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May 2010, Vol. 93, No. 5

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Editorial

By Robert S. Dudney, Editor in Chief

Detour on Abolition Road

RICHARD Burt, the US head of the group Global Zero, recently offered some reassurances to anti-nuclear activists. "Despite the scoffing of hardliner cynics," he said in the April 13 *Wall Street Journal,* "Mr. Obama ... has not abandoned his long-term goal of global zero"—that is, a nuke-free world.

Ambassador Burt, a Reagan-era arms negotiator, made that remark in the course of lauding President Obama's Nuclear Posture Review and New START arms accord with Russia, both unveiled in April.

Call us cynical, but we believe there is in fact much cause for scoffing, if not cheering. President Obama might still cling to his no-nukes vision, as Burt reports. Yet all signs are the NPR and New START did little of a concrete nature to propel us further down this Utopian path. Not now, at any rate.

Start with the basic US deterrent. It was left more or less intact. More-radical disarmament schemes fizzled, and not by accident. Indeed, former Pentagon chief James R. Schlesinger said, "We owe a substantial debt to the Department of Defense and to the military commands for fending off some of the wilder views within the Administration."

The truth of that statement is underscored by an accounting of what survived:

■ A robust US deterrent for the indefinite future. Obama's nuclear cuts were modest. The 2002 Moscow Treaty imposed a limit of 2,200 warheads on both sides. New START goes to 1,550. Under revised counting rules, however, actual US cuts might total only 265 weapons.

■ A traditional "triad." The Pentagon will continue to field a force of land-based ICBMs, submarine-based missiles, and bombers, albeit in smaller form. New START allows 800 launchers—50 fewer than the US fields today—700 of which may be "deployed."

■ A workable "first-use" policy. The NPR rejected a push by liberal arms controllers to adopt a strict "no-first-use" stance, limiting use of nukes to deterrence. Obama accepted that nuclear weapons may have uses other than deterrence, though he narrowed the range of those uses.

■ Nuclear weapons on alert. The Obama Administration concluded that the current arrangement—ICBMs on alert, submarine-launched weapons at sea, bombers not on alert—should be maintained "for the present."

■ Extended deterrence. Washington fully reaffirmed its willingness to extend its nuclear umbrella to allies and friends, to the point of keeping a store of US theater nuclear weapons in Europe and having them ready to deploy elsewhere.

In the end, Administration decisions changed little—a point affirmed by dis-

President Obama's nuclear decisions proved very different from his rhetoric.

appointed activists. As David Culp of the Friends Committee on National Legislation lamented: "We had hoped for bolder steps, but nuclear weapons supporters still control the Pentagon."

The global zero vision suffered in other areas, too. Neither the NPR nor the New START agreement does anything to reduce sizeable stockpiles of tactical nuclear weapons. These have been estimated to number 2,000 for Russia and 500 or so for the United States.

The short-range weapons were not even addressed in New START. Russia refuses to discuss limits on these weapons, because Moscow views them as counters to US and even Chinese conventional power. As for the US, tampering with its own stockpile could spark political fights in the NATO alliance.

Then there is the matter of nuclear aspirants—most particularly, Iran, North Korea, and various al Qaeda franchises.

The NPR gave top priority to preventing the spread of nuclear weapons to unsavory regimes and terrorists. As the Administration sees it, serious disarmament by the nuclear-armed nations could induce other nations to abjure such weapons themselves.

The counterargument is summed up succinctly by Rep. Michael R. Turner of Ohio, the senior Republican on the House Armed Services Subcommittee on Strategic Forces:

"Underpinning the President's drive for US nuclear reductions appears to be an expectation that others will follow. There is no historical basis for this assumption. Since the end of the Cold War, the US has reduced its nuclear arsenal by nearly 80 percent, but such cuts have not curbed Iran's or North Korea's nuclear ambitions. Nor have they led to reductions in Pakistan's, India's, or China's nuclear arms."

The Administration sought to build momentum at a 47-nation anti-nuclear confab in Washington in April and at a regular review conference of the Nonproliferation Treaty this month. If these events even registered in Tehran or Pyongyang, it was not evident.

There was at least one development that could, in time, lead to serious disarmament—at least on the US side. It was the decision to reject development of a new warhead, as sought by Defense Secretary Robert M. Gates, as a way to ensure the safety, security, and reliability of the nation's old and deteriorating stockpile.

The NPR argued that the arsenal will be maintained through "life-extension" programs, backed by increased spending on the nation's weapons laboratories. It is a move sure to spark a fight in the Senate, where Obama needs 67 votes to ratify New START.

In a joint statement on April 6, Sen. John McCain and Sen. Jon Kyl, both Arizona Republicans, warned, "We are concerned about how the NPR will affect the nuclear modernization program that is required by law at the time the START follow-on agreement is submitted to the Senate."

Few would claim President Obama's nuclear decisions ended the drive for global nuclear abolition. The Administration and Congressional supporters say this year's action is "only a first step."

In the NPR, the Administration outlines goals of future reductions—deeper cuts in longer-range missiles, reductions in tactical weapons, and elimination of many of the spare warheads currently stored in warehouses. Succeeding in these areas is certain to be difficult, but not out of the question.

President Obama's nuclear decisions turned out to be very different from his rhetoric. For all the sound and fury surrounding the NPR and New START, they do not represent a revolutionary or radical change. For that, we may give thanks. ■

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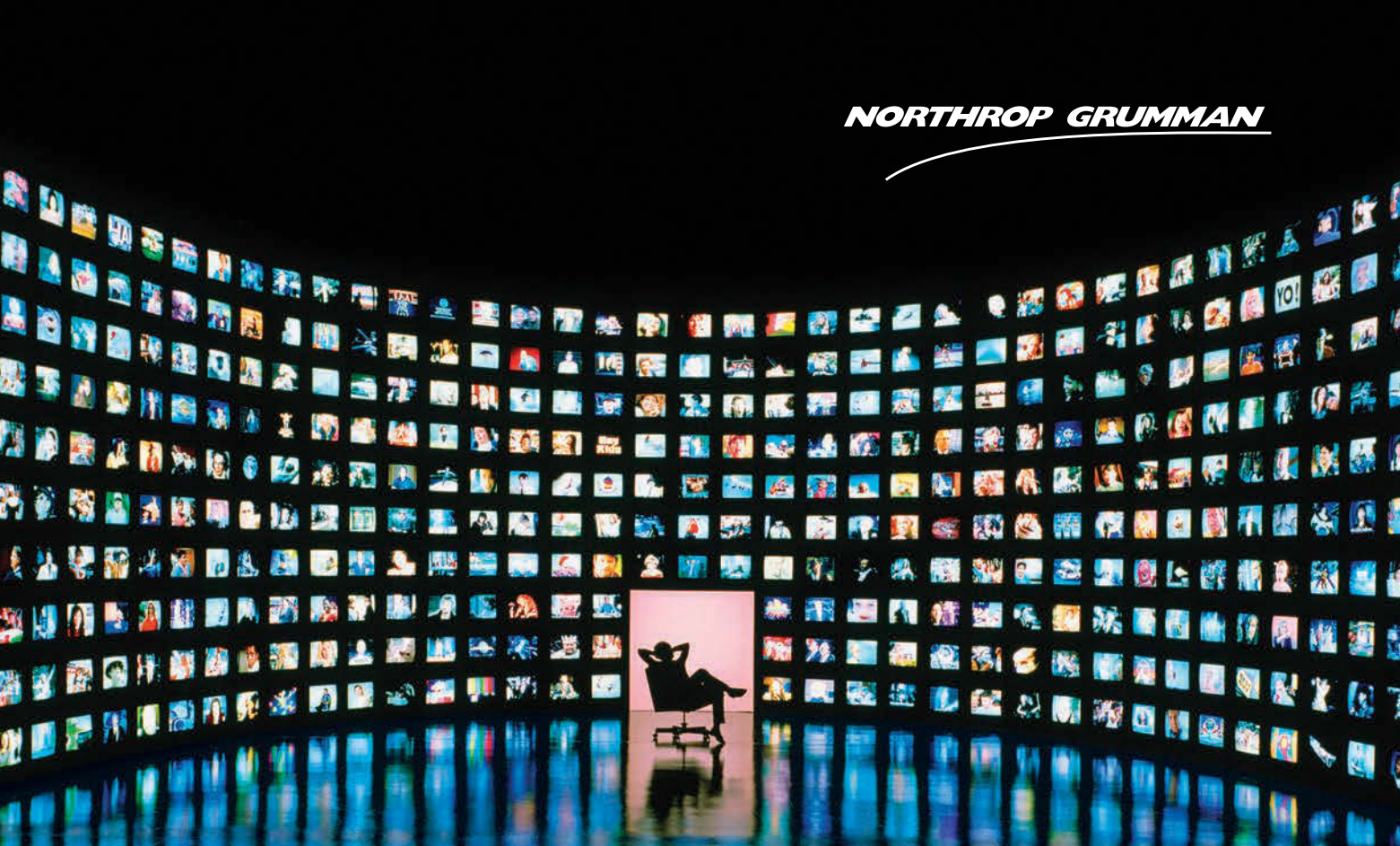

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Letters

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Nuclear Deterrents

It appears that Deputy Defense Secretary *[William J.]* Lynn III is as confused concerning the Air Force's "Top Job" as many others in Washington *["Verbatim: Top Job for Air Force," April, p. 43]*.

The "Top Job" to be accomplished by this service is to provide nuclear deterrent missile and bomber forces to Strategic Command, which are protected and ready on a moment's notice if needed. Without this protection, the tactical military forces would be able to do nothing meaningful.

Charles W. McConnell
Rose Hill, Kan.

Giving Up the Ghost?

It is obvious that the senior leadership in the USAF has basically given up *["Washington Watch: Calibrated Ambition," March, p.8]*. Now, not only do we have to do more with less with our right-size Air Force, but we are obviously openly embracing mediocrity. Those program managers who are successful "are going to be heroes." Heroes? For doing their job well? This must be what [Gen. Norton A.] Schwartz was referring to when he summed up the theme of the reshaped Air Force as "calibrated ambition." The job was too hard, and we didn't think we had the resources or the best people, so we just decided not to do it. "Aim High—Air Force" is officially dead.

The more I read, the angrier I got. So now, not only are we pulling back the throttle on F-35 production (and if it's in that much trouble, it should be fixed) so we will have less aircraft to go around because, of course, we still have to retire as many aircraft as we possibly can (all you pilots take note—enjoy flying your sims because you'll be lucky to sniff the inside of a cockpit), but we are also planning to use commercial satellite imagery for strategic purposes and have our next generation long-range strike system shot out of the air if we have to send it up against a peer or near peer. Oh, I'm sorry, the Block B model "might" include new technologies, but it'll probably be off-the-shelf stuff that anyone has access to. Hey, China and Russia, please don't try anything until we can upgrade our bombers to Block B in 2025 because, after all, we'll probably be buying the systems from you. And if you really make us mad, we'll send our 70-year-old bombers after you. Of course, we'll never be able to reach you because we had to ground all our tankers years ago. We are actively striving to weaken our international posture and position.

Yes, we have money problems. I work in CE, and ACC is openly telling everyone that there is no money, and there will be no money. I get it. When your budget shrinks, so should your spending. However, this organization has a proud tradition of doing the impossible without whining about how we got there or how much work it took. So this all begs the question: Where is the leadership? It seems to me that everyone is so afraid of [Defense] Secretary [Robert M. Gates] that no one is openly standing up to this sickening nonsense.

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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To educate the public about the critical role of aerospace power in the defense of our nation.

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We did not get to this point by hanging our heads and rolling over. We are the best at what we do in every task that we are asked to do. Heck, we are even doing jobs for the other services that they don't have the in-house expertise for anymore. So let's get our tails out from between our legs and again start acting like the winners that we are.

Chris Kruschke
Tucson, Ariz.

Noise Pollution

I just finished reading the article in the March edition titled, "Getting on With the Neighbors" *[p. 44].* Both bases mentioned have been around for quite some time—according to you, 70 years in the case of Luke. They were originally built in sparsely populated areas. Since then, urban sprawl has mostly surrounded them. People built/bought houses near them because of the low housing prices. Yet, they now complain that the jet noise lowers these very same low prices. Reminds me of a situation here in Las Vegas a few years back, where people built/bought houses near a pig farm not that far from Nellis, again because of the low prices, then went to court because the farm smells of pigs. Guess it just goes to show that Forest Gump was right, "Stupid is as stupid does."

SMSgt. Dave Caron,
USAF (Ret.)
Las Vegas

Smart Bombs in Vietnam

Concerning the availability, or lack thereof, of a sufficient combination of accuracy and power to destroy such targets as the Thanh Hoa Bridge, and that precision guided munitions in Vietnam wrote "the book" on ground attack, I would change that to say that the precision guided munitions used in Vietnam added to the book on ground attack *["The Emergence of Smart Bombs," March, p. 60].* The book went through stages of frustration until the P-47 Thunderbolt was first converted, in Italy, and flown as a fighter-bomber in December 1943. Real accuracy was later combined with the power of two 1,000-pound bombs carried on the wings of Thunderbolt fighter-bombers. This was demonstrated on May 7, 1944 by the 365th Fighter Group ("Hell Hawks"), Ninth TAC, Ninth Air Force. Eight Thunderbolts, each carrying two 1,000-pound bombs, with an eight-to-11-second delay fusing, attacked the Vernon railroad bridge across the Seine River. They went in below bridge level and released their bombs at point-blank range. The entire north span of the bridge collapsed into the river. Total munitions expended—16 1,000-pound bombs. This technique, accuracy, and destruction continued throughout the European Campaign.

Bridge destruction was not complete until a substantial portion was dropped in the river. The bridge shown in the article would be considered "badly damaged," and revisited for destruction.

Frank Luckman
Abington, Pa.

Future Bomber

In the April 2010 issue, "Future Bomber," the letter from Lt. Col. Tom Garcia (Ret.) gave me a chuckle with his fighter bias: "Classifying an aircraft as being nuclear capable or not nuclear capable really has no meaning. ... Anything is nuclear capable" *[p. 8].* He tried to make the case that because he could deliver nuclear weapons with his F-84F, a C-130 could do the job. With all due respect, I must offer some enlightenment. Without EMP hardening and testing, electronics, flight-control computers, avionics, etc., today's aircraft would fry after detonation. These protections alone, not even considering weapon delivery systems, are huge cost drivers in developing aircraft for carrying nuclear weapons.

That factors into the decision as to whether USAF will want a bomber (or fighter) that is capable of carrying, delivering (somewhat more accurately than rolling one out the back of a cargo hold), and surviving nuclear detonation effects.

He mentioned that he flew the F-84F, that had a nuclear bomb delivery system, so that they could carry *one* bomb. The first F-84s were *not* nuclear capable. In fact, the first straight-wing F-84 that was "nuclear capable" was the F-84G. The model he flew was a newer swept-wing design with a nuclear delivery capability (something he is trying to argue doesn't exist). I also suspect that since this aircraft was designed to deliver nuclear weapons, it was EMP-hardened, too (something previous versions were not). This means the statement that there's no meaning to an aircraft being "nuclear capable" is based on his experience flying a "nuclear capable" fighter. I guess the unspoken point was that we don't need any more bombers, since anything can do the job. That's just not true. Since the ultimate mission of USAF is to destroy targets on the ground, it needs a survivable vehicle that is capable of accurately delivering *loads* of both conventional and nuclear ordnance. The argument then becomes, should it be a nuclear capable bomber, fighter, or unmanned vehicle. The question of "nuclear capability" is a big deal.

Lt. Col. Randy Rose,
USAF (Ret.)
Warrensburg, Mo.

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Washington Watch

By John A. Tirpak, Executive Editor

More tanker drama; F-35 turbulence; New mobility study takes relaxed view ....

Tanker Square Dance

After briefly looking like a sole-source program—again—the KC-X tanker project is a competition—again. EADS North America re-entered the race in late April, raising the specter of an ugly Capitol Hill fight over the program.

In March, two years after Northrop Grumman won the Air Force's KC-X tanker contract, Northrop announced it wouldn't bid in the rerun of the contest. It claimed that new "evaluation methodology" in the final request for proposals clearly showed the Air Force wants a smaller airplane than the company's KC-45, offered with partner European Aeronautic Defense and Space Co., parent of Airbus. Bidding would be a waste of its stockholders' money, Northrop Grumman said.

Photo by Ted Carlson

Will the KC-135 ever be replaced?

With Northrop Grumman out, it looked like Boeing's smaller NewGen Tanker, a version of its KC-767, would be the default choice. The KC-767 was what the Air Force had sought in 2001, when it wanted to lease new tankers as a speedy way to replace the aging KC-135 fleet. A later corruption probe prompted Congress to demand a competition.

In late April, though, after weeks of speculation, EADS North America jumped back into the tanker contest, still offering the KC-45, but this time as the prime contractor. EADS won an extension of the bid deadline from the Pentagon from May 10 to July 9, leaving it just 80 days to build its proposal.

Ralph D. Crosby Jr., EADS North America chairman, was asked at a press conference why he thought the KC-45 could win when Northrop Grumman thought it couldn't. Crosby responded that it was Northrop Grumman's call to make as team leader, but when it backed out, that left EADS free to make a solo offering.

Crosby and his CEO, Sean O'Keefe, said they were confident their airplane could prevail.

O'Keefe, describing Boeing's entry as "an artist's concept," noted that variants of the KC-45 have won five competitions against variants of the KC-767—including the last USAF contest—and is now flying and passing fuel in flight tests with a new-design boom.

Noting that the tanker program is structured as a "fixed-price development and firm fixed-price production" contract, O'Keefe said Boeing will have an uphill climb winning with an unproven design.

"Fixed-price development is a really sporty proposition" with an airplane not yet built and in flight test, O'Keefe said.

He admitted that "there's no question" that the Air Force seeks a KC-135 replacement, and that the KC-45 is "definitionally a different airplane" than the KC-135. However, he said the rules specify 372 criteria which must be met, "pass/fail" and that the KC-45 meets all of them.

Given that, Crosby said, the contest will basically boil down "to price." Both Crosby and O'Keefe shrugged off the potential military construction costs to accommodate their larger airplane, costs which will count in the tanker race. As a sweetener, they said that Airbus will build A330 freighters in the Gulf Coast region alongside the KC-45 if EADS wins the tanker contract.

In March, the World Trade Organization ruled that some $20 billion that Airbus received in preferential government loans amounted to an illegal subsidy, giving Boeing proponents more ammunition in their demands that EADS receive no special consideration, like the 60-day bid deadline extension.

Sen. Patty Murray (D-Wash.) issued a statement soon after EADS' re-entry announcement. She said, "A competition between companies on an equal playing field is one thing. A competition where American workers have to compete with the treasuries of European countries is another."

In a statement explaining why his company backed out of the tanker contest, Northrop Grumman CEO Wesley G. Bush revealed that the flyaway cost of the KC-45 in the last contest was "$184 million per tanker for the first 68 tankers, including nonrecurring development costs." Describing the Boeing NewGen Tanker as "a much smaller, less capable design, the taxpayer should certainly expect the bill to be much less," Bush asserted.

Boeing has said the NewGen will feature faster fuel offload with a new, digitally controlled centerline boom and a digital cockpit adapted from the 787 airliner, as well as other improvements.

F-35 Fighter's Ups and Downs

The F-35 strike fighter program is way over budget and as much as three years behind schedule, the Pentagon announced in mid-March. The findings followed months of warnings and dueling internal cost and schedule estimates.

The new cost of the program, including development and production, is between $278 billion and $329 billion, up from a previous estimate of $197 billion to $221 billion, Pentagon officials told Congress. The overall buy covered by that cost has also been reduced, from 2,800 aircraft to just 2,443.

Senior defense leaders said they had been expecting the result and had already been treating the F-35 as if it would incur a Nunn-McCurdy breach, so-called because of a law which demands that a program that far outstrips its original budget must be canceled or restructured if the Defense Secretary decides there's no alternative.

Robert M. Gates, Secretary of Defense, said the Fiscal 2011 budget which went to Capitol Hill in February included the assumption that the program would be restructured. There is no

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alternative to the F-35 for recapitalizing the Air Force, Navy, and Marine Corps' aging fighter fleets, Gates certified.

Undersecretary of Defense for Acquisition, Technology, and Logistics Ashton B. Carter, testifying before Congress, predicted the F-35 would achieve initial operational capability with the Air Force and Navy in 2016—two years after it was planned to do so. The Marine Corps is now expected to field its first operational F-35 unit at the end of 2012 and deploy them in 2014.

The Air Force Chief of Staff, Gen. Norton A. Schwartz, said that Gen. William M. Fraser III, head of Air Combat Command, would make the determination of when to declare Air Force IOC with the F-35, based on his judgment of the capability and numbers available of early aircraft.

The Air Force's version of the F-35 is the A model, which makes conventional takeoffs and landings. The F-35B is the Marine Corps version, able to make short takeoffs and vertical landings, and the Navy variant, the F-35C, will have larger wings and be able to operate from aircraft carriers.

Gates fired F-35 program manager USMC Maj. Gen. David R. Heinz in February because of the program office's "overly optimistic" cost estimates, and announced in March that he would be replaced by Vice Adm. David J. Venlet, a career naval aviator then serving as head of Naval Air Systems Command. Gates felt it was important to elevate the F-35 program leadership to the three-star level, given its critical importance to three of the armed services.

Christine H. Fox, chief cost estimator for the Pentagon, told the Senate Armed Services Committee in March that in base year 2002 dollars, the cost of the F-35 had increased from $50 million a copy to between $80 million and $95 million a copy, depending on the variant. In today's (2010) dollars, she said, the figures are between $93 million to $112 million. Including development, the cost of initial production aircraft will be $135 million each.

Sen. Saxby Chambliss (R-Ga.) said that the F-35 is now nearly in the same cost ballpark as the F-22 Raptor, production of which Gates ordered halted last year. The Raptor's final cost is about $140 million apiece. It is built in Chambliss' state of Georgia.

Carter, in a teleconference with reporters, said Lockheed Martin, which has been docked $614 million in progress payments due to the delays and cost increases, can still get back some of the funds if it makes up lost schedule time in production. The services will have a "build to budget" arrangement wherein they can buy more F-35s if the price comes down, he said.

Tales From the Mobility Study

The Air Force has more than enough airlift to fulfill national needs, but faces a critical shortage of aerial tankers, according to a new mobility study. It also found that buying more cargo aircraft or ships won't speed up deployments because of overseas port limits.

The Mobility Capabilities and Requirements Study 2016, or MCRS-16, was two years in the making. It follows a 2005 study that didn't analyze requirements, and a 2001 review rendered instantly obsolete by the events of 9/11. This latest review was meant to include previously uncounted factors such as the wars in Iraq and Afghanistan, a shift toward more irregular warfare, intratheater airlift, and a larger Army and Marine Corps.

The MCRS-16 conclusions are being used to justify the Air Force's request to retire 17 C-5A aircraft, stop producing the C-17, and downsize its tactical airlift fleet.

"With few exceptions, MCRS-16 found the [Defense] Department's planned mobility capabilities sufficient to support the most demanding projected requirements," the study's directors said in an executive summary of the classified report.

"In general, the lack of foreign infrastructure required to support major force deployments remains the fundamental constraint when attempting to reduce deployment timelines," they wrote.

USAF photo

Plenty of airlift, not enough tankers.

Buying more air- and sealift and pre-positioning gear "will not overcome this reality."

In the MCRS-16, the transport enterprise was pitted against three stressing scenarios. The first assumed two near-simultaneous land wars while US forces responded to three domestic crises such as a major terrorist attack or natural disaster. In the second, the US was prosecuting a major air and naval campaign overseas while responding to one domestic crisis, and in the third, the US was fighting a large land war, as well as a long-term irregular campaign, while coping with three homeland contingencies. In all three scenarios, the US continued to maintain worldwide naval activity, called "maritime awareness presence," as well as air sovereignty over the US.

Even the worst-case scenario didn't tap all the airlift already available, the directors said. The strategic airlift fleet of 223 C-17s and 111 C-5s provides 35.9 million ton-miles a day of capacity, but at most, the scenarios required, respectively, 32.7, 30.7, and 29.1 MTM/D.

Also, the demand for strategic airlift was found to peak during the initial deployment for a major regional war and during the run-up to a second overlapping major conflict, when oversize and outsize equipment need to move quickly. After the initial push, strategic airlift demand dropped significantly, shifting toward a demand for intratheater, or tactical, lift. The C-17s idled in the "sustainment" phase of the war could then be used for tactical lift, because of their ability to operate on short and unimproved strips.

The Civil Reserve Air Fleet was also found to offer capacity beyond that needed for any of the three scenarios. The CRAF uses civilian cargo and passenger aircraft whose owners have made them available in wartime.

For aerial refueling, however, MCRS-16 came to a very different conclusion. The Air Force's inventory of 415 KC-135s and 59 KC-10s—474 aircraft in all—is well short of the number needed to meet peak demands in two of the three scenarios. In the toughest case, 567 strategic tankers were needed. ■

THE RIGHT TOOL FOR THE JOB

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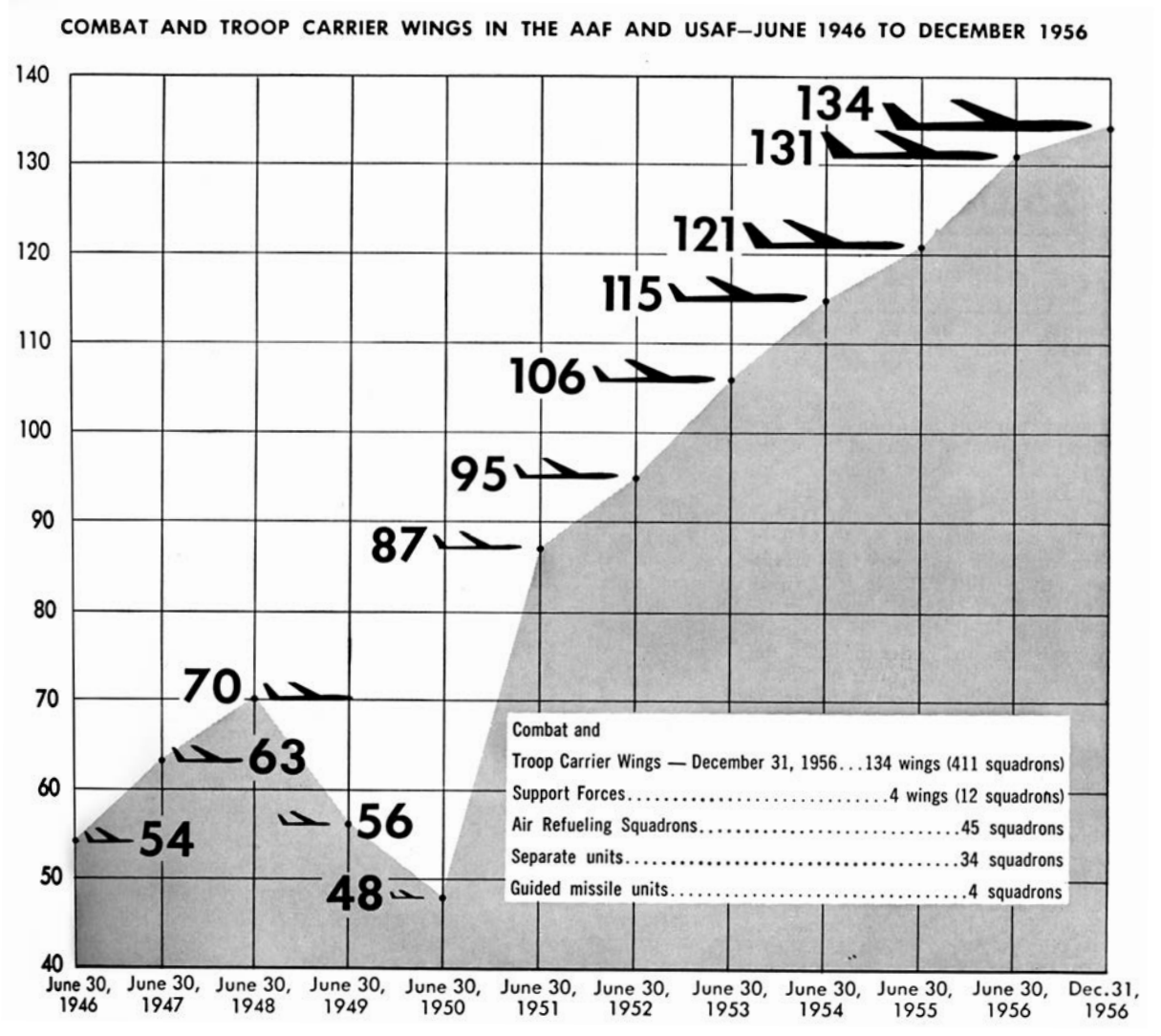
An Air Force Turning Point

Between September 1945 (Japan's surrender) and March 1947 (the declaration of the Truman Doctrine), the US nearly dismantled the US Army Air Forces. An organization that on V-J Day boasted hundreds of combat and transport units shrank to only 54 wings. With the hardening of the Cold War in 1947, USAF tentatively built back up to 70 wings, but it was allowed to shrink again to 48 wings by mid-1950. The June 25, 1950 outbreak of the Korean War, however, permanently changed the calculus, as shown by this 52-year-old chart, first published in the August 1957 issue of this magazine. Within a year, USAF's wing total had nearly doubled, and it kept growing. This time, there would be no stand-down for the Air Force.



Source: *A History of the United States Air Force, 1907-1957,* Alfred Goldberg, ed., © Air Force Association, published by Van Nostrand & Co., Princeton, N.J., 1957

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Verbatim

By John T. Correll, Contributing Editor

A Day Without Space

"We actually have wargames where we have considered a day without space—in other words, intellectually trying to make sure that we understand what the puts and takes are and what the consequences [are] of losing [capability]. Let's say you did not have GPS or it was jammed. Are our aircrews prepared to operate in a GPS-degraded environment? And that is something that we are training to do in larger measure. In other words, taking those things that we perhaps in the not too distant past have taken for granted but understand that an adversary might degrade them, and can we fight through that degradation?"***—Gen. Norton A. Schwartz, Air Force Chief of Staff, House Armed Services Committee, Feb. 23.***

Sanity Check

"You boys must be crazy."***—President Eisenhower on possibility, raised by Joint Chiefs of Staff, of using nuclear weapon to relieve siege of Dien Bien Phu in French Indochina in 1954, recalled in*** **Valley of Death** ***by Ted Morgan, published in February.***

Renaming the Iraq War

"The requested operation name change [to Operation New Dawn] is approved to take effect 1 September 2010, coinciding with the change of mission for US forces in Iraq. Aligning the name change with the change of mission sends a strong signal that Operation Iraqi Freedom has ended and our forces are operating under a new mission."***—Secretary of Defense Robert M. Gates, memo to US Central Command, Feb. 17.***

Air Putin

"Certainly, we should not confine ourselves to developing just one new model. After the fifth generation fighter jet, we must think and get down to work on a next generation, long-range aviation complex—our new strategic missile carrier."***—Russian Prime Minister Vladimir Putin, Reuters, March 1.***

Low Ebb

"The US Air Force is at the lowest ebb in its 63-year history. Although its capabilities still far surpass those of other air services around the world, it is gradually using up the arsenal it acquired during the closing days of the Cold War. ... You'd think at this point, policy-makers would be ready to train their sights on some other hapless victim of 'rebalancing,' but no such luck."***—Loren B. Thompson, Lexington Institute, on continuing Air Force program cuts and stretch-outs, March 1.***

The Weeds Come Back

"'Mowing the grass' is the term frustrated soldiers use to describe the war in Afghanistan. America and its NATO allies sweep in and clear an area. But, once they leave, the Taliban creep back like weeds in the lawn, and the allies have to mow it all over again."***—H. D. S. Greenway, longtime military analyst,*** **Boston Globe,** ***March 2.***

No Knockout Punch

"Success in these types of wars is iterative; it is not decisive. There isn't going to be a single day when we stand up and say, 'That's it, it's over, we've won.' We will win, but we will do so only over time and only after near-constant reassessment and readjustment. Quite frankly, it will feel a lot less like a knockout punch and a lot more like recovering from a long illness."***—Adm. Michael G. Mullen, Chairman of the Joint Chiefs of Staff, Kansas State University, March 3.***

The Demilitarization of Europe

"One of the triumphs of the last century was the pacification of Europe after ages of ruinous warfare. But as I've said before, I believe we have reached an inflection point, where much of the continent has gone too far in the other direction. The demilitarization of Europe—where large swaths of the general public and political class are averse to military force and the risks that go with it—has gone from a blessing in the 20th century to an impediment to achieving real security and lasting peace in the 21st."***—Gates, National Defense University, Feb. 23.***

Not Helping the Air Force

"My concern is that you have a service that is going through an incredible transition right now that will shape its future and national security, but the Hill is focused on specific programs that aren't integral to that debate."***—Peter W. Singer, Brookings Institution,*** **CQ Weekly,** ***Feb. 15.***

Where Iran Is Heading

"We see that the government of Iran, the supreme leader, the president, the Parliament, is being supplanted and that Iran is moving toward a military dictatorship."***—Secretary of State Hillary Rodham Clinton,*** **New York Times,** ***Feb. 16.***

Defending the Sale

"We want to build a relationship of confidence and a new relationship with Russia. We cannot on the one hand enlist Russia in building that security and at the same time consider that Russia has not profoundly changed since 1991."***—French Defense Minister Herve Morin on proposed sale of one (or possibly four) ultramodern Mistral-class amphibious assault ships to Russia, Agence France-Presse, Feb. 8.***

Airpower and the Alternative

"Most unfortunately, having so often greatly overestimated airpower in the past, the United States is now disregarding its strategic potential, using it only tactically to hunt down individuals with remotely operated drones and to support ground operations, mostly with helicopters, which are the only aircraft the Taliban can shoot down. Commanding General Stanley McChrystal, understandably concerned about the political blowback from errant bombings widely condemned both inside and outside Afghanistan, has put out the word that airpower should be used solely as a last resort. He intends to defeat the Taliban by protecting Afghan civilians, providing, essential services, stimulating economic development, and ensuring good government, as the now-sacrosanct *Field Manual 3-24* prescribes. Given the characteristics of Afghanistan and its rulers, this worthy endeavor might require a century or two."***—Edward Luttwak,*** **Foreign Policy,** ***March/April.***

Changing Compartments

"On the drive out here, you get yourself ready to enter the compartment of your life that is flying combat. And on the drive home, you get ready for that part of your life that's going to be the soccer game."***—Retired Air Force Col. Chris Chambliss on flying drones over Iraq and Afghanistan by remote control from Creech AFB, Nev.,*** **Los Angeles Times,** ***Feb. 21.***

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Air Force World

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

Conaton Sworn In

Erin C. Conaton has officially become undersecretary of the Air Force. She was sworn in March 15, 11 days after the Senate confirmed her to fill the service's No. 2 civilian post.

The undersecretary position had been vacant since Ronald M. Sega left in August 2007. Conaton came to USAF after serving for three years as staff director of the House Armed Services Committee.

Secretary of the Air Force Michael B. Donley predicted Conaton would be a "tremendous asset" to the service as a result of her Congressional work and her long experience in national security matters.

President Obama nominated her last November. Her confirmation was delayed because it became ensnared in unrelated Senate maneuvering with respect to the hotly contested KC-X tanker competition.

C-5A Retirement Plan Set

The Air Force would like Congress' blessing to retire 17 C-5A transports in Fiscal 2011 as part of a plan to shed excess strategic airlift capacity that drains funds from other USAF priorities, Chief of Staff Gen. Norton A. Schwartz said Feb. 23 on Capitol Hill.

To make this plan possible, Congress would have to lift its prohibition on retiring any of the service's 111 C-5s that form the strategic air arm along with 223 planned C-17s. The Pentagon's new Mobility Capabilities and Requirements Study 2016 found that this fleet provides more than enough capability to meet projected demands.

Under the retirement plan, one Air National Guard wing and one Air Force Reserve Command unit would lose their C-5s and get C-17s. AFRC's 445th Airlift Wing at Wright-Patterson AFB, Ohio, was identified on March 12 as one of the two units; it would phase out its 10 C-5As over two years and replace them with eight C-17s.

MC-12W Basing Search Starts

The Air Force announced March 19 that it had formally started its search for basing locations for the MC-12W Liberty Project intelligence-surveillance-reconnaissance aircraft. The MC-12s are already supporting ground troops in Afghanistan and Iraq by providing live streaming video and electronic eavesdropping capability.

Currently, the only Stateside-based MC-12s are with the Mississippi Air National Guard's 186th Air Refueling Wing at Key Field in Meridian. The Air Force tapped this site in early 2009 to serve as a temporary training hub to help speed delivery of crews to combat operations.

This summer, USAF expects to release its preferred locations; in April 2011, the service should issue its list of final selections. Air Combat Command's basing criteria includes mission and training requirements, airspace, infrastructure, environmental concerns, and cost.

Medics Deploy to Chile

The Air Force on March 8 dispatched an expeditionary medical support team of more than 80 airmen aboard a C-17 transport aircraft from Lackland AFB, Tex., to Chile to aid local medics in treating victims of the massive earthquake that rocked the South American nation on Feb. 27.

