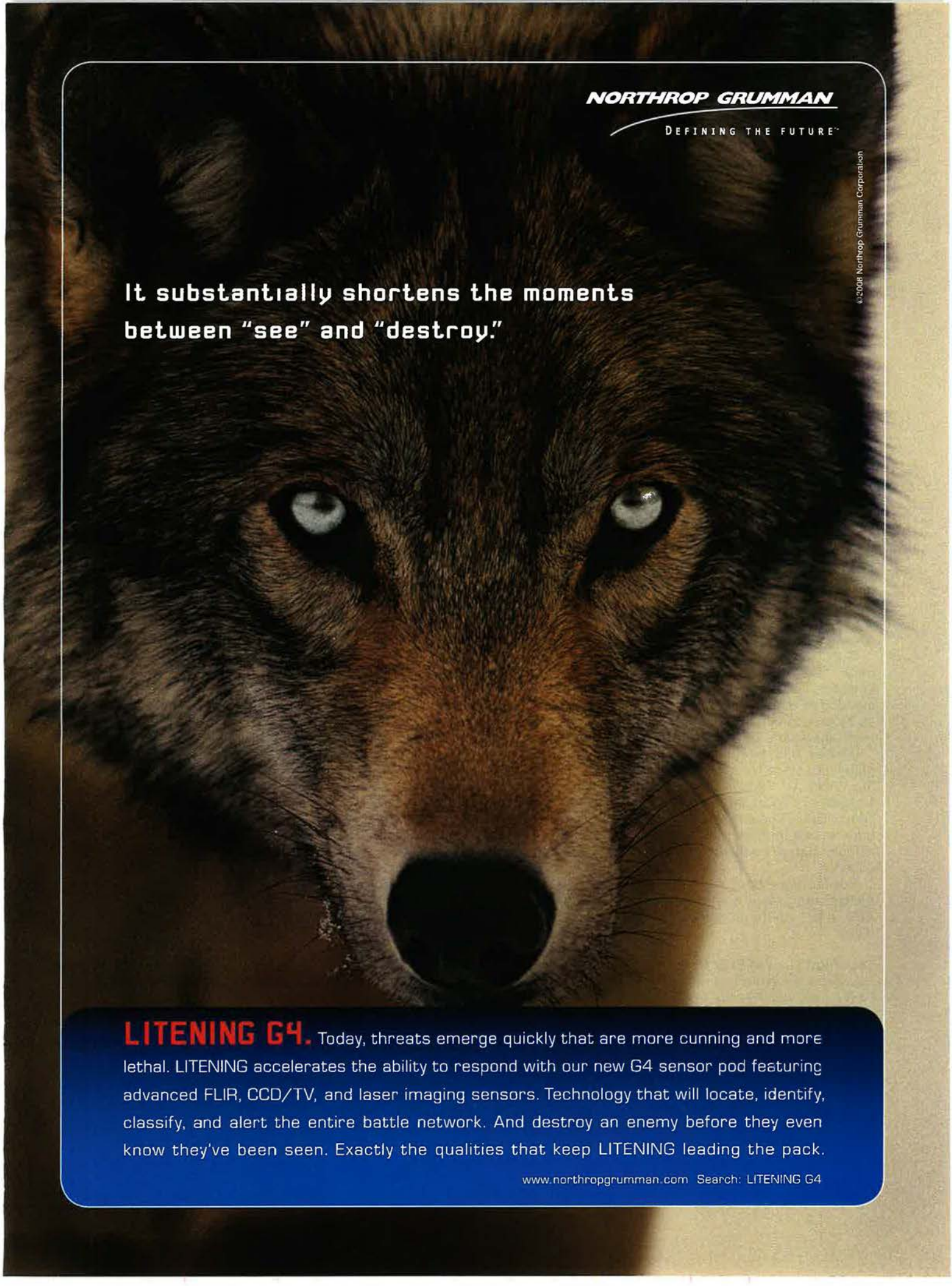
"Old models and simulations ... may not work, or may not produce ... quantifiable solution sets," Martin said.

He advocates a "back to basics" approach that sets new benchmarks for what shares of the combat air forces should be given over to given core missions.

There are some "immutables," Martin asserted: Air superiority should account for 20 to 25 percent of the combat inventory; 25 to 30 percent should be for attack; and the rest—45 to 50 percent—should be multirole aircraft "that can swing and do both [missions] acceptably." National strategy regarding how many wars need to be fought at once, interpreted through joint commander plans, will then dictate the numbers needed.

To keep the fleet technologically fresh and mechanically reliable, Martin said that fighters need to be replaced after 25 years of service, while bombers and "heavies" such as tankers and airlifters can be kept for 35 to 40 years.

Unfortunately, the combat air forces have all at once hit the age at which they must be replaced and at which they're becoming technologically less relevant, because of the long hiatus in buying new aircraft. In the future, Martin said, the Air Force might buy aircraft at a slower but steady rate, to keep average age down, and apply improvements until big technology advances demand new designs. ■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Air Force World

By **Michael Sirak,** Senior Editor, with **Marc Schanz,** Associate Editor

Airman Killed in Afghanistan

SSgt. Phillip A. Myers, 30, an explosive ordnance disposal technician with the 48th Civil Engineer Squadron at RAF Lakenheath, Britain, died April 4 in the Helmand Province of southern Afghanistan from wounds caused by an improvised explosive device.

A native of Hopewell, Va., Myers had been serving with the 755th Air Expeditionary Group in Kandahar. He was promoted posthumously to the rank of technical sergeant for his accomplishments prior to his death.

Myers received a Bronze Star Medal in March 2008 for his actions during a previous deployment to Iraq. RAF Lakenheath also selected Myers as its outstanding civil engineer military technician, presenting him the 2008 Maj. Gen. Eugene A. Lupia Award.

Airman Killed By IED

SSgt. Timothy L. Bowles, 24, a fire truck mechanic assigned to the 3rd Logistics Readiness Squadron at Elmendorf AFB, Alaska, was killed March 15 by an improvised explosive device near Jalalabad, Afghanistan.

Bowles had been serving in Afghanistan since November 2008 with the 755th Air Expeditionary Group's Nangarhar Provincial Reconstruction Team. The IED destroyed the vehicle that he was in. It was part of a four-vehicle patrol checking on a local school.

Bowles was born in Anchorage, Alaska, and grew up on Davis-Monthan AFB, Ariz., where his father was stationed.

Test Pilot Dies in F-22 Crash

Lockheed Martin test pilot David P. Cooley, 49, was killed in the March 25 crash of an F-22 Raptor fighter about 35 miles northeast of Edwards AFB, Calif., where the aircraft was assigned for test purposes.

Cooley joined Lockheed Martin in 2003, having retired as a lieutenant colonel after 21 years in the Air Force. He was working with the F-22 Combined Test Force at Edwards where USAF and company pilots conduct Raptor testing.

The Air Force is conducting an investigation into the crash, which was the second involving the F-22. In December 2004, a Raptor went down at Nellis AFB, Nev., during the aircraft's test and evaluation period. Its pilot ejected safely.

Airman Receives Air Force Cross

SSgt. Zachary J. Rhyner, a combat controller with the 21st Special Tactics Squadron at Pope AFB, N.C., received the Air Force Cross March 10, joining an elite group of only 187 airmen—including 23 other enlisted airmen—who have been awarded the service's highest military decoration.

Air Force Secretary Michael B. Donley presented Rhyner with the medal during a ceremony at Pope in recognition of Rhyner's uncommon valor during a mission with a team of US and Afghan special forces in Afghanistan's Shok Valley on April 6, 2008, that evolved into an intense 6.5-hour battle with insurgents.

Although shot three times and seriously wounded in his leg, Rhyner called in more than 50 air strikes to prevent the team from being overrun and provided suppressive fire to aid in the extraction of his colleagues. A senior airman at the time of the battle, Rhyner also received a Purple Heart during the ceremony from Air Force Chief of Staff Gen. Norton A. Schwartz.

Donley Stays On

The White House announced Feb. 26 that Air Force Secretary Michael B. Donley would remain in his current post as USAF's top civilian official under the Obama Administration. In a press release that day, President Obama characterized Donley as one of the "distinguished individuals" staying on from the Bush Administration who possess "the commitment and expertise to help guide the Department of Defense at this critical time for our nation."

Donley became Acting Secretary in June 2008 after the departure of Michael W. Wynne. Donley was sworn in officially as the 22nd Air Force Secretary last October. On the eve of the new Administration taking power, he expressed his willingness to keep serving until replaced or otherwise asked to depart.

USAF photo by SSgt. James L. Harper Jr.

Air Guard Gets New Leaders

Maj. Gen. Patrick J. Moisio, an Arizona Air Guardsman, became deputy director of the Air National Guard on March 6. He filled the post left vacant in June 2008 when now-Maj. Gen. Stanley E. Clarke III took on a new assignment on the Air Staff.

Moisio, an Air Force Academy graduate, joined the Air Guard in 1984 after serving as an A-7D and A-10 pilot in the active duty Air Force. He served most recently as commander of the 162nd Fighter Wing, an F-16 pilot training unit at Tucson Arpt., Ariz.

In another leadership move, CMSgt. Christopher Muncy from the Ohio Air National Guard was announced Feb. 23 as the Air Guard's new command chief, succeeding CMSgt. Richard Smith, who is retiring after 37 years of service. Muncy, who served most recently as command chief of the Ohio ANG, joined the Air Guard in 1979.

Osprey Ready for Combat

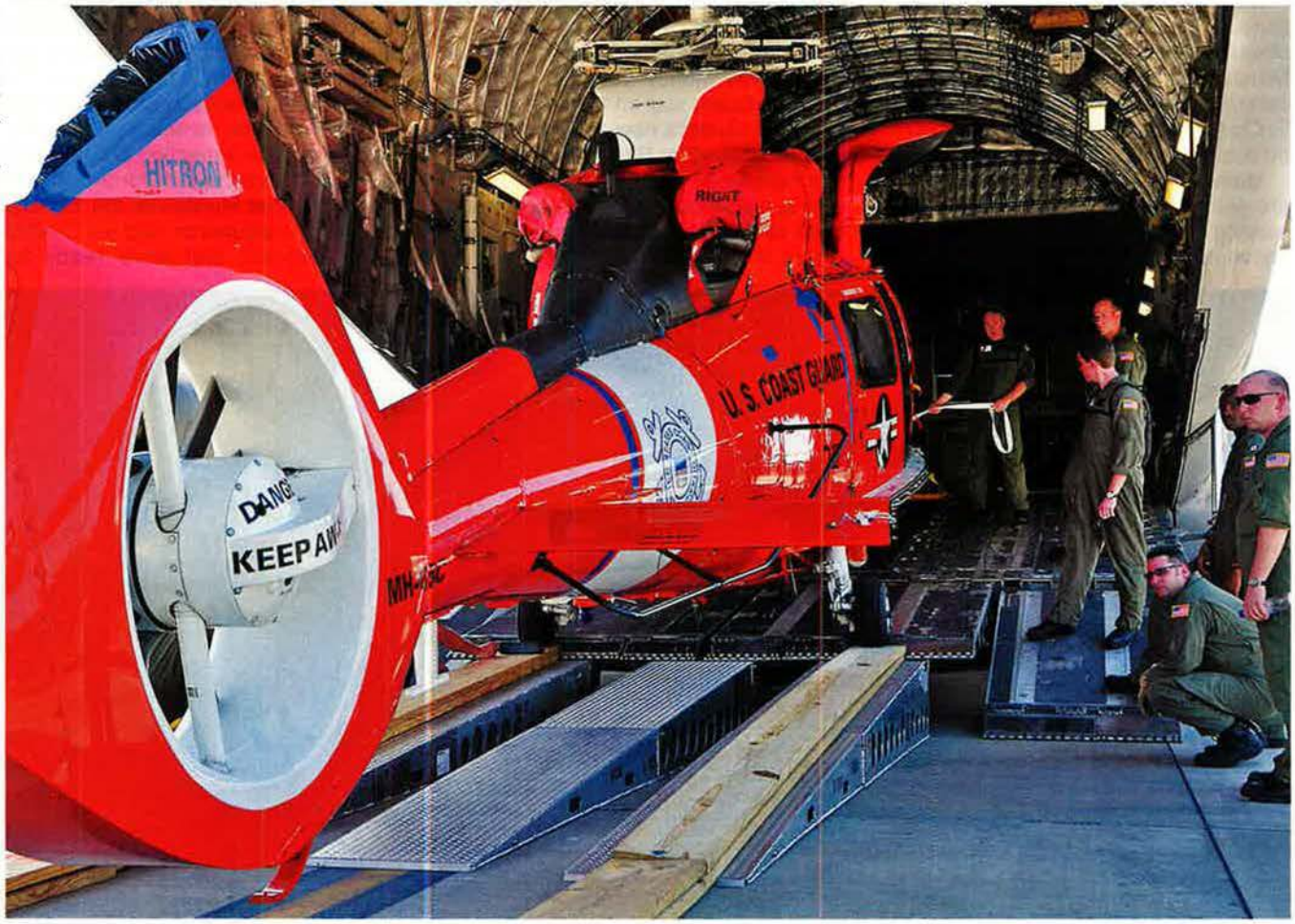
Air Force Special Operations Command in early March cleared the CV-22 tilt-rotor aircraft to conduct combat operations worldwide, if called upon. The platform, which replaces the now-retired MH-53 helicopter, is designed for long-range infiltration, extraction, and resupply.

AFSOC spokesman Don Arias said March 16 that Hurlburt's 8th Special Operations Squadron had six CV-22s at its disposal that were ready for

04.10.2009

The Air Force's all-purpose pararescuemen—better known as "PJs"—bring a blend of warrior and paramedic to the battles unfolding in Southwest Asia. Here, two Air Force PJs are hoisted into an HH-60 Pave Hawk helicopter during a proficiency exercise carried out near Joint Base Balad in Iraq, north of Baghdad. Meanwhile, a gunner mans a machine gun that would be used for covering fire in a real rescue. The airmen are assigned to the 64th Expeditionary Rescue Squadron in the US Central Command theater.

USAF photo by Capt. Chett Collier



***Load up:** Airmen from AFRC's 315th Airlift Wing load one of two US Coast Guard H-65 Dolphin search and rescue helicopters onto a C-17 at Charleston AFB, S.C. Both helicopters were headed to Central America for missions in that region.*

operations. As a run-up to the initial operational capability milestone, AFSOC sent four CV-22s to Africa's Trans-Saharan region in November 2008 to participate in a multinational military exercise called Operation Flintlock.

The Air Force plans to buy 50 CV-22s. The Marine Corps version of the Osprey, the MV-22, has served in Iraq and is being considered for duty in Afghanistan.

2010 Defense Topline Grows Slightly

President Obama released his Fiscal 2010 base budget on Feb. 26, including a $533.7 billion topline for the Department of Defense. This defense topline request represents a nearly four percent increase over the $513 billion appropriated by Congress in Fiscal 2009.

As of late March, the Administration was expected to present the budget details to Congress in May. Testifying before the House Budget Committee March 3, Office of Management and Budget Director Peter R. Orszag offered some insights into the defense budget, saying it would provide for the increase in Army and Marine Corps end strength, give service members a 2.9 percent pay raise, improve military housing, and provide better medical treatment for wounded troops.

At the same time, Orszag said it would set realistic requirements and incorporate "best practices" to control cost growth and schedule slippage of weapons programs.

US Downs Iranian UAV in Iraq

A US fighter aircraft shot down an Iranian unmanned aerial vehicle Feb.

More Lawmakers Support Split Buy of Tankers

Rep. Neil Abercrombie (D-Hawaii), chairman of the House Armed Services Committee's panel on air and land forces, joined a chorus of influential lawmakers calling for the Department of Defense to purchase new aerial tankers from both Boeing and Northrop Grumman for the Air Force's KC-X tanker recapitalization program.

"I think that a consensus is developing" in Congress for a split buy, Abercrombie told reporters after speaking at a defense industry conference in Washington, D.C., March 11.

This strategy is juxtaposed against Secretary of Defense Robert M. Gates' stated preference for taking another stab at a winner-take-all competition even though the KC-X effort faltered last year amid controversy after Northrop Grumman's KC-30 tanker was selected over Boeing's KC-767. The belief is that a split buy is the best means of ending the current stalemate between the companies and their supporters in Congress.

Abercrombie joined Rep. John P. Murtha (D-Pa.), head of the House Appropriations Committee's defense subcommittee, in endorsing the split-buy strategy. Murtha said March 12 he was working to include billions of dollars in the next war supplemental to jump-start a split-buy tanker acquisition.

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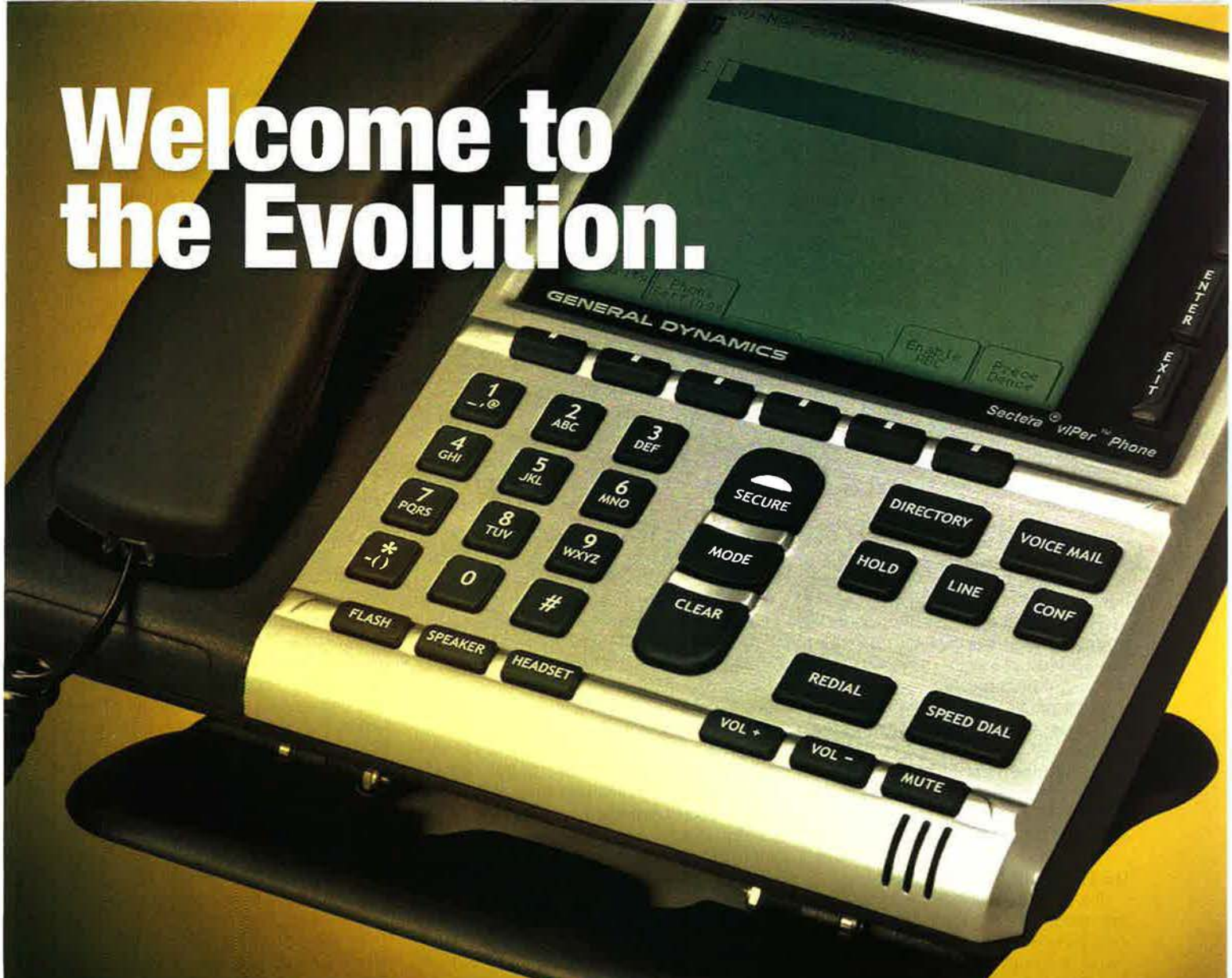

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C-130 Fleet Sidetracked by Faulty Barrel Nuts

The Air Force on March 4 issued a time compliance technical order calling for a fleetwide inspection of hundreds of older C-130 Hercules transports across the active duty, Air National Guard, and Air Force Reserve Command components. The inspections were ordered after discovery of cracks three days earlier in the upper-wing joint barrel nuts of a Hercules undergoing routine depot maintenance at Warner Robins Air Logistics Center, Ga.

Days later, the inspections spread to all C-130 variants, including the service's newest C-130J Super Hercules platforms, thereby bringing the total number of aircraft affected to 597.

As of mid-March, all C-130s, save one being converted to a ground trainer, had undergone the inspection, and two-thirds of the fleet had been returned to flight status. Roughly half of all C-130s were found to have cracked nuts.

Those parts were replaced when possible. Some aircraft with them were in line to be repaired, waiting on the arrival of the new bolts which were of limited supply initially.

25. The UAV had intruded into Iraqi airspace and had spent more than an hour well inside Iraqi territory, Multinational Force-Iraq officials said March 16.

The incident is said to have occurred about 60 miles northeast of Baghdad. The UAV was thought to be an Iranian-made Ababil 3 model.

According to MNF-I officials, two coalition aircraft were directed to visually identify the UAV after it was detected inside the Iraqi border. They tracked it for more than one hour before engaging it. An MNF-I official said it "was not an accident on the part of the Iranians."

USAF Gains First MC-12W

Air Force officials accepted the service's first MC-12W Liberty Project Aircraft from Hawker Beechcraft March 19 in a ceremony at the company's facility in Wichita, Kan.

This MC-12W, dubbed *Liberty One,* is the first of 37 modified King Air 350 aircraft that the Air Force is acquiring to bolster its overhead intelligence-surveillance-reconnaissance arsenal in Afghanistan and Iraq. The first MC-12s are expected to be fielded in Southwest Asia this month.

"The MC-12W will provide a comprehensive signals and imagery intelligence collection capability," said Lt. Gen. David A. Deptula, deputy chief of staff for ISR, who attended the acceptance ceremony, along with Brig. Gen. Blair E. Hansen, USAF's director of ISR capabilities.

USAF Details Stimulus Projects

The Air Force announced March 20 that it will receive about $1.7 billion for various infrastructure projects out of the total $7.4 billion that the Department of Defense was allocated under the $787 billion American Recovery and Reinvestment Act.

This funding will enable more than 1,500 maintenance and repair projects valued at $1.1 billion, said Air Force Civil Engineer Maj. Gen. Del Eulberg. There will also be $260 million for Air Force military construction and housing, $100 million for four dormitories, $80 million for seven child development centers, and $80 million for two military family housing projects, he said.

Additionally, Air Force engineers will construct four energy conservation investment program projects using $17 million provided to the Department of Defense. ARRA funds will also support Air Force fuel-cell, wind, and solar energy research.

Missile Wing Passes Inspection

The 90th Missile Wing at F. E. Warren AFB, Wyo., passed a limited nuclear surety inspection conducted by Air Force Space Command officials at the base March 11-13, receiving an overall grade of "satisfactory," the highest possible rating. With the passing grade in this demanding type of inspection—in which the inspectors demand perfection—the Minuteman III intercontinental ballistic missile unit remains certified to perform its nuclear mission, AFSPC said March 13.

The limited-scope inspection was prompted when the wing fell short in a larger NSI in December 2008 when inspectors observed deficiencies in certain areas.

The 341st MW at Malmstrom AFB, Mont., passed its own reinspection in February after coming up short in its previous NSI last year.

Reservist Wins Landmark Case

A federal judge ruled on March 19 that Wachovia Securities, now a part of Wells Fargo, must pay Michael Serricchio, a financial advisor and Air Force Reservist who was activated shortly after 9/11 and served in Southwest Asia, about $1.3 million in compensation and damages for violating his employment rights by demoting him on his return from military service in 2003.

The company must also reinstate him at the appropriate level. This settlement is the largest of its kind involving the Uniformed Services Employment and Re-employment Rights Act, the *New York Times* reported March 21.

"I know that other returning servicemen have faced similar problems, and I hope that the decision in my case will encourage them in their fight to vindicate their rights," Serricchio said.

First MALD Delivered

The Air Force accepted delivery of

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its first Miniature Air Launched Decoy from manufacturer Raytheon during a ceremony March 16 at the company's facility in Tucson, Ariz. This first unit is one of the MALDs being built during the program's low-rate initial production phase, which began in mid-2008.

"The warfighter now has an incredible new capability," said Ken Watson, the Air Force's MALD program manager. USAF's goal is to have enough MALDs in its inventory in March 2010 so that the decoys could be used operationally, if needed.

The MALD is a low-cost, expendable flight vehicle with a range of about 500 miles that is designed to duplicate the flight profiles and signatures of US and allied aircraft in order to fool enemy air defenses. The decoy has been tested on the B-52 and F-16.

Civil Engineers Afghanistan-bound

The Air Force intends to surge civil engineering capacity into Afghanistan in the coming months to help construct new facilities, airstrips, and infrastructure to accompany the US troop buildup there, Maj. Gen. Del Eulberg, USAF's civil engineer, told reporters in the Pentagon March 16. This includes shifting resources from Iraq, he said.

"It's critical that we get engineering support over there as quickly as we can," said Eulberg, noting that current major operational hubs such as Bagram Air Base and Kandahar Airfield are already maxed out with missions.

DOD photo by Benjamin Faske

Hold 'er tight: *Airmen of the 62nd Airlift Wing, McChord AFB, Wash., use hefty chains to secure a nuclear test missile to the bay of a C-17 airlifter. The wing recently earned top marks from AMC inspectors during a defense nuclear surety inspection.*

To support the increased demands, the Air National Guard notified its civil engineer units in March that involuntary deployments are in store during the next two years. Also, Air Force Reserve Command activated the 209-member 560th Rapid Engineers Deployable Heavy Operations Repair Squadron on March 8 at Charleston AFB, S.C. B-2s Join Raptors on Guam

About 250 airmen and four B-2A bombers from the 13th Bomb Squadron at Whiteman AFB, Mo., started arriving at Andersen AFB, Guam, on Feb. 23 to begin a four-month deployment in the Pacific as part of a routine rotation of US forces in the region. They relieved about an equal number of airmen and six B-52Hs from the 23rd BS at Minot AFB, N.D., that had been serving on the island since October 2008.

The B-2s joined a contingent of 12 F-22s from the 90th Fighter Squadron at Elmendorf AFB, Alaska, that arrived at Andersen in January for a three-month operational stint. This marked the first time that the two kinds of stealth aircraft operated out of Guam at the same time, presenting what Lt. Col. Jason Armagost, commander of the 13th BS, called an "unparalleled opportunity" to flesh out the capabilities of the two low observable aircraft types.

USAF photo by SSgt. Jerry Fleshman

The "Box D": *A KC-135 tanker of the 100th Air Refueling Wing, RAF Mildenhall, Britain, refuels an F-16 while another waits for its turn at the boom during an exercise in April. The 100th ARW boasts a "Box D" tail marking, which dates to the wing's World War II service. The 100th ARW is the only USAF unit authorized to display its World War II tail insignia.*

UAV Agreement Signed

Air Force Chief of Staff Gen. Norton A. Schwartz and his Army counterpart Gen. George W. Casey Jr. have approved the Army-Air Force multirole unmanned aircraft system enabling concept, dubbed Task 11, Air Combat Command announced Feb. 25. Implementation is expected within one year.

"This is a major step forward," said Maj. Gen. Frank Gorenc, ACC's director for air and space operations. ACC worked with Army Training and Doctrine Command to develop the concept, which seeks to improve how each service utilizes its theater-

Operation Iraqi Freedom—Iraq

Casualties

By April 17, a total of 4,277 Americans had died in Operation Iraqi Freedom. The total includes 4,266 troops and 11 Department of Defense civilians. Of these deaths, 3,433 were killed in action with the enemy while 844 died in noncombat incidents.

There have been 31,193 troops wounded in action during Operation Iraqi Freedom. This number includes 17,459 who were wounded and returned to duty within 72 hours and 13,734 who were unable to return to duty quickly.

Predator Mission Takes Fleet to 500,000 Hours

The US Predator unmanned aerial vehicle fleet surpassed 500,000 total flying hours Feb. 18 during the sortie of an Air Force MQ-1 over Iraq flown remotely by airmen of the 15th Reconnaissance Squadron back at Creech AFB, Nev.

The milestone came in the midst of the unprecedented buildup of UAVs in Southwest Asia to meet soaring demands for overhead intelligence-surveillance-reconnaissance capability. Predators which operate from bases such as Joint Base Balad in Iraq now accumulate more than 19,000 flight hours a month, 95 percent of which are flown in the region, according to USAF figures.

Col. John Montgomery, vice commander of the 432nd Wing at Creech, USAF's sole unmanned aircraft wing, said the ability of the Predator and its larger cousin the MQ-9 Reaper to maintain eyes in the sky on ground targets and points of interest has made these aircraft "completely invaluable" to the fight in Iraq and Afghanistan.

Montgomery, speaking with reporters who visited Creech in March, said the Predator's accident rate has improved vastly even though MQ-1s are flying a staggering operations tempo. While an average F-16 wing flies about 15,000 hours a year in combat with 72 aircraft deployed, Predators are flying about 10 times that number of hours in theater right now with fewer airframes, he said.

As of March, the MQ-1 fleet had around 6.6 accidents per 100,000 flight hours, with the rate declining.

During that same month, the Air Force was operating 34 combat air patrols of MQ-1 and MQ-9s over Iraq, Afghanistan, and other parts of US Central Command's area of responsibility in Southwest Asia. Air Force officials said the service is on course to meet its goal of having 50 CAPs in Fiscal 2012.

Operation Enduring Freedom—Afghanistan

Casualties

By April 17, a total of 674 Americans had died in Operation Enduring Freedom. The total includes 673 troops and one Department of Defense civilian. Of these deaths, 450 were killed in action with the enemy while 224 died in noncombat incidents.

There have been 2,778 troops wounded in action during OEF. This number includes 983 who were wounded and returned to duty within 72 hours and 1,795 who were unable to return to duty quickly.

C-130J Unit Activated for Afghan Buildup

To assist the buildup of 17,000 more troops into Afghanistan ordered by President Obama in February, the Air Force activated the 772nd Expeditionary Airlift Squadron, a new C-130J unit, on March 15.

Based at Kandahar Airfield, the squadron will support the movement of personnel and cargo into the country. The unit falls under Kandahar's 451st Air Expeditionary Group.

"Tactical airlift is a high-demand asset here, and we are at the leading edge of the Afghanistan surge of forces," said Col. Ted Osowski, commander of the 451st AEG, adding that the C-130Js are "going to be busy."

The squadron is composed of eight C-130Js and around 120 operations personnel and maintainers, deployed from the 41st Airlift Squadron at Little Rock AFB, Ark. The 41st AS is the Air Force's sole active duty operational C-130J unit currently with combat experience, having previously deployed to Southwest Asia in early 2008.

capable, larger-size UAVs to support joint operations.

At the same time, Task 11 is meant to ensure that each service can meet its own specific requirements. For the Army, this means the ability to use its UAVs as part of an organic ground force. For the Air Force, it is the ability to operate as part of an air-only strike package.

Bronze Star Medals Awarded

Lt. Col. James Boles Jr. received a Bronze Star Medal March 13 for his exceptional service as chief of the Joint Regional Contracting Center in Mosul, Iraq, during a one-year deployment. He heads the Electronic Warfare Contracting Division at Warner Robins Air Logistics Center, Ga.

On March 12, Lt. Col. Carlos Camarillo, commander of the 586th Expeditionary Logistics Readiness Squadron, was awarded a Bronze Star Medal for his work during a six-month deployment to Southwest Asia.

Also receiving Bronze Star Medals were: 1st Lt. Brian Rutt, a member of the 52nd Security Forces Squadron at Spangdahlem AB, Germany, Feb. 19, for his activities leading 59 airmen working USAF's Police Transition Team mission during a one-year deployment to Iraq, and TSgt. Wesley Rincker, an airman with the 509th LRS at Whiteman AFB, Mo., March 2, for his actions as a convoy commander in Iraq.

SSgt. Timothy P. Davis, a combat controller assigned to Hurlburt Field, Fla., who was killed by a roadside bomb Feb. 20 in Afghanistan, was posthumously awarded a Bronze Star Medal March 1.

Indiana ANG Unit To Fly A-10s

The Indiana Air National Guard's 122nd Fighter Wing at Fort Wayne will replace its F-16s with A-10s over the course of several years, Fort Wayne's News Channel 15 reported Feb. 28.

Rep. Mark Souder (R) said the change from F-16s to A-10s would keep the 122nd FW alive longer. Although the wing just completed a conversion from its F-16 Block 25 aircraft to newer Block 30s in February, the unit will have a longer life span with the A-10s.

"It didn't take a rocket scientist to figure out this was a good deal," Col. Jeff Soldner, 122nd FW commander, told News Channel 15.

Murtha Champions F136 Engine

Rep. John P. Murtha (D-Pa.), chairman of the House Appropriations Committee defense panel, on March 25 asserted his support for continuing the General Electric-Rolls Royce F136 engine, the second power plant being developed for the F-35 Lightning II stealth fighter.

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Senior Staff Changes

RETIREMENTS: Maj. Gen. David J. **Scott,** Brig. Gen. Scott E. **Wuesthoff.**

PROMOTIONS: To AFRC Major General: Anita R. **Gallentine. To AFRC Brigadier General:** William B. **Binger,** Catherine A. **Chilton,** James A. **Firth,** Robert M. **Haire,** Stayce D. **Harris,** James J. **Muscatell Jr.,** Dennis P. **Ployer,** Derek P. **Rydholm,** Debra A. **Scullary.**

NOMINATIONS: To be AFRC Major General: Roger A. **Binder,** David L. **Commons,** Carl M. **Skinner,** Howard N. **Thompson,** Paul M. **Van Sickle. To be AFRC Brigadier General:** Thomas P. **Harwood III,** Maryanne **Miller,** Pamela K. **Milligan,** Robert K. **Millmann Jr.,** Kevin E. **Pottinger,** George F. **Williams.**

CHANGES: Brig. Gen. Gregory A. **Biscone,** from Dep. Dir., Ops., CENTCOM, MacDill AFB, Fla., to Dir., AF Quadrennial Defense Review, Office of the Asst. Vice C/S, USAF, Pentagon ... Maj. Gen. James P. **Hunt,** from Dir., AF QDR, Office of the Asst. Vice C/S, USAF, Pentagon, to Dep. Commanding General, Multinational Corps-Iraq, Baghdad ... Brig. Gen. Michelle D. **Johnson,** from Dep. Dir., Global Effects, Jt. Staff, Pentagon, to Dir., Strategy, Policy, Prgms., & Log., TRANSCOM, Scott AFB, Ill. ... Maj. Gen. Duane A. **Jones,** from Dir., Global Combat Spt., DCS, Log., Instl., and Mission Spt., USAF, Pentagon, to Dir., Resource Integration, DCS, Log., Instl., and Mission Spt., USAF, Pentagon ... Brig. Gen. James A. **Jones,** from Cmdr., 55th Wg., ACC, Offutt AFB, Neb., to Dep. Dir., Ops., CENTCOM, MacDill AFB, Fla. ... Brig. Gen. Earl D. **Matthews,** from Dep. Dir., Studies & Analyses, Assessments & Lessons Learned, USAF, Arlington, Va., to Dir., C4, TRANSCOM, Scott AFB, Ill.

SENIOR EXECUTIVE SERVICE CHANGE: Daniel F. **McMillin,** to Dep. Chief, Warfighting Integration and Dep. Chief of Info. Officer, OSAF, Pentagon. ■

"Both the House and the Senate feel very strongly about the alternative engine" and "expect the Air Force to eventually build [it]," Murtha said of the F136 during a hearing on Air Force and Navy combat aircraft acquisition.

The Office of the Secretary of Defense has tried unsuccessfully to kill the F136 program, citing its cost. Murtha's rationale for keeping the F136 alive, in addition to Pratt & Whitney's F135, is that past experience in fighter programs has shown the merit in having two engine suppliers. Plus, this approach would be "cost effective" given the long run expected for the F-35, he said.

Boeing Unveils Stealthy F-15

Boeing revealed its new F-15SE model, the "Silent Eagle," on March 17. The company claims that this new F-15 variant would have the level of stealth approved by the US government for release to international customers. It employs several design changes such as using conformal pallets for internal carriage of weapons and fuel, canting the vertical fins outward, and applying stealth coatings across the whole aircraft.

Boeing says it is marketing the Silent Eagle to international customers, especially those who already fly versions of the F-15. Boeing spokesman Damien Mills said the new variant provides "more options" for those customers and addresses "their desire for a stealthy platform without the trade-offs typically associated with stealth," such as high support costs, reduced range, and reduced payload.

New Weapon for Reaper's Quiver

The Air Force is working to clear the GBU-38 Joint Direct Attack Munition, a 500-pound satellite-guidance-aided bomb, around July for operational use on the MQ-9 Reaper unmanned aerial vehicle. "Putting the JDAM on the Reaper significantly increases its lethality on the battlefield," said Col. Chris Coombs, commander of the 703rd Aeronautical Systems Group at Wright-Patterson AFB, Ohio. The Reaper has emerged as a critical overhead asset in Afghanistan and Iraq for finding and attacking ground targets.

Currently, Reapers carry 500-pound GBU-12 laser guided bombs and AGM-114 Hellfire ground-attack missiles in combat. Coombs said the next step after the JDAM is to integrate the GBU-39 Small Diameter Bomb on the Reaper.

WWII Fighter Pilot Dies

Retired Air Force Col. John M. Thacker, 90, died of kidney disease March 6 at his home in McLean, Va., the *Los Angeles Times* reported March 25. Thacker was one of the few fighter pilots who got into the air during the Japanese attack on Pearl Harbor on Dec. 7, 1941, to counter the attackers, receiving a Silver Star for his actions that day.

He later commanded a fighter group during the Korean War and last served as inspector general of Headquarters Command at Bolling AFB, D.C., before his retirement from the Air Force in 1970.

Thacker was born Aug. 9, 1918, in Petersburg, Va., and grew up in Miami. He left the University of Florida in 1940 to join the Army Air Corps. ■

News Notes

■ Secretary of Defense Robert M. Gates on March 18 recommended Air Force Lt. Gen. Douglas M. Fraser, deputy commander of US Pacific Command, to be the next head of US Southern Command. He would be the first Air Force leader of SOUTHCOM, if the Senate confirms his nomination.

■ Air Force Chief of Staff Gen. Norton A. Schwartz on March 9 formally approved the plan making Air Force Reserve Command's 93rd Bomb Squadron at Barksdale AFB, La., the B-52H formal training unit.

■ The Air Force successfully launched Global Positioning Satellite IIR-20(M) into orbit March 24 from Cape Canaveral AFS, Fla., aboard a Delta II rocket. The modernized Block IIR satellite joined 33 other GPS spacecraft in the current constellation.

■ SrA. Angela Huguley, an air traffic controller from Tinker AFB, Okla., in February received the Lt. Gen. Gordon A. Blake Aircraft Save Award for her decisive action in the control tower at Ali Base, Iraq, on Oct. 6, 2008, that is credited with saving 19 lives. She redirected an Army aircraft that was about to land on a closed runway.

■ The Thunderbirds air demonstration squadron kicked off its 2009 flying season with shows March 21-22 at Luke AFB, Ariz. The unit has more than 73 shows on tap through mid-November.

■ The 912th Air Refueling Squadron, a KC-135 tanker unit at Grand Forks AFB, N.D., was inactivated on March 20, becoming the second of Grand Forks' four KC-135 squadrons to cease operations as the base transitions from tankers to unmanned aerial vehicles by October 2010.

■ The Air Force Global Logistics Support Center opened its new headquarters building, Feb. 26 at Scott AFB, Ill. It is the first of two buildings being constructed for the center at Scott. ■

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Issue Brief

By Adam J. Hebert, Executive Editor

Defense and the Economy

Would a huge new dose of military spending help stimulate the flaccid US economy? The Obama Administration, for its part, seems of two minds. On one hand, it released to the Pentagon a batch of money for stimulus purposes. On the other hand, it has limited defense spending and has argued over the future of major programs well into the spring.

One who has no doubts about spending more on defense is Martin S. Feldstein, Harvard economist, who said defense spending is uniquely suited to meet America's current demands. He wrote in the *Wall Street Journal* that the White House should add a minimum of $30 billion a year to the defense and intelligence budgets during 2009 and 2010.

As the economy headed deeper into recession in recent months, both the Bush and Obama Administrations called for economic stimulus spending that was "timely, targeted, and temporary."

Obama acknowledges that defense spending can fill an economic need. On March 20, DOD announced it would start 3,000 projects with $7.4 billion it received through the $787 billion American Recovery and Reinvestment Act—the stimulus act.

This spending "is to create jobs and stimulate economic activity across the country," said the announcement. The projects will "immediately generate additional employment in communities around defense installations."

The work is concentrated on quality of life improvements such as housing, hospitals, and child care centers. For example: Malmstrom AFB, Mont., anticipates $48 million for projects including improvements to base housing.

After years of flat infrastructure investment, this money is certainly needed and welcome, but DOD's cut is a pittance: $7.4 billion is less than one percent of the stimulus act's total spending.

Also, infrastructure improvement projects, while overdue, do little to improve national security. The debate now moves to Congress and centers on how much additional money—if any—DOD should receive.

"We are going to ... put the resources where they're needed," Obama said, but "make sure that we're not simply fattening defense contractors."

Asked whether DOD is taking jobs into account in preparing the 2010 budget, Pentagon spokesman Geoffrey S. Morrell responded, "Not at all. ... It's not the responsibility of this building to worry about the economic impact of budgetary decisions."

Defense Secretary Robert M. Gates clearly recognizes the role the Pentagon can play in the economy. "It's not irrelevant that [DOD] employs almost three million people," Gates said, adding that modernization spending alone "is something on the order of $100 billion" a year—most of which is spent in the United States on American products.

Said Morrell, "This building"—the Pentagon—is under obligation to provide a budget recommendation to the President "in the best interest of our national security."

"This building" also includes the military services. USAF alone previously identified $20 billion a year in unfunded military requirements; the other services have similar long-term needs. These emerge from a chronic mismatch between missions and money.

Trucks, helicopters, fighters, and transports are all feeling the wear and tear of heavy wartime use. There are, therefore, legitimate arguments for additional defense spending on both national security and economic grounds.

While Feldstein is a fan of defense-spending-as-stimulus, he notes some dangers. An important challenge "is to avoid wasteful spending," Feldstein wrote. "One way to achieve that is to do things during the period of the spending surge that must eventually be done anyway. ... Replacement schedules for vehicles and other equipment should be accelerated to do more during the next two years."

The Air Force could have put a funding infusion to good use. Instead, the 2010 budget is flat, once adjusted for inflation. But the cuts are concentrated; the gains in areas such as ISR appear more diffuse. Of note:

- Gates calls for F-22 production to end at 187 aircraft, ending 25,000 jobs and placing in peril 95,000 indirectly supported. The F-35 will employ 82,000 people by 2011, and is being boosted over the next five years, but it will be nearly a decade before the F-35 enters service.
- The C-17 line is to be shut down before the long-term reliability of the modernized C-5 fleet is known. Boeing officials say foreign orders may keep production going for a few more years.
- Gates moved to kill the CSAR-X rescue helicopter more than two years after Boeing became the surprise winner of a 141-aircraft contract that Lockheed Martin and Sikorsky successfully protested. Somehow the need for that rescue helicopter is now in question.
- NORAD declared that as old F-15s and F-16s wear out, it will lack enough fighters at its air defense sites. Newer aircraft will have to be assigned to the homeland defense mission, but Gates now suggests sending 250 of these very same fighters to the boneyard.

Defense spending should address valid military needs. Everyone agrees funds should not be used to fatten the defense contractors, and that Soviet-style command economies are a recipe for waste. But the military has significant, preexisting operational needs that can be addressed through a cash infusion.

Defense spending also preserves domestic science, engineering, and manufacturing jobs at a time when the economy needs them most. The Aerospace Industries Association estimates that the aerospace and defense sector supported two million jobs and ran a trade surplus of $99 billion last year—the largest surplus of any US manufacturing sector. ■

More information: http://www.defenselink.mil/recovery

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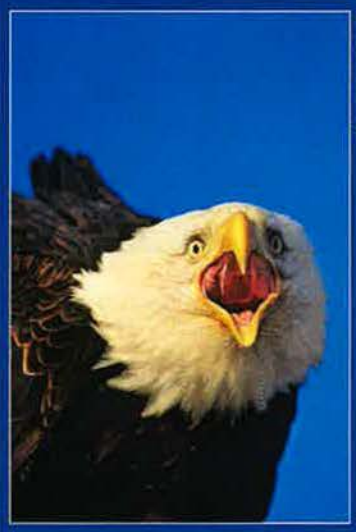
About the Almanac

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



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The Air Force in Facts and Figures

2009 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 mission **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.

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. ▪

The Nation's Air Arm and Its Early Leaders

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.

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	June 20, 2008
Michael B. Donley (acting)	June 21, 2008	Oct. 17, 2008
Michael B. Donley	Oct. 17, 2008	

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	July 12, 2008
Gen. Duncan J. McNabb (acting)	July 12, 2008	Aug. 12, 2008
Gen. Norton A. Schwartz	Aug. 12, 2008	

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	Sept. 17, 2007
Gen. Duncan J. McNabb	Sept. 17, 2007	Sept. 4, 2008
Gen. William M. Fraser III	Oct. 8, 2008	

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	June 30, 2006
CMSAF Rodney J. McKinley	June 30, 2006	

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	Oct. 2, 2007
Gen. John D. W. Corley	Oct. 2, 2007	

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	July 2, 2008
Gen. Stephen R. Lorenz	July 2, 2008	

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	Nov. 21, 2008
Gen. Donald J. Hoffman	Nov. 21, 2008	

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	June 24, 2008
Lt. Gen. Charles E. Stenner Jr.	June 24, 2008	

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	June 26, 2006
Gen. Kevin P. Chilton	June 26, 2006	Oct. 3, 2007
Lt. Gen. Michael A. Hamel (acting)	Oct. 3, 2007	Oct. 12, 2007
Gen. C. Robert Kehler	Oct. 12, 2007	

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	Nov. 27, 2007
Lt. Gen. Donald C. Wurster	Nov. 27, 2007	

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. Lew 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	Sept. 7, 2007
Gen. Arthur J. Lichte	Sept. 7, 2007	

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	May 20, 2006
Lt. Gen. Craig R. McKinley	May 20, 2006	Nov. 17, 2008
Maj. Gen. Emmett R. Titshaw Jr. (acting)	Nov. 17, 2008	Feb. 2, 2009
Lt. Gen. Harry M. Wyatt III	Feb. 2, 2009	

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.

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	Nov. 30, 2007
Gen. Carrol H. Chandler	Nov. 30, 2007	

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	Dec. 10, 2007
Maj. Gen. Marc E. Rogers (acting)	Dec. 10, 2007	Jan. 17, 2008
Gen. Roger A. Brady	Jan. 17, 2008	

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	Dec. 18, 2006
Robert M. Gates	Dec. 18, 2006	

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	Oct. 1, 2007
Adm. Michael G. Mullen, USN	Oct. 1, 2007	

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	Aug. 3, 2007
Gen. James E. Cartwright, USMC	Aug. 4, 2007	

US Africa Command

Gen. William E. Ward, USA	Oct. 1, 2008

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 P. Abizaid, USA	July 7, 2003	March 16, 2007
Adm. William J. Fallon, USN	March 16, 2007	March 31, 2008
Lt. Gen. Martin E. Dempsey (acting), USA	March 31, 2008	Oct. 31, 2008
Gen. David H. Petraeus, USA	Oct. 31, 2008	

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	Dec. 4, 2006
Gen. Bantz J. Craddock, USA	Dec. 4, 2006	

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	Nov. 9, 2007
Gen. James N. Mattis, USMC	Nov. 9, 2007	

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	March 23, 2007
Gen. Victor E. Renuart Jr., USAF	March 23, 2007	

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 (acting)	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	March 12, 2007
Lt. Gen. Daniel P. Leaf, USAF (acting)	March 12, 2007	March 26, 2007
Adm. Timothy J. Keating, USN	March 26, 2007	

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. Bantz J. Craddock, USA	Nov. 9, 2004	Oct. 19, 2006
Adm. James G. Stavridis, USN	Oct. 19, 2006	

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	July 9, 2007
Adm. Eric T. Olson, USN	July 9, 2007	

US Strategic Command

Gen. G. Lee Butler, USAF	June 1, 1992	Feb. 13, 1994
Adm. Henry G. Chiles Jr., USN	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	Aug. 10, 2007
Lt. Gen. C. Robert Kehler, USAF (acting)	Aug. 10, 2007	Oct. 3, 2007
Gen. Kevin P. Chilton, USAF	Oct. 3, 2007	

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	Aug. 11, 2008
VAdm. Ann E. Rondeau, USN (acting)	Aug. 12, 2008	Sept. 4, 2008
Gen. Duncan J. McNabb, USAF	Sept. 5, 2008	

National Guard Bureau

Maj. Gen. Butler B. Miltonberger, USA	Feb. 1, 1946	Sept. 29, 1947
Maj. Gen. Kenneth F. Cramer, USA	Sept. 30, 1947	Sept. 4, 1950
Maj. Gen. Raymond H. Fleming, USA (acting)	Sept. 5, 1950	Aug. 13, 1951
Maj. Gen. Raymond H. Fleming, USA	Aug. 14, 1951	Feb. 15, 1953
Maj. Gen. Earl T. Ricks, USAF (acting)	Feb. 16, 1953	June 21, 1953
Maj. Gen. Edgar C. Erickson, USA	June 22, 1953	May 31, 1959
Maj. Gen. Winston P. Wilson, USAF (acting)	June 1, 1959	July 19, 1959
Maj. Gen. Donald W. McGowan, USA	July 20, 1959	Aug. 30, 1963
Maj. Gen. Winston P. Wilson, USAF	Aug. 31, 1963	Aug. 31, 1971
Maj. Gen. Francis S. Greenlief, USA	Sept. 1, 1971	June 23, 1974
Lt. Gen. La Vern E. Weber, USA	Aug. 16, 1974	Aug. 15, 1982
Lt. Gen. Emmett H. Walker Jr., USA	Aug. 16, 1982	Aug. 15, 1986
Lt. Gen. Herbert R. Temple Jr., USA	Aug. 16, 1986	Jan. 31, 1990
Lt. Gen. John B. Conaway, USAF	Feb. 1, 1990	Dec. 1, 1993
Maj. Gen. Raymond F. Rees, USA (acting)	Jan. 1, 1994	July 31, 1994
Lt. Gen. Edward D. Baca, USA	Oct. 1, 1994	July 31, 1998
Lt. Gen. Russell C. Davis, USAF	Aug. 4, 1998	Aug. 3, 2002
Maj. Gen. Raymond F. Rees, USA (acting)	Aug. 4, 2002	April 10, 2003
Lt. Gen. H. Steven Blum, USA	April 11, 2003	Nov. 16, 2008
Gen. Craig R. McKinley, USAF	Nov. 17, 2008	

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	March 23, 2007
Gen. Victor E. Renuart Jr., USAF	March 23, 2007	

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People

2009 USAF Almanac

USAF Total Force

(As of Sept. 30, 2008)

	FY03	FY04	FY05	FY06	FY07	FY08	FY09
Air Force active duty							
Officers	73,758	74,109	73,252	70,539	65,722	64,805	64,783
Enlisted	297,219	298,314	276,117	273,990	263,372	258,092	258,255
Cadets	4,085	4,193	4,327	4,424	4,401	4,482	4,414
Total Air Force active duty	**375,062**	**376,616**	**353,696**	**348,953**	**333,495**	**327,379**	**327,452**
Career re-enlistments (second term)	31,026	27,266	23,338	22,431	23,602	25,726	24,521
Rate	90%*	91%	84%	89%	85%	89%	90%
First-term re-enlistments	8,232	9,232	10,128	11,192	12,099	13,023	14,813
Rate	61%*	63%	54%	56%	55%	58%	71%
Civilian personnel							
Direct hire (excluding technicians)	122,419	124,959	125,809	130,572	121,124	122,703	131,968
ANG technicians	20,718	22,416	22,322	21,997	22,724	22,342	22,657
AFRC technicians	8,159	9,204	9,445	9,435	9,172	9,500	10,093
Indirect hire—foreign nationals	6,410	6,146	6,589	6,935	6,496	6,563	6,595
Total civilian personnel	**157,706**	**162,725**	**164,165**	**168,939**	**159,516**	**161,108**	**171,313**
Guard and Reserve							
Air National Guard, Selected Reserve	108,137	106,715	106,430	105,660	106,256	107,681	106,700
AFRC, Selected Reserve	74,754	75,322	75,802	74,075	71,146	67,490	67,400
AFRC, Individual Ready Reserve	36,665	37,015	48,750	44,904	45,469	49,301	47,899
Total Ready Reserve	**219,556**	**219,052**	**230,982**	**224,639**	**222,871**	**224,472**	**221,999**
Standby	17,587	17,340	15,241	10,932	10,675	10,384	10,297
Total Guard and Reserve	**237,143**	**236,392**	**246,223**	**235,571**	**233,546**	**234,856**	**232,296**

FYs 2003-08 are actual figures; FY09 is an estimate. *Stop-Loss imposed in FY03.

