May 2013/$8

Journal of the Air Force Association

AIR FORCE MAGAZINE

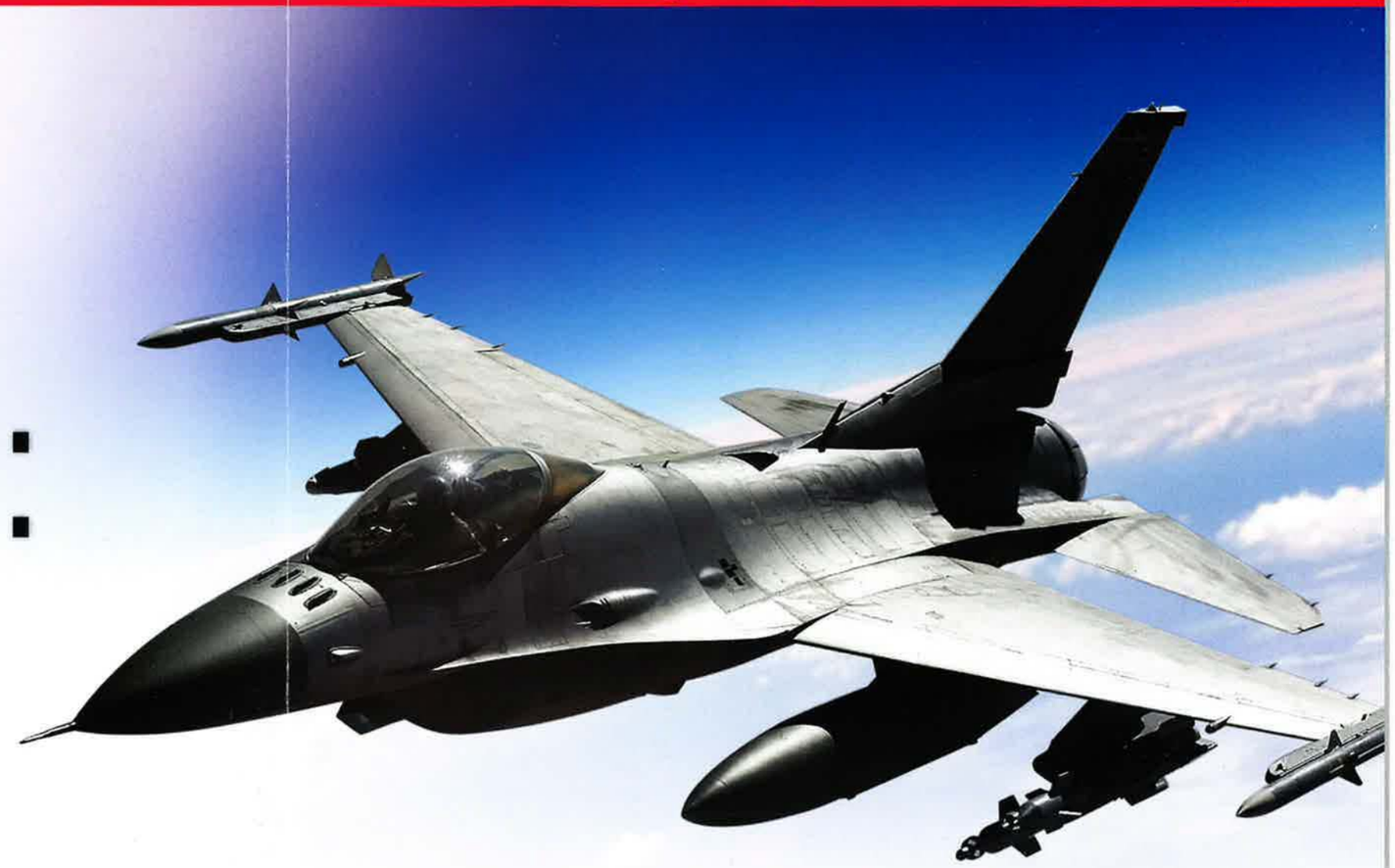
2013 USAF Almanac

Sensing / Effects / C4I / Training & Logistics / Cyber

MISSION:

MODERNIZE WITHOUT COMPROMISE

Raytheon's drop-in, plug-and-play technology is turning older aircraft into cutting-edge fighters, allowing countries to maximize their fleets even in a time of tighter budgets. By enhancing pilot awareness and empowering platforms, we're enabling tomorrow's missions, today.



See how RACR is bringing plug-and-play, state-of-the-art performance to today's fighter jets at:

Raytheon.com

Raytheon

Customer Success Is Our Mission

Journal of the Air Force Association

AIR FORCE MAGAZINE

2013 USAF Almanac

May 2013, Vol. 96, No. 5

Journal of the Air Force Association
AIR FORCE MAGAZINE

May 2013, Vol. 96, No. 5

1501 Lee Highway
Arlington, Va. 22209-1198
Tel: 703/247-5820
Telefax: 703/247-5855

www.airforcemag.com

THE MOST PROVEN.
AND STILL PROVING IT.

With more than one million flight hours, the C-130J still hasn't met its match. From aerial refueling to search and rescue, fighting wildfires and special operations, the C-130J stands ready for its next mission. And for whatever the future holds. C-130J. The world's most proven airlifter. Load up on all the details at: **lockheedmartin.com/C130**

100 YEARS OF ACCELERATING TOMORROW

LOCKHEED MARTIN

Journal of the Air Force Association

AIR FORCE MAGAZINE

About the cover: Bald Eagles in Alaska. See "USAF Almanac 2013," p. 34. Corbis photo by Daniel J. Cox.

DEPARTMENTS

AIR FORCE Magazine (ISSN 0730-6784) May 2013 (Vol. 96, No. 5) is published monthly by the Air Force Association, 1501 Lee Highway, Arlington, VA 22209-1198. Phone (703) 247-5800. Periodical postage paid at Arlington, Va., and additional mailing offices. **Membership Rate:** $45 per year; $110 for three-year membership. **Life Membership (nonrefundable):** $600 single payment, $630 extended payments. **Subscription Rate:** $45 per year; $29 per year additional for postage to foreign addresses (except Canada and Mexico, which are $10 per year additional). Regular issues $5 each. USAF Almanac issue $8 each. **Change of address** requires four weeks' notice. Please include mailing label. **POSTMASTER:** Send changes of address to Air Force Association, 1501 Lee Highway, Arlington, VA 22209-1198. Publisher assumes no responsibility for unsolicited material.

Air Force Association
1501 Lee Highway • Arlington, VA 22209-1198
Telephone: (703) 247-5800
Toll-free: (800) 727-3337

Press 1 *if you know your party's extension.*
Press 2 *for Membership.*
Press 3 *for Insurance and other Member Benefit programs.*
Or *stay on the line for an operator to direct your call.*

Fax: (703) 247-5853

Internet: http://www.afa.org/

E-Mail Addresses

Field Services ..... **fldsvcs@afa.org**
Government Relations ..... **grl@afa.org**
Industry Relations ..... **irl@afa.org**
Events ..... **events@afa.org**
Membership ..... **membership@afa.org**
Insurance/Member Benefits ..... **services@afavba.org**
Policy & Communications (news media) ..... **polcom@afa.org**
CyberPatriot ..... **info@uscyberpatriot.org**

Magazine

Advertising ..... **mdobrowolski@afa.org**
AFA National Report ..... **natrep@afa.org**
Editorial Offices ..... **afmag@afa.org**
Letters to Editor Column ..... **letters@afa.org**

Air Force Memorial Foundation .. **afmf@afa.org**

For individual staff members
first initial, last name, @afa.org
(example: jdoe@afa.org)

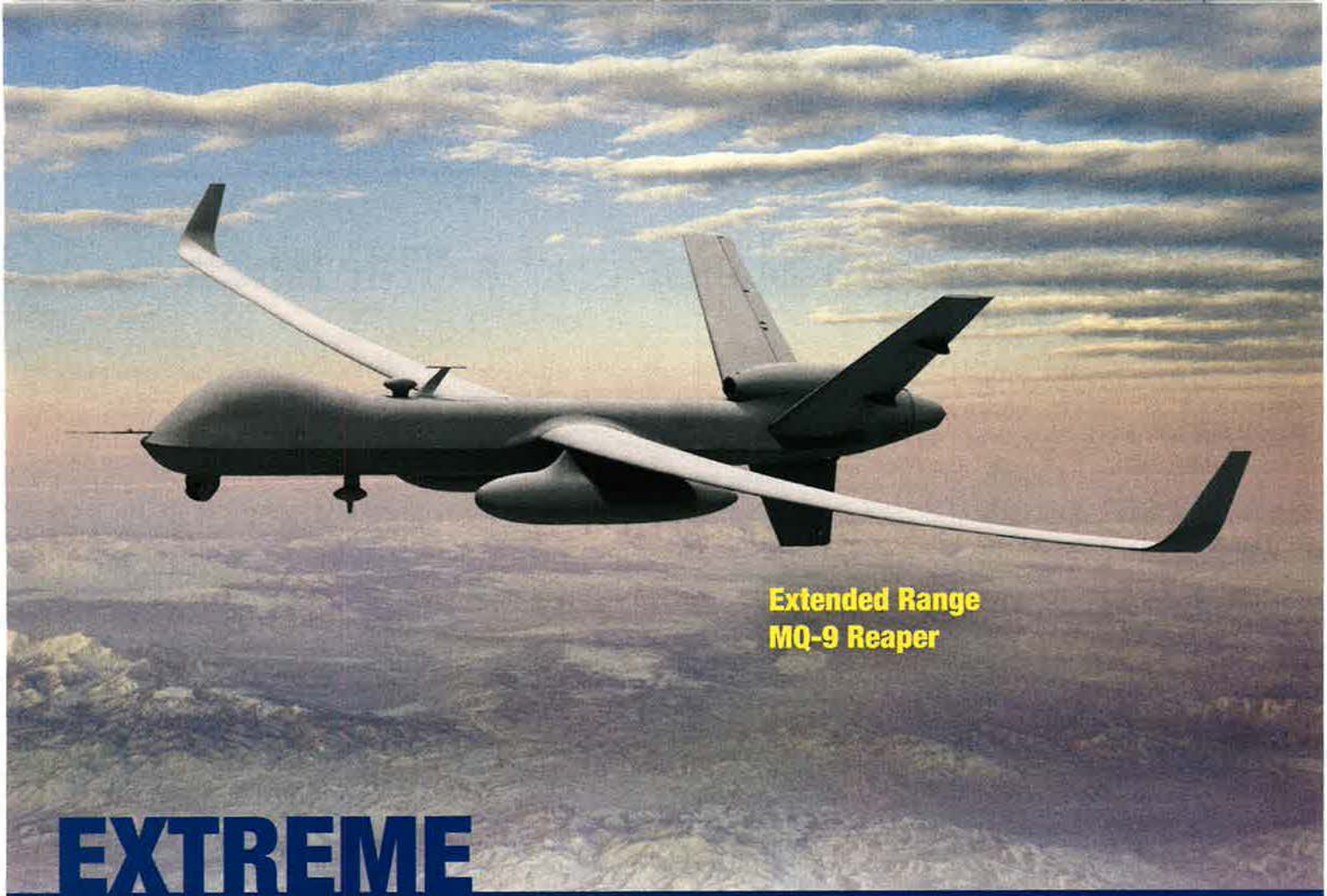
AFA's Mission

Our mission is to promote a dominant United States Air Force and a strong national defense and to honor airmen and our Air Force heritage. To accomplish this, we:

Educate the public on the critical need for unmatched aerospace power and a technically superior workforce to ensure US national security.

Advocate for aerospace power and STEM education.

Support the Total Air Force family and promote aerospace education.



Extended Range
MQ-9 Reaper

EXTREME PERSISTENCE

- 42-hour ISR-only endurance
- 2,900 nmi mission radius
- Field retrofitable to standard MQ-9 Reaper/Predator B
- High-capacity landing gear
- Proven multi-role platform for long endurance Intelligence, Surveillance and Reconnaissance (ISR) missions

GENERAL ATOMICS
AERONAUTICAL

www.ga-asi.com

Leading The Situational Awareness Revolution

Editorial

By Adam J. Hebert, Editor in Chief

How to Lose a Sprint *and* a Marathon

ANYONE who still feels the Defense Department overhyped the danger of sequestration is by now in denial. On April 9, the Air Force began standing down more than a dozen squadrons' worth of front-line combat aircraft. This extraordinary move ushered in the sort of tiered readiness the service has wisely avoided for decades.

Under sequestration, the Air Force was forced to slash its operational expenses in an indiscriminate, across-the-board manner. Reasonable people can disagree about the proper size of the defense budget, but sequestration quickly became indefensible.

Fighter and bomber units across the Air Force are being grounded to save the fuel, parts, and logistical expenses their flying hours consume.

But airmen in idle units soon lose the ability to perform their primary missions. Pilots lose combat proficiency within weeks when they cannot fly. Gen. Mark Welsh, Air Force Chief of Staff, estimated in February that by mid-July roughly 70 percent of the combat air force would not be mission-capable.

Part of the Air Force's extraordinary value to the nation derives from the fact that it is always ready to go. In recent years, when the Air Force was needed for war or disaster relief in Afghanistan, Haiti, Iraq, Japan, Libya, or Mali (to cover just the first half of the alphabet), it immediately answered the call.

As sequestration's cuts spread through the force, readiness is no longer assured. USAF will lose its bench strength and depth, jeopardizing its ability to conduct the next operation.

It is not just the Air Force's ability to "sprint" into action that is at risk. Sequestration harms USAF's long-term "marathon" as well, as evidenced by its effect in the Pacific.

"As the sequestration starts to move downstream [and affect additional units], we start to see more and more negative impacts on the readiness of our force," said Adm. Samuel Locklear, commander of US Pacific Command, in April testimony. "The forces ... training to get ready to come [in] and relieve the ones that are on station will not have adequate flying hours, will not have adequate training."

Among many other recent, desperation cuts, the Air Force canceled Red Flag combat training exercises which prepare airmen for upcoming deployments and Weapons School courses that create future generations of combat experts.

The damaging cuts call the viability of the entire US strategy in the Pacific into question. As Locklear noted, it takes three weeks for a carrier strike group to steam from the US West Coast to the Philippines; a C-17 can make the flight in 15 hours. But an effective US military presence in the Pacific requires ready, dispersed, and forward deployed air forces.

Under sequestration, readiness is no longer assured.

The much-heralded rebalance to the Pacific will not be effective if there is no money to execute it. Rebalancing requires substantive changes that cannot be done on a shoestring budget.

Pacific Air Forces recently advanced new strategic priorities: to expand its engagement with friendly nations; increase combat capability; and improve combat force integration. This will take sustained reliable funding for many years.

Effective engagement requires airmen and equipment to rotate through the Pacific, frequently working with the armed forces of allied nations. It is hard to envision this increasing under the current budget restraints.

Increased combat capability can come from many things, most of which require money. US forces in the region must be prepared for worst-case scenarios. A shooting war in the Korean Peninsula is a perpetual concern, and China is modernizing its military forces in ways that appear designed to exploit US disadvantages. For example, there are a limited number of quality airfields available the US can operate from in the Western Pacific, and even fewer with hardened facilities capable of riding out enemy attacks. China, meanwhile, has invested heavily in missiles capable of attacking bases as far out as Andersen Air Force Base on Guam.

There are several logical responses to this specific threat. Hardened structures, redundant systems, and rapid-repair capabilities are simple to plan but expensive to implement.

Dispersal is vital but tricky—many nations have no desire to host permanent US military forces. Others, even long-standing allies such as Australia, desire slow, low-profile military engagement. The Air Force will continue to look for new contingency bases, especially in the Southwest Pacific, but adding viable new operating locations requires relationship-building, infrastructure improvement, time, and money. To be viable operating locations, sites require fuel, weapons storage, and other improvements—a runway is not enough.

Finally, a successful Pacific strategy will depend upon new equipment. PACAF has boosted its combat capabilities over the past decade by introducing F-22s and C-17s to the theater while upgrading many other aircraft and systems, but USAF must keep pressing to preserve its qualitative edge.

Theater security packages rotate top-of-the-line combat aircraft through the theater to demonstrate US commitment to the region, and the continuous bomber presence on Guam bolsters US firepower throughout the Pacific.

Stealth aircraft deployments to the region generate a lot of international attention. By recently flying B-2 stealth bombers over the Korean Peninsula, the US sent a clear message to the saber-rattling North Korean regime that it should watch itself.

Longer term, PACOM will want F-35 fighters, KC-46 tankers, and the next generation bomber to all be based in the region. The Air Force needs to keep these programs on track, which is difficult enough even in the best of fiscal times.

What the nation really needs is for Congress to resolve the nation's budget impasse and put an end to sequestration. Until that happens, the Air Force will have only minimum flexibility in its accounts and will basically be barred from prioritizing its expenses. Today's budget nonsense jeopardizes the nation's ability to fight today's wars *and* to prevent tomorrow's. ■

The future of Light Attack is here.

The Beechcraft AT-6 is the world's finest Light Attack and Armed Reconnaissance aircraft. Purpose-built to leverage prior investment in the U.S. Air Force's T-6, A-10C, and MC-12W platforms. The AT-6 is available at a fraction of the acquisition, sustainment and training costs of other combat aircraft. The AT-6 provides a full suite of synchronized, ground-based training capabilities and an established global logistics infrastructure. The AT-6 is the only American-made aircraft designed to meet the needs of a world where unpredictability is commonplace and flexibility is crucial.

Learn more, visit missionreadyat-6.com

Beechcraft

We build aircraft you can believe in.

Letters

letters@afa.org

The Best We Ever Had

Your staff and the AFA members have really outdone yourselves with the March edition of the AFA magazine. I read every comment in the "Letters" section *[p. 6]* about Gen. Curtis E. LeMay, as well as the "SAC's Half Century" article *[March, p. 74]*. I agree with every one of the members comments. It appeared that the articles were all from the operations (flight crews') side. I am a 30-year retired aircraft maintenance (KC-97, KC-135, and B-52D, E, H, and G models) chief master sergeant with 22-plus years in SAC. Permit me to give you a little perspective from the maintenance side.

Gen. Curtis E. LeMay was the best thing that ever happened to the maintenance personnel of the Air Force. He was a people person. He set high standards himself and he expected high standards from his people. I went to SAC in 1954, 2nd Bomb Wing, 2nd Air Refueling Squadron, Hunter AFB, Savannah, Ga. I had just spent three years in MATS. After about a month, I asked myself: What had I gotten into? As my career turned out, it was the best move I ever made. SAC had a mission, and every member in SAC from the top down knew what that mission was and how to accomplish it. Each tanker had a crew chief and two assistant crew chiefs. In those days the crew chief and his crew did a lot of the unscheduled maintenance on his aircraft as well as the postflight and preflight inspections. General LeMay loved the crew chief system, and he supported the maintenance people 100 percent. LeMay directed his flight crews to always take care of their ground crews. When they did not, they heard about it from the squadron and wing commanders.

I was a crew chief on a KC-97G tanker in the 2nd ARF Sq. when SAC directed the 38th Air Division to conduct Operation Try Out, which was the forerunner of the SAC tanker/bomber alert force. Both the 308th BW and 2nd BW were the wings selected to do the exercise. I believe the 305th at MacDill Air Force Base was, also. The 2nd started out with three tankers on alert, and then went to six. The four classes of exercise were: Alfa, crews reported to the airplane, powered on, and contacted the command post; Bravo, same, only crews started all four engines; Coco, same, only crews taxied free flow to the runway; Romeo, same, only crews made a takeoff for actual mission.

On one of our Romeo exercises, General LeMay and his staff were on base to review and evaluate the exercise. When the planes started landing after their missions, and the crews went in for the maintenance/mission debriefing, General LeMay attended a couple of the debriefings. I had the distinct privilege of meeting the general at one of the debriefings. It was a great honor and privilege. The working hours of the SAC maintenance personnel were long, but it was very rewarding. The competition for consecutive on-time takeoffs between the crew chiefs was keen. There used to be a program in SAC called PRIDE: Professional Results In Daily Efforts. The maintenance people in SAC took great pride in their jobs and their responsibilities, and General LeMay saw to it that they were rewarded for their efforts.

Gen. Curtis E. LeMay was the best general officer the Air Force has ever had or will have. Only a few have come anywhere close to equaling his accomplishments.

CMSgt. Donald W. Grannan,
USAF (Ret.)
Benbrook, Tex.

I enjoyed reading John T. Correll's article, "SAC's Half Century," but the end of the article is misleading. It suggests that Air Force Global Strike Command was created in 2009 to take over some of the resources that had been traditionally the domain of Strategic Air Command, and that the two commands have "for obvious reasons" been compared with each other. It also suggests that SAC's history is over.

In reality, SAC is currently active. Air Force Global Strike Command *is* Strategic Air Command. In August 2009, Strategic Air Command was redesignated as Air Force Global Strike Command, and activated again. In actuality, SAC is back. Organizationally, there are not two commands but the same command. It could easily be redesignated back to its old name, Strategic Air Command, and be allowed to use its old emblem. Regardless of the new name and emblem, Strategic Air Command and Air Force Global Strike Command are the same organization.

Daniel L. Haulman
Air Force Historical Research Agency
Montgomery, Ala.

Regarding the statement "SAC became an all-jet strike force": No mention was made of the B-47 Stratojet which entered the SAC operational force in October 1951. Eventually 36 SAC wings had B-47s assigned. The B-47 was the backbone of the SAC force throughout the 1950s and into the early 1960s, with the last SAC B-47 being mustered out in December 1967. A total of 2,024 B-47s were built for the Cold War period.

Col. Perry R. Nuhn,
USAF (Ret.)
Okatie, S.C.

I rise to the defense of Gen. George C. Kenney.

Your gratuitous shots at General Kenney ("He was often absent pursuing

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

LOGISTICS SUPPORT THAT'S ALL SYSTEMS GO.

Performance-Based Logistics (PBL) are an effective solution in improving military readiness while saving billions. Under Boeing PBL programs, C-17 flying hour costs have been reduced by 26% since 2004, while the F/A-18 Super Hornet has exceeded readiness targets by 17.5% and the Apache Longbow by 19.3%. An AIA study estimates PBL savings to be $25-$30 billion per year. That's performance we can't afford to lose.

BOEING

other interests" and "was ...shuffled off to Air University") were unfair and represent nothing more than the historical hostility towards this outstanding airman that the Air Force has always had.

The real "sin" of General Kenney was his absolute loyalty to General of the Army Douglas MacArthur during his years in SWPA. You should be ashamed of yourselves for besmirching this great American.

Gina C. Genochio
Doral, Fla.

■ *For additional perspective on Kenney, see "The Other Founding Father," in the September 1987 issue, and "The Genius of George Kenney," April 2002 issue.—THE EDITORS*

The Select 75 Percent

In reviewing the most recent major generals' promotion list, some very interesting, and perhaps troublesome, facts emerge *["Air Force World: Senior Staff Changes," March, p. 22].* Of the 15 rated officers (all pilots and who will become our future senior USAF leaders), 11 were from the US Air Force Academy, for a selection rate of almost 75 percent. This compares to a USAFA commission rate of slightly over 22 percent. At a time when the senior USAF leadership has been subject to much turmoil in the last 15 to 20 years and has failed to exert much influence on national security affairs, these statistics are worthy of review.

This situation will only be exacerbated in the future by poor personnel decisions developed in the 1993-94 time period when it was decided to limit initial ROTC selection for pilot training to 100 per year, with the rest all going to USAFA graduates. While these initial ROTC numbers abated somewhat over time, the reality is that the vast majority of our future rated brigadier generals in the 2018 to 2020 time frame will most probably be USAFA graduates perpetuating perhaps a more parochial approach than a broader-based general officer cadre might achieve.

I'm not suggesting we select less qualified individuals simply to achieve some preordained ratios, but it is hard to fathom that 78 percent of our initial commissioned officers can only produce 25 percent of our rated general officers (at least as seen in this board). The analysis will probably reflect a higher percentage of academy graduates who attend pilot training than the other commissioning sources, but that is a subject for evaluation in its own light. I recognize this is a sensitive area for discussion and review, but our current leadership has a responsibility to ensure our future leaders are best able to serve this country and our Air Force,

and a more balanced general officer cadre may be part of that solution set.

Col. Quentin J. McGregor,
USAF (Ret.)
Truckee, Calif.

"Leaving No One Behind"

I totally disagree with the premise of your editorial in the March 2013 issue concerning the ongoing efforts of the Joint POW/MIA Accounting Command (JPAC) *["Editorial: Leaving No One Behind," p. 4]*. I believe their mission to be unnecessary, mostly fruitless, and at a substantial cost to the taxpayer. To boast that their efforts last year resulted in finding two remains verges on the ludicrous. If I were an MIA during my Vietnam tour, I would not have expected my government to be combing the jungle 44 years later looking for my few remaining bone fragments. If that question had been asked of any other American in Vietnam before their last mission, I believe their answers would have been the same as mine.

To state that a new headquarters and laboratory for this operation are being constructed in Hawaii is morbid and bizarre. Then to advocate the construction of a museum for JPAC borders on being irrational. Our nation has much better use for the funds being expended on this effort of looking 45 to 50 years later for bone fragments in an "acidic" jungle terrain. I am certain it is excellent employment for all involved but a great waste, nonetheless.

Col. Lee R. Pitzer,
USAF (Ret.)
O'Fallon, Ill.

■ *JPAC has averaged approximately 80 identifications annually in recent years.—THE EDITORS*

Perhaps I'm the only one who sees the irony of the juxtaposition of the title—"Leaving No One Behind"—with the reality of more than 83,000 American service personnel—dating back to World War II—who remain missing in action (MIA). Lest this be interpreted as a critique of the Joint POW/MIA Accounting Command (JPAC), it is not so intended. Just an acknowledgement of fiscal realities of our times. Even given funding for their expanded capabilities, at the rate of 200 identifications per year, it will require over 400 years to clear their backlog of unresolved cases.

Consequently, I'm pleased to know their efforts are being augmented by a number of civilian groups. Specifically, I am proud that one of our Sarasota-Manatee Chapter members—Bryan Moon—is involved in what is the largest and most successful of those efforts. Bryan—along with his son, Chris, and their families—founded the not-for-profit organization MIA Hunters specifically to locate American personnel missing from WW II. Pretty impressive when you recognize both Brian and Chris originally came from England. Over the period of 23 years they have conducted nearly 35 expeditions across the world—ranging from Romania and Italy to Papua New Guinea—and have located over 500 American servicemen.

Michael E. Richardson
Sarasota-Manatee Chapter
Sarasota, Fla.

Just Hang Loose

Your Kunsan photo spread in your March 2013 edition proved to be a fun trip down memory lane for me *["Remote and Ready at Kunsan," p. 52]*. I was stationed at Kun' '97 to '98 and proud to serve in the Wolf Pack under a charismatic and up-and-coming wing commander (AKA "Wolf"), then-Col. Mark A. Welsh III. Suffice to say no one who served under the Wolf there is at all surprised how things turned out for him, and our Air Force is much better for it.

I offer a correction to the caption for your photo No. 3 on p. 59. What you identified as a Panton pilot's "push it up" salute is most probably just your run-of-the-mill "hang loose" sign. The "push it up" salute is accomplished by doing repeated two-armed push-up motions above the head, pushing towards the sky. It was a common pilot-to-controller acknowledgement as 35th

Fighter Squadron jets taxied past the control tower.

Col. Bill Malec,
USAF (Ret.)
O'Fallon, Ill.

No Retraction

Regarding the April 2013 *Air Force* Magazine "Letters: Gunnery School," retired Brig. Gen. Art Cornelius writes: The "lightweight H model seems to have its tail wheel stuck down" *[p. 8]*. Unlike earlier and more familiar models of the P-51, the H was not equipped with a retractable tail wheel, a part of the lightweight program.

Maj. Gen. Ken Russell,
USAF (Ret.)
Mercer Island, Wash.

Halvorsen

The March 2013 issue's article on Col. Gail Halvorsen was truly moving *["Halvorsen," p. 64]*. He saw a way to make the grim situation for the children a little more tolerable. Although perhaps minor in the total scheme of things that went on during this period, it provided lasting positive impressions of our military forces to citizens of a country that had been so devastated by the long war. It also shows that even one individual, by his or her actions, could create such a lasting effect. I suspect that this type of thing continues through the "off duty" actions of our soldiers, sailors, airmen, and marines in the many places they serve. It makes me proud to have served.

Lt. Col. Frank D. Cooper,
USAF (Ret.)
Lincoln, Calif.

Thank you very much to Peter Grier for sharing the story of Col. Gail Halvorsen in his article, "Halvorsen." Colonel Halvorsen represents the hundreds of airmen who made the Berlin Airlift such a success. I have had the pleasure of meeting Colonel Halvorsen many times and he is truly a gentleman with a bright, kind, and giving personality. His willingness to please so many kids is a benchmark to all the aircrews that have supported humanitarian operations since. Although there has never been another "Candy Bomber," these crews realize the importance of their missions and the effect they have on so many people.

While living in Tampa, Fla., I got to meet one of the military supporters in the area and when talking to him he mentioned he was one of the first military dependents living in Munich, Germany, right after World War II. Even far from Berlin, the stories of the Candy Bomber were told in Munich, giving the people all throughout Germany reason to believe in the future and to stay optimistic.

Lastly, at the Floyd Bennett Field near John F. Kennedy Airport in New York, Mr. Timothy Chopp, founder and president of the Berlin Airlift Historical Foundation (www.spiritoffreedom.org), and the members of the foundation are keeping the memory of the airlift alive by keeping a restored Douglas C-54E flying. Inside of this aircraft is a traveling museum informing many schoolkids and others about the airlift, as it is dedicated to preserving the memory and legacy of the greatest humanitarian/aviation event in history.

Lt. Col. Jon E. Incerpi,
USAF (Ret.)
Houston

I have been a faithful reader for years without comment. Suddenly, two articles in the March 2013 edition have evoked an urge to respond.

"Halvorsen" by Peter Grier was not the first of several pieces I have read about Col. Gail Halvorsen, the Candy Bomber. It was a pleasure to see another. He was an officer and a gentleman in every sense of the words. Colonel Halvorsen was my

squadron commander at Vandenberg Air Force Base's satellite tracking station in the late 1960s.

While I did not know him or see him at work in any of his other assignments, I am sure Peter Grier's complimentary observations were accurate and deserved. When I became a squadron commander myself during the last two of my Air Force years, I was able to use much that I had learned from Colonel Halvorsen.

"SAC's Half Century" by John T. Correll was a very interesting discussion of the command I was part of from 1955 to 1960. I was disappointed, however, to see no mention of one of SAC's smaller facets in which I served, the four strategic support squadrons which used C-124 Globemaster cargo aircraft to support its operations and other Air Force airlift needs.

Upon completing my training to be an aircraft navigator, I was assigned to one of the strategic support squadrons at El Paso, Tex. We ferried bombs to and from various SAC bases in this country for the B-47s, then the B-52s. We hauled all kinds of cargo, such as a load of food supplies to Thule and a Danish weather station at Nord, Greenland, and other things to bases in Japan, Okinawa, the Philippines, Europe, and Morocco.

Yes, our aircraft flew low and slowly and were not refueled inflight. No, we did not drop any bombs or even prepare to. But I believe the strategic support squadron helped make it possible for the bombers and tankers to be ready to do their things if the call came from Offutt.

Maj. William L. Umberson,
USAF (Ret.)
San Diego

Two More Spy Eyes

I read the subject article in the latest *Air Force* Magazine, dated March 2013, with much interest, but I did not see any reference to the 349th SRS or its sister squadron, the 350th *["Spy Eyes in the Sky," p. 32]*. Although the article is primarily about the 1st Reconnaissance Squadron, I think your readers might be interested in knowing a little about the 100th SRW and its two squadrons (the 349th and the 350th). These two recon squadrons flew missions throughout the world and extensively during the conflict in Vietnam long before 1976. The U-2 platforms changed dramatically from the early 1960s to 1976 when the U-2s were moved to Beale. A whole lot was learned about high-altitude recon with multiple sensors from both the U-2 and DC-130 platforms during those earlier years.

Col. Frederick M. Banks,
USAF (Ret.)
Capitola, Calif.

The Syria Question

John Tirpak's article on what it would take to conduct an air campaign against that country could not [have been] timelier ("The Syria Question," March 2013) *[p. 26]*. What is clear is that Syrian air defenses are much more formidable than those NATO dealt with in Libya and in many ways approach what the coalition faced in Iraq. In some ways, Syrian defenses may be better than those Iraq deployed due to the presence of advanced, mobile SAM systems such as the SA-10, -17, and -22. Readers may remember that Israel recently destroyed a Syrian convoy bound for Hezbollah in Lebanon that was allegedly transferring large numbers of SA-17s to the terrorist group. In addition, Syria has had decades to deploy its integrated air defense system and practice operating it against one of the best Air Forces in the world, Israel's.

It is easy to forget that against even a relatively weak adversary, it takes considerable resources to achieve air superiority, conduct hundreds of strikes on both fixed and mobile ground targets, and conduct continuing support missions such as ISR and combat search and rescue. To eliminate Libya's limited air defenses and dismantle its relatively primitive land forces, NATO took several months and employed nearly 200 aircraft, including B-2s and EA-18G electronic warfare aircraft, plus more than 100 land attack cruise missiles, both the armed MQ-9 Reaper and the high-altitude, long-endurance RQ-4 Global Hawk unmanned aerial systems, and the V-22 Osprey. It is easy to forget that every strike sortie requires several, sometimes many, other aircraft performing missions such as electronic warfare, suppression of enemy air defenses, combat air patrol, refueling, and search and rescue. Also, NATO forces rapidly ran out of precision munitions and apparently, given the comments quoted in the article by the US ambassador to NATO, have not refilled their magazines.

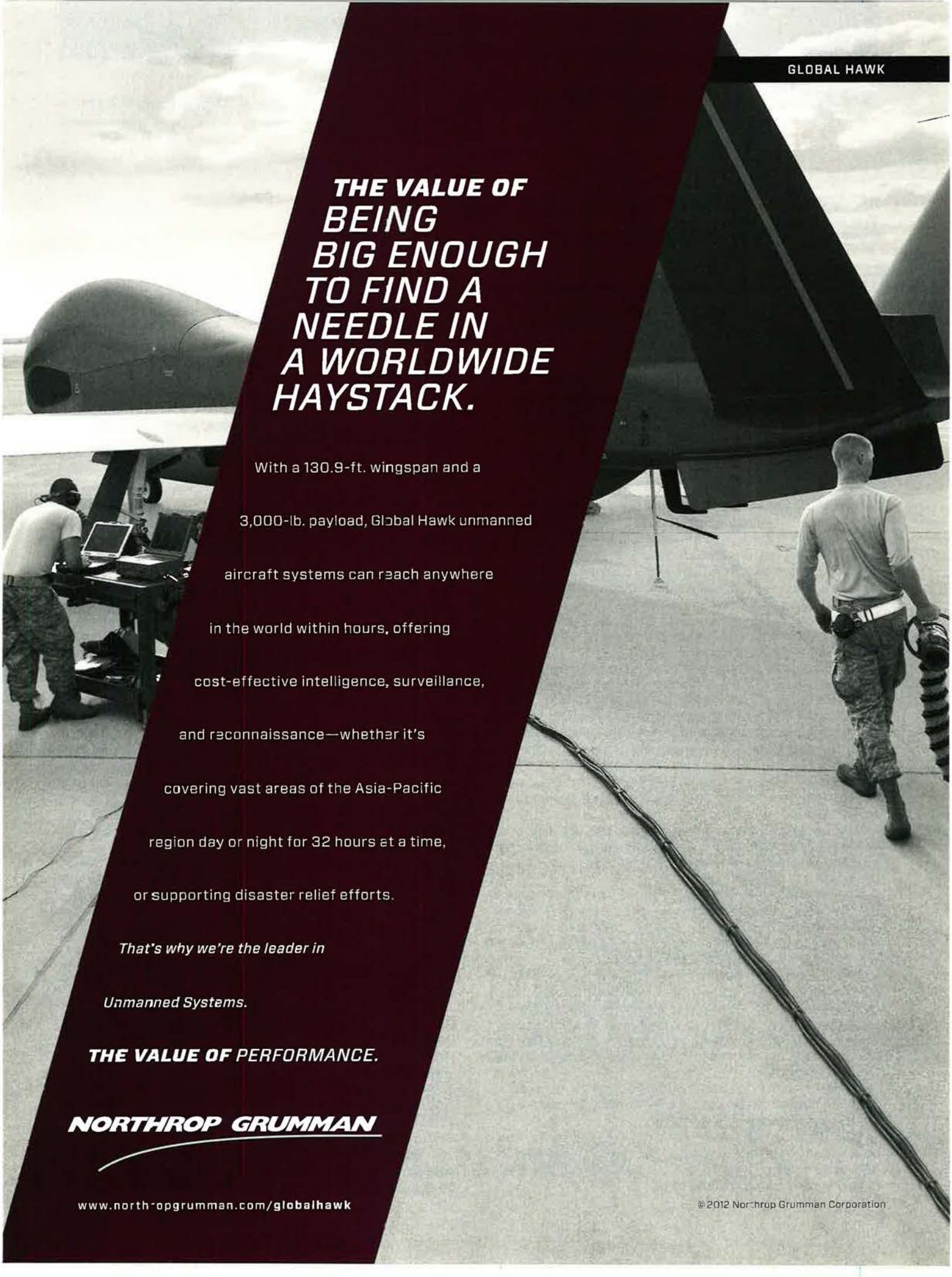
If the world is confronted with the Assad regime's clear use of chemical weapons, the United States and willing allies may have no choice but to intervene. Syria would not present the easy prey that was Libya. Moreover, a US-led coalition might not have the luxury of the multimonth buildup that preceded both conflicts with Iraq nor be able to take the time needed—several weeks according to the JCS Chairman Gen. Martin Dempsey—to roll back Syrian air defenses. Intervention in Syria to prevent the proliferation and/or use of weapons of mass destruction (WMD) could necessitate a massive and rapid air campaign across the expanse of Syrian territory. Establishing air superiority would only be the first step. The coalition would have to deploy land forces to establish control over Syria's extensive WMD stockpiles and provide continuous air support and resupply. Such an air campaign would unquestionably see the first appearance in combat of the F-22, along with hundreds of other aircraft, including strategic bombers, fighters, aerial refuelers, transports, manned and unmanned ISR platforms, and electronic warfare aircraft. Even with the advantages of numbers, geographic positioning, and precision weapons, the coalition is sure to suffer losses from Syrian air defenses.

Tirpak's article raises a larger concern, what I would describe as the country after Syria question. The proliferation of advanced military technologies means that the US is likely to face future air defense environments that are significantly more capable, hence deadlier, than those of Iraq, Libya, and Syria. In addition, prospective adversaries are seeking to employ so-called anti-access systems such as ballistic and anti-shipping cruise missiles to deny the US and its allies the use of close-in bases or naval deployments.

In addition, the ability of the US military to deal effectively with these future anti-access and area denial threats, particularly if it must be accomplished rapidly, is very much in doubt. Some of the older platforms will not remain effective in the face even of nearer-term air defenses without significant and costly modernization. As budget cuts require reductions in forces, it may be difficult to generate sufficient assets, particularly strike systems and precision weapons, with which to defeat an advanced air defense systems at acceptable cost. This makes it all the more important to transition to a fifth generation force.

At present, the US fleet of fifth generation aircraft is quite small. Moreover, it lacks the necessary advanced standoff weapons to allow this small force to be employed most effectively. It is imperative that the US military acquire the next generation of combat aircraft, particularly the F-35 Joint Strike Fighter and a new long range strike system in sufficient numbers. In addition, the nation needs a long-range, stealthy unmanned ISR platform that can survive in defended airspace, the full complement of E/A-18 Growlers and new long-range, precision, air-delivered munitions. Such a force, even if numerically smaller than today's air fleet, would be able to deal with the problem of the country after Syria.

Daniel Goure
The Lexington Institute
Arlington, Va.



THE VALUE OF BEING BIG ENOUGH TO FIND A NEEDLE IN A WORLDWIDE HAYSTACK.

With a 130.9-ft. wingspan and a 3,000-lb. payload, Global Hawk unmanned aircraft systems can reach anywhere in the world within hours, offering cost-effective intelligence, surveillance, and reconnaissance—whether it's covering vast areas of the Asia-Pacific region day or night for 32 hours at a time, or supporting disaster relief efforts.

That's why we're the leader in Unmanned Systems.

THE VALUE OF *PERFORMANCE.*

NORTHROP GRUMMAN

www.northropgrumman.com/globalhawk

Washington Watch

By John A. Tirpak, Executive Editor

A 10-year look; More cuts are coming; Slaying the cost hydra; Taming middle management ....

THE BEST WE CAN AFFORD

The Air Force is working on a fresh look to see what capabilities it must have to deal with the threats of 2023, so it can plan its budgets and force structure accordingly. The assessment is due in August.

Lt. Gen. Michael R. Moeller, deputy chief of staff for strategic plans and programs—and the one who will head up the study—explained the effort at an Air Force Association-sponsored breakfast in March. His marching orders from the Air Force's four-stars, given at their February Corona meeting, were to "look out 10 years, and tell us how to build the most capable Air Force against a high-end threat—that's affordable—by 2023," said Moeller.

This study will be "fundamentally different" from the many forecasts and similar studies done in recent years, he said. For one thing, it starts with the understanding that it will take a few years for the service to recover from its 23-year unbroken pace of combat operations and the devastating effect of sequestration on Air Force readiness accounts. That's why a decadal look was deemed necessary.

"If you look five years out, and you know at least three of [the years] are spent repairing readiness," Moeller said, the Air Force must take a longer view.

The readiness problem will stem not only from sequester-driven cuts, such as in flying hours and depot maintenance, but due to the fact that, during the wars in Iraq and Afghanistan, the Air Force deferred much "full-spectrum training." Many segments of the Air Force mastered the training and skills needed to defeat an insurgent opponent lacking an air force of its own, but spent precious little time developing the sorts of skills that would be needed in a hypothetical war against an enemy on the scale of Russia, China, Iran, or even Syria.

"We underinvested in readiness" for the last five or six years, Moeller said. "It will probably take us three or four years to reinvest in readiness to make sure that it's up to the levels our nation demands."

The 10-year look will "inform" the Fiscal 2015 defense budget, which should be released in February 2014. Moeller said the review will be useful in helping USAF steer away from wasting money investing in force structure or other assets it would only have to "divest" itself of later anyway.

The 10-year look was to begin with a group of two- and three-star generals—among them, vice chiefs of major commands—answering "28 strategic questions" about readiness, force structure, and modernization needs, Moeller reported. This group had already reached a basic consensus about the answers to those questions, which were to inform another Corona set for April.

While he didn't delve into what the questions were—or what the consensus position was—Moeller did say, "I would almost guarantee, we'll be smaller."

The strategic review will consider where the Air Force may already have more capability or capacity than it needs, as well as missions where another service might be better suited to take over, Moeller noted.

USAF will be looking for places to shed some force structure—in order to maintain or even increase its power in areas deemed to be of greater relevance or importance, he said.

The idea that the Air Force has more than it needs in some respects may be surprising, given the creeping austerity of recent years, but "external pressures have forced us to have overcapacities in some areas," Moeller said.

Congress has mandated the service retain certain types and numbers of aircraft and especially bases and infrastructure that USAF had asked to divest. Overcapacities exist in intratheater lift and "medium-altitude intelligence, surveillance, and reconnaissance" assets—namely, Predator and Reaper remotely piloted aircraft, he reported.

USAF will have "discussions about where there might be redundant capabilities" with other services and jointly determine whether another branch will "keep its capability, and the Air Force will not—or vice versa," Moeller said.

"PRINCIPLED REALISM"

Even deeper cuts in defense spending are coming, Chuck Hagel warned in his first major speech as Defense Secretary. The cuts will include more program terminations, a flattening of the command structure, and reductions in benefits for service members. All of this could add up to the most profound restructuring of the US military since the 1986 Goldwater-Nichols defense reorganization act.

Hagel, addressing the National Defense University in Washington, D.C., in early April, noted that there's been a hefty cost-cutting effort under the last two Defense Secretaries already. This has truncated major programs, initiated intense efficiency reviews, eliminated organizations, and recast the national strategy to get the Pentagon to live within its diminishing means.

But the reassessments, course-corrections, and cost cutting are far from over.

Hagel explained that his recently launched Strategic Choices and Management Review will prepare the Pentagon for the future, "but not in a way that neglects, or is oblivious to, the realities of the present."

The review seeks the right path "to deal with further reductions in the defense budget that could result from a comprehensive deficit reduction deal or the persistence of sequester-level cuts, all anchored by the President's strategic guidance."

The review, led by Deputy Defense Secretary Ashton B. Carter with the help of Joint Chiefs Chairman Gen. Martin E. Dempsey, will ensure "we are realistically confronting both our strategic and fiscal challenges," Hagel said. The Pentagon can't engage in wishful thinking and assume the 10-year sequester cuts won't persist.

The strategic and financial situation demands an approach of "principled realism," Hagel said.

The still-new sequester cuts have already hurt defense and will bite even harder as operating accounts drain, Hagel observed. Sequestration is already having "a disruptive and potentially damaging impact on the readiness of the force."

DOD photo by Erin A. Kirk-Cuomo

Hagel (on the right) says cost-cutting is far from over.

Given no guarantees that the situation will turn around, Hagel said he's determined to "get out ahead" of the even harder choices coming.

The review will "consider big choices that could lead to fundamental change and a further prioritization of the use of our resources," Hagel asserted. He's determined this will not be simply "tweaking or chipping away at existing structures and practices" but potentially "fashioning entirely new ones" that are more appropriate for the strategic conditions of the 21st century.

The new Defense Secretary pledged to "challenge all past assumptions" and "put everything on the table" in a "steely eyed and clear-headed" analysis.

A THREE-HEADED COST MONSTER

Hagel plans to take on the "principal drivers" of cost growth in the Defense Department: acquisition, personnel costs, and overhead. He said he's troubled by "spiraling costs to sustain existing structures and institutions, provide benefits to personnel, and develop replacements for aging weapons platforms." These costs will eventually "crowd out spending on procurement, operations, and readiness."

Slowing or stopping the cost growth in these rising accounts won't be easy, he acknowledged, as there are huge institutional and inertial hurdles in the way. "Deep political and institutional obstacles to these necessary reforms will need to be engaged and overcome," he said.

Answering a question from the audience on service member benefits, Hagel said he sees no "immediate" cuts in the offing, but it's a "fact of life" that benefits and compensation must be adjusted.

"If you play this out over a 10-, 20-year period, we're not going to be able to sustain the current personnel costs and retirement benefits. There will be no money in the budget for anything else," he said, adding, "I wish it were otherwise."

Parenthetically, in regard to the Pentagon's runaway health care costs, he said DOD will ask Congress for permission to "increase fees on different programs. I think that's fair." The Pentagon has previously noted that while employees have been asked to bear increasing health care contributions in the commercial world—to the tune of 10 percent or more per year—retired military member Tricare premiums had until recently not been raised since the mid-1990s.

Hagel also voiced his concern that despite the "pruning" of major programs over the last four years, "the military's modernization strategy still depends on systems that are vastly more expensive and technologically risky than what was promised or budgeted for."

The Secretary wants an acquisition system that responds faster to the needs of field commanders and "rewards cost-effectiveness and efficiency, so that our programs do not continue to take longer, cost more, and deliver less than initially planned and promised."

There will be "another hard look at personnel," to determine how many people are really needed, what they do, and "how we compensate them for their work, service, and loyalty with pay, benefits, and health care." Hagel will look at the "right mix" of civilian and uniformed personnel, the proper "balance" of officers and enlisted, and the proper distribution of uniformed people among combat, support, and administrative duties.

SHRINK THE BACK OFFICE

Harking back to the Goldwater-Nichols reforms, Hagel said they succeeded in improving jointness among the services, but did so by adding layers, processes, and organizations without really eliminating anything else.

"Cost and efficiency were not major considerations" of those reforms, he added. Moreover, while the operational forces—Army battalions, Navy ships, and aircraft wings—have shrunk dramatically since the Cold War, Hagel noted that the "three- and four-star command and support structures sitting atop these smaller fighting forces have stayed intact." In some cases, commands "are actually increasing in size and rank," suggesting he wants a broad flattening of command structures and a reduction in the number of flag officers.

Furthermore, "despite good efforts and intentions, it is still not clear that every option has been exercised or considered to pare back the world's largest back office," Hagel said. He's looking to shrink a variety of agencies ranging from his own Office of the Secretary of Defense to "the Joint Staff, the combatant commands, the defense agencies, and field activities" such as the Missile Defense Agency, "as well as those that provide health care, intelligence, and contracting support."

The goal will be "reducing layers of upper or middle management," Hagel said. He also wants to overhaul the requirements-setting enterprise.

Making such changes across the board "could prove unwise, untenable, or politically impossible," Hagel admitted. "Yet we have no choice but to take a very close look and see how we can do all of this better."

He pleaded with Congress to get its act together and begin supplying DOD with the budgeting guidance and authority the department requires. The task of plotting a way forward that preserves America's military power with far fewer resources is achievable if Congress will provide the time to get it right, as well as "long-term budget certainty." Cuts demanded by the sequester, he said, "afford neither time nor flexibility" and almost guarantee the Pentagon will get it wrong.

Nothing will escape scrutiny, Hagel said of his review. The balance between the active and reserve forces will be scrutinized, as well as the proper ratios of "conventional and unconventional capabilities; general-purpose and special operations units; and the appropriate balance between forward-stationed, rotationally deployed, and home-based forces." This will also require an assessment of "how much we can depend on our allies and partners."

There will also be a rethinking of "how we define and measure readiness and risk."

Hagel said the government made mistakes during the drawdowns that followed earlier wars, and he pledged to learn from them.

However, although he said it must be recognized that the nation "has grown weary of war and skeptical of foreign engagements," the US "does not have the luxury of retrenchment. We have too many global interests at stake." If the US does not lead, Hagel said, "something, someone will fill the vacuum" and the "next great power" may not use its power as "judiciously as America has" since World War II.

The US, he said, has "helped make a better world for all people with its power. A world where America does not lead is not a world I wish my children to inherit." ■

Air Force World

By Merri M. Shaffer, Associate Editor

President Signs Appropriations Bill

President Obama signed into law HR 933, appropriations legislation that will fund the Defense Department and other government agencies through the remainder of the fiscal year.

Obama inked the bill on March 26—one day before the expiration date of the continuing budget resolution under which DOD has been operating, announced the White House.

HR 933 includes $518.1 billion in baseline defense funding, $87.2 billion for overseas contingency operations, and $10.6 billion for military construction. It also provides some leeway for the services to reprogram funds across accounts to ease the stresses of budget sequestration.

Clarke Becomes ANG Director

Lt. Gen. Stanley E. Clarke III officially became Air National Guard director during a ceremony at JB Andrews, Md., on March 22. He replaced Lt. Gen. Harry M. Wyatt III, who retired earlier this year after more than 40 years in uniform.

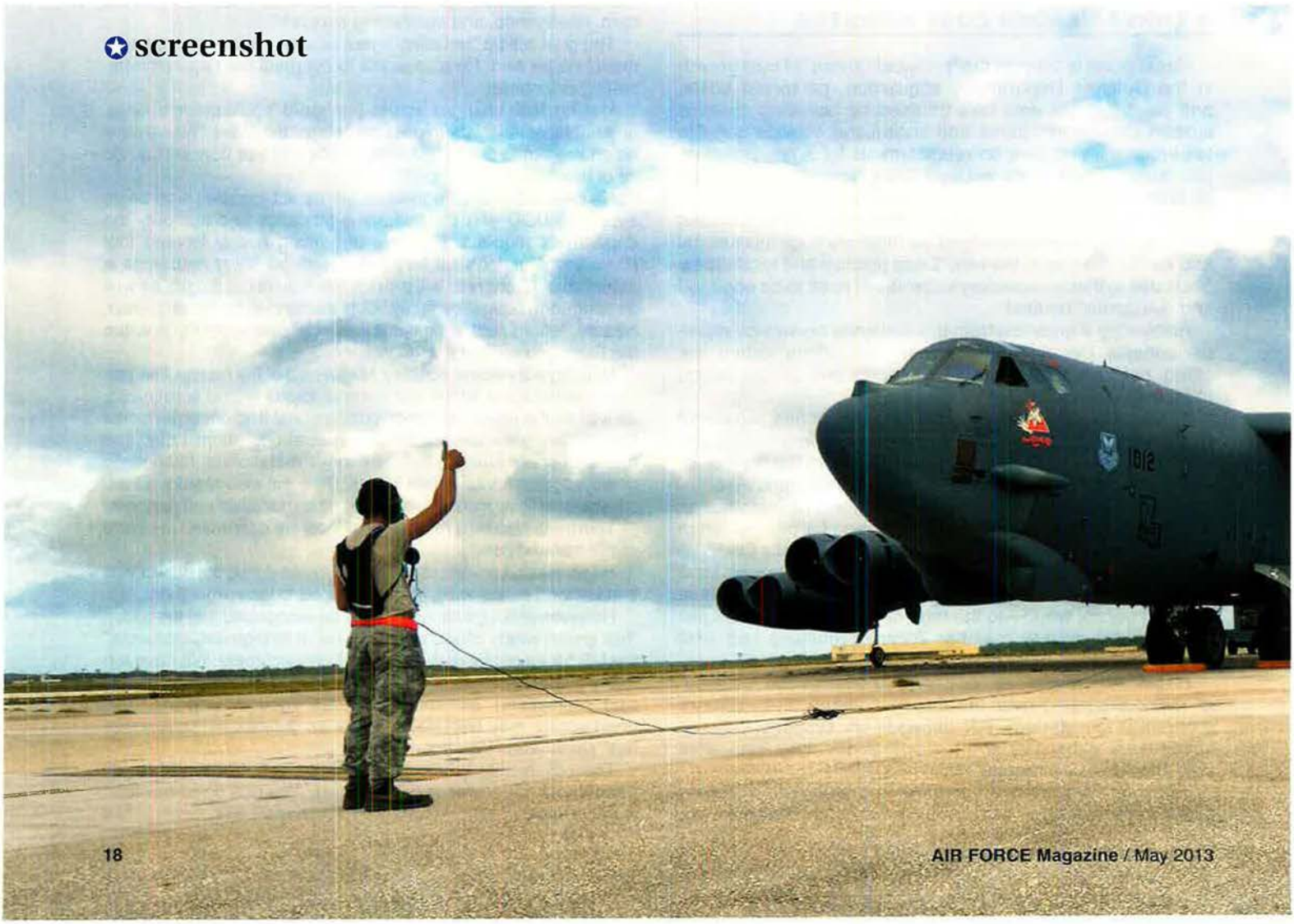
"This is quite an honor and I am humbled at the opportunity to serve," said Clarke during the ceremony. "I've arrived in a time of budget turmoil and uncertainty, but I view this as a time of opportunity as well," he added.

Clarke previously commanded the Continental US NORAD Region-1st Air Force (Air Forces Northern) at Tyndall AFB, Fla., since August 2011.

"My commitment to you and the adjutants general is clear," he said to the assembled Air Guardsmen. "We will do everything within our authority to ensure our airmen have clear policies, equipment, training, and resources to accomplish assigned missions" and that "we remain community-based, team-oriented, and experienced."

Prior to his ceremony, Clarke told a congressional oversight panel that he had three immediate priorities: to minimize the "dramatic toll" budget cutbacks are taking on the Air Guard's readiness and people; to work with the two other Air Force components to achieve an appropriate balance of forces; and to ensure all three Air Force components are "modernized concurrently" so they remain relevant and interoperable.

screenshot



Rodriguez Leads AFRICOM

Army Gen. David M. Rodriguez succeeded Army Gen. Carter F. Ham as head of US Africa Command during an April 5 ceremony at the command's headquarters in Stuttgart, Germany.

Ham, who had led the command since March 2011, plans to retire after 39 years in uniform—including two as an enlisted infantryman in the 82nd Airborne Division.

"Your inspired leadership has helped African nations realize the value of AFRICOM in fostering stability and hope on the continent," said Defense Secretary Chuck Hagel in a letter read during the ceremony. "You devoted the whole of yourself to the United States Army and to the United States of America, and for that, we are grateful."

Gen. Martin E. Dempsey, Chairman of the Joint Chiefs of Staff, noted that Ham assembled an international coalition to aid the people of Libya just days after assuming command. "From Tanzania to Senegal, Tunisia to Botswana, you've found new ways to deepen partnerships and to build capability," said Dempsey.

Rodriguez, who previously served as commanding general of the United States Army Forces Command, is the third commander of AFRICOM since it stood up five years ago.

Brennan Approved as CIA Director

The Senate confirmed the nomination of White House Counterterrorism Advisor John O. Brennan to be the next CIA director. The Senate voted 63-to-34.

With the vote, "the Senate has recognized in John the qualities I value so much—his determination to keep America safe, his commitment to working with Congress, his ability to build relationships with foreign partners, and his fidelity to the values that define us as a nation," said President Obama in a statement following the March 7 vote.

Brennan, 57, will fill the CIA leadership post that has been vacant since David H. Petraeus stepped down last November. Michael J. Morell has been CIA acting director since then.

Brennan's confirmation came one day after Sen. Rand Paul (R-Ky.) staged a 13-hour filibuster to delay the vote. Paul wanted the White House to clarify whether the President has the authority to use a weaponized remotely piloted aircraft to kill an American on US soil when he or she is not engaged in combat.

New Homeland Defense Strategy

The Defense Department recently released its Strategy for Homeland Defense and Defense Support of Civil Authorities, the policy document that aims to position DOD to respond effectively and efficiently to threats to the US through 2020.

The 25-page document identifies two priority missions for DOD in the homeland: defend US territory from direct attack by state and nonstate actors; and provide assistance to domestic civil authorities in the event of natural or manmade disasters, potentially in response to a very significant or catastrophic event, according to the Pentagon's March 22 release.

"This strategy emphasizes strengthening our partnerships with federal agencies like the Departments of Homeland Security and Justice, with state and local governments, with the private sector, and with our Canadian and Mexican neighbors," said Todd M. Rosenblum, acting assistant secretary of defense for homeland defense and Americas' security affairs. This will allow not only for "more comprehensive approaches to complex security challenges in the homeland" but also "efficiencies through collaboration and joint action," he added.

Second SBIRS Satellite Launched

The Air Force and its industry partners launched GEO-2, the second Space Based Infrared System satellite, into orbit

USAF photo by SrA. Benjamin Wiseman

04.02.2013

A1C Julius Smith gives the thumbs up to a B-52 preparing for takeoff at Andersen AFB, Guam. The Stratofortresses arrived on Guam on March 31, as part of US Pacific Command's continuous bomber presence mission. Smith is a crew chief with the 36th Expeditionary Aircraft Maintenance Squadron, deployed from Minot AFB, N.D.

North Korea Increases Aggressive Behavior

In April, North Korea moved a midrange ballistic missile to a launch site on its eastern coast. South Korean defense officials said the missile has "intermediate range," but is not capable of reaching the continental US, reported the Yonhap news agency.

This was the latest in a stream of aggressive rhetoric and actions from the communist state.

Korean Central News Agency, the official North Korean news agency, announced April 3 the regime would resume operations at the Yongbyon nuclear reactor, which has been dormant since a 2007 diplomatic agreement. This announcement followed an April 1 meeting of the North Korean people's assembly where the regime reiterated the importance of nuclear weapons to the nation's military capabilities, reported the *Washington Post*.

Restarting the reactor is meant to ease the country's electricity shortage and improve the "quality and quantity" of the nation's nuclear forces, said KCNA. Asked about this development in a briefing, Pentagon spokesman George E. Little said the North Korean announcement contradicts Pyongyang's commitments and violates its international obligations.

Experts who follow North Korea's secretive nuclear activity said the country's decision to restart the reactor is part of a long-term trend to increase the potency of its nuclear deterrent in order to exact concessions from South Korea and the US.

"This situation is, relatively speaking, one of the more dangerous crises" in recent memory, said Jeffrey Lewis, director of the East Asia Nonproliferation Program at the Monterey Institute's Center for Nonproliferation Studies. Lewis said North Korea has taken a number of steps in the last two years to build up its nuclear capabilities, including the establishment of a strategic rocket forces command.

KGS NightWatch's John F. McCreary, a retired long-time Pentagon intelligence analyst, told *Air Force* Magazine April 4 that North Korea's midrange missile, dubbed the "Musudan," is a variant of the Soviet SS-N-6 submarine-launched ballistic missile and has a 2,485-mile range—enough to hit Guam.

"The Musudan is based on a superb missile with arguably the best liquid-fueled engine ever designed," McCreary said. "However, it cannot stay fueled for more than a few days safely."

North Korea has never test launched a Musudan.

At a March 15 briefing, Defense Secretary Chuck Hagel announced US intentions to spend nearly $1 billion to deploy an additional 14 anti-missile interceptors to Alaska in the next four years in order to bolster the defense of the US homeland against a limited long-range ballistic missile attack from North Korea or Iran. This action comes amidst even more bellicose statements by North Korea following its success last December in orbiting a small satellite from a long-range rocket and its recent nuclear test.

Under the plan, the Defense Department will install these ground-based interceptors at Fort Greeley, Alaska, by the end of Fiscal 2017, bringing the total number of deployed GBIs to 44, when including those already in Alaska and California, said Hagel.

In April, the Pentagon announced it also would deploy a Terminal High Altitude Area Defense system to Guam in the coming weeks "as a precautionary move" to strengthen the US regional defense posture against North Korean ballistic missile threats.

—Marc V. Schanz

atop a United Launch Alliance Atlas V booster fired from Cape Canaveral AFS, Fla., on March 19.

"The entire team worked hand-in-hand to make this another successful launch for the Air Force and our nation," said 45th Space Wing Commander Brig. Gen. Anthony J. Cotton, who oversees Cape Canaveral launch operations, in a news release. He added, "Our hats go off to them for all their hard work."

The satellite separated from the Atlas V upper stage about 43 minutes after the launch, which occurred at 5:21 p.m. Eastern Time, said service space acquisition officials in a separate news release. It then began a series of orbital maneuvers to propel itself to a geosynchronous Earth orbit. Once in its final orbit, engineers will deploy the satellite's solar arrays and antennas and complete checkout and tests in preparation for operational use.

GEO-2 joins GEO-1, which reached orbit in May 2011, and two SBIRS payloads that reside on classified intelligence satellites. The SBIRS constellation is designed to provide early warning of missile launches and other types of infrared surveillance information to the US military and Intelligence Community. The satellites will complement, and eventually replace, legacy Defense Support Program satellites.

Iranian Jet Threatens Predator

An Iranian F-4 fighter unsuccessfully tried to intercept an unarmed American MQ-1 Predator remotely piloted aircraft over international waters in the Persian Gulf, according to Pentagon Press Secretary George E. Little. The incident occurred March 12 when the Predator was conducting a routine surveillance flight and the Iranians sent the F-4 to intercept it.

"The closest point of approach between these aircraft was approximately 16 miles," Little said. The Iranian jet broke off the pursuit after a verbal warning from two US military aircraft escorting the Predator. "All US aircraft remained over international waters at all times," Little added.

Back in November, an Iranian Su-25 fired on a Predator that also was flying in international airspace above the Gulf, but missed. The US government said at the time these surveillance missions would continue.

The Cyber Cold War

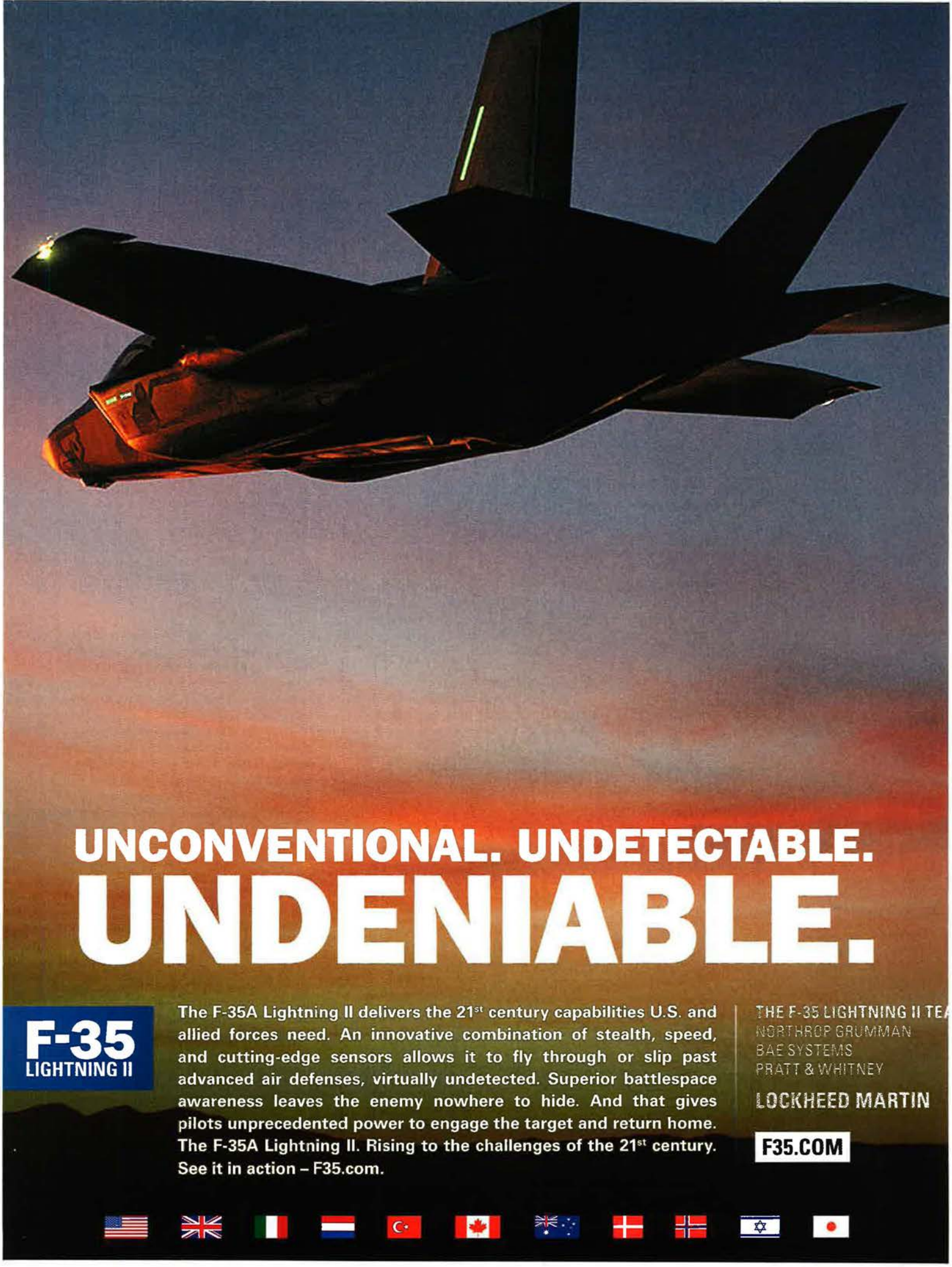
The US military's computer networks are vulnerable to attack and the Defense Department's reliance on "inherently insecure" information technology architectures to support them acts as "a magnet to US opponents," reported the Pentagon's Defense Science Board.

The 18-month study, conducted by a DSB task force, found that "the cyber threat is serious and that the United States cannot be confident" its critical IT systems would work "under attack from a sophisticated and well-resourced opponent."

Already, DOD and its contractor base have "sustained staggering losses of system design information incorporating decades of combat knowledge and experience," stated the report, which is dated January 2013 although the Pentagon only recently released it publicly.

The task force called for DOD to take the lead in increasing confidence in the IT systems utilized in the public and private sector in order to "decrease a would-be attacker's confidence."

One recommendation to mitigate the threat of a debilitating cyber attack, according to the study, is to segment a portion of conventional forces at "the highest level of cyber resiliency at an affordable cost" to serve as a "cyber-critical survivable mission" force, such as "20


UNCONVENTIONAL. UNDETECTABLE.
UNDENIABLE.
F-35
LIGHTNING II
The F-35A Lightning II delivers the 21st century capabilities U.S. and allied forces need. An innovative combination of stealth, speed, and cutting-edge sensors allows it to fly through or slip past advanced air defenses, virtually undetected. Superior battlespace awareness leaves the enemy nowhere to hide. And that gives pilots unprecedented power to engage the target and return home. The F-35A Lightning II. Rising to the challenges of the 21st century. See it in action – F35.com.
THE F-35 LIGHTNING II TEA
NORTHROP GRUMMAN
BAE SYSTEMS
PRATT & WHITNEY
LOCKHEED MARTIN
F35.COM

USAF photo by A1C Omari Bernard

But Baby, It's Cold Outside: ***Security forces airmen from JB Elmendorf-Richardson, Alaska, practice tactical maneuvers during Polar Force 13-3. The operational readiness exercise took place at Camp Bull in April and tested the airmen's short-notice deployment capabilities.***

aircraft designated by tail number, out of a fleet of hundreds" of strike platforms.

China Wants Espionage Rules

China's Foreign Minister Yang Jiechi called for international "rules and cooperation" on Internet espionage issues, reported the *New York Times* in March. He also insisted that accusations of Chinese government involvement in recent hacking attacks on networks in the US and other western nations were part of an international smear campaign.

According to the newspaper, such remarks were China's highest-level response yet to reports of the Chinese military engaging in cyber espionage. Speaking at the National People's Congress on March 9, Yang said that accusations that the Chinese government sanctions such cyber attacks were "built on shaky ground." He said cyberspace should not be turned into a battlefield. Chinese officials have been asserting of late that China also is a victim of cyber attacks from the US, according to the March 10 newspaper report.

WGS-5 Launch

The Air Force has scheduled the launch of WGS-5, the fifth Wideband Global SATCOM spacecraft, for May 8. The 45th Space Wing, which oversees launch operations at Cape Canaveral AFS, Fla., has placed the mission on the range schedule for that day, according to a March 29 release from Los Angeles AFB, Calif.

A United Launch Alliance Delta IV booster will carry WGS-5 into space, where it will join four other WGS assets already operating on orbit.

Prime contractor Boeing announced in February that WGS-5 had arrived in Titusville, Fla., for final processing prior to the launch.

The investigation into the off-nominal performance of a Delta IV carrying a GPS IIF navigational satellite last October is still progressing, but the Air Force has "approved processing this mission toward the May 8 launch date," stated the release.

Weighing Threats

Gen. C. Robert Kehler, commander of US Strategic Command, said in March the United States' 30 ground-based interceptors in Alaska and California provide enough capability to defend against a "limited" ballistic missile attack from North Korea or Iran. However, he told members of the Senate Armed Services Committee, the US "is not in the most optimum posture" today to defend against an Iranian attack.