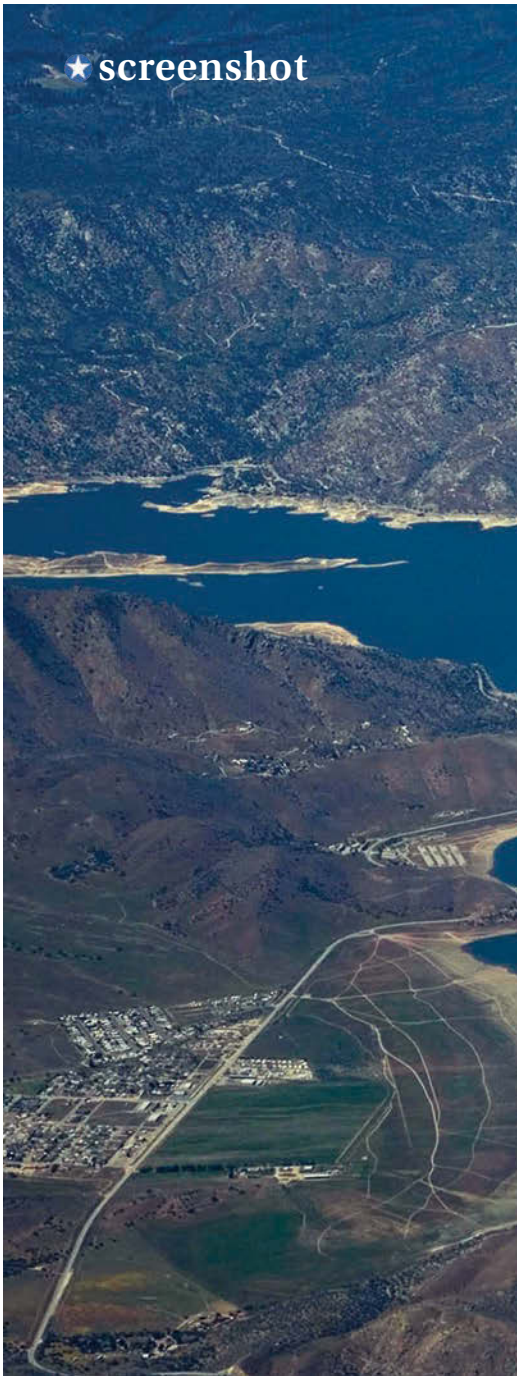
On March 13, these medical specialists had a mobile hospital fully operational in Angol, Chile. Less than two weeks later, on March 26, the airmen completed this humanitarian mission, having treated more than 300 patients and performed about 40 surgeries side by side with Chilean medics.

US officials donated the field hospital to the local Chilean medical community. The EMEDS team was part of US Southern Command's broader relief efforts to Chile after the disaster.

Sustainment Gaps Noted

The Air Force's proposed base budget for Fiscal 2011 covers only about 65 percent of the service's weapons sustainment needs, Gen. Carrol H. Chandler, Air Force vice chief of staff, told members of the House Armed Services Committee's readiness panel March 16.

Factoring the dollars in the service's request for overseas contingency operations would increase this level to 82 percent. However, Chandler said another



USAF photo by Chad Bellay

$337 million would be necessary to reach 85 percent and offset a potential "bow wave" in the Air Force's ability to put aircraft and engines through periodic depot maintenance.

Chandler said, when asked, that this is one of the issues facing the Air Force that concerns him the most, along with the costs of maintaining the all-volunteer force, and "accelerating" expenditures for the high-tech weapons systems needed for the future.

Raytheon Wins OCX Contest

The Air Force on Feb. 25 awarded the contract for the Next Generation Global Positioning System Control Segment, known as OCX, to Raytheon. The company beat out Northrop Grumman for the rights to supply OCX, which is designed to improve the accuracy of information from GPS satellites.

The company will develop and install hardware and software in control centers at Schriever AFB, Colo., and Vandenberg AFB, Calif., and deploy advanced monitor stations at remote sites.

The contract's initial value is $886 million, with sustainment options that could take it to $1.5 billion over five years, said Air Force officials. OCX will also enable the control of future GPS Block III space vehicles.

C-5M Proved in Tests

The Air Force Operational Test and

This F-16, flying from Edwards AFB, Calif., banks over nearby Isabella Lake. The fighter is fitted with special radio frequency identification tags. It trails a KC-135 tanker during an aerial flight test of the Automatic Receiver Aircraft Identification system on the tanker. Engineers at the Air Force Flight Test Center were testing ARAI, which scans a receiver aircraft, identifies it, and gauges the amount of fuel it will need. If it proves out, ARAI would make refueling much more efficient.

04.07.2010

Robert M. White, 1924-2010

Retired Maj. Gen. Robert M. White, the first Air Force pilot to earn astronaut wings, the first man to fly faster than Mach 4, 5, and 6, and a developer of key Air Force systems, died March 17. He was 85.

In 1958, White was chosen to be the primary Air Force pilot on the X-15 project, in which a rocket-powered airplane was launched from a bomber, flew at high speed and altitude, and made an unpowered, conventional landing. White made his three record-setting flights in 1961, and was among a group of X-15 pilots to receive the Robert J. Collier Trophy that year.

On July 17, 1962, White flew the X-15 to more than 59 miles of altitude, becoming the first man to reach space in a controlled, rather than ballistic, craft. He was awarded command plot astronaut wings by Gen. Curtis E. LeMay, then USAF Chief of Staff. He also received the Harmon Trophy and NASA's Distinguished Service Medal for his X-15 work.

White became an aviation cadet in 1942 and received his wings and commission in 1944. He flew P-51 Mustangs in Europe during World War II, but was shot down and was a prisoner of war for the last three months of the war in Europe.

He left active duty later that year, but remained in the Air Force Reserve while he earned a degree in electrical engineering and a master's degree in business administration. Recalled to active duty for the Korean War, White was soon back in fighters, flying missions out of Japan.

After the Korean War, White served as a systems engineer before being selected for the Air Force's Experimental Test Pilot School. During his testing years, he flew the F-86, F-89, F-102, and F-105, before being chosen to fly the X-15.

After the X-15 program ended, White served in a number of fighter squadron command positions in Europe, ultimately returning to Air Force Systems Command to work on the F-111 program. However, he was soon back in action as commander of the 355th Tactical Fighter Wing at Takhli RTAB, Thailand, flying F-105s.

He received the Air Force Cross in 1967 for leading a strike against the heavily defended Paul Doumer Bridge in Hanoi. He was then transferred to become chief of the Attack Division at Tan Son Nhut AB, Vietnam. In all, White flew 70 combat missions in the Vietnam conflict.

Upon returning to the US in 1968, White took over the F-15 system program office, directing its development and production planning. In 1970, he became the head of the Air Force Flight Test Center at Edwards AFB, Calif., supervising the testing and evaluation of a wide variety of projects, including the A-X program (which became the A-10) and the E-3 AWACS. During that assignment, he also earned his parachutist badge after completing the Navy Test Parachutist Course.

In 1972, White became head of the Air Force Reserve Officer Training Corps, and in 1975, became chief of staff of the 4th Allied Tactical Air Force. He retired in 1981.

White was inducted into the National Aviation Hall of Fame in 2006. Plans called for a burial at Arlington National Cemetery.

—John A. Tirpak

Evaluation Center rated the C-5M Super Galaxy transport aircraft as "effective, suitable, and mission capable," based on results of operational testing that concluded in January, C-5 prime contractor Lockheed Martin announced March 10.

This testing "was a resounding success" because of the teamwork of the Air Force-industry partnership, said Col. John Scorsone, Air Mobility Command's director of test and evaluation, in the company's release.

The Air Force has three C-5Ms that are being integrated in normal operations and performing combat missions. It intends to upgrade 49 more C-5Bs to this configuration by 2016, giving it 52 C-5Ms in all. C-5Ms sport new engines, avionics, and additional modifications for greater unrefueled range and reliability.

Unfunded Priorities Revealed

The Air Force on Feb. 19 issued its $548 million list of unfunded priorities for Fiscal 2011. The document details for Congress the top five areas where the service would spend extra dollars if it had them.

Topping the list is $337.2 million for logistic support, including programmed depot maintenance on B-2A bomber, C-5 transport, and KC-135 tanker aircraft.

Second is $70 million for expeditionary airfield equipment including some fuel gear.

Third is $55 million to bolster the distributed common ground system. Fourth is $28.7 million for battlefield airmen equipment and joint terminal attack controller modeling and simulation. Fifth is $57.1 million to procure 674 ground vehicles and some support equipment for the Air National Guard and Air Force Reserve.

F-35 Makes Vertical Landing

BF-1, the inaugural F-35B short takeoff/vertical landing test aircraft, on March 18 performed its first vertical landing during a flight at NAS Patuxent River, Md. Program officials hailed this event as an important accomplishment for the F-35's test program, which is trying to rebound from schedule delays.

"Today's vertical landing onto a 95-foot-square pad showed that we have the thrust and the control to maneuver accurately both in free air and in the descent through ground effect," said F-35 lead STOVL pilot Graham Tomlinson, in prime contractor Lockheed Martin's release that day.

On the previous day, BF-1, which is built in the configuration that the Marine Corps will use, demonstrated its hover capability for the first time, executing a STOVL landing. Later that day, it made the first F-35B short takeoff. The Air Force's conventional F-35A is also in flight testing.

Eglin Lawsuit Settled

The Air Force on March 1 reached a settlement with the city of Valparaiso in northwest Florida over basing F-35 strike fighters for training at nearby Eglin Air Force Base. City officials had sued the Air Force in September 2008 over concerns about F-35 noise levels and their impact on citizens' health and Valparaiso's economic viability.

Under the terms of the settlement, the Air Force has agreed to explore reasonable operating alternatives to using a main runway that would have placed F-35s over the heart of the city, according to local press reports. USAF will also set up a noise committee with local officials and pay $60,000 toward Valparaiso's legal fees.

With the settlement, Okaloosa County, which had favored the F-35 schoolhouse, was set to withdraw the lawsuit it had filed against Valparaiso after the city took its legal action against the Air Force.

Incentive Pay for RPA Operators

Air Force officials announced Feb. 24 the approval of a plan that awards incentive pay to officers who commit to flying remotely piloted aircraft and enlisted airmen who pledge to operate RPA sensors.

The incentive pay is equivalent to current aviation incentive pay programs and

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Air Force By the Numbers

For Fiscal 2010, the Air Force's approved Total Force end strength is 686,944 personnel, Daniel B. Ginsberg, assistant secretary of the Air Force for manpower and reserve affairs, told the Senate Armed Services Committee's personnel panel March 10.

This includes 331,700 active duty airmen, 106,700 Air National Guardsmen, 69,500 Air Force Reservists, and 179,044 civilian employees.

For Fiscal 2011, the Air Force seeks Congress' blessing to expand that number to 702,669, said Ginsberg.

Under this plan, the active duty component would increase by 500 airmen, the Air Guard would remain the same size, there would be 1,700 additional Air Force Reservists, and the civilian sector would swell by 13,525 persons.

Air Force Secretary Michael B. Donley said March 2 the service has no plans to significantly grow or reduce, for that matter, the size of its active duty end strength.

"Our plan is to hold at about 332,000 going forward," he told reporters in Washington, D.C.

In fact, the end strength is scheduled to hit 332,800 in Fiscal 2012—600 airmen more than in Fiscal 2011—and remain at that level, according to USAF personnel officials.

However, inside that fixed-size force, there are growing career fields competing for manpower, and the service faces the challenge of freeing up the personnel for them, said Donley.

As an example of how this is being done, Donley cited the decision in 2009 to reduce the size of the fighter force and shifting manpower to address growing intelligence-surveillance-reconnaissance requirements, including generating more remotely piloted aircraft operators.

In that process, "the manpower pieces were just as important" as the dollars that were shifted, he said.

Of the current Total Force end strength, there are some 40,000 airmen deployed "on any given day" in Southwest Asia supporting the fight there, Gen. Carrol H. Chandler, USAF vice chief of staff, told House lawmakers March 16.

In addition, there are about 5,300 airmen serving in joint expeditionary taskings with the Army and Marine Corps and another 131,000 or more airmen "performing deployed-in-place missions for combatant commanders," he said. This includes tasks such as manning ICBM launch centers.

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is available to officers in the 18X RPA pilot career field and enlisted members on the new 1U0X1 RPA sensor operator track, they said. These incentives are scaled based on an airman's time within these fields.

"This represents a significant step forward in building a career field of RPA professionals," said Lt. Col. David DuHadway, USAF's rated force policy chief. There are slightly more than 400 airmen in RPA career fields today, a number expected to grow to more than 1,000 over the next few years to support burgeoning wartime demands.

USAF Feels NASA Cuts

The Obama Administration's plan to cancel NASA's Constellation human spaceflight program might end up sharply increasing the price that the Air Force has to pay for the rocket motors used on its own space launch vehicles, said Gary E. Payton, deputy undersecretary of the Air Force for space programs, March 10.

"The information we've seen is that the propulsion systems ... might double in price," Payton told the Senate Armed Services Committee's strategic forces subcommittee. The reason: a significant downturn in orders if NASA's Ares rockets go away as part of Constellation's demise.

Payton said first-stage RS-68 engines on Delta IV rockets would be affected, as would Atlas V upper-stage RL10s. Pratt & Whitney supplies both. He said the Air Force is studying how to minimize the price impact.

Bombers Extend Pacific Stay

The Air Force is going to extend the now-routine deployment of B-2A and B-52H bombers to Andersen AFB, Guam, from four months to six months, said Maj. Gen. David J. Scott, the Air Staff's director of operational capability requirements.

Scott told the Senate Armed Services Committee's strategic forces panel March 17 that the deployments for the service's continuous bomber presence mission that supports US Pacific Command would be "growing from a 120-day to a 179-day period."

The bomber deployment has been ongoing since 2003. Currently, B-2 and B-52 units share the rotation, with two B-52 turns for every one B-2 tour. In February, more than 240 airmen and a contingent of B-2As from the 393rd Bomb Squadron at Whiteman AFB, Mo., arrived at Andersen in the most recent rotation.

Wind Turbines Impede Radar

Gen. Victor E. Renuart Jr., commander of US Northern Command and commander of NORAD, told House lawmakers March 18 that he has "real


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Is the Pentagon Taking Aim at Joint STARS?

The Air Force's plans for re-engining its 17 E-8C Joint STARS ground-surveillance aircraft are in limbo, the Air Force's leadership told Congress in March.

The issue is not really about the merit of the new engines. They clearly would add performance and reliability improvements. Rather, it boils down to how long the Air Force intends to keep flying E-8Cs and whether this is long enough to justify the investment in the new Pratt & Whitney JT8D-219 engines, said Air Force Secretary Michael B. Donley and Chief of Staff Gen. Norton A. Schwartz in testimony on March 10 and March 4, respectively.

Already the E-8C test bed aircraft is fitted with these new power plants and the service intends to install them on four more aircraft as reflected in its Fiscal 2011 future years defense plan.

But beyond that, the path is unclear for several reasons, said Schwartz.

Among them, "there are issues with respect to the longevity of these airframes that raise questions in our minds," he said. These aircraft are based on refurbished 707 airliners.

Also, the service is conducting an analysis of alternatives (AOA) to identify the best options beyond the APY-7 radar on Joint STARS aircraft today for tracking moving surface objects and persons in coming years.

Accordingly, Schwartz said, "I think the wise thing to do here is to proceed cautiously to re-engine the four airplanes ... and get the AOA and decide what the best way forward is."

Dave Nagy, Northrop Grumman vice president of business development for battle management and engagement systems, said in an interview that the company, which leads Joint STARS sustainment efforts, believes the E-8C airframes are sound. This is based on the investments made in them to date and the robust upkeep activities in place.

With marginal investments in the engines and radar improvements, they could remain the nation's premier wide-area ground-surveillance platform "for the next 30 to 40 years," he said.

concerns" about the growing use of wind turbine farms for energy since they interfere with the radars needed for comprehensive awareness of the air domain over North America.

"The turbines themselves have a very real effect on the radars," he said, explaining that "they distort radars" and "in many cases block the picture." This creates risk for aircraft and the nation's defense, he said.

Although the Department of Defense has been able to get some sites repositioned, some still pose a problem, said Renuart. To address these concerns, DOD is working with the FAA, other government agencies, and industry to create "assessment tools" so that developers may ascertain if new wind projects would obstruct radar sites.

Osan Gets First A-10Cs

The 25th Fighter Squadron at Osan AB, South Korea, on March 3 received the first three of its A-10C ground-attack aircraft, an updated, more potent version of the A-10A model that the unit has been flying.

Capt. Matthew Kaercher, one of Osan's A-10 pilots, in a *Stars and Stripes* report March 17, said, "We're excited that ... we've got increased ability."

The new C configuration allows pilots to deploy satellite-guidance-aided bombs and use sophisticated targeting pods. It also features new cockpit displays, new stick and throttle controls, and new communications gear.

F136 Hits Full Afterburner

The General Electric-Rolls Royce Fighter Engine Team developing the F136 power plant for the F-35 strike fighter announced March 22 that it had successfully hit full afterburner during testing with the third production-configuration F136 unit.

The F136 is pitted against Pratt & Whitney's F135 engine, which is already in production, to power future F-35s. Despite continued Congressional interest in sustaining the F136 program, the Pentagon remains adamant in wanting

USAF photos by SSgt. Tabitha Kuykendall

Little Wing: *Right, members of the 506th Expeditionary Security Forces Squadron perform an operations check on a Raven unmanned aerial vehicle in Iraq. The UAV carries cameras, sensors, and communications tools and performs a host of ISR duties. Above, MSgt. Bryon Griffin launches the Raven.*

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The War on Terrorism

Operation Enduring Freedom—Afghanistan

Casualties

By April 15, a total of 1,034 Americans had died in Operation Enduring Freedom. The total includes 1,032 troops and two Department of Defense civilians. Of these deaths, 754 were killed in action with the enemy, while 280 died in noncombat incidents.

There have been 5,564 troops wounded in action during OEF. This number includes 2,405 who were wounded and returned to duty within 72 hours and 3,159 who were unable to return to duty quickly.

Airmen Offer Avalanche Help

Airmen with the 33rd Expeditionary Rescue Squadron operating from Bagram Airfield were among the first responders to a series of avalanches in Afghanistan's Salang Pass in February.

Flying on Army CH-47 helicopters, these airmen operated in subzero temperatures to aid more than 1,500 injured people, many of whom were trapped in their vehicles.

After initially evacuating about 80 healthy survivors, these pararescuers, deployed from the 920th Rescue Wing at Patrick AFB, Fla., focused on the trapped survivors.

Operation Iraqi Freedom—Iraq

Casualties

By April 15, a total of 4,394 Americans had died in Operation Iraqi Freedom. The total includes 4,381 troops and 13 Department of Defense civilians. Of these deaths, 3,482 were killed in action with the enemy, while 912 died in noncombat incidents.

There have been 31,775 troops wounded in action during Operation Iraqi Freedom. This number includes 17,839 who were wounded and returned to duty within 72 hours and 13,936 who were unable to return to duty quickly.

Iraq Air Force Secures Skies on Election Day

The Iraqi Air Force provided intelligence-surveillance-reconnaissance support over several Iraqi cities for the March 7 national elections, marking the first time since the start of Operation Iraqi Freedom in March 2003 that the IqAF carried out an autonomous air support effort for voting day.

Kirkuk Regional Air Base's Squadron 3 launched all six of its aircraft, three RC-208s and three AC-208s, transmitting ISR data to the operations centers throughout the country, with the capability to download full-motion video.

This information allowed security forces on the ground to gain critical intelligence on threats, said USAF officials with the 321st Air Expeditionary Advisory Group.

MC-12s in Iraq Hit 2,000 Combat Sorties

The Air Force's fleet of six MC-12W intelligence-surveillance-reconnaissance aircraft operating with the 362nd Expeditionary Reconnaissance Squadron out of Joint Base Balad surpassed 2,000 combat sorties, Balad officials announced in mid-March.

The first MC-12 combat mission over Iraq took place in June 2009.

Lt. Col. Phillip Stewart, commander of the MC-12 unit, praised his airmen, saying they "are constantly in situations where ... in a split second, they have to able to decide if the guy they are looking at is holding a shovel or a rifle and then transmit it to the ground."

Yet, "they perform under this pressure extremely well," he said.

to stop F136 work, saying the business case for maintaining two engine suppliers isn't convincing.

Traffic Jam Hits Space

The US military's global network of terrestrial-based radar and optical sensors currently keeps tab on approximately 21,500 objects orbiting the Earth, Lt. Gen. Larry D. James, commander of 14th Air Force (Air Forces Strategic) and commander of US Strategic Command's Joint Functional Component Command for Space, said March 10.

Of these, there are nearly 10,000 pieces of debris, 6,800 unknown objects, 3,700 dead satellites and rocket pieces, and more than 1,100 active satellites, James told Senate lawmakers in written testimony.

The Air Force is now able to track all active satellites, predict when pieces of debris or satellites will re-enter the atmosphere, recommend a safe launch period, and prevent potential satellite collisions, he said. Already there have been more than 50 instances where satellite owners maneuvered their spacecraft to avoid collisions, based on USAF information.

Boeing To Supply QF-16

The Air Force on March 8 selected Boeing to convert up to 126 retired F-16 fighters to unmanned full-scale aerial targets designated QF-16s. They will succeed the Air Force's inventory of QF-4 targets used today to help develop weapons and tactics.

Boeing is scheduled to start delivering QF-16s in 2014 under the terms of the contract. The company received the first $69.7 million increment that day for the initial engineering, manufacturing, and development activities.

Boeing will design and develop the QF-16 in St. Louis. Production and testing will occur at the company's facility in Cecil Field, Fla., near Jacksonville. Boeing's team includes BAE Systems, prime contractor for the QF-4.

Plan To Open Airspace to UAVs

The White House's Office of Science and Technology Policy on March 4 issued a new National Aeronautics Research and Development Plan that sets the integration of unmanned aerial vehicles into the national airspace system as "an important new goal" for the nation.

The plan, which builds upon the 2007 iteration, states that addressing the "growing demand" for UAV use within the NAS "depends on a complex set of regulatory, technical, economic, and political factors."

However, "it is becoming increasingly clear" that the demand requires "full integration of manned and unmanned systems throughout the NAS," the document continues. Accordingly, the plan lays out the research and development necessary to achieve that integration.

General Defends Bid Process

With the changes that the Air Force has instituted in the past few years, its means of assessing contract bids and then choosing winning proposals is sound, Lt. Gen. Mark D. Shackelford, military assistant to USAF's acquisition executive, said Feb. 23.

"We don't have a fundamentally flawed source-selection process," he said during an Air Force Association-sponsored Air Force Breakfast Series presentation in Arlington, Va. His comments came on the eve of the release of the KC-X tanker solicitation.

In fact, said Shackelford, in 2009, there was only one industry protest

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Senior Staff Changes

AFRC RETIREMENT: Brig. Gen. James L. **Melin.**

CHANGES: Brig. Gen. Mark A. **Barrett,** from IG, ACC, JB Langley, Va., to DCS, Strat. Plans & Policy, NATO, Allied Command Transformation (Norfolk), Norfolk, Va. ... Brig. Gen. Ian R. **Dickinson,** from Cmdr., 81st Tng. Wg., AETC, Keesler AFB, Miss., to Dir., Comm. & Info., AFSPC, Peterson AFB, Colo. ... Maj. Gen. David W. **Eidsaune,** from Dir., Air, Space, & Info. Ops., AFMC, Wright-Patterson AFB, Ohio, to Dir., Strat. Plans, Programs, & Analyses, AFMC, Wright-Patterson AFB, Ohio ... Brig. Gen. Carlton D. **Everhart II,** from Dep. Cmdr., Political-Mil. Affairs, Combined Security Transition Command-Afghanistan, CENTCOM, Kabul, Afghanistan, to Vice Cmdr., 618th Tanker Airlift Control Ctr., AMC, Scott AFB, Ill. ... Brig. Gen. David S. **Fadok,** from Dir., Policy & Strategy, SOUTHCOM, Miami, to Vice Cmdr., AU, AETC, Maxwell AFB, Ala. ... Brig. Gen. Barbara J. **Faulkenberry,** from Cmdr., 15th Expeditionary Mobility Task Force, AMC, Travis AFB, Calif., to Dep. Dir., Log., AFRICOM, Stuttgart, Germany ... Brig. Gen. Randy A. **Kee,** from Vice Cmdr., 618th Tanker Airlift Control Ctr., AMC, Scott AFB, Ill., to Cmdr., 379th Air Expeditionary Wg., ACC, Al Udeid, Qatar ... Brig. Gen. Charles W. **Lyon,** from Dir., Jt. Integration, DCS, Ops., P&R, USAF, Pentagon, to Dir., Air Component Coordination Element, CENTCOM, ACC, Kabul, Afghanistan ... Brig. Gen. Frederick H. **Martin,** from Dep. Dir., Log., AFRICOM, Stuttgart, Germany, to Cmdr., 15th Expeditionary Mobility Task Force, AMC, Travis AFB, Calif. ... Maj. Gen. James O. **Poss,** from Dir., ISR Strat., Integration, & Doctrine, DCS, ISR, USAF, Pentagon, to Asst. DCS, ISR, USAF, Pentagon ... Brig. Gen. (sel.) Steven M. **Shepro,** from Cmdr., 316th Wg., AF District of Washington, JB Andrews, Md., to Dir., Policy & Strategy, SOUTHCOM, Miami ... Brig. Gen. (sel.) Jay B. **Silveria,** from Cmdr., 48th FW, USAFE, RAF Lakenheath, UK, to IG, ACC, JB Langley, Va. ... Brig. Gen. (sel.) William J. **Thornton,** from Cmdr., 412th Test Wg., AFMC, Edwards AFB, Calif., to Dir., Air, Space, & Info. Ops., AFMC, Wright-Patterson AFB, Ohio ... Brig. Gen. Stephen W. **Wilson,** from Cmdr., 379th Air Expeditionary Wg., ACC, Al Udeid, Qatar, to Dir., Jt. Integration, DCS, Ops., P&R, USAF, Pentagon ... Brig. Gen. Margaret H. **Woodward,** from Vice Cmdr., 18th AF, AMC, Scott AFB, Ill., to Cmdr., 17th AF, USAFE, Ramstein AB, Germany. ■

sustained over an Air Force contract decision, and only two in 2008. The Air Force's guiding principles in selecting a winning bid are whether the source-selection process was conducted correctly and if the decision is defensible, he said.

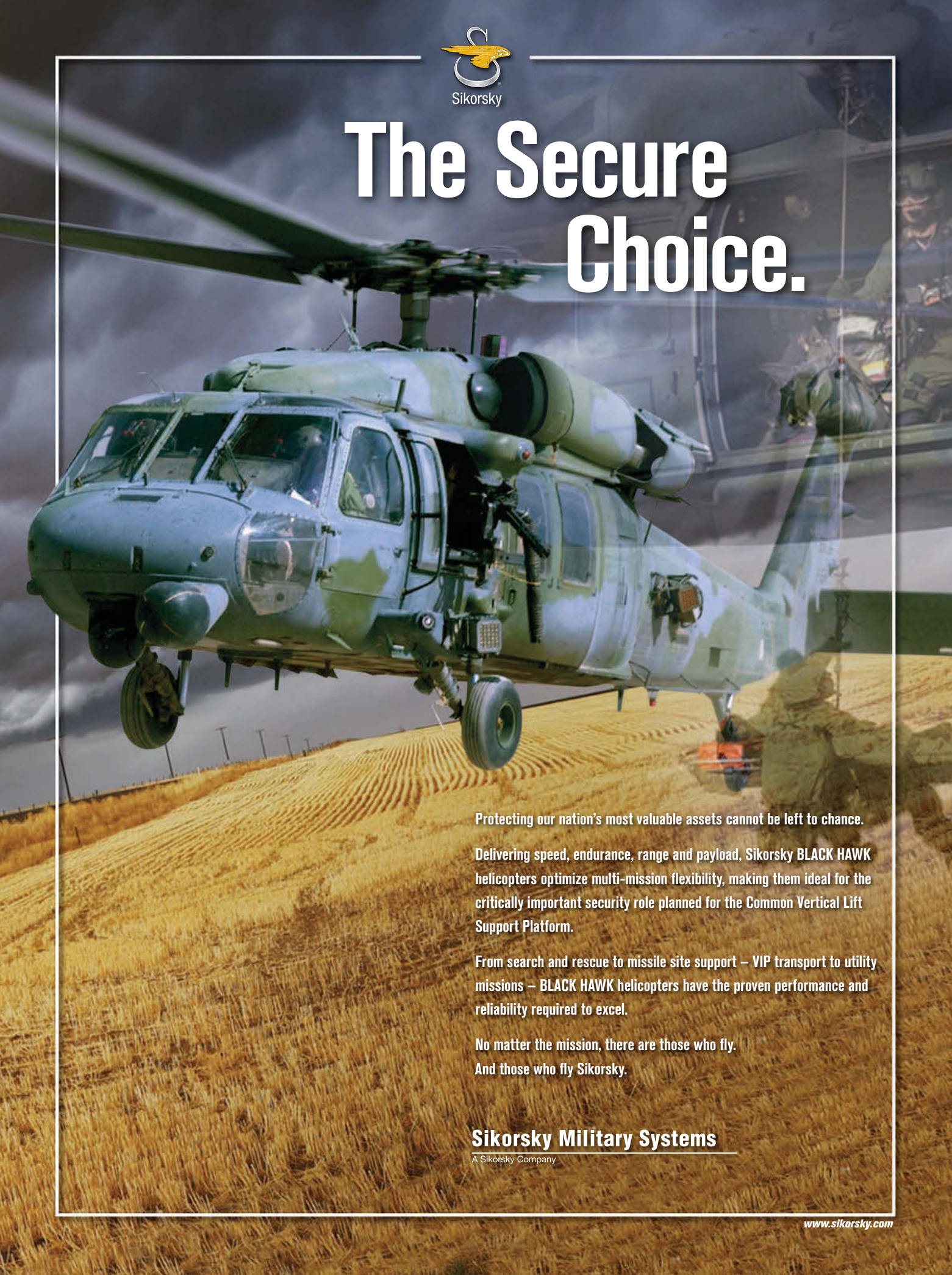
Malmstrom Land-use Study Starts

Local government officials in Cascade County, Mont., which encompasses Great Falls and Malmstrom Air Force Base, in March launched a year-long land-use study of the areas around the base, which is today home to a major ICBM force.

The *Great Falls Tribune* reported March 16 that the Matrix Design Group, a Phoenix-based company, will lead the effort, aimed at exploring existing and potential development around Malmstrom's facilities, which are in the north central part of the state, and potential conflicts such as wind farms and cell-phone towers.

A Dog's Life: *(l-r) Doc, Kisma, and Jampy, military working dogs assigned to the 56th Security Forces Squadron, take a break from the obstacle course at the military working dog kennels at Luke AFB, Ariz. All three dogs served for a decade or more, and were to be retired in April due to old age.*

USAF photo by SSgt. Jason Colbert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Rescue Helicopter Modernization Outlined

Plans for the Air Force to field a fleet of combat search and rescue helicopters to replace its aging HH-60G Pave Hawk fleet have begun to solidify in the wake of last year's cancellation of the Combat Search and Rescue Replacement Vehicle (CSAR-X) program, which the Air Force had hoped would produce the successor platforms.

Testifying before House defense appropriators March 10, Air Force Secretary Michael B. Donley said the service has an initiative in place to replace by mid-decade the HH-60G combat losses that it has incurred since 9/11. Then it will begin recapitalizing the Pave Hawk fleet with nondevelopmental new helicopters acquired competitively.

"What we have agreement on is to recapitalize those HH-60 aircraft, not with the new start, but essentially with an off-the-shelf kind of capability," thereby allowing for the fielding of these new airframes "in an affordable manner," he said.

According to Fiscal 2011 budget documents, the Air Force is planning to procure 15 Army new-build UH-60s between Fiscal 2010 and Fiscal 2012 and convert them to the Pave Hawk configuration to replace the combat losses and restore the current fleet to 112 airframes.

Beyond those replacements, the Air Force has earmarked $1.5 billion in its future years defense plan from Fiscal 2011 to Fiscal 2015 to recapitalize the rescue helicopter fleet with a new platform now dubbed the "Personnel Recovery Recapitalization" aircraft.

This amount would cover the buy of the first 36 of those new airframes, according to budget documents.

On March 23, the Air Force issued a notice seeking industry input on suitable platforms. Among the attributes, this aircraft must be capable of sustaining 130 knots true air speed and have an unrefueled combat mission radius of 220 nautical miles.

The service would like to issue the first production contract in Fiscal 2012, enabling it to have four trainer assets and four combat-ready aircraft in the fleet no later than Sept. 30, 2015, according to the notice.

The goal is to identify guidelines to limit encroachment on Air Force operations while encouraging well-planned growth in the area, according to the newspaper. In 2009, Cascade County received a Pentagon grant for this study.

WASPs Honored

The Women Airforce Service Pilots of World War II on March 10 received the Congressional Gold Medal, the highest honor that Congress may bestow upon civilians, at a gala ceremony in the US Capitol building attended by the Air Force leadership and senior members of Congress.

More than 200 WASP members, many wearing their World War II uniforms, were there in person, along with family and friends, to receive the award. It recognized the trailblazing contributions of the more than 1,100 WASPs who flew military aircraft in noncombat roles during the war to free up male pilots for combat.

On March 9, a wreath-laying ceremony was held at the Air Force Memorial in Arlington, Va., to honor the 38 WASPs who died in the line of duty. A reception followed at the Women in Military Service for America Memorial at Arlington National Cemetery.

Condor Questions Remain

Maine's Congressional delegation March 16 sent a letter to the FAA, urging the agency to hold a hearing in Maine over the Air National Guard's proposal to extend low-level fighter training routes in the Condor military operating area.

"Holding a hearing in Maine would help ensure that local residents and other stakeholders have the opportunity to voice their concerns directly to aviation officials," wrote Sen. Susan M. Collins (R), Sen. Olympia J. Snowe (R), Rep. Michael H. Michaud (D), and Rep. Chellie Pingree (D) in the joint missive.

The Air Guard wants the additional low-level routes, which lie over western Maine and a portion of New Hampshire, to train fighter units from Massachusetts and Vermont. However, after the final public meeting last fall, Maine Gov. John E. Baldacci (D) said he did not believe that the Air Guard had answered all relevant questions.

Luke Squadron Reactivated

Air Force Reserve Command reactivated the 69th Fighter Squadron March 5 at Luke AFB, Ariz. From 1969 to 1983, the squadron operated out of Luke as the 69th Tactical Flying Training Squadron, teaching German pilots to fly F-104s.

It was deactivated in 2001 at Moody AFB, Ga. In its new form, the 69th FS is organized under Luke's 944th Fighter Wing. It is constituted with members of Luke's 301st FS who changed their patch during the reactivation ceremony.

They will work with Luke's active duty 56th FW to train F-16 pilots. The 301st FS is transferring to Holloman AFB, N.M., to join active duty airmen there in operating F-22s. Its standup was scheduled for April.

ANG Shifts Aeromedical Unit

The West Virginia Air National Guard's 167th Airlift Wing at Martinsburg, W.Va.,

USAF photo by SMSgt. Joy Josephson

Getting Greener: ***An A-10C Thunderbolt II from Eglin AFB, Fla., powered by a biomass-derived jet fuel blend of 50 percent Hydrotreated Renewable Jet fuel and 50 percent JP-8, follows the Florida coast on March 25. This was the first flight of an aircraft powered solely with such a blend.***

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Air Force Takes Lead in MOP Testing

The Air Force in mid-March conducted the first flight test of the 30,000-pound Massive Ordnance Penetrator under an initiative aimed at integrating the bunker-busting behemoth on the B-2A stealth bomber and fielding this capability as soon as possible.

Boeing is under contract to supply the MOP, which would give the US the powerful non-nuclear means of taking out deeply buried and hardened facilities such as weapons labs that may be beyond the reach of existing bunker busters. Potential foes are believed to be tunneling ever deeper in an attempt to evade US reach.

During the mid-March quick-reaction-capability test, a MOP was actually dropped from a B-52H bomber as a prelude to seven planned flight tests from the B-2.

"Data about individual tests are not being released at this time," said Air Force spokesman Capt. Dave Faggard on March 23.

The Air Force took the lead for MOP testing from the Defense Threat Reduction Agency, which concluded a MOP technology demonstration in January.

That demonstration featured five test drops from the B-52. Three of these flight tests featured MOPs with live warheads, said a Pentagon spokeswoman March 15. At least some of these test activities occurred at White Sands Missile Range, N.M.

Here, too, the details are sketchy on the performance of the munition.

Air Force Secretary Michael B. Donley and Chief of Staff Gen. Norton A. Schwartz told a House oversight panel March 10 that the Pentagon had had "mixed results" with MOP up to that point.

Despite that, they said they were "closely monitoring" MOP's progress, and "future successes likely will result in a reprogramming request to accelerate its development in Fiscal 2010."

The Pentagon was staying mum on when the first MOPs might be available for operations.

will be transferring its aeromedical evacuation squadron to the West Virginia ANG's 130th AW at Yeager Airport in Charleston, according to local press reports in late February.

The *Charleston Gazette* reported Feb. 24 that the 167th AW, having completed the conversion from C-130 transports to much larger C-5 airlifters in April 2009, can no longer support the aeromedevac mission. Accordingly, its 167th Aeromedical Evacuation Squadron will move to Yeager Airport beginning this fall to be housed in existing buildings used by the 130th AW, which flies C-130s.

Airman's Remains Identified

The Department of Defense announced March 16 that it had identified the remains of Maj. Curtis Daniel Miller of Palacios, Tex., an airman whose AC-130A gunship was shot down over Laos on March 29, 1972. On the 38th anniversary of his loss, his remains were laid to rest with full military honors in Dallas.