Armed Forces Manpower Trends, End Strength in Thousands

(As of Sept. 30, 2008)

	FY03	FY04	FY05	FY06	FY07	FY08	FY09
Active duty military							
Air Force	375	377	354	349	334	327	330
Army	499	500	493	505	522	544	548
Marine Corps	178	178	180	180	187	199	201
Navy	382	373	363	350	338	332	332
Total	**1,434**	**1,428**	**1,390**	**1,384**	**1,381**	**1,402**	**1,411**
Selected Guard and Reserve							
Air National Guard	108	107	106	106	106	107	107
AFRC	75	75	76	74	71	68	67
Army National Guard	351	343	333	346	353	351	353
Army Reserve	212	204	189	190	190	198	205
Marine Corps Reserve	41	40	40	40	39	40	40
Naval Reserve	88	83	76	71	70	68	67
Total	**875**	**852**	**820**	**827**	**829**	**832**	**839**
Direct-hire civilian (full-time equivalents)							
Air Force	149	154	155	158	156	155	154
Army	226	209	221	220	220	261	266
Navy/Marine Corps	182	183	179	178	176	182	183
Defense agencies	86	105	108	104	105	96	98
Total	**643**	**651**	**663**	**660**	**657**	**694**	**701**

FY09 numbers are estimates based on midyear data for active duty and civilian; Guard and Reserve data from PB09.

USAF Educational Levels

(As of Sept. 30, 2008)

	Number	Percent
Enlisted		
High school	13,149	5.1
Some college (< 2 years)	182,334	70.6
AA/AS degree or equivalent hours	46,984	18.2
Bachelor's degree	13,489	5.2
Master's degree	2,116	0.8
Professional or doctoral degree	20	0.0
Total	**258,092**	**100**
Officers		
Bachelor's degree	31,236	48.2
Master's degree	26,635	41.1
Doctoral degree	907	1.4
Professional degree	6,027	9.3
Total	**64,805**	**100**

Does not include cadets.

USAF Marital Status

(As of Sept. 30, 2008)

Total percent married	60.2
Percent of enlisted	57.3
Percent of officers	71.7
Number of USAF couples	19,287
Number married to members of other services	1,395

Air Force Personnel Strength

(As of Sept. 30, 2008)

Year	Strength	Year	Strength	Year	Strength
1907	3	1942	764,415	1977	570,479
1908	13	1943	2,197,114	1978	569,491
1909	27	1944	2,372,292	1979	559,450
1910	11	1945	2,282,259	1980	557,969
1911	23	1946	455,515	1981	570,302
1912	51	1947	305,827	1982	582,845
1913	114	1948	387,730	1983	592,044
1914	122	1949	419,347	1984	597,125
1915	208	1950	411,277	1985	601,515
1916	311	1951	788,381	1986	608,199
1917	1,218	1952	973,474	1987	607,035
1918	195,023	1953	977,593	1988	576,446
1919	25,603	1954	947,918	1989	570,880
1920	9,050	1955	959,946	1990	535,233
1921	11,649	1956	909,958	1991	510,432
1922	9,642	1957	919,835	1992	470,315
1923	9,441	1958	871,156	1993	444,351
1924	10,547	1959	840,028	1994	426,327
1925	9,670	1960	814,213	1995	400,409
1926	9,674	1961	820,490	1996	389,001
1927	10,078	1962	883,330	1997	377,385
1928	10,549	1963	868,644	1998	367,470
1929	12,131	1964	855,802	1999	360,590
1930	13,531	1965	823,633	2000	355,654
1931	14,780	1966	886,350	2001	353,571
1932	15,028	1967	897,426	2002	368,251
1933	15,099	1968	904,759	2003	375,062
1934	15,861	1969	862,062	2004	376,616
1935	16,247	1970	791,078	2005	353,696
1936	17,233	1971	755,107	2006	348,953
1937	19,147	1972	725,635	2007	333,495
1938	21,089	1973	690,999	2008	327,379
1939	23,455	1974	643,795	2009	327,452
1940	51,165	1975	612,551		
1941	152,125	1976	585,207		

2009 number is an estimate.

Active Duty Force Demographics

(As of Sept. 30, 2008)

Rank	Men	Women	Total
Officers			
General	11	0	11
Lieutenant General	34	1	35
Major General	95	5	100
Brigadier General	126	21	147
Colonel	3,147	391	3,538
Lieutenant Colonel	8,831	1,317	10,148
Major	11,646	2,407	14,053
Captain	18,191	4,543	22,734
First Lieutenant	5,737	1,671	7,408
Second Lieutenant	5,118	1,513	6,631
Total	**52,936**	**11,869**	**64,805**
Enlisted			
Chief Master Sergeant of the Air Force	1	0	1
Chief Master Sergeant	2,319	271	2,589
Senior Master Sergeant	4,556	622	5,178
Master Sergeant	22,492	3,680	26,172
Technical Sergeant	34,231	7,904	42,135
Staff Sergeant	54,178	15,038	69,216
Sergeant/Senior Airman	38,186	10,013	48,199
Airman First Class	37,295	10,451	47,746
Airman	5,129	1,364	6,493
Airman Basic	8,303	2,060	10,363
Total	**206,690**	**51,403**	**258,092**
Academy Cadets	3,617	865	4,482
Total Personnel	**263,243**	**64,137**	**327,379**

Average ages of military personnel: Officers **35,** Enlisted **29**

The Civilian Force

(As of Sept. 30, 2008)

Payband	NSPS[a]	Grade	General Schedule/ Other	Wage Grade	Wage Grade Leader	Wage Grade Supervisor
1	4,628	1	67	64	0	12
2	30,828	2	339	215	6	15
3	3,675	3	645	340	5	26
4	31	4	2,155	153	3	48
		5	5,866	731	17	79
		6	3,327	992	28	124
		7	7,035	1,138	36	208
		8	1,167	2,163	137	718
		9	8,230	2,520	239	1,028
		10	530	13,121	880	422
		11	10,916	3,169	233	206
		12	10,402	1,485	105	162
		13	4,113	250	19	158
		14	1,021	29	1	84
		15	310	1	1	61
		16	0	0	0	31
		17	0	0	0	10
		18	0	0	0	0
		ST[b]	0			
		SES[c]	275			
		Other	460			
Total	**39,162**	**Total**	**56,858**	**26,371**	**1,710**	**3,392**

Air Force Civilian Personnel

	Average Age	Average Length of Service
General Schedule	**46**	**15.0**
NSPS	**46**	**15.0**
Wage System	**43**	**13.0**
Wage System Leader	**48**	**18.6**
Wage System Supervisor	**48**	**20.6**

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

Does not include 2,602 personnel in demonstration projects.

[a]National Security Personnel System.

[b]Scientific and Technical.

[c]Senior Executive Service.

USAF Personnel Strength by Commands, FOAs, and DRUs

(As of Sept. 30, 2008)

	Military	Civilian	Total
Major Commands			
Air Combat Command (ACC)	79,356	10,055	89,411
Air Education and Training Command (AETC)	59,529	14,763	74,292
Air Force Materiel Command (AFMC)	18,523	55,126	73,649
Air Force Reserve Command (AFRC)	316	12,664	12,980
Air Force Space Command (AFSPC)	17,520	6,980	24,500
Air Force Special Operations Command (AFSOC)	11,699	1,378	13,077
Air Mobility Command (AMC)	43,135	8,048	51,183
Pacific Air Forces (PACAF)	29,337	7,829	37,166
United States Air Forces in Europe (USAFE)	25,394	5,253	30,647
Total Major Commands	**284,809**	**122,096**	**406,905**
Field Operating Agencies (FOAs)			
Air Force Agency for Modeling and Simulation	11	13	24
Air Force Audit Agency	0	727	727
Air Force Center for Engineering & the Environment	38	451	489
Air Force Civil Engineer Support Agency	92	103	195
Air Force Communications Agency	185	290	475
Air Force Cost Analysis Agency	27	86	113
Air Force Financial Services Center	334	21	355
Air Force Flight Standards Agency	153	45	198
Air Force Frequency Management Agency	6	19	25
Air Force Global Cyberspace Integration Center	21	0	21
Air Force Historical Research Agency	0	34	34
Air Force Inspection Agency	86	23	109
Air Force Intelligence Analysis Agency	78	44	122
Air Force Intel, Surveillance, & Reconnaissance Agency	93	49	142
Air Force Legal Operations Agency	507	168	675
Air Force Logistics Management Agency	35	17	52
Air Force Manpower Agency	168	257	425
Air Force Medical Operations Agency	191	85	276
Air Force Medical Support Agency	105	81	186
Air Force News Agency	269	95	364
Air Force Office of Special Investigations	1,435	657	2,092
Air Force Operations Group	55	0	55
Air Force Personnel Center	833	882	1,715
Air Force Personnel Operations Agency	16	17	33
Air Force Petroleum Agency	33	68	101
Air Force Real Property Agency	0	87	87
Air Force Review Boards Agency	7	47	54
Air Force Safety Center	55	58	113
Air Force Security Forces Center	383	29	412
Air Force Services Agency	66	163	229
Air Force Weather Agency	973	173	1,146
Air National Guard Readiness Center	111	452	563
Total FOAs	**6,366**	**5,241**	**11,607**
Direct Reporting Units (DRUs)			
Air Force District of Washington	4,248	1,299	5,547
Air Force Operational Test and Evaluation Center	456	166	622
United States Air Force Academy (excluding cadets)	2,265	1,296	3,561
Total DRUs	**6,969**	**2,761**	**9,730**
Other			
Other	24,753	31,010	55,763
USAFA Cadets	4,482	0	4,482
Total Other	**29,235**	**31,010**	**60,245**
Total Strength	**327,379**	**161,108**	**488,487**

USAF Personnel by Geographic Area

(As of Sept. 30, 2008)

Total military personnel	**327,379**
US territory and special locations	**270,768**
Total in foreign countries	**56,611**
Western and Southern Europe	**30,774**
Germany	14,562
UK	8,625
Italy	3,961
Turkey	1,497
Portugal	723
Belgium	475
Spain	310
All other countries	621
East Asia and Pacific	**20,459**
Japan/Okinawa	12,540
South Korea	7,785
All other countries	134
Africa, Near East, South Asia	**736**
Djibouti	210
Qatar	183
Saudi Arabia	79
United Arab Emirates	79
All other countries	185
Western Hemisphere	**354**
Honduras	186
Canada	83
All other countries	85
Other areas	**4,288**

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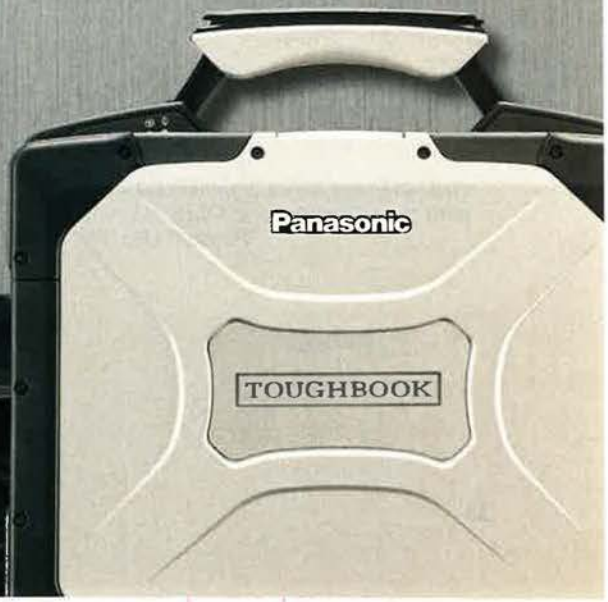

Panasonic ideas for life

Specialties in the Enlisted Force

(As of Sept. 30, 2008)

Code	Career Field	Assigned	Percent
1A	Aircrew Operations	9,242	3.6
1C	Command Control Systems Operations	10,416	4.0
1N	Intelligence	11,672	4.5
1P	Aircrew Flight Equipment	2,363	0.9
1S	Safety	347	0.1
1T	Aircrew Protection	968	0.4
1W	Weather	2,284	0.9
2A	Manned Aerospace Maintenance	53,160	20.6
2E	Communications-Electronics Systems	10,978	4.3
2F	Fuels	3,725	1.4
2G	Logistics Plans	785	0.3
2M	Missile & Space Systems Maintenance	1,891	0.7
2P	Precision Measurement	781	0.3
2R	Maintenance Management Systems	1,393	0.5
2S	Supply	7,687	3.0
2T	Transportation & Vehicle Maintenance	12,323	4.8
2W	Munitions & Weapons	14,549	5.6
3A	Information Management	8,292	3.2
3C	Communications-Computer Systems	10,236	4.0
3E	Civil Engineering	15,390	6.0
3H	Historian	2	0.0
3M	Morale, Welfare, Recreation, & Services	4,454	1.7
3N	Public Affairs	2,259	0.9
3P	Security Forces	24,972	9.7
3S	Mission Support	7,474	2.9
4A-V	Medical	18,784	7.3
4Y	Dental	2,461	1.0
5J	Paralegal	977	0.4
5R	Chapel Services Support	427	0.2
6C	Contracting	1,112	0.4
6F	Financial	2,374	0.9
7S	Special Investigation	933	0.4
8	Special Duty Identifiers	6,055	2.3
9	Reporting Identifiers	7,233	2.8
	Unassigned	93	0.0
	Total	**258,092**	**100.0**

Percentages have been rounded.

Specialties in the Officer Force

(As of Sept. 30, 2008)

Code	Utilization Field Title	Assigned	Percent
XO	Commander & Director	2,454	3.8
11	Pilot	11,918	18.4
12	Navigator	3,509	5.4
13	Space, Missile, Command & Control	4,840	7.5
14	Intelligence	2,697	4.2
15	Weather	569	0.9
16	Operations Support	1,200	1.9
21	Aircraft Maintenance and Munitions	3,264	5.0
31	Security Forces	692	1.1
32	Civil Engineering	1,206	1.9
33	Communications-Computer Systems	3,071	4.7
34	MWR & Services	375	0.6
35	Public Affairs	266	0.4
37	Manpower & Personnel	1,363	2.1
4X	Medical	10,731	16.6
51	Law	1,208	1.9
52	Chaplain	542	0.8
61	Scientific/Research	820	1.3
62	Developmental Engineering	2,510	3.9
63	Acquisition	2,209	3.4
64	Contracting	789	1.2
65	Financial	668	1.0
71	Special Investigations	335	0.5
8X	Special Duty Identifiers	1,267	2.0
9X	Reporting Identifiers	5,838	9.0
	Other	464	0.7
	Total	**64,805**	**100.0**

Total does not include 4,482 cadets. Percentages have been rounded.

USAF photo by SSgt. Bennie J. Davis III

SrA. Richard Boyd, a pararescueman with the 920th Rescue Wing, trains at Patrick AFB, Fla.

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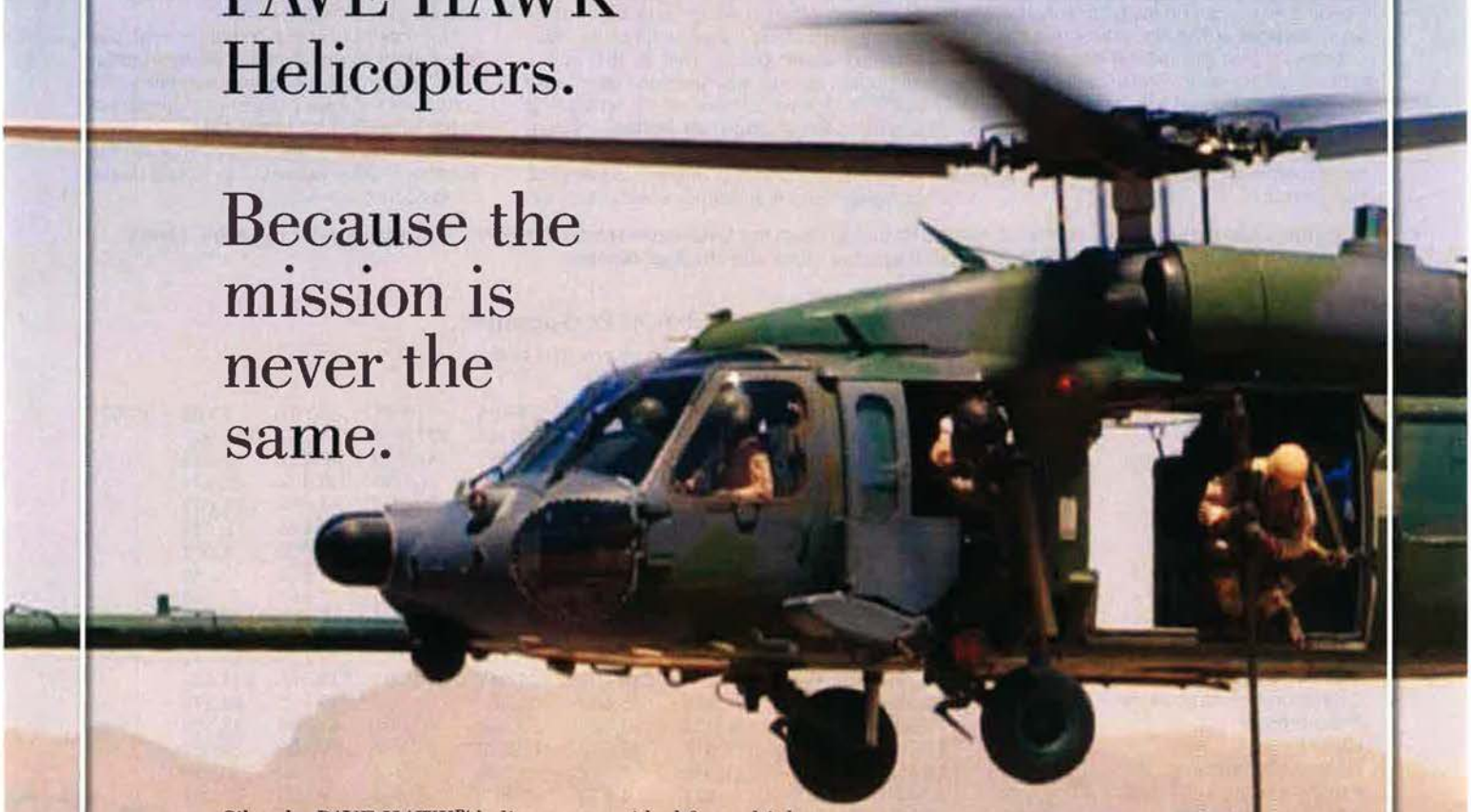

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Budgets

2009 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.

Editor's Note: Details of the Fiscal Year 2010 budget had not been released by *Air Force* Magazine's print deadline. These pages will be updated online (www.airforce-magazine.com) after budget release.

Air Force Budget—A 10-Year Perspective

(Budget authority in millions of current and constant FY10 dollars; excludes costs of the Global War on Terror.)

Current dollars	**FY00**	**FY01**	**FY02**	**FY03**	**FY04**	**FY05**	**FY06**	**FY07**	**FY08**	**FY09**
Military personnel	$20,217	$20,956	$24,751	$28,732	$29,681	$30,344	$31,398	$31,789	$30,927	-
Operation & maintenance	27,254	29,328	34,364	43,254	39,252	39,752	46,709	48,237	45,555	-
Procurement	18,755	22,054	23,229	31,380	32,460	35,117	35,989	39,542	32,974	-
RDT&E	14,511	14,297	14,519	18,825	20,290	20,551	22,220	24,566	26,052	-
Military construction	1,174	1,410	1,806	1,634	1,831	1,499	2,183	2,328	2,789	-
Family housing	1,158	1,084	1,374	1,536	1,441	1,680	2,086	1,900	1,001	-
Rev. & mgmt. funds	434	515	292	31	690	-667	1,252	666	60	-
Trust & receipts	-453	-95	-108	-147	-110	-359	-180	-80	-135	-
Total	**$83,050**	**$89,549**	**$100,228**	**$125,245**	**$125,536**	**$127,918**	**$141,657**	**$148,947**	**$139,224**	**-**
Constant FY10 dollars										
Military personnel	$25,716	$25,929	$30,143	$34,204	$34,405	$34,017	$34,107	$33,591	$31,484	-
Operation & maintenance	34,666	36,288	41,850	51,492	45,500	44,564	50,739	50,972	46,376	-
Procurement	23,856	27,288	28,289	37,357	37,627	39,368	39,094	41,784	33,568	-
RDT&E	18,458	17,690	17,682	22,410	23,519	23,039	24,137	25,959	26,522	-
Military construction	1,493	1,745	2,199	1,945	2,122	1,680	2,371	2,460	2,839	-
Family housing	1,473	1,341	1,673	1,829	1,670	1,883	2,266	2,008	1,019	-
Rev. & mgmt. funds	552	637	356	37	800	-748	1,360	704	61	-
Trust & receipts	-576	-118	-132	-175	-128	-402	-196	-85	-137	-
Total	**$105,638**	**$110,802**	**$122,062**	**$149,100**	**$145,517**	**$143,403**	**$153,880**	**$157,393**	**$141,732**	**-**
Percentage real growth										
Military personnel	1.0	0.8	16.2	13.5	0.6	-1.1	0.3	-1.5	-6.3	-
Operation & maintenance	-2.8	4.7	15.3	23.0	-11.6	-2.1	13.9	0.5	-9.0	-
Procurement	-1.6	14.4	3.7	32.1	0.7	4.6	-0.7	6.9	-19.7	-
RDT&E	1.6	-4.2	0.0	26.7	4.9	-2.0	4.8	7.5	2.2	-
Military construction	31.7	16.8	26.1	-11.6	9.1	-20.8	41.1	3.7	15.4	-
Family housing	3.5	-8.9	24.8	9.3	-8.7	12.8	20.3	-11.4	-49.2	-
Total	**-1.9**	**4.9**	**10.2**	**22.2**	**-2.4**	**-1.5**	**7.3**	**2.3**	**-9.9**	**-**

Numbers do not add due to rounding.

Air Force Major Force Programs

(Total obligation authority in billions of constant FY10 dollars)

	FY00	**FY01**	**FY02**	**FY03**	**FY04**	**FY05**	**FY06**	**FY07**	**FY08**	**FY09**
Forces										
Strategic Forces	$5.1	$4.8	$5.6	$6.2	$6.4	$4.5	$6.2	$5.8	$5.7	-
General-Purpose Forces	24.2	27.5	32.5	41.9	38.0	56.9	40.1	37.0	38.5	-
Airlift Forces	13.2	12.9	14.9	18.0	15.8	13.6	18.1	16.6	13.4	-
Guard and Reserve Forces	10.0	10.5	11.0	11.8	12.3	12.4	13.5	13.3	13.6	-
Special Operations Forces	0.5	0.5	0.6	0.6	0.7	0.0	0.7	0.7	0.9	-
Total	**$53.0**	**$56.2**	**$64.5**	**$78.6**	**$73.1**	**$87.6**	**$78.5**	**$73.4**	**$72.2**	**-**
Support										
Intelligence & Communications	$24.4	$26.5	$27.9	$36.3	$37.0	$36.5	$41.3	$39.3	$40.1	-
Research & Development	9.7	8.8	8.4	10.4	11.4	9.5	10.8	10.8	10.1	-
Central Supply & Maintenance	5.7	6.1	6.1	7.1	6.4	5.2	5.6	5.2	5.7	-
Training, Medical, & Personnel	10.9	11.3	12.5	14.0	14.3	6.4	13.7	12.4	11.5	-
Administration & Other	2.0	2.1	2.2	2.6	2.9	2.4	2.8	2.2	2.3	-
Total	**$52.8**	**$54.7**	**$57.1**	**$70.4**	**$71.9**	**$60.0**	**$74.2**	**$69.8**	**$69.7**	**-**

Defense Budget Authority

($ billions)

	2008	2009	2010	2011	Planned 2012	2013	2014
No War Costs, Current dollars							
	$479.5	$513.3	$533.7	$533.4	$542.3	$552.3	-
No War Costs, Constant FY 2010 dollars							
	$488.1	$522.0	$533.7	$524.3	$521.9	$520.3	-
With War Costs, Current dollars							
	$666.0	$654.7	$663.7	$533.4	$542.3	$552.3	-
With War Costs, Constant FY 2010 dollars							
	$678.0	$665.8	$663.7	$524.3	$521.9	$520.3	-

Defense Outlays

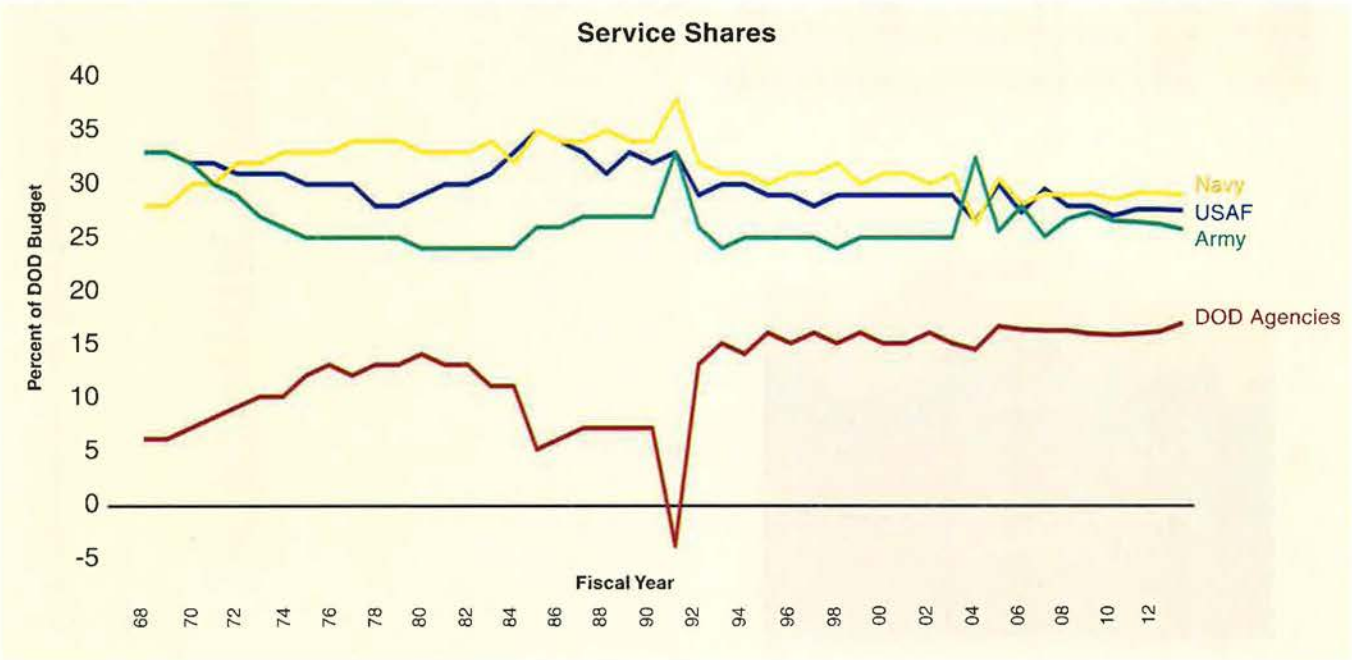
($ billions)

	2008	2009	2010	2011	Planned 2012	2013	2014
With War Costs, Current dollars							
	$545.4	$551.1	$524.8	$532.1	$538.5	$547.6	-
With War Costs, Constant FY 2010 dollars							
	$555.2	$560.5	$524.8	$523.1	$518.2	$515.9	-

Service Shares

(Budget authority in billions of constant FY 2010 dollars)

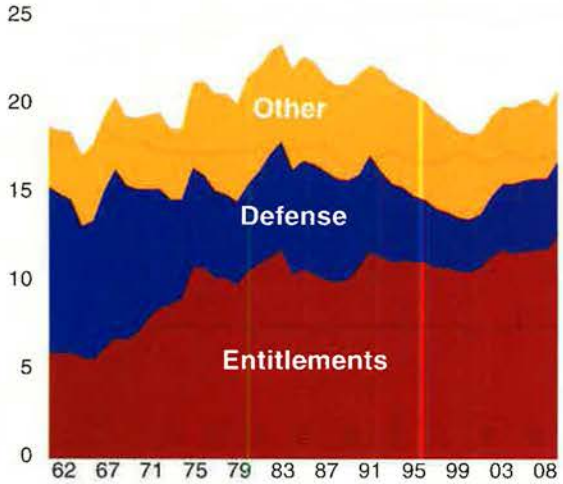
Dollars	**2008**	**2009**	**2010**	**2011**	**Planned 2012**	**2013**	**2014**
Air Force	$136.7	$146.3	$144.4	$145.0	$144.5	$143.4	-
Army	130.7	143.1	142.2	138.9	137.3	134.4	-
Navy/Marine Corps	141.6	151.8	152.6	153.2	152.1	150.9	-
Defense agencies	79.1	83.0	84.3	83.6	84.1	88.2	-
Total	**$488.1**	**$522.0**	**$533.7**	**$524.3**	**$521.9**	**$520.3**	**-**
Percentages							
Air Force	28.0%	28.0%	27.1%	27.7%	27.7%	27.6%	-
Army	26.8%	27.4%	26.6%	26.5%	26.3%	25.8%	-
Navy	29.0%	29.1%	28.6%	29.2%	29.2%	29.0%	-
Defense agencies	16.2%	15.9%	15.8%	15.9%	16.1%	16.9%	-



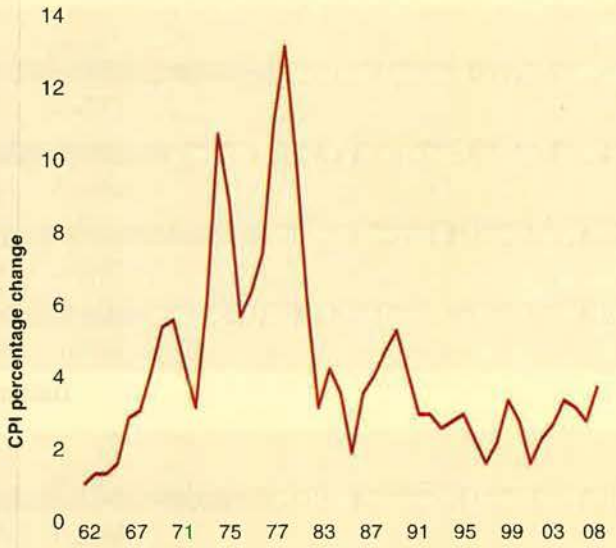
Federal Budget Outlay Categories

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	20.2	4.0	11.8	4.0
2006	20.4	3.3	11.9	4.0
2007	20.0	2.5	11.9	4.0
2008	20.9	4.5	12.6	4.3



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
2006	3.2
2007	2.8
2008	3.8

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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]												14,689	14,760	15,067	15,602
O-9[a]												12,847	13,032	13,299	13,766
O-8[a]	9,090	9,388	9,585	9,641	9,887	10,299	10,395	10,786	10,898	11,235	11,723	12,172	12,473		
O-7[a]	7,553	7,904	8,066	8,195	8,429	8,660	8,927	9,193	9,460	10,299	11,007				11,063
O-6	5,598	6,150	6,554		6,579	6,861	6,898		7,290	7,983	8,390	8,797	9,028	9,262	9,717
O-5	4,667	5,257	5,621	5,690	5,917	6,053	6,352	6,571	6,854	7,287	7,493	7,697	7,929		
O-4	4,027	4,661	4,972	5,042	5,330	5,640	6,025	6,326	6,534	6,654	6,723				
O-3	3,540	4,013	4,332	4,723	4,949	5,197	5,358	5,622	5,760						
O-2	3,059	3,484	4,013	4,148	4,233										
O-1	2,655	2,764	3,341												
O-3E[b]				4,723	4,949	5,197	5,358	5,622	5,845	5,973	6,147				
O-2E[b]				4,148	4,233	4,368	4,596	4,772	4,902						
O-1E[b]				3,341	3,568	3,699	3,834	3,967	4,148						

Enlisted Members

E-9							4,421	4,521	4,647	4,796	4,945	5,185	5,388	5,602	5,928
E-8						3,619	3,779	3,878	3,997	4,125	4,357	4,475	4,675	4,786	5,060
E-7	2,516	2,746	2,851	2,990	3,099	3,285	3,390	3,578	3,733	3,839	3,951	3,995	4,142	4,221	4,521
E-6	2,176	2,394	2,500	2,602	2,709	2,951	3,045	3,226	3,282	3,323	3,370				
E-5	1,994	2,127	2,230	2,335	2,499	2,671	2,811	2,828							
E-4	1,828	1,921	2,025	2,128	2,219										
E-3	1,650	1,754	1,860												
E-2	1,569														
E-1	1,400														

Amounts have been rounded to the nearest dollar.
[a]Basic pay for pay grades O-7 through O-10 is limited to $14,750.10. Basic pay for O-6 and below is limited to $11,958.30.
[b]Applicable to O-1 to O-3 with at least four years and one day of active duty or more than 1,460 points as an enlisted member.
While serving as Chairman of the Joint Chiefs of Staff or Chief of Staff of the Air Force, basic pay is $19,326.60.
For the Chief Master Sergeant of the Air Force, basic pay is $7,143.30.

Aviation Career Incentive Pay

(Effective Jan. 1, 2009)

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

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

Hazardous Duty Pay

(Effective Jan. 1, 2009)

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

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Annual Pay for Federal Civilians

(Effective Jan. 1, 2009)

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	$17,540	$18,126	$18,709	$19,290	$19,873	$20,216	$20,792	$21,373	$21,396	$21,944
GS-2	19,721	20,190	20,842	21,396	21,635	22,271	22,907	23,543	24,179	24,815
GS-3	21,517	22,234	22,951	23,668	24,385	25,102	25,819	26,536	27,253	27,970
GS-4	24,156	24,961	25,766	26,571	27,376	28,181	28,986	29,791	30,596	31,401
GS-5	27,026	27,927	28,828	29,729	30,630	31,531	32,432	33,333	34,234	35,135
GS-6	30,125	31,129	32,133	33,137	34,141	35,145	36,149	37,153	38,157	39,161
GS-7	33,477	34,593	35,709	36,825	37,941	39,057	40,173	41,289	42,405	43,521
GS-8	37,075	38,311	39,547	40,783	42,019	43,255	44,491	45,727	46,963	48,199
GS-9	40,949	42,314	43,679	45,044	46,409	47,774	49,139	50,504	51,869	53,234
GS-10	45,095	46,598	48,101	49,604	51,107	52,610	54,113	55,616	57,119	58,622
GS-11	49,544	51,195	52,846	54,497	56,148	57,799	59,450	61,101	62,752	64,403
GS-12	59,383	61,362	63,341	65,320	67,299	69,278	71,257	73,236	75,215	77,194
GS-13	70,615	72,969	75,323	77,677	80,031	82,385	84,739	87,093	89,447	91,801
GS-14	83,445	86,227	89,009	91,791	94,573	97,355	100,137	102,919	105,701	108,483
GS-15	98,156	101,428	104,700	107,972	111,244	114,516	117,788	121,060	124,332	127,604

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	$117,787	$177,000
Noncertified SES performance appraisal system	$117,787	$162,900

Housing Allowance

(Effective Jan. 1, 2009)

Pay Grade	With Dependents	Without Dependents
O-10	$1,696.80	$1,379.40
O-9	1,696.80	1,379.40
O-8	1,696.80	1,379.40
O-7	1,696.80	1,379.40
O-6	1,527.60	1,264.80
O-5	1,472.40	1,218.00
O-4	1,297.80	1,128.60
O-3	1,074.00	905.10
O-2	916.20	717.00
O-1	820.50	615.30
O-3E	1,154.10	976.80
O-2E	1,041.30	830.40
O-1E	962.70	722.10
E-9	1,102.20	836.10
E-8	1,017.00	767.70
E-7	943.80	708.00
E-6	872.10	654.00
E-5	784.50	588.30
E-4	681.90	511.50
E-3	634.20	475.80
E-2	604.50	453.30
E-1	604.50	453.30

Subsistence Allowance

(Effective Jan. 1, 2009)

Officers	$223.04/month
Enlisted Members	$323.87/month

USAF photo by MSgt. John Nimmo Sr.

F-16 multirole fighter takes off in Iraq.

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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, 2008)

Type	TAI	PAI
Bomber		
B-1	66	51
B-2	20	16
B-52	67	44
Total	**153**	**111**
Fighter/Attack		
A-10	188	139
F-15C-D	276	234
F-15E	223	190
F-16	688	551
F-22A	121	103
Total	**1,496**	**1,217**
Helicopter		
HH-60	68	52
UH-1	102	66
Total	**170**	**118**
Reconnaissance/BM/C3I		
E-3	32	26
E-4	4	3
EC-130	14	10
MQ-1	144	120
MQ-9	22	18
NC-135	1	0
OC-135	2	2
RC-135	25	20
RQ-4	14	14
TC-130	1	0
U-2	32	29
WC-135	1	1
Total	**292**	**243**
Special Ops Forces		
AC-130	25	19
CV-22	10	0
MC-130	49	40
MH-53	10	10
Total	**94**	**69**

Type	TAI	PAI
Tanker		
HC-130	19	19
KC-10	59	54
KC-135	184	162
Total	**262**	**235**
Trainer		
T-1	179	138
T-6	354	260
T-37	32	32
T-38	459	385
T-41	4	4
T-43	8	7
T-51	3	3
Gliders	32	30
UV-18	3	2
Total	**1,074**	**861**
Transport		
C-5	33	30
C-12	28	27
C-17	162	120
C-20	10	10
C-21	36	31
C-32	4	4
C-37	10	6
C-40	4	1
C-130	160	141
VC-25	2	2
Total	**449**	**372**
Total Active	**3,990**	**3,226**

Air National Guard Inventory

(As of Sept. 30, 2008)

Type	TAI	PAI
Fighter/Attack		
A-10	96	90
F-15A-D	131	72
F-16	460	386
Total	**687**	**548**
Helicopter		
HH-60	18	15
Reconnaissance/BM/C3I		
E-8	18	12
EC-130	7	3
RC-26	11	11
WC-130	9	0
Total	**45**	**26**
Special Ops Forces		
MC-130	4	4
Tanker		
HC-130	9	7
KC-135	206	168
Total	**215**	**175**
Transport		
C-5	33	30
C-17	8	8
C-21	21	2
C-32	2	2
C-38	2	2
C-40	3	2
C-130	165	162
LC-130	10	10
Total	**244**	**218**
Total ANG	**1,213**	**986**

Air Force Reserve Command Inventory

(As of Sept. 30, 2008)

Type	TAI	PAI
Bomber		
B-52	9	8
Fighter/Attack		
A-10	51	42
F-16	52	48
Total	**103**	**90**
Helicopter		
HH-60	15	13
Reconnaissance/ BM/C3I		
WC-130	11	10
Special Ops Forces		
MC-130	14	8
Tanker		
HC-130	5	5
KC-135	64	64
Total	**69**	**69**
Transport		
C-5	42	38
C-9	3	3
C-17	8	8
C-40	3	3
C-130	93	88
Total	**149**	**140**
Total AFRC	**370**	**338**

Total Number of USAF Aircraft in Service Over Time

(As of Sept. 30, 2008)

Type of aircraft	FY02	FY03	FY04	FY05	FY06	FY07	FY08
Bomber	183	173	172	173	172	173	153
Fighter/attack	1,631	1,628	1,627	1,622	1,619	1,552	1,496
Helicopter	126	129	160	169	160	160	170
Reconnaissance/BM/C3I	143	135	132	134	137	266	292
Special Ops Forces	102	101	99	98	103	100	94
Tanker	322	325	301	285	278	277	262
Trainer	1,342	1,308	1,277	1,267	1,284	1,111	1,074
Transport	538	529	516	525	529	454	449
Total active duty	**4,387**	**4,328**	**4,284**	**4,273**	**4,282**	**4,093**	**3,990**
Air National Guard	1,350	1,312	1,326	1,313	1,321	1,289	1,213
AFRC	446	433	408	400	410	396	370
Total active duty, ANG, and AFRC	**6,183**	**6,073**	**6,018**	**5,986**	**6,013**	**5,778**	**5,573**
Total aircraft, including foreign-government-owned	6,286	6,167	6,107	6,057	6,072	5,811	5,603

Age of the Active Duty Fleet

(As of Sept. 30, 2008)

	Age in Years										
	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-24	24+	Total	Average
A-10									188	188	26.6
B-1							27	39		66	21.1
B-2				2	12	5	1			20	14.1
B-52									67	67	46.8
C-5							19	12	2	33	21.9
(K)C-10						1	3	32	24	59	23.7
C-12							4		24	28	28.3
C-17	32	38	37	28	19	8				162	7.2
C-20					2			8		10	19.8
C-21								24	12	36	23.7
(V)C-25						1	1			2	17.9
C-32				4						4	10.0
C-37	1		7	2						10	7.0
C-40		4								4	4.6
C-130	13	4	1	1	14	17	19	9	190	268	32.3
C-135									213	213	46.6
CV-22	8	2								10	1.9
E-3									32	32	28.8
E-4									4	4	34.3
F-15C-D							23	104	149	276	24.7
F-15E		9	14	3	9	92	95	1		223	16.5
F-16		3	22	9	114	224	225	91		688	17.3
F-22	76	41	4							121	2.6
H-1									102	102	37.0
H-53									10	10	37.4
H-60				6		25	28		9	68	18.4
MQ-1	144									144	2.0
MQ-9	19	3								22	1.3
RQ-4	9	5								14	2.3
T-1				24	106	49				179	13.9
T-6	139	136	78	1						354	3.8
T-37									32	32	41.6
T-38									459	459	41.2
T-41									4	4	39.1
T-43									8	8	34.4
T-51		3								3	3.1
U-2						5	13	14		32	25.2
UV-18				1					2	3	24.5
Gliders		15	16		1					32	6.2
Total	**441**	**263**	**179**	**81**	**277**	**426**	**458**	**336**	**1,529**	**3,990**	**23.1**
Percent	11%	7%	4%	2%	7%	11%	11%	8%	38%		

Age of the Air National Guard Fleet

(As of Sept. 30, 2C08)

	Age in Years										
	0-3	**3-6**	**6-9**	**9-12**	**12-15**	**15-18**	**18-21**	**21-24**	**24+**	**Total**	**Average**
A-10									96	96	28.1
C-5									33	33	36.8
C-17		8								8	4.5
C-21								15	6	21	23.4
C-26					8	3				11	14.3
C-32		2								2	5.2
C-38				2						2	10.5
C-40		1	2							3	5.3
C-130	8	4	15	11	48	24	5	30	59	204	20.8
C-135									206	206	47.7
E-8		3	9	4	1	1				18	8.5
F-15A-D								2	129	131	28.7
F-16					28	45	211	176		460	20.1
H-60					5	2	11			18	17.9
Total	**8**	**18**	**26**	**17**	**90**	**75**	**227**	**223**	**529**	**1,213**	**26.5**
Percent	1%	1%	2%	1%	7%	6%	19%	18%	44%		

Age of the Air Force Reserve Command Fleet

(As of Sept. 30, 2008)

	Age in Years										
	0-3	**3-6**	**6-9**	**9-12**	**12-15**	**15-18**	**18-21**	**21-24**	**24+**	**Total**	**Average**
A-10									51	51	28.0
B-52									9	9	46.5
C-5							11	5	26	42	30.7
C-9									3	3	33.5
C-17	6	2								8	2.9
C-40	3									3	1.2
C-130	5	4	8	5	20	9	21	17	34	123	21.2
C-135									64	64	47.1
F-16							25	27		52	20.8
H-60						15				15	17.7
Total	**14**	**6**	**8**	**5**	**20**	**24**	**57**	**49**	**187**	**370**	**27.7**
Percent	4%	2%	2%	1%	5%	6%	15%	13%	51%		

ICBMs and Spacecraft in Service

(As of Sept. 30, 2008)

Type of system	**FY02**	**FY03**	**FY04**	**FY05**	**FY06**	**FY07**	**FY08**
Minuteman III ICBM	500	500	500	500	450	450	450
Peacekeeper ICBM	50	23	6	0	0	0	0
Total ICBMs	**550**	**523**	**506**	**500**	**450**	**450**	**450**
DMSP satellite	2	2	2	2	2	2	2
DSCS satellite	5	10	11	9	9	9	9
DSP satellite (data classified)	—	—	—	—	—	—	—
GPS satellite	28	28	30	29	30	30	30
Milstar satellite	4	5	5	5	5	5	5
Total satellites	**39**	**45**	**48**	**45**	**46**	**46**	**46**

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, 2008)

	FY02	FY03	FY04	FY05	FY06	FY07	FY08
Active duty	1,768	1,700	1,708	1,615	1,611	1,517	1,418
ANG	410	426	393	368	351	338	331
AFRC	186	193	177	160	202	195	186
Total	**2,364**	**2,319**	**2,278**	**2,143**	**2,164**	**2,050**	**1,935**

USAF Squadrons by Mission Type

(As of Sept. 30, 2008)

	FY04	FY05	FY06	FY07	FY08
Active forces					
Bomber	9	9	9	9	10
Air refueling	17	16	16	18	16
Strategic command & control	2	2	4	1	1
Fighter	45	43	31	40	44
Reconnaissance	10	10	12	9	9
Electronic warfare	2	2	2	2	2
Special operations	21	22	23	19	25
Ground theater air control	2	2	2	3	3
Airborne theater air control	8	8	5	6	6
Rescue	8	8	8	8	8
Theater airlift	12	12	12	12	9
Long-range airlift	13	11	16	17	18
ICBM	11	10	10	10	10
Space operations	9	8	8	7	7
Space communications	6	7	7	6	5
Space warning	6	6	6	6	7
Space surveillance	3	0	0	0	0
Space launch	4	3	3	3	3
Range	2	2	2	2	3
Space control & tactics	3	5	6	6	4
Space aggressor	1	1	1	0	0
Total	**194**	**187**	**183**	**184**	**190**
Reserve forces					
ANG Selected Reserve					
Flying	102	101	101	106	104
Space operations	3	3	3	1	2
Space warning	1	1	1	2	2
AFRC					
Flying	61	68	67	67	67
Space operations	4	4	4	4	4
Space warning	1	1	1	1	1
Space aggressor	1	1	1	1	1
Total	**173**	**179**	**178**	**182**	**181**
Grand total	**367**	**366**	**361**	**366**	**371**

Aircraft per Active Duty USAF Squadron

(As of Sept. 30, 2008)

Aircraft	Number
A/OA-10	18/24
AC-130H	6
AC-130U	13
B-1B	12/18
B-2	8
B-52	8/11
C-5	14
C-17	8/12
C-130	14/16
CV-22	9
E-3	2/5
EC-130	5
F-15	16/22
F-15E	18/24
F-16	16/20/24
F-22	18
HC-130	3/5/10
HH-60	8/12
KC-10	12/15
KC-135	12/16
MC-130E	10
MC-130H/P/W	20/23/9
U-2	29

Air National Guard Air Defense Unit Fin Flashes

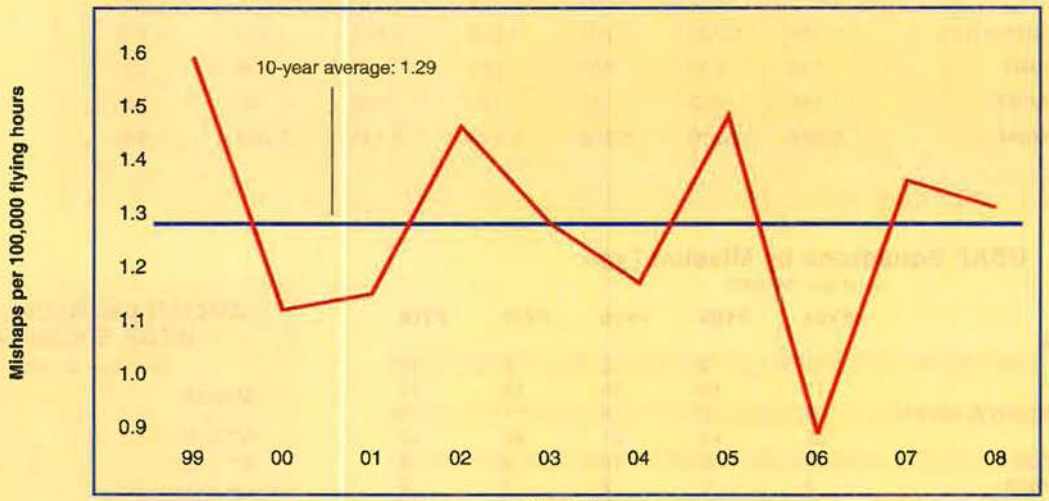
Description	Aircraft	Unit and Location
Subdued eagle and "Oregon" logo	F-15C/D	114th FS (173rd FW), Klamath Falls Arpt., Ore.[a]
Dark gray bison's skull against prairie/mountain profile	F-15C	120th FW, Great Falls Arpt., Mont.[b]
Subdued hawk with banner in talons	F-15C/D	123rd FS (142nd FW), Portland Arpt., Ore.
Blue lightning bolt, blue stripe with "Florida" logo	F-15C/D	125th FW, Jacksonville Arpt., Fla.
Black falcon with talons extended and "California" logo	F-16C/D	144th FW, Fresno Yosemite Arpt., Calif.
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-16C/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]

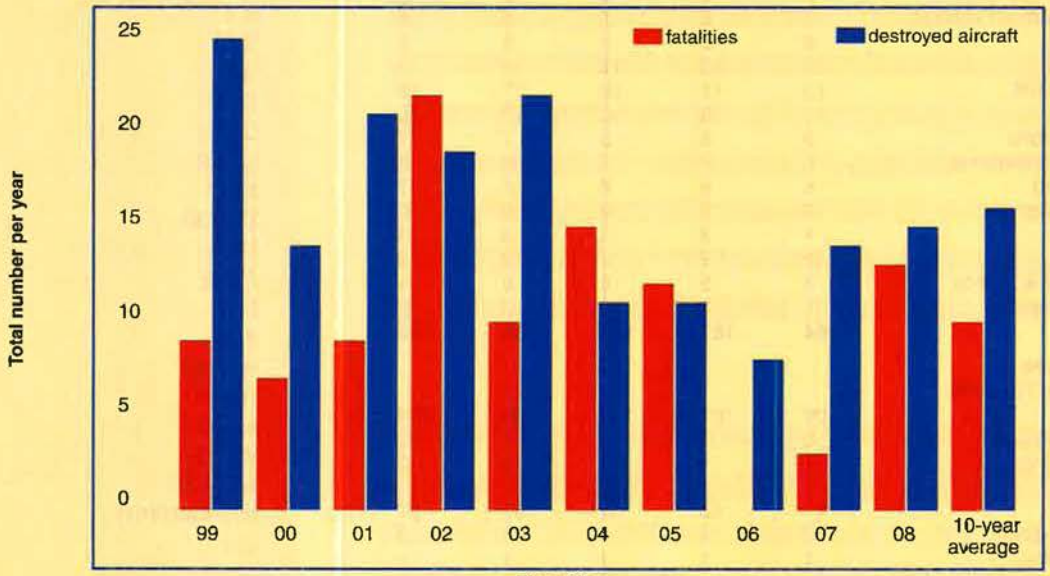
[a] ANG training units.
[b] General-purpose units (no longer air defense only).