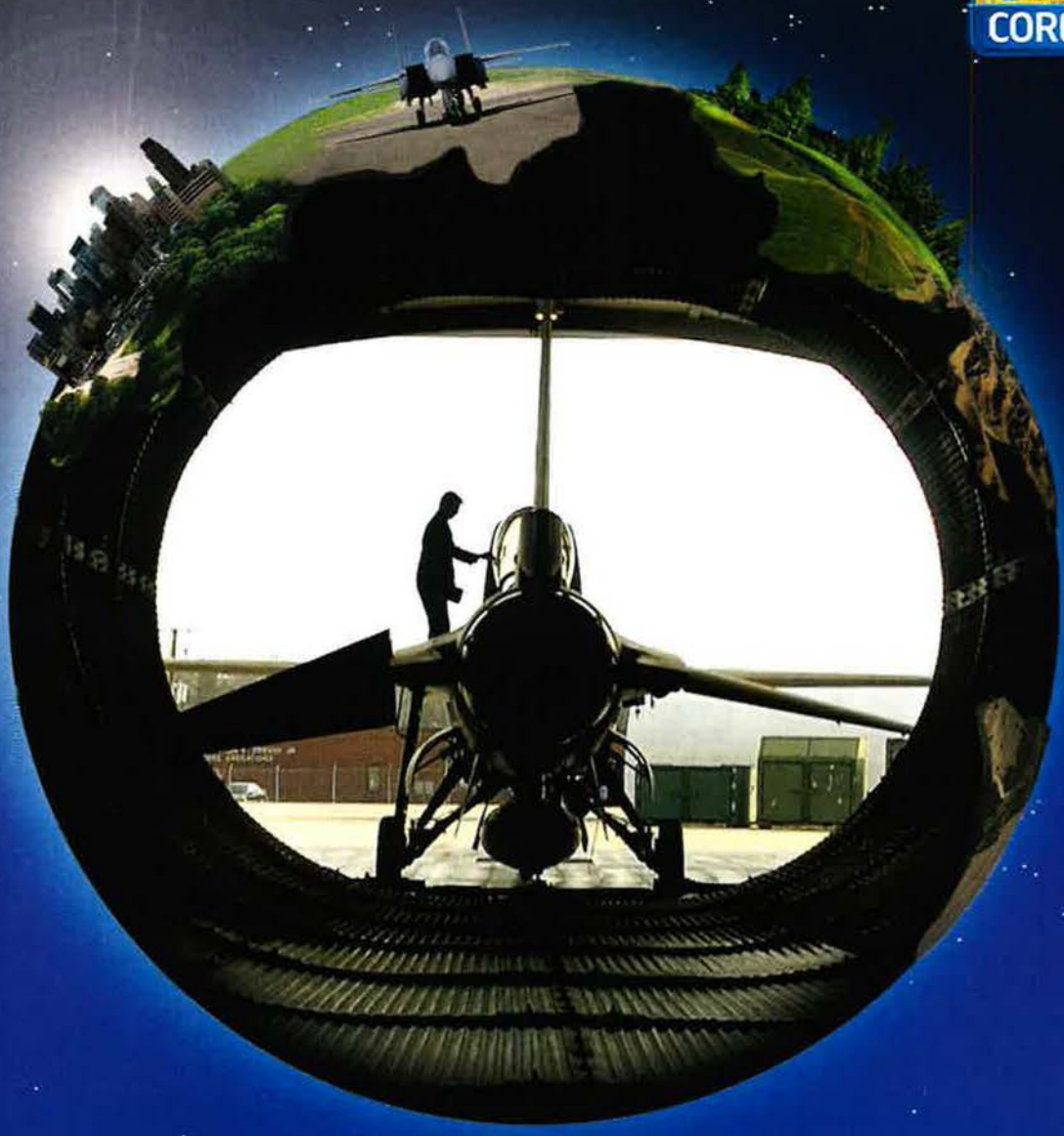
In response, SASC Ranking Member Sen. Jim Inhofe (R-Okla.) said to Kehler,

Index to Advertisers

Panasonic

Panasonic recommends Windows 8.

intel inside™ CORE™ i5 vPro™



Controlling the air starts from the ground up.
Rugged Panasonic Toughbook® mobile computers powered by the Intel® Core™ i5 vPro™ processor. Giving Air Force specialists the e-tools they need to efficiently manage maintenance operations in any environment is how we're engineering a better world.

airforce@us.panasonic.com

Available on AFWay through the USAF E-Tools Program

Toughbook 53 Toughbook 31 Toughbook H2 Toughbook 19

TOUGHBOOK®

SOLUTIONS FOR U.S. AIR FORCE

"I think, you're being a little too cautious, [or] not cautious enough here, when you say 'limited attack,' when our intelligence has shown us that Iran is going to have the capability and a delivery system by 2015."

Also on March 12, Director of National Intelligence James R. Clapper told the Senate Intelligence Committee that "Iran continues to develop technical expertise in a number of areas, including uranium enrichment, nuclear reactors, and ballistic missiles, from which it could draw if it decided to build missile-deliverable weapons." Clapper also said he is "very concerned" with the "very belligerent" rhetoric coming from North Korea. "The rhetoric, while it is propaganda-laced, is also an indicator of their attitude and perhaps their intent," he said.

UN Tightens North Korea Sanctions

North Korea threatened a "preemptive nuclear attack" against the US just prior to the UN Security Council unanimously approving a resolution tightening sanctions against the communist nation in response to its February nuclear test. China and the US worked together to draft the resolution, wire services reported.

The measure targets North Korea's trade and banking, as well as travel by certain officials, stated a UN release. The resolution also demands that North Korea retract its announcement that it

Strategy, Opportunity, and the QDR

Maj. Gen. Steven L. Kwast, director of the Air Force's Quadrennial Defense Review, said in March the Pentagon will undertake the upcoming review at a unique time for the country and the Pentagon. The US is drawing down from Afghanistan, shifting assets to the Asia-Pacific region, and grappling with steep fiscal realities. Combined, these issues present an "opportunity to have a significant conversation" about the defense of the US and its interests, Kwast told defense reporters in Washington, D.C., on March 15.

This QDR will be the first one since the release of the Obama Administration's new defense strategic guidance in January 2012. As such, it serves as an "inflection point" for political leadership and military leaders to match up strategy with programmatic detail, Kwast said.

Kwast wants to see this QDR put more programmatic detail on the way forward on ideas such as AirSea Battle, the Joint Staff's Joint Operational Access Concept, and other initiatives for dealing with anti-access challenges. They represent the Defense Department's efforts "to codify the fact that we are still on this journey from a Cold War structure of military capability and shaping it into a structure that has more agility, resilience, and flexibility," he said.

The QDR also will take a "holistic approach" to addressing the ongoing debate over the proper Total Force mix, Kwast added. This will include marrying the recommendations of the Air Force's Total Force Task Force and the independent National Commission on the Structure of the Air Force that Congress established in the Fiscal 2013 Defense Authorization Act.

USAF photo by A1C Matthew Lotz

We've Got an Italian Squeeze: *At Zaragoza AB, Spain, Capt. Corydon Jerch exits his F-16. More than 250 airmen and 14 F-16s from Aviano AB, Italy, trained in Spain in March. Not only is range and airspace limited in Italy, but required annual training at Zaragoza gives the Aviano pilots a chance to build coalition partnerships.*

A BOMBER LEGACY LIKE NO OTHER.

For more than 91 years, Boeing's unmatched expertise in the design, integration, manufacturing and support of bomber aircraft has helped bring strength and victory to our nation's armed forces. As the challenges of the future loom, we stand ready to support the U.S. Air Force in the critical development of the next-generation bomber.

BOEING

Operation Enduring Freedom—Afghanistan

Casualties

As of April 15, 2013, a total of 2,194 Americans had died in Operation Enduring Freedom. The total includes 2,191 troops and three Department of Defense civilians. Of these deaths, 1,728 were killed in action with the enemy, while 460 died in noncombat incidents.

There have been 18,404 troops wounded in action during OEF.

Airmen Train To Defend Against Insider Threats

Airmen deployed to Bagram Airfield, Afghanistan, recently learned how to deal with an insider attack on base.

Coalition troops have been killed and wounded in attacks by rogue members of Afghan security forces who suddenly turned their guns on their coalition partners. These attacks are called "green on blue" incidents. Because of this lingering threat, security forces airmen at Bagram trained other airmen assigned to the base on how to defend against such attacks, stated a March 21 news release.

"The goal is to get them familiar with firing from different positions in a high-stress scenario," said TSgt. Steven Ely, a combat arms instructor with Bagram's 455th Expeditionary Security Forces Group.

During the training, airmen are instructed to fire starting from a seated position and also while moving toward the attacker. "The airmen need to be either shooting or reloading and not waiting to be targets," said SSgt. Zachary Regan, another instructor.

Shindand Graduates New Crop of Afghan Aircraft Maintainers

Members of the Afghan Air Force, alongside advisors from the NATO Air Training Command-Afghanistan, welcomed 29 newly trained Afghan aircraft maintenance specialists in a graduation ceremony at Shindand AB, Afghanistan.

The class is the largest in the history of the Shindand Air Wing Maintenance Group, according to a March 23 base press release. It's also the group's first class to graduate since September.

To earn the certificates of completion and their maintenance badges, the Afghan students were required to accomplish on-the-job training and demonstrate proficiency in basic maintenance tasks, such as preflight inspections, aircraft launch and recovery procedures, and lube and servicing inspections.

"We've been in training for a long time, and now we know we are able to move on to the next step," said Lt. Col. Gul Ahmad, one of the Afghan airmen who graduated on March 19. "I'm honored to get my certificate and badge today. My badge is something that I can wear with pride and that will be with me forever," he added.

New Air-drop System Tested

Members of the 774th Expeditionary Airlift Squadron at Bagram Airfield, Afghanistan, experimented with a new air-drop concept that's designed to improve the accuracy and efficiency of airdrops.

Under the Single Pass Airdrop, or SPAid, concept, a remotely piloted aircraft releases a "drop sonde" at a prescribed point near the drop zone to collect weather data for the approaching transport aircraft, according to the base's March news release.

During the March 18 experiment, the squadron's C-130 successfully received the sonde data; however no actual airdrop was attempted, stated the release. Use of the sonde to help build the wind profile will help the aircrews "drop as accurately as possible," said Capt. Andrew Standeford, 774th EAS precision air-drop system operator.

Dropping the sonde from a different platform means the transport airplane no longer has to make two passes over the drop zone, thereby decreasing its exposure to threats, according to the release.

SPAid also allows for quicker delivery time. "The way we did it today took 40 minutes off the [normal] time frame," said SSgt. Robert Olson, a joint terminal attack controller with the 817th Expeditionary Air Support Operations Squadron.

Air Mobility Command sponsored the SPAid experiment.

would withdraw from the Nuclear Nonproliferation Treaty and "abandon all nuclear weapons and existing nuclear programs."

"The Security Council has sent an unequivocal message to [North Korea] that the international community will not tolerate its pursuit of nuclear weapons and related acts," said UN Secretary-General Ban Ki-moon.

"Adoption of the resolution itself is not enough," said China's UN Ambassador Li Baodong. "We want to see full implementation of the resolution."

President Obama said in his State of the Union speech in February that the US would strengthen its missile defenses and "lead the world in taking firm action" in response to North Korea's provocations.

Nellis Receives Its First F-35s

The first two F-35A strike fighters assigned to Nellis AFB, Nev., arrived in early March, announced base officials.

The airplanes, which will serve as developmental and operational test assets, touched down at Nellis on March 6, according to a base release. They will fly with the 422nd Test and Evaluation Squadron, which will be the first unit to conduct F-35 operational testing.

Nellis' F-35A test force is scheduled to grow 12 aircraft, and the base's Fighter Weapons School is slated to build up to a fleet of 24 F-35As.

Boosting Africa, Europe Partnerships

Army Gen. Carter F. Ham, then commander of US Africa Command, and Adm. James G. Stavridis, commander of US European Command, told lawmakers in March that the National Guard's State Partnership Program offers the US the "maximum bang" for the buck in their respective areas of responsibility.

Already there are eight such partnerships throughout Africa, but none are yet established with partner nations along the African east coast, Ham said in testimony before the House Armed Services Committee on March 15.

However, that could change shortly, he added. "We've had discussions with some East African countries and I think we're close to having a few more [partnerships]," he said. In fact, the National Guard Bureau chief already is working with state adjutants general to determine what Guard units could potentially take on new partnerships, Ham said.

It's also likely that dual partnerships between a Guard unit and counterparts in both Africa and Europe could increase in the future, said both officials. Stavridis, at the same hearing, called the Guard partnerships "one of the best things going."

Senior Staff Changes

PROMOTIONS: To Lieutenant General: John E. **Hyten,** Tod D. **Wolters.**

NOMINATIONS: To be Lieutenant General: Michelle D. **Johnson,** Robert P. **Otto,** Mark O. **Schissler. To be Major General:** Scott W. **Jansson.**

CHANGES: Maj. Gen. Brian T. **Bishop,** from DCS, UN Command & US Forces Korea, PACOM, US Army Garrison Yongsan, South Korea, to Cmdr., Spaatz Center for Officer Education, & Commandant, Air War College, AU, AETC, Maxwell AFB, Ala. ... Brig. Gen. Jack L. **Briggs II,** from Dep. Cmdr., Canadian NORAD & Dep. Cmdr., Ops., 1st Air Div., NORAD, Winnipeg, Manitoba, Canada, to Vice Cmdr., 1st Air Force (Air Forces Northern), ACC, Tyndall AFB, Fla. ... Brig. Gen. Peter E. **Gersten,** from Dir., Plans & Prgms., ACC, JB Langley-Eustis, Va., to Dep. Dir., Politico-Mil. Affairs, Western Hemisphere, Jt. Staff, Pentagon ... Maj. Gen. Scott M. **Hanson,** from Cmdr., Spaatz Center for Officer Education, & Commandant, Air War College, AETC, AU, Maxwell AFB, Ala., to Dir., Ops., AMC, Scott AFB, Ill. ... Lt. Gen. Susan J. **Helms,** from Cmdr., 14th AF (Air Forces Strategic), AFSPC, Vandenberg AFB, Calif., to Vice Cmdr., AFSPC, Peterson AFB, Colo. ... Lt. Gen. John E. **Hyten,** from Vice Cmdr., AFSPC, Peterson AFB, Colo., to Cmdr., 14th AF (Air Forces Strategic), AFSPC, Vandenberg AFB, Calif. ... Maj. Gen. Randy A. **Kee,** from Dep. Dir., Politico-Mil. Affairs, Western Hemisphere, Jt. Staff, Pentagon, to Dir., Plans & Policy, EUCOM, Stuttgart-Vaihingen, Germany ... Maj. Gen. (sel.) Jerry P. **Martinez,** from Dir., Jt. Integration, Operational Capability Rqmts., DCS, Ops., Plans, & Rqmts., USAF, Pentagon, to DCS, Ops., Jt. Forces Command, NATO, Brunssum, Netherlands ... Lt. Gen. Tod D. **Wolters,** from Dir., LL, OSAF, Pentagon, to Cmdr., 12th AF (Air Forces Southern), ACC, Davis-Monthan AFB, Ariz.

SENIOR EXECUTIVE SERVICE CHANGES: Thomas F. **Christian,** to Assoc. Dep. Asst. Secy., Science, Tech., & Engineering, Office of the Asst. SECAF, Acq., Pentagon ... Gail P. **Forest,** to Dir., Info. Dominance Prgms., Office of the Asst. SECAF, Acq., Pentagon ... Arthur G. **Hatcher Jr.,** to Dir., C4 Systems & Cyber Ops., AFGSC, Barksdale AFB, La. ... Matthew D. **Mulhern,** to Dep. Dir., AF Rapid Capabilities Office, Office of the Administrative Asst. to the SECAF, JB Anacostia-Bolling, D.C. ...Craig A. **Smith,** to Dep. General Counsel, Intel., Intl., & Mil. Affairs, Office of the AF General Counsel, Pentagon. ▪

Breedlove for SACEUR-EUCOM

President Obama announced his intent to nominate Gen. Philip M. Breedlove as the next Supreme Allied Commander, Europe, and head of US European Command.

"For over three decades, General Breedlove has served with distinction in assignments at all levels of the US Air Force and around the globe, from Washington to Germany, Italy, Spain, and South Korea," Obama said in a March 28 statement.

Breedlove has been serving as commander of US Air Forces in Europe-Air Forces Africa at Ramstein AB, Germany, since July 2012. Prior to that, he was the Air Force's vice chief of staff.

In his current roles, "Breedlove has established trust and deep relations with our NATO Allies and partners," said Obama.

If the Senate confirms the nomination, Breedlove would succeed Adm. James G. Stavridis, who has been the commander of SACEUR and EUCOM since summer 2009, in the late spring, according to the statement.

Breedlove's name surfaced in February as the potential nominee after Obama's initial pick, Marine Corps Gen. John R. Allen, announced that he would retire from the military and step away from his nomination.

USAF photo by TSgt. Samuel Morse

Smoke on the Water: *366th Civil Engineer Squadron firefighters put out the flames during a fire-training exercise at Mountain Home AFB, Idaho. Teams worked in unison to push the fire back without allowing it to reignite behind them.*

Saudi F-15 Variant Makes First Flight

The Air Force and Boeing recently conducted the maiden test flight of the new F-15SA configuration the company is building for the Saudi Arabian Air Force, announced service officials. The flight, which took place on Feb. 20 at Boeing's facility in St. Louis, met the test objectives, according to the Air Force's March 15 news release.

"The successful first flight of the F-15SA is a tremendous milestone for the program," said Lt. Gen. C. D. Moore II, commander of Air Force Life Cycle Management Center at Wright-Patterson AFB, Ohio.

Boeing is supplying 84 new-build F-15SAs to the Royal Saudi Air Force and upgrading some 70 existing F-15s in the air arm's fleet to the "SA" standard under a multibillion-dollar foreign military sale. F-15SA deliveries are scheduled to begin in 2015 and conclude by 2019, stated the news release. The F-15SA configuration includes features such as a fly-by-wire flight-control system, active electronically scanned array radar, and two additional weapon stations.

In related news, the Air Force on March 14 awarded Boeing a $3.5 billion contract for work on the Saudi jets, according to the Pentagon's announcement.

Man-Portable Weapons on the Loose

"Many thousands" of the man-portable air defense systems and other weapons in the stockpiles of Libyan dictator Muammar Qaddafi's regime before its collapse "remain unaccounted for," said Army Gen. Carter F. Ham, then commander of US Africa Command, in March.

"It's very clear" these MANPADS and other weapons have spread in two directions: western Africa and the Middle East, Ham told the Senate Armed Services Committee on March 7.

"We thought initially that most would transit into northern Mali, and [we] certainly have seen significant evidence that that has been the case" as al Qaeda-affiliated groups and other terrorist

USAF photo by SSgt. Mikhail Berlin

Checking Out the In and Out: *SrA. Joseph Farrell checks the cavernous interior of a C-17 at Wright-Patterson AFB, Ohio. Farrell is an electronic warfare systems journeyman assigned to the 445th Aircraft Maintenance Squadron.*

organizations "are significantly better armed now than they were before," he said. "What we didn't see quite so quickly, but now believe certainly to be the case, is movement of weapons in the other direction, some of which we believe have ended up in Syria," he added.

Ham said a State Department-led initiative to secure these weapons by buying them back has had "modest success." Ham had led AFRICOM since March 2011. Army Gen. David M. Rodriguez succeeded him in April 2013.

China Moves Up On Arms List

China became the fifth-largest exporter of major conventional arms worldwide during the five-year period ending in 2012, displacing Britain from that spot, announced the Stockholm International Peace Research Institute on March 18, citing new data on international arms transfers.

This marks the first time China has been in the top five since the end of the Cold War and the first time Britain has not been in the top five since at least 1950, stated the release.

"China's rise has been driven primarily by large-scale arms acquisitions by Pakistan," said Paul Holtom, director of SIPRI's arms transfers program. "However, a number of recent deals indicate that China is establishing itself as a significant arms supplier to a growing number of important recipient states," he added.

According to SIPRI, the top five suppliers from 2008 to 2012 were: the United States (30 percent of global arms exports), Russia (26 percent), Germany (seven percent), France (six percent), and China (five percent).

Japan Contracts for Four F-35s

Lockheed Martin received a $40.2 million contract to procure the long-lead-time parts, materials, and components for Japan's first four F-35 strike fighters, according to the Pentagon's list of major contracts for March 25.

Japan is procuring some 42 F-35As—the Air Force's conventional-takeoff variant—under a foreign military sale with the US formally announced by the Pentagon in April 2012.

Under the contract's terms, Lockheed Martin is scheduled to complete the long-lead work in February 2014, stated the contract description. The company will build Japan's first four F-35As as part of the F-35's eighth low-rate production lot.

Kerry Confronts Iraq on Overflights

Secretary of State John F. Kerry said he "made it very clear" to Iraqi Prime Minister Nouri al Maliki in a face-to-face meeting that "overflights from Iran" of Iraqi territory en route to Syria are ruining Iraq's credibility as a viable US partner.

Briefing reporters on March 24 during his visit to Baghdad—less than one week after the 10th anniversary of Operation Iraqi Freedom's start—Kerry said he had a "very spirited discussion" with Maliki in which he emphasized that such overflights "are, in fact, helping to sustain" Syrian President Bashar al Assad's regime, something the US considers "problematic."

Kerry said he told Maliki that "there are members of Congress and people in America who increasingly are watching what Iraq is doing and wondering how it is that a partner in the efforts for democracy and a partner for whom Americans feel they have tried so hard to be helpful ... can be, in fact, doing something that makes it more difficult to achieve our common goals."

Kerry also said he remained hopeful the two countries would "be able to make some progress on this."

USAF Announces Lift Decisions

Air Force Reserve Command's 911th Airlift Wing in Pittsburgh will retain a force of eight C-130Hs through Fiscal 2014, announced Air Force officials in a March 13 report. The move is intended to meet the congressional mandate to maintain a force of at least 358 intratheater transports in Fiscal 2013 by retaining 32 addi-

USAF photo by TSgt. Dennis J. Henry Jr.

Step Right Up To See the Strong Man: *SSgt. Travis Miller gives a pallet of supplies a strong heave-ho, aided by rollers in the C-17's floor. Miller and other loadmasters were preparing the transport to airdrop cargo over Afghanistan. Miller is deployed from the 15th Airlift Squadron, JB Charleston, S.C.*

GOVX

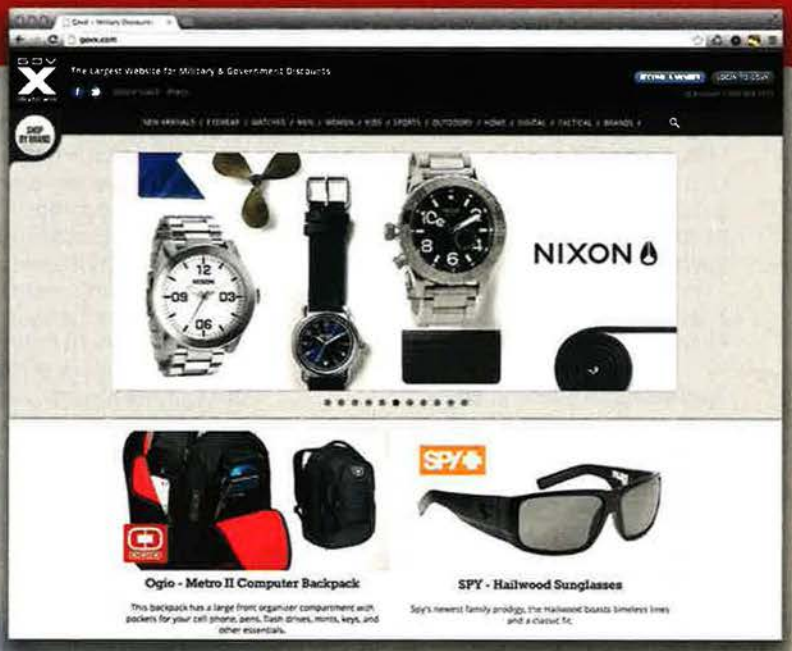
FOR MILITARY & GOVERNMENT

GovX Welcomes AFA Members

VISIT GOVX.COM/AFA

SAVE $10 OFF YOUR FIRST GOVX ORDER!

Now Through End of 2013



SPECTACULAR SAVINGS!

20-50% OFF

POPULAR BRANDS AND TACTICAL GEAR

AFA Members have VIP access to GovX, the largest e-commerce site for Military and Government.

JOIN THE RANKS OF GOVX!

- Largest E-commerce Site Serving U.S. Military & Government Employees
- Shop Over 15,000 Popular Products for You and Your Family
- You Won't Find Prices Lower Anywhere
- GovX Is Not Available To The Public

VIP ACCESS FOR AFA MEMBERS: GovX.com/AFA

GovX.com | 7817 Ivanhoe Ave. Suite 200 | La Jolla, CA 92037 | 888-468-5511 | Info@GovX.com

tional airplanes—all legacy C-130s—the service had originally intended to retire.

"Although we were required to retain aircraft only through the end of this fiscal year, we extended the aircraft through [Fiscal] 2014 to allow time to complete additional analysis and to coordinate with our stakeholders," said Air Force Secretary Michael B. Donley.

The Air Force will reassess its force structure as it builds its Fiscal 2015 budget proposal, stated the press release. In addition to Pittsburgh, which was set to lose its C-130 flying mission, the Air National Guard's 109th AW in Schenectady, N.Y., and the 139th AW in St. Joseph, Mo., each will retain two extra C-130s as backup assets through Fiscal 2014.

The following ANG units also will keep one extra C-130 each in backup status: 123rd AW in Louisville, Ky.; 130th AW in Charleston, W.Va.; and 189th AW at Little Rock AFB, Ark. Air Force Reserve Command's 440th AW at Pope Field, N.C.; 910th AW at Youngstown ARS, Ohio; and 914th AW at Niagara Falls ARS, N.Y., also each will retain backup C-130s.

In Fiscal 2014, the Air Force said it would restore AFRC's 934th AW in Minneapolis as well as its eight C-130s.

Tuition Assistance Is Back

The full-year defense appropriations bill, which funds the Defense Department and other federal agencies for the remainder of the Fiscal Year, forced the Air Force, Army, and Marine Corps to reinstate their perspective tuition assistance programs.

In mid-March, the Air Force, along with other services, suspended military tuition assistance for the remainder of Fiscal 2013.

The suspension would have had an impact on some 115,000 airmen taking 277,000 courses at 1,200 colleges and universities around the US, Lt. Gen. Darrell D. Jones, deputy chief of staff for manpower, personnel, and services, told lawmakers when he testified before the House Armed Services Committee's military personnel panel.

Congress added the tuition assistance provision to HR 933, which President Obama signed into law on March 26, after troops and veterans organizations protested the temporary end of the education benefit.

Healthy Base Initiative Launched

The Defense Department announced in March the Healthy Base Initiative, a one-year demonstration project to gauge the ability of a test set of DOD installations to create environments that can sustain healthy lifestyles.

"Our vision of success is an installation that provides an environment that makes healthy choices the easy choice and a place that encourages and promotes nutrition, an active lifestyle, and tobacco-free living," said Charles E. Milam, acting deputy assistant secretary of defense for military community and family policy, during a March 18 media roundtable.

The project begins in mid-June at 13 Pentagon installations worldwide. Among the pilot sites are the following Air Force locations: March ARB, Calif.; Mountain Home AFB, Idaho; JB Pearl Harbor-Hickam, Hawaii; and Yokota AB, Japan.

Milam said HBI will be "cost neutral" as the aim is not to build new programs, but to invest time into reviewing existing infrastructures and initiatives to see what's most successful. HBI is a component of Operation Live Well, a Pentagon initiative to increase the health and wellness of US military personnel, their family members, and DOD civilians.

Medal of Honor for Korean War Hero

President Obama awarded the late Capt. Emil J. Kapaun, a Roman Catholic priest who served as an Army chaplain during the Korean War, a posthumous Medal of Honor in mid-April. Kapaun's nephew, Ray Kapaun, and family joined Obama at the White House for the April 11 ceremony, according to the White House's report.

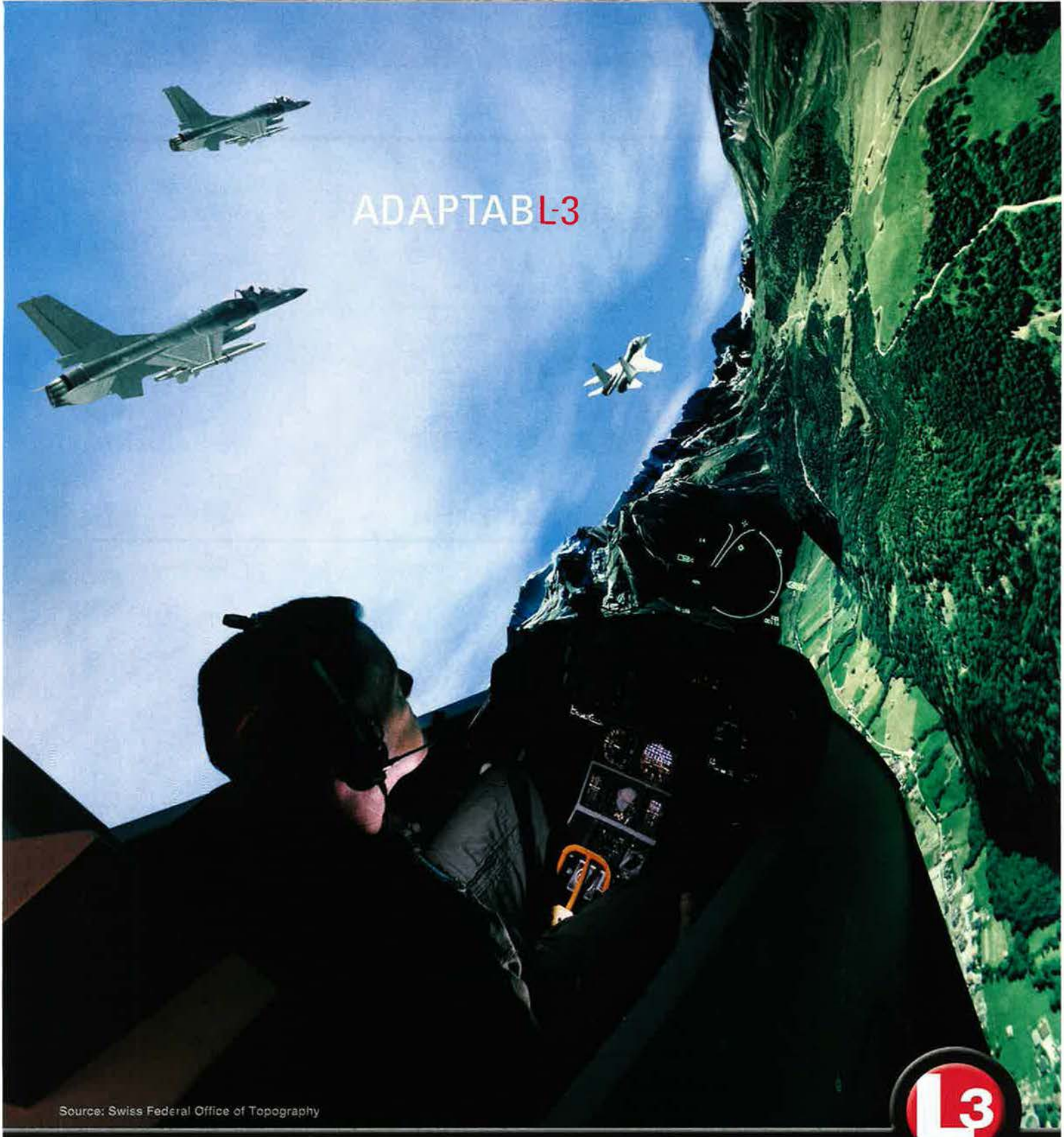
Kapaun was honored for his conspicuous gallantry while serving with the 1st Cavalry Division's 3rd Battalion, 8th Cavalry Regiment, during combat operations in Unsan, Korea, from Nov. 1 to 2, 1950.

When Chinese forces attacked his unit, Kapaun walked through withering enemy fire to provide comfort and medical aid to his comrades, stated the release. He elected to stay behind with the wounded when the able-bodied men were ordered to evacuate. As enemy forces approached, Kapaun noticed an injured Chinese officer amongst the wounded and convinced him to negotiate the safe surrender of the American forces.

Shortly after his capture, Kapaun pushed aside an enemy soldier preparing to execute a comrade, thus saving his life. Kapaun died in captivity on May 23, 1951, stated a March 11 Pentagon release. ■

None Shall Pass: *In Southwest Asia, A1C Travon Hicks, on the tarmac, provides overwatch during a base-defense exercise. This test determined how quickly security forces responded to intruders threatening USAF assets. Assigned to the 380th Expeditionary Security Forces Squadron, Hicks is deployed from JB Charleston, S.C.*

USAF photo by TSgt. Christina M. Styer



As the battlefield environment changes, so do the needs of our pilots. L-3's state-of-the-art HD simulators prepare warfighters to perform at peak proficiency for today's missions, and our constant innovation ensures they'll have the best training for whatever tomorrow brings. At L-3, the risks are simulated, but the benefits are real.

Adaptable — It's how we work.

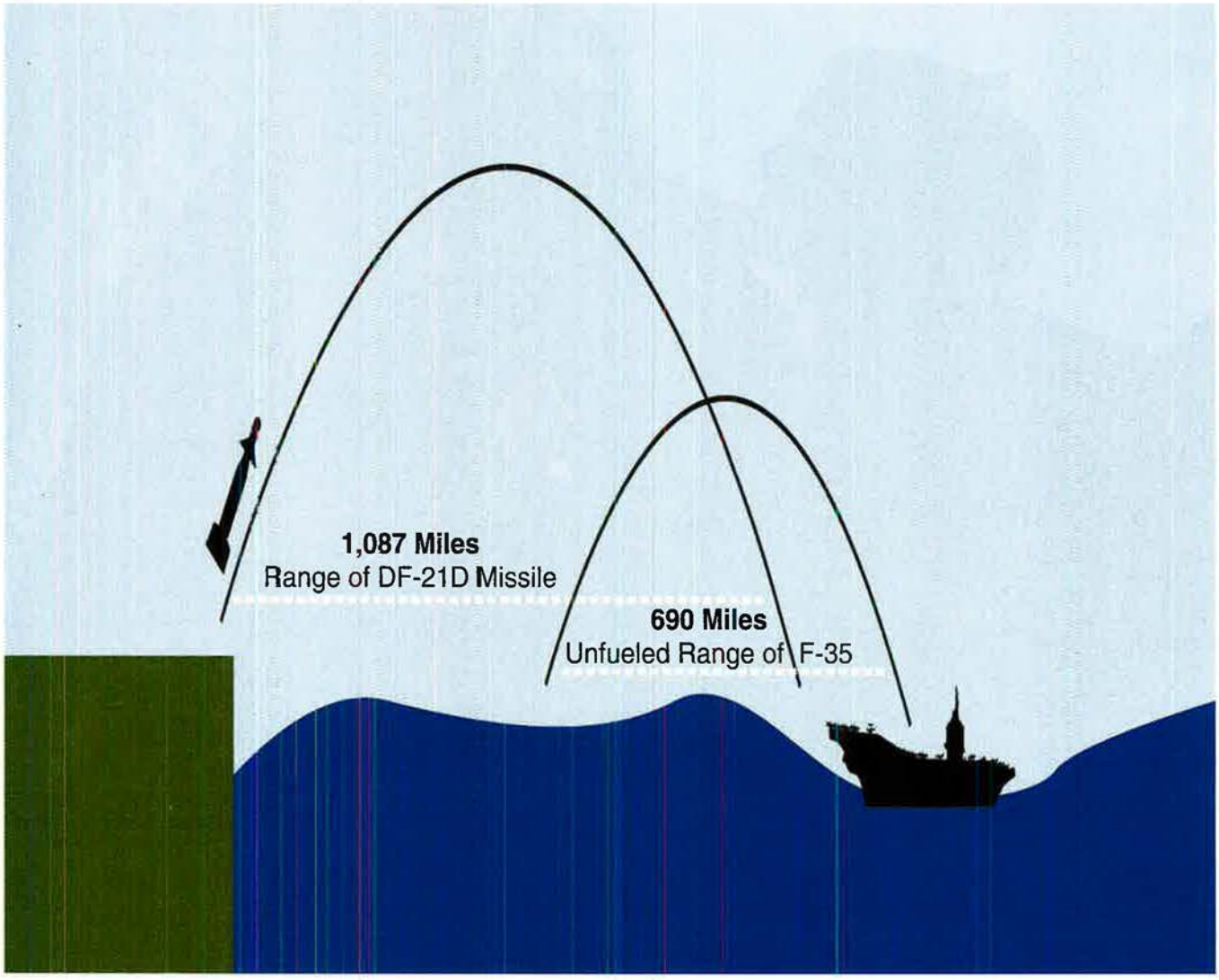
L-3com.com

chartpage@afa.org

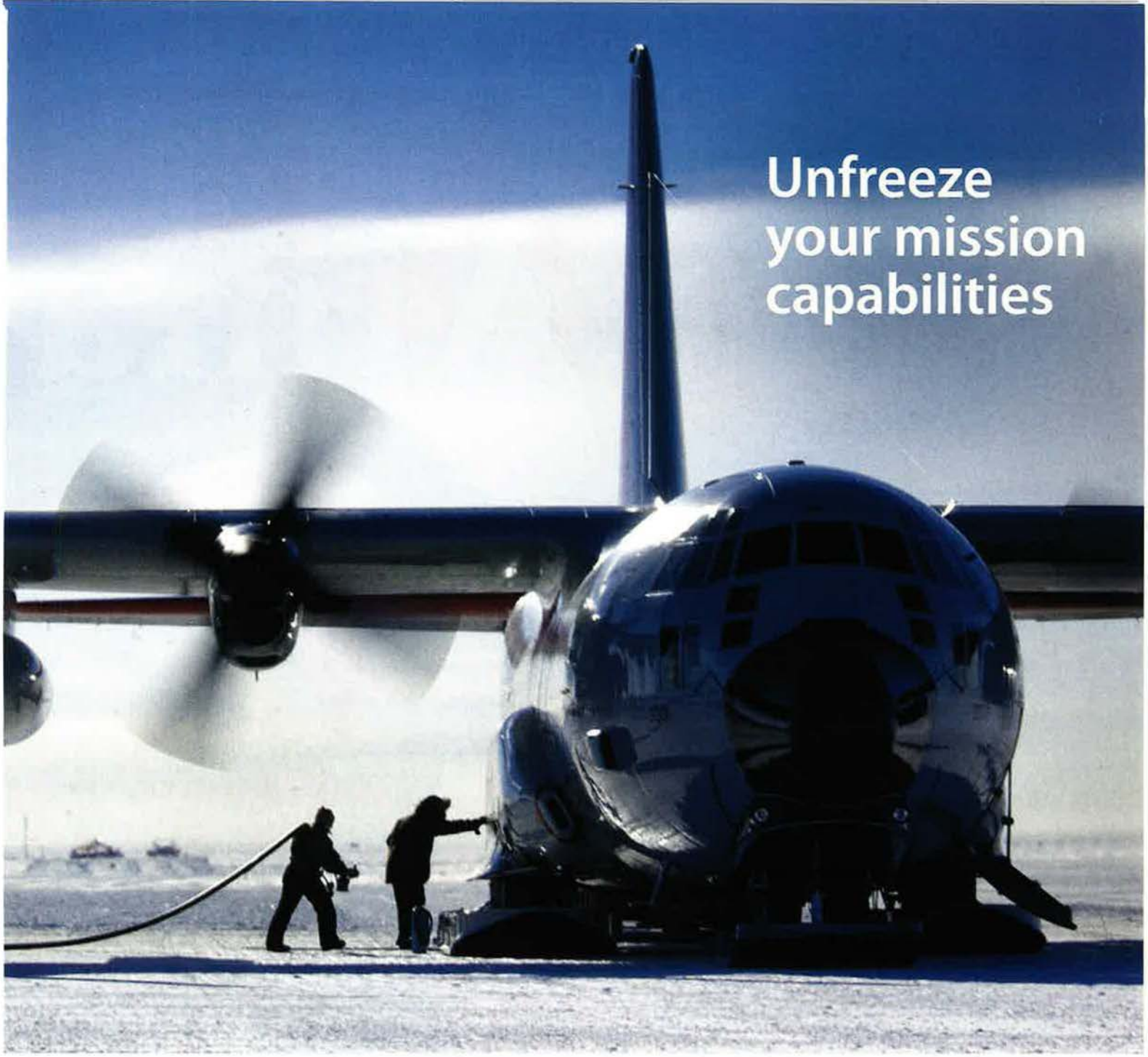
The Carrier Tale of the Tape

In boxing, "reach" is important; a fighter whose arms are longer than his foe's—all else being equal—can land a punch before his opponent can do so. Does "reach deficiency" threaten the power of US aircraft carriers? Yes, warns a paper by Navy Capt. Henry J. Hendrix, a naval flight officer. As seen here, China's declared carrier killer, the DF-21D missile, outranges the combat radius of the carrier-based F-35 by nearly 400 miles. (The paper did not address extending the F-35's range through aerial refueling.) Such imbalances could force carriers to operate at distances ever farther from targets. Hendrix notes: "Carriers themselves may not be able to move close enough to targets to operate effectively or survive in an era of satellite imagery and long-range precision strike missiles." He suggests that the Navy de-emphasize manned-aircraft carriers in favor of unmanned aircraft and long-range precision missiles.

China's DF-21D Missile Vs. US Navy's F-35 Fighter



Source: "At What Cost a Carrier?" by Capt. Henry J. Hendrix, US Navy. Published by Center for a New American Security, Washington, D.C., March 2013. Reprinted with permission.



More power on takeoff. Greater efficiency in flight.

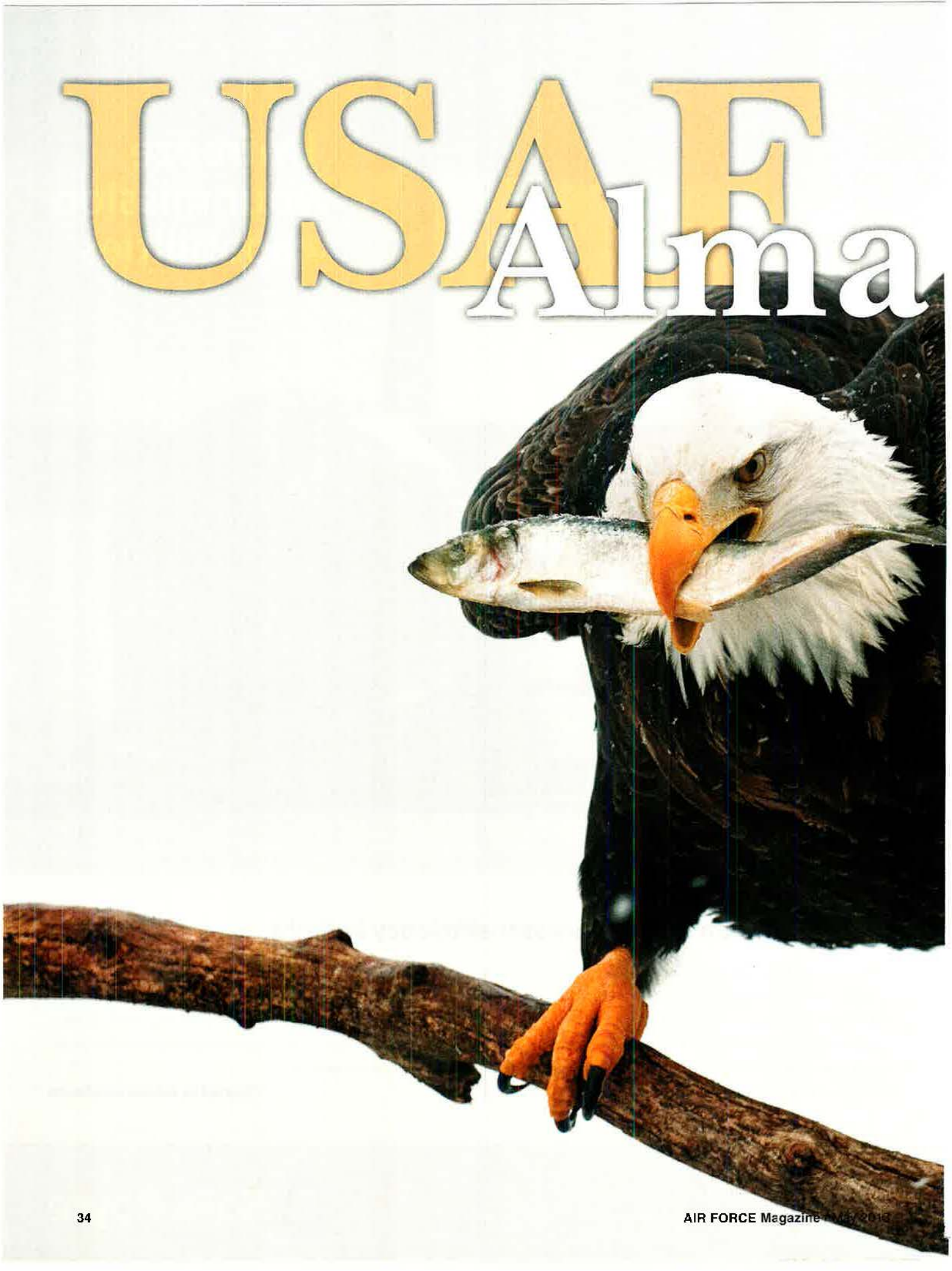
There are few easy days in the military, but refueling on the frozen tundra of Antarctica is tougher than most. At Rolls-Royce we're here to support airmen with products and services to support their unique missions. With our new 3.5 enhancement to the venerable T56 engine, we've improved an engine in all the ways that matter most: 9 percent increased fuel efficiency, greater time on wing and improved performance. This provides aircrew more mission flexibility and capability to support boots on the ground serving in Operation DEEP FREEZE. We're committed to investing in innovation that provides airmen the best tools for the mission.

Trusted to deliver excellence

www.rolls-royce.com

Rolls-Royce

USAF Alma



nac 2013

About the Almanac

On the following pages appears a variety of information and statistical material about the US Air Force—its people, organization, equipment, funding, activities, bases, and heroes. This Almanac section was compiled by the staff of *Air Force* Magazine under the direction of Editor Suzann Chapman. 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. —*THE EDITORS*

Radius Images/Corbis

The Air Force in Facts and Figures

2013 USAF Almanac

Structure of the Force

How the Air Force Is Organized

This overview describes the Air Force's primary organizational structures and its Air and Space Expeditionary Force.

The **Department of Defense** is a Cabinet agency headed by the Secretary of Defense. It comprises three military departments—Air Force, Army, and Navy—each with a civilian Secretary.

The **Joint Chiefs of Staff (JCS)** constitute DOD's corporate military leadership. The Chairman and vice chairman serve full time in their positions, while the service Chiefs also serve as the military heads of their respective services.

The Secretary of the Air Force (SECAF) heads the **Department of the Air Force.** Supporting the SECAF are the Secretariat staff and the Chief of Staff of the Air Force (CSAF), who oversees the Air Staff. The heads of the major commands report to the CSAF.

Most Air Force units fall under a **major command** (Majcom), which has broad functional responsibilities. Majcoms are organized under a unit-oriented scheme, with one or more **numbered air forces**, or a major non-unit scheme, with one or more centers.

The predominant command entity within USAF is the **wing.** A standard wing contains four groups: **operations** (operates primary mission equipment and includes such functions as intelligence). **maintenance** (provides weapon system maintenance), **mission support** (provides base support and services, including civil engineer, logistics readiness, and security forces), and **medical.**

Squadrons form the basic organizational building blocks within a wing, generally working under one of the four groups to provide either mission or functional support. Squadrons may comprise several **flights.**

The Air Force organization also incluces **field operating agencies** (FOAs) and **direct reporting units** (DRUs).

Air and Space Expeditionary Force

To relieve chronic optempo problems stemming from back-to-back operations, the Air Force developed an expeditionary concept initially called the Expeditionary Aerospace Force. The term EAF was supplanted by the term Air and Space Expeditionary Force **(AEF).** The term AEF also refers to a basic organizational unit.

USAF grouped 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, including battle management, battlefield airmen, and reconnaissance assets, normally deployed for 180 days.

In late 2008, USAF began employing Tempo Bands (A-E) with different deployment-to-dwell ratios. For instance, CAF forces in Tempo Band A deployed on a 1:4 ratio—four months (120 days) deployed to 16 months dwell time. The other bands, operating mostly on 180-day deployment cycles, were: B at 1:4; C at 1:3; D at 1:2; and E at 1:1. In 2010, USAF changed 120-day rotations to 180-day, merging Band A with B.

In November 2011, USAF announced plans to change to a new construct, dubbed **AEF Next,** that would abandon the confusing tempo band approach. Under AEF Next, now slated for initial operational capability in October 2013, airmen will deploy with their unit commanders, serving as one of six airpower teams that usually deploy on six-month rotations, followed by 12 months at home station. ▪

Current Air Force Leaders

		Date in Position
Secretary of the Air Force	Michael B. Donley	Oct. 17, 2008
Air Force Chief of Staff	Gen. Mark A. Welsh III	Aug. 10, 2012
Chief Master Sergeant of the Air Force	CMSAF James A. Cody	Jan. 24, 2013

USAF Total Force

(As of Sept. 30, 2012)

	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	Estimate FY13
Air Force Active Duty										
Officers	74,109	73,252	70,539	65,722	64,805	65,496	66,201	65,487	64,932	64,900
Enlisted	298,314	276,117	273,990	263,372	258,092	263,351	263,437	263,542	263,964	260,000
Cadets	4,193	4,327	4,424	4,401	4,482	4,561	4,558	4,341	4,022	3,948
Total Air Force Active Duty	**376,616**	**353,696**	**348,953**	**333,495**	**327,379**	**333,408**	**334,196**	**333,370**	**332,918**	**328,848**
Civilian personnel										
Direct hire (excluding technicians)	122,572	124,534	128,475	125,636	124,698	123,106	134,183	145,407	124,129	152,500
ANG technicians	21,703	22,731	21,997	22,409	22,353	22,391	22,657	22,139	22,859	21,451
AFRC technicians	9,538	9,407	9,427	9,127	8,857	9,147	10,068	9,397	10,366	10,149
Total direct hire	**153,813**	**156,672**	**159,899**	**157,172**	**155,908**	**154,644**	**166,908**	**176,943**	**157,534**	**184,100**
Indirect hire	6,575	6,571	6,833	6,212	6,515	6,346	6,564	6,776	6,449	6,400
Total civilian personnel	**160,388**	**163,243**	**166,732**	**163,384**	**162,423**	**160,990**	**173,472**	**183,719**	**163,803**	**190,500**
Air National Guard										
Selected Reserve Officers	13,633	13,672	13,782	13,992	14,115	14,326	14,389	14,418	14,598	13,865
Selected Reserve Enlisted	93,189	92,758	91,876	92,162	93,564	94,870	93,287	91,267	90,791	87,735
Total ANG	**106,822**	**106,430**	**105,658**	**106,154**	**107,679**	**109,196**	**107,676**	**105,685**	**105,389**	**101,600**
Air Force Reserve Command										
Selected Reserve Officers	16,723	16,676	16,678	16,199	15,169	14,753	14,560	14,535	14,303	15,611
Selected Reserve Enlisted	58,599	59,126	57,397	54,083	52,396	53,233	55,559	56,786	57,125	54,889
Total AFRC Selected Reserve	**75,322**	**75,802**	**74,075**	**70,282**	**67,565**	**67,986**	**70,119**	**71,321**	**71,428**	**70,500**
Individual Ready Reserve Officers	9,912	9,942	11,356	13,018	13,633	12,833	11,692	11,692	11,222	11,392
IRR Enlisted	27,095	31,377	33,548	36,831	35,668	30,349	28,863	28,863	24,271	27,482
Total AFRC IRR	**37,007**	**41,319**	**44,904**	**49,849**	**49,301**	**43,182**	**40,555**	**40,555**	**35,493**	**38,874**
Total AFRC	**112,329**	**117,121**	**118,979**	**120,131**	**116,866**	**111,168**	**110,674**	**111,876**	**106,921**	**109,374**
Total Ready Reserve	**219,151**	**223,551**	**224,637**	**226,285**	**224,545**	**220,364**	**218,350**	**217,561**	**212,310**	**210,974**

Armed Forces Manpower Trends, End Strength in Thousands

(As of Sept. 30, 2012)

	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	Estimate FY13
Active Duty military										
Air Force	377	354	349	334	327	333	334	333	333	330
Army	500	493	505	522	544	553	566	566	550	552
Marine Corps	178	180	180	187	199	203	202	201	198	197
Navy	373	363	350	338	332	329	328	325	318	323
Total	**1,428**	**1,390**	**1,384**	**1,381**	**1,402**	**1,418**	**1,430**	**1,425**	**1,399**	**1,402**
Guard and Reserve (selected reserve)										
Air National Guard	107	106	106	106	108	109	108	107	105	102
AFRC	75	76	74	71	68	68	70	71	71	71
Army National Guard	343	333	346	353	360	358	362	358	358	358
Army Reserve	204	189	190	190	197	205	205	205	201	205
Marine Corps Reserve	40	40	40	39	38	39	39	40	40	40
Naval Reserve	83	76	71	70	68	67	65	66	65	63
Total	**852**	**820**	**827**	**829**	**839**	**846**	**849**	**847**	**840**	**839**
Direct-hire civilian (full-time equivalents)										
Air Force	154	157	160	157	156	155	167	177	157	184
Army	208	213	220	221	230	247	260	269	250	273
Navy/Marine Corps	183	179	174	176	178	186	195	201	201	201
Defense agencies	105	105	104	105	108	115	120	125	133	134
Total	**650**	**654**	**658**	**659**	**672**	**703**	**742**	**772**	**741**	**792**

Active Duty Airmen by Rank

(As of Sept. 30, 2012)

Rank	Men	Women	Total
Officers			
General	13	1	14
Lieutenant General	41	3	44
Major General	88	11	99
Brigadier General	133	14	147
Colonel	3,146	433	3,579
Lieutenant Colonel	8,617	1,378	9,995
Major	12,020	2,498	14,518
Captain	17,347	4,810	22,157
First Lieutenant	5,713	1,759	7,472
Second Lieutenant	5,335	1,572	6,907
Total	**52,453**	**12,479**	**64,932**
Enlisted			
CMSAF	1	0	1
Chief Master Sergeant	2,335	296	2,631
Senior Master Sergeant	4,210	837	5,047
Master Sergeant	21,764	4,673	26,437
Technical Sergeant	33,477	8,290	41,767
Staff Sergeant	54,332	13,396	67,728
Senior Airman	44,654	10,860	55,514
Airman First Class	41,820	9,017	50,837
Airman	3,552	717	4,269
Airman Basic	8,064	1,669	9,733
Total	**214,209**	**49,755**	**263,964**
Academy Cadets	3,128	894	4,022
Total Personnel	**269,790**	**63,128**	**332,918**

USAF photo by SrA. George Goslin

SSgt. Greg Biondo (r) trains photographers to document combat operations.

Number and Percentage of Active Duty Airmen by Gender

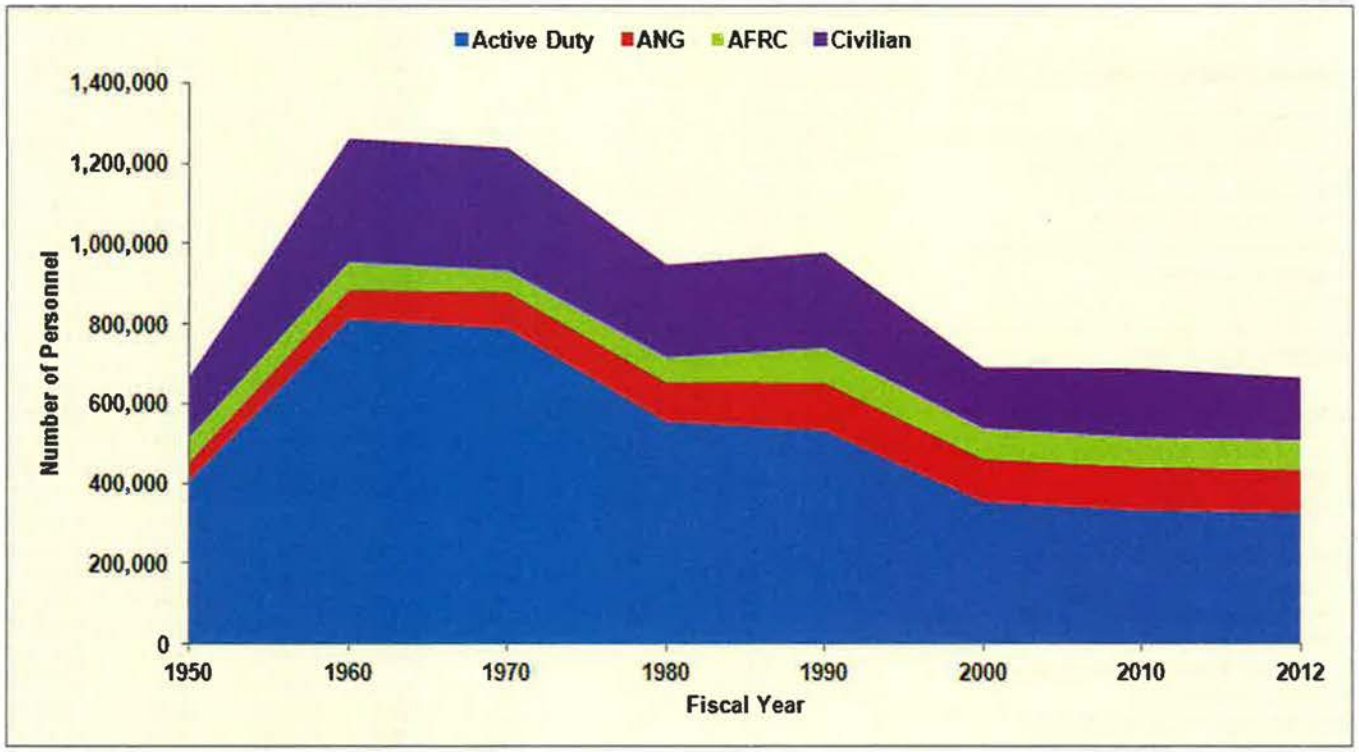
	1950	1960	1970	1980	1990	2000	2010	2012
Officers								
Male	55,474	126,014	125,136	89,156	86,714	57,204	53,838	52,453
Percentage	97.3%	97.2%	96.4%	91.3%	86.7%	82.9%	81.3%	80.8%
Female	1,532	3,675	4,667	8,493	13,331	11,819	12,363	12,479
Percentage	2.7%	2.8%	3.6%	8.7%	13.3%	17.1%	18.7%	19.2%
Total Officers	**57,006**	**129,689**	**129,803**	**97,649**	**100,045**	**69,023**	**66,201**	**64,932**
Enlisted								
Male	350,489	679,412	652,559	399,517	374,385	231,620	212,491	214,209
Percentage	98.9%	99.2%	98.6%	86.8%	86.0%	80.8%	80.7%	81.2%
Female	3,782	5,651	8,987	60,803	60,803	55,011	50,946	49,755
Percentage	1.1%	0.8%	1.4%	13.2%	14.0%	19.2%	19.3%	18.8%
Total Enlisted	**354,271**	**685,063**	**661,546**	**460,320**	**435,188**	**286,631**	**263,437**	**263,964**
Cadets								
Male	0	1,949	4,144	3,907	3,817	3,617	3,592	3,128
Percentage	0.0%	100.0%	100.0%	88.6%	87.3%	84.6%	78.8%	77.8%
Female	0	0	0	504	553	658	966	894
Percentage	0.0%	0.0%	0.0%	11.4%	12.7%	15.4%	21.2%	22.2%
Total Cadets	**0**	**1,949**	**4,144**	**4,411**	**4,370**	**4,275**	**4,558**	**4,022**

Active Duty Airmen by Region

Regions	1950	1960	1970	1980	1990	2000	2010	2012
US and its territories	342,437	633,327	565,098	445,886	418,027	291,260	277,123	281,067
Europe	24,531	104,899	72,937	76,788	69,296	32,901	30,963	30,226
East Asia, Pacific	36,412	50,679	139,666	32,263	33,558	22,030	12,649	12,599
Africa, Mideast, South Asia	1,491	11,160	608	674	376	8,972	891	593
Western Hemisphere	6,266	14,106	5,348	2,211	2,356	345	339	312
Other	140	581	7,692	147	11,620	146	12,231	8,121
Total	**411,277**	**814,752**	**791,349**	**557,969**	**535,233**	**355,654**	**334,195**	**332,918**

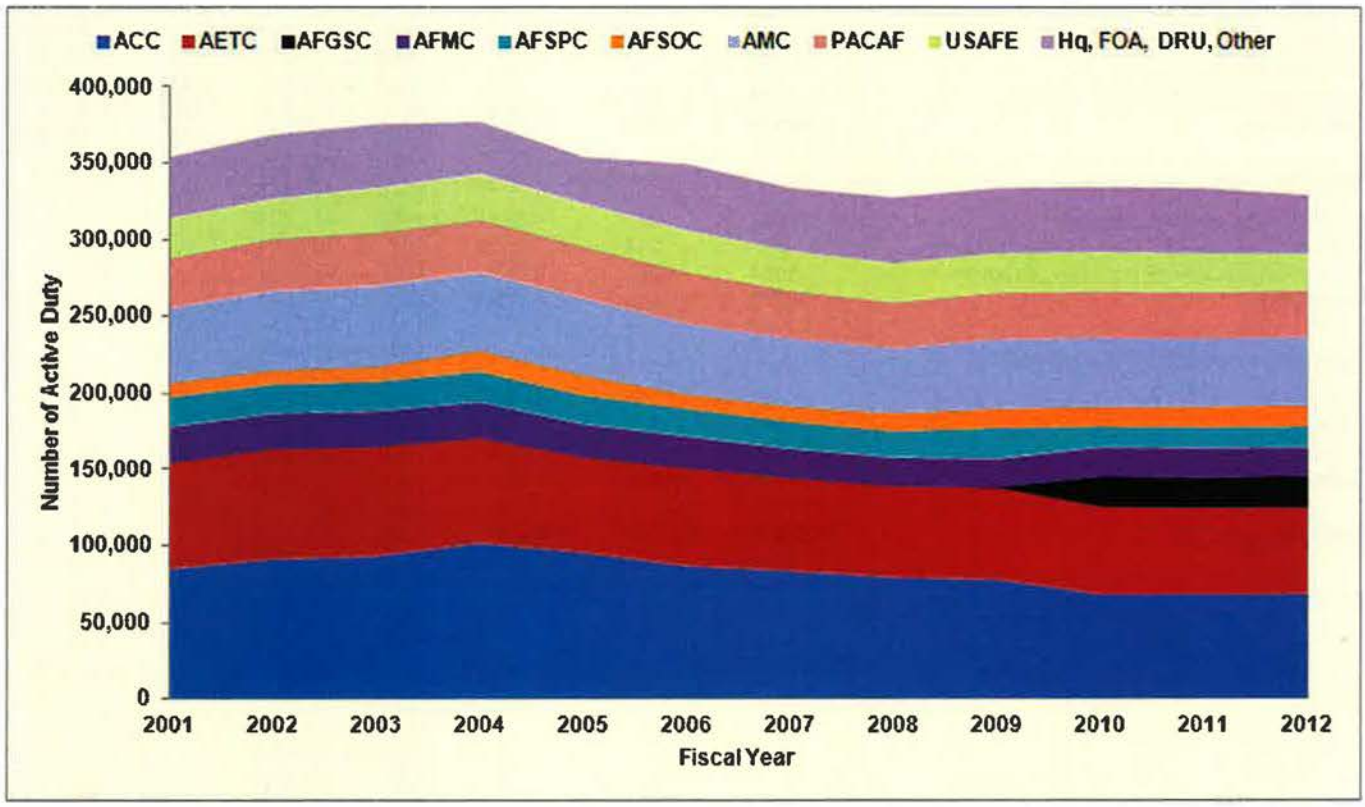
Note: Airmen deployed for operations in Afghanistan and Iraq are included in home station regions or under other.

Total Force Over Time



Note: Data for 1950 and 1960 as of June 30; data for other years as of Sept. 30. Sources: *Air Force* Magazine's "USAF Almanac," various years; US Census Bureau, "Statistical Abstract of the United States"; "Department of Defense Selected Manpower Statistics," various years.

Active Duty Airmen by Active Duty Major Command



Note: Data for 1950 and 1960 as of June 30; data for other years as of Sept. 30.

Personnel Strength by Commands, FOAs, and DRUs

(As of Sept. 30, 2012)

	Military	Civilian	Total
Active Duty Major Commands			
Air Combat Command	68,576	9,973	78,549
Air Education and Training Command	57,134	15,708	72,842
Air Force Global Strike Command	19,913	2,538	22,451
Air Force Materiel Command	18,763	61,161	79,924
Air Force Space Command	13,975	7,781	21,756
Air Force Special Operations Command	13,778	1,693	15,471
Air Mobility Command	45,371	8,984	54,355
Pacific Air Forces	29,267	7,815	37,082
US Air Forces in Europe-Air Forces Africa	24,314	6,181	30,495
Total Major Commands	**291,091**	**121,834**	**412,925**
Field Operating Agencies (FOAs)			
Air Force Agency for Modeling and Simulation	7	16	23
Air Force Audit Agency	0	642	642
Air Force Civil Engineer Center	100	763	863
Air Force Cost Analysis Agency	25	106	131
Air Force Financial Services Center	4	130	134
Air Force Flight Standards Agency	85	49	134
Air Force Historical Research Agency	0	48	48
Air Force Inspection Agency	93	24	117
Air Force Intelligence Analysis Agency	58	69	127
Air Force ISR Agency	13,025	2,671	15,696
Air Force Legal Operations Agency	493	253	746
Air Force Medical Operations Agency	201	149	350
Air Force Medical Support Agency	223	118	341
Air Force Office of Special Investigations	1,526	781	2,307
Air Force Operations Group	43	2	45
Air Force Personnel Center	914	1,864	2,778
Air Force Personnel Operations Agency	15	256	271
Air Force Petroleum Agency	35	63	98
Air Force Public Affairs Agency	276	48	324
Air Force Review Boards Agency	11	74	85
Air Force Safety Center	48	68	116
Air Force Security Forces Center	308	51	359
Air Force Weather Agency	1,031	324	1,355
Air National Guard Readiness Center	79	723	802
Total FOAs	**18,600**	**9,292**	**27,892**
Direct Reporting Units (DRUs)			
Air Force District of Washington	3,982	999	4,981
Air Force Operational Test & Evaluation Center	367	219	586
US Air Force Academy (excluding cadets)	2,024	1,365	3,389
Total DRUs	**6,373**	**2,583**	**8,956**
Other			
Hq. USAF	1,970	2,154	4,124
Other	10,862	21,491	32,353
USAFA Cadets	4,022	0	4,022
Total Other	**16,854**	**23,645**	**40,499**
Total Strength	**332,918**	**157,354**	**490,272**

Active Duty Personnel Strength

(As of Sept. 30, 2012)

Year	Number	Year	Number
1907	3	1973	691,182
1908	13	1974	643,970
1909	27	1975	612,751
1910	11	1976	585,416
1911	23	1977	570,695
1912	51	1978	569,712
1913	114	1979	559,455
1914	122	1980	557,969
1915	208	1981	570,302
1916	311	1982	582,845
1917	1,218	1983	592,044
1918	195,023	1984	597,125
1919	25,603	1985	601,515
1920	9,050	1986	608,199
1921	11,649	1987	607,035
1922	9,642	1988	576,446
1923	9,441	1989	570,880
1924	10,547	1990	535,233
1925	9,670	1991	510,432
1926	9,674	1992	470,315
1927	10,078	1993	444,351
1928	10,549	1994	426,327
1929	12,131	1995	400,409
1930	13,531	1996	389,001
1931	14,780	1997	377,385
1932	15,028	1998	367,470
1933	15,099	1999	360,590
1934	15,861	2000	355,654
1935	16,247	2001	353,571
1936	17,233	2002	368,251
1937	19,147	2003	375,062
1938	21,089	2004	376,616
1939	23,455	2005	353,696
1940	51,165	2006	348,953
1941	152,125	2007	333,495
1942	764,415	2008	327,379
1943	2,197,114	2009	333,408
1944	2,372,292	2010	334,196
1945	2,282,259	2011	333,370
1946	455,515	2012	332,918
1947	305,827	2013	327,600
1948	387,730		
1949	419,347		
1950	411,277		
1951	788,381		
1952	983,261		
1953	977,593		
1954	947,918		
1955	959,946		
1956	909,958		
1957	919,835		
1958	871,156		
1959	840,435		
1960	814,752		
1961	821,151		
1962	884,025		
1963	869,431		
1964	856,798		
1965	824,662		
1966	887,353		
1967	897,494		
1968	904,850		
1969	862,353		
1970	791,349		
1971	755,300		
1972	725,838		

2013 number is an estimate.

Budgets 2013 USAF Almanac

Terms Explained

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

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

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

Air Force Budget—A 10-Year Perspective

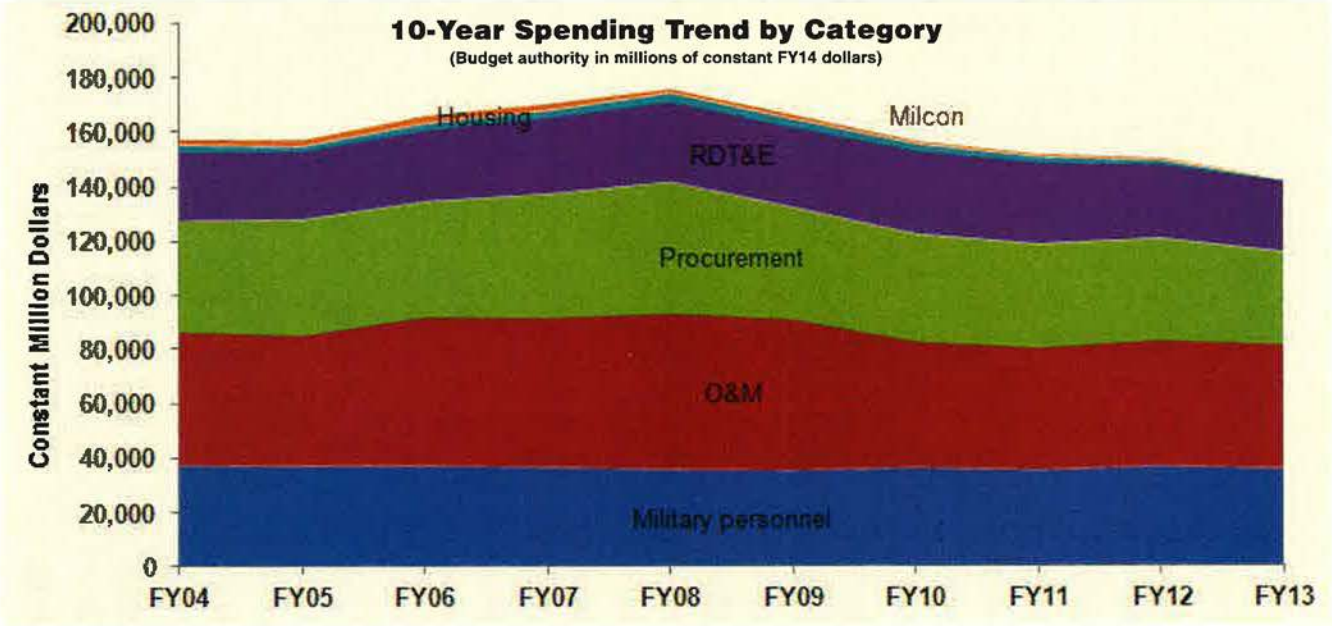
(Budget authority in millions of current and constant FY14 dollars; excludes costs of the Global War on Terror.)