Miller was part of the 14-member crew aboard the gunship, which took off from Ubon RTAB, Thailand, on an armed reconnaissance mission over southern Laos. During the flight, an enemy surface-to-air missile downed the aircraft; heavy enemy activity prevented more than a few days of search and rescue efforts.

In 1986, a recovery team excavated the crash site, finding remains that led to identification of nine crew members. In 2005 and 2006, additional excavations took place that found more remains and enabled the identification of the remaining crew members, all of whom have now been accounted for, according to DOD.

Former Academy Superintendent Dies

Retired Lt. Gen. Albert P. Clark, sixth superintendent of the US Air Force Academy, whose exploits as a POW during World War II helped to inspire the Hollywood classic "The Great Escape," died March 8 in Colorado Springs, Colo. He was 96.

Clark was born in 1913 in Hawaii. He became a pilot after graduating from West Point in 1936. Flying with the 31st Fighter Group out of Britain during World War II, his fighter was shot down in July 1942 over France, and he spent the next 33 months as a POW at Stalag Luft III in what is now Poland.

He is credited with playing a critical role in the escape of 76 POWs from the camp in 1944, according to his *Los Angeles Times* obituary on March 16. Clark was USAFA's top general from August 1970 to July 1974. He was buried at the academy on March 17. ■

News Notes

■ Retired Col. Francis X. Kane, a leader in the development of Global Positioning System satellites, was inducted into the Air Force Space and Missile Pioneers Hall of Fame during a ceremony March 2 at Lackland AFB, Tex.

■ An F-16C fighter assigned to the 36th Fighter Squadron at Osan AB, South Korea, crashed during landing Feb. 25 during a routine training mission. The pilot ejected safely, said Osan officials.

■ President Obama on March 1 signed an executive order restoring the Army, Navy, and Air Force Secretaries to the second, third, and fourth positions, respectively, behind the deputy defense secretary in the Pentagon's order of leadership succession.

■ The New York Air National Guard's 174th Fighter Wing at Hancock Field near Syracuse said goodbye to its final two F-16 fighters on March 6, as part of its transition, per BRAC 2005, to operating MQ-9 Reaper remotely piloted aircraft.

■ Four junior and 20 sophomore US Air Force Academy cadets on Feb. 25 received the first unmanned aerial systems-remotely piloted aircraft wings awarded in the institution's 55-year history.

■ Airmen on March 10 dedicated the street and new house at JB Andrews, Md., where the current Chief Master Sergeant of the Air Force resides, in honor of Paul W. Airey, first Chief Master Sergeant of the Air Force, who died March 11, 2009.

■ Maj. William Gottenberg, a pilot assigned to the 99th Reconnaissance Squadron at Beale AFB, Calif., on March 9 completed his 100th combat mission in the U-2 reconnaissance aircraft. He flew a sortie that day over Southwest Asia.

■ The House voted 410 to zero on March 19 to designate the memorial under construction at March Field Air Museum in California as the Distinguished Flying Cross National Memorial to honor all current and former DFC recipients. ■


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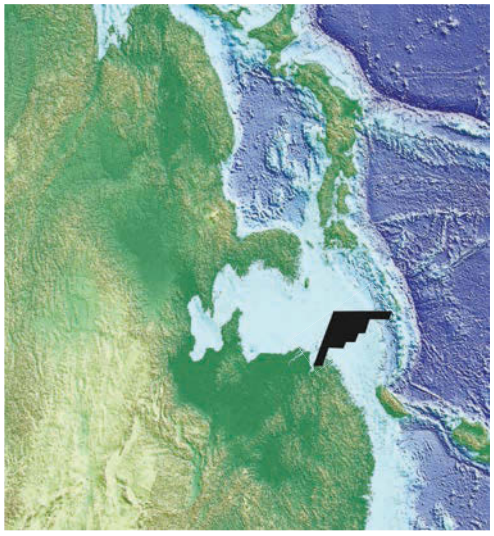
Issue Brief

By Adam J. Hebert, Executive Editor

Behind the Taiwan Arms Sales

Adm. Robert F. Willard, the chief of United States Pacific Command, came to Congress on March 25 with a blunt warning: China's rapid military buildup is affecting the regional balance of power. "Of particular concern," he added, "is that elements of China's military modernization appear designed to challenge our freedom of action in the region."

The stakes in these "anti-access" moves are enormous. To no one's surprise, Pacific Command is working to upgrade equipment, harden bases, disperse forces, and create new concepts of operation to ensure US forces can defeat Chinese attempts at "lockout."



That is not all that is going on, however. Less frequently remarked has been Washington's effort to build up the self-defense capabilities of friendly nations on the Pacific rim. Case in point: Taiwan, where the US can strengthen its position even without any direct military presence.

In late January, the Obama Administration announced approval of an arms sale package to Taiwan worth some $6.4 billion. The arms package comprised, in part, 114 Patriot air defense missiles worth $3 billion, 60 Black Hawk utility helicopters worth $3.1 billion, and communications gear needed to upgrade Taiwan's small fleet of F-16 fighters. Taiwan would also receive Harpoon anti-ship missiles and several mine-hunting ships.

It was the second significant bilateral arms transfer agreement in recent years. The Pentagon announced in October 2008, under the Bush Administration, that it was selling Taiwan $6.6 billion worth of weapons.

Taiwan's original shopping list, first presented in the Bush years, included more F-16 fighters as well as submarines. Action on these was deferred by the Bush Administration. President Obama also has deferred a decision on F-16s.

While there was nothing particularly new about all this, China's regime expressed its standard outrage, lodging a formal protest. Put to use by capable troops, these purely defensive weapons could greatly complicate any future Chinese attempt to isolate or even occupy Taiwan.

Washington's willingness to move forward, even in the face of vehement Chinese protests, is seen by many as a clear signal that the US will support its interests in Asia and honor commitments to its allies.

The military balance in the Taiwan Strait favors Beijing, and democratic Taiwan's disadvantage has been quickly growing more severe.

Willard said China's "continued military advancements sustain a trend of shifting the cross-strait military balance in Beijing's favor." He noted that the Taiwan Relations Act pledges the US to supply Taiwan with defensive arms and maintain US ability to defend the island.

One of Taipei's defense problems is that Beijing has more—and better—combat aircraft positioned near the strait.

"Taiwan recognizes that it needs a sustainable replacement for obsolete and problematic aircraft platforms," notes a recent Defense Intelligence Agency assessment. Since 2006, Taiwan has sought 66 advanced F-16 fighters, but still has gotten no official response from Washington.

Taiwan has fewer than 400 combat aircraft. China has 490 within unrefueled range of the island. A Pentagon China report notes that "this number could be significantly increased through any combination of aircraft forward deployment, decreased ordnance loads, or altered mission profiles."

Even more troublesome is the state of the equipment that Taiwan does have. Its inventory includes 56 French-built Mirage 2000s that are so troublesome that Taiwan's military leadership wants to mothball them.

Taipei owns 60 US-supplied F-5s used primarily as trainers, but DIA says, "The number of operationally capable aircraft is likely much less, possibly in the low 30s," and they have "reached the end of their operational service life."

Taiwan also owns 126 indigenous F-CK-1 fighters with limited combat range and payload capacity. The fighter also "lacks the capability for sustained sorties"—restricting the F-CK-1's effectiveness in air-to-air combat, DIA asserts.

That leaves 146 older F-16A/B fighters Taiwan purchased from the US in 1992. Since that time, China has bought Su-27 and Su-30 fighters from Russia and fielded its indigenous J-10 fighter, all of which threaten Taiwan's ability to control the skies over the island.

Sixty-six F-16s would not alter the balance of power across the Taiwan Strait, but it would allow the nation to stand down its troublesome Mirages and F-5s, and would represent less than half of the number of F-16s that the Taiwan Air Force already flies.

China's actions threaten to seriously erode US ability to project its military power in the vital Far East, home of allies such as Japan and South Korea, as well as Taiwan. This concerns defense analyst Andrew F. Krepinevich Jr., president of the Center for Strategic and Budgetary Assessments in Washington, D.C.

In a recent paper, Krepinevich warned that China's anti-access effort now confronts US leaders with "a strategic choice of the first magnitude: Either acquiesce in the advent of a new world order in which the United States can no longer freely access areas crucial to its economic well-being, or effectively assist key allies and partners in those areas in defending themselves from aggression or coercion."

Yet to be seen is whether Washington will finally bite the bullet and make high-performance F-16s part of the equation. ■

More information: http://media.washingtontimes.com/media/docs/2010/Feb/24/diaassessment.pdf

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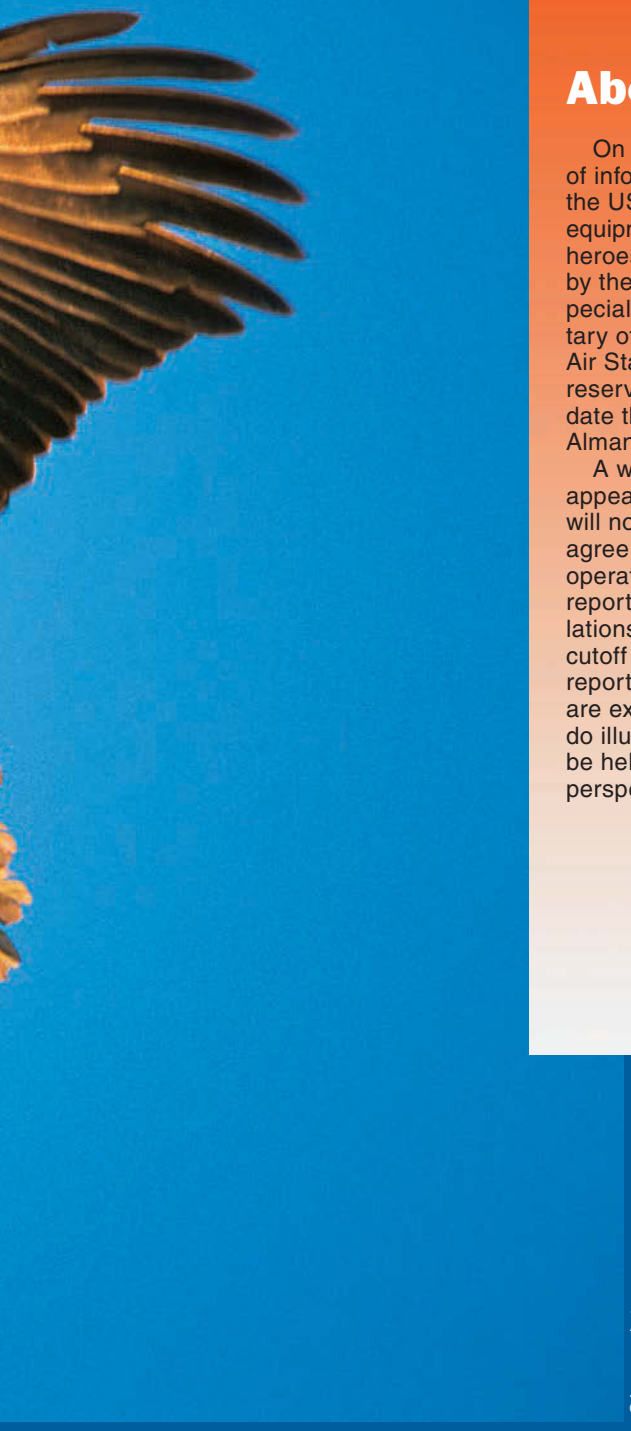

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About the Almanac

On the following pages appear 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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Edited by Tamar A. Mehuron, Associate Editor

The Air Force in Facts and Figures

2010 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 Air Force units fall under a **major command,** which has broad functional responsibilities. Major commands may be divided into **numbered air forces.**

The fundamental unit of the working Air Force is the **wing.** 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 airmen are assigned to a **squadron,** which may comprise several **flights.**

In addition to these units, there are 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" operating in five pairs.

Initially, combat air forces **(CAF)** deployed for a 90-day AEF rotation, with mobility air forces **(MAF)** and low-density, high-demand **(LD/HD)** forces operating on longer deployments as needed. In 2004, USAF went to a basic 120-day rotation, while LD/HD forces normally deployed for 180 days. (USAF's LD/HD forces, including battle management, battlefield airmen, and reconnaissance assets, are in near constant use and rotate more frequently than most CAF and MAF elements.)

In 2009, USAF began arraying its airmen in Tempo Bands with different deployment-to-dwell ratios. For instance, Tempo Band A, which serves as the baseline group predominantly for CAF forces, deploys for 120 days with a 1:4 ratio—four months deployed to 16 months dwell time. Tempo Bands B through E operate on 180-day rotations, each with its own deploy-to-dwell ratio: B at 1:4, C at 1:3, D at 1:2, and E at 1:1. Thus, an airman in Band C, for instance, would have a six-month deployment followed by 18 months dwell time. ■

Current Air Force Leaders

		Date in Position
Secretary of the Air Force	Michael B. Donley	Oct. 17, 2008
Air Force Chief of Staff	Gen. Norton A. Schwartz	Aug. 12, 2008
Chief Master Sergeant of the Air Force	CMSAF James A. Roy	June 30, 2009

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 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	Aug. 27, 2009
Gen. Carrol H. Chandler	Aug. 27, 2009	

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	

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	June 30, 2009
CMSAF James A. Roy	June 30, 2009	

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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	Sept. 10, 2009
Gen. William M. Fraser III	Sept. 10, 2009	

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, a FOA, July 1, 1991.

Air Force Global Strike Command

Lt. Gen. Frank G. Klotz	Aug. 7, 2010	

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	

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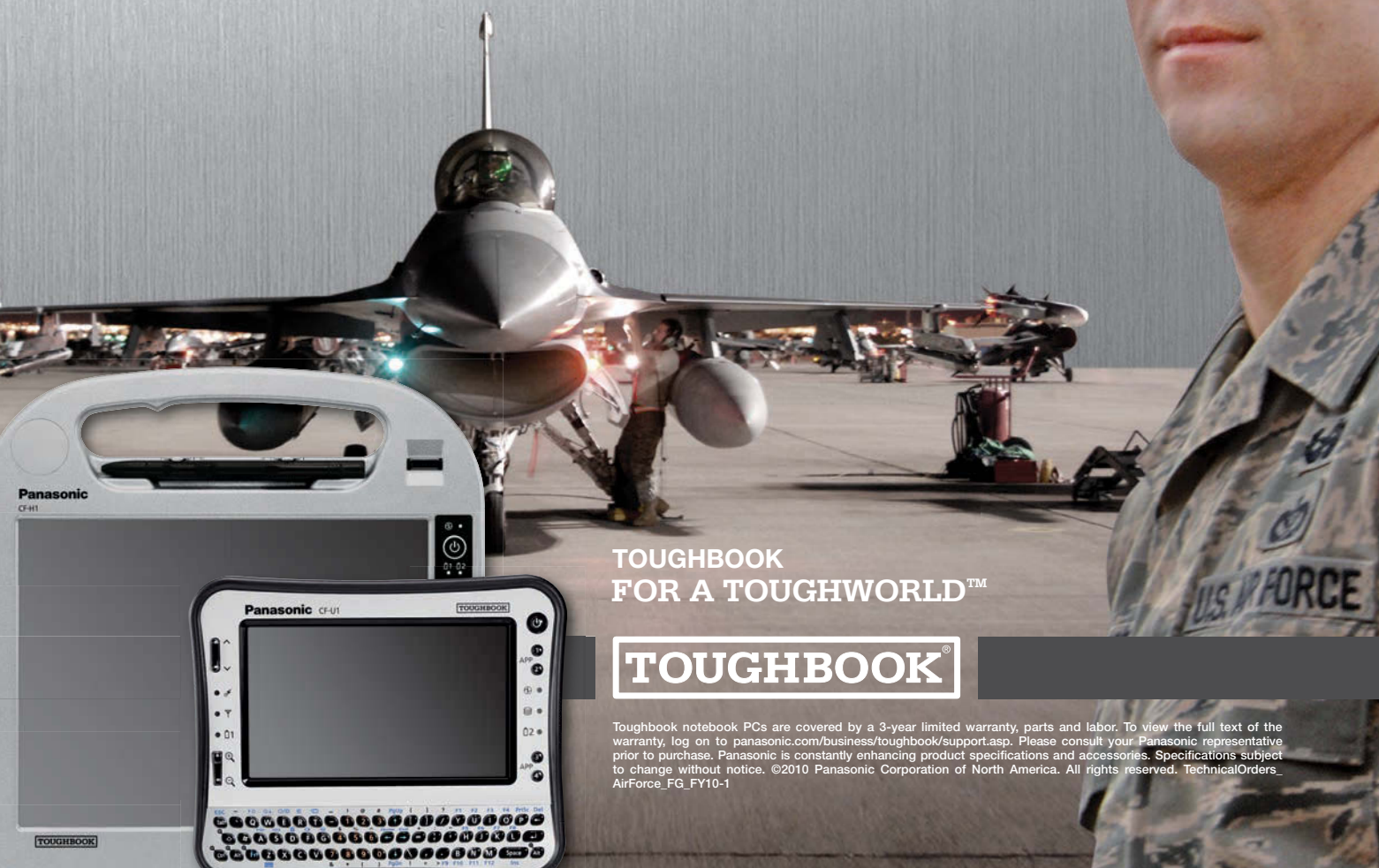

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Air Force Reserve Command

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	Nov. 20, 2009
Gen. Raymond E. Johns Jr.	Nov. 20, 2009	

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.

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Alaskan Air Command

Brig. Gen. Joseph H. Atkinson	Oct. 1, 1946	Feb. 25, 1949
Brig. Gen. Frank A. Armstrong Jr.	Feb. 26, 1949	Dec. 27, 1950
Maj. Gen. William D. Old	Dec. 27, 1950	Oct. 14, 1952
Brig. Gen. W. R. Agee	Oct. 27, 1952	Feb. 26, 1953
Maj. Gen. George R. Acheson	Feb. 26, 1953	Feb. 1, 1956
Brig. Gen. T. Alan Bennett (acting)	Feb. 1, 1956	Feb. 24, 1956
Lt. Gen. Joseph H. Atkinson	Feb. 24, 1956	July 16, 1956
Maj. Gen. Frank A. Armstrong Jr.	July 17, 1956	Oct. 23, 1956
Maj. Gen. James H. Davies	Oct. 24, 1956	June 27, 1957
Lt. Gen. Frank A. Armstrong Jr.	June 28, 1957	Aug. 18, 1957
Brig. Gen. Kenneth H. Gibson	Aug. 19, 1957	Aug. 13, 1958
Maj. Gen. C. F. Necrason	Aug. 14, 1958	July 19, 1961
Brig. Gen. Jack A. Gibbs (acting)	July 20, 1961	July 25, 1961
Maj. Gen. Wendell W. Bowman	July 26, 1961	Aug. 8, 1963
Col. Alfred Walton (acting)	Aug. 9, 1963	Aug. 14, 1963
Maj. Gen. James C. Jensen	Aug. 15, 1963	Nov. 14, 1966
Maj. Gen. Thomas E. Moore	Nov. 15, 1966	July 24, 1969
Maj. Gen. Joseph A. Cunningham	July 25, 1969	July 31, 1972
Maj. Gen. Donavon F. Smith	Aug. 1, 1972	June 5, 1973
Maj. Gen. Charles W. Carson Jr.	June 18, l973	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.

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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	Aug. 19, 2009
Gen Gary L. North	Aug. 19, 2009	

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	June 9, 2009
Lt. Gen. Michael C. Gould	June 9, 2009	

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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	June 30, 2009
Adm. James G. Stavridis, USN	June 30, 2009	

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	Oct. 19, 2009
Adm. Robert F. Willard, USN	Oct. 19, 2009	

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US Southern Command

Lt. Gen. Willis Crittenberger, USA	November 1947	June 1948
Lt. Gen. Matthew B. Ridgway, USA	June 1948	October 1949
Lt. Gen. William H. H. Morris, USA	October 1949	April 1952
Lt. Gen. Horace L. McBride, USA	April 1952	June 1954
Lt. Gen. William K. Harrison, USA	June 1954	January 1957
Lt. Gen. Robert M. Montague, USA	January 1957	February 1958
Lt. Gen. Ridgely Gaither, USA	April 1958	July 1960
Lt. Gen. Robert F. Sink, USA	July 1960	January 1961
Lt. Gen. Andrew P. O'Meara, USA	January 1961	June 1963
Gen. Andrew P. O'Meara, USA	June 1963	February 1965
Gen. Robert W. Porter, USA	February 1965	February 1969
Gen. George R. Mather, USA	February 1969	September 1971
Gen. George V. Underwood, USA	September 1971	January 1973
Gen. William B. Rosson, USA	January 1973	July 1975
Lt. Gen. Dennis P. McAuliffe, USA	August 1975	September 1979
Lt. Gen. Wallace H. Nutting, USA	October 1979	May 1983
Gen. Paul F. Gorman, USA	May 1983	March 1985
Gen. John R. Galvin, USA	March 1985	June 1987
Gen. Fred F. Woerner, USA	June 1987	July 1989
Gen. Maxwell R. Thurman, USA	September 1989	November 1990
Gen. George A. Joulwan, USA	November 1990	November 1993
Maj. Gen. W. A. Worthington, USA	December 1993	January 1994
Gen. Barry McCaffrey, USA	February 1994	February 1996
RAdm. James Perkins, USN	March 1996	June 1996
Gen. Wesley K. Clark, USA	July 1996	July 1997
Gen. Charles E. Wilhelm, USMC	August 1997	Sept. 8, 2000
Gen. Peter Pace, USMC	Sept. 8, 2000	Sept. 30, 2001
Maj. Gen. G. D. Speer, USA (acting)	Sept. 30, 2001	Aug. 18, 2002
Gen. James T. Hill, USA	Aug. 18, 2002	Nov. 9, 2004
Gen. Bantz J. Craddock, USA	Nov. 9, 2004	Oct. 19, 2006
Adm. James G. Stavridis, USN	Oct. 19, 2006	June 25, 2009
Gen. Douglas M. Fraser	June 25, 2009	

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

2010 USAF Almanac

USAF Total Force

(As of Sept. 30, 2009)

	FY04	FY05	FY06	FY07	FY08	FY09	FY10
Air Force active duty							
Officers	74,109	73,252	70,539	65,722	64,805	65,496	63,866
Enlisted	298,314	276,117	273,990	263,372	258,092	263,351	263,834
Cadets	4,193	4,327	4,424	4,401	4,482	4,561	4,000
Total Air Force active duty	**376,616**	**353,696**	**348,953**	**333,495**	**327,379**	**333,408**	**331,700**
Civilian personnel							
Direct hire (excluding technicians)	124,959	125,809	130,572	121,124	122,703	123,106	135,094
ANG technicians	22,416	22,322	21,997	22,724	22,342	22,391	22,712
AFRC technicians	9,204	9,445	9,435	9,172	9,500	9,147	10,437
Indirect hire—foreign nationals	6,146	6,589	6,935	6,496	6,563	6,346	6,359
Total civilian personnel	**162,725**	**164,165**	**168,939**	**159,516**	**161,108**	**160,990**	**174,602**
Guard and Reserve							
Air National Guard, Selected Reserve	106,715	106,430	105,660	106,256	107,681	109,196	106,700
AFRC, Selected Reserve	75,322	75,802	74,075	71,146	67,490	67,986	69,500
AFRC, Individual Ready Reserve	37,015	48,750	44,904	45,469	49,301	43,182	42,056
Total Ready Reserve	**219,052**	**230,982**	**224,639**	**222,871**	**224,472**	**220,364**	**218,256**
Standby	17,340	15,241	10,932	10,675	10,384	10,530	9,457
Total Guard and Reserve	**236,392**	**246,223**	**235,571**	**233,546**	**234,856**	**230,894**	**227,713**

FYs 2004-09 are actual figures; FY10 is an estimate.

Armed Forces Manpower Trends, End Strength in Thousands

(As of Sept. 30, 2009)

	FY04	FY05	FY06	FY07	FY08	FY09	FY10
Active duty military							
Air Force	377	354	349	334	328	333	332
Army	500	493	505	522	544	553	562
Marine Corps	178	180	180	187	199	203	202
Navy	373	363	350	338	332	329	329
Total	**1,428**	**1,390**	**1,384**	**1,381**	**1,403**	**1,418**	**1,425**
Selected Guard and Reserve							
Air National Guard	107	106	106	106	107	109	107
AFRC	75	76	74	71	68	68	70
Army National Guard	343	333	346	353	351	358	358
Army Reserve	204	189	190	190	198	205	205
Marine Corps Reserve	40	40	40	39	40	39	40
Naval Reserve	83	76	71	70	68	67	66
Total	**852**	**820**	**827**	**829**	**832**	**846**	**846**
Direct-hire civilian (full-time equivalents)							
Air Force	154	155	158	156	155	155	168
Army	209	221	220	220	262	247	234
Navy/Marine Corps	183	179	178	176	182	186	189
Defense agencies	105	108	104	105	96	115	126
Total	**651**	**663**	**660**	**657**	**695**	**703**	**717**

USAF Educational Levels

(As of Sept. 30, 2009)

	Number	Percent
Enlisted		
High school	13,168	5.0
Some college (< 2 years)	183,819	69.8
AA/AS degree or equivalent hours	49,773	18.9
Bachelor's degree	14,221	5.4
Master's degree	2,370	0.9
Professional or doctoral degree	0.0	0.0
Total	**263,351**	**100**
Officers		
Bachelor's degree	30,587	46.7
Master's degree	27,705	42.3
Doctoral degree	917	1.4
Professional degree	6,288	9.6
Total	**65,496**	**100**

Does not include cadets.

USAF Marital Status

(As of Sept. 30, 2009)

Total percent married	59.3
Percent of enlisted	56.3
Percent of officers	71.2
Number of USAF couples	16,394
Number married to members of other services	1,373

Active Duty Air Force Personnel Strength

(As of Sept. 30, 2009)

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	333,408
1940	51,165	1975	612,551	2010	331,700
1941	152,125	1976	585,207		

2010 number is an estimate.

Active Duty Ranks

(As of Sept. 30, 2009)

Rank	Men	Women	Total
Officers			
General	14	0	14
Lieutenant General	38	1	39
Major General	96	10	106
Brigadier General	139	17	156
Colonel	3,275	401	3,676
Lieutenant Colonel	8,752	1,330	10,082
Major	11,636	2,409	14,045
Captain	18,563	4,801	23,364
First Lieutenant	5,590	1,618	7,208
Second Lieutenant	5,296	1,510	6,806
Total	**53,399**	**12,097**	**65,496**
Enlisted			
Chief Master Sergeant of the Air Force	1	0	1
Chief Master Sergeant	2,368	273	2,641
Senior Master Sergeant	4,509	669	5,178
Master Sergeant	22,291	3,868	26,159
Technical Sergeant	33,530	7,975	41,505
Staff Sergeant	54,276	14,666	68,942
Sergeant/Senior Airman	40,983	10,903	51,886
Airman First Class	38,655	10,254	48,909
Airman	5,928	1,451	7,379
Airman Basic	8,845	1,906	10,751
Total	**211,386**	**51,965**	**263,351**
Academy Cadets	3,639	922	4,561
Total Personnel	**268,424**	**64,984**	**333,408**

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

The Civilian Force

(As of Sept. 30, 2009)

Payband	NSPS[a]	Grade	General Schedule/ Other	Wage Grade	Wage Grade Leader	Wage Grade Supervisor
1	4,439	1	1	6	0	0
2	31,747	2	33	84	4	12
3	3,982	3	242	278	0	16
4	26	4	1,523	104	3	23
		5	5,062	561	15	52
		6	3,098	941	29	80
		7	7,064	1,068	29	125
		8	1,110	2,075	124	187
		9	8,301	2,255	228	698
		10	533	12,607	958	1,054
		11	10,476	3,295	250	420
		12	9,901	1,518	106	207
		13	2,881	267	28	175
		14	311	29	1	150
		15	63	1	1	80
		16	0	0	0	57
		17	0	0	0	33
		18	0	0	0	9
		ST[b]	0			
		SES[c]	282			
		Other	63			
Total	**40,194**	**Total**	**50,944**	**25,089**	**1,776**	**3,378**

Air Force Civilian Personnel

	Average Age	Average Length of Service
General Schedule	**47**	**15.5**
NSPS	**47**	**15.4**
Wage System	**44**	**13.6**
Wage System Leader	**49**	**19.5**
Wage System Supervisor	**49**	**21.3**

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

Does not include 2,689 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, 2009)

	Military	Civilian	Total
Major Commands			
Air Combat Command (ACC)	77,892	10,371	88,263
Air Education and Training Command (AETC)	59,959	14,557	74,516
Air Force Global Strike Command (AFGSC)	175	1	176
Air Force Materiel Command (AFMC)	18,627	58,131	76,758
Air Force Reserve Command (AFRC)	286	13,031	13,317
Air Force Space Command (AFSPC)	20,725	7,906	28,631
Air Force Special Operations Command (AFSOC)	12,274	830	13,104
Air Mobility Command (AMC)	45,975	8,800	54,775
Pacific Air Forces (PACAF)	29,763	8,131	37,894
United States Air Forces in Europe (USAFE)	25,644	5,712	31,356
Total Major Commands	**291,320**	**127,470**	**418,790**
Field Operating Agencies (FOAs)			
Air Force Agency for Modeling and Simulation	9	13	22
Air Force Audit Agency	0	726	726
Air Force Center for Engineering & the Environment	31	468	499
Air Force Civil Engineer Support Agency	83	117	200
Air Force Cost Analysis Agency	28	86	114
Air Force Financial Services Center	347	50	397
Air Force Flight Standards Agency	150	50	200
Air Force Global Cyberspace Integration Center	78	1	79
Air Force Historical Research Agency	0	57	57
Air Force Inspection Agency	88	34	122
Air Force Intelligence Analysis Agency	69	56	125
Air Force Intel, Surveillance, & Reconnaissance Agency	11,511	1,852	13,363
Air Force Legal Operations Agency	495	243	738
Air Force Logistics Management Agency	38	16	54
Air Force Manpower Agency	165	287	452
Air Force Medical Operations Agency	181	121	302
Air Force Medical Support Agency	164	60	224
Air Force Office of Special Investigations	1,518	630	2,148
Air Force Operations Group	52	0	52
Air Force Personnel Center	765	951	1,716
Air Force Personnel Operations Agency	14	41	55
Air Force Petroleum Agency	30	64	94
Air Force Public Affairs Agency	151	16	167
Air Force Real Property Agency	0	91	91
Air Force Review Boards Agency	12	49	61
Air Force Safety Center	50	73	123
Air Force Security Forces Center	341	36	377
Air Force Services Agency	57	163	220
Air Force Weather Agency	944	180	1,124
Air National Guard Readiness Center	92	579	671
Total FOAs	**17,463**	**7,110**	**24,573**
Direct Reporting Units (DRUs)			
Air Force District of Washington	4,232	1,362	5,594
Air Force Operational Test and Evaluation Center	398	158	556
United States Air Force Academy (excluding cadets)	2,061	1,398	3,459
Total DRUs	**6,691**	**2,918**	**9,609**
Other			
Other	13,373	23,492	36,865
USAFA Cadets	4,561	0	4,561
Total Other	**17,934**	**23,492**	**41,426**
Total Strength	**333,408**	**160,990**	**494,398**

USAF Personnel by Geographic Area

(As of Sept. 30, 2009)

Total military personnel	**333,408**
US territory and special locations	**276,247**
Total in foreign countries	**57,161**
Western and Southern Europe	**30,902**
Germany	14,741
UK	8,479
Italy	4,080
Turkey	1,528
Portugal	655
Belgium	450
Spain	369
All other countries	600
East Asia and Pacific	**21,043**
Japan/Okinawa	12,711
South Korea	8,202
All other countries	130
Africa, Near East, South Asia	**741**
Djibouti	217
Qatar	186
United Arab Emirates	83
Saudi Arabia	81
All other countries	174
Western Hemisphere	**327**
Honduras	177
Canada	83
All other countries	67
Other areas	**4,148**

Photo by Greg L. Davis

SrA. Louis Hause, a pararescueman with the 38th Rescue Squadron, Moody AFB, Ga.

When their terrain changes VERSATILITY is key.

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WEIGHT - 0.95 lbs (430 g)

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ENDURANCE - 60–90 minutes
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PUMA AE
RANGE - 15 km
ENDURANCE - 2 hours
WEIGHT - 13 lbs (5.9 kg)

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Budgets

Terms Explained

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

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

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

Air Force Budget—A 10-Year Perspective

(Budget authority in millions of current and constant FY11 dollars; excludes costs of the Global War on Terror.)

Current dollars	**FY01**	**FY02**	**FY03**	**FY04**	**FY05**	**FY06**	**FY07**	**FY08**	**FY09**	**FY10**
Military personnel	$20,956	$24,751	$28,732	$29,681	$30,344	$31,398	$31,789	$32,180	$33,482	$34,835
Operation & maintenance	29,328	34,364	43,254	39,252	39,752	46,709	48,237	52,225	55,229	52,313
Procurement	22,054	23,229	31,380	32,460	35,117	35,989	39,542	43,816	44,182	40,027
RDT&E	14,297	14,519	18,825	20,290	20,551	22,220	24,566	26,630	26,289	28,175
Military construction	1,410	1,806	1,634	1,831	1,499	2,183	2,328	3,089	3,102	2,845
Family housing	1,084	1,374	1,536	1,441	1,680	2,086	1,900	1,001	1,087	569
Rev. & mgmt. funds	515	292	31	690	-667	1,252	666	-934	251	79
Trust & receipts	-95	-108	-147	-110	-359	-180	-80	-96	-96	-136
Total	**$89,549**	**$100,228**	**$125,245**	**$125,536**	**$127,918**	**$141,657**	**$148,947**	**$157,909**	**$163,526**	**$158,707**
Constant FY11 dollars										
Military personnel	$26,315	$30,591	$34,713	$34,917	$34,523	$34,615	$34,091	$32,247	$34,731	$35,288
Operation & maintenance	36,828	42,473	52,258	46,177	45,227	51,494	51,730	53,957	57,290	52,993
Procurement	27,694	28,710	37,913	38,186	39,954	39,676	42,406	45,269	45,831	40,547
RDT&E	17,953	17,945	22,744	23,869	23,381	24,496	26,345	27,513	27,270	28,541
Military construction	1,771	2,232	1,974	2,154	1,705	2,407	2,497	3,191	3,218	2,882
Family housing	1,361	1,698	1,856	1,695	1,911	2,300	2,038	1,034	1,128	576
Rev. & mgmt. funds	647	361	37	812	-759	1,380	714	-965	260	80
Trust & receipts	-119	-133	-178	-129	-408	-198	-86	-99	-100	-138
Total	**$112,450**	**$123,878**	**$151,318**	**$147,682**	**$145,536**	**$156,170**	**$159,734**	**$163,146**	**$169,627**	**$160,770**
Percentage real growth										
Military personnel	0.8	16.2	13.5	0.6	-1.1	0.3	-1.5	-2.5	4.5	1.6
Operation & maintenance	4.7	15.3	23.0	-11.6	-2.1	13.9	0.5	4.3	6.2	-7.5
Procurement	14.4	3.7	32.1	0.7	4.6	-0.7	6.9	6.8	1.2	-11.5
RDT&E	-4.2	0.0	26.7	4.9	-2.0	4.8	7.5	4.4	-0.9	4.7
Military construction	16.8	26.1	-11.6	9.1	-20.8	41.1	3.7	27.8	0.8	-10.4
Family housing	-8.9	24.8	9.3	-8.7	12.8	20.3	-11.4	-49.2	9.0	-48.9
Total	**4.9**	**10.2**	**22.2**	**-2.4**	**-1.5**	**7.3**	**2.3**	**2.1**	**4.0**	**-5.2**

Numbers do not add due to rounding.

Air Force Major Force Programs

(Total obligation authority in billions of constant FY11 dollars)

	FY01	**FY02**	**FY03**	**FY04**	**FY05**	**FY06**	**FY07**	**FY08**	**FY09**
Forces									
Strategic Forces	$4.9	$5.7	$6.3	$6.5	$4.6	$6.3	$5.9	$5.8	$5.3
General-Purpose Forces	27.9	33.0	42.5	38.6	57.8	40.7	37.5	39.1	39.1
Airlift Forces	13.1	15.1	18.2	16.0	13.8	18.4	16.8	13.6	11.6
Guard and Reserve Forces	10.7	11.1	12.0	12.5	12.6	13.7	13.5	13.8	14.4
Special Operations Forces	0.5	0.6	0.6	0.7	0.0	0.7	0.8	0.9	0.9
Total	**$57.0**	**$65.5**	**$79.7**	**$74.2**	**88.9**	**$79.7**	**$74.5**	**$73.3**	**$71.4**
Support									
Intelligence & Communications	$26.9	$28.3	$36.8	$37.5	37.1	$41.9	$39.9	$40.7	$43.9
Research & Development	8.9	8.5	10.5	11.5	9.7	10.9	10.9	10.2	10.0
Central Supply & Maintenance	6.2	6.2	7.2	6.5	5.2	5.7	5.3	5.8	5.7
Training, Medical, & Personnel	11.4	12.7	14.3	14.5	6.5	13.9	12.5	11.7	11.8
Administration & Other	2.1	2.2	2.7	2.9	2.4	2.9	2.3	2.4	2.8
Total	**$55.5**	**$58.0**	**$71.4**	**$72.9**	**$60.9**	**$75.3**	**$70.9**	**$70.8**	**$74.2**

Numbers do not add due to rounding.