Class A Aircraft Mishaps

(As of Sept. 30, 2008)

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





Data provided by USAF

Photo by Clive Bennett

An F-15E from the 48th Fighter Wing at RAF Lakenheath, Britain, is marked with the tail code LN.

USAF Aircraft Tail Markings

Code	Aircraft	Unit and Location
AC	F-16C/D	177th FW (ANG), Atlantic City Arpt., N.J.
AF	Gliders, T-41, T-51, UV-18	USAF Academy, Colo.
AK	C-12F/J, C-17, E-3B, F-15C, F-22	3rd Wing, Elmendorf AFB, Alaska
AK	F-16C/D	354th FW, Eielson AFB, Alaska
AK	C-17	176th Wing (ANG), Kulis ANGB, Alaska
AL	F-16C/D	187th FW (ANG), Montgomery Regional Arpt., Ala.
AV	F-16C/D	31st FW, Aviano AB, Italy
AZ	F-16C/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-10	110th FW (ANG), W. K. Kellogg Arpt., Mich.
BD	B-52H, A-10A	917th Wing (AFRC), Barksdale AFB, La.
CA	HC-130, HH-60	129th RQW (ANG), Moffett Field, Calif.
CA	F-16C/D	144th FW (ANG), Fresno Yosemite Arpt., Calif.
CA	MQ-1	163rd RQS (ANG), March ARB, Calif.
CB	T-1, T-6, T-38	14th FTW, Columbus AFB, Miss.
CH	MQ-1/9	432nd Wing, Creech AFB, Nev.
CO	F-16C/D	140th Wing (ANG), Buckley AFB, Colo.
CR	C-130H	302nd AW (AFRC), Peterson AFB, Colo.
CT	C-21	103rd AW (ANG), Bradley Arpt., Conn.
DC	F-16C/D	113th Wing (ANG), Andrews AFB, Md.
DM	A/OA-10A	355th FW, Davis-Monthan AFB, Ariz.
DM	EC-130E/H	355th Wing, Davis-Monthan AFB, Ariz.
DR	HH-60G	943rd RQG (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	MQ-1	147th RQG (ANG), Ellington Fld., Tex.
EG	F-15C/D	33rd FW, Eglin AFB, Fla.
EL	B-1B	28th BW, Ellsworth AFB, S.D.
EN	T-37B, T-38C	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-22	1st FW, Langley AFB, Va.
FF	F-22	192nd FW (ANG), Langley AFB, Va.
FL	HC-130N/P, HH-60G	920th RQW (AFRC), Patrick AFB, Fla.
FM	F-16C/D	482nd FW (AFRC), Homestead ARB, Fla.
FS	A/OA-10A	188th FW (ANG), Fort Smith Arpt., Ark.
FT	A-10, HC-130P, HH-60G	23rd Wing, Moody AFB, Ga.
GA	E-8C	116th ACW (ACC, ANG), Robins AFB, Ga.
GA	C-130	165th AW (ANG), Savannah Hilton Head Arpt., Ga.
HD	QF-4	Det. 1, 53rd Wing, Holloman AFB, N.M.
HH	C-17, C-37, C-40	15th AW (PACAF), Hickam AFB, Hawaii
HH	C-17, F-15C/D, KC-135R	154th Wing (ANG), Hickam AFB, Hawaii
HL	F-16C/D	388th FW, Hill AFB, Utah
HO	F-22, T-38A	49th FW, Holloman AFB, N.M.
IA	F-16C/D	132nd FW (ANG), Des Moines Arpt., Iowa
ID	A/OA-10	124th Wing (ANG), Boise Air Term., Idaho
IN	F-16C/D	122nd FW (ANG), Fort Wayne, Ind.
JZ	F-15C/D	159th FW (ANG), NAS JRB New Orleans
KC	A-10	442nd FW (AFRC), Whiteman AFB, Mo.
KS	C-21	45th AS, Keesler AFB, Miss.
LA	B-52H	2nd BW, Barksdale AFB, La.
LF	F-16C/D	56th FW, Luke AFB, Ariz.
LI	HC-130, HH-60	106th RQW (ANG), F. S. Gabreski Arpt., N.Y.
LN	F-15C/E, HH-60G	48th FW, RAF Lakenheath, UK
MA	F-15C/D	104th FW (ANG), Barnes Arpt., Mass.
MD	A/OA-10A/C	175th Wing (ANG), Martin State Arpt., Md.
MI	A/OA-10	127th Wing (ANG), Selfridge ANGB, Mich.
MM	UH-1N	341st MW, Malmstrom AFB, Mont.
MN	C-130H	133rd AW (ANG), Minn.-St. Paul Arpt./ARS
MN	F-16C/D	148th FW (ANG), Duluth Arpt., Minn.
MO	F-15C/D/E	366th FW, Mountain Home AFB, Idaho
MT	B-52H	5th BW, Minot AFB, N.D.
MT	UH-1N	91st MW, Minot AFB, N.D.
NM	F-16C/D	150th FW (ANG), Kirtland AFB, N.M.
NY	MQ-9	174th RQS (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-130	179th AW (ANG), Mansfield Lahm Arpt., Ohio
OH	F-16C/D	180th FW (ANG), Toledo Exp. Arpt., Ohio
OK	KC-135R	137th ARW (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-10, 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	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.
RA	T-1A, T-6A, T-38C, T-43A	12th FTW, Randolph AFB, Tex.
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.
SP	A-10A/C, F-16C/D	52nd FW, Spangdahlem AB, Germany
SW	F-16C/CJ/D	20th FW, Shaw AFB, S.C.
TD	QF-4	53rd Wing, Tyndall AFB, Fla.
TX	F-16C/D	301st FW (AFRC), NAS JRB F.W., Tex.
TY	F-15C/D, F-22	325th FW, Tyndall AFB, Fla.
VN	T-1, T-6, 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.
WW	F-16C/M	35th FW, Misawa AB, Japan
XL	T-1, T-6, T-38C	47th FTW, Laughlin AFB, Tex.
YJ	C-12J, C-130H, UH-1N	374th AW, Yokota AB, Japan
ZZ	E-3B/C, F-15C/D, KC-135R/T, HH-60G	18th Wing, Kadena AB, Japan

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

Seven USAF specialties are authorized to wear a colored beret along with the crest of that particular field.

Combat Control

Tactical Air Command and Control

Pararescue

Tactical Airlift Liaison Officer/ALO

Security Forces

Weather Parachutist

Survival Evasion

USAF Badges

Shown here are current wings and badges as seen in AFI 36-2903. 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.


Acquisition & Financial Manager


Air Traffic Control


Astronaut


Band


Biomedical Science Corps


Buddhist Chaplain


Chaplain Service Support


Civil Engineer Readiness


Christian Chaplain


Civil Engineer


Command and Control


Communications & Information


Dental Corps


Enlisted Aircrew


Enlisted Medical


Explosive Ordnance Disposal


Flight Nurse


Flight Surgeon


Force Protection


Historian


Information Management


Intelligence


Jewish Chaplain


Judge Advocate


Logistics Plans


Logistics Readiness Officer


Maintenance


Manpower and Personnel


Medical Corps


Medical Services Corps


Meteorologist


Missile


Missile With Operations Designator


Muslim Chaplain


Navigator/Observer


Nurse Corps


Officer Aircrew Member


Operations Support


Parachutist


Paralegal

Pilot

Public Affairs

Services

Space

Space/Missile

Supply Fuels

Transportation

Weapons Director

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USAF Recipients of the Medal of Honor

*Living Medal of Honor recipient

Names 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

Erwin Bleckley

Horace Carswell Jr.

John Kane

Jay Zeamer Jr.

Louis Sebille

George Day

World War II (cont.)

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
Wilkins, Maj. Raymond H.	Portsmouth, Va.	Nov. 2, 1943	Rabaul, New Britain
Zeamer, Capt. Jay Jr.	Carlisle, Pa.	June 16, 1943	Buka, Solomon Islands

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, Capt. 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
Young, Capt. Gerald O.	Anacortes, Wash.	Nov. 9, 1967	Khe Sahn, S. Vietnam

Peacetime

Lindbergh, Col. Charles A.	Detroit	May 20-21, 1927	New York City-Paris flight
Mitchell, Brig. Gen. William	Milwaukee	Lifetime achievement	Foresight in military aviation

USAF Recipients of the Distinguished Service Cross

World War I

Abernathy, Thomas J.
Aldrich, Perry H.
Alexander, Arthur H.
Alexander, Stirling C.
Allen, Gardner P.
Andrew, Flynn L. A.
Armstrong, Rodney M.
Arthur, Dogan H. (2)
Atwater, Benjamin L.
Avery, Walter L.
Babcock, Philip R.
Backus, David H. (2)
Badham, William T.
Baer, Paul F. (2)
Bagby, Ralph B.
Bartholf, Herbert B.
Baucom, Byrne V. (2)
Beane, James D.
Beebe, David C.
Bellows, Franklin B.
Belzer, William E.
Benell, Otto E.
Bernheimer, Louis G. (2)
Biddle, Charles J.
Bissell, Clayton L.
Blake, Charles R.
Bonnalie, Allan F.
Borden, Horace
Bowers, Lloyd G.
Bowman, Samuel A.
Boyd, Theodore E.
Breese, Clinton S.
Brereton, Lewis H.
Brewster, Hugh
Brooks, Arthur R.
Broomfield, Hugh D. G.
Brotherton, William E.
Brown, Mitchell H.
Buckley, Harold R. (2)
Buford, Edward Jr.
Burdick, Howard
Burger, Valentine J. (2)
Burns, James S. D.
Burt, Byron T. Jr.
Campbell, Douglas (5)
Carroll, George C.
Cassady, Thomas G. (2)
Castleman, John R.
Chambers, Reed M. (4)
Chapman, Charles W. Jr.
Clapp, Kenneth S.
Clarke, Sheldon V.
Clay, Henry R. Jr.
Coleman, Wallace
Conover, Harvey
Cook, Everett R.
Cook, Harvey W. (2)
Coolidge, Hamilton
Cousins, John W.
Creech, Jesse O.
Curtis, Edward P.
Cutter, Edward B.
Dawson, Leo H. (2)
De Castro, Ralph E.
Diekema, Willis A.
Dillon, Raymond P.
D'Olive, Charles R.
Donaldson, John O.
Douglass, Kingman
Dowd, Meredith L.
Drew, Charles W.
Duckstein, Arthur W.
Easterbrook, Arthur E. (2)
Eaton, Warren E.
Elliott, Robert P.
Erwin, William P. (2)
Este, J. Dickinson
Farnsworth, Thomas H.
Ferrenbach, Leo C.
Fisher, George F.
Fleeson, Howard T. (2)
Follette, Justin P.
Fontaine, Hugh L. (2)
Ford, Christopher W.
Frank, William F.
Frost, John
Furlow, George W. (2)
Gaylord, Bradley J.
George, Harold H.
Giroux, Ernest A.
Goldthwaite, George E.
Grant, Alfred A.
Graveline, Fred C.
Greist, Edwards H.
Grey, Charles G.
Gundelach, Andre P.
Guthrie, Murray K. (3)
Hall, James N.
Hambleton, John A. (2)
Hamilton, Lloyd A.
Hammond, Leonard C.
Hart, Percival G.
Hartney, Harold E.
Harwood, Benjamin P.
Haslett, Elmer R.
Hays, Frank K.
Healy, James A.
Henderson, Phil A.
Herbert, Thomas W.
Higgs, James A. Jr.
Hill, Maury
Hill, Raymond C.
Hitchcock, Roger W.
Holden, Kenneth H.
Holden, Lansing C. Jr. (2)
Holland, Spessard L.
Hoover, William J.
Hopkins, Stephen T.
Hudson, Donald
Hunter, Frank O'D. (5)
Irving, Livingston G.
Jeffers, John N.
Jervey, Thomas M.
Jones, Arthur H.
Jones, Clinton (2)
Jordan, John W.
Kahle, Clarence C.
Kaye, Samuel Jr. (2)
Keating, James A.
Kelty, Asher E.
Kenney, George C.
Kindley, Field E. (2)
Kinney, Clair A.
Kinsley, Wilbert E.
Knotts, Howard C.
Knowles, James Jr.
Lake, Horace A.
Lambert, John H.
Landis, Reed G.
Larner, Gorman D. (2)
Lawson, Walter R.
Lee, John B.
Lindsay, Robert O.
Littauer, Kenneth P.
Llewellyn, Frank A.
Lowry, Francis B.
Luke, Frank Jr. (2)
MacArthur, John K.
MacBrayne, Winfred C.
Manning, James F. Jr.
Maughan, Russell L.
McClendon, Joel H.
McDermott, Cleveland W.
McDevitt, James A.
McDougall, Harry O.
McKay, Elmore K.
McKay, James R.
McMurry, Ora R. (2)
Meissner, James A. (2)
Mell, Patrick H.
Michener, John H.
Mitchell, John
Mitchell, William
Moore, Edward R.
Morris, Edward M.
Morse, Guy E.
Myers, Oscar B.
Neel, Roland H.
Neibling, Harlou P.
Neidecker, Bertrande C.
Nichols, Harold O.
Nixon, George R.
Norris, Sigbert A. G.
Norton, Fred W.
Noyes, Stephen H.
Nutt, Alan
O'Donnell, Paul J.
O'Neill, Ralph A. (3)
Orr, Edward
Page, Richard C. M.
Palmer, Joseph A.
Palmer, William W.
Paradise, Robert C.
Patterson, Alfred B. Jr. (2)
Payne, Karl C.
Pegues, Josiah J.
Pendell, Elmer
Peterson, David M. (2)
Petree, Harris E.
Phelps, Glen
Phillips, George R.
Plummer, Charles W.
Plush, Lewis C.
Polley, Britton
Ponder, William T.

Numbers in parentheses are total DSCs received by the individual.

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Porter, Charles P. (2)
Porter, Earl W.
Porter, Kenneth L.
Potter, William C.
Preston, Glen A. (3)
Putnam, David E.
Pyne, Percy R.
Quinn, John J.
Raible, Joseph C. Jr.
Ralston, Orville A.
Rancourt, John I.
Rath, Howard G.
Raymond, Robert F.
Reeves, Dache M.
Reynolds, Clearton H.
Reynolds, John N. (2)
Richardson, James M.
Rickenbacker, Edward V. (7)
Rooney, Paul N. A.
Rorison, Harmon C.
Ross, Cleo J.
Rucker, Edward W.
Rummell, Leslie J.
Saunders, William H.
Schenck, Alexander P.
Schoen, Karl J.
Seaver, Arthur F.
Sellers, Cecil G.
Sewall, Sumner (2)
Shelby, Richard D.
Simon, Louis C. Jr. (2)
Snyder, John H.
Spaatz, Carl A.
Springs, Elliott W.
Steele, Richard W.
Stenseth, Martinus
Stevens, John H.
Stokes, John Y. Jr.
Stout, Penrose V.
Stovall, William H.
Strahm, Victor H.
Suiter, Wilbur C.
Swaab, Jacques M.
Taylor, William H.
Taylor, William J. R.
Teneyck, Walton B. Jr.
Thaw, William (2)
Thomas, Gerald P.
Thompson, Robert E.
Tillman, Fred A.
Tittman, Harold H.
Tobin, Edgar G.
Treadwell, Alvin H.
Vail, William H.
Vaughn, George A.
Vernam, Remington D. B.
Wallis, James E. Jr.
Waring, William W.
Warner, Donald D.
Way, Pennington H.
Wehner, Joseph F. (2)
White, Wilbert W. (2)
Williams, Bertram
Winslow, Alan F.
Wright, Burdette S.
Wright, Chester E. (2)
Wyly, Lawrence T.

World War II

Able, Johnnie J. Jr.
Adams, Jack
Adams, Robert H.
Adkins, Frank E.
Alexander, John A.
Alison, John R.
Allen, Brooke E.
Allen, Keith N.
Alsip, Raymond H.
Ambrose, Talmadge L.
Anderson, Bernard E.
Anderson, Bernard L.
Anderson, Marshall J.
Anderson, Richard H.
Anderson, Sheldon K.
Anderson, Sherman E.
Anderson, William N.
Anderson, William T.
Andres, Arthur E.
Appold, Norman C.
Armsby, Sherman

Carl Spaatz (center) and Paul Tibbets Jr. (right)

Donald Blakeslee

Armstrong, Frank A. Jr.
Arnold, Altus L.
Arooth, Michael
Aschenbrener, Robert W.
Ashley, Earl D.
Atkinson, Gwen G.
Atkinson, Paul G.
Avery, Lloyd
Bade, Jack A.
Bail, Bernard W.
Bakalar, John E.
Bankey, Ernest E. Jr.
Banks, Arthur E.
Barbiero, Samuel S.
Barbosa, Vicente R.
Barnicle, Gerald J.
Barrall, Robert W.
Battaglia, Salvatore
Battalio, Samuel T.
Beam, James C.
Beam, Ralph E.
Beck, Joseph A. II
Beckham, Walter C.
Beerbower, Don M.
Beeson, Duane W.
Beeson, Frank H.
Bell, Robert D.
Bengel, George H.
Benn, William G.
Benson, Marion A.
Berryman, Richard C.
Bevlock, James J.
Billingsley, Leonard
Blakeslee, Donald J. M. (2)
Bleyer, Julian M.
Blickenstaff, Wayne K.
Blissard, Grover C.
Blumer, Laurence E.
Boelens, Leo A.
Boggs, Hampton E.
Bolefahr, Wayne N.
Bong, Richard I.
Booth, Charles H. Jr.
Bostrom, Frank P.
Boudreaux, Marcus A.
Boyd, Charles K.
Boyle, Francis M.
Bradley, Jack T.
Brandon, William H.
Breeding, Paul R.
Brereton, Lewis H.
Bright, James C. Jr.
Brill, Allen
Britton, John T.
Brooks, John A. III
Brown, Albert C.
Brown, David W.
Brown, George S.
Brown, Henry W.
Brown, Samuel J.
Brown, Walter L.
Brueland, Lowell K.
Bryan, Donald S.
Buck, William E. Jr.
Burdue, Clayton C.
Burleson, Robert B.
Burney, Willis W.
Burns, Wilbert R.
Caldwell, Kenneth M.
Caldwell, Wilma T. Jr.
Cameron, William R.
Campbell, David A.
Cannon, James L.
Carmichael, Richard H. (2)
Carpenter, Reginald L.
Carr, Bruce W.
Carrington, John R.
Carruth, Thomas A.
Carswell, Horace S. Jr.
Catallo, Albert L.
Caton, Edward H.
Ceuleers, George F.
Christensen, Harold R.
Christianson, Franklin O.
Christopher, Guyton M.
Church, Russel M.
Clark, Phillip R.
Clary, Guy W.
Classen, Thomas J.
Cleven, Gale W.

Cobb, James B.
Cockriel, James R.
Coleman, Carlyle
Coleman, William F.
Collett, Howard G.
Collins, James F.
Coltharp, Chester A.
Compton, Keith K.
Conger, Paul A.
Connick, Arden D.
Corl, George P.
Corsetti, John
Cox, Leonard L.
Cox, Ray L.
Cragg, Edward
Crandall, Donald O.
Crenshaw, Claude J.
Crimmins, Fred T. Jr.
Crosbie, Maurice G.
Cullerton, William J.
Curtis, Robert C.
Czechowski, Chester M.
Dadson, Pat J.
Dahlberg, Kenneth H.
Dale, Jack D.
Dallas, Frederick W. Jr.
Dalton, Malcolm C.
Daniell, J. S.
Danver, Edison K.
Davies, John H.
Davis, Clayton E.
Davis, Robert R.
Davis, Robert T.
Dawkins, Cecil H.
Deal, James F.
Decker, Richard C.
DeGenaro, August V.
Dello-Buono, Thomas J.
Dent, Elliott E. Jr.
Diehl, John H. Jr. (2)
Dillman, Forrest E.
Dinn, Wallace S.
Dixon, Robert J.
Doherty, William K.
Dolk, Carl E.
Donaldson, I. B. Jack
Donegan, John M.
Dorwart, Robert J.
Douglas, Paul P. Jr. (2)
Dregne, Irwin H.
Drier, William C.
Dubisher, Francis E.
Dufrane, John L. Jr.
Dunagan, Sidney W.
Dunaway, John S.
Duncan, Daniel D.
Duncan, Glen E.
Dunham, William D.
Dunn, Edward B.
Dunn, Jack D.
Dunn, John A.
Durand, Edward D.
Durand, Frederick W.
Duval, Jessie B.
Dyer, Fred W.
Dyess, William E. (2)
Eagleston, Glen T.
Eareckson, William O.
Eaton, Frederick C. Jr.
Eckrich, James F.
Edeburn, Harry E.
Elam, Daniel F.
Ellis, Lewis N.
Ellis, Richard H.
Embree, Hoy D.
Emerson, Elwood R.
Emmer, Wallace N.
Endres, Robert J.
Engel, Russel W.
England, George H.
Ent, Uzal G.
Erickson, Irving A.
Evans, John G.
Exon, Arthur E.
Faires, George D.
Falletta, Charlie
Fegan, Robert W.
Ferguson, William H. Jr.
Fields, Virgil C. Jr.
Fletcher, Leo C.
Forrest, Nathan B. III
Forti, Joseph J.
Fowler, Gordon W.
Fox, Edward K.
Fox, Joseph M.
Frazier, James L.
French, Clifford E.
Fridge, Benjamin W.
Fries, Robert A.
Fry, Robert M.
Fulmer, Edward S.
Gabreski, Francis S.
Gallagher, Robert J.
Galloway, Paul E.
Gambonini, Paul B.
Garris, Benjamin L.
Garry, William J.
Gatterdam, Richard P.
Gause, Damon J.
Gautier, George J.
Gay, William M.
Geiser, Anthony W.
Gentile, Dominic S. (2)
Gerrits, James F.
Gettys, Richard O.
Gibbs, David R.
Gibson, Balfour C.
Gies, Carl P.
Gilliland, Leown A.
Gilpin, John A.
Glades, Harry V.
Glass, Walter L. Jr.
Glober, George E.
Glover, John G.
Gogoj, John J.
Goldberg, Hyman M.
Gooden, Clarence W.
Goodson, James A.
Gowder, Charles F.
Gozar, Jose P.
Grashio, Samuel C.
Gray, Leon W.
Green, Herschel H.
Greene, George B.
Grundmann, Hugh S.
Guilfoil, William K.
Haberle, Frank J.
Hageman, Earl L. Jr.
Hagerstrom, James P.
Hahn, Delbert H.
Hall, Donald P. (2)
Hall, Jack W.
Hambleton, Roscoe L.
Haning, William F. Jr.
Hanson, Robert T.
Hantman, Sidney
Hardison, Felix M.
Hargis, William D. Jr.
Harriger, Robert L.
Harrington, Archibald A.
Harris, Arizona T.
Harrison, Edgar E.
Harrison, James A.
Hascall, Alva S.
Hasek, Ivan S. Jr.
Hass, Floyd N.
Hatch, Herbert B. Jr.
Hawke, Thomas C.
Hawthorne, Harry J.
Hedlund, Earl C.
Heidger, Luther C.
Helder, Ronald L.
Heller, Edwin L.
Helmick, Frederick E.
Helmick, George H.
Henderson, Ivan W.
Hendricks, Randall W.
Henebry, John P.
Henry, Maurice V.
Herlevic, Frank A.
Herres, Francis E.
Herriott, Harold T.
Herron, Christian I.
Herron, Edwin R.
Hicks, Paul L.
Hill, David L.
Hill, James E. (2)
Hill, Robert J.
Hillebrand, Mahlon A.
Hillsinger, Loren B.
Hinze, Frederick S. Jr.
Hipps, William G.
Hively, Howard D.
Hoag, Carl L. Jr.
Hodge, Dexter L.
Hodges, Charles W.
Hoenshell, Carl C.
Hoevet, Dean C.
Hoff, Thomas A.
Holbury, Robert J.
Holliday, Robert L.
Holmes, Walter T.
Holsberg, Wilfred G.
Holub, Anthony C.
Homer, Cyril F.

Duane Beeson (l) and Dominic Gentile

Hoover, John R.
Horton, Robert W.
House, A. T. Jr.
Hovde, William J.
Howat, Kenneth W.
Howell, John J.
Hubbard, Ronald D.
Hudson, Charles S.
Huffstickler, Benjamin F.
Hughes, Charles W.
Hull, Charles T.
Hull, Jack T.
Ingelido, Michael J.
Inman, Harold R.
Irons, John P.
Jackson, Roland B.
James, Joseph H. Jr.
Jamison, Roger W.
Jernigan, William D. J.
Jewell, Kenneth G.
Johnson, Albert L.
Johnson, Gerald R. (2)
Johnson, Gerald W.
Johnson, Robert S.
Johnson, Russell H.
Johnson, Theron E.
Johnson, Thomas E.
Johnson, William H.
Johnston, Robert D.
Johnston, Ruby E.
Jolly, Hoyt A. Jr.
Jones, Charles T.
Jones, Cyril W. Jr.
Jones, William M. Jr.
Joyce, John D.
Juchheim, Alwin M.
Judy, James D.
Kase, Louis N.
Kaufman, Robert P.
Keator, Randall D.
Keen, Robert J.
Kegelman, Charles C.
Kehoe, John W.
Kelly, Arthur G.
Kelly, Colin P. Jr.

Kemp, William J.
Kendrick, George E.
Kenney, George C.
Keogh, Bernard M.
Kerr, William M.
Key, Algene E.
Kimmey, Doyle
Kinnard, Claiborne H. Jr.
Kiser, George E.
Kjosness, Gustav D.
Klepinger, Nolan W.
Klette, Immanuel
Knickerbocker, Malcolm M.
Koenig, Charles W.
Koon, Ralph E.
Kosters, Allen
Kovacik, Steve H.
Kramer, Vernon J.
Krause, John E.
Krug, Richard M.
Kunkle, James K.
Lackness, Berdines
Ladisic, Peter
Lael, Francis V.
LaFleur, Joseph V.
Lambert, James V.
Land, George R.
Landry, Larry D.
Lannon, Louis A.
Larson, Harold B.
Latham, John L. Jr.
Lauraine, Loye J.
Laven, George Jr.
Ledford, Jack C.
LeMay, Curtis E.
Leverette, William L.
Levi, Nelson
Liimatainen, Alvar A.
Lillis, Joseph D.
Lines, Ted E.
Lipscomb, Paul M.
Littge, Raymond H.
Litton, William P.
Loegering, Weston A.
Lohmeyer, Marvin E.
London, Charles P.
Lonsway, Louis G.
LoPresti, Nicholas O.
Lowery, Herman F.
Lowry, Allan W.
Ludolph, George L.
Ludwig, Vance P.
Luksic, Carl J.
Lyle, Lewis E.
Lynch, Thomas J.
MacDonald, Charles H. (2)
Magoffin, Morton D.
Mahoney, John F.
Mahony, Grant M.
Mahurin, Walker M.
Manders, John H.
Marett, Samuel H.
Marpe, Frank C. Jr.
Marshall, Lyndon O.
Martin, Ernest V.
Martin, John C.
Martin, Kenneth R.
Martinson, Meynard L.
Mason, Joe L.
Matchitt, Ray J.
Matson, Rex E.
Matte, Joseph Z.
Matthews, John E.
Mayes, Herbert C.
McArthur, Paul G.
McCabe, Ernest J.
McCall, Ben J.
McCallister, Garrett H.
McCallum, Gerald
McCormick, John B.
McCullar, Kenneth D.
McCurdy, Jimmy E.
McDaniel, Gordon H.
McElroy, Joseph G.
McFarland, Kenton D.
McGrath, Thomas J.
McGuire, Thomas B. Jr.
McHenry, William S.
McLaughlin, Frank B.
McLaughlin, John A.
McLeod, Stanley A.
McMahan, Darrell E.
McMahon, Robert F.
McNees, Richard A.
McNeese, Harold G.
Meals, Elbert O.
Megura, Nicholas
Melo, Frank L.
Merkel, Howard W.
Merrill, John O.
Meyer, John C. (3)
Middlebrook, Garrett E.
Middleditch, Lyman Jr.
Miles, James E.
Miller, Guy M.
Miller, Robert E.
Millikan, Willard W.
Milton, Theodore R.
Mitchell, John W.
Mix, Joseph E.
Moats, Sanford K.
Mohler, William A.
Mohon, Ernest M. Jr.
Molina, Pedro Q.
Momyer, William W.
Monkton, Lyle
Montgomery, Robert P.
Mooney, Robert C.
Moore, Carl W.
Moore, Clarence J.
Moore, Joseph H.
Moore, Pren L.
Moore, William W.
Moran, Harold D.
Morehead, James B.
Morgan, Marion W.
Morris, James M.
Morrissey, Robert L.
Moses, John H.
Moullen, Roy F.
Moye, Albert J.
Muckley, Dwight S.
Mueller, Alvin Jr.
Muir, Marvin F.
Mulligan, Charles D.
Munsey, James S.
Muri, James P.
Murphy, Philip J.
Myers, Joseph
Negley, Richard V. W. Jr.
Nepil, Slavomir
Nielsen, Leland C.
Noell, Robert E.
Norton, Charles E.
Nuchols, William L.
O'Brien, Kenneth J.
O'Connor, Frank O.
Oestreicher, Robert G.
Oettel, Fred W.
Old, Archie J.
Oldham, Richard G.
O'Leary, Eugene B.
Olson, Henry L.
O'Neal, James A.
O'Neill, Brian
O'Neill, Lawrence F.
O'Rourke, Edward J.
Orr, William F.
Owen, Albert E.
Owens, Marion P.
Paisley, Melvyn R.
Partridge, Donald D.
Patrick, Augustus R. Jr.
Pawloswski, Edward J.
Pear, Sidney A.
Pearson, John M.
Pederson, Harold L.
Pell, Floyd J.
Perdomo, Oscar F.
Peres, Jack R.
Perry, Elton S.
Peters, Robert O.
Petersen, Jacob
Peterson, Chesley G.
Petty, Charles A.
Phillips, Claude B.
Phillips, Hubert E.
Phillips, Reginald H.
Pickard, John G.
Pierce, Sammy A.
Pittman, Charles K.
Ploetz, Frederick F.
Polifka, Karl L.
Poore, Wesley A.
Posey, James T.
Post, Arthur L.
Potter, A. J.
Potts, Ramsey D. Jr.
Preddy, George E.
Price, Herbert M.
Price, Raymond E.
Priest, Royce W.
Prince, George A.
Prince, William H.
Pugh, Herbert W.
Putnam, Walter B.
Radtke, Dean M.
Rahner, Raymond M.
Rairigh, John E.
Ramey, Gordon A.
Ramey, Howard K.
Ramey, Roger M.
Randerson, Luther W.
Rankin, Robert J.
Rau, Oscar J.
Rauschkolb, Frank
Ray, Charles P.
Ray, John W.
Reams, Luther S.
Reeder, Sumner H.
Reeves, Charles T.
Rice, Burt H.
Richards, Conrad B.
Ridolfi, Peter J.
Righetti, Elwyn G.
Rist, Robert P.
Ritchey, Andrew J.
Robbins, Jay T. (2)
Roberts, Daniel T.
Roberts, Eugene P.

Curtis LeMay

Robinson, Stanley K.
Roche, John R.
Rogers, Arthur H.
Rogers, Robert J.
Roller, John R.
Rorer, George A. Jr.
Rose, Dudley E.
Rose, Henry J.
Rosenthal, Robert
Royce, Ralph
Ruegg, Robert G.
Sacks, Seymour
Sanford, James T.
Sanford, William L.
Sans, Charles H.
Saunders, Lester W.
Schellin, Roy L.
Schild, William C.
Schilling, David C. (2)
Schiltz, Glenn D. Jr.
Scholz, Richard J.
Schreiber, Leroy A.
Schulman, Herbert E.
Schuman, John P.
Sconiers, Edward T.
Seaman, Theodore L.
Seith, Louis T.
Seitz, Bernard C.
Sellers, Thomas D.
Sewart, Allan J. Jr.
Shaw, William S.
Shelton, Stephen C.
Shingler, Herbert I.
Shirey, Harry R.
Shubin, Murray J.
Silva, Louis T.
Simeral, George A.
Sims, Tommie J.
Skinner, William E.
Slade, Richard J.
Slessor, Lee D.
Smart, Jacob E.
Smith, Donovan F.
Smith, Edmond H.
Smith, George A.
Smith, Harry W.
Smith, Jack E.
Smith, James R.
Smith, Mack H.
Smith, Stephen M.
Snyder, Donald L.
Spencer, Charles W.
Spencer, Dale F.
Sprague, Charles A.
Stach, Paul J.
Starczweski, Phillip R.
Starks, Richard F.
Steele, Henry P.
Steen, Zerrill J.
Steffy, Robert F.
Stewart, James C.
Stewart, Walter T.
Stipe, Leon D.
Stireman, John O.
Storovich, Robert D.
Strand, Robert E.
Strasburger, Alvin
Stricker, Thomas A.
Strickland, Robert F.
Strother, Donald R.
Sullivan, Leroy R.
Sussky, Ira M.
Swain, Andrew J.
Sweeney, Walter C.
Talbott, Carlos M.
Tapp, James B.
Taylor, Kenneth M.
Taylor, Robert L.
Tennille, William G. Jr.
Thomas, Jay P.
Thornbrough, George W.
Thornell, John F. Jr.
Tibbets, Paul W. Jr.
Tidwell, Billy M.
Tiedemann, John R.
Tompkins, Frederick L.
Toomey, Winston M.
Trauth, Leo J. Jr.
Travis, Robert F.
Trimingham, Charles E.
Trout, Chester E.
Troy, Edward P.
True, Clinton U.
Truluck, John H. Jr.
Tubman, Thomas J.
Tufty, Iver O.
Turner, William L.
Underwood, Carol E.
Urso, James D.
Van Deventer, Cowell
Van Ness, James
Vance, Paul W.
Vaughan, William
Via, Charles A. Jr.
Via, James E.
Villamor, Jesus A. (2)
Villines, Colin O.
Vitali, Chester A.
Vogt, John E.
Voll, John J.
Vondrachek, Charles E.
Voss, Raymond J.
Wagner, Boyd D.
Wagner, Donald F.
Wainwright, John H.
Walker, Clyde B.
Walker, Leland A.
Walker, William R.
Wallace, Robert D.
Walter, Donald A.
Walters, Roy W.
Walton, Victor E.
Ward, Emery M.
Ward, Ralph E. Jr.
Warmer, Benjamin F.
Waskowitz, Frank T.
Watkins, James A.
Watson, William S.
Watt, James R.
Wayland, William J.
Weeks, Elbert W.
Weems, Thomas N. Jr.
Welch, George S.
Werner, William T. L.
Wesche, Frederick F. III
West, Richard L.
Westbrook, Robert B.
Westby, Morton K.
Westerbeke, Donald G.
Wetmore, Ray S. (2)
Whalen, Norman M.
Wheless, Hewitt T.
Wherry, William B.
Whisner, William T. Jr. (2)
White, Raymond S.
Whitehead, Ennis C.
Whitson, William D.
Whittington, Leonard H.
Wiecks, Max R.
Wiegand, Arthur H.
Wilde, Robert M.
Wilkinson, James W.
Williams, Greeley B.
Williamson, Felix D.
Wilson, Avis K.
Wilson, Frederick M.
Wilson, James W.
Wilson, Russell A.
Winters, Elmer R.
Witt, Gerald S.
Witt, Lynn E. Jr.
Wolf, John K.
Woliver, Robert M.
Wood, Howard C.
Wood, Jack W.
Wood, Richard M.
Woods, Francis
Woods, Sidney S.
Woody, Robert E.
Wright, Arthur H. Jr.
Wright, Clifton J.
Wright, Ellis W. Jr.
Wright, John B.
Wylie, John W.
Yearwood, Roy W.
Yevich, Edward S.
Zdanzukas, Vincent R.
Zemke, Hubert

Korean War

Baker, Royal N.
Blesse, Frederick C.
Bryan, William E. Jr.
Davis, George A. Jr.
Dixon, Jacob W.
Fernandez, Manuel J. Jr.
Fischer, Harold E.
Freligh, Lawrence E.
Garrison, Vermont
Gebaur, Arthur W. Jr.
Georgi, William F.
Halton, William T.
Hicks, Forrest L.
Jabara, James
Johnson, James K.
Ledford, James H.
MacArthur, David W.
McConnell, Joseph C. Jr.
Moore, Lonnie R.
Morse, John Jr.
Najarian, John J.
Nichols, Donald
O'Donnell, Emmett Jr.
Orr, Robert H.
Parker, Robert B.
Parr, Ralph S. Jr.
Partridge, Earle E.
Rhoads, John K.
Savage, Richard L.
Shields, Everett L. Jr.
Spath, Charles R.
Stratemeyer, George E.
Tunner, William H.
Vojvodich, Mele Jr.
Whisner, William T. Jr.
Wilkerson, Desmond R.

George Preddy

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USAF Recipients of the Air Force Cross

World War II
Drew, Maj. Urban L.
Sloan, Lt. Col. William J.

Cuba Crisis
Anderson, Maj. Rudolph

Vietnam War
Adams, TSgt. Victor R.
Allee, Maj. Richard K.
Allison, Lt. Col. John V.
Armstrong, Maj. Larry D.
Atterberry, Lt. Col. Edwin L.
Baer, Lt. Col. Allan R.
Baldwin, Maj. Robert L.
Beale, Maj. Robert S.
Black, A3C Arthur N.
Bode, Maj. John R.
Boyd, Capt. Charles G.
Boyd, Lt. Col. William Jr.
Brickel, Lt. Col. James R.
Britt, Maj. Aquilla F.
Britton, Col. Warner A.
Broughton, Col. Jacksel M.
Brower, Capt. Ralph W.
Bucher, Maj. Bernard L.
Burroughs, Maj. William D.
Caldwell, Capt. William R.
Campbell, Maj. Jesse W.
Campbell, Maj. Thomas A.
Carroll, Maj. John L.
Carter, Capt. William R.
Cherry, Col. Fred V.
Clarke, Maj. Colin A.
Clay, SSgt. Eugene L.
Cobeil, Lt. Col. Earl G.
Cody, Capt. Howard R.
Collins, Capt. Willard M.
Conley, Lt. Col. Eugene O.
Conran, Maj. Philip J.
Cooper, Lt. Col. William E.
Corder, Capt. John A.
Courtney, Capt. Terence F.
Curtis, Capt. Thomas J.
Dallman, Lt. Col. Howard M.
Day, Col. George E.
Dayton, Maj. Thomas E.
DeBellevue, Capt. Charles B.
DeTar, Maj. Dean E.
Donelson, Capt. Nicholas J.
Donohue, Maj. Frederic M.
Dorsett, Capt. Tracey K. Jr.
Draeger, Capt. Walter F. Jr.
Dramesi, Col. John A. (2)
Engle, Capt. Charles E.
Eppinger, Maj. Dale L.
Etchberger, CMSgt. Richard L.
Etzel, Capt. Gregory A. M.
Feinstein, Capt. Jeffrey S.
Feuerriegel, Lt. Col. Karl T.
Finck, Maj. George C.
Firse, Capt. John A.
Fish, Sgt. Michael E.
Fleener, Capt. Delbert W.
Flynn, Lt. Gen. John P.
Francisco, Capt. Michael C.
Funderburk, Capt. Leonard J.
Gamlin, Sgt. Theodore R.
Gibson, Maj. James K.
Gilroy, Capt. Kevin A.
Gonzales, Maj. Leonard A.
Green, Maj. Joe B.
Griggs, Maj. Jerry M.
Gruver, Capt. John C.
Guarino, Col. Lawrence N.
Gustafson, Maj. Gerald C.
Guy, Col. Theodore W.
Hackney, A2C Duane D.
Hackney, Maj. Hunter F.
Hall, 1st Lt. James H.
Hamilton, Col. John S.
Harding, Maj. James C.
Harp, Capt. Tilford W.
Henning, Capt. Hal P.
Hickman, Capt. Vincent J.
Hoblit, Capt. Jerry N.
Hoggatt, Lt. Col. Ralph S.
Holland, Maj. Lawrence T.
Hopkins, Lt. Col. James R.
Horinek, Capt. Ramon A.
Hudson, Capt. Jackson L.
Hunt, Sgt. Russell M.
Jeanotte, Lt. Col. Alfred J. Jr.
Johnson, Capt. Harold E.
Kalen, Maj. Herbert D.
Kasler, Lt. Col. James H. (3)
Kennedy, Capt. Leland T. (2)
Kent, Sgt. Nacey Jr.
Killian, Col. Melvin J.
King, A1C Charles D.
Kirk, Col. Thomas H. Jr.
Knight, Col. Roy A. Jr.
Koeltzow, Maj. Paul F.
Lackey, Capt. John E.
Leetun, Capt. Darel D.
Lielmanis, 1st Lt. Atis K.
Lukasik, Capt. Bernard F.
Madden, Maj. Joseph B.
Maisey, Capt. Reginald V. Jr.
Martin, 1st Lt. Duane W.
Martin, Capt. William R.
Marx, Capt. Donald L.
Mason, Capt. Larry B.
Maysey, Sgt. Larry W.
Maywald, Capt. Phillip V.
McAllister, Maj. William W.
McCarthy, Col. James R.
McGrath, Sgt. Charles D.
McInerney, Lt. Col. James E. Jr.
McKnight, Lt. Col. George G.
McTasney, Capt. John B.
Mehr, Maj. Richard L.
Mitchell, Maj. Carl B.
Mize, Capt. John D.
Mongillo, Maj. Paul J.
Moorberg, Capt. Monte L.
Nagel, Capt. Richard A. Jr.
Newman, Sgt. Thomas A.
Norris, Lt. Col. William C.
O'Mara, Capt. Oliver E.
Olds, Col. Robin
Olsen, Maj. Don P.
Orrell, Capt. Bennie D.
Parr, Col. Ralph S. Jr.
Personett, Capt. Joseph A.
Peterson, Capt. Delbert R.
Pogreba, Lt. Col. Dean A.
Poling, Capt. Richard L.
Price, Capt. Donald S.
Richardson, CMSgt. Dennis
Richter, 1st Lt. Karl W.
Risner, Lt. Col. Robinson (2)
Ritchie, Capt. Richard S.
Robinson, A1C William A.
Robinson, Maj. William P.
Ronca, Maj. Robert F.
Rowan, Maj. John M.
Schaneberg, Capt. Leroy C.
Schmidt, Col. Norman
Schurr, Lt. Col. Harry W.
Scott, Capt. Travis H. Jr.
Sellers, Maj. Jerry A.
Sellers, Capt. Kenneth H.
Shannon, Capt. Fred
Shaub, SSgt. Charles L.
Smith, TSgt. Donald G.
Smith, Lt. Col. Robert W.
Smith, Capt. Ronald E.
Smith, Capt. Rowland F. Jr.
Smith, Maj. Weston T.
Stevens, Capt. Donald D.
Stocks, Maj. Bruce D.
Storz, Lt. Col. Ronald E.
Stovall, Capt. Dale E.
Talley, Amn. Joel E.
Titus, Lt. Col. Robert F.
Trautman, Maj. Konrad W.
Traynor, Capt. Dennis W. III
Tsouprake, Maj. Peter
Turner, Maj. Robert E.
Weatherby, Capt. Jack W.
Wells, Capt. Norman L.
Whatley, Maj. Wayne N.
White, Col. Robert M.
Whitesides, Capt. Richard L.
Wilke, Col. Robert F.
Williams, Capt. David H.
Wofford, Maj. Travis
Wood, Maj. Patrick H.
Worrell, 1st Lt. Rowland H. III
Wright, Capt. Garth A.
Wright, TSgt. LeRoy
York, Maj. Glen P.

Mayaguez Incident
Backlund, 1st Lt. Donald R.
Brims, 1st Lt. Richard C.
Harston, SSgt. Jon D.
Purser, Capt. Rowland W.

Operation Desert Storm
Andrews, Capt. Bill
Johnson, Capt. Paul T.

Somalia
Wilkinson, TSgt. Timothy A.

Operation Enduring Freedom
Chapman, TSgt. John
Cunningham, SrA. Jason D.
Rhyner, SSgt. Zachary J.

Rudolph Anderson

Zachary Rhyner

From a compilation by C. Douglas Sterner, www.homeofheroes.com.

Guide to Aces

Some Famous Firsts

May 28, 1918	First AEF-trained AEF ace: Capt. Edward V. Rickenbacker
Dec. 7, 1941	First AAF victories of World War II (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 of World War 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 (World War II and Korea): Maj. George A. Davis Jr. (seven in World War II and 14 in Korea)
Jan. 2, 1967	First (and only) USAF ace with victories in World War II and Vietnam: Col. Robin Olds (12 in World War II and four in Vietnam)
Aug. 28, 1972	First USAF ace of Vietnam: Capt. Richard S. Ritchie

Left: James Jabara, the first USAF ace of the Korean War. Jabara scored 15 victories before the end of the war.

Right: Robin Olds is the only USAF ace with aerial victories in both World War II and the Vietnam War.

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 air-to-air aerial victory credits, which is the responsibility of the Air Force Historical Research Agency, Maxwell AFB, Ala.

This record does not include some 300 pilots credited by Eighth Air Force in World War II with destroying aircraft on the ground. Eighth was the only numbered air force to count ground kills, and the Air Force subsequently limited its official recognition of World War II aces to air-to-air victories.

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 (http://www.afhra.af.mil).

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.

American Aces of World War I

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. B.	5
Wehner, 1st Lt. Joseph F.	5

Douglas Campbell (6)

Army Air Forces Aces of World War II

Charles MacDonald (27)

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

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
Dahlberg, Capt. Kenneth H.	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
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
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

Robert Johnson (27) **and 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
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

Hubert Zemke (17.75)

Richard Turner (11)

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

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

*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.

William Shomo (8)

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

James Howard (7)

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. Jr.	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

John Alison (6), **David Hill** (6), **and 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. Jr.	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
Lanphier, Capt. Thomas G. Jr.	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

Clinton Vincent (6)

Dorris, Maj. Harry W.	5.25
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
Duffey, 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

Edwin Heller (5.5)

Fenex, Capt. James E. Jr. 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
Harrington, 1st Lt. Archibald A. 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

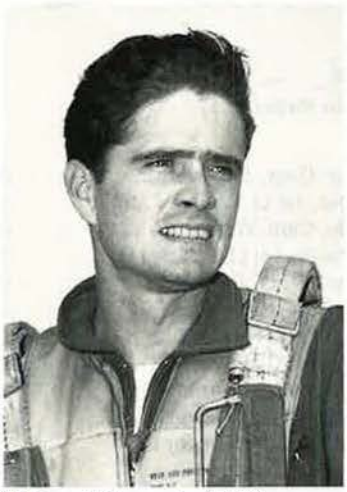
Harrison Thyng (5)

Osher, Capt. Ernest K. 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

USAF Aces of the Korean War

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
Cleveland, 1st Lt. Charles G.	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



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

Jeffrey Feinstein (5)

Charles DeBellevue (6) **and 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' four additional victories came during the Vietnam War.

John Meyer (26)

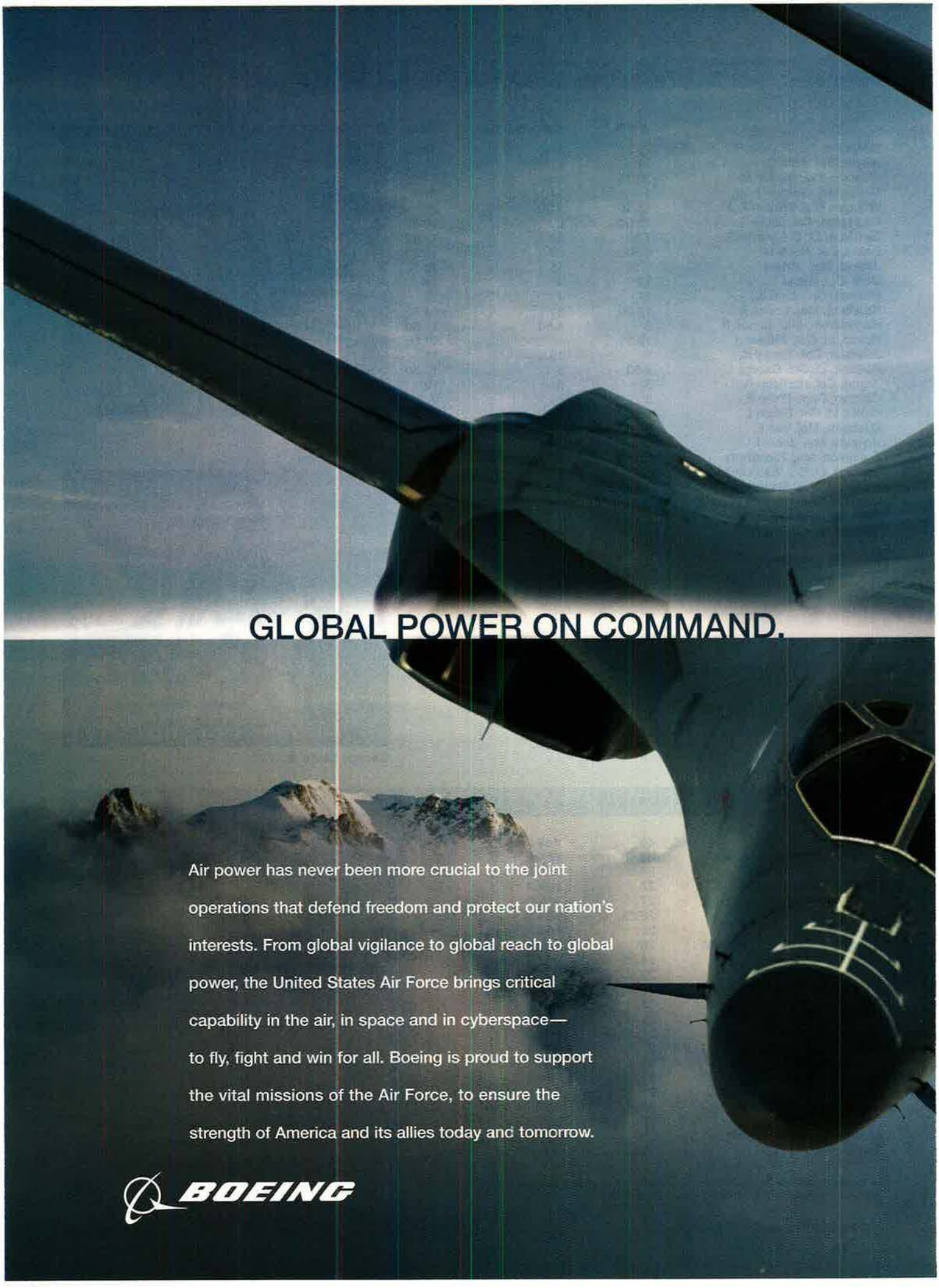
George Davis Jr. (21)

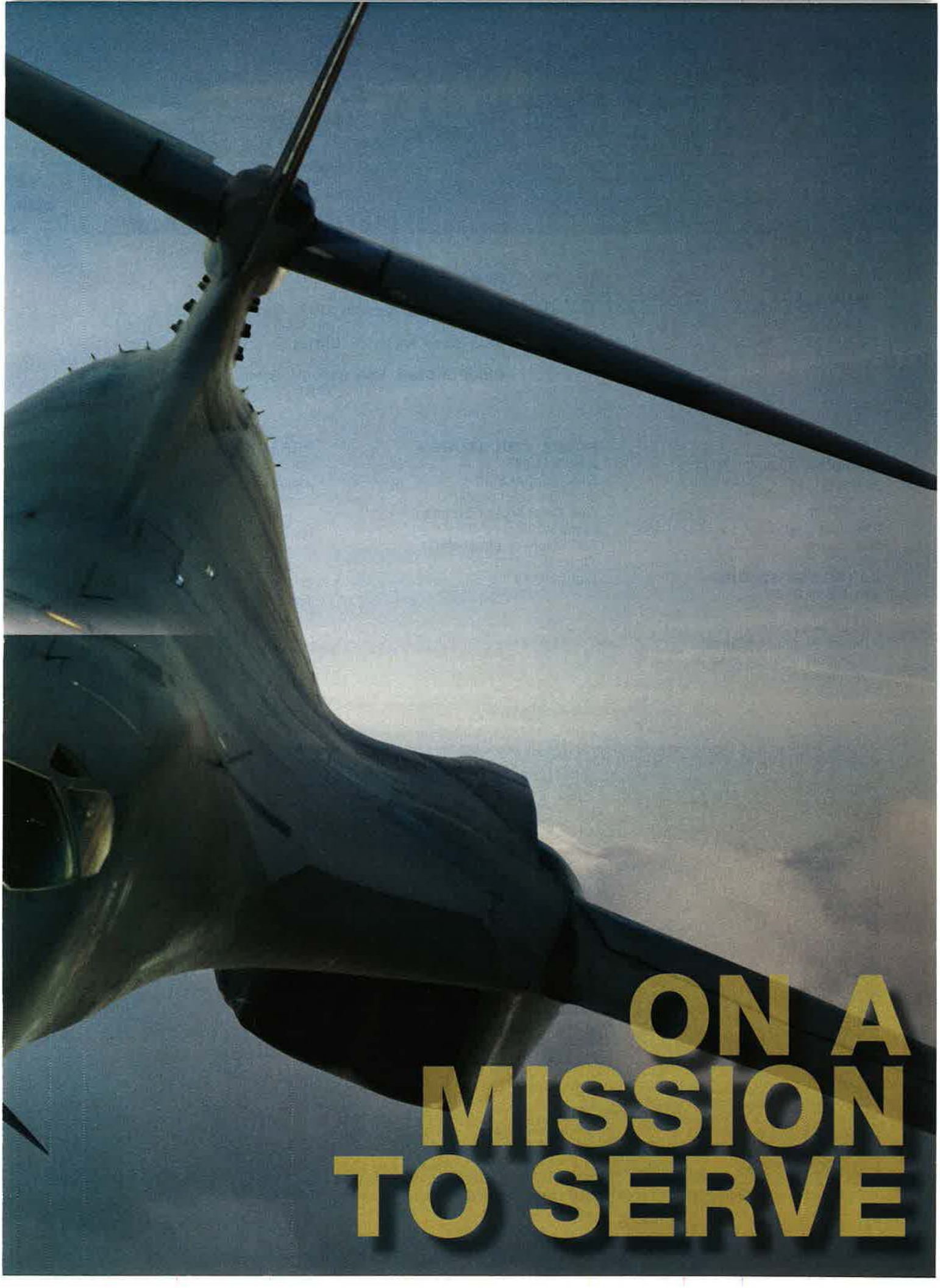
Leading Air Service/AAF/USAF Aces of All Wars

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.