Current Dollars	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13
Military personnel	$29,681	$30,344	$31,398	$31,789	$32,180	$31,722	$33,100	$33,192	$35,355	$34,777
O&M	39,252	39,752	46,709	48,237	52,225	50,352	42,700	42,676	44,877	44,988
Procurement	32,460	35,117	35,989	39,542	43,816	37,054	36,383	36,402	36,401	33,762
RDT&E	20,290	20,551	22,220	24,566	26,630	26,587	27,993	28,251	26,222	25,248
Milcon	1,831	1,499	2,183	2,328	3,089	2,787	2,400	2,080	1,460	375
Housing	1,441	1,680	2,086	1,900	1,001	1,087	569	569	490	581
Rev. & mgmt.	690	-667	1,252	666	-934	61	64	67	65	45
Total	**$125,536**	**$127,918**	**$141,657**	**$148,947**	**$157,909**	**$149,515**	**$143,400**	**$143,236**	**$144,870**	**$139,777**

Constant Dollars	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13
Military personnel	$37,307	$36,887	$36,984	$36,425	$35,523	$35,158	$36,108	$35,085	$36,603	$35,473
O&M	49,338	48,323	55,019	55,272	57,651	55,806	46,580	45,110	46,461	45,888
Procurement	40,800	42,689	42,392	45,309	48,368	41,068	39,689	38,478	37,686	34,437
RDT&E	25,503	24,982	26,173	28,149	29,397	29,467	30,537	29,862	27,148	25,753
Milcon	2,301	1,822	2,571	2,668	3,410	3,089	2,618	2,199	1,512	383
Housing	1,811	2,042	2,457	2,177	1,105	1,205	621	601	507	593
Rev. & mgmt.	867	-811	1,475	763	-1,031	68	70	71	67	46
Total	**$157,792**	**$155,499**	**$166,860**	**$170,669**	**$174,314**	**$165,711**	**$156,430**	**$151,406**	**$149,984**	**$142,573**

Percentage real growth	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13
Military personnel	0.6%	-1.1%	0.3%	-1.5%	-2.5%	-1.0%	2.7%	-2.8%	4.3%	-3.1%
O&M	-11.6%	-2.1%	13.9%	0.5%	4.3%	-3.2%	-16.5%	-3.2%	3.0%	-1.2%
Procurement	0.7%	4.6%	-0.7%	6.9%	6.8%	-15.1%	-3.4%	-3.1%	-2.1%	-8.6%
RDT&E	4.9%	-2.0%	4.8%	7.5%	4.4%	0.2%	3.6%	-2.2%	-9.1%	-5.1%
Milcon	9.1%	-20.8%	41.1%	3.7%	27.8%	-9.4%	-15.2%	-16.0%	-31.3%	-74.7%
Housing	-8.7%	12.8%	20.3%	-11.4%	-49.2%	9.0%	-48.5%	-3.1%	-15.7%	16.8%
Total	**-2.4%**	**-1.5%**	**7.3%**	**2.3%**	**2.1%**	**-4.9%**	**-5.6%**	**1.4%**	**-5.0%**	**-31.8%**

Numbers do not add due to rounding.



Defense Budget Authority

($ billions)

	2012	2013	2014	Planned 2015	2016	2017	2018
No War Costs, Current Dollars	$529.9	$527.5	$526.6	$540.8	$551.4	$560.0	568.6
No War Costs, Constant FY 2014 Dollars	$548.6	$538.1	$526.6	$530.0	$528.5	$524.9	521.3
With War Costs, Current Dollars	$645.0	$614.7	$615.1	$540.8	$551.4	$560.0	568.6
With War Costs, Constant FY 2014 Dollars	$667.8	$627.0	$615.1	$530.0	$528.5	$524.9	521.3

Defense Outlays

($ billions)

	2012	2013	2014	Planned 2015	2016	2017	2018
Current Dollars	$650.9	$633.3	$597.6	$584.0	$561.9	$562.1	$564.1
Constant FY 2014 Dollars	$673.9	$646.0	$597.6	$572.3	$538.5	$526.9	$517.1

Service and Agency Shares of Total DOD Budget

(Budget authority in billions of constant FY14 dollars)

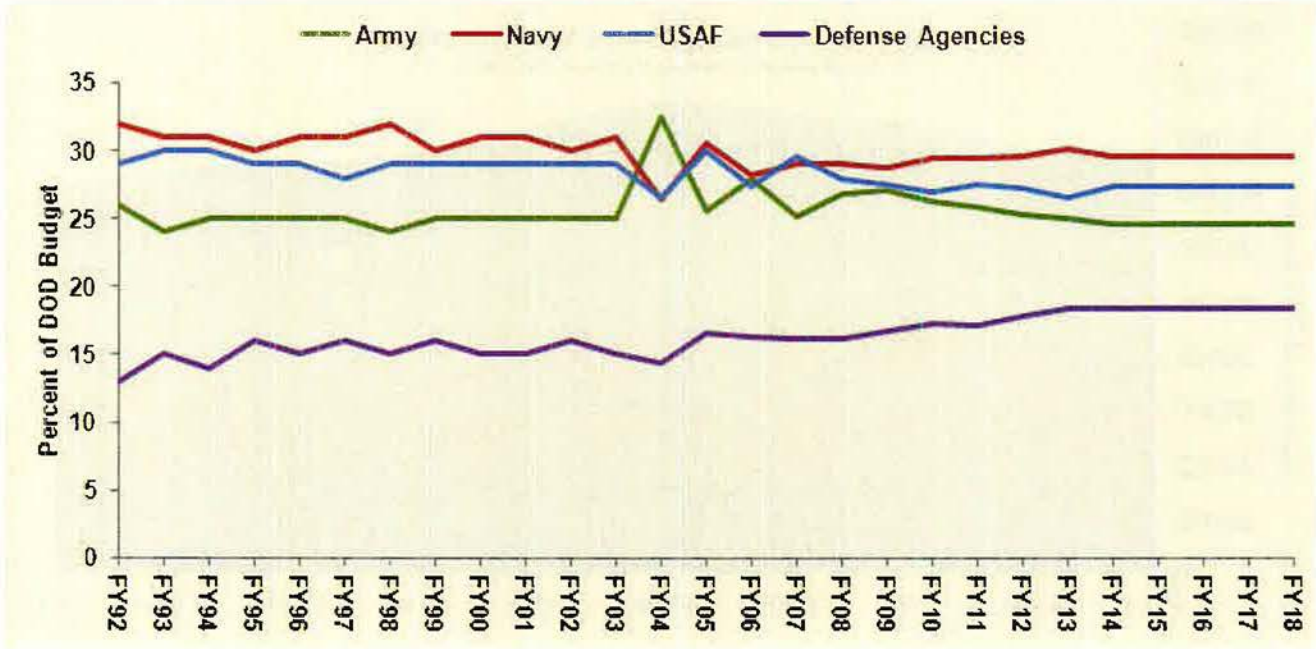
Dollars	2012	2013	2014	Planned 2015	2016	2017	2018
Air Force	150.0	142.6	144.4	145.2	144.8	143.8	142.8
Army	138.6	134.5	129.7	130.4	130.0	129.1	128.2
Navy/Marine Corps	162.3	162.1	155.8	156.9	156.4	155.4	154.3
Defense agencies	98.4	98.8	96.8	97.5	97.2	96.6	95.9
Total	548.6	538.1	526.6	530.0	528.5	524.9	521.3
Percentages							
Air Force	27.3%	26.5%	27.4%	27.4%	27.4%	27.4%	27.4%
Army	25.3%	25.0%	24.6%	24.6%	24.6%	24.6%	24.6%
Navy/Marine Corps	29.6%	30.1%	29.6%	29.6%	29.6%	29.6%	29.6%
Defense agencies	17.9%	18.4%	18.4%	18.4%	18.4%	18.4%	18.4%

Note: USAF shares above include non-Blue funding. FY 2015-18 estimates based on FY 2014 shares.

USAF's Blue-only share

Dollars	123.2	112.3	114.1
Percentages	22.5%	20.9%	21.7%

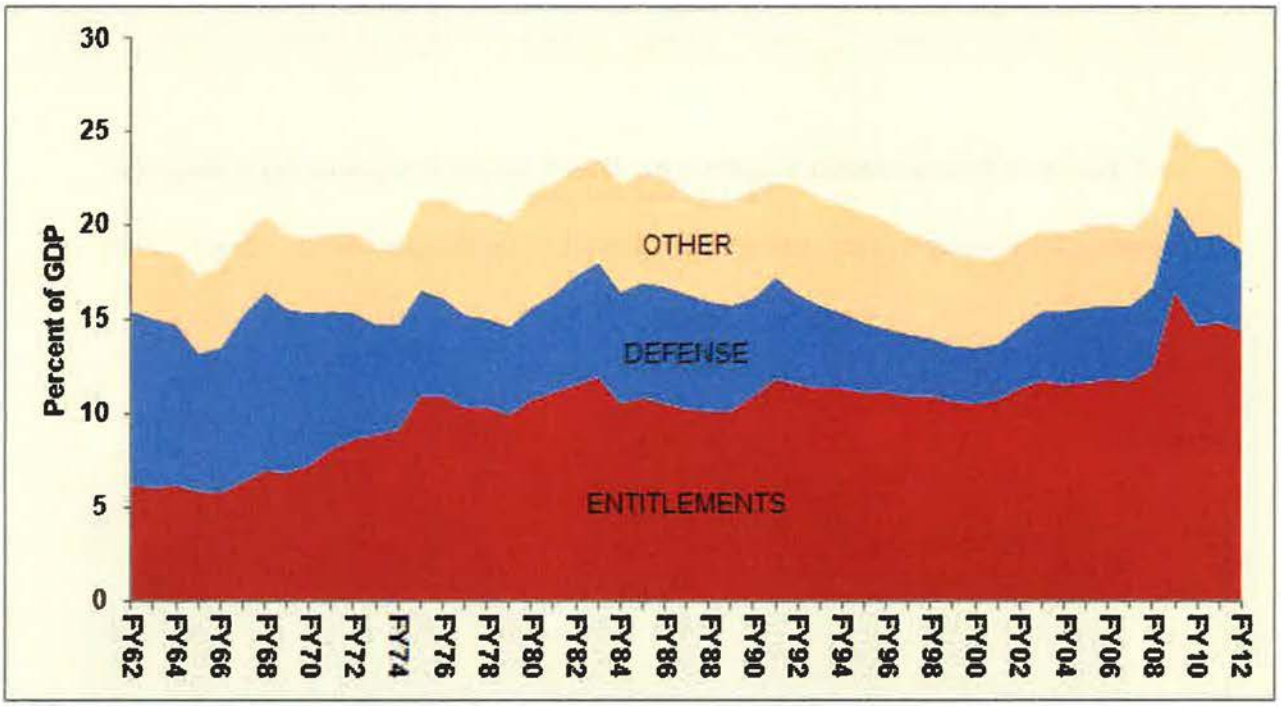
Note: USAF budget includes Blue, dollars for programs actually managed by USAF, and non-Blue, dollars USAF does not manage but that simply pass through USAF's accounts, such as some intelligence and space-related funding.



Federal Budget Outlay Categories

Percentages of GDP

Year	Total Outlays	Deficit/ Surplus	Entitlements	Defense	Year	Total Outlays	Deficit/ Surplus	Entitlements	Defense
1962	18.8	1.0	6.1	9.3	1988	21.3	3.8	10.1	5.8
1963	18.6	0.7	6.0	9.0	1989	21.2	3.8	10.1	5.6
1964	18.5	1.0	6.1	8.6	1990	21.9	4.8	10.9	5.2
1965	17.2	0.2	5.8	7.4	1991	22.3	5.4	11.8	5.4
1966	17.8	0.4	5.7	7.8	1992	22.1	5.5	11.5	4.8
1967	19.4	1.6	6.3	8.9	1993	21.4	4.6	11.3	4.4
1968	20.5	3.2	6.9	9.5	1994	21.0	3.7	11.3	4.0
1969	19.4	0.1	6.8	8.7	1995	20.6	3.1	11.1	3.7
1970	19.3	0.9	7.2	8.1	1996	20.2	2.3	11.1	3.4
1971	19.5	2.4	8.1	7.3	1997	19.5	1.3	10.9	3.3
1972	19.6	2.2	8.6	6.7	1998	19.1	0.3	10.9	3.1
1973	18.7	1.2	8.9	5.9	1999	18.5	0.0	10.6	3.0
1974	18.7	0.5	9.1	5.6	2000	18.2	**0.9**	10.5	3.0
1975	21.3	3.5	10.9	5.6	2001	18.2	0.3	10.7	3.0
1976	21.4	4.0	10.9	5.2	2002	19.1	3.0	11.3	3.3
1977	20.7	2.5	10.3	4.9	2003	19.7	4.9	11.7	3.7
1978	20.7	2.5	10.3	4.7	2004	19.6	4.9	11.5	3.9
1979	20.2	1.6	9.9	4.7	2005	19.9	4.0	11.6	4.0
1980	21.7	2.7	10.7	4.9	2006	20.1	3.3	11.8	3.9
1981	22.2	2.4	11.1	5.2	2007	19.7	2.5	11.7	4.0
1982	23.1	3.7	11.5	5.8	2008	20.8	4.5	12.4	4.3
1983	23.5	6.0	11.9	6.1	2009	25.2	11.1	16.4	4.7
1984	22.2	4.8	10.5	5.9	2010	24.1	9.6	14.6	4.8
1985	22.8	5.3	10.8	6.1	2011	24.1	9.1	14.8	4.7
1986	22.5	5.4	10.5	6.2	2012	22.8	7.4	14.4	4.3
1987	21.6	3.6	10.2	6.1					



Source: "The Budget and Economic Outlook: Fiscal Years 2013-2023," Congressional Budget Office, February 2013.

Where To Find Budget Data

Congressional Budget Office
http://www.cbo.gov/
- Topics>>Budget>>Budget and Economic Outlook>>Reports

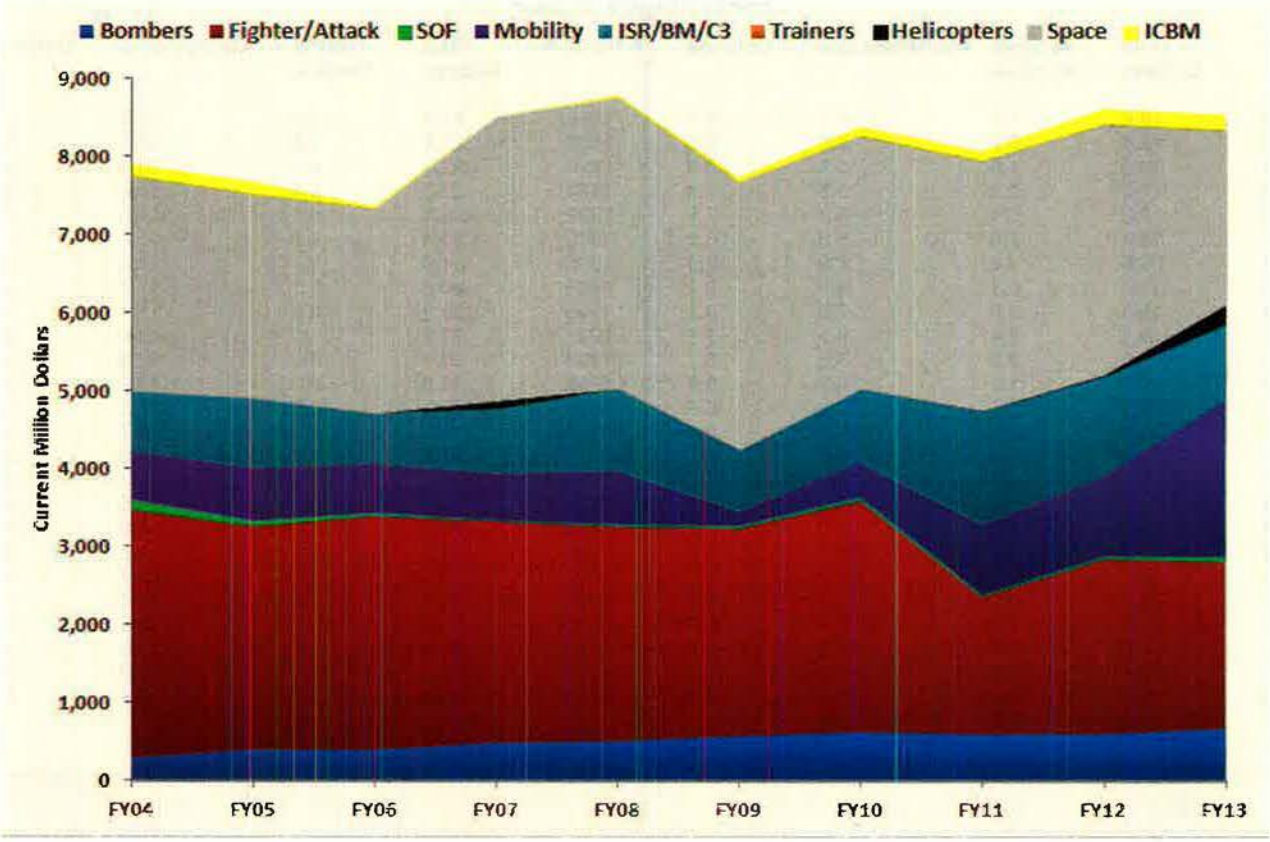
Defense Department Comptroller
http://comptroller.defense.gov
- Budget materials by fiscal year
- Links to budget pages for each service

Office of Management and Budget
http://www.whitehouse.gov/omb/
- The Budget (current fiscal year, including appendices and historical tables)
- Links to past budgets (via GPO Access)

Government Printing Office (GPO) Access to Budget
http://www.gpo.gov/fdsys/browse/collectionGPO.action?collectionCode=BUDGET
- Current and historical budget documents through Clinton Administration

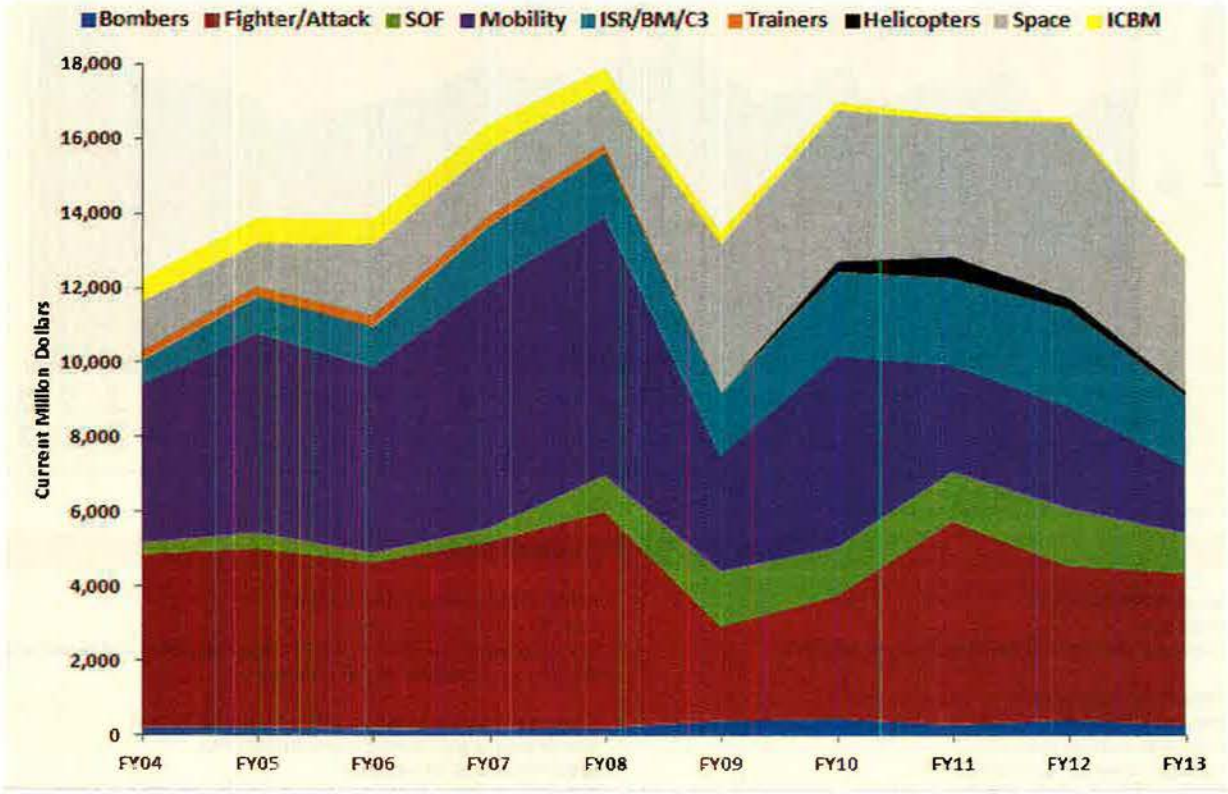
10 Years of RDT&E Funding for USAF Major Programs by Category

(Based on current million dollars)



10 Years of Procurement Funding for USAF Major Programs by Category

(Based on current million dollars)



Equipment 2013 USAF Almanac

Aircraft Total Active Inventory (TAI)

(As of Sept. 30, 2012)

	Active	ANG	AFRC	Total Force
Bomber				
B-1	66			66
B-2	20			20
B-52	58		18	76
Total	**144**		**18**	**162**
Fighter/Attack				
A-10C	190	108	48	346
F-15C	106	108		214
F-15D	13	22		35
F-15E	219			219
F-16C	469	334	49	852
F-16D	112	45	4	161
F-22A	169	18		187
F-35	11			11
Total	**1,289**	**635**	**101**	**2,025**
Special Ops Forces				
AC-130H	8			8
AC-130U	17			17
AC-130W	12			12
CV-22	28			28
MC-130E			5	5
MC-130H	20			20
MC-130J	10			10
MC-130P	22	4		26
Total	**117**	**4**	**5**	**126**
ISR/BM/C3				
E-3B	22			22
E-3C	8			8
E-3G	2			2
E-4	4			4
(T)E-8A		1		1
E-8C		17		17
E-9A	2			2
E-11A	3			3
EC-130H	14			14
EC-130J		7		7
MC-12W	42			42
MQ-1	129	36		165
MQ-9	97	7		104
NC-135W	1			1
OC-135	2			2
RC-26		11		11
RC-135S	3			3
RC-135U	2			2
RC-135V	8			8
RC-135W	9			9
RQ-4B	27			27
TC-130H	1			1
TC-135W	3			3
TU-2	5			5
U-2	27			27
WC-130H		8	1	9
WC-130J			10	10
WC-135C	1			1
WC-135W	1			1
Total	**413**	**87**	**11**	**511**

	Active	ANG	AFRC	Total Force
Tanker				
HC-130J	2			2
HC-130N	2	6	1	9
HC-130P	15	3	4	22
KC-10	59			59
KC-135R	138	156	67	361
KC-135T	30	24		54
Total	**246**	**189**	**72**	**507**
Transport				
C-5A		19	16	35
C-5B	18		16	34
C-5C	2			2
C-5M	8			8
C-12C	16			16
C-12D	6			6
C-12F	2			2
C-12J	4			4
C-17	181	18	18	217
C-20B	5			5
C-20C	3			3
C-20H	2			2
C-20K	1			1
C-21	26	21		47
C-27J		12		12
C-32A	4			4
C-32B		2		2
C-37A	8			8
C-37B	3			3
C-38A		2		2
C-40B	4			4
C-40C		3	4	7
C-130E	7	6		13
C-130H	58	123	84	265
C-130J	65	16	10	91
LC-130H		10		10
VC-25	2			2
Total	**425**	**232**	**148**	**805**
Helicopter				
HH-60G	67	17	15	99
HH-60U	4			4
TH-1H	24			24
UH-1H	10			10
UH-1N	63			63
UH-1V	2			2
Total	**170**	**17**	**15**	**202**
Trainer				
T-1	178			178
T-6	445			445
T-38A	54			54
(A)T-38B	6			6
T-38C	448			448
T-41	4			4
T-51	3			3
T-53	25			25
UV-18	3			3
Gliders	47			47
Total	**1,213**			**1,213**

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

Total Number of Aircraft in Service Over Time

(As of Sept. 30, 2012)

Type of Aircraft—Active	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12
Bomber	173	172	173	172	173	153	154	150	144	144
Fighter/Attack	1,628	1,627	1,622	1,619	1,552	1,496	1,468	1,256	1,287	1,289
Special Ops Forces	101	99	98	103	100	94	89	98	105	117
ISR/BM/C3	134	132	134	137	266	292	320	362	381	413
Tanker	325	301	285	278	277	262	260	263	247	246
Transport	530	516	525	529	454	449	452	458	429	425
Helicopter	129	160	169	160	160	170	159	160	151	170
Trainer	1,308	1,277	1,267	1,284	1,111	1,074	1,114	1,000	1,190	1,213
Total Active Duty	**4,328**	**4,284**	**4,273**	**4,282**	**4,093**	**3,990**	**4,016**	**3,747**	**3,934**	**4,017**
Type of Aircraft—ANG										
Bomber	0	0	0	0	0	0	0	0	0	0
Fighter/Attack	777	771	764	765	746	687	664	614	639	635
Special Ops Forces	4	4	4	4	4	4	4	4	4	4
ISR/BM/C3	7	24	26	29	28	45	45	80	80	87
Tanker	236	243	252	260	235	215	182	179	189	189
Transport	271	266	249	245	258	244	241	240	242	232
Helicopter	17	18	18	18	18	18	17	17	17	17
Total ANG	**1,312**	**1,326**	**1,313**	**1,321**	**1,289**	**1,213**	**1,153**	**1,134**	**1,171**	**1,164**
Type of Aircraft—AFRC										
Bomber	9	9	9	9	9	9	9	9	18	18
Fighter/Attack	121	120	120	120	104	103	108	97	100	101
Special Ops Forces	14	14	14	14	14	14	14	10	10	5
ISR/BM/C3	20	20	20	17	17	11	11	14	12	11
Tanker	76	81	89	89	85	69	69	69	72	72
Transport	175	149	133	146	152	149	149	149	152	148
Helicopter	18	15	15	15	15	15	15	15	15	15
Total AFRC	**433**	**408**	**400**	**410**	**396**	**370**	**375**	**363**	**379**	**370**
Total Force	**6,073**	**6,018**	**5,986**	**6,013**	**5,778**	**5,573**	**5,544**	**5,244**	**5,484**	**5,551**

ICBMs and Spacecraft in Service Over Time

(As of Sept. 30, 2012)

Type of System	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12
Minuteman III	500	500	500	450	450	450	450	450	450	450
Peacekeeper	23	6	0	0	0	0	0	0	0	0
Total ICBMs	**523**	**506**	**500**	**450**	**450**	**450**	**450**	**450**	**450**	**450**
AEHF								1	1	2
DMSP	4	4	4	4	6	6	6	6	6	4
DSCS	10	11	9	9	9	9	9	8	8	8
DSP (classified)										
GPS	28	30	29	30	30	30	30	36	34	30
Milstar	5	5	5	5	5	5	5	5	5	5
SBIRS							2*	2*	3*	3*
SBSS								1	1	1
WGS							2	3	3	3
Total Satellites	**47**	**50**	**47**	**48**	**50**	**50**	**54**	**62**	**61**	**56**

AEHF: Advanced Extremely High Frequency; **DMSP:** Defense Meteorological Satellite Program; **DSCS:** Defense Satellite Communications System; **DSP:** Defense Support Program; **GPS:** Global Positioning System; **SBIRS:** Space Based Infrared System; **SBSS:** Space Based Surveillance System; **WGS:** Wideband Global SATCOM

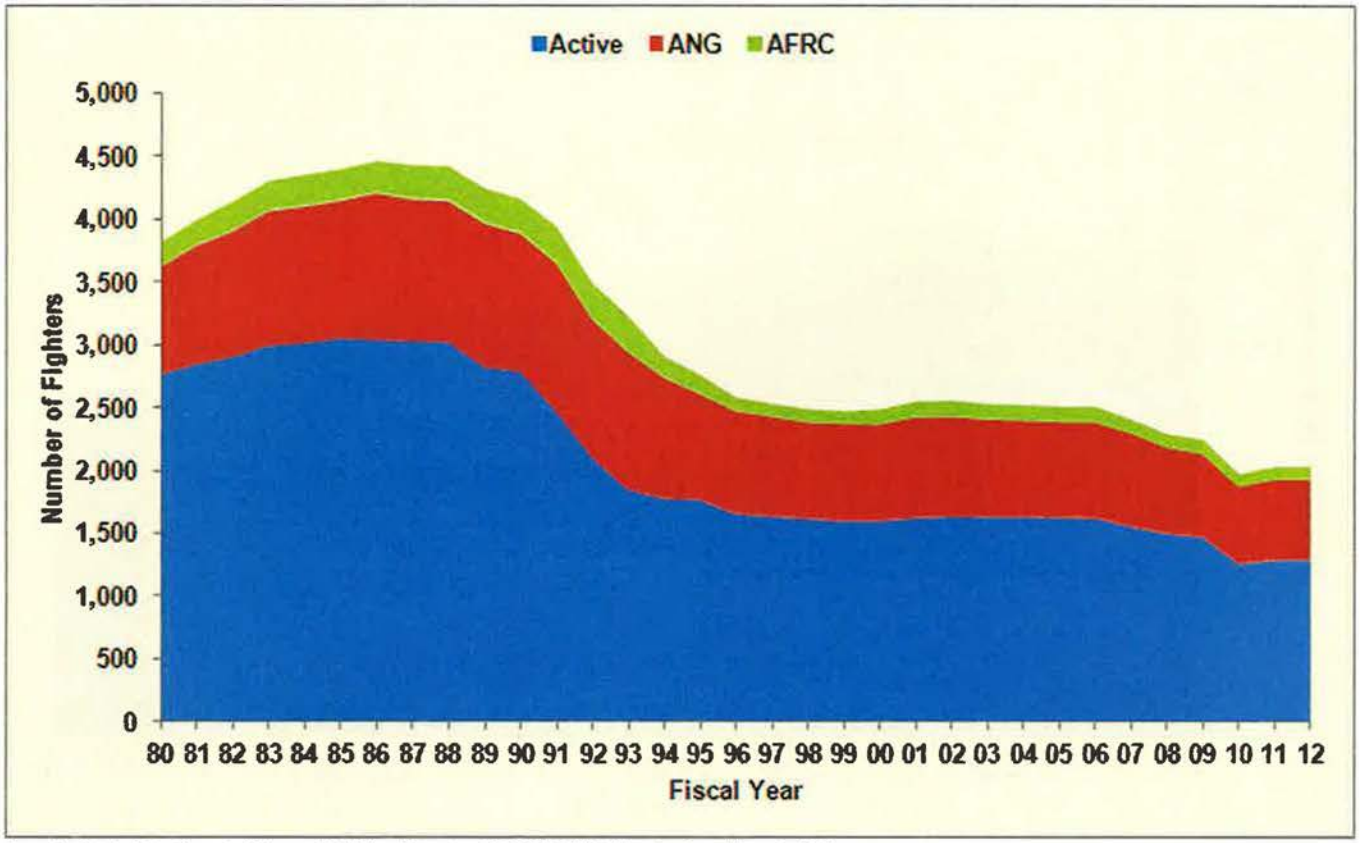
*Includes highly elliptical orbit (HEO) payloads.

Tactical Aircraft Flying Hours per Crew per Month

(As of Sept. 30, 2012)

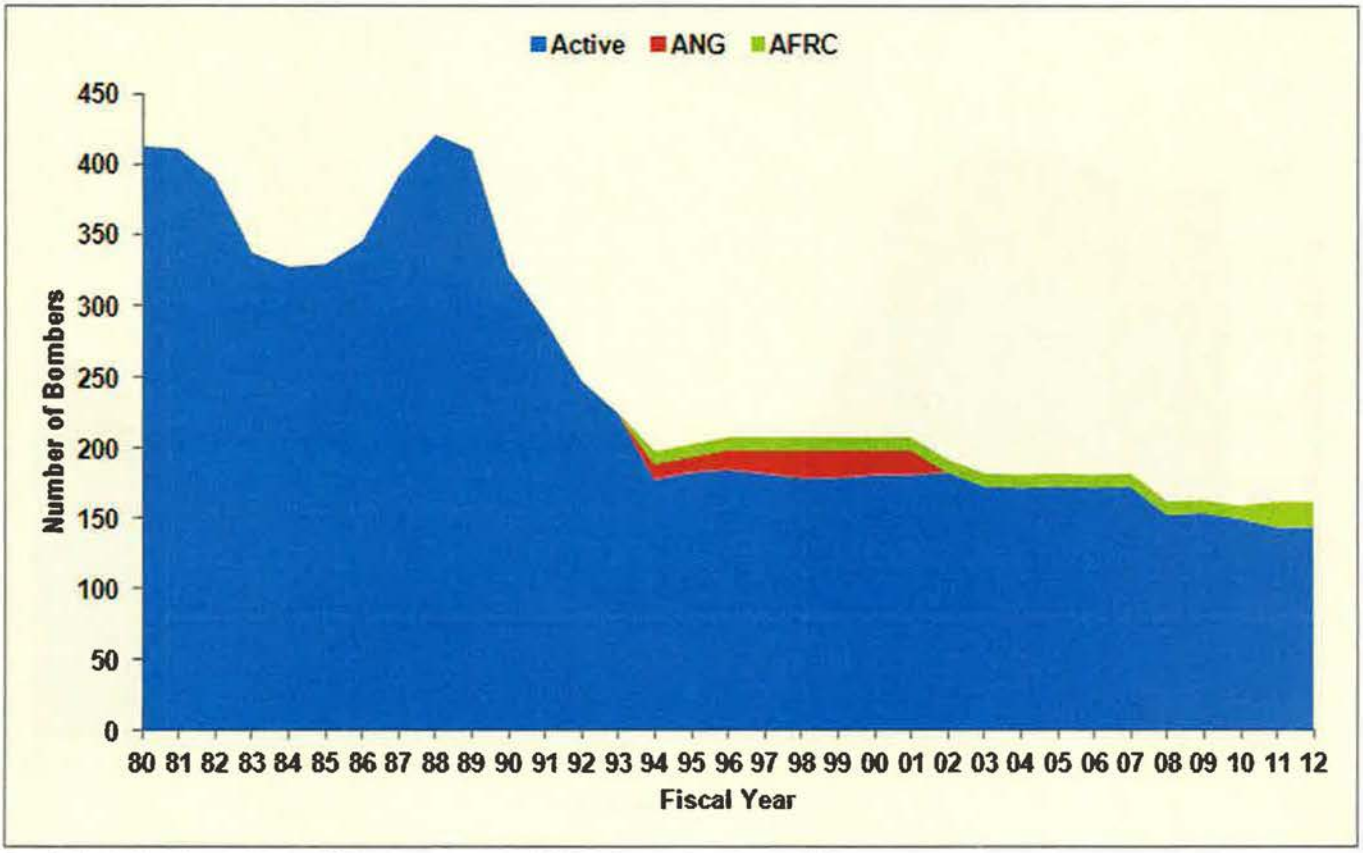
	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12
Active Duty	17.1	16.9	15.3	16.0	15.9	14.4	17.0	19.4	17.7	13.5
ANG	10.6	10.6	10.6	10.6	10.0	9.0	9.0	8.5	7.8	7.1
AFRC	16.1	10.9	11.6	17.5	12.5	14.4	14.1	14.9	16.5	15.8

Fighters Over TIme



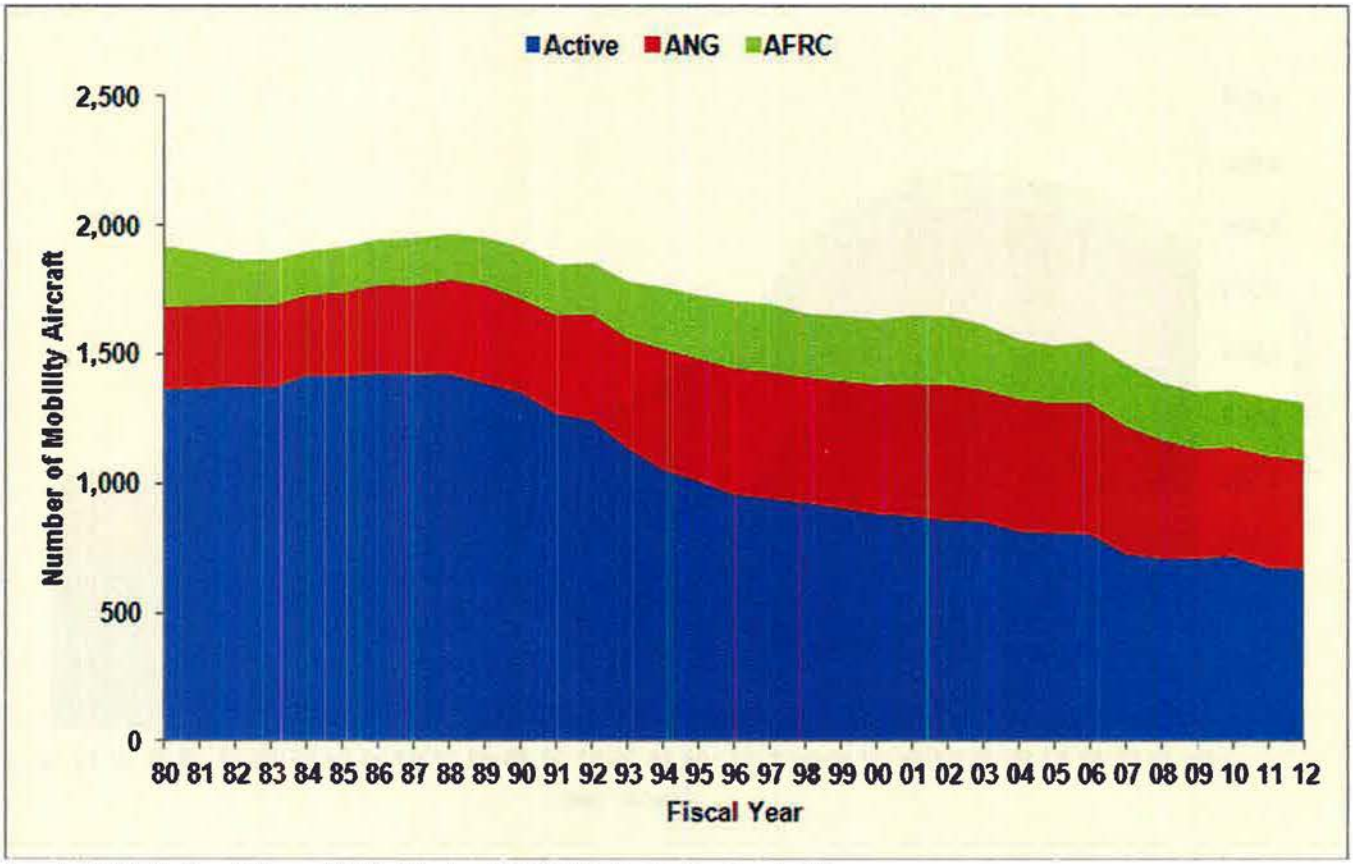
Source for historical data: "Arsenal of Airpower: USAF Aircraft Inventory, 1950-2009," Mitchell Institute Press, November 2010.

Bombers Over Time



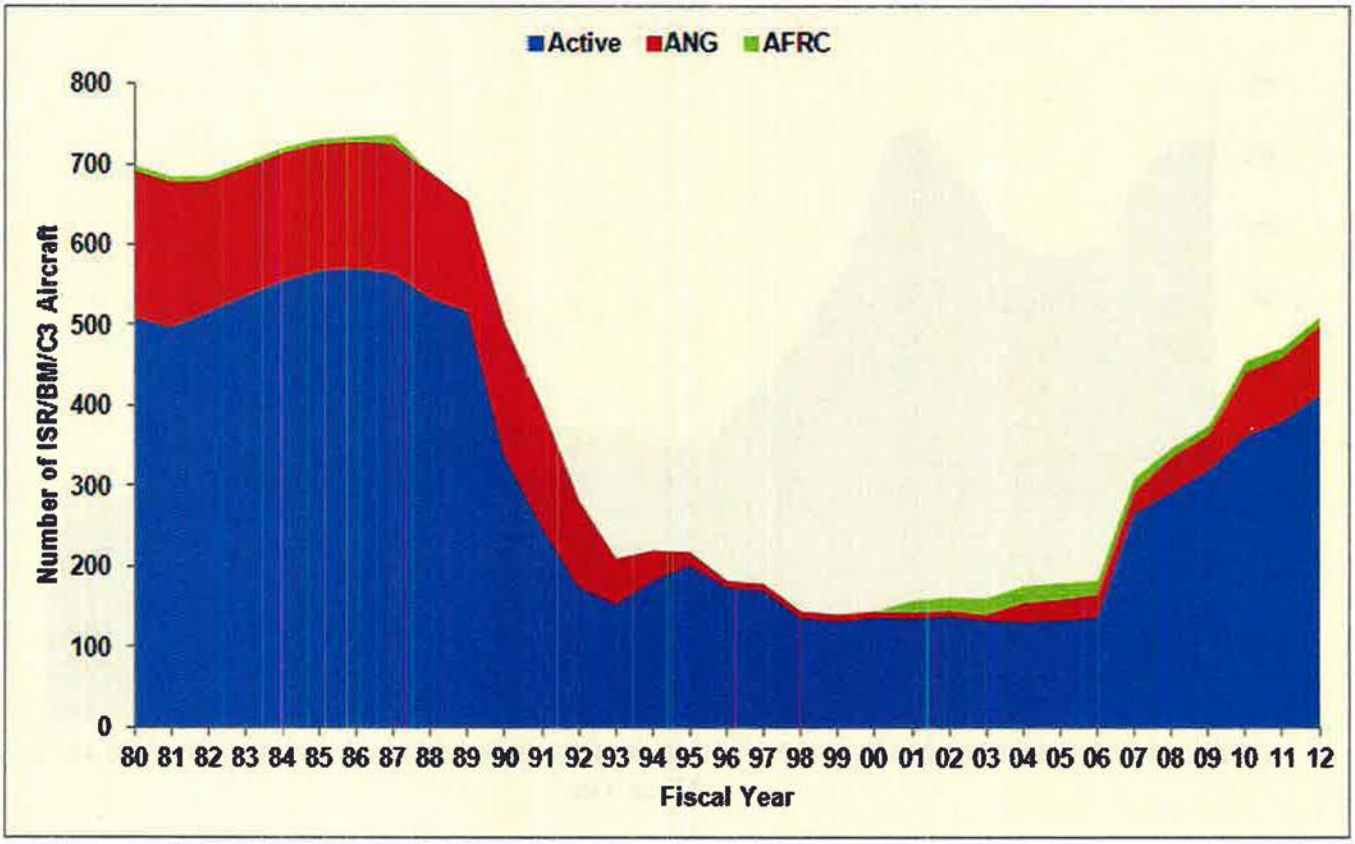
Source for historical data: "Arsenal of Airpower: USAF Aircraft Inventory, 1950-2009," Mitchell Institute Press, November 2010.

Mobility Aircraft Over Time



Source for historical data: "Arsenal of Airpower: USAF Aircraft Inventory, 1950-2009," Mitchell Institute Press November 2010.

ISR/BM/C3 Aircraft Over Time



Source for historical data: "Arsenal of Airpower: USAF Aircraft Inventory, 1950-2009," Mitchell Institute Press, November 2010.

Total Force Aircraft Age

(As of Sept. 30, 2012)

	Total Force TAI	Average Age
Bomber		
B-1B Lancer	66	25.1
B-2A Spirit	20	18.2
B-52H Stratofortress	76	50.8
Total	**162**	**36.3**
Fighter/Attack		
A-10C Thunderbolt II	346	31.3
F-15C Eagle	214	28.4
F-15D Eagle	35	29.0
F-15E Strike Eagle	219	20.5
F-16C Fighting Falcon	852	21.9
F-16D Fighting Falcon	161	22.4
F-22A Raptor	187	5.0
F-35A Lightning II	11	0.9
Total	**2,025**	**22.5**
Special Ops Forces		
AC-130H Spectre	8	43.0
AC-130U Spooky	17	21.7
AC-130W Stinger II	12	23.3
CV-22 Osprey	28	2.9
MC-130E Combat Talon I	5	47.5
MC-130H Combat Talon II	20	24.2
MC-130J Commando II	10	0.8
MC-130P Combat Shadow	26	44.6
Total	**126**	**26.0**
ISR/BM/C3		
E-3B Sentry (AWACS)	22	34.2
E-3C Sentry (AWACS)	8	29.6
E-3G Sentry (AWACS)	2	30.5
E-4 NAOC	4	38.3
E-8C JSTARS	17	12.0
E-9A (Range Control)	2	20.0
E-11A (BACN)	3	0.9
EC-130H Compass Call	14	39.3
EC-130J Commando Solo	7	12.2
MC-12W	42	4.2
MQ-1 Predator	165	5.5
MQ-9 Reaper	104	2.6
NC-135W (test bed)	1	50.5
OC-135 Open Skies	2	50.4
RC-26B Condor	11	18.4
RC-135S Cobra Ball	3	50.5
RC-135U Combat Sent	2	47.7
RC-135V Rivet Joint	8	47.9
RC-135W Rivet Joint	9	50.2
RQ-4B Global Hawk	27	2.4
TC-130H (C2 trainer)	1	46.9
TC-135W (C2 trainer)	3	50.3
TE-8A JSTARS	1	21.7
TU-2 (trainer)	5	28.4
U-2 Dragon Lady	27	29.7
WC-130H Hercules	9	46.7
WC-130J Hercules (Hurricane Hunter)	10	11.4
WC-135C Constant Phoenix	1	48.3
WC-135W Constant Phoenix	1	50.4
Total	**511**	**30.4**
Tanker		
HC-130J Combat King II	2	2.1
HC-130N King	9	26.7
HC-130P King	22	46.0
KC-10 Extender	59	27.7
KC-135R Stratotanker	361	50.9
KC-135T Stratotanker	54	52.6
Total	**507**	**34.3**
Transport		
C-5A Galaxy	35	41.1
C-5B Galaxy	34	24.6
C-5C Galaxy	2	42.3
C-5M Super Galaxy	8	27.6
C-12C Huron	16	36.2
C-12D Huron	6	28.4
C-12F Huron	2	28.3
C-12J Huron	4	24.7
C-17 Globemaster III	217	9.3
C-20B	5	25.4
C-20C	3	25.4
C-20H	2	17.5
C-20K	1	24.3
C-21	47	27.6
C-27J Spartan	12	2.0
C-32A	4	14.0
C-32B	2	9.3
C-37A	8	11.9
C-37B	3	2.6
C-38A	2	14.5
C-40B	4	8.7
C-40C	7	6.4
C-130E Hercules	13	48.8
C-130H Hercules	265	25.1
C-130J Hercules	91	5.2
LC-130H Hercules	10	27.1
VC-25 "Air Force One"	2	22.0
Total	**805**	**21.5**
Helicopter		
HH-60G Pave Hawk	99	22.3
HH-60U Pave Hawk	4	1.2
TH-1H Iroquois	24	36.8
UH-1H Iroquois	10	40.2
UH-1N Iroquois	63	39.8
UH-1V Iroquois	2	40.3
Total	**202**	**30.1**
Trainer		
T-1 Jayhawk	178	17.9
T-6 Texan II	445	7.0
T-38A Talon	54	45.9
(A)T-38B Talon	6	49.1
T-38C Talon	448	45.2
T-41 Mescalero	4	43.1
T-51	3	7.2
T-53	25	0.6
UV-18 Twin Otter	3	28.5
Gliders	47	8.3
Total	**1,213**	**25.3**
Grand Total	**5,551**	**24.4**

A pair of F-16s show the tail markings for the 56th Fighter Wing, Luke AFB, Ariz.

Photo by Jim Haseltine

USAF Aircraft Tail Markings

Code	Unit and Location
AC	177th FW (ANG), Atlantic City Arpt., N.J.
AF	USAF Academy, Colo.
AK	3rd Wing (PACAF), JB Elmendorf-Richardson, Alaska
	354th FW (PACAF), Eielson AFB, Alaska
	176th Wing (ANG), JB Elmendorf-Richardson, Alaska
AL	187th FW (ANG), Montgomery Regional Arpt., Ala.
AP	12th FTW (AETC), NAS Pensacola, Fla.
AV	31st FW (USAFE-AFAFRICA), Aviano AB, Italy
AZ	162nd FW (ANG), Tucson Arpt., Ariz.
BB	9th RW (ACC), Beale AFB, Calif.
	Det. 2, 53rd Wing (ACC), Beale AFB, Calif.
BD	917th FG (AFRC), Barksdale AFB, La.
CA	129th RQW (ANG), Moffett Field, Calif.
	144th FW (ANG), Fresno Yosemite Arpt., Calif.
	163rd RW (ANG), March ARB, Calif.
CB	14th FTW (AETC), Columbus AFB, Miss.
CH	432nd Wing (ACC), Creech AFB, Nev.
CO	140th Wing (ANG), Buckley AFB, Colo.
CT	103rd AW (ANG), Bradley Arpt., Conn.
D	100th ARW (USAFE-AFAFRICA), RAF Mildenhall, UK
DC	113th Wing (ANG), JB Andrews, Md.
DM	355th FW (ACC), Davis-Monthan AFB, Ariz.
DR	943rd RQG (AFRC), Davis-Monthan AFB, Ariz.
DY	7th BW (ACC), Dyess AFB, Tex.
ED	412th TW (AFMC), Edwards AFB, Calif.
EG	33rd FW (AETC), Eglin AFB, Fla.
EL	28th BW (ACC), Ellsworth AFB, S.D.
EN	80th FTW (AETC), Sheppard AFB, Tex.
ET	96th TW (AFMC), Eglin AFB, Fla.
FC	336th TRG (AETC), Fairchild AFB, Wash.
FE	90th MW (AFGSC), F. E. Warren AFB, Wyo.
FF	1st FW (ACC), JB Langley-Eustis, Va.
	192nd FW (ANG), JB Langley-Eustis, Va.
FL	920th RQW (AFRC), Patrick AFB, Fla.
FM	482nd FW (AFRC), Homestead ARB, Fla.
FS	188th FW (ANG), Fort Smith Arpt., Ark.
FT	23rd Wing (ACC), Moody AFB, Ga.
GA	116th ACW (ANG), Robins AFB, Ga.
	165th AW (ANG), Savannah Hilton Head Arpt., Ga.
HD	Det. 1, 53rd Wing (ACC), Holloman AFB, N.M.
HH	15th Wing (PACAF), JB Pearl Harbor-Hickam, Hawaii
	154th Wing (ANG), JB Pearl Harbor-Hickam, Hawaii
HL	388th FW (ACC), Hill AFB, Utah
	419th FW (AFRC), Hill AFB, Utah
HO	49th Wing (ACC), Holloman AFB, N.M.
IA	132nd FW (ANG), Des Moines Arpt., Iowa
ID	124th FW (ANG), Boise Air Terminal, Idaho
IN	122nd FW (ANG), Fort Wayne, Ind.
JZ	159th FW (ANG), NAS JRB New Orleans
KC	442nd FW (AFRC), Whiteman AFB, Mo.
LA	2nd BW (AFGSC), Barksdale AFB, La.

Code	Unit and Location
LF	56th FW (ACC), Luke AFB, Ariz.
LI	106th RQW (ANG), F. S. Gabreski Arpt., N.Y.
LN	48th FW (USAFE-AFAFRICA), RAF Lakenheath, UK
MA	104th FW (ANG), Barnes Arpt., Mass.
MD	175th Wing (ANG), Martin State Arpt., Md.
MI	127th Wing (ANG), Selfridge ANGB, Mich.
MM	341st MW (AFGSC), Malmstrom AFB, Mont.
MN	133rd AW (ANG), Minn.-St. Paul Arpt./ARS
	148th FW (ANG), Duluth Arpt., Minn.
MO	366th FW (ACC), Mountain Home AFB, Idaho
MT	5th BW (AFGSC), Minot AFB, N.D.
	91st MW (AFGSC), Minot AFB, N.D.
NY	174th ATKW (ANG), Hancock Fld., N.Y.
OF	55th Wing (ACC), Offutt AFB, Neb.
OH	179th AW (ANG), Mansfield Lahm Arpt., Ohio
	180th FW (ANG), Toledo Express Arpt., Ohio
OK	137th ARW (ANG), Will Rogers World Arpt., Okla.
	138th FW (ANG), Tulsa Arpt., Okla.
	552nd ACW (ACC), Tinker AFB, Okla.
OS	51st FW (PACAF), Osan AB, South Korea
OT	31st TES (ACC), Edwards AFB, Calif.
	49th TES (ACC), Barksdale AFB, La.
	53rd Wing (ACC), Eglin AFB, Fla.
	88th TES (ACC), Nellis AFB, Nev.
	337th TES (ACC), Dyess AFB, Tex.
	422nd TES (ACC), Nellis AFB, Nev.
	556th TES (ACC), Creech AFB, Nev.
	Det. 4, 53rd Wing (ACC), Creech AFB, Nev.
RA	12th FTW (AETC), JBSA-Randolph AFB, Tex.
RS	86th AW (USAFE-AFAFRICA), Ramstein AB, Germany
SA	149th FW (ANG), JBSA-Lackland AFB, Tex.
SC	169th FW (ANG), McEntire JNGB, S.C.
SD	114th FW (ANG), Joe Foss Fld., S.D.
SJ	4th FW (ACC), Seymour Johnson AFB, N.C.
SP	52nd FW (USAFE-AFAFRICA), Spangdahlem AB, Germany
SW	20th FW (ACC), Shaw AFB, S.C.
TD	53rd WEG (ACC), Tyndall AFB, Fla.
TX	147th RW (ANG), Ellington Fld., Tex.
	301st FW (AFRC), NAS JRB Fort Worth, Tex.
TY	325th FW (AETC), Tyndall AFB, Fla.
VN	71st FTW (AETC), Vance AFB, Okla.
WA	57th Wing (ACC), Nellis AFB, Nev.
WI	115th FW (ANG), Truax Fld., Wis.
WM	72nd TES (ACC), Whiteman AFB, Mo.
	509th BW (AFGSC), Whiteman AFB, Mo.
WP	8th FW (PACAF), Kunsan AB, South Korea
WV	130th AW (ANG), Yeager Arpt., W.Va.
WW	35th FW (PACAF), Misawa AB, Japan
XL	47th FTW (AETC), Laughlin AFB, Tex.
YJ	374th AW (PACAF), Yokota AB, Japan
ZZ	18th Wing (PACAF), 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

Shown in order of precedence.


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)


Joint Meritorious Unit Award


Gallant Unit Citation


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


American Defense Service Medal


American Campaign Medal


Asiatic-Pacific Campaign Mecal


European-African-Middle Eastern Campaign Medal


World War II Victory Medal


Army of Occupation Medal


Medal for Humane Action


National Defense Service Medal


Korean Service Medal


Antarctica Service Medal


Armed Forces Expeditionary Medal


Vietnam Service Medal


Southwest As a Service Medal


Kosovo Campaign Medal


Afghanistan Campaign Medal


Iraq Campaign Medal


Global War on Terrorism Expeditionary Medal


Global War on Terrorism Service Medal


Korean 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


Philippine Defense Ribbon


Philippine Liberation Ribbon


Philippine Independence Ribbon

Awards and Decorations Continued


Philippine Presidential Unit Citation


ROK Presidential Unit Citation


RVN Gallantry Cross with Palm


United Nations Service Medal


United Nations Medal


NATO Meritorious Service Medal


NATO Medal for Yugoslavia


NATO Medal for Kosovo


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


Republic of Korea Korean War Service Medal

Devices

Bronze Star
For number of campaigns or operations, multiple qualifications, or an additional award of an authorized ribbon.

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

Mobility Device
Worn with the Armed Forces Reserve Medal to denote Active Duty status for at least one day during a contingency; here with number of mobilizations.

A Device
Worn on Overseas Ribbon-Short for service north of Arctic Circle; one per ribbon; worn to the wearer's right of OLCs.

Silver Star
One silver star is worn in lieu of five bronze service stars.

Silver and Bronze OLCs
Silver OLCs are worn to the wearer's right of the bronze OLCs on the same ribbon.

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

Arrowhead Device
Shows participation in assigned tactical combat parachute, glider, or amphibious assault landing; worn on campaign medals, Korean Service Medal, and Armed Forces and GWOT Expeditionary medals.

Silver Oak Leaf Cluster
For sixth, 11th, etc., entitlements or in lieu of five bronze OLCs.

Bronze Oak Leaf Cluster
For second and subsequent awards.

Valor Device
For valor; not an additional award; only one per ribbon; worn to the wearer's right of OLCs on the same ribbon.

Plane Device
Worn on Army of Occupation Medal for 90 consecutive days in direct support of the Berlin Airlift, June 26, 1948, to Sept. 30, 1949.

"Wintered Over" Device
Worn on Antarctica Service Medal to denote staying on the Antarctic continent over the winter—bronze for one; gold, two; silver, three.

USAF Specialty Berets

Airmen in seven USAF specialties are authorized to wear a colored beret along with the insignia of that particular field.

Combat Controller/Special Tactics Officer

Pararescue Jumper/Combat Rescue Officer

Security Forces

Survival, Evasion, Resistance, and Escape

Tactical Air Command and Control
(Tactical Air Control Party crest)

Air Liaison Officer
(TACP flash and rank)

Weather Parachutist

Major Commands and Reserve Components

2013 USAF Almanac

Note: All data as of Sept. 30, 2012

Organization

The Air Force has 10 major commands and two Air Reserve Components. (Air Force Reserve Command is both a majcom and an ARC.) As major subdivisions of the Air Force, majcoms conduct a major part of the service's mission and are directly subordinate to Hq. USAF.

Major commands are organized on a functional basis in the US and on a geographic basis overseas. In addition to accomplishing designated portions of USAF's worldwide activities, they organize, administer, equip, and train their subordinate elements.

Major commands, in general, include the following organizational levels: numbered air force (NAF), wing, group, squadron, and flight. The majcom sits at the top of a skip-echelon staffing structure, which means every other organizational level (i.e., majcom, wing, and squadron) will have a full range of staff functions. The other organizations (NAF, group, and flight) are tactical echelons with minimal or no support staff. These tactical echelons are designed to increase operational effectiveness rather than to review and transmit paperwork.

There are two basic organizational schemes for Air Force major commands: unit-oriented organizations and major non-unit organizations. The more standard unit-oriented scheme comprises majcom, NAF, wing, group, squadron, and flight levels. The major non-unit organization scheme comprises majcom, center, directorate, division, branch, and section levels.

USAF has two types of major commands: lead majcom and component majcom (C-Majcom). *(Some major commands are both lead majcoms and C-Majcoms.)* A C-Majcom is the USAF component to a unified combatant command. The commander of a C-Majcom is the commander of air forces (COMAFFOR) and may function as a theater joint force air and space component commander (JFACC) when required. A C-Majcom has one or more component NAFs (C-NAFs) through which it presents its forces to the combatant commander.

10 Major Commands

Air Combat Command
Air Education & Training Command
Air Force Global Strike Command
Air Force Materiel Command
Air Force Reserve Command
Air Force Space Command
Air Force Special Operations Command
Air Mobility Command
Pacific Air Forces
US Air Forces in Europe-Air Forces Africa

Two Air Reserve Components

Air Force Reserve Command
Air National Guard

Numbered Air Force

A numbered air force, that level of command directly below a major command, provides operational leadership and supervision to its subordinate units (wings, groups, and squadrons). A C-NAF supports the COMAFFOR at the operational and tactical level. USAF has designated some C-NAFs, rather than a majcom, as the Air Force component to a unified combatant command. In that role, the C-NAF functions at the strategic level as well as the operational and tactical levels and will have a broader staff. *(On the following pages, NAFs with "Air Forces" designations, such as Air Forces Southern, are C-NAFs.)*

ACC

Air Combat Command

Headquarters JB Langley-Eustis, Va.

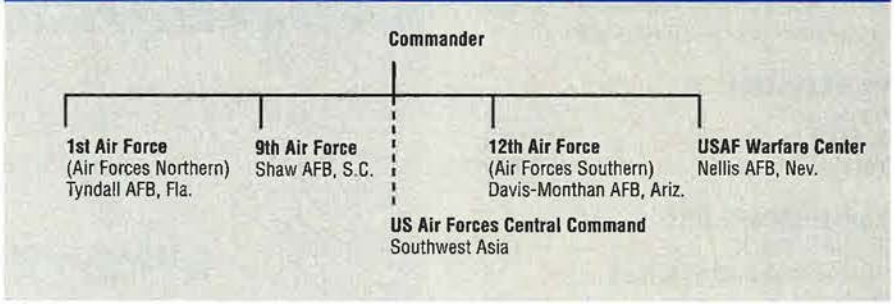
Established June 1, 1992

Commander Gen. G. Michael Hostage III

PRIMARY MISSION

Primary force provider of combat airpower—fighter, conventional bomber, reconnaissance, battle management, and electronic combat aircraft—to combatant commands; provide C3I systems and conduct global information operations.

ACC STRUCTURE



PERSONNEL

Active Duty	68,576
Civilian	9,973
Total	**78,549**

EQUIPMENT (Total active inventory)

Bomber	61	Fighter/Attack	643
		ISR/BM/C3	346
		Tanker	19
		Helicopter	39
		Trainer	43

MAJOR WINGS/CENTERS	LOCATION	AIRCRAFT/MISSION/WEAPON
1st Fighter Wing	JB Langley-Eustis, Va.	F-22
4th FW	Seymour Johnson AFB, N.C.	F-15E
7th Bomb Wing	Dyess AFB, Tex.	B-1B
9th Reconnaissance Wing	Beale AFB, Calif.	MC-12W, RQ-4, T-38A, U-2
20th FW	Shaw AFB, S.C.	F-16CJ
23rd Wing	Moody AFB, Ga.	A-10C, HC-130, HH-60G
28th BW	Ellsworth AFB, S.D.	B-1B
49th Wing	Holloman AFB, N.M.	F-22 (move delayed to 2014), MQ-1, MQ-9, T-38C
53rd Wing	Eglin AFB, Fla.	A-10C, B-1B, B-52H, F-15, F-16, F-22, F-35, HC-130J, HH-60G, MQ-1, MQ-9, RQ-170, space test
55th Wing	Offutt AFB, Neb.	E-4B, OC-135B, RC-135S, RC-135U, RC-135V/W, WC-135
57th Wing	Nellis AFB, Nev.	A-10C, F-15, F-15E, F-16, F-22, HH-60G (23rd Wing), MQ-1, MQ-9
93rd Air Ground Operations Wing	Moody AFB, Ga.	Battlefield airmen operations and support
99th Air Base Wing	Nellis AFB, Nev.	Base support
325th Fighter Wing	Tyndall AFB, Fla.	F-22
355th FW	Davis-Monthan AFB, Ariz.	A-10C, EC-130H (55th Wing), HC-130 & HH-60G (23rd Wing)
366th FW	Mountain Home AFB, Idaho	F-15E
388th FW	Hill AFB, Utah	F-16
432nd Wing	Creech AFB, Nev.	MQ-1, MQ-9
461st Air Control Wing	Robins AFB, Ga.	E-8C (Active Associate)
505th Command & Control Wing	Hurlburt Field, Fla.	C2 operational-level tactics, testing, training
552nd ACW	Tinker AFB, Okla.	E-3B/C/G
633rd ABW	JB Langley-Eustis, Va.	Joint base facilities support
Air Force Rescue & Coordination Center	Tyndall AFB, Fla.	National search/rescue coordination

USAF photo

ACC has two operational wings with B-1s. This Bone's from Ellsworth AFB, S.D.

AETC

Air Education and Training Command

Headquarters JBSA-Randolph, Tex.

Established July 1, 1993

Commander Gen. Edward A. Rice Jr.

PRIMARY MISSION

Recruit, train, and educate airmen through basic military training, initial and advanced technical training, and professional military education.

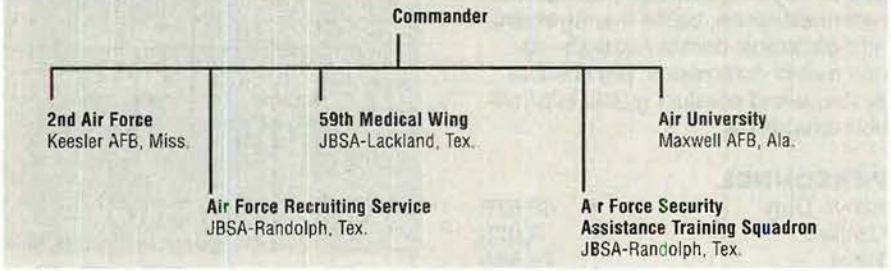
PERSONNEL

Active Duty	57,134
Civilian	15,708
Total	**72,842**

EQUIPMENT (TAI)

Fighter/Attack	155
Special operations forces	14
Tanker	26
Transport	27
Helicopter	47
Trainer	1,129

AETC STRUCTURE



Abbreviations: CSO: combat systems officer; **JBSA:** Joint Base San Antonio; **NAS:** Naval Air Station; **ROTC:** Reserve Officer Training Corps.

MAJOR WINGS/CENTERS	LOCATION	AIRCRAFT/MISSION/WEAPON
12th Flying Training Wing	JBSA-Randolph, Tex.	T-1A, T-6A, T-38C (CSO at NAS Pensacola, Fla.)
14th FTW	Columbus AFB, Miss.	T-1A, T-6A, T-38C
17th Training Wing (TRW)	Goodfellow AFB, Tex.	Technical training
33rd Fighter Wing	Eglin AFB, Fla.	F-35
37th TRW	JBSA-Lackland, Tex.	Basic military and technical training
42nd Air Base Wing	Maxwell AFB, Ala.	Base support
47th FTW	Laughlin AFB, Tex.	T-1A, T-6A, T-38C
56th FW	Luke AFB, Ariz.	F-16
58th Special Operations Wing	Kirtland AFB, N.M.	CV-22, HC-130, HH-60, MC-130H, MC-130J, MC-130P
59th Medical Wing	JBSA-Lackland, Tex.	Wilford Hall Ambulatory Surgical Center
71st FTW	Vance AFB, Okla.	T-1A, T-6A, T-38C
80th FTW	Sheppard AFB, Tex.	T-6A, T-38C
81st TRW	Keesler AFB, Miss.	Technical training
82nd TRW	Sheppard AFB, Tex.	Technical training
97th Air Mobility Wing	Altus AFB, Okla.	C-17, KC-135R
314th Airlift Wing	Little Rock AFB, Ark.	C-130H/J
502nd ABW	JBSA-Fort Sam Houston, Tex.	JBSA facilities support
Air Force Institute of Technology	Wright-Patterson AFB, Ohio	Postgraduate education
Air Force Research Institute	Maxwell AFB, Ala.	Historical research
Carl A. Spaatz Center for Officer Education	Maxwell AFB, Ala.	Officer professional military education (PME)
Curtis E. LeMay Center for Doctrine Dev. & Education	Maxwell AFB, Ala.	Air Force doctrine development
Ira C. Eaker Center for Professional Dev.	Maxwell AFB, Ala.	Professional and techical continuing education
Jeanne M. Holm Officer Accessions & Citizen Dev. Center	Maxwell AFB, Ala.	Officer training, ROTC oversight
Muir S. Fairchild Research Information Center	Maxwell AFB, Ala.	Information resources
Thomas N. Barnes Center for Enlisted Education	Maxwell AFB, Ala.	Enlisted PME

Maj. Jason Earley, 435th Fighter Training Squadron, makes preparations for takeoff, assisted by Scott Lounsberry.

USAF photo by Lisa Norman

AFGSC

Air Force Global Strike Command

Headquarters Barksdale AFB, La.

Established Aug. 7, 2009

Commander Lt. Gen. James M. Kowalski

PRIMARY MISSION

Organize, train, equip, maintain, and provide ICBM forces and nuclear-capable bomber forces to combatant commanders.

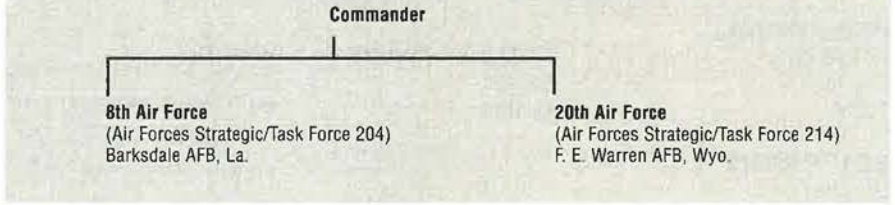
PERSONNEL

Active Duty	19,913
Civilian	2,538
Total	**22,451**

EQUIPMENT (TAI)

Bomber	76
Helicopter	25
Trainer	14
ICBM	450

AFGSC STRUCTURE



Note: USAF redesignated Strategic Air Command, established Dec. 13, 1944, as Air Force Global Strike Command and activated AFGSC on Aug. 7, 2009.

MAJOR UNITS	LOCATION	AIRCRAFT/MISSION/WEAPON
2nd Bomb Wing	Barksdale AFB, La.	B-52H
5th BW	Minot AFB, N.D.	B-52H
90th Missile Wing	F. E. Warren AFB, Wyo.	Minuteman III, UH-1N
91st MW	Minot AFB, N.D.	Minuteman III, UH-1N
341st MW	Malmstrom AFB, Mont.	Minuteman III, UH-1N
509th BW	Whiteman AFB, Mo.	B-2
576th Flight Test Squadron	Vandenberg AFB, Calif.	ICBM testing
625th Strategic Operations Squadron	Offutt AFB, Neb.	ICBM-related analysis, targeting system operations, training

With a 509th Bomb Wing B-2 in the background, A1C Adam Rhine (l) and SrA. Alisha Thiher shoot pyrotechnics as part of a safety checklist at Whiteman AFB, Mo.