Defense Budget Authority

($ billions)

	2009	2010	2011	Planned 2012	2013	2014	2015
No War Costs, Current dollars							
	$513.3	$530.7	$548.9	$566.4	$581.8	$597.8	$616.0
No War Costs, Constant FY11 dollars							
	$532.5	$537.6	$548.9	$559.0	$567.3	$576.0	586.4
With War Costs, Current dollars							
	$658.4	$660.3	$708.2	$616.4	$631.8	$647.8	666.0
With War Costs, Constant FY11 dollars							
	$683.0	$668.9	$708.2	$608.4	$616.1	$624.1	634.0

Defense Outlays

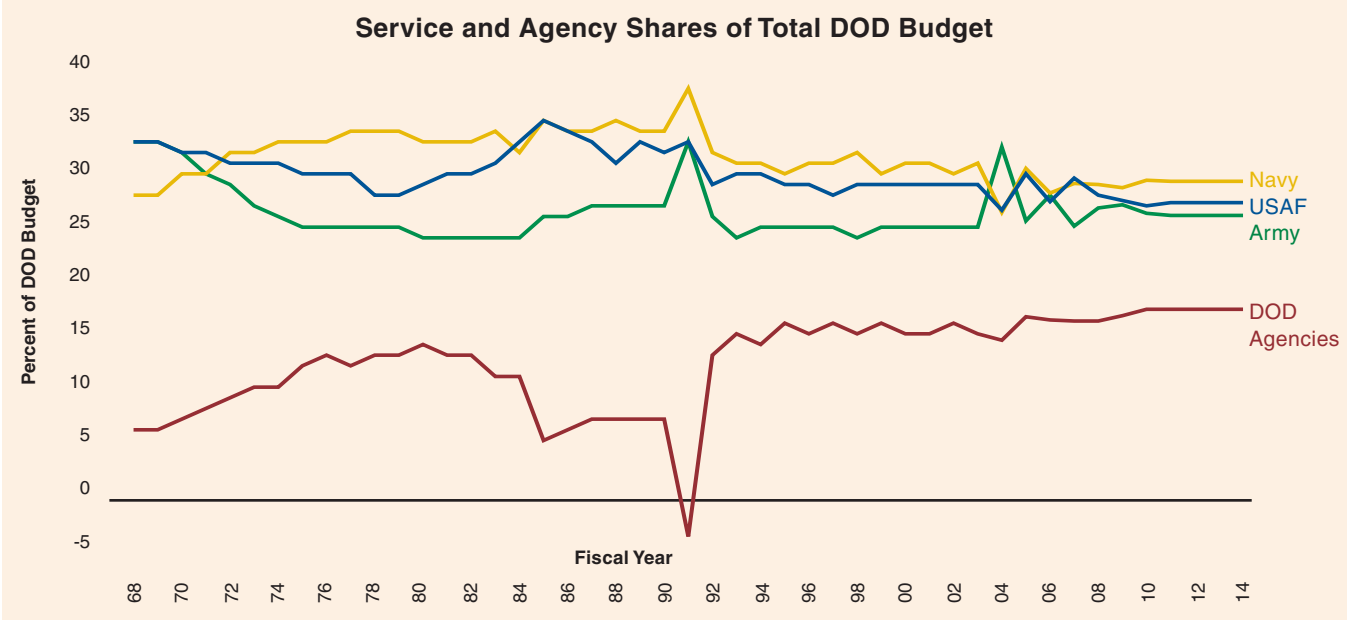
($ billions)

	2009	2010	2011	Planned 2012	2013	2014	2015
Current dollars							
	$633.8	$684.4	$714.4	$649.3	$629.7	$638.5	$652.8
Constant FY11 dollars							
	$657.4	$693.3	$714.4	$640.9	$614.1	$615.2	$621.4

Service and Agency Shares of Total DOD Budget

(Budget authority in billions of constant FY11 dollars)

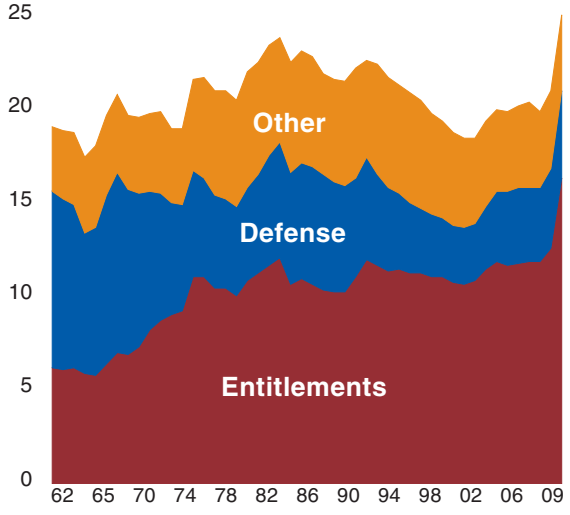
Dollars	**2009**	**2010**	**2011**	Planned **2012**	**2013**	**2014**	**2015**
Air Force	$146.5	$145.3	$150.0	$152.8	$155.0	$157.4	$160.2
Army	144.4	141.5	143.4	146.0	148.2	150.5	153.2
Navy/Marine Corps	152.9	157.8	160.6	163.6	166.0	168.5	171.6
Defense agencies	88.7	93.0	94.9	96.7	98.1	99.6	101.4
Total	**532.5**	**537.6**	**548.9**	**559.0**	**567.3**	**576.0**	**586.4**
Percentages							
Air Force	27.5%	27.0%	27.3%	27.3%	27.3%	27.3%	27.3%
Army	27.1%	26.3%	26.1%	26.1%	26.1%	26.1%	26.1%
Navy	28.7%	29.4%	29.3%	29.3%	29.3%	29.3%	29.3%
Defense agencies	16.7%	17.3%	17.3%	17.3%	17.3%	17.3%	17.3%



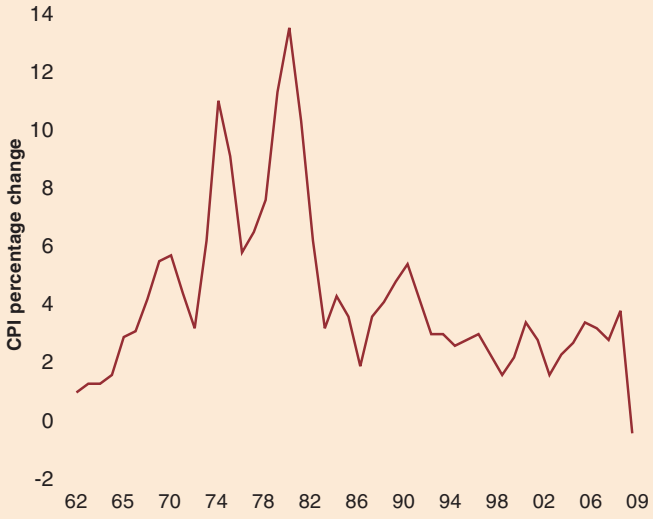
Federal Budget Outlay Categories

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	8.1	7.3
1972	19.6	2.2	8.6	6.7
1973	18.7	1.2	8.9	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	20.2	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	22.2	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	21.3	3.8	10.1	5.8
1989	21.2	3.8	10.1	5.6
1990	21.9	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	4.0
1995	20.6	3.1	11.1	3.7
1996	20.2	2.3	11.1	3.4
1997	19.5	1.3	10.9	3.3
1998	19.1	0.3	10.9	3.1
1999	18.5	0.0	10.6	3.0
2000	18.2	0.9	10.5	3.0
2001	18.2	0.3	10.7	3.0
2002	19.1	3.0	11.3	3.3
2003	19.7	4.9	11.7	3.7
2004	19.6	4.9	11.5	3.9
2005	19.9	4.0	11.6	4.0
2006	20.1	3.3	11.7	3.9
2007	19.6	2.5	11.7	3.9
2008	20.7	4.4	12.4	4.2
2009	24.7	10.9	16.1	4.6



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
2009	-0.4

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Equipment

2010 USAF Almanac

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

Active Duty Inventory

(As of Sept. 30, 2009)

Type	TAI	PAI
Bomber		
B-1	66	51
B-2	20	16
B-52	68	45
Total	**154**	**112**
Fighter/Attack		
A-10	208	176
F-15C-D	233	201
F-15E	221	192
F-16	665	551
F-22A	141	120
Total	**1,468**	**1,240**
Special Ops Forces		
AC-130	25	19
CV-22	12	12
MC-130	52	40
Total	**89**	**71**
Reconnaissance/BM/C3I		
E-3	32	26
E-4	4	3
EC-130	15	10
MC-12	31	0
MQ-1	126	110
MQ-9	35	35
OC-135	2	2
RC-135	25	20
RQ-4	17	12
U-2	33	29
Total	**320**	**247**
Tanker		
HC-130	19	19
KC-10	59	54
KC-135	182	160
Total	**260**	**233**

Type	TAI	PAI
Transport		
C-5	36	30
C-12	28	27
C-17	173	120
C-20	10	10
C-21	35	31
C-32	4	4
C-37	10	7
C-40	4	1
C-130	150	139
VC-25	2	2
Total	**452**	**371**
Helicopter		
HH-60	68	62
H-1	91	68
Total	**159**	**130**
Trainer		
T-1	179	138
T-6	431	323
T-38	456	411
T-41	4	4
T-43	7	7
T-51	3	3
Gliders	31	30
UV-18	3	2
Total	**1,114**	**918**
Total Active	**4,016**	**3,322**

USAF Aircraft Flying Hours

(In thousands, as of Sept. 30, 2009)

	FY03	FY04	FY05	FY06	FY07	FY08	FY09
Active duty	1,700	1,708	1,615	1,611	1,517	1,418	1,004
ANG	426	393	368	351	338	331	214
AFRC	193	177	160	202	195	186	94
Total	**2,319**	**2,278**	**2,143**	**2,164**	**2,050**	**1,935**	**1,312**

Air National Guard Inventory

(As of Sept. 30, 2009)

Type	TAI	PAI
Fighter/Attack		
A-10	92	87
F-15A-D	134	95
F-16	438	366
Total	**664**	**548**
Special Ops Forces		
MC-130	4	4
Reconnaissance/BM/C3I		
E-8	18	12
EC-130	7	3
RC-26	11	11
WC-130	9	4
Total	**45**	**30**
Tanker		
HC-130	9	7
KC-135	173	170
Total	**182**	**177**
Transport		
C-5	33	30
C-17	8	8
C-21	21	2
C-32	2	2
C-38	2	2
C-40	3	3
C-130	162	158
LC-130	10	10
Total	**241**	**215**
Helicopter		
HH-60	17	15
Total ANG	**1,153**	**989**

Air Force Reserve Command Inventory

(As of Sept. 30, 2009)

Type	TAI	PAI
Bomber		
B-52	9	8
Fighter/Attack		
A-10	55	45
F-16	53	50
Total	**108**	**95**
Special Ops Forces		
MC-130	**14**	**8**
Reconnaissance/BM/C3I		
WC-130	**11**	**10**
Tanker		
HC-130	5	5
KC-135	64	64
Total	**69**	**69**
Transport		
C-5	42	38
C-9	3	3
C-17	9	8
C-40	3	3
C-130	92	88
Total	**149**	**140**
Helicopter		
HH-60	**15**	**13**
Total AFRC	**375**	**343**

Total Number of USAF Aircraft in Service Over Time

(As of Sept. 30, 2009)

Type of aircraft	FY03	FY04	FY05	FY06	FY07	FY08	FY09
Bomber	173	172	173	172	173	153	154
Fighter/attack	1,628	1,627	1,622	1,619	1,552	1,496	1,468
Helicopter	129	160	169	160	160	170	159
Reconnaissance/BM/C3I	135	132	134	137	266	292	320
Special Ops Forces	101	99	98	103	100	94	89
Tanker	325	301	285	278	277	262	260
Trainer	1,308	1,277	1,267	1,284	1,111	1,074	1,114
Transport	529	516	525	529	454	449	452
Total active duty	**4,328**	**4,284**	**4,273**	**4,282**	**4,093**	**3,990**	**4,016**
Air National Guard	1,312	1,326	1,313	1,321	1,289	1,213	1,153
AFRC	433	408	400	410	396	370	375
Total active duty, ANG, and AFRC	**6,073**	**6,018**	**5,986**	**6,013**	**5,778**	**5,573**	**5,544**
Total aircraft, including foreign-government-owned	6,167	6,107	6,057	6,072	5,811	5,603	5,587

Age of the Active Duty Fleet

(As of Sept. 30, 2009)

	Age in Years										
	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-24	24+	Total	Average
A-10									208	208	27.8
B-1								66		66	22.1
B-2				1	10	6	3			20	15.1
B-52									68	68	47.8
C-5							6	27	3	36	23.2
(K)C-10							1	23	35	59	24.7
C-12								4	24	28	26.4
C-17	33	32	42	30	20	15	1			173	7.7
C-20					1	1		8		10	20.7
C-21								1	34	35	24.7
(V)C-25							2			2	18.9
C-32				4						4	11.0
C-37	1		6	3						10	7.9
C-40		2	2							4	5.6
C-130	18	7	1	3	3	15	26	16	172	261	31.2
C-135									209	209	47.0
CV-22	7	5								12	2.5
E-3									32	32	29.8
E-4									4	4	35.3
F-15C-D							9	90	134	233	25.3
F-15E		4	6	16		72	119	4		221	17.4
F-16		1	21	8	32	205	291	83	24	665	18.2
F-22	69	60	12							141	3.1
H-1									91	91	37.9
H-60				6		14	31	8	9	68	19.4
MC-12	24	1	6							31	1.8
MQ-1	126									126	2.0
MQ-9	30	5								35	1.6
RQ-4	10	6	1							17	2.9
T-1				1	90	88				179	14.9
T-6	161	162	96	12						431	4.0
T-38									456	456	42.2
T-41									4	4	40.1
T-43									7	7	35.4
T-51		3								3	4.1
U-2							2	11	20	33	26.2
UV-18					1				2	3	25.5
Gliders		5	25		1					31	7.7
Total	**479**	**293**	**218**	**84**	**158**	**416**	**491**	**341**	**1,536**	**4,016**	**22.8**
Percent	12%	7%	5%	2%	4%	10%	12%	8%	38%		

Age of the Air National Guard Fleet

(As of Sept. 30, 2009)

Age in Years

	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-24	24+	Total	Average
A-10									92	92	29.1
C-5									33	33	37.8
C-17		8								8	5.5
C-21								4	17	21	24.4
(R)C-26					6	5				11	15.3
C-32		1	1							2	6.2
C-38				2						2	11.5
C-40		1	2							3	6.3
C-130	7	7	7	13	31	35	16	23	62	201	21.4
C-135									173	173	48.4
E-8		2	7	6	2		1			18	9.5
F-15A-D									134	134	29.0
F-16					16	18	140	240	24	438	21.0
H-60						7	10			17	18.7
Total	**7**	**19**	**17**	**21**	**55**	**65**	**167**	**267**	**535**	**1,153**	**26.6**
Percent	1%	2%	1%	2%	5%	6%	14%	23%	46%		

Age of the Air Force Reserve Command Fleet

(As of Sept. 30, 2009)

Age in Years

	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-24	24+	Total	Average
A-10									55	55	28.9
B-52									9	9	47.6
C-5							5	11	26	42	31.7
C-9									3	3	34.5
C-17		8	1							9	4.7
C-40	3									3	2.2
C-130	1	7	6	4	12	16	19	21	36	122	22.2
C-135									64	64	48.1
F-16							9	44		53	21.8
H-60							15			15	18.7
Total	**4**	**15**	**7**	**4**	**12**	**16**	**48**	**76**	**193**	**375**	**27.7**
Percent	1%	4%	2%	1%	3%	4%	13%	20%	51%		

ICBMs and Spacecraft in Service

(As of Sept. 30, 2009)

Type of system	FY03	FY04	FY05	FY06	FY07	FY08	FY09
Minuteman III ICBM	500	500	500	450	450	450	450
Peacekeeper ICBM	23	6	0	0	0	0	0
Total ICBMs	**523**	**506**	**500**	**450**	**450**	**450**	**450**
DMSP satellite	2	2	2	2	2	2	5
DSCS satellite	10	11	9	9	9	9	8
DSP satellite (data classified)	—	—	—	—	—	—	—
GPS satellite	28	30	29	30	30	31	30
Milstar satellite	5	5	5	5	5	5	5
SBIRS satellite							2
WGS satellite						2	2
Total satellites	**45**	**48**	**45**	**46**	**46**	**49**	**52**

DMSP: Defense Meteorological Satellite Program; **DSCS:** Defense Satellite Communications System; **DSP:** Defense Support Program; **GPS:** Global Positioning System; **SBIRS:** Space Based Infrared System; **WGS:** Wideband Global SATCOM

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, JB Elmendorf, Alaska
AK	F-16C/D	354th FW, Eielson AFB, Alaska
AK	C-17, C-130	176th Wing (ANG), Kulis ANGB, Alaska
AL	F-16C/D	187th FW (ANG), Montgomery Regional Arpt., Ala.
AT	F-16C/D	ANG-AFRC Test Center, Tucson Arpt., Ariz.
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	C-21	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 RS (ANG), March ARB, Calif.
CB	T-1, T-6, T-38	14th FTW, Columbus AFB, Miss.
CH	MQ-1, MQ-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.
D	KC-135	100th ARW, RAF Mildenhall, UK
DC	F-16C/D	113th Wing (ANG), JB Andrews, Md.
DM	A-10A/C	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 RG (ANG), Ellington Fld., Tex.
EL	B-1B	28th BW, Ellsworth AFB, S.D.
EN	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 MW, F. E. Warren AFB, Wyo.
FF	F-15C/D, F-22	1st FW, JB Langley, Va.
FF	F-22	192nd FW (ANG), JB Langley, 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-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, JB Pearl Harbor-Hickam, Hawaii
HH	C-17, F-15C/D, KC-135R	154th Wing (ANG), JB Pearl Harbor-Hickam, Hawaii
HL	F-16C/D	388th FW, Hill AFB, Utah
HO	F-22, MQ-1, MQ-9, T-38A	49th FW, Holloman AFB, N.M.
IA	F-16C/D	132nd FW (ANG), Des Moines Arpt., Iowa
ID	A-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-10A/C	175th Wing (ANG), Martin State Arpt., Md.
MI	A-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, F-15E	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 RS (ANG), Hancock Fld., N.Y.
OF	RC-135S/U/V/W, TC-135, OC-135B	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, F-15E, F-16C/D	85th TES, 53rd Wing, 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-1	Det. 4, 53rd Wing, Creech AFB, Nev.
PA	A-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.
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 Fort Worth, 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


Medal of Honor (AF)


Air Force Cross


Defense Distinguished Service Medal


Distinguished Service Medal (AF)

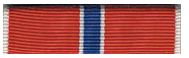

Silver Star


Defense Superior Service Medal


Legion of Merit


Distinguished Flying Cross


Airman's Medal


Bronze Star Medal


Purple Heart


Defense Meritorious Service Medal


Meritorious Service Medal (AF)


Air Medal


Aerial Achievement Medal


Joint Service Commendation Medal


Air Force Commendation Medal


Joint Service Achievement Medal


Air Force Achievement Medal


Air Force Combat Action Medal


Presidential Unit Citation (AF)


Gallant Unit Citation


Joint Meritorious Unit Award


Air Force Meritorious Unit Award


Air Force Outstanding Unit Award


Air Force Organizational Excellence Award


Prisoner of War Medal


Combat Readiness Medal


Air Force Good Conduct Medal


Good Conduct Medal


Air Reserve Forces Meritorious Service Medal


Outstanding Airman of the Year Ribbon

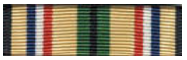

Air Force Recognition Ribbon


National Defense Service Medal

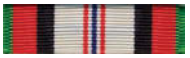

Antarctica Service Medal


Armed Forces Expeditionary Medal


Vietnam Service Medal


Southwest Asia Service Medal


Kosovo Campaign Medal


Afghanistan Campaign Medal

Iraq Campaign Medal

Global War on Terrorism Expeditionary Medal

Global War on Terrorism Service Medal

Korea Defense Service Medal

Armed Forces Service Medal

Humanitarian Service Medal

Military Outstanding Volunteer Service Medal

Air & Space Campaign Medal

Air Force Overseas Ribbon-Short

Air Force Overseas Ribbon-Long

Air Force Expeditionary Service Ribbon

Air Force Longevity Service Award Ribbon

USAF Basic Military Training Instructor Ribbon

Air Force Recruiter Ribbon

Armed Forces Reserve Medal

USAF NCO PME Graduate Ribbon

USAF Basic Military Training Honor Graduate Ribbon

Small Arms Expert Marksmanship Ribbon

Air Force Training Ribbon

RVN Gallantry Cross with Palm*

United Nations Medal

NATO Meritorious Service Medal

Article 5 NATO Medal-Eagle Assist

Article 5 NATO Medal-Active Endeavor

Non-Article 5 NATO Medal-Balkans

Non-Article 5 NATO Medal-ISAF

Republic of Vietnam Campaign Medal

Kuwait Liberation Medal, Kingdom of Saudi Arabia

Kuwait Liberation Medal, Government of Kuwait

*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

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

Guide to Aces and Heroes

2010 USAF Almanac

Major Decorations

*Living Medal of Honor recipient

USAF Recipients of the Medal of Honor

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)

Reed Chambers

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.

George Kenney

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.

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.
Ten Eyck, 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. Jr.
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.
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.
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.

Duane Beeson (l) and Dominic Gentile

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 J. 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 Q.
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.
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.
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.

Curtis LeMay

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, Ewart 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

George Preddy

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.
Overton, Dolphin D. III
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.

Originally based on a compilation by C. Douglas Sterner.

USAF Recipients of the Air Force Cross

World War II
Brown, 2nd Lt. Charles L.
Drew, 1st Lt. Urban L.
Sloan, Lt. Col. William J.

Cuba Crisis
Anderson, Maj. Rudolph Jr.

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, 1st Lt. 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, Sgt. Dennis M.
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.

Zachary Rhyner

Rudolph Anderson

Air Force 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)

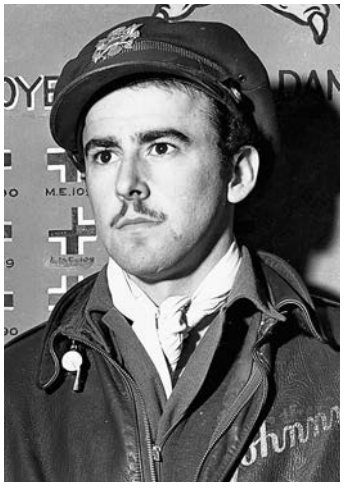
Godfrey, Capt. John T.	16.33
Anderson, Capt. Clarence E. Jr.	16.25
Dunham, Lt. Col. William D.	16
Harris, Lt. Col. Bill	16
Welch, Capt. George S.	16
Beerbower, Capt. Don M.	15.50
Brown, Maj. Samuel J.	15.50
Peterson, Capt. Richard A.	15.50
Whisner, Capt. William T. Jr.	15.50
Bradley, Lt. Col. Jack T.	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
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

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
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
Davis, 1st Lt. Barrie S.	6
Dean, 2nd Lt. Cecil O.	6
Degraffenreid, 2nd Lt. Edwin L.	6

James Howard (7)

Urban Drew (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
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

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

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
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

Clinton Vincent (6)

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
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

Edwin Heller (5.5)

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
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

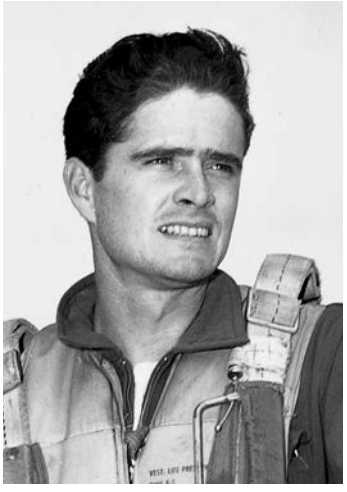
Harrison Thyng (5)

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

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

[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.

Major Commands

2010 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 Joint Base Langley, Va.

Established June 1, 1992

Commander Gen. William M. Fraser III

MISSIONS

Operate USAF bombers (nuclear-capable bombers transferred to AFGSC Feb. 1, 2010); USAF's CONUS-based 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 (Africa, Central, European, Northern, Pacific, and Southern); 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

Three numbered air forces: **1st,** Tyndall AFB, Fla.; **9th,** Shaw AFB, S.C.; **12th,** Davis-Monthan AFB, Ariz.
One primary subordinate unit: USAF Warfare Center, Nellis AFB, Nev.
21 wings

OPERATIONAL ACTIVITY

(as of Sept. 30, 2009)
Flying hours: 27,316 per month

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

Major training exercises
Accurate Test; Amalgam Dart/Fabric Series; Angel Thunder; Ardent Sentry; Atlantic Strike; Austere Challenge; Blue Flag; Bright Star; Eager Tiger; Eagle Resolve; Eastern Falcon; Emerald Warrior; Falcon Nest; Foal Eagle; Global Lightning; Global Thunder; Green Flag (East and West); Initial Link; Integrated Advance; Internal Look; Iron Falcon; Key Resolve; Jaded Thunder; National Level Exercise; New Horizons Series; Northern Edge; Panamax; Red Flag; Talisman Saber; Terminal Fury; Ulchi Freedom Guardian; Unified Endeavor; Valiant Shield; Vibrant Response; Vigilant Shield; Virtual Flag

PERSONNEL

(as of Sept. 30, 2009)

Active duty		77,892
Officers	11,226	
Enlisted	66,666	
Reserve Components		58,127
ANG	46,346	
AFRC	11,781	
Civilian		10,371
Total		**146,390**

EQUIPMENT

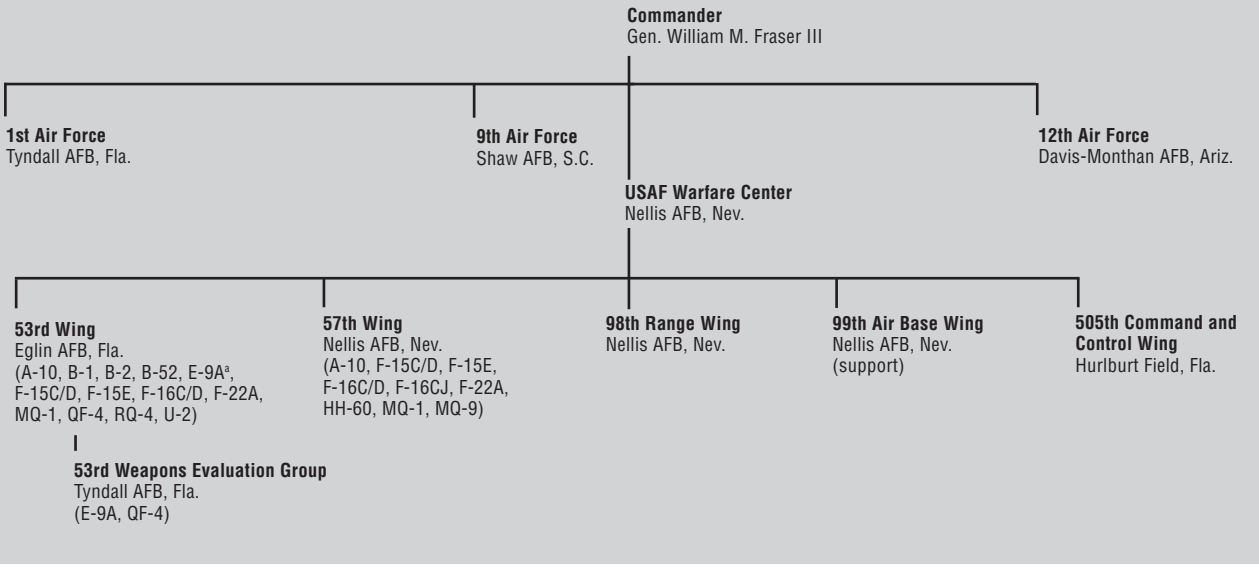
(Total active inventory as of Sept. 30, 2009)

Bomber	149
Fighter/Attack	781
Helicopter	38
Recon/BM/C3I	283
Tanker	15
Trainer	25

USAF photo

An F-22 Raptor from Holloman AFB, N.M., prepares for takeoff.

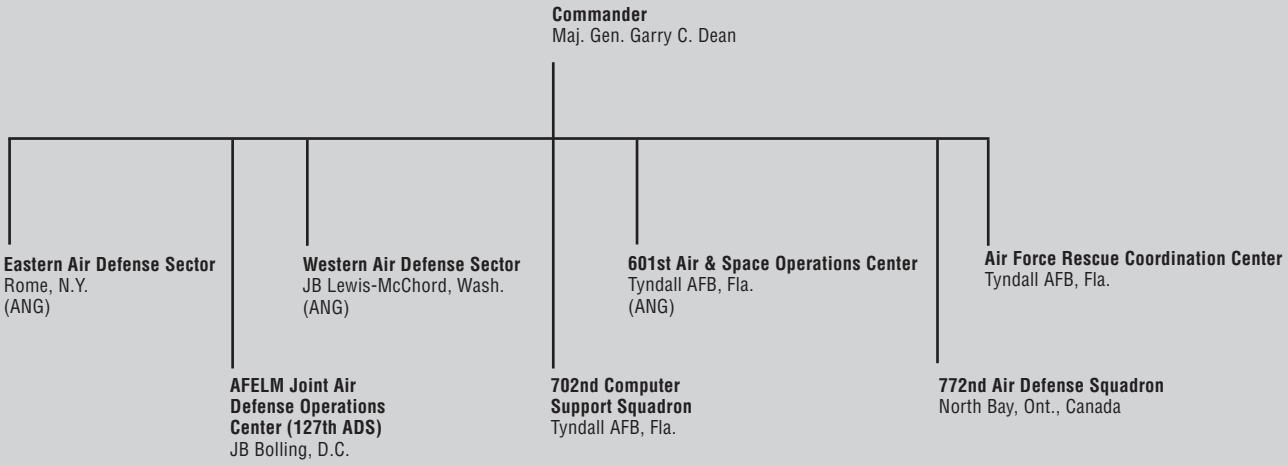
AIR COMBAT COMMAND, JB LANGLEY, VA.



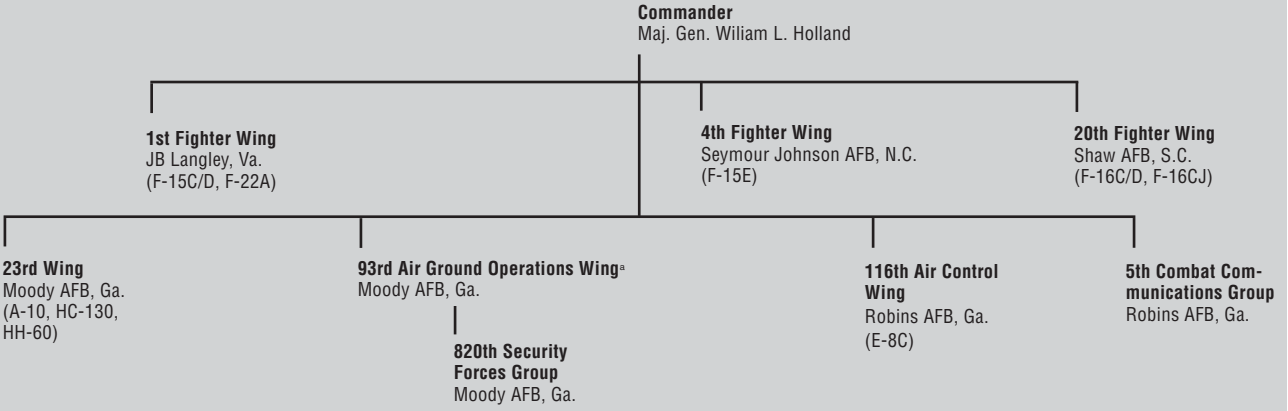
MAJOR UNITS	BASES	WEAPONS
1st Fighter Wing	JB Langley, Va.	F-15C/D, F-22A
4th Fighter Wing	Seymour Johnson AFB, N.C.	F-15E
7th Bomb Wing	Dyess AFB, Tex.	B-1B
9th Reconnaissance Wing	Beale AFB, Calif.	RQ-4, T-38, U-2R/S
20th Fighter Wing	Shaw AFB, S.C.	F-16C/D, F-16CJ
23rd Wing	Moody AFB, Ga.	A-10 (Pope AFB, N.C.), HC-130, HH-60
28th Bomb Wing	Ellsworth AFB, S.D.	B-1B
49th Fighter Wing	Holloman AFB, N.M.	F-22, MQ-1, MQ-9, QF-4, T-38B
53rd Wing	Eglin AFB, Fla.	A-10, B-1, B-2, B-52, E-9A[a], F-15C/D, F-15E, F-16C/D, F-22A, MQ-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
57th Wing	Nellis AFB, Nev.	A-10, F-15C/D, F-15E, F-16C/D, F-16CJ, F-22A, HH-60, MQ-1, MQ-9
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-10A/C
366th Fighter Wing	Mountain Home AFB, Idaho	F-15C/D, F-15E
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.	
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.

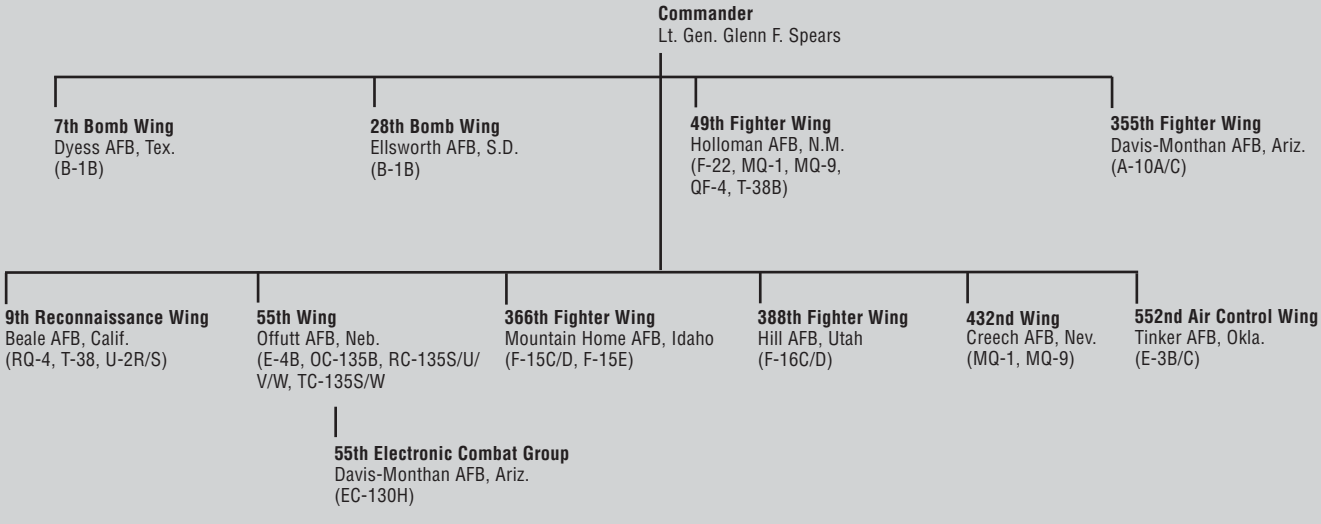
1st AIR FORCE (ACC), TYNDALL AFB, FLA.



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



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.

18 wings

OPERATIONAL ACTIVITY

(as of Sept. 30, 2009)

Flying hours: 38,758 per month

PERSONNEL

(as of Sept. 30, 2009)

Active duty		59,959
Officers	13,830	
Enlisted	46,129	
Reserve Components		7,962
ANG	5,549	
AFRC	2,413	
Civilian		14,557
Total		**82,478**

EQUIPMENT

(TAI) as of Sept. 30, 2009)

Fighter/Attack	229
Helicopter	49
Special operations forces	12
Tanker	28
Trainer	1,066
Transport	50

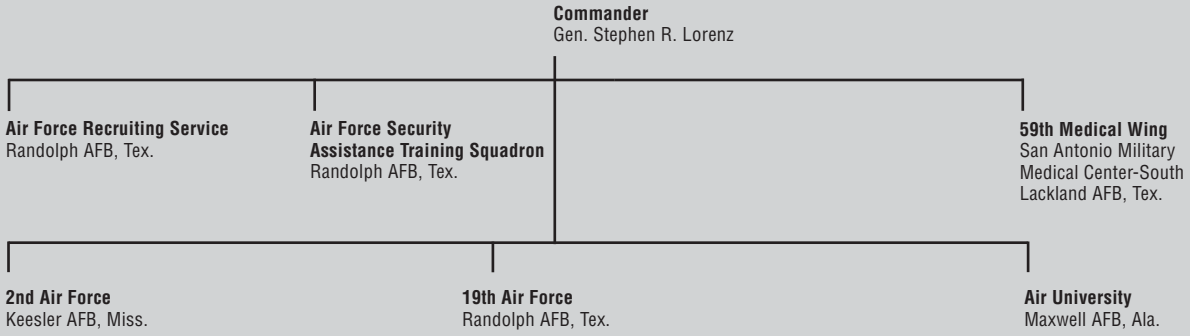
Photos by Greg L. Davis

Four T-6A Texan IIs on a training mission over Laughlin AFB, Tex.