Walker Mahurin (24.25) **and Walter Beckham** (18)


GLOBAL POWER ON COMMAND.
Air power has never been more crucial to the joint operations that defend freedom and protect our nation's interests. From global vigilance to global reach to global power, the United States Air Force brings critical capability in the air, in space and in cyberspace—to fly, fight and win for all. Boeing is proud to support the vital missions of the Air Force, to ensure the strength of America and its allies today and tomorrow.
BOEING



ON A MISSION TO SERVE

Hq. Air Force

2009 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 B. Donley

Chief of Staff Gen. Norton A. Schwartz

ROLE

Organize, train, and equip air, space, and cyberspace forces

MISSION

Fly, fight, and win in air, space, and cyberspace

FORCE STRUCTURE—SECRETARIAT

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

FORCE STRUCTURE—AIR STAFF

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

PERSONNEL

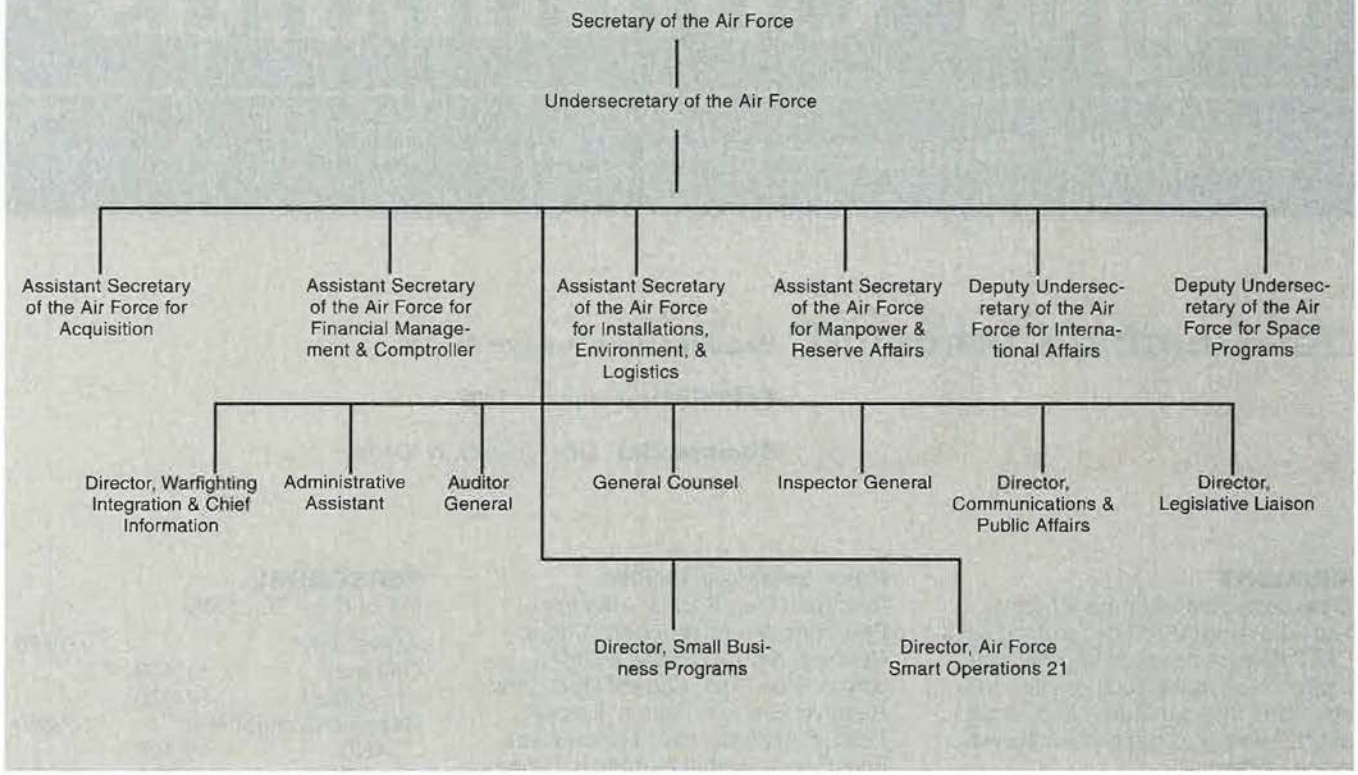
(as of Sept. 30, 2008)

Active duty		1,671
Officers	1,416	
Enlisted	255	
Reserve Components		524
ANG	56	
AFRC	468	
Civilian		826
Total		**3,021**

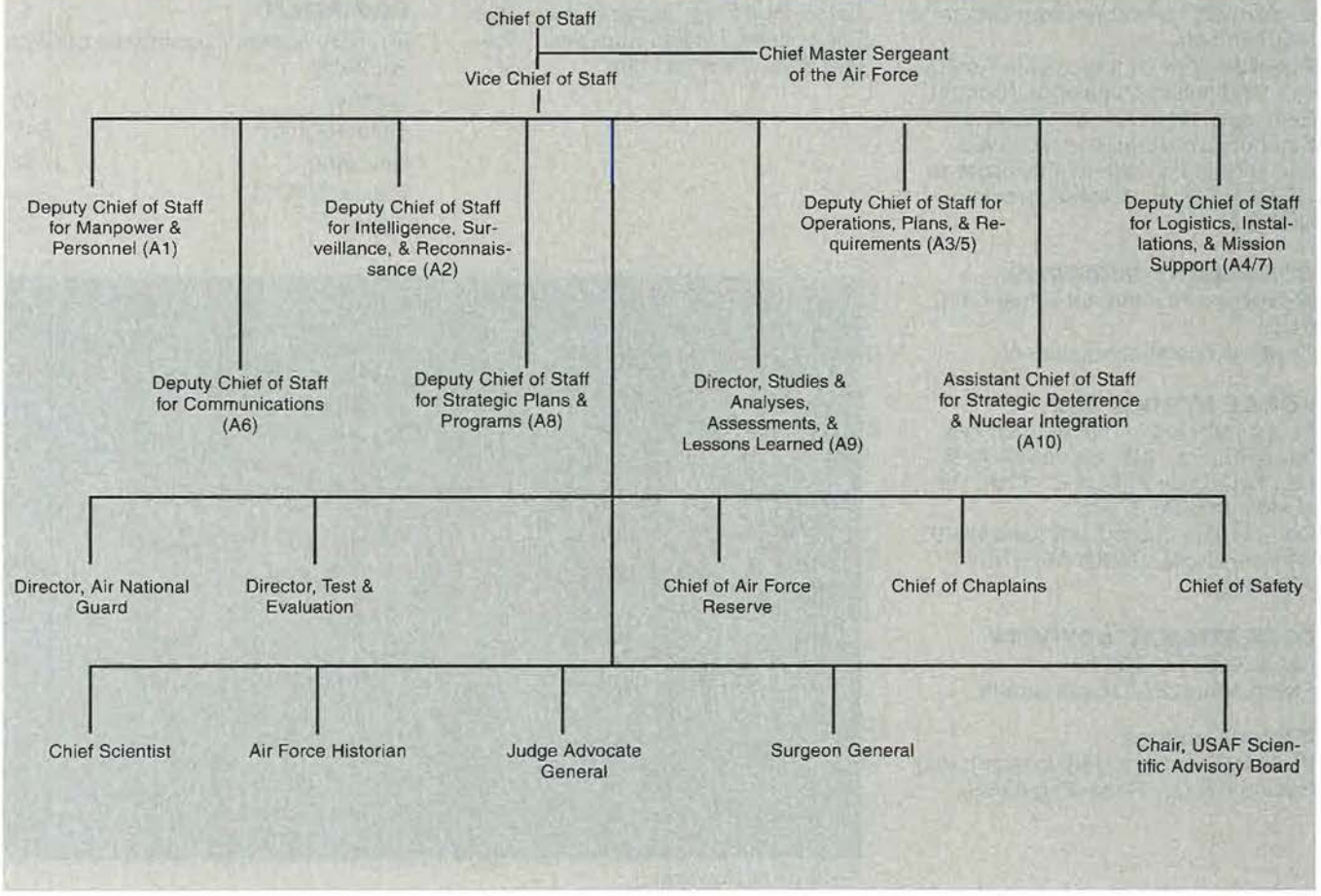
USAF photo by SSgt. Aaron D. Allmon II

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

SECRETARIAT, PENTAGON, WASHINGTON, D.C.



AIR STAFF, PENTAGON, WASHINGTON, D.C.



Major Commands

2009 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.

ACC Air Combat Command

Headquarters Langley AFB, Va.

Established June 1, 1992

Commander Gen. John D. W. Corley

MISSIONS

Operate USAF bombers (active and ANG and AFRC gained); USAF's CONUS-based (active and gained) fighter, 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.

One primary subordinate unit: USAF Warfare Center, Nellis AFB, Nev.

27 wings

OPERATIONAL ACTIVITY

(as of Sept. 30, 2008)

Flying hours: 27,316 per month

Major operations

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

Major training exercises

Amalgam Dart Series; Amalgam Phantom; Angel Thunder; Ardent Century; Atlantic Strike; Blue Advance; Blue Flag; Eager Tiger; Eagle Resolve; Eastern Falcon; Ellipse Echo; Falcon Condor; Falcon Nest; Foal Eagle; Global Lightning; Global Thunder; Green Flag East and West; Initial Link; Internal Look; Iron Falcon; Maple Flag; New Horizons Series; Northern Edge; Panamax; Positive Force; Red Flag; Terminal Fury; Ulchi Focus Lens; Unified Endeavor; Vigilant Shield; Virtual Flag

PERSONNEL

(as of Sept. 30, 2008)

Active duty		79,356
Officers	11,478	
Enlisted	67,878	
Reserve Components		57,050
ANG	46,497	
AFRC	10,553	
Civilian		10,055
Total		**146,461**

EQUIPMENT

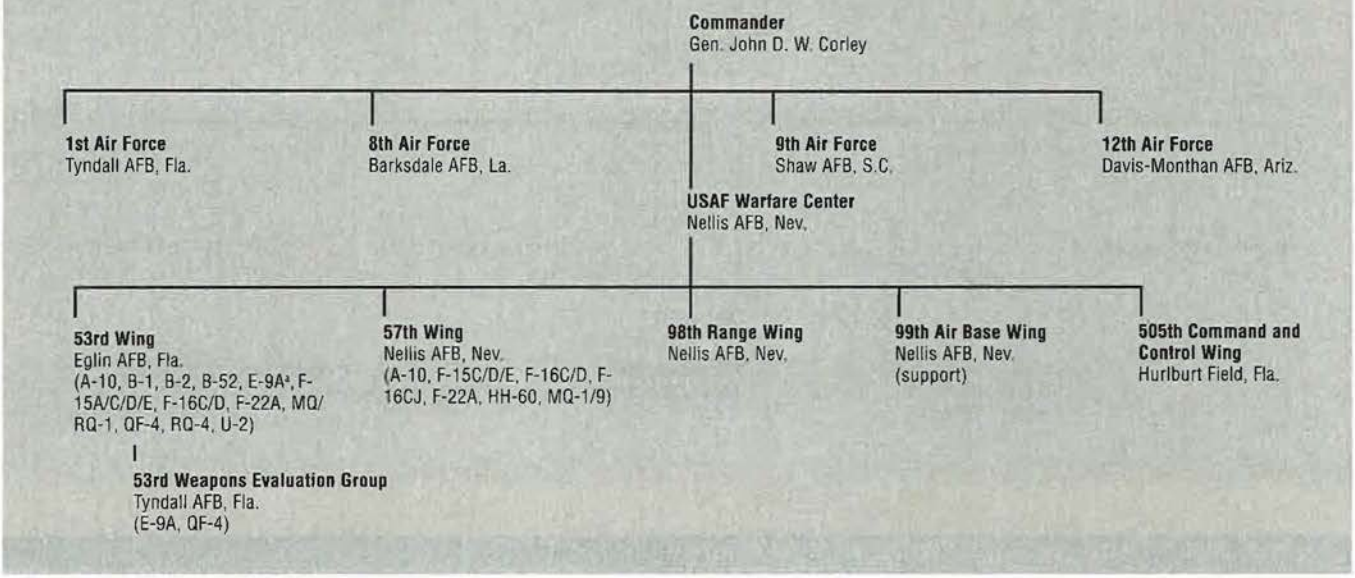
(Primary aircraft inventory as of Sept. 30, 2008)

Bomber	108
Fighter/Attack	646
Helicopter	32
Recon/BM/C3I	214
Trainer	22

USAF photo by MSgt. Kevin J. Gruenwald

F-22s on deployment.

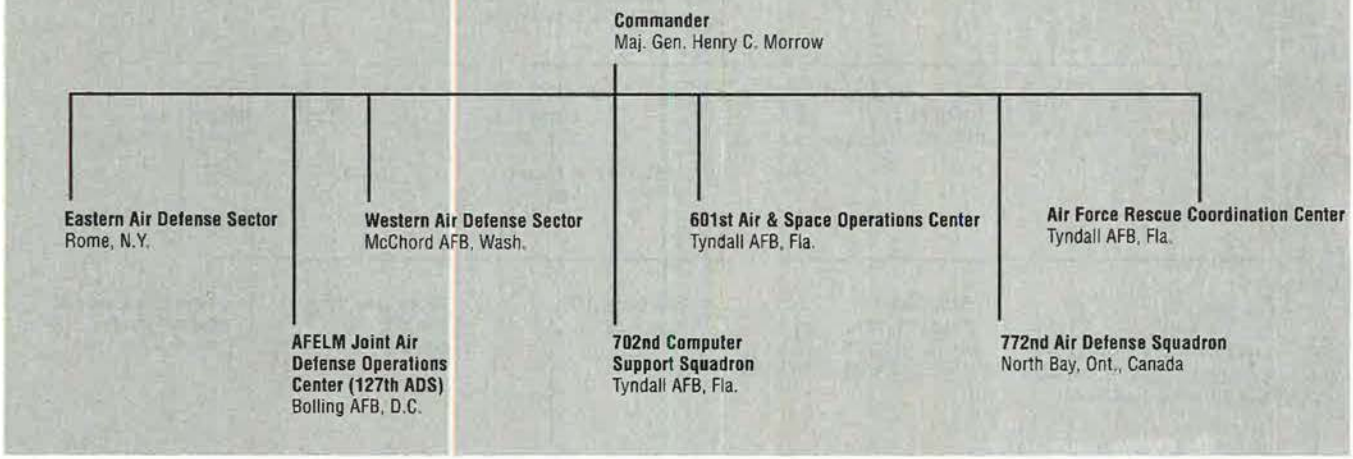
AIR COMBAT COMMAND, LANGLEY AFB, VA.



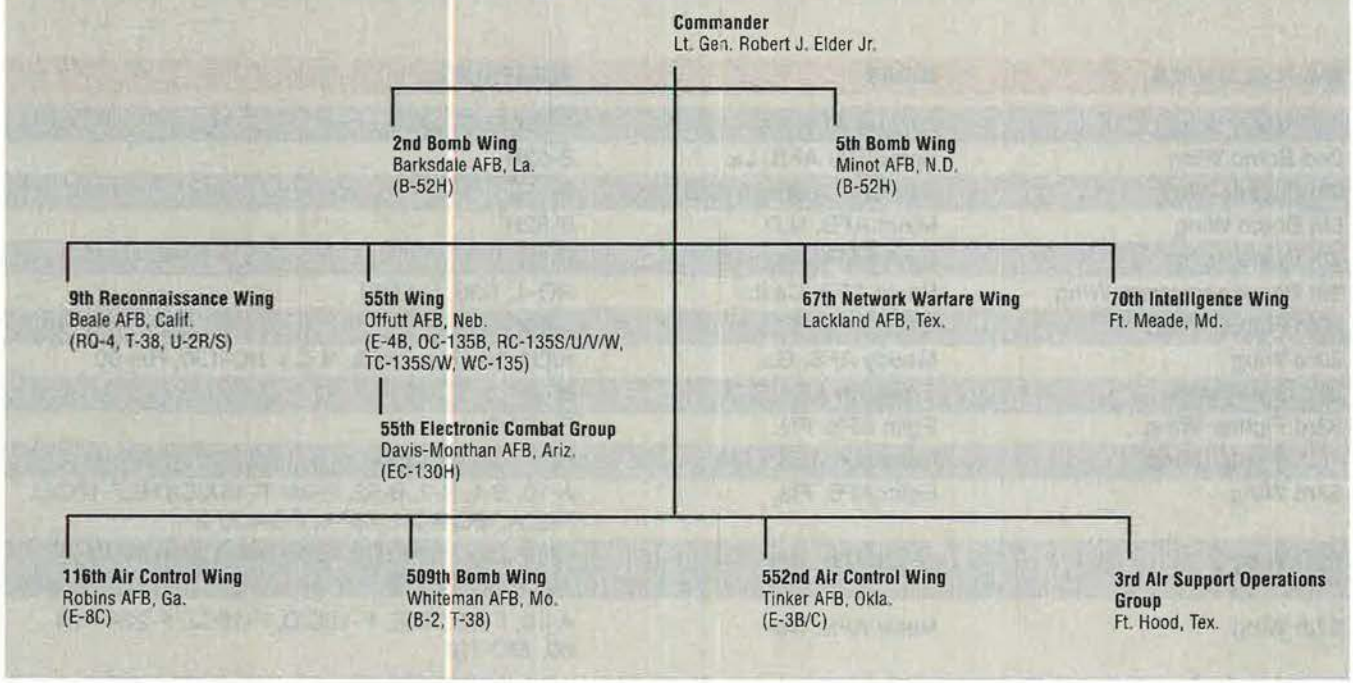
MAJOR UNITS	BASE	WEAPONS
1st Fighter Wing	Langley AFB, Va.	F-15C/D, F-22A
2nd Bomb Wing	Barksdale AFB, La.	B-52H
4th Fighter Wing	Seymour Johnson AFB, N.C.	F-15E
5th Bomb Wing	Minot AFB, N.D.	B-52H
7th Bomb Wing	Dyess AFB, Tex.	B-1B
9th Reconnaissance Wing	Beale AFB, Calif.	RQ-4, T-38, U-2R/S
20th Fighter Wing	Shaw AFB, S.C.	F-16C/CJ/D
23rd Wing	Moody AFB, Ga.	A/OA-10 (Pope AFB, N.C.), HC-130, HH-60
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-22, QF-4, T-38B
53rd Wing	Eglin AFB, Fla.	A-10, B-1, B-2, B-52, E-9A[a] F-15A/C/D/E,F-16C/D, F-22A, MQ/RQ-1, QF-4, RQ-4, U-2
55th Wing	Offutt AFB, Neb.	E-4B, EC-130H[b], 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, F-16CJ, F-22A, HH-60, MQ-1/9
67th Network Warfare Wing	Lackland AFB, Tex.	
70th Intelligence Wing	Ft. Meade, Md.	
93rd Air Ground Operations Wing	Moody AFB, Ga.	
98th Range Wing	Nellis AFB, Nev.	
99th Air Base Wing	Nellis AFB, Nev.	
116th Air Control Wing[c]	Robins AFB, Ga.	E-8C
355th Fighter Wing	Davis-Monthan AFB, Ariz.	A/OA-10
366th Fighter Wing	Mountain Home AFB, Idaho	F-15C/E
388th Fighter Wing	Hill AFB, Utah	F-16C/D
432nd Wing	Creech AFB, Nev.	MQ-1, MQ-9
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]Tyndall AFB, Fla. [b]Davis-Monthan AFB, Ariz. [c]Blended wing with active duty and ANG personnel.

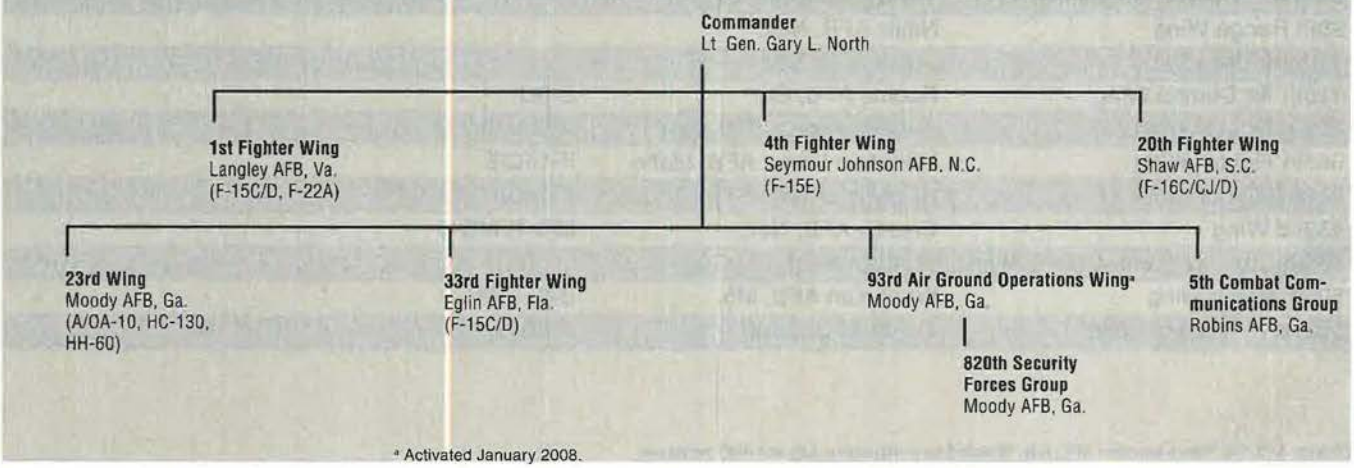
1st AIR FORCE (ACC), TYNDALL AFB, FLA.



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

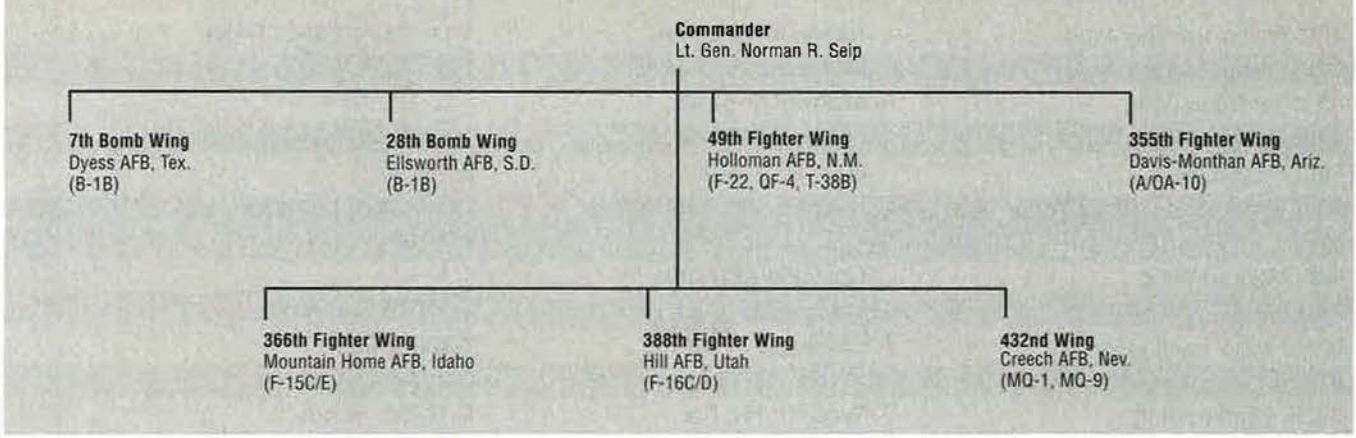


9th AIR FORCE (ACC), SHAW AFB, S.C.



* Activated January 2008.

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



AETC Air Education and Training Command

Headquarters Randolph AFB, Tex.

Established July 1, 1993

Commander Gen. Stephen R. Lorenz

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.

15 wings

OPERATIONAL ACTIVITY

(as of Sept. 30, 2008)

Flying hours: 43,646 per month

PERSONNEL

(as of Sept. 30, 2008)

Active duty		59,529
Officers	13,918	
Enlisted	45,611	
Reserve Components		7,068
ANG	4,572	
AFRC	2,496	
Civilian		14,763
Total		**81,360**

EQUIPMENT

(PAI as of Sept. 30, 2008)

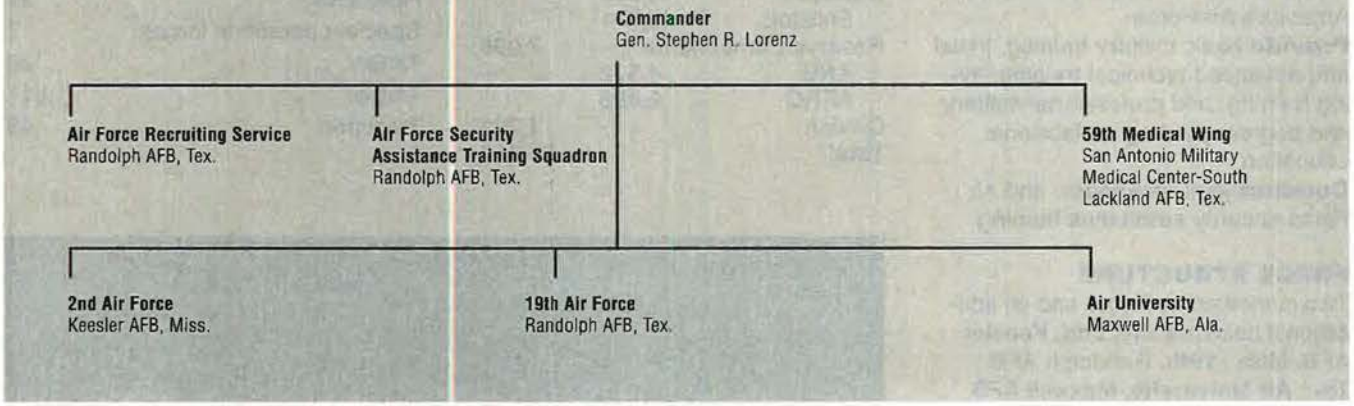
Fighter/Attack	224
Helicopter	37
Special operations forces	7
Tanker	28
Trainer	817
Transport	48

Photo by Greg L. Davis

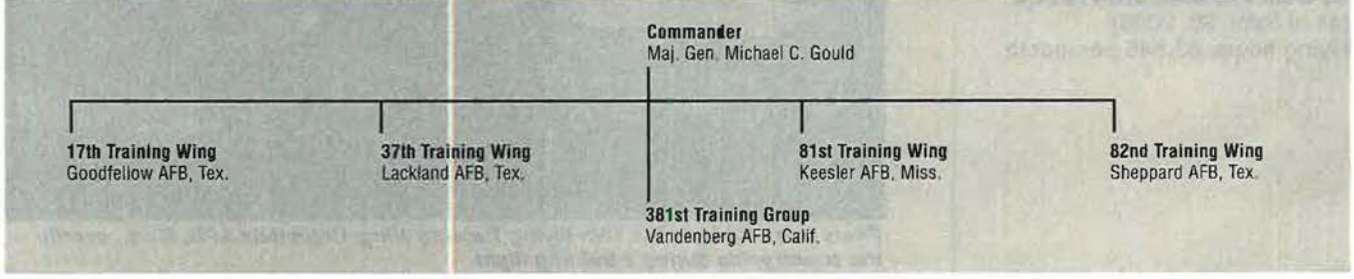
Pilots in a T-6A from the 14th Flying Training Wing, Columbus AFB, Miss., overfly the countryside during a training flight.

MAJOR UNITS	BASE	WEAPONS
12th Flying Training Wing	Randolph AFB, Tex.	T-1A, T-6A, T-38C, T-43A
14th Flying Training Wing	Columbus AFB, Miss.	T-1A, T-6A, T-38C
42nd Air Base Wing	Maxwell AFB, Ala.	
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, UH-1N
59th Medical Wing	Lackland AFB, Tex.	
71st Flying Training Wing	Vance AFB, Okla.	T-1A, T-6A, T-38C
80th Flying Training Wing	Sheppard AFB, Tex.	T-37B, T-38C
97th Air Mobility Wing	Altus AFB, Okla.	C-17A, KC-135R
325th Fighter Wing	Tyndall AFB, Fla.	F-15C/D, F-22A
17th Training Wing	Goodfellow AFB, Tex.	
37th Training Wing	Lackland AFB, Tex.	
81st Training Wing	Keesler AFB, Miss.	
82nd Training Wing	Sheppard AFB, Tex.	
314th Airlift Wing	Little Rock AFB, Ark.	C-130E/J
Air Force Recruiting Service	Randolph AFB, Tex.	
Air University	Maxwell AFB, Ala.	

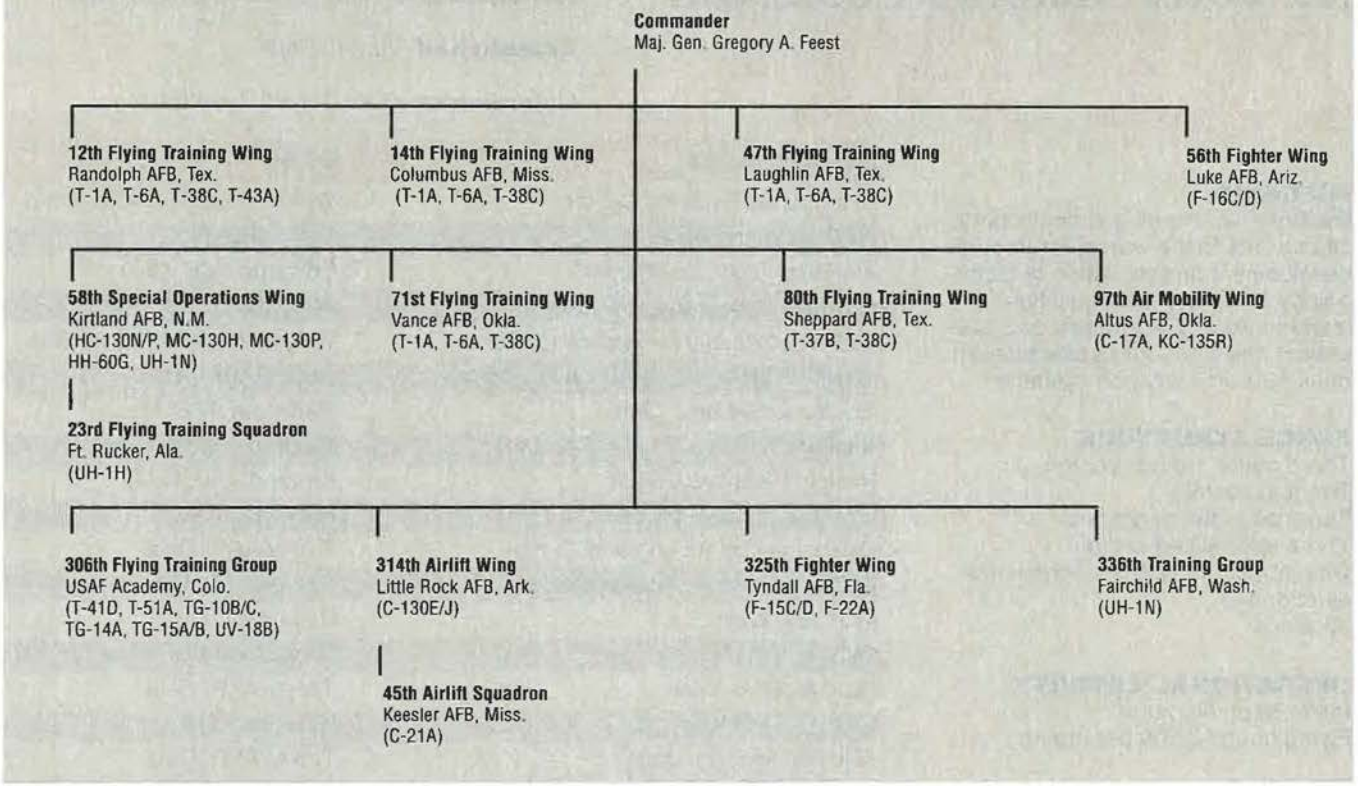
AIR EDUCATION AND TRAINING COMMAND, RANDOLPH AFB, TEX.



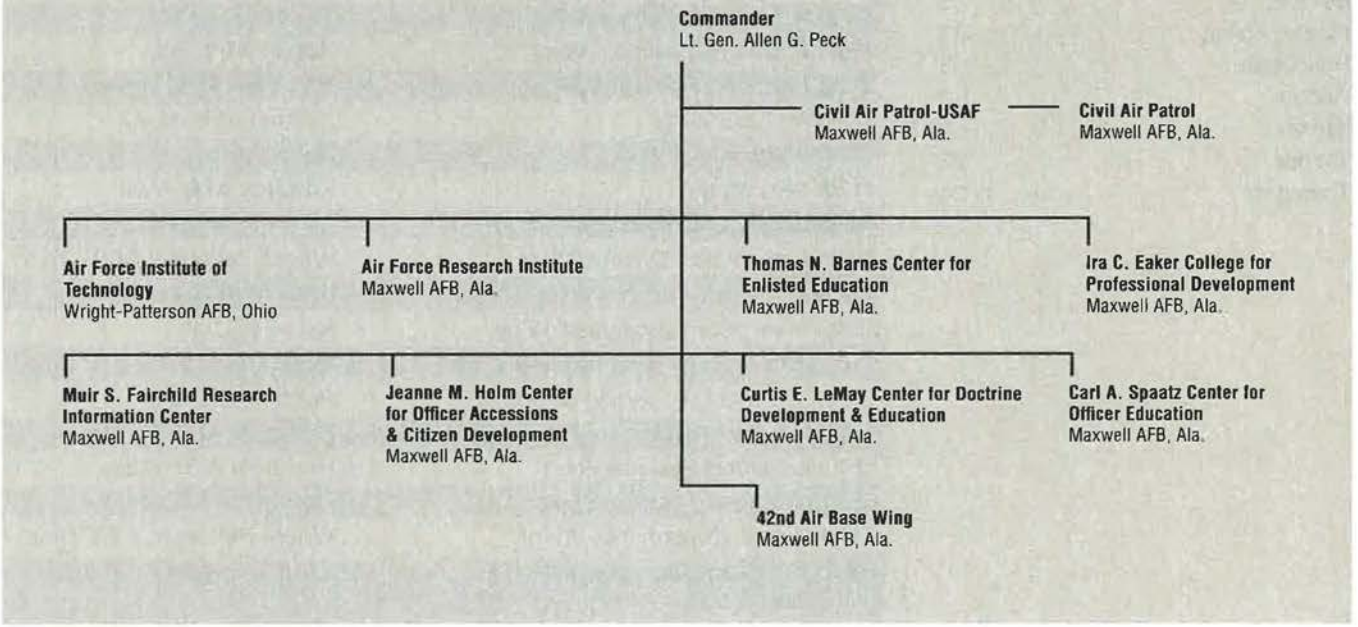
2nd AIR FORCE (AETC), KEESLER AFB, MISS.



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



AIR UNIVERSITY (AETC), MAXWELL AFB, ALA.



Air Force Materiel Command

Headquarters Wright-Patterson AFB, Ohio

Established July 1, 1992

Commander Gen. Donald J. Hoffman

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 10 technology directorates
33 wings

OPERATIONAL ACTIVITY

(as of Sept. 30, 2008)
Flying hours: 2,500 per month

PERSONNEL

(as of Sept. 30, 2008)

Active duty		18,523
Officers	5,882	
Enlisted	12,641	
Reserve Components		1,733
ANG	153	
AFRC	1,580	
Civilian		55,126
Total		**75,382**

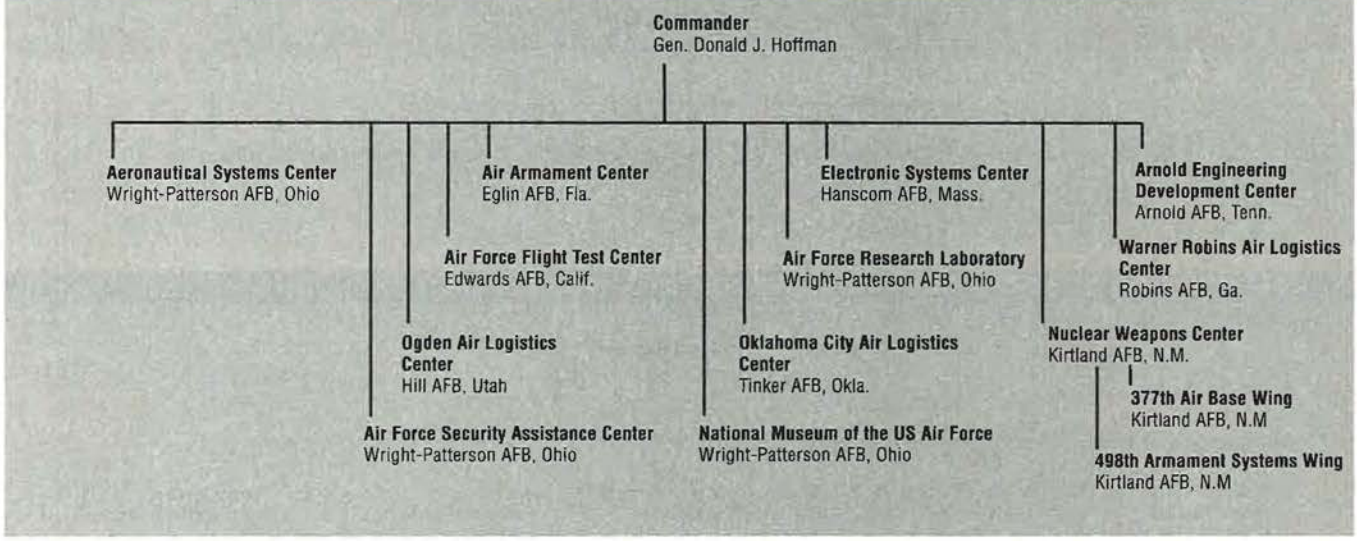
EQUIPMENT

(PAI as of Sept. 30, 2008)

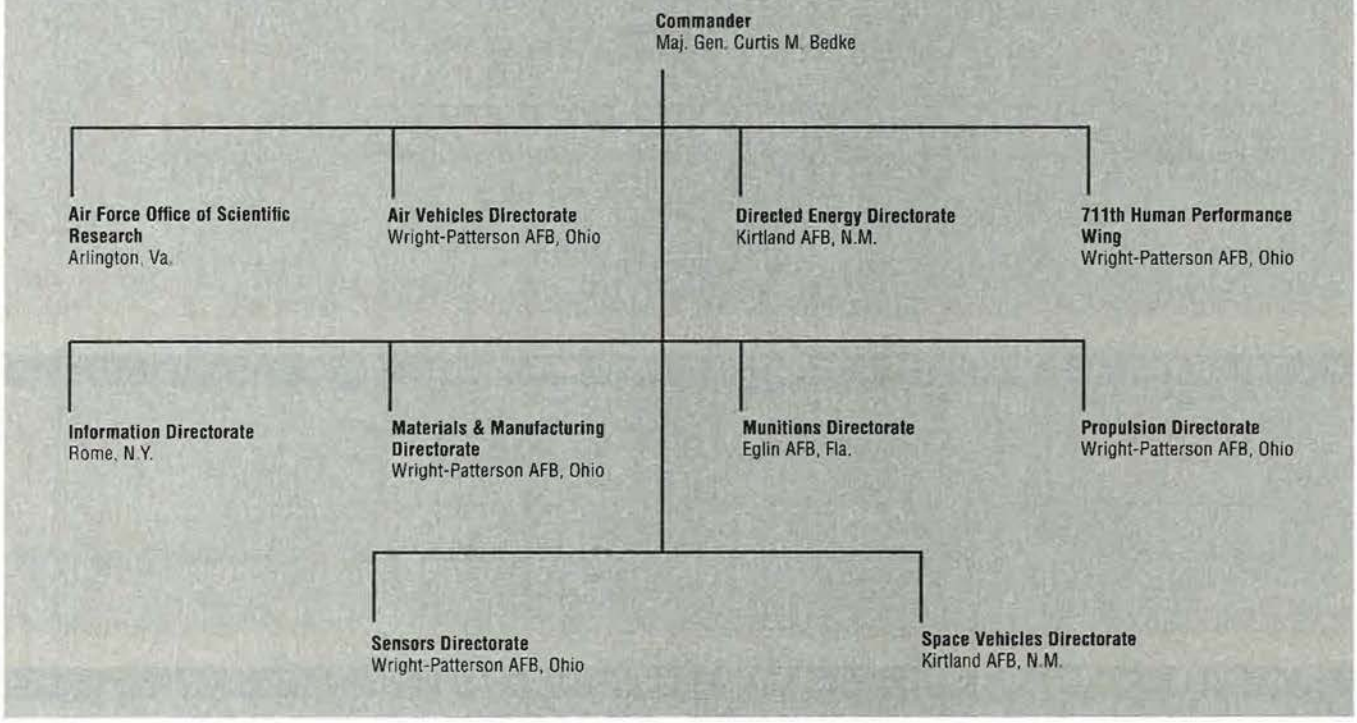
Bomber	3
Fighter/Attack	34
Helicopter	5
Recon	3
Tanker	2
Trainer	22
Transport	24

MAJOR UNITS	BASE
Aeronautical Systems Center	Wright-Patterson AFB, Ohio
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.
National Museum of the US Air Force	Wright-Patterson AFB, Ohio
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.
77th Aeronautical Systems Wing	Wright-Patterson AFB, Ohio
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.
303rd Aeronautical Systems Wing	Wright-Patterson AFB, Ohio
308th Armament Systems Wing	Eglin AFB, Fla.
309th Maintenance Wing	Hill AFB, Utah
311th Human Systems Wing	Brooks City-Base, Tex.
312th Aeronautical Systems Wing	Wright-Patterson AFB, Ohio
326th Aeronautical Systems Wing	Wright-Patterson AFB, Ohio
327th Aircraft Sustainment Wing	Tinker AFB, Okla.
330th Aircraft Sustainment Wing	Robins AFB, Ga.
350th Electronic Systems Wing	Hanscom AFB, Mass.
377th Air Base Wing	Kirtland AFB, N.M.
402nd Maintenance Wing	Robins AFB, Ga.
412th Test Wing	Edwards AFB, Calif.
448th Supply Chain Management Wing	Tinker AFB, Okla.
478th Aeronautical Systems Wing	Wright-Patterson AFB, Ohio
498th Armament Systems Wing	Kirtland AFB, N.M.
508th Aerospace Sustainment Wing	Hill AFB, Utah
516th Aeronautical Systems Wing	Wright-Patterson AFB, Ohio
542nd Combat Sustainment Wing	Robins AFB, Ga.
551st Electronic Systems Wing	Hanscom AFB, Mass.
554th Electronic Systems Wing	Hanscom AFB, Mass.
653rd Electronic Systems Wing	Hanscom AFB, Mass.
711th Human Performance Wing	Wright-Patterson AFB, Ohio
309th Aerospace Maintenance and Regeneration Group	Davis-Monthan AFB, Ariz.

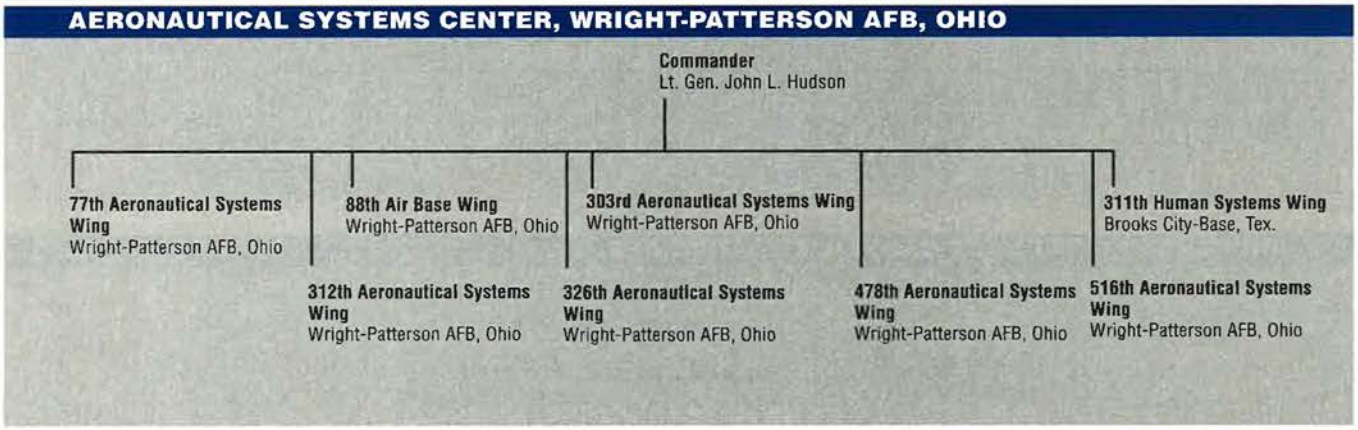
AIR FORCE MATERIEL COMMAND, WRIGHT-PATTERSON AFB, OHIO



AIR FORCE RESEARCH LABORATORY, WRIGHT-PATTERSON AFB, OHIO



AERONAUTICAL SYSTEMS CENTER, WRIGHT-PATTERSON AFB, OHIO



AIR ARMAMENT CENTER, EGLIN AFB, FLA.

Commander
Maj. Gen. David W. Eidsaune

- **46th Test Wing**, Eglin AFB, Fla.
- **96th Air Base Wing**, Eglin AFB, Fla.
- **308th Armament Systems Wing**, Eglin AFB, Fla.

ELECTRONIC SYSTEMS CENTER, HANSCOM AFB, MASS.

Commander
Lt. Gen. Ted F. Bowlds

- **66th Air Base Wing**, Hanscom AFB, Mass.
- **350th Electronic Systems Wing**, Hanscom AFB, Mass.
- **551st Electronic Systems Wing**, Hanscom AFB, Mass.
- **554th Electronic Systems Wing**, Hanscom AFB, Mass.
- **653rd Electronic Systems Wing**, Hanscom AFB, Mass.

OGDEN AIR LOGISTICS CENTER, HILL AFB, UTAH

Commander
Maj. Gen. Kathleen D. Close

- **75th Air Base Wing**, Hill AFB, Utah
- **84th Combat Sustainment Wing**, Hill AFB, Utah
- **309th Maintenance Wing**, Hill AFB, Utah
  - **309th Aerospace Maintenance and Regeneration Group**, Davis-Monthan AFB, Ariz.
- **508th Aerospace Sustainment Wing**, Hill AFB, Utah
- **526th ICBM Systems Group**, Hill AFB, Utah

OKLAHOMA CITY AIR LOGISTICS CENTER, TINKER AFB, OKLA.

Commander
Maj. Gen. P. David Gillett Jr.

- **72nd Air Base Wing**, Tinker AFB, Okla.
- **76th Maintenance Wing**, Tinker AFB, Okla.
- **327th Aircraft Sustainment Wing**, Tinker AFB, Okla.
- **448th Supply Chain Management Wing**, Tinker AFB, Okla.

WARNER ROBINS AIR LOGISTICS CENTER, ROBINS AFB, GA.

Commander
Maj. Gen. Polly A. Peyer

- **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. David J. Eichhorn

- **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 Gen. C. Robert Kehler

MISSIONS

Operate and test 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.

Two major product centers: Space and Missile Systems Center, Los Angeles AFB, Calif.; Space Innovation and Development Center, Schriever AFB, Colo.