USAF photo by TSgt. Lee A. Osberry Jr.

AFMC

Air Force Materiel Command

Headquarters Wright-Patterson AFB, Ohio

Established July 1, 1992

Commander Gen. Janet C. Wolfenbarger

PRIMARY MISSION

Research, develop, procure, test, and sustain USAF weapon systems.

PERSONNEL

Active duty	18,763
Civilian	61,161
Total	**79,924**

EQUIPMENT (TAI)

Bomber	4
Fighter/Attack	57
ISR/BM/C3	25
Tanker	2
Transport	23
Helicopter	5
Trainer	23

AFMC STRUCTURE

Commander

Air Force Life Cycle Management Center (AFLCMC)	Wright-Patterson AFB, Ohio
Air Force Nuclear Weapons Center (AFNWC)	Kirtland AFB, N.M.
Air Force Research Laboratory (AFRL)	Wright-Patterson AFB, Ohio
Air Force Sustainment Center (AFSC)	Tinker AFB, Okla.
Air Force Test Center (AFTC)	Edwards AFB, Calif.
National Museum of the US Air Force (NMUSAF)	Wright-Patterson AFB, Ohio

Abbreviations: PEO: Program Executive Officer; **R&D:** research and development.

MAJOR UNITS	LOCATION	AIRCRAFT/MISSION/WEAPON
AFLCMC		
PEO—Agile Combat Support	WPAFB, Ohio	
PEO—Armament	Eglin AFB, Fla.	
PEO—Battle Management	Hanscom AFB, Mass.	
PEO—Business & Enterprise Systems	Maxwell AFB-Gunter Annex, Ala.	
PEO—C3I & Networks	Hanscom AFB, Mass.	
PEO—Fighters & Bombers	WPAFB, Ohio	
PEO—ISR & SOF	WPAFB, Ohio	
PEO—Mobility	WPAFB, Ohio	
PEO—Strategic Systems	Kirtland AFB, N.M.	
PEO—Tanker	WPAFB, Ohio	
66th Air Base Group	Hanscom AFB, Mass.	Base support
88th Air Base Wing	WPAFB, Ohio	Base support
AFNWC		
Air Force Nuclear Weapons Capability Directorate	Kirtland AFB, N.M.	Nuclear weapons sustainment
377th ABW	Kirtland AFB, N.M.	Nuclear operations, base support
AFRL		
Aerospace Systems Directorate	WPAFB, Ohio	R&D
Air Force Office of Scientific Research	Arlington, Va.	Research
Directed Energy Directorate	Kirtland AFB, N.M.	R&D
Information Directorate	Rome, N.Y.	R&D
Materials and Manufacturing Directorate	WPAFB, Ohio	R&D
Munitions Directorate	Eglin AFB, Fla.	R&D
Sensors Directorate	WPAFB, Ohio	R&D
Space Vehicles Directorate	Kirtland AFB, N.M.	R&D
711th Human Performance Wing	WPAFB, Ohio	Human performance evaluation/research
AFSC		
Ogden Air Logistics Complex	Hill AFB, Utah	Weapons sustainment
Oklahoma City ALC	Tinker AFB, Okla.	Weapons sustainment
Warner Robins ALC	Robins AFB, Ga.	Weapons sustainment
72nd ABW	Tinker AFB, Okla.	Base support
75th ABW	Hill AFB, Utah	Base/Utah Test & Training Range support
78th ABW	Robins AFB, Ga.	Base support
309th Aerospace Maintenance & Regeneration Group	Davis-Monthan AFB, Ariz.	Aircraft maintenance/regeneration
448th Supply Chain Management Wing	Tinker AFB, Okla.	Planning/execution depot line repairable and consumables
635th Supply Chain Operations Wing	Scott AFB, Ill.	Global sustainment support
AFTC		
Arnold Engineering Development Complex	Arnold AFB, Tenn.	Flight simulation test & evaluation (aircraft, missile, space)
96th Test Wing	Eglin AFB, Fla.	A-10C, C-130, F-15, F-15E, F-16CG/CJ, UH-1N, base support
412th TW	Edwards AFB, Calif.	B-1, B-2, B-52, C-12, C-17, F-16, F-22, F-35A, NKC-135 Speckled Trout, RQ-4, T-38, base support

AFRC

Air Force Reserve Command

Headquarters Robins AFB, Ga.

Established Feb. 17, 1997

Commander Lt. Gen. James F. Jackson

PRIMARY MISSION

Provide strike, air mobility, special operations forces, rescue, aeromedical evacuation, aerial firefighting and spraying, weather reconnaissance, space, flying training, and other capabilities to support the Active Duty force and assist with domestic and foreign disaster relief.

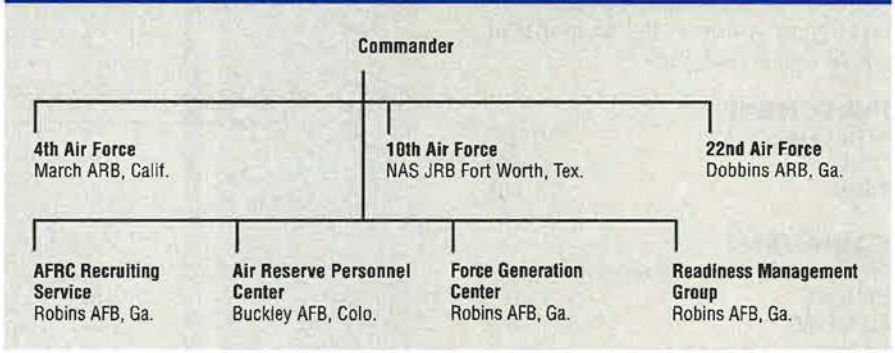
PERSONNEL

Total (selected reserve)	71,428
Active Duty	83
Civilian (includes technicians)	13,003
Total	**84,514**

EQUIPMENT (TAI)

Bomber	18		
Fighter/Attack	101	ISR/BM/C3	11
SOF	5	Tanker	72
		Transport	148
		Helicopter	15

AFRC STRUCTURE



Abbreviations: AOC: Air & Space Operations Center; **DCGS:** Distributed Common Ground Station.

MAJOR GROUPS/WINGS	LOCATION	AIRCRAFT/MISSION/WEAPON
44th Fighter Group*	Holloman AFB, N.M.	F-22, MQ-1, MQ-9
94th Airlift Wing	Dobbins ARB, Ga.	C-130H
301st Fighter Wing	NAS JRB Fort Worth, Tex.	F-16
302nd AW	Peterson AFB, Colo.	C-130 (including Modular Airborne Firefighting System)
307th Bomb Wing	Barksdale AFB, La.	B-52
310th Space Wing	Schriever AFB, Colo.	Space control/operations/warning, information operations
315th AW*	JB Charleston, S.C.	C-17
340th Flying Training Group*	JBSA-Randolph, Tex.	AT-38B, T-1, T-6, T-38
349th Air Mobility Wing*	Travis AFB, Calif.	C-5A/B/C, C-17, KC-10
403rd Wing	Keesler AFB, Miss.	C-130J, WC-130H/J (Hurricane Hunters)
413th Flight Test Group	Robins AFB, Ga.	Depot flight test
414th FG*	Seymour Johnson AFB, N.C.	F-15E
419th FW*	Hill AFB, Utah	F-16
433rd AW*	JBSA-Lackland, Tex.	C-5A/B, Formal Training Unit
434th Air Refueling Wing	Grissom ARB, Ind.	KC-135R
439th AW	Westover ARB, Mass.	C-5B
440th AW	Pope Field, N.C.	C-130H
442nd FW	Whiteman AFB, Mo.	A-10C
445th AW	Wright-Patterson AFB, Ohio	C-17
446th AW*	JB Lewis-McChord, Wash.	C-17
452nd AMW	March ARB, Calif.	C-17, KC-135R
459th ARW	JB Andrews, Md.	KC-135R
476th FG*	Moody AFB, Ga.	A-10C
477th FG*	JB Elmendorf-Richardson, Alaska	F-22
482nd FW	Homestead ARB, Fla.	F-16
507th ARW	Tinker AFB, Okla.	KC-135R
512th AW*	Dover AFB, Del.	C-5M, C-17
513th Air Control Group*	Tinker AFB, Okla.	E-3
514th AMW*	JB McGuire-Dix-Lakehurst, N.J.	C-17, KC-10
624th Regional Support Group	JB Pearl Harbor-Hickam, Hawaii	Contingency aerial port, civil engineer, medical combat support
908th AW	Maxwell AFB, Ala.	C-130H
910th AW	Youngstown ARS, Ohio	C-130H
911th AW	Pittsburgh Arpt., Pa.	C-130H
914th AW	Niagara Falls Arpt., N.Y.	C-130H
916th ARW	Seymour Johnson AFB, N.C.	KC-135R
917th FG	Barksdale AFB, La.	A-10C
919th Special Operations Wing	Duke Field, Fla.	MC-130E, MQ-1* (Cannon AFB, N.M.), U-28*
920th Rescue Wing	Patrick AFB, Fla.	HC-130N/P, HH-60G
924th FG	Davis-Monthan AFB, Ariz.	A-10C
926th Group*	Nellis AFB, Nev.	F-16 (Nellis), MQ-1 and MQ-9 (Creech AFB, Nev.)
927th ARW*	MacDill AFB, Fla.	KC-135R
931st Air Refueling Group*	McConnell AFB, Kan.	KC-135R
932nd AW	Scott AFB, Ill.	C-40
934th AW	Minneapolis-St. Paul Arpt., Minn.	C-130H
940th Wing*	Beale AFB, Calif.	AOC, DCGS, RQ-4
943rd Rescue Group	Davis-Monthan AFB, Ariz.	HH-60G
944th FW*	Luke AFB, Ariz.	F-16

* Classic Associate (Active unit owns aircraft)

AFSPC

Air Force Space Command

Headquarters Peterson AFB, Colo

Established Sept. 1, 1982

Commander Gen. William L. Shelton

PRIMARY MISSION

Organize, train, equip, maintain, and provide space and cyberspace operations forces; develop, procure, and test space systems; sustain national space launch facilities.

PERSONNEL

Active Duty	13,975
Civilian	7,781
Total	**21,756**

EQUIPMENT

Air Force Satellite Control Network
BMEWS
GEODSS
Launch/test ranges
Pave PAWS
PARCS
Space surveillance radars

Satellite systems (on orbit):

AEHF	2	Milstar	5
DMSP	4	SBIRS	3
DCSC	8	SBSS	1
DSP	classified	WGS	3
GPS	30		

Abbreviations: BMEWS: Ballistic Missile Early Warning System; **GEODSS:** Ground-based Electro-Optical Deep Space Surveillance System; **PAWS:** Phased Array Warning System; **PARCS:** Perimeter Acquisition Radar Attack Characterization System; for satellites, see Gallery of Weapons.

AFSPC STRUCTURE

MAJOR GROUPS/WINGS	LOCATION	AIRCRAFT/MISSION/WEAPON
21st Space Wing	Peterson AFB, Colo.	Space control/warning
30th SW	Vandenberg AFB, Calif.	Space launch, ICBM test, launch range operations
45th SW	Patrick AFB, Fla.	Space launch, launch range operations
50th SW	Schriever AFB, Colo.	C2 space operations
61st Air Base Group	Los Angeles AFB, Calif.	Base support
67th Network Warfare Wing	JBSA-Lackland, Tex.	Cyberspace operations
460th SW	Buckley AFB, Colo.	Space surveillance/warning
688th Information Operations Wing	JBSA-Lackland, Tex.	Command and control warfare operations
689th Combat Communications Wing	JBSA-Lackland, Tex.	Expeditionary, specialized communications/air traffic control
821st Air Base Group	Thule AB, Greenland	Base support

An Atlas V rocket carrying the second Space Based Infrared System satellite launches on March 19 from Cape Canaveral AFS, Fla.

United Launch Alliance photo by Pat Corkery

AFSOC

Air Force Special Operations Command

Headquarters Hurlburt Field, Fla.

Established May 22, 1990

Commander Lt. Gen. Eric E. Fiel

PRIMARY MISSION

Organize, train, equip, maintain, and provide special operations airpower forces to combatant commanders.

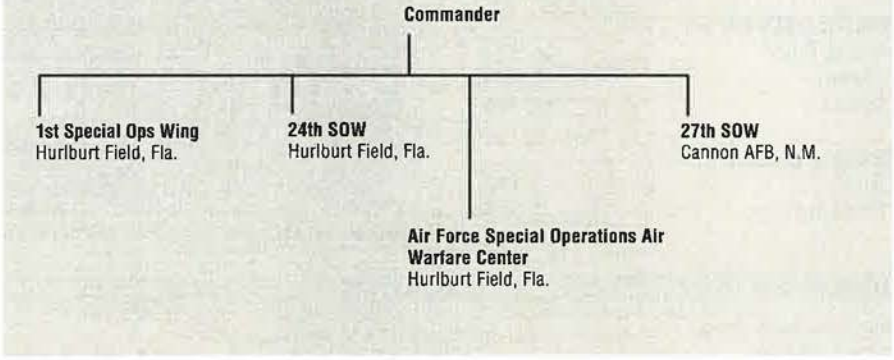
PERSONNEL

Active Duty	13,778
Civilian	1,693
Total	**15,471**

EQUIPMENT (TAI)

SOF	98
ISR/BM/C3	44
Helicopter	4

AFSOC STRUCTURE



MAJOR UNITS	LOCATION	AIRCRAFT/MISSION/WEAPON
1st Special Operations Wing	Hurlburt Field, Fla.	AC-130U, CV-22, MC-130H, MC-130P, U-28A
24th SOW	Hurlburt Field, Fla.	Battlefield airmen operations
27th SOW	Cannon AFB, N.M.	AC-130H, AC-130W, CV-22, MC-130J, MQ-1, MQ-9
352nd Special Operations Group	RAF Mildenhall, UK	MC-130H, MC-130P
353rd SOG	Kadena AB, Japan	MC-130H, MC-130P
623rd Air & Space Operations Center	Hurlburt Field, Fla.	Plan/direct airpower special operations
720th Special Tactics Group	Hurlburt Field, Fla.	Battlefield airmen operations
724th STG	Pope Field, N.C.	Battlefield airmen operations

USAF photo by MSgt. Jeremy T. Lock

An AC-130 Gunship from the 4th Special Operations Squadron flies over Hurlburt Field, Fla.

AMC

Air Mobility Command

Headquarters Scott AFB, Ill.

Established June 1, 1992

Commander Gen. Paul J. Selva

PRIMARY MISSION

Organize, train, equip, maintain, and provide air mobility forces to sustain worldwide airpower operations.

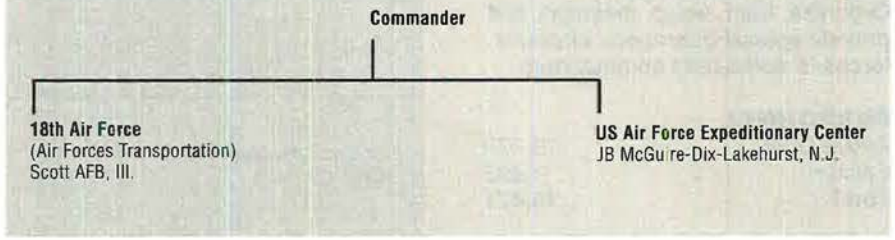
PERSONNEL

Active Duty	45,371
Civilian	8,984
Total	**54,355**

EQUIPMENT (TAI)

Tanker	170
Transport	322

AMC STRUCTURE



Abbreviations: AOC: Air & Space Operations Center; AA: Active Associate (ANG/AFRC own aircraft).

MAJOR UNITS	LOCATION	AIRCRAFT/MISSION/WEAPON
6th Air Mobility Wing	MacDill AFB, Fla.	C-37, KC-135R
19th Airlift Wing	Little Rock AFB, Ark.	C-130
22nd Air Refueling Wing	McConnell AFB, Kan.	KC-135R
43rd Airlift Group	Pope Field, N.C.	C-130 (Active Associate)
60th AMW	Travis AFB, Calif.	C-5, C-17, KC-10
62nd AW	JB Lewis-McChord, Wash.	C-17
87th Air Base Wing	JB McGuire-Dix-Lakehurst, N.J.	Joint base facilities support
89th AW	JB Andrews, Md.	C-20, C-32, C-37, C-40, VC-25
92nd ARW	Fairchild AFB, Wash.	KC-135
305th AMW	JB McGuire-Dix-Lakehurst, N.J.	C-17, KC-10
317th AG	Dyess AFB, Tex.	C-130
319th ABW	Grand Forks AFB, N.D.	Base support
375th AMW	Scott AFB, Ill.	C-21, C-40 (AA), KC-135R (AA)
436th AW	Dover AFB, Del.	C-5
437th AW	JB Charleston, S.C.	C-17
515th Air Mobility Operations Wing	JB Pearl Harbor-Hickam, Hawaii	Contingency airfield operations
521st AMOW	Ramstein AB, Germany	Contingency airfield operations
618th AOC (Tanker Airlift Control Center)	Scott AFB, Ill.	Tanker Airlift Control Center operations
621st Contingency Response Wing	JB McGuire-Dix-Lakehurst, N.J.	Rapidly deployable bare base operations
627th Air Base Group	JB Lewis-McChord, Wash.	Base support
628th ABW	JB Charleston, S.C.	Joint base facilities support

A dozen mobility aircraft—KC-10s followed by C-17s and C-5s—practice a mass launch in June 2012 at Travis AFB, Calif.

USAF photo by Lt. Col. Robert Couse-Baker

PACAF

Pacific Air Forces

Headquarters JB Pearl Harbor-Hickam, Hawaii

Established July 1, 1957

Commander Gen. Herbert J. Carlisle

PRIMARY MISSION

Provide US Pacific Command integrated expeditionary Air Force capabilities, including strike, air mobility, and rescue forces.

PERSONNEL

Active Duty	29,267
Civilian	7,815
Total	**37,082**

EQUIPMENT (TAI)

Fighter/Attack	263
ISR/BM/C3	4
Tanker	15
Transport	38
Helicopter	14

PACAF STRUCTURE

MAJOR UNITS	LOCATION	AIRCRAFT/MISSION/WEAPON
1st Air Support Operations Group	JB Lewis-McChord, Wash.	Battlefield airmen operations/support
3rd Wing	JB Elmendorf-Richardson, Alaska	C-12, C-17, C-130, E-3, F-15, F-22
8th Fighter Wing	Kunsan AB, South Korea	F-16
15th Wing	JB Pearl Harbor-Hickam, Hawaii	C-17, C-37, C-40, F-22 (Active Associate), KC-135 (AA)
18th Wing	Kadena AB, Japan	E-3, F-15, HH-60G, KC-135R
35th FW	Misawa AB, Japan	F-16CJ
36th Wing	Andersen AFB, Guam	Operational platform for rotating combat forces
36th Contingency Response Group	Andersen AFB, Guam	Rapidly deployable bare base operations
51st FW	Osan AB, South Korea	A-10C, C-12, F-16
354th FW	Eielson AFB, Alaska	F-16
374th Airlift Wing	Yokota AB, Japan	C-12, C-130, UH-1N
607th Air & Space Operations Center	Osan AB, South Korea	Plan/direct air operations
607th Air Intelligence Group	Osan AB, South Korea	Intelligence analysis
607th ASOG	Osan AB, South Korea	Battlefield airmen operations and support
611th AOC	JB Elmendorf-Richardson, Alaska	Plan/direct air operations
611th Air Support Group	JB Elmendorf-Richardson, Alaska	Remote facility operations, communications, engineering
613th AOC	JB Pearl Harbor-Hickam, Hawaii	Plan/direct air operations
673rd Air Base Wing	JB Elmendorf-Richardson, Alaska	Joint base facilities support

At Kunsan AB, South Korea, 8th Fighter Wing F-16s prepare for an exercise to improve USAF and ROK Air Force interoperability.

USAF photo by TSgt. Jonathan Pomeroy

USAFE-AFAFRICA

US Air Forces in Europe-Air Forces Africa

Headquarters Ramstein AB, Germany

Established Aug. 7, 1945

Commander Gen. Philip M. Breedlove

PRIMARY MISSION

Serves as the air component for US European Command and US Africa Command, directing air operations, including warfighting and humanitarian/peacekeeping actions, and maintains combat-ready forces for NATO responsibilities.

PERSONNEL

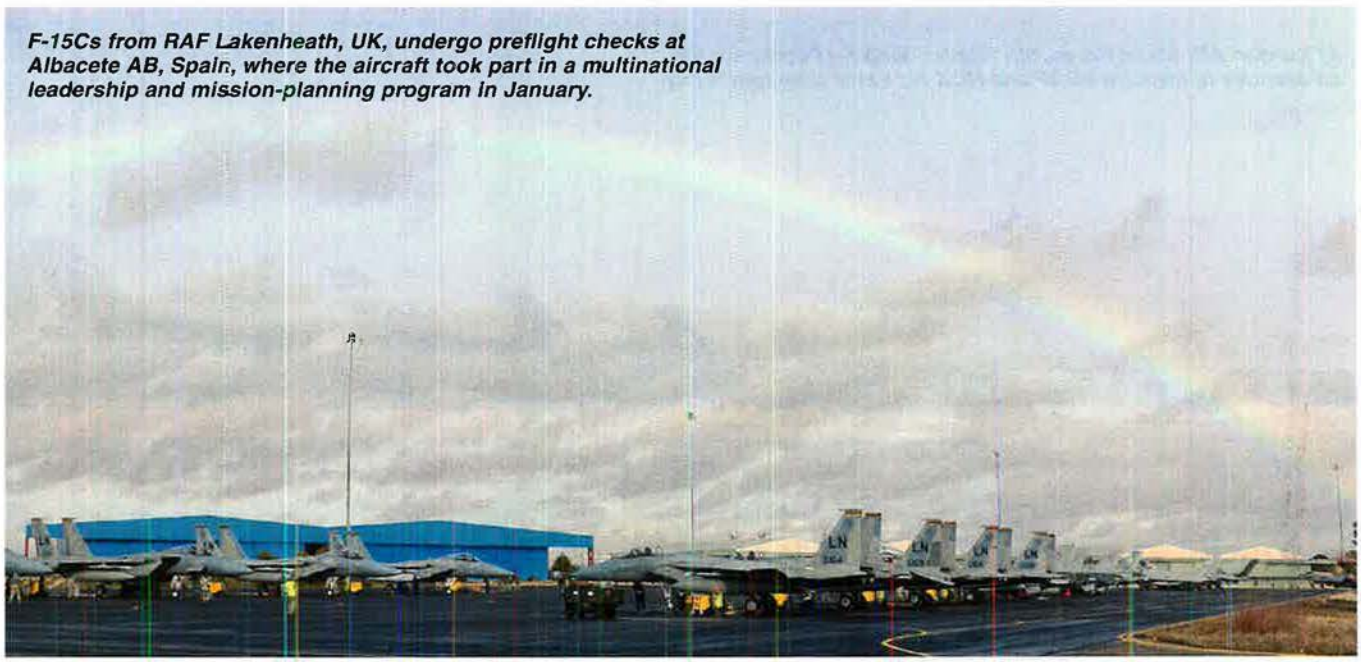
Active Duty	24,314
Civilian	6,181
Total	**30,495**

EQUIPMENT (TAI)

Fighter/Attack	177
Tanker	15
Transport	27
Helicopter	5

USAFE-AFAFRICA STRUCTURE

MAJOR UNITS	LOCATION	AIRCRAFT/MISSION/WEAPON
31st Fighter Wing	Aviano AB, Italy	F-16
39th Air Base Wing	Incirlik AB, Turkey	Operational location for deployed US and NATO forces
48th FW	RAF Lakenheath, UK	F-15, F-15E, HH-60G
52nd FW	Spangdahlem AB, Germany	A-10C, F-16CJ
65th ABW	Lajes Field, the Azores	Operational location for en route forces
86th Airlift Wing	Ramstein AB, Germany	C-20, C-21, C-37, C-40, C-130J
100th Air Refueling Wing	RAF Mildenhall, UK	KC-135R
404th Air Expeditionary Group	Ramstein AB, Germany	Contingency support
409th AEG	Unspecified	ISR operations
435th Air Ground Operations Wing	Ramstein AB, Germany	Battlefield airmen support/operations
449th AEG	Camp Lemonnier, Djibouti	HC-130P, pararescue jumpers
501st Combat Support Wing	RAF Alconbury, UK	Facilities support for seven geographically separated units
603rd Air & Space Operations Center	Ramstein AB, Germany	Plan/direct air operations



F-15Cs from RAF Lakenheath, UK, undergo preflight checks at Albacete AB, Spain, where the aircraft took part in a multinational leadership and mission-planning program in January.

USAF photo by SrA. Lausanne Morgan

ANG

Air National Guard

Headquarters Washington, D.C.

Established Sept. 18, 1947

Director Lt. Gen. Stanley E. "Sid" Clarke III

PRIMARY MISSION

Provide combat capability to the Active Duty force and security for the homeland; support US domestic and foreign humanitarian and disaster relief.

PERSONNEL

Total (selected reserve)	105,389
Active Duty	236
Civilian (includes technicians)	23,548
Total	**129,173**

EQUIPMENT (TAI)

Fighter/Attack	635
SOF	4
ISR/BM/C3	87
Tanker	189
Transport	232
Helicopter	17

Note: The Air National Guard also provides numerous other mission capabilities, including aeromedical evacuation, aircraft maintenance, command and control operations, and security forces.

Wing/State	System/Mission
101st Air Refueling Wing (ME)	KC-135R
102nd Intelligence Wing (MA)	DCGS
103rd Airlift Wing (CT)	C-21, C-27J, AOC, CIRF
104th Fighter Wing (MA)	F-15
105th AW (NY)	C-5A
106th Rescue Wing (NY)	HC-130, HH-60G
107th AW (NY)	C-130 (Reserve Associate*)
108th ARW (NJ)	KC-135R
109th AW (NY)	LC-130
110th AW (MI)	C-21, C-27J
111th FW (PA)	AOG, CSDC
113th Wing (DC)	C-38, C-40, F-16
114th FW (SD)	F-16
115th FW (WI)	F-16, RC-26
116th Air Control Wing (GA)	E-8C
117th ARW (AL)	KC-135R
118th AW (TN)	C-130
119th Wing (ND)	C-21, C-27J, MQ-1
120th FW (MT)	C-27J, F-15
121st ARW (OH)	KC-135R
122nd FW (IN)	A-10
123rd AW (KY)	C-130, battlefield airmen, CRG
124th FW (ID)	A-10C, C-27J, battlefield airmen, CACS
125th FW (FL)	F-15, RC-26, space launch
126th ARW (IL)	KC-135R
127th Wing (MI)	A-10C, KC-135R, special ops weather
128th ARW (WI)	KC-135R
129th RQW (CA)	MC-130P, HH-60G
130th AW (WV)	C-130, RC-26
131st Bomb Wing (MO)	B-2 (Classic Associate)
132nd FW (IA)	F-16
133rd AW (MN)	C-130
134th ARW (TN)	KC-135R, CACS
136th AW (TX)	C-130
137th ARW (OK)	KC-135R (Reserve Associate*)
138th FW (OK)	F-16
139th AW (MO)	C-130
140th Wing (CO)	C-21, F-16, MGS
141st ARW (WA)	KC-135R, RC-26, combat communications
142nd FW (OR)	F-15
143rd AW (RI)	C-130, cyber operations
144th FW (CA)	F-16, RC-26
145th AW (NC)	C-130
146th AW (CA)	C-130
147th Reconnaissance Wing (TX)	MQ-1, RC-26
148th FW (MN)	F-16CJ
149th FW (TX)	F-16, cyber operations
150th FW (NM)	RC-26, pararescue and special ops training
151st ARW (UT)	KC-135R
152nd AW (NV)	C-130, DCGS
153rd AW (WY)	C-130, CACS
154th Wing (HI)	C-17, F-22, KC-135R
155th ARW (NE)	KC-135R
156th AW (PR)	C-130
157th ARW (NH)	KC-135R
158th FW (VT)	F-16, cyber operations
159th FW (LA)	F-15
161st ARW (AZ)	KC-135R
162nd FW (AZ)	F-16, MQ-1, RC-26
163rd RW (CA)	MQ-1
164th AW (TN)	C-5A
165th AW (GA)	C-130, CRTC
166th AW (DE)	C-130, cyber operations
167th AW (WV)	C-5A
168th ARW (AK)	KC-135R, missile warning
169th FW (SC)	F-16CJ, WC-130H
171st ARW (PA)	KC-135R
172nd AW (MS)	C-17
173rd FW (OR)	F-15
174th Attack Wing (NY)	MQ-9, RC-26, battlefield airmen, CACS
175th Wing (MD)	A-10C, C-27J, cyber operations
176th Wing (AK)	C-17, C-130, HC-130, HH-60G, RAOC
177th FW (NJ)	F-16
178th FW (OH)	MQ-1 ground station
179th AW (OH)	C-27J
180th FW (OH)	F-16
181st IW (IN)	DCGS
182nd AW (IL)	C-130
183rd FW (IL)	CIRF, CNAF
184th IW (KS)	Battlefield airmen, CACS, DCGS, NOSS
185th ARW (IA)	KC-135R
186th ARW (MS)	C-27J, KC-135R, MC-12W, RC-26
187th FW (AL)	F-16, RC-26
188th FW (AR)	A-10C
189th AW (AR)	C-130
190th ARW (KS)	KC-135R
192nd FW (VA)	F-22
193rd Special Ops Wing (PA)	EC-130J
194th Regional Support Wing (WA)	battlefield airmen, cyber operations

Abbreviations: AOC: Air & Space Operations Center; **AOG:** Air Operations Group; **CACS:** Command and Control Squadron; **CIRF:** Central Intermediate Repair Facility; **C-NAF:** Component-Numbered Air Force; **CRG:** Contingency Response Group; **CRTC:** Combat Readiness Training Center; **CSDC:** Consolidated Storage Distribution Center (medical); **DCGS:** Distributed Common Ground Station; **MGS:** Mobile Ground Station; **NOSS:** Network Operations Security Squadron; **RAOC:** Region Air Operations Center; **RQW:** Rescue Wing.

* Reserve Associate (Another reserve unit owns aircraft)

FOAs, DRUs, and Auxiliary

2013 USAF Almanac

Air Force Agency for Modeling and Simulation

Hq.: Orlando, Fla.

Estab.: June 3, 1996

Type: FOA

Mission: Oversee air, space, and cyberspace modeling and simulation requirements and joint interoperability.

Total Personnel: 23

Air Force Audit Agency

Hq.: Washington, D.C.

Estab.: July 1, 1948

Type: FOA

Mission: Provide independent and quality internal audit service.

Total Personnel: 542

Air Force Civil Engineer Center

Hq.: JBSA-Lackland, Tex.

Estab.: Oct. 1, 2012

Type: FOA

Mission: Deliver integrated engineering and environmental management and technical services.

Total Personnel: 863

Activated with the merger of the Air Force Center for Engineering and the Environment, Air Force Real Property Agency, and Air Force Civil Engineer Support Agency.

Air Force Cost Analysis Agency

Hq.: Arlington, Va.

Estab.: Aug. 1, 1992

Type: FOA

Mission: Perform indepencent cost and risk analyses and provide special studies to aid long-range planning.

Total Personnel: 131

Air Force District of Washington

Hq.: JB Andrews, Md.

Estab.: July 15, 1994

Type: DRU

Mission: Orchestrate support for National Capital Region activities; train, equip, and provide forces for contingency, homeland, and ceremonial support operations.

Total Personnel: 4,961

Air Force Financial Services Center

Hq.: Ellsworth AFB, S.D.

Estab.: Sept. 14, 2007

Type: FOA

Mission: Process travel transactions for Active, Guard, and Reserve military personnel and Air Force civilians.

Total Personnel: 134

Air Force Flight Standards Agency

Hq.: Oklahoma City

Estab.: Oct. 1, 1991

Type: FOA

Mission: Develop, standardize, evaluate, and certify policy, procedures, and equipment for flight operations and centrally manage air traffic control and landing systems.

Total Personnel: 134

DRU: Direct Reporting Unit
FOA: Field Operating Agency
JBSA: Joint Base San Antonio

Air Force Historical Research Agency

Hq.: Maxwell AFB, Ala.

Estab.: May 25, 1979

Type: FOA

Mission: Research, record, and disseminate history; collect, preserve, and manage historical document collection and oral history program; determine unit lineage and honors; verify aerial victory credits.

Total Personnel: 48

Air Force Inspection Agency

Hq.: Kirtland AFB, N.M.

Estab.: Aug. 1, 1991

Type: FOA

Mission: Provide independent assessments of operations and activities; conduct nuclear surety inspection oversight, training, and certification; serve as primary action arm of SECAF inspection system.

Total Personnel: 117

USAF photo by Jim Stachowicz

The Air Force Agency for Modeling and Simulation oversees modeling and simulation requirements and joint interoperability.

Air Force Intelligence Analysis Agency

Hq.: Pentagon

Estab.: Feb. 2, 2001

Type: FOA

Mission: Provide intelligence, special security services, and imagery products; analyze foreign air and air defense tactics and training; manage USAF national imagery collection and interagency civil air analysis; direct global tactics analysis reporting program for theater air components.

Total Personnel: 127

Air Force Intelligence, Surveillance, and Reconnaissance Agency

Hq.: JBSA-Lackland, Tex.

Estab.: June 8, 2007

Type: FOA

Mission: Organize, train, equip, and present forces and capabilities to conduct intelligence, surveillance, and reconnaissance for combatant commanders and the nation; oversee ISR capabilities expansion to meet current and future challenges.

Total Personnel: 15,696

Air Force Legal Operations Agency

Hq.: JB Anacostia-Bolling, D.C.

Estab.: Sept. 1, 1991

Type: FOA

Mission: Administer military justice programs; provide legal research technology and train legal professionals; support the Department of Justice in civil or criminal litigation pertaining to the Air Force.

Total Personnel: 746

Air Force Medical Operations Agency

Hq.: JBSA-Lackland, Tex.

Estab.: July 1, 1992

Type: FOA

Mission: Oversee execution of surgeon general policies; provide leadership for medical personnel and medical treatment facilities; promote a cost-effective, modern, and prevention-based health care continuum.

Total Personnel: 350

Air Force Medical Support Agency

Hq.: JB Anacostia-Bolling, D.C.

Estab.: July 1, 1992

Type: FOA

Mission: Develop surgeon general plans and programs; provide medical expeditionary capabilities; define and execute health care policy.

Total Personnel: 341

Air Force Office of Special Investigations

Hq.: JB Andrews, Md.

Estab.: Aug. 1, 1948

Type: FOA

Mission: Provide investigative service to USAF commanders; identify, exploit, and neutralize criminal, terrorist, and intelligence threats; combat threats to information systems and technologies; defeat fraud affecting acquisitions and base-level capabilities.

Total Personnel: 2,307

Air Force Operational Test and Evaluation Center

Hq.: Kirtland AFB, N.M.

Estab.: Jan. 1, 1974

Type: DRU

Mission: Test and evaluate new weapon systems.

Total Personnel: 586

Air Force Operations Group

Hq.: Pentagon

Estab.: July 26, 1977

Type: FOA

Mission: Provide 24-hour watch on current operations; train and staff Crisis Action Team; develop weather data for National Command Authority, JCS, National Military Command Center, Army Operations Center, and other federal agencies.

Total Personnel: 45

Air Force Personnel Center

Hq.: JBSA-Randolph, Tex.

Estab.: Oct. 1, 1995

Type: FOA

Mission: Identify proper grades, specialties, and skill levels for USAF mission; manage assignments; monitor professional development; plan and schedule expeditionary forces; oversee airmen and family readiness centers; assist casualty reporting and missing in action/prisoner of war actions.

Total Personnel: 2,778

Formerly the Air Force Military Personnel Center and the Air Force Civilian Personnel Management Center. The Air Force Manpower Agency and Air Force Services formally merged with AFPC on June 1, 2012.

Air Force Personnel Operations Agency

Hq.: Pentagon

Estab.: Aug. 15, 1993

Type: FOA

Mission: Analyze personnel life cycle; provide information technology applications; develop and operate officer, enlisted, and civilian models.

Total Personnel: 271

Air Force Petroleum Agency

Hq.: Fort Belvoir, Va.

Estab.: Dec. 18, 2006

Type: FOA

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

Total Personnel: 98

USAF photo by MSgt. Lance Cheung

A1C Matt Aggers (l) and SSgt. Randy Broome check the stowed wings on ground-training Small Diameter Bombs loaded on an F-15E. The Air Force Operational Test and Evaluation Center was at the time evaluating the SDB weapon system.

Air Force Public Affairs Agency

Hq.: JBSA-Lackland, Tex.

Estab.: Oct. 1, 2008

Type: FOA

Mission: Develop and sustain public affairs products; provide combat camera and graphics support; test emerging technologies; manage PA personnel deployments.

Total Personnel: 324

Air Force Review Boards Agency

Hq.: JB Andrews, Md.

Estab.: June 1, 1980

Type: FOA

Mission: Manage military and civilian appellate processes; serve as lead agent for DOD Physical Disability Board of Review.

Total Personnel: 85

Air Force Safety Center

Hq.: Kirtland AFB, N.M.

Estab.: Jan. 1, 1996

Type: FOA

Mission: Manage mishap prevention, risk management, and nuclear surety programs; provide flight, ground, weapons, human factors, and space safety technical assistance; oversee major command mishap investigations and evaluate corrective actions for applicability and implementation USAF-wide; direct safety education programs.

Total Personnel: 116

Air Force Security Forces Center

Hq.: JBSA-Lackland, Tex.

Estab.: March 17, 1997

Type: FOA

Mission: Organize, train, and equip security forces; develop force protection doctrine, programs, and policies; identify and deliver emerging force protection and force application solutions; manage corrections program and DOD military working dog activities.

Total Personnel: 359

Air Force Weather Agency

Hq.: Offutt AFB, Neb.

Estab.: Oct. 15, 1997

Type: FOA

Mission: Provide air and space weather information to DOD, coalition, and national users; standardize training and equipment for USAF weather forces.

Total Personnel: 1,355

Formerly Air Weather Service, established July 1, 1937.

USAF photo by Josh Plueger

Inside an Air Force Weather Agency facility, SSgt. Matthew Money (l) and SSgt. Jonathan Lash monitor the near-Earth space environment. Both airmen were assigned to the 2nd Weather Squadron as forecasters.

ANG Readiness Center

Hq.: JB Andrews, Md.

Estab.: August 1997

Type: FOA

Mission: Ensure field units have resources to train and equip forces for state and federal missions; sustain airmen and help shape leadership capability.

Total Personnel: 10,429 (Total Force)

Civil Air Patrol

Hq.: Maxwell AFB, Ala.

Estab.: Dec. 1, 1941

Type: Auxiliary

Mission: Provide operational capabilities to support aerial and ground search and rescue, disaster relief, a nationwide communications network, and counterdrug and homeland security missions; conduct leadership training, technical education, scholarships, and career education for CAP Cadet Program; promote aerospace education.

Total Personnel: 60,847

US Air Force Academy

Hq.: Colorado Springs, Colo.

Estab.: April 1, 1954

Type: DRU

Mission: Develop and inspire young men and women to become USAF officers with knowledge, character, and discipline.

Total Personnel: 3,389

USAF photo by A1C Ashlee Galloway

CAP Col. Bob Townsend speaks to CAP cadets Alexander Durr and Tyler Hoover at the Coastal Charleston Composite Squadron on JB Charleston, S.C.

Introducing the new online look of the

AIR FORCE MEMORIAL

www.airforcememorial.org

AIR FORCE MEMORIAL

Guide to Air Force Installations Worldwide

2013 USAF Almanac

Active Duty Installations

This section includes Air Force-owned and -operated facilities around the world. (It also lists the former USAF bases now under other service leadership as joint bases.) It is not a complete list of units by base. Many USAF installations host numerous tenants, not just other USAF units but DOD, joint, other service, and federal and civil entities.

Altus AFB, Okla. 73523. **Nearest city:** Altus. **Phone:** 580-482-8100. **Owning command:** AETC. **Unit/mission:** 97th AMW (AETC), training. **History:** activated January 1943. Inactivated May 1945. Reactivated August 1953.

Andersen AFB, Guam, APO AP 96543. **Nearest city:** Yigo. **Phone:** 671-366-1110. **Owning command:** PACAF. **Units/missions:** 9th Operations Group Det. 3 (ACC), RPA operations; 22nd SOPS Det. 5 (AFSPC), space operations; 36th Wing (PACAF), support 36th CRG (PACAF), bare base operations; 44th APS (AFRC), aerial port operations; 254th RED HORSE (ANG), bare base operations; 734th AMS (AMC), air mobility operations; Helicopter Sea Combat Squadron Two Five (USN), CSAR. **History:** activated 1945 as North Field. Renamed 1949 for Brig. Gen. James R. Andersen, lost at sea Feb. 26, 1945. Became part of Joint Region Marianas 2009.

Arnold AFB, Tenn. 37389. **Nearest city:** Manchester. **Phone:** 931-454-3000. **Owning command:** AFMC. **Unit/mission:** Arnold Engineering Development Complex (AFTC), flight-representative ground test. **History:** dedicated June 25, 1951. Named for Gen. of the Air Force Henry H. "Hap" Arnold.

Aviano AB, Italy, APO AE 09604. **Nearest city:** Aviano. **Phone:** 011-39-0434-30-1110. **Owning command:** USAFE-AFAFRICA. **Units/missions:** 31st FW (USAFE-AFAFR CA), fighter operations; 603rd ACS (USAFE-AFAFRICA), C2 air operations; 724th AMS (AMC), air mobility operations. **History:** dates from 1911 as Italian air base. USAF began operations 1954.

Barksdale AFB, La. 71110. **Nearest city:** Bossier City. **Phone:** 318-456-1110. **Owning command:** AFGSC. **Units/missions:** 2nd BW (AFGSC), bomber operations; 307th BW (AFRC), bomber operations, training; 917th FG (AFRC), fighter operations; Hq. AFGSC, management; Hq. 8th Air Force (AFGSC), operational leadership; Mighty Eighth Air Force Museum (AFGSC). **History:** activated Feb. 2, 1933. Named for Lt. Eugene H. Barksdale, WWI airman killed in August 1926 crash.

Beale AFB, Calif. 95903. **Nearest city:** Marysville. **Phone:** 530-634-3000. **Owning command:** ACC. **Units/missions:** 9th RW (ACC), ISR, RPA operations; 548th ISRG (AFISRA), DCGS; 940th Wing (AFRC), C2, ISR, RPA operations. **History:** opened October 1942 as Army's Camp Beale. Named for Edward F. Beale, a former Navy officer who became a hero of the Mexican-American War and early developer of California, as well as a senior appointee/diplomat for four Presidents. Transferred to USAF 1948. Designated AFB April 1951.

Buckley AFB, Colo. 80011. **Nearest city:** Denver. **Phone:** 720-847-9011. **Owning command:** AFSPC. **Units/missions:** 140th Wing (ANG), operations (air mobility, fighter), mobile missile warning; 460th SW (AFSPC), space surveillance/missile warning; Air Reserve Personnel Center, Guard and Reserve personnel support. **History:** activated April 1, 1942, as gunnery training facility. ANG assumed control from Navy 1959. Became Active Duty Air Force facility Oct. 1, 2000. Named for 1st Lt. John H. Buckley, WWI flier, killed Sept. 17, 1918.

Cannon AFB, N.M. 88103. **Nearest city:** Clovis. **Phone:** 575-784-1110. **Owning command:** AFSOC. **Unit/mission:** 27th SOW (AFSOC), special 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.

Cape Canaveral AFS, Fla. 32925. **Nearest city:** Cocoa Beach. **Phone:** 321-853-1110. **Owning command:** AFSPC. **Units/missions:** 5th SLS (AFSPC), space operations. **History:** formerly NAS Banana River. Site of Joint Long Range Proving Ground 1949. USAF took sole control 1950. Combined with NASA to form John F. Kennedy Space Center 1973. Designated Cape Canaveral AS 1974.

Cape Cod AFS, Mass. 02561. **Nearest city:** Sandwich. **Phone:** 508-968-3283. **Owning command:** AFSPC. **Unit/mission:** 6th SWS (AFSPC), missile warning. **History:** established April 4, 1980, as Cape Cod Missile Early Warning Station. Renamed Jan. 5, 1982.

Cavalier AFS, N.D. 58220. **Nearest city:** Cavalier. **Phone:** n/a. **Owning command:** AFSPC. **Unit/mission:** 10th SWS (AFSPC), missile warning. **History:** established 1975 as Army's Mickelsen Complex, a Safeguard anti-ballistic missile facility. All but perimeter acquisition radar inactivated 1976. USAF took radar operational control 1977 and site control 2007.

Cheyenne Mountain AFS, Colo. 80914. **Nearest city:** Colorado Springs. **Phone:** 719-474-1110. **Owning command:** AFSPC. **Units/missions:** 721st MSG (AFSPC), support; NORAD/NORTHCOM Alternate Command Center, Integrated Tactical Warning and Attack Assessment operations, training. **History:** operational April 20, 1966.

Clear AFS, Alaska, APO AP 99704. **Nearest city:** Fairbanks. **Phone:** n/a. **Owning command:** AFSPC. **Units/missions:** 13th SWS (AFSPC), 213th SWS (ANG)—missile warning. **History:** dates from 1961.

Columbus AFB, Miss. 39710. **Nearest city:** Columbus. **Phone:** 662-434-1110. **Owning command:** AETC. **Unit/mission:** 14th FTW (AETC), training. **History:** activated 1942 for pilot training.

Creech AFB, Nev. 89191. **Nearest city:** Indian Springs. **Phone:** 702-652-1110. **Owning command:** ACC. **Units/missions:** 432nd Wing (ACC), RPA operations, ground combat training, Nevada Test and Training Range support; Joint Unmanned Aircraft Systems Center of Excellence. **History:** activated 1942 as Army camp, air-to-air gunnery training. Closed 1947. Reopened 1948 and in 1951 became a USAF auxiliary field. In 1980s, officially named Indian Springs Air Force Auxiliary Field. In 2005, renamed Creech AFB for Gen. Wilbur L. "Bill" Creech, commander, Tactical Air Command, 1978 to 1984.

Davis-Monthan AFB, Ariz. 85707. **Nearest city:** Tucson. **Phone:** 520-228-3900. **Owning**

command: ACC. **Units/missions:** 55th ECG (ACC), electronic combat operations; 162nd FW (ANG), fighter operations; 214th RG (ANG), RPA operations; 309th Aerospace Maintenance & Regeneration Group (AFMC), aerospace vehicle storage, regeneration; 355th FW (ACC), fighter operations; 563rd RQG (ACC), 943rd RQG (AFRC)—personnel recovery operations; Hq. 12th Air Force (ACC), operational leadership. **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.

Dover AFB, Del. 19902. **Nearest city:** Dover. **Phone:** 302-677-3000. **Owning command:** AMC. **Units/missions:** 436th AW (AMC), 512th AW (AFRC)—air mobility operations; Air Force Mortuary Affairs Operations (USAF); Joint Personal Effects Depot (USA). **History:** activated December 1941. Inactivated 1946. Reactivated February 1951.

Dyess AFB, Tex. 79607. **Nearest city:** Abilene. **Phone:** 325-696-1110. **Owning command:** ACC. **Units/missions:** 7th BW (ACC), bomber operations; 317th Airlift Group (AMC), air mobility operations. **History:** activated April 1942. Deactivated December 1945. Reactivated as Abilene AFB September 1955. Renamed December 1956 for Lt. Col. William E. Dyess, WWII pilot who escaped from a Japanese prison camp; killed in P-38 crash in December 1943.

Edwards AFB, Calif. 93524. **Nearest city:** Rosamond. **Phone:** 661-227-1110. **Owning command:** AFMC. **Units/missions:** 412th TW (AFTC), T&E, base support; Air Force Test Center (AFMC), T&E management; US Air Force Test Pilot School (AFMC), training. **History:** Muroc Bombing and Gunnery Range established September 1933. Designated Muroc AAB 1942. Renamed in 1949 for Capt. Glen W. Edwards, killed June 5, 1948, in crash of YB-49 "Flying Wing."

Eglin AFB, Fla. 32542. **Nearest city:** Niceville-Valparaiso. **Phone:** 850-882-1110. **Owning command:** AFMC. **Units/missions:** 6th Ranger Training Battalion (USA), training; 7th Special Forces Group (Airborne) (USA), special operations; 33rd FW (AETC), training; 53rd Wing (ACC), T&E; 96th TW (AFTC), T&E, base support; Air Force Armament Museum (AFMC); Munitions Directorate (AFRL), R&D; Naval EOD School (USN), training; PEO-Armament (AFLCMC), acquisition. **History:** activated 1935. Named for Lt. Col. Frederick I. Eglin, WWI flier killed in aircraft accident Jan. 1, 1937.

Eielson AFB, Alaska 99702. **Nearest city:** Fairbanks. **Phone:** 907-377-1110. **Owning command:** PACAF. **Units/missions:** 168th ARW (ANG), air mobility operations; 354th FW (PACAF), aggressor force, fighter, Red Flag-Alaska operations, Joint Pacific Alaska Range Complex support; Arctic Survival School (AETC), training. **History:** activated October 1944. Named for Carl Ben Eielson, Arctic aviation pioneer who died in Arctic rescue mission November 1929.

Ellsworth AFB, S.D. 57706. **Nearest city:** Rapid City. **Phone:** 605-385-5056. **Owning command:** ACC. **Units/missions:** 28th BW (ACC), bomber operations; Air Force Financial Services Center (USAF). **History:** activated January 1942 as Rapid City Army Air Base. Renamed June 13, 1953, for Brig. Gen. Richard E. Ellsworth, killed March 18, 1953, in RB-36 crash.

Fairchild AFB, Wash. 99011. **Nearest city:** Spokane. **Phone:** 509-247-1212. **Owning command:** AMC. **Units/missions:** 92nd ARW (AMC), 141st ARW (ANG)—air mobility operations; USAF SERE School (AETC), training. **History:** activated January 1942. Named for Gen. Muir S. Fairchild, USAF vice chief of staff at his death in 1950.

F. E. Warren AFB, Wyo. 82005. **Nearest city:** Cheyenne. **Phone:** 307-773-1110. **Owning command:** AFGSC. **Units/missions:** 90th MW (AFGSC), ICBM operations; 153rd CACS (ANG), mobile C4 operations; Hq. 20th Air Force (AFGSC), operational leadership; Warren ICBM and Heritage Museum. **History:** activated as Fort D. A. Russell July 4, 1867. Renamed 1930 for Francis Emory Warren, Wyoming Senator and first state governor. Reassigned to USAF 1949.

Goodfellow AFB, Tex. 76908. **Nearest city:** San Angelo. **Phone:** 325-654-1110. **Owning command:** AETC. **Unit/mission:** 17th TRW (AETC), training. **History:** established August 1940. Officially activated January 1941. Named for 1st Lt. John J. Goodfellow Jr., WWI observation airplane pilot killed in combat Sept. 14, 1918.

Grand Forks AFB, N.D. 58205. **Nearest city:** Grand Forks. **Phone:** 701-747-3000. **Owning command:** AMC. **Units/missions:** 69th RG (ACC), RPA operations; 319th ABW (AMC), support. **History:** activated 1956. Named after town of Grand Forks, whose citizens bought the property for the Air Force.

Hanscom AFB, Mass. 01731. **Nearest city:** Boston. **Phone:** 781-377-1110. **Owning command:** AFMC. **Units/missions:** 66th ABG (AFLCMC), support; two PEOs: Battle Management and C3I & Networks (AFLCMC), acquisition. **History:** activated 1941. Named for Laurence G. Hanscom, a pre-WWII advocate of private aviation, killed in lightplane accident 1941.

Hill AFB, Utah 84056. **Nearest city:** Salt Lake City. **Phone:** 801-777-1110. **Owning command:** AFMC. **Units/missions:** 75th ABW (AFSC), support; 388th FW (ACC), fighter, Utah Test & Training Range operations; 419th FW (AFRC), fighter operations; AFNWC ICBM Systems Directorate (AFNWC), ICBM acquisition, support; Hill Aerospace Museum (AFMC); Ogden ALC (AFSC), weapons maintenance, repair. **History:** activated 1940. Named for Maj. Ployer P. Hill, killed Oct. 30, 1935, test flying first B-17.

Holloman AFB, N.M. 88330. **Nearest city:** Alamogordo. **Phone:** 575-572-1110. **Owning command:** ACC. **Unit/mission:** 49th Wing (ACC), fighter operations, RPA training. **History:** activated 1941. Named for Col. George Holloman, guided-missile pioneer.

Hurlburt Field, Fla. 32544. **Nearest city:** Fort Walton Beach. **Phone:** 850-884-7190. **Owning command:** AFSOC. **Units/missions:** 1st SOW (AFSOC), special operations; 24th SOW (AFSOC), battlefield airmen operations; 505th Command & Control Wing (ACC), C2, ISR TTP development, test; 623rd AOC (AFSOC), C2 operations; 720th STG (24th SOW), battlefield airmen operations; Air Force Combat Weather Center (AFWA), management; Air Force Special Operations Air Warfare Center (AFSOC), training; Hq. AFSOC, management. **History:** activated 1943. Named for Lt. Donald W. Hurlburt, WWII pilot killed Oct. 1, 1943.

Abbreviations

ABW/G	Air Base Wing/Group
ACW/S	Air Control Wing/Squadron
AFB/S	Air Force Base/Station
AFDW	Air Force District of Washington
AFISRA	Air Force ISR Agency
AFLCMC	Air Force Life Cycle Management Center
AFNWC	Air Force Nuclear Weapons Center
AFOSI	Air Force Office of Special Investigations
AFRICOM	US Africa Command
AFRL	Air Force Research Laboratory
AFSC	Air Force Sustainment Center
AFTC	Air Force Test Center
AFWA	Air Force Weather Agency
AGOW	Air Ground Operations Wing
ALC	Air Logistics Complex
AMS	Aircraft Maintenance Squadron
AMW	Air Mobility Wing
AOC/G	Air & Space Operations Center/Group
APS	Aerial Port Squadron
ARW/G/S	Air Refueling Wing/Group/Squadron
AS	Air Station
ASOS	Air Support Operations Squadron
AW/G/S	Airlift Wing/Group/Squadron
C3I	Command, control, communications, & intelligence
C4	Command, control, communications, & computers
CACS	Command & Control Squadron
CENTCOM	US Central Command
CES	Civil Engineer Squadron
CG	Communications Group
CRW/G	Contingency Response Wing/Group
CSAR	Combat Search and Rescue
DCGS	Distributed Common Ground Station
ECG	Electronic Combat Group
EOD	Explosive ordnance disposal
FTW	Flying Training Wing
FW/G/S	Fighter Wing/Group/Squadron
ISRW/G	ISR Wing/Group
IW/S	Intelligence Wing/Squadron
JB	Joint Base
JBSA	Joint Base San Antonio
MOH	Medal of Honor
MSG	Mission Support Group
MW	Missile Wing
MXW	Maintenance Wing
NAF/S	Naval Air Facility/Station
NORTHCOM	US Northern Command
NSF	Naval Support Facility
NWS	Naval Weapons Station
PACOM	US Pacific Command
PEO	Program Executive Officer
R&D	Research & development
RPA	remotely piloted aircraft
ROPS	Range Operations Squadron
RQW/G/S	Rescue Wing/Group/Squadron
RW/G/S	Reconnaissance Wing/Group/Squadron
SCMG	Supply Chain Management Group
SERE	Survival, Evasion, Resistance, Escape
SLS	Space Launch Squadron
SMC	Space and Missile Systems Center
SOCOM	US Special Operations Command
SOF	Special Operations Forces
SOPS	Space Operations Squadron
SOW/G/S	Special Operations Wing/Group/Squadron
STRATCOM	US Strategic Command
STG/S	Special Tactics Group/Squadron
SW	Space Wing
SWS	Space Warning Squadron
TACC	Tanker Airlift Control Center
T&E	Test & evaluation
TRANSCOM	US Transportation Command
TRW	Training Wing
TTP	Tactics, techniques, & procedures
TW	Test Wing
WEG	Weapons Evaluation Group


Major Active Duty Air Force Bases in the US
JB Lewis-McChord (AMC)
Fairchild AFB (AMC)
Wash.
Malmstrom AFB (AFGSC)
Minot AFB (AFGSC)
Cavalier AFS (AFSPC)
Grand Forks AFB (AMC)
N.D.
Mont.
Ore.
Idaho
Minn.
Mich.
Maine
Vt.
N.H.
Hanscom AFB (AFMC)
Mass.
Conn.
R.I.
N.Y.
Mountain Home AFB (ACC)
Wyo.
S.D.
Ellsworth AFB (ACC)
Wis.
Mich.
Hill AFB (AFMC)
Beale AFB (ACC)
F. E. Warren AFB (AFGSC)
Neb.
Iowa
Pa.
N.J.
JB McGuire-Dix-Lakehurst (AMC)
Nev.
Travis AFB (AMC)
Offutt AFB (ACC)
Ohio
Del.
Dover AFB (AMC)
Schriever AFB (AFSPC)
Buckley AFB (AFSPC)
Utah
Ill.
Ind.
Wright-Patterson AFB (AFMC)
Md.
Calif.
USAF Academy
Peterson AFB (AFSPC)
Cheyenne Mtn. AFS (AFSPC)
Colo.
Kan.
Whiteman AFB (AFGSC)
Scott AFB (AMC)
W. Va.
Va.
JB Langley-Eustis (ACC)
Creech AFB (ACC)
Mo.
Ky.
Arnold AFB (AFMC)
McConnell AFB (AMC)
Vandenberg AFB (AFSPC)
Nellis AFB (ACC)
Seymour Johnson AFB (ACC)
Vance AFB (AETC)
Tenn.
N.C.
Kirtland AFB (AFMC)
Ariz.
Pope Field (AMC)
Okla.
Edwards AFB (AFMC)
Tinker AFB (AFMC)
Little Rock AFB (AMC)
S.C.
Shaw AFB (ACC)
Los Angeles AFB (AFSPC)
Luke AFB (AETC)
N.M.
Altus AFB (AETC)
JB Charleston (AMC)
Cannon AFB (AFSOC)
Ark.
Tex.
Columbus AFB (AETC)
Robins AFB (AFMC)
Davis-Monthan AFB (ACC)
Holloman AFB (ACC)
Miss.
Barksdale AFB (AFGSC)
Maxwell AFB (AETC)
Ga.
Ala.
Goodfellow AFB (AETC)
Moody AFB (ACC)
La.
Dyess AFB (ACC)
Sheppard AFB (AETC)
Keesler AFB (AETC)
Laughlin AFB (AETC)
Fla.
Hurlburt Field (AFSOC)
Eglin AFB (AFMC)
Tyndall AFB (AETC)
Patrick AFB (AFSPC)
MacDill AFB (AMC)
JBSA-Randolph (AETC)
JBSA-Lackland (AETC)
Washington, D.C.
Md.
Hq. USAF
JB Anacostia-Bolling
Va.
JB Andrews
Eielson AFB (PACAF)
Clear AFS (AFSPC)
JB Elmendorf-Richardson (PACAF)
Alaska
JB Pearl Harbor-Hickam (PACAF)
Oahu
Hawaii

Incirlik AB, Turkey, APO AE 09824. **Nearest city:** Adana. **Phone:** (cmcl, from CONUS) 011-90-322-316-1110. **Owning command:** USAFE-AFAFRICA. **Unit/mission:** 39th ABW, support. **History:** activated 1954. Named Adana AB Feb. 21, 1955. Renamed Incirlik AB Feb. 28, 1958.

JB Anacostia-Bolling, D.C. 20032. **Nearest city:** Washington, D.C. **Phone:** 703-545-6700. **Bolling owning command:** AFDW. **Air Force agencies:** Chief of Chaplains (USAF); Surgeon General (USAF); Air Force Legal Operations Agency (USAF); Air Force Medical Operations Agency (USAF). **History:** site activated October 1917 with Army air and Navy elements. Formed joint base under Navy lead 2010. NSF Anacostia named for adjacent Anacostia River. Bolling named for Col. Raynal C. Bolling, first high-ranking Army Air Service officer killed in WWI.

JB Andrews, Md. 20762. **Nearest city:** Washington, D.C. **Phone:** 301-981-1110. **Owning command:** AFDW. **Units/missions:** 11th Wing (AFDW), helicopter operations, support; 79th Medical Wing (AFDW); 89th AW (AMC), air mobility operations; 113th Wing (ANG), air mobility, fighter operations; 459th ARW (AFRC), air mobility operations; 844th CG (AFDW), cyber operations; Hq. AFOSI (USAF), management; Air Force Review Boards Agency (USAF); Air National Guard Readiness Center (ANG), support. **History:** Andrews activated May 1943. NAF Washington dates from 1919 at Anacostia (above); moved to Andrews 1958. Formed JB Andrews-NAF Washington under Air Force lead 2010. Andrews 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.

JB Charleston, S.C. 29404. **Nearest city:** Charleston. **Phone:** 843-963-1110. **Owning command:** AMC. **Units/missions:** 315th AW (AFRC), 437th AW (AMC)—air mobility operations; 628th ABW (AMC), support. **History:** activated 1942. Inactivated March 1946. Reactivated August 1953. Formed joint base with NWS Charleston under Air Force lead 2010. Named for city of Charleston.

JB Elmendorf-Richardson, Alaska 99506. **Nearest city:** Anchorage. **Phone:** 907-552-1110. **Owning command:** PACAF. **Units/missions:** 3rd Wing (PACAF), air mobility, C2, fighter operations; 176th Wing (ANG), air mobility, personnel recovery operations; 477th FG (AFRC), fighter operations; 673rd ABW (PACAF), support; Alaskan NORAD Region, operational leadership; Hq. Alaskan Command (PACOM), management; Hq. 11th Air Force (PACAF), operational leadership; Joint Task Force Alaska (NORTHCOM), operational leadership. **History:** activated July 1940. Formed as joint base under Air Force lead 2010. Elmendorf named for Capt. Hugh Elmendorf, killed Jan. 13, 1933, flying an experimental fighter. Richardson named for Army Brig. Gen. Wilds P. Richardson, who served in Alaska territory from 1897 to 1917.

JB Langley-Eustis, Va. 23665. **Nearest city:** Hampton. **Phone:** 757-764-1110. **Langley owning command:** ACC. **Units/missions:** 1st FW (ACC), fighter operations; 192nd FW (ANG), fighter operations; 480th ISRW (AFISRA), ISR operations; 633rd ABW (ACC), support; Air Force Command & Control Integration Center (ACC), C2 development; Hq. ACC, management. **History:** activated Dec. 30, 1916. Formed as joint base under Air Force lead 2010. Langley is first military base in US purchased and built specifically for military aviation. Langley named for aviation pioneer and scientist Samuel Pierpont Langley, who died 1906. Eustis named for Brevet Brig. Gen. Abraham Eustis, first commanding officer of Fort Monroe, Va.

JB Lewis-McChord, Wash. 98438. **Nearest city:** Tacoma. **Phone:** 253-982-1110. **McChord owning command:** AMC. **Units/missions:** 62nd AW (AMC), 446th AW (AFRC)—air mobility operations; 627th ABG (AMC), support. **History:** Lewis established 1917; McChord activated May 5, 1938. Formed as joint base under Army lead 2010. Lewis named for Capt. Meriwether Lewis of Lewis and Clark Expedition. McChord named for Col. William C. McChord, killed Aug. 18, 1937.

JB McGuire-Dix-Lakehurst, N.J. 08641. **Nearest city:** Wrightstown. **Phone:** 609-754-1100. **McGuire owning command:** AMC. **Units/missions:** 87th ABW (AMC), support; 108th ARW (ANG), 305th AMW (AMC), 514th AMW (AFRC)—air mobility operations; 621st Contingency Response Wing (AMC), bare base operations; US Air Force Expeditionary Center (AMC), training. **History:** McGuire activated 1941 as Fort Dix AAB. Closed after WWII. Reopened as McGuire 1948. Dix activated 1917. Navy purchased Army's Camp Kendrick in 1921 for airship station, renamed Lakehurst for city of Lakehurst, N.J. Formed as joint base under Air Force lead 2009. McGuire named for Maj. Thomas B. McGuire Jr., P-38 pilot, second leading US ace of WWII, MOH recipient, killed in action Jan. 7, 1945. Dix named for Maj. Gen. John Adams Dix, War of 1812 and Civil War veteran and US Senator.

JB Pearl Harbor-Hickam, Hawaii 96853. **Nearest city:** Honolulu. **Phone:** 808-449-7110. **Hickam owning command:** PACAF. **Units/missions:** 15th Wing (PACAF), 154th Wing (ANG)—air mobility, fighter operations; 515th Air Mobility Operations Wing (AMC), air mobility operations; 613th AOC, C2 operations; 624th Regional Support Group (AFRC), bare base operations; Hq. PACAF, management, operational leadership. **History:** Pearl Harbor established 1908. Hickam dedicated 1935. Activated 1938. Formed as joint base under Navy lead 2010. Hickam named for Lt. Col. Horace M. Hickam, aviation pioneer killed in crash in Texas Nov. 5, 1934.

JB San Antonio, Tex. 78234. **Nearest city:** San Antonio. **Phone:** 210-221-1211. **Major components:** Fort Sam Houston, JBSA-Lackland, and JBSA-Randolph. (See separate entries for Lackland and Randolph.) **Unit/mission:** 502nd ABW (AETC), located at Fort Sam Houston, support. **History:** established 2009 to consolidate the installation management and support functions for the military facilities in San Antonio as part of BRAC 2005.

JBSA-Lackland, Tex. 78236. **Nearest city:** San Antonio. **Phone:** 210-671-2908. **Owning command:** AETC. **Units/missions:** 37th TRW (AETC), training; 59th Medical Wing (AETC), ambulatory surgical; 67th Network Warfare Wing (24th AF), network defense operations; 149th FW (ANG), cyber, fighter operations; 433rd AW (AFRC), air mobility operations, training; 688th Information Operations Wing (24th AF), IO/engineering infrastructure; 802nd MSG (AETC), support; Air Force Civil Engineer Center (USAF), engineering services; Hq. 24th Air Force (AFSPC), operational leadership; Hq. AFISRA (USAF), management; Hq. Air Force Security Forces Center (USAF), management. **History:** activated 1941 as part of Kelly Field. Designated independent installation July 1942 as San Antonio Aviation Cadet Center. Placed under Joint Base San Antonio installation management umbrella 2009. (Also see JBSA entry.) Named 1947 for Brig. Gen. Frank D. Lackland, early commandant of Kelly Field flying school, who died 1943.

JBSA-Randolph, Tex. 78150. **Nearest city:** San Antonio. **Phone:** 210-652-1110. **Owning command:** AETC. **Units/missions:** 12th FTW (AETC), training; 902nd MSG (AETC), support; Air Force Personnel Center (USAF), management; Air Force Recruiting Service (AETC), management; Hq. AETC, management. **History:** dedicated June 1930. Placed under Joint Base San Antonio installation management umbrella 2009. (Also see JBSA entry.) Named for Capt. William M. Randolph, killed Feb. 17, 1928.

Kadena AB, Japan, APO AP 96368. **Nearest city:** Naha. **Phone:** 011-81-6117-34-1110. **Owning command:** PACAF. **Units/missions:** 1st Battalion, 1st Air Defense Artillery (Army), air, missile defense; 18th Wing (PACAF), air mobility, fighter, ISR, personnel recovery operations; 353rd SOG (AFSOC), special operations; Cmdr. Fleet Activities Okinawa (Navy), support. **History:** occupied by US forces April 1945. Named for city of Kadena on island of Okinawa.

Keesler AFB, Miss. 39534. **Nearest city:** Biloxi. **Phone:** 228-377-1110. **Owning command:** AETC. **Units/missions:** 81st TRW (AETC), training; 403rd Wing (AFRC), air mobility operations, weather reconnaissance; Hq. 2nd Air Force (AETC), operational leadership. **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.

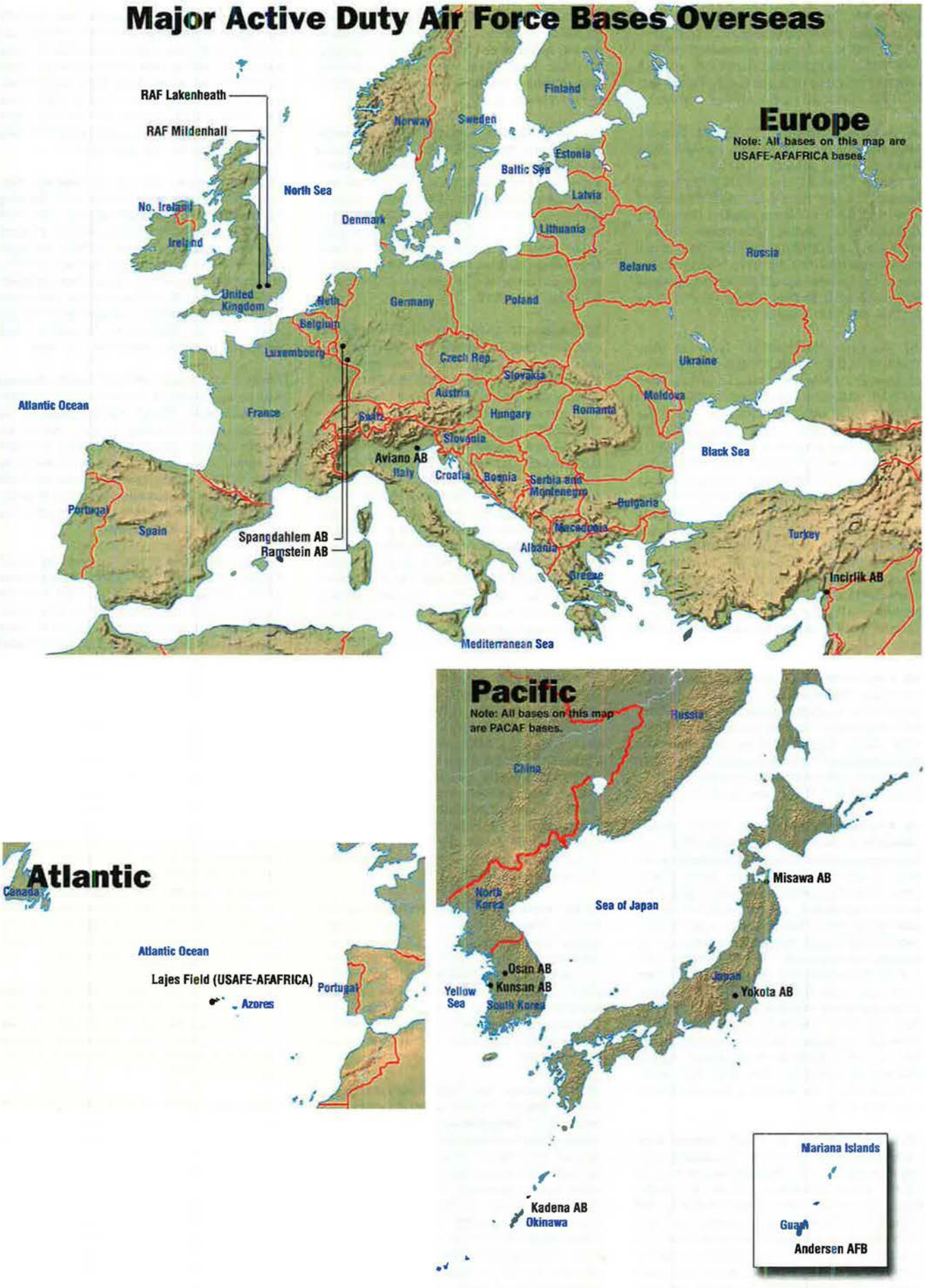
Kirtland AFB, N.M. 87117. **Nearest city:** Albuquerque. **Phone:** 505-846-1110. **Owning command:** AFMC. **Units/missions:** 58th SOW (AETC), 150th FW (ANG)—special operations, CSAR training; 377th ABW (AFMC), base support, nuclear operations; Air Force Inspection Agency (USAF); Air Force Operational Test & Evaluation Center (USAF); AFNWC (AFMC), acquisition, sustainment; Air Force Safety Center (USAF), management; PEO-Strategic Systems (AFLCMC), acquisition; Directed Energy and Space Vehicles Directorates (AFRL), R&D; Space Development & Test Directorate (SMC), test. **History:** activated January 1941. Named for Col. Roy C. Kirtland, aviation pioneer who died May 2, 1941.