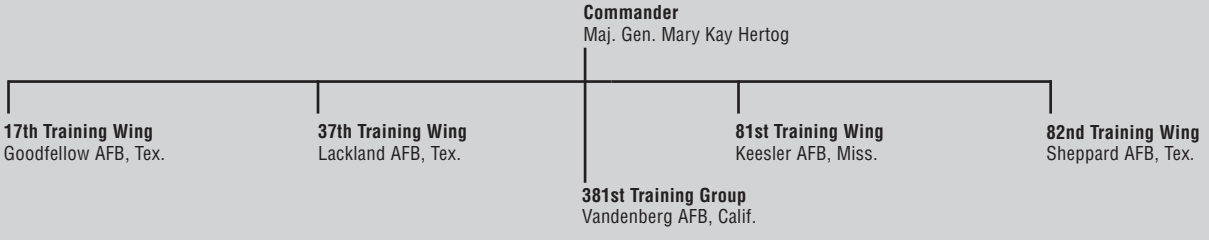
A TH-1H Huey crew training over southern Alabama.

MAJOR UNITS	BASES	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
17th Training Wing	Goodfellow AFB, Tex.	
33rd Fighter Wing	Eglin AFB, Fla.	F-35A/B/C (planned)
37th Training Wing	Lackland AFB, Tex.	
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.	CV-22, 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-6A, T-38C
81st Training Wing	Keesler AFB, Miss.	
82nd Training Wing	Sheppard AFB, Tex.	
97th Air Mobility Wing	Altus AFB, Okla.	C-17A, KC-135R
314th Airlift Wing	Little Rock AFB, Ark.	C-130E/J
325th Fighter Wing	Tyndall AFB, Fla.	F-15C/D, F-22A
502nd Air Base Wing	Randolph AFB, Tex.	
Air Force Recruiting Service	Randolph AFB, Tex.	
Air University	Maxwell AFB, Ala.	

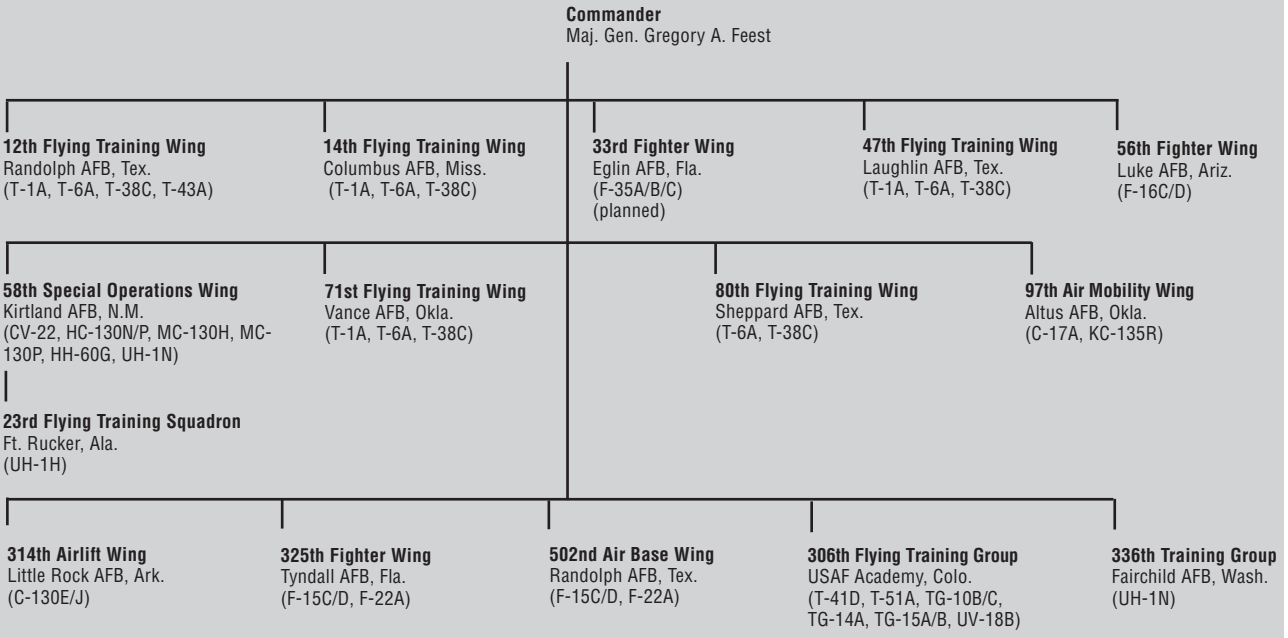
AIR EDUCATION AND TRAINING COMMAND, RANDOLPH AFB, TEX.



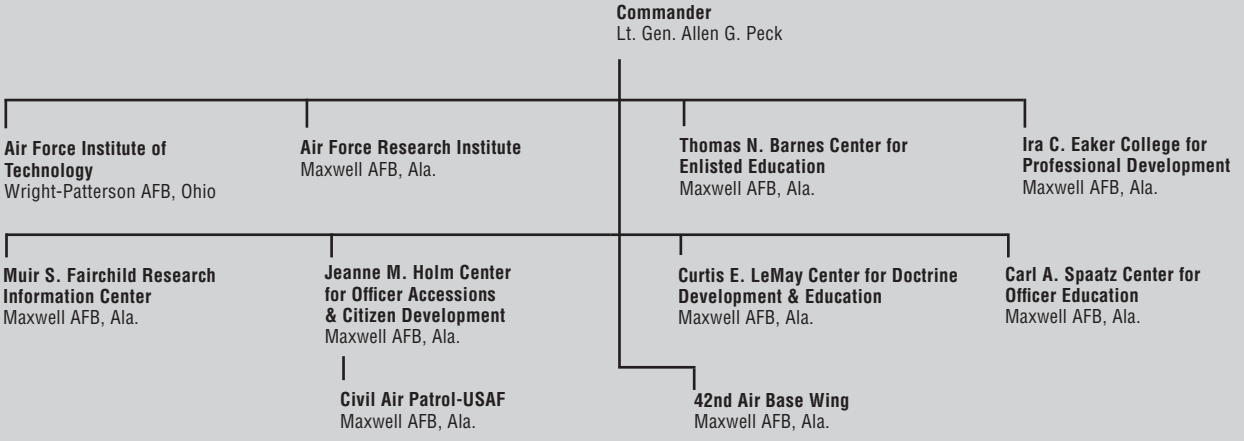
2nd AIR FORCE (AETC), KEESLER AFB, MISS.



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



AIR UNIVERSITY (AETC), MAXWELL AFB, ALA.



AFGSC

Air Force Global Strike Command

Headquarters Barksdale AFB, La.

Established Aug. 7, 2009

Commander Lt. Gen. Frank G. Klotz

MISSION
Develop and provide combat-ready forces for nuclear deterrence and global strike operations

COROLLARY MISSION
Assume lead command responsibility for the UH-1N helicopter

FORCE STRUCTURE
Two numbered air forces: **8th,** Barksdale AFB, La.; **20th,** F. E. Warren AFB, Wyo.
Six wings

PERSONNEL
(as of Sept. 30, 2009)

Active duty		175
Officers	136	
Enlisted	39	
Civilian		1
Total		**176**

EQUIPMENT
Note: (1) AFGSC gained ICBMs and UH-1 helicopters from AFSPC on Dec. 1, 2009; helicopter data appear under AFSPC for this almanac. (2) AFGSC gained B-2 and B-52 bombers from ACC on Feb. 1, 2010; all active duty bomber data appear under ACC for this almanac

USAF photo by Joe Davila

A Minuteman III ICBM launches on a test flight from Vandenberg AFB, Calif.

MAJOR UNITS	BASES	WEAPONS
2nd Bomb Wing	Barksdale AFB, La.	B-52H
5th Bomb Wing	Minot AFB, N.D.	B-52H
90th Missile Wing	F. E. Warren AFB, Wyo.	Minuteman III ICBMs, UH-1N
91st Missile Wing	Minot AFB, N.D.	Minuteman III ICBMs, UH-1N
341st Missile Wing	Malmstrom AFB, Mont.	Minuteman III ICBMs, UH-1N
509th Bomb Wing	Whiteman AFB, Mo.	B-2

AIR FORCE GLOBAL STRIKE COMMAND, BARKSDALE AFB, LA.

Commander
Lt. Gen. Frank G. Klotz

8th Air Force
Barksdale AFB, La.
Maj. Gen. Floyd L. Carpenter
(units transferred Feb. 1, 2010)

20th Air Force
F. E. Warren AFB, Wyo.
Maj. Gen. Roger W. Burg
(units transferred Dec. 1, 2009)

AFMC

Headquarters Wright-Patterson AFB, Ohio

Established July 1, 1992

Commander Gen. Donald J. Hoffman

Air Force Materiel Command

MISSION

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, 2009)
Flying hours: 1,690 per month

PERSONNEL

(as of Sept. 30, 2009)

Active duty		18,627
Officers	5,823	
Enlisted	12,804	
Reserve Components		1,438
ANG	168	
AFRC	1,270	
Civilian		58,131
Total		**78,196**

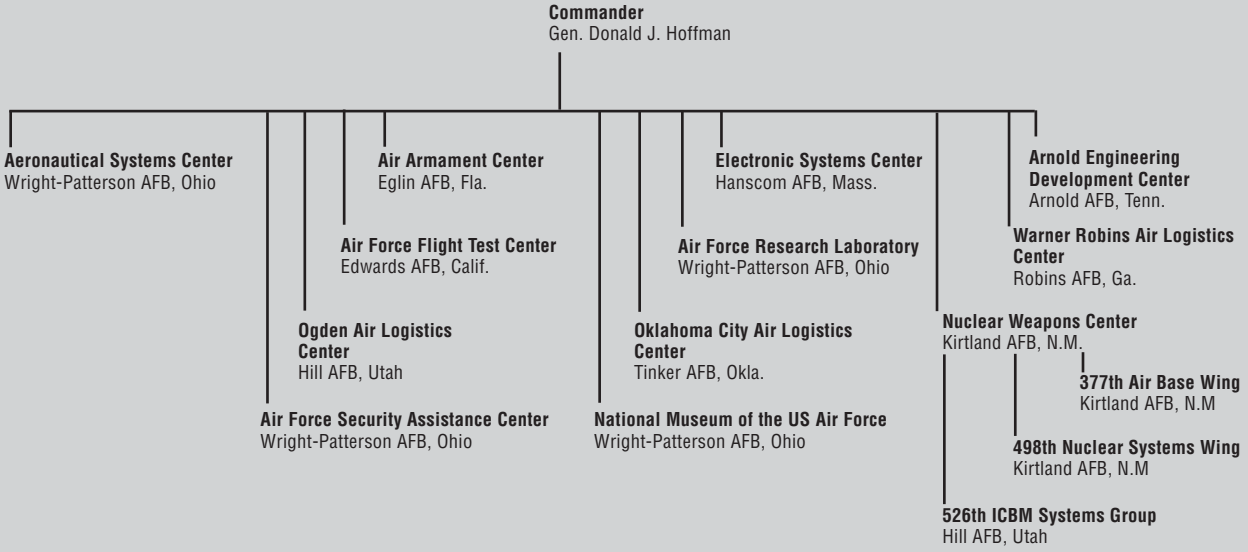
EQUIPMENT

(TAI as of Sept. 30, 2009)

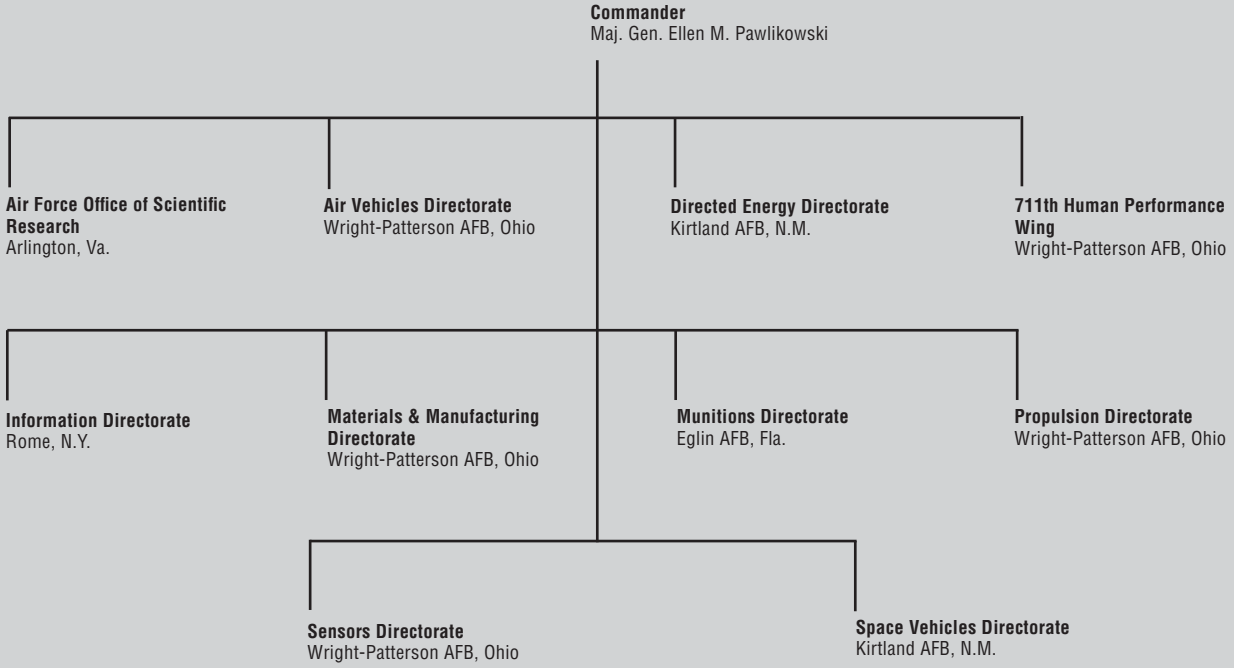
Bomber	5
Fighter/Attack	43
Helicopter	5
Recon	7
Tanker	1
Trainer	23
Transport	25

MAJOR UNITS	BASES
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 Nuclear 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.

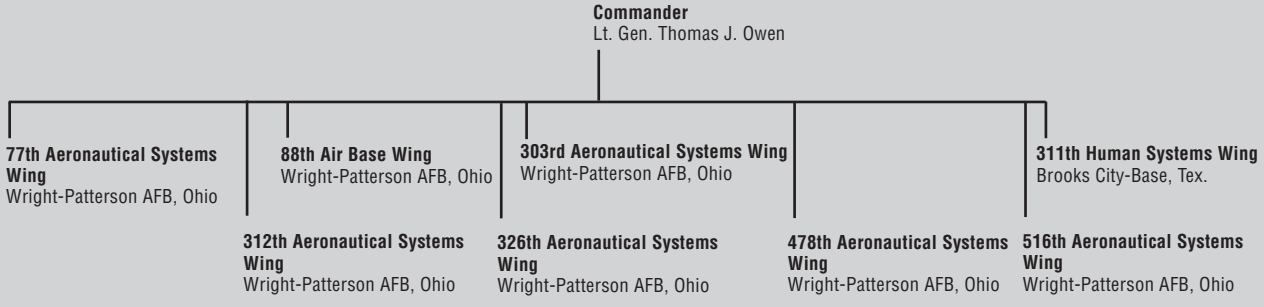
AIR FORCE MATERIEL COMMAND, WRIGHT-PATTERSON AFB, OHIO



AIR FORCE RESEARCH LABORATORY, WRIGHT-PATTERSON AFB, OHIO



AERONAUTICAL SYSTEMS CENTER, WRIGHT-PATTERSON AFB, OHIO



AIR ARMAMENT CENTER, EGLIN AFB, FLA.

Commander
Maj. Gen. Charles R. Davis

- **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. Andrew E. Busch

- **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

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.

AFSPC

Air Force Space Command

Headquarters Peterson AFB, Colo.

Established Sept. 1, 1982

Commander Gen. C. Robert Kehler

MISSIONS

Operate and test missile warning radars, sensors, and satellites; national space-launch facilities; worldwide space surveillance radars and optical systems; worldwide space environmental systems; position, navigation, and timing systems (transferred ICBM mission to AFGSC Dec. 1, 2009)
Provide command and control for DOD satellites; missile warning; space weather support
Produce and acquire advanced space systems

COROLLARY MISSION

Develop and integrate space support for the warfighter

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.; **24th,** Lackland AFB, Tex.
Two major product centers: Space and Missile Systems Center, Los Angeles AFB, Calif.; Space Innovation and Development Center, Schriever AFB, Colo.
15 wings

PERSONNEL

(as of Sept. 30, 2009)

Active duty		20,725
Officers	5,436	
Enlisted	15,289	
Reserve Components		3,041
ANG	1,140	
AFRC	1,901	
Civilian		7,906
Total		**31,672**

EQUIPMENT

(as of Sept. 30, 2009)

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 (TAI): UH-1 25

Satellite command and control system: Air Force Satellite Control Network

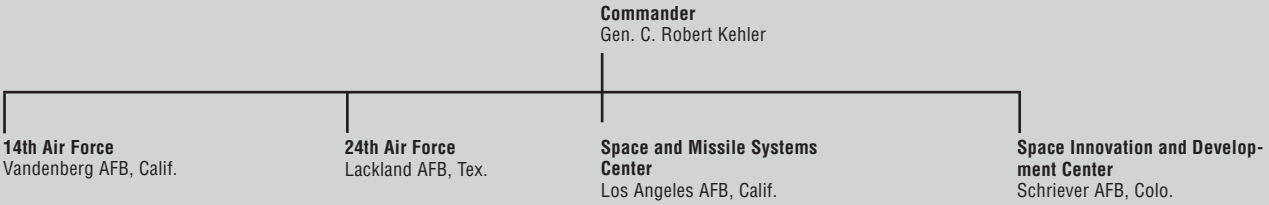
Satellite systems:

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

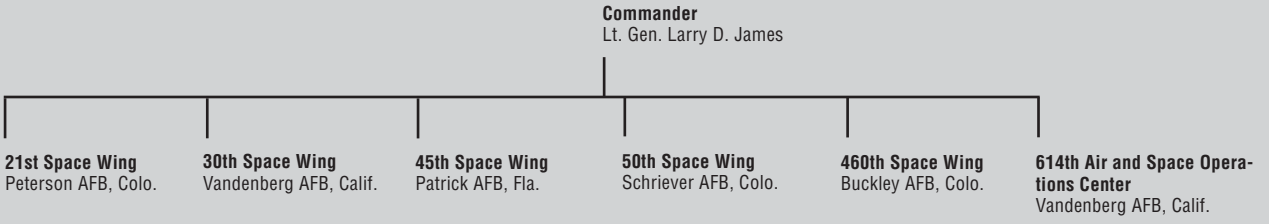
Space surveillance systems: Electro-Optical Deep Space Surveillance System and phased-array, mechanical tracking, and passive surveillance radars

MAJOR UNITS	BASES	WEAPONS/FUNCTIONS
Space and Missile Systems Center	Los Angeles AFB, Calif.	Acquisition and development of space and missile systems
Space Innovation and Development Center	Schriever AFB, Colo.	Testing, training, tactics development
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
67th Network Warfare Wing	Lackland AFB, Tex.	Organize, train, and equip cyberspace forces
460th Space Wing	Buckley AFB, Colo.	Missile warning and global surveillance
688th Information Operations Wing	Lackland AFB, Tex.	Deliver information operations and engineering infrastructure capabilities
689th Combat Communications Wing	Robins AFB, Ga.	Train and deploy expeditionary and specialized communications, air traffic control, and landing systems
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 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 Superiority Systems Wing	Los Angeles AFB, Calif.	Development, fielding, and sustainment of weapons systems

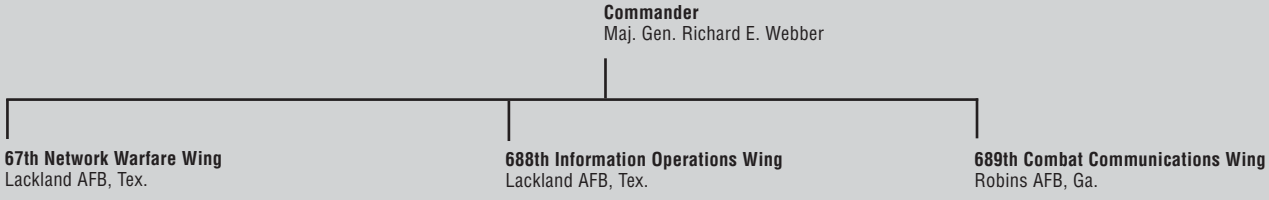
AIR FORCE SPACE COMMAND, PETERSON AFB, COLO.



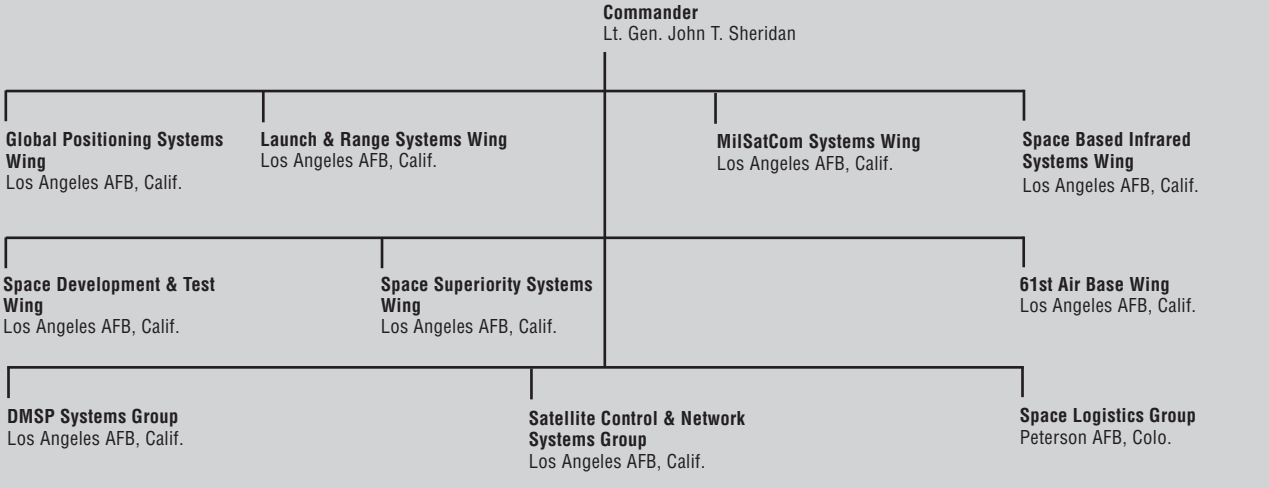
14th AIR FORCE (AFSPC), VANDENBERG AFB, CALIF.



24th AIR FORCE (AFSPC), LACKLAND AFB, TEX.



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



AFSOC

Air Force Special Operations Command

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, 2009)
Flying hours: 3,569 per month

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

PERSONNEL

(as of Sept. 30, 2009)

Active duty		12,274
Officers	2,290	
Enlisted	9,984	
Reserve Components		2,910
ANG	1,504	
AFRC	1,406	
Civilian		830
Total		**16,014**

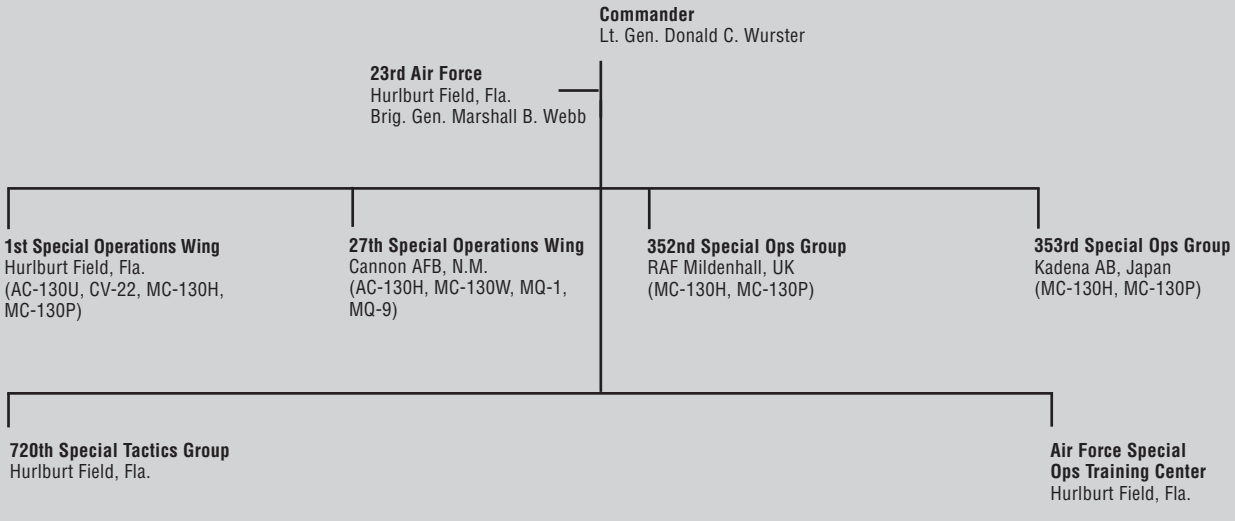
EQUIPMENT

(TAI as of Sept. 30, 2009)

Helicopter	4
Recon	26
SOF	77

MAJOR UNITS	BASES	WEAPONS
Air Force Special Operations Training Center	Hurlburt Field, Fla.	
1st Special Operations Wing	Hurlburt Field, Fla.	AC-130U, CV-22, MC-130H, MC-130P
27th Special Operations Wing	Cannon AFB, N.M.	AC-130H, MC-130W, MQ-1, MQ-9
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 COMMAND, HURLBURT FIELD, FLA.



AMC
Air Mobility Command

Headquarters Scott AFB, Ill.

Established June 1, 1992

Commander Gen. Raymond E. Johns Jr.

MISSION
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, JB McGuire, N.J.
One DRU: US Air Force Expeditionary Center, JB McGuire, N.J.
18 wings

OPERATIONAL ACTIVITY
(as of Sept. 30, 2009)
Flying hours: 44,400 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; Silver Eagle; Talisman Saber

PERSONNEL
(as of Sept. 30, 2009)

Active duty		45,975
Officers	7,078	
Enlisted	38,897	
Reserve Components		79,295
ANG	36,389	
AFRC	42,906	
Civilian		8,800
Total		**134,070**

EQUIPMENT
(TAI as of Sept. 30, 2009)

Tanker	186
Transport	317

Photo by Clive Bennett

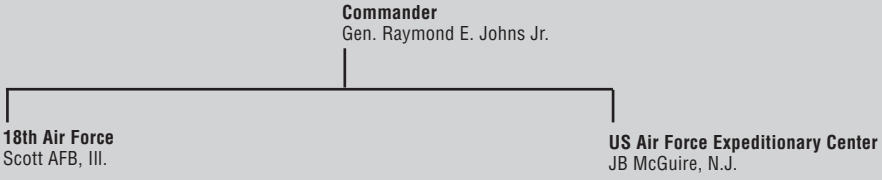
A C-17 on a mission out of RAF Fairford, UK.

USAF photo by TSgt. Jason W. Rolfe

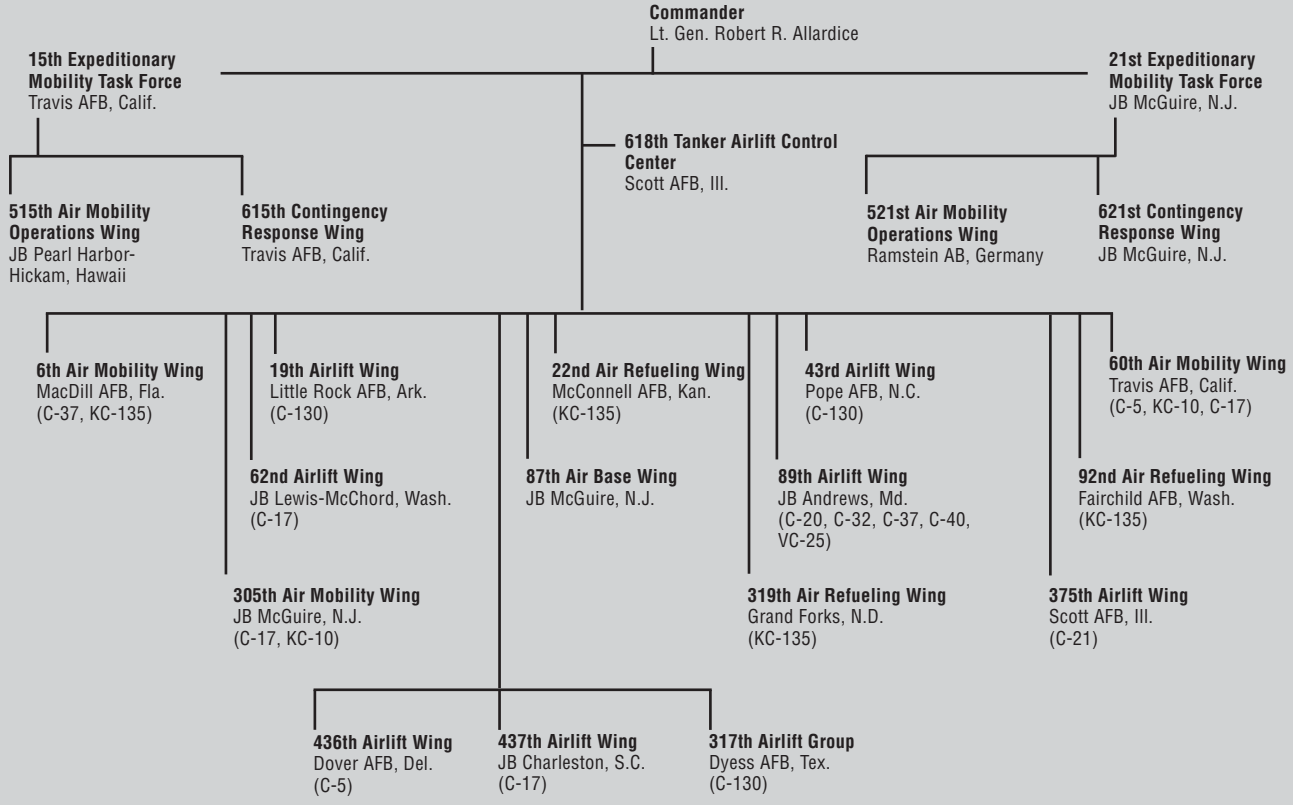
A C-5 Galaxy from Dover AFB, Del., loaded with cargo.

MAJOR UNITS	BASES	WEAPONS
618th Tanker Airlift Control Center	Scott AFB, Ill.	
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	JB Lewis-McChord, Wash.	C-17
87th Air Base Wing	JB McGuire, N.J.	
89th Airlift Wing	JB Andrews, Md.	C-20, C-32, C-37, C-40, VC-25
92nd Air Refueling Wing	Fairchild AFB, Wash.	KC-135
305th Air Mobility Wing	JB McGuire, 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	JB Charleston, S.C.	C-17
515th Air Mobility Operations Wing	JB Pearl Harbor-Hickam, Hawaii	
521st Air Mobility Operations Wing	Ramstein AB, Germany	
615th Contingency Response Wing	Travis AFB, Calif.	
621st Contingency Response Wing	JB McGuire, N.J.	

AIR MOBILITY COMMAND, SCOTT AFB, ILL.



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



PACAF

Pacific Air Forces

Headquarters Joint Base Pearl Harbor-Hickam, Hawaii

Established July 1, 1957

Commander Gen. Gary L. North

MISSION

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,** JB Elmendorf, Alaska; **13th,** JB Pearl Harbor-Hickam, Hawaii
Nine wings

OPERATIONAL ACTIVITY

(as of Sept. 30, 2009)

Flying hours: 8,769 per month

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

Major training exercises
Balikatan; Cobra Gold; Commando Sling; Cope India; Cope North; Cope South; Cope Taufan; Cope Tiger; Cope West; 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

An F-15 takes on fuel from a KC-135 during training near Kadena AB, Japan.

PERSONNEL

(as of Sept. 30, 2009)

Active duty		29,763
Officers	3,892	
Enlisted	25,871	
Reserve Components		5,587
ANG	4,728	
AFRC	859	
Civilian		8,131
Total		**43,481**

MAJOR UNITS	BASES	WEAPONS
3rd Wing	JB Elmendorf, 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	JB Pearl Harbor-Hickam, Hawaii	C-17, C-37, C-40B/C
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

Commander
Gen. Gary L. North

- **5th Air Force** — Yokota AB, Japan
- **7th Air Force** — Osan AB, South Korea
- **11th Air Force** — JB Elmendorf, Alaska
- **13th Air Force** — JB Pearl Harbor-Hickam, 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), JB ELMENDORF, ALASKA

Commander
Lt. Gen. Dana T. Atkins

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

EQUIPMENT

(TAI as of Sept. 30, 2009)

Fighter/Attack	214
Helicopter	14
Recon	4
Tanker	14
Transport	37

USAF photo by MSgt. Val Gempis

C-130 aircraft on the flight line at Yokota AB, Japan.

13th AIR FORCE (PACAF), JB PEARL HARBOR-HICKAM, HAWAII

Commander
Lt. Gen. Herbert J. Carlisle

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

USAFE

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
One air expeditionary task force
Nine wings

OPERATIONAL ACTIVITY

(as of Sept. 30, 2009)
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

A KC-135R assigned to RAF Mildenhall, 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. Ralph J. Jodice II
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, 2009)

Active duty		25,644
Officers	3,192	
Enlisted	22,452	
Reserve Components		415
ANG	226	
AFRC	189	
Civilian		5,712
Total		**31,771**

EQUIPMENT

(TAI as of Sept. 30, 2009)

Fighter/Attack	201
Helicopter	5
Tanker	16
Transport	23

USAF photo by SSgt. Lindsey Maurice

An F-16 taxis at Aviano AB, Italy.

MAJOR UNITS	BASES	WEAPONS
31st Fighter Wing	Aviano AB, Italy	F-16C/D
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-130J
100th Air Refueling Wing	RAF Mildenhall, UK	KC-135R
435th Air Ground Operations Wing	Ramstein AB, Germany	
501st Combat Support Wing	RAF Alconbury, UK	

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

3rd Air Force
Lt. Gen. Frank Gorenc
Ramstein AB, Germany

31st Fighter Wing
Aviano AB, Italy
(F-16C/D)

86th Airlift Wing
Ramstein AB, Germany
(C-20H, C-21, C-37, C-40B, C-130J)

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 Ground Operations 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

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

2010 USAF Almanac

The Air Reserve Components for USAF are Air Force Reserve Command and the Air National Guard. 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.

AFRC

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)

USAF photo by Greg Steele

An AFRC A-10 takes off for a sortie at the Utah Test and Training Range.

PERSONNEL

(as of Sept. 30, 2009)

Total (selected reserve)		67,986
Officers	14,753	
Enlisted	53,233	
Civilian		13,031
Total		**81,017**

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

EQUIPMENT

(TAI as of Sept. 30, 2009)

Bomber	9
Fighter/Attack	108
Helicopter	15
Recon/BM/C3I	11
SOF	14
Tanker	69
Transport	149

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.
- **Readiness Management Group** — Col. Nancy C. Zbyszinski, Robins AFB, Ga.
- **Air Reserve Personnel Center** — Brig. Gen. 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, 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** — JB Andrews, 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[a])
- **446th Airlift Wing** — JB Lewis-McChord, 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. Frank J. Padilla

- **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** — Schriever 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** — JB Langley, Va. (F-15, F-16C/D)[a]
- **442nd Fighter Wing** — Whiteman AFB, Mo. (A-10A)
- **940th Wing** — Beale AFB, Calif. (RQ-4[a])
- **477th Fighter Group** — JB Elmendorf, 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)
- **302nd Airlift Wing** — Peterson AFB, Colo. (C-130H[b])
- **512th Airlift Wing** — Dover AFB, Del. (C-5A/B, C-17)[a]
- **315th Airlift Wing** — JB Charleston, S.C. (C-17[a])
- **514th Air Mobility Wing** — JB McGuire, 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-5)
- **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
JB	Joint Base
JNGB	Joint National Guard Base
JRB	Joint Reserve Base
NAS	Naval Air Station

ANG
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
89 wings
Nine squadrons

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

PERSONNEL
(as of Sept. 30, 2009)

Total ANG military*		109,196
Officers	14,326	
Enlisted	94,870	
Civilian		23,442
Total		**132,638**

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

EQUIPMENT
(TAI as of Sept. 30, 2009)

Fighter/Attack	644
Helicopter	17
Recon/BM/C3I	45
SOF	4
Tanker	182
Transport	241

USAF photo by TSgt. Jeromy K. Cross

A line of ANG C-130J aircraft is readied for a mission at Bagram Airfield, Afghanistan.

