



ARFORE E Journal of the Air Force Association ARFORE MAGAZINE

2012 USAF Almanac

May 2012, Vol. 95, No. 5



May 2012, Vol. 95, No. 5

6 Editorial: Embracing the RPA Evolution

By Adam J. Hebert

The Air Force has absorbed revolutionary technology many times before.

ALMANAC

36 USAF Almanac 2012

38 The Air Force in Facts and Figures

Structure of the Force

People

Budgets

Equipment

Grades and Insignia

Awards and Decorations

58 Major Commands and Air Reserve Components

Air Combat Command

Air Education and 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 National Guard

69 FOAs, DRUs, and Auxiliary

Air Force Agency for Modeling and Simulation

Air Force Audit Agency

Air Force Center for Engineering and the Environment

Air Force Civil Engineer Support Agency

Air Force Cost Analysis Agency

Air Force District of Washington

Air Force Financial Services Center

Air Force Flight Standards Agency

Air Force Historical Research Agency

Air Force Inspection Agency

Air Force Intelligence Analysis Agency

Air Force Intelligence, Surveillance, and Reconnaissance Agency

Air Force Legal Operations Agency

Air Force Logistics Management Agency

Air Force Manpower Agency

Air Force Medical Operations Agency

Air Force Medical Support Agency

Air Force Office of Special Investigations

Air Force Operational Test and Evaluation Center

Air Force Operations Group

Air Force Personnel Center

Air Force Personnel Operations Center

Air Force Petroleum Agency

Air Force Public Affairs Agency

Air Force Real Property Agency

Air Force Review Boards Agency

Air Force Safety Center

Air Force Security Forces Center

Air Force Services Agency

Air Force Weather Agency

ANG Readiness Center

Civil Air Patrol

US Air Force Academy

Publisher

Michael M. Dunn

Editor in Chief

Adam J. Hebert

Editorial

afmag@afa.org

Editor

Suzann Chapman

Executive Editors

Michael C. Sirak

John A. Tirpak

Senior Editors

Amy McCullough

Marc V. Schanz

Associate Editor

Aaron M. U. Church

Contributors

Walter J. Boyne, John T. Correll, Robert

S. Dudney, Jim Haseltine

Production

afmag@afa.org

Managing Editor

Juliette Kelsey Chagnon

Assistant Managing Editor

Frances McKenney

Editorial Associate

June Lee

Senior Designer

Heather Lewis

Designer

Darcy N. Lewis

Photo Editor

Zaur Eylanbekov

Production Manager

Eric Chang Lee

Media Research Editor

Chequita Wood

Advertising

bturner@afa.org

Director of Advertising

William Turner

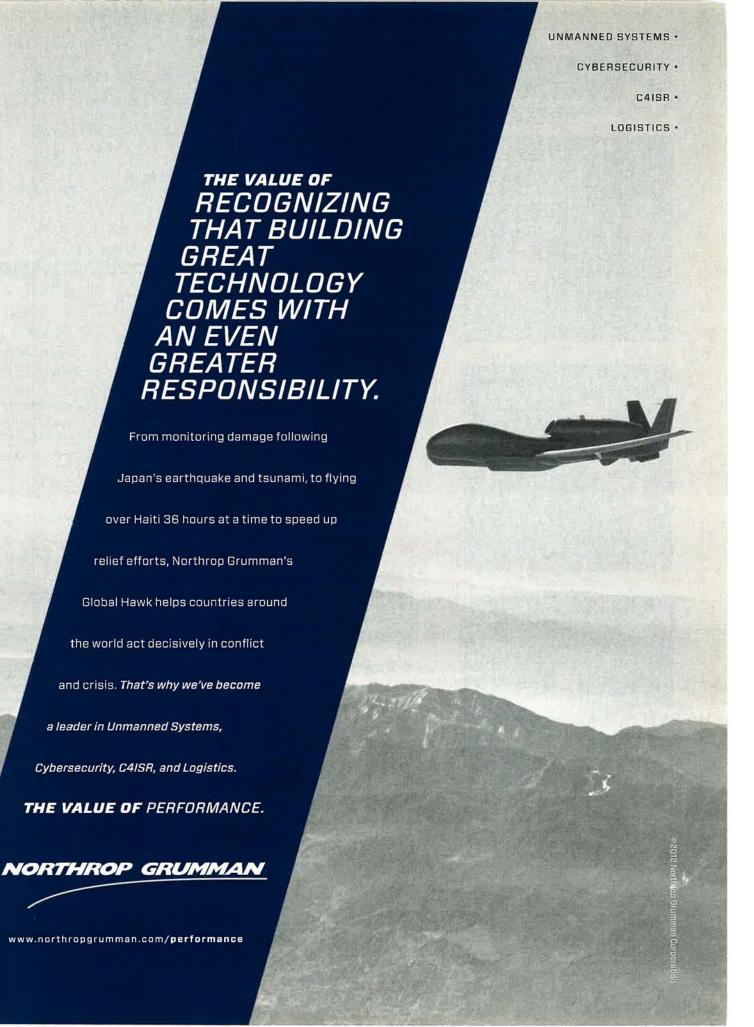
1501 Lee Highway

Arlington, Va. 22209-1198

Tel: 703/247-5820

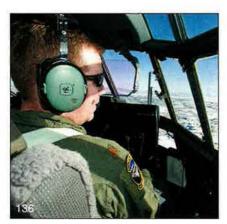
Telefax: 703/247-5855

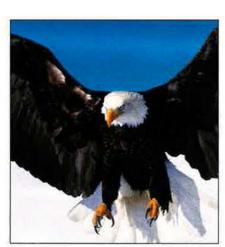
www.airforce-magazine.com



AIR FORCE MAGAZINE







About the cover: An adult Bald Eagle in flight. See "USAF Almanac 2012," p. 36. Corbis photo by Daniel J. Cox,

72 Guide to Air Force Installations Worldwide

Active Duty Installations
ANG and AFRC Installations

82 Gallery of USAF Weapons

A directory of US Air Force aircraft, missiles, and other aerospace assets.

106 Leaders Through the Years

The Nation's Air Arm and Its Early Leaders Headquarters USAF Leaders Active Major Command and ANG Leaders Leaders of Inactive Major Commands Headquarters DOD Leaders Unified Command, National Guard Bureau, NORAD Leaders

116 Guide to Aces and Heroes Major Decorations

Air Force Aces

136 Albuquerque's Elite Trainers
Photography by Jim Haseltine
Airmen of the 58th Special Operations
Wing train with the aircrews for a
wide range of specialized missions.

DEPARTMENTS

8 Letters

12 Washington Watch

New boss different from the old boss; Institutional credibility; F-22 mystery; Root cause still up in the air

- 16 Air Force World
- 20 Index to Advertisers
- 28 Senior Staff Changes
- 32 Chart Page: The Long March of Military Pay
- 134 Verbatim
- 144 **Keeper File**: Expeditionary Culture, Jumper Style
- 145 AFA National Report
- 149 Unit Reunions
- 150 AFA National Leaders
- 152 Airpower Classics: SR-71 Blackbird

AIR FORCE Magazine (ISSN 0730-6784) May 2012 (Vol. 95, No. 5) is published monthly by the Air Force Association, 1501 Lee Highway, Arlington, VA 22206-1198. Phone (703) 247-5800. Perodical 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, \$530 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. JSAF Almanac issue \$6 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 ubblisher assumes no responsibility for unsolicited material Trademark registered by Air Force Association, Copyright 2012 by Air Force Association.



Air Force Association

1501 Lee Highway • Arlington, VA 22209-1198 **Telephone**: (703) 247-5800

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 Construe	
Field Servicesfldsv	cs@ata.org
Government Relations	grl@afa.org
Industry Relations	irl@afa.org
Events ever	nts@afa.org
Membership membersh	nip@afa.org
Insurance/Member Benefitsservices@	
Policy & Communications (news n	nedia) m@afa.org
CyberPatriotinfo@uscybe	rpatriot.org

Magazine

THE RESERVE OF THE PARTY OF THE	
Advertising	bturner@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: idoe@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:

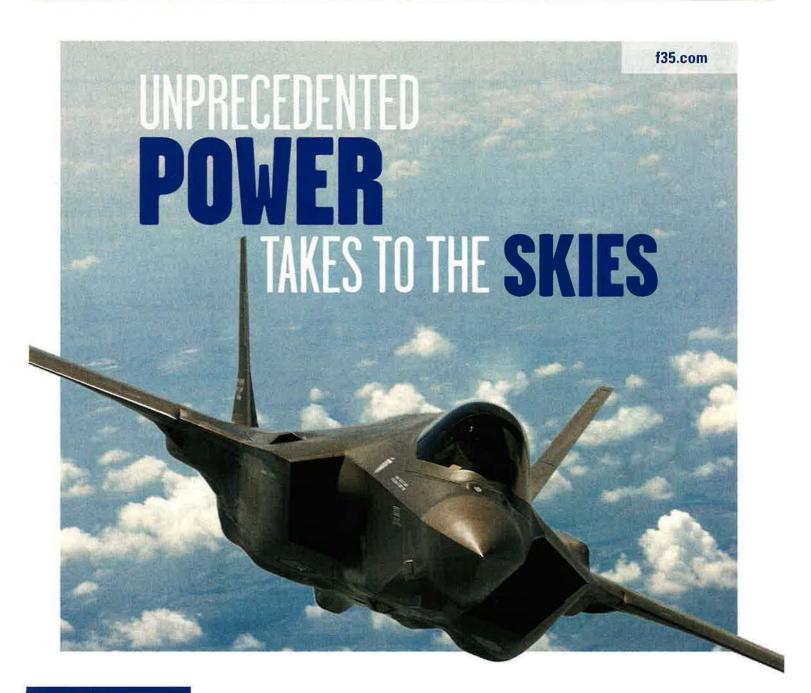
Educate the public on the critical need for unmatched aerospace power and a technically superior workforce to ensure US national security.

Advocate for aerospace power and STEM education.

Support the Total Air Force family and promote aerospace education.



Circulation audited by Business Publication Audit





Freedom is a precious gift. And it is the mission of America's service men and women to preserve it. The F-35A Lightning II is a stealthy, agile, flexible high-performance fighter that gives the U.S. Air Force the power to dominate the skies. Anywhere. F-35 Lightning II. Designed with freedom in mind.























THE F-35 LIGHTNING II TEAM

NORTHROP GRUMMAN BAE SYSTEMS PRATT & WHITNEY

LOCKHEED MARTIN

Embracing the RPA Evolution

THE Air Force has retired roughly 250 manned fighter aircraft since the middle of the past decade, and the service's Fiscal 2013 budget plan will send another 123 fighters into retirement. USAF purchased roughly 300 medium-size MQ-1 Predator and MQ-9 Reaper remotely piloted aircraft (RPAs) in that time.

Also since 2005, USAF has shrunk by 25,552 airmen and the Fiscal 2013 budget sheds another 10,000. As fighter units shrank, 4,000 airmen shifted into RPA processing, exploitation, and dissemination missions. Other airmen flowed in to serve as maintainers, pilots, and sensor operators supporting the growing Predator and Reaper inventories.

Do these opposite trend lines mean RPAs are replacing the Air Force's fighters? Absolutely not.

Specific transitions have been controversial, however. Established fighter units are often dismayed to hear they will give up the aircraft they know and love in exchange for a radically different system.

The Air Force has been criticized from all sides for the way it has handled its RPAs over the past decade. RPA advocates, including former Defense Secretary Robert Gates, accused the service of dragging its feet in fielding and institutionalizing the systems. According to one common claim, USAF does not want RPAs because the service's macho fighter pilot culture wants no part of aircraft flown by remote control and frequently derided as "drones."

Others say the integration is not too slow—it is in fact too fast. Predators and Reapers do not deserve their high levels of investment and effort, according to this line of reasoning. Complaints center on high mishap rates, claims RPAs are far more expensive than advertised, and even that their use against terrorist targets constitutes an illegal overseas assassination campaign.

The rapid growth in RPA operations is brought on by two developments. First, the technology is ready. Second, the Predator and Reaper are uniquely suited for the demands of the post-9/11 war against terrorism.

Today's RPAs are flown by remote control over Afghanistan, Pakistan, Yemen, and other terrorist redoubts. Launch and recovery elements need forward bases, but the pilots and sensor operators can stay at their home bases and work from ground control stations in Nevada and elsewhere—saving money and reducing the number of people who need to deploy.

The Predators and Reapers are loaded with advanced sensors to track targets as small as individual people for extended periods. They can beam video back to monitors almost in real-time, and the intelligence they gather is archived so it can also be reviewed later.

The aircraft carry precision weapons so valuable targets can be attacked in

The Air Force has absorbed revolutionary technology many times before.

seconds if an opportunity arises. Making the sensor also the shooter dramatically shortens the "kill chain"—the time to attack after first spotting a potential target. If an armed RPA is overhead, commanders do not have to wait for another aircraft to arrive and re-acquire the target before engaging.

Persistence is also useful against terrorist targets. RPAs can stay airborne for extremely long periods, and the crews operating them can switch out while the aircraft stays on station. This allows specific locations or individuals to remain under nonstop observation.

Predator and Reaper liabilities have been nonfactors thus far. Terrorist organizations typically lack sophisticated air defenses, and small enemy units (often individuals) do not require large weapons loads to defeat.

The Air Force is building toward an RPA fleet large enough to fly 65 nonstop combat air patrols. This level was set when the US was still in the midst of Operation Iraqi Freedom. The war in Afghanistan is also winding down and scheduled to end in 2014.

So why buy more? Simple demand. Combatant commanders have an insatiable appetite for the intelligence RPAs provide. There are always more targets to watch and additional terrorists to follow.

There is also a pent-up demand for the systems, as operations in Southwest Asia and Africa have absorbed almost all RPA capability thus far. Commanders in other regions, such as Europe and the Pacific, would like to get their hands on Predators, Reapers, Global Hawks, and RQ-170s but have not been able to rise to the top of the Pentagon's priority list.

Getting the most out of the RPA fleet requires better processing, not dramatically more airframes or manpower. In the past, USAF "made progress on the processing tools," noted Air Force Secretary Michael Donley in April, "but not as fast as we have been getting new ideas for how to collect more data."

To avoid becoming like a rat on a treadmill, forever unable to catch up with demand, Air Force officials now believe 65 CAPs must be a maximum force level—not a step toward a new, higher requirement. Properly resourced, 65 CAPs will allow the Air Force to surge to 85 CAPs while finally filling in their "back end" support elements.

Getting out of permanent surge mode is key. The Air Force has been running some 24/7 combat air patrols with 2.5 aircraft and seven crews; it would like each CAP to have four aircraft with 10 crews.

USAF is looking to increase the efficiency of its RPA data haul three ways. First, it seeks to improve onboard processing capability to reduce human demand. Second, USAF will increasingly transmit compressed data, to reduce the strain on the military communications bandwidth. Finally, it is pushing to automate processing tools so algorithms can find and highlight important information.

RPAs offer dramatic capabilities ideally suited for the war on terror, but their utility will not end when the US leaves Afghanistan.

The Air Force has successfully absorbed revolutionary technologies many times before. Nuclear weapons did not render conventional weapons obsolete. The jet engine did not bring an end to propeller-driven aircraft. The ICBM did not mean the end of the bomber. And spy satellites did not bring an end to air-breathing spyplanes. So it will be with RPAs.

The Predators, Reapers, Global Hawks, and whatever follows will continue to evolve, and their impact on the Air Force will be permanent. The RPAs are here to stay.



Lynx Multi-mode Radar

- State-of-the-art airborne sensor, designed to support diverse missions
- Synthetic Aperture Radar (SAR) provides wide field-of-view photographic-quality images through adverse weather
- Ground Moving Target Indicator (GMTI) detects moving vehicles and dismounts in real-time
- Capable of land or maritime operations
- Currently deployed with the U.S. Air Force MQ-9 Reaper

Lynx Multi-mode Radar: A high-performance force multiplier – deployed and mission-ready today



SAR Imagery



Ground Moving Target Indicator



Maritime Surveillance





Letters eafa.org

Not Everyone's Home Yet

Great article by Amy McCullough! I was particularly pleased that she mentioned the 157 military personnel who still remain in Baghdad serving in the Office of Security Cooperation-Iraq, where my son (Col. Mark Foringer) is on a one-year deployment ["The Last Days in Iraq," March, p. 24].

McCullough's coverage was most welcome because most other news claims that "all" military have departed the country as of late December. We must not forget these 157 folks in their challenging mission. Thanks!

Col. Tad Foringer, USAF (Ret.) Hampton, Va.

BRAC to the Future

Adam Hebert absolutely nailed his commentary on BRAC (March, p. 4), and it's refreshing to once again hear the Air Force think in terms of excess infrastructure ["Editorial: Bringing Closure"]. [I was on] a team of capable HAF planners for BRAC 2005. We were collectively disappointed when, after bipartisan engagement of the BRAC Commission and departmental acquiescence to "emerging missions," Big Air Force netted a big goose egg for significant closures. In fact, many of the BRAC 2005 "combat force enhancements" have already been usurped by the routine programmatic ebb and flow of force structure, manpower, and organizational changes-few of which carry the same statutory and legal weight of a BRAC base closure. The BRAC 2005 recommendations converged with other stovepiped programmatic staff activities (e.g., PBD 720, Future Total Force, legacy aircraft retirements), all of which bridled together would have compelled the department's argument before the commission. This is a lesson for the future.

BRAC is that infrequent legislative pass to actually close (big) bases that meet certain civilian employment thresholds, thus by its nature reducing excess infrastructure. In 2005, caught up in Secretary Rumsfeld's transformational dictate, the department took its eye off the

infrastructure ball and the BRAC Commission quickly exposed the Air Force's interrelated force enhancement recommendations for the house of cards that they were. With few notable exceptions, most Air Force missions are fungible, as shown by previous BRAC rounds and 21 years of expeditionary operations. And while painful, the most instant and enduring way to achieve return on investment savings in the FYDP and beyond is for stand-alone closure recommendations of a couple major bases rather than to nickel and dime unrealistic savings via noninfrastructure-based force structure moves.

If Congress does authorize another BRAC round, I hope the Air Force will look to past foibles, and sitting leadership gives this BRAC authority its due importance as the centerpiece Air Force staff action. I also hope Air Force leaders will have the moral courage to make hard choices for the betterment of the institution, not because of external pressures. Our mantra in 2005 still sadly holds true today: "The Air Force doesn't have any bad bases; it just has too many of them."

Lt. Col. H. L. Cork III, USAF (Ret.) Colorado Springs, Colo.

Lie, Cheat, Steal

I just finished "The Man From Thud Ridge" in the March 2012 issue [p. 64], which I felt was an exceptionally wellwritten article. Being a civilian, Air Force Magazine is my "eyes and ears" into the world of the Air Force. As a longtime aviation and military history buff, I look forward each month to the historical articles. As an American, I am humbled and awed to read of the sacrifice and heroism of today's heroes, as well as insight into the current state of affairs. God bless our airmen, as well as all of the courageous men and women who serve our still-great country in all branches of the military.

> Charles King Hebron, Ky.

Your article leaves much to question. In order:

"May have hit a ship": The Thud was a superior strafing platform, and Tolman was a highly experienced strafer. If he was aiming at something, he hit it. If he was not, he didn't.

"As Tolman hosed the gun emplacements": "Don't get in a pissing contest with a bigger gun" is a standing mantra, but strafing a Russian ship might be appealing.

"Diverted to refuel at Ubon": I heard it was Da Nang, but wherever they went for gas they missed their tanker because Tolman broke formation discipline and separated from his flight lead.

"Shaken, Tolman denied firing his cannon": Why deny [it] if he strafed a legitimate target? Whatever happened to the code "I will not lie, cheat, or steal"? If he decided to leave his flight lead and the planned egress route to fly down to Cam Pha to take on a bunch of bigger guns, he could easily have bragged about his exploit.

"Had the sergeant open the containers (sic), pull out the film, and expose it in the headlights (sic) of the truck (sic)": I watched Colonel Broughton himself turn on the headlights of his jeep, open the film magazine, and strip out the film across the left headlight of the jeep, thinking to myself, "You dummy, you can't see anything on the film; you're just exposing it."

"The Navy showed no interest in prosecuting its pilots for violating the ROE" (in strafing another Soviet ship); "the Air Force, however, decided to throw the book at Broughton": The difference goes back to that old "lie, cheat, steal." Had Broughton slapped Tolman with a

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

The Universal Secure Phone



Change from Analog to VoIP instantly.

The Sectéra® vIPer™ Universal Secure Phone allows you to easily switch between making end-to-end secure and non-secure calls on Voice over IP and analog networks, eliminating the need for multiple desktop phones. The vIPer is the only VoIP phone certified to protect information classified Top Secret/SCI and below over commercial, wired networks.

www.gdc4s.com/securephone

GENERAL DYNAMICS
C4 Systems

simple Article 15 for leaving formation, strafing a neutral ship, and unnecessarily hazarding his element's aircraft and his wingman by a significant off-course trolling, the entire episode could have ended with as little as a verbal reprimand. Or if he had done as the Navy did, and told the truth, the matter would have been quickly over.

I will never take away anything from Colonel Broughton's record over his three decades of service, but what he did himself in front of his jeep on that

June evening did.

Lt. Col. John F. Piowaty, USAF (Ret.) Titusville, Fla.

I thoroughly enjoyed the March issue. I always read each magazine cover to cover-even the advertisements. Gives me a chance to see how "the other side" is doing or what it is thinking. I particularly appreciated John Correll's article on Col. Jack Broughton, an icon for the Air Force as well as for the entire US military. Who of us who has spent time, even briefly, in the service hasn't needed at least once a senior's support, whether for a project or while negotiating a transgression real or imagined, large or small? I've needed a couple of such older, more highly placed helpers in my time, and no doubt, his two pilots needed their vice wing commander's help at a very "dangerous" time for them all.

Having known Colonel Broughton for several years, I had heard the story once or twice, but this telling is the clearest and most direct I have yet seen. Jack is one of those true warriors who led from the head of the formation. His immediate willingness to act and then speak up for his men on a matter of military necessity and squadron morale and operational perception, at great cost to his career—there is no doubt in my mind that he would have achieved general's rank—is something all subordinates hope for from their leaders. They don't always get it.

Cmdr. Peter B. Mersky, USNR (Ret.) Alexandria, Va.

In Case You Were Wondering ...

Phillip Meilinger's article on the trials and tribulations of those first tentative steps to a nuclear weapon delivery capability was an interesting read ["Early Atomic Air," March, p. 74]. Early in his piece, Meilinger mentions "vast amounts of silver to produce the required electrical coils" but is vague as to why silver was needed. There were two competing paths to getting enough fissionable uranium to pro-

We can help you clearly spot the danger lurking in a sea of data. SRC's cybersecurity experts can help you find what you're looking for. Whether protecting complex networks from attacks, or securing your data from accidental or malicious leaks, SRC clearly leads with innovative solutions. In the forefront of scientific R&D, SRC's security engineers are well-schooled in defensive and offensive cybersecurity methods Through the application of real-time data mining pioneering software tools and expert guidance from a vast pool of seasoned professionals, we find what others often miss. Don't let that one critical piece of data be the one that got away. Not when SRC is right here to help you catch it. Redefining possible Defense > Environment > Intelligence

duce a nuclear weapon: centrifuges and electromagnetic separation. Centrifuges were a relatively new and promising concept, but the engineering requirements were formidable and the process looked like it might not be doable from a practical viewpoint. Electromagnetic separation was better known, but was inefficient and tremendously expensive in terms of materials; and the copper needed for the electrical coils was a scarce war material. Silver, however, is a better electrical conductor than copper and was held in large quantities by the US Treasury. Silver was used to make the coils for the "calutrons" that separated

and collected the fissionable uranium needed for a weapon. Some 14,700 tons of silver were eventually used to construct the calutrons.

> Gerald P. Hanner Papillion, Neb.

I believe the caption for the lead photo on "Early Atomic Air" is incorrect. The caption states the photo was taken "before its bombing mission to Hiroshima."

Anecdotal reports indicate that "Enola Gay" was painted on the aircraft about midnight the night of the mission, at the direction of Colonel Tibbets. The photo appears to have been taken around noon local given the shape and locations of

shadows. So the earliest the photo could have been taken was noon-ish the day after the mission not before.

The tail marking has been returned to the "arrow" of the 509th. The mission was flown with the "R" of the 6th BG. Changing a tail marking would not be a huge task but would have to have been completed well before the mission or well after. Given the anecdotal reports, it would seem that "Enola Gay" was applied after the "R" was already in place. So "Enola Gay" and "arrow" would have been on the aircraft at the same time, days after the mission, not before.

The red vertical stabilizer flash was a postwar marking. Contemporaneous pictures of the aircraft on and after the mission do not show the tail flash.

Gary Connor Chantilly, Va.

Someone Noticed

In reference to John T. Correll's "The Scourge of the Zeppelins" in your February issue, how many more times must it be emphasized that hydrogen was not the cause of the tragedy in the evening at Lakehurst, N.J. [p. 88]. Regardless, the history of the military Zeppelins is fascinating yet seemingly over hills and far away from us today. However, over the past decade there has been a significant resurgence of interest in lighter than air capability. As we ramble on toward operations in near space believing there to be

an easy stairway to heaven that will allow for us to operate in regimes above our highest air breathers, such as the Global Hawk and the U-2R, but below orbital altitude, is in a word, a heartbreaker. It's very difficult to carry useful payloads into this regime using helium as the lifting gas. The song remains the same with hydrogen as the argument. It will continue to rage on between people who think what is and what should never be. We do know that hydrogen is a plentiful resource that has yet to be exploited to its fullest potential. Be patient, hydrogen, your time is gonna come.

Jim Muccio Fairfax, Va.

"The Scourge of the Zeppelins" repeats typical misconceptions about Zeppelins in general and hydrogen in particular. Despite an intense [UK] defensive effort which lost many lives to airplane crashes, in fact only five Zeps were brought down in the UK. One of those fell from 11,000 feet, yet there were three survivors; another was riddled with incendiaries but landed intact, was scuttled, and the crew marched off to surrender. Used in desperation as bombers, most World War I Zeppelin flights were for reconnaissance. More than 95 years ago Zep L-59 flew 4,000 miles nonstop carrying 39,000 pounds of relief supplies for beleaguered troops, lifting off and landing in its own length. The largest helicopter ever built could not approach that feat today.

Helium's adoption insisted on larger displacements and their greater gasoline loads, leading to a slight increase in airship fire rates. Hydrogen pure enough to provide lift cannot be ignited. It was not that a "spark of unknown origin ignited one of the hydrogen cells" but that, as retired NASA engineer Dr. [Addison] Bain has shown, and has been duplicated five times in four labs in two countries, Hindenburg's nitrate-doped outer cover was ignited by corona discharge seeking the grounded framework.

Richard G. Van Treuren Edgewater, Fla.

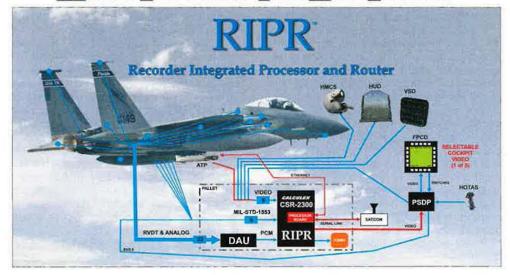
We're Blushing

The March 2012 issue of Air Force Magazine is without doubt the finest issue you have ever produced. Everything from ["The Highest Ranking"], "The Red Baron," "Early Atomic Air," [to] exceptional Korean War photography, Colonel Broughton's saga, the battle of Anaconda, and "The Last Days of Iraq" were engrossing and inspiring. I am saving this issue for my grandchildren in hopes that it will inspire some of them to follow our family tradition of military service. Thank you for creating something very, very special.

Sharon E. Hockensmith McKinney, Tex.

MONSSTR

MOdular Non-volatile Solid STate Recorder



"Sometimes you have to think inside the box!"

CALCULEX® www.calculex.com

New boss different from the old boss; Institutional credibility; F-22 mystery; Root cause still up in the air

CHOOSING A NEW CHIEF

It's not just who you know.

Early this month, a four-star general will be announced as President Obama's nominee to be the next Chief of Staff of the US Air Force, taking over from Gen. Norton A. Schwartz, who will conclude his four-year tour in August.

In an interview in his Pentagon office, Schwartz discussed the process by which a new USAF uniformed leader is chosen.

Schwartz said he doesn't doubt "familiarity" plays some role in the selection process. A candidate may have worked with the sitting Secretary of Defense or other senior members of an Administration in a previous capacity, and they may be comfortable with that person. However, Schwartz insisted there's more to it than that.

"No one in any of these positions, knowing how hard these jobs are, would allow that to be the sole criteria," he said.

More than one candidate was forwarded to Defense Secretary Leon E. Panetta by Air Force Secretary Michael B. Donley early this year, and Panetta took two months to "digest" the information that came with those names, Schwartz said. The Chairman of the Joint Chiefs also confers with the Secretary of Defense on candidates for the top-level US military council.

"I turn into a pumpkin on the 12th of August," Schwartz said, and he hopes the nominee will be confirmed six to eight weeks ahead of that date. That will allow a change of command at the nominee's current assignment and give him "an opportunity to think about what he wants to do and how he wants to get started."

If the confirmation happens too close to the turnover, "it limits that opportunity" for the Chief-select to decide "what issues" he wants to work and his priorities for the first months of his tour.

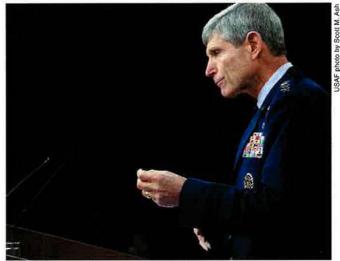
Schwartz said he thinks it's important the nominee have that planning window. "It hasn't happened in every instance," he noted. "Circumstances are what they are."

In his own case, Schwartz had already put in his papers to retire, having completed what he thought would be his last tour, as head of US Transportation Command. One evening, soon after Defense Secretary Robert M. Gates fired Chief of Staff Gen. T. Michael Moseley and Secretary Michael W. Wynne, Schwartz received a call at his home from a senior defense official. That phone call constituted Schwartz' entire interview for the job of Chief of Staff.

Schwartz said "there is a process" for choosing the Chief but not necessarily "a single process."

He acknowledged that the way Chiefs have been chosen, historically, has changed almost every time there's been a turnover. What's consistent, he said, are the qualities a potential Chief of Staff has to have.

"It starts, first, with what are the attributes that are required to be successful in the job," Schwartz said. Those include "the likely quality of military advice; how well the candidate could assist the Secretary [of the Air Force] in doing the organize, train, and equip mission; his or her capacity to build bridges and reinforce partnerships with colleagues and partner air forces around the world; and ... the reputation that individual has" among civilian leaders in the Pentagon and on Capitol Hill



Schwartz turns into a pumpkin on Aug. 12, 2012.

and "in the uniformed community, including the [Joint Chiefs of Staff] and the combatant commanders."

DIFFERENT SKILLS NEEDED

The specific experience and expertise Panetta is looking for in a new Chief is almost certainly not what Gates was looking for when Schwartz himself got the job, Schwartz observed.

"What might have been considered for me ... probably wouldn't be the same for ... my successor," he said, "because circumstances have changed."

The US has a new national military strategy; "the budget environment certainly has changed; we're no longer in Iraq; [and] there's the prospect of a drawdown in Afghanistan." Beyond that, there are the "major undertakings" of the Air Force in the coming four years that will require knowledge and talents probably different than those Schwartz possesses.

There are some statutory requirements a candidate must meet. He can't be older than 64 at the end of his term as Chief, and he has to have served in a senior Joint position, for example.

Any four-star general is considered a candidate, and there is no "self-nomination" involved, Schwartz said. Nor is there, realistically, any opting out.

If the President asks an officer to serve, "I know very few people, if any, who would, without very, very good cause, decline that request," Schwartz said. "It is a privilege to do this."

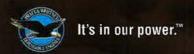
Suggestions for a new leader come in all the time from "the alumni," Schwartz said—prior Chiefs and Secretaries of the service—and "you take that seriously." But the serving Chief and Secretary have usually been in the job quite some time and know the players quite well—"their strengths and weaknesses."

Schwartz said he does not know if the White House, Pentagon leadership, or other civilian entity runs the name of a potential candidate past the Senate Armed Services Committee—which must confirm the nominee—to gauge whether there will be any heated opposition.

A next generation fighter takes a next generation engine.



Pratt & Whitney is the only company in the world delivering 5th generation fighter engines. Our F135 engine is powering the F-35 Lightning II today, and our decades of operational experience and technology have produced the most capable and reliable fighter engine ever. Ready today and for tomorrow's challenge. See it for yourself at f135engine.com.





Some confirmations are slam dunks, with hearings lasting just a single morning. Others take longer. Schwartz himself spent a few days talking with Senators in closed session about his involvement in classified matters on the Joint Staff before his formal confirmation hearing.

After a candidate has been chosen, Schwartz said USAF will help him prepare for confirmation, but will be "scrupulous" about avoiding any activity that presumes the nomination will be confirmed.

The candidate will get a questionnaire from the SASC to get ready. Some of the questions are traditional, Schwartz said—such as "will you give your candid military advice" even if it conflicts with White House policy. Others will be very topical.

Schwartz will write an after-action report on his tour and "share" it with the new Chief. He'll also make suggestions about where the new Chief "needs to concentrate a bit" more attention than Schwartz did. Finally, he will make sure the new Chief knows "what promises [we have] made that still need to be fulfilled. That is something that is vitally important in a handoff, because the institution's credibility is at stake."

F-22 RIDDLE WRAPPED IN AN ENIGMA

The Air Force is still stumped as to why F-22 pilots occasionally experience symptoms akin to hypoxia, despite exhaustive scrutiny of the aircraft by some of the best minds in aerospace, but service leaders insist the Raptor is safe to fly and have vowed to solve the mystery eventually. In the meantime, they have taken steps to monitor closely the physiology of F-22 pilots in the cockpit and put new gear on the fighter that will add more levels of safety.

The problem caused the Air Force to ground the F-22 fleet for months last year, and there was widespread speculation it caused a fatal F-22 crash in Alaska in 2010. However, Air Force leaders and a special task force said they are satisfied the oxygen problem did not cause that crash. In fact, no accidents, crashes, or fatalities have been chalked up to the oxygen problem, disturbing as it may be.

Briefing the press at the Pentagon in March after seven months' worth of investigation, retired Gen. Gregory S. Martin, leader of an Air Force Scientific Advisory Board task force on the F-22's oxygen system problems, admitted, "We do not have, this day, the root cause in hand" of problems that seemingly caused symptoms of hypoxia in about two dozen Raptor pilots since 2008. Martin said 14 test flights were flown with a specially instrumented F-22, but on none of them did the problem manifest itself. The working hypotheses explored were that the aircraft's oxygen-generation system wasn't making enough oxygen, or that contaminants were somehow getting into pilot air, Martin said.

The Navy is having similar problems with the F/A-18, which uses a similar oxygen system, in "numbers [that] are fairly significant," Martin said, and that service was involved with the task force as well.

Since allowing the F-22s back into the air last September, "we've flown over 10,000 sorties," Maj. Gen. Charles W. Lyon, director of operations for Air Combat Command, said at the briefing.

"That's a lot of sorties in a short amount of time," he said, and oxygen issues have affected "0.1 percent" of those missions, meaning "we've had a 99.9 percent effective flying rate," Lyon said.

He said there are no safety-driven altitude restrictions on the F-22. However, Martin noted the F-22's service ceiling, though classified, is well above that of any previous USAF fighter.

"This airplane flies routinely above 50,000 feet," he said. Raptor pilots wear a partial pressure suit, and cabin pressure is maintained at about 8,000 feet—higher as the aircraft climbs—to prevent explosive decompression.

However, while there have been some hypoxia-like incidents at high altitudes, Martin said some have happened at 25,000 feet or below, under conditions "where you would not expect them." Some "pretty good tests" continue to be run, but "right now, ... we don't have the answer," he said.

SOMEDAY WE'LL KNOW

"With respect to an oxygen failure system, there have been no crashes and no loss of life due to the loss of oxygen to the pilot," Martin said. In the Alaska crash, the SAB task force conferred with the Accident Investigation Board, and agreed with its conclusion that "it was not the lack of oxygen" that caused the F-22 to hit the ground. The AIB found that while the pilot in the Alaska crash, Capt. Jeffrey Haney, was indeed having some problems with his oxygen system, his attention became "channelized" while dealing with several issues at once and he lost awareness of the aircraft's attitude during the night mission. It was the task saturation that the AIB blamed for Haney hitting the ground at high speed.

Lyon said F-22 pilots now wear oximeters to determine the amount of oxygen they are receiving. If anything disagrees with pilots' personal baseline averages, they will be ordered to quit their mission and land immediately, at which time they'll be met on the ground by a medical team to assess the situation and ascertain its cause, Lyon said.

Moreover, filters have been installed to catch any particulates that may contaminate a pilot's oxygen supply. These filters can capture and help characterize particulates at parts per billion—a magnitude higher than ordinary government safety requirements of parts per million—but so far, "we haven't found anything of a significant level yet that's come through this," Martin said.

There were episodes suggesting a link between hypoxic events and maneuvers involving high-G forces, Martin said, but it was inconsistent, and some events took place during straight-and-level flight, so "I would say you don't have a correlation" to high-G maneuvers.

Some things demand immediate attention. The task force noted that USAF's expertise in aerospace physiology has atrophied in recent years. Modeling and simulation capabilities weren't up to the job of figuring out the problem, and the F-22 doesn't have an "automatically activated supply of breathable air." The fighter's onboard oxygen-generating system, moreover, was designed to be maintenance-free, with no periodic inspections, and there's no automatic recovery system in the aircraft if the pilot becomes incapacitated due to lack of oxygen.

Thus, the panel made 14 recommendations, which included various changes to the oxygen system, ranging from more user-friendly handles to additional sensors, monitors, data-gathering systems, and warning systems for the pilot.