Kunsan AB, South Korea, APO AP 96264. **Nearest city:** Gunsan City. **Phone:** 011-82-63-470-1110. **Owning command:** PACAF. **Unit/mission:** 8th FW (PACAF), fighter operations. **History:** built by the Japanese in 1938. US operations began in April 1951.

Lajes Field, Azores, Portugal, APO AE 09720. **Nearest city:** Praia de Vitoria. **Phone:** 011-351-295-57-1110. **Owning command:** USAFE-AFAFRICA. **Unit/mission:** 65th ABW, support. **History:** US operations began 1943.

Laughlin AFB, Tex. 78843. **Nearest city:** Del Rio. **Phone:** 830-298-3511. **Owning command:** AETC. **Unit/mission:** 47th FTW, training. **History:** activated July 1942. Named for 1st Lt. Jack Thomas Laughlin, Del Rio native, B-17 pilot, killed Jan. 29, 1942.

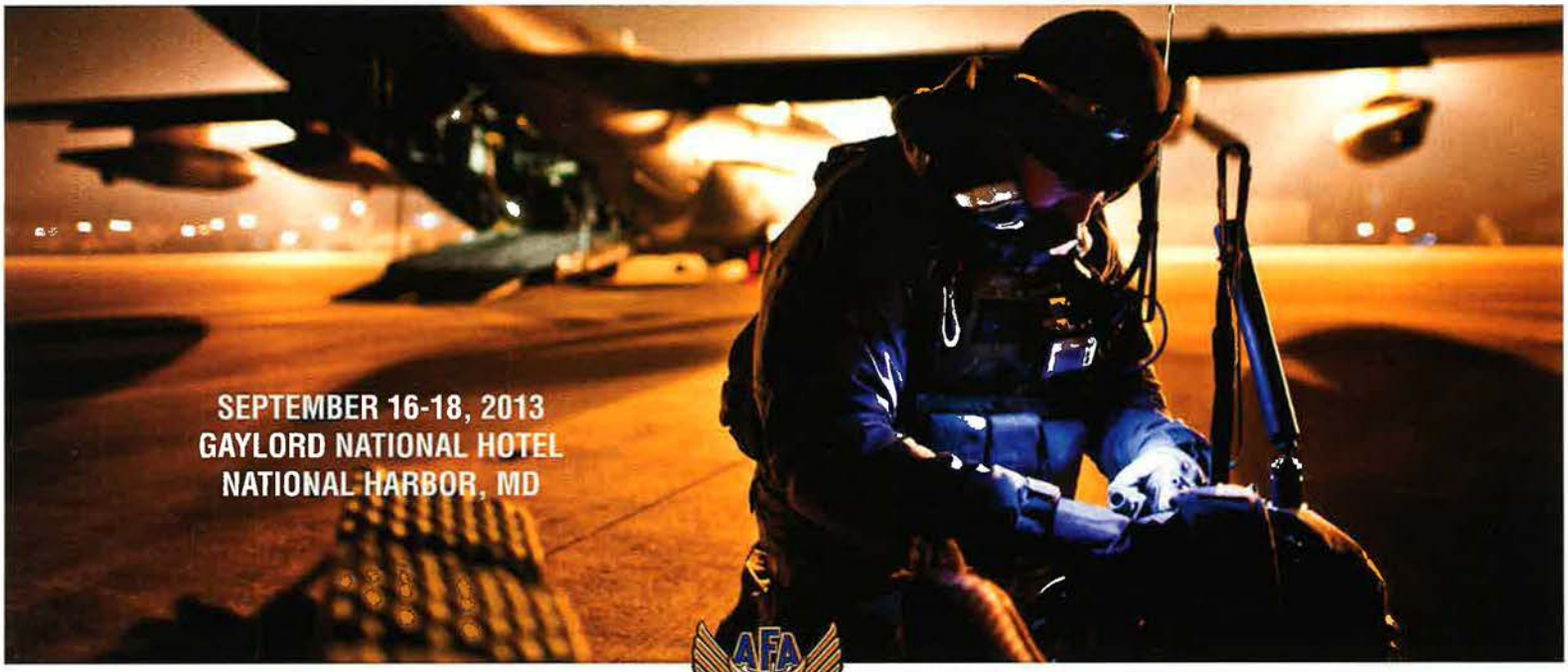
Major Active Duty Air Force Bases Overseas



AIR FORCE ASSOCIATION
Professional Development

AIR FORCE ASSOCIATION'S

AIR & SPACE CONFERENCE AND TECHNOLOGY EXPOSITION 2·0·1·3



AIR FORCE ASSOCIATION'S

GLOBAL WARFARE SYMPOSIUM

AIR FORCE ASSOCIATION'S ANNUAL

AIR WARFARE SYMPOSIUM AND TECHNOLOGY EXPOSITION

For additional information visit us at www.afa.org

Little Rock AFB, Ark. 72099. **Nearest city:** Jacksonville. **Phone:** 501-987-1110. **Owning command:** AMC. **Units/missions:** 19th AW (AMC), air mobility operations; 22nd AF Det. 1 (AFRC), 189th AW (ANG), 314th AW (AETC)—training. **History:** activated Oct. 9, 1955.

Los Angeles AFB, Calif. 90245. **Nearest city:** El Segundo. **Phone:** 310-653-1110. **Owning command:** AFSPC. **Units/missions:** 61st ABG (AFSPC), support; Hq. Space and Missile Systems Center (AFSPC), acquisition, R&D. **History:** Designated LA AFS April 30, 1964. Redesignated LA AFB Sept. 15, 1987. SMC, activated July 1, 1992, dates from Air Research and Development Command's Western Development Division, activated July 1, 1954.

Luke AFB, Ariz. 85309. **Nearest city:** Phoenix. **Phone:** 623-856-1110. **Owning command:** AETC. **Units/missions:** 56th FW (AETC), training; 56th Range Management Office (AETC), Barry M. Goldwater Range operations; 944th FW (AFRC), fighter operations, training. **History:** activated 1941. Named for 2nd Lt. Frank Luke Jr., observation balloon-busting ace of WWI and first American aviator to receive MOH, killed in action Sept. 29, 1918.

MacDill AFB, Fla. 33621. **Nearest city:** Tampa. **Phone:** 813-828-1110. **Owning command:** AMC. **Units/missions:** 6th AMW (AMC), 927th ARW (AFRC)—air mobility operations; Hq. CENTCOM, operational leadership; Hq. SOCOM, operational leadership; Joint Special Operations University (SOCOM), education. **History:** activated April 15, 1941. Named for Col. Leslie MacDill, killed in aircraft accident Nov. 8, 1938.

Malmstrom AFB, Mont. 59402. **Nearest city:** Great Falls. **Phone:** 406-731-1110. **Owning command:** AFGSC. **Unit/mission:** 341st MW (AFGSC), ICBM operations. **History:** activated Dec. 15, 1942. Named for Col. Einar A. Malmstrom, WWII fighter commander killed in air accident Aug. 21, 1954.

Maxwell AFB, Ala. 36112. **Nearest city:** Montgomery. **Phone:** 334-953-1110. **Owning command:** AETC. **Units/missions:** 42nd ABW (AETC), support; 908th AW (AFRC), air mobility operations; Air Force Historical Research Agency (USAF), historical documentation, research; Air Force Legal Operations Agency (USAF), management; Air University (AETC), education; Hq. Civil Air Patrol (USAF), management; PEO-Business & Enterprise Systems (AFLCMC), acquisition. **History:** activated 1918 at the site of the Wright brothers' flight school. Named for 2nd Lt. William C. Maxwell, killed in air accident Aug. 12, 1920.

McConnell AFB, Kan. 67221. **Nearest city:** Wichita. **Phone:** 316-759-6100. **Owning command:** AMC. **Units/missions:** 22nd ARW (AMC), air mobility operations; 184th IW (ANG), battlefield airmen, cyber, C2, range operations; 931st ARG (AFRC), air mobility operations. **History:** activated June 5, 1951. Named for three Wichita natives, the McConnell brothers—Lt. Col. Edwin M. (died Sept. 1, 1997), Capt. Fred J. (died in a private airplane crash Oct. 25, 1945), and 2nd Lt. Thomas L. (killed July 10, 1943)—all WWII B-24 pilots.

Minot AFB, N.D. 58705. **Nearest city:** Minot. **Phone:** 701-723-1110. **Owning command:** AFGSC. **Units/missions:** 5th BW (AFGSC), bomber operations; 91st MW (AFGSC), ICBM operations. **History:** activated January 1957. Named after city of Minot, whose citizens donated $50,000 toward purchase of the land.

Misawa AB, Japan, APO AP 96319. **Nearest city:** Misawa. **Phone:** 011-81-176-53-5181, ext. 226-3075. **Owning command:** PACAF. **Unit/mission:** 35th FW (PACAF), fighter operations. **History:** occupied by US forces September 1945.

Moody AFB, Ga. 31699. **Nearest city:** Valdosta. **Phone:** 229-257-1110. **Owning command:** ACC. **Units/missions:** 23rd Wing (ACC), fighter, personnel recovery operations; 93rd Air Ground Operations Wing (ACC), battlefield airmen operations, support; 476th FG (AFRC), fighter operations; 820th Base Defense Group (ACC), expeditionary force protection. **History:** activated June 1941. Named for Maj. George P. Moody, killed May 5, 1941.

Mountain Home AFB, Idaho 83648. **Nearest city:** Mountain Home. **Phone:** 208-828-1110. **Owning command:** ACC. **Unit/mission:** 366th FW (ACC), fighter operations, range management. **History:** activated August 1943 as B-24 training base. Inactivated October 1945. Reactivated December 1948. Inactivated April 1950. Reactivated 1951.

Nellis AFB, Nev. 89191. **Nearest city:** Las Vegas. **Phone:** 702-652-1110. **Owning command:** ACC. **Units/missions:** 57th Wing (ACC), combat training; 99th ABW (ACC), support; 563rd RQG Operating Location A (ACC), personnel recovery operations; 926th Group (AFRC), associate missions at Creech, Eglin, Hurlburt, Nellis, Schriever; USAF Warfare Center (ACC), operational testing, tactics development, training, Nevada Test and Training Range operations. **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.

Offutt AFB, Neb. 68113. **Nearest city:** Bellevue. **Phone:** 402-294-1110. **Owning command:** ACC. **Units/missions:** 55th Wing (ACC), 170th Group (ANG)—base support, operations (C2, electronic attack, ISR), training; Air Force Weather Agency (USAF), management; Hq. STRATCOM, operational leadership. **History:** activated 1896 as Army's Fort Crook. Used for airships from 1918 and aircraft cross-country stop from 1921. Landing field named May 10, 1924, for 1st Lt. Jarvis J. Offutt, WWI pilot who died Aug. 13, 1918. Served as bomber production facility January 1942 to September 1945. Redesignated Offutt Field June 1946. Redesignated Offutt AFB with Jan. 13, 1948, transfer to USAF.

Osan AB, South Korea, APO AP 96278. **Nearest city:** Seoul. **Phone:** 011-82-0505-784-1110. **Owning command:** PACAF. **Units/missions:** 51st FW (PACAF), fighter operations; Hq. 7th Air Force (PACAF), operational leadership. **History:** originally designated K-55. Runway opened December 1952. Renamed Osan AB 1956 for nearby town that was the scene of first fighting in July 1950 between US and North Korean forces.

Patrick AFB, Fla. 32925. **Nearest city:** Cocoa Beach. **Phone:** 321-494-1110. **Owning command:** AFSPC. **Units/missions:** 45th SW (AFSPC), space operations; 114th ROPS (ANG), launch range support; 920th RQW (AFRC), personnel recovery operations; Air Force Technical Applications Center (AFISRA), nuclear monitoring. **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 to 1927.

Peterson AFB, Colo. 80914. **Nearest city:** Colorado Springs. **Phone:** 719-556-7321. **Owning command:** AFSPC. **Units/missions:** 21st SW (AFSPC), missile warning, space operations, support; 200th AS (ANG), 302nd AW (AFRC)—air mobility operations; Hq. AFSPC, management; Hq. NORAD, operational leadership; Hq. NORTHCOM, operational leadership. **History:** activated 1942. Named for 1st Lt. Edward J. Peterson, killed Aug. 8, 1942.

Pope Field, N.C. 28308. **Nearest city:** Fayetteville. **Phone:** 910-394-1110. **Units/missions:** 18th ASOS (ACC), battlefield airmen operations; 21st STS (AFSOC), special operations; 43rd AG (AMC), 440th AW (AFRC)—air mobility operations; USAF Combat Control School (AFSOC), training. **History:** activated 1919. Under BRAC 2005, Pope AFB became Pope Field, part of Fort Bragg, March 1, 2011. Named for 1st Lt. Harley H. Pope, WWI pilot, killed Jan. 7, 1919.

RAF Lakenheath, UK, APO AE 09461. **Nearest city:** Cambridge. **Phone:** 011-44-1638-52-1110. **Owning command:** USAFE-AFAFRICA. **Unit/mission:** 48th FW, fighter, personnel recovery operations. **History:** began as Royal Air Force decoy field in 1930s. Activated as RAF airfield November 1941. USAF bombers arrived August 1948. USAF took administrative control May 1951. Named after nearby village.

RAF Mildenhall, UK, APO AE 09459. **Nearest city:** Cambridge. **Phone:** 011-44-1638-54-1110. **Owning command:** USAFE-AFAFRICA. **Units/missions:** 95th RS (ACC), ISR operations; 100th ARW (USAFE-AFAFRICA), air mobility operations; 352nd SOG (AFSOC), special operations; 488th IS (ACC), ISR operations. **History:** activated as RAF bomber base October 1934. Named after nearby town. US bomber operations began July 1950. SAC had control from October 1951 to July 1959, when USAFE took over.

Ramstein AB, Germany, APO AE 09094. **Nearest city:** Ramstein. **Phone:** 011-49-6371-47-1110. **Owning command:** USAFE-AFAFRICA. **Units/missions:** 86th AW (USAFE-AFAFRICA), air mobility operations, base support, including Kaiserslautern Military Community; 404th Air Expeditionary Group (USAFE-AFAFRICA), air operations; 435th AGOW (USAFE-AFAFRICA), battlefield airmen operations; 521st Air Mobility Operations Wing (AMC), air mobility operations; 603rd AOC (USAFE-AFAFRICA), C2 operations; Hq. 3rd AF (USAFE-AFAFRICA), operational leadership; Hq. USAFE-AFAFRICA, management, operational leadership. **History:** originally Landstuhl AB, activated August 1952. Reactivated December 1957 as Ramstein-Landstuhl AB; later redesignated Ramstein AB.

Robins AFB, Ga. 31098. **Nearest city:** Warner Robins. **Phone:** 478-926-1110. **Owning command:** AFMC. **Units/missions:** 78th ABW (AFSC), support; 116th ACW (ANG), 461st ACW (ACC)—C2 operations; 689th Combat Communications Wing (AFSPC), cyber operations; Hq. AFRC, management; Warner Robins ALC (AFSC), weapons maintenance, repair. **History:** activated March 1942. Named for Brig. Gen. Augustine Warner Robins, an early chief of the Army Air Corps' Materiel Division, who died June 16, 1940.

Schriever AFB, Colo. 80912. **Nearest city:**

Colorado Springs. **Phone:** 719-567-1110. **Owning command:** AFSPC. **Units/missions:** 50th SW (AFSPC), 310th SW (AFRC)—space operations; Space Innovation and Development Center (AFSPC), R&D. **History:** activated as Falcon AFS Sept. 26, 1985. Redesignated AFB June 13, 1988. Renamed for Gen. Bernard A. Schriever June 5, 1998.

Scott AFB, Ill. 62225. **Nearest city:** Belleville. **Phone:** 618-256-1110. **Owning command:** AMC. **Units/missions:** 126th ARW (ANG), 375th AMW (AMC)—air mobility operations; 618th AOC (TACC) (AMC), planning/directing worldwide air mobility operations; 635th Supply Chain Operations Wing (AFSC), global sustainment support; 932nd AW (AFRC), air mobility operations; Air Force Network Integration Center (AFSPC), network integration, engineering, and simulation; Hq. 18th Air Force (AMC), operational leadership; Hq. AMC, management; Hq. TRANSCOM, operational leadership. **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.

Seymour Johnson AFB, N.C. 27531. **Nearest city:** Goldsboro. **Phone:** 919-722-1110. **Owning command:** ACC. **Units/missions:** 4th FW (ACC), 414th FG (AFRC)—fighter operations; 916th ARW (AFRC), air mobility operations. **History:** activated June 12, 1942. Named for Navy Lt. Seymour A. Johnson, Goldsboro native, killed March 5, 1941.

Shaw AFB, S.C. 29152. **Nearest city:** Sumter. **Phone:** 803-895-1110. **Owning command:** ACC. **Units/missions:** 20th FW (ACC), fighter operations; Hq. 9th Air Force (ACC), management (Hq. Air Forces Central in Southwest Asia, operational leadership); Hq. Third Army, management; US Army Central, operational leadership. **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.

Sheppard AFB, Tex. 76311. **Nearest city:** Wichita Falls. **Phone:** 940-676-1110. **Owning command:** AETC. **Units/missions:** 82nd TRW (AETC), 80th FTW (Euro-NATO Joint Jet Pilot Training program) (AETC)—training. **History:** activated June 14, 1941. Named for US Sen. Morris E. Sheppard, who died April 9, 1941.

Spangdahlem AB, Germany, APO AE 09126. **Nearest city:** Bitburg. **Phone:** 011-49-6565-61-1110. **Owning command:** USAFE-AFAFRICA. **Unit/mission:** 52nd FW (USAFE-AFAFRICA), fighter operations. **History:** built by French 1951 and turned over to US 1952. Named after nearby town.

Thule AB, Greenland, APO AE 09074. **Nearest city:** Qaanaaq. **Phone:** (through Cheyenne Mountain AFS operator) 719-474-1110. **Owning command:** AFSPC. **Units/missions:** 12th SWS (AFSPC), missile warning; 821st ABG (AFSPC), support. **History:** dates from 1946 as a Danish-American radio and weather station. USAF Ballistic Missile Early Warning System radar began operations 1961.

Tinker AFB, Okla. 73145. **Nearest city:** Oklahoma City. **Phone:** 405-739-2026. **Owning command:** AFMC. **Units/missions:** 72nd ABW (AFSC), support; 137th ARW (ANG), air mobility operations; 448th Supply Chain Management Wing (AFSC), planning/execution depot line repairable and consumables; 507th ARW (AFRC), air mobility operations; 552nd ACW (ACC), C2 operations; Hq. Air Force Sustainment Center (AFMC), management; Oklahoma City ALC (AFSC), weapons maintenance, repair. **History:** activated March 1942. Named for Maj. Gen. Clarence L. Tinker, who went down at sea June 7, 1942, leading a group of LB-30 bombers against Japan.

Travis AFB, Calif. 94535. **Nearest city:** Fairfield. **Phone:** 707-424-1110. **Owning command:** AMC. **Units/missions:** 60th AMW (AMC), 349th AMW (AFRC)—air mobility operations. **History:** activated May 17, 1943. Named for Brig. Gen. Robert F. Travis, killed Aug. 5, 1950.

Tyndall AFB, Fla. 32403. **Nearest city:** Panama City. **Phone:** 850-283-1113. **Owning command:** AETC. **Units/missions:** 53rd WEG (ACC), T&E; 101st AOG (ANG), support; 325th FW (ACC), 325th FW Associate Unit (ANG)—training; 601st AOC (ACC/ANG), plan/direct air operations; Air Force Rescue Coordination Center (ACC), plan/direct inland rescue operations; Hq. Continental US NORAD Region (NORAD)/1st AF/Air Forces Northern (ACC/ANG), operational leadership. **History:** activated Dec. 7, 1941. Named for 1st Lt. Frank B. Tyndall, WWI fighter pilot killed July 15, 1930.

US Air Force Academy, Colo. 80840. **Nearest city:** Colorado Springs. **Phone:** 719-333-1110. **Owning command:** USAF. **Mission:** education. **History:** established April 1, 1954, at Lowry AFB, Colo. Moved to permanent location in Colorado Springs August 1958.

Vance AFB, Okla. 73705. **Nearest city:** Enid. **Phone:** 580-213-5000. **Owning command:** AETC. **Unit/mission:** 71st FTW (AETC), training. **History:** activated November 1941. Named for Lt. Col. Leon R. Vance Jr., Enid native, 1939 West Point graduate, and MOH recipient, killed July 26, 1944.

Vandenberg AFB, Calif. 93437. **Nearest city:** Lompoc. **Phone:** 805-606-1110. **Owning command:** AFSPC. **Units/missions:** 30th SW (AFSPC), space and launch range operations; Hq. 14th Air Force (AFSPC), operational leadership; Joint Space Operations Center (STRATCOM), C2 space operations. **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.

Whiteman AFB, Mo. 65305. **Nearest city:** Knob Noster. **Phone:** 660-687-1110. **Owning command:** AFGSC. **Units/missions:** 131st BW (ANG), bomber operations; 442nd FW (AFRC), fighter operations; 509th BW (AFGSC), bomber operations. **History:** activated 1942. Named for 2nd Lt. George A. Whiteman, first pilot to die in aerial combat during the attack on Pearl Harbor.

Wright-Patterson AFB, Ohio 45433. **Nearest city:** Dayton. **Phone:** 937-257-1110. **Owning command:** AFMC. **Units/missions:** 445th AW (AFRC), air mobility operations; 711th Human Performance Wing (AFRL), human performance evaluation/research; Air Force Institute of Technology (AETC), education; five PEOs: Agile Combat Support, Fighters & Bombers, ISR & SOF, Mobility, Tanker (AFLCMC), acquisition; Hq. Air Force Life Cycle Management Center (AFMC), acquisition and development; Hq. AFMC, management; Hq. Air Force Research Laboratory (AFMC), R&D; National Air and Space Intelligence Center (AFISRA), foreign aerospace analysis; National Museum of the US Air Force (AFMC). **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.

Yokota AB, Japan, APO AP 96328. **Nearest city:** Tokyo. **Phone:** 011-81-311-755-1110. **Owning command:** PACAF. **Units/missions:** 374th AW (PACAF), air mobility, personnel recovery operations; Hq. 5th Air Force (PACAF), operational leadership; Hq. US Forces Japan (PACOM), operational leadership. **History:** opened as Tama AAF by Japan 1939. Turned over to US forces and renamed Yokota AB Sept. 6, 1945.

ANG and AFRC Installations

This section consolidates Air National Guard and Air Force Reserve Command facilities, listing them by base names or according to the airport facilities they share. Some ANG and AFRC units are located on USAF bases and are included under units on those bases in the "Active Duty Installations" section. In addition, some Air Force Reserve Individual Mobilization Augmentees serve with various USAF and DOD commands and agencies.

Abraham Lincoln Capital Arpt., Ill. 62707. **Nearest city:** Springfield. **Phone:** 217-757-1219. **Component:** ANG. **Unit/mission:** 183rd FW, CNAF, CIRF operations; 217th EIS, mobile C4 operations.

Allen C. Thompson Field/Jackson Arpt., Miss. 39232. **Nearest city:** Jackson. **Phone:** 601-936-8370. **Component:** ANG. **Unit/mission:** 172nd AW, air mobility operations, training.

Alpena County Regional Arpt., Mich. 49707. **Nearest city:** Alpena. **Phone:** 989-354-6210. **Component:** ANG. **Unit/mission:** Combat Readiness Training Center.

Atlantic City Arpt., N.J. 08234. **Nearest city:** Egg Harbor Township. **Phone:** 609-645-6000. **Component:** ANG. **Unit/mission:** 177th FW, fighter operations.

Bangor Arpt., Maine 04401. **Nearest city:** Bangor. **Phone:** 207-990-7700. **Component:** ANG. **Unit/mission:** 101st ARW, air mobility operations.

Barnes Arpt., Mass. 01085. **Nearest city:** Westfield. **Phone:** 413-568-9151. **Component:** ANG. **Unit/mission:** 104th FW, fighter operations.

Birmingham Arpt., Ala. 35217. **Nearest city:** Birmingham. **Phone:** 205-714-2000. **Component:** ANG. **Unit/mission:** 117th ARW, air mobility, intelligence operations.

Boise Air Terminal (Gowen Field), Idaho 83705. **Nearest city:** Boise. **Phone:** 208-422-5322. **Component:** ANG. **Units/missions:** 124th FW, air mobility, fighter operations; 127th ASOS,

battlefield airmen operations: 212th CACS, space C2 operations. **History:** named for Lt. Paul R. Gowen, killed in B-10 crash in Panama July 11, 1938.

Bradley Arpt., Conn. 06026. **Nearest city:** Hartford. **Phone:** 860-292-2525. **Component:** ANG. **Unit/mission:** 103rd AW, air mobility, C2, CIRF operations. **History:** named for Lt. Eugene M. Bradley, killed in P-40 crash August 1941.

Burlington Arpt., Vt. 05403. **Nearest city:** Burlington. **Phone:** 802-660-5215. **Component:** ANG. **Units/missions:** 158th FW, fighter operations; 229th IOS, cyber operations.

Channel Islands ANGS, Calif. 93041. **Nearest city:** Oxnard. **Phone:** 805-986-8000. **Component:** ANG. **Unit/mission:** 146th AW, air mobility operations.

Charlotte/Douglas Arpt., N.C. 28208. **Nearest city:** Charlotte. **Phone:** 704-391-4100. **Component:** ANG. **Unit/mission:** 145th AW, air mobility operations.

Cheyenne Arpt., Wyo. 82009. **Nearest city:** Cheyenne. **Phone:** 307-772-6110. **Component:** ANG. **Unit/mission:** 153rd AW, air mobility operations.

Des Moines Arpt., Iowa 50321. **Nearest city:** Des Moines. **Phone:** 800-257-1693. **Component:** ANG. **Unit/mission:** 132nd FW, fighter operations.

Dobbins ARB, Ga. 30069. **Nearest city:** Atlanta. **Phone:** 678-655-5000. **Component:** AFRC. **Units/missions:** 94th AW, air mobility operations; 94th AES, aeromedical evacuation; Hq. 22nd Air Force, operational leadership. **History:** activated 1943. Named for Capt. Charles Dobbins, pilot killed in WWII.

Duke Field, Fla. 32542. **Nearest city:** Crestview. **Phone:** 850-883-6347. **Component:** AFRC. **Unit/mission:** 919th SOW, special operations. **History:** named for Lt. Robert L. Duke, pilot killed Dec. 29, 1943, in test flight.

Duluth Arpt., Minn. 55811. **Nearest city:** Duluth. **Phone:** 218-788-7210. **Component:** ANG. **Unit/mission:** 148th FW, fighter operations.

Eastern West Virginia Arpt. (Shepherd Field), W.Va. 25401. **Nearest city:** Martinsburg. **Phone:** 304-616-5100. **Component:** ANG. **Unit/mission:** 167th AW, air mobility operations.

Ellington Field, Tex. 77034. **Nearest city:** Houston. **Phone:** 281-929-2337. **Component:** ANG. **Unit/mission:** 147th RW, ISR, RPA operations. **History:** named for Lt. Eric L. Ellington, pilot killed November 1913.

Forbes Field, Kan. 66619. **Nearest city:** Topeka. **Phone:** 785-862-1234. **Component:** ANG. **Unit/mission:** 190th ARW, air mobility operations. **History:** named for Maj. Daniel H. Forbes Jr., pilot killed June 5, 1948, test-flying Northrop YB-49 "Flying Wing."

Fort Smith Arpt., Ark. 72903. **Nearest city:** Fort Smith. **Phone:** 479-573-5100. **Component:** ANG. **Unit/mission:** 188th FW, fighter operations.

Fort Wayne Arpt., Ind. 46809. **Nearest city:** Fort Wayne. **Phone:** 260-478-3210. **Component:** ANG. **Unit/mission:** 122nd FW, fighter operations.

Francis S. Gabreski Arpt., N.Y. 11978. **Nearest city:** Westhampton Beach. **Phone:** 631-723-7400. **Component:** ANG. **Unit/mission:** 106th RQW, personnel recovery operations. **History:** named for Col. Francis S. Gabreski, WWII and Korean War ace.

Fresno Yosemite Arpt., Calif. 93727. **Nearest city:** Fresno. **Phone:** 559-454-5100. **Component:** ANG. **Unit/mission:** 144th FW, fighter, ISR operations.

Greeley ANGS, Colo. 80631. **Nearest city:** Greeley. **Phone:** 720-259-5001. **Component:** ANG. **Unit/mission:** 137th SWS, mobile missile warning. **History:** activated January 1996.

General Mitchell Arpt., Wis. 53207. **Nearest city:** Milwaukee. **Phone:** 414-944-8410. **Component:** ANG. **Unit/mission:** 128th ARW, air mobility operations. **History:** named for Brig. Gen. William "Billy" Mitchell.

Greater Peoria Arpt., Ill. 61607. **Nearest city:** Peoria. **Phone:** 800-942-3771. **Component:** ANG. **Units/missions:** 182nd AW, air mobility, battlefield airmen, tactical airspace control operations; 264th CBCS, mobile communications.

Great Falls Arpt., Mont. 59404. **Nearest city:** Great Falls. **Phone:** 406-791-0159. **Component:** ANG. **Unit/mission:** 120th FW, air mobility, fighter operations.

Grissom ARB, Ind. 46971. **Nearest city:** Kokomo. **Phone:** 765-688-5211. **Component:** AFRC. **Unit/mission:** 434th ARW, air mobility operations. **History:** activated January 1943 as NAS Bunker Hill. Reactivated June 1954 as Bunker Hill AFB. Renamed May 1968 for Lt. Col. Virgil I. "Gus" Grissom, killed Jan. 27, 1967, in Apollo capsule fire. Realigned as AFRC base Oct. 1, 1994.

Gulfport-Biloxi Arpt., Miss. 39507. **Nearest city:** Gulfport. **Phone:** 228-214-6002. **Component:** ANG. **Unit/mission:** Trent Lott Combat Readiness Training Center.

Hancock Field, N.Y. 13211. **Nearest city:** Syracuse. **Phone:** 1-800-982-3696. **Component:** ANG. **Units/missions:** 152nd AOG, C2 operations; 174th ATKW, ISR, RPA operations, training; 222nd CACS, space C2 operations; 274th ASOS, battlefield airmen operations.

Harrisburg Arpt., Pa. 17057. **Nearest city:** Middletown. **Phone:** 717-943-2200. **Component:** ANG. **Unit/mission:** 193rd SOW, special operations.

Hector Arpt., N.D. 58102. **Nearest city:** Fargo. **Phone:** 701-451-2110. **Component:** ANG. **Unit/mission:** 119th Wing, air mobility, RPA operations.

Hensley Field AGS, Tex. 75211. **Nearest city:** Dallas. **Phone:** 972-619-4444. **Component:** ANG. **Unit/mission:** 254th CCG, mobile communications.

Homestead ARB, Fla. 33039. **Nearest city:** Homestead. **Phone:** 786-415-7000. **Component:** AFRC. **Units/missions:** 20th Operations Group Det. 2 (ACC), fighter operations; 125th FW Det. 1 (ANG), fighter operations; 482nd FW (AFRC), fighter operations.

Hulman Arpt., Ind. 47803. **Nearest city:** Terre Haute. **Phone:** 812-877-5311. **Component:** ANG. **Units/missions:** 113th ASOS, battlefield airmen operations; 181st IW, DCGS operations.

Jacksonville Arpt., Fla. 32218. **Nearest city:** Jacksonville. **Phone:** 904-741-7100. **Component:** ANG. **Unit/mission:** 125th FW, fighter, ISR operations.

Joe Foss Field, S.D. 57104. **Nearest city:** Sioux Falls. **Phone:** 605-988-5700. **Component:** ANG. **Unit/mission:** 114th FW, fighter operations. **History:** named for ANG Brig. Gen. Joseph J. Foss, WWII USMC ace and MOH recipient, former governor, former AFA national president and board chairman, and founder of the South Dakota ANG.

Key Field, Miss. 39307. **Nearest city:** Meridian. **Phone:** 601-484-9000. **Component:** ANG. **Units/missions:** 186th ARW, air mobility, ISR operations, training; 238th ASOS, battlefield airmen operations. **History:** named after Fred and Al Key, air-to-air refueling pioneers and 1935 flight endurance record holders for 27 days aloft in *Ole Miss,* on permanent display at the National Air and Space Museum.

Klamath Falls Arpt./Kingsley Field, Ore. 97603. **Nearest city:** Klamath Falls. **Phone:** 800-864-6264. **Component:** ANG. **Unit/mission:** 173rd FW, training. **History:** named for 2nd Lt. David R. Kingsley, MOH recipient, killed June 23, 1944, on Ploesti, Romania, oil field bombing mission.

Lambert-St. Louis Arpt., Mo. 63044. **Nearest city:** St. Louis. **Phone:** 314-527-7000. **Component:** ANG. **Units/missions:** 131st MSG, support; 239th CBCS, mobile communications.

Lincoln Arpt., Neb. 68524. **Nearest city:** Lincoln. **Phone:** 402-458-1234. **Component:** ANG. **Unit/mission:** 155th ARW, air mobility operations.

Louisville Arpt./AGS (Standiford Field), Ky. 40213. **Nearest city:** Louisville. **Phone:** 502-413-4400. **Component:** ANG. **Unit/mission:** 123rd AW, air mobility, battlefield airmen, bare base, C2 operations.

Luis Munoz Marin Arpt., Puerto Rico 00979. **Nearest city:** San Juan. **Phone:** 787-253-5101. **Component:** ANG. **Unit/mission:** 156th AW, air mobility operations.

Mansfield Lahm Arpt., Ohio 44903. **Nearest city:** Mansfield. **Phone:** 419-520-6100. **Component:** ANG. **Unit/mission:** 179th AW, air mobility operations. **History:** named in 1948 for nearby city and aviation pioneer Brig. Gen. Frank P. Lahm.

March ARB, Calif. 92518. **Nearest city:** Riverside. **Phone:** 951-655-1110. **Components:** ANG/AFRC. **Units/missions:** 163rd RW (ANG), RPA operations, training; 452nd AMW (AFRC), air mobility operations; Hq. 4th Air Force (AFRC), operational leadership. **History:** activated March 1, 1918. Named for 2nd Lt. Peyton C. March Jr., who died of crash injuries Feb. 18, 1918.

Abbreviations
(also see p. 71)

AES	Aeromedical Evacuation Squadron
AGS	Air Guard Station
ANGB/S	Air National Guard Base/Station
ARB/S	Air Reserve Base/Station
ATKW	Attack Wing
Arpt.	Airport
CBCS	Combat Communications Squadron
CCG	Combat Communications Group
CIRF	Centralized Intermediate Repair Facility
CNAF	Component Numbered Air Force
EIS	Engineering Installation Squadron
IOS/F	Information Operations Squadron/Flight
IWS	Information Warfare Squadron
JNGB	Joint National Guard Base
JRB	Joint Reserve Base


Air Reserve Component Bases
Great Falls Arpt. (ANG)
Portland Arpt. (ANG/AFRC)
Klamath Falls Arpt. (ANG)
Boise Air Terminal (ANG)
Salt Lake City Arpt. (ANG)
Fresno Yosemite Arpt. (ANG)
Reno/Tahoe Arpt. (ANG)
Cheyenne Arpt. (ANG)
Moffett Field (ANG)
Greeley ANGS
Channel Islands ANGS (ANG)
Sky Harbor Arpt. (ANG)
March ARB (ANG/AFRC)
Tucson Arpt. (ANG)
Hector Arpt. (ANG)
Duluth Arpt. (ANG)
Minn.-St. Paul Arpt. (AFRC)
Joe Foss Field (ANG)
Sioux Gateway Arpt. (ANG)
Des Moines Arpt. (ANG)
Lincoln Arpt. (ANG)
Rosecrans Memorial Arpt. (ANG)
Forbes Field (ANG)
Tulsa Arpt. (ANG)
Will Rogers ANGB (ANG)
Hensley Field (ANG)
NAS JRB Fort Worth (AFRC/ANG)
Ellington Field (ANG)
Gulfport-Biloxi Arpt. (ANG)
NAS JRB New Orleans (ANG)
Duke Field (AFRC)
Jacksonville Arpt. (ANG)
Homestead ARB (AFRC)
Luis Munoz Marin Arpt. (ANG)
Truax and Volk Fields (ANG)
General Mitchell Arpt. (ANG)
Selfridge ANGB (ANG)
W. K. Kellogg Arpt. (ANG)
Toledo Express Arpt. (ANG)
Grissom ARB (AFRC)
Greater Peoria Arpt. (ANG)
Abraham Lincoln Capital Arpt. (ANG)
Lambert-St. Louis Arpt. (ANG)
Fort Smith (ANG)
Key Field (ANG)
Allen C. Thompson Field (ANG)
Montgomery Arpt. (ANG)
Alpena County Arpt. (ANG)
Niagara Falls Arpt. (ANG/AFRC)
Youngstown ARS (AFRC)
Mansfield Lahm Arpt. (ANG)
S-B Arpt. (ANG)
Hulman Arpt. (ANG)
Fort Wayne Arpt. (ANG)
Louisville Arpt. (ANG)
Nashville Arpt. (ANG)
Memphis Arpt. (ANG)
Dobbins ARB (AFRC)
Birmingham Arpt. (ANG)
Savannah Hilton Head Arpt. (ANG)
Burlington Arpt. (ANG)
Schenectady County Arpt. (ANG)
Hancock Field (ANG)
Bradley Arpt. (ANG)
Stewart ANGB (ANG)
Gabreski Arpt. (ANG)
Harrisburg Arpt. (ANG)
Pittsburgh Arpt.
Rickenbacker ANGB (AFRC)
Eastern W. Va. Arpt. (ANG)
Yeager Arpt. (ANG)
Bangor Arpt. (ANG)
Pease ANGS (ANG)
Otis ANGB (ANG)
Barnes Arpt. (ANG)
Westover ARB (AFRC)
Quonset State Arpt. (ANG)
Atlantic City Arpt. (ANG)
New Castle Arpt. (ANG)
Martin State Arpt. (ANG)
Charlotte/Douglas Arpt. (ANG)
McEntire JNGB (ANG)
McGhee Tyson Arpt. (ANG)
Wash.
Ore.
Calif.
Nev.
Idaho
Mont.
Wyo.
Utah
Ariz.
Colo.
N.M.
N.D.
S.D.
Neb.
Kan.
Okla.
Tex.
Minn.
Iowa
Mo.
Ark.
La.
Wis.
Mich.
Ill.
Ind.
Ky.
Tenn.
Miss.
Ala.
Ga.
Fla.
S.C.
N.C.
Va.
W. Va.
Ohio
Pa.
N.Y.
Del.
Md.
N.J.
Conn.
R.I.
Mass.
Vt.
N.H.
Maine
Note: S-B Arpt. in Ohio is Springfield-Beckley Arpt. (ANG)

Martin State Arpt., Md. 21220. **Nearest city:** Baltimore. **Phone:** 410-918-6001. **Component:** ANG. **Unit/mission:** 175th Wing, air mobility, cyber, fighter operations.

McEntire JNGB, S.C. 29044. **Nearest city:** Columbia. **Phone:** 803-647-8300. **Component:** ANG. **Units/missions:** 169th FW, fighter operations; 245th ACS, C2 air operations. **History:** named for ANG Brig. Gen. B. B. McEntire Jr., killed in F-104 accident 1961.

McGhee Tyson Arpt., Tenn. 37777. **Nearest city:** Knoxville. **Phone:** 865-336-3205. **Component:** ANG. **Units/missions:** 134th ARW, air mobility operations; 119th CACS, space C2 operations; 228th CBCS, mobile communications; I. G. Brown ANG Training and Education Center. **History:** named for Naval aviator Lt. j.g. Charles McGhee Tyson, killed in WWI.

Memphis Arpt., Tenn. 38118. **Nearest city:** Memphis. **Phone:** 901-291-7111. **Component:** ANG. **Unit/mission:** 164th AW, air mobility operations.

Minneapolis-St. Paul Arpt./ARS, Minn. 55450. **Nearest city:** Minneapolis. **Phone:** 612-713-1110. **Components:** ANG/AFRC. **Units/missions:** 133rd AW (ANG), air mobility operations; 934th AW (AFRC), air mobility, cyber operations.

Moffett Field, Calif. 94035. **Nearest city:** Mountain View. **Phone:** 650-603-9129. **Component:** ANG. **Unit/mission:** 129th RQW, personnel recovery operations. **History:** activated as NAS Sunnyvale April 1933. Renamed Moffett Field June 1933 for Rear Adm. William A. Moffett, killed in crash of USS *Akron* airship April 4, 1933.

Montgomery Regional Arpt., Ala. 36108. **Nearest city:** Montgomery. **Phone:** 334-394-7200. **Component:** ANG. **Unit/mission:** 187th FW, fighter, ISR operations. **History:** originally named for Ens. Clarence Dannelly, Navy pilot killed in WWII.

Nashville Arpt., Tenn. 37217. **Nearest city:** Nashville. **Phone:** 615-660-8000. **Component:** ANG. **Unit/mission:** 118th AW, air mobility operations.

NAS JRB Fort Worth, Tex. 76127. **Nearest city:** Fort Worth. **Navy-hosted switchboard:** 817-782-5000. **ANG Phone:** 817-852-3136. **Components:** ANG/AFRC. **Units/missions:** 136th AW (ANG), air mobility operations; 301st FW (AFRC), fighter operations; Hq. 10th Air Force (AFRC), operational leadership.

NAS JRB New Orleans, La. 70143. **Nearest city:** New Orleans. **Phone:** 504-391-8600. **Component:** ANG. **Units/missions:** 159th FW, fighter operations; 214th EIS, mobile C4 operations.

New Castle County Arpt., Del. 19720. **Nearest city:** Wilmington. **Phone:** 302-323-3300. **Component:** ANG. **Unit/mission:** 166th AW, air mobility, cyber operations.

Niagara Falls Arpt./ARS, N.Y. 14304. **Nearest city:** Niagara Falls. **Phone:** 716-236-2000. **Components:** ANG/AFRC. **Units/missions:** 107th AW (ANG), reserve associate air mobility operations; 914th AW (AFRC), air mobility operations.

Otis ANGB, Mass. 02542. **Nearest city:** Falmouth. **Phone:** 508-968-4003. **Component:** ANG. **Units/missions:** 102nd IW, DCGS operations and C2 air operations; 253rd CCG, mobile communications. **History:** named for 1st Lt. Frank J. Otis, Massachusetts ARNG flight surgeon and pilot killed in 1937 crash.

Pease Intl. Tradeport ANGS, N.H. 03803. **Nearest city:** Portsmouth. **Phone:** 603-430-3577. **Component:** ANG. **Units/missions:** 157th ARW (ANG), air mobility operations; 64th ARS (AMC), active associate air mobility operations. **History:** site of former Portsmouth AFB activated June 1956. Renamed Sept. 7, 1957, for Capt. Harl Pease Jr., MOH recipient, B-17 pilot killed in WWII. Base closed March 31, 1991.

Pittsburgh Arpt./ARS, Pa. 15108. **Nearest city:** Coraopolis. **AFRC phone:** 412-474-8511. **ANG phone:** 412-776-8010. **Components:** ANG/AFRC. **Units/missions:** 171st ARW (ANG), air mobility operations; 911th AW (AFRC), air mobility operations.

Portland Arpt., Ore. 97218. **Nearest city:** Portland. **Phone:** 503-335-4000. **Components:** ANG/AFRC. **Units/missions:** 125th STS (ANG), battlefield airmen operations; 142nd FW (ANG), fighter operations; 304th RQS (AFRC), personnel recovery operations.

Quonset State Arpt. (Quonset ANGB), R.I. 02852. **Nearest city:** North Kingstown. **Phone:** 401-886-1200. **Component:** ANG. **Units/missions:** 102nd IWS, cyber operations; 143rd AW, air mobility operations; 28th CCG, mobile communications.

Reno/Tahoe Arpt. (May Field), Nev. 89502. **Nearest city:** Reno. **Phone:** 775-788-4500. **Component:** ANG. **Unit/mission:** 152nd AW, air mobility, DCGS operations. **History:** named for Maj. Gen. James A. May, Nevada adjutant general, 1947 to 1967.

Rickenbacker ANGB, Ohio 43217. **Nearest city:** Columbus. **Phone:** 614-492-3408. **Component:** ANG. **Unit/mission:** 121st ARW, air mobility operations. **History:** activated 1942. Formerly Lockbourne AFB. Renamed May 7, 1974, for Capt. Edward V. Rickenbacker. Base transferred from Strategic Air Command to ANG April 1, 1980.

Rosecrans Memorial Arpt., Mo. 64503. **Nearest city:** St. Joseph. **Phone:** 816-235-3300. **Component:** ANG. **Units/missions:** 139th AW (ANG), air mobility operations; Advanced Airlift Tactics Training Center (ANG/AFRC/Active).

Salt Lake City Arpt., Utah 84116. **Nearest city:** Salt Lake City. **Phone:** 801-245-2200. **Component:** ANG. **Units/missions:** 151st ARW, air mobility operations; 101st IOF, cyber operations; 109th ACS, C2 air operations; 130th EIS, mobile C4 operations; 169th IS, ISR operations.

Savannah Hilton Head Arpt., Ga. 31408. **Nearest city:** Garden City. **Phone:** 912-966-8223. **Component:** ANG. **Units/missions:** 165th AW, air mobility, battlefield airmen operations; Combat Readiness Training Center.

Schenectady County Arpt. (Stratton ANGB), N.Y. 12302. **Nearest city:** Scotia. **Phone:** 518-344-2300. **Component:** ANG. **Unit/mission:** 109th AW, air mobility operations.

Selfridge ANGB, Mich. 48045. **Nearest city:** Mount Clemens. **Phone:** 586-239-5576. **Component:** ANG. **Unit/mission:** 127th Wing, air mobility, fighter, special operations weather operations. **History:** activated July 1917. Transferred to Michigan ANG July 1971. Named for 1st Lt. Thomas E. Selfridge, killed Sept. 17, 1908, at Fort Myer, Va., when airplane piloted by Orville Wright crashed.

Sioux Gateway Arpt./Col. Bud Day Field, Iowa 51111. **Nearest city:** Sioux City. **Phone:** 712-233-0200. **Component:** ANG. **Unit/mission:** 185th ARW, air mobility operations. **History:** activated as Sioux City Army Air Base in July 1942. Closed in December 1945. Reopened in September 1946 as Sioux City ARB. Returned to joint civil-military use. Named in 2002 for retired Col. George E. "Bud" Day, a Vietnam War POW and MOH recipient.

Sky Harbor Arpt., Ariz. 85034. **Nearest city:** Phoenix. **Phone:** 602-302-9000. **Component:** ANG. **Unit/mission:** 161st ARW, air mobility operations.

Springfield-Beckley Arpt., Ohio 45502. **Nearest city:** Springfield. **Phone:** 800-851-4503. **Component:** ANG. **Unit/mission:** 178th FW, RPA operations.

Stewart ANGB, N.Y. 12550. **Nearest city:** Newburgh. **Phone:** 845-563-2000. **Component:** ANG. **Unit/mission:** 105th AW, air mobility operations; 213th EIS, mobile C4 operations. **History:** Stewart AFB until 1969. Acquired by state of New York 1970.

Toledo Express Arpt., Ohio 43558. **Nearest city:** Swanton. **Phone:** 419-868-4250. **Component:** ANG. **Unit/mission:** 180th FW, fighter operations.

Truax Field, Wis. 53704. **Nearest city:** Madison. **Phone:** 800-438-3489. **Component:** ANG. **Unit/mission:** 115th FW, fighter, ISR operations. **History:** activated June 1942 as AAF base. Taken over by Wisconsin ANG April 1968. Named for Lt. T. L. Truax, killed in P-40 training accident 1941.

Tucson Arpt., Ariz. 85706. **Nearest city:** Tucson. **Phone:** 520-295-6192. **Component:** ANG. **Unit/mission:** 162nd FW, fighter, ISR, RPA (at Davis-Monthan AFB) operations, training.

Tulsa Arpt., Okla. 74115. **Nearest city:** Tulsa. **Phone:** 918-833-7000. **Component:** ANG. **Unit/mission:** 138th FW, fighter operations; 219th EIS, mobile C4 operations.

Volk Field ANGB, Wis. 54618. **Nearest city:** Madison. **Phone:** 608-427-1210. **Component:** ANG. **Units/missions:** Combat Readiness Training Center; 128th ACS, C2 air operations. **History:** named for Lt. Jerome A. Volk, first Wisconsin ANG pilot to be killed in the Korean War.

Westover ARB, Mass. 01022. **Nearest city:** Chicopee. **Phone:** 413-557-1110. **Component:** AFRC. **Unit/mission:** 439th AW, air mobility operations. **History:** dedicated April 6, 1940. Named for Maj. Gen. Oscar Westover, Chief of the Air Corps, killed Sept. 21, 1938.

W. K. Kellogg Arpt., Mich. 49015. **Nearest city:** Battle Creek. **Phone:** 269-969-3234. **Component:** ANG. **Units/missions:** 110th AOG, C2 air operations; 110th AW, air mobility operations.

Will Rogers ANGB, Okla. 73159. **Nearest city:** Oklahoma City. **Phone:** 405-686-5221. **Component:** ANG. **Units/missions:** 137th ARW, reserve associate air mobility operations; 146th ASOS, battlefield airmen operations; 205th EIS, mobile C4 operations.

Yeager Arpt., W. Va. 25311. **Nearest city:** Charleston. **Phone:** 304-341-6249. **Component:** ANG. **Units/missions:** 130th AW, air mobility, ISR operations; 167th AES, aeromedical evacuation. **History:** named for Brig. Gen. Charles E. "Chuck" Yeager.

Youngstown ARS, Ohio 44473. **Nearest city:** Youngstown. **Phone:** 330-609-1000. **Component:** AFRC. **Unit/mission:** 910th AW, air mobility operations.

Airborne Minuteman

USAF photo

USAF photo, courtesy Air Mobility Command Museum

By 1970, increasingly accurate Soviet ICBMs had begun to pose a threat to silo-based US nuclear missiles. Thus began a search for more survivable basing. One idea was an "air-mobile ICBM," which actually was tested. On Oct. 24, 1974, USAF sent up a C-5 stuffed with a 60-foot-tall, 86,000-pound Minuteman. The C-5 carried the ICBM to 20,000 feet above the Pacific. The rear cargo bay opened and out came two parachutes, shown above. The two chutes yanked out the ICBM, nose first. The hanging missile descended to 8,000 feet, fired its rocket motor, and climbed to 12,000 feet (inset), where it ran out of fuel and fell into the ocean. The test proved the air-mobile concept was feasible, but it was soon discarded because of cost, engineering, and security problems.

Gallery of USAF Weapons

Note: Inventory numbers are total active inventory figures as of Sept. 30, 2012.

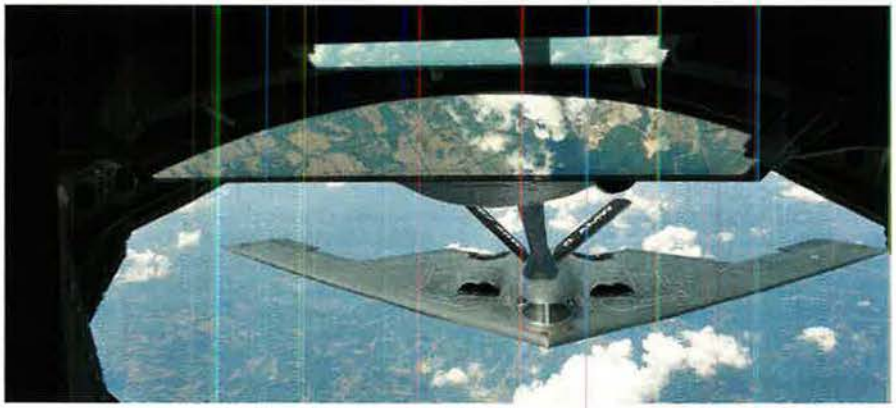
■ 2013 USAF Almanac

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, ATK Systems, General Electric.
Power Plant: four General Electric F101-GE-102 turbofans, each 30,780 lb thrust.
Accommodation: pilot, copilot, and two WSCs (offensive and defensive), on zero/zero ACES II ejection seats.
Dimensions: span 137 ft (spread forward) to 79 ft (swept aft), length 146 ft, height 34 ft.
Weight: max T-O 477,000 lb.
Ceiling: more than 30,000 ft.
Performance: speed 900+ mph at S-L, range intercontinental.
Armament: three internal weapons bays accommodate 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 CBU-87/89 cluster bombs or 30 CBU-103/104/105 WCMDs; up to 24 GBU-31 or 15 GBU-38 JDAMs; up to 24 AGM-158 JASSMs; or a mix, employing a different type of weapon in each bay.
COMMENTARY
Proposed as replacement for the B-52. Four B-1A prototypes developed and tested in 1970s. Program canceled in 1977, but flight test continued. Program revived in 1981 as B-1B variant. Blended wing/body configuration, variable-geometry design, and turbofan engines provide long range, maneuverability, high speed, and survivability. Substantial payload and long loiter time. Offensive avionics include SAR for tracking-targeting-engaging moving vehicles, self-targeting of stationary targets, and following terrain. GPS-aided INS lets aircrews autonomously navigate without ground-based navigation aids and engage targets with precision.
Extant Variant(s)
■ B-1B. Vastly upgraded B-1A, with 74,000 lb increase in useable payload, improved radar, and reduction in radar cross section, but max speed cut to Mach 1.2. Total production of 100 B variants, but USAF reduced inventory to 67 aircraft in 2002. One lost in 2008. First used in combat against Iraq during Desert Fox in December 1998. Equipped over the years with GPS, smart weapons carriage, improved onboard computers, improved communications. Sniper targeting pod added in mid-2008. Ongoing upgrades under Integrated Battle Station contract include Vertical Situation Display Upgrade, Central Integrated Test System, and Fully Integrated Data Link (FIDL). The FIDL upgrade includes Link 16 and Joint Range Extension data link, enabling permanent LOS and BLOS C2 connectivity. USAF plans to continue modernization efforts until it can field the next generation long-range strike aircraft, currently under development.

B-1B Lancers (MSgt. Kevin J. Gruenwald)

B-2 Spirit
Brief: Stealthy, long-range multirole bomber that can deliver nuclear and conventional munitions anywhere on the globe.
Function: Long-range heavy bomber.
Operator: AFGSC, AFMC, ANG.
First Flight: July 17, 1989.
Delivered: Dec. 17, 1993.
IOC: April 1997, Whiteman AFB, Mo.
Production: 21.
Inventory: 20.
Aircraft Location: Edwards AFB, Calif. Whiteman AFB, Mo.
Contractor: Northrop Grumman, Boeing, Vought.
Power Plant: four General Electric F118-GE-100 turbofans, each 17,300 lb thrust.
Accommodation: two pilots, on zero/zero ejection seats.
Dimensions: span 172 ft, length 69 ft, height 17 ft.



B-2A Spirit (A1C Maurice A. Hodges)

***B-52H** Stratofortress* (SrA. Brittany Y. Auld)

Weight: max T-O 336,500 lb.
Ceiling: 50,000 ft.
Performance: speed high subsonic, 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 various combinations, up to nearly 60,000 pounds over two weapons bays. Nuclear weapons on rotary launcher assemblies (RLAs) (one RLA per each bay): up to 16 B61-7, 16 B83, or 8 B61-11 bombs. Conventional weapons on bomb rack assemblies (BRAs) (two BRAs per bay): 80 Mk 62 (500-lb) sea mines, 80 Mk 82 (500-lb) bombs, 80 GBU-38 JDAMs, or 34 CBU-87/89 munitions; on RLAs: 16 GBU-31 JDAMs, 16 Mk 84 (2,000-lb) bombs, 16 AGM-154 JSOWs, 16 AGM-158 JASSMs, or eight GBU-28 LGBs. Future weapons incl JASSM-ER, GBU-53 SDB II, and GBU-57 MOP.
COMMENTARY
Based on the flying wing concept. Combination of advanced technologies, LO stealth design, and high aerodynamic efficiency. Able to attack heavily defended targets and neutralize enemy defenses. First use of B-2s in combat on March 24, 1999, against Serb targets in Allied Force, with two aircraft each dropping 16 JDAMs. Smoothly blended "fuselage" section has two large weapons bays capable of carrying up to nearly 60,000 lb of weapons. No vertical tail surfaces. Quadruple-redundant fly-by-wire digital flight-control system, actuating moving surfaces at the wing trailing edges that combine aileron, elevator, and rudder functions.
Extant Variant(s)
■ B-2A Block 30. B-2 production went in three successive blocks of capability: Blocks 10, 20, and 30. All Block 10 and 20 aircraft have been upgraded to Block 30, with greatly enhanced weapons capability. Can employ either RLAs or BRAs in its weapons bays, carrying a combination of weapons (see above). Has fully operational defensive and offensive avionics, a sophisticated mission planning system, and many operating modes for the SAR. Link 16 digital data sharing capability added and radar being replaced. A new stealth coating introduced under the Alternative High Frequency Material program dramatically improves combat readiness. Ongoing upgrades include a new EHF satcom system, enabling compatibility with legacy Milstar satellite constellations and future AEHF constellations, and integration of the MOP weapon.

B-52 Stratofortress
Brief: A long-range, heavy multirole bomber that can carry nuclear or conventional ordnance or cruise missiles.
Function: Long-range heavy bomber.
Operator: AFGSC, AFMC, AFRC.
First Flight: April 15, 1952 (YB-52 prototype).
Delivered: 1955-October 1962.
IOC: June 19, 1955.
Production: 744.
Inventory: 76.
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 EWO.
Dimensions: span 185 ft, length 159.3 ft, height 40.7 ft.
Weight: max T-O 488,000 lb.
Ceiling: 50,000 ft.
Performance: speed 650 mph, range 10,000+ miles.
Armament: 12 AGM-86B ALCMs externally, with provision for eight more ALCMs or gravity weapons internally. Conventional weapons incl AGM-86C/D CALCMs, Mk 62 sea mines, Mk 82/84 bombs, CBU-87/89 cluster bombs, CBU-103/104/105 WCMDs, GBU-31/38 JDAMs, AGM-158 JASSMs, and GBU-10/12/28 LGBs. Future weapons incl the JASSM-ER, Miniature Air Launched Decoy (MALD), and MALD-J jammer variant.
COMMENTARY
Many variants; all but one retired. Multimission capability includes long-range precision strike, CAS, offensive counterair, air interdiction, defense suppression, and maritime surveillance. Can carry weapon targeting pods. ECM suite uses a combination of electronic detection, jamming, and IR countermeasures to defeat air defenses.
Extant Variant(s)
■ B-52H. TF33 turbofans, providing increased unrefueled range, improved defensive armament. First flown July 1960. Total production of 102 aircraft, with deliveries between May 1961 and October 1962. USAF's only nuclear/conventional cruise missile carrier. Can conduct CAS using GPS/INS guided weapons. First delivered LGBs in Operation Iraqi Freedom in 2003, with Litening targeting pods. ALCMs and CALCMs carried on unique pylons or internally on a rotary launcher. USAF is converting the nuclear-weapon-capable Common Strategic Rotary Launcher into the Conventional Rotary Launcher for 76 aircraft under its Internal Weapons Bay Upgrade program. The FY14 budget request would upgrade 28 aircraft with the Combat Network Communications Technology (CONECT) program. USAF expects to have an EMD decision in FY14 on a Defense Management Systems upgrade.

Fighter and Attack Aircraft

A-10 Thunderbolt II
Brief: Twin-engine aircraft specifically designed for 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-AFAFRICA, ANG, AFRC.
First Flight: Feb. 15, 1975 (preproduction).
Delivered: October 1975-March 1984.
IOC: October 1977.
Production: 713.
Inventory: 346.
Aircraft Location: Barksdale AFB, La.; Boise Air Terminal, Idaho; Davis-Monthan AFB, Ariz.; Eglin AFB, Fla.; Fort Smith Arpt., Ark.; Fort Wayne Arpt.,

Weapons Acronyms

AE	aeromedical evacuation
AEHF	Advanced Extremely High Frequency
AESA	active electronically scanned array
AGM	air-to-ground missile
AIM	air intercept missile
ALCM	Air Launched Cruise Missile
AMRAAM	Advanced Medium-Range Air-to-Air Missile
ATP	advanced targeting pod
BLOS	beyond line of sight
BLU	bomb live unit
BM	battle management
C2	command and control
C3	command, control, & communications
CALCM	Conventional ALCM
CAS	close air support
CBU	cluster bomb unit
CEM	combined effects munition
CEP	circle error probable
CFT	conformal fuel tank
COTS	commercial off the shelf
CSAR	combat search and rescue
CSO	combat systems officer
EA	electronic attack
ECM	electronic countermeasures
EHF	extremely high frequency
Elint	electronic intelligence
EO	electro-optical
ER	extended range
EW	electronic warfare
EWO	electronic warfare officer
FLIR	forward-looking infrared
FMV	full-motion video
GATM	Global Air Traffic Management
GBU	glide bomb unit
GCS	ground control station
GPS	Global Positioning System
HARM	High-speed Anti-Radiation Missile
HEI	high-explosive incendiary
HUD	head-up display
IFF	identification, friend or foe
IIR	imaging IR
Imint	imagery intelligence
INS	inertial navigation system
IR	infrared
ISR	intelligence, surveillance, & reconnaissance
JASSM	Joint Air-to-Surface Standoff Missile
JDAM	Joint Direct Attack Munition
JSOW	Joint Standoff Weapon
JSUPT	joint specialized undergraduate pilot training
JTIDS	Joint Tactical Information Distribution System
LANTIRN	Low-Altitude Navigation & Targeting Infrared for Night
LCD	liquid crystal display
LGB	laser guided bomb
LO	low observable
LOS	line of sight
LRIP	low-rate initial production
Masint	measurement & signature intelligence
MFD	multifunction display
MOP	massive ordnance penetrator
NVG	night-vision goggles
PGM	precision guided munition
ROVER	Remotely Operated Video Enhanced Receiver
RPA	remotely piloted aircraft
RWR	radar warning receiver
S-L	sea level
SAR	search and rescue
SAR	synthetic aperture radar
satcom	satellite communications
SDB	Small Diameter Bomb
SEAD	suppression of enemy air defenses
SHF	super high frequency
shp	shaft horsepower
Sigint	signals intelligence
SLEP	service life extension program
TACAN	tactical air navigation
TF/TA	terrain-following/terrain-avoidance
T-O	takeoff
WCMD	Wind-Corrected Munitions Dispenser
WSO	weapon systems officer

Ind.; Martin State Arpt., Md.; Moody AFB, Ga.; Nellis AFB, Nev.; Osan AB, South Korea; Selfridge ANGB, Mich.; Spangdahlem AB, Germany (slated to lose A-10s in 2013); 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.
Dimensions: span 57.5 ft, length 53.3 ft, height 14.7 ft.
Weight: max T-O 51,000 lb.
Ceiling: 45,000 ft.
Performance: speed 518 mph, range 800 miles.
Armament: one 30 mm, seven-barrel GAU-8/A Gatling gun (1,174 rd), straight HEI, or anti-armor tailored HEI/armor-piercing incendiary (API) combat mix; 11 hardpoints for up to 16,000 lb of ordnance, incl various types of free-fall or guided bombs, such as Mk 82, Mk 84, GBU-10/12/38, CBU-87, various WCMDs, illumination rockets/flares, AGM-65 Mavericks, and AIM-9 Sidewinders. Chaff and flares carried internally to counter radar or IR threats. Up to three 600-gallon fuel tanks can also be carried.
COMMENTARY
Deadly combination of large and diverse weapons payload, long loiter times, austere airfield capability, maneuverability, and wide combat radius. Can operate under 1,000 ft ceilings, above 25,000 ft with advanced targeting pods and GPS guided munitions, in darkness with NVG. The 30 mm gun can destroy heavily armored tanks. Cockpit protected by titanium armor. First used in combat in 1991 Gulf War.
Extant Variant(s)
■ A-10C. Upgraded with precision engagement mod, new color MFDs, hands-on throttle and stick system, digital stores management, JDAM/WCMD integration, Litening and Sniper advanced targeting pod capability, Situational Awareness Data Link (SADL) and integration of sensors with aircraft systems. IOC in August 2007. First combat deployment September 2007. USAF plans to replace wings as a cheaper alternative to repairing them to meet the aircraft's operational service life. The FY14 budget funds 145 wings. Full rate production for wing delivery on the current contract, which runs through 2016, began in early 2012.

F-15 Eagle
Brief: A supersonic, all-weather, highly maneuverable tactical fighter designed to swiftly gain and maintain air superiority in aerial combat.
Function: Air superiority fighter.
Operator: ACC, AFMC, PACAF, USAFE-AFAFRICA, ANG.
First Flight: July 27, 1972.
Delivered: November 1974-85.
IOC: September 1975.
Production: 874.
Inventory: 214 (F-15C); 35 (F-15D).
Aircraft Location: Barnes Arpt., Mass.; Eglin AFB, Fla.; Great Falls Arpt., Mont.; Jacksonville Arpt., Fla.; Kadena AB, Japan; Kingsley Field (Klamath Falls), Ore.; NAS JRB New Orleans, La.; Nellis AFB, Nev.; Portland Arpt., Ore.; RAF Lakenheath, UK.
Contractor: McDonnell Douglas (now Boeing), Raytheon.
Power Plant: Two Pratt & Whitney F100-PW-220 turbofan engines, each 23,450 lb thrust; or two P&W F100-PW-229 turbofan engines with afterburners, each 29,000 lb thrust.
Accommodation: pilot (C); two pilots (D).
Dimensions: span 42.8 ft, length 63.8 ft, height 18.7 ft.
Weight: max T-O 68,000 lb.
Ceiling: 60,000 ft.
Performance: F-15C: speed Mach 2.5, ferry range 3,450 miles with CFTs and three external tanks.
Armament: one internally mounted M61A1 20 mm six-barrel cannon (940 rd); four AIM-9 Sidewinders and four A M-120 AMRAAMs or eight AIM-120s, carried externally.
COMMENTARY
World's dominant air superiority fighter for more than 30 years. Became USAF's front-line fighter upon introduction in the mid-1970s. Combines superior maneuverability and acceleration, range, weapons, and avionics. First saw combat for USAF in 1991 Gulf War, accounting for 34 of the 37 USAF air-to-air victories. Before that, flown in combat by Israeli Air Force in the 1982 Bekaa Valley War.
Extant Variant(s)
■ F-15C/D. Introduced in June 1979, with an internal EW countermeasures suite, additional 2,000 lb of internal fuel, and provision for conformal fuel tanks. Tactical capabilities were enhanced with the initiation of the Mult stage Improvement Program. The final 43 production aircraft received the F-15E-designed APG-70 radar. Ongoing upgrades include the AESA radar and a more capable mission computer for 175 aircraft. USAF plans to sustain 249 aircraft through at least 2030 and expects on-going full-scale fatigue testing to determine possible life-extension measures. Long-term designated aircraft also are receiving a BLOS satcom upgrade, starting with Air Sovereignty Alert (ASA) aircraft. USAF also is modifying ASA aircraft with an advanced targeting pod and associated display upgrades. The FY14 budget request would begin development of an Eagle Passive/Active Warning Survivability System (EPAWSS).

***A-10C** Thunderbolt II* (TSgt. John Orrell)

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-AFAFRICA.
First Flight: Dec. 11, 1986.
Delivered: April 1988-2004.
IOC: September 1989.
Production: 236.
Inventory: 219.
Aircraft Location: Eglin AFB, Fla.; Mountain Home AFB, Idaho; Nellis AFB, Nev.; RAF Lakenheath, UK; Seymour Johnson AFB, N.C.
Contractor: McDonnell Douglas (now Boeing), Raytheon.
Power Plant: two Pratt & Whitney F100-PW-220, each 23,450 lb thrust; or two F100-PW-229 turbofans with afterburners, each 29,000 lb thrust.
Accommodation: pilot and WSO.
Dimensions: span 42.8 ft, length 63.8 ft, height 18.5 ft.
Weight: max T-O 81,000 lb.
Ceiling: 50,000 ft.
Performance: speed Mach 2.5, ferry range 2,400 miles with CFTs and three external tanks.
Armament: one internally mounted M61A1 20 mm six-barrel cannon (500 rd); four AIM-9 Sidewinders and four AIM-120 AMRAAMs or eight AIM-120s; any air-to-surface weapon in USAF inventory (nuclear and conventional).
COMMENTARY
Basic F-15 airframe strengthened and upgraded for heavyweight multirole capability. Saw first combat in Desert Storm in 1991. Can maneuver at nine Gs throughout flight envelope.
Extant Variant(s)
■ F-15E. Has advanced cockpit controls, displays, and a wide-field-of-view HUD. Array of integrated avionics and electronics to permit fight at low, medium, or high altitude, day or night, and in all weather conditions. Carries LANTIRN targeting pods and Sniper and Litening ATPs on dedicated sensor stations. SAR pod provides surveillance and reconnaissance support to ground operations. Potent ground attack capability supplied by GPS-aided and precision weapons and by 20 mm gun for strafing. Air-to-air capability based on array of radar guided

***F-15E** Strike Eagle* (SSgt. Aaron Allmon)

and IR-homing weapons. Carries a large and varied ordnance load. Equipped with Link 16 and ARC-210 BLOS satcom. Ongoing Radar Modernization Program includes upgrade to AESA radar. Mods also include EPAWSS for greater survivability against modern threats.