The Air National Guard by Major Command Assignment

Air Combat Command

A-10	
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/Tahoe Arpt., Nev.
192nd Intelligence Squadron	JB Langley, 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	JB Andrews, 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 JNGB, 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
187th Fighter Wing	Montgomery Regional Arpt., Ala.
F-22	
192nd Fighter Wing	JB Langley, 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

118th Airlift Wing (C-130)	Nashville Arpt., Tenn.
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 Squadron	Greeley ANGB, Colo.
148th Space Ops Squardon	Vandenberg AFB, Calif.
213th Space Warning Squadron	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.
110th Wing	W. K. Kellogg Arpt., Mich.
119th Wing	Hector Arpt., Fargo, N.D.
140th Wing	Buckley AFB, Colo.
C-130	
107th Airlift Wing	Niagara Falls Arpt./ARS, N.Y.
109th Airlift Wing	Schenectady County Arpt., N.Y.
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	JB McGuire, 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)	JB Pearl Harbor-Hickam, Hawaii
168th Air Refueling Wing (KC-135)	Eielson AFB, Alaska
176th Wing (C-17, C-130, HC-130, HH-60)	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. Marcus A. Boyd

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		9
Officers	8	
Enlisted	1	
Reserve Components		1
ANG	0	
AFRC	1	
Civilians		13
Total		**23**

Air Force Center for Engineering and the Environment

Hq.: Lackland AFB, 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 Lackland with regional environmental offices in Atlanta, Dallas, and San Francisco

PERSONNEL

Active duty		31
Officers	29	
Enlisted	2	
Reserve Components		3
ANG	0	
AFRC	3	
Civilians		468
Total		**502**

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		28
Officers	23	
Enlisted	5	
Civilians		86
Total		**114**

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	726
Total	**726**

The director of AFAA is the USAF auditor general.

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 divisions with an operating location at Travis AFB, Calif.

PERSONNEL

Active duty		83
Officers	18	
Enlisted	65	
Reserve Components		21
ANG	0	
AFRC	21	
Civilians		117
Total		**221**

USAF photo by SMSgt. Stefan Alford

Amy Johnson, from the Air Force Audit Agency, performs an inventory at Manas AB, Kyrgyzstan.

Air Force Financial Services Center

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

MISSION, PURPOSE, OPERATIONS

Provide military pay services to active duty and travel transactions for active and reserve component military and civilian personnel
Serve as the single financial services center for transactions formerly conducted at 109 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		347
Officers	7	
Enlisted	340	
Civilians		50
Total		**397**

Air Force Flight Standards Agency

Hq.: Oklahoma City
Estab.: Oct. 1, 1991
Cmdr.: Col. Merrill F. Armstrong

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		150
Officers	89	
Enlisted	61	
Reserve Components		2
ANG	0	
AFRC	2	
Civilians		50
Total		**202**

Air Force Global Cyberspace Integration Center

Hq.: JB Langley, 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		78
Officers	39	
Enlisted	39	
Civilian		1
Total		**79**

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	57
Total	**57**

Air Force Inspection Agency

Hq.: Kirtland AFB, N.M.
Estab.: Aug. 1, 1991
Cmdr.: Col. Heraldo B. Brual

MISSION, PURPOSE, OPERATIONS

Provide independent assessments of acquisitions, operations, logistics, and support to SECAF, CSAF, SAF/IG, and commanders of major commands
Conduct nuclear surety inspection oversight, training, and certification
Provide assistance for AFSO21 process improvement
Serve as primary action arm of SECAF inspection system
Provide by-law and compliance oversight of all USAF-level FOAs and DRUs
Publish *TIG Brief* magazine

STRUCTURE

Five directorates

PERSONNEL

Active duty		88
Officers	63	
Enlisted	25	
Reserve Components		7
ANG	0	
AFRC	7	
Civilians		34
Total		**129**

Air Force Intelligence Analysis Agency

Hq.: Pentagon
Estab.: Feb. 2, 2001
Dir.: Col. Jon A. Kimminau

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

USAF photo by Amelia Donnell

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

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
10 divisions

PERSONNEL

Active duty		69
Officers	19	
Enlisted	50	
Civilians		56
Total		**125**

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

PERSONNEL

Active duty		11,511
Officer	1,114	
Enlisted	10,397	
Reserve Components		2,851
ANG	1,676	
AFRC	1,175	
Civilians		1,852
Total		**16,214**

Air Force Legal Operations Agency

Hq.: JB Bolling, D.C.
Estab.: Sept. 1, 1991
Cmdr.: Brig. Gen. Daniel B. Fincher

MISSION, PURPOSE, OPERATIONS
Administer Air Force's military justice programs
Provide legal research technology to all Air Force Judge Advocate Corps members
Defend USAF in civil litigation
Educate and train legal professionals
Support the Department of Justice with regard to all phases of litigation, civil or criminal, pertaining to the Air Force

STRUCTURE
Five directorates

PERSONNEL

Active duty		495
Officers	307	
Enlisted	188	
Reserve Components		124
ANG	0	
AFRC	124	
Civilians		243
Total		**862**

Air Force Logistics Management Agency

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

MISSION, PURPOSE, OPERATIONS
Sharpen agile combat support (ACS) capabilities by generating enterprise supply chain solutions
Support logistics transformation through research analysis, wargames, enterprise architecture development, and publication of ACS literature

STRUCTURE
Six divisions

PERSONNEL

Active duty		38
Officers	21	
Enlisted	17	
Civilians		16
Total		**54**

Air Force Manpower Agency

Hq.: Randolph AFB, Tex.
Estab.: Sept. 1, 1999
Cmdr.: Col. Brian S. Norman

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		165
Officers	30	
Enlisted	135	
Civilians		287
Total		**452**

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		181
Officers	122	
Enlisted	59	
Reserve Components		13
ANG	0	
AFRC	13	
Civilians		121
Total		**315**

Air Force Medical Support Agency

Hq.: JB Bolling, D.C.
Estab.: July 1, 1992
Cmdr.: Brig. Gen. James J. Carroll

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		164
Officers	134	
Enlisted	30	
Reserve Components		10
ANG	0	
AFRC	10	
Civilians		60
Total		**234**

USAF photo by TSgt. Elizabeth Weinberg

MSgt. Lisa Fox-Simmons, from the Air Force Intelligence, Surveillance, and Reconnaissance Agency.

Air Force Office of Special Investigations

Hq.: JB Andrews, Md.
Estab.: Aug. 1, 1948
Cmdr.: Brig. Gen. (sel.) Kevin J. Jacobsen

MISSION, PURPOSE, OPERATIONS

Provide professional investigative service to Air Force commanders
Identify, exploit, and neutralize criminal, terrorist, and intelligence threats to USAF, DOD, and US government
Combat threats to USAF information systems and technologies
Defeat and deter fraud impacting USAF acquisitions and base-level capabilities
Serve as DOD executive agent for Defense Cyber Crime Center

STRUCTURE

15 squadrons
95 detachments
83 operating locations

PERSONNEL

Active duty		1,518
Officers	329	
Enlisted	1,189	
Reserve Components		424
ANG	0	
AFRC	424	
Civilians		630
Total		**2,572**

Air Force Operations Group

Hq.: Pentagon
Estab.: July 26, 1977
Cmdr.: Col. David A. MIller

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		52
Officers	29	
Enlisted	23	
Reserve Components		7
ANG	0	
AFRC	7	
Total		**59**

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/Prisoner of War programs

STRUCTURE

Seven directorates

PERSONNEL

Active duty		765
Officers	243	
Enlisted	522	
Reserve Components		17
ANG	0	
AFRC	17	
Civilians		951
Total		**1,733**

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		14
Officers	6	
Enlisted	8	
Civilians		41
Total		**55**

Air Force Petroleum Agency

Hq.: Ft. Belvoir, Va.
Estab.: Dec. 18, 2006
Cmdr.: Col. Jon A. Larvick

MISSION, PURPOSE, OPERATIONS

Provide fuel-related technical, operational, and analytical support, planning, new technology development, and standards management

STRUCTURE

Three directorates
Six aerospace laboratories worldwide

PERSONNEL

Active duty		30
Officers	6	
Enlisted	24	
Reserve Components		3
ANG	0	
AFRC	3	
Civilians		64
Total		**97**

Air Force Public Affairs Agency

Hq.: San Antonio
Estab.: Oct. 1, 2008
Dir: Larry Clavette

MISSION, PURPOSE, OPERATIONS

Develop and sustain Air Force public affairs products
Provide combat camera and graphics support
Test emerging technologies
Manage PA personnel deployments

PERSONNEL

Active duty		151
Officers	20	
Enlisted	131	
Reserve Components		132
ANG	0	
AFRC	132	
Civilians		16
Total		**299**

Formerly Air Force News Agency, established June 1, 1978

USAF photo

Air Force Office of Special Investigations special agent Christopher Mitchell.

Air Force Real Property Agency

Hq.: San Antonio
Estab.: Nov. 1, 2002
Dir.: Robert M. 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	91
Total	**91**

Air Force Review Boards Agency

Hq.: JB Andrews, 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
Serve as lead agent for DOD Physical Disability Board of Review

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.
DOD Physical Disability Board of Review
Personnel Security Appeal Board

PERSONNEL

Active duty		12
Officers	8	
Enlisted	4	
Reserve Components		11
ANG	0	
AFRC	11	
Civilians		49
Total		**72**

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, human factors, 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		50
Officers	33	
Enlisted	17	
Reserve Components		3
ANG	0	
AFRC	3	
Civilians		73
Total		**126**

The commander is also the Air Force chief of safety. AFSC publishes *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		341
Officers	35	
Enlisted	306	
Reserve Components		4
ANG	4	
AFRC	0	
Civilians		36
Total		**381**

Air Force Services Agency

Hq.: San Antonio
Estab.: Feb. 5, 1991
Cmdr.: Col. Sandra M. Adams

MISSION, PURPOSE, OPERATIONS

Provide technical assistance, field new initiatives, and develop procedures and functions to support USAF services programs worldwide
Manage USAF central nonappropriated funds and oversee NAF acounting and central field support systems to aid NAF employees and retirees

STRUCTURE

Seven directorates

PERSONNEL

Active duty		57
Officers	14	
Enlisted	43	
Reserve Components		5
ANG	0	
AFRC	5	
Civilians		163
Total		**225**

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		944
Officers	153	
Enlisted	791	
Reserve Components		22
ANG	0	
AFRC	22	
Civilians		180
Total		**1,146**

Formerly Air Weather Service, established July 1, 1937.

ANG Readiness Center

Hq.: JB Andrews, Md.
Estab.: August 1997
Cmdr.: Col. Michael J. McDonald

MISSION, PURPOSE, OPERATIONS

Ensure field units have resources to train and equip forces for state and federal missions
Sustain airmen and help shape leadership capability

STRUCTURE

201st Mission Support Squadron
12 directorates

PERSONNEL

Active duty		92
Officers	53	
Enlisted	39	
Reserve Components		10,850
ANG	10,849	
AFRC	1	
Civilians		579
Total		**11,521**

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.: JB Andrews, Md.
Estab.: July 15, 1994
Cmdr.: Maj. Gen. Darrell D. Jones

MISSION, PURPOSE, OPERATIONS

Execute USAF operations and support joint force and interagency operations in the National Capital Region
Organize, train, equip, and provide forces for contingency deployments, homeland operations, and ceremonial support

STRUCTURE

11th Wing, JB Bolling, D.C.
79th Medical Wing
316th Wing
320th Air Expeditionary Wing
844th Communications Group

PERSONNEL

Active duty		4,232
Officers	713	
Enlisted	3,519	
Reserve Components		102
ANG	0	
AFRC	102	
Civilians		1,362
Total		**5,696**

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, timely, 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

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

PERSONNEL

Active duty		398
Officers	267	
Enlisted	131	
Civilians		158
Total		**556**

US Air Force Academy

Hq.: Colorado Springs, Colo.
Estab.: April 1, 1954
Supt.: Lt. Gen. Michael C. Gould

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		2,061
Officers	847	
Enlisted	1,214	
Reserve Components		89
ANG	0	
AFRC	89	
Civilians		1,398
Total		**3,548**

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.)
1,477 squadrons

PERSONNEL

Hq. staff		100
Volunteers		58,426
Senior members	34,538	
Cadets	23,888	
Total		**58,526**

EQUIPMENT

550 single-engine, piston aircraft
57 gliders
1,150 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

2010 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:** forging combat mobility forces and deploying airman warriors. **History:** activated January 1943; inactivated May 1945; reactivated January 1953. **Area:** 7,746 acres. **Inside Runway:** 13,440 ft. **Outside Runway:** 9,000 ft. **Assault Strip:** 3,515 ft. **Altitude:** 1,381 ft. **Personnel:** permanent party military, 1,332; DOD civilians, 1,286. **Housing:** single family, 797; visiting, VOQ/VAQ, 315, TLF, 30. **Clinic.**

Andersen AFB, Guam, APO AP 96543-5000; 2 mi. N of Yigo. **Phone:** (cmcl, from CONUS) 671-366-1110; DSN 315-366-1110. **Majcom:** PACAF. **Host:** 36th Wing. **Mission:** Pacific center for power projection, regional cooperation, and multinational training; serves as a logistic support and staging base for aircraft operating in the Pacific and Indian Oceans. **Major tenants:** 44th Aerial Port Sq. (AFRC); 254th Air Base Gp. (ANG); 497th Combat Training Sq. (geographically separated unit in Singapore); 554th RED HORSE (PACAF); 724th Aeromedical 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.**

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, 58; DOD civilians, 240. **Housing:** single family, officer, 19, enlisted, 21; visiting, 34. **Medical aid station, 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). **GSUs:** 31st Aircraft Maintenance Sq., Athens, Greece; 731st 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, 3,700; DOD civilians, 164. **Housing:** single family govt.-leased, officer, 63, enlisted, 553; unaccompanied, 799; visiting, VOQ, 70, DV, 6, TLF, 96. **NATO hospital.**

Barksdale AFB, La. 71110-5000; in Bossier City. **Phone:** 318-456-1110; DSN 781-1110. **Majcom:** AFGSC. **Host:** 2nd Bomb Wing. **Mission:** B-52H operations and training. **Major tenants:** 8th Air Force (AFGSC); Air Force Global Strike Command; 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, 5,303; DOD civilians, 1,801. **Housing:** single family, officer, 135, enlisted, 574; 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 Wing (AFRC); 7th Space Warning Sq. (AFSPC), Pave PAWS; 548th IRS 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, 869; unaccompanied, 570; visiting, VOQ, 50, VAQ/VEQ, 125, TLF, 28. **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:** single family, 351; unaccompanied, two dorms. **Clinic.**

Cannon AFB, N.M. 88103-5000; 7 mi. W of Clovis. **Phone:** 575-784-1110; DSN 681-1110. **Majcom:** AFSOC. **Host:** 27th Special Operations Wing. **Mission:** MC-130W, AC-130H, MQ-1, and MQ-9 operations. **History:** activated August 1942. Named for Gen. John K. Cannon, WWII commander of all Allied air forces in the Mediterranean Theater and former commander, Tactical Air Command. **Area:** 3,789 acres, excluding range. **Runways:** 10,000 ft. and 8,200 ft. **Altitude:** 4,295 ft. **Personnel:** permanent party military, 3,126; DOD civilians, 609. **Housing:** single family, officer, 175, enlisted, 878; unaccompanied, 578; visiting, VQ, 49, DV, 6, TLF, 42. **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, 1,409; DOD civilians, 585. **Housing:** single family, 517; unaccompanied, UOQ, 234, UAQ/UEQ, 94; visiting, VQ, 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; 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 Gp. (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, 87, enlisted, 842; visiting, VQ, 185, VAQ, 61, TLF, 50. **Clinic.**

Dover AFB, Del. 19902-7209; 6 mi. SE of Dover. **Phone:** 302-677-3000; DSN 445-3000. **Majcom:** AMC. **Host:** 436th Airlift Wing. **Mission:** C-5 and C-17 operations; operates largest DOD aerial port facility; houses military's mortuary. **Major tenants:** 512th AW (AFRC assoc.); Air Force Mortuary Affairs Operations Center. **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, VQ, 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); Det. 5, Air Force Operational Test and Evaluation Center; 31st Test and Evaluation Sq. (ACC); Det. Bravo, Marine Aircraft Gp. 46. **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:** 308,000 acres. **Runways:** 21, from 4,000 to 39,000 ft. **Altitude:** 2,302 ft. **Personnel:** permanent party military, 1,701; DOD civilians, 3,471. **Housing:** officer, 194; enlisted, 603; unaccompanied, UOQ, 80, UEQ, 670. **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 (AETC), F-15; 53rd Wing (ACC); 919th SOW (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, 7,854; DOD civilians, 3,884 (excluding Hurlburt Field). **Housing:** single family, officer, 45, enlisted, 521; unaccompanied, 160, UAQ/UEQ, 933; visiting, VOQ, 169, VAQ/VEQ, 156, TLF, 24. **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. **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, VQ, 80, DV, 8, TLF, 29. **Clinic.**

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:** 141st ARW (ANG), classic associate wing; 336th Training Gp. (USAF Survival School, AETC). **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, 2,759; DOD civilians, 787. **Housing:** single family, officer, 145, enlisted, 685; unaccompanied, UAQ/UEQ, 532; visiting, VOQ, 115, VAQ, 134, VQ, 25, DV, 9, TLF, 42. **Clinic.**

F. E. Warren AFB, Wyo. 82005-5000; adjacent to Cheyenne. **Phone:** 307-773-1110; DSN 481-1110. **Majcom:** AFGSC. **Host:** 90th Missile Wing. **Mission:** Minuteman III ICBMs and UH-1N operations. **Major tenants:** 20th Air Force (AFGSC); 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, 3,078; DOD civilians, 1,017. **Housing:** single family, 827; visiting, TLF, 39. **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, 1,387; DOD civilians, 689. **Housing:** single family, officer, 42, enlisted, 166; unaccompanied, UOQ, 101, UAQ/UEQ, 233; visiting, VOQ, 149, VAQ/VEQ, 278, 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, 1,986; DOD civilians, 366. **Housing:** single family, officer, 101, enlisted, 756; 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, 1,229; DOD civilians, 2,051. **Housing:** single family, officer, 314, enlisted, 470; unaccompanied, UAQ/UEQ, 122; visiting, VQ, 148, TLF, 47. **Clinic.**

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 ABW). **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); Det. 113, AFOSI; 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); 2nd Combat Camera Sq. (AETC); 748th Supply Chain Management Gp. (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, 6,200; DOD civilians, 17,000. **Housing:** single family, officer, 109, enlisted, 909; unaccompanied, UAQ/UEQ, 671; visiting, VQ, 152, DV, 13, TLF, 65. **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, MQ-1 and MQ-9 training. **Major tenants:** 46th Test Gp. (AFMC); 4th Space Control Sq. (AFSPC); Det. 1, 82nd Aerial Target Sq.; Det. 4, Air Force Weather Agency; German Air Force Flying Training Center. **History:** activated 1941. Named for Col. George Holloman, guided-missile pioneer. **Area:** 59,744 acres. **Runways:** 12,000 ft., 10,500 ft., and 8,000 ft. **Altitude:** 4,350 ft. **Personnel:** permanent party military, 3,751; DOD civilians, 1,049. **Housing:** single family, officer, enlisted, 680; unaccompanied, 563; visiting, VQ, 192, TLF, 50. **Clinic.**

Hurlburt Field, Fla. 32544-5000; 5 mi. W of Fort Walton Beach. **Phone:** 850-884-7190; DSN 579-7190. **Majcom:** AFSOC. **Host:** 1st SOW. **Mission:** AC-130U, CV-22, MC-130H, MC-130P (located at Eglin) operations. **Major tenants:** AFSOC; 23rd Air Force (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 Gp. (AFSOC); 25th Intelligence Sq. (AFISRA); 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, 7,340; 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, 1,358; DOD civilians, 96. **Housing:** single family, 806; unaccompanied, UOQ, 48, UEQ, 32; visiting, VOQ, 149, VAQ/VEQ, 159, DV, 16, TLF, 80. **Clinic.**

JB Andrews, 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; Air Force District of Washington; 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.**

JB Bolling, D.C. 20032-5000; 3 mi. S of US Capitol. **Phone:** 703-545-6700; DSN 227-0101. **Host:** 11th Wing. **Mission:** supports USAF and 48,000 USAF members worldwide; oversees USAF Band and USAF Honor Guard. **Major tenants:** Air Force Chief of Chaplains; 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.**

JB Charleston, S.C. 29404-5000; 10 mi. from downtown Charleston. **Phone:** 843-963-1110; DSN 673-1110. **Majcom:** AMC. **Host:** 628th ABW. **Mission:** 437th AW conducts C-17 operations. **Major tenant:** 315th AW (AFRC) C-17 assoc. **History:** activated October 1942; inactivated March 1946; reactivated August 1953. Forms as Joint Base with NAS Charleston in 2010. **Area:** 6,033 acres (including auxiliary airfield). **Runway:** 9,000 ft.; joint-use airfield. **Altitude:** 46 ft. **Personnel:** permanent party military, 3,553; DOD civilians, 962. **Housing:** single family, officer, 84, enlisted, 642; visiting, VQ, 92, DV, 12, TLF, 28. **Clinic.**

JB Elmendorf, 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. Forms as Joint Base with Ft. Richardson in 2010. **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.**

JB Langley, Va. 23665-5000; 3 mi. N of Hampton. **Phone:** 757-764-1110; DSN 574-1110. **Majcom:** ACC. **Host:** 633rd ABW. **Mission:** The 1st FW (ACC) conducts F-15 and F-22A operations. **Major tenants:** ACC; 480th ISRW (ACC); 192nd FW (ANG); Air Force Global Cyberspace Integration Center; Air Land Sea Application Center; 735th SCMG; USAF Heritage of America Band. **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. Forms as Joint Base with Ft. Eustis in 2010. **Area:** 2,900 acres. **Runway:** 10,000 ft. **Altitude:** 11 ft. **Personnel:** permanent party military, 8,057; DOD civilians, 2,264. **Housing:** single family, 1,183; unaccompanied, 884; visiting, VOQ, 78, VAQ, 108, TLF, 150. **Hospital.**

JB Lewis-McChord, 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. Forms as Joint Base with Ft. Lewis in 2010. **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.

JB McGuire, N.J. 08641-5000; 18 mi. SE of Trenton. **Phone:** 609-754-1100; DSN 650-1100. **Majcom:** AMC. **Host:** 87th ABW. **Mission:** The 305th AMW (AMC) conducts C-17 and KC-10 operations. **Major tenants:** 21st Expeditionary Mobility Task Force (AMC); 621st Contingency Response Wing (AMC); US Air Force Expeditionary Center; N.J. Civil Air Patrol; 108th ARW (ANG); 514th AMW (AFRC), assoc. **History:** 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. Formed as Joint Base with Ft. Dix and NAES Lakehurst in 2009. **Area:** 42,000 acres. **Runways:** 10,001 ft. and 7,000 ft.; joint-use airfield. **Altitude:** 133 ft. **Personnel:** permanent party military, 5,189, DOD civilians, 3,812. **Housing:** single family, officer, 139, enlisted, 1,384; visiting, 591, DV, 23, TLF, 50. **Clinic.**

JB Pearl Harbor-Hickam, Hawaii 96853-5000; 9 mi. W of Honolulu. **Phone:** 808-449-7110 (Oahu military operator); DSN 315-449-7110. **Majcom:** PACAF. **Host:** 15th AW. **Mission:** C-17, C-37, C-40 operations. **Major tenants:** PACAF; 13th Air Force; 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. Forms as Joint Base with Naval Station Pearl Harbor in 2010. **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:** single family privatized, officer, 553, enlisted, 1,628;

Air Force Installations

Major installations	FY05	FY06	FY07	FY08	FY09	FY10
US and possessions	72	72	72	72	72	72
Foreign	13	12	12	12	12	12
Worldwide	85	84	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

unaccompanied, UAQ/UEQ, 588; visiting, VOQ, 149, VAQ/VEQ, 83, TLF, 40.

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:** serves as computer and electronics training Center of Excellence and provides weather, basic electronics, communications electronic systems, communications computer systems, air traffic control, airfield management, command post, air weapons control, precision measurement, education and training, financial management and comptroller, information management, and manpower and personnel training. **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:** 6,030 ft. **Altitude:** 33 ft. **Personnel:** permanent party military, 3,956; DOD civilians, 3,483. **Housing:** 946; visiting, 898, TLF, 71. **Keesler Medical Center.**

Kirtland AFB, N.M. 87117-5606; SE quadrant of Albuquerque. **Phone:** 505-846-1110; DSN 246-1110. **Majcom:** AFMC. **Host:** 377th ABW. **Mission:** Air Force Nuclear Weapons Center ensures safe, secure, and reliable nuclear weapon systems to support National Command Authorities and the Air Force. **Major tenants:** 498th Nuclear Systems Wing (AFMC), 58th SOW (AETC), CV-22, HC-130, MC-130, HH-60, UH-1; 150th FW (ANG), F-16; 505th Distributed Warfare Gp. (ACC); 705th Combat Training Sq./Air Force Distributed Mission Operations Center (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:** 52,000 acres. **Runways:** 13,000 ft.; two, each 10,000 ft.; and 6,000 ft. **Altitude:** 5,352 ft. **Personnel:** permanent party military, 3,057; DOD civilians, 3,459. **Housing:** single family, officer, 187, enlisted, 891; unaccompanied, UAQ/UEQ, 828; visiting, VOQ, 181, VAQ/VEQ, 216, DV, 38, TLF, 39. **USAF-VA 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:** 210-671-2908; DSN 473-2908. **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:** 24th Air Force (AFSPC), 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, 20,303; DOD civilians, 7,797. **Housing:** privatized, officer, 106, enlisted, 578; visiting, TLF, 96. **Wilford Hall Medical Center.**

Lajes Field, Azores, Portugal, APO AE 09720-5000; Terceira Island, 900 mi. W of Portugal. **Phone:** (cmcl, from CONUS) 011-351-295-57-1110; DSN from US 312-535-1110, from Europe 314-535-1110. **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 tenant:** 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, 655; DOD civilians, 151. **Housing:** single family, officer, 84, enlisted, 316; unaccompanied, UAQ/UEQ, 169; visiting, 165, TLF, 30. **Clinic.**

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:** 1,082 ft. **Personnel:** permanent party military, 929; DOD civilians, 982. **Housing:** single family, officer, 298, enlisted, 218; unaccompanied, UOQ, 256, UEQ, 264; 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:** 314th AW (AETC), C-130; 189th AW (ANG), C-130; US Air Force Mobility Weapons School (ACC); 96th Aerial Port Sq. (AFRC); and 123rd Intelligence Sq. (ACC); ANG. **History:** activated Oct. 9, 1955. **Area:** 6,600 acres. **Runway:** 12,000 ft. **Altitude:** 310 ft. **Personnel:** permanent party military, 5,340; DOD civilians, 570. **Housing:** single family, 1,024; unaccompanied, 880; visiting, 308. **Clinic.**

Los Angeles AFB, Calif. 90245-4657; in El Segundo, 3 mi. SE of Los Angeles Arpt.; base housing and support facilities 18 mi. S of the main base, in San Pedro. **Phone:** 310-653-1110; DSN 633-1110. **Majcom:** AFSPC. **Host:** 61st ABW. **Mission:** Space and Missile Systems Center is 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, 1,076; DOD civilians, 1,257. **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 1.7 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, 620; unaccompanied, UAQ/UEQ, 838; visiting, 165, TLF, 42. **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:** AFGSC. **Host:** 341st MW. **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 13,800 sq. mi. for missile sites. **Runway:** closed. **Altitude:** 3,460 ft. **Personnel:** permanent party military, 3,382; DOD civilians, 607. **Housing:** single family, officer, 278, enlisted, 838; 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 Center 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

Major Air Force Installations Overseas

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, 3,466; DOD civilians, 5,395. **Housing:** single family, officer, 252, enlisted, 269; unaccompanied, UAQ/UEQ, 183; visiting, 2,278, TLF, 21. **Clinic.**

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:** 3,615 acres. **Runways:** two, each 12,000 ft. **Altitude:** 1,371 ft. **Personnel:** permanent party military, 2,722; DOD civilians, 403. **Housing:** single family, officer, 54, enlisted, 389; unaccompanied, UAQ/UEQ, 615; visiting, VOQ, 20, VAQ/VEQ, 27, TLF, 45. **Clinic.**

Minot AFB, N.D. 58705-5000; 13 mi. N of Minot. **Phone:** 701-723-1110; DSN 453-1110. **Majcom:** AFGSC. **Host:** 5th BW. **Mission:** B-52 operations. **Major tenants:** 91st MW (AFGSC), Minuteman III, UH-1N; 219th Security Forces Sq. (ANG). **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, 5,370; DOD civilians, 569. **Housing:** single family, officer, 166, enlisted, 210; unaccompanied, 933; visiting, 49, 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); Japan 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-10C, HC-130P, HH-60G, and pararescue operations. **Major tenants:** 93rd Air Ground Operations Wing (ACC); 820th Security Forces Gp. (ACC); 476th Fighter Gp. (AFRC) assoc.; 336th Recruiting Sq. (AFRS); Det. 9, 372nd Training Sq. (AETC); Area Defense Counsel; Det. 311, AFOSI. **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:** 233 ft. **Personnel:** permanent party military, 5,349; DOD civilians, 439. **Housing:** single family, officer, 32, enlisted, 318; unaccompanied, 714; visiting, VOQ, 32, VAQ/VEQ, 17, TLF, 32. **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 training—including venues such as Red Flag-Nellis and Green Flag—operational testing, and tactics development in air, space, and cyberspace through the 57th Wing at Nellis, 53rd Wing at Eglin AFB, Fla., and 505th Command and Control Wing at Hurlburt Field, Fla. It oversees 15,000 square miles of airspace and the 2.9 million-acre Nevada Test and Training Range Complex through the 98th Range Wing at Nellis. **Major tenants:** 926th Gp. (AFRC); Det. 1, 22nd Intelligence Sq. (AFISRA); 563rd Rescue Gp. OL-A (ACC); 555th RED HORSE Sq. (AFRC); 820th RED HORSE Sq. (ACC); Joint Unmanned Aircraft Systems Center of Excellence (AFMC); Det. 1, 372nd Training Sq. (AETC). **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, 8,636; DOD civilians, 3,748. **Housing:** single family, 1,178; visiting, 607, VOQ, 103, VAQ/VEQ, 321, TLF, 60. **USAF-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:** 4,006 acres. **Runway:** 11,700 ft. **Altitude:** 1,048 ft. **Personnel:** permanent party military, 5,741; DOD civilians, 1,984. **Housing:** single family, officer, 291, enlisted, 1,349; unaccompanied, 793; visiting, 171, TLF, 240. **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. 32925-4500; 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; 158th Infantry Brigade (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, 3,109; DOD civilians, 1,766. **Housing:** single family privatized, 616; visiting, VOQ, 121, VAQ/VEQ, 102, TLF, 30. **Clinic.**

Peterson AFB, Colo. 80914-5000; at eastern edge of Colorado Springs. **Phone:** 719-556-7321; DSN 834-7321. **Majcom:** AFSPC. **Host:** 21st SW. **Mission:** 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,

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 330-3292
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. 94089-1200 (AFSPC)	DSN 561-3000
Thule AB, Greenland, APO AE 09704-5000 (AFSPC) (ask for Thule operator)	DSN 268-3840

officer, 197, enlisted, 358; unaccompanied, UAQ/UEQ, 710; visiting, VOQ, 149, VAQ/VEQ, 89, TLF, 68. **Clinic.**

Pope AFB, N.C. 28308-2391; 12 mi. NNW of Fayetteville. **Phone:** 910-394-1110; DSN 424-1110. **Majcom:** AMC. **Host:** 43rd AW. **Mission:** C-130 operations. **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, 3,166; DOD civilians, 559. **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; 80 mi. NE of London; 26 mi. NE of Cambridge. **Phone:** (cmcl, from CONUS) 011-44-1638-52-1110; DSN 226-1110. **Majcom:** USAFE. **Host:** 48th FW. **Mission:** F-15C/D and F-15E, operations, HH-60G SAR. **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, 250. **Housing:** single family, officer, 267, enlisted, 1,525; 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, 3,053; DOD civilians, 331. **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-130J operations; expeditionary airlift for first-in base opening capabilities; 86th AW commander also serves as commander of the Kaiserslautern Military Community and provides base support services for KMC. **Major tenants:** USAFE; 3rd Air Force; 17th Air Force (component of US Africa Command); 435th AGOW (USAFE); NATO Allied Air Component headquarters. **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, 13,876; DOD civilians, 7,544. **Housing:** single family, officer, 211, enlisted, 1,475; unaccompanied, UOQ/UEQ 1,118, TLF, 155. **Clinic.**

Randolph AFB, Tex. 78150-5000; 17 mi. NE of San Antonio. **Phone:** 210-652-1110; DSN 487-1110. **Majcom:** AETC. **Host:** 502nd ABW. **Mission:** The 12th FTW conducts T-1, T-6, and T-38 instructor pilot training, combat systems officer training in the T-43, Introduction to Fighter Fundamentals course, Introduction to Unmanned Aircraft Systems Fundamentals, UAS Instrument Qualification Course, and UAS Basic Sensor Operator Course. **Major tenants:** AETC; 19th Air Force (AETC); 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, each 8,350 ft. **Altitude:** 761 ft. **Personnel:** permanent party military, 4,626; DOD civilians, 4,318. **Housing:** single family, officer, 176, enlisted, 190; unaccompanied, UOQ, 202, UEQ, 168; visiting, VOQ, 241, VAQ/VEQ, 77, TLF, 27. **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, UAVs, 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; 689th Combat Communications Wing (AFSPC); 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, 6,210; DOD civilians, 13,815. **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, timing, 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, 2,000; DOD civilians, 627. **Housing:** 200. **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 (AMC); Air Force Network Integration Center; 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, 5,364; DOD civilians, 5,032. **Housing:** privatized, unaccompanied, 1,344; 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, 5,200; DOD civilians, 938. **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:** 16,071 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, 19, family, 782; unaccompanied, 954; 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 60 installations worldwide. **Major tenant:** 80th FTW (AETC), T-6 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:** single family privatized, 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-10C and F-16C 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:** 1,613 acres. **Runway:** 10,000 ft. **Altitude:** 1,196 ft. **Personnel:** permanent party military, 5,252; DOD civilians, 171. **Housing:** single family, 54, visiting, 174, 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; 3rd Combat Communications Gp. (AFSPC); 38th Cyber Engineering 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:** 5,500 acres. **Runways:** 11,100 ft. and 10,000 ft. **Altitude:** 1,291 ft. **Personnel:** permanent party military, 9,174; DOD civilians, 15,911. **Housing:** single family, officer, 102, enlisted, 558; 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, 5,800; 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 F-15 and F-22 pilots. **Major tenants:** Continental US NORAD Region (NORAD)/1st AF/Air Forces Northern (ACC); 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, VQ, 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; provides Introduction to Fighter Fundamentals training to pilot candidates for fighter/bomber flight schools. **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:** 2,122 acres. **Runways:** two, each 9,202 ft.; and 5,024 ft. An additional runway is located at Kegelman auxiliary field: 6,800 ft. **Altitude:** 1,307 ft. **Personnel:** permanent party military, 700; DOD civilians, 225. **Housing:** single family, 260; unaccompanied, UOQ, 200, 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:** AFGSC. **Host:** 509th BW. **Mission:** B-2 operations. **Major tenants:** 442nd FW (AFRC), A-10; 498th Munitions Maintenance Gp. (AFNWC); 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, 5,246; DOD civilians, 2,492. **Housing:** single family, officer, 77, enlisted, 696; 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:** 8,145 acres. **Runway:** Area A, 7,000 ft; Area C, 12,600 ft. **Altitude:** 824 ft. **Personnel:** permanent party military, 6,698; DOD civilians, 10,199. **Housing:** single family, officer, 100; privatized housing, officers, 566, enlisted, 970; unaccompanied, UAQ/UEQ, 408; visiting, 422, TLF, 46.

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, 182, TLF, 189. **Hospital.**

USAF photo

F-22 Raptors and a B-2 bomber in formation over Andersen AFB, Guam.

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:** 256.

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:** 397.

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:** 88.

Atlantic City Arpt., N.J. 08234-9500; 9 mi. NW of Atlantic City. **Phone:** 609-645-6000; DSN 455-6000.

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

Unit: 177th Fighter Wing (ANG). **Area:** 296 acres. **Runways:** 10,000 ft. and 6,144 ft. **Altitude:** 71 ft. **Full-time personnel:** 349.

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:** 396. 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:** 373.

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:** 269.

Boise Air Terminal (Gowen Field), Idaho 83705-8006; 1 mi. S of Boise. **Phone:** 208-422-5322; DSN 422-5322. **Units:** 124th Wing (ANG). Also host for the Army National Guard (ARNG); Army Reserve; Army Research Institute; Navy/Marine Corps Reserves; and Civil Air Patrol. **History:** named for Lt. Paul R. Gowen, killed in B-10 crash in Panama July 11, 1938. **Area:** 576 acres. **Runway:** 9,800 ft. **Altitude:** 2,836 ft. **Full-time personnel:** 541. 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:** 308.

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:** 451.

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:** 338.

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:** 337.

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:** 360.

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:** 329.

Dobbins ARB, Ga. 30069-4904; 16 mi. NW of Atlanta. **Phone:** 678-655-5467; DSN 625-1110. **Units:** 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, 411; 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:** 232.

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:** 353.

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:** 484.

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:** 275.

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:** 344.

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:** 312.

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:** 305.

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:** 322.

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:** 407.

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:** 260.

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:** 290.

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:** 376.

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:** 335.

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:** 75.

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:** 627.

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:** 531.

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:** 351.

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, 305.

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:** 238.

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:** 765.

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:** 312.

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:** 335.

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:** 502.

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:** 656.

Lambert-St. Louis Arpt., Mo. 63044-2371; 20 mi. NW of downtown St. Louis. **Phone:** 314-527-7000; DSN 824-7000. **Unit:** 131st Bomb Wing (ANG). **Area:** 48 acres. **Runway:** 11,000 ft. **Altitude:** 604 ft. **Full-time personnel:** 397.

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:** 337.

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:** 328.

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:** 335.

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:** 300.

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, 795; ANG, 295. **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:** 450.