The task force suggested the Air Force install an automatic ground collision avoidance system in the F-22—something left out during rounds of cost- and weight-cutting earlier in the program. It also urged USAF to hire more aerospace physiology professionals and reinvigorate that career field within the Air Force.

"The [Centers] of Excellence for Aviation Physiology, Human Systems Integration, and those sorts of things need to be reestablished because we are operating an aircraft in an environment with systems that perform differently" than any previous fighter, Martin said. The F-22's performance "may have some effect on the humans' response and in the human reaction. We're not aware of some of those yet," and USAF didn't have such a panel of expertise in-house to call on.

"I am convinced there is a root cause," Martin said. "I want everyone to know, particularly those who operate [the F-22] and their families, we will not rest until we find that root cause."









to have been providing combat rescue support to the United States Air Force for more than 60 years. It was personal to Igor, it was personal in Vietnam, Serbia, and Iraq, and now it's personal in Afghanistan. The Sikorsky Combat Rescue Helicopter: the most agile, survivable and cost-effective rescue platform for the United States Air Force.

Pilot Dies in Strike Eagle Crash

Capt. Francis D. Imlay, 31, of Vacaville, Calif., was killed in an F-15E crash near an undisclosed base in Southwest Asia, March 28.

US Air Forces Central said the backseat weapon systems officer survived and was taken to a military medical facility with minor injuries following the accident.

Imlay was assigned to the 391st Fighter Squadron, deployed from Mountain Home AFB, Idaho. The cause of the crash is under investigation.

F-35 Costs Officially Up

The estimated cost of the total F-35 strike fighter program, including all variants and life cycle costs, grew some \$17 billion, from \$379 billion to \$396 billion, according to the Pentagon's quarterly program cost report sent to Congress in late March.

The Selected Acquisition Report shows F-35 aircraft costs have increased by some \$10.7 billion to \$332 billion in 2011, compared to the 2010 SAR.

Reasons for the cost increase cited by the Pentagon included DOD's slowing the rate of aircraft production and extending the production run by two years to 2037. F-35 engine costs also rose by roughly \$5.6 billion to \$63.9 billion through December 2011, due to an increase in initial engine spares as well as the slowed production ramp-up.

No X-37 Follow-Ons

The Air Force is satisfied with the performance of its X-37 unmanned vehicles and doesn't plan to build "anything larger," or a successor craft, according to Air Force Space Command chief Gen. William L. Shelton.

Launched from Cape Canaveral AFS, Fla., last March, the second X-37 has "had a very successful mission," Shelton reported, and USAF is "very happy with its performance" after a year in space. While Shelton declined to specify the craft's mission or targeted return date, he told reporters in Washington, D.C., that the craft is "doing very well."

Two X-37s have flown in space, performing secret missions. The vehicles ride into space aboard a booster rocket but glide back to Earth as the space shuttle did. The craft are about the length of an MQ-1 Predator but with short, stubby wings.

Due to the expense of building new vehicles, USAF has no plans to increase

Oscreenshot

Eagles Make Quiet Return to Gulf Region

Without fanfare, the Air Force deployed F-15C Eagles to the Persian Gulf region in January, operating them from the undisclosed air base that is home to the 380th Air Expeditionary Wing.

Long absent from the region, the F-15Cs were deployed to buttress "regional stability and security," according to a US Air Forces Central spokesman.

AFCENT declined to specify whether the deployment is meant to dissuade aggression from Iran, which has been making belligerent statements about blocking sea traffic in the Strait of Hormuz. Tensions with Iran have also been high due to that country's unwillingness to quit its nuclear weapons program.

Multirole F-15E Strike Eagles and F-16s have been a fixture in Southwest Asia and the Middle East in recent years, but not F-15Cs, whose primary mission is establishing air superiority. The type was withdrawn from the region soon after the Iraqi air threat was neutralized in 2003.

The Eagles are training and exercising with partner air forces in the region, as well as with an air warfare center in the same, unnamed partner country, according to AFCENT's spokesman.

The F-15s are from 44th Fighter Squadron at Kadena AB, Japan, according to a 380th AEW news release.

The unit's F-15s are equipped with active electronically scanned array radars, making them the most capable fourth generation air superiority fighters in the Air Force inventory.

the size of the fleet. Shelton added, "we can sustain this capability for quite some time."

Once and Future JSTARS

The Air Force is going to stick with E-8C JSTARS fleet, aided by the Global Hawk Block 40 remotely piloted aircraft, for tracking moving targets on the battlefield, Chief of Staff Gen. Norton A. Schwartz said.

An analysis of alternatives found that retaining the JSTARS was the most

cost-effective option versus replacing it with a new system, Schwartz told the Senate Armed Services Committee in March testimony. Though the cost of replacement is too high, Schwartz didn't rule out upgrades.

Actually, the analysis determined "a blend of Global Hawk Block 40 and a business-class [intelligence, surveillance, and reconnaissance] platform was the least-cost, highest-performing alternative," Schwartz said, but "we

simply don't have the resources" to build a new business-class ISR aircraft from the ground up.

In addition to the existing JSTARS fleet, the Air Force plans to buy 11 Global Hawk Block 40s equipped with the sophisticated synthetic aperture MP-RTIP radar to track ground targets.

Feeling Less Alert

Next year, the number of fighter bases standing alert to defend US airspace



04.17.2012

The space shuttle Discovery, carried by NASA's modified 747 shuttle carrier aircraft, passes Washington, D.C., en route to the National Air and Space Museum's Udvar-Hazy Center near Dulles, Va., where it will be on permanent display. Before it was retired, Discovery completed 39 missions, spent 365 days in space, orbited the Earth 5,830 times, and traveled 148,221,675 miles.

Whistle-blowers Vindicated

The Air Force has initiated "disciplinary proceedings" against former supervisors at the service-run military mortuary at Dover AFB, Del., reported Air Force Secretary Michael B. Donley.

A US Office of Special Council investigation found that three Dover supervisors retaliated against four mortuary employees who warned higher-ups of the mishandling of service personnel remains in 2009 and 2010. According to the report, the four mortuary employees alleged they were threatened with job termination, indefinite administrative leave, and five-day suspensions, OSC stated earlier this year.

OSC's report, publicly released on March 16, recommended "substantial disciplinary action" against Col. Robert Edmondson, former mortuary commander, and Quinton R. Keel, then mortuary director. It also called for less severe discipline for Trevor Dean, then deputy director.

In response, Donley stated, "The Air Force will not tolerate wrongdoing, especially prohibited personnel practices, by employees." The Air Force appointed a two-star general to review the OSC's report and determine appropriate disciplinary actions, a process Donley predicted would be completed by the end of April.

"The individuals who reported the allegations in this matter performed an important service to the Air Force and the nation," Donley said.

Edmondson received a letter of reprimand last April, the report states, and Keel resigned from a lower mortuary position in late February, according to the *Washington Post*.

Corrective actions on behalf of the whistle-blowers are complete, according to OSC's report, which was released in March.

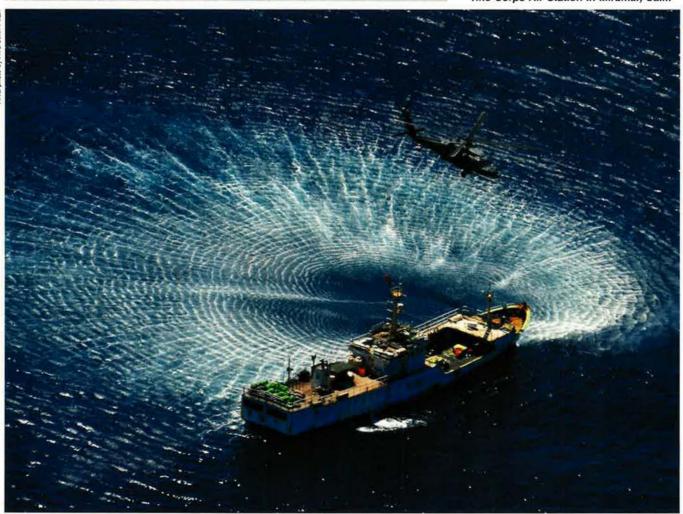
will drop from 16 to 14, said Army Gen. Charles H. Jacoby Jr., NORAD commander and head of US Northern Command.

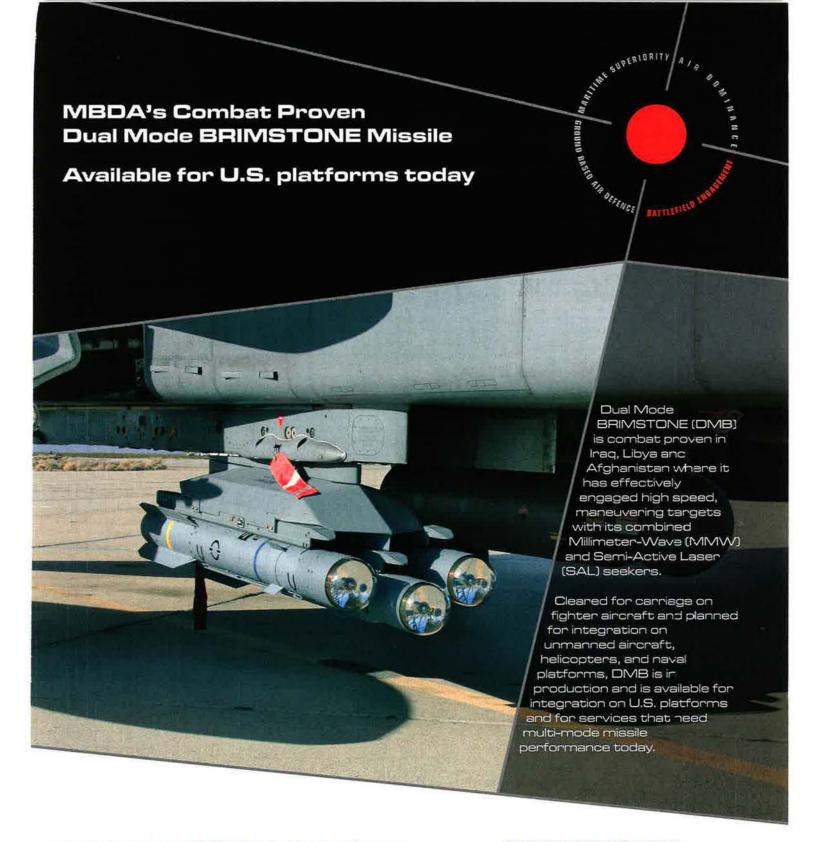
The decision to take fighters off around-the-clock alert at JB Langley-Eustis, Va., and in Duluth, Minn., was "very difficult," said Jacoby. The reductions are part of NORTHCOM's effort to cut costs and find more efficient means of operating.

"I believe we can mitigate any additional risk that we assume by reducing the 24/7 presence," he stated in testimony before the House Armed Services Committee, March 6.

NORAD has the "authority to move to another level of alert and go from

Making Waves: An HH-60G Pave Hawk hovers over a Chinese fishing vessel some 700 miles off the coast of Acapulco, Mexico. California Air National Guard pararescuemen parachuted from an MC-130P into the ocean, boarded a Zodiac boat, and, equipped with medical supplies, boarded the Chinese boat to treat two fishermen badly burned in an onboard fire. The HH-60 crew then hoisted the injured men and PJs onto the Pave Hawk for transport to the Marine Corps Air Station in Miramar, Calif.





Lock on to MBDA Solutions

For inquiries in the U.S. contact: sales@mbda-us.com 703-387-7137 www.mbdainc.com



14 bases with 28 fighters, to 23 bases with 46 fighters in just a matter of 48 hours," he explained. If needed, combat air patrols can be re-established "over each one of those bases in less than an hour," he said.

Renewing Special Ops

Several programs to recapitalize special operations aircraft are on track, reported US Special Operations Command boss Adm. William H. McRaven.

Air Force Special Operations Command has fielded 23 of its 50 planned CV-22 Osprey tilt-rotor aircraft, and the Osprey "continues to deliver unmatched speed and range to SOF battlefield commanders," he told lawmakers early in March.

Testifying before the Senate Armed Services Committee, McRaven said AFSOC has completed modifying 12 MC-130Ws with a precision strike package and has begun the effort to replace legacy AC-130U gunships with new AC-130Js. The new gunships will incorporate the MC-130W's precision strike package as "a key risk reducing capability," noted McRaven.

Developmental testing of the MC-130J wrapped up last June, and the aircraft is set to replace the command's elderly MC-130E/P special-mission fleet, he said.

Gliding Through Checkout

The first Advanced Extremely High Frequency military communications



Can You Hear Me Now?: A1C Justin Glass, a crew chief with the 332nd Expeditionary Aircraft Maintenance Squadron, speaks with the pilot of an F-16 during a preflight check at a base in Southwest Asia. Vital communications between crew chiefs and pilots are aided by high-tech headsets and no-tech, old-fashioned hand signals.

satellite completed testing in geosynchronous orbit at the end of February and is now known as SV-1, Lockheed Martin announced. The milestone paves the way for transfer to the 50th Space Wing at Schriever AFB, Colo., which will operate the satellite in space.

Due to a problem with the SV-1's propulsion unit, the satellite took more than a year to attain its intended operational orbit.

AEHF satellites will provide significantly improved global protected communications to the US military and national leadership, compared to the Milstar constellation currently in use.

SV-1 was launched in August 2010. The Air Force's second AEHF spacecraft arrived at Cape Canaveral AFS, Fla., in February this year for a scheduled launch date in late April.

Relief for the Weary

The Air Force has taken the first step toward replacing its war-weary HH-60G Pave Hawk rescue fleet, issuing a draft solicitation to industry in March.

The service hosted a meeting with prospective bidders for the future Combat Rescue Helicopter in Dayton, Ohio, requesting industry feedback to the draft request for proposal by the beginning of April.

The solicitation wasn't publicly released, but "the Air Force remains committed to modernizing crucial combat search and rescue (CSAR) capabilities," according to its 2012 posture statement. Issued early this year, the paper stated the CRH program "remains on track to produce a replacement for the HH-60G through a full and open competition, with initial operational capability planned for FY18."

The Air Force included funds in its Fiscal 2013 budget request to purchase two CRH test aircraft.

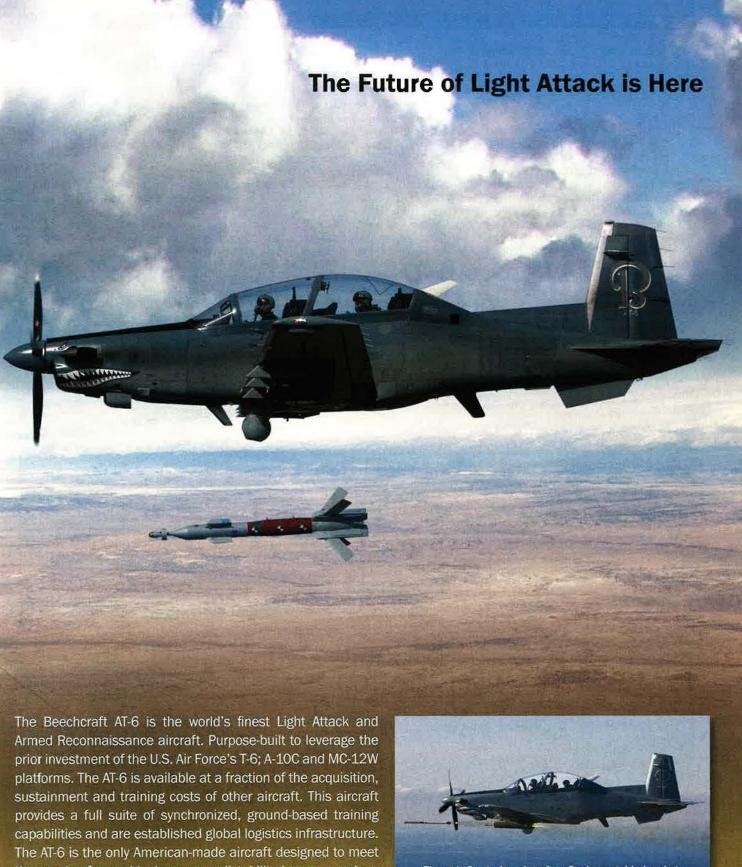
First All-Super Galaxy Squadron

The 9th Airlift Squadron at Dover AFB, Del., is the first all-C-5M Super Galaxy squadron in the Air Force. Dover has the "largest aerial port on the East Coast; it [makes] sense to put the most capable, strategic airlifter right next to it, so that we can move more cargo faster," said Lt. Col. Dave Herbison, 9th AS operations director.

Index to Advertisers

Ashford

Boeing	Cover V
Calculex	11
DRS	
General Atomics	
General Dynamics	<u>C</u>
General Electric	
Sulfstream	
ławker Beechcraft	
nsitu	
3	33
ockheed Martin	
/IBDA	
Northrop Grumman	3.31
Pratt & Whitney	
Panasonic	
Raytheon	
Rolls Royce	
Sikorsky	
SRC	
JSAA	Covery
AFA Corporate Members	148
AFA Expositions	
AFA Life and Accident Insurance	
AFA Health Services	
AFA Membership	135
AFA Upcoming Events	
Spotlight on	148
Summer in D.C	
ummer in D.C	146



the needs of a world where unpredictability is commonplace and flexibility is crucial.



www.missionreadyat-6.com



Air Force World

With more efficient engines, a variety of reliability-enhancing modifications, and a glass cockpit, the Super Galaxy "allows us to do more things," he said March 12.

Last To Fly

The Air Force's final F-22 Raptor lifted off on its first test flight from Marietta, Ga., March 14.

The fighter—last of 187 production F-22s built at Lockheed Martin's Marietta, Ga., facilities—is slated to complete flight test by the end of this month.

Raptor 4195 rolled off the assembly line in mid-December, some 15 years after the first F-22. After the company formally hands it over to the Air Force, the final Raptor is set to join USAF's 3rd Wing at JB Elmendorf-Richardson, Alaska

Walking on Air: Airmen from the 820th Base Defense Group step out of an HC-130 at Moody AFB, Ga., during a static line jump. About 30 airmen jumped to maintain their airborne qualifications.

Warhead Watch

The United States' three nuclear warhead life extension programs continue at a slightly slower pace due to budget limitations, said Thomas P. D'Agostino, head of the National Nuclear Security Administration.

"Over the last two years, the Administration's been very consistent at putting out a fairly significant program to do life extension work on the stockpile itself," D'Agostino said, speaking at a roundtable in Washington, D.C.

The US commitment to regenerating the Air Force's B61 freefall tactical warhead and the Navy's W76 warhead carried on the Trident ballistic missiles "hasn't changed. ... Just the pace has slowed down a little bit," he said March 8.

NNSA is also studying future life extension needs for W78/88 warheads, fitted to the Minuteman III and Navy Trident II missiles, to keep the Air Force's strategic arsenal reliable in the years to come.

"What's being slowed down are what's typically been called 'hedge warheads,'" said D'Agostino. "We're going to slow down and stretch out that particular piece" to meet budget constraints over the short term, he said.

The Navy's W76, now in production, is the highest current funding priority, D'Agostino said. After that, the B61—arguably the most complex rework—is the next priority, tentatively entering the rework line in 2019.

Due to their age and condition, the Minuteman and Trident W78/88 warheads are the least-pressing priority. As a result, funds will be limited in the near term to routine care and monitoring of these warheads, he said.





If you recognized the CV-22, F-35A, Global Hawk, CC-130J and C-37, you obviously know your aircraft. Rolls-Royce Defense North America, a U.S. based company, is a leading propulsion provider to the U.S. Air Force and has been for more than fifty years. Today, Rolls-Royce provides nearly one-fourth of all gas turbine engines in service on America's

military aircraft and will continue to push the edge of the mission envelope with the new C-27J Joint Cargo Aircraft. When it comes to innovative and reliable propulsion for Global Power, Reach and Vigilance, Rolls-Royce earns its Air Force wings every day.

Trusted to deliver excellence



Operation Enduring Freedom

Casualties

By April 17, a total of 1,929 Americans had died in Operation Enduring Freedom. The total includes 1,926 troops and three Department of Defense civilians. Of these deaths, 1,523 were killed in action with the enemy while 406 died in noncombat incidents.

There have been 15,672 troops wounded in action during OEF.

Training at Home Again

Three Afghan Air Force Cessna 182s lifted off March 24 from Shindand Air Base on the first fixed-wing undergraduate pilot training sorties from Afghan soil in 30 years, according to US Air Force advisors there.

"The main goal here is to transition all of the training to the Afghans, so these first students are key to the success of a fully independent Afghan Air Force," said flight instructor Lt. Col. James Bands of the 838th Air Expeditionary Advisory Group.

Over six months, the students will complete UPT in the Cessna 182 before upgrading to the Cessna 208 for 10 months of intermediate training.

Working with civilian contract instructors, advisors are tracking the first students to "determine which students will continue flying these aircraft and which ones will return to instruct other AAF pilot candidates," noted Bands.

AAF students previously completed all UPT training abroad with US and partner air forces.

Broken Hawk Defies Explanation

Air Combat Command investigators were unable to determine with certainty why an RQ-4B Global Hawk communications-relay aircraft crashed during a mission in Afghanistan last summer, ACC announced.

Several hours into the mission on Aug. 20, 2011, the 9th Reconnaissance Wing controller at Beale AFB, Calif., lost all sensor and control data links with the remotely piloted aircraft, ACC's accident investigation board said.

The controller followed proper procedures, but was unable to regain contact with the RPA. Radar tracks showed that the RPA continued flying, until—buffeted by normal atmospheric turbulence—it departed controlled flight, plummeting from 51,000 feet.

The RPA crashed in an uninhabited area about 121 miles northwest of Kandahar, without additional damage or injury.

Loss of the RPA was estimated at \$72.8 million. The AIB was able to determine, however, that partial separation of a connector interrupting power to aileron and spoiler actuators rendered the aircraft uncontrollable, which was likely a "substantially contributing factor" to the mishap, according to its report released in March.

Brit Reaper Milestone

24

Royal Air Force MQ-9 Reapers operating with the US Air Force recently achieved 30,000 combat flight hours supporting operations in Afghanistan, according to the RAF.

"The continuing success of our Reaper operations is the result of fine collaborative work between the RAF and [the US Air Force]," said the British air commodore who heads RAF air reconnaissance operations.

Launched and recovered by RAF personnel detached to USAF's 62nd Expeditionary Reconnaissance Squadron at Kandahar Air Base, the RPAs are flown operationally by RAF 39 Squadron controllers detached to Creech AFB, Nev.

"The British contribution is significant to our operations here. They are embedded in our squadron; they are an integral part of it," said a 62nd ERS officer.

RAF Reapers began operating over Afghanistan in October 2007. The RAF's current fleet of five Reapers is expected to double with the purchase of several more aircraft in the near future.

Company test pilot Bret Luedke took the aircraft aloft on its first test sortie.

A Pact With the Blue Devil

USAF will continue experimental Blue Devil persistent ISR support of US Central Command operations next fiscal year, said Steven H. Walker, head of Air Force science, technology, and engineering.

The technology has been "instrumental" in identifying several "high-value individuals" as well as improvised explosive devices in theater, said Walker. "Feedback on the situational awareness provided by Blue Devil Block 1 has been overwhelmingly positive," he told House defense authorizers in March.

Walker said the system is the first-ever wide-area sensor fully integrated with a narrow-field-of-view system cued by with advanced signals intelligence sensors.

The Air Force plans to support CENT-COM with four Blue Devil Block 1 sorties per day in Fiscal 2013, he said.

Mounted on a modified executive jet, Blue Devil Block 1 is a suite of high-definition imagery sensors with classified capabilities, reported *Wired* Magazine.

Blue Devil Block 2 would integrate the sensors in a large airship, but the Air Force is mulling whether such "boutique" ISR systems are still affordable, said ISR chief Lt. Gen. Larry D. James, speaking earlier this year.

Jet Fuel, Act III

A new type of alternative fuel known as alcohol-to-jet, or ATJ, is undergoing suitability testing for use in USAF aircraft, said Terry A. Yonkers, the service's installation, environment, and logistics chief.

The Air Force anticipates certifying ATJ, derived from cellulosic materials such as wood waste, grasses, or corn stalks, for blended use with JP-8 fuels by 2014, Yonkers told legislators at a House Armed Services Committee panel March 29.

Depending on funding availability, ATJ would become the third type of alternative fuel certified for Air Force use to help reduce US dependency on foreign energy sources.

The service is working to meet half of all its domestic jet fuel needs with alternative blends by 2016. Synthetic paraffinic kerosene blend is already approved for servicewide use.

The Air Force expects to clear a blend of JP-8 and biofuel known as hydro-treated renewable jet fuel for all fleets by the end of this year, said Yonkers.

Africa Air Meet

US Air Forces Africa launched the inaugural Africa Partnership Flight,















COMBAT PROVER AGAIN

Insitu supports our warfighters on land and at sea with superior tactical intelligence, surveillance and reconnaissance when and where they need it. Backed by over six years and more than 550,000 hours of combat flight, Insitu's experience in executing missions gives our troops a trusted partner in the field.

Ready. Reliable. Proven.







www.insitu.com/combatproven

Capt. Barry Crawford Awarded Air Force Cross for Heroism in Afghanistan

Capt. Barry F. Crawford Jr., an Air Force Special Operations Command special tactics officer, was on April 12 awarded the Air Force Cross—the second highest honor for valor in combat—for his "extraordinary heroism, superb airmanship, and aggressiveness in the face of the enemy." His heroic actions took place in Laghman province, Afghanistan, on May 4, 2010.

Chief of Staff Gen. Norton A. Schwartz presented Crawford with the award during a ceremony in the Pentagon's Hall of Heroes.

That May, Crawford was working with an Army Special Forces detachment and Afghan partners. Their operation was part of a larger plan to work with International Security Assistance Forces to re-establish control of a completely denied area east of Kabul that coalition forces had not been able to operate in for some time.

The area was known to be sympathetic to the Taliban, but the assault force, which included about 100 US and Afghan personnel, only expected light resistance. Unbeknownst to them, however, the mission had been compromised. The coalition assault force was actually walking into a trap and would be ambushed by a numerically superior enemy force roughly 10 times the expected size.

Around 5 a.m., bullets began raining down inside the village. "One of my teammates referred to it as getting shot at like fish in a barrel," Crawford told *Air Force* Magazine during a March interview. "Once the enemy started firing on us, it didn't stop for 10-plus hours." Crawford described the scene as being like "running the gauntlet," something straight out of a movie.

Multiple mission participants "painted a consistent and compelling picture of Captain Crawford's technical expertise and exceptional courage under fire during the day-long battle with the enemy," said Lt. Col. Parks Hughes, commander of the 21st Special Tactics Squadron, Crawford's home unit at the time. "They credited his decisive actions with enabling the US ground force and their Afghan partners to survive and escape an extremely dire situation."

Three Afghans were severely wounded in the battle and two others were killed. Crawford knew the casualties didn't have long to live and the conditions on the ground were making it difficult for the medical evacuation helicopter to land.

Recognizing the gravity of the situation, Crawford "ran out into the open in an effort to guide the helicopter to the landing



Crawford receives congratulations on April 12, 2012, from Air Force Chief of Staff Gen. Norton Schwartz.



Capt. Barry Crawford in the field.

zone," according to his Air Force Cross citation. "Once the pilot had eyes on his position, Captain Crawford remained exposed, despite having one of his radio antennas shot off mere inches from his face."

Crawford then bounded across open terrain, engaging the enemy with his assault rifle and calling in strafing attacks from Army AH-64 Apache helicopters. He controlled the Apaches, which were unleashing gun, rocket, and Hellfire missile attacks on the mountainside.

As Crawford and his team made the perilous journey to the exfiltration point, the attacking insurgents kept launching new ambushes. At one point, Crawford's element was ambushed from multiple fighting positions by an enemy less than 500 feet away. The insurgents were firing from caves, houses, and a ravine that had been dubbed the "green zone"

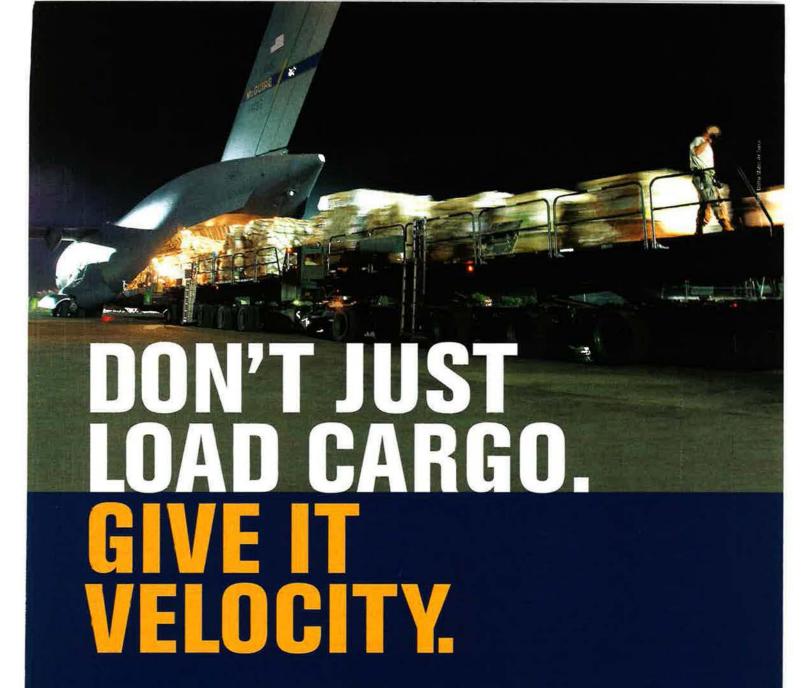
because of its thick, concealing vegetation. The men were pinned down in the open, so Crawford again brought in the air assets.

After roughly 10 hours of constant battle, coalition forces were running out of ammunition so Crawford integrated AH-64s and F-15s in a coordinated airto-ground attack plan that included strafing runs, Hellfire missiles, 500 - and 2,000-pound bombs. This burst of airpower allowed the men to successfully evacuate the village without additional casualties.

"Captain Crawford braved effective enemy fire and consciously placed himself at grave risk on four occasions while controlling over 33 aircraft and more than 40 airstrikes on a well-trained and well-prepared enemy force," reads his Air Force Cross citation.

Crawford, who now serves with the Air National Guard's 104th Fighter Squadron in Baltimore, is the fourth air commando to receive the service's second highest honor since Sept. 11, 2001. Only seven other airmen have earned an Air Force Cross since 1975.

-Amy McCullough



With a 30-ton capacity and the ability to precisely control height (up to 18.5 feet) as well as pitch and yaw, the Tunner from DRS is a high-tech workhorse that can unload and load a C-17 with amazing accuracy and speed. Plus, two or more Tunners can be used together to create a cargo bridge for even greater volume and productivity.

Velocity In Cargo Loading: That's Go To.

DRS.com/GoTo



Senior Staff Changes

RETIREMENT: Maj. Gen. Charles E. Reed Jr.

NOMINATIONS: To be General: Janet C. Wolfenbarger. To be Lieutenant General: Salvatore A. Angelella, Andrew E. Busch, Bruce A. Litchfield. To be Major General: David W. Allvin, Howard B. Baker, Thomas W. Bergeson, Charles Q. Brown Jr., Darryl W. Burke, Richard M. Clark, Dwyer L. Dennis, Mark C. Dillon, Carlton D. Everhart II, Samuel A. R. Greaves, Morris E. Haase, Garrett Harencak, Paul T. Johnson, Randy A. Kee, Jim H. Keffer, Michael J. Kingsley, Jeffrey G. Lofgren, James K. McLaughlin, Kurt F. Neubauer, John F. Newell III, Craig S. Olson, John N. T. Shanahan, Michael S. Stough, Scott D. West, Kenneth S. Wilsbach. To be ANG Major General: Steven A. Cray, William J. Crisler Jr., Jon F. Fago, Michael A. Loh, Eric W. Vollmecke. To be ANG Brigadier General: Steven M. Balser, Mark H. Berry, Ondra L. Berry, Allen D. Bolton, Robert C. Bolton, Walter A. Bryan Jr., Gregory S. Champagne, William D. Cobetto, Sean T. Collins, Douglas D. Delozier, John L. D'Errico, Dawne L. Deskins, Scott A. Dold, Gary L. Ebben, Kenneth L. Gammon, Bruce R. Guerdan, Leonard W. Isabelle Jr., Clifford W. Latta Jr., Wade A. Lillegard, Paul C. Maas Jr., Peter R. Masciola, Edward P. Maxwell, David M. McMinn, Michael A. Meyer, Thad L. Myers, Thomas C. Patton, Braden K. Sakai, Janet I. Sessums, Peter J. Siana, Jeffrey M. Silver, James K. Vogel, Sallie K. Worcester. To be AFRC Lieutenant General: James F. Jackson.

CHANGES: Maj. Gen. (sel.) David W. Allvin, from Vice Cmdr., 618th Air & Space Ops. Center (Tanker Airlift Control Center), AMC, Scott AFB, III., to Cmdr., 618th Air & Space Ops. Center, Scott AFB, III. ... Brig. Gen. Stephen A. Clark, from Dir., Plans, Prgms., Rqmts., & Assessments, AFSOC, Hurlburt Field, Fla., to Dep. Cmdr., Jt. Spec. Ops. Command, SOCOM, Fort Bragg, N.C. ... Maj. Gen. (sel.) Carlton D. Everhart II, from Cmdr., 618th Air & Space Ops. Center (Tanker Airlift Control Center), AMC, Scott AFB, III., to Vice Cmdr., 3rd AF, USAFE, Ramstein AB, Germany ... Maj. Gen. (sel.) Michael S. Stough, from Dep. Dir., Strat. Plans, Rqmts., & Prgms., AMC, Scott AFB, III., to Vice Dir., Jt. Staff, Pentagon ... Brig. Gen. Giovanni K. Tuck, from Cmdr., 379th AEW, ACC, Southwest Asia, to Cmdr., Defense Log. Agency-Distribution, New Cumberland, Pa. ... Brig. Gen. Marshall B. Webb, from Asst. Cmdr., Spt., Jt. Special Ops. Command, SOCOM, Fort Bragg, N.C., to Dir., Plans, Prgms., Rqmts., & Assessments, AFSOC, Hurlburt Field, Fla.

SENIOR EXECUTIVE SERVICE CHANGES: William H. Booth Sr., to Dep. Asst. SECAF, Reserve Affairs, Office of the Asst. SECAF, Manpower & Reserve Affairs, Pentagon ... Robert F. Bussian, to Sr. Advisor for Intel. Innovation, Intel. Sys. Spt. Office, OSAF, Fort Washington, Md. ... Russell J. Frasz, to Dir., Force Dev., DCS, Manpower, Personnel, & Svcs., USAF, Pentagon ... Jeffrey T. Gossel, to Sr. Tech. Advisor, Space & Missiles, Space & Missiles Analysis Group, Natl. Air & Space Intel. Center, AF ISR Agency, Wright-Patterson AFB, Ohio ... Richard W. Lombardi, to Exec. Dir., ASC, AFMC, Wright-Patterson AFB, Ohio ... Michelle S. Lowesolis, to Dir., Plans & Integration Directorate, DCS, Manpower, Personnel, & Svcs., USAF, Pentagon.... John T. Park, to Dep. Dir., Force Mgmt. Policy, DCS, Manpower, Personnel, & Svcs., USAF, Pentagon ... Marilyn M. Thomas, to Principal Dep. Asst. SECAF, Financial Mgmt. & Comptroller, Pentagon.

bringing several air forces from East Africa together for military-to-military exchange at Accra, Ghana, earlier this year.

"At the end, if we do nothing more than strengthen relationships, old and new, that's value added," said Col. Dave Poage, APF mission commander, of the two-week event that began March 12.

"Just getting to know each other and creating partnerships among a myriad of organizations will make it successful," he said.

Hosted by the Ghanaian Air Force, airmen from several major commands, including AFAFRICA and US Air Forces in Europe, met with more than 160 personnel from Benin, Ghana, Nigeria, Senegal, and Togo.

"Good knowledge of best practices ... is very crucial to the success of any modern air force," said Air Commodore Emanuel Ahadome, GAF logistics chief. US Africa Command is incorporating APF into its outreach activities

this year as a routine, small-footprint capacity-building tool.

Pilot Error in A-10 Mishap

US Air Forces in Europe investigators attributed the crash of a 52nd Fighter Wing A-10C near its home base at Spangdahlem AB, Germany, in April 2011 to pilot error stemming from spatial disorientation.

Investigators said the pilot lost visual contact with his wingman and descended in poor visibility.

Switching from visual reference to instrument flight, the pilot became disoriented, rolling inverted before exiting the cloud deck. Regaining visual reference, he attempted to recover the aircraft before ejecting at 600 feet.

The pilot's parachute only partially deployed, resulting in serious injury, according to the accident investigation board. Weather conditions and procedural errors also contributed to the crash, according to the AIB report.

The A-10 struck a field north of Laufeld, Germany; the aircraft loss totaled \$16.1 million.

Back to Korat

More than 1,600 combined civilian and military personnel from the United States, Singapore, and Thailand participated in Exercise Cope Tiger 2012 at Korat RTAB, Thailand.

"Our cooperation will not only ensure regional security and stability but also provide our aircrews and personnel an opportunity to gain valuable insights and build long-lasting relationships that will benefit all nations in this region," said Col. Marc Caudill, Cope Tiger US exercise director and deployed wing commander.

Losing the Drug War

US Southern Command spends about half its time focused on transnational crime, most of which revolves around the drug trade, said SOUTHCOM chief Gen. Douglas M. Fraser.

But due to a lack of assets, the command can only interdict a third of narcotics shipments transiting its area of responsibility in Central and South America, Fraser told reporters in March.

Many Central American partner air forces lack the capacity to respond to drug-carrying aircraft landing in their countries or transiting their airspace, he said.