F-16 Fighting Falcon
Brief: Multirole fighter aircraft that is highly maneuverable and proven in air-to-air combat, SEAD, and air-to-surface attack.
Function: Multirole fighter.
Operator: ACC, AETC, AFMC, PACAF, USAFE-AFAFRICA, ANG, AFRC.
First Flight: Dec. 8, 1976 (full-scale development).
Delivered: January 1979-2005.
IOC: October 1980, Hill AFB, Utah.
Production: 2,206.
Inventory: 852 (F-16C); 161 (F-16D).
Aircraft Location: Aviano AB, Italy; Edwards AFB, Calif.; Eglin AFB, Fla.; 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, Arizona, California, Colorado, District of Columbia (flying out of Maryland), Iowa, Minnesota, New Jersey, Ohio, Oklahoma, South Carolina, South Dakota, Texas, Vermont, Wisconsin.
Contractor: Lockheed Martin, Northrop Grumman.
Power Plant: Block 40: one General Electric F110-GE-100 (29,000 lb thrust); Block 42: one Pratt & Whitney F100-PW-220 (24,000 lb thrust). Block 50: one F110-GE-129 (29,000 lb thrust); Block 52: one F100-PW-229 (29,000 lb thrust).
Accommodation: pilot.
Dimensions: span 32.8 ft, length 49.3 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: speed Mach 2, ferry range 2,002+ miles.
Armament: one M61A1 20 mm cannon (500 rd); up to six air-to-air missiles, AGMs, and ECM pods externally.
COMMENTARY
Workhorse of the USAF fighter fleet. A lightweight fighter supporting the majority of PGM taskings in combat operations. Among the most maneuverable fighters ever built. First flown by USAF in combat in 1991 Gulf War; USAF F-16s flew 13,500 missions, more than any other type. All Block 40/42 and 50/52 F-16s upgraded with the Common Configuration Implementation Program (CCIP), providing standardized cockpit configuration with color MFDs and software, modular mission computer, helmet mounted cueing system, and Link 16 data link.

***F-16** Fighting Falcon* (SSgt. Christopher Boitz)

Extant Variant(s)
■ F-16C/D. Introduced in 1984, at production Block 25. Featured Multinational Staged Improvement Program (MSIP) II upgrades to cockpit, airframe, and core avionics plus addition of increased-range APG-68 radar. Block 25s also added the AIM-120 AMRAAM as a baseline weapon. With Block 30/32 came MSIP III mods, including expanded MFD memory; new engines (Block 30: F110-GE-100; Block 32: F100-PW-220); and additional weapons, including the AGM-88 HARM. USAF currently flies Block 40/42 and Block 50/52 aircraft, the newest variants but the majority of which are showing bulkhead cracks. Sustainment efforts include a legacy SLEP and Combat Avionics Programmed Extension Suite (CAPES) to extend them as a bridge to the F-35A. The SLEP includes a full-scale durability test and structural mods to add up to 10 years of service life. The CAPES upgrade includes an AESA radar, new cockpit display, data link enhancements, and improved defensive suite.
■ F-16CG Block 40/42 aircraft, first delivered in 1988, specialize in night attack with PGMs and wide-angle HUD. Greater T-O weight and maneuvering limits, expanded envelope, nine-G capability. Introduced LANTIRN pods, including automatic terrain following, for high-speed penetration and precision attack at night and in adverse weather. Other upgrades included APG-68(V5) fire-control radar, GPS, ring-laser gyro INS, enhanced-envelope gunsight, digital flight controls, and diffracted optics HUD.
■ F-16CJ Block 50/52, first delivered in 1991, are optimized for SEAD, employing the AGM-88 HARM targeting system (HTS) and longer range APG-68 (V9) fire-control radar. Other upgrades include F110-GE-129 and F100-PW-229 increased performance engines, newer cockpit control and display technology with avionics growth capability, ring laser gyro INS, GPS, ALR-56M radar warning receiver, ALE-47 threat adaptive countermeasures system, and advanced IFF system. Weapons improvements include use of Sniper and Litening ATPs. Downlink capability integrates with ROVER system to support joint terminal attack controllers (JTACs) on the ground.

F-22 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: 187.
Aircraft Location: Edwards AFB, Calif.; Holloman AFB, N.M.; JB Elmendorf-Richardson, Alaska; JB Langley-Eustis, Va.; JB Pearl Harbor-Hickam, Hawaii; Nellis AFB, Nev.; Tyndall AFB, Fla.
Contractor: Lockheed Martin, Boeing.
Power Plant: two Pratt & Whitney F119-PW-100 turbofans, each 35,000 lb thrust.
Accommodation: pilot.
Dimensions: span 44.5 ft, length 62 ft, height 16.6 ft.
Weight: max T-O 83,500 lb.
Ceiling: above 50,000 ft.
Performance: speed Mach 2 with supercruise capability, ferry range 1,850+ miles with two external wing fuel tanks.
Armament: one internal M61A2 20 mm gun (480 rds); two AIM-9 Sidewinders stored in side internal weapons bays; six AIM-120 AMRAAMs (air-to-air loadout) or two AIM-120s and two GBU-32 JDAMs (air-to-ground loadout) in main internal weapons bay.
COMMENTARY
USAF's newest operational fighter, built to operate day and night and in adverse weather, across full spectrum of missions. Flew its first operational sortie from Langley in 2006, as part of Noble Eagle. Combines stealth, supercruise, high maneuverability, and integrated avionics to counter and survive multiple anti-access threats and survive. Integrated avionics and intraflight data link permit simultaneous engagement of multiple targets. Advanced flight controls, heavy structure, high-performance engines, thrust vectoring nozzles yield great maneuverability.
Extant Variant(s)
■ F-22A. Cockpit fitted with six color LCD panels. The primary MFD provides a view of the air and ground tactical situation, including threat identity, threat priority, and tracking information, with two secondary MFDs 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,

***F-22A** Raptor* (Leading Edge Images/Glenn Bloore)

and shoot cues. Other equipment includes APG-77 radar, an EW system with radar warning receiver and missile launch detector, JTIDS, IFF system, laser gyroscope inertial reference, and GPS. FY14 funding request features the Reliability, Availability, and Maintainability Maturation Program (RAMMP) to continually evaluate the entire air vehicle and its interconnected subsystems. The funding request also continues retrofit of combat-coded aircraft with the Increment 3.1 upgrade, including APG-77 radar air-to-ground and EA improvements, initial integration of the GBU-39B SDB I, and JDAM retargeting capability. Future plans call for addition of AIM-120D Advanced AMRAAM and AIM-9X to counter new anti-access threats.

F-35 Lightning II
Brief: Next generation strike aircraft.
Function: Multirole fighter.
Operator: AETC, AFMC. Planned: ACC, PACAF, USAFE-AFAFRICA.
First Flight: Dec. 15, 2006 (F-35A prototype).
Delivered: April 2011 (first LRIP aircraft).
IOC: 2016 (USAF).
Production: planned: 1,763 USAF (F-35A); 680 Navy and Marine Corps (F-35B&C); unspecified number Britain; unspecified number to seven other partner countries.
Inventory: 11 (USAF).
Aircraft Location: Edwards AFB, Calif.; Eglin AFB, Fla.; Nellis AFB, Nev.; other locations TBD.
Contractor: Lockheed Martin, with BAE Systems, Northrop Grumman, Pratt & Whitney.
Power Plant: F-35A: one Pratt & Whitney F135-PW-100, 40,000 lb thrust.
Accommodation: pilot.
Dimensions: span 35 ft, length 51.4 ft, height 14.4 ft.
Weight: max T-O 70,000 lb.
Ceiling: 50,000 ft.
Performance: speed Mach 1.6 with full internal weapons load, range 1,380 miles.
Armament: F-35A: one 25 mm GAU-22/A cannon and up to 18,000 lb on 10 weapons stations—four stations inside two weapons bays (for maximum stealth) and three stations on each wing; standard internal loadout: two AIM-120 AMRAAMs and two GBU-31 JDAMs.
COMMENTARY
The F-35 is a joint and multinational program aimed at developing and fielding an affordable, highly common family of next generation strike fighters. For US forces, the program provides: F-35A conventional takeoff and landing (CTOL) variant for the Air Force; F-35B short takeoff and vertical landing (STOVL) variant for USMC; and F-35C carrier variant (CV) variant for USN. USAF's F-35A will replace F-16 and A-10 fleets with a stealthy multirole fighter. Designed to be able to enter heavily defended enemy airspace and engage all enemy targets in any conflict. Features advanced stealth design, high maneuverability, long range, and advanced avionics.

***F-35A** Lightning II*

Extant Variant(s)
■ F-35A. First flight by a USAF test pilot on Jan. 30, 2008. F-35A achieved supersonic speed for the first time in November 2008. First weight-optimized F-35A—dubbed AF-1—flew for the first time Nov. 14, 2009. On May 5, 2011, USAF received its first production aircraft—dubbed AF-7—built as part of Lot 1 LRIP. F-35 joint schoolhouse at Eglin received its first F-35, a production model F-35A CTOL variant, on July 14, 2011. On Feb. 28, 2012, USAF cleared the F-35s at Eglin schoolhouse for initial flight operations. All variants are still in development and test. Program officials expect the development program, which is about 90 percent complete, to end in 2017. Nellis flew its first operational test mission on April 4, 2013.

Special Operations Forces Aircraft

AC-130 Spectre/Spooky
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: officer: two pilots, navigator, fire-control officer, EWO; enlisted: flight engineer, TV operator, infrared detection set operator, loadmaster, four aerial gunners.
Dimensions: span 132.6 ft, length 97.8 ft, height 38.5 ft.
Weight: gross 155,000 lb.
Ceiling: 25,000 ft.
Performance: speed 300 mph, range 1,300 miles.
Armament: AC-130H: one 40 mm Bofors cannon (256 rd) and one 105 mm Howitzer (100 rd). AC-130U: one 25 mm Gatling gun, one 40 mm Bofors cannon (256 rd), and one 105 mm Howitzer (100 rd).
COMMENTARY
Gunship modified with gun systems, electronic and EO sensors, fire-control systems, enhanced navigation systems, sophisticated communications, defensive systems, in-flight refueling capability.
Extant Variant(s)
■ AC-130H Spectre. Serves with 27th Special Operations Wing at Cannon. Equipped with digital fire-control computer, EO sensors, target-acquisition systems, including FLIR sensor and low-light-level television (LLLTV), and capable of in-flight refueling. Advanced fire-control computers, navigation, communications, and sensor suites. Planned mods include a new ground mapping/weather radar, enhanced traffic alert and collision avoidance system (ETCAS), large aircraft IR countermeasures (LAIRCM), and expanded precision weapons capability. Originally AC-130E, converted to H standard after Vietnam War. Plans call for phased replacement with C-130J models. FY14 budget proposal requests five AC-130J aircraft.
■ AC-130U Spooky. Serves with 1st SOW, Hurlburt Field. Conversions of earlier gunships. Thirteen conversions by Rockwell delivered to 4th SOS in 1994-95. Four remaining conversions done by Boeing in recent years. 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. Plans call for use of ETCAS, Link 16, advanced gunship multispectral sensor system (GMS2), and expanded precision weapons capability.

***CV-22** Osprey* (TSgt. DeNoris Mickle)

AC-130W Stinger II
Brief: Aircraft that flies clandestine or low-visibility, low-level missions into denied areas to provide ISR, strike, and armed overwatch.
Function: ISR and armed overwatch for special operations activities.
Operator: AFSOC.
First Flight: Dec. 8, 1964 (HC-130H).
Delivered: June 2006.
IOC: 2007.
Production: 12 (converted).
Inventory: 12.
Aircraft Location: Cannon AFB, N.M.
Contractor: Lockheed Martin.
Power Plant: four Allison T56-A-15 turboprops, each 4,910 shp.
Accommodation: two pilots, two CSOs, flight engineer, and two loadmasters/gunners.

Dimensions: span 132.6 ft, length 98.8 ft, height 38.5 ft.
Weight: max T-O 155,000 lb.
Ceiling: 33,000 ft.
Performance: speed 300 mph, range 3,105 miles.
Armament: 30 mm Mk 44 cannon; PGMs.
COMMENTARY
A C-130H significantly modified to include an EW capability, low-light-level operational capability, and a strengthened tail to permit high-speed, low-level air-drop operations. Includes precision strike package (PSP). Mods include GPS/INS, advanced radar and missile warning receivers, chaff and flare dispensers, and active IR countermeasures.
Extant Variant(s)
■ AC-130W Stinger II. Upgraded with PSP to perform armed overwatch and CAS reconnaissance over friendly positions for threat prevention. Still maintains limited mobility capability but also can provide strike coordination, nontraditional ISR, and C2. PSP mod includes a mission operator console, communications suite, and flight deck hardware. Use of SDB deployed in July 2012.

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 and range 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: 28.
Aircraft Location: Hurlburt Field, Fla.; Kirtland AFB, N.M.
Contractor: Boeing, Bell Helicopter Textron.
Power Plant: two Rolls Royce-Allison AE1107C turboshafts, each 6,200 shp.
Accommodation: crew: officer: two pilots; enlisted: two flight engineers. Load: 24 troops seated, 32 troops on floor, or 10,000 lb cargo.
Dimensions: span 84.6 ft, length 57.3 ft, height 22.1 ft, rotor diameter 38 ft.
Weight: max vertical T-O 52,870 lb; max rolling T-O 60,500 lb.
Ceiling: 25,000 ft.
Performance: cruise speed 277 mph, combat radius 575 miles with one internal auxiliary fuel tank, self-deploy 2,100 miles with one in-flight refueling.
Armament: one .50-caliber machine gun on ramp.
COMMENTARY
Multiengine, dual-piloted, self-deployable, medium-lift vertical takeoff and landing (VTOL) tilt-rotor aircraft, operated by both the US Air Force and US Marine Corps. First operational deployment, to Africa, took place in November 2008; first combat deployment, to Iraq, in summer 2009.
Extant Variant(s)
■ CV-22B. Air Force's variant of the V-22 Osprey. Operates with forces of US Special Operations Command. Mission is long-range clandestine penetration of denied areas in adverse weather and low visibility to infiltrate, exfiltrate, resupply SOF. Optimized for special missions, including in nuclear, biological, and chemical (NBC) warfare conditions. Designed to operate from land bases, austere forward operating locations, and air capable ships without reconfiguration. Equipped with fully integrated precision navigation suite, a digital cockpit management system, FLIR, integrated NVG HUD, TF/TA radar, digital map system. Has robust self-defense avionics and secure anti-jam communications.

MC-130E/H Combat Talon
Brief: A modified C-130 able to provide global, day, night, and adverse weather capability to air-drop personnel and to deliver personnel and equipment to support US and allied SOF.
Function: SOF infiltration, exfiltration, and resupply.
Operator: AETC, AFSOC, AFRC.
First Flight: circa 1965 MC-130E; June 1984 MC-130H.
Delivered: initially 1966.

***MC-130H** Combat Talon II* (SSgt. Samuel Morse)

IOC: 1966 MC-130E; June 1991 MC-130H.
Production: 22 new-build MC-130Hs.
Inventory: 5 MC-130E; 20 MC-130H.
Aircraft Location: Duke Field and 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: officer: two pilots, two navigators, EWO; enlisted: flight engineer, radio operator, two loadmasters. MC-130E load: 53 troops or 26 paratroopers. MC-130H crew: officer: two pilots, navigator, EWO; enlisted: flight engineer, two loadmasters. MC-130H load: 77 troops, 52 paratroops, or 57 litters.
Dimensions: span 132.6 ft, height 38.5 ft, length 100.8 ft (MC-130E), 99.8 ft (MC-130H).
Weight: max T-O 155,000 lb.
Ceiling: 33,000 ft (MC-130H).
Performance: speed 300 mph (MC-130H), range 3,105 miles.
COMMENTARY
Special operations mobility aircraft. Used primarily to conduct infiltration, resupply, and exfiltration of SOF. Capable of airdrop using Joint Precision Airdrop System, landing on austere and unmarked landing zones. Can support psychological operations with leaflet bundle drops. Equipped with TF/TA radars, precision navigation systems using INS/GPS, and electronic and IR countermeasures for self-protection. All models capable of aerial refueling as a receiver and tanker.
Extant Variant(s)
■ MC-130E Combat Talon I. Fourteen modified C-130E aircraft were equipped with a pod-based system to air refuel SOF helicopters and tilt-rotor aircraft. Plans call for replacement by MC-130J variants.
■ MC-130H Combat Talon II. C-130H 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.

MC-130J Commando II
Brief: Aircraft that flies clandestine or low-visibility, low-level missions into denied areas to provide air refueling for SOF helicopters and tilt-rotor aircraft or to air-drop/resupply special operations forces.
Function: Air refueling for SOF helicopters and tilt-rotor aircraft and airdrop.
Operator: AETC, AFSOC.
First Flight: April 20, 2011.
Delivered: September 2011.
IOC: 2011.
Production: (converted).
Inventory: 10.
Aircraft Location: Cannon AFB, N.M.; Kirtland AFB, N.M.
Contractor: Lockheed Martin (airframe), Boeing.

***MC-130J** Commando II* (USAF photo)

Power Plant: four Rolls Royce AE2100D3 turboprops, each 4,591 shp.
Accommodation: crew: officer: two pilots, CSO; enlisted: two loadmasters. Load: not available.
Dimensions: span 132.6 ft, length 97.8 ft, height 38.8 ft.
Weight: max T-O 164,000 lb.
Ceiling: 28,000 ft with 42,000 lb payload.
Performance: speed 416 mph, range 3,000 miles.
COMMENTARY
Specialized tanker aircraft flies clandestine formation or single-ship intrusion of hostile territory missions to provide air refueling of SOF vertical-lift and tilt-rotor assets and the infiltration, exfiltration, and resupply of SOF by airdrop or air-land operations. Has secondary mission of leaflets airdrop. Replacing MC-130E and MC-130P tankers. USAF officially changed name from Combat Shadow II to Commando II in March 2012.
Extant Variant(s)
■ MC-130J. Mods include fully integrated INS/GPS systems, color LCDs, NVG lighting, HUDs, integrated defensive systems, digital moving map display, EO/IR system, dual satcom for voice/data, enhanced cargo-handling system, and enhanced service life wing. Also has fully populated CSO and auxiliary flight deck stations. Improvements over MC-130P reduces crew size, leaving the CSO to handle helicopter refueling process normally run by flight engineer, and loadmasters to handle other flight engineer and communications operator functions.

MC-130P Combat Shadow
Brief: Aircraft that flies clandestine or low-visibility, low-level missions into denied areas to provide air refueling for SOF helicopters or for airdrop/resupply of special operations teams.
Function: Air refueling for SOF helicopters and airdrop.
Operator: AETC, AFSOC, ANG.
First Flight: Dec. 8, 1964 (as HC-130H).
Delivered: from 1965.
IOC: 1986.
Production: (converted).
Inventory: 23.
Aircraft Location: Hurlburt Field, 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: officer: two pilots, two navigators; enlisted: flight engineer, communications systems operator, two loadmasters.
Dimensions: span 132.6 ft, length 98.8 ft, height 38.5 ft.
Weight: max T-O 155,000 lb.
Ceiling: 33,000 ft.
Performance: speed 290 mph, range 4,000+ miles.
COMMENTARY
Specialized tanker aircraft flies clandestine formation or single-ship intrusion of hostile territory missions to provide air refueling of SOF helicopters and the infiltration, exfiltration, and resupply of SOF by airdrop or air-land operations.
Extant Variant(s)
■ MC-130P. Mods include fully integrated INS/GPS system, NVG-compatible interior and exterior lighting, FLIR, radar and missile warning receivers, chaff and flare dispensers, satellite and data-burst communications.

U-28A
Brief: A militarized version of the Pilatus PC-12 that provides tactical airborne ISR support for special operations teams.
Function: Tactical ISR.
Operator: AFSOC, AFRC.
First Flight: circa 1994 (PC-12).
Delivered: 2006.
IOC: n/a.
Production: (converted).
Inventory: USSOCOM-owned.
Aircraft Location: Hurlburt Field, Fla.
Contractor: Pilatus Aircraft Ltd.
Power Plant: single P&W PT6A-67B, 1,200 shp.
Accommodation: officer: two pilots, one CSO.

E-3 Sentry (USAF photo/Val Gempis)

Dimensions: span 53.3 ft, length 47.3 ft, height 14 ft.
Weight: max T-O 10,935 lb.
Ceiling: 29,000 ft.
Performance: speed 310.5 mph, range 1,725 miles.
COMMENTARY
Modified Pilatus PC-12 aircraft flies worldwide special operations missions. One of several nonstandard aviation aircraft types owned by USSOCOM and operated by AFSOC. AFRC provides associate instructors for flying training.
Extant Variant(s)
■ U-28A. Mods include advanced radio-communications suite, aircraft survivability equipment, EO sensors, and advanced navigation systems. First employed by AFSOC for Enduring Freedom and Iraqi Freedom.

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 C2 for tactical and air defense forces.
Function: Airborne early warning, tactical BM, and C2 of theater air forces.
Operator: ACC, PACAF, AFRC.
First Flight: Oct. 31, 1975 (full avionics).
Delivered: March 1977-84.
IOC: 1977.
Production: 33.
Inventory: 22 E-3B; eight E-3C; two E-3G.
Aircraft Location: JB Elmendorf-Richardson, Alaska; Kadena AB, Japan; Tinker AFB, Okla.
Contractor: Boeing, Northrop Grumman (radar), Lockheed Martin (computer).
Power Plant: four Pratt & Whitney TF33-PW-100A turbofans, each 21,000 lb thrust.
Accommodation: four flight crew, 13-19 mission specialists.
Dimensions: span 145.8 ft, length 152.9 ft, height 41.8 ft.
Weight: max T-O 335,000 lb.
Ceiling: above 35,000 ft.
Performance: speed 360 mph, range 5,000+ miles.
COMMENTARY
Battle management aircraft—airborne warning and control system (AWACS)—capable of conducting surveillance from Earth's surface to the stratosphere, over land or water, at a range of more than 200 miles. Coordinates actions of hundreds of strike, support, and cargo aircraft. Integrates C2, BM, surveillance, target detection, and tracking in one platform. Operates in direct subordination to joint or combined air operations center.
Extant Variant(s)
■ E-3B. Upgrade of earliest E-3A. Equipped with much-enhanced computer capabilities, jam-resistant communications, austere maritime surveillance capability, upgraded radio communications, and five additional mission consoles. Completed in 1994. Received Block 30/35 mods, integrating and enhancing four major subsystems; completed in 2001. Installing interim next generation IFF capability to ensure Block 30/35 aircraft meet new IFF requirements while awaiting Block 40/45 upgrade.
■ E-3C. Upgrade from E-3A, including five additional mission consoles and Have Quick anti-jamming equipment. Received Block 30/35 upgrades. Also receiving interim next generation IFF.
■ E-3G. Designation applied to Block 40/45 upgraded aircraft. Two modified as of February 2012, with entire fleet conversion planned by 2020. Considered the most comprehensive upgrade in E-3 program history, Block 40/45 mod will enhance tracking and combat identification capabilities, enhance mission effectiveness, improve mission system reliability, and lower life-cycle costs. Mods include a new mission computer system, using an open architecture with some 50 COTS computers and 24 COTS software products and automated processes to greatly reduce operator workload; new operator consoles; improved electronic support measures (ESM) passive surveillance capability; and full next generation IFF.

E-4 National Airborne Operations Center
Brief: A four-engine, swept-wing, long-range high-altitude airplane providing a highly survivable C3 center allowing national leaders to direct US forces, execute emergency war orders, and coordinate actions by civil authorities.
Function: Airborne operations center.
Operator: ACC.

E-4B National Airborne Operations Center (USAF photo)

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.
Power Plant: four General Electric CF6-50E2 turbofans, each 52,500 lb thrust.
Accommodation: up to 112 flight crew and mission crew.
Dimensions: span 195.7 ft, length 231.3 ft, height 63.4 ft.
Weight: max T-O 800,000 lb.
Ceiling: above 30,000 ft.
Performance: speed 602 mph, range 7,130 miles.
COMMENTARY
Militarized version of the Boeing 747-200. Performs the National Airborne Operations Center (NAOC) mission. Provides survivable C3 platform in all situations, including sustained operations in a nuclear environment.
Extant Variant(s)
■ E-4B. Hardened against the effects of nuclear explosions, including electromagnetic pulse (EMP). 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. A triband radome houses SHF communications antenna. The last aircraft has received the Modernization Block 1 upgrade, which updated the electronic and communications infrastructure, utilizing COTS hardware and software. However, this final aircraft received a different physical configuration for its Audio Infrastructure Upgrade (AIU) because of diminishing manufacturing sources, so USAF plans to retrofit the first three to ensure a standard AIU configuration.

E-8 JSTARS
Brief: A modified Boeing 707-300 series with long-range air-to-ground radar capable of locating, classifying, and tracking moving ground vehicles out to distances in excess of 124 miles.
Function: Ground surveillance, BM, C2 aircraft.
Operator: ACC and ANG.
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: four Pratt & Whitney TF33-102C turbojets, each 19,200 lb thrust.
Accommodation: flight crew: four; mission crew: 15 Air Force and three Army operators (can be augmented according to mission).
Dimensions: span 145.8 ft, length 152.9 ft, height 42.5 ft.
Weight: max T-O 336,000 lb.
Ceiling: 42,000 ft.
Performance: speed 584 mph (optimal orbit), range 9 hr normal endurance, longer with air refueling.
COMMENTARY
Aircraft equipped with canoe-shaped radome under the forward fuselage housing a 24-ft-long side-looking phased array antenna capable of locating, classifying, and tracking vehicles on the ground. Data is transmitted via data link to ground stations or other aircraft. Provides theater ground and air commanders with surveillance data to support attack operations. Evolved from Army and Air Force programs to develop capability to 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.
Extant Variant(s)
■ E-8C. Production version delivered from 1996 to 2005. Earlier aircraft retrofitted to final production Block 20, featuring more powerful computers, an Internet protocol local area network, and BLOS connectivity. USAF plans to retire one aircraft damaged beyond economical repair, but others expected to remain in service until 2034. Development testing of the first new production-configured Pratt & Whitney JT8D-219 engine on the JSTARS test aircraft completed in 2011. However, in May 2012, USAF said it would not proceed with the re-engining program. With some COTS mission equipment now 20 years old, USAF is pursuing new upgrades to operator work station computers and the radar processor.

E-8 JSTARS (Northrop Grumman photo)

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 from February 1999.
Production: (converted).
Inventory: 14.
Aircraft Location: Davis-Monthan AFB, Ariz.
Contractor: Lockheed Martin.
Power Plant: four Allison T56-A-15 turboprops, each 4,910 shp.
Accommodation: officer: two pilots, navigator, two EWOs; enlisted: flight engineer, mission crew supervisor (crypto logic experienced), four crypto logic linguists, acquisition operator, and airborne maintenance technician.
Dimensions: span 132.6 ft, length 99 ft, height 38 ft.
Weight: max T-O 155,000 lb.
Ceiling: 25,000 ft.
Performance: speed 300 mph at 20,000 ft.
COMMENTARY
Aircraft designed to disrupt enemy C2 communications and limit adversary coordination essential for enemy force management.
Extant Variant(s)
■ EC-130H. Mods include electronic attack (EA) system and air refueling capability. All aircraft retrofitted to Block 35. Mission equipment baseline upgrades occur about every three years to ensure continued protection against evolving threats. Also replacing center wing box to meet wing service life expiration.

EC-130J 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: seven EC-130J.
Inventory: seven.
Aircraft Location: Harrisburg Arpt., Pa.
Contractor: Lockheed Martin, Raytheon, General Dynamics.
Power Plant: four Rolls Royce-Allison AE2100D3 turboprops, each 6,000 shp.
Accommodation: officer: two pilots, flight systems officer, mission systems officer; enlisted: two loadmasters, five electronic communications systems operators.
Dimensions: span 132.6 ft, length 97.8 ft, height 38.8 ft.
Weight: max T-O 164,000 lb.
Ceiling: 28,000 ft.
Performance: speed 335 mph cruise, range 2,645 miles.
COMMENTARY
A psychological operations aircraft employed in every US war and most other contingency operations since 1980 (EC-130E), supporting a broad spectrum of information operations and psyops missions.
Extant Variant(s)
■ EC-130J Commando Solo. Used by ANG's 193rd SOW as a broadcasting station for psychological warfare operations. Specialized mods include enhanced navigation systems, self-protection equipment, and worldwide color television configuration. Air refuelable. First entered service in 2004.

MC-12W Project Liberty
Brief: A medium- to low-altitude, twin-engine turboprop ISR version of the militarized C-12, based on the Beechcraft Super King Air 350/350ER.
Function: Manned tactical ISR.
Operator: ACC, ANG.
First Flight: April 2009.
Delivered: April 2009.
IOC: May 2009.
Production: 42 (planned).
Inventory: 42.
Aircraft Location: Beale AFB, Calif.; Key Field, Miss. (initial weapon system training). Other TBD.
Contractor: Hawker Beechcraft, L3 Communications.
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: max T-O 15,000 lb (350) and 16,500 lb (350ER).


MC-12W Project Liberty (SSgt. Eric Harris)

***MQ-1** Predator*

Ceiling: 35,000 ft.
Performance: speed 359 mph; range 1,725 miles (350) and 2,760 miles (350ER).
COMMENTARY
Acquired to augment RPA systems operating in Southwest Asia, this sensor-equipped C-12 is a complete collection, processing, analysis, and dissemination system. It provides ground forces with targeting data and other tactical intelligence. The MC-12W began operations in Iraq in June 2009 and in Afghanistan in December 2009.
Extant Variant(s)
■ MC-12W. Initial mod to first seven aircraft—used King Air 350s—included full-motion video (FMV), LOS satcom data link to ROVER system, limited Sigint, and basic BLOS connectivity. Subsequent mod to remaining 30 aircraft—based on King Air 350ER—includes enhanced FMV with laser designator, more robust Sigint, and increased bandwidth for BLOS connectivity. Before joining the fleet, an additional five aircraft are completing mod to Phase 3 configuration, including a high-definition EO/IR sensor with Hi-beam capability, enhanced communications equipment, digital intercom control system, and tactical air navigation (TACAN) system. Phase 3 mods also will be applied to 33 of the original 37 aircraft.

MQ-1 Predator
Brief: A medium-altitude, long-endurance RPA, providing joint force commanders with a multimission asset that combines imagery sensors with strike capability.
Function: Armed reconnaissance, airborne surveillance, target acquisition.
Operator: ACC, AFSOC, ANG, AFRC.
First Flight: July 1994.
Delivered: July 1994 (USAF from 1996)-2011.
IOC: 2005.
Production: 268 air vehicles.
Inventory: 165.
GCS Location: Cannon AFB, N.M.; Creech AFB, Nev.; Davis-Monthan AFB, Ariz.; Ellington Field, Tex.; Hector Arpt., N.D.; Holloman AFB, N.M.; March ARB, Calif.; Nellis AFB, Nev.; Springfield-Beckley Arpt., Ohio.; Whiteman AFB, Mo.
Aircraft Location: Cannon AFB, N.M.; Creech AFB, Nev.; Fort Polk Airfield, La.; Fort Huachuca, Ariz.; Grand Forks AFB, N.D.; Holloman AFB, N.M.; March ARB, Calif.; Whiteman AFB, Mo.
Contractor: General Atomics Aeronautical Systems.
Power Plant: one Rotax 914F turbo engine.
Accommodation: GCS: pilot, sensor operator.
Dimensions: span 55 ft, length 27 ft, height 6.9 ft.
Weight: max T-O 2,250 lb.
Ceiling: 25,000 ft.
Performance: speed 84-135 mph, range 770 miles, max endurance 40 hr.
Armament: Two AGM-114 Hellfire missiles.
COMMENTARY
Fully operational system comprises four air vehicles, GCS, satellite link, and about 55 personnel for 24-hour operations. Became a fully USAF system in 1996. Systems armed with two Hellfire missiles since 2002, at which time designation changed from RQ-1 to MQ-1 to denote multimission capability. USAF forward deploys launch and recovery element (LRE) systems and support personnel for takeoff and landing operations, while the CONUS-based GCS conducts the mission via extended communication links.
Extant Variant(s)
■ MQ-1B. Multimission weaponized RPA. Employs near real-time FMV and MTS-A multispectral targeting system, which provides a laser designator and laser illuminator with EO/IR sensors in a single package. GCS controls the RPA via LOS data link or BLOS satcom data link. USAF received its last MQ-1B in March 2011.

MQ-9 Reaper
Brief: A medium-to-high altitude, long-endurance RPA. Operates as a persistent hunter-killer.
Operator: ACC, AFSOC, ANG.
First Flight: February 2001.
Delivered: November 2003.
IOC: October 2007.
Production: 319 (planned).
Inventory: 104.
GCS Location: Cannon AFB, N.M.; Creech AFB, Nev.; Holloman AFB, N.M.; Hancock Field, N.Y. Planned: Ellsworth AFB, S.D.
Aircraft Location: Cannon AFB, N.M.; Creech AFB, Nev.; Eglin AFB, Fla.; Fort Drum, N.Y.; Holloman AFB, N.M.; Nellis AFB, Nev.
Contractor: General Atomics Aeronautical Systems.
Power Plant: one Honeywell TPE331-10GD turboprop, max 900 shp.
Accommodation: GCS: pilot, sensor operator.
Dimensions: span 66 ft, length 36 ft, height 12.5 ft.
Weight: max T-O 10,500 lb.
Ceiling: 50,000 ft.
Performance: cruise speed 230 mph, range 1,150 miles, encurance 14+ hr.
Armament: combination of AGM-114 Hellfires, GBU-12/49 Paveway IIs, and GBU-38 JDAMs.
COMMENTARY
System comprises several aircraft, GCS, a Predator Primary Satellite Link (PPSL), and spare equipment and operations and maintenance crews for deployed 24-hour operations. Delivers capabilities using mission kits with various weapons and sensors payload combinations.
Extant Variant(s)
■ MQ-9B Reaper. Operational in Afghanistan since 2007. The baseline aircraft has an MTS-B multispectral targeting system, integrating an EO/IR sensor, color/monochrome daylight TV camera, image-intensified TV camera, laser designator (enabling laser guided munitions), and laser illuminator in a single package. The MTS-B sensors provide FMV as separate video streams or fused together. Also employs SAR for GBU-38 JDAM targeting. Procurement of advanced Airborne Signals Intelligence Payload (ASIP-2C) has been delayed, with eight planned for FY14. Ongoing enhancements include upgrading current satcom capability to use government-owned Ka satcom networks and continuing fielding of the Gorgon Stare payload on specially modified Reapers to provide broad area sensor coverage. FY14 budget would fund R&D for extended range capability to meet combatant commander requirements.

OC-135 Open Skies
Brief: A modified C-135 aircraft that performs 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: flight crew: two pilots, two navigators, and two sensor maintenance technicians; Defense Threat Reduction Agency mission crew: mission commander, deputy, two sensor operators, and one flight follower; total seating: 35, incl space for foreign country representatives.
Dimensions: span 131 ft, length 135 ft, height 42 ft.
Weight: max T-O 297,000 lb.
Ceiling: 50,000 ft (basic C-135).
Performance: speed 500+ mph, range 3,900 miles.
COMMENTARY
A modified WC-135B used for specialized arms control treaty observation and imagery collection missions with framing and panoramic optical cameras installed in the rear of the aircraft.
Extant Variant(s)
■ OC-135B. One vertical and two oblique KS-87E framing cameras, used for photography approximately 3,000 ft above the ground, and

***RC-26B** Condor* (DOD photo/Sgt. Lalita Laksbergs)

one KA-91C panoramic camera that provides a wide sweep for each picture and is used for high-altitude photography at approximately 35,000 ft. The data annotation and recording system notes position, altitude, time, roll angle, and other data for each photo.

RC-26 Condor
Brief: Specially configured variant of the Fairchild SA227-DC C-26 Metro 23 with surveillance and communications equipment for use in domestic and overseas counterdrug efforts and for reconnaissance following natural and man-made disasters.
Function: Counterdrug-airborne day/night surveillance and C2.
Operator: ANG.
First Flight: 1990.
Delivered: C-26 first delivered 1989.
IOC: not available.
Production: 11.
Inventory: 11.
Aircraft Location: Ellington Field, Tex.; Fairchild AFB, Wash.; Fresno Yosemite Arpt., Calif.; Hancock Field, N.Y.; Jacksonville Arpt., Fla.; Key Field, Miss.; Kirtland AFB, N.M.; Montgomery Regional Arpt., Ala.; Truax Field, Wis.; Tucson Arpt., Ariz.; Yeager Arpt., W.Va.
Contractor: Fairchild (airframe).
Power Plant: two Garrett TPE331-12UAR-701 turboprops, each 1,100 shp.
Accommodation: two pilots, one navigator-mission systems operator.
Dimensions: span 57 ft, length 59.5 ft, height 16.6 ft.
Weight: max T-O 16,500 lb.
Ceiling: 25,000 ft.
Performance: speed 334 mph, range 2,070 miles.
COMMENTARY
Militarized ISR platform used primarily in counterdrug operations and increasingly during natural disasters such as hurricanes and wildfires. Provides real-time streaming video footage to ground personnel.
Extant Variant(s)
■ RC-26B. Specialized equipment includes state-of-the-art digital aerial cameras and an IR 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. Six aircraft modified to Block 25, adding additional communication capabilities and self-protection, for special operations missions. National Guard is seeking, at a minimum, to upgrade Block 20 aircraft with new flight deck avionics, new onboard mission system operator station, and improved onboard communications suite.

RC-135S Cobra Ball
Brief: A Masint collector equipped with special EO instruments for observing ballistic missile flights at long range.
Function: Electronic reconnaissance aircraft.
Operator: ACC.
First Flight: not available.
Delivered: circa 1969-99.
IOC: circa 1972.
Production: converted.
Inventory: three RC-135S.
Aircraft Location: Offutt AFB, Neb.
Contractor: Boeing (original airframe), L3 Communications.
Power Plant: four CFM International F108-CF-201 turbofans, each 21,600 lb thrust.
Accommodation: flight crew: two pilots, navigator. Mission crew: officer: three EWOs; enlisted: two airborne systems engineers, two airborne mission specialists.
Dimensions: span 131 ft, length 135 ft, height 42 ft.
Weight: max T-O 297,000 lb.
Ceiling: 45,000 ft.
Performance: speed 500+ mph, range 3,900 miles.
COMMENTARY
Monitors missile-associated signatures and tracks missiles during boost and re-entry phases to provide reconnaissance for treaty verification and theater ballistic missile proliferation.
Extant Variant(s)
■ RC-135S Cobra Ball. Provides the capability to collect optical and electronic data on ballistic missile-associated activity. 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-135V/W Rivet Joint (USAF photo)

RC-135U Combat Sent
Brief: Designed to collect technical intelligence on adversary radar emitter systems.
Function: Electronic reconnaissance aircraft.
Operator: ACC.
First Flight: not available.
Delivered: circa 1970-78.
IOC: circa 1970s.
Production: converted.
Inventory: two.
Aircraft Location: Offutt AFB, Neb.
Contractor: Boeing (original airframe), L3 Communications, Textron.
Power Plant: four CFM International F108-CF-201 turbofans, each 21,600 lb thrust.
Accommodation: flight crew: two pilots, two navigators, two airborne systems engineers; mission crew: 10 EW officers, six or more electronic, technical, mission area specialists.
Dimensions: span 135 ft, length 140 ft, height 42 ft.
Weight: max T-O 299,000 lb.
Ceiling: 35,000 ft.
Performance: speed 500+ mph, range unlimited with air refueling.
COMMENTARY
Collects and examines data on airborne, land, and naval radar systems, providing strategic analysis for National Command Authorities and combatant forces. Distinctive antennae arrays on the chin and wing tips, large cheek fairings, and extended tail. Each airframe has slightly unique reconnaissance equipment.
Extant Variant(s)
■ RC-135U Combat Sent. Uses special Sigint suite to collect scientific and technical Elint data against air-, land-, and sea-based emitter systems. Critical to effective design, programming, and reprogramming of RWRs as well as jammers, decoys, and anti-radiation missiles and to the development of effective threat simulators.

RC-135V/W Rivet Joint
Brief: Contains highly advanced electronic signal collection systems to acquire real-time Elint and Sigint data for theater and tactical commanders.
Function: Electronic reconnaissance aircraft.
Operator: ACC.
First Flight: not available.
Delivered: circa 1973-99. Continuous equipment updates.
IOC: circa 1973.
Production: converted.
Inventory: eight RC-135V; nine RC-135W; three TC-135W.
Aircraft Location: Offutt AFB, Neb.; Kadena AB, Japan; RAF Mildenhall, UK.
Contractor: Boeing (original airframe), L3 Communications.
Power Plant: four CFM International F108-CF-201 turbofans, each 21,600 lb thrust.
Accommodation: flight crew: three pilots, two navigators; mission crew: three EW officers, 14 intelligence operators, four airborne maintenance technicians, and up to six more depending on mission.
Dimensions: span 131 ft, length 135 ft, height 42 ft.
Weight: max T-O 297,000 lb.
Ceiling: 50,000 ft.
Performance: speed 500+ mph, range 3,900 miles.
COMMENTARY
Extensively modified C-135, performing worldwide reconnaissance missions to detect, identify, and geolocate signals throughout the electromagnetic spectrum.
Extant Variant(s)
■ RC-135V/W Rivet Joint. A self-contained standoff airborne Sigint collection system. Used mostly to exploit electronic battlefield and deliver near-real-time ISR information to tactical forces, combatant commanders, and National Command Authorities. Onboard capabilities encompass rapid search, detection, measurement, identification, demodulation, geolocation, and fusion of data from potentially thousands of electronic emitters. Planned mods include more robust communications intelligence (Comint), precision Elint upgrade, global satcom, and enhanced cockpit avionics.
■ TC-135W. Used for training purposes.

RQ-4 Global Hawk
Brief: A high-altitude, long-range, long-endurance RPA.
Function: Unmanned surveillance and reconnaissance aircraft.

Operator: ACC.
First Flight: Feb. 28, 1998.
Delivered: from 1995 (Advanced Concept Technology Demonstration versions).
IOC: Block 30 August 2011; Block 40 FY14 (planned)
Production: TBD.
Inventory: 27.
Aircraft Location: Beale AFB, Calif.; Grand Forks AFB, N.D.; Andersen AFB, Guam. Planned: two other forward operating bases.
Contractor: Northrop Grumman, Raytheon, L3 Communications.
Power Plant: one Rolls Royce-North American F137-RR-100 turbofan, 7,600 lb thrust.
Accommodation: one launch and recovery element (LRE) pilot, one mission control element (MCE) pilot, one MCE sensor operator.
Dimensions: span 130.9 ft, length 47.6 ft, height 15.3 ft.
Weight: max T-O 32,500 lb.
Ceiling: 60,000 ft.
Performance: speed 356.5 mph, range 10,000 miles.
COMMENTARY
The system consists of an aircraft with an integrated sensor suite, LRE, MCE, and communications and mission planning equipment. (ACTD system used in Afghanistan and Iraq.)
Extant Variant(s)
■ Block 20 (Imint). Larger than original Block 10 (version retired in FY11), adding an enhanced integrated sensor suite (EISS) in an Imint-only configuration. Four being converted to new EQ-4 communications relay configuration, employing the battlefield airborne communications node (BACN), a theater communications relay system employed in place of the EISS.
■ Block 30 (Multi-int). Employs the EISS ground target sensors and advanced Sigint program electronic signal collection sensor to provide a Multi-int capability. Supported combat operations in Afghanistan, Iraq, and Libya and humanitarian relief efforts following Japan's 2011 earthquake and massive tsunami. Congress directed USAF to sustain Block 30 operational capability until Dec. 31, 2014, despite plans to terminate it because it proved more expensive to operate than the U-2 aircraft it was intended to replace.
■ Block 40. A multimission platform expected to provide SAR/MTI, Imint, and BMC2 support, utilizing the multiplatform radar technology insertion program (MP-RTIP) AESA radar to simultaneously collect imagery intelligence on stationary ground targets and track ground moving targets. Delivery of final two Block 40 aircraft expected in FY14.

RQ-170 Sentinel
Brief: An LO RPA in development and test that already has flown in combat.
Function: Unmanned surveillance and reconnaissance aircraft.
Operator: ACC.
Aircraft Location: Tonopah Test Range, Nev. GCS: Creech AFB, Nev.; Eglin AFB, Fla.
Contractor: Lockheed Martin.
COMMENTARY
Although the RQ-170 is still under development and test, USAF has employed it in Southwest Asia for Enduring Freedom. In December 2009, USAF publicly acknowledged the aircraft for the first time, after photos had appeared in foreign news media of its operations over Afghanistan.
Extant Variant(s)
■ RQ-170. No data available. Being developed in response to DOD call for additional RPA support to combatant commanders.

U-2 Dragon Lady
Brief: Single-seat, single-engine, high-altitude endurance reconnaissance aircraft carrying a wide variety of sensors and cameras.
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.

U-2 Dragon Lady (MSgt. Scott T. Sturkol)

Production: 35 (U-2S/ST).
Inventory: 27 U-2; five TU-2 trainers.
Aircraft Location: Beale AFB, Calif.
Contractor: Lockheed Martin.
Power Plant: General Electric F118-GE-101 turbojet.
Accommodation: one (two for trainer).
Dimensions: span 105 ft, length 63 ft, height 16 ft.
Weight: max T-O 40,000 lb.
Ceiling: above 70,000 ft.
Performance: speed 410 mph, range 7,000+ miles.
COMMENTARY
The U-2 is the Air Force's premier high-altitude reconnaissance platform, capable of carrying Multi-int sensors simultaneously. 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 of the aircraft. Conversion to S model configuration began in October 1994.
Extant Variant(s)
■ U-2S. A single-seat aircraft. Each current operational U-2 is in Block 20 configuration, featuring a new glass cockpit using multifunction displays, a digital autopilot, a new EW system, and new data links. Sensor upgrades include the ASARS-2A SAR sensor; SYERS-2A EO imagery system (providing multispectral and IR capability); and enhanced RF-intelligence capability. Optical bar camera is also still in use, providing broad-area synoptic imagery coverage. Additional mods planned to extend operations to 2040.
■ TU-2ST. A two-seat trainer aircraft.

WC-130 Hercules
Brief: A high-wing, medium-range aircraft flown into the eye of tropical cyclones or hurricanes to collect weather data from within the storm's environment.
Function: Weather reconnaissance aircraft.
Operator: AFRC.
First Flight: circa 1996 (production J model).
Delivered: September 1999-2002.
IOC: 2005.
Production: 10.
Inventory: 10.
Aircraft Location: Keesler AFB, Miss.
Contractor: Lockheed Martin.
Power Plant: four Rolls Royce AE2100D3 turboprops, each 4,700 shp.
Accommodation: two pilots, navigator, aerial reconnaissance weather officer, weather recon loadmaster/dropsonde system operator.
Dimensions: span 132.5 ft, length 99.3 ft, height 38.5 ft.
Weight: max T-O 155,000 lb.
Ceiling: 28,000 ft.
Performance: speed 417 mph at 22,000 ft, range 1,841 miles with payload, endurance 18 hr at 300 mph.
COMMENTARY
Flown by AFRC's "Hurricane Hunters" to provide forecasting data for tropical disturbances and storms, hurricanes, and winter storms. An average mission lasts 11 hours and covers almost 3,500 miles. Configured with palletized weather instrumentation.
Extant Variant(s)
■ WC-130J. Weather reconnaissance version of the most recent C-130 model, operated by the 53rd

WC-135W Constant Phoenix (SSgt. Christopher Boitz)

***HC-130** King* (l) and an ***HH-60** Pave Hawk* (r) (MSgt. Sean Mitchell)

WRS for weather reconnaissance duties. Includes two external 1,400-gallon fuel tanks and internal 1,800-gallon tank. Features include improved radar and Dowty 391 six-bladed composite propellers. Equipment includes the GPS Dropsonde Wind-finding System, equipped with HF radio and sensing devices and released about every 400 miles over water, measuring and relaying to the aircraft a vertical atmospheric profile.

WC-135 Constant Phoenix
Brief: Collects particulate and gaseous effluents and debris in the atmosphere in support of the 1963 Limited Nuclear Test Ban Treaty.
Function: Air sampling and air collection.
Operator: ACC.
First Flight: 1965
Delivered: 1965-96.
IOC: December 1965.
Production: converted.
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 33, incl cockpit crew.
Dimensions: span 131 ft, length 140 ft, height 42 ft.
Weight: max T-O 300,500 lb.
Ceiling: 40,000 ft.
Performance: speed 403 mph, range 4,600 miles.
COMMENTARY
Program commissioned by Gen. Dwight D. Eisenhower on Sept. 16, 1947, using modified B-29 aircraft. In September 1949, a WB-29 flying between Alaska and Japan detected nuclear debris from Russia's first atomic test, much earlier than anticipated. Today, the air-sampling mission supports the Limited Nuclear Test Ban Treaty of 1963.
Extant Variant(s)
■ WC-135W. Either a modified C-135B or EC-135C (former Looking Glass aircraft). Collection suite allows mission crew to detect radioactive "clouds" in real time. The aircraft has external flow-through devices to collect particulates on filter paper and a compressor system for whole air samples collected in holding spheres. Cockpit crew comes from 45th RS at Offutt, and special equipment operators from Det. 1, Air Force Technical Applications Center, at Offutt.

Tanker Aircraft

HC-130J Combat King II
Brief: An extended range version of the C-130J dedicated as a personnel recovery platform, designed to operate in hostile environments and provide C2 and helicopter in-flight refueling.
Function: Aerial refueling/transport.
Operator: ACC, AETC, ANG, AFRC.
First Flight: July 29, 2010.
Delivered: from 2010.
IOC: 2013 planned.
Production: 37 planned.
Inventory: two.
Aircraft Location: Davis-Monthan AFB, Ariz.; Kirtland AFB, N.M. Planned: Francis S. Gabreski Arpt., N.Y.; JB Elmendorf-Richardson, Alaska; Moody AFB, Ga.; Patrick AFB, Fla.
Contractor: Lockheed Martin.
Power Plant: four Rolls Royce AE2100D3 turboprops, each 4,591 shp.
Accommodation: flight crew: two pilots, CSO, two loadmasters.
Dimensions: span 132.6 ft, length 97.8 ft, height 38.8 ft.
Weight: max T-O 164,000 lb.
Ceiling: 33,000 ft.
Performance: speed 363.4 mph at S-L, range 4,000+ miles.
COMMENTARY
Replacing HC-130N/Ps. Based on USMC KC-130J tanker baseline with enhanced service life wing and cargo handling system, boom refueling receptacle, EO/IR sensor, CSO console on flight deck, and dual satcom. Features also include INS/GPS, NVG-compatible lighting, FLIR, radar/missile warning receivers, chaff and flare dispensers.
Extant Variant(s)
■ HC-130J. First ACC aircraft delivered to 79th RQS at Davis-Monthan Sept. 24, 2011; first training aircraft delivered to 58th SOW at Kirtland Sept. 29, 2011. Plans also would add the Lightweight Airborne Radio System V12 to speed locating personnel and add the ALQ 213 EW management system to automate/integrate defensive systems. USAF expects to complete recapitalization and conversion efforts in 2023.

HC-130N/P King
Brief: An extended-range, CSAR-configured C-130 that extends the range of rescue helicopters through in-flight refueling and performs tactical delivery of pararescue jumper (PJ) specialists and/or equipment in hostile environments.
Function: Aerial refueling/transport.
Operator: ACC, AETC, ANG, AFRC.
First Flight: Dec. 8, 1964 (as HC-130H).
Delivered: from 1965.
IOC: 1986.
Production: 33 converted N/P models.
Inventory: nine HC-130N; 22 HC-130P.
Aircraft Location: Davis-Monthan AFB, Ariz.; Francis S. Gabreski Arpt., N.Y.; Kirtland AFB, N.M.; JB Elmendorf-Richardson, Alaska; Moody AFB, Ga.; Patrick AFB, Fla.
Contractor: Lockheed Martin.
Power Plant: four Allison T56-A-15 turboprops, each 4,910 shp.
Accommodation: officer: two pilots, navigator; enlisted: flight engineer, airborne comm specialist, two loadmasters, three PJs.
Dimensions: span 132.6 ft, length 98.8 ft, height 38.5 ft.
Weight: max T-O 155,000 lb.
Ceiling: 33,000 ft.
Performance: speed 289 mph at S-L, range 4,000+ miles.
COMMENTARY
Conducts operations to austere airfields and denied territory for expeditionary, all-weather personnel recovery operations, including airdrop, air-land, helicopter air-to-air refueling and forward areas refueling point missions. Secondary roles include humanitarian assistance, disaster response, security cooperation/aviation advisory, emergency medical evacuation, noncombatant evacuation, and spaceflight support for NASA. Features include integrated GPS/INS navigation package, NVG lighting, FLIR, radar/missile warning receivers, chaff/flare countermeasures dispensers, and data-burst communications. Both models to be replaced by HC-130J.
Extant Variant(s)
■ HC-130N. C-130H model modified with C-130E model radome, new center wing section, and the capability to refuel helicopters aerially.
■ HC-130P. C-130H model modified to refuel helicopters aerially.

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 AE 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-Dix-Lakehurst, 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: two pilots, flight engineer, boom operator; AE crew: two flight nurses, three medical technicians; other crew depending on mission. Load: up to 75 people and 17 pallets or 27 pallets—a total of nearly 170,000 lb.
Dimensions: span 165.4 ft, length 181.6 ft, height 58 ft.

***KC-10** Extender* (SSgt. J. G. Buzanowski)

Weight: max T-O 590,000 lb.
Ceiling: 42,000 ft.
Performance: speed 619 mph, range 11,500 miles, or 4,400 miles with max cargo.
COMMENTARY
USAF's largest air-refueling aircraft. Combines tasks of tanker and cargo aircraft simultaneously, enabling it to support worldwide fighter deployments. Employs an advanced aerial refueling boom or a hose and drogue system to refuel a wide variety of US and allied aircraft within the same mission. Can be air refueled by a KC-135 or another KC-10.
Extant Variant(s)
■ KC-10A. DC-10 Series 30CF, modified to include three large fuel tanks under the cargo floor, an air refueling operator's station, aerial refueling boom and integral hose reel/drogue unit, a receiver refueling receptacle, and military avionics. FY13 budget includes upgrades to communications, navigation, and surveillance equipment to meet civil air traffic requirements. Service life expected through 2045.

KC-46
Brief: A modified Boeing 767-200R that will provide air refueling capability for any military fixed wing aircraft and carry simultaneously a mixed load of passengers, patients, and palletized cargo.
Function: Aerial refueling/transport.
Operator: AMC.
First Flight: early 2015 (planned).
Delivered: from 2017 (planned).
IOC: TBD.
Production: 179.
Inventory: zero.
Aircraft Location: TBD.
Contractor: Boeing.
Power Plant: two Pratt & Whitney 4062, each 62,000 lb thrust.
Accommodation: 15 crew seats, incl aeromedical evacuat on crew. Passenger load: 58 or up to 114 for contingency operations. AE load: 58 patients (24 litters and 34 ambulatory). Cargo load: 18 pallet positions, max 65,000 lb.
Dimensions: span 157.7 ft, length 165.5 ft, height 52.8 ft.
Weight: max T-O 415,000 lb.
Ceiling: 43,000 ft (767).
Performance: (767) cruise speed 530 mph, range 6,500 miles.
COMMENTARY
Boeing awarded contract for 179 KC-46A tankers, the first increment toward replacing USAF's KC-135R fleet, on Feb. 24, 2011. Compared to the 50-year-old KC-135, the KC-46A will have enhanced refueling capabilities, including more fuel capacity, improved efficiency, and enhanced cargo and AE capability. Like the KC-10, it will employ both an advanced refueling boom and independently operating hose and drogue system.
Extant Variant(s)
■ KC-46A. Development continues. Initial flight expected in late 2014.

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 any USN, USMC, and allied aircraft; also provides AE transport.
Function: Aerial refueling/airlift.
Operator: AETC, AFMC, AMC, PACAF, USAFE-AFAFRICA, ANG, AFRC.
First Flight: August 1956.
Delivered: January 1957-65.
IOC: June 1957, Castle AFB, Calif.
Production: 732.
Inventory: 361 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.; Tinker AFB, Okla.; and ANG in Alabama, Arizona, Illinois, Iowa, Kansas, Maine, Michigan, Mississippi, New Hampshire, Nebraska, New Jersey, Ohio, Oklahoma, Pennsylvania, Tennessee, Utah, Washington, Wisconsin.
Contractor: Boeing.

KC-135 Stratotanker (MSgt. Ken Stephens)

Power Plant: four CFM International CFM56-2 (USAF designation F108) turbofans, each 21,634 lb thrust.
Accommodation: flight crew: two pilots, boom operator, plus navigator depending on mission; AE crew: two flight nurses, three medical technicians (adjusted for patient needs). Load: 37 passengers, six cargo pallets, max 83,000 lb.
Dimensions: span 130.8 ft, length 136.3 ft, height 41.7 ft.
Weight: max T-O 322,500 lb.
Ceiling: 50,000 ft.
Performance: speed 530 mph; range 1,500 miles with 150,000 lb transfer fuel, up to 11,015 miles for ferry mission.
COMMENTARY
Mainstay of the USAF tanker fleet for some 50 years, similar in size and appearance to commercial 707 aircraft but designed to military specifications.
Extant Variant(s)
■ KC-135R. Re-engined KC-135As with CFM turbofan engines. Can operate from relatively short runways. First flight October 1982; deliveries started July 1984. Twenty were modified with the Multipoint Refueling System (MPRS), allowing the use of hose-and-drogue systems either on wing pods or attached to the end of the boom that enable them to refuel US Navy and NATO aircraft. The MPRS also allows them to refuel two aircraft at once, one on each wing pod. Other KC-135s may use the shuttlecock-shaped drogue attached to the boom. Upgrades include Pacer CRAG avionics and Block 30 safety mods (completed 2002) and GATM mod (completed 2011). Link 16 capability also added to a limited number. Plans call for Block 45 flight deck mods, including a new digital flight director, digital radar altimeter, and electronic engine instrument displays. Fleet service life projected to 2045.
■ KC-135T aircraft (formerly KC-135Q) can carry different fuels in the wing and body tanks. Under same upgrade programs as R models.

Transports

C-5 Galaxy
Brief: A heavy-lift, air refuelable cargo transport for massive strategic airlift over long ranges, including oversize cargo.
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: 35 C-5A; 34 C-5B; two C-5C; eight C-5M.
Aircraft Location: Dover AFB, Del.; Eastern West Virginia Arpt., W.Va.; JBSA-Lackland, Tex.; Memphis Arpt., Tenn.; Stewart ANGB, N.Y.; Travis AFB, Calif.; Westover ARB, Mass.; Wright-Patterson AFB, Ohio.
Contractor: Lockheed Martin.
Power Plant: four General Electric TF39-GE-1C turbofans, each 43,000 lb thrust; (C-5M) four General Electric F138-GE-100 turbofans.
Accommodation: crew: two pilots, two flight engineers, three loadmasters. Load: 81 troops and 36 standard pallets, max 270,000 lb. There is no piece of Army combat equipment the C-5 can't carry.
Dimensions: span 222.9 ft, length 247.1 ft, height 65.1 ft.
Weight: max T-O 840,000 lb.
Ceiling: 45,000 ft.
Performance: speed 518 mph, range 2,473 miles with max payload (plus additional 575 miles after offload).
COMMENTARY
USAF's largest airlifter. One of world's largest aircraft. Can carry unusually heavy cargo over intercontinental ranges at jet speeds, take off and land in relatively short distances, taxi on substandard surfaces in emergencies. Front and rear cargo openings permit simultaneous drive-through loading and off-loading.
Extant Variant(s)
■ C-5A. Basic model; 81 delivered 1969-73. Has undergone a major wing mod, extending service life by 30,000 flight hours. Incorporates avionic subsystems developed for C-5B. USAF plans to retire most remaining A models.
■ C-5B. Embodies all improvements since completion of C-5A production, including strengthened wings, improved turbofans, and improved avionics, with color weather radar and triple INS. First flight September 1985. First delivery in January 1986.

C-5 Galaxy (SrA. Kelly Galloway)

C-17 Globemaster III (A1C Brett Clashman)

Some models equipped with defensive system.
■ C-5C. Two A variants modified to carry outsize space cargo for NASA.
■ C-5M. Upgraded aircraft called Super Galaxy. Upgraded with latest avionics (under Avionics Modernization Program) and new GE CF6-80C2 (F138) turbofans, with 200 percent increase in thrust. Equipped with other components installed under the Reliability Enhancement and Re-engining Program (RERP). First flight June 6, 2006. Developmental testing completed August 2008. Operational testing and evaluation concluded in 2010. First flight of production C-5M September 2010. USAF plans to modernize a total of 52 C-5s to the new C-5M standard, with delivery expected through FY17.

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: 16 C-12C; six C-12D; two C-12F; four C-12J.
Aircraft Location: Edwards AFB, Calif.; Holloman AFB, N.M.; JB Elmendorf-Richardson, Alaska; Yokota AB, Japan; various US embassies.
Contractor: Beech.
Power Plant: (C-12J) two Pratt & Whitney Canada PT6A-65B turboprops, each 1,173 shp.
Accommodation: crew: two pilots; load: (C-12J) up to 19 passengers or 3,500 lb cargo.
Dimensions: (C-12J) span 54.5 ft, length 57 ft, height 15 ft.
Weight: (C-12J) max T-O 16,710 lb.
Ceiling: (C-12J) 25,000 ft.
Performance: (C-12J) speed 284 mph, range 1,669 miles.
COMMENTARY
Military version of the Beechcraft King Air A200 series. Flight deck and cabin are pressurized for high-altitude flight. Incorporates a cargo door with an integral air-stair door.
Extant Variant(s)
■ C-12C. Re-engined C-12As, with PT6A-41 turboprops, deployed to US embassies.
■ C-12D. Similar to C model, with larger cargo doors and stronger wing. Also deployed to US embassies.
■ C-12F. With uprated PT6A-42 engines, up to eight passengers, accommodates AE litters.
■ C-12J. A military version of the larger Beechcraft Model 1900C, operated by PACAF. Can also transport two litters or 10 ambulatory patients for AE. Extensive avionics upgrade, including three MFDs, three integrated GPS, two flight management systems, new autopilot, VHF/UHF radios, and weather radar.

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: 217.
Aircraft Location: Allen C. Thompson Field, Miss.; Altus AFB, Okla.; Dover AFB, Del.; Edwards AFB, Calif.; JB Charleston, S.C.; JB Elmendorf-Richardson, Alaska; JB Lewis-McChord, Wash.; JB McGuire-Dix-Lakehurst, N.J.; JB Pearl Harbor-Hickam, Hawaii; March ARB, Calif.; Travis AFB, Calif. Planned: Wright-Patterson AFB, Ohio.
Contractor: Boeing.
Power Plant: four Pratt & Whitney F117-PW-100 turbofans, each 40,440 lb thrust.
Accommodation: flight crew: two pilots, loadmaster; AE crew: two flight nurses, three medical technicians (altered as required). Load: 102 troops/paratroops; 36 litter and 54 ambulatory patients; 18 pallet positions; max payload 170,900 lb.
Dimensions: span 169.8 ft, length 174 ft, height 55.1 ft.
Weight: max T-O 585,000 lb.
Ceiling: 45,000 ft.
Performance: speed 518 mph at 25,000 ft, range 2,760 miles with 169,000 lb payload.
COMMENTARY
Core airlifter of US military. Able to operate on small, austere airfields (3,500 ft by 90 ft) previously limited to C-130. Only aircraft able to directly air-land or air-drop outsize cargo into a tactical environment. First military transport to feature a full digital fly-by-wire control system.
Extant Variant(s)
■ C-17A. Ongoing modernization of original aircraft through Block 17. Improvements include open-system communications architecture, new weather radar, all-weather formation flying system, NVG lighting, HF data link. Full retrofit to Block 17 to be completed by FY15. Additional planned mods include an advanced IFF system and other software upgrades to meet new operational requirements.

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-AFAFRICA.
First Flight: December 1979.
Delivered: September 1983-89.
IOC: circa 1983.
Production: not available.
Inventory: five C-20B; three C-20C; two C-20H; one C-20K.
Aircraft Location: JB Andrews, Md.; Ramstein AB, Germany.
Contractor: Gulfstream.
Power Plant: two Rolls Royce Spey MK511-8 turbofans (C-20B), each 11,400 lb thrust; two Rolls Royce Tay MK611-8 turbofans (C-20H), each 13,850 lb thrust.
Accommodation: crew: two pilots, flight engineer, communication system operator, flight attendant. Load: 12 passengers.
Dimensions: span 77.8 ft, length 83.1 ft (B), 88.3 ft (H), height 24.5 ft.
Weight: max T-O 69,700 lb (B), 74,600 lb (H).
Ceiling: 45,000 ft.
Performance: speed 576 mph; range 4,250 miles (B), 4,850 miles (H).
COMMENTARY
C-20A/B models initially acquired to replace C-140B Jetstar aircraft.
Extant Variant(s)
■ C-20B. With advanced mission communications equipment and revised interior, delivered in 1988.
■ C-20H. Gulfstream IV SP aircraft, with advanced technology flight management systems and upgraded Rolls Royce engines acquired 1992. Equipped with GPS, vertical separation equipment, GATM, and traffic alert and collision avoidance system (TCAS).

C-21 Learjet
Brief: Aircraft designed to provide cargo and passenger airlift and transport litters during AE.
Function: Pilot seasoning, passenger and cargo airlift.
Operator: AETC, AMC, USAFE-AFAFRICA, ANG.
First Flight: January 1973.
Delivered: April 1984-October 1985.
IOC: April 1984.
Production: 84.
Inventory: 47.
Aircraft Location: Bradley Arpt., Conn.; Buckley AFB, Colo.; Hector Arpt., N.D.; JB Andrews, Md.;

C-21 Learjet (MSgt. David H. Lipp)

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: two pilots; AE crew: flight nurse, two medical technicians (adjusted as required). Load: eight passengers and 3,153 lb cargo; one litter or five ambulatory patients.
Dimensions: span 39.5 ft, length 48.6 ft, height 12.2 ft.
Weight: max T-O 18,300 lb.
Ceiling: 45,000 ft.
Performance: speed 530 mph at 41,000 ft, range 2,306 miles.
COMMENTARY
Provides operational support for time-sensitive movement of people and cargo throughout the US and European Theaters, including AE missions if required.
Extant Variant(s)
■ C-21A. Military version of the Learjet 35A. Upgrades included color weather radar, TACAN, and HF/VHF/UHF radios. Budget/resource decisions that would have cut fleet in half are on hold at least through FY13.

C-27 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)
Delivered: 2010.
IOC: 2011.
Production: 38 (planned).
Inventory: 12.
Aircraft Location: 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: crew: two pilots, two loadmasters. Load: up to 68 troops or 24 paratroops; 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: max T-O 70,000 lb.
Ceiling: 30,000 ft.
Performance: speed 374 mph, range 1,150 miles with 22,046 lb payload.
COMMENTARY
Derivative of Alenia G.222, selected in 2007 to fulfill the Joint Cargo Aircraft requirement. Acquired to support ground forces served only by the most basic airstrips or for missions where the C-130 would operate at half-load capacity. USAF expects to divest all its C-27Js by the end of FY13, whether to another service or government agency or to the Boneyard.
Extant Variant(s)
■ C-27J. Equipped with digital avionics suite, NVG-compatible cockpit. Floor strength is equal to that of the C-130, and the cargo bay can accommodate C-130 pallets.

C-32 Air Force Two
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).
Delivered: June-December 1998.
IOC: 1998.
Production: six.
Inventory: four C-32A; two C-32B.
Aircraft Location: JB Andrews, Md.; JB McGuire-Dix-Lakehurst, N.J.
Contractor: Boeing.
Power Plant: two Pratt & Whitney PW2040 turbofans, each 41,700 lb thrust.
Accommodation: crew: 16 (varies with mission). Load: up to 45 passengers.
Dimensions: span 124.6 ft, length 155.2 ft, height 44.5 ft.
Weight: max T-O 255,000 lb.
Ceiling: 42,000 ft.
Performance: speed 530 mph, range 6,325 miles.
COMMENTARY
Using COTS acquisition practices, contract award to first delivery in less than two years.
Extant Variant(s)
■ C-32A. Specially configured Boeing 757-200 airliner. Cabin divided into four sections: forward, communications center, galley, lavatory, 10 business-class seats; second, full-enclosed stateroom with private lavatory, two first-class swivel seats, convertible divan; third, conference and staff area with eight business-class seats; rear, 32 business-class seats galley, two lavatories. Communications system provides worldwide clear and secure voice and data communications. Modern flight deck avionics are upgradeable.

***C-32A** Air Force Two* (Sam Meyer)

C-37 Gulfstream V
Brief: Modified Gulfstream aircraft used for worldwide special air missions for high-ranking government and DOD officials.
Function: VIP air transport.
Operator: AMC, PACAF, USAFE-AFAFRICA.
First Flight: USAF October 1998.
Delivered: from October 1998.
IOC: Dec. 9, 1998.
Production: 10 C-37A; two C-37B.
Inventory: eight C-37A; three 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: crew: five. Load: up to 12 passengers.
Dimensions: span 93.5 ft, length 96.4 ft, height 25.8 ft.
Weight: max T-O 90,500 lb.
Ceiling: 51,000 ft.
Performance: speed 600 mph, range 6,300 miles.
COMMENTARY
Military versions of "ultralong range" Gulfstream business aircraft.
Extant Variant(s)
■ C-37A. Military version of Gulfstream V. Includes separate VIP and passenger areas and a communications system capable of worldwide clear and secure voice and data. Features include enhanced weather radar, autopilot, and advanced HUD.
■ C-37B. Military version of the Gulfstream 550, modified for VIP duties. Has Honeywell PlaneView flight deck. Upgrades include a directional IR countermeasures system.

C-38 Courier
Brief: A twin-engine transcontinental aircraft used to provide VIP transportation for congressional or high-ranking military members.
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: crew: two pilots. Load: up to eight passengers or, for AE 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: max T-O 24,800 lb.
Ceiling: 33,000 ft.
Performance: speed 662 mph, range 3,000 miles.
COMMENTARY
Military version of Astra SPX produced by IAI and supported worldwide by Galaxy Aerospace.
Extant Variant(s)
■ C-38A. Acquired in 1998. Equipment includes

***C-37A** Gulfstream V* (A1C Brea Miller)

modern avionics, navigation, communication, vertical separation, and safety equipment.