McEntire JNGB, 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:** 393.

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:** 387. 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, 208; ANG, 270. 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:** 321.

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:** 344.

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, 1,805 acres; ANG, 81 acres. **Runway:** 12,000 ft. **Altitude:** 650 ft. **Full-time personnel:** AFRC, 437; ANG, 252.

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, 500.

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:** 396.

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:** 266.

Niagara Falls Arpt./ARS, 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, 108 acres. **Runway:** 11,000 ft. **Altitude:** 590 ft. **Full-time personnel:** AFRC, 209; ANG, 268. 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:** 296.

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:** 342.

Pittsburgh Arpt./ARS, 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, 219; ANG, 391. **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, 485; AFRC, 42.

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:** 377.

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:** 293.

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:** 445.

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:** 391.

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:** 502.

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, 546; 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:** 311.

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:** 328.

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:** 559.

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:** 627. 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:** 383.

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:** 406.

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:** 907.

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:** 394.

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:** 93.

W. K. Kellogg Arpt., Mich. 49015-5512; 1 mi. W of Battle Creek. **Phone:** 616-969-3400; DSN 580-3210. **Unit:** 110th Wing (ANG). **Area:** 320 acres. **Runway:** 10,003 ft. **Altitude:** 929 ft. **Full-time personnel:** 239.

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, 470. **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:** 270.

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, 254.

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:** 250.

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, 282; ANG, 17. **Lodging:** 142 beds. Limited exchange.

USAF photo by TSgt. Michael OHalloran

A C-5A on the ramp at Stewart ANGB, N.Y.

Gallery of USAF Weapons

Note: Inventory numbers are total active inventory figures as of Sept. 30, 2009.

By Susan H. H. Young

2010 USAF Almanac

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.

Aircraft Location: Dyess AFB, Tex., Edwards AFB, Calif., Eglin AFB, Fla., 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.

Weight: 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

The **B-1B's** blended wing/body configuration, variable-geometry design and turbofan engines combine to provide long range, maneuverability, 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. Aft wing sweep settings, the main combat configuration, permit high speed while enhancing maneuverability, allowing seamless integration into 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 synthetic aperture radar (SAR), capable of tracking, targeting, and engaging moving vehicles, self-targeting stationary targets, and terrain-following. 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. Beyond-line-of-sight (BLOS) reachback connectivity is being enhanced through the Digital Communications Improvement (DCI) program. This capability allows aircrews to receive targeting data from the combined air operations center and to update mission data in the offensive avionics system, enabling rapid and efficient engagement of emerging targets.

The B-1's onboard self-protection electronic jamming equipment, radar warning receiver (ALQ-161), expendable countermeasures (chaff and flare) system, and ALE-50 towed decoy complement its low radar cross section to form an integrated, robust onboard defense system that supports penetration of hostile airspace.

***B-1B** Lancer* (Clive Bennett)

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 a 74,000 lb increase in useable payload, 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 max 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 in 2002, consolidating them at two main operating bases—Dyess AFB, Tex., and Ellsworth AFB, S.D.

The B-1B has received multiple improvements to enhance its lethality and survivability, including addition of GPS, smart weapon carriage, improved onboard computers, and improved communications. USAF began fielding the Sniper targeting pod in mid-2008 as an interim quick-reaction capability.

Current modification programs include radar sustainability and capability upgrades aimed at providing a more reliable system in addition to an ultrahigh-resolution capability that may include automatic target recognition features. The Fully Integrated Data Link (FIDL) program will add Link 16 digital data sharing capability. Phase 1 of flight testing concluded October 2009. FIDL, with associated cockpit upgrades, will provide aircrew with increased situational awareness and targeting capability in the integrated battlefield of the future. Several other obsolete and hard-to-maintain systems are being replaced to improve aircraft reliability.

The B-1B was first used in combat in support of operations against Iraq during Desert Fox in December 1998.

The B-1B 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: AFGSC, ANG.

First Flight: July 17, 1989.

Delivered: Dec. 20, 1993-2002.

IOC: April 1997, Whiteman AFB, Mo.

Production: 21.

Inventory: 20.

Aircraft Location: 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 incl Small Diameter Bomb (SDB) II and the 30,000-lb Massive Ordnance Penetrator (MOP).

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 60,000 lb of weapons.

Four nonafterburning turbofan engines are mounted in pairs within the wing structure, with scalloped over-wing intake ducts and shielded over-wing trailing edge nozzles. The aircraft has a quadruple-redundant fly-by-wire digital

B-2A Spirit (SrA. Jessica Snow)

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 were 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.

Beyond Block 30, USAF has added the Link 16 digital data sharing capability and is replacing the radar. Future plans include adding an EHF satellite communications system.

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.

USAF's nuclear-capable bomber forces were transferred from ACC to AFGSC in February 2010.

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: AFGSC, AFMC, AFRC.

First Flight: April 15, 1952 (YB-52 prototype).

Delivered: November 1955-October 1962.

IOC: June 19, 1955.

Production: 744.

Inventory: 77.

Aircraft Location: Barksdale AFB, La., Edwards AFB, Calif., Minot AFB, N.D.

Contractor: Boeing.

Power Plant: eight Pratt & Whitney TF33-P-3 turbofans, each 17,000 lb thrust.

Accommodation: two pilots, side by side, plus navigator, radar navigator, and electronic warfare officer.

Dimensions: span 185 ft, length 159.3 ft, height 40.7 ft.

Weight: empty approx 188,000 lb, gross 488,000 lb.

Ceiling: 50,000 ft.

Performance (approx): max level speed 650 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), jammer variant MALD-J, and the JASSM-ER.

B-52H Stratofortress (Clive Bennett)

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.

Equipment includes GPS, ARC-210 radio with Have Quick II anti-jam feature; KY-100, providing secure voice and data transmission; Combat Track II (CT II) radio, permitting an interim secure BLOS reachback connectivity allowing aircrew to receive targeting data from the combined air operations center over CT II and then update mission data in the offensive avionics system; 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 (NVG). 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 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, as well as 27 RB-52B dual-role bomber/reconnaissance variants. First flown January 1955, with deliveries between June 1955-August 1956; powered by J57-P-1W, -19W, -29W, or -29WA engines. Retired in the mid-1960s.

B-52C. Multimission version with increased gross weight and larger under-wing tanks. Powered by J57-P-19W or -29WA engines. First flown March 1956; 35 were delivered June-December 1956. Majority retired 1971.

B-52D. Long-range bomber version, first flown June 1956 and used during the Vietnam War. Total of 170 built, with deliveries beginning late 1956. Retired 1982-83.

B-52E. Version with improved bombing, navigation, and electronics systems. First flown October 1957. One hundred delivered October 1957-June 1958. Retired 1969-70.

B-52F. Version with uprated J57-P-43WA engines, first flown in May 1958. Eighty-nine delivered June 1958-February 1959. Retired 1978.

B-52G. Introduced important design changes, including a redesigned wing containing integral fuel tanks for increased range, fixed under-wing external tanks, a shorter tail fin of greater chord, and a remotely controlled tail gun turret that allowed the gunner to be repositioned with the rest of the crew. Initial flight August 1958, with the first of 193 aircraft entering service in February 1959. Operated as the primary bomber during the first Gulf War. Retired 1994.

B-52H. The only version still in service, the H introduced TF33 turbofans, providing increased unrefueled range, and improved defensive armament. First flown July 1960, 102 were built, with deliveries between May 1961 and October 1962. The B-52 currently is employable for both conventional and nuclear missions. As the Air Force's only nuclear or conventional 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. Sniper targeting pods integration is under development. 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.

USAF's nuclear-capable bomber forces were transferred from ACC to AFGSC in February 2010. One B-52 unit will dedicate itself to the nuclear mission at all times.

Fighter and Attack Aircraft

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: 175 (A-10A); 180 (A-10C).
Aircraft Location: Barksdale AFB, La., Boise Air Terminal, Idaho, Davis-Monthan AFB, Ariz., Eglin AFB, Fla., Fort Smith Arpt., Ark., Martin State Arpt., Md., Moody AFB, Ga., Nellis AFB, Nev., Osan AB, South Korea, Selfridge ANGB, Mich., Spangdahlem AB, Germany, 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 NVG. 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 first used in combat during Desert Storm in 1991. The A-10 is projected to serve beyond 2028.

A-10A equipment includes an enhanced GPS/INS (EGI), head-up display (HUD), NVG, 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. As an interim measure, steel straps and stronger fittings are being added to the wings of some aircraft to ensure flight safety.

F-15 Eagle
Brief: A supersonic, all-weather, highly maneuverable tactical fighter designed to permit USAF to swiftly gain and maintain air superiority in aerial combat.
Function: Air superiority fighter.
Operator: ACC, AETC, AFMC, PACAF, USAFE, ANG, AFRC.
First Flight: July 27, 1972.
Delivered: November 1974-85.
IOC: September 1975.
Production: 874.
Inventory: 367.

***A-10A** Thunderbolt II* (Clive Bennett)

Aircraft Location: Barnes Arpt., Mass., Eglin AFB, Fla., Great Falls Arpt., Mont., Jacksonville Arpt., Fla., JB Elmendorf, Alaska, JB Langley, Va., JB Pearl Harbor-Hickam, Hawaii, Klamath Falls Arpt., Ore., Kadena AB, Japan, Mountain Home AFB, Idaho, NAS JRB New Orleans, La., Nellis AFB, Nev., Portland Arpt., Ore., RAF Lakenheath, UK, Robins AFB, Ga., Tyndall AFB, Fla.
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), along with the AIM-9X, is intended 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. In addition, a complete rewiring of 122 F-15C/Ds is under way to enhance maintainability and reliability.

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, USAFE, AFRC.
First Flight: Dec. 11, 1986.
Delivered: April 1988-2004.
IOC: May 1989.
Production: 236.
Inventory: 221.
Aircraft 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

***F-15C** Eagle* (TSgt. Rey Ramon)

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. The array of integrated avionics and electronics systems gives the F-15E the capability to fight at low, medium, and high altitude, day or night, and in all weather. The aircraft carries LANTIRN (Low-Altitude Navigation and Targeting Infrared for Night) pods or advanced pods such as Sniper or Litening on dedicated sensor stations. The F-15E's ground attack capability is supported through a multitude of GPS-aided and precision weapons and by its 20 mm gun for strafing. For its air-to-air capability, it employs a vast array of radar guided and IR homing weapons. The Strike Eagle offers a large and varied ordnance load, long loiter time, precision guided and unguided weapons delivery, and connectivity using Link 16 and ARC-210 SATCOM. Modernization efforts include near-term upgrades such as addition of AESA radar with improved air-to-ground resolution and range; an updated computer processor to allow high-volume, high-speed data transfer; M-code to enhance GPS reception and accuracy; universal armament interface (UAI); and integration of the SDB I and AIM-120D.

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.

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: 1,156.

Aircraft Location: Aviano AB, Italy, Edwards AFB, Calif., Eielson AFB, Alaska, Hill AFB, Utah, Homestead ARB, Fla., Kunsan AB, South Korea, Luke AFB, Ariz., Misawa AB, Japan, NAS JRB Fort Worth, Tex., Nellis AFB, Nev., Osan AB, South Korea, Shaw AFB, S.C., Spangdahlem AB, Germany, and ANG in Alabama, California, Colorado, Indiana, Iowa, Maryland, Minnesota, New Jersey, New Mexico, New York, Ohio, Oklahoma, South Carolina, South Dakota, and Vermont.

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.

COMMENTARY

The F-16 is the workhorse of the USAF fighter fleet, supporting the majority of precision guided munitions taskings in combat operations.

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-round 20 mm internal gun.

***F-16** Fighting Falcon* (SrA. Jonathan Snyder)

Production of the F-16A and B for USAF ended in 1985. A midlife update program, undertaken cooperatively by USAF and NATO operators, gave F-16A/Bs the ability to use next generation air-to-air and air-to-ground weapons. The Multinational Staged Improvement Program (MSIP), implemented in 1980, ensured the aircraft could accept systems under development, thereby minimizing retrofit costs. All F-16s delivered from 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. ANG and AFRC Block 25/30/32 variants have upgrades that increase throughput and memory for new weapon capabilities, including GBU-31/38/54 JDAM, WCMD, AIM-9X, AIM-120 updates, MALD, plus advanced IFF. Follow-on improvements include the ALQ-213 electronic warfare system, ALR-69 threat warning system, and ALE-47 improved defensive countermeasures. 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.

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. The F-16 Common Configuration Implementation Program (CCIP) has been completed for bulk of F-16 fleets with Block 50/52 in 2006 and most Block 40/42 in spring of 2010 (PACAF expected to finish June 2010). CCIP provides a new modular mission computer and color displays, Sniper XR targeting pod, JHMCS, AIM-9X, Link 16, and improved weapons capabilities.

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 AIM-9X, multishot AMRAAM compatibility, GBU-31/38/54 JDAM, WCMD, AGM-158 JASSM, and laser guided bomb variants (GBU-10/12/24) using Sniper and Littening AT targeting pods. Downlink capability integrates with ROVER systems to support joint terminal attack controllers (JTACs) on the ground to increase close air support (CAS) effectiveness. Planned future upgrades include selective availability anti-spoofing module (SAASM), MALD with new mission planning software and SDB integration.

During Desert Storm, USAF F-16s flew more sorties than any other type, with 13,500 missions.

***F-22A** Raptor* (SrA. Laura Turner)

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.

Delivered: 2002 (first production representative aircraft).

IOC: Dec. 15, 2005.

Production: 187 (planned).

Inventory: 141.

Aircraft Location: Edwards AFB, Calif., Holloman AFB, N.M., JB Elmendorf, Alaska, JB Langley, Va. (first operational location), JB Pearl Harbor-Hickam, Hawaii (planned), Nellis AFB, Nev., Tyndall AFB, Fla.

Contractor: Lockheed Martin; Boeing.

Power Plant: two Pratt & Whitney F119-PW-100 turbo-

fans, each in 35,000-lb thrust class.

Accommodation: pilot only, 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

USAF's newest fighter, the **F-22A** is a critical element of the Global Strike Task Force, built to operate by day and night and in adverse weather and across the spectrum of missions. The F-22A represents an unrivaled 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 before being detected. 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 shows 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.

Future improvements include an upgraded radar and up to eight SDBs for enhanced ground attack capability. Subsequent plans include the addition of AIM-9X and the Multifunction Advanced Data Link (MADL) for connectivity with B-2 and F-35 aircraft.

The F-22A 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.

The Pentagon has capped production at 187 aircraft, with final delivery expected in 2012.

F-35 Lightning II

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

Function: Multirole fighter.

Operator: ACC, AETC for USAF.

First Flight: Dec. 15, 2006 (F-35A prototype).

Delivered: 2010).

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.

Aircraft Location: Planned: Edwards AFB, Calif., Eglin AFB, Fla., Hill AFB, Utah; further operational and training locations TBD.

Contractor: Lockheed Martin, with Northrop Grumman and BAE Systems; Pratt & Whitney is propulsion contractor; General Electric is second source engine contractor for the production phase.

Power Plant: currently one Pratt & Whitney F135, in 40,000-lb thrust class.

Accommodation: pilot only, on zero/zero ejection seat.

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

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/vertical landing (STOVL) aircraft, combat radius more than 590 miles for CTOL variant, 600 miles for CV, and 450 miles for STOVL.

Armament: 11 weapons 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 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 2010. Full-scale flight-test operations are planned to begin at Edwards AFB, Calif., in 2010, 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, AF-1, flew for the first time Nov. 14, 2009.

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.

***AC-130H** Gunship* (SrA. Julianne Showalter)

Special Operations Forces Aircraft

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).

Aircraft Location: Cannon AFB, N.M. (H model), Hurlburt Field, Fla. (U model).

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 serve with the 27th SOW. They 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. Planned 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 for 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. Ongoing and planned modifications include ETCAS, Link 16, an advanced gunship multispectral sensor system (GMS2), 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.

CV-22 Osprey

Brief: A long-range, tilt-rotor, multimission transport aircraft designed to have the maneuverability and lift capability of a helicopter and the speed of a fixed wing aircraft. It can operate in adverse weather and restricted visibility.

Function: Multimission airlift.

Operator: AETC, AFSOC.

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

Delivered: 2006.

IOC: 2009.

Production: 50 (planned).

Inventory: 12.

Aircraft Location: Hurlburt Field, Fla., Kirtland AFB, N.M.

Contractor: Bell Boeing; Raytheon.

Power Plant: two Rolls Royce-Allison AE1107C turboshafts, each 6,200 shp.

Accommodation: four (two pilots, two flight engineers); additional pilot for extended duration missions; up to 18 troops or 8,000 lb internal cargo.

Dimensions: proprotor diameter 38 ft, width, rotors turning 84.6 ft, fuselage length 57.3 ft, height 22 ft.

Weight: gross weight 34,900 lb, max VTO 52,870 lb; STO 57,000 lb, self-deploy T-O 60,500 lb.

Ceiling: 26,000 ft.

Performance: typically will carry troops or cargo over a 500-mile combat radius at 265 mph. Self-deployment range with one air refueling 2,417 miles.

COMMENTARY

CV-22 is the designation for the US Special Operations Command variant of the V-22 Osprey. The CV-22 is a multiengine, 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 unrefueled combat range satisfies current and emergent major theater war (MTW) requirements, as well as national mission taskings. The aircraft is capable of completing most assigned missions during one period of darkness.

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. The first operational deployment, to Africa, took place in November 2008, and the first combat deployment, to Iraqi, in summer 2009.

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.

***CV-22** Osprey* (SSgt. Markus Maier)

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).

Aircraft Location: Duke Field, Fla., 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 aerial refueling as a receiver and tanker, are NVG-compatible, and have a modified tail empennage for their high-speed, low-level 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 with leaflet bundle drops. Combat Talons are able to air-drop, including using joint precision airdrop system (JPADS) 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.

USAF is acquiring **MC-130J** variants, modified USMC KC-130J platforms, to replace the MC-130E model.

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 and tilt-rotor aircraft and airdrop.

Operator: AETC, AFSOC, ANG, AFRC.

First Flight: Dec. 8, 1964 (as HC-130H).

Delivered: from 1965.

IOC: 1986.

Production: (converted).

Inventory: 27.

Aircraft Location: Duke Field, Fla., Eglin AFB, Fla., Kadena AB, Japan, Kirtland AFB, N.M., Moffett Field, Calif., RAF Mildenhall, UK.

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

***MC-130P** Combat Shadow* (USAF photo)

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.

Upgrades to the MC-130P feature improved navigation, communications, threat detection, and countermeasures systems. The Combat Shadow fleet has fully integrated INS/GPS and NVG-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 JPADS capable. AFSOC aircraft will be modified with a cargo handling system by 2011 to provide the ability to support palletized cargo and heavy equipment.

The MC-130J, which eventually will replace the MC-130P, will be a new-build C-130J based on a modified USMC KC-130J.

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 and tilt-rotor aircraft or to air-drop small special operations teams, small bundles, and zodiac and combat rubber raiding craft.

Function: Air refueling for SOF helicopter and tilt-rotor aircraft and airdrop.

Operator: AFSOC.

First Flight: Dec. 8, 1964 (as HC-130H).

Delivered: June 2006.

IOC: 2008.

Production: 12 (converted).

Inventory: nine.

Aircraft 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

The **MC-130W** 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 tilt-rotor aircraft. It also is capable of supporting limited command and control operations. The aircraft itself can be air refueled to extend its mission range. Additionally, select MC-130Ws will be modified with a precision strike package to support battlefield overwatch missions until more SOF gunship platforms are procured.

ISR/BM/C3 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.

Aircraft Location: JB Elmendorf, Alaska, Kadena AB, Japan, Tinker AFB, Okla.

Contractor: Boeing; Northrop Grumman (radar); Lockheed Martin (computer).

Power Plant: four Pratt & Whitney TF33-PW-100/100A turbofans, each 21,000 lb thrust.

Accommodation: flight crew of four; 13-19 mission specialists.

Dimensions: span 145.8 ft, length 152.9 ft, height 41.5 ft.

Weight: gross 347,000 lb.

Ceiling: 38,000 ft.

Performance: optimum cruise Mach 0.78, endurance eight hr unrefueled.

COMMENTARY

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, significantly enhancing the Air Force's air C2BM capabilities for the 21st century battlefield. It provides 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-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.

Aircraft 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).

An E-4B Modernization Block 1 (MB 1) upgrade 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 2012.

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 1996-2005

IOC: Dec. 18, 1997.

Production: 18.

Inventory: 18.

Aircraft Location: Robins AFB, Ga.

Contractor: Northrop Grumman; Motorola; Cubic; Raytheon.

Power Plant: (currently) 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)

***E-8C** Joint STARS* (USAF photo)

***EC-130J** Commando Solo II* (USAF photo)

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 to detect targets. 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 (IP) local area network and beyond-line-of-sight (BLOS) connectivity. 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 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 is in hand, with the first operational aircraft expected to receive the new engines circa late 2010.

EC-130 Commando Solo

Brief: A heavily modified C-130 used for psychological warfare broadcasts and information operations.
Function: Psychological warfare.
Operator: ANG.
First Flight: January 1980.
Delivered: March 1980 (J model from 2003).
IOC: December 1980.
Production: no new-build EC-130E; seven (EC-130J).
Inventory: seven (EC-130J).
Aircraft Location: 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.

***MQ-1** Predator* (SSgt. Brian Ferguson)

EC-130E Commando Solo. Version used by the ANG as a broadcasting station for psychological warfare operations. Specialized modifications included 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 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: 15.
Aircraft 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 38 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.

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, ANG.
First Flight: April 2009.
Delivered: April 2009.
IOC: May 2009.
Production: 37 (planned).
Inventory: 31.
Aircraft Location: Key Field, Miss. (initial weapon system training); others TBD.
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 are based on the King Air 350 Extended-Range model.

The MC-12W began operations in Iraq in June 2009 and in Afghanistan in December 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: 126.

Aircraft Location: Cannon AFB, N.M., Creech AFB, Nev., Ellington Field, Tex., Hector Arpt., N.D., Holloman AFB, N.M., March ARB, Calif., Nellis AFB, Nev.
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 is 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 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.

At the end of 2009, 31 of the 39 UAV combat air patrols (CAPs) supporting operations in Southwest Asia were being flown by Predators. 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.

The Predator was first used to support a humanitarian operation in January 2010 in response to the earthquake in Haiti.

MQ-1 is the multimission weaponized Predator A. It carries the Raytheon AN/AAS-52 Multispectral Targeting System (MTS-A) sensor in place of the Wescam sensor. 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 airborne 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.

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 ISR aircraft.
Operator: ACC, AFSOC, ANG.
First Flight: February 2001.
Delivered: November 2003.
IOC: FY07.
Production: 319 (planned).
Inventory: 35.
Aircraft Location: Cannon AFB, N.M., Creech AFB, Nev., Hancock Field, N.Y., Holloman AFB, N.M.
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 range finder/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.

Reapers form a part of USAF's increasing CAP capability in Southwest Asia operations.

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.
Aircraft 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 man-made 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.
Aircraft Location: various 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 16.8 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 to 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.
Function: Electronic reconnaissance aircraft.
Operator: ACC.
First Flight: not available.
Delivered: circa 1973-99.
IOC: circa 1973 (Rivet Joint).
Production: (converted).
Inventory: 25.
Aircraft 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 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.

MQ-9 Reaper (Lawrence Crespo)

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: 77 (planned).
Inventory: 17.
Aircraft 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.
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 are currently performing operational missions supporting overseas contingency operations (OCO). Block 20 (Imint) is larger, with enhanced Imint capability; all six are supporting development testing or joint urgent operational need efforts. Block 30 (Multi-int) aircraft will add the airborne signals intelligence payload (ASIP), a high- and low-band signals intelligence (Sigint) capability, to the existing Imint mission; fielding of the 42 Multi-int systems is projected to start in FY12. Block 40 is also a multimission platform; 22 aircraft will provide SAR 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: 33.
Aircraft 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, featuring 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-2A 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 BLOS 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 versions of the U-2, designated ER-2, which are used for high-altitude scientific experiments and atmospheric research, including investigation of global ozone depletion.

***RQ-4** Global Hawk* (Bobbi Zapka)

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).
Aircraft Location: 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.


***U-2S** Dragon Lady* (SrA. Jenifer H. Calhoun)

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).
Aircraft Location: Davis-Monthan AFB, Ariz., Francis S. Gabreski Arpt., N.Y., Kirtland AFB, N.M., Kulis ANGB, Alaska, Moody AFB, Ga., 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, can be part of the crew complement when needed.

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 installed and some are outfitted with 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 HC-130s were removed from the C-130 Avionics Modernization Program (AMP) due to scheduled recapitalization of the fleet with HC-130J aircraft. The new version, using new C-130Js and based on the modified USMC KC-130J, will ultimately replace the existing fleet of HC-130N/Ps.

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 and aeromedical evacuation 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.
Aircraft Location: JB McGuire, 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 medium-range tanker aircraft, meeting the air refueling needs of USAF bomber, fighter, cargo, and reconnaissance forces, as well as USN, USMC, and allied aircraft; also provide aeromedical evacuation transport.
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: two (KC-135E); 363 (KC-135R); 54 (KC-135T).
Aircraft Location: Altus AFB, Okla., Fairchild AFB, Wash., Grissom ARB, Ind., JB Andrews, Md., Kadena AB, Japan, MacDill AFB, Fla., March ARB, Calif., McConnell AFB, Kan., RAF Mildenhall, UK, Seymour Johnson AFB, N.C., and ANG in Alabama, Arizona, Illinois, Iowa, Kansas, Maine, Michigan, Mississippi, New Hampshire, New Jersey, Ohio, Oklahoma, Tennessee, Utah, Washington, and Wisconsin.
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.
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. Now retired.

KC-135R/T. Designation of re-engined KC-135A/Es with F108 turbofans. Modifications include upgrade to 25 major systems and subsystems, increased fuel-carrying capacity, and reduced maintenance costs. KC-135R/Ts can operate from 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 have Link 16 capability to relay tactical information beyond line of sight of other aircraft.

***KC-10** Extender* (Lt. Peter Scheu, USN)

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); 46 (C-5B); two (C-5C); four (C-5M).
Aircraft Location: Dover AFB, Del., Eastern West Virginia Arpt., W.Va., Lackland AFB, Tex., Memphis Arpt., Tenn., Stewart ANGB, N.Y., Travis AFB, Calif., 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, normal cruising speed at altitude 518 mph (Mach 0.77), 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.

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.

Under the Avionics Modernization Program (AMP), all C-5 models will be upgraded with a state-of-the-art cockpit and global access navigation safety compliance.

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 AMP 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., in early 2009. Nearly four months of operational testing and evaluation concluded in early 2010. Program completion is currently scheduled for 2017.

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).
Aircraft 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, terrain awareness warning system (TAWS), Enhanced Mode S, and vertical separation equipment.

C-12 Huron
Brief: A twin-engine turboprop that provides diplomatic and special duty support passenger/cargo airlift and test support.
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.
Aircraft Location: Edwards AFB, Calif., Holloman AFB, N.M., JB Elmendorf, 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. Equipment includes the most up-to-date navigation, communication, and safety equipment as well as state-of-the-art avionics.
C-12C. Re-engined C-12As, with PT6A-41 turboprops, deployed to overseas embassies.
C-12D. Similar to C model, with cargo doors, and also deployed to overseas embassies.
C-12F. With uprated PT6A-42 engines, to support medical airlift.
C-12J. A military version of the larger Beechcraft Model 1900, operated by PACAF.

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: 223 (planned).
Inventory: 190.
Aircraft Location: Allen C. Thompson Field, Miss., Altus AFB, Okla., Dover AFB, Del., Edwards AFB, Calif., JB Charleston, S.C., JB Elmendorf, Alaska, JB Lewis-McChord, Wash., JB McGuire, N.J., JB Pearl Harbor-Hickam, Hawaii, March ARB, Calif., Travis AFB, Calif.
Contractor: Boeing.
Power Plant: four Pratt & Whitney F117-PW-100 turbofans, each 40,440 lb thrust.
Accommodation: normal flight crew of three (two pilots plus loadmaster); additional pilot may be carried. Provisions for full range of military airlift missions, incl capacity for up to 189 passengers, 102 paratroops, or 36 litters; range of military cargo incl tanks and up to three AH-64A helicopters; three Bradley vehicles; one M1A2 main battle tank with other equipment; 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* (Clive Bennett)

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.

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.
Aircraft Location: JB Andrews, 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 special air mission (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.


***C-21** (SMSgt. David H. Lipp)*

C-130 Hercules (Capt. Andrew G. Hoskinson)

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: 56.
Aircraft Location: Bradley Arpt., Mass., Buckley AFB, Colo., Hector Arpt., N.D., JB Andrews, Md., Keesler AFB, Miss., Peterson AFB, Colo., Ramstein AB, Germany, Scott AFB, Ill., W. K. Kellogg Arpt., Mich.
Contractor: Gates Learjet.
Power Plant: two AlliedSignal TFE731-2 turbofans, each 3,500 lb thrust.
Accommodation: crew of two and up to eight passengers or 3,153 lb cargo. Convertible to aeromedical evacuation configuration.
Dimensions: span 39.5 ft, length 48.6 ft, height 12.2 ft.
Weight: empty, equipped 10,119 lb, gross 18,300 lb.
Ceiling: 51,000 ft.
Performance: max level speed at 25,000 ft 542 mph, range with max passenger load 2,306 miles, with max cargo load 1,653 miles.
COMMENTARY
C-21A aircraft provide operational support airlift for time-sensitive movement of people and cargo throughout the US and 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: ANG.
First Flight: September 1999 (developmental aircraft).
Delivery: 2010 (planned).
IOC: TBD.
Production: 38 (planned).
Inventory: TBD.
Aircraft Location: (planned) Bradley Arpt., Conn., Hector Arpt., N.D., Key Field, Miss., Mansfield Lahm Arpt., Ohio, Martin State Arpt., Md., W. K. Kellogg Arpt., Mich.
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
The **C-27J** Spartan is a derivative of the Alenia G.222, selected in 2007 to fulfill the Joint Cargo Aircraft (JCA) requirement. Spartan has a digital avionics suite and the cockpit is NVG compatible. Floor strength is equal to that of the C-130, and the cargo bay can accommodate C-130 pallets. Owned and operated by ANG, the C-27J will 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.

C-32A
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.
Aircraft Location: JB Andrews, Md., JB McGuire, 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 distinguished visitor (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.
Operator: AMC, PACAF, USAFE.
First Flight: USAF October 1998.
Delivered: from October 1998.
IOC: Dec. 9, 1998.
Production: 10 (C-37A); one (C-37B).
Inventory: nine (C-37A); one (C-37B).
Aircraft Location: Chievres, Belgium, JB Andrews, Md., JB Pearl Harbor-Hickam, 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 JB Andrews, 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 JB Pearl Harbor-Hickam, 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.
Aircraft Location: JB Andrews, 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.
Aircraft Location: JB Andrews, Md., JB Pearl Harbor-Hickam, Hawaii, Ramstein AB, Germany, 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 four C-40Bs. 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: 63 (C-130E); 280 (C-130H); 71 (C-130J).

Aircraft Location: Dobbins ARB, Ga., Dyess AFB, Tex., Hurlburt Field, Fla., Keesler AFB, Miss., Little Rock AFB, Ark., Maxwell AFB, Ala., Minneapolis-St. Paul Arpt./ARS, Minn., Niagara Falls Arpt., N.Y., Peterson AFB, Colo., Pittsburgh Arpt., Pa., Pope AFB, N.C., Ramstein AB, Germany, Yokota AB, Japan, and ANG in Alaska, California, Delaware, Georgia, Hawaii, Illinois, Kentucky, Maryland, Minnesota, Missouri, Nevada, New York, North Carolina, Ohio, Puerto Rico, Rhode Island, Texas, West Virginia, Wyoming.

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

Basic and specialized versions of the C-130 Hercules transport 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, introduced from the mid-1950s, 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-130B**s 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-130H**s 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 2019. The AMP upgrade includes all C-130s 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 ft 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 126 C-130J combat-delivery aircraft.

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.

Aircraft Location: JB Andrews, 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-25A**s assigned to JB Andrews, 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.

***HH-60G** Pave Hawk* (Greg L. Davis)

Helicopters

HH-60G Pave Hawk

Brief: Specially modified helicopters used primarily for combat search and rescue, also aeromedical evacuation, casualty evacuation, civil SAR, and other support missions.

Function: Personnel recovery medium-lift helicopter.

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

First Flight: October 1974.

Delivered: from 1982.

IOC: circa 1982.

Production: 105; 15 Pave Hawk modifications of new-build UH-60s planned.

Inventory: 100.

Aircraft Location: Davis-Monthan AFB, Ariz., Francis S. Gabreski Arpt., N.Y., Kadena AB, Japan, Kirtland AFB, N.M., Kulis ANGB, Alaska, Moffett Field, Calif., Moody AFB, Ga., Nellis AFB, Nev., Patrick AFB, Fla., RAF Lakenheath, UK.

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 personnel recovers, including 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 external rescue hoist. Combat enhancements include RWR, IR jammer, flare and chaff countermeasures dispensing system, and two 7.62 mm or .50-caliber machine guns.

UH-1

Brief: Modified Bell helicopter used to support Air Force ICBM facilities, undergraduate pilot training, combat aviation advisor training, and administrative airlift.

Function: Utility and training helicopter.

Operator: AETC, AFGSC (transferred from AFSPC in December 2009), AFMC, AFSOC, AMC, PACAF.

First Flight: 1956.

Delivered: from September 1970.

IOC: circa 1970.

Production: 79 (USAF).

Inventory: 27 (TH-1H); two (UH-1H); 62 (UH-1N).

Aircraft Location: Fairchild AFB, Wash., F. E. Warren AFB, Wyo., Ft. Rucker, Ala., Hurlburt Field, Fla., JB Andrews, Md., 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

TH-1H is a modified version of the UH-1H (Huey II kit) for use by the 23rd Flying Training Squadron (23rd FTS) at Ft. Rucker, Ala., for Air Force undergraduate

helicopter pilot training. The TH-1H includes upgraded transmission, new drive train, upgraded engine, new rotor system, new tail boom, new hydraulics system, and a "glass" digital cockpit.

UH-1H is a single-engine version of the UH-1 utility helicopter (Bell Model 205). It is a former Army-owned training helicopter transferred to USAF in 2004 for use by the 23rd FTS. Two UH-1H helicopters are maintained by AFSOC for combat aviation advisor training.

UH-1N is a twin-engine version of the UH-1 utility helicopter (Bell Model 212), most of which are used for ICBM 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 combat aviation advisor training.

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.
Aircraft Location: Columbus AFB, Miss., Laughlin AFB and Randolph AFB, Tex., Vance AFB, Okla., NAS Pensacola, Fla.
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 officers (CSOs) 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, CSOs, 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.
Delivered: from May 2000 (operational aircraft).
IOC: November 2001.
Production: Planned: 372 (USAF); 328 (USN).
Inventory: 431 (USAF).
Aircraft Location: Columbus AFB, Miss., Laughlin AFB, Randolph AFB, and Sheppard AFB, Tex., Vance AFB, Okla. 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.

T-1A Jayhawk (Greg L. Davis)

The **T-6B** with avionics upgrade employs advanced technologies that include glass cockpit multifunction displays and backup flight instruments, HUD, hands-on-throttle-and-stick functionality, and integrated avionics computers.

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 CSO training.

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: 456.
Aircraft Location: 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.
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 2026.

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 the USAF Test Pilot School 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 practice bomb dispenser, the remaining AT-38Bs are used by AFMC for test and evaluation.

T-38C. C model T-38s are reconfigured A and B airframes with modifications to the avionics systems to include a HUD. The first T-38C was delivered late summer 2002; last delivery was made in August 2007. The propulsion system is also being upgraded to improve performance and reliability, with completion scheduled October 2010. 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.
Aircraft Location: US Air Force Academy, 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: seven.
Aircraft 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. The last aircraft are programmed to retire September 2010.

T-51A

Brief: A short-range, high-wing aircraft used primarily for aerodynamic and navigation courses.

Function: Training, competition.
Operator: AETC.
Delivered: 1970s.
Inventory: three.
Aircraft 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+.
Performance: speed 124 mph, range 475 miles.
COMMENTARY
The **T-51A,** the military designation for the civilian Cessna 150, 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.

TG-10B/C
Brief: Sailplane used for cadet orientation and soaring training.
Function: Trainer.
Operator: AETC.
Delivered: May 2002.
IOC: December 2002.
Inventory: 12 (TG-10B); five (TG-10C).
Aircraft Location: USAFA, Colo.
Contractor: Blanik.
Accommodation: two.
Dimensions: span (B) 55.4 ft, (C) 46.6 ft, length (B) 27.9 ft, (C) 27.6 ft, height (B) 6.2 ft, (C) 6.9 ft.
Weight: (B) 1,168 lb, (C) 1,100 lb.
Performance: speed (B) 142.6 mph, (C) 146.1 mph; glide ratio (B) 28:1, (C) 26:1.
COMMENTARY
The **TG-10B Merlin** is a civilian L-23 Super Blanik sailplane. The **TG-10C Kestrel** is a civilian L-13AC Blanik sailplane. Both models, produced in the Czech Republic, share common cockpit and control layouts allowing cadets to move between the two as necessary. These gliders are used for local orientation flights and training. A few have been modified for wave soaring.

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.
Aircraft Location: USAFA, Colo.
Contractor: Blanik.
Accommodation: one.
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.