The Drug Enforcement Agency is "providing some capacity to respond, but it's just limited as you look at their capability to cover the large territories and be able to get to the right place at the right time," he noted.

The command's interdiction rate is actually dropping, Fraser said, meaning more drugs are getting through. Narcotics smugglers "are moving into areas beyond the Western hemisphere," as well, he said. "We see increasing movement from Brazil, from the northern parts of South America, even down through Argentina, into West Africa, and up into Europe and the Middle East."

To make matters worse, SOUTHCOM is seeing an increase in substances such as methamphetamine from India and China funneling through Mexico and eventually ending up in the United States, he said.



Uniquely Configured G550 for the U.S. Government

MISSION READY

More Gulfstream aircraft perform government and military service than any other large-cabin business jet in the world. Though the missions vary, the requirements are resolute: unsurpassed performance and proven reliability. With the expertise of our Special Missions Program office and collaboration with technology partners for advanced equipment integration, be assured, whatever your mission, we're ready when you are.

Maximum demonstrated range shown Actual results will be affected by operational factors, optional

Gulfstream^{*}

Getting Your TacSat's Worth

TacSat-3 ended its operational life in March after a phenomenal mission during which the experimental satellite was retasked multiple times to perform crucial operations.

"This satellite did some amazing things during its relatively short life," said Lt. Col. Mike Manor, commander of the 1st Space Operations Squadron at Schriever AFB, Colo.

The 880-pound experimental spacecraft was briefly made an operational reconnaissance asset, supporting combat operations.

After its on-orbit experiments were complete, Air Force Space Command pressed the satellite into service in June 2010 to support real-world combat and humanitarian operations worldwide. "We were able to squeeze two additional years of mission operations out of it," explained Manor.

Among its accomplishments, TacSat-3 provided multispectral imaging of earthquake- and tsunami-ravaged Japan, including the badly damaged Fukushima nuclear facility in 2011, in addition to its uniformed tasks.

Controllers at Schriever recently handed the satellite to airmen at the Space and Missile Systems Center at Los Angeles AFB, Calif., to guide it through its fall from orbit and atmospheric burn-up.

Built as an Air Force Research Lab experiment, TacSat-3 was launched by the Air Force into orbit in May 2009 with an intended life of one year.

The air combat exercise featured field training and large-force air employments involving a total of 92 aircraft and 34 air defense units.

The US air contingent included A-10s, C-17s, C-130s, and F-15s as well as personnel from JB Elmendorf-Richardson, Alaska; Jacksonville Arpt., Fla.; JB Pearl Harbor-Hickam, Hawaii; Osan AB, South Korea; and Yokota AB, Japan.

The two-week exercise ran from March 12 to March 23 at Korat.

Viper Lost in Korea

An F-16C assigned to the 36th Fighter Squadron at Osan AB, South Korea, crashed on a routine training sortie to Kunsan Air Base, March 21.

The pilot ejected safely, but the fighter was destroyed when it crashed into a rice paddy near the base, Kunsan officials announced.

"We are grateful the pilot is safe and that no one was injured," said Col. Patrick McKenzie, commander of Osan's 51st Fighter Wing, parent unit of the 36th FS. "Our main priority now is conducting an investigation to determine what happened," he said.

Southern Liberty

US Southern Command wants to use the Air Force's MC-12 Liberty intelligence, surveillance, and reconnaissance fleet when demand for the type in Afghanistan winds down.

"I think it's a very, very useful capability for the region," said SOUTHCOM Commander Gen. Douglas M. Fraser, speaking in Washington, D.C.

Fraser said he's already made his request known within the Air Force,

but it's too early yet to say the number of aircraft and support the command could potentially expect.

The MC-12 is based on the Beechcraft Super King Air, and partner air forces in the region have seized quite a number of similar aircraft in their war on narcotics trafficking. They have suggested converting the aircraft into ISR assets offering potential commonality, he said. SOUTHCOM uses the C-26 and other ISR aircraft in the region, and USAF Secretary Michael B. Donley has noted the potential usefulness of the MC-12 to the ANG counternarcotics-smuggling mission.

The service recently proposed transferring the planned 42-aircraft fleet to the Air National Guard in Fiscal 2014.

Low and Slow Threats

US Northern Command is studying how to confront "low, slow airborne threats" to infrastructure and populations within the US homeland, said Army Gen. Charles H. Jacoby Jr., NORAD and NORTHCOM boss.

"Based on our initial timelines, we anticipate having a way ahead by late summer," Jacoby told a House committee in March. NORTHCOM is busy identifying the assets and tactics needed to deal with single-engine aircraft or even rudimentary cruise missiles, said Jacoby.

NORTHCOM has put in a request for a capability to the joint requirements process and has begun work on an analysis of alternatives, he said.

School for Flying Medics

A new formal training unit is being set up alongside the School of Aerospace Medicine at Wright-Patterson AFB, Ohio, to train aeromedical evacuation personnel. The existing school is at Pope Field, N.C.

"This FTU will focus on enhancing the knowledge and performance required to operate in our AE aircraft," said Maj. Gen. Kimberly A. Siniscalchi, USAF



Drop and Give Me 10: 37th Airlift Squadron Commander Lt. Col. Joshua Olson (I) and Capt. Marci Walton, an instructor pilot, go through the preflight checklist on a C-130J at Ramstein AB, Germany. The 37th dropped a 10-pallet load of supplies to soldiers training in Grafenwoehr, allowing the airmen a rare opportunity to test a 10-bundle container deployment system.



THE VALUE OF CHOOSING A RADAR THAT'S A PERFECT FIT FOR THE F-16.

By leveraging F-16 and F-35 radar experience and commonality,

Northrop Grumman's SABR is the ideal

choice for F-16 AESA radar capability.

As the pioneer and sole provider of F-16

radars for over 35 years, our industry-leading

AESA is the only one specifically designed for

the F-16. Our family of AESAs' architecture,

hardware, and software commonality maximizes

both performance and cost efficiencies.

That's why we're a leader in radar solutions

from undersea to outer space.

THE VALUE OF PERFORMANCE.

NORTHROP GRUMMAN

© 2012 Northrop Grumman Corporation

www.northropgrumman.com/sabr

assistant surgeon general for force development.

A new curriculum—and having the FTU nearby—"will reduce overall training time by 130 days, provide flexibility in completing the training requirements, eliminate redundancies, and save thousands of dollars in travel costs," she told Congress in March.

The initiative aims to "standardize training" across the Air Force's active and reserve components, "better preparing our AE community for any operational mission," she said.

Old Home Depot

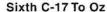
The last MC-130E Combat Talon I to undergo programmed depot maintenance was inducted at Robins AFB, Ga., this spring; the type is being retired and replaced by MC-130Js.

Tail No. 62-1843—the oldest Combat Talon I still in service—was in "pretty bad shape upon arrival," said Kevin Johnson, 560th Aircraft Maintenance Squadron MC-130 line supervisor.

"There is generally a good bit of work for everyone involved—structural and avionics-wise," said George Hoffman, 560th AMXS PDM flight chief.

Usually deployed in austere environments, often supporting clandestine operations, Combat Talons suffer "a lot of cracks and corrosion," compared to a normal C-130, said Hoffman.

Air Force Special Operations Command's fleet of 14 MC-130Es was originally serviced through the Big Safari program office, which oversaw the aircraft into the 1990s. Robins received the first MC-130E for PDM in 1998.



The Royal Australian Air Force is purchasing a sixth C-17 airlifter in a \$297 million foreign military sales deal with the US government, Australia's Defense Ministry announced.

The additional aircraft will greatly enhance Australia's humanitarian- and disaster-response capability, doubling its mission-available fleet "from two to four," according to the Defense Ministry.

Australia took delivery of its fifth C-17 last September, and in 2011 alone, its fleet flew some 141 airlift sorties, logging more than 1.3 million miles.

In addition to ferrying 755 tons of supplies to Australian forces in Afghanistan, RAAF C-17s carried 500 tons of supplies to Japan following last spring's tsunami and earthquake. They also supported relief efforts in New Zealand after earthquakes and brought aid to parts of Australia hit by cyclones and floods.

Boeing's plant at Long Beach, Calif., is scheduled to deliver the aircraft to the RAAF early next year, according to Australia's Defense Ministry.

JPADS To the Rescue

The 58th Rescue Squadron at Nellis AFB, Nev., recently began adapting the GPS-guided Joint Precision Airdrop System to support combat rescuers in the field.

"We're currently in the initial phase of building a true precision airdrop capability for Air Force rescue," said Maj. Jose Cabrera, 58th RQS operations director.

Capable of steering a parachute with rescue equipment to a preprogrammed point, or allowing pararescuemen to guide it using a chest-mounted computer, JPADS is ideally suited to rescue needs, said SrA. Dalton Harper, 58th RQS equipment journeyman.

"Whether we jump in tow with a guided equipment bundle, remotely control a resupply bundle from the ground as the bundle falls from an aircraft, or simply airdrop a sustainment package to a downed airman while awaiting recovery," the system revolutionizes rescuers' ability to get the supplies they need almost anywhere, explained Cabrera.

Put 'er There, Pardner: Lance Cpl. Lydia Opoku, a security forces airman in the Ghanaian Air Force, guards a USAF C-130J at Accra, Ghana, during the exercise African Partnership Flight. USAF airmen participated in the multinational training exercise, focused on military-to-military partnership building with five African nations. See "Africa Air Meet," p. 24.







L-3 Mission Integration, a pioneer in aircraft systems integration, provides technology and expertise to the

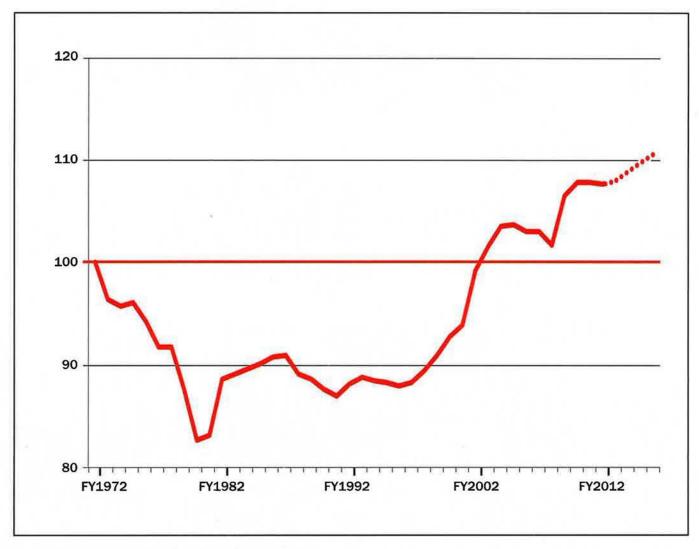
ISR missions. We stand ready to provide vital intelligence to the warfighter 24/7. proven resources and knowledge to accept the challenges of supporting today's increasingly complex state-of-the-art systems and sustaining today's high op-tempo missions. L-3 Mission Integration has the most capable ISR programs in the world. We are committed to meeting the customer's needs, delivering

The Long March of Military Pay

This chart plots real cumulative military pay since 1972. Each point is based on an annual pay raise relative to inflation (the consumer price index). If each raise had exactly matched the CPI, the line would have equaled 100 across the whole period. A decline reflects a raise that did not match inflation. A rise denotes a raise higher than inflation. As seen, military

pay did not keep pace with high inflation in the 1970s. Catch-up raises in the early 1980s narrowed but did not close the gap. Military pay went more or less sideways until the mid-1990s, when it began a long rise. In 2001, pay re-achieved the purchasing power it had in 1972. Today, military pay exceeds cumulative inflation by nearly 10 percentage points.

Cumulative Military Pay Raises Relative to Consumer Price Index



Source: "A Historical Perspective on 'Hollow Forces," Andrew Feickert and Stephen Daggett, Congressional Research Service, Washington, D.C., Jan. 31, 2012. Adapted from Figure 1. Based on actual military pay raises and consumer price index (CPI-W) data in Department of Defense, National Defense Budget Estimates, Fiscal Year 2012.

Panasonic ideas for life



Panasonic recommends Windows® 7





Toughbook 53 Toughbook 31

Controlling the air starts from the ground up.

The Panasonic Toughbook® 31 and Toughbook 53 powered by 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.

panasonic.com/business-solutions

Intel, the Intel logo, Intel Core, Intel vPro, Core Inside and vPro Inside are trademarks of Intel Corporation in the U.S. and/or other countries. Toughbook notebook PCs are covered by a 3-year limited warranty, parts and labor. To view the full text of the warranty, log on to panasonic.com/toughbook/warranty. Please consult your Panasonic representative prior to purchase. Panasonic is constantly enhancing product specifications and accessories. Specifications subject to change without notice. @2012 Panasonic System Communications Company of North America. All rights reserved. Controlling the air. FG. FY12-1

TISALES



nac 2012

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

The Air Force in Facts and Figures

2012 USAF Almanac

Structure of the Force

How the Air Force Is Organized

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

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

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

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

Most Air Force units fall under a major

command, which has broad functional responsibilities. Major commands may be divided into **numbered air forces**.

The fundamental unit of the working Air Force is the wing. An objective wing contains an operations group, which includes aircrews, intelligence units, and others; a maintenance group, which includes maintenance squadrons; a mission support group, which includes such functions as civil engineers, logistics readiness, and security forces; and a medical group.

Most airmen are assigned to a squadron, which may comprise several flights.

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

Air and Space Expeditionary Force

To relieve chronic optempo problems stemming from back-to-back 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 groups its power projection and support forces

into 10 AEF "buckets of capability" operating in five pairs.

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

In 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 operated mostly on 180-day deployment cycles. In 2010, USAF began moving Tempo Band A forces into Tempo Band B, still utilizing a 1:4 ratio but on a 180-day deployment period, thus standardizing the deployment time for most airmen. The deploy-to-dwell ratio varies among the Tempo Bands: B at 1:4; C at 1:3; D at 1:2; and E at 1:1.

Current Air Force Leaders

Secretary of the Air Force
Air Force Chief of Staff
Chief Master Sergeant of the Air Force

Michael B. Donley Gen. Norton A. Schwartz CMSAF James A. Roy Oct. 17, 2008 Aug. 12, 2008 June 30, 2009

Date in Position

People 2012 USAF Almanac

USAF Total Force

			(As of Se	pt. 30, 2011)						Estimate
	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12
Air Force active duty										
Officers Enlisted Cadets	73,758 297,219 4,085	74,109 298,314 4,193	73,252 276,117 4,327	70,539 273,990 4,424	65,722 263,372 4,401	64,805 258,092 4,482	65,496 263,351 4,561	66,201 263,437 4,558	65,487 263,542 4,341	65,428 263,372 4,054
Total Air Force active duty	375,062	376,616	353,696	348,953	333,495	327,379	333,408	334,196	333,370	332,854
Civilian personnel										
Direct hire (excluding technicians) ANG technicians AFRC technicians Total direct hire Indirect hire	123,887 20,906 8,287 153,080 6,337	122,572 21,703 9,538 153,813 6,575	124,534 22,731 9,407 156,672 6,571	128,475 21,997 9,427 159,899 6,833	125,636 22,409 9,127 157,172 6,212	124,698 22,353 8,857 155,908 6,515	123,106 22,391 9,147 154,644 6,346	134,183 22,657 10,068 166,908 6,564	145,407 22,139 9,397 176,943 6,776	145,309 22,859 10,366 178,534 6,988
Total civilian personnel	159,417	160,388	163,243	166,732	163,384	162,423	160,990	173,472	183,719	185,522
Air National Guard										
Officers (Selected Reserve) Enlisted (Selected Reserve)	13,700 94,437	13,633 93,189	13,672 92,758	13,782 91,876	13,992 92,162	14,115 93,564	14,326 94,870	14,389 93,287	14,418 91,267	14,540 92,160
Total ANG	108,137	106,822	106,430	105,658	106,154	107,679	109,196	107,676	105,685	106,700
Air Force Reserve Command										
Officers (Selected Reserve) Enlisted (Selected Reserve)	16,804 57,950	16,723 58,599	16,676 59,126	16,678 57,397	16,199 54,083	15,169 52,396	14,753 53,233	14,560 55,559	14,535 56,786	15,605 55,795
Total AFRC Selected Reserve	74,754	75,322	75,802	74,075	70,282	67,565	67,986	70,119	71,321	71,400
Officers (Individual Ready Reserve) Enlisted (IRR)	9,280 27,724	9,912 27,095	9,942 31,377	11,356 33,548	13,018 36,831	13,633 35,668	12,833 30,349	11,692 28,863	11,692 28,863	11,392 27,482
Total AFRC IRR	37,004	37,007	41,319	44,904	49,849	49,301	43,182	40,555	40,555	38,874
Total AFRC	111,758	112,329	117,121	118,979	120,131	116,866	111,168	110,674	111,876	110,274
Total Ready Reserve	219,895	219,151	223,551	224,637	226,285	224,545	220,364	218,350	217,561	216,974

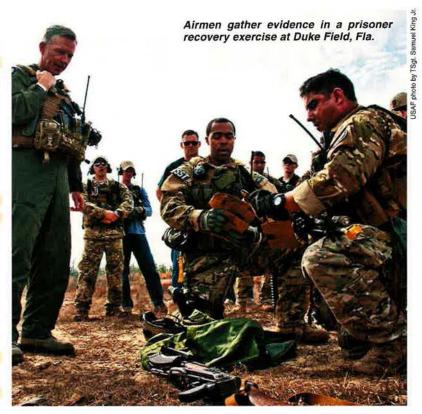
Armed Forces Manpower Trends, End Strength in Thousands

		_	(As of Sept	. 30, 2011)						Estimate
	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12
Active duty military										
Air Force Army Marine Corps Navy	375 499 178 382	377 500 178 373	354 493 180 363	349 505 180 350	334 522 187 338	327 544 199 332	333 553 203 329	334 566 202 328	333 566 201 325	333 562 202 326
Total	1,434	1,428	1,390	1,384	1,381	1,402	1,418	1,430	1,425	1,423
Guard and Reserve (Selected R	teserve)									
Air National Guard AFRC Army National Guard Army Reserve Marine Corps Reserve Naval Reserve	108 75 351 212 41 88	107 75 343 204 40 83	106 76 333 189 40 76	106 74 346 190 40 71	106 71 353 190 39 70	108 68 360 197 38 68	109 68 358 205 39 67	108 70 362 205 39 65	107 71 358 205 40 66	106 71 362 205 40 65
Total	875	852	820	827	829	839	846	849	847	849
Direct-hire civilian (full-time eq	uivalents)									
Air Force Army Navy/Marine Corps Defense agencies	153 206 186 104	154 208 183 105	157 213 179 105	160 220 174 104	157 221 176 105	156 230 178 108	155 247 186 115	167 260 195 120	177 269 201 125	179 250 203 133
Total	649	650	654	658	659	672	703	742	772	765

Active Duty Airmen by Rank

(As of Sept. 30, 2011)

Rank	Men	Women	Total
Officers			
General	13	0	13
Lieutenant General	43	3	46
Major General	87	13	100
Brigadier General	146	12	158
Colonel	3,130	426	3,556
Lieutenant Colonel	8,612	1,304	9,916
Major	12,027	2,497	14,524
Captain	18,351	4,875	23,226
First Lieutenant	5,592	1,627	7,219
Second Lieutenant	5,195	1,534	6,729
Total	53,196	12,291	65,487
Enlisted			
CMSAF	1	0	1
Chief Master Sergeant	2,337	278	2,615
Senior Master Sergeant	4,400	748	5,148
Master Sergeant	21,415	4,330	25,745
Technical Sergeant	33,378	8,230	41,608
Staff Sergeant	55,933	14,226	70,159
Senior Airman	40,913	10,487	51,400
Airman First Class	42,401	9,515	51,916
Airman	3,949	844	4,793
Airman Basic	8,508	1,649	10,157
Total	213,235	50,307	263,542
Academy Cadets	3,387	954	4,341
Total Personnel	269,818	63,552	333,370



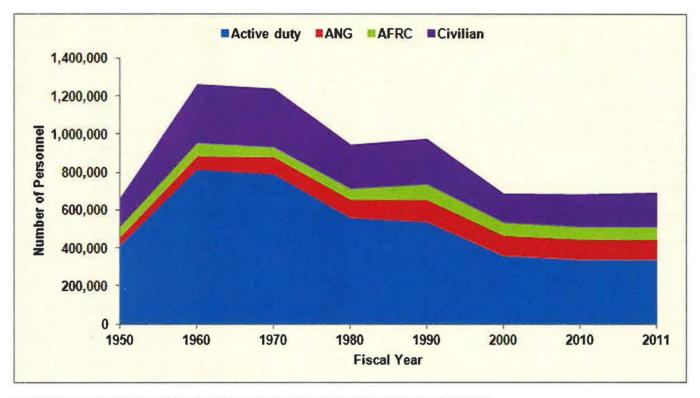
Number and Percentage of Active Duty Airmen by Gender

	1950	1960	1970	1980	1990	2000	2010	2011
Officers								
Male	55,474	126,014	125,136	89,156	86,714	57,204	53,838	53,196
Percentage	97.3%	97.2%	96.4%	91.3%	86.7%	82.9%	81.3%	81.2%
Female	1,532	3,675	4,667	8,493	13,331	11,819	12,363	12,291
Percentage	2.7%	2.8%	3.6%	8.7%	13.3%	17.1%	18.7%	18.8%
Total Officers	57,006	129,689	129,803	97,649	100,045	69,023	66,201	65,487
Enlisted								
Male	350,489	679,412	652,559	399,517	374,385	231,620	212,491	213,235
Percentage	98.9%	99.2%	98.6%	86.8%	86.0%	80.8%	80.7%	80.9%
Female	3,782	5,651	8,987	60,803	60,803	55,011	50,946	50,307
Percentage	1.1%	0.8%	1.4%	13.2%	14.0%	19.2%	19.3%	19.1%
Total Enlisted	354,271	685,063	661,546	460,320	435,188	286,631	263,437	263,542
Cadets								
Male	0	1,949	4,144	3,907	3,817	3,617	3,592	3,387
Percentage	0.0%	100.0%	100.0%	88.6%	87.3%	84.6%	78.8%	78.0%
Female	0	0	0	504	553	658	966	954
Percentage	0.0%	0.0%	0.0%	11.4%	12.7%	15.4%	21.2%	22.0%
Total Cadets	0	1,949	4,144	4,411	4,370	4,275	4,558	4,341

Active Duty Airmen by Region												
Regions	1950	1960	1970	1980	1990	2000	2010	2011				
US and its territories	341,999	633,255	564,701	445,876	418,004	291,241	277,123	275,608				
Europe	24,531	104,899	72,937	76,788	69,296	32,901	30,963	30,787				
East Asia, Pacific	36,850	50,751	140,063	32,273	33,581	22,049	12,649	12,797				
Africa, Mid East	1,491	11,160	608	674	376	8,972	891	528				
Western Hemisphere	6,266	14,106	5,348	2,211	2,356	345	339	296				
Other	140	581	7,692	147	11,620	146	12,231	13,354				
Total	411,277	814,752	791,349	557,969	535,233	355,654	334,196	333,370				

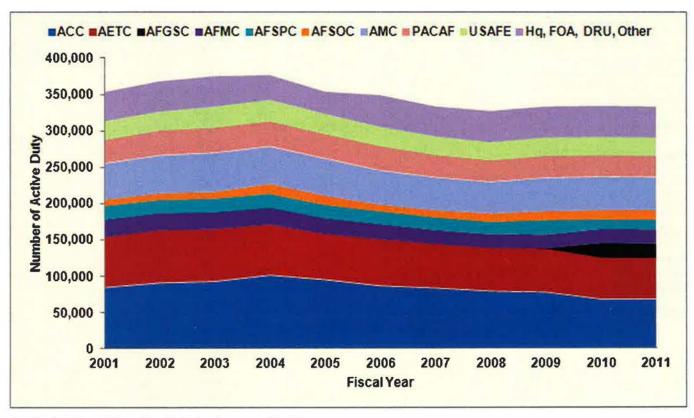
Note: Airmen deployed for operations in Afghanistan and Iraq are included in home stat on regions or under other.

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.

	10000	AND THE RESERVE TO TH		
ARCANNA	I Strong	th by Comm	ande FOA	s, and DRUs
4-1-1-11-11-1				

(As of Sept. 30, 2011)

	Military	Civilian	Total
Active Duty Major Commands			
Air Combat Command	68,179	10,295	78,474
Air Education and Training Command	56,896	16,585	73,481
Air Force Global Strike Command	19,273	2,734	22,007
Air Force Materiel Command	19,500	64,426	83,926
Air Force Space Command	14,027	8,303	22,330
Air Force Special Operations Command	13,194	1,762	14,956
Air Mobility Command	45,306	9,839	55,145
Pacific Air Forces	29,314	8,155	37,469
US Air Forces Europe	25,364	6,351	31,715
Total Major Commands	291,053	128,450	419,503
Field Operating Agencies (FOAs)			
Air Force Agency for Modeling and Simulation	6	16	22
Air Force Audit Agency	0	710	710
Air Force Center for Engineering and the Environment	30	422	452
Air Force Civil Engineer Support Agency	86	167	253
Air Force Cost Analysis Agency	24	103	127
Air Force Financial Services Center	266	128	394
Air Force Flight Standards Agency	71	52	123
Air Force Historical Research Agency	0	62	62
Air Force Inspection Agency	101	31	132
Air Force Intelligence Analysis Agency	73	60	133
Air Force ISR Agency	12,481	2,535	15,016
Air Force Legal Operations Agency	435	269	704
Air Force Logistics Management Agency	31	22	53
Air Force Manpower Agency	151	244	395
Air Force Medical Operations Agency	199	150	349
Air Force Medical Support Agency	222	97	319
Air Force Office of Special Investigations	1,529	709	2,238
Air Force Operations Group	43	1	44
Air Force Personnel Center	755	1,589	2,344
Air Force Personnel Operations Agency	16	290	306
Air Force Petroleum Agency	29	65	94
Air Force Public Affairs Agency	284	46	330
Air Force Real Property Agency	0	116	116
Air Force Review Boards Agency	12	58	70
Air Force Safety Center	47	86	133
Air Force Security Forces Center	405	54	459
Air Force Services Agency	68	160	228
Air Force Weather Agency	984	354	1,338
Air National Guard Readiness Center	77	718	795
Total FOAs	18,425	9,314	27,739
Direct Reporting Units (DRUs)			
Air Force District of Washington	4,161	1,127	5,288
Air Force Operational Test & Evaluation Center	361	233	594
US Air Force Academy (excluding cadets)	2,341	1,388	3,729
Total DRUs	6,863	2,748	9,611
Other			
	2.052	2 400	4.460
Hq. USAF	2,053	2,409	4,462
Other	10,635	20,627	31,262
USAFA Cadets Total Other	4,341 17,029	43,207	4,341 40,065
Total Stile!	17,029	75,207	40,005
Total Strength	333,370	183,719	517,089

Active Duty Personnel Strength

AC	TIVE DUTY PE	ot. 30, 2011)	trengtn
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	208 311	1981 1982	570,302 582,845
1916 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	470,315 444,351
1927 1928	10,078 10,549	1993 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	353,57
1936	17,233	2002	368,251
1937 1938	19,147 21,089	2003 2004	375,062 376,616
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 1947	455,515	2012	332,854
1948	305,827 387,730		
1949	419,347		
1950	411,277		
1951	788,381		
1952	983,261		
1953	977,593		
1954	947,918		
1955 1956	959,946 909,958		
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 1966	824,662 887,353		
1967	897,494		
1968	904,850		
1969	862,353		
1970	791,349		
1971	755,300		

2012 number is an estimate.

725,838

1972

AU / 2012

DUTY. HONOR. EDUCATION.

Soar to new heights with Ashford University.

Complete your degree at home or abroad. Discover a supportive learning community designed for you to go to school while you serve. Ashford's digital tools allow you to keep in touch with your courses while on the go.

Even deployment doesn't mean your education is over - you can continue while deployed or pick up where you left off when you return. To learn about all your benefits, contact Ashford today.

Call 866.858.1860 or visit military.ashford.edu/afalmanac today.

Accredited by The Higher Learning Commission and a member of the North Central Association (ncahlc.org).

Benefits subject to eligibility. Visit military.ashford.edu for complete eligibility requirements.



Budgets 2012 USAF Almanac

Terms Explained

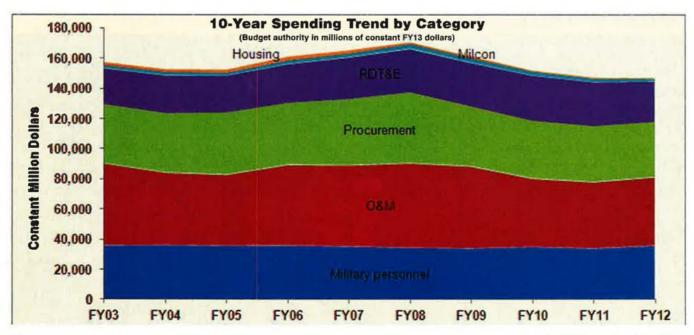
Funding levels can be expressed in several ways. **Budget authority** is the value of new obligations that the federal government is authorized to incur. These include some obligations to be met in later years. Figures can also be expressed in **outlays** (actual expenditures, some of which are covered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

,	Budget autho					Perspe		r on Torror		
a source of the same of the sa	100000000	VPCA VAGORE			VIEWperadores			(400 to 100 to 1		
Current Dollars	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY1
Military personnel	\$28,732	\$29,681	\$30,344	\$31,398	\$31,789	\$32,180	\$31,722	\$33,100	\$33,192	\$35,35
O&M	43,254	39,252	39,752	46,709	48,237	52,225	50,352	42,700	42,676	44,87
Procurement	31,380	32,460	35,117	35,989	39,542	43,816	37,054	36,383	36,402	36,40
RDT&E	18,825	20,290	20,551	22,220	24,566	26,630	26,587	27,993	28,251	26,22
Milcon	1,634	1,831	1,499	2,183	2,328	3,089	2,787	2,400	2,080	1,46
Housing	1,536	1,441	1,680	2,086	1,900	1,001	1,087	569	569	49
Rev. & mgmt.	31	690	-667	1,252	666	-934	61	64	67	6
Total	\$125,245	\$125,536	\$127,918	\$141,657	\$148,947	\$157,909	\$149,515	\$143,400	\$143,236	\$144,87
Constant Dollars	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY1
Military personnel	\$36,113	\$36,325	\$35,915	\$36,011	\$35,466	\$34,588	\$34,232	\$35,157	\$34,162	\$35,88
O&M	54,366	48,038	47,051	53,571	53,816	56,133	54,337	45,354	43,923	45,55
Procurement	39,441	39,726	41,565	41,276	44,116	47,094	39,986	38,644	37,465	36,94
RDT&E	23,661	24,832	24,324	25,484	27,407	28,623	28,691	29,733	29,076	26,61
Milcon	2,054	2,241	1,774	2,504	2,597	3,320	3,008	2,549	2,141	1,48
Housing	1,931	1,764	1,988	2,392	2,120	1,076	1,173	604	586	49
Rev. & mgmt.	39	844	-789	1,436	743	-1,004	66	68	69	6
Total	\$157,419	\$153,637	\$151,404	\$162,467	\$166,175	\$169,724	\$161,347	\$152,312	\$147,420	\$147,043
Percentage real growth	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY1
Military personnel	13.5%	0.6%	-1.1%	0.3%	-1.5%	-2.5%	-1.0%	2.7%	-2.8%	5.09
O&M	23.0%	-11.6%	-2.1%	13.9%	0.5%	4.3%	-3.2%	-16.5%	-3.2%	3.79
Procurement	32.1%	0.7%	4.6%	-0.7%	6.9%	6.8%	-15.1%	-3.4%	-3.1%	-1.49
RDT&E	26.7%	4.9%	-2.0%	4.8%	7.5%	4.4%	0.2%	3.6%	-2.2%	-8.59
Milcon	-11.6%	9.1%	-20.8%	41.1%	3.7%	27.8%	-9.4%	-15.2%	-16.0%	-30.89
Housing	9.3%	-8.7%	12.8%	20.3%	-11.4%	-49.2%	9.0%	-48.5%	-3.1%	-15.19
Total	22.2%	-2.4%	-1.5%	7.3%	2.3%	2.1%	-4.9%	-5.6%	1.4%	-4.39



Defense Budget Authority

		(\$ Dimons)		A DESCRIPTION OF THE PARTY OF T			
	2011	2012	2013	Planned 2014	2015	2016	2017
No War Costs, Current Dollars	ERED PAGE	NA STREET, SQUARE		HVE CESSO	DESCRIPTION OF THE	COURT PROPERTY IN	
THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER.	\$528.2	\$530.6	\$525.4	\$533.6	\$545.9	\$555.9	\$567.3
No War Costs, Constant FY 2013 Dollars	Control of the last	- Charles of the last	Marie Control	The same of the same of	at appropriate	200000	Company of the last
	\$543.6	\$538.6	\$525.4	\$525.6	\$527.5	\$527.0	\$527.5
With War Costs, Current Dollars						THE REAL PROPERTY.	
	\$687.0	\$645.7	\$613.9	\$577.8	\$590.1	\$600.1	\$611.5
With War Costs, Constant FY 2013 Dollars	Ten and	Les Sur	-	THE PARTY OF THE P		Ole S. E. Lane B	
	\$707.1	\$655.4	\$613.9	\$569.1	\$570.2	\$568.9	\$568.6

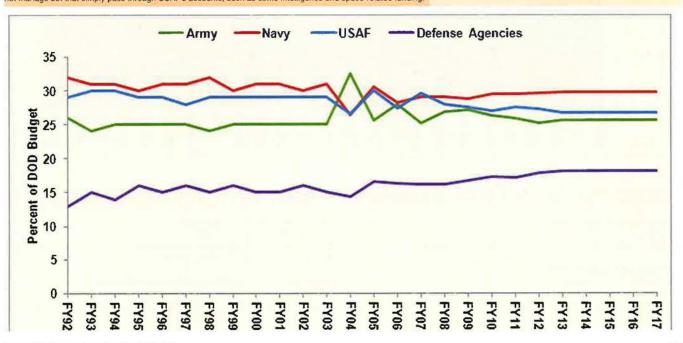
Defense Outlays (\$ billions)

Current Dollars	2011	2012	2013	Planned 2014	2015	2016	2017
Current bonars	\$673.9	\$683.0	\$666.2	\$565.7	\$539.2	\$544.9	\$555.7
Constant FY 2013 Dollars	\$693.6	\$693.2	\$666.2	\$557.2	\$521.0	\$516.5	\$516.8

Service and Agency Shares of Total DOD Budget

(Budget authority in billions of constant FY13 dollars)

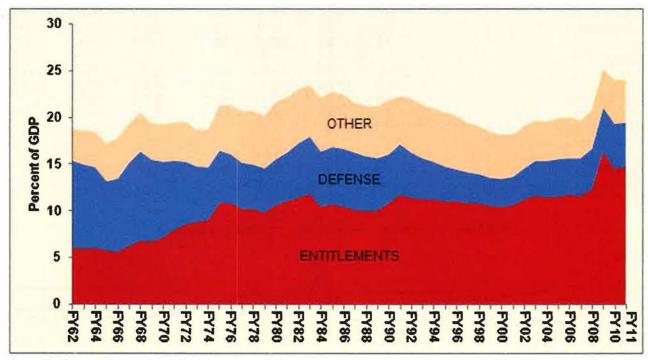
	(Buogot dution)	0111101110 41 401	oldin i i i o dom				
				Planned			
Dollars	2011	2012	2013	2014	2015	2016	2017
Air Force	149.6	147.1	140.1	140.3	140.8	140.7	140.9
Army	140.2	135.9	134.6	134.6	135.0	134.9	135.1
Navy/Marine Corps	160.6	159.2	155.9	156.1	156.7	156.5	156.7
Defense agencies	93.3	96.4	94.9	95.1	95.5	95.4	95.5
Total	543.6	538.6	525.4	525.6	527.5	527.0	527.5
Percentages							
Air Force	27.5%	27.3%	26.7%	26.7%	26.7%	26.7%	26.7%
Army	25.8%	25.2%	25.6%	25.6%	25.6%	25.6%	25.6%
Navy/Marine Corps	29.5%	29.6%	29.7%	29.7%	29.7%	29.7%	29.7%
Defense agencies	17.2%	17.9%	18.1%	18.1%	18.1%	18.1%	18.1%
Note: USAF shares above include non-Blue funding, FY	2014-17 estimates based	on FY 2013 sha	ires.				
USAF's Blue-only share							
Dollars	123.1	120.8	110.1				
Percentages	22.6%	22.4%	21.0%				
Note: USAF budget includes Blue, dollars for programs act							



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



Source: "The Budget and Economic Outlook: Fiscal Years 2012-2022," Congressional Budget Office, January 2012.

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/index.html

- Budget materials by fiscal year
- Links to budget pages for each service

Office of Management and Budget

http://www.whitehouse.gov/omb/

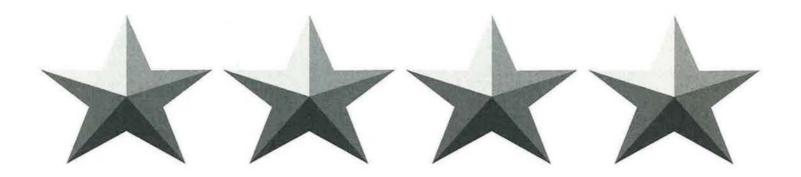
- The Budget (current fiscal year, including appendices and historical tables)
- Links to past budgets (via GPO Access)

Government Printing Office (GPO) Access to Budget

http://www.gpoaccess.gov/usbudget/browse.html

■ Current and historical budget documents through Clinton Administration

A four-star salute to decades of success



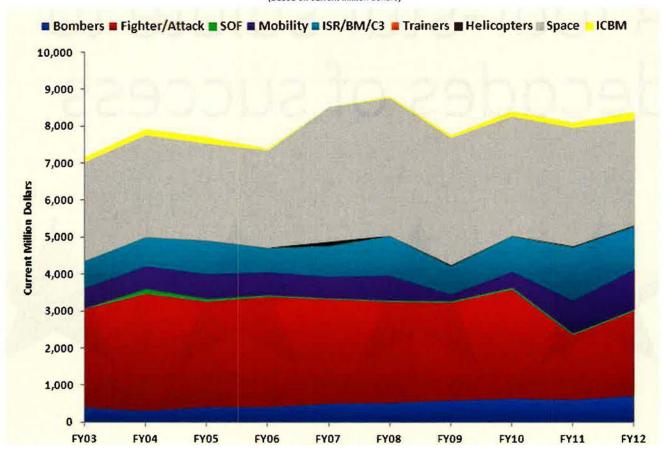
GE Aviation congratulates the United States Air Force for 65 years of global leadership.