16 wings

PERSONNEL

(as of Sept. 30, 2008)

Active duty		17,520
Officers	4,862	
Enlisted	12,658	
Reserve Components		2,203
ANG	900	
AFRC	1,303	
Civilian		6,980
Total		**26,703**

EQUIPMENT

(as of Sept. 30, 2008)

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:	UH-1	18
ICBMs:	Minuteman III	450

Satellite command and control system: Air Force Satellite Control Network

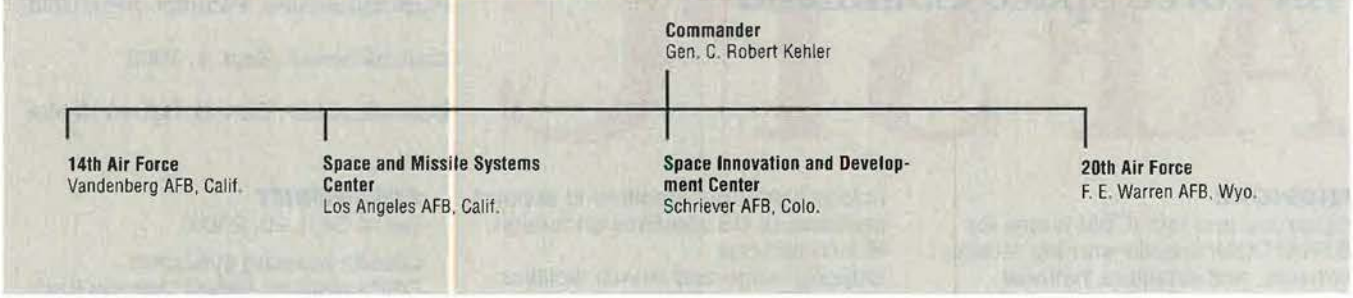
Satellite systems (as of Sep. 30, 2008):

GPS: Block II/IIA/IIR	31
DMSP	5
DSCS III	8
Milstar	5
Interim Polar System	3
WGS	1

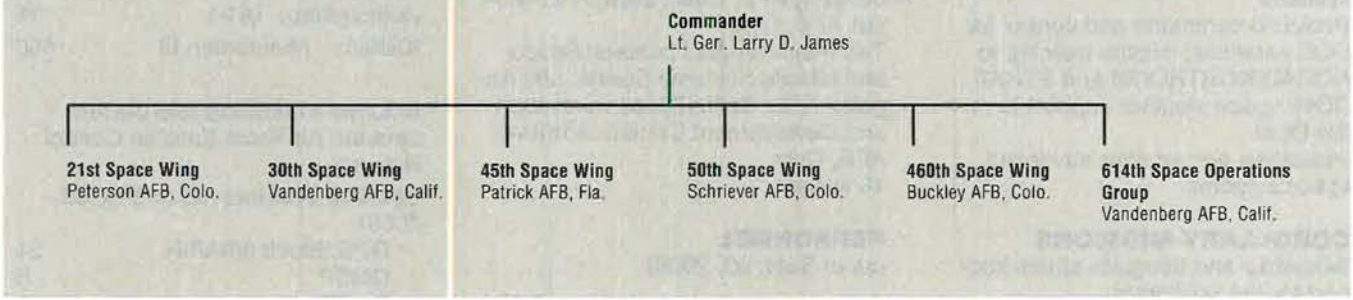
Space surveillance systems: Electro-Optical Deep Space Surveillance System and phased-array, mechanical tracking, and passive surveillance radars

MAJOR UNITS	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
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
61st Air Base Wing	Los Angeles AFB, Calif.	Base support systems
90th Missile Wing	F. E. Warren AFB, Wyo.	Minuteman III ICBM, UH-1
91st Missile Wing	Minot AFB, N.D.	Minuteman III ICBM, UH-1
341st Missile Wing	Malmstrom AFB, Mont.	Minuteman III ICBM, UH-1
460th Space Wing	Buckley AFB, Colo.	Missile warning and global surveillance
526th ICBM Systems Wing	Hill AFB, Utah	Modernization and sustainment of nuclear ICBM force
Global Positioning Systems Wing	Los Angeles AFB, Calif.	Development, launch, and sustainment of GPS
Launch and Range Systems Wing	Los Angeles AFB, Calif.	Military space acquisition
MilSatCom Systems Wing	Los Angeles AFB, Calif.	Plan, acquire, and sustain space-enabled communications
Space and Missile Systems Center	Los Angeles AFB, Calif.	Acquisition & development of space and missile systems
Space-Based Infrared Systems Wing	Los Angeles AFB, Calif.	Acquisition, integration, launch, and operating R&D spacecraft
Space Development and Test Wing	Los Angeles AFB, Calif.	R&D, purchase, and fielding of military space systems
Space Innovation and Development Center	Schriever AFB, Colo.	Testing, training, tactics development
Space Superiority Systems Wing	Los Angeles AFB, Calif.	Development, fielding, and sustainment of weapons systems

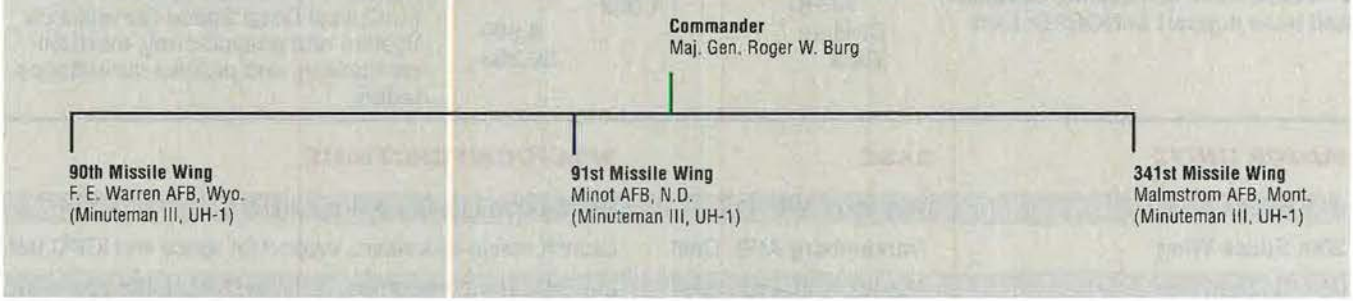
AIR FORCE SPACE COMMAND, PETERSON AFB, COLO.



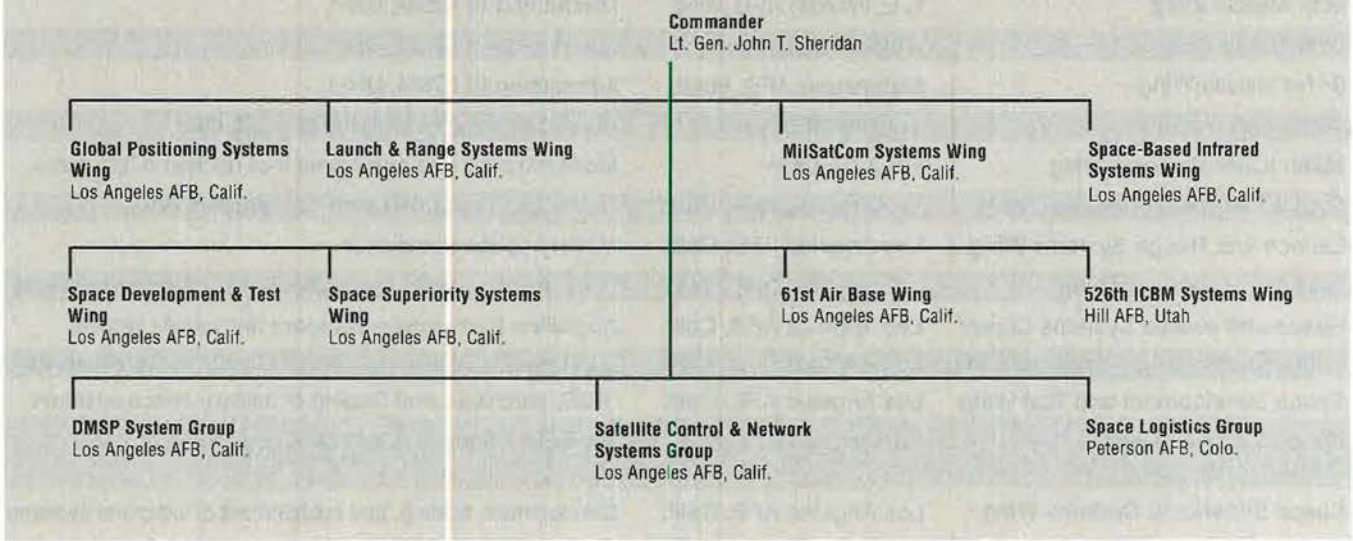
14th AIR FORCE (AFSPC), VANDENBERG AFB, CALIF.



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



SPACE AND MISSILE SYSTEMS CENTER, LOS ANGELES AFB, CALIF.



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Air Force Special Operations Command

AFSOC

Headquarters Hurlburt Field, Fla.

Established May 22, 1990

Commander Lt. Gen. Donald C. Wurster

MISSIONS

Serve as America's specialized airpower, delivering special operations power anytime, anywhere

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

Tasked for seven mission areas: shaping and stability operations; battlefield air operations; information operations; intelligence, surveillance, and reconnaissance; SOF mobility; precision engagement; and agile combat support

FORCE STRUCTURE

One numbered air force: **23rd,** Hurlburt Field, Fla.
Two wings
Three groups
Air Force Special Operations Training Center

OPERATIONAL ACTIVITY

(as of Sept. 30, 2008)
Flying hours: 3,927 per month

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

PERSONNEL

(as of Sept. 30, 2008)

Active duty		11,699
Officers	2,147	
Enlisted	9,552	
Reserve Components		2,794
ANG	1,451	
AFRC	1,343	
Civilian		1, 378
Total		**15,871**

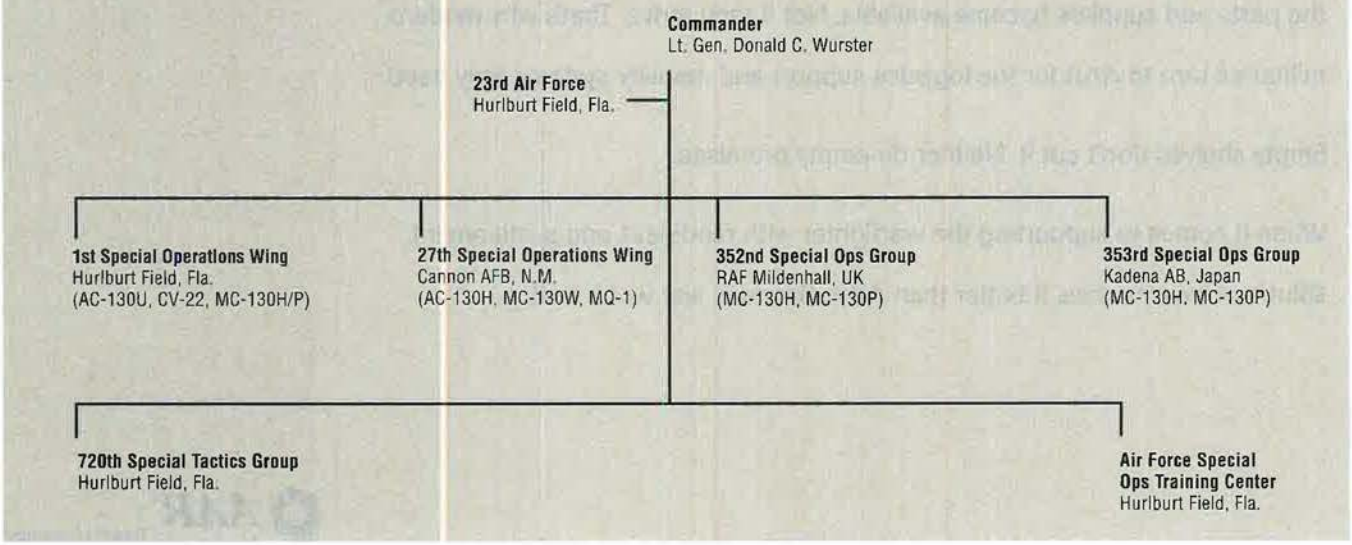
EQUIPMENT

(PAI as of Sept. 30, 2008)

Helicopter	2
Recon	22
SOF	62

MAJOR UNITS	BASE	WEAPONS
1st Special Operations Wing	Hurlburt Field, Fla.	AC-130U, CV-22, MC-130H/P
27th Special Operations Wing	Cannon AFB, N.M.	AC-130H, MC-130W, MQ-1
352nd Special Operations Group	RAF Mildenhall, UK	MC-130H, MC-130P
353rd Special Operations Group	Kadena AB, Japan	MC-130H, MC-130P
720th Special Tactics Group	Hurlburt Field, Fla.	
Air Force Special Operations Training Center	Hurlburt Field, Fla.	

AIR FORCE SPECIAL OPERATIONS COMMAND, HURLBURT FIELD, FLA.



Air Mobility Command

AMC

Headquarters Scott AFB, Ill.

Established June 1, 1992

Commander Gen. Arthur J. Lichte

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
Perform en route employment and rapid forward deployment capabilities

FORCE STRUCTURE

One numbered air force: **18th,** Scott AFB, Ill.
Two expeditionary mobility task forces: 15th, Travis AFB, Calif.; 21st, McGuire AFB, N.J.
One DRU: US Air Force Expeditionary Center, Ft. Dix, N.J.
18 wings

OPERATIONAL ACTIVITY

(as of Sept. 30, 2008)
Flying hours: 43,070 per month

Major operations
Enduring Freedom (Afghanistan); Iraqi Freedom (Iraq); Noble Eagle (US); Humanitarian and disaster relief

Major training exercises
Ardent Sentry; Cobra Gold; Global Thunder; Northern Edge; Ulchi Focus Lens

PERSONNEL

(as of Sept. 30, 2008)

Active duty		43,135
Officers	6,954	
Enlisted	36,181	
Reserve Components		80,593
ANG	37,432	
AFRC	43,161	
Civilian		8,048
Total		**131,776**

EQUIPMENT

(PAI as of Sept. 30, 2008)

Tanker	162
Transport	237

USAF photo by A1C Kenny Holston

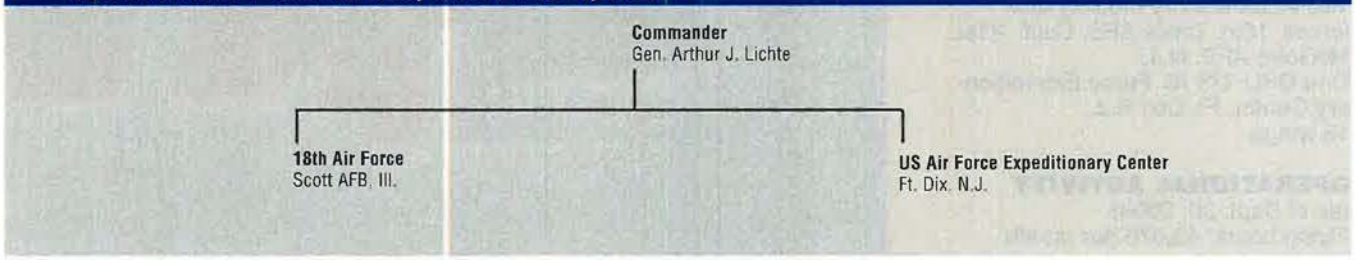
A1C Phillip Bean performs a preflight inspection on a C-130 Hercules.

USAF photo by SrA. Clay Lancaster

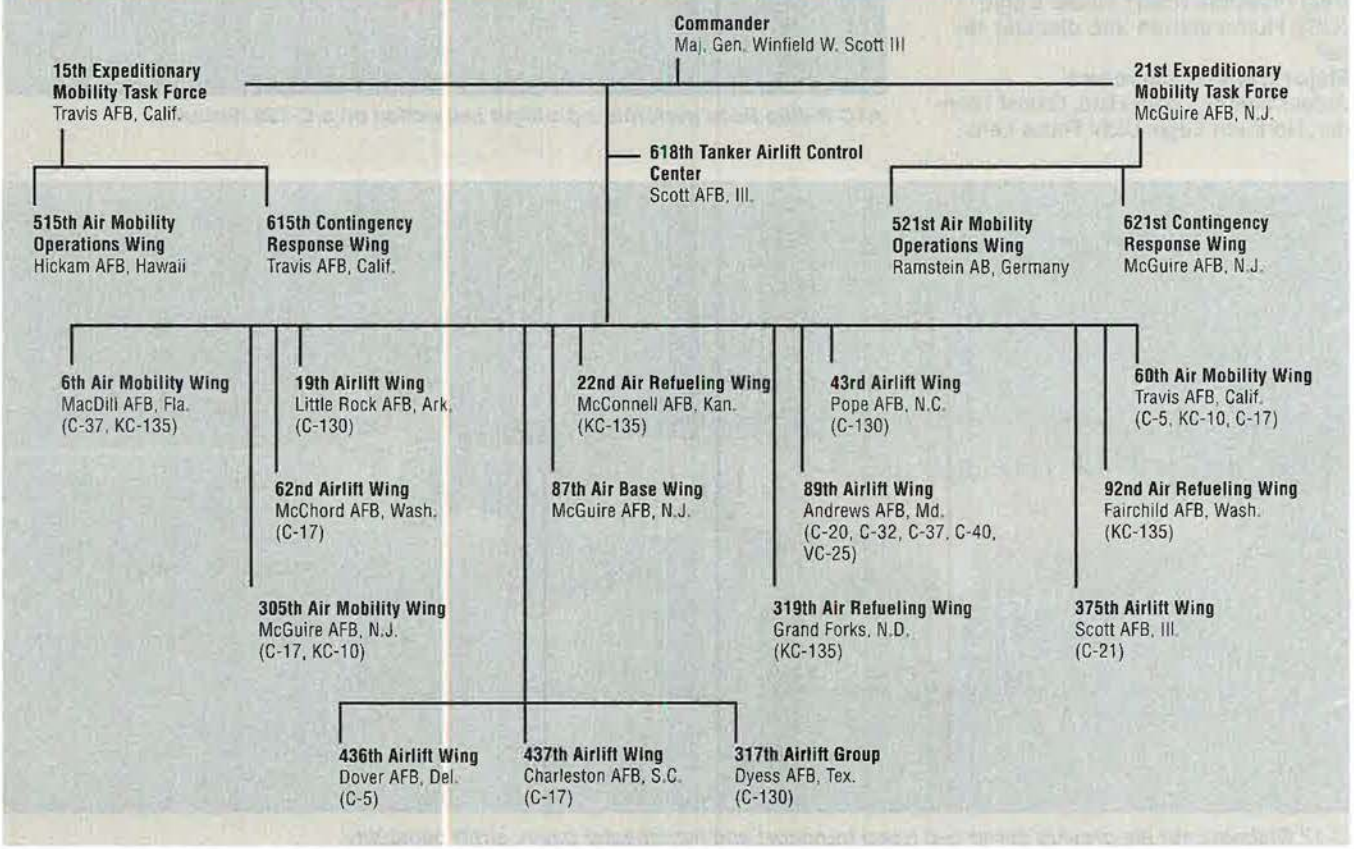
C-17 Globemaster IIIs provide cargo and troop transport and intratheater heavy airlift capability.

MAJOR UNITS	BASE	WEAPONS
6th Air Mobility Wing	MacDill AFB, Fla.	C-37, KC-135
19th Airlift Wing	Little Rock AFB, Ark.	C-130
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, C-17
62nd Airlift Wing	McChord AFB, Wash.	C-17
87th Air Base Wing	McGuire AFB, N.J.	
89th Airlift Wing	Andrews AFB, Md.	C-20, C-32, C-37, C-40, VC-25
92nd Air Refueling Wing	Fairchild AFB, Wash.	KC-135
305th Air Mobility Wing	McGuire AFB, N.J.	C-17, KC-10
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
515th Air Mobility Operations Wing	Hickam AFB, Hawaii	
521st Air Mobility Operations Wing	Ramstein AB, Germany	
615th Contingency Response Wing	Travis AFB, Calif.	
621st Contingency Response Wing	McGuire AFB, N.J.	
618th Tanker Airlift Control Center	Scott AFB, Ill.	

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. Carrol H. Chandler

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

OPERATIONAL ACTIVITY

(as of Sept. 30, 2008)
Flying hours: 9,248 per month

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

Major training exercises
Balikatan; Cobra Gold; Commando Sling; Cope North; Cope Tiger; Foal Eagle; Keen Edge; Key Resolve; Northern Edge; Pacific Airlift Rally; Red Flag-Alaska; Talisman Saber; Terminal Fury; Ulchi Freedom Guardian; Valiant Shield

USAF photo by SSgt. Eric T. Sheler

F-16s from the 18th Aggressor Squadron, Eielson AFB, Alaska, form up for an exercise.

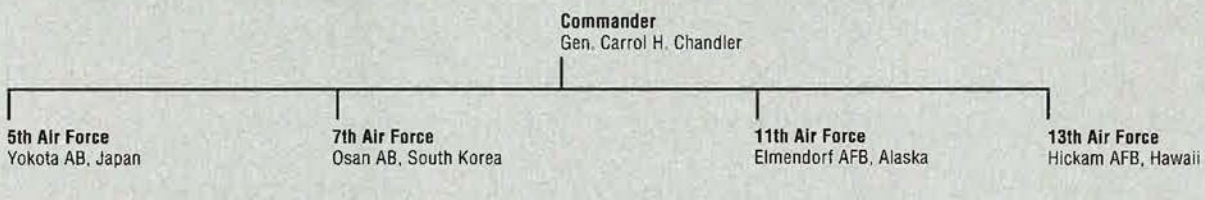
PERSONNEL

(as of Sept. 30, 2008)

Active duty		29,337
Officers	3,880	
Enlisted	25,457	
Reserve Components		5,413
ANG	4,388	
AFRC	755	
Civilian		7,829
Total		**42,579**

MAJOR UNITS	BASE	WEAPONS
3rd Wing	Elmendorf AFB, Alaska	C-12F/J, C-17, E-3B, F-15C, F-22
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/T, HH-60G
35th Fighter Wing	Misawa AB, Japan	F-16CM
36th Wing	Andersen AFB, Guam	
51st Fighter Wing	Osan AB, South Korea	A-10, F-16C/D
354th Fighter Wing	Eielson AFB, Alaska	F-16C/D
374th Airlift Wing	Yokota AB, Japan	C-12J, C-130H, UH-1N

PACIFIC AIR FORCES, HICKAM AFB, HAWAII



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

Commander
Lt. Gen. Edward A. Rice Jr.

- **18th Wing**
  Kadena AB, Japan
  (E-3B/C, F-15C/D, KC-135R/T, HH-60G)
- **35th Fighter Wing**
  Misawa AB, Japan
  (F-16CM)
- **374th Airlift Wing**
  Yokota AB, Japan
  (C-12J, C-130H, UH-1N)

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

Commander
Lt. Gen. Jeffrey A. Remington

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

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

Commander
Lt. Gen. Dana T. Atkins

- **3rd Wing**
  Elmendorf AFB, Alaska
  (C-12F/J, C-17, E-3B, F-15C, F-22)
- **354th Fighter Wing**
  Eielson AFB, Alaska
  (F-16C/D)

EQUIPMENT
(PAI as of Sept. 30, 2008)

Fighter/Attack	139
Helicopter	9
Recon	4
Tanker	14
Transport	37

USAF photo by SrA. Brian Kimball

At Yokota AB, Japan, C-130s from the 36th Airlift Squadron await their next mission.

13th AIR FORCE (PACAF), HICKAM AFB, HAWAII

Commander
Lt. Gen. Loyd S. Utterback

- **36th Wing**
  Andersen AFB, Guam
  (rotational aircraft)
- **15th Airlift Wing**
  Hickam AFB, Hawaii
  (C-17, C-37, C-40)
- **613th Air and Space Operations Center**
  Hickam AFB, Hawaii

US Air Forces in Europe

Headquarters Ramstein AB, Germany

Established Aug. 7, 1945

Commander Gen. Roger A. Brady

MISSIONS

Provide combat and mobility forces to combatant commanders
Ensure forward-based access for global strategic operations
Deter potential threats to NATO security and assure allies and friends
Build partner relationships and airpower capabilities

FORCE STRUCTURE

Two numbered air forces: **3rd, 17th** Ramstein AB, Germany
Nine wings, one Air Expeditionary Task Force

OPERATIONAL ACTIVITY

(as of Sept. 30, 2008)
Flying hours: 6,800 per month

Major operations
Assured Delivery (Georgia); Enduring Freedom (Afghanistan); International Security Assistance Force (Afghanistan); Iraqi Freedom (Iraq); Joint Forge (Bosnia); Joint Guardian (Kosovo)

Major training exercises
Anatolian Eagle; Austere Challenge; Baltops; Clean Hunter; Medceur; Medlite; Noble Ardent; Northern Viking

Photo by Clive Bennett

An F-15 from RAF Lakenheath, Britain.

US AIR FORCES IN EUROPE, RAMSTEIN AB, GERMANY

Commander
Gen. Roger A. Brady

- **3rd Air Force**
  Ramstein AB, Germany
- **17th Air Force (administrative control)**
  Ramstein AB, Germany

The USAFE organizational chart above shows peacetime lines of command. The charts below show the NATO wartime air command lines (left) and COMUSAFE's role as Joint Airpower Competence Center director (right).

Allied Command Operations (ACO)
Supreme Headquarters Allied Powers Europe (SHAPE)
SACEUR
Mons, Belgium

- **Joint Force Command Brunssum**
  Brunssum, Netherlands
  - **Commander**
    Allied Air Component Command-Ramstein
    Gen. Roger A. Brady
    Ramstein AB, Germany
    - Combined Air Operations Center 1
      Finderup, Denmark
    - CAOC 2
      Uedem, Germany
- **Joint Command**
  Lisbon, Portugal
- **JFC Naples**
  Naples, Italy
  - **Commander**
    Allied Air Component Command-Izmir & 16th AETF
    Lt. Gen. Maurice L. McFann Jr.
    Izmir, Turkey
    - CAOC 5
      Poggio Renatico, Italy
    - CAOC 6
      Eskisehir, Turkey
    - CAOC 7
      Larissa, Greece
    - CAOC 8
      Torrejon, Spain
    - CAOC 10
      Monsanto, Portugal

Allied Command Transformation
Supreme Allied Commander Transformation (SACT)
Norfolk, Va.

- **Director**
  JAPCC
  Gen. Roger A. Brady
  Kalkar, Germany

PERSONNEL
(as of Sept. 30, 2008)

Active duty		25,394
Officers	3,162	
Enlisted	22,232	
Reserve Components		441
ANG	204	
AFRC	237	
Civilian		5,253
Total		**31,088**

EQUIPMENT
(PAI as of Sept. 30, 2008)

Fighter/Attack	173
Tanker	14
Transport	26

Photo by Clive Bennett

A KC-135 aerial refueling tanker prepares to land at RAF Mildenhall, Britain.

MAJOR UNITS	BASE	WEAPONS
31st Fighter Wing	Aviano AB, Italy	F-16C, F-16D
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-10A/C, F-16C/D
65th Air Base Wing	Lajes Field, the Azores	
86th Airlift Wing	Ramstein AB, Germany	C-20H, C-21, C-37, C-40B, C-130E/J
100th Air Refueling Wing	RAF Mildenhall, UK	KC-135R
435th Air Base Wing	Ramstein AB, Germany	
501st Combat Support Wing	RAF Alconbury, UK	

3rd AIR FORCE (USAFE), RAMSTEIN AB, GERMANY

3rd Air Force
Lt. Gen. Philip M. Breedlove
Ramstein AB, Germany

- **31st Fighter Wing** — Aviano AB, Italy (F-16C, F-16D)
- **86th Airlift Wing** — Ramstein AB, Germany (C-20H, C-21, C-37, C-40B, C-130E/J)
- **39th Air Base Wing** — Incirlik AB, Turkey
- **100th Air Refueling Wing** — RAF Mildenhall, UK (KC-135R)
- **48th Fighter Wing** — RAF Lakenheath, UK (F-15C/D, F-15E, HH-60G)
- **435th Air Base Wing** — Ramstein AB, Germany
- **52nd Fighter Wing** — Spangdahlem AB, Germany (A-10A/C, F-16C/D)
- **501st Combat Support Wing** — RAF Alconbury, UK
- **65th Air Base Wing** — Lajes Field, the Azores
- **4th Air Support Operations Group** — Heidelberg, Germany

17th AIR FORCE (USAFE) (AIR FORCES AFRICA), RAMSTEIN AB, GERMANY*

17th Air Force
Maj. Gen. Ronald R. Ladnier
Ramstein AB, Germany

*Supports US Africa Command.

Air Reserve Components

2009 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. Charles E. Stenner Jr.

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 Command 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.
34 wings
Eight groups

OPERATIONAL ACTIVITY

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

Photo by Butch Ramsey

This KC-135 is from the AFRC's 459th Air Refueling Wing, Andrews AFB, Md.

PERSONNEL

(as of Sept. 30, 2008)

Total (selected reserve)		67,490
Officers	15,095	
Enlisted	52,395	
Civilian		12,664
Total		**80,154**

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

EQUIPMENT

(PAI as of Sept. 30, 2008)

Bomber	8
Fighter/Attack	90
Helicopter	13
Recon/BM/C3I	10
SOF	8
Tanker	69
Transport	140

AIR FORCE RESERVE COMMAND, ROBINS AFB, GA.

Commander
Lt. Gen. Charles E. Stenner Jr.

- **4th Air Force** — March ARB, Calif.
- **10th Air Force** — NAS JRB Fort Worth, Tex.
- **22nd Air Force** — Dobbins ARB, Ga.
- **AFRC Recruiting Service** — Col. Joe N. Wilburn, Robins AFB, Ga.
- **IMA Readiness Management Group** — Col. Nancy Zbyszinski, Robins AFB, Ga.
- **Air Reserve Personnel Center** — Col. Kevin E. Pottinger, Denver

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

Commander
Brig. Gen. Eric W. Crabtree

- **349th Air Mobility Wing** — Travis AFB, Calif. (C-5A/B, C-17, KC-10[a])
- **452nd Air Mobility Wing** — March ARB, Calif. (C-17, KC-135R)
- **932nd Airlift Wing** — Scott AFB, Ill. (C-9A[c], C-40)
- **433rd Airlift Wing** — Lackland AFB, Tex. (C-5A)
- **459th Air Refueling Wing** — Andrews AFB, Md. (KC-135R)
- **434th Air Refueling Wing** — Grissom ARB, Ind. (KC-135R)
- **507th Air Refueling Wing** — Tinker AFB, Okla. (KC-135R[d])
- **445th Airlift Wing** — Wright-Patterson AFB, Ohio (C-5A)
- **916th Air Refueling Wing** — Seymour Johnson AFB, N.C. (KC-135R[b])
- **931st Air Refueling Group** — McConnell AFB, Kan. (KC-135R[c])
- **446th Airlift Wing** — McChord AFB, Wash. (C-17A[a])
- **927th Air Refueling Wing** — MacDill AFB, Fla. (KC-135R[a])

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

Commander
Maj. Gen. Thomas R. Coon

- **301st Fighter Wing** — NAS JRB Fort Worth, Tex. (F-16C/D)
- **917th Wing** — Barksdale AFB, La. (B-52H, A-10A)
  - **A-10 FTU Det.** — Davis-Monthan AFB, Ariz.
- **926th Group** — Nellis AFB, Nev. (F-15, F-16, F-22, MQ-1, MQ-9)[a]
- **310th Space Wing** — Schreiver AFB, Colo.
- **919th Special Ops Wing** — Duke Field, Fla. (MC-130E[b])
- **340th Flying Training Group** — Randolph AFB, Tex. (AT/T-38, T-1, T-38)[a]
- **943rd Rescue Group** — Davis-Monthan AFB, Ariz. (HH-60G)
- **419th Fighter Wing** — Hill AFB, Utah (F-16C/D[a])
- **920th Rescue Wing** — Patrick AFB, Fla. (HC-130P/N, HH-60G)
- **476th Fighter Group** — Moody AFB, Ga. (A-10[a])
- **307th Fighter Squadron** — Langley AFB, Va. (F-15, F-16C/D)[a]
- **442nd Fighter Wing** — Whiteman AFB, Mo. (A-10A)
- **940th Air Refueling Wing** — Beale AFB, Calif. (RQ-4[a])
- **477th Fighter Group** — Elmendorf AFB, Alaska (F-22A[a])
- **482nd Fighter Wing** — Homestead ARB, Fla. (F-16C/D)
- **944th Fighter Wing** — Luke AFB, Ariz. (F-16C/D)[a]
- **513th Air Control Group** — Tinker AFB, Okla. (E-3[a])

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

Commander
Maj. Gen. James T. Rubeor

- **94th Airlift Wing** — Dobbins ARB, Ga. (C-130H)
- **440th Airlift Wing** — Pope AFB, N.C. (C-130H[b])
- **911th Airlift Wing** — Pittsburgh Arpt./ARS (C-130H[b])
- **302nd Airlift Wing** — Peterson AFB, Colo. (C-130H[b])
- **512th Airlift Wing** — Dover AFB, Del. (C-5A/B, C-17)[a]
- **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[d])
- **403rd Wing** — Keesler AFB, Miss. (C-130J, WC-130J)
- **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-5B)
- **910th Airlift Wing** — Youngstown ARS, Ohio (C-130H)

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

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

Headquarters Washington, D.C.

Established Sept. 18, 1947

Director Lt. Gen. Harry M. Wyatt III

MISSIONS

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

88 wings
Nine squadrons

OPERATIONAL ACTIVITY

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

PERSONNEL

(as of Sept. 30, 2008)

Total ANG military*		107,681
Officers	14,115	
Enlisted	93,566	
Civilian		1,077
Total		**108,758**

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

EQUIPMENT

(PAI as of Sept. 30, 2008)

Fighter/Attack	548
Helicopter	15
Recon/BM/C3I	26
SOF	4
Tanker	175
Transport	218

Wisconsin ANG photo

F-16s from the Wisconsin Air National Guard pass the state capital, Madison.

The Air National Guard by Major Command Assignment

Air Combat Command

A-10

110th Fighter Wing	W. K. Kellogg Arpt., Mich.
111th Fighter Wing	Willow Grove ARS, Pa.
124th Wing	Boise Air Terminal, Idaho
127th Wing	Selfridge ANGB, Mich.
175th Wing	Martin State Arpt., Md.
188th Fighter Wing	Fort Smith Arpt., Ark.

B-2

131st Bomb Wing	Whiteman AFB, Mo.

C-130

156th Airlift Wing	Luis Munoz Marin Arpt., Puerto Rico

Distributed Common Ground Station

102nd Intelligence Wing	Otis ANGB, Mass.
181st Intelligence Wing	Hulman Arpt., Ind.
184th Intelligence Wing	McConnell AFB, Kan.
117th Intelligence Squadron	Birmingham, Ala.
123rd Intelligence Squadron	Little Rock AFB, Ark.
152nd Intelligence Squadron	Reno, Nev.
192nd Intelligence Squadron	Langley AFB, Va.
234th Intelligence Squadron	Beale AFB, Calif.

E-8C

116th Air Control Wing	Robins AFB, Ga.

F-15

104th Fighter Wing	Barnes Arpt., Mass.
120th Fighter Wing	Great Falls Arpt., Mont.
125th Fighter Wing	Jacksonville Arpt., Fla.
142nd Fighter Wing	Portland Arpt., Ore.
159th Fighter Wing	NAS JRB New Orleans, La.

F-16

113th Wing	Andrews AFB, Md.
114th Fighter Wing	Joe Foss Field, S.D.
115th Fighter Wing	Truax Field, Wis.
122nd Fighter Wing	Fort Wayne Arpt., Ind.
132nd Fighter Wing	Des Moines Arpt., Iowa
138th Fighter Wing	Tulsa Arpt., Okla.
140th Wing	Buckley AFB, Colo.

Air Combat Command Cont.

144th Fighter Wing	Fresno Yosemite Arpt., Calif.
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.
178th Fighter Wing	Springfield-Beckley Arpt., Ohio
180th Fighter Wing	Toledo Express Arpt., Ohio
183rd Fighter Wing	Abraham Lincoln Capital Arpt., Ill.
187th Fighter Wing	Montgomery Regional Arpt., Ala.
F-22	
192nd Fighter Wing	Langley AFB, Va.
MC/HC-130/HH-60	
106th Rescue Wing	Francis S. Gabreski Arpt., N.Y.
129th Rescue Wing	Moffett Field, Calif.
MQ-1/MQ-9	
119th Wing	Hector Arpt., Fargo, N.D.
147th Reconnaissance Wing	Ellington Field, Tex.
163rd Reconnaissance Wing	March ARB, Calif.
174th Fighter Wing	Hancock Field, N.Y.
RC-26	
115th Fighter Wing	Truax Field, Wis.
125th Fighter Wing	Jacksonville Arpt., Fla.
130th Airlift Wing	Yeager Arpt., W.Va.
141st Air Refueling Wing	Fairchild AFB, Wash.
144th Fighter Wing	Fresno Yosemite Arpt., Calif.
147th Reconnaissance Wing	Ellington Field, Tex.
150th Fighter Wing	Kirtland AFB, N.M.
162nd Fighter Wing	Tucson Arpt., Ariz.
186th Air Refueling Wing	Key Field, Miss.
187th Fighter Wing	Montgomery Regional Arpt., Ala.

Air Education and Training Command

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

Air Force Space Command

111th Space Ops Squadron	Sky Harbor Arpt., Ariz.
137th Space Warning Sq.	Greeley ANGB, Colo.
148th Space Ops Sq.	Vandenberg AFB, Calif.
213th Space Warning Sq.	Clear AFS, Alaska

Air Force Special Operations Command

193rd Special Ops Wing (EC-130J)	Harrisburg Arpt., Pa.

Air Mobility Command

C-5A	
105th Airlift Wing	Stewart ANGB, N.Y.
164th Airlift Wing	Memphis Arpt., Tenn.
167th Airlift Wing	Eastern W.Va. Arpt., W.Va.
C-17	
172nd Airlift Wing	Allen C. Thompson Field, Miss.
C-21	
103rd Airlift Wing	Bradley Arpt., Conn.
119th Wing	Hector Arpt., Fargo, N.D.
140th Wing	Buckley AFB, Colo.
179th Airlift Wing	Mansfield Lahm Arpt., Ohio
C-130	
107th Airlift Wing	Niagara Falls Arpt./ARS, N.Y.
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 ARS, Minn.
136th Airlift Wing	NAS JRB Fort Worth, Tex.
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.
175th Wing	Martin State Arpt., Md.
179th Airlift Wing	Mansfield Lahm Arpt., Ohio
182nd Airlift Wing	Greater Peoria Arpt., Ill.
KC-135	
101st Air Refueling Wing	Bangor Arpt., Maine
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.
127th Wing	Selfridge ANGB, Mich.
128th Air Refueling Wing	General Mitchell Arpt./ARS, Wis.
134th Air Refueling Wing	McGhee Tyson Arpt., Tenn.
137th Air Refueling Wing	Will Rogers World Arpt., Okla.
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.
171st Air Refueling Wing	Pittsburgh Arpt./ARS
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

154th Wing (C-17, C-130, F-15, F-22, KC-135)	Hickam AFB, Hawaii
168th Air Refueling Wing (KC-135)	Eielson AFB, Alaska
176th Wing (C-130, HC-130, HH-60, KC-135)	Kulis ANGB, Alaska

FOAs, DRUs, and Auxiliary

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. James E. Dennis

MISSION, PURPOSE, OPERATIONS

Ensure appropriate representation of air, space, and cyberspace in M&S
Integrate and ensure interoperability of Air Force models and simulations
Coordinate Air Force M&S support for service, joint, interagency, and coalition events
Develop and maintain appropriate M&S skills and knowledge for Air Force personnel

STRUCTURE

Three divisions in Orlando, Fla.

PERSONNEL

Active duty		11
Officers	9	
Enlisted	2	
Reserve Components		1
ANG	0	
AFRC	1	
Civilians		13
Total		**25**

Air Force Audit Agency

Hq.: Washington, D.C.
Estab.: July 1, 1948
Dir.: Theodore J. Williams

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	727
Total	**727**

The director of AFAA is the USAF auditor general.

Air Force Center for Engineering and the Environment

Hq.: Brooks City-Base, Tex.
Estab.: July 23, 1991
Dir.: Dennis M. Firman

MISSION, PURPOSE, OPERATIONS

Provide integrated engineering and environmental management, execution, and technical services that optimize Air Force and joint capabilities through sustainable installations

STRUCTURE

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

PERSONNEL

Active duty		38
Officers	35	
Enlisted	3	
Reserve Components		5
ANG	0	
AFRC	5	
Civilians		451
Total		**494**

Air Force Civil Engineer Support Agency

Hq.: Tyndall AFB, Fla.
Estab.: Aug. 1, 1991
Cmdr.: Col. Max E. Kirschbaum

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 with an operating location at Travis AFB, Calif.

PERSONNEL

Active duty		92
Officers	19	
Enlisted	73	
Reserve Components		15
ANG	0	
AFRC	15	
Civilians		103
Total		**210**

Air Force Communications Agency

Hq.: Scott AFB, Ill.
Estab.: June 13, 1996
Cmdr.: Col. Carl Williamson

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		185
Officers	84	
Enlisted	101	
Reserve Components		5
ANG	0	
AFRC	5	
Civilians		290
Total		**480**

USAF photo by Amelia Donnell

Air Force Global Cyberspace Integration Center, Langley AFB, Va.

Air Force Cost Analysis Agency

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

MISSION, PURPOSE, OPERATIONS

Perform independent component cost analyses for major programs
Conduct cost estimating and enhance the state-of-art in cost analysis
Provide guidance, analytical support, and quantitative risk analyses for resource requirements
Perform special studies supporting long-range planning, force structure, analysis of alternatives, and life-cycle cost analyses

STRUCTURE

Six divisions
Six operating locations (California, Colorado [2], Florida, Massachusetts, Ohio)

PERSONNEL

Active duty		27
Officers	22	
Enlisted	5	
Civilians		86
Total		**113**

Air Force Financial Services Center

Hq.: Ellsworth AFB, S.D.
Estab.: Sept. 14, 2007
Cmdr.: Col. Judy Perry

MISSION, PURPOSE, OPERATIONS

Provide travel and military pay services and support to active and reserve component military and civilian personnel across the Air Force
Serve as the single financial services center for transactions formerly conducted at 93 base-level finance offices
Expedite travel and military pay services through a centralized processing center and a full-service contact center

STRUCTURE

Two directorates

PERSONNEL

Active duty		334
Officers	7	
Enlisted	327	
Civilians		21
Total		**355**

Air Force Flight Standards Agency

Hq.: Oklahoma City
Estab.: Oct. 1, 1991
Cmdr.: Col. Kevin Degnan

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

Three directorates

PERSONNEL

Active duty		153
Officers	89	
Enlisted	64	
Reserve Components		3
ANG	0	
AFRC	3	
Civilians		45
Total		**201**

Air Force Frequency Management Agency

Hq.: Alexandria, Va.
Estab.: Oct. 1, 1991
Cmdr.: Col. Brian T. Jordan

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
Provide functional management for the spectrum management career field and oversee curriculum for spectrum management courses

STRUCTURE

Two directorates

PERSONNEL

Active duty		6
Officers	1	
Enlisted	5	
Civilians		19
Total		**25**

Air Force Global Cyberspace Integration Center

Hq.: Langley AFB, Va.
Estab.: Aug. 1, 1997
Dir.: Stan C. Newberry

MISSION, PURPOSE, OPERATIONS

Team with major commands, joint and coalition partners, national agencies, industry, and academia to develop, integrate, and standardize air, space, and cyberspace components
Manage C2 and cyber innovation, experimentation, and transition efforts including Joint Expeditionary Force Experiment (JEFX)
Plan, program, and guide capability-based planning, requirements, architectures, and integration of USAF warfighting networks, combat support, and C2 systems
Serve as lead command for tactical data links to include joint interoperability of tactical C2 systems, joint and coalition C2 interoperability data standards, air component information management, and SATCOM terminal management

STRUCTURE

Five directorates

PERSONNEL

Active duty		21
Officers	20	
Enlisted	1	
Reserve Components		15
ANG	0	
AFRC	15	
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

Four divisions

PERSONNEL

Civilians	34
Total	**34**

Air Force Inspection Agency

Hq.: Kirtland AFB, N.M.
Estab.: Aug. 1, 1991
Cmdr.: Col. Michael J. Kingsley

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		86
Officers	69	
Enlisted	17	
Reserve Components		5
ANG	0	
AFRC	5	
Civilians		23
Total		**114**

Air Force Intelligence Analysis Agency

Hq.: Pentagon
Estab.: Feb. 2, 2001
Dir.: Col. Michael D. Phillips

MISSION, PURPOSE, OPERATIONS

Provide tailored, substantive intelligence, special security services, and imagery products to the Secretariat and the Air Staff
Function as a national-level center for analysis of foreign air and air defense tactics and training
Serve as Air Force intelligence focal point for Intelligence Force Protection policy and counterterrorism

Represent Air Force A2 on National Intelligence Estimates and in other DOD and national intelligence forums
Manage Air Force national imagery collection and interagency civil air analysis
Direct global tactics analysis reporting program for the theater air components

STRUCTURE
Eight divisions

PERSONNEL

Active duty		78
Officers	23	
Enlisted	55	
Civilians		44
Total		**122**

Air Force Intelligence, Surveillance, and Reconnaissance Agency

Hq.: Lackland AFB, Tex.
Estab.: June 8, 2007
Cmdr: Maj. Gen. Bradley A. Heithold

MISSION, PURPOSE, OPERATIONS
Organize, train, equip, and present assigned forces and capabilities to conduct intelligence, surveillance, and reconnaissance for combatant commanders and the nation
Implement and oversee execution of policy and guidance to expand Air Force ISR capabilities to meet current and future challenges

STRUCTURE
70th ISR Wing, Ft. Meade, Md.
480th ISR Wing, Langley AFB, Va.
National Air & Space Intelligence Center, Wright-Patterson AFB, Ohio
Air Force Technical Applications Center, Patrick AFB, Fla.
Air Force Cryptologic Office, Ft. Mead, Md.
Air Force Combat ISR Office, Langley AFB, Va.
361st ISR Group, Hurlburt Field, Fla.

PERSONNEL

Active duty		93
Officer	65	
Enlisted	28	
Reserve Components		1,919
ANG	226	
AFRC	1,693	
Civilians		49
Total		**2,061**

Air Force Legal Operations Agency

Hq.: Bolling AFB, D.C.
Estab.: Sept. 1, 1991
Cmdr.: Brig. Gen. Richard C. Harding

MISSION, PURPOSE, OPERATIONS
Administer Air Force's civil litigation and military justice programs and provide legal research technology to all Air Force Judge Advocate Corps members
Advise in military justice and civil law matters encompassing courts-martial, environmental, acquisition, claims, litigation, employment and patent actions, and legal assistance
Command the Air Force Judge Advocate General's School, which is the hub of legal training for Air Force counsel, paralegals, and support staff
Support the Department of Justice with regard to all phases of litigation, civil or criminal, pertaining to the Air Force, and share training responsibilities for Air Force and other DOD attorneys and paralegals

STRUCTURE
Four directorates

PERSONNEL

Active duty		507
Officers	294	
Enlisted	213	
Reserve Components		118
ANG	0	
AFRC	118	
Civilians		168
Total		**793**

Air Force Logistics Management Agency

Hq.: Maxwell AFB, Gunter Annex, Ala.
Estab.: Sept. 30, 1975
Cmdr.: Roger D. Golden

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

PERSONNEL

Active duty		35
Officers	19	
Enlisted	16	
Civilians		17
Total		**52**

Air Force Manpower Agency

Hq.: Randolph AFB, Tex.
Estab.: Sept. 1, 1999
Cmdr.: Col. Daniel D. Badger Jr.

MISSION, PURPOSE, OPERATIONS
Provide Air Force leaders with the tools to identify essential manpower required for the effective and efficient accomplishment of the Air Force mission
Determine manpower requirements
Develop programming factors
Manage Air Force performance management and productivity programs
Execute the Air Force competitive sourcing program
Create and maintain standard position descriptions
Provide AEF operations with military essential requirements
Perform civilian classification oversight and centralized operational classification

STRUCTURE
Four divisions
Five squadrons at Randolph AFB, Tex., NASA-Langley Research Center, Va., Scott AFB, Ill., Denver, and Tinker AFB, Okla.
Operating location at Pentagon

PERSONNEL

Active duty		168
Officers	27	
Enlisted	141	
Civilians		257
Total		**425**

Air Force Medical Operations Agency

Hq.: Lackland AFB, Tex.
Estab.: July 1, 1992
Cmdr.: Brig. Gen. Mark A. Ediger

MISSION, PURPOSE, OPERATIONS
Oversee execution of Air Force surgeon general policies supporting Air Force expeditionary capabilities and national security strategy
Provide leadership for USAF medical personnel and medical treatment facilities
Ensure a cost-effective, modern, and prevention-based health care continuum

STRUCTURE
Five directorates
18 divisions
1 geographically separated unit

PERSONNEL

Active duty		191
Officers	137	
Enlisted	54	
Reserve Components		8
ANG	0	
AFRC	8	
Civilians		85
Total		**284**

Air Force Medical Support Agency

Hq.: Bolling AFB, D.C.
Estab.: July 1, 1992
Cmdr.: Brig. Gen. Byron C. Hepburn

MISSION, PURPOSE, OPERATIONS
Develop Air Force surgeon general plans and programs
Provide Air Force medical expeditionary capabilities
Define and execute health care policy

STRUCTURE
Six directorates
23 divisions

PERSONNEL

Active duty		105
Officers	89	
Enlisted	16	
Reserve Components		6
ANG	0	
AFRC	6	
Civilians		81
Total		**192**

USAF photo by MSgt. Lance Cheung

An Air Force News Agency photographer photographs himself over England.

Air Force News Agency

Hq.: San Antonio
Estab.: June 1, 1978
Cmdr: Col. Clifton Douglas Jr.

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 information technology 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		269
Officers	8	
Enlisted	261	
Reserve Components		10
ANG	0	
AFRC	10	
Civilians		95
Total		**374**

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

15 squadrons
95 detachments
83 operating locations

PERSONNEL

Active duty		1,435
Officers	314	
Enlisted	1,121	
Reserve Components		386
ANG	0	
AFRC	386	
Civilians		657
Total		**2,478**

Air Force Operations Group

Hq.: Pentagon
Estab.: July 26, 1977
Cmdr.: Col. Scott C. Bishop

MISSION, PURPOSE, OPERATIONS

Support USAF Chief of Staff and DCS for Operations, Plans, and Requirements 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

Two divisions

PERSONNEL

Active duty		55
Officers	29	
Enlisted	26	
Reserve Components		7
ANG	0	
AFRC	7	
Total		**62**

Air Force Personnel Center

Hq.: Randolph AFB, Tex.
Estab.: Oct. 1, 1995
Cmdr.: Maj. Gen. K. C. McClain

MISSION, PURPOSE, OPERATIONS

Ensure that the Air Force has skilled people in the proper grades and specialties to complete the Air Force mission
Manage assignments and facilitate professional development
Plan and schedule USAF's air and space expeditionary force
Develop user friendly Web-based, self-service tools to perform personnel functions
Provide oversight to airmen and Family Readiness Centers
Facilitate USAF worldwide casualty reporting
Manage Missing in Action/Prisoners of War programs

STRUCTURE

Seven directorates

PERSONNEL

Active duty		833
Officers	242	
Enlisted	591	
Reserve Components		16
ANG	0	
AFRC	16	
Civilians		882
Total		**1,731**

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.: Mark E. Doboga

MISSION, PURPOSE, OPERATIONS

Provide in-depth analytical insight across the personnel life cycle to DCS for Personnel decision-makers
Provide information technology applications as they relate to the personnel system
Develop and operate officer, enlisted, and civilian models
Support DCS for Personnel

STRUCTURE

One division

PERSONNEL

Active duty		16
Officers	9	
Enlisted	7	
Civilians		17
Total		**33**

Air Force Petroleum Agency

Hq.: Ft. Belvoir, Va.
Estab.: Dec. 18, 2006
Cmdr.: Col. Kenneth P. Hession

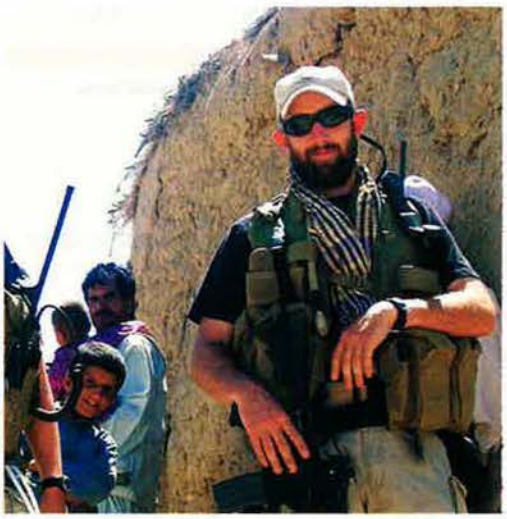
MISSION, PURPOSE, OPERATIONS

Serve as a control center, leveraging leading-edge technology and practices to enable Air Force operations and minimize infrastructure, manpower, and costs
Provide the warfighter and space launch activities with technical support and specialized capabilities in petroleum, propellants, cryogenics, chemicals, and gases
Develop quality assurance specifications and standardized agreements, ensuring interoperability with commercial, interservice, and international allied interests to sustain actions in steady-state and expeditionary environments

STRUCTURE

Three directorates
Six aerospace laboratories worldwide

USAF photo



Air Force Office of Special Investigations special agent Christopher Mitchell.

PERSONNEL

Active duty		33
Officers	7	
Enlisted	26	
Reserve Components		5
ANG	0	
AFRC	5	
Civilians		68
Total		**106**

Air Force Real Property Agency

Hq.: San Antonio
Estab.: Nov. 1, 2002
Dir.: Robert Moore

MISSION, PURPOSE, OPERATIONS
Acquire, manage, and dispose of all Air Force-controlled real property worldwide

STRUCTURE
Regional divisions
Base-level operating locations

PERSONNEL

Civilians	87
Total	**87**

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		7
Officers	3	
Enlisted	4	
Reserve Components		6
ANG	0	
AFRC	6	
Civilians		47
Total		**60**

Air Force Safety Center

Hq.: Kirtland AFB, N.M.
Estab.: Jan. 1, 1996
Cmdr.: Maj. Gen. Frederick F. Roggero

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
Nine divisions (plus one Air Staff division)

PERSONNEL

Active duty		55
Officers	37	
Enlisted	18	
Reserve Components		4
ANG	0	
AFRC	4	
Civilians		58
Total		**117**

The commander is also the Air Force chief of safety. AFSC publishes *Flying Safety* and *Wingman.*

Air Force Security Forces Center

Hq.: Lackland AFB, Tex.
Estab.: March 17, 1997
Cmdr.: Col. Steven W. Robinette

MISSION, PURPOSE, OPERATIONS
Organize, train, and equip Air Force security forces worldwide
Develop force protection doctrine, programs, and policies, ensuring the adequate resources to execute the missions of nuclear and non-nuclear weapon system security, physical security, integrated defense, combat arms, law enforcement, anti-terrorism, resource protection, and corrections
Identify and deliver emerging and future force protection and force application solutions through modeling and simulation
Manage USAF corrections program, DOD working military dog activities, and contingency taskings

STRUCTURE
Three divisions
Three detachments at Ft. Leavenworth, Kan., NAS Miramar, Calif., and Charleston NWC, S.C.