C-40 Clipper
Brief: A Boeing 737-700 used primarily for medium-range airlift of senior military commanders, Cabinet officials, and members of Congress.
Function: Passenger transportation.
Operator: AMC, PACAF, USAFE-AFAFRICA, ANG, AFRC.
First Flight: USN C-40A: April 14, 1999.
Delivered: 2002.
IOC: not available.
Production: 11.
Inventory: four C-40B; seven C-40C.
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 27,000 lb thrust.
Accommodation: crew: 10 (varies with model and mission). Load: up to 89 passengers (C-40B); up to 111 (C-40C).
Dimensions: span 117.4 ft, length 110.3 ft, height 41.2 ft.
Weight: max T-O 171,000 lb.
Ceiling: 41,000 ft.
Performance: speed 530 mph, range 5,750 miles.
COMMENTARY
The C-40, which added winglets to Boeing 737-700, transports VIPs and performs other operational support missions. Both versions have modern avionics, integrated GPS and flight management system/electronic flight instrument system, and HUD. Each also has auxiliary fuel tanks and managed passenger communications.
Extant Variant(s)
■ C-40B. Equipped with an office-in-the-sky arrangement, including clear and secure voice/data communication and broadband data/video.
■ C-40C. Does not have the advanced communications of the B model. It does have a VIP area, including sleep accommodations, and can be configured to carry from 42 to 111 passengers.

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, AMC, PACAF, USAFE-AFAFRICA, ANG, AFRC.
First Flight: August 1954 (C-130A).
Delivered: December 1956-present (C-130J).
IOC: circa 1958.
Production: more than 2,200.
Inventory: 13 C-130E; 275 C-130H; 91 C-130J.
Aircraft Location: Dobbins ARB, Ga.; Dyess AFB, Tex.; 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 Field, N.C.; Ramstein AB, Germany; Yokota AB, Japan; Youngstown ARS, Ohio; and ANG in Alaska, Arkansas, California, Delaware, Georgia, Hawaii, Illinois, Kentucky, Minnesota, Missouri, Nevada, New York, North Carolina, Ohio, Puerto Rico, Rhode Island, Tennessee, Texas, West Virginia, Wyoming.
Contractor: Lockheed Martin.
Power Plant: four Allison T56-A-7 turboprops (C-130E), 4,200 shp; four Allison T56-A-15 turboprops (C-130H), each 4,591 shp; four Rolls Royce AE2100D3 turboprops (C-130J), each 4,700 shp.
Accommodation: E/H crew: two pilots, navigator, flight engineer, loadmaster. J/J-30 crew: two pilots, loadmaster. E/H/J load: up to 92 combat troops or 64 paratroopers or 74 litters or six cargo pallets or 16 Container Delivery System (CDS) bundles or any combination of these up to max weight for each version. J-30 load: 128 combat troops or 92 paratroopers or 97 litters or eight pallets or 24 CDS bundles or any combination of these up to max weight.
Dimensions: span 132.6 ft, length 97.8 ft, height 38.8 ft.; J-30 length 112.8 ft.
Weight: max T-O 155,000 lb (E/H/J), 164,000 lb (J-30); max payload 42,000 lb (E/H/J), 44,000 lb (J-30).

***C-130** Hercules* (SMSgt. Ray Lloyd)

Ceiling: with max payload, 19,000 ft (E), 23,000 ft (H), 26,000 ft (J), 28,000 (J-30).
Performance: speed 345 mph (E), 366 mph (H), 417 mph (J), 410 mph (J-30); range with 35,000 lb payload 1,438 miles (E), 1,496 miles (H), 1,841 miles (J), 2,417 miles (J-30).
COMMENTARY
All-purpose theater transport that operates throughout USAF, performing diverse roles. Missions include tactical and intertheater airlift and airdrop support, Arctic resupply, AE flights, aerial spraying, firefighting duties for the US Forest Service, and natural disaster and humanitarian relief missions. FY13 budget decision would terminate the C-130H Avionics Modernization Program (AMP), which would have enabled the model to fly without a navigator, and instead pursue a less ambitious safety of navigation upgrade only.
Extant Variant(s)
■ C-130E. Extended-range version of early Hercules. Total of 389 ordered, with first deliveries in 1962. Original wing modified to correct fatigue and corrosion. Self-contained nav system, with an integrated communications/navigation management suite, GPS capability, and a state-of-the-art autopilot.
■ C-130H. Model generally similar to E, with updated turboprops, redesigned outer wing, improved pneumatic systems. First delivery in July 1974. Equipped with updated avionics, improved low-power color radar, NVG lighting. ANG LC-130Hs modified with wheel-ski gear and eight-bladed props to support Arctic and Antarctic operations. Modernized with digital displays, flight management systems, multifunction radar, new communications systems, and a single air data computer.
■ C-130J. Features three-crew flight operations system, more powerful engines, all composite six-blade propeller system, digital avionics, and mission computers. Flies faster, higher, and farther than earlier C-130s. ANG and AFRC units began receiving J models in 1999, Active units in 2004. First wartime deployment in 2004.
■ C-130J-30. Stretch version of the J model capable of larger payload. ANG began receiving J-30 models in 2001, Active Duty and AFRC units in 2004.

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.

***VC-25** Air Force One* (SrA. Elizabeth Slater)

Delivered: August-December 1990.
IOC: circa 1990.
Production: two.
Inventory: two.
Aircraft Location: JB Andrews, Md.
Contractor: Boeing.
Power Plant: four General Electric CF6-80C2B1 turbofans, each 56,700 lb thrust.
Accommodation: crew: 26; load: up to 76 passengers.
Dimensions: span 195.7 ft, length 231.8 ft, height 63.4 ft.
Weight: max T-O 833,000 lb.
Ceiling: 45,100 ft.
Performance: speed 630 mph, range 7,800 miles.
COMMENTARY
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.
Extant Variant(s)
■ VC-25A. Flown by the Presidential Airlift Group at the 89th AW. Service life remaining five years. FY14 budget would continue funding for service life extension upgrades.

Helicopters

HH-60 Pave Hawk
Brief: Specially modified helicopters used primarily for personnel recovery in hostile environments. Also conduct AE, civil SAR, disaster and humanitarian response, and other support missions.
Function: Personnel recovery medium-lift helicopter.
Operator: ACC, AETC, AFMC, PACAF, USAFE-AFAFRICA, ANG, AFRC.
First Flight: October 1974 (HH-60G).
Delivered: from 1982 (HH-60G).
IOC: circa 1982 (HH-60G).
Production: 105 (HH-60G).
Inventory: 99 HH-60G; four HH-60U.
Aircraft Location: Davis-Monthan AFB, Ariz.; Eglin AFB, Fla.; Francis S. Gabreski Arpt., N.Y.; JB Elmendorf-Richardson, Alaska; Kadena AB, Japan; Kirtland AFB, N.M.; Moffett Field, Calif.; Moody AFB, Ga.; Nellis AFB, Nev.; Patrick AFB, Fla.; RAF Lakenheath, UK.
Contractor: United Technologies/Sikorsky.
Power Plant: HH-60G: two General Electric T700-GE-700/701C turboshafts, each 1,560-1,940 shp; HH-60M: two GE T700-GE-701D turboshafts, 1,940-3,938 shp.
Accommodation: crew: two pilots, flight engineer, gunner. Load: mission dependent.
Dimensions: HH-60G: rotor diameter 53.6 ft, overall length 64.7 ft, height 16.7 ft. HH-60M: rotor diameter 53.7 ft., overall length 64.8 ft (fuselage 49.8 ft), height 16.9 ft.
Weight: max T-O 22,000 lb.
Ceiling: 14,000 ft (G).
Performance: speed 184 mph; range 580 miles (G).
Armament: two 7.62 mm miniguns or two .50-caliber machine guns.
COMMENTARY
Both versions are highly modified Black Hawk helicopters. The HH-60G was acquired by USAF in the early 1980s and has been in continuous use by Active Duty, ANG, and AFRC air rescue units. Under a short-term-fix operational loss replacement (OLR) program, USAF is procuring 24 UH-60s through the Army contract. Future plans call for a new Combat Rescue Helicopter to replace the HH-60G fleet, with contract award expected in FY13.
Extant Variant(s)
■ HH-60G. Equipped with advanced communications/navigation suite that includes INS/GPS/Doppler navigation systems, satcom, secure/anti-jam communications, and a precision landing system (PLS) that provides range/steering data to survivor radios. 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 machine guns. FY13 funding would update the IFF system and make mission-critical avionics and safety of flight mods.

HH-60 Pave Hawk (MSgt. Sean Mitchell)

■ HH-60U. Initial three aircraft purchased under OLR program are receiving minimal mods to be used by a noncombat-coded unit, freeing up three combat-coded Pave Hawks for deployed units. Subsequent OLR-purchased helicopters will be modified to the current HH-60G configuration.

UH-1 Iroquois
Brief: Modified Bell helicopter used to provide security and support for Air Force ICBM systems, undergraduate pilot training, combat aviation advisor training, and administrative airlift.
Function: Light-lift utility and training helicopter.
Operator: AETC, AFDW, AFGSC, AFMC, AFSOC, AMC, PACAF.
First Flight: 1956.
Delivered: from September 1970 (UH-1N).
IOC: circa 1970.
Production: 20 TH-1H; many UH-1H; 79 UH-1N.
Inventory: 24 TH-1H; 10 UH-1H; 63 UH-1N.
Aircraft Location: Eglin AFB, Fla.; Fairchild AFB, Wash.; F. E. Warren AFB, Wyo.; Fort Rucker, Ala.; Hurlburt Field, Fla.; JB Andrews, Md.; Kirtland AFB, N.M.; Malmstrom AFB, Mont.; Minot AFB, N.D.; Yokota AB, Japan.
Contractor: Bell, Lockheed Martin (TH-1H prime).
Power Plant: TH-1H: one Honeywell T53-L-703 turboshaft, 1,800 shp. UH-1H: one Lycoming T53-L-13B turboshaft, 1,400 shp. UH-1N: two Pratt & Whitney Canada T400-CP-400 turboshafts, 1,290 shp.
Accommodation: UH-1N crew: two pilots, flight engineer; load: up to 13 passengers (depending on fuel and atmospheric conditions) or up to six litters or, without seats, bulky, oversize cargo.
Dimensions: TH-1H: rotor diameter 48.0 ft, length 57 ft, height 13 ft. UH-1H: rotor diameter 48.3 ft, length 57.1 ft, height 13.6 ft. UH-1N: rotor diameter 48 ft, length 57.1 ft, height 12.8 ft.
Weight: max gross 10,500 lb (TH-1H), 9,500 lb (UH-1H), 10,500 (UH-1N).
Ceiling: 15,000 ft (10,000 ft with 10,000+ lb).
Performance: (UH-1N) speed 149 mph, range 300+ miles.
Armament: (optional) two General Electric 7.62 mm miniguns or two 40 mm grenade launchers; two seven-tube 2.75-in rocket launchers.
COMMENTARY
UH-1N aircraft initially provided SAR capabilities, and then began replacing the UH-1Hs at missile wings and taking on other missions. With termination of the Common Vertical Lift Support Program (CVLSP) (also called the Common Support Helicopter), USAF may fly the 40-year-old UH-1N for at least another 10 years.
Extant Variant(s)
■ TH-1H. Modified version of the UH-1H for use by the 23rd FTS at Fort Rucker for Air Force undergraduate helicopter pilot training.
■ UH-1H. Single-engine version of UH-1 utility helicopter, based on Bell 205. AFSOC maintains two for combat aviation advisor training.
■ UH-1N. Military version of the Bell 212. Most used for ICBM security and administrative/VIP airlift. Also used by AETC's 58th SOW at Kirtland for training purposes and by the 336th TRG at Fairchild for aircrew survival training. AFSOC maintains two for combat aviation advisor training. With CVLSP termination, AFGSC plans to provide selective mods, including an NVG-capable cockpit, upgraded sensors, and safety and sustainment improvements to extend fleet life and usefulness. USAF plans to purchase three or more USMC UH-1Ns to offset operational losses.

Trainers

T-1 Jayhawk
Brief: A medium-range, twin-engine jet trainer version of the Beechcraft 400A. Used by USAF to train student airlift and tanker pilots and student combat systems operators.
Function: Advanced pilot training.
Operator: AETC, AFRC.
First Flight: Sept. 22, 1989 (Beechcraft 400A).
Delivered: Jan. 17, 1992-July 1997.
IOC: January 1993.
Production: 180.

Inventory: 178.
Aircraft Location: Columbus AFB, Miss.; Laughlin AFB and JBSA-Randolph, Tex.; Vance AFB, Okla.; NAS Pensacola, Fla.
Contractor: Hawker Beechcraft.
Power Plant: two Pratt & Whitney Canada JT15D-5B turbofans, each 2,900 lb thrust.
Accommodation: three pilots, two side by side, one to the rear.
Dimensions: span 43.5 ft, length 48.4 ft, height 13.9 ft.
Weight: max T-O 16,100 lb.
Ceiling: 41,000 ft.
Performance: speed 538 mph, range 2,555 miles.
COMMENTARY
Military version of Beech 400A used in the advanced phase of JSUPT for students selected to fly tanker or transport aircraft. Also used to train student CSOs.
Extant Variant(s)
■ T-1A. Cockpit seating for instructor and two students. Mods include UHF/VHF radios, INS, TACAN, airborne detection finder, increased bird-strike resistance, and an additional fuselage fuel tank. CSO training aircraft also have GPS-driven SAR and simulated RWR and have a second student and second instructor station.

T-6 Texan II
Brief: A single-engine turboprop aircraft used for primary pilot training for Air Force and Navy pilots.
Function: Primary trainer.
Operator: AETC, USN.
First Flight: July 15, 1998.
Delivered: from May 2000 (operational aircraft).
IOC: November 2001.
Production: Planned: 452 (USAF); 315 (USN).
Inventory: 445 (USAF).
Aircraft Location: USAF: Columbus AFB, Miss.; Laughlin AFB, JBSA-Randolph, and Sheppard AFB, Tex.; Vance AFB, Okla. USN: NAS Corpus Christi, Tex.; NAS Whiting, Fla.; NAS Pensacola, Fla.
Contractor: Hawker Beechcraft (formerly Raytheon).
Power Plant: one Pratt & Whitney Canada PT6A-68 turboprop, 1,100 shp.
Accommodation: two pilots, in tandem, on zero/zero ejection seats.
Dimensions: span 33.5 ft, length 33.4 ft, height 10.7 ft.
Weight: basic 6,500 lb.
Ceiling: 31,000 ft.
Performance: speed 320 mph, range 1,035 miles.
COMMENTARY
Trainer based on Swiss Pilatus PC-9 aircraft, modified to include a strengthened fuselage, zero/zero ejection seats, upgraded engine, increased fuel capacity, pressurized cockpit, bird-resistant canopy, and digital avionics.
Extant Variant(s)
■ T-6A. Purchased by USAF to replace T-37 and Navy to replace T-34 as primary pilot trainer. (Navy also acquiring B model.) Student and instructor positions—one in front of the other—are interchangeable. May be flown by one pilot in front seat. Full aerobatic and features an anti-G system, ejection seat, and advanced avionics package with sunlight readable LCDs.
■ T-6B. Navy is also purchasing this variant with upgraded glass cockpit avionics suite, including six MFDs, backup flight instrument, HUD, hands-on-throttle-and-stick functionality, and integrated computers.

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 (IFFT).
Function: Trainer.
Operator: ACC, AETC, AFMC, AFRC.
First Flight: April 1959.
Delivered: 1961-72.
IOC: March 1961.
Production: more than 1,100.
Inventory: 54 T-38A; 448 T-38C.
Aircraft Location: Beale AFB and Edwards AFB, Calif.; Columbus AFB, Miss.; Holloman AFB, N.M.; JB Langley-Eustis, Va.; JBSA-Randolph and Sheppard AFB, Tex.; Tyndall AFB, Fla.; Vance AFB, Okla.
Contractor: Northrop Grumman.
Power Plant: two General Electric J85-GE-5 turbojets, each 2,900 lb thrust with afterburning.
Accommodation: two pilots in tandem ejection seats.
Dimensions: span 25.3 ft, length 46.3 ft, height 12.8 ft.
Weight: max T-O 12,093 lb.
Ceiling: above 55,000 ft.
Performance: speed 812 mph, range 1,093 miles.
COMMENTARY
Most now used by AETC for advanced bomber-fighter training track in JSUPT and IFFT. 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 in experimental techniques, and by ACC as a companion trainer to maintain pilot proficiency. ACC also uses regenerated T-38s as dedicated aggressor aircraft for F-22 training.
Extant Variant(s)
■ T-38A. Close in structure to the F-5A export tactical fighter. World's first supersonic trainer aircraft. Underwent structural renewal in successive Pacer Classic I and II mods, first begun in 1984, to extend service life.
■ T-38C. Redesignated after Avionics Upgrade Program, which added glass cockpit avionics, including HUD, color MFDs, mission computer, and INS/GPS. First model delivered 2002; last delivery 2007. Life sustaining measures include propulsion mods to replace major engine components to improve reliability and maintainability. Ongoing upgrades include Pacer Classic III, the latest structural renewal effort, which will replace major longerons, bulkheads/formers, internal skins, and structural floors, and an escape system upgrade. Service life expected to 2020.

T-38 Talon (SSgt. Robert M. Trujillo)

T-41 Mescalero
Brief: Short-range, high-wing trainer used primarily for aerodynamic and navigation courses.
Function: Training, support.
Operator: AETC.
Delivered: 1968.
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: max T-O 2,550 lb.
Ceiling: 14,000 ft.
Performance: speed 182 mph, range 630 miles.
COMMENTARY
Used primarily by US Air Force Academy.
Extant Variant(s)
■ T-41C. Military version of Cessna 172. All-metal, strut-braced high-wing monoplane. Equipped with modern avionics, GPS, and other equipment appropriate to its mission. Used for Aero 456 flight testing, USAFA flying team support, orientation flights.

T-51 Cessna
Brief: A short-range, high-wing aircraft used primarily by the USAFA Flying Team during intercollegiate competitions.
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 ft, height 8.5 ft.
Weight: (Cessna 150M) max T-O 1,760 lb.
Ceiling: 12,600 ft.
Performance: speed 162 mph, range 450 miles.
COMMENTARY
Military designation for civilian Cessna 150. All-metal, strut-braced, high-wing monoplane.
Extant Variant(s)
■ T-51A. The aircraft is equipped with modern

TG-10C Kestrel (Mike Kaplan)

avionics, GPS, and other equipment appropriate to its mission.

T-53
Brief: A Cirrus SR20 personal aircraft with advanced avionics and safety features for USAFA's Powered Flight Program.
Function: Training.
Operator: AETC.
Delivered: 2012.
Inventory: 25.
Aircraft Location: USAFA, Colo.
Contractor: Cirrus.
Power Plant: one Continental IO-360-ES six-cylinder, fuel-injected, air-cooled engine, 200 hp.
Accommodation: two, side by side, plus three passengers.
Dimensions: span 38.3 ft, length 26 ft, height 8.9 ft.
Weight: max T-O 3,050 lb.
Ceiling: 17,500 ft.
Performance: speed 178 mph, range 690 miles.
COMMENTARY
Military designation for civilian Cirrus SR20. All-composite monoplane.
Extant Variant(s)
■ T-53A. The aircraft is equipped with modern avionics, GPS, and Cirrus Airframe Parachute System, integrated fuselage roll cage, cuffed wing design, and other active and passive safety systems and features that are standard on Cirrus aircraft.

TG-10 Merlin/Kestrel
Brief: TG-10B variant used as a Basic Soaring Trainer, while the TG-10C is used as an aerobatic glider for competitions and demonstrations.
Function: Trainer.
Operator: AETC.
Delivered: May 2002.
IOC: December 2002.
Inventory: 12 (B); three (C); four (D).
Aircraft Location: USAFA, Colo.
Contractor: Blanik.
Accommodation: two.
Dimensions: span 55.4 ft (B), 46.6 ft (C); length 27.9 ft (B), 27.6 ft (C); height 6.2 ft (B), 6.9 ft (C).
Weight: 1,168 lb (B), 1,100 lb (C).
Performance: speed 142.6 mph (B), 146.1 mph (C); glide ratio 28:1 (B), 26:1 (C).
COMMENTARY
Both USAF models, produced in the Czech Republic, have a common cockpit and control layout, allowing cadets to move between the two as necessary.
Extant Variant(s)
■ TG-10B Merlin. Civilian L-23 Super Blanik sailplane.
■ TG-10C Kestrel. Civilian L-13AC Blanik sailplane.
■ TG-10D Kestrel. Civilian L-13AC Blanik sailplane.

TG-15 Duo Discus/Duo 2B
Brief: Sailplane used for advanced cross-country training and competition.
Function: Trainer/cross-country competition sailplane.
Operator: AETC.
Inventory: two (A); three (B).
Aircraft Location: USAFA, Colo.
Contractor: Schempp-Hirth, Germany.
Accommodation: two-seat (A), single-seat (B).
Dimensions: span 65.6 ft (A), 49.2 ft (B); length 28.3 ft (A), 22.3 ft (B).
Weight: 1,543 lb (A), 1,157 lb (B).
Performance: max permitted speed 155 mph.
COMMENTARY
Sailplanes manufactured by Schempp-Hirth of Germany. Used for cross-country soaring training and Soaring Society of America national competitions.
Extant Variant(s)
■ TG-15A. Two-seat variant.
■ TG-15B. Single-seat variant.

UV-18 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).

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

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: two pilots; load: up to 20 passengers.
Dimensions: span 65 ft, length 51.9 ft, height 18.7 ft.
Weight: max T-O 12,500 lb.
Ceiling: 25,000 ft.
Performance: speed 210 mph, range 806 miles.
COMMENTARY
Used at USAFA to support various parachuting activities and perform general utility missions. Used by the Air Force Parachute Team, The Wings of Blue.
Extant Variant(s)
■ UV-18B Military variant of the civilian DeHavilland DHC-6 Twin Otter.

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.
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: Andersen AFB, Guam (conventional only); Barksdale AFB, La.; Minot AFB, N.D.
Contractor: Boeing.
Power Plant: Williams/Teledyne CAE F107-WR-10 turbofan, 600 lb thrust.
Guidance: inertial plus Terrain Contour Matching (B); inertial plus GPS (C/D).
Warhead: W80-1 nuclear (B), blast/fragmentation conventional (C), hard target penetrating warhead (D).
Dimensions: span 12 ft, length 20.8 ft, body diameter 2 ft.
Weight: 3,150 lb.
Performance: speed 550 mph (B), high subsonic (C/D); range 1,500+ miles (B), 690 miles (C/D).
COMMENTARY
Programmed to conduct strategic attack—nuclear or conventional—on surface targets. Small radar signature and low-level flight capability enhance the missile's effectiveness.
Extant Variant(s)
■ AGM-86B. First production version. Last of 1,715 delivered in 1986. Undergoing SLEP to extend life to 2030. USAF to cut inventory to 528 nuclear types. Force to be consolidated at Minot.
■ AGM-86C. Conventional warhead version, called CALCM. Some 600 B models converted; initial deliveries in 1987. Few remain in inventory. First used operationally in Desert Storm; used widely in subsequent combat operations. Provides adverse weather, day/night, air-to-surface, accurate, stand-off strike capability. Range greater than 500 miles. Block 1A enhancements offer improved accuracy and increased immunity to electronic jamming.
■ AGM-86D. CALCM Block II penetrator version with AUP-3(M) warhead. Provides standoff capability against hardened, deeply buried targets. Used with success in Southwest Asia operations.

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 1973.
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, 202,600 lb thrust; stage 2: Aerojet General SR19-AJ-1 solid-propellant motor, 60,721 lb thrust; stage 3: Thiokol SR73-AJ-1 solid-propellant motor, 34,400 lb thrust.
Guidance: inertial guidance system.
Warhead: one Mk 21 RV or one-three Mk 12/12A MIRVs.
Dimensions: length 59.9 ft, diameter 5.5 ft.
Weight: weight 79,432 lb.
Performance: speed at burnout approx 15,000 mph, range 6,000+ miles.
COMMENTARY
Three-stage, solid-propellant ICBM in underground

***AIM-120** AMRAAM* (Lockheed Martin photo/Matthew Short)

silo. Sole remaining US land-based ICBM. Major life extension program ensures viability to 2020. Ongoing mods would extend that to 2030.
Extant Variant(s)
■ LGM-30G. Minuteman III became operational in 1970, providing improved range, rapid retargeting, and the capability to place three re-entry vehicles on three targets with a high accuracy. USAF initially deployed 550, later reducing to 500 based at Warren, Malmstrom, and Minot. Deactivation of a further 50 completed in July 2008.

Tactical Missiles and Weapons

AGM-65 Maverick
Brief: A tactical, TV or 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.
Contractor: Raytheon.
Power Plant: Thiokol TX-481 solid-propellant rocket motor.
Guidance: EO TV guidance system (B/H/K); IIR seeker (D/G); laser seeker (E).
Warhead: 125-lb cone-shaped (B/D/H); 300-lb delayed-fuse penetrator (E/G/K).
Dimensions: span 2.3 ft, length 8.2 ft, diameter 12 in.
Performance: classified.
COMMENTARY
First employed during Vietnam War; used extensively in Desert Storm and Iraqi Freedom. Integrated with A-10 and F-16 for use against tanks and columns of vehicles and in the SEAD role.
Extant Variant(s)
■ AGM-65B. A launch-and-leave, EO TV guided missile. Equipped with "scene magnification" TV seeker allowing pilot to identify and lock on to smaller or distant targets.
■ AGM-65D. Employs an IIR seeker to overcome daylight-only, adverse weather limits of B variant. Became operational in 1986 on A-10 aircraft.
■ AGM-65E. Laser guided version used by USAF and USMC. Employs heavyweight penetrator warhead.
■ AGM-65G. Uses IIR seeker with software mods to track larger targets. Employs heavyweight penetrator warhead. Has digital autopilot and a pneumatic actuation system. First delivered in 1989.
■ AGM-65H. Upgraded B variant to increase capability. Undergoing tracker upgrade.
■ AGM-65K. Modified G variant, replacing IR guidance system with EO TV guided seeker. Undergoing tracker upgrade.
■ AGM-65L. New laser Maverick to strike moving targets traveling at high speed. Will use EO TV seeker components with new semi-active laser (SAL) components.

AGM-88 HARM
Brief: A tactical air-to-surface 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.
Contractor: Raytheon.
Power Plant: Thiokol dual-thrust, solid-propellant rocket motor.
Guidance: proportional with fixed antenna and seeker head in missile nose.
Warhead: high-explosive fragmentation.
Dimensions: span 3.7 ft, length 13.7 ft, diameter 10 in.
Performance: speed supersonic, range 30+ miles.
COMMENTARY
Joint USAF-Navy weapon. Great velocity and ability to cover wide range of frequencies with use of programmable digital processors in carrier aircraft's avionics and missile. Highly effective against enemy ground radar. Carried by USAF F-16CJ Block 50/52s dedicated to SEAD mission.
Extant Variant(s)
■ AGM-88B. Equipped with erasable and electronically programmable read-only memory, permitting in-field changes to missile memory.
■ AGM-88C. Current production model. Has warhead more lethal than earlier variants. Control section mod replacing current navigation system with GPS and inertial measurement unit; upgraded missiles to be redesignated AGM-88F.

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).
Contractor: Raytheon.
Guidance: GPS/INS.
Warhead: (see variants below).
Dimensions: length 13.3 ft, diameter 13 in.
Performance: range 13.8 miles low altitude, 73 miles high altitude.
COMMENTARY
Medium-range, GPS/INS guided, standoff air-to-ground weapon. Used to attack a variety of soft and armored area targets during day and night, and adverse weather conditions. USAF stopped its production in FY05.
Extant Variant(s)
■ AGM-154A. The baseline BLU-97 CEM variant for use against soft and area targets.
■ AGM-154B. The BLU-108 variant provides anti-armor capability.

AGM-158 Joint Air-to-Surface Standoff Missile
Brief: An advanced weapon designed to attack heavily defended targets with high precision at great standoff range. Joint USAF-Navy program.
Function: Air-to-surface guided weapon.
First Flight: April 8, 1999.
Delivered: through FY19 (planned).
IOC: September 2003.
Contractor: Lockheed Martin, Raytheon, Honeywell.
Power Plant: Teledyne Continental Motors turbojet (baseline); Williams Intl. turbofan (ER).
Guidance: GPS/INS and IIR terminal seeker.
Warhead: 1,000-lb class penetrator.
Dimensions: length 14 ft.
Performance: 1,000-lb dual mode penetrator/blast-fragmentation warheads; range 200+ miles (baseline), 500+ miles (ER).
COMMENTARY
Autonomous precision strike weapon. Can attack both fixed and relocatable targets, from non-hardened above ground to moderately hardened buried targets.
Extant Variant(s)
■ AGM-158 JASSM. Stealthy LO airframe equipped with GPS/INS guidance, IIR terminal seeker. Low operational support costs.
■ AGM-158 JASSM-ER. Extended-range version. Utilizes same baseline body, but new engine and fuel system increase range to more than 500 miles. Currently integrated only on the B-1B.

AIM-9 Sidewinder
Brief: A supersonic, short-range, IR guided air-to-air missile with a high-explosive warhead, carried by fighter aircraft.
Function: Air-to-air missile.
First Flight: September 1953.
Delivered: 1957-present. AIM-9M deliveries began 1983; AIM-9X May 2002.
IOC: circa 1983 (9M); 2003 (9X).
Contractor: Raytheon, Loral.
Power Plant: Thiokol Hercules and Bermite Mk 36 Mod 11 solid-propellant rocket motor.
Guidance: solid-state IR homing guidance.
Warhead: annular blast fragmentation.
Dimensions: span 2.1 ft, length 9.4 ft, diameter 5 in.
Performance: speed Mach 2+, range 10+ miles.
COMMENTARY
Developed by the Navy for fleet air defense, adapted by USAF for fighter aircraft use. Early versions used extensively in the Vietnam War.
Extant Variant(s)
■ AIM-9M. Joint Navy-USAF weapon. All-altitude, all-aspect, launch-and-leave intercept capability. Improved defense against IR countermeasures, background discrimination, and reduced-smoke rocket motor. First flight in 1978.
■ AIM-9M-9. Expanded IR countermeasures detection capability.
■ AIM-9X. A jointly funded Navy-USAF project. Employs same rocket motor and warhead as AIM-9M. Has fixed forward canards and smaller fins to increase flight performance. Employs IIR seeker. FY14 budget request would fund Block II full rate production.

AIM-120 AMRAAM
Brief: A 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.
IOC: September 1991.
Contractor: Raytheon.
Power Plant: Alliant boost-sustain solid-propellant rocket motor.
Guidance: active radar terminal/inertial midcourse.
Warhead: blast fragmentation.
Dimensions: span 1.7 ft, length 12 ft, diameter 7 in.
Performance: speed supersonic, range 20+ miles.

COMMENTARY
Joint USAF-Navy project, follow-on to AIM-7 Sparrow. Launch-and-maneuver capability.
Extant Variant(s)
■ AIM-120B. Upgraded, reprogrammable variant of AIM-120A.
■ AIM-120C. Weapon with smaller, clipped control surfaces to provide for internal carriage in F-22A and F-35, and involves high-angle off-boresight (HOBS) launch capability. In production.
■ AIM-120D. Adds an enhanced electronic protection suite, two-way data link, improved HOBS, GPS-aided navigation, and increased range. Limited production began in 2006 for operational test and IOC requirements; completed engineering and manufacturing development (EMD) in 2009. FY14 budget would fund development, integration, and production.

CBU-87/103 Combined Effects Munition
Brief: An area munition effective against light armor, materiel, and personnel and used by USAF and Navy fighters and bombers for interdiction.
Function: Area munition.
Contractor: Aerojet General, Honeywell, Alliant Tech.
Guidance: none (CBU-87).
Dimensions: length 7.7 ft, diameter 15 in.
Performance: dispenses 202 BLU-97 combined effects bomblets over an area roughly 800 ft x 400 ft.
COMMENTARY
A cluster-bomb family of weapons which can be delivered as low-accuracy free-fall weapon or with near precision, given installation of a simple tail kit.
Extant Variant(s)
■ CBU-87. Unguided gravity weapon. CEM type. Dispenses BLU-97 shaped-charge anti-personnel/anti-materiel fragmentary/incendiary bomblets over the target in rectangular pattern.
■ CBU-103. Basic CBU-87 CEM with WCMD tail kit to increase accuracy when released from medium to high altitude.

CBU-89/104 Gator
Brief: An anti-armor/anti-personnel mine dispenser used by USAF and Navy fighters and bombers for interdiction.
Function: Scatterable mines.
Contractor: Honeywell, Aerojet General, Olan, Alliant Tech.
Guidance: none (CBU-89).
Dimensions: length 7.7 ft, diameter 15 in.
Performance: dispenses 72 BLU-91 anti-armor and 22 BLU-92 anti-personnel mines.
COMMENTARY
Weapons system provides low-cost means to rapidly seed a battlefield with mines delivered from high-speed aircraft and able to destroy armor.
Extant Variant(s)
■ CBU-89. Gravity weapon. Dispenses 72 anti-tank and 22 anti-personnel mines over target in a circular pattern. Able to fuze anti-tank mines for three different time delay settings. Magnetic influence fuze senses armor.
■ CBU-104. Basic CBU-89 with WCMD tail kit to increase accuracy when released from medium to high altitude.

CBU-105 Sensor Fuzed Weapon
Brief: 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.
Contractor: Textron Systems.
Guidance: IR sensors in each warhead search for targets, then detonate over them.
Dimensions: length 7.7 ft, diameter 15 in.
Performance: delivers 40 lethal projectiles over an area of about 500 ft x 1,200 ft.
COMMENTARY
Tactical munitions dispenser with a payload of 10 BLU-108 submunitions, each containing four skeet projectiles, for a total of 40 lethal projectiles that seek out their target. 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. Primary targets are massed tanks, armored personnel carriers, and self-propelled targets.
Extant Variant(s)
■ CBU-105. Basic gravity-type CBU-97 with a WCMD tail kit for greater accuracy. Can be delivered from high altitude and in adverse weather. Combat debut came in April 2003 in Iraq.

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

CBU-107 Passive Attack Weapon
Brief: Provides the capability to attack nonhardened surface targets, with a minimum of collateral and environmental damage.
Function: Wide-area munition.
First Flight: 2002.
Delivered: 2002-03.
IOC: December 2002.
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 15 in.
Performance: delivers a high-speed volley of nearly 4,000 metal projectiles in three sizes from a single canister; projectiles: 15 in rods (350), 7 in rods (1,000), and small-nail size (2,400).
COMMENTARY
After release, weapon glides toward its target. Before impact, inner chamber begins to rotate and the projectiles are ejected in rapid succession by centrifugal force, penetrating a target within a 200-ft radius.
Extant Variant(s)
■ CBU-107A. Weapon has no explosive. Ejects various-size, penetrating projectiles. WCMD guided for greater accuracy. Full production completed in six months. Used during Iraqi Freedom.

GBU-10 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.
Delivered: from 1976.
IOC: 1976.
Contractor: Lockheed Martin, Raytheon.
Guidance: semiactive laser.
Warhead: Mk 84 bomb (2,000 lb unitary).
Dimensions: span 5.5 ft, length approx 14.8 ft, diameter 18 in.
Performance: CEP 29.7 ft, range 9.2 miles.
COMMENTARY
Folding-wing laser and GPS guided weapon used primarily for precision bombing against nonhardened targets but capable of penetration. Can operate in cloud ceilings down to 2,500 ft.
Extant Variant(s)
■ GBU-10. Laser guidance provides high accuracy over distances up to 40,000 ft.

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.
Delivered: from mid-1970s.
IOC: 1976.
Contractor: Lockheed Martin, Raytheon.
Guidance: semiactive laser.
Warhead: Mk 82 (500 lb) blast/fragmentation bomb.
Dimensions: span 4.4 ft, length 10.8 ft, diameter 11-18 in.
Performance: CEP 29.7 ft, range about six miles.
COMMENTARY
Improved versions of the earlier fixed wing Paveway I.
Extant Variant(s)
■ GBU-12. Used primarily to strike fixed armor. Can operate in cloud ceilings down to 2,500 ft.
■ GBU-49. Features both laser guidance and onboard GPS for all-weather, precision delivery capability.

GBU-24 Paveway III
Brief: An unpowered low-level LGB equipped with an advanced guidance kit.
Function: Air-to-surface penetrating glide bomb.
First Flight: GBU-24 in service May 1985.
Delivered: from 1986.
IOC: 1986.
Contractor: Raytheon.
Guidance: semiactive laser.
Warhead: BLU-109 2,000-lb bomb.
Dimensions: span 6.7 ft, length 14.4 ft, diameter 18 in.
Performance: range more than 11 miles.
COMMENTARY
Precision weapon that is effective against a broad range of high-value targets. Can be dropped from low, medium, or high altitude.
Extant Variant(s)
■ GBU-24. Air-to-ground weapon equipped with third generation Paveway III guidance kit, integrated with a BLU-109 penetrating warhead. Advanced guidance section and high-lift airframe.

GBU-28 Paveway III
Brief: A large 5,000 lb class air-to-ground penetrating warhead, 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.
Contractor: Raytheon.
Guidance: laser.
Warhead: BLU-113 or BLU-122 5,000-lb bombs.
Dimensions: length approx 20 ft, diameter 15 in.
Performance: range more than 5.75 miles.
COMMENTARY
Developed during Desert Storm for use against Iraq's deeply buried, hardened C2 facilities. Two used by F-111Fs against a bunker complex Feb. 27, 1991.
Extant Variant(s)
■ GBU-28B/B. Integrates GPS/INS guidance into

***GBU-31** Joint Direct Attack Munition* (SSgt. Jessica Kochman)

the existing GBU-28 guidance control unit to provide poor weather capability and improved target location. Entered production in 1999.

■ GBU-28C/B. Equipped with more powerful BLU-122 warhead for increased penetration, lethality. Guidance and control provided by Enhanced Paveway III system with GPS/INS and laser capability. Entered production in 2005.

GBU-31/32/38 Joint Direct Attack Munition

Brief: A joint USAF-Navy GPS/INS 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: from 1998.
IOC: 1998.
Contractor: Boeing, Textron, Honeywell.
Guidance: GPS/INS.
Warhead: 2,000-lb Mk 84/BLU-109 (31), 1,000-lb Mk 83/BLU-110 (32), 500-lb Mk 82/BLU-111 (38).
Dimensions: span 25 in (31), 19.6 in (32), 14 in (38); length (with JDAM and warhead) approx 12 ft (31), 10 ft (32), 7.8 ft (38).
Performance: range up to 15 miles, CEP with GPS 16.4 ft, CEP with INS only 98 ft.
COMMENTARY
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. Acquires target information through aircraft's avionics system. Guided to target by inertial guidance kit with periodic GPS updates. FY14 budget continues production at low rate.
Extant Variant(s)
■ GBU-31. Variant adds GPS/INS guidance kit to the 2,000-lb general-purpose Mk 84 bomb or BLU-109 penetrator. First used in combat March 24, 1999.
■ GBU-32. Variant adds GPS/INS guidance kit to the 1,000-lb general-purpose Mk 83 bomb or BLU-110 penetrator.
■ GBU-38. Variant adds GPS/INS guidance kit to the 500-lb general-purpose Mk 82 bomb or BLU-111 penetrator.

GBU-39 Small Diameter Bomb I

Brief: Extended-range all-weather, day/night 250-lb class near-PGM. 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: Oct. 2, 2006.
Contractor: Boeing.
Guidance: GPS/INS.
Warhead: 250-lb class penetrating blast fragmentation munition.
Dimensions: bomb: length 6 ft, width 7.5 in; BRU-61/A carriage (four bombs) length 12 ft, width 16 in, height 16 in.
Performance: near-precision capability at standoff range up to 46 miles.
COMMENTARY
Capable of destroying high-priority fixed and stationary targets from fighters and bombers in internal bays or on external hardpoints. Can be targeted and released against single or multiple targets. Acquires target coordinates prior to release.
Extant Variant(s)
■ GBU-39B SDB I. First combat use Oct. 5, 2006, by F-15E operating over Iraq. Employs advanced anti-jam GPS/INS. Contract to develop/build SDB issued in 2003. As of January 2012, 10,000 delivered.

GBU-43 MOAB Bomb

Brief: A massive weapon designed for use against large area or buried targets.
Function: Massive guided bomb.
Delivered: 2003.
Guidance: GPS/INS.
Warhead: BLU-120/B 18,000-lb high explosive.
Dimensions: length 30 ft, diameter 3.3 ft.
COMMENTARY
Large, powerful, and accurately delivered conventional high-explosive bomb. Developed in only nine weeks to be available for the 2003 Iraq campaign. Given name Massive Ordnance Air Blast (MOAB), but known unofficially as "Mother of All Bombs." Designed to be dropped from the rear of a C-130 without a parachute. Provides power to attack large area targets or enemy hidden in tunnels or caves.
Extant Variant(s)
■ GBU-43/B. GPS guided munition with fins and inertial gyro for pitch and roll control. Weighs 21,000 lb, of which 18,700 lb is attributed to BLU 120/B warhead. History's largest satellite guided, air-delivered weapon.

GBU-53 Small Diameter Bomb II

Brief: Air-launched, precision strike standoff weapon for use against both fixed and moving targets in adverse weather conditions. Features higher loadout and less collateral damage similar to the SDB I.
Function: Air-to-surface guided munition.
First Flight: 2012 (planned).
Delivered: from 2013 (planned).
IOC: TBD
Contractor: Raytheon.
Guidance: Tri-mode seeker, fusing millimeter-wave radar, uncooled IIR, and digital semiactive laser sensors on a single gimbal.
Warhead: 250-lb class munition.
Dimensions: not available (compatible with SDB I BRU-61/A carriage).
Performance: precision strike at standoff range up to 46 miles.
COMMENTARY
A joint USAF-Navy program designed to provide the capability to attack both mobile and stationary targets from standoff range and through adverse weather. Will provide multiple kills per pass, multiple ordnance carriage, precision strike, reduced munitions footprint, minimized collateral damage, reduced susceptibility to countermeasures, and network-enabled capability through Link 16 and UHF data links.
Extant Variant(s)
■ GBU-53 SDB II. Under development. Raytheon won competition; contract issued August 2010. FY14 budget request would begin LRIP.

GBU-54 Laser JDAM

Brief: 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: from 2008.
IOC: 2008.
Contractor: Boeing.
Guidance: GPS/INS with laser.
Warhead: Mk 82 500-lb munition.
Dimensions: length (with JDAM and warhead) approx 8 ft.
Performance: range up to 15 miles.
COMMENTARY
Combines a laser guidance kit with the GPS/INS-based navigation of existing GBU-38 JDAM. Boeing also developing GBU-31 and GBU-32 variants.
Extant Variant(s)
■ GBU-54 Laser JDAM. Dual mode 500-lb guided weapon. Adds laser seeker to the JDAM's existing GPS/INS guidance to provide capability to attack moving targets with precision. Identified as an urgent operational need, development and testing completed in less than 17 months. First delivered in May 2008. First combat use in August 2008 in Iraq.

GBU-57 Massive Ordnance Penetrator

Brief: A massive earth-penetrating weapon for use against hard and deeply buried targets.
Function: Massive precision guided bomb.
Guidance: GPS.
Warhead: 5,300-lb high explosive.
Dimensions: length 20.5 ft, diameter 31.5 in.
COMMENTARY
USAF partnered with the Defense Threat Reduction Agency in 2004 on early development and test.

GBU-43B MOAB Bomb (USAF photo)

AEHF (Lockheed Martin photo/Jim Dowdall)

Flight tests conducted from 2008 to 2010. In February 2010, program transitioned to USAF. Boeing received contract in 2009 for aircraft integration.
Extant Variant(s)
■ GBU-57B. Integration testing for B-2A bomber completed June 2011.

Satellite Systems

Advanced EHF Satellite System
Brief: Satellite communications system that provides global, secure, protected, and jam-resistant strategic and tactical communications.
Function: Communications.
Operator: AFSPC.
First Launch: August 2010.
IOC: Late 2013 (planned).
Constellation: four.
Design Life: 14 years.
Launch Vehicle: Atlas V.
Operational Location: Schriever AFB, Colo.
Orbit Altitude: Geosynchronous at 22,000+ miles.
Contractor: Lockheed Martin, Northrop Grumman.
Power Plant: Solar arrays generating 20,000 watts.
Dimensions: length 31 ft, width 98 ft (with full solar array extension).
Weight: 13,400 lb.
Performance: 24-hr low, medium, and extended data rate connectivity from 65 north to 65 south latitude worldwide.
COMMENTARY
Replenishing existing Milstar satellites, operating at much higher capacity and data rate capability. Offers secure, anti-jam communications around the world. Uses cross-linked satellites, eliminating the need for ground relay stations. Collaborative program with Canada, Netherlands, and United Kingdom.
Extant Variant(s)
■ AEHF SV-1. Launched in August 2010. An anomaly with its propulsion system delayed its arrival in operational orbit until October 2011. Completed on-orbit testing February 2012.
■ AEHF SV-2. Launched in May 2012. Now in orbit and operational.

Defense Meteorological Satellite Program
Brief: Satellites that collect air, land, sea, and space environmental data to support worldwide strategic and tactical military operations.
Function: Space and Earth environmental data collection.
Operator: National Oceanic and Atmospheric Administration (NOAA).
First Launch: May 23, 1962.
IOC: 1965.
Constellation: two low Earth orbit (LEO).
Design Life: 48 months.
Launch Vehicle: Delta IV; Atlas V.
Operational Location: NOAA Satellite Operations Facility, Suitland, Md.
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, incl 772-lb sensor; 2,270 lb with 592-lb sensor payload.
Performance: polar orbits, cover Earth in about 6 hr, primary sensor scans 1,800-mile wide area.
COMMENTARY
Provides timely and high-quality weather information to strategic and tactical combat units worldwide. Uses operational linescan sensor to image cloud cover in visible and thermal IR and analyze cloud patterns. Equipped with microwave imagers and sounders and a suite of space environment sensors that provide critical land, sea, and space environment data.
Extant Variant(s)
■ Block 5D-3. Improved spacecraft bus and sensors for longer and more capable missions. Six operational DMSP satellites now survey the entire Earth four times a day. Last launched in 2009. Two spacecraft (DMSP-19 and DMSP-20) remain, with one slated for launch in FY14. USAF is considering requirements for a follow-on system.

Defense Satellite Communications System
Brief: Joint service satellite system that provides high-capacity communications for deployed air, land, and sea forces.
Function: Communications.
Operator: AFSPC.
First Launch: DSCS II 1971; DSCS III 1982; DSCS I I/SLEP 2000.
IOC: Dec. 13, 1978 (DSCS II).
Constellation: five (III); 14 deployed/eight currently operational.
Design Life: 10 yr (III).
Launch Vehicle: Atlas II and EELV.
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: employ six independent SHF transponder channels for secure voice and high-rate data communications.
COMMENTARY
Workhorse of US military's SHF communications. Provides military communications to troops in the field and commanders worldwide.
Extant Variant(s)
■ DSCS III. Most recent configuration. Final (of 14) DSCS IIIs launched in 2003. Final four satellites received SLEP, providing higher power amplifiers, more sensitive receivers, and increased antenna connection options. Also carries a single channel transponder to disseminate emergency action and force direction messages to nuclear-capable forces.

Defense Support Program
Brief: An early warning spacecraft in geosynchronous orbit that provides alert of possible ballistic missile attack on US forces or homeland.
Function: Strategic and tactical launch detection.
Operator: AFSPC.
First Launch: November 1970.
IOC: circa 1972.

Milstar (Lockheed Martin illustration)

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.; Schriever AFB, Colo.
Orbit Altitude: Geosynchronous at 22,000+ miles.
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: approx 5,200 lb.
Performance: uses IR sensors to sense heat from missile and booster plumes against Earth's background.
COMMENTARY
Key part of North American and theater early warning systems. Capable of detecting missile launches and nuclear detonations. Originally aimed at Soviet military. Used extensively in 1991 Gulf War to detect theater missile launches against coalition forces. The 23rd and final DSP satellite launched in December 2007.
Extant Variant(s)
■ Block 5. Nine satellites in period 1989-present. This latest variant is more survivable than predecessors, includes a medium wavelength IR sensor for more mission utility, and accommodates 6,000 detectors.

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, timing, and velocity data.
Operator: AFSPC.
First Launch: Feb. 22, 1978.
IOC: Dec. 9, 1993.
Constellation: at least 24 spacecraft.
Design Life: 7.5 yr (II/IIA); 12 yr (IIF); 7.5 yr (IIR/IIR-M); 15 yr (IIIA).
Launch Vehicle: Delta II, Delta IV.
Operational Location: Schriever AFB, Colo.
Orbit Altitude: 10,988 miles.
Contractor: Boeing (II, IIA, IIF), Lockheed Martin (IIR, IIR-M, IIIA).
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: orbit the Earth every 12 hr, emitting continuous signals, providing time to within one-millionth of a second, velocity within a fraction of a mile per hr, and location to within a few ft.
COMMENTARY
Fundamental contribution to precision bombing, CSAR, mapping, and rendezvous. Provides accurate three-dimensional (latitude, longitude, and altitude) position, velocity, and time data in an uninterrupted way.
Extant Variant(s)
■ GPS Block IIA. Launched first in 1997. Current constellation includes 11 IIAs launched to replace original GPS Block I series.
■ GPS Block IIF. Upgrades include extended design life, faster processors, and improved anti-jam and accuracy, with multiple civil/military signals and two dedicated civil signals. Follow-on to IIR-M. First launched in 2010, second in 2011, a third in 2012, leaving nine more either in storage or production.
■ GPS Block IIR-M. First launched in 2005 and last in 2009. Upgrades included two new signals, enhanced encryption and anti-jamming capabilities, and second civil signal.
■ GPS Block IIIA. Future generation expected to provide improved accuracy, availability, integrity, and resistance to jamming. First launch 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.
Function: Communications.
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: Geosynchronous at 22,000+ 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: Milstar I sats have low data rate (LDR) payload, transmitting 75 to 2,500 bps of data over 192 channels in EHF range; Milstar II sats have both LDR and medium data rate (MDR) payloads, transmitting 4,800 bps to 1.5 Mbps over 32 channels.
COMMENTARY
Backbone of strategic-tactical DOD communications. Provides secure, anti-jam communications around the world. Uses cross-linked satellites, eliminating the need for ground relay stations. Offers 24-hour-a-day capability. Last of six satellites launched in 2003.
Extant Variant(s)
■ Block I. Two Milstar I satellites launched in the period 1994-95. Both still active.
■ Block II. Four Milstar II satellites launched in period 1999-2003. First one was placed in nonuseable orbit. Other three are still active.

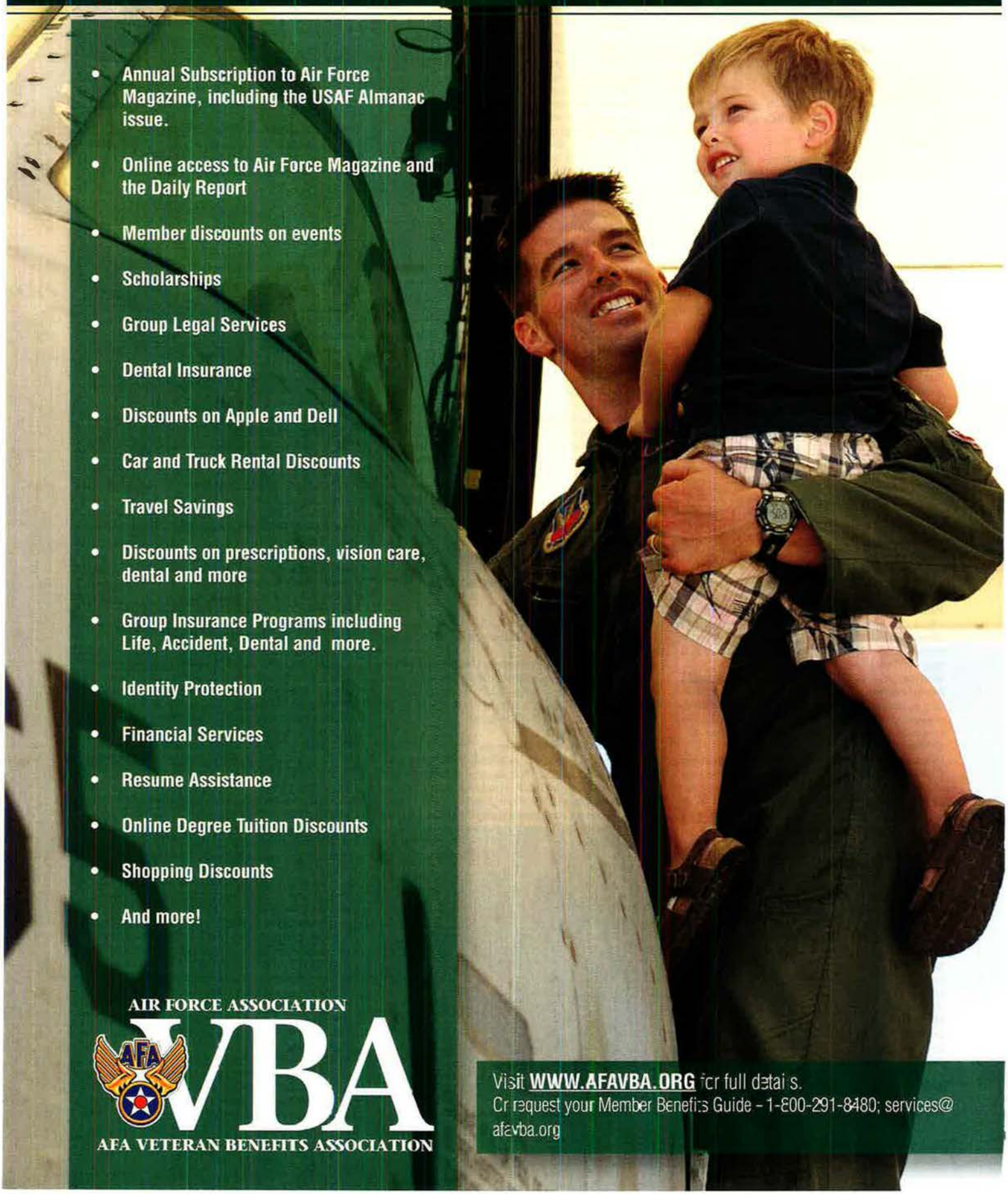
Space Based Infrared System
Brief: Advanced surveillance system for missile warning, missile defense, battlespace characterization, and technical intelligence. System includes IR sensor payloads on host satellites in highly elliptical orbit (HEO) and two IR sensors each on dedicated satellites in geosynchronous Earth orbit (GEO).
Function: space surveillance.
Operator: AFSPC.
First Launch: GEO 1, May 2011.
IOC: HEO 1, Dec. 5, 2008. (Increment 1, Dec. 8, 2001)
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 (GEO).
Dimensions: GEO 7 x 6.3 x 19.7 ft.
Weight: 5,603 lb (GEO on orbit).
COMMENTARY
Follow-on to the Defense Support Program satellite. System includes GEO satellites, HEO payloads, and ground assets. HEO sensor detects launch of SLBMs from the North Polar region and can be tasked for other IR detection missions. GEO scanning IR sensor performs strategic missile warning mission, global technical intelligence, and initial phase for the strategic missile defense mission, providing two times the revisit rate and three times the sensitivity of DSP.
Extant Variant(s)
■ SBIRS HEO. HEO-1 and HEO-2 payloads went into operation in 2008 and 2009, respectively. USAF expects to deliver HEO-3 to the host in June 2013 and HEO-4 in May 2015.
■ SBIRS GEO. USAF launched the GEO-1 satellite in 2011; officials say the quality of its data is exceeding performance expectations. Launch of GEO-2 took place March 19, 2013; delivery of GEO-3 slated for late 2015 and GEO-4 2016.

WGS (Boeing illustration)

Space Based Surveillance System
Brief: Space-based capability to provide metric and characterization data on objects in space.
Function: Space surveillance and object identification.
Operator: AFSPC.
First Launch: Sept. 25, 2010.
IOC: 2012 (planned).
Constellation: one LEO satellite.
Design Life: seven years.
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 batteries.
Dimensions: height approx 10 ft; 10 ft x 3.2 ft, plus solar panels.
Weight: approx 2,273 lb.
COMMENTARY
Designed to track and collect optical signatures of Earth-orbiting objects, including space debris, from a space-based platform. First operational satellite (SSBS Block 10) launched in September 2010. In March 2011, USAF announced satellite control authority had transferred to 1st SOPS at Schriever, culminating the on-orbit initialization, checkout, calibration, and system characterization process.

Wideband Global SATCOM
Brief: Satellites that provide high-capacity communications for deployed forces (air, land, and sea).
Function: Communications.
Operator: AFSPC.
First Launch: October 2007.
IOC: April 16, 2008.
Design Life: 14 years.
Launch Vehicle: Atlas V, Delta IV.
Operational Location: Schriever AFB, Colo.
Orbit Altitude: Geosynchronous at 22,000+ miles.
Contractor: Boeing.
Power Plant: solar arrays generating 9,934 watts.
Dimensions: based on Boeing 702 Bus.
Weight: 13,000 lb at launch.
Performance: approx 10 times the capability of a DSCS satellite.
COMMENTARY
Designed to provide worldwide communications coverage for tactical and fixed users, augmenting and then replacing DSCS X-band frequency service and augments the one-way Global Broadcast Service Joint Program Ka-band frequency capabilities. WGS satellites also provide a new high-capacity two-way Ka-band frequency service.
Extant Variant(s)
■ Block I. Three satellites (SV-1 thru SV-3) launched in October 2007, April 2009, and December 2009. SV-1 was in service over the Pacific Ocean region in April 2008; SV-2 over the Middle East in August 2009; and SV-3 over Europe and Africa in June 2010.
■ Block II. Comprises satellites modified to better support the airborne ISR mission. SV-4 satellite launched Jan. 20, 2012, and began operations over the Indian Ocean area in August 2012. USAF expects to launch SV-5 in 2013. In a US-Australia partnership, codified in 2007, Australia provides funds to purchase SV-6, also slated for launch in 2013. The US entered a multilateral partnership with Canada, Denmark, Luxembourg, Netherlands, and New Zealand, in which the new partners will fund acquisition and support for SV-9. ■

ARE YOU TAKING FULL ADVANTAGE OF YOUR AFA BENEFITS?



- Annual Subscription to Air Force Magazine, including the USAF Almanac issue.
- Online access to Air Force Magazine and the Daily Report
- Member discounts on events
- Scholarships
- Group Legal Services
- Dental Insurance
- Discounts on Apple and Dell
- Car and Truck Rental Discounts
- Travel Savings
- Discounts on prescriptions, vision care, dental and more
- Group Insurance Programs including Life, Accident, Dental and more.
- Identity Protection
- Financial Services
- Resume Assistance
- Online Degree Tuition Discounts
- Shopping Discounts
- And more!

AIR FORCE ASSOCIATION

VBA

AFA VETERAN BENEFITS ASSOCIATION

Visit **WWW.AFAVBA.ORG** for full details.
Or request your Member Benefits Guide - 1-800-291-8480; services@afavba.org

Verbatim

verbatim@afa.org

By Robert S. Dudney

Into the Uncharted

"We must implement a tiered readiness concept, where only the units preparing to deploy in support of major operations ... are fully mission capable. Units will stand down on a rotating basis so our limited resources can be focused on fulfilling critical missions. Historically, the Air Force has not operated under a tiered readiness construct because of the need to respond to any crisis within a matter of hours or days. The current situation means we're accepting the risk that combat airpower may not be ready to respond immediately to new contingencies as they occur. ... We're entering uncharted territory."—***USAF Gen. G. Michael Hostage III, Air Combat Command, statement on how Combat Air Forces will adjust to the sequester, April 9.***

Thatcher Remembered

"She said what she meant and meant what she said and did what she said she would do."—***Tony Benn, left-wing British politician, on the essence of the late Tory Prime Minister Margaret H. Thatcher,*** **Wall Street Journal,** ***April 8.***

Thatcher Remembered II

"Welcome to the United Kingdom. I want our relationship to get off to a good start, and to make sure there's no misunderstanding between us, I hate Communism."—***Mrs. Thatcher, to Soviet leader Mikhail Gorbachev, as recounted by press secretary Bernard Ingham,*** **Wall Street Journal,** ***April 8.***

For Whom the Fruit Calls

"This year, my heart really does not want to go back to the jihad. ... Allah, pardon me, but I cannot make up my mind whether or not to go to the jihad this year. ... I have to be satisfied that what I'm doing is correct. We have killed a lot of innocents in the fight. ... My heart is telling me that it may be time to close this book and start selling fruit in the bazaar."—***Taliban fighter Mohidain Akhund, expressing concerns to his commander, recounted in TheDailyBeast.com, April 6.***

And Don't You Forget It

"Government officials might tell you that Afghan and foreign forces only have the right to use air strikes in unpopulated areas, but in practice it is different. Americans will use their air support whenever they need it, no matter where it is and no matter how many presidential decrees are issued."—***Gen. Amrullah Aman, military analyst in Kabul,*** **New York Times,** ***April 7.***

Pack Rats of the Caribbean

"We always find contraband. Every search, every time. From improvised weapons (clubs, shanks, knives, garottes) to hoarded medications to unauthorized electronics (audio/video recorders, games, etc.). Sometimes in the Quran, but every search results in something."—***Navy Capt. Robert Durand, spokesman for Guantanamo Bay detention center,*** **Miami Herald,** ***April 6.***

Send in the Prunes

"The process is constipated. It's broke."—***Gen. James F. Amos, Commandant US Marine Corps, on F-35B development, Navy League's Sea-Air-Space conference, AOLDefense.com, April 8.***

Tyranny of Distance, Revised

"The resistance of the bomber community to ICBMs was significant. General LeMay referred to them as firecrackers. But to his credit, the USAF leadership garnered the resources and built the ICBMs. I think hypersonic [weaponry] poses a very, very similar change in mindset. ... Distance only gives you tyranny if you're clanking along at 30 knots. If I'm flying at Mach 2, Mach 3, Mach 5, Mach 6, I don't think distance is such a tyranny any longer."—***Mark J. Lewis, former chief scientist of the Air Force and expert on hypersonic technology, AOL Defense, April 8.***

Carole King at the Pentagon

"Remember, you always have a friend in the Secretary of Defense."—***Defense Secretary Chuck Hagel, remarks to enlisted personnel at a private luncheon,*** **New York Times,** ***April 1.***

Now He Tells Us

"Intelligence is always imperfect and should be read critically, with skepticism. The Intelligence Community should not present information in a way that suggests greater knowledge than the community has in fact. The Bush Administration should have made clearer that the war's rationale did not hinge on classified information but could be grasped by anyone who read the newspapers and history books."—***Douglas J. Feith, top Pentagon official under George W. Bush, on lessons of Iraq War, op-ed in*** **USA Today,** ***March 30.***

One Out of Three Ain't Bad

"The fundamental airplane is going to be there. It's going to be late. It's going to be more expensive than we thought to do the development. But it's still going to be there. ... I think that's the ultimate metric."—***Lockheed executive Tom Burbage, head of F-35 integration, remarks to reporters as he prepared to retire, April 2.***

Cliché Overload

"The United States military remains an essential tool of American power but one that must be used judiciously, with a keen appreciation of its limits. Most of the pressing security challenges today have important political, economic, and cultural components, and do not necessarily lend themselves to being resolved by conventional military strength."—***Defense Secretary Chuck Hagel, address to National Defense University, April 3.***

Backfire

"The world can see the US has acquiesced in North Korea's weapons program and lacks the will to stop Iran. It can see the US is shrinking its own nuclear capacity through arms control, even as rogue threats grow. And it can see the US is ambivalent about its allies getting nuclear weapons, even as it does little to shore up the US umbrella or allied defenses. Above all, the world can hear Mr. Obama declare for domestic American audiences that 'the tide of war is receding' despite the growing evidence to the contrary. On present trend, the President who promised to rid the world of nuclear weapons is setting the stage for their greatest proliferation since the dawn of the atomic age."—***House editorial,*** **Wall Street Journal,** ***April 8.***

Leaders Through the Years

2013 USAF Almanac

The Nation's Air Arm and Its Early Leaders

Designation	Commander	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[a]	**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-June 30, 1917
	Maj. Benjamin D. Foulois	June 30, 1917-Nov. 12, 1917
	Brig. Gen. Arthur I. Dade	Nov. 12, 1917-Feb. 27, 1918
	Col. Lawrence Brown	Feb. 27, 1918-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[b]	**Chief of Air Corps**	
July 2, 1926-Sept. 18, 1947	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[c]	March 9, 1942-Feb. 9, 1946
	Gen. Carl A. Spaatz	Feb. 9, 1946-Sept. 26, 1947
United States Air Force	**Chief of Staff**	
Sept. 18, 1947	Gen. Carl A. Spaatz	Sept. 26, 1947-April 29, 1948

[a]Between April 1917 and May 1918, the Aviation Section was known by various other names: Aeronautical Division, Airplane Division, Air Division, and Air Service Division.

[b]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.

[c]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.

Headquarters USAF Leaders

Secretary

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. 23, 1961	Sept. 30, 1965
Harold Brown	Oct. 1, 1965	Feb. 14, 1969
Robert C. Seamans Jr.	Feb. 15, 1969	May 14, 1973
John L. McLucas*	May 15, 1973	Nov. 23, 1975
James W. Plummer (acting)	Nov. 23, 1975	Jan. 2, 1976
Thomas C. Reed	Jan. 2, 1976	April 6, 1977
John C. Stetson	April 6, 1977	May 18, 1979
Hans M. Mark*	May 18, 1979	Feb. 9, 1981
Verne Orr	Feb. 9, 1981	Nov. 30, 1985
Russell A. Rourke	Dec. 6, 1985	April 7, 1986
Edward C. Aldridge Jr.*	April 8, 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*	Nov. 1, 1997	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*	June 21, 2008	

*Served as acting Secretary: McLucas, until July 18, 1973; Mark, until July 26, 1979; Aldridge, until June 9, 1986; Peters, until July 30, 1999; Donley, until Oct. 17, 2008.

CSAF

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. 27, 1990
Gen. Merrill A. McPeak	Oct. 27, 1990	Oct. 25, 1994
Gen. Ronald R. Fogleman	Oct. 25, 1994	Sept. 1, 1997
Gen. Ralph E. Eberhart (acting)	Sept. 1, 1997	Oct. 6, 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	Aug. 10, 2012
Gen. Mark A. Welsh III	Aug. 10, 2012	

Vice CSAF

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. William 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	Jan. 14, 2011
Gen. Philip M. Breedlove	Jan. 14, 2011	July 27, 2012
Gen. Larry O. Spencer	July 27, 2012	

CMSAF

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	Jan. 24, 2013
CMSAF James A. Cody	Jan. 24, 2013	

Leaders of Active Major Commands and ANG

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	Sept. 13, 2011
Gen. G. Michael Hostage III	Sept. 13, 2011	

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	Nov. 17, 2010
Gen. Edward A. Rice Jr.	Nov. 17, 2010	

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

Air Force Global Strike Command

Lt. Gen. Frank G. Klotz	Aug. 7, 2009	Jan. 6, 2011
Lt. Gen. James M. Kowalski	Jan. 6, 2011	

Established as Continental Air Forces Dec. 13, 1944. Redesignated Strategic Air Command March 21, 1946. (See SAC in Inactive Major Commands section.) Inactivated June 1, 1992. Redesignated and activated as AFGSC Aug. 7, 2009.

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	June 5, 2012
Gen. Janet C. Wolfenbarger	June 5, 2012	

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	July 30, 2012
Lt. Gen. James F. Jackson	July 30, 2012	

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	Jan. 5, 2011
Gen. William L. Shelton	Jan. 5, 2011	

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	June 24, 2011
Lt. Gen. Eric E. Fiel	June 24, 2011	

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	Nov. 30, 2012
Gen. Paul J. Selva	Nov. 30, 2012	

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	March 22, 2013
Lt. Gen. Stanley E. Clarke III	March 22, 2013	

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	Aug. 3, 2012
Gen. Herbert J. Carlisle	Aug. 3, 2012	

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

US Air Forces in Europe-Air Forces Africa

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	Dec. 13, 2010
Gen. Mark A. Welsh III	Dec. 13, 2010	July 31, 2012
Gen. Philip M. Breedlove	July 31, 2012	

Activated as 8th Air Force (1942). Redesignated: Eighth Air Force Sept. 18, 1942; US Strategic Air Forces in Europe (1944); USAFE Aug. 7, 1945; USAFE-AFAFRICA, April 20, 2012.

An Air Mobility Command KC-10 from JB McGuire-Dix-Lakehurst, N.J., refuels an F-22 during an exercise in February.

USAF photo by SSgt. Andy M. Kin

Leaders of Inactive Major Commands

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. Assigned to Continental Air Command 1948. Discontinued 1950. Regained Majcom status 1951. Redesignated Aerospace Defense Command Jan. 15, 1968. Inactivated March 31, 1980.

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 1979. Changed to Field Operating Agency July 1, 1991.

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. Ecwin 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

Antecedents: AAF Materiel and Services 1944; AAF Technical Service Command 1944; Air Technical Service Command 1945; Air Materiel Command 1946; Air Force Logistics Command 1961. Inactivated July 1, 1992.

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 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

With lineage dating to the Air Service School, Feb. 25, 1920. Designated Air University, a major command, March 12, 1946. Lost Majcom status July 1, 1978; regained July 1, 1983; lost again July 1, 1993.

Alaskan Air Command

Brig. Gen. Joseph H. Atkinson	Oct. 1, 1946	Feb. 25, 1949
Brig. Gen. Frank A. Armstrong Jr.	Feb. 26, 1949	Dec. 27, 1950
Maj. Gen. William D. Old	Dec. 27, 1950	Oct. 14, 1952
Brig. Gen. W. R. Agee	Oct. 27, 1952	Feb. 26, 1953
Maj. Gen. George R. Acheson	Feb. 26, 1953	Feb. 1, 1956

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

Activated as Alaskan Air Force (1942). Redesignated: Eleventh Air Force (1942); Alaskan Air Command (1945); 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	June 19, 1965
Maj. Gen. Albert T. Wilson Jr. (acting)	June 19, 1965	Aug. 18, 1965
Lt. Gen. Cecil H. Childre	Aug. 18, 1965	May 1966
Maj. Gen. J. Stanley Holtoner (acting)	May 1966	July 30, 1966
Lt. Gen. Henry Viccellio Sr.	Aug. 1, 1966	Aug. 1, 1968

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

Electronic Security Command/ Air Force Intelligence 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	June 1, 1993
Maj. Gen. Kenneth A. Minihan	June 2, 1993	Oct. 1, 1993

Formerly USAF Security Service. Redesignated: Electronic Security Command Aug. 1, 1979; Air Force Intelligence Command Oct. 1, 1991. Changed to FOA, 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, 1948. Inactivated 1976.