We are proud to be your partner in pioneering technology and look forward to decades of future innovation.

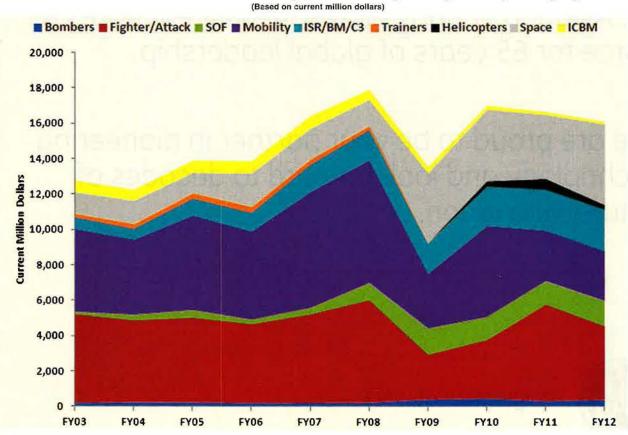


10 Years of RDT&E Funding for USAF Major Programs by Category

(Based on current million dollars)



10 Years of Procurement Funding for USAF Major Programs by Category



Equipment 2012 USAF Almanac

Aircraft Total Active Inventory (TAI) (As of Sept. 30, 2011)

106 108 22 336 49 18 639	18 18 48 49 3	66 20 76 162 345 216 34 221 858	Tanker HC-130J HC-130N HC-130P KC-10 KC-135R KC-135T Total Transport C-5A	2 3 16 59 137 30 247	6 3 156 24 189	1 4 67	2 10 23 59 360
108 22 336 49 18	18 48 49	20 76 162 345 216 34 221	HC-130N HC-130P KC-10 KC-135R KC-135T Total	3 16 59 137 30	3 156 24	4	10 23 59
108 22 336 49 18	18 48 49	76 162 345 216 34 221	HC-130P KC-10 KC-135R KC-135T Total Transport	16 59 137 30	3 156 24	4	10 23 59
108 22 336 49 18	18 48 49	345 216 34 221	KC-10 KC-135R KC-135T Total Transport	59 137 30	3 156 24		59
108 22 336 49 18	18 48 49	345 216 34 221	KC-10 KC-135R KC-135T Total Transport	59 137 30	24	67	59
108 22 336 49 18	48	345 216 34 221	KC-135R KC-135T Total Transport	137 30	24	67	
108 22 336 49 18	49	216 34 221	KC-135T Total Transport	30	24		
108 22 336 49 18	49	216 34 221	Total Transport				54
336 49 18		34 221	Transport			72	508
336 49 18		221					000
49 18			CEA				
49 18		858			21	21	42
49 18		000	C-5B	27		16	43
18		162	C-5C	2			2
		179	C-5M	7			7
639		11	C-9C			3	3
000	100	2,026	C-12C	15			15
	100	2,020	C-12D	6			6
			C-12F	2			2
		8	C-12J	4			4
		17	C-17	182	17	13	212
		19	C-20B	5	1.7	10	5
	10	12	C-20C	3			3
	10	20	C-20E	1			
		4					1
1		27	C-20H	2	00		2
4			C-21	26	28		54
1780	40	12	C-27J	2	11		11
4	10	119	C-32	4	2		6
			C-37A	10			10
		32	C-37B	2			2 2
		4	C-38A		2		
1		7	C-40B	4			4
17		17	C-40C		3	4	7
17			C-130E	11	6		17
		2	C-130H	61	122	85	268
		14	C-130J	52	20	10	82
3		3	LC-130H		10		10
ranar.		37	NC-130H	1			1
36		169	VC-25	2			2
6		77	Total	429	242	152	823
		1					
		2	Helicopter				
11		11	HH-60G	67	17	15	99
		3	HH-60M	2			2
		2	TH-1H	20			20
		8	UH-1H	2			2
		9	UH-1N	60			60
		25	Total	151	17	15	183
		1		1			
			Trainer	1422			1,00000
		1	T-1	178			178
		2	T-6	450			450
		5	T-38A	50			50
		27	T-38C	471			471
	2	8	T-41	4			4
6	10	10	T-51	3			3
6		2	UV-18	3			3
	12	473	Gliders	31			31
							1,190
6							
		10	10 10 2	10 10 T-51 2 UV-18	10 10 T-51 3 2 UV-18 3 80 12 473 Gliders 31	10 10 T-51 3 2 UV-18 3 80 12 473 Gliders 31	10 10 T-51 3 2 UV-18 3 80 12 473 Gliders 31

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, 2011)

Type of Aircraft—Active	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
Bomber	183	173	172	173	172	173	153	154	150	144
Fighter/Attack	1,631	1,628	1,627	1,622	1,619	1,552	1,496	1,468	1,256	1,287
Special Ops Forces	102	101	99	98	103	100	94	89	98	105
ISR/BM/C3	139	134	132	134	137	266	292	320	362	381
Tanker	322	325	301	285	278	277	262	260	263	247
Transport	538	530	516	525	529	454	449	452	458	429
Helicopter	126	129	160	169	160	160	170	159	160	151
Trainer	1,346	1,308	1,277	1,267	1,284	1,111	1,074	1,114	1,000	1,190
Total Active Duty	4,387	4,328	4,284	4,273	4,282	4,093	3,990	4,016	3,747	3,934
Type of Aircraft—ANG										
Bomber	0	0	0	0	0	0	0	0	0	0
Fighter/Attack	798	777	771	764	765	746	687	664	614	639
Special Ops Forces	4	4	4	4	4	4	4	4	4	4
ISR/BM/C3	7	7	24	26	29	28	45	45	80	80
Tanker	240	236	243	252	260	235	215	182	179	189
Transport	283	271	266	249	245	258	244	241	240	242
Helicopter	18	17	18	18	18	18	18	17	17	17
Total ANG	1,350	1,312	1,326	1,313	1,321	1,289	1,213	1,153	1,134	1,171
Type of Aircraft—AFRC										
Bomber	9	9	9	9	9	9	9	9	9	18
Fighter/Attack	122	121	120	120	120	104	103	108	97	100
Special Ops Forces	14	14	14	14	14	14	14	14	10	10
ISR/BM/C3	16	20	20	20	17	17	11	11	14	12
Tanker	78	76	81	89	89	85	69	69	69	72
Transport	184	175	149	133	146	152	149	149	149	152
Helicopter	23	18	15	15	15	15	15	15	15	15
Total AFRC	446	433	408	400	410	396	370	375	363	379
Total Force	6,183	6,073	6,018	5,986	6,013	5,778	5,573	5,544	5,244	5,484

ICBMs and Spacecraft in Service Over Time

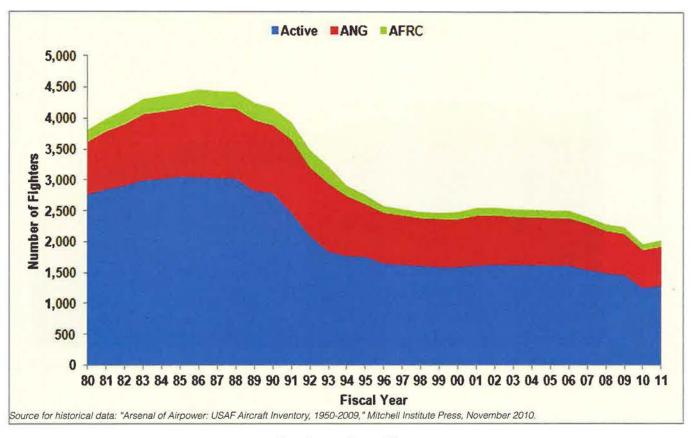
(As of Sept. 30, 2011)

		(As of Sept.	30, 2011)						
FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
500	500	500	500	450	450	450	450	450	450
50	23	6	0	0	0	0	0	0	0
550	523	506	500	450	450	450	450	450	450
								1	1
4	4	4	4	4	6	6	6	6	6
5	10	11	9	9	9	9	9	8	8
28	28	30	29	30	30	30	30	36	34
4	5	5	5		5	5	5	5	5
							2*	4*	5*
							6751	1	1
							2	3	3
41	47	50	47	48	50	50	54	64	63
	500 50 550 4 5 28 4	FY02 FY03 500 500 50 23 550 523 4 4 5 10 28 28 4 5	FY02 FY03 FY04 500 500 500 50 23 6 550 523 506	FY02 FY03 FY04 FY05 500 500 500 500 50 23 6 0 550 523 506 500 4 4 4 4 5 10 11 9 28 28 30 29 4 5 5 5	500 500 500 500 450 50 23 6 0 0 550 523 506 500 450 4 4 4 4 4 5 10 11 9 9 28 28 30 29 30 4 5 5 5 5	FY02 FY03 FY04 FY05 FY06 FY07 500 500 500 500 450 450 50 23 6 0 0 0 0 550 523 506 500 450 450 4 4 4 4 4 6 5 10 11 9 9 9 28 28 30 29 30 30 4 5 5 5 5 5	FY02 FY03 FY04 FY05 FY06 FY07 FY08 500 500 500 450 450 450 50 23 6 0 0 0 0 550 523 506 500 450 450 450 4 4 4 4 4 6 6 5 10 11 9 9 9 9 28 28 30 29 30 30 30 4 5 5 5 5 5 5	FY02 FY03 FY04 FY05 FY06 FY07 FY08 FY09 500 500 500 500 450 450 450 450 50 23 6 0 0 0 0 0 0 550 523 506 500 450 450 450 450 4 4 4 4 6 6 6 6 5 10 11 9 9 9 9 9 28 28 30 29 30 30 30 30 4 5 5 5 5 5 5 5 2* 2* 2* 2* 2* 2*	FY02 FY03 FY04 FY05 FY06 FY07 FY08 FY09 FY10 500 500 500 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450 450

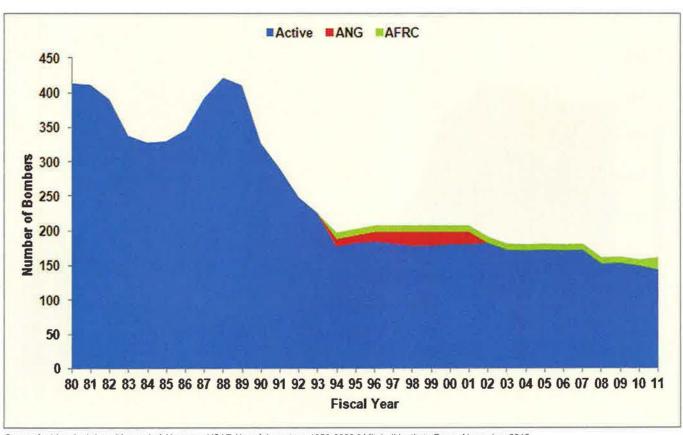
AEHF: Advanced Extremely High Frequency; DMSP: Defense Meteorological Satellite Program; DSCS: Defense Satellite Communications System; DSP: Defense Support Program; GPS: Global Positioning System; SBIRS: Space Based Infrared System; SBSS: Space Based Surveillance System; WGS: Wideband Global SATCOM *Includes highly elliptical orbit (HEO) payloads.

	Tactical Aircraft Flying Hours per Crew per Month (As of Sept. 30, 2011)									
	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
Active duty	17.2	17.1	16.9	15.3	16.0	15.9	14.4	17.0	19.4	17.7
ANG	10.5	10.6	10.6	10.6	10.6	10.0	9.0	9.0	8.5	7.8
AFRC	13.7	16.1	10.9	11.6	17.5	12.5	14.4	14.1	14.9	16.5

Fighters Over Time

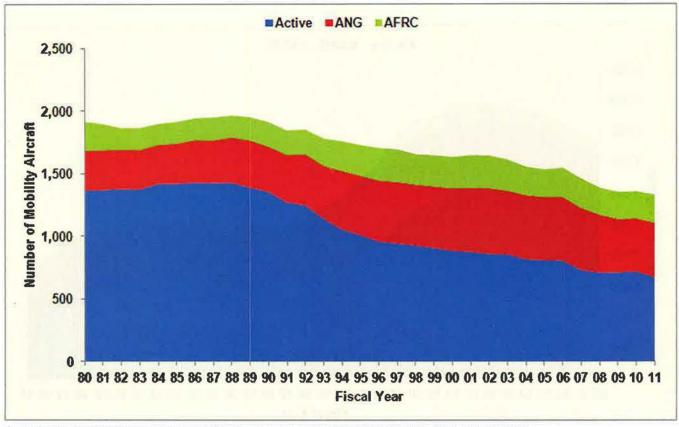


Bombers Over Time



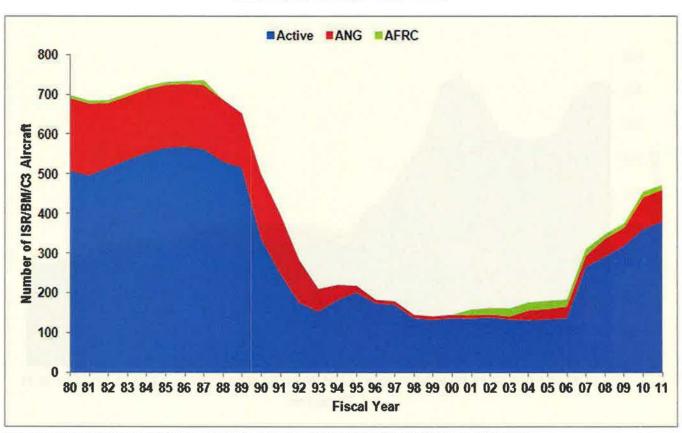
Source for historical data: "Arsenal of Airpower: USAF Aircraft Inventory, 1950-2009," Mitchell Institute Press, November 2010.

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,

Aircraft Age (As of Sept. 30, 2011)

Active Duty Fleet A-10 B-11 B-11 B-12 B-13 B-14 B-16 B-16 B-16 B-17 B-17 B-17 B-17 B-17 B-17 B-17 B-17						(As	of Sept. 30, 201	1)				
A-10 B-1	Years	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-24	24+	Total	Average
3-1	Active	Duty Fle	eet	-	- URGO	A MANAGE		5.16.9		la l		100
1-1	N-10									191	191	29.4
582 100 100 100 100 100 100 100 1	3-1									14	66	23.8
25	3-2					2	12	5	1	=0	20	16.8
2-12 34 2 3 3 3 3 4 18 64 18 64 18 182 182 183 3 19 37 36 21 16 8 8 18 182 182 182 183 3 19 37 36 21 16 8 8 18 182 182 182 183 3 19 37 36 21 16 8 8 11 26 28 22 182 232 4 1 1 1 1 2 26 22 182 24 14 7 2 2 182 182 182 182 182 182 182 182 182	3-52								20	58		50.4
2-12 34 2 3 3 3 3 4 18 64 18 64 18 182 182 183 3 19 37 36 21 16 8 8 18 182 182 182 183 3 19 37 36 21 16 8 8 18 182 182 182 183 3 19 37 36 21 16 8 8 11 26 28 22 182 232 4 1 1 1 1 2 26 22 182 24 14 7 2 2 182 182 182 182 182 182 182 182 182	K)C-10								3	56	59	30.3 26.3
2-17	C-12	34	2	3	3							15.3
Color Colo	C-17	33	31	37	36	21	16	8				8.1
Vic-25	C-20						2	0	1	8	11	22.8
2-32	0-21 (V)C-25							1	1	26	26	26.3 20.5
C-40 C-40 C-130 C-	C-32					4					4	12.5
C-40 C-40 C-130 C-	C-37	2	1		7	2					12	5.8
C-135 C-24 C-25 C-26 C-26 C-26 C-26 C-36 C-36 C-36 C-36 C-36 C-36 C-36 C-3	C-40			4						95200	4	6.6
CV-22	C-130	24	13	4	4	4	14				247	27.0
E-3	CV-22	12	5	2						197		49.6
E-49		12	3	-						32		32.0
F-15C-D F-15E 9 14 3 9 90 96 221 F-16E 9 14 3 9 90 96 221 F-16E 9 14 3 9 90 96 221 F-16E 9 14 163 182 122 553 F-22 54 71 32 4	E-4										4	37.2
F-15E 9 14 3 9 90 96 221 F-16 3 22 7 84 163 182 122 583 F-22 54 71 32 4	E-9A										2	19.0
F-22 54 71 32 4 F-35 7 4 H-1 H-1 H-2 H-60 2 MO-1 57 31 22 21 2 MO-1 57 31 31 31 31 31 31 31 31 31 31 31 31 31										106	120	27.7
F-22 54 71 32 4 F-35 7 4 H-1 H-1 H-2 H-60 2 MQ-1 57 31 22 21 2 MQ-1 57 4 MQ-1 57 5 MQ-1 57 6 MQ-1 57	F-15E			9	14	3	9		96	100	221	19.1
F-35 7 4 H-11 H-1	F-10	54	71	32	22	,	04	103	102	122	161	20.8 3.8
H-1 H-80	F-35	7	4	02							11	1.1
H-60 2 6 25 27 9 69 MQ-1 57 31 22 21 2	H-1									82		39.1
MQ-9 50 17 4 RQ-4 13 10 2 T-1 T-1 T-6 90 137 142 80 1 T-6 90 137 142 80 1 T-7	H-60	2				6		25	27	9	69	10.5
T-1 T-6 T-6 T-6 T-7 T-7 T-7 T-8 T-7 T-8 T-8 T-8 T-8 T-9 T-9 T-9 T-9 T-9 T-1 T-8 T-8 T-8 T-8 T-8 T-8 T-8 T-9 T-9 T-9 T-1 T-8	MQ-1	57	31	22	21	2					133	4.5
T-1 T-6 T-6 T-6 T-7 T-7 T-7 T-8 T-7 T-8 T-8 T-8 T-8 T-9 T-9 T-9 T-9 T-9 T-1 T-8 T-8 T-9 T-9 T-1 T-8 T-8 T-9 T-1 T-8 T-8 T-8 T-1 T-8 T-8 T-8 T-1 T-8	MQ-9	50	17	4							71	1.9
Te6 90 137 142 80 1 Te738		13	10	2		24	105	49			178	3.8 16.5
T-38 T-41 T-51 T-41 T-51 T-51 T-51 T-51 T-51 T-51 T-51 T-5		90	137	142	80		100	10			450	5.6
T-51	T-38	37070	1,207,55								521	45.1
U-Y U-Y				120						4		41.5
UV-18 15 15 15 15 15 15 15	1-51			3					-	07		6.0
Gliders	U-Z LIV-18					4			5	21		28.0 27.3
Total 378 322 282 206 77 243 341 408 1,677 3,934 Percent 9,6% 8.2% 7.2% 5.2% 2.0% 6.2% 8.7% 10.4% 42.6% Air National Guard Fleet A-10	Gliders			15	15		1			-		9.3
Percent 9.6% 8.2% 7.2% 5.2% 2.0% 6.2% 8.7% 10.4% 42.6% Air National Guard Fleet A-10 A-10 C-5 C-17 14 3 C-17 C-21 C-22 28 28 28 (R)C-26 C-3 C-3 C-3 C-3 C-40 Air Force Reserve Command Fleet A-10 Air Force Reserve Command Fleet A-1		378	322	282	206	77		341	408	1,677		20.4
A-10 C-5 C-5 C-7 C-17 C-17 C-18 C-8 C-7 C-19 C-8 C-7 C-7 C-19 C-8 C-8 C-8 C-9	Percent	9.6%	8.2%	7.2%	5.2%	2.0%	6.2%	8.7%	10.4%	42.6%		
C-5	Air Nat	ional G	uard Fle	et							Wales Bloom	
C-17										106	106	30.2
C-21 (R)C-26 (R)C-26 (R)C-27J 11 C-32 (C-38 (C-38) (C-40) (R)C-38 (C-38) (C-40) (R)C-38 (C-38) (C-38) (C-38) (C-38) (C-30) (C-30	C-5			14		2				21	21	39.4
(R)C-26 C-27J 11 C-27J 11 C-32	C-21			14		3				28	28	8.8 26.2
C-27J 11 C-32 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	(R)C-26						8	3		20		16.9
C-38 C-40 C-130	C-27J	11									11	0.9
C-40 C-130 8 4 9 6 48 24 5 76 180 C-135 E-8 3 9 4 1 1 1 1 18 F-15C-D 9 121 130 F-22 9 5 4 H-60 5 100 17 102 90 241 598 1,171 Percent 4.2% 1.7% 2.9% 1.7% 1.5% 8.7% 7.7% 20.6% 51.1% Air Force Reserve Command Fleet A-10 B-52 C-5 C-9 C-9 C-9 C-17 C-9 C-17 C-9 C-17 C-18 C-18 C-19 C-19 C-19 C-19 C-19 C-19 C-19 C-19	C-32			2		2					2	7.5
C-130 8 4 9 6 48 24 5 76 180 C-135 180 180 E-8 3 9 4 1 1 1 1 18 F-15C-D 9 121 130 F-16 2 40 60 217 66 385 F-22 9 5 4 18 H-60 5 2 10 17 MQ-1 25 5 6 MQ-9 4 2 7 102 90 241 598 1,171 Percent 4.2% 1.7% 2.9% 1.7% 1.5% 8.7% 7.7% 20.6% 51.1% Air Force Reserve Command Fleet A-10 4 2 4 8 48 B-52 5 6 7.7% 20.6% 51.1% Air Force Reserve Command Fleet C-5 5 11 26 37 C-9 3 3 3 3 C-17 6 2 2 3 13 C-40 4 4 4 10 5 20 9 20 48 122 C-135 F-16 15 26 26 52 F-16 16 26 26 52 F-16 15 15 15 Total 0 16 6 10 7 23 24 57 236 379	C-38				0	2					2	13.0
C-135 E-8 3 9 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			Q		2	6	18	2/	5	76	180	8.3 30.4
E-8 3 9 4 1 1 1 1 18 F-15C-D 9 121 130 F-16 0 2 40 60 217 66 385 F-22 9 5 4 18 H-60 5 2 10 17 MQ-1 25 5 6 36 MQ-9 4 2 6 6 Total 49 20 34 20 17 102 90 241 598 1,171 Percent 4.2% 1.7% 2.9% 1.7% 1.5% 8.7% 7.7% 20.6% 51.1% Air Force Reserve Command Fleet A-10 8-52 8 18 18 18 18 18 18 18 18 18 18 18 18 1			U	2.7	3	0	-10		•			50.5
F-16 F-22 9 5 4 H-60 MQ-1 Q-1 Q-25 5 6 MQ-9 4 2 Total 49 20 34 20 17 102 90 241 598 1,171 Percent 4.2% 1.7% 2.9% 1.7% 1.5% 8.7% 7.7% 20.6% 51.1% Air Force Reserve Command Fleet A-10 B-52 C-5 11 26 37 C-9 C-9 C-17 6 48 48 48 48 48 48 48 48 48 48 48 48 48	E-8			3	9	4	1	1			18	10.5
F-22 9 5 4 18 H-60 5 2 10 17 MQ-1 25 5 6 36 36 MQ-9 4 2 6 6 7 Total 49 20 34 20 17 102 90 241 598 1,171 Percent 4.2% 1.7% 2.9% 1.7% 1.5% 8.7% 7.7% 20.6% 51.1%	F-15C-D						1/	-	9			27.6
H-60 MQ-1	F-16		_			2	40	60	217	66		22.0
MQ-1		9	5	4			_	0	10			na 20.1
MQ-9 4 2 Total 49 20 34 20 17 102 90 241 598 1,171 Percent 4.2% 1.7% 2.9% 1.7% 1.5% 8.7% 7.7% 20.6% 51.1% Air Force Reserve Command Fleet A-10 B-52 C-5 C-9 C-9 C-17 6 2 2 3 11 26 37 C-17 6 2 2 3 3 3 3 C-40 4 4 C-130 6 4 10 5 20 9 20 48 122 C-1305 F-16 F-16 F-16 F-16 F-16 F-16 Total 0 16 6 10 7 23 24 57 236 379	MO-1	25	5	6			5	2	10			20.1
Total 49 20 34 20 17 102 90 241 598 1,171 Percent 4.2% 1.7% 2.9% 1.7% 1.5% 8.7% 7.7% 20.6% 51.1% Air Force Reserve Command Fleet A-10	MQ-9		2	0								1.3
Percent 4.2% 1.7% 2.9% 1.7% 1.5% 8.7% 7.7% 20.6% 51.1% Air Force Reserve Command Fleet A-10 B-52 C-5 C-9 C-9 C-17 C-9 C-10 C-40 C-130 C-40 C-130 C-17 C-10 C-10 C-10 C-10 C-10 C-10 C-10 C-10				34	20	17	102	90	241	598	1,171	17.6
A-10 B-52 C-5 C-9 C-17 C-9 C-17 C-10 C-130 C-130 C-135 C-16 C-135 C-16 C-16 C-16 C-17 C-18 C-19 C-19 C-19 C-19 C-19 C-19 C-19 C-19						1.5%				51.1%		
A-10 B-52 C-5 C-9 C-17 C-9 C-10 C-130 C-130 C-135 C-16 C-16 C-130 C-10 C-130 C-10 C-130 C-10 C-130 C-135 C-10 C-135 C-13	Air Eor	on Doce	ruo Cor	nmand [Elect					Section 1	-	T. (12 15 15 15 15 15 15 15 15 15 15 15 15 15
B-52	A CANADA	te riese	or ve cor	illiana i	icci					48	48	30.6
C-5	B-52									18		49.3
C-17 6 2 2 3 13	C-5								11	26	37	31.4
C-40 4 C-130 6 4 10 5 20 9 20 48 122 C-135 67 67 F-16 26 26 52 H-60 15 15 Total 0 16 6 10 7 23 24 57 236 379	C-9									3	3	36.0
C-130 6 4 10 5 20 9 20 48 122 C-1335 67 67 F-16 26 26 52 H-60 15 Total 0 16 6 10 7 23 24 57 236 379	C-17		6	2		2	3					9.1
C-135 67 67 F-16 26 26 52 H-60 15 15 15 Total 0 16 6 10 7 23 24 57 236 379	C-130		4	1	10	5	20	Q	20	49		3.7 32.8
F-16 26 26 52 H-60 15 15 Total 0 16 6 10 7 23 24 57 236 379	C-135		0	7	10	3	20	3	20		67	49.8
H-60 15 15 15 Total 0 16 6 10 7 23 24 57 236 379	F-16								26		52	23.6
Total 0 16 6 10 7 23 24 57 236 379	H-60						1997				15	20.0
	Total		16		10		23			236	379	28.6
Percent 0.0% 4.2% 1.6% 2.6% 1.8% 6.1% 6.3% 15.0% 62.3%	Percent	0.0%	4.2%	1.6%	2.6%	1.8%	6.1%	6.3%	15.0%	62.3%		



USAF Aircraft Tail Markings

Code	Unit and Location	Code	Unit and Location
AC	177th FW (ANG), Atlantic City Arpt., N.J.	KC	442nd FW (AFRC), Whiteman AFB, Mo.
AF	USAF Academy, Colo.	LA	2nd BW (AFGSC), Barksdale AFB, La.
AK	3rd Wing (PACAF), JB Elmendorf-Richardson, Alaska	LF	56th FW (ACC), Luke AFB, Ariz.
	354th FW (PACAF), Eielson AFB, Alaska	LI	106th RQW (ANG), F. S. Gabreski Arpt., N.Y.
	176th Wing (ANG), JB Elmendorf-Richardson, Alaska	LN	48th FW (USAFE), RAF Lakenheath, UK
AL	187th FW (ANG), Montgomery Regional Arpt., Ala.	MA	104th FW (ANG), Barnes Arpt., Mass.
AP	12th FTW (AETC), NAS Pensacola, Fia.	MD	175th Wing (ANG), Martin State Arpt., Md.
AV	31st FW (USAFE), Aviano AB, Italy	MI	127th Wing (ANG), Selfridge ANGB, Mich.
AZ	162nd FW (ANG), Tucson Arpt., Ariz.	MM	341st MW (AFGSC), Malmstrom AFB, Mont.
вв	9th RW (ACC), Beale AFB, Ca if.	MN	133rd AW (ANG), MinnSt, Paul Arpt./ARS
	Det. 2, 53rd Wing (ACC), Beale AFB, Calif.		148th FW (ANG), Duluth Arpt., Minn.
ВС	110th FW (ANG), W. K. Kellogg Arpt., Mich.	MO	366th FW (ACC), Mountain Home AFB, Idaho
BD	917th Wing (AFRC), Barksdale AFB, La.	MT	5th BW (AFGSC), Minot AFB, N.D.
CA	129th RQW (ANG), Moffett Field, Calif.		91st MW (AFGSC), Minot AFB, N.D.
100	144th FW (ANG), Fresno Yosemite Arpt., Calif.	NM	150th FW (ANG), Kirtland AFB, N.M.
	163rd RW (ANG), March ARB, Calif.	NY	174th FW (ANG), Hancock Fld., N.Y.
СВ	14th FTW (AETC), Columbus AFB, Miss.	OF	55th Wing (ACC), Offutt AFB, Neb.
CH	432nd Wing (ACC), Creech AFB, Nev.	ОН	179th AW (ANG), Mansfield Lahm Arpt., Ohio
CO	140th Wing (ANG), Buckley AFB, Colo.	011	180th FW (ANG), Toledo Express Arpt., Ohio
CR	302nd AW (AFRC), Peterson AFB, Colo.	ок	137th ARW (ANG), Will Rogers World Arpt., Okla.
СТ	103rd AW (Al (10), Federadi Ar B, Colo.	OK	138th FW (ANG), Tulsa Arpt., Okla.
D	100th ARW (USAFE), RAF Mildenhall, UK		552nd ACW (ACC), Tinker AFB, Okla.
DC	113th Wing (ANG), JB Andrews, Md.	os	51st FW (PACAF), Osan AB, South Korea
DM	355th FW (ACC), Davis-Monthan AFB, Ariz	от	53rd Wing (ACC), Eglin AFB, Fla.
DR	943rd RQG (AFRC), Davis-Monthan AFB, Ariz.	O1	422nd TES (ACC), Nellis AFB, Nev.
DY	7th BW (ACC), Dyess AFB, Tex.		49th TES (ACC), Barksdale AFB, La.
Di	337th TES, 53rd W ng (ACC), Dyess AFB, Tex.		Det. 4, 53rd Wing (ACC), Creech AFB, Nev.
ED		RA	
EL	412th TW (AFMC), Edwards AFB, Calif.	RS	12th FTW (AETC), Randolph AFB, Tex. 86th AW (USAFE), Ramstein AB, Germany
EN	28th BW (ACC), Ellsworth AFE, S.D. 80th FTW (AETC), Sheppard AFB, Tex.	SA	149th FW (ANG), Lackland AFB, Tex.
ET		SC	경기 경기가 가지되다고 있다면 내가 하면 하게 되었다면 가장 하는 사람들이 모르겠다면 내가 되었다.
	46th TW (AFMC), Eglin AFB, Fla.		169th FW (ANG), McEntire JNGB, S.C.
FC	336th TRG (AETC), Fairchild AFB, Wash.	SD	114th FW (ANG), Joe Foss Fld., S.D.
FE	90th MW (AFGSC), F. E. Warren AFB, Wyc.	SJ	4th FW (ACC), Seymour Johnson AFB, N.C.
FF	1st FW (ACC), JB Langley-Eustis, Va.	SP	52nd FW (USAFE), Spangdahlem AB, Germany
	192nd FW (ANG), JB Langley-Eustis, Va.	SW	20th FW (ACC), Shaw AFB, S.C.
FL	920th RQW (AFRC), Patrick AFB, Fla.	TD	53rd WEG (ACC), Tyndall AFB, Fla.
FM	482nd FW (AFRC), Homestead ARB, Fla.	TX	147th RW (ANG), Ellington Fld., Tex.
FS	188th FW (ANG), Fort Smith Arpt., Ark.	-	301st FW (AFRC), NAS JRB Fort Worth, Tex.
FT	23rd Wing (ACC), Moody AFB, Ga.	TY	325th FW (AETC), Tyndall AFB, Fla.
GA	116th ACW (ANG), Robins AFB, Ga.	VN	71st FTW (AETC), Vance AFB, Okla.
	165th AW (ANG), Savannah Hilton Head Arpt., Ga.	WA	57th Wing (ACC), Nellis AFB, Nev.
HD	Det. 1, 53rd Wing (ACC), Holloman AFB, N.M.	WI	115th FW (ANG), Truax Fld., Wis.
нн	15th AW (PACAF), JB Pearl Harbor-Hickam, Hawaii	WM	72nd TES (ACC), Whiteman AFB, Mo.
	154th Wing (ANG), JB Pearl Harbor-Hickam, Hawaii		509th BW (AFGSC), Whiteman AFB, Mo.
HL	388th FW (ACC), Hill AFB, Utah	WP	8th FW (PACAF), Kunsan AB, South Korea
	419th FW (AFRC), Hill AFB, Utah	wv	130th AW (ANG), Yeager Arpt., W.Va.
но	49th Wing (ACC), Holloman AFB, N.M.	ww	35th FW (PACAF), Misawa AB, Japan
IA	132nd FW (ANG), Des Moines Arpt., Iowa	XL	47th FTW (AETC), Laughlin AFB, Tex.
ID	124th FW (ANG), Boise Air Terminal, Idahc	YJ	374th AW (PACAF), Yokota AB, Japan
IN	122nd FW (ANG), Fort Wayne, Ind.	ZZ	18th Wing (PACAF), Kadena AB, Japan
JZ	159th FW (ANG), NAS JRB New Orleans		

USAF Grades and Insignia

Officer



Enlisted





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



Awards and Decorations Continued -



Philippine Presidential Unit Citation



NATO Meritorious Service Medal



Non-Article 5 NATO Medal-Balkans

Republic of Korea



Yugoslavia

ROK Presidential Unit Citation



Non-Article 5 NATO Medal-ISAF



RVN Gallantry Cross with Palm



NATO Medal for



Republic of Vietnam Campaign Medal



United Nations



Article 5 NATO Medal-Eagle Assist



Kuwait Liberation Medal, Kingdom of Saudi Arabia



United Nations Medal



Article 5 NATO Medal-Active Endeavor



Kuwait Liberation Medal, Government of Kuwait

Devices



Bronze Star

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



Silver Star

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



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.



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



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



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



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.



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



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.



A Device

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



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.



"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



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



Pararescue Jumper/Combat Rescue Officer



Air Liaison Officer (TACP flash and rank)



Security Forces



Weather Parachutist



tance, and Escape

Major Commands and Reserve Components

2012 USAF Almanac

A major command is a subdivision of the Air Force assigned a major part of the Air Force mission and directly subordinate to Hq. USAF. (Note: All data as of Sept. 30, 2011)



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.

PERSONNEL

Active duty	68,179
Civilian	10,295
Total	78,474

EQUIPMENT (Total active inventory)

Bomber	64
Fighter/Attack	646
ISR/BM/C3	313
Tanker	16
Helicopter	37
Trainer	50

AIR COMBAT COMMAND, JB LANGLEY-EUSTIS, VA.

Gen. G	i. Michael Hostage III	
9th Air Force Shaw AFB, S.C.	12th Air Force (Air Forces Southern) Davis-Monthan AFB, Ariz	USAF Warfare Cente Nellis AFB, Nev.

MAJOR WINGS/CENTERS

93rd Air Ground Operations Wing

505th Command & Control Wing

1st Fighter Wing

7th Bomb Wing

9th Reconnaissance Wing

4th FW

20th FW

23rd Wing

28th BW

49th Wing

53rd Wing

55th Wing

57th Wing

355th FW

366th FW

388th FW

432nd Wing

552nd ACW

99th Air Base Wing

461st Air Control Wing

LOCATION

JB Langley-Eustis, Va. Seymour Johnson AFB, N.C. Dyess AFB, Tex. Beale AFB, Calif. Shaw AFB, S.C.

Moody AFB, Ga.

Ellsworth AFB, S.D. Holloman AFB, N.M.

Eglin AFB, Fla.

Offutt AFB, Neb. Nellis AFB, Nev. Moody AFB, Ga.

> Nellis AFB, Nev. Davis-Monthan AFB, Ariz. Mountain Home AFB, Idaho

Hill AFB, Utah Creech AFB, Nev. Robins AFB, Ga.

Hurlburt Field, Fla. Tinker AFB, Okla. JB Langley-Eustis, Va. Tyndall AFB, Fla.

633rd ABW Air Force Rescue & Coordination Center

AIRCRAFT/MISSION/WEAPON

F-22 F-15E

MC-12W, RQ-4, T-38A, U-2

F-16CJ

A-10C, HC-130, HH-60G

F-22, MQ-1, MQ-9, T-38C

A-10C, B-1B, B-2, B-52H, F-15, F-16, F-22, HC-130J, HH-60G, MQ-1,

E-4B, OC-135B, RC-135S, RC-135U, RC-135V/W, WC-135 A-10C, F-15, F-15E, F-16, F-22, HH-60G (23rd Wing), MQ-1, MQ-9

Battlefield airmen operations and support

Base support

A-10C, EC-130H (55th Wing), HC-130 & HH-60G (23rd Wing)

F-15E F-16

MQ-1, MQ-9

E-8C (Active Associate)

C2 operational-level tactics, testing, training

E-3B/C/G

Joint base facilities support

National search/rescue coordination



PRIMARY MISSION

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

PERSONNEL

Active duty	56,896
Civilian	16,585
Total	73,481

EQUIPMENT (TAI)

Fighter/Attack	150
Special operations forces	14
Tanker	29
Transport	25
Helicopter	41
Trainer	1,116

Air Education and Training Command

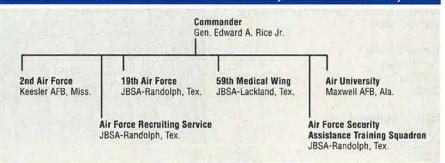
Headquarters JBSA-Randolph, Tex.