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

Delivered: September 2002.
IOC: December 2002.
Inventory: four.
Aircraft 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/B
Brief: Sailplane used for cadet orientation and soaring training.
Function: Trainer/cross-country competition sailplane.
Operator: AETC.
Inventory: two (TG-15A); three (TG-15B).
Aircraft Location: USAFA, Colo.
Contractor: Schempp-Hirth, Germany.
Accommodation: (A) two-seat, (B) single-seat.
Dimensions: span (A) 65.6 ft, (B) 49.2 ft; length (A) 28.3 ft, (B) 32.3 ft.
Weight: gross (A) 1,543 lb, (B) 1,157 lb.
Performance: max permitted speed 155 mph, aspect ratio (A) 24:4, (B) 22:2.
COMMENTARY
Both the two-seat **TG15A,** civilian designation Duo Discus, and single-seat **TG-15B,** civilian designation Duo 2b, sailplanes are manufactured by Schempp-Hirth of Germany. They are used for cross-country soaring training and competition.

UV-18B Twin Otter
Brief: Modified utility transport used for parachute jump training.
Function: Paradrop.
Operator: AETC.
First Flight: May 1965 (commercial version).
Delivered: 1977 (two); 1982 (one).
IOC: 1977.
Production: three.
Inventory: three.
Aircraft 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,** the military designation for the civilian DeHavilland DHC-6 Twin Otter, are used to support various parachuting activities at USAFA and perform general utility missions. They are also used by the USAFA parachute team, The Wings of Blue.

***AGM-86** Air Launched Cruise Missile* (Boeing photo)

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: AFGSC.
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.

ACC transferred its nuclear-capable bomber force, with its weapons complement, to AFGSC on Feb. 1, 2010.

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: AFGSC.

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 is retiring 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: AFGSC.

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.

Warhead: 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-30** Minuteman III* (USAF photo)

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.

AFSPC transferred responsibility for USAF's ICBM force to AFGSC on Dec. 1, 2009.

Tactical Missiles and Weapons

AGM-65 Maverick

Brief: A tactical, TV- or imaging infrared (IIR)-guided or laser 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: (AGM-65A/B/H/K) self-homing, TV guidance system; (AGM-65D/G) IIR seeker; (AGM-65E/E2) laser seeker.

Warhead: (AGM-65A/B/D/H) 125-lb high-explosive, shaped charge; (AGM-65E) 125-lb penetration/blast fragmentation; (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 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.

AGM-65E2. A new production state-of the-art version of the laser guided Maverick ordered by USAF and USN for precision strike against high-speed moving targets in urban settings. Anticipated first delivery in 2010.

AGM-65G. Uses the IIR seeker with an alternate 298-lb blast fragmentation warhead for use against hardened targets. Software is modified to include options for targeting ships and large land targets as well as mobile armor. This version also has a digital autopilot and a pneumatic, rather than hydraulic, actuation system. USAF received its first G model in 1989.

AGM-65H. AGM-65B modified with an upgraded TV seeker providing significant reliability, maintainability, and performance improvements over the AGM-65B seeker and double the standoff range.

AGM-65K. AGM-65G modified with the same upgraded TV seeker as in the AGM-65H to provide a TV guided version of the Maverick with the 298-lb blast fragmentation warhead.

AGM-88 HARM

Brief: An air-to-surface tactical missile designed to seek and destroy enemy radar-equipped air defense 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 combat 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.

IOC: 2000 (USAF).

Production: 6,114 (originally planned).

Contractor: Raytheon.

Guidance: INS/GPS.

Warhead: (see variants below).

Dimensions: length 13.3 ft.

Weight: 1,065-1,500 lb.

Performance: range 17 miles low-altitude launch, 40+ miles high-altitude launch.

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/Unitary integrates an IIR terminal seeker and a 500-lb unitary warhead.

AGM-158A Joint Air-to-Surface Standoff Missile

Brief: An advanced weapon designed to attack heavily defended targets with high precision at great standoff range.

Function: Air-to-surface guided weapon.

First Flight: April 8, 1999.

Delivered: through FY19 (planned).

IOC: September 2003. JASSM-ER projected 2010.

Production: 2,400, plus 2,500 JASSM-ER (planned).

Contractor: Lockheed Martin; Raytheon; Honeywell.

Power Plant: Teledyne Continental Motors; ER, Williams Turbofan.

Guidance: INS, GPS, and IIR terminal seeker.

Warhead: J1000 1,000-lb class penetrator.

Dimensions: length 14 ft.

Weight: 2,250 lb; (ER) 2,390 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, B-52H, 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.

An extended-range version **(JASSM-ER),** with a range of more than 500 miles, is currently in integrated flight testing. Operational test and evaluation is expected to begin in 2011.

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, providing low-altitude guidance and fuzing capability. Block 2 provides new-build for AIM-7P guidance and control sections.

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, finspan 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. A jointly funded Navy-USAF project, the AIM-9X entered service with USAF's F-15-equipped 12th and 19th FS, part of the 3rd Wing at Elmendorf AFB, Alaska, in November 2003. 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.

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 in 2006.

CBU-87/103 Combined Effects Munition

Brief: The CBU-87 CEM is an area munition effective against light armor, materiel, and personnel and used

***AGM-88** High-speed Anti-Radiation Missile* (USAF photo)

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 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.

***GBU-10** Paveway II* (MSgt. Michael Ammons)

First Flight: 2002.
Delivered: 2002-03.
IOC: December 2002.
Production: not available, but completed March 2003.
Contractor: General Dynamics (kinetic energy penetrator payload and canister); 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, F-16, and MQ-9 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
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 in service May 1985.
Delivered: from 1986.

IOC: 1986.
Production: 14,000.
Contractor: Raytheon.
Guidance: semiactive laser.
Warhead: BLU-109 (A/B).
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.

GBU-28
Brief: A large 5,000-lb class air-to-ground penetrating warhead (BLU-113/B) equipped with an advanced laser guidance kit, used for striking and destroying hard and deeply buried targets.
Function: Air-to-surface guided glide bomb.
First Flight: February 1991.
Delivered: circa 1991.
IOC: 1991.
Production: approx 500.
Contractor: Raytheon.
Guidance: laser.
Dimensions: length 19.2 ft, diameter 1.2 ft.
Weight: 4,676 lb.
Performance: range more than 5.75 miles.
COMMENTARY
Under USAF's rapid-response program, the GBU-28 bunker-busting LGB was developed for Desert Storm for use against deeply buried, hardened C2 facilities. Four of the GBU-28 weapons were used during the war: two for testing and two by F-111Fs against a bunker complex Feb. 27, 1991. Guidance is by a modified GBU-27 system.
GBU-28B/B. Integrates GPS/INS guidance into the existing GBU-28 guidance control unit to provide adverse weather capability and improved target location. Entered production in FY99.
GBU-28C/B. Utilizes the improved BLU-122/B warhead for increased penetration, lethality, and survivability. Guidance and control is provided by an Enhanced Paveway III system with GPS/INS and laser capability. Entered production in FY05.

GBU-31/32/38 Joint Direct Attack Munition
Brief: A joint USAF-Navy INS/GPS guided weapon, carried by fighters and bombers, that provides highly accurate, autonomous, all-weather conventional bombing capability.
Function: Air-to-surface guided bomb.
First Flight: Oct. 22, 1996.
Delivered: 1998-2013 (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 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 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 was developed under a Joint Capability Technology Demonstration (JTCD) program, aimed at providing pinpoint strike capability with low collateral damage. Delivery of 50 weapons for operational assessment was made March 2008, with an additional 50 weapons in the inventory.
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 early 2010.

GBU-54 LJDAM
A joint USAF-Navy INS/GPS-guided weapon equipped with a laser seeker, carried by fighters, 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).
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.

Massive Ordnance Penetrator (MOP)
Brief: A massive earth-penetrating weapon for use against hard and deeply buried targets.
Function: Massive bomb.
Guidance: GPS.
Warhead: 5,300 lb high explosive.
Dimensions: length 20.5 ft, diameter 31.5 in.
Weight: 30,000 lb.
COMMENTARY
Currently under development by Boeing. USAF is planning to integrate the MOP on the B-2A stealth bomber. Initial deployment is anticipated for the end of 2010.

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 operational on A-10, B-1, B-52, F-15E, and F-16 aircraft. Objective aircraft include B-2 and F-35.

***GBU-32** Joint Direct Attack Munition* (USAF photo)

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: 2010 (planned).
IOC: June 2013 (planned).
Constellation: four satellites.
Design Life: 14 years.
Launch Vehicle: Atlas V; Delta IV.
Operational 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: two (primary).
Design Life: 48 months.
Launch Vehicle: Delta IV; Atlas V.
Operational Location: Schriever AFB, Colo.
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 Obama Administration in February 2010 canceled the planned shift from DMSP to a tri-agency NPOESS.
Block 5D-2. The last Block 5D-2 satellite was launched in December 1999.
Block 5D-3. Three operational DMSP Block 5D-3 satellites now 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.) F17 launched on Nov. 4, 2006; F18 launched on Oct. 18, 2009. Block 5D-3 satellites have an improved spacecraft bus and sensors that provide for longer and more capable missions.
With the end of the NPOESS program, USAF is to pursue a DMSP follow-on, starting in late Fiscal 2011.

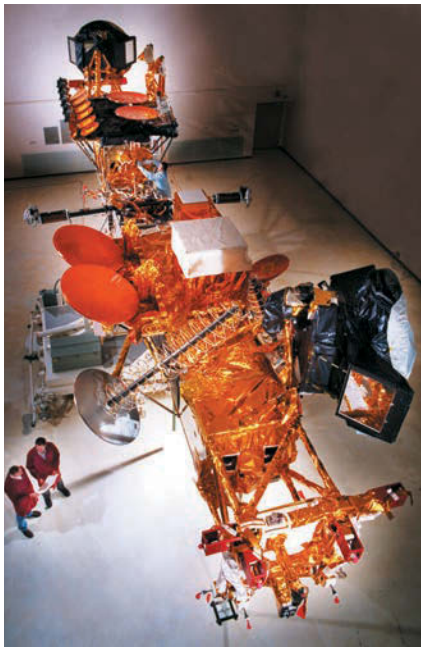
Defense Satellite Communications System
Brief: Joint service satellite system that provides high-capacity communications for deployed air, land, and sea forces.
Function: Communications satellite.
Operator: AFSPC.
First Launch: 1971 (DSCS II); 1982 (DSCS III); 2000 (DSCS III/SLEP).
IOC: Dec. 13, 1978 (DSCS II).

Global Positioning System IIF (Boeing illustration)

Constellation: five (III); 14 deployed/eight currently operational.
Design Life: 10 yr (III).
Launch Vehicle: Atlas II.
Operational Location: Schriever AFB, Colo.
Orbit Altitude: 22,000+ miles in geosynchronous orbit.
Contractor: Lockheed Martin.
Power Plant: solar arrays generating 1,269 watts, decreasing to 980 watts after 10 yr; 1,500 watts (SLEP).
Dimensions: rectangular body 6 x 6 x 7 ft, 38-ft span with solar arrays deployed.
Weight: 2,580 lb; 2,716 lb (SLEP).
Performance: DSCS satellites orbit Earth at about 22,000 miles altitude and employ six SHF transponder channels for secure voice and high-rate data communications.
COMMENTARY
DSCS III satellites support globally distributed DOD and national security users. The final four of 14 satellites received SLEP modifications, providing substantial capacity improvements through higher power amplifiers, more sensitive receivers, and additional antenna connectivity options. The DSCS communications payload includes six independent superhigh frequency (SHF) transponder channels that cover a usable bandwidth of 400 MHz. 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.
Operational 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, the first element of which was declared operational in 2008.

Global Positioning System
Brief: A US 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-satellite constellation in six medium-Earth orbits; max 35 sats; 30 operational.
Design Life: 7.5 yr (II/IIA); 10 yr (IIR/IIR-M); 12 yr (IIF).
Launch Vehicle: Delta II; Delta IV; Atlas V.
Operational 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) 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 GPS Block IIR-M satellites, launched beginning September 2005, offer 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. GPS Block IIF satellites will have an extended design



***Milstar** Satellite Communications System*
(Lockheed Martin photo)

life, faster processors, and a new civil signal on a third frequency. The first GPS Block IIF launch is scheduled for 2010. Future generation GPS III satellites will provide improved accuracy, availability, integrity, and resistance to jamming. Launch is slated for 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.
Operational 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 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.

Operationally Responsive Space-1 (ORS-1)

Brief: An ISR satellite based on an existing infrared platform to provide essential intelligence gathering capabilities in direct support to US national security interests.

Function: Intelligence collection for specific area of responsibility (AOR).
Operator: AFSPC.
First Launch: late 2010 (planned).
IOC: spring 2011 (planned).
Constellation: one (with possibility of second).
Design Life: one yr.
Launch Vehicle: Minotaur.
Operational Location: Schriever AFB, Colo.
Orbit Altitude: approx 249 miles.
Contractor: Goodrich; ATK (bus).
COMMENTARY

The ORS-1 satellite is the Air Force's response to an urgent need validated by USSTRATCOM during 2008. The ORS-1 orbit and sensor provide the capability for rapid revisit of the AOR, so that timely ISR needs can be adequately met. ORS-1 combines the use of the existing U-2 imaging technology with the proven TacSat-3 satellite bus. The use of primarily commercial and government products greatly reduces the development timeline, therefore allowing for a much shorter program development timeline. The Multimission Space Operations Center ground system, on which ORS-1 will be flown, will be leveraged as the ground system for future mission-unique space systems. Tasking for ORS-1 will come from CENTCOM, while mission execution will be accomplished by the 1st SOPS at Schriever Air Force Base.

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: (GEO) FY10 (planned).
IOC: December 2001 (Increment 1).
Constellation: four (GEO sats, two HEO sensors) (planned).
Design Life: not available.
Launch Vehicle: (GEO) Atlas V.
Operational Location: Buckley AFB and Schriever AFB, Colo.
Orbit Altitude: Geosynchronous and high elliptical.
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 mission 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 checks, HEO-1, the first SBIRS payload, was cleared for operational service in late 2008. HEO-2 was cleared for operational service in August 2009. The HEO payloads 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 and object identification.
Operator: AFSPC.
First Launch: 2010 (planned).
IOC: TBD.
Constellation: one low Earth orbit (LEO) satellite.
Design Life: seven years, with 5.5 mean mission duration.
Launch Vehicle: Minotaur IV.
Operational Location: Schriever AFB, Colo.
Orbit Altitude: 390 miles, sun-synchronous orbit.
Contractor: Boeing (system integration, ground segment, operations and sustainment); Ball Aerospace, (satellite).
Power Plant: 750 watts, powered from solar arrays and Ni-hydride batteries.
Dimensions: (approx) height 10 ft; 10 ft x 3.2 ft, plus solar panels.
Weight: (approx) 2,273 lb.
COMMENTARY

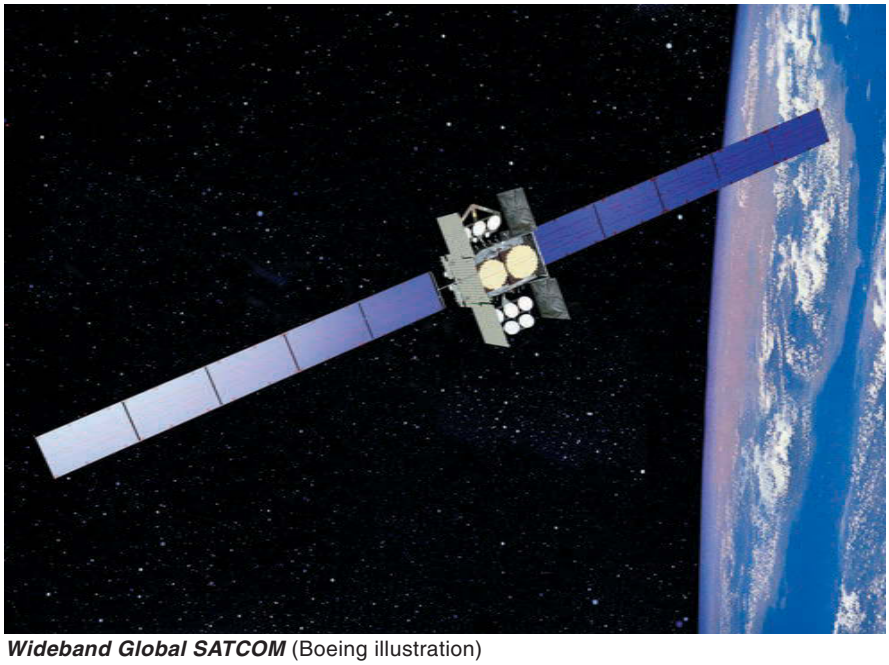
SBSS is a planned follow-on to the advanced concept technology demonstration MSX/SBV satellite to provide tracking and collect optical signatures of Earth-orbiting objects from a space-based platform to avoid terrestrial limitations. The first operational satellite (SSBS Block 10) is due to be launched in spring 2010, and a follow-on satellite is planned for launch in 2016. The single LEO satellite will be commanded and controlled by the 50th Space Wing, Schriever AFB, Colo., using the global Air Force Satellite Control Network.

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: April 16, 2008.
Constellation: two sats on orbit; third on-orbit testing, with three more planned.
Design Life: 14 years.
Launch Vehicle: Atlas V; Delta IV.
Operational 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. Each WGS satellite provides approximately 10 times the capacity of each DSCS III satellite. 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 provides direct broadcast of digital multimedia, high-bandwidth imagery, and video information directly from global and theater sites to deployed warfighters. Based on 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 in 2012 with launch of the fifth satellite. ▪



Wideband Global SATCOM (Boeing illustration)

AFA National Report

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By Frances McKenney, Assistant Managing Editor

The Wall That Heals

A half-scale replica of the Vietnam Veterans Memorial in Washington, D.C, will travel to Fort Walton Beach, Fla., next month, but the **Eglin Chapter (Fla.)** has already begun pitching in to help with expenses incurred by the visit.

Through its education foundation, the chapter has donated $2,500 to the Heritage Museum of Northwest Florida, the primary host for the June 17-20 visit of the replica.

The chapter has pledged further help, too. In February, for example, the chapter held a wine and cheese social. Guests were encouraged to make a $25 donation to attend.

The replica of the polished black granite monument is called "The Wall That Heals" and is sponsored by the Vietnam Veterans Memorial Fund, the group responsible for the original wall.

The replica is made of 24 powder-coated aluminum panels, each containing six columns of names. The panels join together to form a structure nearly 250 feet wide.

The Wall That Heals was dedicated in 1996 and has visited more than 300 locations since then. It is scheduled for stops at some 20 US sites this year. The traveling wall exhibit includes nine display windows with biographical information on some of the more than 58,000 people whose names are on the wall. It also features items, such as dog tags and boots, that have been left at the original memorial by visitors.

Eglin Chapter President Jeffrey L. Fanto said the replica wall is visiting the area as part of the celebration for the 75th anniversary of Eglin Air Force Base's dedication.

Enola Gay Commemorated

On a visit to the Altamonte Springs City Library in Florida last year, local resident Stephen K. Gilliland checked out a copy of the book *Flight of the Enola Gay.*

The 1989 autobiography was written by Paul W. Tibbets Jr., pilot of the B-29 that dropped the atom bomb on Hiroshima in August 1945, bringing World War II to an end.

Gilliland discovered that the library's copy was autographed by Tibbets, Thomas W. Ferebee, the *Enola Gay's* bombardier, and Theodore J. Van Kirk, the navigator.

A history buff reading up on World War II, Gilliland recognized the importance of this and asked the **Central Florida Chapter** for help in preserving the book for display at the library. Chapter officials gave him the go-ahead to assemble a shadow box holding the softback book and other items, such as copies of photos of Tibbets' mother, Enola Gay Tibbets, the bomber's crew, and the mission.

On Feb. 23, the anniversary of Paul Tibbets' birth in 1915, Chapter President William A. Yucuis, Aerospace Education VP Richard A. Ortega, and Gilliland presented the shadow box to Diana Long, director of the library.

Tibbets, a retired brigadier general, died in November 2007. Ferebee, a retired colonel, died in 2000. Van Kirk is a retired chemical engineer.

The library displays the shadow box in its lobby, and a replacement copy of the book, purchased with chapter funds, is on the shelves for circulation.

Minnesota in Wisconsin

The **Richard I. Bong Chapter,** based in Minnesota, held its awards banquet

Staff photo by Darcy Harris

AFA Board Chairman Joe Sutter addresses the guests at the AFA reception in Arlington, Va., for foreign air attachés stationed in Washington, D.C. Australian Air Commodore David Steele, dean of the attaché corps, headed a guest list of military representatives from more than 30 countries.

More photos at http://www.airforce-magazine.com, in "AFA National Report"

Membership Dues To Increase

On Sept. 13, 2009, AFA convention delegates approved the first association dues increase since 2001. (Previous increases were in 1993 and 1997.) One-year membership will increase to $45; three-year membership to $110; and life membership to $600. The increase will be implemented for all categories on July 1. The delegates also directed a review of the dues structure. The review will begin in 2012.

at the Richard I. Bong Veterans Historical Center in Wisconsin. The awards honored a Minnesota Air National Guard unit.

This sort of back-and-forth geography happens because the "Twin Port Cities" of Duluth, Minn., and Superior, Wis., lie a mere 1.5 miles across the water from each other at the western end of Lake Superior.

At this awards ceremony, several members of the 148th Fighter Wing, based at Duluth Airport, were recognized: Capt. Scott Cheslak, 2nd Lt. Ryan Blazevic, MSgt. Michael J. Hawkinson, MSgt. William J. Hawley, TSgt. Reginald E. Saxton, TSgt. Julie M. Tomaska, and SrA. Anna Carlson.

Guest speakers were Brian Ryks, executive director of the Duluth Airport Authority, and Col. John Spencer, the wing commander.

P-38 pilot and Medal of Honor recipient Richard Bong was "America's Ace of Aces," credited with 40 aerial victories in World War II. Bong grew up in Superior and Poplar, Wis. He joined the Army Air Corps in 1941 and flew in the Pacific Theater, racking up so many air-to-air victories that he was ordered back to the States for his own safety. He died in August 1945 while test flying a P-80 jet fighter in California.

Cadets Tyre Hill (left) and Christina Brooks take part in an AFA wreath-laying ceremony at Arlington National Cemetery's Tomb of the Unknowns. They were on a Tidewater Chapter-sponsored field trip to Washington, D.C.

Field Trip!

If it's spring, it's time for Chesapeake, Va., area AFJROTC cadets to visit Washington, D.C. The **Tidewater Chapter** of Virginia sponsors the day-long field trip, with a truly hands-on effort.

As he has before, Chapter Secretary Gordon Strong, who also heads the Grassfield High School AFJROTC unit in Chesapeake, organized the project.

AFJROTC instructors from all six Junior ROTC programs in the Tidewa-

ter area selected 190 cadets for the excursion. The chapter raised funds through an AFA chapter matching grant, a Virginia state AFA grant, and a huge pancake breakfast that fed several hundred guests.

The chapter hired four buses and, in March, loaded them up for a Saturday in the nation's capital.

Several chapter members went along as chaperones: Chapter President Allan G. Berg, Treasurer Robert C. Hudson, Membership VP William M. Cuthriell, and Brian Maki. Also lending a hand: Catherine Bacon, from the **Langley Chapter (Va.).**

The cadets first went to Arlington National Cemetery to lay an AFA wreath at the Tomb of the Unknowns. Retired SMSgt. Dwayne Hillard, an AFJROTC instructor at Grassfield, commented, "Just being at Arlington and walking around is a humbling experience, but having the cadets participate in a formal ceremony is an experience all the cadets will remember for a long time."

The students visited the National Air and Space Museum, then completed their field trip by taking in the Vietnam Veterans Memorial, Korean War Veterans Memorial, and the Lincoln Memorial.

Evening in Fort Wayne

The flight surgeon for 122nd Fighter Wing, Indiana Air National Guard, addressed the **Fort Wayne (Ind.) Chapter's** awards banquet in January, describing his tour of duty in Iraq.

Col. William W. Pond related his experiences as commander of a military hospital in Baghdad in 2008, as well as his work last year as a medical investigating officer for military aircraft accidents in Afghanistan.

The chapter's program, held at a local hotel, began with an invocation by Chapter Government Relations VP Samuel Conte and a Civil Air Patrol honor guard presenting the colors.

During the evening's awards presentations, AFA national-level 2009 awards went to Chapter VP Brandon M. Monticue, who received a Medal of Merit, and Marjorie A. Feeback, honored with an Exceptional Service Award.

The chapter named John Kirkwood, its newly elected president, as Member of the Year. Past President Cynthia A. Joyce received the Distinguished Service Award. A Community Partner Gold Award went to Hyrle A. Ivy Jr. Three former chapter board members received Special Recognition Chapter Citations: Everitt Padgitt, longtime chapter treasurer; Jeanne T. Hissem, state and chapter secretary for many years; and Feeback, a past chapter secretary. CAP cadet Tyler Lee received the Civil Air Patrol Scholarship.

Joint-Service Meeting

The **L. D. Bell-Niagara Frontier Chapter** in New York held its chapter meeting at the Buffalo Yacht Club, an unusual location for an Air Force group but the regular meeting place for the local Navy League group with whom they joined forces for a March meeting.

Guest speaker was AFRC Col. Mark P. Murphy, vice commander of the 914th Airlift Wing, Niagara Falls Arpt., N.Y.

Chapter President Richard H. Waring reported that Murphy spoke about the background of the unit, including the versatility of its C-130s on deployments where they had to land on short, unimproved sites.

Murphy covered the base's status, a matter of concern to his listeners since the Air Reserve Station had been targeted for closure by BRAC 2005. Today, construction is finishing up on the base's large new Army Reserve Center that consolidates several smaller centers scattered in the state.

The audience at this luncheon meeting even included Coast Guardsmen, said Waring, underscoring its jointness.

Rocking Rockets

"Rocket and Roll" headlined the March meeting of the **Lewis E. Lyle Chapter** in Hot Springs, Ark.

Allen Saylor, a science teacher at Lake Hamilton Junior High School in Pearcy, spoke to the group about aerospace programs at his school and the Rocket and Roll project in particular.

The 8th grade class of 340 students is divided into groups of three and tasked with constructing model rockets from a kit and two engines.

In the course of the project, the students learn the basics of Newton's laws of motion, propulsion, acceleration, and calculations for speed and height.

Chapter member Steven Wozniak had originally learned about this project, and its need for funding, while delivering a copy of the *Air Force* Magazine to the school's library. He contacted George T. Carrithers, the chapter's aerospace education VP, who arranged for an AFA $250 Educator Grant. The chapter matched it to help Saylor offset the project's cost of more than $1,500 a year.

Morris Cash, chapter secretary, noted that the rocket project is funded solely by donations, and that the students have had to help pay for their supplies.

More Chapter News

■ Members of the **Orange County/Gen. Curtis E. LeMay Chapter (Calif.)** gathered at the Planes of Fame Air Museum at Chino Airport for a meeting in March. The museum covers the history of manned flight and has more than 150 aircraft, some 50 of them still flyable. "Those attending truly enjoyed the tour of the aircraft," commented Chapter President Bryan Roland.

At an AFA Florida meeting, Lt. Gen. Loren Reno (front row, second from right), USAF deputy chief of staff for logistics, installations, and mission support, spoke about the "State of the Fleet." With him are several guests, Red Tail Memorial Chapter President Mike Emig (back row, center), and next to him, Region President Jim Connors.

■ At its quarterly meeting in February, the **Denton Chapter** in Texas hosted the first induction ceremony for the local high school's Kitty Hawk Air Society. The chapter, headed by Peter B. Lane, now not only sponsors the Denton High School AFJROTC unit but also its honor society. The Kitty Hawk Air

Society stresses academic excellence, community service, and development of leadership skills. The first members of the school's society are Kyle Anderson, Jacob Atkins, Cameron Brown, Marvin Cardona, Hector Delgado, Jacob Long, and Pratichhya Baruwal.

■ The **Blue Ridge Chapter** in North Carolina has provided subscriptions to *Air Force* Magazine for three county public libraries in the western part of the state. In February, they arranged for the magazine to go to the Haywood and McDowell County Libraries, and in March, they added the Transylvania County Library to the list. Chapter President Kenneth Walters said the chapter will review its finances and would like to arrange subscriptions for more libraries.

■ **Hawaii Chapter** President Nora Ruebrook represented AFA at an Air Force Advisory Council reception in December 2009 for Secretary of the Air Force Michael B. Donley. USAF's top civilian leader was on a six-base tour of Pacific Air Forces sites. PACAF commander Gen. Gary L. North and the Hawaii Air National Guard commander, Maj. Gen. Darryll D. M. Wong, a Hawaii Chapter member, were among the VIPs at the reception. The council is chaired by Hawaii Chapter member Heidi K. Wild. ■

Reunions

reunions@afa.org

27th Air Transport Gp, including 310th, 311th, 312th, 325th Ferrying Sqs; 86th, 87th, 320th, 321st Transport Sqs; 519th, 520th Service Sqs. Sept. 30-Oct. 3 in Las Vegas. **Contact:** Fred Garcia, 6533 W. Altadena Ave., Glendale, AZ 85304 (623-878-7007).

48th FS, FIS, & FTS. Sept. 28-Oct. 2 in Dayton, OH. **Contact:** Joe Onesty, 455 Galleon Way, Seal Branch, CA 90740 (562-431-2901)(jonesty2@roadrunner.com).

92nd USAAF-USAF Memorial Assn. July 22-24 at the Northern Quest Resort & Casino in Airway Heights, WA. **Contact:** Wayne Reece, PO Box 1109, Carlton, OR 97111 (503-852-9523) (wayner-eece92ma@comcast.net).

394th BG. Sept. 9-12 in Minneapolis. **Contacts:** Elden Shook (937-864-2983) (shook585@aol.com) or Julie Murphy (651-456-9400) (j.murphy77@comcast.net).

511th Aircraft Control & Warning Sq, including 613th, 847th, 848th. Sept. 22-26 in Branson, MO. **Contact:** Don Simmons, 704 S. Grove Rd., Richardson, TX 75081 (972-231-6518) (dona7112@sbcglobal.net).

548th Recon Tech Gp & 548th RTS. July 8-10 at Hope Hotel & Conference Center in Dayton, OH. **Contact:** Bill Forsyth, PO Box 75549, Kapolei, HI 96707 (webmaster@548rtg.org).

603rd ACWS. Sept. 29-Oct. 4 in Los Alamos, NM. **Contact:** Al Cabral, PO Box 4552, Albuquerque, NM 87196 (34fredo@gmail.com).

ABCCC. Oct. 7-10 at the Ramada Plaza in Dayton, OH. **Contact:** Ken Witkin (301-758-8365) (abccc_association_president@verizon.net.).

AC-119 & AC-47 Gunships, including 17th, 18th, and 71st Special Ops, and 3rd and 4th Air Commandos. Sept. 17-19 in Fairfield, CA. **Contact:** Wayne Laessig (707-592-4492) (qadvocate@sbcglobal.net).

AF Comm. & ATC Assoc. Sept. 23-26 at the Hilton Myrtle Beach Resort, SC. **Contact:** Bill Bethea (540-349-4803).

Air Weather Assn. Aug. 11-15 in Colorado Springs, CO. **Contact:** Kevin Lavin (434-296-2832) (airweaassn@aol.com). ■

AFA Conventions

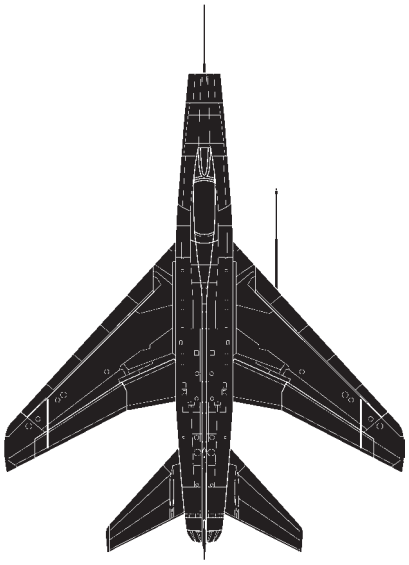
June 10-12	**California State Convention,** Beale AFB, Calif.
June 26	**North Carolina State Convention,** Goldsboro, N.C.
July 24	**Alabama State Convention,** Huntsville, Ala.
Sept. 11-12	**AFA National Convention,** Washington, D.C.
Sept. 13-15	**AFA Air & Space Conference,** Washington, D.C.

E-mail unit reunion notices four months ahead of the event to reunions@afa.org, or mail notices to "Reunions," *Air Force* Magazine, 1501 Lee Highway, Arlington, VA 22209-1198. Please designate the unit holding the reunion, time, location, and a contact for more information. We reserve the right to condense notices.

Airpower Classics

Artwork by Zaur Eylanbekov

F-100 Super Sabre



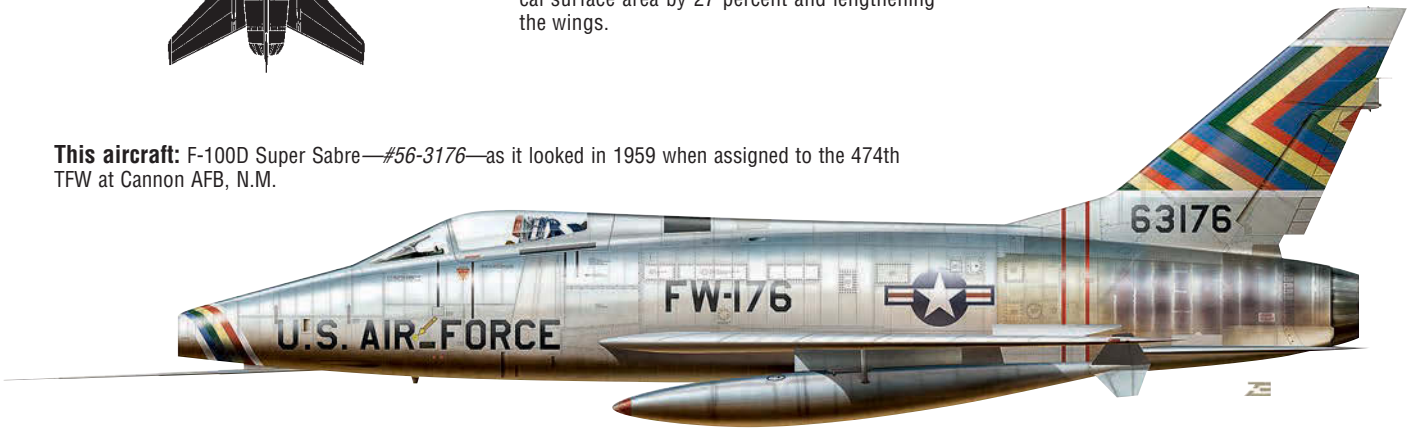
The sleek F-100 Super Sabre was the world's first operational fighter capable of supersonic performance in level flight. USAF's F-100, designed and built by North American Aviation, was derived from the fabled F-86 Sabre, but was bigger and more powerful. It underwent a metamorphosis. Designed as an air superiority fighter for countering Soviet airpower, the F-100 eventually emerged as a premier fighter-bomber.

The initial USAF contract called for three aircraft; it marked the start of the fabled "Century Series" of USAF fighters. The F-100 featured a wing with 45 degrees of sweep-back, leading edge slats, and slatted ailerons, but no conventional flaps. Its all-metal structure contained titanium to offset temperature rise at high speed. The YF-100 went supersonic on its first flight. A series of crashes forced design changes such as increasing vertical surface area by 27 percent and lengthening the wings.

The aircraft turned in a strong performance in the Vietnam War, used by both the regular USAF and the Air National Guard. It was flown in more than 360,000 combat sorties and was the first fighter to be used in the dangerous and innovative Wild Weasel mission. Later, the F-100 starred in the legendary "Misty" fast forward air control role.

—Walter J. Boyne

This aircraft: F-100D Super Sabre—*#56-3176*—as it looked in 1959 when assigned to the 474th TFW at Cannon AFB, N.M.



Super Sabre on the attack.

In Brief

Designed, built by North American ★ first flight May 25, 1953 ★ crew one or two ★ number built 2,294 ★ **Specific to F-100D:** one PW J57 turbojet engine ★ armament four 20 mm M-39E cannons, two AIM-9 or Bullpup air-to-ground missiles ★ max load 7,040 lbs of bombs ★ max speed 892 mph ★ cruise speed 587 mph ★ max range 1,200 mi ★ weight (loaded) 38,048 lb ★ span 38 ft 9 in ★ length 47 ft 5 in ★ height 16 ft 2 in.

Famous Fliers

Medal of Honor: George "Bud" Day. **Record Setters:** Frank Everest Jr. (world speed record, 755 mph, in 1953), Horace Hanes (world speed record, 822 mph, in 1955), Carlos Talbott (record coast-to-coast average speed of 611 mph in 1955). **Notables:** John Boyd, Wilbur Creech, Ron Fogleman, James McInerney, Merrill McPeak, Dick Rutan, Donald Shepperd.

Interesting Facts

Nicknamed "the Hun" ★ suffered high accident rate—889 lost ★ flown by forces of US, Taiwan, Denmark, France, Turkey ★ equipped for nuclear strike mission ★ generated "Sabre Dance," a dangerous reaction to stalls at high angles of attack ★ accidentally shot down a B-52 with AIM-9B missile (April 7, 1961) ★ used for quick overflights of Soviet territory ★ served in Thunderbirds aerial demonstration team (1956-68) ★ flown in the first successful supersonic ejection (1955).

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