PERSONNEL

Active duty		383
Officers	32	
Enlisted	351	
Reserve Components		5
ANG	0	
AFRC	5	
Civilians		29
Total		**417**

Air Force Services Agency

Hq.: San Antonio
Estab.: Feb. 5, 1991
Cmdr.: Col. Frederic C. Ryder

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 Air Force nonappropriated fund employee benefit programs

STRUCTURE
Eight directorates

PERSONNEL

Active duty		66
Officers	23	
Enlisted	43	
Reserve Components		5
ANG	0	
AFRC	5	
Civilians		163
Total		**234**

Air Force Weather Agency

Hq.: Offutt AFB, Neb.
Estab.: Oct. 15, 1997
Cmdr.: Col. John D. Murphy

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 forces

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		973
Officers	162	
Enlisted	811	
Reserve Components		23
ANG	0	
AFRC	23	
Civilians		173
Total		**1,169**

Formerly Air Weather Service, established July 1, 1937.

ANG Readiness Center

Hq.: Andrews AFB, Md.
Estab.: August 1997
Cmdr.: Brig. Gen. Joseph L. Lengyel

MISSION, PURPOSE, OPERATIONS
Provide combat capability to the warfighter and security to the homeland

STRUCTURE
201st Mission Support Squadron
13 directorates

PERSONNEL

Active duty		111
Officers	68	
Enlisted	43	
Reserve Components		10,962
ANG	10,191	
AFRC	1	
Civilians		452
Total		**11,525**

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 District of Washington

Hq.: Bolling AFB, D.C.
Estab.: July 15, 1994
Cmdr.: Maj. Gen. Ralph J. Jodice II

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 USAF members assigned worldwide have administrative and UCMJ support
Perform MAJCOM-level responsibilities

STRUCTURE

11th Wing, Bolling AFB, D. C.
79th Medical Wing, Andrews AFB, Md.
316th Wing, Andrews AFB, Md.
844th Communications Group, Andrews AFB, Md.

PERSONNEL

Active duty		4,248
Officers	727	
Enlisted	3,521	
Reserve Components		113
ANG	0	
AFRC	113	
Civilians		1,299
Total		**5,660**

Air Force Operational Test and Evaluation Center

Hq.: Kirtland AFB, N.M.
Estab.: Jan. 1, 1974
Cmdr.: Maj. Gen. Stephen T. Sargeant

MISSION, PURPOSE, OPERATIONS

Test and evaluate new weapon systems in realistic battlespace environments to provide decision-makers accurate, balanced, and complete assessments of effectiveness, suitability, and mission capability
Maintain an operational focus, from concept development to system fielding, to ensure warfighters have the right tools to win tomorrow's battles

STRUCTURE

Five detachments at Edwards AFB, Calif., Eglin AFB, Fla., Nellis AFB, Nev., Peterson AFB, Colo., and Kirtland AFB, N.M.

PERSONNEL

Active duty		456
Officers	304	
Enlisted	152	
Reserve Components		1
ANG	0	
AFRC	1	
Civilians		166
Total		**623**

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 10 squadrons each, with about 110 cadets assigned to a squadron. Each squadron consists of members of all four classes.

PERSONNEL

Active duty		2,265
Officers	889	
Enlisted	1,376	
Reserve Components		98
ANG	0	
AFRC	98	
Civilians		1,296
Total		**3,659**

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 development are stressed in military art and science, theoretical and applied leadership experiences, aviation science and airmanship programs, and military training.

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. Amy S. Courter, 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 90 percent of all inland SAR missions as tasked by the Air Force Rescue Coordination Center
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, and conduct a national school enrichment program at the middle- and high-school levels

STRUCTURE

Civil Air Patrol is a nonprofit, 501(c)(3) corporation with a national headquarters that oversees:
Eight regions
52 wings (each state, Puerto Rico, and Washington, D.C.)
1,566 squadrons

PERSONNEL

Hq. staff		100
Volunteers		56,611
Senior members	34,575	
Cadets	22,036	
Total		**56,711**

EQUIPMENT

550 single-engine, piston aircraft
60 gliders
1,125 vehicles
Communications equipment

CAP photo by Susan Robertson

Civil Air Patrol aircraft on the flight line at Westover ARB, Mass.

Guide to Air Force Installations Worldwide

2009 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 and develops aircrew members for C-17 and KC-135 aircraft. **History:** activated January 1943; inactivated May 1945; reactivated January 1953. **Area:** 7,746 acres. **Runways:** 13,440 ft., 9,000-ft. parallel runway, and 3,501-ft. assault strip. **Altitude:** 1,381 ft. **Personnel:** permanent party military, 1,429; DOD civilians, 1,187. **Housing:** single family, 797; visiting, VOQ/VAQ, 315; TLF, 30.

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:** 44th Aerial Port Sq. (AFRC); 254th Air Base Gp. (ANG); 497th Combat Training Sq. (GSU in Singapore); 554th RED HORSE (PACAF); 724th Aeromedica Staging Flt. (AFRC); 734th Air Mobility Sq. (AMC); Det. 5, 22nd Space Operations Sq. (AFSPC); Det. 602, AFOSI; Helicopter Sea Combat Sq.-25 (USN). **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:** 18,987 acres. **Runways:** 11,182 ft. and 10,555 ft. **Altitude:** 612 ft. **Personnel:** permanent party military, 1,762; DOD civilians, 1,561. **Housing:** single family, officer, 235, enlisted, 1,104; unaccompanied, UOQ, 74, UAQ/UEQ, 960; visiting, VOQ, 95, VAQ/VEQ, 234, TLF, 284. **Clinic.**

Andrews AFB, Md. 20762-5000; 10 mi. SE of Washington D.C. **Phone:** 301-981-1110; DSN 858-1110. **Host:** 316th Wing (AFDW). **Mission:** provides contingency response capability critical to national security, including emergency reaction rotary-wing airlift for the National Capital Region. **Major tenants:** 79th Medical Wing (AFDW); 89th AW (AMC); 113th Wing (ANG), F-16; 459th ARW (AFRC), KC-135; AFOSI Hq.; Air Force Review Boards Agency; Air National Guard Readiness Center; Naval Air Facility (USNR); US Army Priority Air Transport Command (with Army Jet Det.); VMR Det. Andrews, 4th Marine Aircraft Wing (USMCR). **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 5,502; DOD civilians, 3,247. **Housing:** single family, govt.-leased, officer, 138, enlisted, 1,342; visiting, VOQ 64, VAQ/VEQ 35, TLF, 20. **Hospital.**

Arnold AFB, Tenn. 37389; approx. 7 mi. SE of Manchester. **Phone:** 931-454-3000; DSN 340-3000. **Majcom:** AFMC. **Host:** Arnold Engineering Development Center. **Mission:** provides a national aerospace ground test complex to conduct preflight tests, engineering analyses, and technical evaluations for research, system development, and operational programs of the Air Force and Department of Defense, other government agencies, industry, and allied nations. AEDC tests propulsion, aerodynamic, re-entry, transatmospheric, hypersonic, and space systems in environments that simulate operational flight conditions. **History:** base dedicated June 25, 1951. Named for Gen. of the Army Henry 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, 54; DOD civilians, 306. **Housing:** single family, officer, 14, enlisted, 10; visiting, 38. **Medical aid station, dispensary, and small VA clinic.**

Aviano AB, Italy, APO AE 09604; adjacent to Aviano, 50 mi. N of Venice. **Phone:** (cmcl, from CONUS) 011-39-0434-30-1110; DSN 314-632-1110. **Majcom:** USAFE. **Host:** 31st Fighter Wing. **Mission:** F-16 and control and surveillance operations. Maintains two F-16 squadrons (510th and 555th) and 603rd Air Control Sq. **Major tenants:** 724th Air Mobility Sq. (AMC); 8th Air Support Operations Sq. (USAFE). **Geographically Separated Units (GSUs):** 31st Aircraft Maintenance Sq., Athens, Greece; 31st Munitions Sq., Livorno, Italy. **History:** one of the oldest Italian air bases, dating to 1911. USAF began operations 1954. **Area:** 1,331 acres. **Runway:** 8,596 ft. **Altitude:** 413 ft. **Personnel:** permanent party military, 3,500; DOD civilians, 162. **Housing:** 635 off-base, govt.-leased (70 officer, 565 enlisted); unaccompanied, 825 on base; visiting, 172, VOQ, 70, DV, 6, TLF, 96. **Clinic.**

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); Air Force Cyber Command (Provisional); 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, 7,306; DOD civilians, 1,164. **Housing:** single family, officer, 131, enlisted, 592; unaccompanied, 996; visiting, VOQ, 139, VAQ, 100, 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 and Global Hawk operations. **Major tenants:** 940th ARW (AFRC); 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. **Mission:** supports Hq. USAF and 36,000 USAF members worldwide; oversees USAF Band and USAF Honor Guard. **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 Operations 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, 1,408; DOD civilians, 822.

Housing: single family, officer, 372, enlisted, 411; unaccompanied, UAQ/UEQ, 267; visiting, VOQ, 119, VAQ/VEQ, 48, 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 global surveillance, space-based missile warning, and space communications operations. **Major tenants:** 140th Wing (ANG); Aerospace Data Facility; Navy/Marine Reserve Center; Army Aviation Support Facility. **History:** activated April 1, 1942 as a gunnery training facility. Named for 1st Lt. John H. Buckley, a WWI 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, 3,114; DOD civilians, 3,365. **Housing:** two dorms and 351 units. **Clinic.**

Cannon AFB, N.M. 88103-5000; 7 mi. W of Clovis. **Phone:** 505-784-1110; DSN 681-1110. **Majcom:** AFSOC. **Host:** 27th Special Operations Wing. **Mission:** MC-130W and MQ-1 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, 2,053; DOD civilians, 556. **Housing:** single family, officer, 143, enlisted, 1,501; unaccompanied, 784; visiting, 43, TLF, 36. **Ambulatory care clinic.**

Charleston AFB, S.C. 29404-5000; 10 mi. from downtown Charleston. **Phone:** 843-963-1110; DSN 673-1110. **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, 3,964; DOD civilians, 1,021. **Housing:** single family, officer, 84, enlisted, 642; visiting, 138, DV, 12, TLF, 29. **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-6, 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, 919; DOD civilians, 585. **Housing:** single family, 517; unaccompanied, UOQ, 234, UAQ/UEQ, 94; visiting, 81, DV, 4, TLF, 20. **Clinic.**

Davis-Monthan AFB, Ariz. 85707-5000; within Tucson. **Phone:** 520-228-1110; DSN 228-1110. **Majcom:** ACC. **Host:** 355th FW. **Mission:** A-10 combat crew training; OA-10 and FAC HC-130 training and operations; EC-130H, HH-60 Pave Hawk, and CSAR operations. **Major tenants:** 12th Air Force (ACC); 309th Aerospace Maintenance and Regeneration Group (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, 6,671; DOD civilians, 3,197. **Housing:** single family, officer, 133, enlisted, 771; visiting, 174; VOQ, 32, VAQ, 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 and C-17 operations; operates largest DOD aerial port facility; houses military's mortuary. **Major tenant:** 512th AW (AFRC assoc.). **History:** activated December 1941; inactivated 1946; reactivated February 1951. **Area:** 3,400 acres. **Runways:** 12,900 ft. and 9,600 ft. **Altitude:** 28 ft. **Personnel:** permanent party military, 3,350; DOD civilians, 1,040. **Housing:** single family, officer, 91, enlisted, 889; unaccompanied, UAQ/UEQ, 544; visiting, VQ, 221, TLF, 20. **Clinic.**

Dyess AFB, Tex. 79607-1960; 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:** 7,098 acres (including off-base sites). **Runway:** 13,500 ft. **Altitude:** 1,789 ft. **Personnel:** permanent party military, 4,884; DOD civilians, 412. **Housing:** single family, officer, 51, enlisted, 533; unaccompanied, 744; visiting, 137, TLF, 139. **Clinic.**

Edwards AFB, Calif. 93524; adjacent to Rosamond. **Phone:** 661-227-1110; DSN 527-1110. **Majcom:** AFMC. **Host:** 95th Air Base Wing. **Mission:** The Air Force Flight Test Center is AFMC's center for research, development, test, and evaluation of aerospace systems from concept to combat. It operates the US Air Force Test Pilot School. **Major tenants:** AFRL's Propulsion Directorate (AFMC); Dryden Flight Research Center (NASA); Air Force Operational Test and Evaluation Center, Det. 5; 31st Test and Evaluation Squadron (ACC); Marine Aircraft Group 46, Det. Bravo. **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, 2,581; DOD civilians, 3,367. **Housing:** officer, 194; enlisted, 603; unaccompanied, UOQ, 80; UEQ; 670. **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:** The Air Armament Center is responsible for the development, acquisition, testing, and deployment of all air-delivered weapons. **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, 7,127; DOD civilians, 3,884 (excluding Hurlburt Field). **Housing:** single family, officer, 285, enlisted, 1,767; unaccompanied, UAQ/UEQ, 933; 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 aggressor operations; oversees Pacific Alaska Range Complex and Red Flag-Alaska. **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, 2,930; DOD civilians, 633. **Housing:** single family, officer, 181, enlisted, 1,243; unaccompanied, UOQ, 8, UAQ/UEQ, 538; 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; Air Force Financial Services Center. **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, 3,144; DOD civilians, 451. **Housing:** single family, officer, 181, enlisted, 963, unaccompanied, 742; visiting, 80, DV, 8, 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-17, E-3B Airborne Warning and Control System, F-15, and F-22A operations. Hub for air traffic to and from Far East. **Major tenants:** Alaskan Command; 11th Air Force (PACAF); Joint Task Force Alaska; 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:** 212 ft. **Personnel:** permanent party military, 6,642; DOD civilians, 898. **Housing:** single family, officer, 112, enlisted, 1,910; unaccompanied, UAQ/UEQ, 850; visiting, VOQ, 178, VAQ/VEQ, 195, TLF, 86. **Hospital.**

Fairchild AFB, Wash. 99011-9588; 10 mi. WSW of Spokane. **Phone:** 509-247-5705; DSN 657-5705. **Majcom:** AMC. **Host:** 92nd Air Refueling Wing. **Mission:** KC-135R operations. **Major tenants:** 336th Training Gp. (USAF Survival School, AETC); 141st ARW (ANG). **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, 2,749; DOD civilians, 700. **Housing:** single family, officer, 167, enlisted, 889; unaccompanied, VOQ, 126, VAQ, 180, TLF, 42. **Clinic.**

F. E. Warren AFB, Wyo. 82005-5000; adjacent to Cheyenne. **Phone:** 307-773-1110; DSN 481-1110. **Majcom:** AFSPC. **Host:** 90th MW. **Mission:** Minuteman III ICBMs and UH-1N operations. **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, 3,072; DOD civilians, 1,000. **Housing:** privatized single-family, 617; TLF, 57. **Clinic.**

Goodfellow AFB, Tex. 76908-4410; SE of San Angelo. **Phone:** 325-654-1110; DSN 477-1110.

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 (USA); Center for Information Dominance det. (USN); USMC det. **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, 1,148; DOD civilians, 605. **Housing:** single family, officer, 44, enlisted, 197; unaccompanied, UOQ, 93, UAQ/UEQ, 345; visiting, VOQ, 150, VAQ/VEQ, 353, 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:** 4,830 acres. **Runway:** 12,351 ft. **Altitude:** 911 ft. **Personnel:** permanent party military, 2,168; DOD civilians, 387. **Housing:** single family, officer, 142, enlisted, 717; unaccompanied, UAQ/UEQ, 370; visiting; VOQ, 5, VAQ/VEQ, 2, TLF, 27. **Clinic.**

Hanscom AFB, Mass. 01731-5000; 17 mi. NW of Boston. **Phone:** 781-377-1110; DSN 478-1110. **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, 1,398; DOD civilians, 1,420. **Housing:** single family, officer, 314, enlisted, 470; 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 (C-17, C-37, C-40). **Mission:** C-17, C-37, C-40 operations. **Major tenants:** PACAF; 13th AF; 154th Wing (ANG), C-17, F-15, KC-135; 515th Air Mobility Operations Wing (AMC); 624th Regional Support Group (AFRC); 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:** 2,712 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, 5,016; DOD civilians, 1,405. **Housing:** privatized, single family, officer, 553, enlisted, 1,628; unaccompanied, UAQ/UEQ, 588; visiting, VOQ, 149, VAQ/VEQ, 83, TLF, 40.

Hill AFB, Utah 84056-5990; 25 mi. N of Salt Lake City. **Phone:** 801-777-1110; DSN 777-1110. **Majcom:** AFMC. **Host:** Ogden Air Logistics Center (with support from 75th Air Base Wing). **Mission:** provides worldwide engineering and logistics management; maintains the A-10, C-130, F-16, and F-22; 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. **Major tenants:** 388th FW (ACC), also oversees Utah Test and Training Range; 419th FW (AFRC); AFOSI Det. 113; 558th Aerospace Sustainment Wing; Defense Enterprise Computing Center Ogden (DISA); Defense Distribution Depot Hill (DLA); DLA Information Operations J6U (DLA); Defense Reutilization & Marketing Office-Hill (DRMS); 84th Radar Evaluation Sq. (ACC); 367th Training Support Sq. (AETC); 748th Supply Chain Management Group (AFGLSC); Hill Aerospace Museum. **History:** activated 1940. Named for Maj. Ployer P. Hill, killed Oct. 30, 1935 while test flying the first B-17. **Area:** 6,797 acres; 962,076 acres (UTTR). **Runway:** 13,500 ft. **Altitude:** 4,789 ft. **Personnel:** permanent party military, 4,700; DOD civilians, 16,000. **Housing:** single family, officer, 109, enlisted, 909; unaccompanied, UAQ/UEQ, 774; visiting, VOQ, 13, VAQ/VEQ, 147, TLF, 61. **Clinic.**

Holloman AFB, N.M. 88330; 8 mi. SW of Alamogordo. **Phone:** 505-572-1110; DSN 572-1110. **Majcom:** ACC. **Host:** 49th FW. **Mission:** F-22 operations. **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, 3,143; DOD civilians, 839. **Housing:** single family, officer, 78, enlisted, 654; unaccompanied, 633; visiting, 196, 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:** 1st SOW. **Mission:** AC-130U, CV-22, MC-130H, MC-130P (located at Eglin) operations. **Major tenants:** AFSOC; 23rd AF (AFSOC); Joint Special Operations University; Air Force Combat Weather Center (AFWA); Air Force Special Operations Training Center (AFSOC); 505th Command and Control Wing (ACC); 720th Special Tactics Group (AFSOC); 25th Intelligence Sq. (AFISRA); 39th Informations Operations Sq. (AFIOC); 823rd RED HORSE (ACC). **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, 8,206; DOD civilians, 800. **Housing:** single family, officer, 47, enlisted, 588; unaccompanied, UAQ/UEQ, 736; visiting, VOQ, 131, VAQ/VEQ, 91, TLF, 24. **Clinic.**

Incirlik AB, Turkey, APO AE 09824; 6 mi. E of Adana. **Phone:** (cmcl, from CONUS) 011-90-322-316-1110; DSN (from CONUS) 676-1110. **Majcom:** USAFE. **Host:** 39th ABW. **Mission:** supports and protects US and NATO assets and people throughout Turkey while providing a full spectrum of capabilities to the warfighter. **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, 1,514; DOD civilians, 90. **Housing:** single family, 772; unaccompanied, UOQ, 105, UEQ, 756; visiting, VOQ, 91, VAQ/VEQ, 140, 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. (AFISRA); 82nd Reconnaissance Sq. (ACC); 733rd Air Mobility Support Sq. (AMC). **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, 1,800. **Housing:** single family, officer, 1,495 enlisted, 5,296; unaccompanied, UOQ, 35, UAQ/UEQ, 1,629; 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, 4,609; DOD civilians, 3,396. **Housing:** 583; visiting, 1,276, TLF, 73. **Keesler Medical Center.**

Kirtland AFB, N.M. 87117-5606; SE quadrant of Albuquerque. **Phone:** 505-846-1110; DSN 246-1110. **Majcom:** AFMC. **Host:** Air Force Nuclear Weapons Center (with support from 377th ABW and 498th Armament Systems Wing). **Mission:** ensures safe, secure, and reliable nuclear weapon systems to support National Command Authorities and the Air Force. **Major tenants:** 58th SOW (AETC), CV-22, HC-130, MC-130, HH-60, UH-1; 150th FW (ANG), F-16; 505th Distributed Warfare Group (ACC); 705th Combat Training Sq./Air Force Distributed Mission

Air Force Installations

Major installations	FY04	FY05	FY06	FY07	FY08	FY09
US and possessions	72	72	72	72	72	72
Foreign	13	13	12	12	12	12
Worldwide	85	85	84	84	84	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.
Mountain Home AFB (ACC)
Wyo.
S.D.
Ellsworth AFB (ACC)
Wis.
Mich.
N.Y.
Hanscom AFB (AFMC)
Otis ANGB (ANG)
Mass.
Conn.
R.I.
Westover ARB (AFRC)
Hill AFB (AFMC)
Selfridge ANGB (ANG)
Beale AFB (ACC)
F.E. Warren AFB (AFSPC)
Neb.
Iowa
Pa.
N.J.
McGuire AFB (AMC)
Nev.
Travis AFB (AMC)
Offutt AFB (ACC)
Grissom ARB (AFRC)
Ohio
Del.
Dover AFB (AMC)
Schriever AFB (AFSPC)
Buckley AFB (AFSPC)
Utah
Ill.
Ind.
Wright-Patterson AFB (AFMC)
Md.
Calif.
USAF Academy
Peterson AFB (AFSPC)
W. Va.
Kan.
Whiteman AFB (ACC)
Scott AFB (AMC)
Va.
Colo.
Mo.
Ky.
Langley AFB (ACC)
Nellis AFB (ACC)
McConnell AFB (AMC)
Arnold AFB (AFMC)
Vandenberg AFB (AFSPC)
Vance AFB (AETC)
Seymour Johnson AFB (ACC)
N.C.
Kirtland AFB (AFMC)
Ariz.
Tenn.
Pope AFB (AMC)
Okla.
Edwards AFB (AFMC)
Tinker AFB (AFMC)
Little Rock AFB (AMC)
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 (AFSOC)
Ark.
Tex.
Columbus AFB (AETC)
Davis-Monthan AFB (ACC)
Holloman AFB (ACC)
Robins AFB (AFMC)
Miss.
Barksdale AFB (ACC)
Maxwell AFB (AETC)
Ga.
Ala.
Moody AFB (ACC)
Goodfellow AFB (AETC)
La.
Dyess AFB (ACC)
Sheppard AFB (AETC)
Keesler AFB (AETC)
Laughlin AFB (AETC)
Fla.
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
Eielson AFB (PACAF)
Elmendorf AFB (PACAF)
Alaska
Hickam AFB (PACAF)
Oahu
Hawaii

Operations Center of Excellence (ACC); Air Force Inspection Agency (USAF); Air Force Operational Test & Evaluation Center (USAF); Air Force Safety Center (USAF); Airborne Laser Program Office (MDA); Defense Nuclear Weapons School (DTRA); Operationally Responsive Space Office (DOD); Pararescue and Combat Rescue Officer Training School, 342nd TRS, Det. 1 (AETC); NNSA Service Center (DOE); Sandia National Labs-New Mexico (DOE); Space Development & Test Wing (SMC); Phillips Research Site, comprising Directed Energy and Space Vehicles Directorates (AFRL). **History:** activated January 1941. Named for Col. Roy C. Kirtland, aviation pioneer who died May 2, 1941. **Area:** 52,678 acres. **Runways:** 13,000 ft.; two, each 10,000 ft.; and 6,000 ft. **Altitude:** 5,352 ft. **Personnel:** permanent party military, 4,863; DOD civilians, 5,702. **Housing:** single family, officer, 187, enlisted, 891; 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. **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, 2,447; DOD civilians, 31. **Housing:** unaccompanied, UOQ, 247, UAQ/UEQ, 2,648; visiting, VOQ, 27, 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:** provides basic military training for recruits entering Air Force, ANG, and AFRC; conducts ground combat (base support) courses, English language training for international and US military students, and specialized maintenance and security training in Spanish to military forces and government agencies from Latin American nations. **Major tenants:** Air Force Intelligence, Surveillance, and Reconnaissance Agency; 433rd AW (AFRC), C-5; 149th FW (ANG), F-16; 67th Network Warfare Wing (ACC); National Security Agency/Central Security Service Texas; 59th Medical Wing; Air Force Security Forces Center; Cryptologic Systems Gp. (AFMC); Defense Language Institute English Language Center; International American Air Forces Academy. **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, 11,489; DOD civilians, 7,957. **Housing:** officer, 104; enlisted, 962, TLF, 96. **San Antonio Military Medical Center-South.**

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 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, 718; DOD civilians, 201. **Housing:** single family, officer, 82, enlisted, 318; unaccompanied, UOQ, 10, UAQ/UEQ, 211; visiting, 196, 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 operations. **Major tenants:** ACC; Air Force Rescue Coordination Center; Air Force Global Cyberspace Integration Center; USAF Heritage of America Band; 192nd FW (ANG); 480th Intelligence Wg. (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, 286, enlisted, 914; unaccompanied, 1,053; visiting, VOQ, 78, VAQ/VEQ, 100, TLF, 90. **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:** 5,136 acres. **Runways:** 8,852 ft., 8,316 ft., and 6,236 ft. **Altitude:** 1,182 ft. **Personnel:** permanent party military, 839; DOD civilians, 821. **Housing:** single family, officer, 229, enlisted, 222; unaccompanied, UOQ, 340, UEQ, 130; visiting, VQ, 90, DV, 6, TLF, 21. **Clinic.**

Little Rock AFB, Ark. 72099-4940; 17 mi. NE of Little Rock (Jacksonville). **Phone:** 501-987-1110; DSN 731-1110. **Majcom:** AMC. **Host:** 19th AW. **Mission:** C-130 operations; deploys combat airlifters; executes combat airlift; supports AETC training mission. **Major tenants:** 189th AW (ANG), C-130; US Air Force Mobility Weapons School (ACC); Hq. Ark. ANG. **History:** activated Oct. 9, 1955. **Area:** 6,600 acres. **Runway:** 12,000 ft. **Altitude:** 310 ft. **Personnel:** permanent party military, 5,046; DOD civilians, 502. **Housing:** single family, 1,221; unaccompanied, 840; visiting, 183. **Clinic,** no emergency room.

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:** 310-653-1110; DSN 633-1110. **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:** 54 acres at Los Angeles AFB and 93 acres at Ft. MacArthur Military Family Housing Annex. **Runway:** none. **Altitude:** 95 ft. **Personnel:** permanent party military, 1,003; DOD civilians, 1,119. **Housing:** privatized, 617, TLF, 57. **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:** 4,624 acres, plus 1.9 million-acre Barry M. Goldwater Range. **Runways:** 10,012 ft. and 9,904 ft. **Altitude:** 1,085 ft. **Personnel:** permanent party military, 5,008; DOD civilians, 935. **Housing:** single family, 598; unaccompanied, UAQ/UEQ, 704; visiting, 161, TLF, 44. **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. **Major tenants:** 927th ARW (AFRC); 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:** 11,480 ft. and 7,167 ft. **Altitude:** 6 ft. **Personnel:** permanent party military, 3,650; DOD civilians, 1,417. **Housing:** single family, officer, 183, enlisted, 388; unaccompanied, 350; visiting, VOQ, 112, VAQ/VEQ, 30, TLF, 5. **Clinic.**

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 (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, 3,123; DOD civilians, 608. **Housing:** single family, officer, 216, enlisted, 828; unaccompanied, UAQ/UEQ, 850; visiting, 53, TLF, 30. **Clinic.**

Maxwell AFB, Ala. 36112-6103; 1 mi. WNW of Montgomery. **Phone:** 334-953-1110; DSN 493-1110. **Majcom:** AETC. **Host:** 42nd ABW. **Mission:** Air University conducts professional continuing education for precommissioned and commissioned officers, enlisted personnel, and civilians. **Major tenants:** Curtis E. LeMay Center for Doctrine Development and Education; Carl A. Spaatz Center for Officer Education; Jeanne M. Holm Center for Officer Accessions and Citizen Development; Thomas N. Barnes Center for Enlisted Education; Ira C. Eaker College for Professional Development; Air Force Research Institute; Muir S. Fairchild Research and Information Center. **Other major tenants:** 754th Electronic Systems Gp.; Air Force Logistics Management Agency; Civil Air Patrol; 908th AW (AFRC), C-130; Air Force Historical Research Agency; Air Force Legal Operations Agency. **History:** activated 1918. Named for 2nd Lt. William C. Maxwell, killed in air accident Aug. 12, 1920. **Area:** 3,028 acres (includes Gunter Annex). **Runway:** 8,000 ft. **Altitude:** 172 ft. **Personnel:** permanent party military, 3,298; DOD civilians, 5,309. **Housing:** single family, officer, 364, enlisted, 371; unaccompanied, UAQ/UEQ, 183; visiting, 1,038, TLF, 23. **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. **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:** 323 ft. **Personnel:** permanent party military, 3,750; DOD civilians, 1,128. **Housing:** single family, officer, 112, enlisted, 865; unaccompanied, UOQ, 2, UAQ/UEQ, 627; visiting, VOQ, 68, VAQ/VEQ, 230, 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. **Majcom:** AMC. **Host:** 22nd ARW. **Mission:** KC-135 operations. **Major tenants:** 184th Intelligence Wing (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, 2,431; DOD civilians, 403. **Housing:** single family, officer, 81,


Major Air Force Installations Overseas
Europe
Note: All bases on this map are USAFE bases.
RAF Lakenheath
RAF Mildenhall
Spangdahlem AB
Ramstein AB
Aviano AB
Incirlik AB
Lajes Field (USAFE)
Pacific
Note: All bases on this map are PACAF bases.
Misawa AB
Osan AB
Kunsan AB
Yokota AB
Kadena AB
Okinawa
Andersen AFB
Atlantic
Atlantic Ocean
Azores
Mariana Islands
Guam
Finland
Norway
Sweden
Estonia
Baltic Sea
Latvia
North Sea
Denmark
Lithuania
Russia
Belarus
No. Ireland
Ireland
United Kingdom
Neth.
Germany
Poland
Belgium
Luxembourg
Czech Rep.
Slovakia
Ukraine
Austria
Moldova
Atlantic Ocean
France
Switz.
Hungary
Romania
Slovenia
Black Sea
Italy
Croatia
Bosnia
Serbia and Montenegro
Portugal
Spain
Bulgaria
Macedonia
Turkey
Albania
Greece
Mediterranean Sea
Canada
China
North Korea
Sea of Japan
Yellow Sea
South Korea
Japan

enlisted, 412; unaccompanied, UAQ/UEQ, 615; visiting, VOQ, 20, VAQ/VEQ, 27, 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); 87th ABW; Air Force Expeditionary 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 1948. 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, 5,189, DOD civilians, 995. **Housing:** single family, officer, 275, enlisted, 2,089; unaccompanied, UAQ/UEQ, 767; visiting, VOQ, 40, VAQ/VEQ, 444, TLF, 30. **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 MW (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, 4,506; DOD civilians, 495. **Housing:** single family, officer, 426, enlisted, 2,021; unaccompanied, 951; 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-16CM operations. **Major tenants:** Misawa Security and Operations Center (ACC); Naval Commander, Task Force 52/72; Joint Tactical Ground Station; Naval Air Facility; Naval Security Gp. Activity; 750th Military Intelligence Det. (USA); Japanese Air Self-Defense Force (JASDF). **History:** occupied by US forces September 1945. **Area:** 3,865 acres. **Runway:** 9,950 ft. **Altitude:** 119 ft. **Personnel:** permanent party military, 3,769; DOD civilians, 398. **Housing:** single family, officer, 241, enlisted, 1,792; unaccompanied, UAQ/UEQ, 795; 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:** ACC. **Host:** 23rd Wing. **Mission:** A-10, HC-130P, HH-60G, pararescue, and force protection operations. Its units include 23rd Fighter Group, 347th Rescue Group, and 820th Security Forces Group. **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, 4,000; DOD civilians, 350. **Housing:** single family, officer, 32, enlisted, 271; unaccompanied, 714; visiting, VOQ, 30, VAQ/VEQ, 17, TLF, 88. **Clinic.**

Mountain Home AFB, Idaho 83648-5000; 50 mi. SE of Boise. **Phone:** 208-828-1110; DSN 728-1110. **Majcom:** ACC. **Host:** 366th FW. **Mission:** F-15C and F-15E operations. **Major tenants:** 266th Range Sq.; 726th Air Control Sq.; Republic of Singapore Air Force. **History:** activated August 1943. **Area:** 9,112 acres. **Runway:** 13,500 ft. **Altitude:** 3,000 ft. **Personnel:** permanent party military, 3,985; DOD civilians, 535. **Housing:** single family, officer, 144, enlisted, 919; unaccompanied, 883; visiting, VOQ, 40, VAQ/VEQ, 50, DV, 5, TLF, 22. **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, operation, testing, and tactics development in air, space, and cyberspace. Its 98th Range Wing oversees a 15,000 sq.-mile Nevada Test and Training Range Complex and two emergency airfields. 57th Wing, A-10A, F-15C/E, F-16, F-22A, HH-60G, MQ-1 Predator, MQ-9 Reaper. 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 (57th Operations Gp.); 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:** Det. 1, 22nd Intelligence Sq.; Triservice Reserve Center (ACC); 58th and 66th RQS (ACC); 820th RED HORSE Sq. (ACC); and Joint Unmanned Aircraft Systems Center of Excellence (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. Nevada Test and Training Range 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, 8,706; DOD civilians, 3,256. **Housing:** single family, 1,178; 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:** worldwide reconnaissance, intelligence, information warfare, command and control, Presidential support, and treaty verification. **Major tenants:** STRATCOM; Air Force Weather Agency; 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, 6,459; DOD civilians, 1,668. **Housing:** single family, officer, 291, enlisted, 1,349; 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-10 and F-16C/D operations. **Major tenants:** 7th Air Force (PACAF); 5th RS (ACC), U-2S; 303rd Intelligence Sq. (AFISRA); 731st Air Mobility Sq. (AMC); 35th Air Defense Artillery Brigade (USA). **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, 5,700; DOD civilians, 280. **Housing:** single family, 346, unaccompanied, UOQ, 390, UAQ/UEQ, 4,759; visiting, 350, DV, 8. **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 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, 87 Division (USA); Naval Ordnance Test Unit (USN); 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, 3,302; DOD civilians, 1,831. **Housing:** single family, enlisted, 524; unaccompanied, UAQ/UEQ, 130; visiting, VOQ, 121, VAQ/VEQ, 102, TLF, 30. **Clinic.**

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

Peterson AFB, Colo. 80914-5000; at eastern edge of Colorado Springs. **Phone:** 719-556-7321; DSN 834-7321. **Majcom:** AFSPC. **Host:** 21st SW. **Mission:** missile warning and space control operations; detects, tracks, and catalogs objects in space. **Major tenants:** NORAD; AFSPC; NORTHCOM; US Army Space and Missile Defense Command/Army Forces Strategic 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, 6,152; DOD civilians, 2,302. **Housing:** single family, officer, 103, enlisted, 384; unaccompanied, UAQ/UEQ, 710; visiting, VOQ, 100, VAQ/VEQ, 89, TLF, 67. **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. **Major tenants:** 18th Air Support Operations Gp. (ACC); 440th AW (AFRC); 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, 4,411; DOD civilians, 314. **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) 011-44-1638-52-1110; DSN 226-1110. **Majcom:** USAFE. **Host:** 48th FW (USAFE). **Mission:** F-15C/D and F-15E operations. **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, 4,500; DOD civilians, 215. **Housing:** single family, officer, 309, enlisted, 1,377; unaccompanied, UAQ/UEQ, 1,096; visiting, VOQ, 132, VAQ/VEQ, 23, DV, 5, TLF, 79. **Regional medical center.**

RAF Mildenhall, UK, APO AE 09459-2000; 20 mi. NE of Cambridge. **Phone:** (cmcl, from CONUS) 011-44-1638-54-1110; DSN 238-1110. **Majcom:** USAFE. **Host:** 100th ARW. **Mission:** KC-135R operations. **Major tenants:** 352nd SOG (AFSOC), MC-130; 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, 3,041; DOD civilians, 436. **Housing:** single family, officer, 64, enlisted, 145; unaccompanied, UAQ/UEQ, 1,081; visiting, 224, TLF, 64.

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, and C-130 operations; expeditionary airlift for first-in base opening capabilities; 86th AW commander also serves as commander of the Kaiserslautern Military Community. The 435th Air Base Wing provides base support services for KMC. **Major tenants:** USAFE, 3rd Air Force, 17th Air Force (component of US Africa Command). **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, 12,464; DOD civilians 7,080. **Housing:** single family, officer, 190, enlisted, 1,648; unaccompanied, UOQ/UEQ 1,500, TLF, 162. **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, and T-38 instructor pilot training and combat systems officer training in the T-43, Introduction to Fighter Fundamentals course, Introduction to Unmanned Aerial Systems Fundamentals course. **Major tenants:** AETC; 19th Air Force; Air Force Personnel Center; Air Force Manpower 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, 4,178; DOD civilians, 4,110. **Housing:** single family, officer, 659, enlisted, 441; unaccompanied, UOQ, 202, UEQ, 168; visiting, VOQ, 381, VAQ/VEQ, 169, 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; combat-ready weapon systems, equipment, services, and support personnel; and sustainment and contingency response for US and allied warfighters through cradle-to-grave management, maintenance, and combat support. **Major tenants:** Air Force Reserve Command; 116th Air Control Wing (ACC/ANG), E-8; 5th Combat Communications Gp. (ACC); Defense Information Systems Agency. **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, 5,369; DOD civilians, 12,605. **Housing:** unaccompanied, UAQ/UEQ, 672; visiting, VOQ, 134, VAQ/VEQ, 157, TLF, 50. **Clinic.**

Schriever AFB, Colo. 80912-2101; 10 mi. E of Colorado Springs. **Phone:** 719-567-1110; DSN 560-1110. **Majcom:** AFSPC. **Host:** 50th SW. **Mission:** communication, navigation, warning, surveillance, and satellite command, control, operations, and support. **Major tenants:** Missile Defense Integration Operations Center; 310th SW (AFRC); Space Innovation and Development Center. **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, 1,883; DOD civilians, 1,751. **Housing:** none. **Medical and dental clinic.**

Scott AFB, Ill. 62225-5000; 6 mi. ENE of Belleville. **Phone:** 618-256-1110; DSN 576-1110. **Majcom:** AMC. **Host:** 375th AW. **Mission:** C-21 operations. **Major tenants:** TRANSCOM; AMC; Military Surface Deployment and Distribution Command; 18th Air Force; Air Force Communications Agency; Defense Information Technology Contracting Office; Defense Information Systems Agency; Air Force Global Logistics Support Center; 126th ARW (ANG), KC-135; 932nd AW (AFRC), C-9, C-40. **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:** 3,589 acres. **Runways:** 10,000 ft. and 8,000 ft. (joint-use airfield). **Altitude:** 453 ft. **Personnel:** permanent party military, 6,100; DOD civilians, 3,211. **Housing:** single family, officer, 362, enlisted, 1,233; unaccompanied, UAQ/UEQ, 680; visiting, VOQ/VAQ/VEQ, 308, TLF, 56. **Clinic.**

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, 4,970; DOD civilians, 837. **Housing:** single family, officer, 27, enlisted, 453; unaccompanied, 654; visiting, 70, DV, 8, TLF, 60. **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); US Air Forces Central. **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, 6,037; DOD civilians, 1,096. **Housing:** single family, officer, 124, enlisted, 1,047; unaccompanied, 1,112; visiting, VQ, 91, DV, 6, TLF, 39. **Clinic.**

Sheppard AFB, Tex. 76311-5000; 5 mi. N of Wichita Falls. **Phone:** 940-676-1110; DSN 736-2511. **Majcom:** AETC. **Host:** 82nd TRW. **Mission:** 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 60 USAF installations worldwide. **Major tenant:** 80th FTW (AETC), T-6, T-37, and T-38 UPT, instructor pilot training in the Euro-NATO Joint Jet Pilot Training program, and Introduction to Fighter Fundamentals 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, 3,248; DOD civilians, 1,208. **Housing:** privatized single family, 1,005; unaccompanied, UOQ, 196, UAQ/UEQ, 396. **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 314-452-1110. **Majcom:** USAFE. **Host:** 52nd FW. **Mission:** HARM-equipped A-10A/C and F-16C/D operations; air control squadron operations with logistics responsibilities at several 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, 5,208; DOD civilians, 180. **Housing:** single family, 431, visiting, 196, DV, 14, TLF, 54. **Clinic.**

Tinker AFB, Okla. 73145-3010; 8 mi. SE of Oklahoma City. **Phone:** 405-732-7321; DSN 231-1311. **Majcom:** AFMC. **Host:** 72nd ABW. **Mission:** Oklahoma City Air Logistics Center is the worldwide manager for a wide range of aircraft engines, missiles, and commodity items. The center handles aircraft modifications and repairs and maintains bombers, refuelers, and reconnaissance aircraft. It also serves as the repair center for such items as automatic flight control, engine instruments, air driven accessories, and life support. **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 (DLA); 3rd Combat Communications Gp. (ACC); 38th Engineering Installation Gp. (AFMC); 10th Flight Test Sq.; 137th ARW (AFRC assoc.). **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, 6,113; DOD civilians, 15,052. **Housing:** single family, officer, 101, enlisted, 574; unaccompanied, UAQ/UEQ, 1,160; visiting, VOQ, 87, VAQ/VEQ, 52, TLF, 39. **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, C-17, and KC-10 operations. **Major tenants:** 615th Contingency Response Wing (AMC); 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, each approx. 11,000 ft. . **Altitude:** 62 ft. **Personnel:** permanent party military, 7,304; DOD civilians, 3,811. **Housing:** single family, officer, 157, enlisted, 1,064; unaccompanied, UAQ/UEQ, 1,215; visiting, VQ, 395, TLF, 82. **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/Air Forces Northern (ANG); Continental US NORAD Region; 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, 4,280; DOD civilians, 687. **Housing:** single family, officer, 123, enlisted, 727; unaccompanied, UAQ/UEQ, 448; visiting, 648, TLF, 94. **Clinic.**

US Air Force Academy, Colo. 80840-5025; N of Colorado Springs. **Phone:** 719-333-1110; DSN 333-1110. **Host:** USAFA. **Mission:** educates and develops young men and women to become Air Force officers. **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, 1,890; DOD civilians, 1,995. **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, 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:** 2,000 acres. **Runways:** two, each 9,200 ft. and 5,024 ft. **Altitude:** 1,307 ft. **Personnel:** permanent party military, 647; DOD civilians, 160. **Housing:** single family, 229; unaccompanied, UOQ, 200, UAQ/UEQ, 109; visiting, 54, 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, 2,680; DOD civilians, 1,100. **Housing:** single family, officer, 297, enlisted, 1,383; unaccompanied, dorm rooms, 668, 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-10; 131st BW (ANG); 1st Battalion, 135th Aviation Regiment (ARNG); Maritime Expeditionary Security Division 13 (USNR). **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, 3,407; DOD civilians, 2,492. **Housing:** single family, officer, 88, enlisted, 770; unaccompanied, 686; 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:** AFMC; Air Force Research Laboratory (AFMC); Air Force Security Assistance Center (AFMC); 445th AW (AFRC), C-5; Air Force Institute of Technology (AETC); National Air and Space Intelligence Center; 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, 5,863; DOD civilians, 10,954. **Housing:** single family, officer, 182, enlisted, 294; privatized housing, oficers, 566, enlisted, 970; unaccompanied, UAQ/UEQ, 408; 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-12J, C-130H, and UH-1N operations. Primary airlift hub for the Western Pacific. **Major tenants:** US Forces Japan; 5th Air Force (PACAF); 515th AMOG (AMC); 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, 1,080; unaccompanied, UOQ, 184, UAQ/UEQ, 896; visiting quarters 182; TLF, 189. **Hospital.**

USAF photo by A1C Willard E. Grande II

KC-135 tankers from Alaska and Grand Forks AFB, N.D., line up at Eielson AFB, Alaska, during a winter storm.

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:** 477.

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.

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:** 354.

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

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:** 378. 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:** 307.

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:** 284.

Boise Air Terminal (Gowen Field), Idaho 83705-6006; 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:** 564. 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 Airlift 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:** 340.

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:** 382.

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:** 346.

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:** 333.

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:** 373.

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:** 307.

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, 632; 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:** 250.

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:** 351.

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:** 406.

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 Reconnaissance 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:** 350.

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:** 322.

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:** 295.

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:** 293.

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:** 275.

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:** 334.

General Mitchell Arpt., Wis. 53207-6299; SW corner of Milwaukee. **Phone:** 414-944-8410; DSN 580-8410. **Unit:** 128th Air Refueling Wing (ANG). **History:** named for Brig. Gen. William "Billy" Mitchell. **Area:** 70 acres. **Runway:** 9,690 ft. **Altitude:** 670 ft. **Full-time personnel:** ANG, 268.

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:** 295.

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:** 365.

Grissom ARB, Ind. 46971-5000; 15 mi. N of Kokomo. **Phone:** 765-688-1110; DSN 388-1110. **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:** 305 transient. **Full-time personnel:** 587.

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:** 582.

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:** 459.

Hector Arpt., Fargo, N.D. 58102-1051. **Phone:** 701-451-2110; DSN 362-8110. **Unit:** 119th Wing (ANG). **Area:** 260 acres. **Runways:** 9,500 ft., 6,300 ft., and 3,800 ft. **Altitude:** 895 ft. **Full-time personnel:** 354.

Homestead ARB, Fla. 33039-1299; 5 mi. NE of Homestead. **Phone:** 305-224-7000; DSN 791-7000. **Units:** 482nd Fighter Wing (AFRC); Det. 1, 125th Fighter Wing (Fla. ANG, NORAD); US Customs Miami Aviation Branch; Fla. Hq. Special Operations Command South and US Coast Guard Maritime Safety Security Team; Fla. ARNG 50th ASG; Defense Logistics Agency; Civil Air Patrol Sq. 279; AFOSI; Defense Investigative Service; FBI. **Area:** approx. 2,200 acres. **Runway:** 11,200 ft. **Altitude:** 11 ft. **Full-time personnel:** AFRC, 800.

Hulman Arpt., Ind. 47803; 6 mi. E of Terre Haute. **Phone:** 812-877-5210; DSN 724-1210. **Unit:** 181st Intelligence Wing (ANG). **Area:** 279 acres. **Runways:** 9,025 ft. and 7,250 ft. **Altitude:** 585 ft. **Full-time personnel:** 271.

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:** 794.

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:** 294.

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:** 326.

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:** 451.

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:** 626.

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:** 409.

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:** 326.

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:** 340.

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:** 362.

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 Reconnaissance Wing (Calif. ANG); 4th Combat Camera Sq.; Defense Media Center; 304th Sustainment Brigade (USAR); 358th Civil Affairs Brigade (USAR); 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, 1,175; ANG, 264. **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:** 438.

McEntire ANGS, S.C. 29044; 15 mi. E of Columbia. **Phone:** 803-647-8300; DSN 583-8300. **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:** 384.

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:** 400.

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:** 408. 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:** 612-713-1110; DSN 783-1110. **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, 356; ANG, 272. 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:** 355.

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:** 336.

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, 646; ANG, 273.

NAS JRB New Orleans, La. 70143-0050, 15 mi. S of New Orleans. **Phone:** 504-391-8600; DSN 457-8600. **Unit:** 159th Fighter Wing (ANG). **Area:** 3,239 acres. **Runways:** 8,000 ft. and 6,000 ft. **Altitude:** 3 ft. **Full-time personnel:** ANG, 459.

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:** 303.

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:** 262.

Niagara Falls Arpt., N.Y. 14304-5001; 6 mi. E of Niagara Falls. **Phone:** 716-236-2000; DSN 238-2000. **Units:** 914th Airlift Wing (AFRC), C-130H; 107th Airlift Wing (ANG), C-130H. **History:** activated January 1952. **Area:**

979 acres; ANG area, 108 acres. **Runway:** 11,000 ft. **Altitude:** 590 ft. **Full-time personnel:** AFRC, 365; ANG, 39. Lodging, exchange, and consolidated club.

Otis ANGB, Mass. 02542-1330; 7 mi. NNE of Falmouth. **Phone:** 508-968-4667; DSN 557-4667. **Unit:** 102nd Intelligence Wing (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:** 420.

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:** 357.

Pittsburgh Arpt., Pa. 15108-4403; 12 mi. NW of Pittsburgh. **AFRC phone:** 412-474-8511; DSN 277-8511. **ANG phone:** 412-474-8511; DSN 277-8511. **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, 321; ANG, 402. **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, 490; AFRC, 50.

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:** 280.

Reno/Tahoe Arpt. (May Field), Nev. 89502; 5 mi. SE of downtown Reno at 1776 NG Way. **Phone:** 775-788-4500; DSN 830-4500. **Units:** 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:** 364.

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:** 347.

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:** 320.

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:** 465.

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:** 386.

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:** 500.

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, 529; AFRC, 238.

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:** 323.

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:** 324.

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:** 784.

Stewart ANGB, N.Y. 12550-5042; 15 mi. N of US Military Academy (West Point). **Phone:** 914-563-2001; DSN 636-2001. **Unit:** 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:** 633. 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:** 299.

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:** 486.

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:** 984.

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:** 330.

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:** 357.

Westover ARB, Mass. 01022-1825; 10 mi. NE of Springfield. **Phone:** 413-557-1110; DSN 589-1110. **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:** AFRC, 853. **Housing:** VOQ, 12, VAQ, 68 beds.

Will Rogers World Arpt., Oklahoma City. 73179-1090; 9 mi. SW of downtown. **Phone:** 405-686-5210; DSN 720-5210. **Unit:** 137th Air Refueling 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:** 286.

Willow Grove ARS, Pa. 19090-5300; 14 mi. N of Philadelphia. **ANG phone:** 215-443-1500; DSN 991-1500. **Unit:** 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:** ANG, 282.

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:** 261.

Youngstown ARS, Ohio 44473-5912; 14 mi. N of Youngstown. **Phone:** 330-609-1000; DSN 346-1000. **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:** AFRC, 454; ANG, 17. **Lodging:** 142 beds. Limited exchange.

USAF photo by SrA. Erica J. Knight

Reservists load an equipment trailer onto a C-17 Globemaster III at March ARB, Calif.

Gallery of USAF Weapons

2009 USAF Almanac

By Susan H. H. Young

Note: Inventory numbers are total active inventory figures as of Sept. 30, 2008.

Bombers

B-1 Lancer

Brief: A long-range, air refuelable multirole bomber capable of flying intercontinental missions and 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: 66.

Unit Location: Dyess AFB, Tex., Edwards AFB, Calif., Ellsworth AFB, S.D.

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 ACES II ejection seats.

Dimensions: span spread 137 ft, swept aft 79 ft, length 146 ft, height 34 ft.

Weights: empty 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) or 24 Mk 84 (2,000-lb) general-purpose bombs; up to 84 Mk 62 (500-lb) or 8 Mk 65 (2,000-lb) Quick Strike naval mines; up to 30 cluster munitions (CBU-87/89/97) or 30 Wind-Corrected Munitions Dispensers (WCMD) (CBU 103/104/105); up to 24 GBU-31 (2,000-lb) or 15 GBU-38 (500-lb) Joint Direct Attack Munitions (JDAMs); up to 24 AGM-158A Joint Air-to-Surface Standoff Missiles (JASSMs); or any mix of these weapons (a different type of weapon in each of three weapons bays).