Established July 1, 1993

Commander Gen. Edward A. Rice Jr.



AIR EDUCATION AND TRAINING COMMAND, JBSA-RANDOLPH, TEX.



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

MAJOR WINGS/CENTERS

12th Flying Training Wing 17th Training Wing (TRW) 33rd Fighter Wing 37th TRW 42nd Air Base Wing 47th FTW 56th FW

58th Special Operations Wing

59th Medical Wing 71st FTW 80th FTW 81st TRW 82nd TRW 97th Air Mobility Wing

314th Airlift Wing 325th FW 502nd ABW

Air Force Institute of Technology Air Force Research Institute

Carl A. Spaatz Center for Officer Education Curtis E. LeMay Center for Doctrine Dev. & Education

Ira C. Eaker Center for Professional Dev.

Jeanne M. Holm Officer Accession & Citizen Dev. Center Muir S. Fairchild Research Information Center

Thomas N. Barnes Center for Enlisted Education

LOCATION

JBSA-Randolph, Tex. Columbus AFB, Miss. Goodfellow AFB, Tex. Eglin AFB, Fla. JBSA-Lackland, Tex. Maxwell AFB, Ala. Laughlin AFB, Tex. Luke AFB, Tex. Kirtland AFB, N.M.

Lackland AFB, Tex. Vance AFB, Okla. Sheppard AFB, Tex. Keesler AFB, Miss. Sheppard AFB, Tex. Altus AFB, Okla. Little Rock AFB, Ark. Tyndall AFB, Fla.

Fort Sam Houston, Tex. Wright-Patterson AFB, Ohio Maxwell AFB, Ala. Maxwell AFB, Ala.

Maxwell AFB, Ala. Maxwell AFB, Ala. Maxwell AFB, Ala.

Maxwell AFB, Ala.

AIRCRAFT/MISSION/WEAPON

T-1A, T-6A, T-38C (CSO at NAS Pensacola, Fla.) T-1A, T-6A, T-38C

Technical training

Basic military and technical training

Base support T-1A, T-6A, T-38C F-16

CV-22, HC-130, HH-60, MC-130H, MC-130J,

MC-130P

Wilford Hall Ambulatory Surgical Center

T-1A, T-6A, T-38C T-6A, T-38C Technical training Technical training C-17, KC-135R C-130H/J F-22

JBSA facilities support Postgraduate education Historical research

Officer professional military education (PME)

Air Force doctrine development

Professional and techical continuing education

Officer training, ROTC oversight

Information resources

Enlisted PME



AFGSC

Air Force Global Strike Command

Headquarters Barksdale AFB, La.

Established Aug. 7, 2009

Commander Lt. Gen. James M. Kowalski



PRIMARY MISSION

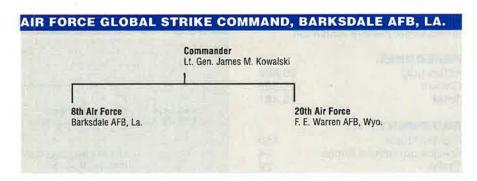
Organize, train, equip, maintain, and provide ICBM forces and nuclear-capable bomber forces to combatant commanders.

PERSONNEL

Active duty	19,273
Civilian	2,734
Total	22,007

EQUIPMENT (TAI)

Bomber	76
Helicopter	25
ICBM	450



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

2nd Bomb Wing 5th BW 90th Missile Wing 91st MW 341st MW 509th BW 576th Flight Test Squadron 625th Strategic Operations Squadron

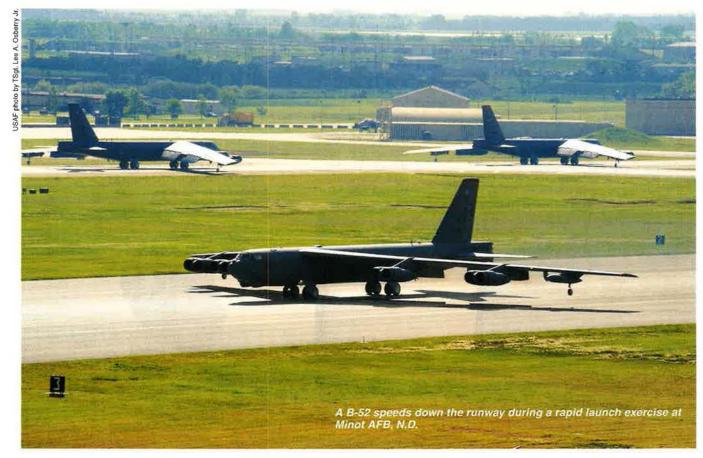
LOCATION

Barksdale AFB, La.
Minot AFB, N.D.
F. E. Warren AFB, Wyo.
Minot AFB, N.D.
Malmstrom AFB, Mont.
Whiteman AFB, Mo.
Vandenberg AFB, Calif.
Offutt AFB, Neb.

AIRCRAFT/MISSION/WEAPON

B-52H B-52H Minuteman III, UH-1N Minuteman III, UH-1N Minuteman III, UH-1N B-2 ICBM testing

ICBM-related analysis, targeting system operations, training





Air Force Materiel Command

Headquarters Wright-Patterson AFB, Ohio

Established July 1, 1992

Commander Gen. Donald J. Hoffman



PRIMARY MISSION

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

PERSONNEL

Active duty	19,500
Civilian	64,426
Total	83,926

EQUIPMENT (TAI)

Bomber	4
Fighter/Attack	52
ISR/BM/C3	25
Tanker	2
Transport	25
Helicopter	7
Trainer	24

Note: The commandwide restructuring AFMC announced in fall 2011 is not planned to take effect until Oct. 1, 2012.

AIR FORCE MATERIEL COMMAND, WRIGHT-PATTERSON AFB, OHIO

		Commander Gen, Donald J. Hoffman	
Aeronautical Systems Center Wright-Patterson AFB, Ohio	Air Armament Center Eglin AFB, Fla.	Air Force Flight Test Center Edwards AFB, Calif.	Air Force Global Logistics Support Center Scott AFB, III.
Air Force Research Laboratory Wright-Patterson AFB, Ohio	Air Force Nuclear Weapons Center Kirtland AFB, N.M.	Air Force Security Assistance Center Wright-Patterson AFB, Ohio	Arnold Engineering Development Cente Arnold AFB, Tenn.
Electronic Systems Center Hanscom AFB, Mass.	National Museum of the US Air Force Wright-Patterson AFB, Ohio	Ogden Air Logistics Center Hill AFB, Utah	Oklahoma City ALC Tinker AFB, Okla.

MAJOR GROUPS/WINGS

498th Nuclear Systems Wing

46th Test Wing 66th Air Base Group 72nd Air Base Wing 75th ABW 76th Maintenance Wing 78th ABW 88th ABW 95th ABW 96th ABW 309th Aerospace Maintenance & Regeneration Group 309th MXW 377th ABW 402nd MXW 412th TW 448th Supply Chain Management Wing

LOCATION

Eglin AFB, Fla. Hanscom AFB, Mass. Tinker AFB, Okla. Hill AFB, Utah Tinker AFB, Okla. Robins AFB, Ga. Wright-Patterson AFB, Ohio Edwards AFB, Calif. Eglin AFB, Fla. Davis-Monthan AFB, Ariz. Hill AFB, Utah Kirtland AFB, N.M. Robins AFB, Ga. Edwards AFB, Calif.

Kirtland AFB, N.M. Wright-Patterson AFB, Ohio

Tinker AFB, Okla.

AIRCRAFT/MISSION/WEAPON

A-10C, C-130, F-15, F-15E, F-16CG/CJ, UH-1N Base support Base support Base support Aircraft/weapon sustainment Base support

Base support Base support Base support

Aircraft maintenance/regeneration Aircraft/weapon sustainment

Base support

Aircraft/weapon sustainment Various, including F-35A Supply chain operations/oversight

Nuclear weapons sustainment

Human performance evaluation/research



FRC

Air Force Reserve Command

Headquarters Robins AFB, Ga.

Established Feb. 17, 1997

Commander Lt. Gen. Charles E. Stenner Jr.



PRIMARY MISSION

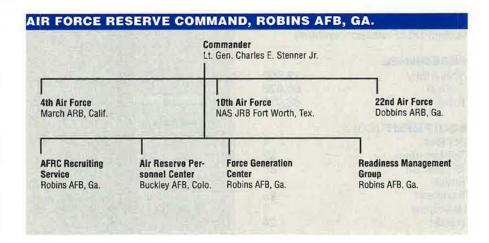
Provide strike, air mobility, special operations forces, rescue, aeromedical evacuation, aerial firefighting and spraying, weather reconnaissance, space, flying training, and other capabilities to support the active duty force and assist with domestic and foreign disaster relief.

PERSONNEL

Total	85,124
Civilian (includes technicians)	13,204
Active duty	599
Total (selected reserve)	71,321

EQUIPMENT (TAI)

18
100
10
12
72
152
15



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

MAJOR GROUPS/WINGS

94th Airlift Wing

310th Space Wing 315th AW

340th Flying Training Group

349th Air Mobility Wing 403rd Wing 413th Flight Test Group

419th FW 433rd AW

434th Air Refueling Wing

439th AW 440th AW 442nd FW 445th AW 446th AW 452nd AMW 459th ARW

477th Fighter Group 482nd FW

507th ARW 512th AW

513th Air Control Group

514th AMW

624th Regional Support Group

908th AW 910th AW 911th AW 914th AW 916th ARW

919th Special Operations Wing

920th Rescue Wing 926th Group 927th ARW

931st Air Refueling Group

932nd AW 934th AW 940th Wing 944th FW

LOCATION

Dobbins ARB, Ga. NAS JRB Fort Worth, Tex. Peterson AFB, Colo. Barksdale AFB, La. Schriever AFB, Colo. JB Charleston, S.C. JBSA-Randolph, Tex. Travis AFB, Calif. Keesler AFB, Miss. Robins AFB, Ga.

Hill AFB, Utah JBSA-Lackland, Tex. Grissom ARB, Ind. Westover ARB, Mass.

Pope Field, N.C. Whiteman AFB, Mo.

Wright-Patterson AFB, Ohio JB Lewis-McChord, Wash.

March ARB, Calif. JB Andrews, Md.

JB Elmendorf-Richardson, Alaska Homestead ARB, Fla.

Tinker AFB, Okla. Dover AFB, Del. Tinker AFB, Okla.

JB McGuire-Dix-Lakehurst, N.J. JB Pearl Harbor-Hickam, Hawaii

Maxwell AFB, Ala. Youngstown ARS, Ohio Pittsburgh Arpt., Pa. Niagara Falls Arpt., N.Y. Seymour Johnson AFB, N.C.

Duke Field, Fla. Patrick AFB, Fla. Nellis AFB, Nev. MacDill AFB, Fla. McConnell AFB, Kan. Scott AFB, III.

Luke AFB, Ariz.

Minneapolis-St. Paul Arpt., Minn. Beale AFB, Calif.

AIRCRAFT/MISSION/WEAPON

C-130 F-16

C-130 (including Modular Airborne Firefighting System)

B-52

Space control/operations/warning, information operations

C-17

T-1A, T-6A (both Associate) C-5A, C-17, KC-10 (all Associate) C-130J, WC-130J (Hurricane Hunters)

Depot flight test F-16 (Associate) C-5A, Formal Training Unit

KC-135R C-5B

C-130

A-10C (also at Barksdale AFB, La., Davis-Monthan AFB, Ariz.)

C-17

C-17 (Associate) C-17, KC-135R KC-135R

F-22 (Associate) F-16 KC-135R

C-5B/M, C-17 (both Associate)

E-3 (Associate)

C-17, KC-10 (both Associate)

Contingency aerial port, civil engineer, medical combat support

C-130 C-130 C-130 C-130 KC-135R MC-130E

HC-130P/N, HH-60G, WC-130

Various (Nellis), MQ-1 and MQ-9 (Creech AFB, Nev.) (all Associate)

KC-135R (Associate) KC-135R (Associate) C-40

C-130

AOC, DCGS, RQ-4 F-16 (Associate)



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

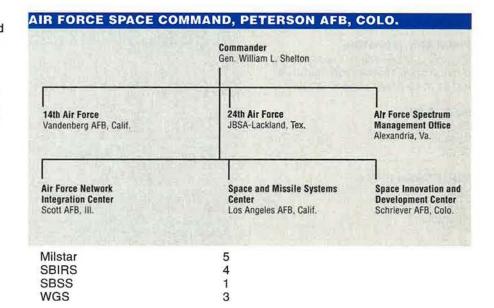
Active duty	14,027
Civilian	8,303
Total	22,330

EQUIPMENT

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

Satellite systems (on orbit):

AEHF	1
DSP	classified
GPS	34
DMSP	6
DSCS III	8



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.

MAJOR GROUPS/WINGS

21st Space Wing 30th SW 45th SW 50th SW 61st Air Base Group 67th Network Warfare Wing 460th SW 688th Information Operations Wing 689th Combat Communications Wing 821st Air Base Group

LOCATION

Peterson AFB, Colo. Vandenberg AFB, Calif. Patrick AFB, Fla. Schriever AFB, Colo. Los Angeles AFB, Calif. JBSA-Lackland, Tex. Buckley AFB, Colo. JBSA-Lackland, Tex. JBSA-Lackland, Tex. Thule AB, Greenland

AIRCRAFT/MISSION/WEAPON

Space control/warning

Space launch, ICBM test, launch range operations

Space launch, launch range operations

C2 space operations

Base support

Cyberspace operations

Space surveillance/warning

Command and control warfare operations

Expeditionary, specialized communications/air traffic control

Base support



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	13,194
Civilian	1,762
Total	14,956

EQUIPMENT (TAI)

SOF	93
ISR/BM/C3	39
Helicopter	4

AIR FORCE SPECIAL OPERATIONS COMMAND, HURLBURT FIELD, FLA. Commander Lt. Gen. Eric E. Fiel 1st Special Ops Wing 24th SOW 23rd Air Force 27th SOW Cannon AFB, N.M. Hurlburt Field, Fla. Hurlburt Field, Fla. Hurlburt Field, Fla. Air Force Special 352nd Special Ops 353rd SOG **Ops Training Center** Groun Kadena AB, Japan Hurlburt Field, Fla. RAF Mildenhall, UK

MAJOR UNITS

1st Special Operations Wing 11th Intelligence Squadron 18th Flight Test Squadron 23rd Weather Squadron 24th SOW 27th SOW 352nd Special Operations Group 353rd SOG

LOCATION

Hurlburt Field, Fla. Cannon AFB, N.M. RAF Mildenhall, UK Kadena AB, Japan Hurlburt Field, Fla.

AIRCRAFT/MISSION/WEAPON

AC-130U, CV-22, MC-130H, MC-130J, MC-130P Analysis for special operations targets Test and evaluation for aircraft, equipment, tactics Reachback weather operations Battlefield airmen operations AC-130H, MC-130W, MQ-1, MQ-9 MC-130H, MC-130P





Established June 1, 1992

Commander Gen. Raymond E. Johns Jr.



PRIMARY MISSION

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

PERSONNEL

Active duty	45,306
Civilian	9,839
Total	55,145

EQUIPMENT (TAI)

170 Tanker 312 Transport

AIR MOBILITY COMMAND, SCOTT AFB, ILL. Commander Gen. Raymond E. Johns Jr. 18th Air Force **US Air Force Expeditionary Center** Scott AFB, III. JB McGuire-Dix-Lakehurst, N.J.

Abbreviation: AOC: Air & Space Operations Center.

MAJOR UNITS

6th Air Mobility Wing 19th Airlift Wing 22nd Air Refueling Wing 43rd Airlift Group 60th AMW 62nd AW

87th Air Base Wing 89th AW

92nd ARW 305th AMW 317th AG 319th ABW 375th AMW 436th AW 437th AW

515th Air Mobility Operations Wing

521st AMOW

618th AOC (Tanker Airlift Control Center)

621st Contingency Response Wing

627th Air Base Group

628th ABW

LOCATION

MacDill AFB, Fla. Little Rock AFB, Ark. McConnell AFB, Kan. Pope Field, N.C. Travis AFB, Calif. JB Lewis-McChord, Wash. JB McGuire-Dix-Lakehurst, N.J. JB Andrews, Md. Fairchild AFB, Wash. JB McGuire-Dix-Lakehurst, N.J.

Dyess AFB, Tex. Grand Forks AFB, N.D. Scott AFB, III. Dover AFB, Del.

JB Charleston, S.C. JB Pearl Harbor-Hickam, Hawaii Ramstein AB, Germany

Scott AFB, III.

JB McGuire-Dix-Lakehurst, N.J. JB Lewis-McChord, Wash. JB Charleston, S.C.

AIRCRAFT/MISSION/WEAPON

C-37, KC-135R C-130 KC-135R C-130 (Active Associate) C-5, C-17, KC-10

C-17

Joint base facilities support C-20, C-32, C-37, C-40, VC-25

KC-135 C-17, KC-10 C-130

Base support C-21, C-40 (AA), KC-135R (AA)

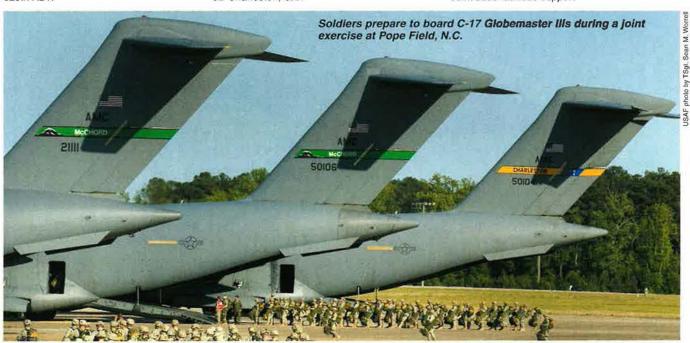
C-5 C-17

Contingency airfield operations Contingency airfield operations

Tanker Airlift Control Center operations Rapidly deployable bare base operations

Base support

Joint base facilities support





Headquarters JB Pearl Harbor-Hickam, Hawaii

Established July 1, 1957

Commander Gen. Gary L. North



JB Pearl Harbor-Hickam,

Hawaii

PRIMARY MISSION

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

PERSONNEL

Active duty	29,314
Civilian	8,155
Total	37,469

EQUIPMENT (TAI)

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

PACIFIC AIR FORCES, JB PEARL HARBOR-HICKAM, HAWAII Commander Gen. Gary L. North 11th Air Force 5th Air Force 7th Air Force 13th Air Force Osan AB, South Korea JB Elmendorf-Richardson,

Alaska

MAJOR UNITS

1st Air Support Operations Group 3rd Wing 8th Fighter Wing 15th Wing 18th Wing 35th FW 36th Wing 36th Contingency Response Group 51st FW 354th FW

374th Airlift Wing 607th Air & Space Operations Center

607th Air Intelligence Group

607th ASOG 611th AOC

611th Air Support Group

613th AOC

673rd Air Base Wing

LOCATION

Yokota AB, Japan

JB Lewis-McChord, Wash. JB Elmendorf-Richardson, Alaska Kunsan AB, South Korea JB Pearl Harbor-Hickam, Hawaii Kadena AB, Japan Misawa AB, Japan Andersen AFB, Guam Andersen AFB, Guam Osan AB, South Korea Eielson AFB, Alaska Yokota AB, Japan Osan AB, South Korea Osan AB, South Korea Osan AB, South Korea JB Elmendorf-Richardson, Alaska JB Elmendorf-Richardson, Alaska JB Pearl Harbor-Hickam, Hawaii JB Elmendorf-Richardson, Alaska

AIRCRAFT/MISSION/WEAPON

Battlefield airmen operations/support C-12, C-17, E-3, F-15, F-22

F-16

C-17, C-37, C-40, F-22 (Active Associate), KC-135 (AA)

E-3, F-15, HH-60G, KC-135R

Operational platform for rotating combat forces Rapidly deployable bare base operations

A-10C, C-12, F-16

F-16

C-12, C-130

Plan/direct air operations

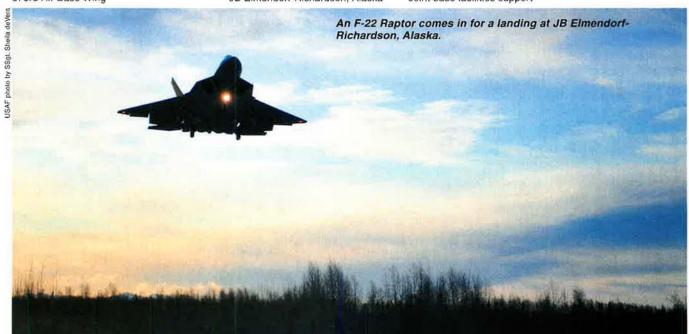
Intelligence analysis

Battlefield airmen operations and support

Plan/direct air operations

Remote facility operations, communications, engineering

Plan/direct air operations Joint base facilities support



US Air Forces in Europe Headquarters Ramstein AB, Germany

Established Aug. 7, 1945

Commander Gen. Mark A. Welsh III



PRIMARY MISSION

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

PERSONNEL

Active duty	25,364
Civilian	6,351
Total	31,715

EQUIPMENT (TAI)

Fighter/Attack	176
Tanker	15
Transport	27
Helicopter	5

US AIR FORCES IN EUROPE, RAMSTEIN AB, GERMANY

Commander Gen. Mark A. Welsh III

3rd Air Force Ramstein AB, Germany

17th Air Force (administrative control) Ramstein AB, Germany (Slated to be inactivated April 20, 2012)

MAJOR UNITS

31st Fighter Wing 39th Air Base Wing 48th FW 52nd FW 65th ABW 86th Airlift Wing 100th Air Refueling Wing 435th Air Ground Operations Wing 501st Combat Support Wing 603rd Air & Space Operations Center

LOCATION

Aviano AB, Italy Incirlik AB, Turkey RAF Lakenheath, UK Spangdahlem AB, Germany Lajes Field, the Azores Ramstein AB, Germany RAF Mildenhall, UK Ramstein AB, Germany RAF Alconbury, UK Ramstein AB, Germany

AIRCRAFT/MISSION/WEAPON

Operational location for deployed US and NATO forces F-15, F-15E, HH-60G A-10C, F-16CJ Operational location for en route forces C-20, C-21, C-37, C-40, C-130J KC-135R

Battlefield airmen support/operations

Facilities support for seven geographically separated units

Plan/direct air operations

F-16s from Spangdahlem AB, Germany, line the ramp at Konya AB, Turkey, during a bilateral training exercise.





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)	105,685
Active duty	208
Civilian (includes technicians	23,403
Total	129,296

Air National Guard

Headquarters Washington, D.C.

Established Sept. 18, 1947

Director Lt. Gen. Harry M. Wyatt III



EQUIPMENT (TAI)	EQ	UIP	MENT	(TAI)
-----------------	----	-----	------	-------

Fighter/Attack	639
SOF	4
ISR/BM/C3	80
Tanker	189
Transport	242
Helicopter	17

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

Wing/State	System/Mission	Wing/State	System/Mission
101st Air Refueling Wing (ME)	KC-135R	151st ARW (UT)	KC-135R
102nd Intelligence Wing (MA)	DCGS	152nd AW (NV)	C-130, DCGS
103rd Airlift Wing (CT)	C-21, C-27J, AOC, CIRF	153rd AW (WY)	C-130, CACS
104th Fighter Wing (MA)	F-15	154th Wing (HI)	C-17, F-22, KC-135R
105th AW (NY)	C-5A	155th ARW (NE)	KC-135R
106th Rescue Wing (NY)	HC-130, HH-60G	156th AW (PR)	C-130
107th AW (NY)	C-130 (Reserve Associate)	157th ARW (NH)	KC-135R
108th ARW (NJ)	KC-135R	158th FW (VT)	F-16, cyber operations
109th AW (NY)	LC-130	159th FW (LA)	F-15
110th AW (MI)	C-21, C-27J	161st ARW (AZ)	KC-135R
111th FW (PA)	AOG, CSDC	162nd FW (AZ)	F-16, MQ-1, RC-26
	사용 (1974) * (1.1971) 1.196 (1.1971) 1.196 (1.1971) 1.196 (1.1971) 1.196 (1.1971) 1.196 (1.1971) 1.196 (1.1971)		MQ-1
113th Wing (DC)	C-38, C-40, F-16	163rd RW (CA)	12000 91
114th FW (SD)	F-16	164th AW (TN)	C-5A
115th FW (WI)	F-16, RC-26	165th AW (GA)	C-130, CRTC
116th Air Control Wing (GA)	E-8C	166th AW (DE)	C-130, cyber operations
117th ARW (AL)	KC-135R	167th AW (WV)	C-5A
118th AW (TN)	C-130	168th ARW (AK)	KC-135R, missile warning
119th Wing (ND)	C-21, C-27J, MQ-1	169th FW (SC)	F-16CJ, WC-130H
120th FW (MT)	C-27J, F-15	171st ARW (PA)	KC-135R
I21st ARW (OH)	KC-135R	172nd AW (MS)	C-17
122nd FW (IN)	A-10	173rd FW (OR)	F-15
123rd AW (KY)	C-130, battlefield airmen, CRG	174th FW (NY)	MQ-9, RC-26, battlefield airmen, CAC
124th FW (ID)	A-10C, C-27J, battlefield airmen, CACS	175th Wing (MD)	A-10C, C-27J, cyber operations
125th FW (FL)	F-15, RC-26, space launch	176th Wing (AK)	C-17, C-130, HC-130, HH-60G, RAOC
126th ARW (IL)	KC-135R	177th FW (NJ)	F-16
127th Wing (MI)	A-10C, KC-135R, special ops weather	178th FW (OH)	MQ-1 ground station
128th ARW (WI)	KC-135R	179th AW (OH)	C-27J
129th RQW (CÁ)	MC-130P, HH-60G	180th FW (OH)	F-16
130th AW (WV)	C-130, RC-26	181st IW (IN)	DCGS
131st Bomb Wing (MO)	B-2 (Associate)	182nd AW (IL)	C-130
132nd FW (IA)	F-16	183rd FW (IL)	CIRF, CNAF
133rd AW (MN)	C-130	184th IW (KS)	Battlefield airmen, CACS, DCGS, NOS
134th ARW (TN)	KC-135R, CACS	185th ARW (IA)	KC-135R
136th AW (TX)	C-130	186th ARW (MS)	C-27J, KC-135R, MC-12W, RC-26
137th ARW (OK)	KC-135R (Reserve Associate)		F-16, RC-26
	그가 있다고 그 사이의 사이에 있어요. 이 사이지 않아요. 사이에 가장 하는 사이에 모르게 되었다면 그리지 않아요. 그리고 있다.	187th FW (AL)	
138th FW (OK)	F-16	188th FW (AR)	A-10C
139th AW (MO)	C-130	189th AW (AR)	C-130
140th Wing (CO)	C-21, F-16, MGS	190th ARW (KS)	KC-135R
141st ARW (WA)	KC-135R, RC-26, combat communications	192nd FW (VA)	F-22
142nd FW (OR)	F-15	193rd Special Ops Wing (PA)	EC-130J
143rd AW (RI)	C-130, cyber operations	194th Regional Support Wing (WA) battlefield airmen, cyber operations
144th FW (CA)	F-16, RC-26		
145th AW (NC)	C-130	Abbreviations: AOC: Air & Space Or	perations Center: AOG: Air Operations Group:
146th AW (CA)	C-130	Abbreviations: AOC: Air & Space Operations Center; AOG: Air Operations Group; CACS: Command and Control Squadron; CIRF: Central Intermediate Repair Facil-	
147th Reconnaissance Wing (TX)	MQ-1, RC-26	ity; CNAF: Component Numbered Air	Force; CRG: Contingency Response Group;
148th FW (MN)	F-16CJ		enter; CSDC: Consolidated Storage Distribu- ited Common Ground Station; MGS: Mobile
149th FW (TX)	F-16, cyber operations		rations Security Squadron; RAOC: Region Air
150th FW (NM)	RC-26, pararescue and special ops training	Operations Center; RQW: Rescue Wi	

FOAs, DRUs, and 2012 USAF Almanac Auxiliary

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: 22

Air Force Audit Agency

Hq.: Washington, D.C. Estab.: July 1, 1948

Type: FOA

Mission: Provide independent and quality

interna audit service. Total Personnel: 710

Air Force Center for Engineering and the Environment

Hq.: JBSA-Lackland, Tex. Estab.: July 23, 1991

Type: FOA

Mission: Deliver integrated engineering and environmental management and tech-

nical services.

Total Personnel: 452

Air Force Civil Engineer Support Agency

Hq.: Tyndall AFB, Fla. Estab.: Aug. 1, 1991

Type: FOA

Mission: Provide tools and professional support to sustain civil engineer capabilities.

Total Personnel: 253

Air Force Cost Analysis Agency

Hq.: Arlington, Va. **Estab.:** Aug. 1, 1992

Type: FOA

Mission: Perform independent cost and risk analyses and provide special studies to aid

long-range planning.

Total Personnel: 127

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

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: 5,288

Air Force Financial Services Center

Hq.: Ellsworth AFB, S.D. Estab.: Sept. 14, 2007

Type: FOA

Mission: Provide military pay services to Active Duty and travel transactions for Active and reserve component military and civilian personnel.

Total Personnel: 394

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: 123

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: 62

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: 132

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



Officials from the Air Force Center for Engineering and the Environment, Air Force Legal Operations Agency, Air Combat Command, and other organizations meet to discuss cooperative measures for wildfire support in North Carolina.

collection and interagency civil air analysis; direct global tactics analysis reporting program for theater air components.

Total Personnel: 133

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: 15,016

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: 704

Air Force Logistics Management Agency

Hq.: Maxwell AFB, Gunter Annex, Ala.

Estab.: Sept. 30, 1975

Type: FOA

Mission: Generate enterprise supply chain solutions for agile combat support capabilities; support logistics transforma-

tion through research analysis, wargames, enterprise architecture development, and publication of ACS literature.

Total Personnel: 53

Air Force Manpower Agency

Hq.: JBSA-Randolph, Tex. Estab.: Sept. 1, 1999

Type: FOA

Mission: Determine manpower requirements; oversee performance management and productivity programs; create and maintain standard position descriptions; oversee civilian classification and centralized operational classification programs.

Total Personnel: 395

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 con-

tinuum.

Total Personnel: 349

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: 319



A civilian employee takes a call as Maj. Gen. Alfred Stewart (back) and Daniel Ginsberg, USAF's assistant secretary for manpower and reserve affairs, observe at the Air Force Personnel Center at JBSA-Randolph, Tex. Stewart is the AFPC commander.

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: 2,238

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: 594

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: 44

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: 2,344

Formerly the Air Force Military Personnel Center and the Air Force Civilian Personnel Management Center.

Air Force Personnel Operations Agency

Hq.: Pentagon

Estab.: Aug. 15, 1993

Type: FOA

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

Total Personnel: 306

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: 94

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: 330

Air Force Real Property Agency

Hq.: JBSA-Lackland, Tex. Estab.: Nov. 1, 2002

Type: FOA

Mission: Acquire, manage, and dispose of all Air Force-controlled real property

worldwide.

Total Personnel: 116

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: 70

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: 133

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: 459

Air Force Services Agency

Hq.: JBSA-Lackland, Tex. Estab.: Feb. 5, 1991

Type: FOA

Mission: Provide technical assistance, field new initiatives, and develop procedures for services functions; manage central nonappropriated funds; oversee NAF acounting and central field support systems for NAF employees and retirees.

Total Personnel: 228

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: 1,338

Formerly Air Weather Service, established July 1,

1937.

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: 9,897 (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: 61,812

US Air Force Academy

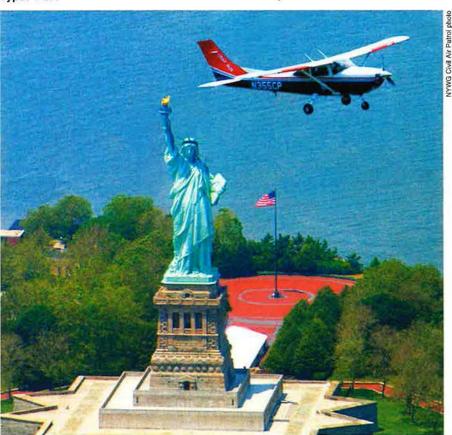
Hq.: Colorado Springs, Colo. **Estab.:** April 1, 1954

Type: DRU

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

Total Personnel: 3,729

A Civil Air Patrol aircraft passes the Statue of Liberty.



Guide to Air Force Installations Worldwide

2012 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; 36th Wing (PACAF), support; 36th CRG (PACAF), bare base operations. 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 Center (AFMC), 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. Units/missions: 31st FW (USAFE), fighter operations; 603rd ACS (USAFE), 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; 917th Wing (AFRC), bomber operations, training; Hq. AFG-SC 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), air mobility, fighter operations, mobile missile warning; 460th SW (AFSPC), space surveillance/ missile warning; Air Reserve Personnel Center, management, 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 filer, 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 (AFSFC), space operations; Det. 1, 45th MSG (AFSPC), support. 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. Reramed Jan. 5, 1982.

Abbreviations

ABW/G Air Base Wing/Group Air Control Wing/Squadron ACW/S AFB/S Air Force Base/Station **AFDW** Air Force District of Washington AFGLSC Air Force Global Logistics Support Center Air Force ISR Agency Air Force Nuclear Weapons Center AFISRA AFNWC Air Force Office of Special Investigations AFOSI US Africa Command AFRICOM AFRL Air Force Research Laboratory Air Force Weather Agency **AFWA** AGOW Air Ground Operations Wing Air Logistics Center Aircraft Maintenance Squadron Air Mobility Wing AOC/G Air & Space Operations Center/Group ARW/G/S Air Refueling Wing/Group/Squadron Air Station ASOS Air Support Operations Squadron AW/S Airlift Wing/Squadron Command, control, communications, & computers Command & Control Squadron CENTCOM **US Central Command** Communications Group CRW/G Contingency Response Wing/Group DCGS Distributed Common Ground Station Electronic Combat Group Flying Training Wing ISR Wing/Group Intelligence Wing/Squadron ISRW/G Medal of Honor Mission Support Group
Missile Wing
Maintenance Wing
Naval Air Facility/Station NAF/S NORTHCOM US Northern Command Naval Support Facility Naval Weapons Station **US Pacific Command**

ALC

AMS

AMW

AS

CG

ECG

FTW

IW/S

MOH

MSG

MW MXW

NSF

NWS PACOM 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 SOW/G Special Operations Wing/Group STRATCOM US Strategic Command

STS Special Tactics Squadron SW Space Wing sws Space Warning Squadron TACC Tanker Airlift Control Center TRANSCOM US Transportation Command TRW Training Wing

TTP tactics, techniques. & procedures WEG Weapons Evaluation Group

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), missile warning; 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), personnel recovery operations; 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), air mobility operations; 512th AW (AFRC), air mobility operations; Air Force Mortuary Affairs Operations Center (USAF). 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: 95th ABW (AFMC), support; Air Force Flight Test Center (AFMC), test, development; Propulsion Directorate (AFRL), R&D; 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: 33rd FW (AETC), training; 46th Test Wing (AFMC), T&E; 53rd Wing (ACC), operational T&E; 96th ABW (AFMC), support; Air Armament Center (AFMC), acquisition, R&D; Air Force Armament Museum (AFMC); Munitions Directorate (AFRL), R&D. 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 AAB. 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), air mobility operations; 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 ABW (AFMC), support; Electronic Systems Center (AFMC), acquisition, R&D. 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 (AFMC), support; 388th FW (ACC), fighter, Utah Test & Training Range operations; 309th MXW (AFMC), weapons maintenance, repair; 419th FW (AFRC), fighter operations; 748th SCMG (AFGLSC), weapons sustainment; AFNWC ICBM Systems Directorate (AFNWC), ICBM acquisition, support; Hill Aerospace Museum (AFMC); Ogden ALC (AFMC), 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; Air Force Combat Weather Center (AFWA), management; Air Force Special Operations Training Center (AFSOC), training; Hq. AFSOC, management; Hq. 23rd Air Force (AFSOC), operational leadership. History: activated 1943. Named for Lt. Donald W. Hurlburt, WWII pilot killed Oct. 1, 1943.

Incirlik AB, Turkey, APO AE 09824. Nearest city: Adana. Phone: (cmcl, from CONUS) 011-90-322-316-1110. Owning command: USAFE. Unit/mission: 39th ABW (USAFE), 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 (USAF). 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), air mobility operations; 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. Elmendorf 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), air mobility operations; 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), air mobility operations; 305th AMW (AMC), air mobility operations; 514th AMW (AFRC), air mobility operations; 521st 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), air mobility, fighter operations; 154th Wing (ANG), air mobility, fighter operations; 515th Air Mobility Operations Wing (AMC), air mobility operations Wing (AMC), air mobility operations; 613th AOC, C2 operations; 624th Regional Support Group (AFRC), bare base operations; Hq. PACAF, management; Hq. 13th Air Force (PACAF), 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: 37thTRW (AETC), training; 59th Medical Wing (AETC), ambulatory surgical; 149th FW (ANG), cyber, fighter operations; 802nd MSG (AETC), support; 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 Manpower Agency (USAF), management; Air Force Personnel Center (USAF), management; Air Force Recruiting Service (AFPC), management; Hq. 19th AF (AETC), operational leadership; 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), special operations, pararescue training; 150th FW (ANG), special operations, pararescue training; 377th ABW (AFMC), support; Air Force Inspection Agency (USAF), inspection; Air Force Operational Test & Evaluation Center (USAF), test, R&D; AFNWC (AFMC), acquisition, sustainment; Air Force Safety Center (USAF), management; Phillips Research Site, 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: Kunsan. 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. 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.