USAF photo

Circa 1947, an Alaskan Air Command P-51.

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); Military Air Transport Service (June 1, 1948); Military Airlift Command (Jan. 1, 1966). 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.

NASA photo

Apollo 11 astronauts were inside this mobile quarantine unit being unloaded from a MAC C-141 in Texas in July 1969.

Pacific Air Command/Seventh Air Force

Maj. Gen. Ralph H. Wooten	May 22, 1947	Aug. 31, 1948
Brig. Gen. Robert F. Travis	Sept. 1, 1948	June 1, 1949

Antecedents: Hawaiian Air Force (1940); 7th/Seventh Air Force (1942); Pacific Air Command (Dec. 15, 1947). Discontinued June 1, 1949.

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. Dougharty	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. Redesignated and activated Air Force Global Strike Command Aug. 7, 2009. (See AFGSC entry.)

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 Majcom status Dec. 1, 1950. Inactivated June 1, 1992.

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	Oct. 31, 1974
Maj. Gen. James M. Breedlove	Oct. 31, 1974	Jan. 1, 1976

Antecedents: Panama Canal Air Force (1940); Caribbean Air Force (1941); Sixth Air Force (1942); Caribbean Air Command (July 31, 1946); US Air Forces Southern Command (July 8, 1963). Inactivated Jan. 1, 1976.

Headquarters DOD Leaders

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	July 1, 2011
Leon E. Panetta	July 1, 2011	Feb. 27, 2013
Chuck Hagel	Feb. 27, 2013	

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	Sept. 30, 2011
Gen. Martin E. Dempsey, USA	Sept. 30, 2011	

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	Aug. 4, 2011
Adm. James A. Winnefeld Jr., USN	Aug. 4, 2011	

DOD photo by Scott Davis

In the Joint Chiefs of Staff Gold Room in 1999 are (l-r): USAF Gen. Joseph Ralston, JCS vice chairman; Army Gen. Henry Shelton, JCS Chairman; Adm. Jay Johnson, CNO; Gen. Michael Ryan, USAF Chief of Staff; Gen. Eric Shinseki, Army Chief of Staff; and Gen. James Jones Jr., Marine Corps Commandant.

Leaders of Unified Commands, National Guard Bureau, and NORAD

US Africa Command

Gen. William E. Ward, USA	Oct. 1, 2008	March 9, 2011
Gen. Carter F. Ham, USA	March 9, 2011	April 5, 2013
Gen. David M. Rodriguez, USA	April 5, 2013	

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, USA (acting)	March 31, 2008	Oct. 31, 2008
Gen. David H. Petraeus, USA	Oct. 31, 2008	June 30, 2010
Lt. Gen. John R. Allen, USMC (acting)	June 30, 2010	Aug. 11, 2010
Gen. James N. Mattis, USMC	Aug. 11, 2010	March 22, 2013
Gen. Lloyd J. Austin III, USA	March 22, 2013	

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 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	May 19, 2010
Adm. James A. Winnefeld Jr., USN	May 19, 2010	Aug. 4, 2011
Gen. Charles H. Jacoby Jr., USA	Aug. 4, 2011	

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	March 9, 2012
Adm. Samuel J. Locklear III, USN	March 9, 2012	

US Southern Command

Lt. Gen. Willis D. Crittenberger, USA	Nov. 1, 1947	June 28, 1948
Lt. Gen. Matthew B. Ridgway, USA	June 28, 1948	Oct. 1, 1949
Lt. Gen. William H. H. Morris, USA	Oct. 1, 1949	April 1, 1952
Lt. Gen. Horace L. McBride, USA	April 1, 1952	June 15, 1954
Lt. Gen. William K. Harrison Jr., USA	June 15, 1954	Jan. 5, 1957
Lt. Gen. Robert M. Montague, USA	Jan. 5, 1957	Feb. 20, 1958
Maj. Gen. Truman H. Landon, USAF (acting)	Feb. 20, 1958	April 1, 1958
Lt. Gen. Ridgely Gaither, USA	April 1, 1958	July 15, 1960
Lt. Gen. Robert F. Sink, USA	July 15, 1960	Feb. 1, 1961
Gen. Andrew P. O'Meara, USA	Feb. 1, 1961	Feb. 22, 1965
Gen. Robert W. Porter Jr., USA	Feb. 22, 1965	Feb. 18, 1969
Gen. George R. Mather, USA	Feb. 18, 1969	Sept. 20, 1971
Gen. George V. Underwood, USA	Sept. 20, 1971	Jan. 17, 1973
Gen. William B. Rosson, USA	Jan. 17, 1973	Aug. 1, 1975
Lt. Gen. Dennis P. McAuliffe, USA	Aug. 1, 1975	Oct. 1, 1979
Lt. Gen. Wallace H. Nutting, USA	Oct. 1, 1979	May 24, 1983
Gen. Paul F. Gorman, USA	May 24, 1983	March 1, 1985
Gen. John R. Galvin, USA	March 1, 1985	June 6, 1987
Gen. Fred F. Woerner, USA	June 6, 1987	Oct. 1, 1989
Gen. Maxwell R. Thurman, USA	Oct. 1, 1989	Nov. 21, 1990
Gen. George A. Joulwan, USA	Nov. 21, 1990	October 1993
Maj. Gen. W. T. Worthington, USAF (acting)	October 1993	Feb. 17, 1994
Gen. Barry R. McCaffrey, USA	Feb. 17, 1994	March 1, 1996
RAdm. James B. Perkins III, USN (acting)	March 1, 1996	June 26, 1996
Gen. Wesley K. Clark, USA	June 26, 1996	July 13, 1997
RAdm. Walter F. Doran, USN (acting)	July 13, 1997	Sept. 25, 1997
Gen. Charles E. Wilhelm, USMC	Sept. 25, 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, USAF	June 25, 2009	Nov. 19, 2012
Gen. John F. Kelly, USMC	Nov. 19, 2012	

Formerly US Caribbean Command (Nov. 1, 1947). Redesignated June 6, 1963.

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	Aug. 15, 2011
Adm. William H. McRaven, USN	Aug. 15, 2011	

US Strategic Command

Gen. George L. 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	Jan. 28, 2011
Gen. C. Robert Kehler, USAF	Jan. 28, 2011	

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	Oct. 14, 2011
Gen. William M. Fraser III, USAF	Oct. 14, 2011	

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	Sept. 5, 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	Sept. 7, 2012
Gen. Frank J. Grass, USA	Sept. 7, 2012	

Served as acting chief: Fleming until Aug. 14, 1951.

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	May 19, 2010
Adm. James A. Winnefeld Jr., USN	May 19, 2010	Aug. 4, 2011
Gen. Charles H. Jacoby Jr., USA	Aug. 4, 2011	

Maintainers preflight a 105th Airlift Wing C-17 at Stewart ANGB, N.Y., in October 2012.

USAF photo by TSgt. Michael O'Halloran

Leaders of Inactive Unified Commands

Alaskan Command

Maj. Gen. Howard A. Craig, USAF	Jan. 1, 1947	Oct. 17, 1947
Lt. Gen. Nathan F. Twining, USAF	Oct. 17, 1947	July 1, 1950
Lt. Gen. William E. Kepner, USAF	July 1, 1950	March 1, 1953
Lt. Gen. Joseph A. Atkinson, USAF	March 1, 1953	Oct. 1, 1956
Lt. Gen. Frank A. Armstrong Jr., USAF	Oct. 1, 1956	Aug. 1, 1961
Lt. Gen. George W. Mundy, USAF	Aug. 1, 1961	Aug. 1, 1963
Lt. Gen. Raymond J. Reeves, USAF	Aug. 1, 1963	July 28, 1966
Lt. Gen. Glenn R. Birchard, USAF	July 28, 1966	June 29, 1967
Lt. Gen. Robert A. Breitweiser, USAF	June 29, 1967	Aug. 1, 1969
Lt. Gen. Robert G. Ruegg, USAF	Aug. 1, 1969	Aug. 1, 1972
Lt. Gen. James C. Sherrill, USAF	Aug. 1, 1972	Sept. 1, 1974
Lt. Gen. James E. Hill, USAF	Sept. 1, 1974	July 1, 1975

Disestablished July 1, 1975.

Continental Air Defense Command

Gen. Benjamin W. Chidlaw, USAF	Sept. 1, 1954	July 1, 1955
Gen. Earle E. Partridge, USAF	July 1, 1955	Aug. 1, 1959
Gen. Laurence S. Kuter, USAF	Aug. 1, 1959	Aug. 1, 1960
Gen. John K. Gerhart, USAF	Aug. 1, 1960	April 1, 1965
Gen. Dean C. Strother, USAF	April 1, 1965	Aug. 1, 1966
Gen. Raymond J. Reeves, USAF	Aug. 1, 1966	Aug. 1, 1969
Gen. Seth J. McKee, USAF	Aug. 1, 1969	Oct. 1, 1973
Gen. Lucius D. Clay Jr., USAF	Oct. 1, 1973	June 30, 1975

Disestablished June 30, 1975. Established as specified command, Aerospace Defense Command, July 1, 1975. ADCOM disestablished Dec. 19, 1986.

European Command

Gen. Lucius D. Clay, USA	March 15, 1947	Aug. 23, 1949
Gen. Thomas T. Handy, USA	Aug. 23, 1949	Aug. 1, 1952

Redesignated US Army Europe as Army component of new US European Command Aug. 1, 1952.

Far East Command

Gen. of the Army Douglas MacArthur, USA	Jan. 1, 1947	April 11, 1951
Gen. Matthew B. Ridgway, USA	April 11, 1951	May 9, 1952
Gen. Mark W. Clark, USA	May 9, 1952	Oct. 5, 1953
Gen. John E. Hull, USA	Oct. 5, 1953	April 1, 1955
Gen. Maxwell D. Taylor, USA	April 1, 1955	June 5, 1955
Gen. Lyman L. Lemnitzer, USA	June 5, 1955	July 1, 1957

Disestablished July 1, 1957. Functions assumed by US Pacific Command.

Northeast Command

Maj. Gen. Lyman P. Whitten, USAF	Oct. 1, 1950	March 20, 1952
Lt. Gen. Charles T. Myers, USAF	March 20, 1952	July 26, 1954
Lt. Gen. Glenn O. Barcus, USAF	July 26, 1954	Sept. 1, 1956

Disestablished Sept. 1, 1956.

US Joint Forces Command

Adm. William H. P. Blandy, USN	Dec. 1, 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	Aug. 8, 2010
Lt. Gen. Keith L. Huber, USA (acting)	Aug. 8, 2010	Oct. 29, 2010
Gen. Raymond T. Odierno, USA	Oct. 29, 2010	Aug. 4, 2011

Formerly US Atlantic Command, established Dec. 1, 1947. Redesignated US Joint Forces Command Oct. 7, 1999. Disestablished Aug. 4, 2011.

US Readiness Command

Gen. John L. Throckmorton, USA	Jan. 1, 1972	Feb. 1, 1973
Gen. Bruce Palmer Jr., USA	Feb. 1, 1973	Dec. 9, 1974
Gen. John J. Hennessey, USA	Dec. 9, 1974	Aug. 1, 1979
Gen. Volney F. Warner, USA	Aug. 1, 1979	Aug. 1, 1981
Gen. Donn A. Starry, USA	Aug. 1, 1981	June 22, 1983
Gen. Wallace H. Nutting, USA	June 22, 1983	June 28, 1985
Gen. Fred K. Mahaffey, USA	June 28, 1985	Sept. 30, 1986
Lt. Gen. Harry A. Goodall, USAF (acting)	Sept. 30, 1986	Oct. 10, 1986
Gen. James J. Lindsay, USA	Oct. 10, 1986	Sept. 30, 1987

Assumed functions of US Strike Command. Disestablished Sept. 30, 1987.

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

Disestablished Oct. 1, 2002. Functions assumed by US Strategic Command.

US Strike Command

Gen. Paul D. Adams, USA	Oct. 9, 1961	Nov. 1, 1966
Gen. Theodore J. Conway, USA	Nov. 1, 1966	Aug. 1, 1969
Gen. John L. Throckmorton, USA	Aug. 1, 1969	Dec. 31, 1971

Established December 1961. Disestablished Dec. 31, 1971. Functions assumed by US Readiness Command.

Guide to Aces and Heroes

2013 USAF Almanac

Major Decorations

USAF Recipients of the Medal of Honor

Name 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
Fernoyer, 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

Harold Goettler

Frank Luke

Frederick Castle

Neel Kearby

Louis Sebille

George Day*

*Living Medal of Honor recipient

World War II (continued)

Jerstad, Maj. John L.	Racine, Wis.	Aug. 1, 1943	Ploesti, Romania
Johnson, Col. Leon W.	Columbia, Mo.	Aug. 1, 1943	Ploesti, Romania
Kane, Col. John R.	McGregor, Tex.	Aug. 1, 1943	Ploesti, Romania
Kearby, Col. Neel E.	Wichita Falls, Tex.	Oct. 11, 1943	Wewak, New Guinea
Kingsley, 2nd Lt. David R.	Portland, Ore.	June 23, 1944	Ploesti, Romania
Knight, 1st Lt. Raymond L.	Houston	April 25, 1945	Po Valley, Italy
Lawley, 1st Lt. William R. Jr.	Leeds, Ala.	Feb. 20, 1944	Leipzig, Germany
Lindsey, Capt. Darrell R.	Jefferson, Iowa	Aug. 9, 1944	Pontoise, France
Mathies, Sgt. Archibald	Scotland	Feb. 20, 1944	Leipzig, Germany
Mathis, 1st Lt. Jack W.	San Angelo, Tex.	March 18, 1943	Vegesack, Germany
McGuire, Maj. Thomas B. Jr.	Ridgewood, N.J.	Dec. 25-26, 1944	Luzon, Philippines
Metzger, 2nd Lt. William E. Jr.	Lima, Ohio	Nov. 9, 1944	Saarbrücken, Germany
Michael, 1st Lt. Edward S.	Chicago	April 11, 1944	Brunswick, Germany
Morgan, 2nd Lt. John C.	Vernon, Tex.	July 28, 1943	Kiel, Germany
Pease, Capt. Harl Jr.	Plymouth, N.H.	Aug. 7, 1942	Rabaul, New Britain
Pucket, 1st Lt. Donald D.	Longmont, Colo.	July 9, 1944	Ploesti, Romania
Sarnoski, 2nd Lt. Joseph R.	Simpson, Pa.	June 16, 1943	Buka, Solomon Islands
Shomo, Maj. William A.	Jeannette, Pa.	Jan. 11, 1945	Luzon, Philippines
Smith, Sgt. Maynard H.	Caro, Mich.	May 1, 1943	Saint-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	Wimereux, 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
Etchberger, CMSgt. Richard L.	Hamburg, Pa.	March 11, 1968	Phou Pha Thi, Laos
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	Da Lat, S. Vietnam
Young, Capt. Gerald O.	Anacortes, Wash.	Nov. 9, 1967	Khe Sanh, S. Vietnam

USAF Recipients of Congressional Medals (Noncombat equivalent to MOH)

Name and Rank*	Type	Place of Birth	Date Approved	Achievement
Eaker, Lt. Gen. Ira C.	Gold	Field Creek, Tex.	Oct. 10, 1978	Distinguished aviation pioneer/leader
Lindbergh, Col. Charles A.	Gold	Detroit	May 4, 1928	New York City-Paris flight (May 20-21, 1927)
Mitchell, Brig. Gen. William	Silver	Nice, France	Aug. 8, 1946	Foresight in military aviation
Yeager, Brig. Gen. Charles E.	Silver	Myra, W. Va.	Dec. 23, 1975	X-1 research flight (Oct. 14, 1947)

* Rank at time of award.

USAF Recipients of the Distinguished Service Cross

World War I

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

Numbers in parentheses are total DSCs received by the individual.

Reed Chambers

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.
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.

Donald Blakeslee

Richard Bong

Allen, Brocke 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
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 W.
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.

Edwin Heller

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

Kenney, George C.
Keogh, Bernard M.
Kerr, William M.
Key, Algene E.
Kimmey, Doyle
Kinnard, Claiborne H. Jr.
Kiser, George E.
Kjosness, Gustav D.
Klepinger, Nolan W.
Klette, Immanuel
Knickerbocker, Malcolm M.
Koenig, Charles W.
Koon, Ralph E.
Kosters, Allen
Kovacik, Steve H.
Kramer, Vernon J.
Krause, John E.
Krug, Richard M.
Kunkle, James K.
Lackness, Berdines
Ladisic, Peter
Lael, Francis V.
LaFleur, Joseph V.
Lambert, James V.
Land, George R.
Landry, Larry D.
Lannon, Louis A.
Larson, Harold B.
Latham, John L. Jr.
Lauraine, Loye J.
Laven, George Jr.
Ledford, Jack C.
LeMay, Curtis E.
Leverette, William L.
Levi, Nelson
Liimatainen, Alvar A.
Lillis, Joseph D.
Lines, Ted E.
Lipscomb, Paul M.
Littge, Raymond H.
Litton, William P.
Loegering, Weston A.
Lohmeyer, Marvin E.
London, Charles P.
Lonsway, Louis G.
LoPresti, Nicholas O.
Lowery, Herman F.
Lowry, Allan W.
Ludolph, George L.
Ludwig, Vance P.
Luksic, Carl J.
Lyle, Lewis E.
Lynch, Thomas J.
MacDonald, Charles H. (2)
Magoffin, Morton D.
Mahoney, John F.
Mahony, Grant M.
Mahurin, Walker M.
Manders, John H.
Marett, Samuel H.
Marpe, Frank C. Jr.
Marshall, Lyndon O.
Martin, Ernest V.
Martin, John C.
Martin, Kenneth R.
Martinson, Meynard L.
Mason, Joe L.
Matchitt, Ray J.
Matson, Rex E.
Matte, Joseph Z.
Matthews, John E.
Mayes, Herbert C.
McArthur, Paul G.
McCabe, Ernest J.
McCall, Ben J.
McCallister, Garrett H.
McCallum, Gerald
McCormick, John B.
McCullar, Kenneth D.
McCurdy, Jimmy E.
McDaniel, Gordon H.
McElroy, Joseph G.
McFarland, Kenton D.
McGrath, Thomas J.
McGuire, Thomas B. Jr.
McHenry, William S.
McLaughlin, Frank B.
McLaughlin, John A.
McLeod, Stanley A.
McMahan, Darrell E.
McMahon, Robert F.
McNees, Richard A.
McNeese, Harold G.
Meals, Elbert O.
Megura, Nicholas
Melo, Frank L.
Merkel, Howard W.
Merrill, John O.
Meyer, John C. (3)
Middlebrook, Garrett E.
Middleditch, Lyman Jr.
Miles, James E.
Miller, Guy M.
Miller, Robert E.
Millikan, Willard W.
Milton, Theodore R.
Mitchell, John W.
Mix, Joseph E.
Moats, Sanford K.
Mohler, William A.
Mohon, Ernest M. Jr.
Molina, Pedro Q.
Momyer, William W.
Monkton, Lyle
Montgomery, Robert P.
Mooney, Robert C.
Moore, Carl W.
Moore, Clarence J.
Moore, Joseph H.
Moore, Pren L.
Moore, William W.
Moran, Harold D.
Morehead, James B.
Morgan, Marion W.
Morris, James M.
Morrissey, Robert L.
Moses, John H.
Moullen, Roy F.
Moye, Albert J.
Muckley, Dwight S.
Mueller, Alvin 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.

John Meyer

Rogers, Robert J.
Roller, John R.
Rorer, George A. Jr.
Rose, Dudley E.
Rose, Henry J.
Rosenthal, Robert
Royce, Ralph
Ruegg, Robert G.
Sacks, Seymour
Sanford, James T.
Sanford, William L.
Sans, Charles H.
Saunders, Lester W.
Schellin, Roy L.
Schild, William C.
Schilling, David C. (2)
Schiltz, Glenn D. Jr.
Scholz, Richard J.
Schreiber, Leroy A.
Schulman, Herbert E.
Schuman, John P.
Sconiers, 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

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.

George Welch

Ray Wetmore

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.

Rudolph Anderson

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.
Crawford, Barry F. Jr.
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.
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.

Robert Gutierrez 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.

Barry Crawford Jr.

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 A.
Crawford, Capt. Barry F. Jr.
Cunningham, SrA. Jason D.
Rhyner, SSgt. Zachary J.
Gutierrez, SSgt. Robert Jr.

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

Right: Manuel Fernandez Jr.

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 (www.afhra.af.mil/aerialvictorycredits).

The criteria that the Air Force established for awarding aerial victory credits varied from war to war.

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
Easterbrock, 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

Elliott Springs (12)

Army Air Forces Aces of World War II

Don Gentile (19.83)

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.	22.5
Johnson, Lt. Col. Gerald R.	22
Kearby, Col. Neel E.	22
Robbins, Maj. Jay T.	22
Christensen, Capt. Fred J.	21.5
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.	19.5
Carson, Capt. Leonard K.	18.5
Eagleston, Maj. Glenn T.	18.5
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.	17.5
Beeson, Capt. Duane W.	17.33
Thornell, 1st Lt. John F. Jr.	17.25
Varnell, Capt. James S. Jr.	17
Johnson, Maj. Gerald W.	16.5

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.	15.5
Brown, Maj. Samuel J.	15.5
Peterson, Capt. Richard A.	15.5
Whisner, Capt. William T. Jr.	15.5
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.	14.5
Powers, Capt. Joe H.	14.5
Brown, Capt. Henry W.	14.2
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.	13.5
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
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.	12.5
Brown, Maj. Quince L.	12.33
Brezas, 1st Lt. Michael	12

L-r: Richard Peterson (15.5), **Leonard Carson** (18.5), **John England** (17.5), **and Clarence Anderson Jr.** (16.25).

Chase, Lt. Col. Levi R.	12
East, Capt. Clyde B.	12
Gleason, Capt. George W.	12
Hively, Maj. Howard D.	12
Ladd, Capt. Kenneth G.	12
Moore, Maj. Robert W.	12
Olds, Maj. Robin	12
Schreiber, Capt. Leroy A.	12
Skogstad, 1st Lt. Norman C.	12
Sloan, 1st Lt. William J.	12
Watkins, Capt. James A.	12
Megura, Capt. Nicholas	11.83
Blakeslee, Col. Donald J. M.	11.5
Conger, Maj. Paul A.	11.5
Kirla, 1st Lt. John A.	11.5

McDonald, Maj. Norman L.	11.5
Stewart, Maj. James C.	11.5
Yeager, Capt. Charles E.	11.5
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.	10.5
Clark, Lt. Col. James A. Jr.	10.5
Doersch, Capt. George A.	10.5
Halton, Maj. William T.	10.5
Hovde, Maj. William J.	10.5
Littge, Capt. Raymond H.	10.5
Storch, Lt. Col. John A.	10.5
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

John Godfrey (16.33)

Hubert Zemke (17.75)

Jack Ilfrey (8)

Gircux, Capt. William K.	10
*Gladych, Squadron Leader 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
Acams, 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
Hurlburt, 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
Overfeld, 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)

Schitz, 1st Lt. Glen D. Jr.	8
Shaw, 1st Lt. Robert M.	8
Shorro, 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

Robert Scott Jr. (10)

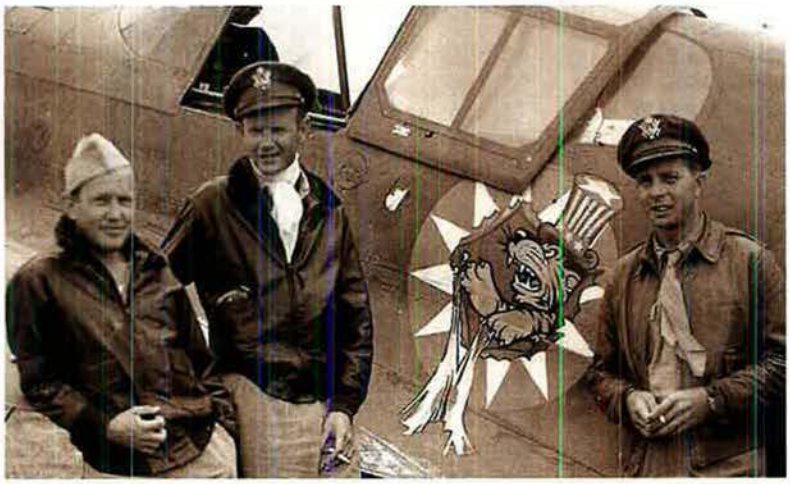
*Squadron Leader Gladych was Polish and flew in service with American units, but because the Polish government in exile was headquartered in London, Polish pilots had British designations.

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

Vermont Garrison (17.33, WWII and Korea)

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

THE AIR FORCE ASSOCIATION

Promoting Air Force Airpower

JOIN AFA TODAY!

The Air Force Association's mission is to promote a dominant United States Air Force and a strong national defense, and to honor Airmen and our Air Force Heritage. To accomplish this, we:

- **EDUCATE** the public on the critical need for unmatched aerospace power and a technically superior workforce to ensure U.S. national security.
- **ADVOCATE** for aerospace power and STEM education.
- **SUPPORT** the total Air Force family, and promote aerospace education.

JOIN THE ASSOCIATION THAT BRINGS YOU . . .

- A monthly subscription to *Air Force* Magazine including the popular USAF Almanac
- Leadership and networking opportunities throughout more than 200 local chapters
- Membership in AFA Veteran Benefits Association
- A front row seat and access to information about cutting edge initiatives such as the AFA Wounded Airman Program, CyberPatriot, and the Mitchell Institute for Airpower Studies
- Special member discount of $100 off our annual Air & Space Conference registration fee
- And much more!

JOIN TODAY:
Online at www.afa.org
Call 1.800.727.3337
(Weekdays 8:30 AM - 5PM EST)

AIR FORCE ASSOCIATION
1501 Lee Highway
Arlington, VA 22209

Robert Ammon (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 (16)

McConnell, Capt. Joseph C. Jr.	16
Jabara, Maj. James	15
Fernandez, Capt. Manuel J. Jr.	14.5
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.	8.5
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.	6.5
Gabreski, Col. Francis S.	6.5
Jones, Lt. Col. George L.	6.5
Marshall, Maj. Winton W.	6.5
*Bolt, Maj. John F.	6
Kasler, 1st Lt. James H.	6
Love, Capt. Robert J.	6
Whisner, Maj. William T. Jr.	5.5
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

Francis Gabreski (6.5)

*USMC exchange pilot.

USAF Aces of the Vietnam War

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

Jeffrey Feinstein (5)

Richard Ritchie (left) (5) and **Charles DeBellevue** (right) (6)

AAF/USAF Aces With Victories in More Than One War

	WW II	Korean	Vietnam	Total
Gabreski, Col. Francis S.	28	6.5		34.5
Meyer, Col. John C.	24	2		26
Mahurin, Col. Walker M.	20.75	3.5		24.25
Davis, Maj. George A. Jr.	7	14		21
Whisner, Maj. William T. Jr.	15.5	5.5		21
Eagleston, Col. Glenn T.	18.5	2		20.5
Garrison, Lt. Col. Vermont	7.33	10		17.33
Baker, Col. Royal N.	3.5	13		16.5
Jabara, Maj. James	1.5	15		16.5
Olds, Col. Robin	12		4	16
Mitchell, Col. John W.	11	4		15
Brueland, Maj. Lowell K.	12.5	2		14.5
Hagerstrom, Maj. James P.	6	8.5		14.5
Hovde, Lt. Col. William J.	10.5	1		11.5
Johnson, Col. James K.	1	10		11
Ruddell, Lt. Col. George I.	2.5	8		10.5
Thyng, Col. Harrison R.	5	5		10
Colman, Capt. Philip E.	5	4		9
Heller, Lt. Col. Edwin L.	5.5	3.5		9
Chandler, Maj. Van E.	5	3		8
Hockery, Maj. John J.	7	1		8
Little, Maj. James W.	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

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

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.	34.5	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	WW I
Mahurin, Col. Walker M.	24.25	WW II, Korea
Schilling, Col. David C.	22.5	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.	21.5	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.	20.5	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
Duncan, Col. Glenn E.	19.5	WW II
Carson, Capt. Leonard K.	18.5	WW II
Beckham, Maj. Walter C.	18	WW II
Green, Maj. Herschel H.	18	WW II
Herbst, Lt. Col. John C.	18	WW II
Luke, 2nd Lt. Frank Jr.	18	WW I
Zemke, Col. Hubert	17.75	WW II
England, Maj. John B.	17.5	WW II
Beeson, Capt. Duane W.	17.33	WW II
Garrison, Lt. Col. Vermont	17.33	WW II, Korea
Thornell, 1st Lt. John F. Jr.	17.25	WW II
Varnell, Capt. James S. Jr.	17	WW II
Baker, Col. Royal N.	16.5	WW II, Korea
Jabara, Maj. James	16.5	WW II, Korea
Johnson, Maj. Gerald W.	16.5	WW II
Godfrey, Capt. John T.	16.33	WW II
Anderson, Capt. Clarence E. Jr.	16.25	WW II
Dunham, Lt. Col. William D.	16	WW II
Harris, Lt. Col. Bill	16	WW II
McConnell, Capt. Joseph C. Jr.	16	Korea
Olds, Col. Robin	16	WW II, Vietnam
Welch, Capt. George S.	16	WW II
Beerbower, Capt. Don M.	15.5	WW II
Brown, Maj. Samuel J.	15.5	WW II
Peterson, Capt. Richard A.	15.5	WW II
Bradley, Lt. Col. Jack T.	15	WW II
Cragg, Maj. Edward	15	WW II
Dahlberg, Capt. Kenneth H.	15	WW II
Foy, Maj. Robert W.	15	WW II
Hofer, 2nd Lt. Ralph K.	15	WW II
Homer, Capt. Cyril F.	15	WW II

Fred Christensen (21.5)

AFA National Leaders

NATIONAL OFFICERS

BOARD CHAIRMAN

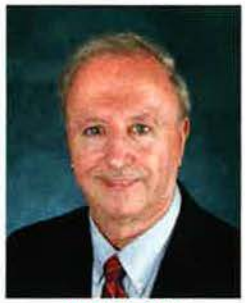
George K. Muellner
Huntington Beach, Calif.

VICE CHAIRMAN, FIELD OPERATIONS

Scott P. Van Cleef
Fincastle, Va.

VICE CHAIRMAN, AEROSPACE EDUCATION

Jerry E. White
Colorado Springs, Colo.



SECRETARY

Edward W. Garland
San Antonio

TREASURER

Leonard R. Vernamonti
Clinton, Miss.

NATIONAL DIRECTORS

Bernise F. Belcer
Columbia, S.C.

John T. Brock
Oviedo, Fla.

Angela Dupont
Haverhill, Mass.

William R. Grider
Indianapolis

Rick Hartle
Layton, Utah

Rodney J. McKinley
Edmond, Okla.

Donald R. Michels
Lawrenceville, Ga.

Linda A. Mills
McLean, Va.

F. Whitten Peters
Washington, D.C.

Gilbert E. Petrina Jr.
Williamsburg, Va.

Nora Ruebrook
Honolulu

Norton A. Schwartz
Arlington, Va.

Donald Taylor
San Antonio

Marvin L. Tooman
West Des Moines, Iowa

DIRECTORS EMERITUS

L. Boyd Anderson
Ogden, Utah

R. Donald Anderson
Poquoson, Va.

David L. Blankenship
Tulsa, Okla.

Bonnie B. Callahan
Winter Garden, Fla.

Dan Callahan
Centerville, Ga.

George H. Chabbott
Dover, Del.

Stephen P. "Pat" Condon
Ogden, Utah

O. R. "Ollie" Crawford
San Antonio

William D. Croom Jr.
San Antonio

Julie Curlin
Tampa, Fla.

Jon R. Donnelly
Richmond, Va.

George M. Douglas
Colorado Springs, Colo.

Michael J. Dugan
Dillon, Colo.

Michael M. Dunn*
Arlington, Va.

Charles G. Durazo
Yuma, Ariz.

Samuel M. Gardner
Garden City, Kan.

Don C. Garrison
Easley, S.C.

Richard B. Goetze Jr.
Arlington, Va.

Emlyn I. Griffith
Rome, N.Y.

Donald J. Harlin
LaGrange, Ga.

Martin H. Harris
Montverde, Fla.

Monroe W. Hatch Jr.*
Clifton, Va.

Dan Hendrickson
Port Angeles, Wash.

Harold F. Henneke
Greenwood, Ind.

Victoria W. Hunnicutt
Gray, Ga.

Leonard W. Isabelle
Lakeport, Calif.

David C. Jones
Potomac Falls, Va.

James M. Keck
San Antonio

Thomas J. Kemp
Crowley, Tex.

Robert E. Largent
Harrison, Ark.

Hans Mark
Austin, Tex.

Robert T. Marsh
Falls Church, Va.

William V. McBride
San Antonio

James M. McCoy
Bellevue, Neb.

Thomas J. McKee
Fairfax Station, Va.

Charles A. Nelson
Sioux Falls, S.D.

Ellis T. Nottingham
Arlington, Va.

Donald L. Peterson*
Fairfax Station, Va.

John J. Politi
Fair Oaks Ranch, Tex.

Jack C. Price
Pleasant View, Utah

Victor Seavers
Eagan, Minn.

Mary Ann Seibel-Porto
Las Vegas

John A. Shaud*
Prattville, Ala.

James E. "Red" Smith
Princeton, N.C.

R. E. "Gene" Smith
West Point, Miss.

Loren J. Spencer
Arlington, Va.

Jack H. Steed
Warner Robins, Ga.

Robert G. Stein
Colorado Springs, Colo.

Joseph Sutter
Knoxville, Tenn.

Mary Anne Thompson
South Yarmouth, Mass.

Walter G. Vartan
Chicago

Mark J. Worrick
Denver

Charles P. Zimkas Jr.
Colorado Springs, Colo.

*Executive Director (President-CEO) Emeritus

EX OFFICIO

S. Sanford Schlitt
Former Board Chairman
Sarasota, Fla.

Craig R. McKinley
President
Air Force Association
Arlington, Va.

William J. Dendinger
National Chaplain
Grand Island, Neb.

Kevin Long
National Commander
Arnold Air Society
Clemson, S.C.

AFA National Report

natrep@afa.org

By Frances McKenney, Assistant Managing Editor

Meet the Vietnam War's Top Ace

Hosted in Massachusetts by the **Paul Revere Chapter** in March, Vietnam War ace Charles B. DeBellevue gave presentations to several groups around Hanscom Air Force Base during his visit.

Then-Captain DeBellevue was the first Air Force weapon systems officer to become an ace during the Vietnam War.

He earned the monicker America's top "MiG Killer" when he and pilot Capt. John Madden downed two MiGs on Sept. 9, 1972. This gave the backseater six aerial victories, the most earned by USAF's three Vietnam War aces. (Pilot Capt. Richard S. Ritchie and WSO Capt. Jeffrey S. Feinstein were the other two.)

At Hanscom, DeBellevue delivered a keynote address to an afternoon gathering at the base's Minuteman Commons community center. His lecture was part of the chapter's ongoing series of events spotlighting leadership and Air Force heritage.

DeBellevue told the audience that he learned extremely focused teamwork during hours in the cockpit and that his post-Vietnam assignments as 5th Air Force deputy chief of staff at Yokota AB, Japan, and as commander of the 95th Air Base Wing, Edwards AFB, Calif., underlined for him the importance of taking care of airmen.

At Hanscom, DeBellevue also visited the NCO leadership school, met with a group of company grade officers in the acquisition and program management field, and dropped in at the Bedford Veterans Affairs Medical Center.

He completed his time in the Boston suburb by briefing AFROTC Det. 345 cadets at the University of Massachusetts, Lowell. DeBellevue, too, had been commissioned—in 1968—through ROTC.

In all, more than 200 people turned out to hear DeBellevue speak at various venues around Hanscom, said Chapter President Keith Taylor.

DeBellevue belongs to the **Central Oklahoma (Gerrity) Chapter** and is a consultant, specializing in small businesses.

Chuck DeBellevue (far right), speaks to AFROTC cadets at the University of Massachusetts, Lowell. Paul Revere Chapter member Bob Holby knew DeBellevue from their active duty days; this led to inviting the Vietnam War ace to the Bay State.

Green Mountain Rally for the F-35

In February, the **Green Mountain Chapter** in Vermont joined civic leaders at a rally for the state Air National Guard's bid to host F-35s.

"The event was exceptionally well-attended," wrote Richard F. Lorenz, chapter membership and communications VP.

The crowd of some 300 included the chapter president, Raymond Tanguay, secretary John Roach, treasurer Carl F. Lozon II, leadership VP Michael Morgan, community partners VP James Navarro, public affairs VP Lloyd J. Goodrow, and Joel A. Clark, former chapter president.

Media coverage of the rally—held in a hotel in South Burlington—featured chapter member Maj. Gen. Steven A. Cray, then newly selected as the adjutant general for Vermont. Also on hand was Col. David P. Baczewski, a chapter member and commander of the 158th Fighter Wing at Burlington Arpt., Vt. The unit flies F-16s.

Last year the Air Force picked the ANG location as one of the preferred sites for an operational F-35 Guard base. This rally—organized by local businesswoman Nicole Citro of the group called Green Ribbons for the F-35—aimed to demonstrate Burlington's support for basing the strike fighter in the community.

San Antonio's Cyber Send-off

Four teams from San Antonio headed into the final round of CyberPatriot V competition in Washington, D.C., knowing they had tremendous support from the folks at home—and in particular, the **Alamo Chapter.**

Alamo Chapter President Al Swaim; chapter executive VP for CyberPatriot Tex Brown; and the chapter's Aerospace Education Foundation President David Pope were among the local AFA leaders who gathered in February for a luncheon to honor the city's CP teams. The Greater San Antonio Chamber of Commerce and the mayor's office sponsored the event.

Continued on p. 140.

More photos at: airforcemag.com. Choose "This Month's Table of Contents."

How To Render a Salute

"When I was flying SR-71s," recalls Thomas Veltri of the **Donald W. Steele Sr. Memorial Chapter** in Virginia, "every time I came down the ladder after a mission, there was someone there to hand me a beer and tell me what a great job I had just done."

He says that in follow-on Air Force assignments, "I worked harder than ever, and I felt I was making a real impact, but there was nobody there with a beer or a pat on the back."

Veltri now makes sure the airmen and civilians in the chapter's area receive a thank you for a job well done. For the past 17 years, he has been the VP in charge of the chapter's Salute program.

Five times a year, the chapter hosts a "Salute to ..." honoring a different Air Force directorate based at the Pentagon.

In January the chapter held a Salute to the Strategic Plans and Programs directorate. Salute to the Air National Guard took place at the Sheraton Pentagon City on March 13. Salute to A3/5 was on tap for this month at the Ruth's Chris Steak House in Crystal City.

Such close scheduling keeps Veltri—who inherited the program from former Chapter President Richard Siner, Mary Anne Thompson, and Steve Gress—working his database.

L-r: Donald W. Steele Sr. Memorial Chapter President Gavin MacAloon with Lt. Col. Thomas Koory, Cheryl Franklin, Capt. Dustin Jones, Sarah Hobbs, Lt. Gen. Michael Moeller, and Salutes VP Tom Veltri. Moeller shut down the A8 shop on this January afternoon so everyone could attend the Salute to Strategic Plans and Programs.

That's his first piece of advice on how to carry out a Salute program:

- Maintain a database of companies, points of contact, and guests who've been consistent participants.
- Make sure past guests have signed up for the next event.
- Choose a Salute venue for its "first-class atmosphere." He zeroed in on the chapter's locations, based on their unique views, proximity, and quality food.
- Work with a point of contact to ensure the awardees have been selected and that invitations go out not just to airmen but also to civilians, in-house contractors, and families.
- Stick with it. Veltri says that after nearly two decades, he's a familiar face at the directorates' front offices, so is able to get on the calendar.
- "It's industry sponsorship that makes this work," Veltri acknowledges. The chapter charges corporations $600 for four tickets and counts on the companies to cover the costs. Over the course of a year, "we break even," he says.

At these events, guests sometimes run into people whom they didn't realize worked in the same organization, Veltri says. It's one reason he's pleased to "pay tribute to the day-to-day activity of folks working in the Pentagon."

At the Indiana State meeting are (l-r): AFA President Craig McKinley; honorees Tom Eisenhuth, Jim Fultz, Bill Howard Jr., Bill Grider, Harold Henneke; and Great Lakes Region President Kent Owsley.

Each year, the top-scoring team from the metro area receives the Mayor's Cyber Cup, and for the third consecutive time, an Alamo Colleges' Alamo Academies Information Technology and Security Academy team, ITSA New Braunfels No. 2, won the trophy.

The team members were: Kenny Graves and Maggie Schmeltekopf, both New Braunfels High School seniors; from Canyon High School, Paul Hopson, a senior, and Stephen La Rosa, a junior; and Jason Mirch and Cory Nichols, both juniors from Seguin High School.

San Antonio Mayor Julian Castro presented the award. He gave each team member a $1,000 scholarship, a leather bomber jacket, and an iPad mini.

ITSA New Braunfels No. 2 competed against nearly 60 CP teams from San Antonio to earn the trophy. Three other area teams survived the first rounds and won a trip to the Nation's Capital, along with New Braunfels, for the national finals: East Central Army JROTC, John Jay High School AFJROTC, and Medina Valley High School AFJROTC.

John Jay High School went on to win the Best in Service Air Force award in national-level competition.

The City of San Antonio had been named a CyberPatriot Center of Excellence last year. The designation recognized—among many measures of support—the establishment of the Mayor's Cyber Cup and the Alamo Chapter's recruitment of CP teams.

A Tribute to Leadership in Indiana

At an AFA state meeting in Indiana in March, five field leaders received honors at an AFA Hoosier Recognition Banquet.

Thomas Eisenhuth and William Howard Jr. from the **Fort Wayne Chapter;** James E. Fultz and Harold F. Henneke from the **Southern Indiana Chapter;** and William R. Grider from the **Grissom Memorial Chapter** in Indianapolis had been "long overdue" for this tribute, commented State President Paul Lyons. He described the five as "the driving forces behind the active Indiana state organization." They have served in chapter, state, regional, and national AFA roles, Lyons pointed out. Most recently, Grider was elected as a national director at large at September's National Convention.

Lyons wrote that "Henneke stands out as a first among equals." A national director emeritus, Henneke is an AFA charter member and began military service in 1942.

AFA President Craig R. McKinley, banquet speaker, and Great Lakes

Region President Kent Owsley, from the **Wright Memorial Chapter** in Dayton, Ohio, presented the honorees with an AFA Certificate, challenge coin, and desk set.

Jonathan Fitzgerald also received an AFA award as CAP Cadet of the Year for the Grissom Squadron, GLR-IN-086.

The audience of more than 80 guests included the state's adjutant general, its Air National Guard leaders, Civil Air Patrol cadets, and AFROTC cadets from Purdue University in West Lafayette and from Indiana State University and Rose-Hulman Institute of Technology in Terre Haute.

In addressing the banquet audience, gathered at the Fort Harrison State Park Inn in Indianapolis, McKinley mentioned that he was encouraged by a luncheon—organized by Grider earlier that day—where he met US Rep. Susan W. Brooks (R-Ind.) and aides from several congressional and state districts.

In addition, Brig. Gen. John P. McGoff attended the downtown Indianapolis event. McGoff is chief of staff of the state Air National Guard and a **Central Indiana Chapter** member.

STEM in Washington, D.C.

WashingtonExec, an online media and events company aimed at Washington, D.C.'s, executive community, recently featured an interview with one of the winners of the **Nation's Capital Chapter's** science, technology, engineering, and math award.

Meg Hunt, a junior at Georgetown Visitation Preparatory School, had just been named the chapter's female STEM Student of the Year.

She told the reporter that her interest in this subject area had begun with reading *National Geographic* magazine and progressed to the biological sciences, then engineering and math topics.

Hunt's award garnered mention in her school's news bulletin, too. She was, however, only one of a half-dozen award winners selected by the chapter.

Sam Sherman, from Saint Anselm's Abbey School, received the male STEM Student of the Year award.

The chapter gave Hunt and Sherman $500, a large AFA flying eagle plaque, a certificate of excellence, and a year of AFA membership.

Honorable mentions went to Owen Duffy of McKinley Technology High School, Rachel Kellogg from National Cathedral School, and Mackenzie Moore and Raphael Hviding, both of Washington International School.

Chapter Education VP Col. Rene L. Bergeron, who created and carries out the STEM Student of the Year Program, said it began two years ago as a way to help motivate exceptional 11th-graders in D.C. who have a career interest in STEM.

More Chapter News

■ The **Northern Shenandoah Valley Chapter** hosted the Virginia State Meeting in Front Royal, Va., in March, with retired Lt. Gen. Michael E. Zettler, USAF's deputy chief of staff for installations and logistics until his retirement in 2004, as guest speaker. He described the strike fighter program and showed video clips of the F-35 in flight. Also on hand: AFA Vice Chairman of the Board for Field Operations Scott P. Van Cleef.

■ An Air Force recruiter was guest speaker for the March meeting of the **Gen. Carl A. "Tooey" Spaatz Chapter** in New York, reported Chapter President David K. Ribbe. TSgt. Carlos Castro spoke to a group that included several AFA field leaders: New York State President Maxine Rauch, State Treasurer Ron Campbell, State Chaplain Brother Robert Francis Matthews, and Michael Szymczak, president of the **Albany-Hudson Valley Chapter.**

■ Retired Col. Jim Elder of the Joe Foss Institute was guest speaker for the **Lewis E. Lyle Chapter** in Hot Springs, Ark. Based in Scottsdale, Ariz., the institute was founded by Foss, a Marine Corps Medal of Honor recipient—who also served as AFA President and Chairman (1961-1963)—to further civics education in schools. Elder spoke to the AFAers about the American flag. ■

Reunions

reunions@afa.org

303rd Air Refueling Sq, Bermuda and Tucson (1953-63), including associated units. Oct. 23-27 at the Hyatt Place Hotel, Grapevine, TX. **Contact:** Marianne Madory, 1805 Rim Rock Trail, Mansfield, TX 76063 (951-232-9192) (rmmadory@att.net).

324th Fighter Gp, 9th AF (WWII). June 20-23 in Lexington, KY. **Contacts:** 324thfightergroupreunion@insightbb.com or Jud th Wurmser (859-221-1509) or Linda Noffsinger (859-608-1208).

504th Bomb Gp, Tinian (1945). Sept. 20-24 in Washington, DC. **Contact:** Kaz Barcynski (252-637-0587) (mskb134@gmail.com).

Air Force Transportation Officers. June 6-9 in O'Fallon, IL. **Contact:** Dick Glogowski (618-624-6115) (dglogowski@charter.net).

Former Military/Overseas "Brats." East Coast reunion: Aug. 8-11 in Daytona Beach, FL. West Coast reunion: Oct. 10-13 in Laughlin, NV. **Contact:** Joe Condrill (316-269-9610) (joeosbpres@sbcglobal.net).

NAM POW, Assn of Vietnam War POWs. May 22-25 at the Nixon Library in Yorba Linda, CA, and the Hyatt Regency in Newport Beach, CA. **Contact:** Tom Hanton, 2050 Jamieson Ave., Unit 1115, Alexandria, VA 22314 (703-615-8238) (tom.hanton@comcast.net). ■

E-mail unit reunion notices four months ahead of the event to reunions@afa.org, or mail notices to "Unit Reunions," *Air Force* Magazine, 1501 Lee Highway, Arlington, VA 22209-1198. Please designate the unit holding the reunion, time, location, and a contact for more information. We reserve the right to condense notices.

AFA Conventions

June 14-15	**California State Convention,** Vandenberg AFB, Calif.
July 12-13	**Florida State Convention,** Jacksonville, Fla.
Sept. 14-15	**AFA National Convention,** National Harbor, Md.
Sept. 16-17	**AFA Air & Space Conference,** National Harbor, Md.

AFA Field Contacts

Central East Region

Region President

Joseph L. Hardy
5807 Barnes Dr., Clinton, MD 20735 (301) 856-4349 (jhardy5807@comcast.net).

State Contact

DELAWARE: Joseph L. Hardy, 5807 Barnes Dr., Clinton, MD 20735 (301) 856-4349 (ajhardy2@verizon.net).
DISTRICT OF COLUMBIA: Kevin Jackson, 13107 Jordans Endeavor Dr., Bowie, MD 20720 (301) 262-7893 (kevin.jackson@atk.com).
MARYLAND: Shedrick Roberts, 103 Sandy Lake Dr., Suffolk, VA 23435 (757) 718-1302 (mr.roberts@comcast.net).
VIRGINIA: Peter E. Jones, 2 Stafford Ct., Potomac Falls, VA 20165 (240) 994-0332 (peter@thejonesfamily.org).
WEST VIRGINIA: Herman N. Nicely, 4498 Country Club Blvd., South Charleston, WV 25309 (304) 558-3021 (hnicely@yahoo.com).

Far West Region

Region President

Richard Taubinger
12 Century Ct., Roseville, CA 95678 (916) 771-3639 (richardtaubinger@comcast.net).

State Contact

CALIFORNIA: Lee M. Barnby, 4839 Stillwell Rd, Santa Maria, CA 93455 (805) 863-3690 (lee.barnby.ctr@vandenberg.af.mil).
HAWAII: John F. Murphy, 339 Ilimalia Loop, Kailua, HI 96744 (808) 472-0224 (murphyj008@hawaii.rr.com).

Florida Region

Region President

Michael H. Emig
5928 SW 59th Ln., Ocala, FL 34474 (352) 854-8328 (mhemig46@aol.com).

State Contact

FLORIDA: Michael H. Emig, 5928 SW 59th Ln., Ocala, FL 34474 (352) 854-8328 (mhemig46@aol.com).

Great Lakes Region

Region President

Kent Owsley
PMB 176, 3195 Dayton-Xenia Rd., Ste. 900, Beavercreek, OH 45434 (937) 427-2259 (kentowsley@member.afa.org).

State Contact

INDIANA: Paul A. Lyons, 4211 Fieldbrook Pass, Fort Wayne, IN 46815 (260) 775-3510 (paul.lyons.afa@gmail.com).
KENTUCKY: Gene McManaway, 7308 Wood Rock Rd., Louisville, KY 40291 (502) 314-3818 (g.mcmanaway@gmail.com).
MICHIGAN: Bill Day, P.O. Box 302, Bad Axe, MI 48413 (989) 975-0280 (freelance3@comcast.net).
OHIO: Jeff A. Liffick, 416 Greensward Dr., Tipp City, OH 45371 (937) 985-4152 (jliffick@afadaytonwright.com).

Midwest Region

Region President

John D. Daly
1401 Reeve Dr., Papillion, NE 68046 (402) 991-2526 (dalyj@cox.net).

State Contact

ILLINOIS: Russell A. Klatt, 10024 Parke Ave., Oak Lawn, IL 60453 (708) 422-5220 (raklatt@member.afa.org).
IOWA: Ron Major, 4395 Pintail Dr., Marion, IA 52302 (319) 550-0929 (ramajor@rockwellcollins.com).
KANSAS: Gregg A. Moser, 617 W 5th St., Holton, KS 66436 (785) 364-2446 (greggamoser@aol.com).
MISSOURI: Fred W. Niblock, 808 Laurel Dr., Warrensburg, MO 64093 (660) 429-1775 (fred.niblock@whiteman.af.mil).
NEBRASKA: Richard T. Holdcroft, 3906 Raynor Parkway, Ste. 302, Bellevue, NE 68123 (402) 250-8152 (richard.holdcroft@atk.com).

New England Region

Region President

Bob Wilkinson
85 Washington St., Plainville, MA 02762 (508) 243-5211 (bwilkinson@naisp.net).

State Contact

CONNECTICUT: John P. Swift III, 30 Armstrong Rd., Enfield, CT 06082 (860) 749-5692 (john.swift@pw.utc.com).
MAINE: Bob Wilkinson, 85 Washington St., Plainville, MA 02762 (508) 243-5211 (bwilkinson@naisp.net).
MASSACHUSETTS: Max Lantz, 7800 Valleyfield Dr., Springfield, VA 22153 (808) 392-9285 (maxandles@yahoo.com).
NEW HAMPSHIRE: Kevin Grady, 140 Hackett Hill Rd., Hooksett, NH 03106 (603) 268-0942 (jaws15@hotmail.com).
RHODE ISLAND: Fred Frostic, 272 Rodman St., Wakefield, RI 02879 (401) 284-3850 (frostic_fred@bah.com).
VERMONT: Raymond Tanguay, 6 Janet Circle, Burlington, VT 05408 (802) 862-4663 (rljjtanguay@yahoo.com).

North Central Region

Region President

Victor C. Seavers
4489 Lakeshore Ter., Eagan, MN 55122 (651) 688-2269 (elavics@aol.com).

State Contact

MINNESOTA: Glenn M. Shull, 7098 Red Cedar Cove, Excelsior, MN 55331 (952) 831-5235 (glennshull@gmail.com).
MONTANA: Victor C. Seavers, 4489 Lakeshore Ter., Eagan, MN 55122 (651) 688-2269 (elavics@aol.com).
NORTH DAKOTA: Jim Simons, 908 Village Ave. SE, Minot, ND 58701 (701) 839-6669 (minotranger@min.midco.net).
SOUTH DAKOTA: Ronald W. Mielke, 4833 Sunflower Trail, Sioux Falls, SD 57108 (605) 359-7630 (mielkerw@teamtsp.com).
WISCONSIN: Victor Johnson, 6535 Northwestern Ave., Racine, WI 54306 (262) 886-9077 (racine.vic.kathy@gmail.com).

Northeast Region

Region President

Eric Taylor
806 Cullen Ln., West Grove, PA 19390 (484) 667-8221 (ylekot1@aol.com).

State Contact

NEW JERSEY: Howard Leach Jr., 11 Beech Dr., Morris Plains, NJ 07950 (973) 540-1283 (hhleach@aol.com).
NEW YORK: Maxine Rauch, 2866 Bellport Ave., Wantagh, NY 11793 (516) 826-9844 (javahit@aol.com).
PENNSYLVANIA: Robert Rutledge, 2131 Sunshine Ave., Johnstown, PA 15905 (814) 255-7137 (rcr@atlanticbb.net).

Northwest Region

Region President

Mary J. Mayer
2520 NE 58th Ave., Portland, OR 97213 (310) 897-1902 (maryjmayer@yahoo.com).

State Contact

ALASKA: Harry F. Cook, 3400 White Spruce Dr., North Pole, AK 99705 (907) 488-0120 (hcook@mosquitonet.com).
IDAHO: Roger Fogleman, P.O. Box 1213, Mountain Home, ID 83647 (208) 599-4013 (rfogleman@msn.com).
OREGON: Mary J. Mayer, 2520 NE 58th Ave., Portland, OR 97213 (310) 897-1902 (maryjmayer@yahoo.com).
WASHINGTON: Mary B. Moss, P.O. Box 4207, McChord AFB, WA 98438 (253) 376-6643 (mmoss_96@msn.com).

Rocky Mountain Region

Region President

Gayle White
905 Shadow Mountain Dr., Monument, CO 80132 (719) 574-0200 (gayleconsulting@aol.com).

State Contact

COLORADO: George T. Cavalli, 6916 Lakenheath Ln., Colorado Springs, CO 80908 (719) 495-7525 (tom.cavalli@earthlink.net).
UTAH: Bob George, 3647 N, 2225 E, Layton, UT 84040 (801) 771-8807 (robert.george@gdit.com).
WYOMING: Irene Johnigan, 503 Notre Dame Ct., Cheyenne, WY 82009 (307) 632-9465 (irenejohnigan@bresnan.net).

South Central Region

Region President

Thomas Gwaltney
401 Wiltshire Dr., Montgomery, AL 36117 (334) 277-0671 (twgwaltney@bellsouth.net).

State Contact

ALABAMA: James E. Dotherow, 105 S. Hansell, Bldg. 714, Maxwell AFB, AL 36112 (334) 279-8646 (jedcinc@gmailcom).
ARKANSAS: Larry Louden, 102 Alice Nora Ln., Hot Springs, AR 71913 (501) 750-1991 (lzoomie@aol.com).
LOUISIANA: Paul M. LaFlame, 5412 Sage Dr., Bossier City, LA 71112 (318) 746-9809 (wpnchief@suddenlink.net).
MISSISSIPPI: Thomas Gwaltney, 401 Wiltshire Dr., Montgomery, AL 36117 (334) 277-0671 (twgwaltney@bellsouth.net).
TENNESSEE: James M. Mungenast, 805 Embarcadero Dr., Knoxville, TN 37923 (865) 531-5859 (bamaforce73@aol.com).

Southeast Region

Region President

John Allen
225 Baldwin Rd., #12, Seneca, SC 29678 (864) 207-0827 (johnallen50@bellsouth.net).

State Contact

GEORGIA: Jacqueline C. Trotter, 400 Stathams Way, Warner Robins, GA 31088 (478) 954-1282 (ladyhawkellc@gmail.com).
NORTH CAROLINA: Patrick H. Yanke, 4601 Grenadine Ct., Raleigh, NC 27612 (919) 788-8244 (patrick.yanke@att.net).
SOUTH CAROLINA: Arthur J. Rooney, 14 New Haven Ct., Summerville, SC 29483 (843) 771-3979 (arthur.rooney@mac.com).

Southwest Region

Region President

John Toohey, 1521 Soplo Rd. SE, Albuquerque, NM 87123 (505) 917-0117 (johntoohey@aol.com).

State Contact

ARIZONA: Ross B. Lampert, 6984 S. Spruce Cir., Hereford, AZ 85615 (520) 378-3607 (afazona@cox.net).
NEVADA: Robert Cunningham, 4509 Bersaglio St., Las Vegas, NV 89135 (719) 440-3433 (robertsdesk53@gmail.com).
NEW MEXICO: Robert M. Hudson, 66 Vista Dr., Edgewood, NM 87015 (505) 507-6332 (bhudson964@aol.com).

Texoma Region

Region President

Bob Slaughter
309 Hurstview Dr., Hurst, TX 76053 (214) 662-3670 (rslaughter@bellhelicopter.textron.com).

State Contact

OKLAHOMA: Richard D. Baldwin, 3418 Candace Ln., Altus, OK 73521 (580) 477-2710 (riqb@cableone.net).
TEXAS: William H. Lawson, 4308 Fair Ridge Dr., Aledo, TX 76008 (817) 244-3868 (wlawson5@sbcglobal.net).

Special Assistants Europe

Mike Nishimuta
mike@nishimuta.net

David T. Gouin
david.t.gouin.civ@mail.mil

Special Assistant Pacific

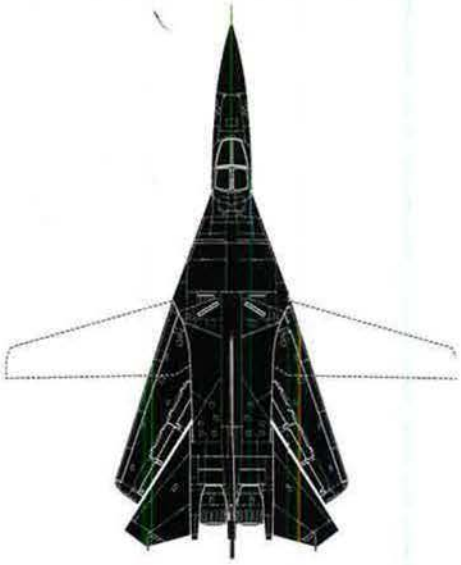
Vicky Leos
Yleefamily@gmail.com

For information on the Air Force Association, see **www.afa.org**

Airpower Classics

Artwork by Zaur Eylanbekov

F-111 Aardvark



The F-111 Aardvark, born in controversy and initially plagued by accidents, became the best all-weather interdiction aircraft in history and also served well in a variety of other roles. It was the first variable-geometry aircraft to enter active US military service, and its wings could sweep back from 16 to 72.5 degrees.

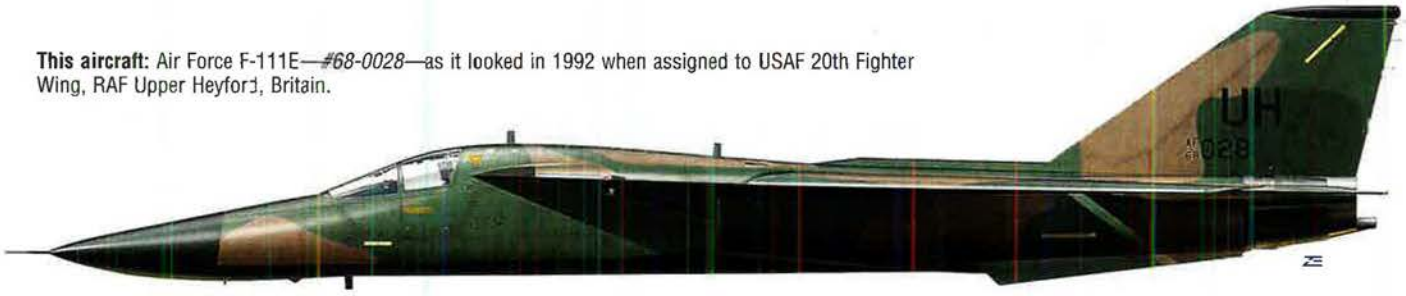
In the beginning, the aircraft was known as the TFX (Tactical Fighter Experimental). In the early 1960s, the Air Force declared a need for a new supersonic strike aircraft, and the Navy issued a similar requirement for a fleet defense interceptor. Secretary of Defense Robert S. McNamara, ignoring advice of military leaders, ruled that the two services would have to get along with a single, common aircraft for both missions. The F-111 used large quantities of special high-strength D6AC steel. It featured side-by-side seating for the two-man crew. The F-111 also had an advanced AN/AVQ-26 Pave Tack electronic system for flight at extremely low level, at night, and in poor weather.

Everything about the proposed aircraft bred contention. It was planned as a Mach 2 multirole, multiservice tactical fighter-bomber aircraft capable of low-altitude penetration. Achieving these goals required massive engineering work, which caused long delays and huge cost overruns.

The Navy, when it got the chance, dropped its F-111B version. Still, the Air Force variant proved itself many times over—in Vietnam, Libya, and the 1991 Gulf War. The EF-111 "SparkVark" variant was a smashing success. Even Strategic Air Command had a nuclear variant, the FB-111, which served well despite initial SAC reservations.

—Walter J. Boyne

This aircraft: Air Force F-111E—*#68-0028*—as it looked in 1992 when assigned to USAF 20th Fighter Wing, RAF Upper Heyford, Britain.



An F-111A with wings forward for lower-speed flight.

In Brief

Designed, built by General Dynamics ★ first flight Dec. 21, 1964 ★ number built 563 ★ crew of two (pilot, weapon systems officer) ★ two Pratt & Whitney TF30 turbofan engines. **Specific to F-111F:** armament one 20 mm M61A1 cannon ★ load up to 32,500 lb of nuclear or conventional ordnance ★ max speed 1,452 mph ★ cruise speed 470 mph ★ max range 2,971 mi ★ weight (loaded) 82,800 lb ★ span 63 ft spread and 32 ft swept ★ length 73 ft 6 in ★ height 17 ft.

Famous Fliers

Notables: Fernando Ribas-Dominicci (KIA), Paul Lorence (KIA), Richard Brown, Michael Cool, Ivan Dethman, Charles Foster, Arthur Huhn, Brad Insley, Thomas Lennon, Ron Levy, Carl Poole, Christopher Russo, Robert Verkuis, Sam Westbrook III. **Test pilots:** Dick Johnson, Val Prah.

Interesting Facts

Called "Aardvark" many years before USAF adopted nickname at aircraft's retirement ceremony ★ needed no drag chute or reverse thrust to slow down after a landing ★ achieved one of the best operational safety records of any aircraft in USAF history ★ sported a two-man cockpit module, which served as an emergency escape and survival shelter on land or water ★ played key role in 1972 Operations Linebacker and Linebacker II in Vietnam ★ carried the brunt of Operation El Dorado Canyon raid against Libya in April 1986 ★ F-111F flew 46 percent of US laser guided bomb strikes in 1991 Gulf War ★ in the Gulf War, scored an unofficial kill of an Iraqi Mirage, which flew into the ground trying to engage.

AIR FORCE ASSOCIATION
AFA VETERAN BENEFITS ASSOCIATION
VBA

USAA®

USAA is proud to be the
Preferred Provider
of Financial Services for
the Air Force Association

AFA Members: Introducing the USAA Rewards American Express Card.

USAA Bank will make a contribution to AFA when you open an account and each time you make an eligible purchase with the Card. Get the AFA USAA Rewards™ American Express® Card and take advantage of:

- **No annual fee**[1]
- **Variable purchase APR as low as 10.9%**[1]
- **0% introductory APR for 12 months** on balance transfers and convenience checks made in the first three months **(10.9% to 25.9% variable APR on these balances after 12 months)**
- **2,500 bonus points** after your first purchase, 2X points on gas and groceries and 1 point for every $1 spent on all other purchases. Redeem for cash, merchandise or other exciting rewards[2]

EARN 2X POINTS
ON GAS AND GROCERIES — YEAR AFTER YEAR.

Unlike some other reward programs with temporary promotions, USAA Rewards offers you 2X points on gas and groceries as part of your standard reward terms.

Apply today.

usaa.com/afaamex | 877-618-2473

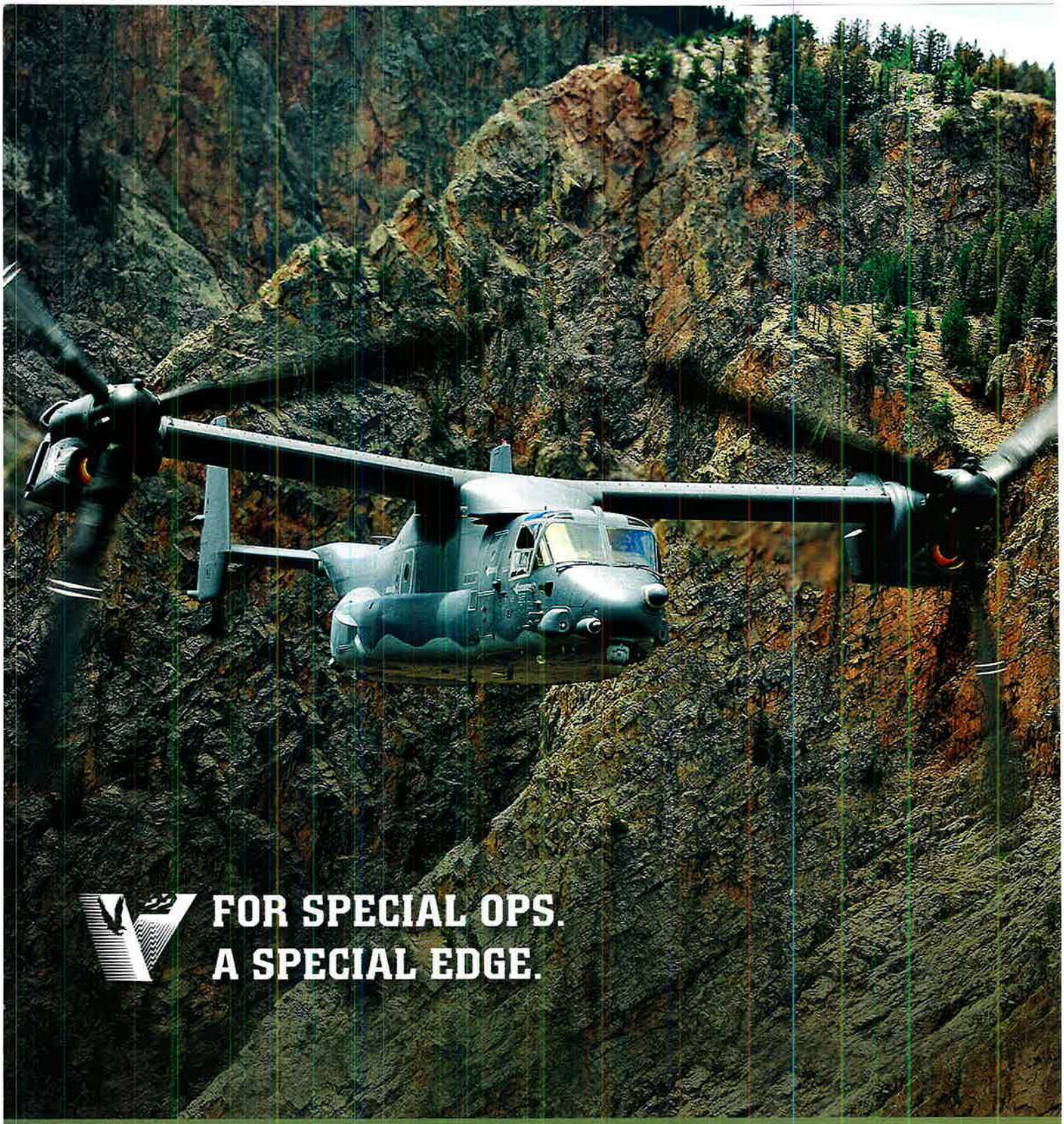
Insurance Banking Investments Retirement Advice

USAA®

We know what it means to serve.®

USAA means United Services Automobile Association and its insurance, banking, investment and other companies. USAA products are available only in those jurisdictions where USAA is authorized to sell them.

[1]Offer subject to approval. As of 4/1/2013, regular APRs on purchases, cash advances and balance transfers are 10.9% to 25.9%, depending on your credit history and other factors. APRs will vary with the market based on the Prime Rate. There is a transaction fee of 3% on cash advances ($200 maximum on balance transfers and convenience checks) and 1% on foreign transactions. Rates and fees subject to change. Please contact us for the most current information. [2]Earn 1 point for every $1 in Card purchases plus 1 additional point on every $1 in purchases properly coded as gas and grocery purchases. Grocery purchases at warehouses, discount stores, department stores, or other non-grocery store locations are not eligible for the additional 1 point reward. Reward points terminate if account is closed or delinquent, or if reward program ends. Other restrictions apply. See the USAA Reward Program Terms and Conditions for details. Availability restrictions apply. Purchase of a bank product does not establish eligibility for, or membership in, USAA property and casualty insurance companies. American Express is a federally registered service mark of American Express and is used by USAA Savings Bank pursuant to a license. This credit card program is issued and administered by USAA Savings Bank, Member FDIC. AFA receives financial support from USAA for this sponsorship. 143141-0513



FOR SPECIAL OPS.
A SPECIAL EDGE.

COMBAT · HUMANITARIAN · LOGISTICS · RESCUE · SPECIAL OPS

Around the globe, V-22 Ospreys are making a critical difference for Special Operations Forces—executing long-range infiltration, exfiltration and resupply missions unachievable with conventional rotorcraft. The tiltrotor's unique blend of high speed, long range, survivability and helicopter flexibility has made it the platform of choice, providing a special edge for SOF operators.

Bell Helicopter
A Textron Company

BOEING