COMMENTARY

Of blended wing/body configuration, the B-1's variable-geometry design and turbofan engines combine to provide greater range, maneuverablity, and high speed while enhancing survivability. Forward wing sweep settings are used primarily for takeoff, landings, air refueling, high-altitude cruise, and some weapons employment scenarios. The B-1 utilizes aft wing positions as its main combat configurations for high-subsonic and supersonic flight, enhancing maneuverability in the low- and high-altitude regimes. The B-1's speed and superior handling characteristics allow it to seamlessly integrate in mixed force packages. These capabilities, when combined with its substantial payload, excellent radar targeting system, long loiter time, and survivability, make the B-1 a key element of any joint/composite strike force.

The bomber's offensive avionics include high-resolution synthetic aperture radar (SAR), capable of tracking, targeting, and engaging moving vehicles, as well as self-targeting and terrain-following modes. In addition, an extremely accurate Global Positioning System-aided Inertial Navigation System (GPS/INS) enables aircrews to autonomously navigate globally, without the use of ground-based navigation aids and to engage targets with a high level of precision. The recent addition of Combat Track II (CT II) radios permit an interim secure beyond-line-of-sight (BLOS) reachback connectivity until Link 16 is integrated on the aircraft. In a time-sensitive targeting environment, the aircrew can receive targeting data from the combined air operations center over CT II, and then update mission data in the offensive avionics system to strike emerging targets rapidly and efficiently.

B-1B Lancer (Clive Bennett)

The B-1's self-protection electronic jamming equipment, radar warning receiver (ALQ-161), and expendable countermeasures (chaff and flare) system complements its low radar cross section to form an integrated, robust onboard defense system that supports penetration of hostile airspace.

B-1A. USAF initially sought this new bomber as a replacement for the B-52, developing and testing four prototypes in the 1970s, but the program was canceled in 1977. Flight-test of the four B-1A models continued through 1981.

B-1B. The B-1B is an improved variant initiated in 1981. Major changes included the addition of additional structure to increase payload by 74,000 lb, an improved radar, and reduction of the radar cross section (RCS). The inlet was extensively modified as part of this RCS reduction, necessitating a reduction in maximum speed to Mach 1.2. The first production model flew in October 1984. USAF produced a total of 100 B models, but reduced the inventory to 67 aircraft with consolidation in 2002 at two main operating bases—Dyess AFB, Tex. and Ellsworth AFB, S.D.

The B-1B was first used in combat in support of operations against Iraq during Desert Fox in December 1998. In 1999, six B-1s were used in Allied Force, delivering more than 20 percent of the total ordnance while flying less than two percent of the combat sorties. The eight B-1s deployed in support of Enduring Freedom dropped nearly 40 percent of the total tonnage during the first six months of the operation. This included nearly 3,900 JDAMs, or 67 percent of the total.

The Conventional Mission Upgrade Program (CMUP) has significantly enhanced B-1B lethality and survivability. Block D upgrades included GPS receivers, a MIL-STD-1760 weapon interface, secure interoperable radios, and capability to employ precision weapons. Block E, which completed its final delivery in August 2006, included follow-on computer and software upgrades permitting simultaneous carriage of mixed guided and unguided weapons and WCMD, JASSM, and JSOW integration. 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 maintainability improvement effort began in FY06, to be followed by integration of a targeting pod capability beginning in FY10. USAF began fielding the Sniper targeting pod in mid-2008 as an interim quick-reaction capability, using the rear station laptop computer for pod control.

As part of USAF's program to reduce fuel operating costs, the B-1B now is certified for unlimited use of synthetic fuel blend.

B-2 Spirit

Brief: Stealthy, long-range multirole bomber that can deliver nuclear and conventional munitions anywhere on the globe by flying through previously impenetrable defenses.

Function: Long-range heavy bomber.

Operator: ACC, ANG.

First Flight: July 17, 1989.

Delivered: Dec. 20, 1993-2002.

IOC: April 1997, Whiteman AFB, Mo.

Production: 21.

Inventory: 20.

Unit Location: Active and ANG (assoc.): Whiteman AFB, Mo.

Contractor: Northrop Grumman; Boeing; Vought.

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 is 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, 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 Joint Standoff Weapons (JSOWs), 16 JASSMs, or eight 4,700-lb GBU-37/GBU-28C/B guided weapons. Future weapons include Small Diameter Bomb (SDB) II.

B-2A Spirit (MSgt. Kevin J. Gruenwald)

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 quadrupie-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 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 are 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 added significant new weapons 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-28C/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. Modifications to the bomb racks add carriage of 80 independently targeted GBU-38 (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. A new stealth coating introduced under the Alternative High Frequency Material (AHFM) program is dramatically improving combat readiness. The entire fleet will be converted by 2012. Additionally, Link 16 digital data sharing capability and the replacement of the current mechanically scanned phased-array antenna with an active electron cally scanned array (AESA) radar are ongoing.

Beyond Block 30, USAF plans to add UHF/EHF satellite communications systems.

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, with 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: 76.

Unit Location: Active: Barksdale AFB, La., Edwards AFB, Calif. (AFMC), Minot AFB, N.D. AFRC: Barksdale AFB, La.

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) 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 and GBU-38 JDAMs, JASSMs, and GBU-10/12/28 laser guided bombs. Future weapons incl the Miniature Air Launched Decoy (MALD).

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 still is reviewing a standoff electronic warfare role for the B-52.

Equipment includes GPS, ARC-210 radios with Have Quick II anti-jam feature, KY-100, providing secure voice and data transmission, 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, and night vision goggles (NVGs). 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 and a new radar system. A MIL-STD-1760 interface supports advanced precision weapons capability. The B-52's ECM suite uses a combination of electronic detection, jamming, and infrared (IR) countermeasures to protect against hostile air defense systems.

The B-52 was the first USAF aircraft to fly using synthetic fuel. It also was first to release the massive ordnance penetrator (MOP) weapon.

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-52H Stratofortress (Clive Bennett)

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. The B-52 currently is employable for both conventional and nuclear missions. As the Air Force's only nuclear 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 the 21st century, with the ability to provide massive firepower in low- to midthreat environments supplemented by a standoff attack capability. Iraqi Freedom saw B-52s delivering laser guided bombs for the first time using Litening targeting pods. Use of heavy stores adapter beams enable aircraft to carry most B-52-certified munitions. ALCMs and CALCMs 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 provides a modern cockpit information avionics architecture, color displays, and enhanced situational awareness, network-centric warfighting capability, fully integrated line-of-sight (LOS) and beyond-line-of-sight (BLOS) data link capabilities, and mission/weapon reprogramming capability. The B-52 EHF program will add UHF/EHF satellite communications to the fleet.

Fighter and Attack Aircraft

***A-10** Thunderbolt II* (MSgt. Andy Dunaway)

A-10 Thunderbolt II

Brief: A simple, effective, 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: 335 (A-10A); 128 (A-10C).

Unit Location: Active: Davis-Monthan AFB, Ariz., Eglin AFB, Fla., Moody AFB, Ga., Nellis AFB, Nev., Osan AB, South Korea, Spangdahlem AB, Germany. ANG: Boise Air Terminal, Idaho, Fort Smith Arpt., Ark., Martin State Arpt., Md., Selfridge ANGB, Mich. AFRC: Barksdale AFB, La., Langley AFB, Va., 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-10/12/16/38, CBU-87 Combined Effects Munition (CEM), WCMD, 2.75-in high-explosive, white phosphorous, and overt/covert illumination rockets, SUU-25 overt/covert flare dispensers, up to six AGM-65B/D/E/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.

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, or up to 25,000 ft with advanced targeting pods and GPS-guided munitions or in darkness with NVGs. 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, Allied Force, and in Southwest Asia operations, where they have conducted several A-10 combat firsts, including first use of Litening II targeting pod, first self-lased laser guided bomb (LGB) delivery, and first AGM-65E/H/K and JDAM 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, including ALQ 131/184 ECM pods, ALR-69 radar warning receiver (RWR), AAR-47 missile warning system, and countermeasures system (CMS) to digitally integrate the ALE-40 chaff-flare dispenser and automate future extended IRCM solutions.

A-10C is the new designation for aircraft currently being upgraded with the precision engagement modification, with new multifunction color displays, hands-on throttle and stick (HOTAS), digital stores management, JDAM/WCMD integration, Sniper targeting pod capability, a Situational Awareness Data Link (SADL), and integration of sensors with aircraft systems. IOC occurred in August 2007, with the first combat deployment one month later. All aircraft are scheduled to be modified by FY11. Other planned improvements include enhanced communication and improved situational awareness systems. These improvements will permit the A-10 to attack from higher altitudes and provide a better logistical and maintenance footprint. Additionally, the entire fleet is to receive structural improvements including rewinging where necessary.

Aircraft designated **OA-10A/C** are used primarily 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.

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: 43; incl four recent conversions.

Inventory: eight (AC-130H); 17 (AC-130U).

Unit Location: Cannon AFB, N.M. (scheduled), 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: 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. For operations in Afghanistan and Iraq, the AC-130 gunships work 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 Spectre aircraft are scheduled to serve with the 27th SOW at Cannon AFB, N.M. AC-130Hs are equipped with a digital fire-control computer, 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. Future modifications include a new ground mapping/weather radar, enhanced traffic alert and collision avoidance system (ETCAS), large aircraft infrared countermeasures (LAIRCM), and expanded precision weapons capability.

AC-130U Spooky aircraft serve with 1st SOW and are gunship conversions by Rockwell, of which 13 were delivered to AFSOC's 4th SOS in 1994-95. Four additional aircraft were recently converted by Boeing to U standard. A planned replacement to the 40 mm gun has been canceled. 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. Future modifications include ETCAS, Link 16, an advanced gunship multispectral sensor, and expanded precision weapons capability.

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 primary mission for the gunship is close air support for special operations forces. Other missions include armed reconnaissance, interdiction, point defense, armed escort, and surveillance.

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.

***AC-130** Gunship* (Rick Llinares)

Function: Air superiority fighter.
Operator: ACC, AETC, AFMC, PACAF, USAFE, ANG, AFRC.
First Flight: July 27, 1972.
Delivered: November 1974-85.
IOC: September 1975.
Production: 874.
Inventory: 407.
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: Barnes Arpt., Mass., Great Falls Arpt., Mont., Hickam AFB, Hawaii, Jacksonville Arpt., Fla., Klamath Falls Arpt., Ore., NAS JRB New Orleans, La., Portland Arpt., Ore. AFRC: Langley AFB, Va. (assoc.), Nellis AFB, Nev.
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-120 Advanced Medium-Range Air-to-Air Missiles (AMRAAMs), carried externally.

COMMENTARY

For more than 30 years, the F-15 has provided the capability to penetrate hostile defenses and establish air superiority over enemy systems through a combination of superior maneuverability and acceleration, range, weapons, and avionics. F-15 fighters deployed to 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. F-15A/Bs retrofitted with E-kit upgrades have 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, allowing for the carriage of more advanced weapons, and increased self-protection. The last 43 aircraft were delivered with the APG-70 radar. The F-15C/Ds that USAF expects to remain in the fleet until 2025 have been further upgraded with 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 Cuing System (JHMCS) is intended, along with the AIM-9X, to significantly enhance lethality in close-range aerial combat. Other modifications include improved engines, GPS equipment, Litening targeting pods, and the Link 16 fighter data link; a proportion will receive the next generation APG-63(V)3 AESA radar.

All but nine F-15A-D models have been cleared to fly following a period of grounding for structural evaluation; five C models are being repaired and four retired.

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., 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-120 AMRAAMs or up to eight AIM-120 AMRAAMS; up to six AGM-65 Maverick air-to-surface missiles; AGM-130; EGBU-15 and GBU 10/12/15/24/28/31/38/54 guided munitions; CBU 87/89/97 unguided munitions; CBU-103/104/105 WCMD guided munitions, GBU-39 SDB, and nuclear weapons.

COMMENTARY

F-15E aircraft have 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 and AIM-9 load, a true multirole capability. 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 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. System upgrades under way include programmable armament control sets (PACS), ready-installed software for delivery of JDAM and WCMD, and an enhanced night vision capability. New core processors ensuring increased capability and reliability are being retrofitted to allow employment of the GBU-39 SDB. A new AESA radar to replace the APG-70 is currently under development, aimed at improving targeting and mapping capabilities.

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 Strike Eagle can operate in conjunction with E-8 Joint STARS ground surveillance aircraft and has taken on a CAS role for Afghanistan operations.

***F-15E** Strike Eagle* (SSgt. Samuel Morse)

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, suppression of enemy air defenses (SEAD), 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: 1,200.
Unit Location: 9 active wings, 18 ANG, and three AFRC units (plus 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 range of air-to-air and air-to-surface munitions.

***F-16** Fighting Falcon* (TSgt. Erik Gudmundson)

***F-22A** Raptor* (MSgt. Andy Dunaway)

COMMENTARY

The F-16 is the workhorse of the USAF fighter fleet, supporting the majority of precision guided munitions taskings in combat operations. 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 the initial stages of Iraqi Freedom, the F-16 flew hundreds of missions helping to destroy the unit cohesion of the Republican Guard. F-16s continue to support operations in Iraq and Afghanistan while providing the majority of homeland defense forces for air sovereignty.

F-16A (single-seat) and **F-16B** (two-seat) versions incorporated advanced technologies from the start, making these aircraft two of the most maneuverable fighters built. USAF has retired almost all its A and B models, but the versions are still in use with many international operators. Equipment included 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. A midlife update program, undertaken cooperatively by USAF and NATO operators, improved 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. 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 featured built-in structural and wiring provisions and systems architecture that expanded 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, Guard, and Reserve units have since converted to F-16C/Ds. Block 40/50 aircraft are now GBU-31/38/54 JDAM, WCMD, and AGM-158 JASSM capable.

ANG and AFRC Block 25/30/32 F-16s have upgrades that increase throughput and memory for new weapon capabilities, including GBU-31/38/54 JDAM, plus advanced identification, friend or 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 and Sniper targeting pods. A structural modification program to remedy fatigue problems caused by increased usage rates and heavier than forecast gross weights has been undertaken under the Falcon STAR program.

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 Very High Speed Integrated Circuit (VHSIC) technology in the APG-68(V5) fire-control radar, a ring-laser gyro INS, GPS, 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, the latest cockpit control and display technology, including a wide-angle HUD. Weapons improvements include multishot AMRAAM compatibility, GBU-31/38/54 JDAM, WCMD, AGM-158 JASSM, and laser guided bomb variants (GBU-10/12/24) using Sniper, Litening AT/R, and LANTIRN targeting pods. Downlink capability integrates with ROVER systems to support joint terminal attack controllers (JTAC) on the ground to increase close air support (CAS) effectiveness.

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. The CCIP software effort includes the participating European governments of the F-16 Multinational Fighter Program. CCIP hardware includes new color displays, Sniper XR targeting pod, JHMCS, AIM-9X, Link 16, and improved weapons capabilities. First delivery was made January 2002, and modification of Block 50/52 aircraft was completed in 2006; the Block 40/42 retrofit program is expected to finish by 2010. The Block 50/52 aircraft have dual/alternate carriage of HARM targeting system (HTS) and Smart Targeting and Identification via Networked Geolocation (STING) and advanced targeting pods (ATP). Planned future upgrades include enhanced GPS/INS, Miniature Air Launched Decoy (MALD) with new mission planning software and SDB integration.

F-22A Raptor

Brief: A fifth generation, multirole fighter designed to penetrate advanced anti-air threats and achieve air dominance.

Function: Air dominance multirole fighter.

Operator: ACC, AETC, AFMC, PACAF, ANG, AFRC.

First Flight: Sept. 7, 1997.

Delivery: 2002 (first production representative aircraft).

IOC: Dec. 15, 2005.

Production: 187 (planned).

Inventory: 121.

Unit Location: Edwards AFB, Calif., Elmendorf AFB, Alaska, Hickam AFB, Hawaii (active associate planned), Holloman AFB, N.M., Langley AFB, Va. (first operational location), Nellis AFB, Nev., Tyndall AFB, Fla. ANG: Hickam AFB, Hawaii (planned), Langley AFB, Va. (assoc). AFRC: Elmendorf AFB, Alaska (assoc.), Holloman AFB, N.M. (assoc.).

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: above 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 or two AIM-120 AMRAAMs and two GBU-32 JDAMs for ground attack, stored internally in the main weapons bay; beginning 2011, up to eight SDBs can replace two JDAMs.

COMMENTARY

Built to lead USAF's "kick down the door" force, by day and night and in adverse weather and across the spectrum of missions, the **F-22A** represents 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 Primary Multifunction Display provides a view of the air and ground tactical situation, including threat identity, threat priority, and tracking information, with two Secondary Multifunction Displays showing air and ground threats, stores management, and air threat information. Two additional displays give navigation, communication, identification, and flight 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. 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) completed in 2005. The F-22A had proved its air-to-air and air-to-ground attack capability when it reached IOC in December 2005, and on Jan. 21, 2006, it flew its first operational sortie from Langley AFB, Va., as part of Noble Eagle.

Production aircraft have been delivered to operational units at Langley, Elmendorf, and Holloman, and are slated for Hickam. All F-22 squadrons will involve Total Force integration. As part of the Fiscal 2010 budget cuts announced April 6, 2009, the Pentagon plans to cap F-22 production at 187 aircraft, four more than the current program of record.

F-35 Lightning II

Brief: An affordable, highly common family of next generation strike aircraft.

***F-35** Lightning II* (Lockheed Martin photo)

Function: Multirole fighter.
Operator: ACC for USAF.
First Flight: Dec. 15, 2006 (F-35A prototype).
Delivery: 2009 (anticipated first production aircraft).
IOC: 2013 (USAF).
Production: planned: 1,763 (USAF), 680 total F-35B (USMC) and F-35C (USN), 150 (UK), more to eight development partner countries.
Inventory: TBD.
Unit Location: Planned: Edwards AFB, Calif.; Eglin AFB, Fla.; Hill AFB, Utah; Kadena AB, Japan; Nellis AFB, Nev.; Shaw AFB, S.C. ANG: McEntire ANGB, S.C.
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: currently one Pratt & Whitney F135, in 40,000-lb thrust class.
Accommodation: pilot only, on zero/zero ejection seat.
Dimensions: approx. span 35 ft, length 50.5 ft, height 17.3 ft.
Weight: TBD.
Ceiling: TBD.
Performance (design targets): mil power level speed at S/L, 630 knots calibrated airspeed (KCAS) for the F-35A conventional takeoff and landing (CTOL) variant (Mach 1 max power for CTOL only) and the F-35C carrier variant (CV), and 600 KCAS for the F-35B short takeoff and vertical landing (STOVL) aircraft, combat radius more than 590 miles for CTOL variant, 600 miles for CV, and 450 miles for STOVL.
Armament: 11 weapon stations (four internal, seven external), capable of carrying bombs up to 2,500 lb. The CTOL will have one internal 25 mm gun, the STOVL and CV variants will have the same weapon with an external missionized gun pod. Internal weapons bay: CTOL: two AIM-120Cs and two GBU-31 JDAMs. CV: two AMRAAMs and two GBU-31 JDAMs. STOVL: two AMRAAMs and two GBU-32 JDAMs. All variants will have internal and external GBU-12 and external AIM-9X. More than 30 stores are to be certified for carriage as system development continues.
COMMENTARY: The F-35 Lightning II 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 US forces, these comprise the **F-35A** CTOL version, the F-35B STOVL version for USMC, and F-35C CV carrier version for USN. USAF's F-35A 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.

The system development and demonstration (SDD) phase, begun in October 2001, focuses on system development, test and evaluation, logistics support, and LRIP planning. A total of 18 test aircraft are being built, 12 for flight testing, six for nonairborne activities. Lockheed Martin completed assembly of the first F-35A flight-test aircraft in February 2006 and flight testing commenced Dec. 15, 2006. The final SDD aircraft are scheduled for completion 2009. Full-scale flight-test operations are planned to begin at Edwards AFB, Calif., in 2009, as well as delivery of the first production models for the joint training program at Eglin AFB, Fla.

The first flight by a USAF test pilot took place on Jan. 30, 2008. An F-35A achieved supersonic speed for the first time in November 2008. The first weight-optimized F-35A was rolled out on Dec. 19, 2008, the aircraft being structurally identical to the F-35s that will be delivered to the armed services beginning in 2010.

The F-35 is powered by the F135, a derivative of the Pratt & Whitney F119 engine. General Electric has been under contract to develop an interchangeable power plant, the F136, but the future for the alternative production engine is still unclear.

MQ-9 Reaper
Brief: A medium-to-high altitude, long-endurance remotely piloted UAV. Joint force commander multimission asset as a persistent hunter-killer against emerging targets.
Function: Unmanned attack and reconnaissance aircraft.
Operator: ACC.
First Flight: February 2001.
Delivered: November 2003.
IOC: FY07.
Production: 352 (planned).
Inventory: 22.
Unit Location: Creech AFB, Nev., Holloman AFB N.M. (planned). ANG: Hancock Field, N.Y. (planned).
Contractor: General Atomics Aeronautical Systems.
Power Plant: one Honeywell TPE-331-10GDT turboprop engine.
Accommodation: unmanned system.
Dimensions: length 36.2 ft, span 66 ft.
Weight: empty 4,900 lb, gross 10,500 lb.
Ceiling: 30,000+ ft.
Performance: cruise speed 230 mph, endurance 14+ hours.
Armament: combination of AGM-114 Hellfire missiles, GBU-12/38 JDAM and GBU-49 Paveway II.
COMMENTARY
Officially combat-operational in Afghanistan since September 2007, the MQ-9 Reaper is larger than the MQ-1, has eight times the range, and flies twice as high. The typical MQ-9 system consists of several aircraft, a ground control station, communications equipment/links, spares, and active duty and/or contractor personnel. The crew is one pilot and one sensor operator. To meet combatant commanders' requirements, the MQ-9 delivers tailored capabilities using mission kits that may contain various weapons and sensors payload combinations.

The sensor suite for targeting includes a color/monochrome daylight TV, infrared, image intensified TV with a laser rangefinder/designator to precisely designate targets for laser guided munitions. The SAR enables GBU-38 JDAM targeting. The sensor is capable of very fine resolution in both spotlight and strip modes. The SAR also has ground moving target indicator capability.

YAL-1A Attack Airborne Laser
Brief: The prototype YAL-1A, using a modified 747-400F platform, is being developed as a boost-phase element of the ballistic missile defense system.
Function: Airborne laser.
Operator: ACC (projected).
First Flight: July 18, 2002 (Block 04 test bed).
Delivered: 2002.
IOC: TBD.
Production: TBD.
Inventory: TBD.
Unit Location: (Tail 1 prototype) Edwards AFB, Calif., (ABL system program office (SPO)) Kirtland AFB, N.M.
Contractor: Boeing (ABL platform; battle management (BM) system); 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, unrefueled endurance at 40,000 ft with operational laser weapon load approx six hr.
Armament: megawatt-class COIL.
COMMENTARY
The Airborne Laser (ABL) is being developed by the Missile Defense Agency (MDA) as the first directed energy weapon in the US arsenal. Overall direction and budget authority for the program lies with MDA, while USAF continues to man and develop the program through its Airborne Laser System Program Office at Kirtland AFB, N.M.

Operational concepts call for ABLs to fly continuous patrols over deployed US forces, at an altitude of 40,000 ft. The aircraft would detect and shoot down any ballistic missiles launched at US forces or nearby allied nations. The ABL also would have the capability of determining hostile launch locations and passing that information to other US assets.

Central to the system is 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. The system is designed to track ballistic missiles and maintain laser focus on their skin, which, when sufficiently heated, will cause the pressurized fuel within to explode.

The 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 two other kilowatt-class lasers: 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 December 2002, the platform was flown to Edwards AFB, Calif., for system installation. With YAL-1A in the hangar, tests were 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 aircraft resumed airworthiness flight testing in December 2004, following installation of the beam control/fire-control system; performance demonstration of these systems was completed in August 2005. The aircraft was modified during 2006 to prepare for installation of the COIL, which was completed in early 2008. The integrated system is slated to begin flight testing in early 2009, working toward shootdown of a boosting ballistic missile in late 2009. Under DOD's Fiscal 2010 budget, plans were curtailed for a second ABL and YAL-1A relegated to research status only.

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.
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: Tinker AFB, Okla. (assoc.).
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.

MQ-9 Reaper (SSgt. James L. Harper Jr.)

Weight: gross 347,000 lb.
Ceiling: 38,000 ft.
Performance: optimum cruise Mach 0.78, endurance eight hr unrefueled.
COMMENTARY
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; C2 for an area of responsibility; BM 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 the 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. The Block 40/45 upgrade is a major initiative for all 32 AWACS aircraft and will significantly enhance the Air Force's air BM/C2 capabilities for the 21st century battlefield. It will provide increased mission effectiveness for AWACS operators, improved reliability of the mission system, and lower life-cycle costs. Aging computer systems are being replaced by an open system local area network(LAN)-based architecture. Multisensor integration fuses on-board/off-board sensor systems and establishes a foundation for network-centric operations, producing better track quality, shortening the response time, and reducing operator/workload errors. AWACS net-centric mission systems will be complemented by the integration of advanced LOS and BLOS network communications links which will enable operators to interact with a broad range of information across the net-centric battlespace.

E-8 Joint STARS
Brief: A modified Boeing 707-300 series equipped with a large, canoe-shaped radome mounted under the forward part 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.
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.
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 commercial Boeing 707-300 series platform extensively remanufactured and modified with radar, communications, operations, and control subsystems. A 27-ft-long canoe-shaped radome under the forward fuselage houses the 24-ft long-range, side-looking phased air-to-ground radar capable of locating, classifying, and tracking vehicles moving on Earth's surface. The antenna can be tilted to either side of the aircraft where it can develop a 120-degree field of view covering nearly 19,305 square miles and is capable of detecting targets at more than 820,000 feet. Data is then transmitted via data link to ground stations or other aircraft.

It provides theater ground and air commanders with ground surveillance to support attack operations and targeting that contributes to the delay, disruption, and destruction of enemy forces. The weapon system is 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 evolved from Army and Air Force programs to develop, detect, locate, and attack enemy armor at ranges beyond the forward area of troops. The first two developmental aircraft deployed in 1991 to Desert Storm and also supported Joint Endeavor in December 1995. Joint STARS supported NATO troops over Bosnia in 1996 and Allied Force in 1999. It continues to fly in support of Enduring Freedom and Iraqi Freedom. During the initial stages of Iraqi Freedom, E-8C Joint STARS aircraft were airborne 24 hours a day to help coalition forces maintain battlefield awareness.

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 enhancing Internet protocol (IP) connectivity with a beyond-line-of-sight (BLOS) capability; enhanced radar capabilities to improve tracking of land and sea targets through the Enhanced Land Maritime Mode (ELMM) Program; communications upgrades to address crypto, JTIDS, and broadcast intelligence equipment obsolescence; upgrades to the Prime Mission Equipment (PME) including radar signal processor and mission central computer and work station processor equipment; and communications navigation surveillance air traffic management upgrades to permit use of optimum altitudes and flight routes in increasingly congested commercial airspace. The process of re-engining the E-8C with improved performance Pratt & Whitney JT8D turbojets has begun, with the first operational aircraft expected to receive the new engines in late 2010.

MC-12W Liberty Project Aircraft (LPA)
Brief: A manned intelligence-surveillance-reconnaissance (ISR) version of the C-12, based on the Beechcraft King Air 350, providing near-real-time ISR to ground forces in Iraq and Afghanistan.
Function: Manned tactical ISR.
Operator: ACC.
First Flight: (King Air 350) September 1988.
Delivered: spring 2009 (planned).
IOC: May 2009 (planned).
Production: 37 (planned).
Inventory: 37 (planned).
Unit Location: Weapon system training at Meridian, Miss. (ANG).
Contractor: Hawker Beechcraft.
Power Plant: two Pratt & Whitney Canada PT6A-60A turboprops, each 1,050 shp.
Accommodation: two pilots and two sensor operators.
Dimensions: span 58 ft, length 46.7 ft, height 14.3 ft.
Weight: (King Air 350) gross 15,000 lb.
Ceiling: (King Air 350) 35,000 ft.
Performance: endurance: King Air 350 six hrs; King Air 350 ER 7.5 hrs.
COMMENTARY
The MC-12W Liberty Project Aircraft (LPA) is a modified sensor-equipped version of the C-12 aircraft based on the Beechcraft King Air 350. Thirty-seven are being acquired by USAF to augment existing overhead ISR assets operating in Iraq and Afghanistan, providing ground forces with high-value targeting data and other tactical intelligence. Modification includes full-motion video (FMV) and Sigint capabilities, data links to ground forces, a state-of-the-art countermeasures system, and a Blue-Force tracker. The first seven aircraft are modified, used King Air 350s; the remainder will be based on the King Air 350 Extended-Range model. Initial deployment is expected May 2009.

MQ-1 Predator
Brief: A medium-altitude, long-endurance unmanned aerial vehicle (UAV), flown remotely, providing joint force commanders with a multimission asset, by combining imagery sensors with strike capability.
Function: Armed reconnaissance, airborne surveillance, target acquisition.
Operator: ACC, AFSOC, ANG.
First Flight: July 1994.
Delivered: July 1994 (USAF from 1996)-present.
IOC: 2005.
Production: 186 air vehicles (objective force).
Inventory: 144.
Unit Location: Cannon AFB, N.M., Creech AFB, Nev., Holloman AFB, N.M. (planned), Nellis AFB, Nev. ANG: Ellington Field, Tex., Hector Arpt., N.D., March ARB, Calif.
Contractor: General Atomics Aeronautical Systems.
Power Plant: one Rotax 914F turbocharged engine.
Accommodation: unmanned system.
Dimensions: Block 5/10/15: length 27 ft, height 6.9 ft, span (Block 5) 48.7 ft, (Block 10/15), 55.2 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
The Predator UAV has evolved into a vital asset within USAF's warfighting inventory. A fully operational Predator system includes four air vehicles, a ground control station (GCS), satellite link, and about 55 personnel for 24-hour operations. The air vehicle crew comprises a pilot and a sensor operator.

DOD first used the advanced concept technology demonstration (ACTD) Predator in 1995 to support Provide Promise. USAF took over the Predator program in 1996 and in 1999 deployed the system operationally for surveillance missions over Bosnia and Iraq. The weapons capability was developed in response to lessons learned in the Balkans, and since 2002 Predators armed with laser guided Hellfire missiles have been used increasingly to attack targets in Afghanistan and Iraq. The RQ-1 designation was changed to MQ-1 to denote the multimission capability for both reconnaissance and strike. Currently, the Predator performs remote split operations by forward deploying launch and recovery GCS (LRGCS) aircraft and support personnel for takeoff and landing operations, while the CONUS-based GCS conducts the mission via extended communication links.

***E-8C** Joint STARS* (Northrop Grumman photo)

MQ-1 is the multimission weaponized Predator A. It carries an MTS A sensor ball supplied by Raytheon in place of the Wescam sensor ball. The MTS A provides a laser target designator with EO/IR sensors in a single package. The SAR from the RQ-1 was removed. The MQ-1 can be controlled via direct line of sight or via satellite from a remote location. A new signals intelligence sensor payload (ASIP) is under development.

RQ-1A. The ACTD version of Predator A.

RQ-1B. The reconnaissance-only version of Predator A, with an internal 450-lb surveillance payload, including two EO and one IR video cameras carried in a ball-shaped turret under the nose and produced by Wescam. The internal sensor payload includes a SAR still imagery camera for a day/night, all-weather reconnaissance capability. USAF has retrofitted RQ-1Bs to MQ-1 configuration.

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: Observation aircraft.

Operator: ACC.

First Flight: 1993.

Delivered: 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 modified version of the WC-135, used for specialized arms control treaty observation and imagery collection missions with framing 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-26B

Brief: Specially configured variant of the Fairchild SA227-DC C-26 Metro 23 with surveillance and communications equipment for use primarily in counterdrug efforts but also increasingly for reconnaissance following natural and manmade disasters.

Function: Counterdrug-airborne day/night surveillance and C2.

Operator: ANG.

First Flight: not available.

Delivered: (C-26) first delivered 1989.

IOC: not available.

Production: 11.

Inventory: 11.

Unit Location: 11 locations in CONUS.

Contractor: Fairchild (airframe).

Power Plant: two Garrett TPE331-12UAR-701 turboprops, each 1,100 shp.

Accommodation: flight crew of two, one mission system operator; room for three law enforcement agents.

Dimensions: span 57 ft., length 59.5 ft, height 15.8 ft

Weight: max gross T-O 16,500 lb.

Ceiling: 25,000 ft.

Performance: speed 334 mph, range, 2,070 miles.

COMMENTARY

The RC-26B is a militarized version of the Fairchild Metro 23, modified as an ISR platform primarily in counterdrug operations. More recently, the aircraft have been used during natural disasters, such as hurricanes and wildfires, to provide real-time, streaming video footage to ground personnel handling the emergency, and during special national events to augment security operations. It also is supporting war on terror efforts abroad for US Central Command and US Southern Command.

Specialized equipment includes state-of-the-art digital aerial cameras and an infrared video camera. An extensive communications suite allows communications from 29-960 MHz, including provisions for plugging in 800 MHz handheld radios, and air phone capabilities.

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 and signals intelligence data for theater and tactical commanders.

***MQ-1** Predator* (Lt. Col. Leslie Pratt)

Function: Electronic reconnaissance aircraft.

Operator: ACC.

First Flight: not available.

Delivered: circa 1973-99.

IOC: circa 1973 (Rivet Joint).

Production: (converted).

Inventory: 25.

Unit Location: Offutt AFB, Neb.

Contractor: Boeing (airframe); L3 Communications; Textron.

Power Plant: four CFM International F-108-CF-201 turbofans, each 24,000 lb thrust.

Accommodation: flight crew of three; 25-35 mission crew.

Dimensions: span 131 ft, length 140 ft, height 42 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). 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). 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). 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, combatant 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.

RQ-4 Global Hawk

Brief: A high-altitude, long-range, long-endurance UAV.

Function: Unmanned surveillance and reconnaissance aircraft.

Operator: ACC, AFMC.

First Flight: Feb. 28, 1998.

Delivered: seven ACTD (no longer in inventory); seven Block 10, four Block 20, one Block 30 production aircraft.

IOC: ACTD system used operationally from November 2001 in Afghanistan and Iraq. Block 10s currently employed in CENTCOM theater.

Production: 54 (planned).

Inventory: 14.

Unit Location: Beale AFB, Calif., Grand Forks AFB, N.D. (planned), three forward operating bases planned for AFCENT, PACAF, and USAFE.

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 (Block 10): length 44.4 ft, height 15.2 ft, span 116.2 ft; RQ-4B (Block 20/30/40): length 47.6 ft, span 130.9 ft.

Weight: gross RQ-4A: 25,600 lb; RQ-4B: 32,250 lb.

Ceiling: RQ-4A: 60,000+ ft; RQ-4B: up to 60,000 ft.

***RQ-4** Global Hawk* (USAF photo)

U-2S (John Tirpak)

Performance: endurance up to 28 hr. RQ-4A cruise speed 340 knots. RQ-4B cruise speed 310 knots.

Armament: none.

COMMENTARY

The RQ-4 provides high-altitude, persistent (28+ hours) remotely piloted ISR capability. The system consists of an aircraft, GCS, and an integrated sensor suite. The RQ-4 Global Hawk is being fielded in four distinctive blocks. Block 10 is in an imagery intelligence (Imint) configuration (EO/IR/SAR) and is basically a derivative of the ACTD aircraft successfully employed in Afghanistan and Iraq. Block 10s have flown operational missions supporting the war on terror. Block 20 (Imint) is larger; the first of six is expected to be operational in FY10. Block 30 (Multi-int) aircraft will add a high- and low-band signals intelligence (Sigint) capability to Block 20 Imint capability; fielding of 26 is projected from early FY12. Fifteen Block 40 multimission aircraft will provide radar Imint and BMC2 support with the Multiplatform Radar Technology Improvement Program (MP-RTIP) AESA sensor.

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: 32.

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, currently making it USAF's only truly operational multi-intelligence platform, pending the introduction of later-block RQ-4 unmanned aerial vehicles (UAVs).

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 ongoing $1.5 billion improvement program are new F118-GE-101 engines. Each current operational U-2 is now the Block 20 version with a new glass cockpit using multifunction displays (MFDs), a digital autopilot, and a new electronic warfare system. Sensor upgrades include the ASARS-2A SAR sensor, which provides enhanced imaging modes and improves geolocation accuracy; the SYERS-2 EO imagery system providing DOD's only multispectral and IR capability; enhanced RF-intelligence capability; and new data links, enabling 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. The optical bar camera (OBC) is also still in use, providing DOD's sole capability for broad-area synoptic imagery coverage.

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.

Special Duty Aircraft

E-4B National Airborne Operations Center

Brief: A four-engine, swept-wing, long-range high-altitude airplane providing a highly survivable command, control, and communications (C3) center allowing national/defense leaders to direct US forces, execute emergency war orders, and coordinate actions by civil authorities.

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 October 2006, the E-4B entered a new era when the first Modernization Block 1 (MB 1) upgrade aircraft reached IOC. MB 1 updates the electronic infrastructure supporting the aircraft's primary mission equipment and increases 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 effectiveness for the foreseeable future. Three E-4B aircraft have received the MB 1 upgrade with the fourth and final aircraft scheduled for completion in 2010.

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 EC-130E; seven (EC-130J).

Inventory: seven (EC-130J).

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 (EC-130J).

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 worldwide color television configuration. 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 in 2004 with the 193rd SOW (ANG). Modifications include enhanced

EC-130J *Commando Solo II* (SSgt. Tia Schroeder)

navigation systems, additional self-protection equipment, air refueling, and the ability to broadcast radio and color TV on all worldwide standards.

Commando Solo aircraft have been used in every war and most contingency operations since 1980, supporting a broad spectrum of information operations and psychological operations missions.

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 nine mission.
Dimensions: span 132.6 ft, length 99 ft, height 33 ft.
Weight: 155,000 lb.
Ceiling: 25,000 ft.
Performance: speed 374 mph at 20,000 ft.
COMMENTARY

The **EC-130H Compass Call** is designed to disrupt enemy C2 communications and limit adversary coordination essential for enemy force management. Modifications include electronic attack (EA) system and air refueling capability. Programmed upgrades will expand the EC-130H's mission by procuring a secondary EA capability against early warning and acquisition radars.

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 (WC-130H); 10 (WC-130J).
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's "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.

WC-130J. Weather reconnaissance version of the most recent 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.

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 (PJ) specialists and/or equipment in hostile environments.
Function: Aerial refueling/transport.
Operator: ACC, AETC, ANG, AFRC.
First Flight: Dec. 8, 1964 (as HC-130H).
Delivered: from 1965.
IOC: 1986.
Production: (converted).
Inventory: 10 (HC-130N); 23 (HC-130P).
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 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 being converted to HC-130 standard.

A new version, using new-build C-130J aircraft and based on the modified Marine Corps KC-130J, is being acquired, ultimately to replace the existing fleet of HC-130s and MC-130s used for combat search and rescue and special forces operations. AFSOC has a stated requirement for 115 of the new model.

***KC-135R** Stratotanker, at right* (MSgt. Kevin J. Gruenwald)

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: Active and AFRC assoc.: McGuire AFB, N.J., Travis AFB, Calif.
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 1957-65.
IOC: June 1957, Castle AFB, Calif.
Production: 732.
Inventory: 37 (KC-135E); 363 (KC-135R); 54 (KC-135T).
Unit Location: Active: 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. Active and AFRC assoc.: Seymour Johnson AFB, N.C. Active and ANG assoc. (planned mid-2009): Birmingham Arpt, Ala., Pease ANGS, N.H., Scott AFB, Ill. ANG: from mid-2009 16 units. AFRC: seven 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. 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 E model is no longer actively flying but is maintained in such condition as to be available for service should the need arise.

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

***MC-130P** Combat Shadow* (SrA. Liliana Moreno)

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 well into the 21st century. The Pacer CRAG avionics modernization program, completed in 2002, 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, adding communications, navigation, and surveillance equipment ensuring access to reduced horizontal and vertical global 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 refueling 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 290 mph, range with max normal payload 1,208 miles, unlimited with air refueling.

COMMENTARY

MC-130P Combat Shadow aircraft fly clandestine formation or single-ship intrusion of hostile territory missions to provide aerial refueling of special operations vertical-lift and tilt-rotor assets and the infiltration, exfiltration, and resupply of SOF by airdrop or air-land operations.

Recent modifications to the MC-130P feature improved navigation, communications, threat detection, and countermeasures systems. The Combat Shadow fleet has a fully integrated inertial navigation and Global Positioning System and night vision goggle-compatible interior and exterior lighting. It also has FLIR, radar and missile warning receivers, chaff and flare dispensers, NVG-compatible HUD, satellite and data-burst communications, as well as in-flight refueling capability as a receiver. Secondary capabilities include the ability to air-drop small teams, bundles, and rubber raiding craft. The aircraft are programmed to be modified with a cargo handling system by 2011 to provide the ability to handle palletized cargo and heavy equipment.

A new version, using new-build C-130J aircraft and based on the modified Marine Corps KC-130J, is being acquired, ultimately to replace the existing fleet of HC-130s and MC-130s used for combat search and rescue and special forces operations. AFSOC has a stated requirement for 115 of the new model.

MC-130W Combat Spear

Brief: Aircraft that flies clandestine or low-visibility, low-level missions into denied areas to provide air refueling 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 vertical lift assets/airdrop.
Operator: AFSOC.
First Flight: Dec. 8, 1964 (as HC-130H).
Delivered: June 2006.
IOC: 2008.
Production: 12 (converted).
Inventory: six.
Unit Location: Cannon AFB, N.M.
Contractor: Boeing.
Power Plant: four Allison T56-A-15 turboprops, each 4,910 shp.
Accommodation: four flight crew, plus three 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 290 mph, range with max normal payload 1,208 miles, unlimited with air refueling.

COMMENTARY

Transferred from the 1st SOW at Hurlburt Field, Fla., in October 2007, the **MC-130W** is operated by the 73rd SOS at the redesignated 27th SOW at Cannon. The aircraft is a C-130H(2) airframe significantly modified to include an electronic warfare capability, low-light-level operational capability, and a strengthened tail to permit high-speed, low-level air-drop operations. The MC-130W is equipped with technically advanced refueling pods, providing the ability to refuel SOF helicopters and the CV-22. It also is capable of supporting limited command and control operations. The aircraft itself can be air refueled to extend its mission range. The MC-130Ws supplement AFSOC MC-130Hs lost in combat since the beginning of Enduring Freedom.

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: AMC, ANG, AFRC.
First Flight: June 30, 1968.
Delivered: October 1969-April 1989.
IOC: September 1970.
Production: 131.
Inventory: 59 (C-5A); 47 (C-5B); two (C-5C).
Unit Location: Active: Dover AFB, Del., Travis AFB, Calif. ANG: Eastern West Virginia Arpt., W.Va., Memphis Arpt., Tenn., Stewart Arpt., N.Y. AFRC: Dover AFB, Del. (assoc.), Lackland AFB, Tex., Travis AFB, Calif. (assoc.), Westover ARB, Mass., Wright-Patterson AFB, Ohio.
Contractor: Lockheed.
Power Plant: four General Electric TF39-GE-1C turbofans, each 41,000 lb thrust. C-5M: four General Electric CF6-80C2 turbofans.
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. Air-drop 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, 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 were incorporated into the C-5A fleet.

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. To enhance force protection, a number of C-5Bs have been equipped with an aerial defense system.

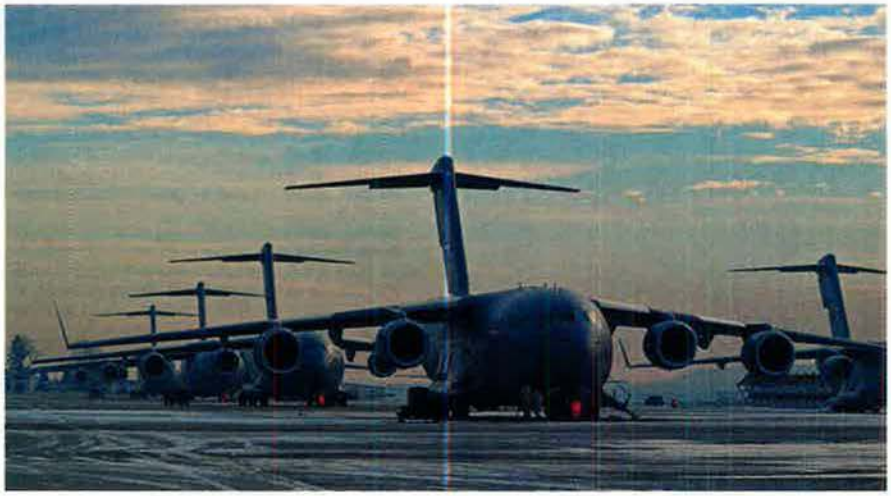
C-5C. Two C-5As assigned to Travis AFB, Calif., were modified to carry outsize space cargo for NASA by extending the cargo bay and modifying the aft doors.

C-5M Super Galaxy. Upgraded version of the C-5 featuring new avionics installed under the Avionics Modernization Program (AMP), to include a state-of-the-art cockpit and global access navigation safety compliance, plus new, higher performance GE CF6-80C2 turbofans and additional components installed under the Reliability Enhancement and Re-engining Program (RERP). The first of three production-representative C-5Ms made its debut flight on June 6, 2006. Developmental testing was successfully completed August 2008. The first of these three test aircraft was delivered to Warner Robins Air Logistics Center, Ga., in December 2008 and the other two to Dover AFB, Del., early 2009. Operational testing is expected to begin in the second half of 2009. USAF plans to upgrade 52 B and C models to C-5M configuration (three development aircraft and 49 production aircraft), with the remaining 59 older C-5As receiving only the AMP. Program completion is currently scheduled for 2017.

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.

Function: Cargo and troop transport.
Operator: AETC, AFMC, AMC, PACAF, ANG, AFRC.
First Flight: Sept. 15, 1991.
Delivered: June 1993-ongoing.
IOC: Jan. 17, 1995.
Production: 205 (planned).
Inventory: 178.
Unit Location: Active: Altus AFB, Okla., Charleston AFB, S.C., Dover AFB, Del., Edwards AFB, Calif., Elmendorf AFB, Alaska, Hickam AFB, Hawaii, McChord AFB, Wash., McGuire AFB, N.J., Travis AFB, Calif. ANG: Allen C. Thompson Field, Miss., Elmendorf AFB, Alaska (assoc.), Hickam AFB, Hawaii (assoc.). AFRC: Charleston AFB, S.C. (assoc.), Dover AFB, Del. (assoc.), March ARB, Calif., McChord AFB, Wash. (assoc.), McGuire AFB, N.J. (assoc.), Travis AFB, Calif. (assoc.).
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; air-drop 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.



C-17 Globemaster III (A1C Grovert Fuentes-Contreras)

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

As the US military's core airlifter, 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 only capability to air-land or air-drop outsize cargo directly to the tactical environment. C-17 aircraft have assumed the special operations low level (SOLL) mission previously supported by the C-141. They have flown numerous operational, humanitarian, and aeromedical evacuation missions since their introduction into the USAF inventory. The first C-17 operational strategic brigade airdrop occurred 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, both through new block configuration to production aircraft and block upgrades to fielded aircraft, continues 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 marks the last block upgrade for the fleet; improvements include NVG-friendly combat lighting, upgraded electronic flight-control system, high frequency data link (HFDL), and formation flight system (FFS). Full retrofit up to Block 17 of previously delivered aircraft is planned for completion in 2018.

Under DOD's Fiscal 2010 budget, C-17 production is to stop at 205 aircraft.

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: three (C-9C).

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, delivered to Andrews AFB, Md., in 1975 for the special air mission (SAM) supporting the President and other US government officials, are now in use by AFRC. Upgrades included 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, Yokota AB, Japan, 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

The C-12 is a military version of the Beechcraft King Air A200 series.

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, USAFE, ANG.

First Flight: January 1973.

Delivered: April 1984-October 1985.

IOC: April 1984.

Production: 84.

Inventory: 57.

Unit Location: Keesler AFB, Miss., Ramstein AB, Germany, Scott AFB, Ill. ANG: Bradley Arpt., Mass., Buckley AFB, Colo., Hector Arpt., N.D., Mansfield Lahm Arpt., Ohio.

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.

C-9C Nightingale (via Tom Kaminski)

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 European Theaters, including aeromedical missions if required. Upgrades include GATM and TCAS. Older aircraft are being retired.

C-27J Spartan

Brief: A small tactical transport capable of carrying heavy loads into a wide range of airfields, including unprepared strips at high altitude.

Function: Tactical airlift.

Operator: USAF/USA.

First Flight: September 1999 (developmental aircraft).

Delivery: 2010 (USAF, planned).

IOC: TBD.

Production: 78 under contract: 24 (USAF); 54 (USA).

Inventory: TBD.

Unit Location: Active: TBD. ANG (announced): Hector Arpt., N.D., Mansfield Lahm Arpt., Ohio.

Contractor: L-3 Communications.

Power Plant: two Rolls Royce AE 2100-D2 turboprops, rated at 4,637 shp.

Accommodation: two flight crew; up to 68 troops or 24 paratroops, plus two loadmasters, or 36 litters plus six attendants; up to 25,353 lb cargo; 19,842 lb low velocity airdrop.

Dimensions: (basic G.222 airframe) span 94.1 ft, length 74.5 ft, height 32.1 ft.

Weight: gross 70,000 lb.

Ceiling: 30,000 ft.

Performance: T-O run 1,903 ft; range, with 22,046 lb payload 1,000 nm.

COMMENTARY

In June 2007, the Air Force and Army selected the **C-27J** Spartan, a derivative of the Alenia G.222, to fulfill the Joint Cargo Aircraft (JCA) requirement. Plans call initially for 78 aircraft. USAF will use its aircraft to support ground forces served only by the most basic airstrips, often at high altitude, or for missions where the C-130 is currently operating at half-load capacity.

The Air Force also is considering purchasing additional C-27s to function in a gunship role with AFSOC. The currently planned buy is expected to go primarily to ANG units.

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, ANG.

First Flight: Feb. 19, 1982 (USAF Feb. 11, 1998).

Delivery: June-December 1998.

IOC: 1998.

Production: six.

Inventory: six.

Unit Location: Andrews AFB, Md. ANG: McGuire AFB, N.J.

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. 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-37

Brief: Modified Gulfstream aircraft 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.

***C-130** Hercules* (TSgt. Jeremy Lock)

Operator: AMC, PACAF, USAFE.

First Flight: USAF October 1998.

Delivery: October 1998-present.

IOC: Dec. 9, 1998.

Production: 10 (C-37A); one (C-37B).

Inventory: nine (C-37A); one (C-37B).

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 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 initially at Chievres, Belgium, but subsequently 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.

The **C-37B** is a military version of the Gulfstream 550, modified for VIP duties. Major differences from the C-37A are the Honeywell PlaneView flight deck and increased range. Upgrades include a directional IR countermeasures system. The one C-37B is assigned to the 89th AW at Andrews.

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.

Function: Passenger transportation.

Operator: AMC, PACAF, USAFE, ANG, AFRC.

First Flight: USN C-40A: April 14, 1999.

Delivered: 2002.

Production: 10.

Inventory: 10.

Unit Location: Andrews AFB, Md., Hickam AFB, Hawaii, Ramstein AB, Germany. ANG: Andrews AFB, Md. AFRC: Scott AFB, Ill.

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 C-40Cs are operated by ANG's 201st Airlift Squadron from Andrews, and three by AFRC's 932nd AS at Scott.

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: 96 (C-130E); 280 (C-130H); 51 (C-130J).

Unit Location: Active: Dyess AFB, Tex., Hurlburt Field, Fla., Little Rock AFB, Ark., Pope AFB, N.C., Ramstein AB, Germany, Yokota AB, Japan. ANG: 22 units. AFRC: nine units. AFRC/ANG assoc.: one.