Little Rock AFB, Ark. 72099. Nearest city: Jacksonville. Phone: 501-987-1110. Owning command: AMC. Units/missions: 19th AW (AMC), air mobility operations; 189th AW (ANG), training; 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; 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), air mobility operations; 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 Force Logistics Management Agency (USAF), management; Air University (AETC), education; Hq. Civil Air Patrol (USAF), management. 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 OL A (ACC), personnel recovery operations; 926th Group (AFRC), associate missions at Creech, Eglin, Nellis; 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), C2, electronic attack, and ISR operations, support, training; 170th Group (ANG), C2, electronic attack, ISR operations, support, 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: 011-82-31-661-1110. 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), air mobility operations; 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. Owning command: AMC. Units/missions: 18th ASOS (ACC), battlefield airmen operations; 21st STS (AFSOC), special operations; 43rd AG (AMC), air mobility operations; 440th AW (AFRC), air mobility operations; USAF Combat Control School (AFSOC), training. Wistory: 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. 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. Units/missions: 95th RS (ACC), ISR operations; 100th ARW (USAFE), 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. Units/missions: 86th AW (USAFE), air mobility operations, support, including Kaiserslautern Military Community; 435th AGOW (USAFE), battlefield airmen operations; 521st Air Mobility Operations Wing (AMC), air mobility operations; Hq. 3rd AF (USAFE), operational leadership; Hq. USAFE, management. 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 (AFMC), support; 116th ACW (ANG), C2 operations; 461st ACW (ACC), C2 operations; 689th Combat Communications Wing (AFSPC), cyber operations; Hq. AFRC, management; Warner Robins ALC (AFMC), 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), space operations; 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, III. 62225. Nearest city: Belleville. Phone: 618-256-1110. Owning command: AMC. Units/missions: 126th ARW (ANG), air mobility operations; 375th AMW (AMC), air mobility operations; 618th AOC (TACC) (AMC), planning/ directing worldwide air mobility operations; 932nd AW (AFRC), air mobility operations; Air Force Global Logistics Support Center (AFMC), supply chain management; 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), 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), training; 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. Unit/mission: 52nd FW (USAFE), 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: 405-732-7321. Owning command: AFMC. Units/missions: 72nd ABW (AFMC), support; 137th ARW (ANG), air mobility operations; 507th ARW (AFRC), air mobility operations; 552nd ACW (ACC), C2 operations;

Oklahoma City ALC (AFMC), 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), air mobility operations; 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 (AETC), training; 325th FW Associate Unit (ANG), associate training; 601st AOC (ACC/ANG), plan/direct air operations; Air Force Civil Engineer Support Agency (USAF), management; 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 (STRAT-COM), 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; Aeronautical Systems Center (AFMC), acquisition and R&D; Air Force Institute of Technology (AETC), education; Air Force Security Assistance Center (AFMC), foreign military sales; Hq. AFMC, management; Hg. 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. In addition, some ANG and AFRC units are located on USAF bases and are included under units on those bases in the "Active Duty Installations" section.

Abraham Lincoln Capital Arpt., III. 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 AirTerminal (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: 860-292-2526. 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.

Abbreviations (also see p. 99) Aeromedical Evacuation Squadron AES AGS Air Guard Station ANGB/S Air National Guard Base/Station ARB/S Air Reserve Base/Station Arpt. Airport CBCS Combat Communications Squadron CCG Combat Communications Group Centralized Intermediate Repair Facility CIRF

IOS/F Information Operations Squadron/ Flight IWS Information Warfare Squadron JNGB Joint National Guard Base

CNAF

EIS

JRB

Joint Reserve Base

Component Numbered Air Force Engineering Installation Squadron 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., lowa 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., III. 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 FW, ISR, RPA operations, training; 222nd CACS, space C2 operations; 274th ASOS, battlefield airmen operations.

Harrisburg Arpt., Pa. 17057. Nearest city: Middletown. Phone: 717-948-2200. 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: 786-415-7682. Component: AFRC. Units/missions: 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 Brig. Gen. Joseph J. Foss, WWII ace, 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.

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; 281st 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 SAC to ANG April 1, 1980.

Rosecrans Memorial Arpt., Mo. 64503. Nearest city: St. Joseph. Phone: 816-236-3300. 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, lowa 51111. Nearest city: Sioux City. Phone: 712-233-0200. Component: ANG. Unit/mission: 185th ARW, air mobility operations. History: activated as Sioux City AAB 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 World Arpt., Okla. 73179. Nearest city: Oklahoma City. Phone: 405-686-5227. 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.

Gallery of USAF Weapons

Note: Inventory numbers are total active inventory figures as of Sept. 30, 2011.

2012 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 AFE, Calif.; Eglin AFB, Fla.; Ellsworth AFB, S.D. Contractor: Boeing, AIL Systems, General Electric. Power Plant: four General Electric F101-GE-102 turbofans, each 30,780 lb thrust.

Accommodation: pilot, copilot, and two WSOs (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 capable of accommodating a wide range of weapons inclup to 84 Mk 82 (500-lb) or 24 Mk 84 (2,000-lb) generalpurpose 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 C3U-103/104/105 WCMDs; up to 24 GBU-31 or 15 GBU-38 JDAMs; up to 24 AGM-158 JASSMs; or any mix of these weapons (a different type of weapon in each of three weapons bays).

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)

■ E-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 aga nst Iraq during Desert Fox in December 1998. Equipped over the years with GPS, smart weapons



B-1B Lancer (SSgt, Brian Ferguson)

carriage, improved onboard computers, improved communications. Sniper targeting pod added in mid-2008. Receiving Fully Integrated Data Link (FIDL) upgrade to include Link 16 and Joint Range Extension data link, enabling permanent LOS and BLOS C2 connectivity. FIDL mod also improves rear cockpit displays and adds an Ethernet infrastructure to provide high-speed transfer of aircraft data among all four crew stations and on-board weapons, enabling rapid airborne retargeting. Also undergoing radar reliability and maintainability improvement program (RMIP) enhancement to preclude diminishing manufacturing sources problem for offensive avionics.

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, ANG. First Flight: July 17, 1989. Delivered: Dec. 17, 1993.

IOC: April 1997, Whiteman AFB, Mo.

Production: 21. Inventory: 20.

Aircraft Location: Whiteman AFB, Mo.

Contractor: Northrop Grumman, Boeing, Vought, Power Plant: four General Electric F118-GE-100



B-2A Spirit (USAF photo)



B-52H Stratofortress (MSgt. Lance Cheung)

turbofans, each 17,300 lb thrust.

Accommodation: two pilots, on zero/zero ejection seats.

Dimensions: span 172 ft, length 69 ft, height 17 ft.

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-bywire 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. Planned upgrades include replacement of the aging UHF military satcom terminal system with the AEHF satcom system, enabling compatibility with legacy Milstar satellite constellations and future AEHF constellations.

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: November 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

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, maritime surveillance. Can carry weapon targeting pods. Ongoing mods include tactical and global data links for real-time C2, targeting, and intelligence; navigation; sensors; additional smart weapons and improved weapons carriage; and new or upgraded EW capabilities. 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. FY13 budget decisions limit the Combat Network Communications Technology (CONECT) program to only replacing the multifunction displays (MFDs) at each crew station with new color displays. USAF plans to retain the full CONECT technical design/ baseline pending future budget decisions. FY13 budget decisions also terminated the B-52 EHF program and Strategic Radar Replacement program.

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, ANG,

First Flight: Feb. 15, 1975 (preproduction). Delivered: October 1975-March 1984.

	Weapons Acronyms
AE	aeromedical evacuation
AEHF	Advanced Extremely High Frequency
AESA	active electronically scanned array
AGM	air-to-ground missile
ALCM	air intercept missile Air Launched Cruise Missile
	Advanced Medium-Range Air-to-Air
	Missile
ATP	advanced targeting pod
BLOS	beyond line of sight
BM	bomb live unit battle management
C2	command and control
C3	command, control, & communications
CALCM	Conventional ALCM
CBU	close air support
CEM	combined effects munition
CEP	circle error probable
CFT	conformal fuel tank commercial off the shelf
CSAR	combat search and rescue
CSO	combat systems officer
ECM	electronic countermeasures
EHF Elint	extremely high frequency
EO	electronic intelligence electro-optical
ER	extended range
EW	electronic warfare
EWO	electronic warfare officer
FLIR FMV	forward-looking infrared full-motion video
GATM	Global Air Traffic Management
GBU	glide bomb unit
GCS	ground control station
GPS HARM	Global Positioning System High-speed Anti-Radiation Missile
HEI	high-explosive incendiary
HUD	head-up display
IFF	identification, friend or foe
IIR Imint	imaging IR imagery intelligence
INS	inertial navigation system
IR	infrared
ISR	intelligence, surveillance, &
JASSM	reconnaissance Joint Air-to-Surface Standoff Missile
JDAM	Joint Direct Attack Munition
JSOW	Joint Standoff Weapon
JSUPT	joint specialized undergraduate pilot
JTIDS	training Joint Tactical Information Distribution
01100	System
LANTIRN	Low-Altitude Navigation & Targeting
1.00	Infrared for Night
LCD LGB	liquid crystal display 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 ROVER	precision guided munition Remotely Operated Video Enhanced
HOVEH	Receiver
RPA	remotely piloted aircraft
RWR	radar warning receiver
S-L SAR	sea level search and rescue
SAR	synthetic aperture radar
satcom	satellite communications
SDB	Small Diameter Bomb
SEAD SHF	suppression of enemy air defenses super high frequency
shp	shaft horsepower
Sigint	signals intelligence
SLEP	service life extension program
TACAN TF/TA	tactical air navigation terrain-following/terrain-avoidance
T-O	takeoff
WCMD	Wind-Corrected Munitions Dispenser
WSO	weapon systems officer

IOC: October 1977. Production: 713. Inventory: 345.

Aircraft Location: Barksdale AFB, La.; Boise Air Terminal, Idaho; Davis-Monthan AFB, Ariz.; Eglin AFB, Fla.; Fort Smith Arpt., Ark.; Fort Wayne Arpt., Ind.; Martin State Arpt., Md.; Moody AFB, Ga.; Nellis AFB, Nev.; Osan AB, South Korea; Selfridge ANGB, Mich.; Spangdahlem AB, Germany; Whiteman AFB, Mo.

Contractor: Fairchild Republic, now Lockheed Martin.

Power Plant: two General Electric TF34-GE-100 turbofans, each 9,065 lb thrust.

Accommodation: pilot.

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.

Deadly combination of large and diverse weapons payload, long loiter times, austere airfield capability, maneuverability, and wide combat radius. Can operate under 1,000 ftceilings, 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 Sniperadvanced targeting pod capability, Situational Awareness Data Link (SADL), and integration of sensors with aircraftsystems.IOC in August 2007. First combat deployment September 2007. Undergoing wing replacements.

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, ANG.

First Flight: July 27, 1972. Delivered: November 1974-85. IOC: September 1975.

Production: 874.

Inventory: 216 (F-15C); 34 (F-15D).

Aircraft Location: Barnes Arpt., Mass.; Eglin AFB, Fla.; Great Falls Arpt., Mont.; Jacksonville Arpt., Fla.; Kadena AB, Japan; Kingsley Field (Klamath Falls),



A-10C Thunderbolt II (A1C Benjamin Wiseman)

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 M61A120 mm six-barrel cannon (940 rd); four AIM-9 Sidewinders and four AIM-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 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 Multistage Improvement Program. The final 43 production aircraft received the F-15E-designed APG-70 radar, Ongoing upgrades include the APG-63(V3) AESA radar and a more capable

mission computer for 175 aircraft, enabling their effective operation through at least 2035, pending the results of full-scale fatigue testing. USAF will conclude the fatigue testing in 2014 and determine the potential for an airframe SLEP. Based on future force structure requirements, USAF may extend long-term upgrades to the remaining fleet. All 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. Future plans include development of an Eagle Passive/Active Warning and Survivability System.

F-15E Strike Eagle

Brief: Aheavily 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.
First Flight: Dec. 11, 1986.
Delivered: April 1988-2004.
IOC: September 1989.

Production: 236. Inventory: 221.

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 M61A120 mm six-barrel cannon (500 rd); four AIM-9 Sidewinders and four AIM-120 AMRAAMs or eight AIM-120 s; 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-



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

aided and precision weapons and by 20 mm gun for strafing. Air-to-air capability based on array of radar guided and IR-homing weapons. Carries a large and varied ordnance load. Equipped with Link 16 and ARC-210 BLOS satcom. Ongoing mods include upgrading to the APG-82(V)1 AESA radar. USAF plans to complete a full-scale fatigue test in 2015 to help determine the feasibility of a SLEP, but currently expects the aircraft to remain operational through at least 2035.

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, ANG, AFRC.

First Flight: Dec. 8, 1976 (full-scale development).

Delivered: January 1979-2005. IOC: October 1980, Hill AFB, Utah. Production: 2,206.

Inventory: 858 (F-16C); 162 (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 stan-



F-16 Fighting Falcon (SSgt. Christopher Boitz)

dardized cockpit configuration with color MFDs and software, modular mission computer, helmet mounted cueing system, and Link 16 data link. 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 to extend them to at least 2025 include a legacy SLEP and Combat Avionics Programmed Extension Suite for 300-350 aircraft.

■F-16CGBlock40/42aircraft, 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, ringlasergyro 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-129andF100-PW-229increasedperformance 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. We apons 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: 179.

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-groundloadout) 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, Combinesstealth, supercruise, high maneuverability, and integrated avionics to counter and survive multiple anti-access threats and survive. Integrated avionics and intraflight data link permits imultaneous 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, and shoot cues. Other equipment includes APG-77 radar, an EW system with radar warning receiver



F-22A Raptor (SrA. Zachary Wolf)

and missile launch detector, JTIDS, IFF system, laser gyroscope inertial reference, and GPS. FY13 funding request includes continued retrofit of Increment 3.1 upgrade, including initial integration of the GBU-39B SDB I and JDAM retargeting capability.

F-35 Lightning II

Brief: Next generation strike aircraft,

Function: Multirole fighter.

Operator: AETC, AFMC. Planned: ACC, PACAF,

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 eight development 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 35ft, length 51.4ft, height 14,4ft. 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, F-35A conventional takeoff and landing (CTOL) variant for the Air Force, the 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.

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 school house at Eglin received itsfirstF-35, a production model F-35ACTOL variant, on July 14, 2011. On Feb. 28, 2012, USAF cleared



F-35 Lightning II (Lockheed Martin photo)

the F-35s at Eglin school house for initial flight operations. All variants are still in development and test.

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, targetacquisition 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 J models

■ 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

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: 19

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, mediumlift vertical takeoff and landing (VTOL) tilt-rotor



AC-130H Spectre (SrA. Julianne Showalter)

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. Ongoing Block 20 improvements enhance reliability/maintainability, self-deployment capability, and avionics and communications/ navigation systems.

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.

IOC: 1966 MC-130E; June 1991 MC-130H. Production: 22 new-build MC-130Hs. Inventory: 12 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-theart pod-based aerial refueling system to augment the MC-130E and MC-130P aerial refueling fleet.

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.



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

Operator: AETC, AFSOC, ANG.

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

Delivered: from 1965.

IOC: 1986.

Production: (converted).

Inventory: 27.
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.

MC-130W Combat Spear/Dragon Spear

Brief: Aircraft that flies clandestine or low-visibility, low-level missions into denied areas to provide (Dragon Spear) armed overwatch or (Combat Spear) air refueling and airdrop for special operations activities.

Function: Armed overwatch or air refueling for SOF helicopter and tilt-rotor aircraft and airdrop.

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: Combat Spear: officer: two pilots, two navigators; enlisted: flight engineer, two loadmasters. Dragon Spear: officer: two pilots, two CSOs; enlisted: flight engineer, 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: Bushmaster II side-firing, trainable

30 mm Mk 44 cannon; PGMs. COMMENTARY

A C-130H significantly modified to include an EW



MC-130J Commando II (SrA. James Bell)

capability, low-light-level operational capability, and a strengthened tail to permit high-speed, low-level air-drop operations. Converts to Dragon Spear mode with addition of roll-on/roll-off 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) ■ MC-130W Combat Spear. Equipped with technically advanced refueling pods, providing the ability to refuel SOF helicopters and tilt-rotor aircraft. It also is capable of supporting limited C2 operations.

■ MC-130W Dragon Spear (also known unofficially as AC-130W Stinger II). Configured with roll-on/ roll-off 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 BM system and sensors.

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: four.

Aircraft Location: Cannon AFB, N.M.; Kirtland

Contractor: Lockheed Martin (airframe), Boeing. 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.

ISR/BM/C3 Aircraft

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: 21 E-3B; nine E-3C; two E-3G.



E-3 Sentry (SrA. Brett Clashman)

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

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. USAF expects Block 40/45 IOC by fall 2014.

E-4 National Airborne Operations Center

Brief: A four-engine, swept-wing, long-range highaltitude 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.

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



E-4B National Airborne Operations Center (TSgt. Jerry Morrison)

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,

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 sidelooking 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, while overall system design and development continues in 2012. With some COTS mission equipment now 20 years old, USAF is pursuing new upgrades to operator work station computers and the radar processor.

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: three.

Aircraft Location: Harrisburg Arpt., Pa. Contractor: Lockheed Martin, Raytheon, General

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

Weight: max T-O 164,000 lb.

Ceiling: 28,000 ft.

Performance: speed 335 mph cruise, range 2.645 miles.



E-8 JSTARS (Northrop Grumman photo)

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.

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.

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: 37.

Aircraft Location: Beale AFB, Calif.; Key Field, Miss. (initial weapon system training). Other TBD. Contractor: Hawker Beechcraft, L3 Communi-

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).

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 sur-



MC-12W Project Liberty



MQ-9 Reaper (SrA. Julianne Showalter)

veillance, 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: 169.

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: 77.

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.; Fort Drum, N.Y.; Holloman AFB, N.M.; Nellis AFB, Nev.

Contractor: General Atomics Aeronautical Sys-

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, endurance 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.

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 one KA-91C panoramic camera that provides a wide sweep for each picture and is used for highaltitude 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 surveil-

lance 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.



OC-135 Open Skies (A1C Willard E. Grande II)

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 stateof-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; one TC-135S.

Aircraft Location: Offutt AFB, Neb.

Contractor: Boeing (original airframe), L3 Com-

munications.

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. ■ TC-135S. Used for training purposes.

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,



RC -135S Cobra Ball (MSgt. Robert Wieland)

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; two 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

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-realtime 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 Technol-

ogy Demonstration versions).

IOC: Block 30 August 2011; Block 40 FY14 (planned)

Production: TBD. Inventory: 25.

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

The system consists of an aircraft with an integrated sensor suite. LRE, MCE, and communications and mission planning equipment. November 2001 (ACTD system in Afghanistan.)

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. FY13 budget decision would terminate Block 30 variant which proved more expensive to operate than the U-2 aircraft it was intended to replace; USAF plans to place them in storage. Supported combat operations in Afghanistan, Iraq, and Libya and humanitarian relief efforts following Japan's 2011 earthquake and massive tsunami.
- 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, IOC expected in FY14.

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.

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 turbo-

props, 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

Weight: max T-O 155,000 lb.



U-2 Dragon Lady (1st Lt. Victoria Porto)

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 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: 10, plus one converted EC-135C

Looking Glass.

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-130N/P King

Brief: An extended-range, CSAR-configured C-130



WC-135W Constant Phoenix (Josh Plueger)



HC-130 King (I) and an HH-60 Pave Hawk (r) (USAF)

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: 10 HC-130N; 23 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. FY13 funding would upgrade the Personnel Locator Systems of the 14 so-equipped N/P models.

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,

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 turbo-

props, 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 KC-130J tanker baseline with enhanced service life wing, enhanced 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. Modified version of USMC KC-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.

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.

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 evacuation 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



KC-10 Extender (TSgt. Charles Larkin Sr.)

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. By early 2012, Boeing completed several major milestones in the design and development phase, leading USAF to expect on-time delivery of the first 18 combat-ready KC-46As by 2017.

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,

ANG, AFRC.

First Flight: August 1956. Delivered: January 1957-65. IOC: June 1957, Castle AFB, Calif.

Production: 732.

Inventory: 360 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, Power Plant: four CFM International CFM56-2 (USAF designation F108) turbofans, each 21,634

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 allow 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.



KC-135 Stratotanker (I) and an F-15 Eagle (r) (MSgt. Scott Reed)

Delivered: October 1969-April 1989.

IOC: September 1970.

Production: 131.

Inventory: 42 C-5A; 43 C-5B; two C-5C; seven 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

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 drivethrough 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 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. Some models equipped with defensive system.

■ C-5C. Two A variants modified to carry outsize space cargo for NASA.

C-5M, 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. Program completion is scheduled for 2017. Service life expected to at least 2040 for RERP aircraft.

C-9 Nightingale

Brief: A twin-engine, medium-range swept-wing jet aircraft used for VIP duties.

Function: VIP duties.

Operator: AFRC. First Flight: August 1968.

Delivered: August 1968-February 1975.

IOC: circa 1968. Production: 24. Inventory: three.

Aircraft Location: Scott AFB, III.

Contractor: Boeing (McDonnell Douglas).
Power Plant: two Pratt & Whitney JT8D-9A tur-

bofans, each 14,500 lb thrust. Accommodation: crew of three.

Dimensions: span 93.2 ft, length 119.2 ft, height

Weight: max T-O 108,000 lb.

Ceiling: 35,000 ft.

Performance: cruise speed 565 mph at 25,000

ft, range 2,500 miles. COMMENTARY

A specially configured derivative of the DC-9 Series 30 commercial airliner. Only USAF aircraft modified

specifically for the AE role. Extant Variant(s)

■ C-9C. Three specially configured C-9s, delivered to Andrews in 1975 for the special air mission supporting the President and other US government officials. Flown by AFRC's 932nd AW since 2005. Last aircraft retired in fall 2011.

C-12 Huron

Brief: A twin-engine turboprop that provides diplomatic and special duty support passenger/ cargo airlift and test support.



C-5 Galaxy (SrA. Kelly Galloway)



C-17 Globemaster III (SSgt. Taylor Worley)

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: 27.

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: 212.

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 flyby-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 through FY20 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. First Flight: December 1979. Delivered: September 1983-89.

IOC: circa 1983.

Production: not available.

Inventory: 11.
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, ANG.

First Flight: January 1973.
Delivered: April 1984-October 1985.

IOC: April 1984. Production: 84. Inventory: 54.

Aircraft Location: Bradley Arpt., Conn.; Buckley AFB, Colo.; Hector Arpt., N.D.; JB Andrews, Md.; Peterson AFB, Colo.; Ramstein AB, Germany; Scott AFB, III.; W. K. Kellogg Arpt., Mich.

Contractor: Gates Learjet.

Power Plant: two AlliedSignalTFE731-2 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



C-21 Learjet (MSgt. David Lipp)

HF/VHF/UHF radios. Budget/resource decisions cutting fleet in half, including plans to retire ANG aircraft in 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 (planned). Production: 38 (planned).

Inventory: 11

Aircraft Location: Bradley Arpt., Conn.; Hector Arpt., N.D.; Key Field, Miss.; Mansfield Lahm Arpt., Ohio; Martin State Arpt., Md.; W. K. Kellogg

Contractor: L-3 Communications.

Power Plant: two Rolls Royce AE 2100-D2 tur-

boprops, 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. FY13 budget decision would terminate the program, with USAF likely storing already delivered aircraft, Army would like to retain/use current aircraft.

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 highranking 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: six.
Aircraft Location: JB Andrews, Md.; JB McGuire-

Dix-Lakehurst, N.J. Contractor: Boeing.

Power Plant: two Pratt & Whitney PW2040 turbo-

fans, 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 businessclass 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 govern-

ment and DOD officials. Function: VIP air transport. Operator: AMC, PACAF, USAFE, First Flight: USAF October 1998, Delivered: from October 1998.

IOC: Dec. 9, 1998. Production: 10 C-37A; two C-37B.

Inventory: 10 C-37A; two 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

Dimensions: span 93.5 ft, length 96.4 ft, height

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 the 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 Plane-View 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 modern avionics, navigation, communication, vertical separation, and safety equipment. Facing diminished manufacturing sources, ANG seeking replacement.

C-40 Clipper

Brief: A Boeing 737-700 used primarily for mediumrange airlift of senior military commanders, Cabinet officials, and members of Congress.

Function: Passenger transportation.

Operator: AMC, PACAF, USAFE, 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, III.

Contractor: Boeing.

Power Plant: two General Electric CFM56-7



C-37A Gulfstream V (A1C Brea Miller)

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, ANG, AFRC

First Flight: August 1954 (C-130A).

Delivered: December 1956-present (C-130J),

IOC: circa 1958.

Production: more than 2,200.

Inventory: 17 C-130E; 279 C-130H; 82 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 turbo-props (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/J30 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

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



C-130 Hercules (TSgt. Jeromy K. Cross)

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.

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 passenders

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.



VC-25 Air Force One (Jeremy Mashek)

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. FY13 budget proposes avionics upgrade to sustain safety and reliability and unrestricted worldwide access.

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,

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; two HH-60M.

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, 1.940-3.988 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-60Ms through the Army contract. Future plans call for a new Combat Rescue Helicopter competition to replace the entire Pave Hawk fleet, with contract award in 2013.

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-60M, 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

HH-60 Pave Hawk (MSgt. Sean Mitchell)

First Flight: 1956.

Delivered: from September 1970 (UH-1N).

IOC: circa 1970.

Production: 20 TH-1H; many UH-1H; 79 UH-1N. Inventory: 20 TH-1H; two UH-1H; 60 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 un-

dergraduate 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

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: 450 (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

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, handson-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: 50 T-38A; 471 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 bomberfighter training track in JSUPT and IFFT. Used to



T-38 Talon (SrA. Brian Ybarbo)

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

■ 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. FY13 funding includes 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-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. Allmetal, strut-braced, high-wing monoplane.

Extant Variant(s)

■ T-51A. The aircraft is equipped with modern avionics, GPS, and other equipment appropriate to its mission.

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); five (C). 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).



TG-10C Kestrel (Mike Kaplan)

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 layouts, allowing cadets to move between the two as necessary. Extant Variant(s)

■ TG-10B Merlin. Civilian L-23 Super Blanik

■TG-10C 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 sail-

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).

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 US Air Force Academy 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.



LGM-30G Minuteman III (USAF)

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-36B. 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 Cesert Storm; used widely in subsequent combat cperations. Provides adverse weather, day/night, air-to-surface, accurate, standoff strike capab lity, 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, deaply 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 de ivening a thermonuclear payload of one to three warheads with high accuracy over great distances.

Function: Strategic surface-to-surface ballistic

Operator: AFGSC.

First Flight: February 1961.

Delivered: 1962-December 1978.

IOC: December 1962, Malmstrom AFB, Mont.

Production: 1,800.

Unit Location: F. E. Warren AFB, Wyo.; Malmstrom AFB, Mont.; Minot AFB, N.D.

Contractor: Boeing.

Power Plant: stage 1 Triokol M-55 solidpropellant motor, 202,600 lb thrust; stage 2: Aerojet General SR19-AL-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

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 silo. Sole remaining US land-based ICBM. Major life extension program ensures viability to 2020, FY13 budget 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 Minct. 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 3.2 ft, diameter

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



AGM-154 Joint Standoff Weapon (MSgt, Michael Ammons)

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 of B variant. Became operational in 1986 on A-10 aircraft.

■ AGM-65E. Laser guided version used by USAF and USMC. Employs heavyweight penetrator

■ 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 guid-

ance system with EOTV 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 withh 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-toground 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 nonhardened 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.

AIM-9 Sidewinder

Brief: A supersonic, short-range, IR guided air-toair 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.

AIM-120 AMRAAM

Brief: A supersonic, medium-range, active radar guided air-to-air missile with a high-explosive

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.

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 antitank 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.

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).

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 highvalue 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.



GBU-12 Paveway II (USAF)

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 highvalue 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 Pave-

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, known as the "Bunker Buster," 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 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 Pave-way 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. FY13 budget continues production.

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 250lb class near-PGM. Provides increased loadout to achieve multiple kills per sortie and decreases collateral damage.

Function: Air-to-surface guided munition.



GBU-39 Small Diameter Bomb (USAF)

First Flight: May 23, 2003 (guided).

Delivered: from 2006. IOC: Oct. 2, 2006. Contractor: Boeing. Guidance: GPS/INS.

Warhead: 250-lb class penetrating blast fragmen-

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.

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, with delivery to begin in 2013.

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/INSbased 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. 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.

Defense Meteorological Satellite Program

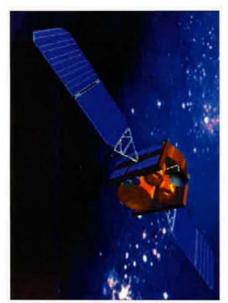
Brief: Satellites that collect air, land, sea, and space environmental data to support worldwide strategic and tactical military operations.

Function: Space and Earth environmental data

Operator: National Oceanic and Atmospheric Administration (NOAA).



AEHF (Lockheed Martin)



DSCS (USAF illustration)

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, Su tland, Md.

Orbit Altitude: approx 527 miles

Contractor: Lockheed Martin, Northrop Grum-

Power Plant: solar arrays generating 1,200-1,300 watts

Dimensions: length 25 ft (with array deployed),

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) awaiting launch on need. Expected to remain viable into the mid-2020s.

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 III/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 ir 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 nuclearcapable 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.

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),

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

(JIR, JIR-M, JIIA),

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



GPS IIF (USAF illustration)

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 onemillionth 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, another two are in storage, with eight more in 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

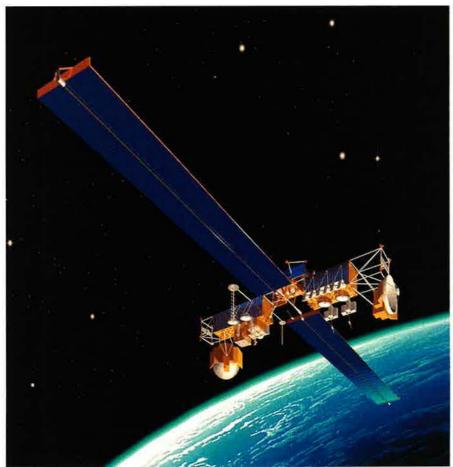
Brief: Advanced surveillance system for missile warning, missile defense, battlespace characterization, and technical intelligence. System includes IR sensor payloads on host satellites in highly elliptical orbit (HEO) and two IR sensors each on dedicated satellites in geosynchronous Earth orbit (GEO).

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).



Milstar (Lockheed Martin illustration)

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.

Space Based Surveillance System

Brief: Space-based capability to provide metric and characterization data on objects in space. Function: Space surveillance and object iden-

tification. Operator: AFSPC.

First Launch: Sept. 25, 2010.

IOC: 2012 (planned).

Constellation: one LEO satellite.

Design Life: seven years. Launch Vehicle: Minotaur IV.

Operational Location: Vandenberg AFB, Calif. 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.

Announcement of IOC anticipated in spring 2012.

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. ■ Block II. Comprises satellites modified to better support the airborne ISR mission. SV-4 satellite launched Jan. 20, 2012, with SV-5 and SV-6 slated for 2013. In a US-Australia partnership, codified in 2007, Australia provides funds to purchase SV-6. 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.

Leaders Through the Years



■ 2012 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, 19C7-July 18, 1914	Capt. Charles deForest Chandler Capt. Arthur S. Cowan Capt. Charles deForest Chandler Maj. Samuel Reber	Aug. 1, 1907-June 30, 1910 July 1, 1910-June 19, 1911 June 20, 1911-Sept. 9, 1913 Sept. 10, 1913-July 17, 1914	
Aviation Section, US Signal Corps ^a	Chief, Aviation Section	Maile in the Maile of the	
July 18, 1914-May 20, 1918	Lt. Col. Samuel Reber Lt. Col. George O. Squier Lt. Col. John B. Bennet Maj. Benjamin D. Foulois Brig. Gen. Arthur I. Dade Col. Lawrence Brown	July 18, 1914-May 5, 1916 May 20, 1916-Feb. 19, 1917 Feb. 19, 1917-June 30, 1917 June 30, 1917-Nov. 12, 1917 Nov. 12, 1917-Feb. 27-1918 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 Maj. Gen. Charles T. Menoher	Aug. 28, 1918-Nov. 27, 1918 Jan. 2, 1919-June 4, 1920	
	Chief of Air Service Maj. Gen. Charles T. Menoher Maj. Gen. Mason M. Patrick	June 4, 1920-Oct. 4, 1921 Oct. 5, 1921-July 2, 1926	
Army Air Corps ^b	Chief of Air Corps	THE RESERVE	
July 2, 1926-Sept. 18, 1947	Maj. Gen. Mason M. Patrick Maj. Gen. James E. Fechet Maj. Gen. Benjamin D. Foulois Maj. Gen. Oscar Westover Maj. Gen. Henry H. Arnold	July 2, 1926-Dec. 13, 1927 Dec. 14, 1927-Dec. 19, 1931 Dec. 20, 1931-Dec. 21, 1935 Dec. 22, 1935-Sept. 21, 1938 Sept. 29, 1938-June 20, 1941	
Army Air Forces	Chief, Army Air Forces	The state of the s	
June 20, 1941-Sept. 18, 1947	Lt. Gen. Henry H. Arnold Commanding General, AAF Gen. of the Army Henry H. Arnold ^c	June 20, 1941-March 9, 1942 March 9, 1942-Feb. 9, 1946	
	Gen. Carl A. Spaatz	Feb. 9, 1946-Sept. 26, 1947	
United States Air Force	Chief of Staff	THE RESERVE OF THE PARTY OF THE	
Sept. 18, 1947	Gen. Carl A. Spaatz	Sept. 26, 1947-April 29, 1948	

^aBetween Apr I 1917 and May 1918, the Aviation Section was known by various other names: Aeronautical Division, Airplane Division, Air Division, and Air Service Division.

bThe 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.

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

Secretaries of the Air	Force				
Stuart Symington	Sept. 18, 1947	April 24, 1950	John J. Welch Jr. (acting)	April 29, 1989	May 21, 198
Thomas K. Finletter	April 24, 1950	Jan. 20, 1953	Donald B. Rice	May 22, 1989	Jan. 20, 199
Harold E. Talbott	Feb. 4, 1953	Aug. 13, 1955	Michael B. Donley (acting)	Jan. 20, 1993	July 13, 199
Donald A. Quarles	Aug. 15, 1955	April 30, 1957	Gen. Merrill A. McPeak (acting)	July 14, 1993	Aug. 5, 199
lames H. Douglas Jr.	May 1, 1957	Dec. 10, 1959	Sheila E. Widnall	Aug. 6, 1993	Oct. 31, 199
Oudley C. Sharp	Dec. 11, 1959	Jan. 20, 1961	F. Whitten Peters*	Nov. 1, 1997	Jan. 20, 200
Eugene M. Zuckert	Jan. 24, 1961	Sept. 30, 1965	Lawrence J. Delaney (acting)	Jan. 20, 2001	June 1, 200
Harold Brown	Oct. 1, 1965	Feb. 15, 1969	James G. Roche	June 1, 2001	Jan. 20, 200
Robert C. Seamans Jr.	Feb. 15, 1969	May 14, 1973	Peter B. Teets (acting)	Programme and the state of the	March 25, 200
John L. McLucas*	May 15, 1973	Nov. 23, 1975	Michael L. Dominguez (acting)	March 25, 2005	July 29, 200
James W. Plummer (acting)	Nov. 24, 1975	Jan. 1, 1976	Preston M. Geren (acting)	July 29, 2005	Nov. 3, 200
Thomas C. Reed	Jan. 2, 1976	April 6, 1977	Michael W. Wynne	Nov. 3, 2005	June 20, 200
John C. Stetson	April 6, 1977	May 18, 1979	Michael B. Donley*	June 21, 2008	
Hans Mark*	May 18, 1979	Feb. 9, 1981			
Verne Orr	Feb. 9, 1981	Nov. 30, 1985	242 N 22 N 220 N 220N	1221274 - 12427 1242 1251 125	AD REAL STREET
Russell A. Rourke	Dec. 9, 1985	April 7, 1986	*Served as acting Secretary: McLucas,		
Edward C. Aldridge Jr.* James F. McGovern (acting)	April 8, 1986 Dec. 16, 1988	Dec. 16, 1988 April 29, 1989	1979; Aldridge, until June 9, 1986; Peter 17, 2008.	's, until July 30, 1999; I	Donley, until Oct.
USAF Chiefs of Staff		N CANADA ANALIS	ray ay sa yay	pet 34 Walking	We have
Gen. Carl A. Spaatz	Sept. 26, 1947	April 29, 1948	Gen. Larry D. Welch	July 1, 1986	June 30, 199
Gen. Hoyt S. Vandenberg	April 30, 1948	June 29, 1953	Gen, Michael J. Dugan	July 1, 1990	Sept. 17, 199
Gen. Nathan F. Twining	June 30, 1953	June 30, 1957	Gen. John Michael Loh (acting)	Sept. 18, 1990	Oct. 29, 199
Gen. Thomas D. White	July 1, 1957	June 30, 1961	Gen. Merrill A. McPeak	Oct. 30, 1990	Oct. 25, 199
Gen. Curtis E. LeMay	June 30, 1961	Jan. 31, 1965	Gen. Ronald R. Fogleman	Oct. 26, 1994	Sept. 1, 199
Gen. John P. McConnell	Feb. 1, 1965	July 31, 1969	Gen. Ralph E. Eberhart (acting)	Sept. 2, 1997	Oct. 5, 199
Gen. John D. Ryan	Aug. 1, 1969	July 31, 1973	Gen. Michael E. Ryan	Oct. 6, 1997	Sept. 6, 200
Gen. George S, Brown	Aug. 1, 1973	June 30, 1974	Gen. John P. Jumper	Sept. 6, 2001	Sept. 2, 200
Gen. David C. Jones Gen. Lew Allen Jr.	July 1, 1974	June 20, 1978	Gen. T. Michael Moseley Gen. Duncan J. McNabb (acting)	Sept. 2, 2005 July 12, 2008	July 12, 200 Aug. 12, 200
Gen. Charles A. Gabriel	July 1, 1978 July 1, 1982	June 30, 1982 June 30, 1986	Gen. Norton A. Schwartz	Aug. 12, 2008	Aug. 12, 200
dell, Charles A. Gabrier	July 1, 1962	June 30, 1986	dell. Notoli A. Sciwariz	Aug. 12, 2000	
USAF Vice Chiefs of S	taff		And a few size attended to the control of the contr		
Gen. Hoyt S. Vandenberg	Oct. 10, 1947	April 28, 1948	Gen. Robert C. Mathis	March 1, 1980	May 31, 198
Gen. Muir S. Fairchild	May 27, 1948	March 17, 1950	Gen. Jerome F. O'Malley	June 1, 1982	Oct. 5, 198
Lt. Gen. Lauris Norstad (acting)	May 22, 1950	Oct. 9, 1950	Gen. Lawrence A. Skantze	Oct. 6, 1983	July 31, 198
Gen. Nathan F. Twining	Oct. 10, 1950	June 29, 1953	Gen. Larry D. Welch	Aug. 1, 1984	July 31, 198
Gen, Thomas D, White	June 30, 1953	June 30, 1957	Gen. John L. Piotrowski	Aug. 1, 1985	Jan. 31, 19
Gen. Curtis E. LeMay	July 1, 1957	June 30, 1961	Gen. Monroe W. Hatch Jr.	Feb. 1, 1987	May 24, 199
Gen. Frederic H. Smith Jr.	July 1, 1961	June 30, 1962	Gen. John Michael Loh	May 25, 1990	
Gen. William F. McKee	July 1, 1962	July 31, 1964	Gen. Michael P. C. Carns	May 16, 1991	July 28, 199
Gen. John P. McConnell	Aug. 1, 1964	Jan. 31, 1965	Gen. Thomas S. Moorman Jr.	July 29, 1994	July 11, 199
Gen. William H. Blanchard	Feb. 19, 1965	May 31, 1966	Gen. Ralph E. Eberhart	July 11, 1997	May 26, 19
Lt. Gen. Hewitt T. Wheless (acting)	June 13, 1966	July 31, 1966	Gen. Lester L. Lyles	May 27, 1999	April 17, 20
Gen. Bruce K. Holloway	Aug. 1, 1966	July 31, 1968	Gen. John W. Handy	April 17, 2000	Nov. 5, 20
Gen. John D. Ryan	Aug. 1, 1968	July 31, 1969	Gen. Robert H. Foglesong	Nov. 5, 2001	Aug. 11, 200
Gen. John C. Meyer	Aug. 1, 1969	April 30, 1972	Gen. T. Michael Moseley	Aug. 12, 2003	Sept. 2, 200
Gen. Horace M. Wade	May 1, 1972	Oct. 31, 1973	Gen. John D. W. Corley	Sept. 2, 2005	Sept. 17, 20
Gen, Richard H. Ellis	Nov. 1, 1973	Aug. 18, 1975	Gen, Duncan J. McNabb	Sept. 17, 2007 Oct. 8, 2008	Sept. 4, 20
Gen. William V. McBride	Sept. 1, 1975	March 31, 1978	Gen. William M. Fraser III Gen. Carrol H. Chandler	Aug 27 2009	Aug. 27, 20

Chief Master Sergeants of the Air Force							
CMSAF Paul W. Airey	April 3, 1967	July 31, 1969	CMSAF James C. Binnicker	July 1, 1986	July 31, 1990		
CMSAF Donald L. Harlow	Aug. 1, 1969	Sept. 30, 1971	CMSAF Gary R. Pfingston	Aug. 1, 1990	Oct. 25, 1994		
CMSAF Richard D. Kisling	Oct. 1, 1971	Sept. 30, 1973	CMSAF David J. Campanale	Oct. 26, 1994	Nov. 4, 1996		
CMSAF Thomas N. Barnes	Oct. 1, 1973	July 31, 1977	CMSAF Eric W. Benken	Nov. 5, 1996	July 30, 1999		
CMSAF Robert D. Gaylor	Aug. 1, 1977	July 31, 1979	CMSAF Frederick J. Finch	July 30, 1999	July 1, 2002		
CMSAF James M. McCoy	Aug. 1, 1979	July 31, 1981	CMSAF Gerald R. Murray	July 1, 2002	June 30, 2006		
CMSAF Arthur L. Andrews	Aug. 1, 1981	July 31, 1983	CMSAF Rodney J. McKinley	June 30, 2006	June 30, 2009		
CMSAF Sam E. Parish	Aug. 1, 1983	June 30, 1986	CMSAF James A. Roy	June 30, 2009			

Gen. Carrol H. Chandler

Gen. Philip M. Breedlove

June 30, 1978

Feb. 29, 1980

April 1, 1978 July 1, 1978 Jan. 14, 2011

Aug. 27, 2009

Jan. 14, 2011

Gen. Lew Allen Jr.

Gen. James A. Hill

Active Major Command and ANG Leaders

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	2) %

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	Nov. 17, 2010	

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

Air Force 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 entry.) 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	

Air Force Reserve Command

Maj. Gen. Rollin B. Moore Jr.	Aug. 1, 1968	Jan. 26, 1972
Brig. Gen. Alfred Verhulst (acting)	Jan. 27, 1972	March 15, 1972
Maj. Gen. Homer I. Lewis	March 16, 1972	April 8, 1975
Maj. Gen. William Lyon	April 16, 1975	April 16, 1979
Maj. Gen. Richard Bodycombe	April 17, 1979	Oct. 31, 1982
Maj. Gen. Sloan R. Gill	Nov. 1, 1982	Oct. 31, 1986
Maj. Gen. Roger P. Scheer	Nov. 1, 1986	Oct. 31, 1990
Maj. Gen. John J. Closner III	Nov. 1, 1990	Oct. 31, 1994
Maj. Gen. Robert A. McIntosh	Nov. 1, 1994	June 9, 1998
Maj. Gen. David R. Smith (acting)	June 9, 1998	Sept. 25, 1998
Lt. Gen. James E. Sherrard III	Sept. 25, 1998	June 1, 2004
Maj. Gen. J .J. Batbie Jr. (acting)	June 1, 2004	June 24, 2004
Lt. Gen. John A. Bradley	June 24, 2004	June 24, 2008
Lt. Gen. Charles E. Stenner Jr.	June 24, 2008	

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

Air Force Space Command

Gen. James V. Hartinger	Sept. 1, 1982	July 30, 1984
Gen. Robert T. Herres	July 30, 1984	Oct. 1, 1986
Maj. Gen. Maurice C. Padden	Oct. 1, 1986	Oct. 29, 1987
Lt. Gen. Donald J. Kutyna	Oct. 29, 1987	March 29, 1990
Lt. Gen. Thomas S. Moorman Jr.	March 29, 1990	March 23, 1992
Gen. Donald J. Kutyna	March 23, 1992	June 30, 1992
Gen. Charles A. Horner	June 30, 1992	Sept. 13, 1994
Gen. Joseph W. Ashy	Sept. 13, 1994	Aug. 26, 1996
Gen. Howell M, Estes III	Aug. 26, 1996	Aug. 14, 1998
Gen. Richard B. Myers	Aug. 14, 1998	Feb. 22, 2000
Gen. Ralph E. Eberhart	Feb. 22, 2000	April 19, 2002
Gen. Lance W. Lord	April 19, 2002	April 1, 2006
Lt. Gen. Frank G. Klotz (acting)	April 1, 2006	June 26, 2006
Gen. Kevin P. Chilton	June 26, 2006	Oct. 3, 2007
Lt. Gen. Michael A. Hamel (acting)	Oct. 3, 2007	Oct. 12, 2007
Gen. C. Robert Kehler	Oct. 12, 2007	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	

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	

Pacific Air Forces

Lt. Gen. Ennis C. Whitehead	Dec. 30, 1945	April 25, 1949
Lt. Gen. George E. Stratemeyer	April 26, 1949	May 20, 1951
Lt. Gen. Earle E. Partridge (acting)	May 21, 1951	June 9, 1951
Gen. Otto P. Weyland	June 10, 1951	March 25, 1954
Gen, Earle E. Partridge	March 26, 1954	May 31, 1955
Gen. Laurence S. Kuter	June 1, 1955	July 31, 1959
Gen. Emmett O'Donnell Jr.	Aug. 1, 1959	July 31, 1963
Gen. Jacob E. Smart	Aug. 1, 1963	July 31, 1964
Gen. Hunter Harris Jr.	Aug. 1, 1964	Jan. 31, 1967
Gen, John D. Ryan	Feb. 1, 1967	July 31, 1968
Gen. Joseph J. Nazzaro	Aug. 1, 1968	July 31, 1971
Gen. Lucius D. Clay Jr.	Aug. 1, 1971	Sept. 30, 1973
Gen. John W. Vogt	Oct. 1, 1973	June 30, 1974
Gen. Louis L. Wilson Jr.	July 1, 1974	May 31, 1977
Lt. Gen. James A. Hill	June 1, 1977	June 14, 1978
Lt. Gen. James D. Hughes	June 15, 1978	July 1, 1981
Lt. Gen. Arnold W. Braswell	July 1, 1981	Sept. 30, 1983
Gen. Jerome F. O'Malley	Oct. 8, 1983	Nov. 1, 1984
Gen. Robert W. Bazley	Nov. 1, 1984	Dec. 16, 1986
Gen. Jack I. Gregory	Dec. 16, 1986	July 22, 1988
Gen. Merrill A. McPeak	July 22, 1988	Oct. 30, 1990
Lt. Gen. James B. Davis	Nov. 5, 1990	Feb. 19, 1991
Gen. Jimmie V. Adams	Feb. 19, 1991	Jan. 25, 1993
Gen. Robert L. Rutherford	Jan. 26, 1993	Oct. 12, 1994
Gen. John G. Lorber	Oct. 12, 1994	July 7, 1997
Gen. Richard B. Myers	July 7, 1997	July 23, 1998
Gen. Patrick K. Gamble	July 23, 1998	April 9, 2001
Lt. Gen. Lansford E. Trapp (acting)	April 9, 2001	May 4, 2001
Gen. William J. Begert	May 4, 2001	July 2, 2004
Gen. Paul V. Hester	July 2, 2004	Nov. 30, 2007
Gen. Carrol H. Chandler	Nov. 30, 2007	Aug. 19, 2009
Gen Gary L. North	Aug. 19, 2009	

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

US Air Forces in Europe

Brig. Gen. John F. McBlain (acting)	Aug. 14, 1947	Oct. 20, 1947
Lt. Gen. Curtis E. LeMay	Oct. 20, 1947	Oct. 15, 1948
Lt. Gen. John K. Cannon	Oct. 16, 1948	Jan. 20, 1951
Gen. Lauris Norstad	Jan. 21, 1951	July 26, 1953
Lt. Gen. William H. Tunner	July 27, 1953	June 30, 1957
Gen. Frank F. Everest	July 1, 1957	July 31, 1959
Gen. Frederic H. Smith Jr.	Aug. 1, 1959	June 30, 1961
Gen, Truman H. Landon	July 1, 1961	July 31, 1963
Gen. Gabriel P. Disosway	Aug. 1, 1963	July 31, 1965
Gen, Bruce K. Holloway	Aug. 1, 1965	July 31, 1966
Gen. Maurice A. Preston	Aug. 1, 1966	July 31, 1968
Gen. Horace M. Wade	Aug. 1, 1968	Jan. 31, 1969
Gen. Joseph R. Holzapple	Feb. 1, 1969	Aug. 31, 1971
Gen. David C. Jones	Sept. 1, 1971	June 30, 1974
Gen. John W. Vogt	July 1, 1974	Aug. 31, 1975
Gen. Richard H. Ellis	Sept. 1, 1975	July 31, 1977
Gen. William J. Evans	Aug. 1, 1977	Aug. 1, 1978
Gen. John W. Pauly	Aug. 1, 1978	Aug. 1, 1980
Gen. Charles A. Gabriel	Aug. 1, 1980	June 30, 1982
Gen. Billy M. Minter	July 1, 1982	Nov. 1, 1984
Gen. Charles L. Donnelly Jr.	Nov. 1, 1984	May 1, 1987
Gen. William L. Kirk	May 1, 1987	April 12, 1989
Gen. Michael J. Dugan	April 12, 1989	June 26, 1990
Gen. Robert C. Oaks	June 26, 1990	July 29, 1994
Gen. James L. Jamerson	July 29, 1994	July 16, 1995
Gen. Richard E. Hawley	July 17, 1995	April 4, 1996
Gen. Michael E. Ryan	April 4, 1996	Oct. 5, 1997
Lt. Gen. William J. Begert (acting)	Oct. 6, 1997	Dec. 5, 1997
Gen. John P. Jumper	Dec. 5, 1997	Jan. 13, 2000
Gen. Gregory S. Martin	Jan. 13, 2000	Aug. 12, 2003
Gen. Robert H. Foglesong	Aug. 12, 2003	Dec. 6, 2005
Gen. William T. Hobbins	Dec. 6, 2005	Dec. 10, 2007
Maj. Gen. Marc E. Rogers (acting)	Dec. 10, 2007	Jan. 17, 2008
Gen. Roger A. Brady	Jan. 17, 2008	Dec. 13, 2010
Gen, Mark A, Welsh III	Dec. 13, 2010	

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



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 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 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 Proving Ground Command

October 1946	August 1948
August 1948	June 1950
July 1950	July 1952
July 1952	April 1955
August 1955	July 1957
	August 1948 July 1950 July 1952

Designated a center December 1957,

Air Force Logistics Command

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

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,

110

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

Continental Air Command

Lt. Gen. George E. Stratemeyer	Dec. 1, 1948	April 15, 1949
Lt. Gen. Ennis C. Whitehead	April 15, 1949	Dec. 14, 1950
Maj. Gen. Willis H. Hale	Dec. 14, 1950	Feb. 18, 1952
Lt. Gen. Leon W. Johnson	Feb. 18, 1952	Dec. 14, 1955
Lt. Gen. Charles B. Stone III	Dec. 15, 1955	June 30, 1957
Lt. Gen. William E, Hall	July 1, 1957	Sept. 30, 1961
Lt. Gen. Gordon A. Blake	Sept. 30, 1961	June 30, 1962
Lt. Gen. Edward J. Timberlake	July 1, 1962	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, 1958, Inactivated 1976.



Military Airlift Command

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

Antecedents: AAC Ferrying Command (1941); AAF Ferrying Command (1942); Air Transport Command (1942); 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.



A Strategic Air Command alert crew hustles to a B-52 carrying Hound Dog missiles.

Pacific Air Command/Seventh Air Force

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

Antecedents: Hawaiian Air Force (1940); 7th/Seventh Air Force (1942); Pacific Air Command (Dec. 15, 1947). Discontinued June 1, 1949.

Strategic Air Command

March 21, 1946	Oct. 18, 1948
Oct. 19, 1948	June 30, 1957
July 1, 1957	Nov. 30, 1964
Dec. 1, 1964	Jan. 31, 1967
Feb. 1, 1967	July 28, 1968
July 29, 1968	April 30, 1972
May 1, 1972	July 31, 1974
Aug. 1, 1974	July 31, 1977
Aug. 1, 1977	July 31, 1981
Aug. 1, 1981	July 31, 1985
Aug. 1, 1985	June 30, 1986
July 1, 1986	Jan. 31, 1991
Feb. 1, 1991	June 1, 1992
	Oct. 19, 1948 July 1, 1957 Dec. 1, 1964 Feb. 1, 1967 July 29, 1968 May 1, 1972 Aug. 1, 1977 Aug. 1, 1981 Aug. 1, 1985 July 1, 1986

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 major command 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	October 1974
Maj. Gen. James M. Breedlove	October 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	Donald H. Rumsfeld	Nov. 20, 1975	Jan. 20, 1977
Louis A. Johnson	March 28, 1949	Sept. 19, 1950	Harold Brown	Jan. 21, 1977	Jan. 20, 1981
George C. Marshall	Sept. 21, 1950	Sept. 12, 1951	Caspar W. Weinberger	Jan. 21, 1981	Nov. 23, 1987
Robert A. Lovett	Sept. 17, 1951	Jan. 20, 1953	Frank C. Carlucci	Nov. 23, 1987	Jan. 20, 1989
Charles E. Wilson	Jan. 28, 1953	Oct. 8, 1957	Richard B. Cheney	March 21, 1989	Jan. 20, 1993
Neil H. McElroy	Oct. 9, 1957	Dec. 1, 1959	Les Aspin	Jan. 21, 1993	Feb. 3, 1994
Thomas S. Gates	Dec. 2, 1959	Jan. 20, 1961	William J. Perry	Feb. 3, 1994	Jan. 23, 1997
Robert S. McNamara	Jan. 21, 1961	Feb. 29, 1968	William S. Cohen	Jan. 24, 1997	Jan. 20, 2001
Clark M. Clifford	March 1, 1968	Jan, 20, 1969	Donald H. Rumsfeld	Jan. 20, 2001	Dec. 18, 2006
Melvin R. Laird	Jan. 22, 1969	Jan. 29, 1973	Robert M. Gates	Dec. 18, 2006	July 1, 2011
Elliot L. Richardson	Jan. 30, 1973	May 24, 1973	Leon E. Panetta	July 1, 2011	
James R. Schlesinger	July 2, 1973	Nov. 19, 1975			

Chairmen of the Joint Chiefs of Staff

Gen. of the Army Omar N. Bradley	Aug. 16, 1949	Aug. 15, 1953	Adm. William J. Crowe Jr., USN	Oct. 1, 1985	Sept. 30, 1989
Adm. Arthur W. Radford, USN	Aug. 15, 1953	Aug. 15, 1957	Gen. Colin L. Powell, USA	Oct. 1, 1989	Sept. 30, 1993
Gen. Nathan F. Twining, USAF	Aug. 15, 1957	Sept. 30, 1960	Adm. David Jeremiah, USN (acting)	Oct. 1, 1993	Oct. 24, 1993
Gen. Lyman L. Lemnitzer, USA	Oct. 1, 1960	Sept. 30, 1962	Gen. John M. Shalikashvili, USA	Oct. 25, 1993	Sept. 30, 1997
Gen. Maxwell D. Taylor, USA	Oct. 1, 1962	July 1, 1964	Gen. Henry H. Shelton, USA	Oct. 1, 1997	Oct. 1, 2001
Gen. Earle G. Wheeler, USA	July 3, 1964	July 2, 1970	Gen. Richard B. Myers, USAF	Oct. 1, 2001	Sept. 30, 2005
Adm. Thomas H. Moorer, USN	July 2, 1970	July 1, 1974	Gen. Peter Pace, USMC	Sept. 30, 2005	Oct. 1, 2007
Gen. George S. Brown, USAF	July 1, 1974	June 20, 1978	Adm. Michael G. Mullen, USN	Oct. 1, 2007	Sept. 30, 2011
Gen. David C. Jones, USAF	June 21, 1978	June 18, 1982	Gen. Martin E. Dempsey, USA	Sept. 30, 2011	
Gen. John W. Vessey Jr., USA	June 18, 1982	Sept. 30, 1985			

Vice Chairmen of the Joint Chiefs of Staff

Gen. Robert T. Herres, USAF	Feb. 6, 1987	Feb. 28, 1990	Gen. Peter Pace, USMC	Oct. 1, 2001	Aug. 12, 2005
Adm. David E. Jeremiah, USN	March 1, 1990	Feb. 28, 1994	Adm. Edmund P. Giambastiani Jr., USN	Aug. 12, 2005	Aug. 3, 2007
Adm. William A. Owens, USN	March 1, 1994	Feb. 27, 1996	Gen. James E. Cartwright, USMC	Aug. 4, 2007	Aug. 4, 2011
Gen. Joseph W. Raiston, USAF	March 1, 1996	Feb. 29, 2000	Adm. James A. Winnefeld Jr., USN	Aug. 4, 2011	
Gen. Richard B. Myers, USAF	March 1, 2000	Oct. 1, 2001			



In a 2001 meeting of the Joint Chiefs of Staff are (I-r): USAF Gen. John Jumper, USMC Gen. James Jones Jr., JCS Vice Chairman USMC Gen. Peter Pace, JCS Chairman USAF Gen. Richard Myers, Army Gen. Eric Shinseki, and USN Adm. Vern Clark.

Unified Command, National Guard Bureau, NORAD Leaders

US Africa Command

 Gen. William E. Ward, USA
 Oct. 1, 2008
 March 9, 2011

 Gen. Carter F. Ham, USA
 March 9, 2011

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	

US European Command

Gen. Matthew B. Ridgway, USA	Aug. 1, 1952	July 11, 1953
Gen. Alfred M. Gruenther, USA	July 11, 1953	Nov. 20, 1956
Gen. Lauris Norstad, USAF	Nov. 20, 1956	Nov. 1, 1962
Gen. Lyman L. Lemnitzer, USA	Nov. 1, 1962	May 5, 1969
Gen. Andrew J. Goodpaster, USA	May 5, 1969	Nov. 1, 1974
Gen. Alexander M. Haig Jr., USA	Nov. 1, 1974	June 27, 1979
Gen. Bernard W. Rogers, USA	June 27, 1979	June 25, 1987
Gen. John R. Galvin, USA	June 25, 1987	June 23, 1992
Gen. John M. Shalikashvili, USA	June 23, 1992	Oct. 21, 1993
Gen. George A. Joulwan, USA	Oct. 21, 1993	July 10, 1997
Gen. Wesley K. Clark, USA	July 10, 1997	May 2, 2000
Gen. Joseph W. Ralston, USAF	May 2, 2000	Jan. 16, 2003
Gen. James L. Jones, USMC	Jan. 16, 2003	Dec. 4, 2006
Gen. Bantz J. Craddock, USA	Dec. 4, 2006	June 30, 2009
Adm. James G. Stavridis, USN	June 30, 2009	

US Joint Forces Command

Adm. William H. P. Blandy, USN	Feb. 3, 1947	Feb. 1, 1950
Adm. William M. Fechteler, USN	Feb. 1, 1950	Aug. 15, 1951
Adm. Lynde D. McCormick, USN	Aug. 15, 1951	April 12, 1954
Adm. Jerauld Wright, USN	April 12, 1954	Feb. 28, 1960
Adm. Robert L. Dennison, USN	Feb. 28, 1960	April 30, 1963
Adm. Harold P. Smith, USN	April 30, 1963	April 30, 1965
Adm. Thomas H. Moorer, USN	April 30, 1965	June 17, 1967
Adm. Ephraim P. Holmes, USN	June 17, 1967	Sept. 30, 1970
Adm. Charles K. Duncan, USN	Sept. 30, 1970	Oct. 31, 1972
Adm. Ralph W. Cousins, USN	Oct. 31, 1972	May 30, 1975
Adm. Isaac C. Kidd Jr., USN	May 30, 1975	Sept. 30, 1978
Adm. Harry D. Train II, USN	Sept. 30, 1978	Sept. 30, 1982
Adm. Wesley D. McDonald, USN	Sept. 30, 1982	Nov. 27, 1985
Adm. Lee Baggett Jr., USN	Nov. 27, 1985	Nov. 22, 1988
Adm. Frank B. Kelso II, USN	Nov. 22, 1988	May 18, 1990
Adm. Leon A. Edney, USN	May 18, 1990	July 13, 1992
Adm. Paul D. Miller, USN	July 13, 1992	Oct. 31, 1994
Gen. John J. Sheehan, USMC	Oct. 31, 1994	Sept. 24, 1997
Adm. Harold W. Gehman Jr., USN	Sept. 24, 1997	Sept. 5, 2000
Gen. William F. Kernan, USA	Sept. 5, 2000	Oct. 2, 2002
Adm. Edmund P. Giambastiani Jr., USN	Oct. 2, 2002	Aug. 1, 2005
Lt. Gen. Robert W. Wagner, USA (acting)	Aug. 1, 2005	Nov. 10, 2005
Gen. Lance L. Smith, USAF	Nov. 10, 2005	Nov. 9, 2007
Gen. James N. Mattis, USMC	Nov. 9, 2007	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 Oct. 7, 1999, Inactivated Aug. 4, 2011.

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

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

US Space Command

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

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

US Special Operations Command

Gen. James J. Lindsay, USA	April 16, 1987	June 27, 1990
Gen. Carl W. Stiner, USA	June 27, 1990	May 20, 1993
Gen. Wayne A. Downing, USA	May 20, 1993	Feb. 29, 1996
Gen. Henry H. Shelton, USA	Feb. 29, 1996	Sept. 25, 1997
Gen. Peter J. Schoomaker, USA	Nov. 5, 1997	Oct. 27, 2000
Gen. Charles R. Holland, USAF	Oct. 27, 2000	Sept. 2, 2003
Gen. Bryan D. Brown, USA	Sept. 2, 2003	July 9, 2007
Adm. Eric T. Olson, USN	July 9, 2007	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	

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	



Guide to Aces and Heroes

2012 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. Bong, Maj. Richard I. Carswell, Maj. Horace S. Jr. Castle, Brig, Gen, Frederick W. Cheli, Maj. Ralph Craw, Col. Demas T. Doolittle, Lt. Col. James H. Erwin, SSgt. Henry E. Femoyer, 2nd Lt. Robert E. Gott, 1st Lt. Donald J. Hamilton, Maj. Pierpont M. Howard, Lt. Col. James H. Hughes, 2nd Lt. Lloyd H. Jerstad, Maj. John L. Johnson, Col. Leon W. Kane, Col. John R.

Chicago Aug. 1, 1943 Superior, Wis. Oct. 10-Nov. 15, 1944 Fort Worth, Tex. Oct. 26, 1944 Manila, Philippines Dec. 24, 1944 San Francisco Aug. 18, 1943 Traverse City, Mich. Nov. 8, 1942 Alameda, Calif. April 18, 1942 Adamsville, Ala. April 12, 1945 Huntington, W.Va. Nov. 2 1944 Arnett, Okla. Nov. 9, 1944 Tuxedo Park, N.Y. Nov. 8, 1942 Canton, China Jan. 11, 1944 Aug. 1, 1943 Alexandria, La. Racine, Wis. Aug. 1, 1943 Columbia, Mo. Aug. 1, 1943 Aug. 1, 1943 McGregor, Tex.

Ploesti, Romania Southwest Pacific South China Sea Liège, Belgium Wewak, New Guinea Port Lyautey, French Morocco Tokyo Koriyama, Japan Merseburg, Germany Saarbrücken, Germany Port Lyautey, French Morocco Oschersleben, Germany Ploesti, Romania Ploesti Romania Ploesti, Romania Ploesti, Romania



Harold Goettler



Frank Luke



Frederick Castle







George Davis



George Day*

*Living Medal of Honor recipient

World War II (continued)

Kearby, Col. Neel E. Kingsley, 2nd Lt. David R. Knight, 1st Lt. Raymond L. Lawley, 1st Lt. William R. Jr. Lindsey, Capt. Darrell R. Mathies, Sgt. Archibald Mathis, 1st Lt. Jack W. McGuire, Maj. Thomas B. Jr. Metzger, 2nd Lt. William E. Jr Michael 1st Lt. Edward S. Morgan, 2nd Lt. John C. Pease, Capt. Harl Jr. Pucket, 1st Lt. Donald D. Sarnoski, 2nd Lt. Joseph R. Shono, Maj. William A. Smith, Sgt. Maynard H. Truemper, 2nd Lt. Walter E. Vance, Lt. Col. Leon R. Jr. Vosler, TSgt. Forrest L. Walker, Brig. Gen. Kenneth N. Wilkins, Maj. Raymond H. Zeamer, Capt. Jay Jr.

Wichita Falls, Tex. Portland, Ore. Houston Leeds, Ala. Jefferson, Iowa Scotland San Angelo, Tex. Ridgewood, N.J. Lima, Ohio Chicago Vernon, Tex. Plymouth, N.H. Longmont, Colo. Simpson, Pa. Jeannette, Pa. Caro, Mich. Aurora, III. Enid. Okla. Lyndonville, N.Y. Cerrillos, N.M. Portsmouth, Va. Carlisle, Pa.

Oct. 11, 1943 June 23, 1944 April 25, 1945 Feb. 20, 1944 Aug. 9, 1944 Feb. 20, 1944 March 18, 1943 Dec. 25-26, 1944 Nov. 9, 1944 April 11, 1944 July 28, 1943 Aug. 7, 1942 July 9, 1944 June 16, 1943 Jan. 11, 1945 May 1, 1943 Feb. 20, 1944 June 5, 1944 Dec. 20, 1943 Jan. 5, 1943 Nov. 2, 1943 June 16, 1943

Wewak, New Guinea Ploesti, Romania Po Valley, Italy Leipzig, Germany Pontoise, France Leipzig, Germany Vegesack, Germany Luzon, Philippines Saarbrücken, Germany Brunswick, Germany Kiel, Germany Rabaul, New Britain Ploesti, Romania Buka, Solomon Islands Luzon, Philippines Saint-Nazaire, France Leipzig, Germany Wimereaux, France Bremen, Germany Rabaul, New Britain Rabaul, New Britain Buka, Solomon Islands

Korea

Davis, Maj. George A. Jr. Loring, Maj. Charles J. Jr. Sebille, Maj. Louis J. Walmsley, Capt. John S. Jr.

Dublin, Tex. Portland, Maine Harbor Beach, Mich. Baltimore Feb. 10, 1952 Nov. 22, 1952 Aug. 5, 1950 Sept. 14, 1951 Sinuiju, Yalu River, N. Korea Sniper Ridge, N. Korea Hamch'ang, S. Korea Yangdok, N. Korea

Vietnam

Bennett Capt. Steven L.
Day, Maj. George E.*
Deth efsen, Capt. Merlyn H.
Etchberger, CMSgt. Richard L.
Fisher, Maj. Bernard F.*
Fleming, 1st Lt. James P.*
Jackson, Lt. Col. Joe M.*
Jones, Col. William A. III
Levitow, A1C John L.
Pitsenbarger, A1C William H.
Sijan, Capt. Lance P.
Thorsness, Maj. Leo K.*
Wilbanks, Capt. Hilliard A.
Young, Capt. Gerald O.

Palestine, Tex.
Sioux City, Iowa
Greenville, Iowa
Hamburg, Pa.
San Bernardino, Calif.
Sedalia, Mo.
Newnan, Ga.
Norfolk, Va.
Hartford, Conn.
Piqua, Ohio
Milwaukee
Walnut Grove, Minn.
Cornelia, Ga.
Anacortes, Wash.

June 29, 1972
Conspicuous gallantry while POW
March 10, 1967
March 11, 1968
March 10, 1966
Nov. 26, 1968
May 12, 1968
Sept. 1, 1968
Feb. 24, 1969
April 11, 1966
Conspicuous gallantry while POW
April 19, 1967
Feb. 24, 1967
Nov. 9, 1967

Quang Tri, S. Vietnam

Thai Nguyen, N. Vietnam Phou Pha Thi, Laos A Shau Valley, S. Vietnam Duc Co, S. Vietnam Kham Duc, S. Vietnam Dong Hoi, N. Vietnam Long Binh, S. Vietnam Cam My, S. Vietnam

N. Vietnam Dalat, S. Vietnam Khe Sahn, S. Vietnam

Peacetime

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

USAF Recipients of the Distinguished Service Cross

World War I

Abernathy, Thomas J. Aldrich, Perry H. Alexander, Arthur H. Alexander, Stirling C. Allen, Gardner P. Andrew, Flynn L. A. Armstrong, Rodney M. Arthur, Dogan H. (2) Atwater, Benjamin L. Avery, Walter L. Babcock, Philip R. Backus, David H. (2) Badham, William T. Baer, Paul F. (2) Bagby, Ralph B. Bartholf, Herbert B. Baucom, Byrne V. (2) Beane, James D. Beebe, David C. Bellows, Franklin B. Belzer, William E. Benell, Otto E. Bernheimer, Louis G. (2) Biddle, Charles J. Bissell, Clayton L. Blake, Charles R. Bonnalie, Allan F. Borden, Horace Bowers, Lloyd G. Bowman, Samuel A. Boyd, Theodore E. Breese, Clinton S. Brereton, Lewis H. Brewster, Hugh Brooks, Arthur R. Broomfield, Hugh D. G. Brotherton, William E. Brown, Mitchell H. Buckley, Harold R. (2) Buford, Edward Jr. Burdick, Howard Burger, Valentine J. (2)

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)



Charles Biddle

Burns, James S. D.

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. Kave, 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.

Gaylord, Bradley J.

George, Harold H.

Giroux, Ernest A.

Goldthwaite, George E.



George Kenney

McDermott, Cleveland W. McDevitt, James A. McDougall, Harry O. McKay, Elmore K. McKay, James R. McMurry, Ora R. (2) Meissner, James A. (2) Mell, Patrick H. Micherer, John H. Mitchell, John Mitchell, William Moore, Edward R. Morris, Edward M. Morse, Guy E. Myers, Oscar B. Neel, Roland H. Neibling, Harlou P. Neidecker, Bertrande C. Nichols, Harold O. Nixon, George R. Norris, Sigbert A. G. Norton, Fred W. Noyes, Stephen H. Nutt, Alan O'Donnell, Paul J. O'Neill, Ralph A. (3) Orr, Edward Page, Richard C. M. Palmer, Joseph A. Palmer, William W. Paradise, Robert C. Patterson, Alfred B. Jr. (2) Payne, Karl C. Pegues, Josiah J. Pendell, Elmer Peterson, David M. (2) Petree, Harris E. Phelps, Glen Phillips, George R. Plummer, Charles W. Plush, Lewis C. Polley, Britton Ponder, William T.

Numbers in parentheses are total DSCs received by the individual.

Porter, Charles P. (2) Porter, Earl W. Porter, Kenneth L. Potter, William C. Preston, Glen A. (3) Putnam, David E. Pyne, Percy R. Quinn, John J. Raible, Joseph C. Jr. Ralston, Orville A. Rancourt, John I. Rath, Howard G. Raymond, Robert F. Reeves, Dache M. Reynolds, Clearton H. Reynolds, John N. (2) Richardson, James M. Rickenbacker, Edward V. (7) Rooney, Paul N. A. Rorison, Harmon C. Ross, Cleo J. Rucker, Edward W. Rummell, Leslie J. Saunders, William H. Schenck, Alexander P. Schoen, Karl J. Seaver, Arthur F. Sellers, Cecil G. Sewall, Sumner (2) Shelby, Richard D. Simon, Louis C. Jr. (2) Snyder, John H. Spaatz, Carl A. Springs, Elliott W. Steele, Richard W. Stenseth, Martinus Stevens, John H. Stokes, John Y. Jr. Stout, Penrose V. Stovall, William H. Strahm, Victor H. Suiter, Wilbur C. Swaab, Jacques M. Taylor, William H.

Ten Eyck, Walton B. Jr. Thaw, William (2) Thomas, Gerald P. Thompson, Robert E. Tillman, Fred A. Tittman, Harold H. Tobin, Edgar G. Treadwell, Alvin H. Vail, William H. Vaughn, George A. Vernam, Remington D. B. Wallis, James E. Jr. Waring, William W. Warner. Donald D. Way, Pennington H. Wehner, Joseph F. (2) White, Wilbert W. (2) Williams, Bertram Winslow, Alan F. Wright, Burdette S. Wright, Chester E. (2) Wyly, Lawrence T.

World War II

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



Donald Blakeslee

Taylor, William J. R.



Richard Bong

Armstrong, Frank A. Jr. Arnold, Altus L. Arooth, Michael Aschenbrener, Robert W. Ashley, Earl D. Atkinson, Gwen G. Atkinson, Paul G. Avery, Lloyd Bade, Jack A. Bail, Bernard W. Bakalar, John E. Bankey, Ernest E. Jr. Banks, Arthur E. Barbiero, Samuel S. Barbosa, Vicente R. Barnicle, Gerald J. Barrall, Robert W. Battaglia, Salvatore Battalio, Samuel T. Beam, James C. Beam, Ralph E. Beck, Joseph A. II Beckham, Walter C. Beerbower, Don M. Beeson, Duane W. Beeson, Frank H. Bell, Robert D. Bengel, George H. Benn, William G. Benson, Marion A. Berryman, Richard C. Bevlock, James J. Billingsley, Leonard Blakeslee, Donald J. M. (2) Bleyer, Julian M. Blickenstaff, Wayne K. Blissard, Grover C. Blumer, Laurence E. Boelens, Leo A. Boggs, Hampton E. Bolefahr, Wayne N. Bong, Richard I. Booth, Charles H. Jr. Bostrom, Frank P. Boudreaux, Marcus A.

Boyd, Charles K. Boyle, Francis M. Bradley, Jack T. Brandon, William H. Breeding, Paul R. Brereton, Lewis H. Bright, James C. Jr. Brill, Allen Britton, John T. Brooks, John A. III Brown, Albert C. Brown, David W. Brown, George S. Brown, Henry W. Brown, Samuel J. Brown, Walter L. Brueland, Lowell K. Bryan, Donald S. Buck, William E. Jr. Burdue, Clayton C. Burleson, Robert B. Burney, Willis W. Burns, Wilbert R. Caldwell, Kenneth M. Caldwell, Wilma T. Jr. Cameron, William R. Campbell, David A. Cannon, James L. Carmichael, Richard H. (2) Carpenter, Reginald L. Carr. Bruce W. Carrington, John R. Carruth, Thomas A. Carswell, Horace S. Jr. Catallo, Albert L. Caton, Edward H. Ceuleers, George F. Christensen, Harold R. Christianson, Franklin O. Christopher, Guyton M. Church, Russel M. Clark, Phillip R. Clary, Guy W. Classen, Thomas J. Cleven, Gale W.