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

With deliveries worldwide spanning more than 50 years, the C-130 Hercules transport continues in production. 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. USAF is retiring some of the older aircraft. AFSOC retains some C-130Es for aviation advisory aircraft flight proficiency.

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-130 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 except the C-130E, older or worn-out C-130Hs and the new C-130J aircraft. In addition, work has begun to replace wing boxes on 155 C-130s in a move to alleviate/pre-empt operational restrictions; completion is planned for 2020. Some 600 C-130s will also receive landing gear modifications beginning in 2010.

C-130J. Most recent 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, although official IOC was only declared in October 2006. 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. Current plans include purchase of 117 C-130J combat-delivery aircraft.

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: AETC, AFSOC.

First Flight: March 19, 1989 (V-22).

Delivery: 2006.

IOC: 2009 (planned).

Production: 50 (planned).

Inventory: 10.

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.

CV-22 Osprey (SrA. Julianne Showalter)

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 is designed to 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 is 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 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 anti-jam, redundant communications compatible with current and planned systems used by command and control agencies and ground forces. The CV-22 ur refueled 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 and the first combat-configured aircraft in March 2006. Operational utility evaluation was completed in summer 2006 and flight crew training began in late 2006 at Kirtland AFB, N.M. The first operational CV-22 squadron, the 8th SOS at Hurlburt Field, Fla., received its first aircraft in January 2007. IOT&E was completed by summer 2008. In November 2008, four Ospreys from the 1st SOW deployed to Mali, Africa, in support of Exercise Flintlock, marking the CV-22's first operational deployment. 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 (MC-130E); January 1990 (MC-130H).

Delivered: initially 1966.

IOC: 1966 (MC-130E); June 1991 (MC-130H).

Production: 22 new-build MC-130Hs.

Inventory: 14 (MC-130E); 20 (MC-130H).

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: MC-130E: crew of nine; 53 troops or 26 paratroops; MC-130H: crew of seven; 77 troops, 52 paratroops, or 57 litters.

Dimensions: span 132.7 ft, height 38.6 ft, length 100.8 ft (MC-130E), 99.8 ft (MC-130H).

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 and terrain-avoidance radars, precision navigation systems using INS/GPS, and electronic and infrared countermeasures for self-protection. Both E and H aircraft are capable of in-flight refueling, are NVG-compatible, and have a modified tail empennage for their 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 were additionally equipped with a pod-based system to air refuel SOF helicopters and tilt-rotor aircraft.

MC-130H Combat Talon II. C-130H(2) aircraft modified with an integrated glass cockpit were acquired in the late 1980s and early 1990s to supplement the Combat Talon Is. All are 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.

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 airlift and tanker pilots and student combat systems operators.

Function: Advanced pilot training.
Operator: AETC, AFRC, USN.
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: Randolph AFB, Tex. (assoc.).
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 tanker, transport, and electronic warfare aircraft. It is also used to train student combat systems operators (CSO) and naval flight officers in the intermediate stages of their training.

The T-1A 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.
Delivery: May 2000-present (operational aircraft).
IOC: November 2001.
Production: Planned: 372 (USAF); 328 (USN).
Inventory: 354 (USAF).
Unit Location: USAF: Active: Columbus AFB, Miss., Laughlin AFB and Randolph AFB, Tex., Vance AFB, Okla. Planned: Sheppard AFB, Tex. USN: NAS Corpus Christi, Tex., NAS Whiting, Fla.
Contractor: Hawker Beechcraft (formerly 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-1A** Jayhawk* (Lt. Col. Russell Hopkinson)

T-37 Tweet

Brief: A twin-engine jet aircraft used for training undergraduate pilots in fundamentals of aircraft handling and instrument, navigation, formation, and night flying.

Function: Primary trainer.
Operator: AETC.
First Flight: September 1955.
Delivered: December 1956-68.
IOC: 1957.
Production: 985.
Inventory: 32.
Unit Location: Sheppard 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, pilot instructor training, and introduction to fighter fundamentals training.

Function: Trainer.
Operator: ACC, AETC, AFMC, AFRC.
First Flight: April 1959.
Delivered: 1961-72.
IOC: March 1961.
Production: more than 1,100.
Inventory: 459.
Unit Location: Active: Beale AFB and Edwards AFB, Calif., Columbus AFB, Miss., Holloman AFB, N.M., Laughlin AFB, Randolph AFB, and Sheppard AFB, Tex., Vance AFB, Okla., Whiteman AFB, Mo. AFRC: Randolph AFB, Tex. (assoc.).
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.
COMMENTARY

Most of the T-38s in service are used by AETC for advanced bomber-fighter training track in JSUPT and IFFT. 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 as a companion trainer to maintain pilot proficiency.

AT-38B. A slightly different version, with a gunsight and

***T-38** Talon* (SrA. Matthew C. Simpson)

practice bomb dispenser, the AT-38B is used by AFMC for test and evaluation.

T-38C. C model T-38s are rewinged A and B airframes with modifications of the avionics systems to include a HUD. The first T-38C was delivered late summer 2002; last delivery was made in summer 2007. 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 improve aircrew accommodation.

T-41 Mescalero
Brief: Short-range, high-wing trainer used primarily for aerodynamic and navigation courses.
Function: Training, support.
Operator: AETC.
Delivered: 1969.
Inventory: four.
Unit Location: USAFA, Colo.
Contractor: Cessna.
Power Plant: one Continental IO-360-DB piston engine, 210 hp.
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.
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.

T-51
Brief: A light aircraft used by USAFA flying team for training and competition.
Function: Training, competition.
Operator: AETC.
Inventory: three.
Unit Location: USAFA, Colo.
Contractor: Cessna.
Power Plant: one Lycoming 0-320 E2D piston engine, 150 hp.
Accommodation: two, side by side.
Dimensions: span 33.3 ft, length 24.8 ft, height 8.5 ft.
Weight: (Cessna 150M) gross 1,600 lb.
Ceiling: 14,000 ft plus.
Performance: speed 124 mph, range 475 miles.
COMMENTARY
The T-51 is a military version of the Cessna 150 used by students at USAFA for training and competition.

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: AETC.
Delivered: May 2002.
IOC: December 2002.
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: AETC.
Delivered: May 2002.
IOC: December 2002.
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: AETC.
Delivered: May 2002.
IOC: December 2002.
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: AETC.
Delivered: September 2002.
IOC: December 2002.
Inventory: four.
Unit Location: USAFA, Colo.
Contractor: Grupo Aeromot, Brazil.
Power Plant: one Rotax 912A, 81 hp engine.
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: AETC.
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: AETC.
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.

T-43A (Clive Bennett)

Operator: AETC.
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 primarily for combat search and rescue, also aeromedical evacuation, civil SAR, and other support missions.
Function: CSAR medium-lift helicopter.
Operator: ACC, AETC, AFMC, PACAF, USAFE, ANG, AFRC.
First Flight: October 1974.
Delivered: from 1982.
IOC: circa 1982.
Production: 105.
Inventory: 101.
Unit Location: Davis-Monthan AFB, Ariz., Kadena AB, Japan, Kirtland AFB, N.M., Moody AFB, Ga., Nellis AFB, Nev., RAF Lakenheath, UK. 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 1,560-1,940 shp.
Accommodation: crew of six; 8-12 troops, two litters, or internal or external cargo.
Dimensions: rotor diameter 53.6 ft, length of fuselage 64.7 ft, height 16.7 ft.
Weight: 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: mounts for two 7.62 mm miniguns or two .50-caliber machine guns in cabin doors.
COMMENTARY
Black Hawk helicopters were modified to **HH-60G** Pave Hawk configuration in the early 1980s. Since that time, they have been in continuous use by active duty, ANG, and AFRC air rescue units for CSAR, humanitarian, and medevac 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/anti-jam 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: AFSOC.
First Flight: March 1967.
Delivered: from July 1987 (MH-53J).
IOC: 1988 (MH-53J).
Production: not available.
Inventory: 10 (MH-53M).
Unit Location: Hurlburt Field, Fla.
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.
USAF had 10 aircraft still in TAI as of Sept. 30, 2008 and permanently retired them shortly thereafter.

***HH-60G** Pave Hawk* (SSgt. Aaron Allmon)

UH-1
Brief: Modified Bell helicopter used to support Air Force ICBM facilities, undergraduate pilot training, aviation advisory aircrew flight proficiency, 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: 21 (UH-1H); 62 (UH-1N).
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., 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 Flying Training Squadron at Ft. Rucker, Ala., for Air Force undergraduate helicopter pilot training. It is a single-engine version of the UH-1 utility helicopter (Bell Model 205) equipped with a rescue hoist. Two UH-1H helicopters are maintained by AFSOC for aviation advisory aircrew flight proficiency.
UH-1N is a twin-engine version of the UH-1 utility helicopter (Bell Model 212), most of which are allocated for AFSPC missile security 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 TRG, Fairchild AFB, Wash., for aircrew survival training. Two UH-1N helicopters are maintained by AFSOC for aviation advisory aircrew flight proficiency.
TH-1H is a modified version of the UH-1H for use in undergraduate helicopter pilot training. The TH-1H is a "zero-time" aircraft that includes upgraded power train components and a "glass" cockpit. USAF planned to acquire 24, beginning in October 2008.

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 destroy/defeat 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. A SLEP has been ongoing to extend service life to 2030; however, in 2007 USAF announced its intention to reduce the ALCM fleet by more than 500 missiles, leaving 528 nuclear cruise missiles. The ALCM force is to be consolidated at Minot AFB, N.D.,

and all excess cruise missile bodies destroyed.

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 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 has proved 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 feature Block 1A enhancements with improved accuracy and increased immunity to electronic jamming. Since Iraqi Freedom, few CALCMs remain.

AGM-86D. CALCM Block II penetrator version with a Lockheed Martin AUP-3(M) warhead. The CALCM penetrator provides 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.

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, carried externally on B-52H aircraft, with significant improvements over the AGM-86B in range, accuracy, and survivability. Despite modification to extend its service life to 2030, USAF now plans to retire its entire ACM inventory.

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, later reducing to 500 based at F. E. Warren, Malmstrom, and Minot. Deactivation of a further 50 Minuteman IIIs was completed in July 2008 at Malmstrom. Components of the dismantled missiles are to be used for flight-test operations programs.

In accordance with strategic arms control negotiations, all the three-warhead Minuteman III missiles at F. E. Warren have been downloaded to single re-entry vehicles.

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. Further proposed incremental upgrades from 2020 are intended to maintain the ICBMs' viability to 2040 and beyond.

***LGM-30** Minuteman III* (USAF photo)

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. The weapon is integrated with 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-65E. A laser guided version ordered by USN and USMC. To meet short-term operational requirements, USAF has used missiles from the Navy's inventory in combat operations, beginning June 2007. A new production state-of-the-art version of the laser guided Maverick for the Navy and Air Force is anticipated for 2009.

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.

A new, low-collateral-damage variant of the AGM-65H/K, with an improved and newly manufactured laser seeker, is being acquired for precision strike against high-speed, fleeting targets in urban areas. Initial buy is expected 2010.

AGM-88 HARM

Brief: An air-to-surface tactical missile designed to seek and destroy enemy radar-equipped air defense sites, using an advanced guidance system that senses and homes in on enemy radar emissions.

Function: Air-to-surface anti-radiation 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

A joint USAF-USN project, 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 version has a more lethal warhead, containing tungsten alloy cubes, rather than steel, and the enhanced-capability AGM-88C-1 guidance head.

Upgrade initiatives have been 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. In addition GPS precision navigation capability has been demonstrated 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: from 2000.

***AGM-88** HARM* (DOD photo)

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 allow several target kills per aircraft sortie. JSOW arms B-2 and F-16 aircraft. Production for USAF terminated FY05.
AGM-154A. The baseline BLU-97 variant for use against area targets.
AGM-154B. The BLU-108 variant provides anti-armor capability; development complete, production deferred.
AGM-154C. The third variant (used by Navy only), JSOW/L nitary 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. JASSM-ER projected 2010.
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. IOC has been declared on the B-1B, B-2, B52H, and F-16. Integration on F-15E and F-35 aircraft is proceeding. The B-1B is the only aircraft capable of redirecting a JASSM route prior to launch. Delivery of an extended-range version **(JASSM-ER),** with a range of more than 500 miles, is expected to begin in 2010.

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.
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-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-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. In November 2003, USAF's F-15-equipped 12th and 19th FS, part of the 3rd Wing at Elmendorf AFB, Alaska, were the first operational units to receive AIM-9Xs. Full-rate production was contracted 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. Carrier aircraft include the F-15, F-16, F-22, F-35, and F/A-18.

AIM-120 AMRAAM
Brief: A next 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.

***AIM-9** Sidewinder* (TSgt. Jeffrey Allen)

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-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 in the F-22A and F-35, and involves HOBS launch capability. The latest development (AMRAAM Phase 4) adds an enhanced electronic protection suite, two-way data link, and GPS-aided navigation in the AIM-120D version. Production began 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 BLU-97 shaped charge anti-personnel/anti-materiel 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. Unguided CBU-87 CEMs retrofitted 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/anti-personnel 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 anti-personnel mines.
COMMENTARY
The CBU-89 Gator dispenser holds 94 mines, of which 72 are anti-tank and 22 are anti-personnel. The mines are dispersed over the target in a circular pattern. The anti-tank mines, which can be fuzed for three different time delay settings, have a magnetic influence fuze to sense armor.
CBU-104. Gators retrofitted with the WCMD tail kit, improving the munitions delivery accuracy when released from medium to high altitude.

CBU-97/105 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

***GBU-10** Paveway II* (DOD photo)

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, incorporates improvements such as an active laser sensor, multimission warhead, and increased footprint and is the first area weapon to satisfy DOD's heightened deployment criteria for cluster weapons.
CBU-105. Designation of an unguided CBU-97 equipped with a Wind-Corrected Munitions Dispenser (WCMD) tail kit. The CBU-105 can be delivered accurately 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-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 versions. It can operate in cloud ceilings down to 2,500 ft. GBU-10 platforms include A-10, B-52, F-15E, and F-16 aircraft.

GBU-12/49 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, and F-16 aircraft.
The **GBU-49(V)/B** (EGBU-12) variant features both laser guidance and on-board GPS for all-weather, precision delivery capability. Arming MQ-9 Reaper 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.

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. Entered USAF service at the end of 1999. USAF initially produced 100 for Allied Force, in addition to the field-level upgrade of more than 1,200 existing GBU-15s.

GBU-24 Paveway III (USAF photo)

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 (Navy) June 1992.

Delivered: from 1986.

IOC: 1986.

Production: 14,000 (USAF); 12,000 (USN).

Contractor: Raytheon.

Guidance: semiactive laser.

Warhead: BLU-109 (A/B); BLU-116 (C/D).

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, providing 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.

GBU-24C/D. Variant integrated with the BLU-16 advanced unitary penetrator (AUP). 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, and F-16 and Navy F/A-18 aircraft.

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-32 Joint Direct Attack Munition (MSgt. Michael Ammons)

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: 1998-2013 (planned).

IOC: 1998.

Production: 213,521 (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; Mk 82 with JDAM 8 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; Mk 82 552/558 lb.

Performance: range up to 17 miles, CEP with GPS 16.4 ft; CEP with INS only 98 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 integrated on A-10, B-1, B-2, B-52, F-15E, F-16, F-22, and MQ-9 and AV-8B and F/A-18C/D/E/F aircraft, with future integration on F-35 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 thermal coated bomb.

GBU-38. Variant that adds an INS/GPS guidance kit to the 500-lb general-purpose Mk 82 bomb or the 500-lb BLU-111 thermal coated bomb. First production deliveries were in 2004 for the B-2.

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: from 2006.

IOC: 2007.

Production: 24,000 munitions and 2,000 carriages (planned).

Contractor: Boeing (SDB I).

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.
SDB I 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. GBU-39 went operational in July 2006 on the F-15E. Objective aircraft include the A-10, B-1, B-2, B-52, F-16, F-22, F-35, and MQ-9. Boeing was awarded the contract to develop the SDB in October 2003. A focused lethality munition (FLM) warhead for the SDB I is being developed under a Joint Capability Technology Demonstration (JTCD) program, aimed at providing pinpoint strike capability with low collateral damage. The first 50 were delivered in March 2008 for operational assessment.
SDB II. Increment 2 under development in a joint interest program between a Boeing/Lockheed Martin team and Raytheon, providing a capability to attack mobile targets from standoff in all weather. One contractor will be selected following the risk reduction phase, expected to run through late 2009.

GBU-54 LJDAM
A joint USAF-Navy INS/GPS-guided weapon equipped with a laser seeker, carried by fighters and bombers, providing highly accurate, autonomous, all-weather conventional bombing capability against stationary and moving targets.
Function: Air-to-surface guided bomb.
First Flight: 2005.
Delivered: April 2008-mid 2009 (planned).
IOC: 2008.
Production: 400 laser guidance kits (planned).
Contractor: Boeing.
Guidance: INS/GPS/laser.
Dimensions: Mk 82 with JDAM 8 ft.
Weight: 552/558 lb.
Performance: range up to 17 miles.
COMMENTARY
Developed to satisfy an urgent operational requirement for an extremely accurate precision weapon capable of destroying high-speed targets in Afghanistan and Iraq, the GBU-54 combines a laser guidance kit with the GPS/INS-based navigation of existing 500-lb GBU-38 JDAMs. First combat deployment occurred August 2008 from F-16s over Iraq.

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. As with the earlier unguided "Daisy Cutter" bomb, the MOAB is dropped from the rear of a C-130 aircraft but does not require a parachute.

Wind-Corrected Munitions Dispenser (WCMD)
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 A-10, B-1, B-52, F-15E, and F-16 aircraft. Objective aircraft include B-2 and F-35.

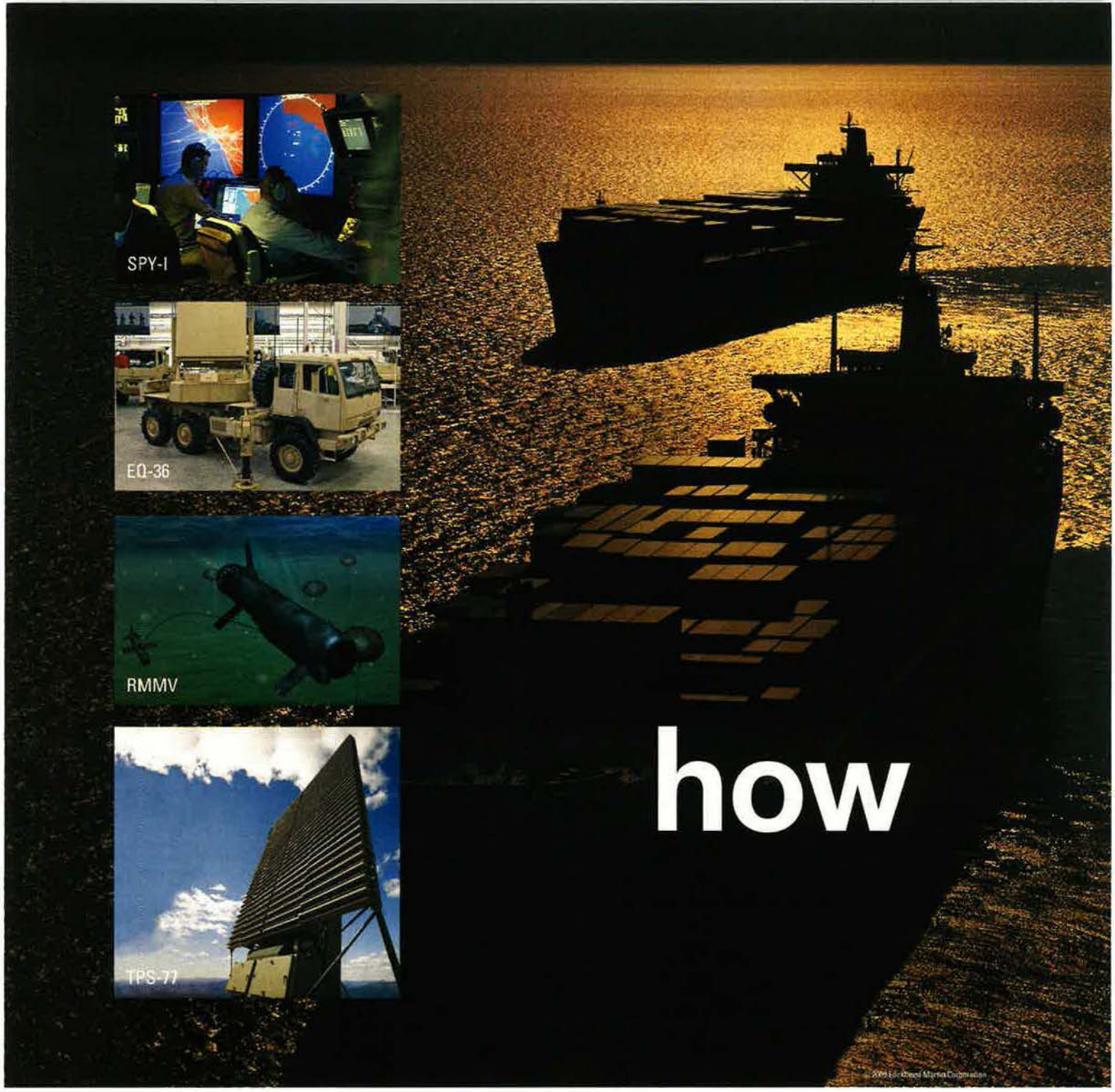
Satellite Systems

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: 2009 (planned).
IOC: June 2010 (planned).
Constellation: four satellites.
Design Life: 14 years.
Launch Vehicle: Atlas V; Delta IV.
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 14,500 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 four geosynchronous Earth orbit (GEO) satellites that will provide 10 times the capacity of the 1990s-era Milstar satellites. Advanced EHF allows the President, Secretary of Defense, and combat forces to control their tactical and strategic forces at all levels of conflict 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: Space and Earth environmental data collection satellite.
Operator: National Polar-orbiting Operational Environmental Satellite System (NPOESS) integrated program office.
First Launch: May 23, 1962.
IOC: 1965.
Constellation/on-orbit: two.
Design Life: 48 months.
Launch Vehicle: Delta IV and Atlas V.
Unit Location: Suitland, Md. (operations); Schriever AFB, Colo. (AFRC-manned backup operations center).
Orbit Altitude: approx 527 miles.
Contractor: Lockheed Martin; Northrop Grumman.
Power Plant: solar arrays generating 1,200-1,300 watts.
Dimensions: length 25 ft (with array deployed), width 4 ft.
Weight: 2,545 lb (including 772-lb sensor).
Performance: DMSP satellites orbit Earth in polar orbits and primary sensor scans an area 1,800 miles wide. Each system covers the Earth in about 12 hr.
COMMENTARY
For the last 40+ years, the DMSP constellation has provided high-quality, timely weather information to strategic and tactical warfighters worldwide. The operational linescan sensor "sees" visible and IR cloud-cover imagery to analyze cloud patterns. Secondary instruments include microwave imagers and sounders and a suite of space environment sensors that 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. The last Block 5D-2 satellite was launched in December 1999.
Block 5D-3. Two operational DMSP Block 5D-3 satellites survey the entire Earth four times a day. 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. The SLEP planned for F19 and F20, and the successful flyout of the DMSP Block 5D-3 satellites, will help ensure a seamless transition to the NPOESS program.

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

***GBU-39** Small Diameter Bombs* (USAF photo)



BETWEEN RELIABLE THREAT DETECTION AND COST-EFFECTIVE SOLUTIONS, THERE IS ONE IMPORTANT WORD: HOW.

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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 superhigh 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, anti-jam, 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 as the Wideband Global SATCOM (WGS) is deployed.

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, Colo.
Orbit Altitude: 22,000+ miles in geosynchronous orbit.
Contractor: TRW (now Northrop Grumman); Aerojet.
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 23rd and final DSP launched in November 2007. 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 space-based radio-positioning system that provides 24-hour worldwide highly accurate three dimensional location information and precision velocity and timing services to military and civilian users.
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; 28 operational (as of Jan. 2, 2009).
Design Life: 7.5 yr (II/IIA); 10 yr (IIR/IIR-M); 12 yr (IIF).
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 panels generating 700 watts (II/IIA); 1,136 watts (IIR/IIR-M); up to 2,900 watts (IIF).
Dimensions: IIR/IIR-M: 5 x 6.3 x 6.25 ft, span incl solar panels 38 ft; IIF: 9.6 ft x 6.5 ft x 12.9 ft (span incl solar panels 43.1 ft).
Weight: on orbit: 2,370 lb (IIR/IIR-M); 3,439 lb (IIF).
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 position navigation and timing 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 satellites, launched beginning September 2005, offers a variety of enhanced features for the GPS user, such as two new signals, enhanced encryption and anti-jamming capabilities for the military user, as well as a second civil signal. Block IIF satellites will have an extended design life, faster processors, and a new civil signal on a third frequency. Launch is scheduled for late 2009. Future generation GPS III satellites, with advanced anti-jam and higher quality data, are slated for launch 2014.

Milstar Satellite Communications System

Brief: A joint service satellite communications system that provides global, secure, protected, and jam-resistant strategic and tactical communications at all levels of conflict for high-priority air, ground, and sea assets.
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 five satellites in low-inclined geosynchronous orbit, providing worldwide coverage between 65° north and 65° south latitude. The oldest two satellites are still working beyond their 10-yr design life.
COMMENTARY
The backbone of strategic-tactical communications, Milstar is a joint service communications system that provides secure, jam-resistant worldwide communications through crosslinked satellites, eliminating the need for ground relay stations. 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.

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 (HEO).
Function: IR space surveillance.
Operator: AFSPC.
First Launch: (planned) GEO: Fiscal 2010.
IOC: TBD.
Constellation: four GEO sats, two HEO sensors.
Design Life: not available.
Launch Vehicle: GEO: Atlas V.
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). 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 is in the EMD phase led by a Lockheed Martin team. Following initial early on-orbit checkout, HEO-1, the first SBIRS payload, was cleared for operational service late 2008. HEO-2 is expected to follow early 2009. The payloads operating in HEO are the first components of the Increment 2 constellation.

Space Based Surveillance System (SBSS)

Brief: Planned replacement for the Midcourse Space Experiment/Space Based Visible (MSX/SBV) satellite that undertakes tracking and optical signature collection of Earth-orbiting objects.
Function: Space surveillance.
Operator: AFSPC.
First Launch: 2009 (planned).
IOC: TBD.

Milstar (Lockheed Martin photo)

Constellation: none.
Design Life: not available.
Launch Vehicle: Minotaur IV.
Unit Location: not available.
Orbit Altitude: 528 miles.
Contractor: Northrop Grumman; Boeing subcontractor for Pathfinder satellite.
Power Plant: not available.
Dimensions: not available.
Weight: not available.
COMMENTARY
SBSS is a planned follow-on to the experimental MSX/SBV satellite and will track and collect optical signatures of Earth-orbiting objects. One Pathfinder satellite is due to be launched in spring 2009 and four operational satellites are planned for around 2014.

Wideband Global SATCOM (WGS)

Brief: Satellites that provide high-capacity communications for deployed forces (air, land, and sea).
Function: Communications satellite.
Operator: AFSPC.
First Launch: October 2007.
IOC: TBD.
Constellation: six satellites.
Design Life: 14 years.
Launch Vehicle: Atlas V, 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: 13,000 lb at launch.
Performance: approx 12 times the capability of a DSCS satellite.
COMMENTARY
Wideband Global SATCOM, previously known as the Wideband Gap-filler System, is designed to augment DSCS III and the Navy's Global Broadcast System (GBS) Phase II. WGS is a fully duplexed communications platform offering warfighters a significant increase in capacity, connectivity, and interoperability. It provides 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 feature 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. Full operational capability (FOC) is expected 2012 with launch of the fifth satellite. ▪

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AAI

AFA National Report

natrep@afa.org

By Frances McKenney, Assistant Managing Editor

Tuskegee Airmen On Stage

When the **Metro Rhode Island Chapter** and **Newport Blue & Gold Chapter (R.I.)** organized a tribute in March to the Tuskegee Airmen, the guest list grew to the point where the reception had to be moved to a large auditorium at Quonset State Arpt., R.I.

Tuskegee Airmen are African-American World War II pilots who took their primary flight training at Tuskegee AAF, Ala. They numbered just under a thousand, and their combat record includes 111 aircraft destroyed in the air, 150 destroyed on the ground.

Other Tuskegee Airmen were navigators, bombardiers, maintenance and support staff, and instructors—all personnel involved in training the airmen.

The Rhode Island reception honored seven Tuskegee Airmen from the New England area: Victor Butler, George S. Lima, and Herman Wells, who are natives of the state, and Jack Bryant, Charles W. Diggs, Harvey F. Sanford, and Willie Saunders, all from the Boston area.

Robert J. Wilkinson, state president, reported that the guest list of more than 150 covered a range from USAF-related groups to Navy personnel from Newport to students from a Providence charter school.

The audience watched videos on the history of black aviators, then the seven veterans took to the stage and held a question and answer session. They received several standing ovations.

The nonprofit Black Air Foundation, from Providence, co-sponsored the reception, which had its origins in Metro Rhode Island Chapter member Fred Frostic's idea of spotlighting the Air Force's "living history" resources. Metro Rhode Island Chapter members CMSgt. Lori Ashness, Lori Casucci, Steven Winsor, and Mark Sheehan helped organize the tribute. Chapter President Dean A. Plowman hosted the evening.

The chapter is sponsoring four "Visions of Exploration" classrooms, as a thank you to the Tuskegee Airmen. Sponsored by AFA and *USA Today* newspaper, the Visions program brings newspapers into classrooms to encourage an interest in studying science, technology, engineering, math, and aerospace topics.

AFRC photo by Philip R. Davis

At Robins AFB, Ga., in February, AFA Board Chairman Joe Sutter (right) makes a point during a meeting with Maj. Gen. Allan Poulin, the AFRC vice commander, and Col. Theron Davis and CMSgt. Dave Henry. Poulin explained issues facing Reservists. Sutter also met with Maj. Gen. Polly Peyer, Warner Robins Air Logistics Center commander.

Evening in Fort Worth

Although the black-tie formal in Texas is called "Evening in Fort Worth," for the **Fort Worth Chapter's** guest speaker, the annual event actually started during the day.

Before everyone donned dress blues and formal attire for the March banquet, Gen. Stephen R. Lorenz spent that afternoon at NAS-JRB Fort Worth. Lorenz, commander of Air Education and Training Command, received mission briefings on two of the major USAF units on the Navy-hosted base: Col. John J. Mooney III, vice commander of 10th Air Force, presented information on the AFRC numbered air force, and Col. Kevin C. Pottinger, then commander of the 301st Fighter Wing, briefed the general on his unit, which had deployed more than 100 members to Southwest Asia a few weeks earlier.

A windshield tour of the base, encompassing 1,805 acres, took Lorenz past the ANG's 136th Airlift Wing, as well as Navy and Marine flying units.

The formal banquet, hosted by Chapter President Timothy J. Malone and chapter council members, took place at a downtown Fort Worth hotel, the Renaissance Worthington. The evening got under way with the posting of the colors by University of North Texas AFROTC cadets. Airmen from the 136th and 301st performed the invocation, Pledge of Allegiance, and a POW-MIA ceremony. AFA's President-CEO Michael M. Dunn then introduced Lorenz to the audience.

The general spoke on leadership, to the gathering of more than 160 guests, representing all services and the defense industry.

Chapter member M. N. Heth was named a Charlotte Loos Fellow by the AFA Texas and Aerospace Education Foundation of Texas organizations. Other awards that evening went to SrA. Dan Slater of the 136th AW, named as the chapter's Air National Guardsman of the Year 2008, and MSgt. Mary Staffield, from the 301st FW, named the chapter's Reservist of the Year 2008.

More Chapter News

■ The **Col. H. M. "Bud" West Chapter (Fla.)** selected a project on vortex generators to receive its first science fair award at the Capital Regional Science and Engineering Fair in Tallahassee

in February. Chapter President Gary B. Sharpe and Vice President John E. Schmidt Jr. made the award presentation to Dean Gonzalez at North Florida Christian High School in Tallahassee. Gonzalez developed and built wind tunnels and measurement equipment, controlling the test environment and collecting data to test his hypothesis on vortex generators, devices that help maintain correct airflow over control surfaces. The chapter awarded him $50 and a commemorative plaque.

■ The **Northern Shenandoah Valley Chapter (Va.)** hosted a reception and dinner for an airman who had received a Purple Heart after being wounded in Afghanistan. MSgt. David Webber, a mental health NCOIC from McConnell AFB, Kan., was at Forward Operating Base Orgun-E last Dec. 24, when a truck he was standing behind took a direct mortar hit. Before he was wounded, he had been corresponding with a cadet at Randolph-Macon Academy in Front Royal, Va., through a project called anysoldier.com. Chapter Membership VP Stephanie D. Portillo, who teaches Spanish at RMA, coordinates the school's participation in the program. The chapter pays postage and incidental program expenses. At the chapter reception, Webber said that the letters—about 3,500 over the past two years—have been important support to the deployed airmen.

■ At its March meeting, **Southern Indiana Chapter** members got an update on the Naval Surface Warfare Center, Crane Division—in particular, the Air Force Reserve Ammunition Team there. The 14-member unit includes the chapter's March guest speaker, MSgt. Craig Haza, who told the audience that his unit maintains 6,000 short tons of USAF air-to-surface munitions, such as JDAMs, 30 mm ammunition for the A-10, laser guidance sections for smart bombs—"go to war stuff," as he put it.

■ In Arizona in February, **Frank Luke Chapter** Membership VP Mads H. Brandt attended the graduation ceremony for Class 08-HBC at Luke Air Force Base, to present the chapter's "Top Gun" trophy—an AFA mug. First Lt. Brian Beears, assigned to Hill AFB, Utah, was selected for the award from the 13 F-16 pilots graduating from the Initial Qualification Course, nine months of training with Luke's 62nd Fighter Squadron. Brandt also awarded Beears membership in AFA.

■ The **Tucson Chapter** sent a STARBASE teacher from Davis-Monthan Air Force Base to a professional conference in New Orleans in March. Vanessa Friedman attended the National Science Teachers Conference to learn new curriculum and about techniques to interest students in the hands-on projects that are the hallmark of STARBASE. Science and Technology Academies Reinforcing Basic Aviation and Space Exploration (STARBASE) is a science and math course for fifth-graders that takes place over five-day periods on military installations. Davis-Monthan's program began in 2006, through the 355th Fighter Wing. Tucson Chapter's Karen Halstead, the communications VP, noted that STARBASE at Davis-Monthan serves more than 700 students a year, helped out by the chapter's sponsorship.

■ Goal! Several **Genesee Valley Chapter (N.Y.)** members attended an ice hockey game pitting the Air Force Academy against Rochester Institute of Technology on Feb. 28. The chapter hosted an after-game reception on campus. Guests included 30 Falcon hockey players and 40 other guests, including academy-parent groups from Rochester, Syracuse, and Buffalo. Among the chapter members at the game were Kenneth P. Beaman, Joseph DiPaolo, Robert Fink, Kent W. Hemphill, Joe Pow, and Sanford E. Way.

■ **Columbus-Bakalar Chapter** member Robert L. McCracken spoke at the group's meeting in Columbus, Ind., in March, about his World War II experiences and a USAF career that spanned 1942 to 1967. McCracken, a retired lieutenant colonel who came from an Indiana farm family, completed an aviation cadet program as a member of Class 44-E. He was an instructor pilot and in the 1950s was among the first sent to Germany to rebuild that country's air force, reported Chapter Secretary John B. Pavone. In his civilian career, McCracken worked for what is today ArvinMeritor, an automotive supplier.

Sylvia A. French, 1938-2009

Sylvia A. French, former chief of field services at AFA, died March 6 after an illness. She had worked for the association from 1984 until her retirement in 2003.

Ms. French was well-known to AFA members because of her work, coordinating the administration of chapters, states, and regions, as well as the AFA National Convention. She had retired to Ruther Glen, Va.

Lindsey A. Farley, 1962-2008

Lindsey A. Farley, an accountant at AFA for more than 20 years, died Dec. 29, 2008. A certified public accountant, he began working at the association in the finance department in 1986, two years after graduating from Virginia Tech. ■

More photos at http://www.airforce-magazine.com, in "AFA National Report"

Reunions

reunions@afa.org

13th AF Veterans Assn (WWII). Sept. 16-19 in Grand Rapids, MI. **Contact:** John Reeves, 3460 4 Mile Rd., Grand Rapids, MI 49525 (longranger@ieee.org).

312th BG Assn, 5th AF, SWPA (WWII). Sept. 24-27 in Oklahoma City. **Contact:** J. T. Happy, PO Box 848, Haines City, FL 33845 (jthappy@juno.com).

526th FIS/TFS, Ramstein, Germany. Oct. 8-11 in Omaha, NE. **Contact:** Don Wenzlick, (402-980-7054) (dwenzlick@yahoo.net).

1381st Geodetic Surveyor Sq. June 26-28 in Cheyenne, WY. **Contact:** Garrett Moore (garrettmoore@verizon.net).

Air Rescue Assn/Pedro Rescue Helicopter Assn. Sept. 23-26 at the Sheraton Great Valley Hotel in Frazer, PA. **Contacts:** Marilyn Nicholas (mnicholas8@cox.net) (316-686-0430) or Ken Pribyla (703-619-1385) (kprib@verizon.net).

Berlin Airlift Veterans Assn (1948-49). Sept. 28-Oct. 2 in Dayton, OH. **Contact:** J. W. Studak, 3204 Benbrook Dr., Austin, TX 78757 (512-452-0903).

FB-111A, including crews, maintenance, staff, and others interested. Oct. 1-4 in Fort Worth, TX. **Contact:** Gerry Patterson, 104 Amberjack Ct., Georgetown, TX 78633 (512-863-9363) (gpatter455@aol.com).

OCS Class 58-A. Sept. 14-17 in Las Vegas. **Contact:** Mort Friedlander (702-645-1288) (mortnsal@cox.net).

Pilot Tng Class 49-C. Sept. 29-Oct. 2 in Branson, MO. **Contact:** Milton Arneson, 4542 4th St. S., Moorhead, MN 56560 (218-233-2427) (armilar70@aol.com).

PA AACS. July 14-16 at the Hampton Inn in DuBois, PA. **Contact:** Ed Rutkowski (814-371-7167).

Rustic FAC Assn., including Rustic O-2 or OV-10 forward air controllers, interpreters, or support troops. Sept. 10-13 at the Dulles Hyatt Regency Hotel in Reston, Va. **Contacts:** Doug Aitken (910-295-5801) (daitken@nc.rr.com) or Tom Capps (919-812-4848) (tomcapps@nc.rr.com).

USAFE football reunion. Sept. 4-5 at the Hooters Casino Hotel in Las Vegas. **Contact:** Scott Thomas (702-303-7938) (scooterx40@yahoo.com).

Wurtsmith AFB, all are welcome. Sept. 10-12 at the YAF Air Museum and the Oscoda/Wurtsmith Arpt., MI. **Contact:** Harry McCown (586-808-3499) (b52usa1@yahoo.com). ■

AFA Conventions

May 8-9	**South Carolina State Convention,** Charleston, S.C.
May 13-15	**New Jersey State Convention,** Atlantic City, N.J.
May 28-30	**California State Convention,** March ARB, Calif.
June 5-6	**Oklahoma State Convention,** Enid, Okla.
June 13	**Virginia State Convention,** Richmond, Va.
June 27	**North Carolina State Convention,** Goldsboro, N.C.
July 10-11	**Florida State Convention,** Jacksonville, Fla.
July 17-19	**Texoma Region Convention,** Dallas
Sept. 12-13	**AFA National Convention,** Washington, D.C.
Sept. 14-16	**AFA Air & Space Conference,** Washington, D.C.

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Verbatim

By John T. Correll, Contributing Editor

No Safe Havens

"I will not allow terrorists to plot against the American people from safe havens half a world away."—***President Barrack Obama, address to joint session of Congress, Feb. 24.***

No-Fly Zone in Sudan

"By taking away the Sudanese government's freedom to use air power to terrorize its population, the west would finally gain enough leverage with Khartoum to negotiate the entry of a stronger UN ground force. Effective military action in the form of a no-fly zone would not preclude a political resolution, as some suggest, but in fact would make diplomacy more effective by reducing [Sudanese President] Bashir's options."—***Ret. Gen. Merrill A. McPeak, former USAF Chief of Staff, and Kurt Bassuener, Democratization Policy Council,*** **Washington Post** ***op-ed, March 5.***

Bringing a Perspective

"I had not until last August been in the Air Force for about 10 years. I'd been largely in joint service jobs. I think that gave me a perspective about the Air Force [that] perhaps was a bit different from those who labored long and hard with conviction within the Air Force over that period of time. Circumstances allowed me to bring a perspective to the Air Force from the view of the Joint Community."—***Gen. Norton Schwartz, Air Force Chief of Staff,*** **govexec.com,** ***Feb. 18.***

Blaming Osama

"Every drop of blood that was shed or is being shed in Afghanistan and Iraq is the responsibility of bin Laden and Zawahiri and their followers. . . . Ramming America [9/11 attacks] has become the shortest road to fame and leadership among the Arabs and Muslims. But what good is it if you destroy one of your enemy's buildings and he destroys one of your countries? What good is it if you kill one of his people and he kills a thousand of yours? That, in short, is my evaluation of 9/11."—***Sayyid Imam al-Sharif, who helped Osama bin Laden create al Qaeda, London*** **Daily Telegraph,** ***Feb. 21.***

Return of France

"The time has come. Our strategy cannot remain stuck in the past when the conditions of our security have changed radically."—***President Nicholas Sarkozy, annoncing France's decision to return to full-fledged NATO membership after 43 years,*** **Washington Post,** ***March 11.***

Xe, Son of Blackwater

"The idea is to define the company as what it is today and not what it used to be. We've taken the company to a place where it can no longer be accurately described as Blackwater."—***Anne Tyrrell, spokeswoman for Xe, formerly the embattled private security firm Blackwater, which lost its license to operate in Iraq,*** **Washington Post,** ***Feb. 14.***

UAV Market Boom

"UAV [unmanned aerial vehicle] spending will almost double over the next decade from current worldwide UAV expenditures of $4.4 billion annually to $8.7 billion within a decade. ... We expect that the sales of UAVs will follow recent patterns of high-tech arms procurement worldwide, with Europe representing the second largest market [after the US], followed very closely by Asia-Pacific. Indeed, the Asia-Pacific region may outpace Europe in UAV development."—***Teal Group 2009 market study, Feb. 17.***

Future Flyers

"There will always be a need for manned aviation, but it will be a lesser portion of the fleet than is currently the case."—***Gen. Norton Schwatrz, USAF Chief of Staff, Air Force Print News, Feb. 20.***

Simultaneous Conflicts

"Our military planning for a number of years has—and I would say going back at least 20 years —has been to have the ability to fight two major combat operations simultaneously. One where it would be an aggressive effort and another where you might have to hold for a while and then finish the job. I think one of the central questions that this department will face in the Quadrennial Defense Review, which will begin shortly, is whether that model makes any sense in the 21st century and whether what may have fit in a Cold War environment or an immediately post-Cold War environment really has application to today's world."—***Secretary of Defense Robert Gates, unaired portion of interview with NPR, March 10.***

Pelosi's Ride

"It is my understanding that there are no G5s available for the House during the Memorial Day recess. This is totally unacceptable. . . .The speaker will want to know where the planes are. ... This is not good news, and we will have some very disappointed folks, as well as a very upset speaker."—**E-mail to military officials from Kay King, aide to Speaker of the House Nancy Pelosi, complaining about a C-40 (USAF variant of Boeing 737 business jet) as a substitute for the desired Gulfstream V (C-37A in Air Force service), in documents revealed by Judicial Watch, March 10.**

What It Takes

"We can send more troops. We can kill or capture all of the Taliban and al Qaeda leaders we can find—and we should. We can clear out havens and shut down the narcotics trade. But until we prove capable, with the help of our allies and Afghan partners, or safeguarding the population, we will never know a peaceful, prosperous Afghanistan."—***Adm. Michael Mullen, chairman of the Joint Chiefs of Staff,*** **Washington Post** ***op-ed, Feb. 15.***

Deployed in Garrison

"We consider ourselves deployed in garrison, which means every day when they come into work, they've got to shift their focus from family, from living in a civilian environment, to arriving here at Creech and focusing on combat operations."—***Lt. Col. Rob Kiebler, commander of 15th Reconnaissance Squadron, which controls remotely-piloted Predators on combat missions in Iraq from Creech AFB, Nev.,*** **Las Vegas Review-Journal,** ***March 6.*** ■

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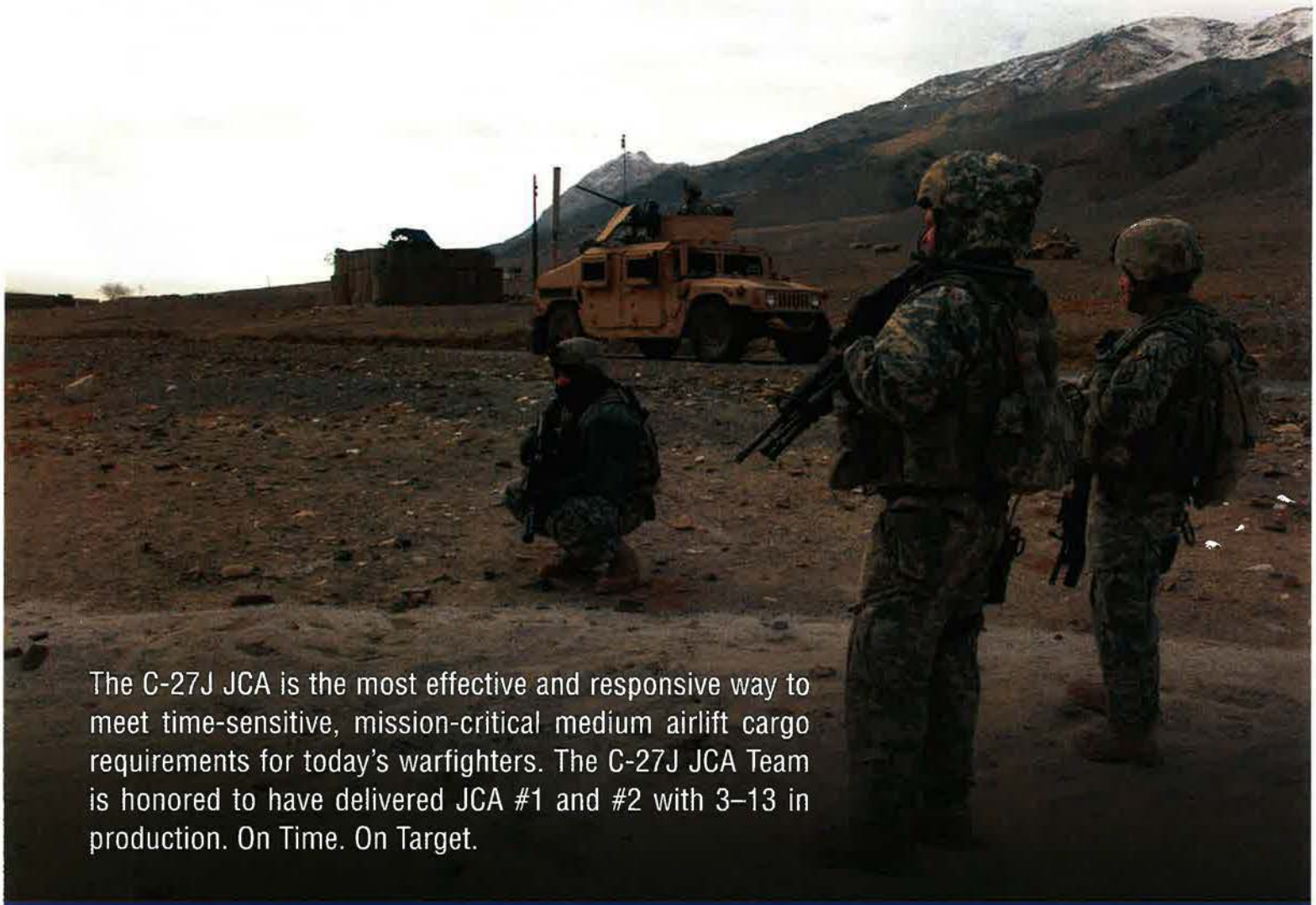

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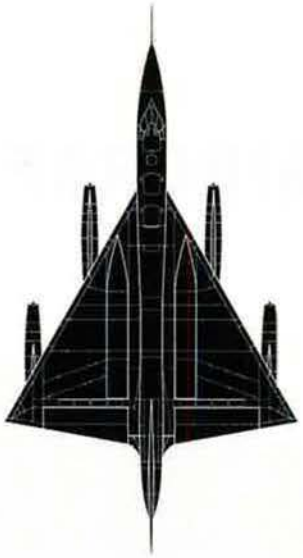
B-58 Hustler



The gorgeous B-58 Hustler was the world's first operational supersonic bomber and also the first bomber to achieve the epochal speed of Mach 2. However, the combination of a high accident rate and huge maintenance demands, along with the advent of the intercontinental ballistic missile, served to cut its career to 10 years.

In its development of this bomber, Convair used its experience with the XF-92, F-102, and F-106 to push delta wing research. The B-58 had no internal weapons stowage and made use of stainless-steel honeycomb construction for lower weight and greater strength. The B-58 featured a conical camber delta wing with four pylon-mounted jet engines, no horizontal tail, and a dual-purpose, two-part streamlined pod to carry fuel and weapons under a long, narrow fuselage. The fuel portion of the pod was jettisoned inbound to the target. In addition, the B-58 featured electronic controls considered highly advanced for the day, with automated voice messages and warnings. SAC delayed acceptance of the aircraft because of equipment malfunctions, structural fatigue, high cost, and bombing system inadequacies. These difficulties continued even after 116 aircraft had been procured.

The aircraft was recognized as a notable aerodynamic achievement, and its crews were fiercely loyal. Yet it was a victim of circumstances. The B-58 was built to fly at high altitudes and high speeds to avoid Soviet fighters, and Moscow's introduction of deadly SAMs forced the B-58 into low-level penetration roles that negated its speed and limited its range. In December 1965, Secretary of Defense Robert S. McNamara directed a phaseout of the entire B-58 force by mid-1970.

—Walter J. Boyne

This aircraft: B-58A-30-CF Hustler—*#61-2053*—as it appeared in the late 1960s when assigned to SAC's 305th Bomb Wing at Bunker Hill AFB, Ind.

A B-58 Hustler takes off for a test flight.

In Brief

Designed and built by Convair ★ first flight Nov. 11, 1955 ★ crew of three (pilot, bomb-nav, weapon system officer) ★ number built 116 ★ bomb load 19,450 lb ★ **Specific to B-58A:** four General Electric J79-GE-5B engines ★ armament one M-61 Gatling gun; one MB-1C pod with W39Y1-1 warhead or two-component pod with Mk 53 warhead, four Mk 43 weapons on external pylons ★ max speed 1,385 mph (Mach 2.1) ★ cruise speed 611 mph ★ max unrefueled range 1,550 mi ★ weight (loaded) 163,000 lb ★ span 56 ft 10 in ★ length 96 ft 9 in ★ height 31 ft 5 in.

Famous Fliers

Record setters: Elmer Murphy, Eugene Moses, David Dickerson (1,302.7 mph/1,073 km closed course); William Payne, William Polhemus, Raymond Wagener (NY-Paris, 3 hr 19 min 58 sec); Payne, Polhemus, Wagener (DC-Paris, 3 hr 39 min 49 sec); Fitzhugh Fulton, C. R. Haines, Payne (altitude 85,360 ft); Robert Sowers, Robert MacDonald, John Walton, transcontinental round-trip (LA-NY, 1,214.7 mph, NY-LA, 1,081.8 mph).

Interesting Facts

Equipped with advanced inertial and star-tracking navigation systems ★ used live bear in ejection tests ★ featured voice of actress/singer Joan Elms—known by crew as "Sexy Sally"—in automated voice warnings ★ cost three times as much to maintain as B-52 ★ racked up high accident rate, 26 of 116 lost ★ appeared in 1954 Sidney Lumet film, "Fail Safe" ★ flown by record-setting pilot Henry Deutschendorf, father of singer John Denver.

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