Cobb, James B. Cockriel, James R. Coleman, Carlyle Coleman, William F. Collett, Howard G. Collins, James F. Coltharp, Chester A. Compton, Keith K. Conger, Paul A. Connick, Arden D. Corl. George P. Corsetti, John Cox, Leonard L. Cox, Ray L. Cragg, Edward Crandall, Donald O. Crenshaw, Claude J. Crimmins, Fred T. Jr. Crosbie, Maurice G. Cullerton, William J. Curtis, Robert C. Czechowski, Chester M. Dadson, Pat J. Dahlberg, Kenneth H. Dale, Jack D. Dallas, Frederick W. Jr. Dalton, Malcolm C. Daniell, J. S. Danver, Edison K. Davies, John H. Davis, Clayton E. Davis, Robert R. Davis, Robert T. Dawkins, Cecil H. Deal, James F. Decker, Richard C. DeGenaro, August V. Dello-Buono, Thomas J. Dent, Elliott E. Jr. Diehl, John H. Jr. (2) Dillman, Forrest E. Dinn, Wallace S. Dixon, Robert J. Doherty, William K. Dolk, Carl E. Donaldson, I. B. Jack Donegan, John M. Dorwart, Robert J. Douglas, Paul P. Jr. (2) Dregne, Irwin H. Drier, William C. Dubisher, Francis E. Dufrane, John L. Jr. Dunagan, Sidney W. Dunaway, John S. Duncan, Daniel D. Duncan, Glen E. Dunham, William D. Dunn, Edward B. Dunn, Jack D. Dunn, John A. Durand, Edward D. Durand, Frederick W. Duval, Jessie B. Dyer, Fred W. Dyess, William E. (2) Eagleston, Glen T. Eareckson, William O. Eaton, Frederick C. Jr. Eckrich, James F.

Edeburn, Harry E. Elam, Daniel F. Ellis, Lewis N. Ellis, Richard H. Embree, Hov 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.

Haning, William F. Jr. Hanson, Robert T. Hantman, Sidney Hardison, Felix M. Hargis, William D. Jr. Harriger, Robert L. Harrington, Archibald A. Harris, Arizona T. Harrison, Edgar E. Harrison, James A. Hascall, Alva S. Hasek, Ivan S. Jr. Hass, Floyd N. Hatch, Herbert B. Jr. Hawke, Thomas C. Hawthorne, Harry J. Hedlund, Earl C. Heidger, Luther C. Helder, Ronald L. Heller, Edwin L. Helmick. Frederick E. Helmick, George H. Henderson, Ivan W. Hendricks, Randall W. Henebry, John P. Henry, Maurice V. Herlevic, Frank A. Herres, Francis E. Herriott, Harold T. Herron, Christian I. Herron, Edwin R. Hicks, Paul L. Hill, David L. Hill, James E. Hill, Robert J. Hillebrand, Mahlon A. Hillsinger, Loren B. Hinze, Frederick S. Jr. Hipps, William G. Hively, Howard D. Hoag, Carl L. Jr. Hodge, Dexter L. Hodges, Charles W. Hoenshell, Carl C. Hoevet, Dean C. Hoff, Thomas A. Holbury, Robert J. Holliday, Robert L. Holmes, Walter T. Holsberg, Wilfred G. Holub, Anthony C. Homer, Cyril F. Hoover, John R. Horton, Robert W. House, A. T. Jr. Hovde, William J. Howat, Kenneth W. Howell, John J. Hubbard, Ronald D. Hudson, Charles S. Huffstickler, Benjamin F. Hughes, Charles W. Hull, Charles T. Hull, Jack T. Ingelido, Michael J. Inman, Harold R. Irons, John P.

Hall, Donald P. (2)

Hambleton, Roscoe L.

Hall, Jack W.



Edwin Heller

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.

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, Guv 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. Momver, 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. Move. Albert J. Muckley, Dwight S. Mueller, Alvin J. Jr. Muir, Marvin F. Mulligan, Charles D. Munsey, James S. Muri, James P. Murphy, Philip J. Myers, Joseph Negley, Richard V. W. Jr.

Nepil, Slavomir Nielsen, Leland C. Noell, Robert E. Norton, Charles E. Nuchols, William L. O'Brien, Kenneth J. O'Connor, Frank Q. Oestreicher, Robert G. Oettel, Fred W. Old. Archie J. Oldham, Richard G. O'Leary, Eugene B. Olson, Henry L. O'Neal, James A. O'Neill, Brian O'Neill, Lawrence F. O'Rourke, Edward J. Orr, William F. Owen, Albert E. Owens, Marion P. Paisley, Melvyn R. Partridge, Donald D. Patrick, Augustus R. Jr. Pawloswski, Edward J. Pear, Sidney A. Pearson, John M. Pederson, Harold L. Pell, Floyd J. Perdomo, Oscar F. Peres, Jack R. Perry, Elton S. Peters, Robert O. Petersen, Jacob Peterson, Chesley G. Petty, Charles A. Phillips, Claude B. Phillips, Hubert E. Phillips, Reginald H. Pickard, John G. Pierce, Sammy A. Pittman, Charles K. Ploetz, Frederick F. Polifka, Karl L. Poore, Wesley A. Posey, James T.

Post, Arthur L. Potter, A. J. Potts, Ramsey D. Jr. Preddy, George E. Price, Herbert M. Price, Raymond E. Priest, Royce W. Prince, George A. Prince, William H. Pugh, Herbert W. Putnam, Walter B. Radtke, Dean M. Rahner, Raymond M. Ramey, Gordon A. Ramey, Howard K. Ramey, Roger M. Randerson, Luther W. Rankin, Robert J. Rau, Oscar J. Rauschkolb, Frank Ray, Charles P. Ray, John W. Reams, Luther S. Reeder, Sumner H. Reeves, Charles T. Rice, Burt H. Richards, Conrad B. Ridolfi, Peter J. Righetti, Elwyn G. Rist, Robert P. Ritchey, Andrew J. Robbins, Jay T. (2) Roberts, Daniel T. Roberts, Eugene P. Robinson, Stanley K. Roche, John R. Rogers, Arthur H. Rogers, Robert J. Roller, John R. Rorer, George A. Jr. Rose, Dudley E. Rose, Henry J. Rosenthal, Robert



John Meyer

McCall, Ben J.

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. Shirev. 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.



George Welch

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.



Ray Wetmore

Originally based on a compi ation 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. _t. Col. James R. Britt, Maj. Aquilla F. Britton, Col. Warner A. Broughton, Col. Jacksel M. Brower, Capt. Ralph W. Bucher, Maj. Bernard L. Burrougns, 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, Mai. 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, Sqt. Russell M. Jeanotte, Lt. Col. Alfred J. Jr.



Robert Gutierrez Jr.

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, Sqt. 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, Sqt. 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.

Johnson, Capt. Harold E.

Kalen, Maj. Herbert D.



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)

Rickenbacker, Capt. Edward V. 26 Luke, 2nd Lt. Frank Jr. 18 13 Vaughn, 1st Lt. George A. 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

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

Chambers, 1st Lt. Reed M.	7
Cook, 1st Lt. Harvey W.	7
Creech, 1st Lt. Jesse O.	7
Holden, 1st Lt. Lansing C.	7
Robertson, 1st Lt. Wendel A.	7
Rummell, 1st Lt. Leslie J.	7
Schoen, 1st Lt. Karl J.	7
Sewall, 1st Lt. Sumner	7
Beane, 1st Lt. James D.	6
Biddle, Capt. Charles J.	6
Brooks, 2nd Lt. Arthur R.	6
Campbell, 1st Lt. Douglas	6
Curtis, 1st Lt. Edward P.	6
Easterbrook, 1st Lt. Arthur E.	6
Guthrie, 1st Lt. Murray K.	6
Hammond, 1st Lt. Leonard C.	6
Hays, 2nd Lt. Frank K.	6
Hudson, 1st Lt. Donald	6
Knotts, 2nd Lt. Howard C.	6
Lindsay, 1st Lt. Robert O.	6
MacArthur, 2nd Lt. John K.	6
Ponder, 2nd Lt. William T.	6
Putnam, 1st Lt. David E.	6
Stovall, 1st Lt. William H.	6
Tobin, 1st Lt. Edgar G.	6
Vasconcells, 1st Lt. Jerry C.	6
Badham, 2nd Lt. William T.	5
Bair, 1st Lt. Hilbert L.	5
Bissell, 1st Lt. Clayton L.	5
Buckley, 1st Lt. Harold R.	5
Cook, 1st Lt. Everett R.	5
D'Olive, 1st Lt. Charles R.	5
Furlow, 1st Lt. George W.	5
George, 1st Lt. Harold H.	5
Grey, 1st Lt. Charles G.	5
Haight, 1st Lt. Edward M.	5
Healy, 1st Lt. James A.	5
(5/b)	

7	Keating, 1st Lt. James A.	5
7	Knowles, 1st Lt. James Jr.	5
7	Larner, 1st Lt. G. DeFreest	5
7	Luff, 1st Lt. Frederick E.	5
7	O'Neill, 2nd Lt. Ralph A.	5
7	Owens, 2nd Lt. John S.	5
7	Porter, 2nd Lt. Kenneth L.	5
7	Ralston, 1st Lt. Orville A.	5
6	Seerley, 1st Lt. John J.	5
3	Strahm, Capt. Victor H.	5
6	Todd, 2nd Lt. Robert M.	5
6	Vernam, 1st Lt. Remington D. B.	5
5	Wehner, 1st Lt. Joseph F.	5
	T. T	



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	Lynch, Lt. Col. Thomas J.	20
McGuire, Maj. Thomas B. Jr.	38	Westbrook, Lt. Col. Robert B.	20
Gabreski, Lt. Col. Francis S.	28	Gentile, Capt. Don S.	19.83
Johnson, Capt. Robert S.	27	Duncan, Col. Glenn E.	19.5
MacDonald, Col. Charles H.	27	Carson, Capt. Leonard K.	18.5
Preddy, Maj. George E.	26.83	Eagleston, Maj. Glenn T.	18.5
Meyer, Lt. Col. John C.	24	Beckham, Maj. Walter C.	18
Schilling, Col. David C.	22.5	Green, Maj. Herschel H.	18
Johnson, Lt. Col. Gerald R.	22	Herbst, Lt. Col. John C.	18
Kearby, Col. Neel E.	22	Zemke, Col. Hubert	17.75
Robbins, Maj. Jay T.	22	England, Maj. John B.	17.5
Christensen, Capt. Fred J.	21.5	Beeson, Capt. Duane W.	17.33
Wetmore, Capt. Ray S.	21.25	Thornell, 1st Lt. John F. Jr.	17.25
Voll, Capt. John J.	21	Varnell, Capt. James S. Jr.	17
Mahurin, Maj. Walker M.	20.75	Johnson, Maj. Gerald W.	16.5

Army Air Forces Aces of World War II

	40.00
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. Normar 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)



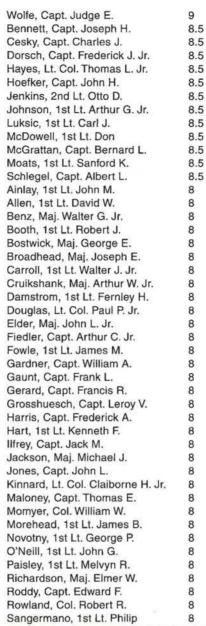
Hubert Zemke (17.75)

Army Air Forces Aces of World War II



Jack Ilfrey (8)

Giroux, 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
Adams, Capt. Fletcher E.	9
Andrew, Maj. Stephen W.	9
Banks, Maj. William M.	9
Beyer, Capt. William R.	9
Boggs, Capt. Hampton E.	9
Champlin, Capt. Frederic F.	9
Collins, Maj. Frank J.	9
Curdes, 1st Lt. Louis E.	9
Dahl, Capt. Perry J.	9
Dalglish, Maj. James B.	9
Dunkin, Capt. Richard W.	9
Emmons, 1st Lt. Eugene H.	9
Fanning, 1st Lt. Grover E.	9
Feld, 1s: Lt. Sylvan	9
Fiebelkern, 1st Lt. Ernest C.	9
Forster, 1st Lt. Joseph M.	9
Gallup, Lt. Col. Kenneth W.	9
Hill, Capt. Allen E.	9
Hurlbut, Flight Officer Frank D.	9
Juchheim, Capt. Alwin M.	9
Kiser, Capt. George E.	9
Lesicka, 1st Lt. Joseph J.	9
Meroney, Capt. Virgil K.	9
Morrill, 1st Lt. Stanley B.	9
Overfield, 1st Lt. Loyd J.	9
Paris, Capt. Joel B. III	9
Roberts, Lt. Col. Eugene P.	9
Smith, Lt. Col. Meryl M.	9
Stewart, Capt. John S.	9
White, Capt. Robert H.	9





Boyd Wagner (8)

9

8.5

8.5

8.5

8.5

8.5

8.5

8

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



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
	7
Edens, 2nd Lt. Billy G.	
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
	7
Reynolds, 1st Lt. Robert	
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
- South Marin La	15

Tyler, 1st Lt. Gerald E. Vaughn, Maj. Harley C. Waters, 1st Lt. Edward T. Wheadon, Capt. Elmer M. Whittaker, Capt. Roy E. Wicker, Maj. Samuel J. Wilkinson, Capt. James W. Wire, 1st Lt. Calvin C. Woods, Lt. Col. Sidney S. Woody, Capt. Robert E. Zoerb, Capt. Daniel J. Murphy, Lt. Col. John B. Cummings, Capt. Donald M. Gray, Maj. Rockford V. Hoffman, 1st Lt. James E. Jr. Hubbard, Lt. Col. Mark E. Hunt, 1st Lt. Edward E. Koenig, 1st Lt. Charles W. Kruzel, Lt. Col. Joseph J. Moseley, Capt. Mark L. Rader, 1st Lt. Valentine S. Riley, 1st Lt. Paul S. Welden, 1st Lt. Robert D. Adams, 1st Lt. Charles E. Jr. Alison, Lt. Col. John R. Anderson, 1st Lt. Wyman D. Andrews, 1st Lt. Stanley O. Baker, 1st Lt. Ellis C. Jr. Baseler, Lt. Col. Robert L. Bille, Maj. Henry S. Blumer, Capt. Laurence E. Brown, 1st Lt. Harley L. Brown, Capt. Harry W. Brown, Capt, Meade M. Buck, Capt. George T. Jr. Callaway, Maj. Raymond H. Campbell, 1st Lt. Richard A. Candelaria, 1st Lt. Richard G. Care, Capt. Raymond C. Carlson, Capt. Kendall E. Carter, Capt. James R. Chick, Lt. Col. Lewis W. Jr. Coffey, Lt. Col. Robert L. Jr. Collinsworth, Capt. J. D. Cook, Capt. Walter V. Crawford, 2nd Lt. Ray Crim, Maj. Harry C. Jr. Cundy, 1st Lt. Arthur C. Czarnecki, 1st Lt. Edward J. Davis, 1st Lt. Barrie S. Dean, 2nd Lt. Cecil O. Degraffenreid, 2nd Lt. Edwin L.



Vermont Garrison (17.33, WWII and Korea)



Urban Drew (6)

7

7

7

7

7

7

7

7

6.75

6.5

6.5

6.5

6.5

6.5

6.5

6.5

6.5

6.5

6.5

6.25

6

6

6

6

6

6

6

6

6

6

6

6

6

6

6

6

6

6

6

6

6

6

6

6

6

6

6

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 6 Foulis, Capt. William B. Jr. 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 6 Lucas, Capt. Paul W. 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 6 Murphey, Capt. Paul C. Jr.

Army Air Forces Aces of World War II



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
096	

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
Adams, 1st Lt. Hobert H.	
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
[20] (1. [10] [20] [20] [20] [20] [20] [20] [20] [2	
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
- 1. 1 (THE CONTROL OF THE CONTROL	
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
	5
Bonner, 1st Lt. Stephen J.	
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
	5
Chandler, Capt. George T.	
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
[2] 보다 수입하다 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	
Coons, Capt. Merle M.	5
Cox, Capt. Ralph L.	5
4. Print 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	
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
] The STATE OF THE	
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
	5
Fenex, Capt. James E. Jr.	
Fiedler, 1st Lt. William F. Jr.	5
	5
Fields, Capt. Virgil C. Jr.	
Fischette, 1st Lt. Charles R.	5
	5
Fisher, 1st Lt. Rodney W.	5



Robert Ammon (5)

5 Fisk, Capt. Harry E. Flack, Capt. Nelson D. Jr. 5 Ford, Maj. Claude E. 5 Gardner, Maj. Warner F. 5 5 Gerick, 2nd Lt. Steven Gholson, Capt. Grover D. 5 Gibb, 1st Lt. Robert D. 5 5 Gladen, 1st Lt. Cyrus R. Goodrich, 1st Lt. Burdett C. 5 5 Gordon, Capt. Mathew M. Jr. Graham, 2nd Lt. Robert F. 5 Griffith, 1st Lt. Robert C. 5 5 Gross, Capt. Clayton K. Grosvenor, Capt. William Jr. 5 Gupton, 1st Lt. Cheatham W. 5 5 Hammer, 1st Lt. Samuel E. 5 Hanna, 2nd Lt. Harry T. Hanseman, 1st Lt. Chris J. 5 5 Harrington, 1st Lt. Archibald A. 5 Harris, Capt. Thomas L. Hartley, Capt. Raymond E. Jr. 5 Hatch, 2nd Lt. Herbert B. Jr. 5 Hauver, 1st Lt. Charles D. 5 5 Haworth, 1st Lt. Russell C. 5 Hendricks, Maj. Randall W. 5 Hill, Maj. James E. Hiro, Maj. Edwin W. 5 Hnatio, 1st Lt. Myron M. 5 5 Hodges, Capt. William R. 5 Hoffman, 1st Lt. Cullen J. 5 House, 1st Lt. A. T. Jr. 5 Howe, 1st Lt. David W. Hoyt, Capt. Edward R. 5 Hunter, Capt. Alvaro J. 5 5 Icard, 2nd Lt. Joe W. Johnson, Capt. Evan M. V. 5 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. Knapp, Capt. Robert H. 5 5 Knott, 1st Lt. Carroll S. 5 Kopsel, 1st Lt. Edward H. Lathrope, 2nd Lt. Franklin C. 5 5 Lazear, 1st Lt. Earl R. Jr.

Lee, 1st Lt. Richard J. Leikness, Capt. Marlow J. Lenox, 2nd Lt. Jack Jr. Liles, Maj. Robert L. London, Capt. Charles P. Loving, Capt. George G. Jr. Lutton, 1st Lt. Lowell C. Mackay, 2nd Lt. John A. Magoffin, Col. Morton D. Mahon, Capt. Keith Mahony, Lt. Col. Grant Mankin, Capt, Jack C. Markham, Capt. Gene E. Marsh, 1st Lt. Lester C. Martin, Col. Kenneth R. Mason, Col. Joe L. Mathis, 1st Lt. William H. Mathre, 2nd Lt. Milden E. Matte, 1st Lt. Joseph Z. Maxwell, Capt. Chester K. McArthur, 1st Lt. Paul G. McArthur, Capt. T. H. McDonough, Maj. William F. McElroy, Capt. James N. McGinn, Lt. Col. John L. McGuyrt, 1st Lt. John W. Jr. McMinn, Flight Officer Evan D. Merritt, Maj. George L. Jr. Miller, 1st Lt. Everett Miller, Capt. Joseph E. Jr. Milliken, 1st Lt. Robert C. Monk, 1st Lt. Franklin H. Mooney, 2nd Lt. Raymond P. Morriss, Capt. Paul V. Mulhollem, 1st Lt. Robert F. Myers, 1st Lt. Jennings L. Myers, Lt. Col. Raymond B. Nichols, Maj. Franklin A. Nollmeyer, Maj. Edward M. Oberhansly, Maj. Jack J. Olson, 1st Lt. Paul E. O'Neill, Capt. Eugene W. Jr. O'Neill, 1st Lt. Lawrence F. Osher, Capt. Ernest K. Overcash, 1st Lt. Robert J. Owens, Mai. Joel A. Jr. Parham, Capt. Forrest F. Paulk, 2nd Lt. Edsel Payne, Capt. Carl W. Perdomo, 1st Lt. Oscar F. Pool, 1st Lt. Kenneth R. Porter, 1st Lt. Philip B.

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5



Harrison Thyng (5)

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

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. Foster, Capt. Cecil G. Low, 1st Lt. James F. Hagerstrom, Maj. James P. Risner, Capt. Robinson Ruddell, Lt. Col. George I. Buttelmann, 1st Lt. Henry Jolley, Capt. Clifford D. Lilley, Capt. Leonard W. Adams, Maj. Donald E. Gabreski, Col. Francis S. Jones, Lt. Col. George L. Marshall, Maj. Winton W. *Bolt, Maj. John F. Kasler, 1st Lt. James H. Love, Capt. Robert J. Whisner, Maj. William T. Jr. Baldwin, Col. Robert P. Becker, Capt. Richard S. Bettinger, Maj. Stephen L. Cleveland, 1st Lt. Charles G. Creighton, Maj. Richard D. Curtin, Capt. Clyde A. Gibson, Capt. Ralph D. Kincheloe, Capt. Iven C. Jr. Latshaw, Capt. Robert T. Jr. Moore, Capt. Robert H. Overton, Capt. Dolphin D. III Thyng, Col. Harrison R. Wescott, Maj. William H.

9

9

8

8

7 7

7

6

6

6

5

5

5

5 5

5

5

5

5

5

5

5

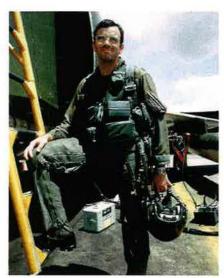


Francis Gabreski (6.5)

*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 5		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.	5 7 7 2	1		
Creighton, Maj. Richard D.	2	5		7 7
Emmert, Lt. Col. Benjamin H.	6	1		
Bettinger, Maj. Stephen L.	1	5 1		6
Visscher, Maj. Herman W.	5 1	1		6
Liles, Capt. Brooks J.	1	4		5
Mattson, Capt. Conrad E.	1			6 5 5 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
100 A		



Fred Christensen (21.5)

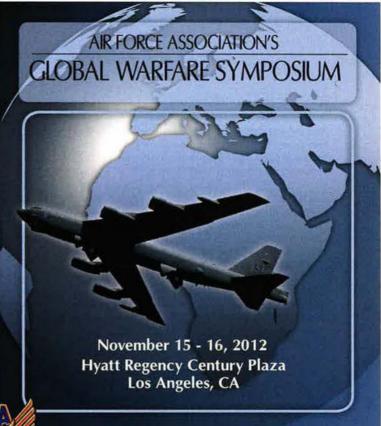
Baker, Col. Royal N.	16.5	WW II, Korea
Jabara, Maj. James	16.5	WW II, Korea
Johnson, Maj. Gerald W.	16.5	WW II
Godfrey, Capt. John T.	16.33	WW II
Anderson, Capt. Clarence E. Jr.	16.25	WW II
Dunham, Lt. Col. William D.	16	WW II
Harris, Lt. Col. Bill	16	WW II
McConnell, Capt. Joseph C. Jr.	16	Korea
Olds, Col. Robin	16	WW II, Vietnam
Welch, Capt. George S.	16	WW II

AIR FORCE ASSOCIATION Professional Development

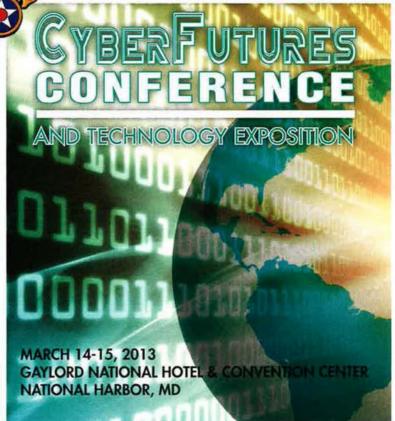




SEPTEMBER 17-19, 2012 | GAYLORD NATIONAL HOTEL & CONVENTION CENTER | NATIONAL HARBOR, MD







For additional information visit us at www.afa.org

By Robert S. Dudney

He's a New Man. Oh, Wait ...

"We are approaching a stage where narrow-mindedness is a killer."—The late Osama bin Laden, comment in personal papers seized from his Pakistan hideout, Washington Post, March 19.

Testing. Testing.

"On all these issues, but particularly missile defense, this can be solved, but it's important for him [Russian strongman Vladimir Putin] to give me space. ... This is my last election. ... After my election I have more flexibility."—President Obama, private remark to Russian President Dmitry Medvedev, overheard on a live microphone during their meeting in Seoul, Washington Post, March 26.

Basic Training

"At all the [Air Force recruiting] accession sources, we have a course and a program of instruction that emphasizes, in my shorthand, that we don't beat up on our wives, we don't beat up on our kids, and we don't assault our teammates, our fellow airmen."—Gen. Norton A. Schwartz, USAF Chief of Staff, remarks at a hearing of the Senate Armed Services Committee, March 20.

Looking Up From Down Under

"We have had US soldiers before, and they are very well-behaved nice boys. They will be popular with a certain section of the female population."—Geoff Annear, owner of Bogart's pub in Darwin, Australia, commenting on arrival of a US Marine Corps unit, Northern Territory News, April 4.

Call to Arms

"I implore you—no, I beg you—to stop this from happening. ... Stage an insurrection in this country. When you leave here today call ... your loved ones. ... The cuts are real, and we've already begun to feel the effects."—Rep. Howard P. McKeon (R-Calif.), chairman of the House Armed Services Committee, exhorting workers at the Northrop Grumman plant in Palmdale to rise up against defense cuts, Los Angeles Times, April 3.

Cocktail Dilemma

"The New York Times reports that US intelligence agencies are sure,

or pretty sure, that Iran 'still has not decided to pursue a weapon.' ... All this sounds like it matters a whole lot. It doesn't. You may not be able to divine whether a drinker, holding a bottle of Johnnie Walker in one hand and a glass tinkling with ice in the other, actually intends to pour himself a drink. And perhaps he doesn't. But the important thing, at least when it comes to intervention, is not to present him with the opportunity in the first place. ... To have sufficient quantities of enriched uranium is, so to speak, the whiskey of a nuclear weapons program. By contrast, 'weaponization'-the vessel into which you pour and through which you can deliver the enriched uranium cocktail-is merely the glass."-Columnist Bret Stephens, Wall Street Journal, March 20.

Defending the Air Guard

"I have significant concerns about the way the Air Force's proposed cuts fall disproportionately on the National Guard, and I question the logic that the Air Force used in crafting their proposal."—Sen. Carl M. Levin (D-Mich.), chairman of the Senate Armed Services Committee, TheHill.com, March 20.

Walk of Death

"The [Iranian] nuclear threat is growing. They are getting relatively close to the place where they can make the decision to assemble all three parts of their program—enrichment, missile, weaponization. ... [Supreme leader Ayatollah Ali Khamenei] hasn't said 'put it together' yet. Have they decided to sprint to making the device that blows up? Probably not. But are they walking to a device that blows up? Yes."—Rep. Mike Rogers (R-Mich.), House Intelligence Committee, interview with Reuters.com, March 23.

How Many Confirmed Cases?

"The International Atomic Energy Agency is aware of more than 2,000 confirmed cases of illicit trafficking and other unauthorized activities involving nuclear and other radioactive material in the past 18 years. In a sting operation in Moldova last year, police seized a quantity of highly enriched uranium—material that can be used in a nuclear weapon—from an

individual who was trying to sell it. ... I do not wish to be alarmist. Progress continues to be made in protecting vulnerable material and establishing effective border controls. But more needs to be done."—Yukiya Amano, director general of the International Atomic Energy Agency, op-ed in the Washington Post, March 26.

Ready, Spend, Aim

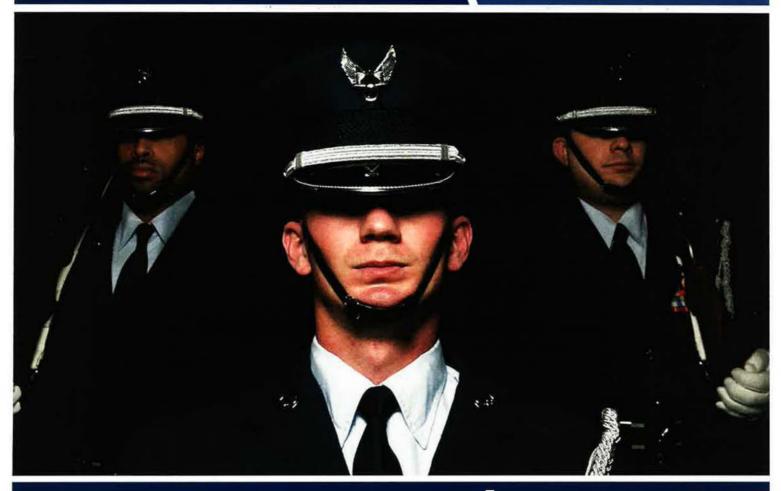
"I am still not remotely satisfied with where we are in cyber. I daresay, we'd spend a lot more if we could figure out where to spend it."—Deputy Secretary of Defense Ashton B. Carter, remarks to a defense conference in Arlington, Va., Washington Post, March 19.

Panetta on Polls

"We cannot fight wars by polls. If we do that, we're in deep trouble. We have to operate based on what we believe is the best strategy to achieve the mission that we are embarked on. And the mission here is to safeguard our country by ensuring that the Taliban and al Qaeda never again find a safe haven in Afghanistan."—Secretary of Defense Leon E. Panetta, responding to poll results showing Americans are tired of the Afghan war, press conference in Ottawa, March 27.

Myth of the Damaged Vet

"What worries me ... is that there's a tendency to kind of paint a brush across every single soldier, male and female, who has served in Iraq or Afghanistan. and think that they've come back with post-traumatic stress or traumatic brain injury. That's simply not the case. There are many soldiers who have gone on four, five, and six deployments and show no signs of post-traumatic stress and traumatic brain injury. When we do that, when we kind of paint everybody with this, it has second- and third-order effects. I worry about the employer who says, well, you know, should I really hire this infantryman who spent six years fighting in Iraq or Afghanistan and bring him onto my company if there's a possibility that they have post-traumatic stress or traumatic brain injury?"-Retired US Army Gen. Peter W. Chiarelli, former vice chief of staff, interview with NPR's "Weekend Edition Sunday," March 18.



JOIN AFA!

The Air Force Association 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, v/e:

- 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 Air Force 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
- And much more!



Online at www.afa.org (Join Now) Call 1.800.727.3337 (Weekdays 8:30 AM - 5PM EST)

> AIR FORCE ASSOCIATION 1501 Lee Highway Arlington, VA 22209



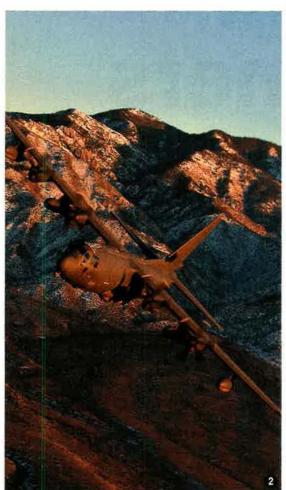
Albuquerque's Elite Trainers

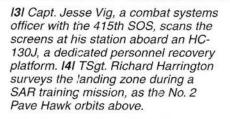
Airmen of the 58th Special Operations Wing train aircrews for a wide range of specialized missions.

Photography by Jim Haseltine

From personnel recovery to the covert insertion of special operators and even VIP transportation, the airmen at the 58th Special Operations Wing, Kirtland AFB, N.M., train airmen in a wide range of missions on multiple aircraft types. The 58th is the schoolhouse for crews of the HH-60, HC-130, MC-130, and Air Force Special Operations Command's CV-22, the tilt-rotor aircraft that replaced the MH-53 Pave Low. I1I A CV-22 Osprey makes a lowspeed pass over a landing zone. 121 An MC-130J from Kirtland's 415th Special Operations Squadron maneuvers over mountains in New Mexico. The unit received its first Commando II in October 2011.

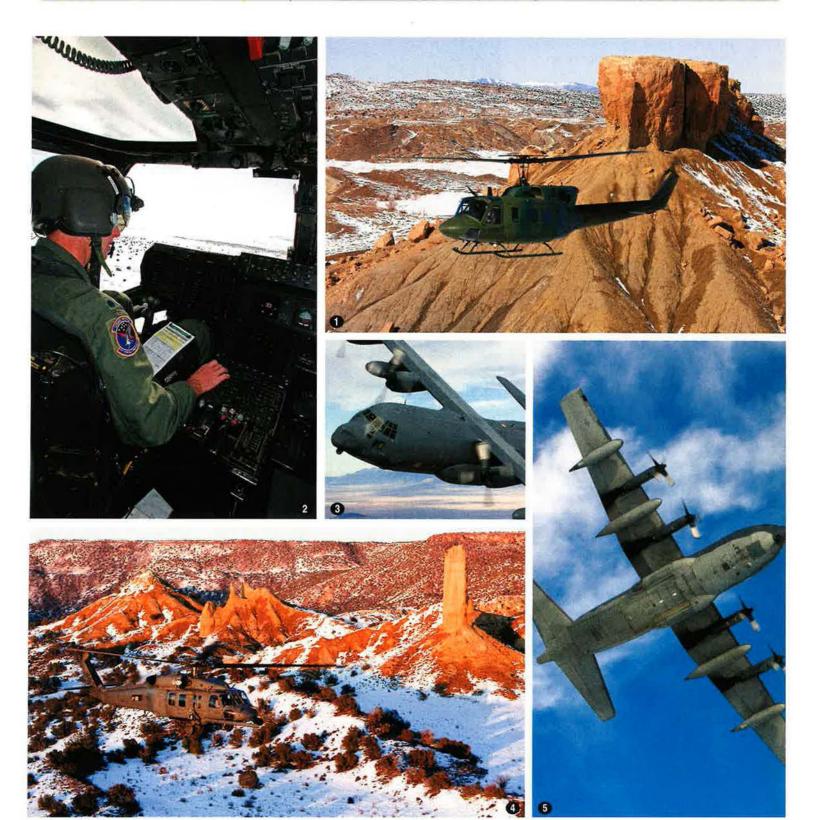












I11 A UH-1N Iroquois, more popularly known as a "Huey," flies past some rocky bluffs. Kirtland's 512th Rescue Squadron trains both Huey and Pave Hawk crews. I21 Lt. Col. Tim Arnold enters data into the navigation system on a CV-22 during a training mission. I31 The nose of an MC-130P Combat Shadow reveals the old radome mounts for a Fulton Recovery System. The balloon and tether ap-

paratus recovered downed airmen by reeling them up to the aircraft. USAF discontinued using the system in the 1990s. I4I An HH-60 from the 512th RQS performs a low-level mission over central New Mexico. Flights commonly take place at several ranges around Kirtland, including the Melrose Range, adjacent to Cannon AFB, N.M. I5I Air Combat Command also uses an extended-range variant of the

C-130 Hercules, the HC-130P/N, to refuel rescue helicopters and assist with combat SAR missions.

III A Pave Hawk from the 512th RQS takes on fuel from a Combat King II. SSgt. James Johnson, at right, communicates using light signals to control the process. I2I A CV-22 sits low at a landing zone in central New Mexico during training. I3I Maj. Kevin Brewer flies up into formation with a new MC-130J Commando II during training. I4I A close-up of the MC-130J and its MTS-A gimbal—the Multispectral Targeting System. MQ-1 Predators also employ this real-time imagery sensor. I5I An airman (under the wing) from the 58th Maintenance Group reviews reports for the Commando II on a laptop prior to a night training flight. **I6I** An HH-60 prepares to take on fuel from an MC-130J during helicopter aerial refueling training.







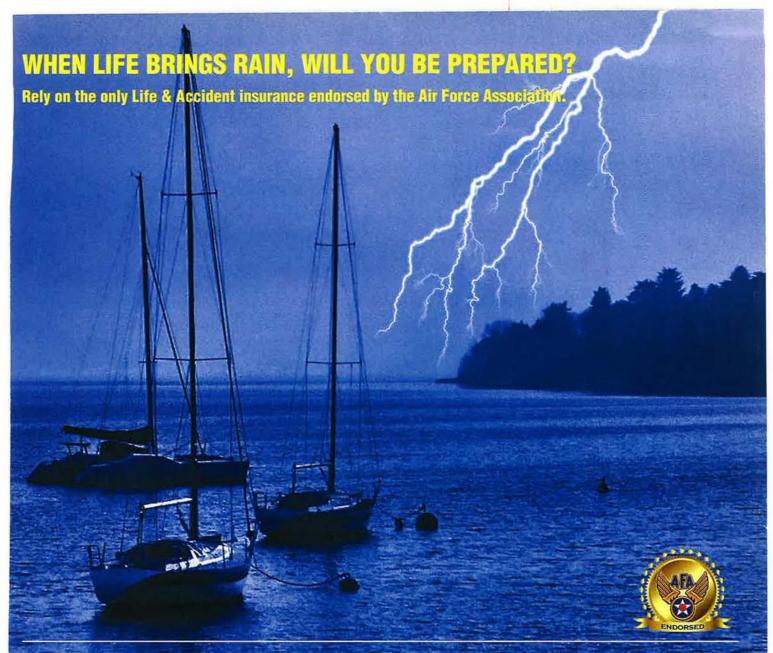






140

AIR FORCE Magazine / May 2012



TERM LIFE INSURANCE

For Air Force Association and AFAVBA Members and their Families The only Life Insurance endorsed by the Air Force Association

Administered by AFA Veteran Benefits Association staff so you are dealing with a friend at AFA.

Two outstanding Life Plans with affordable group rates
(No War Clause ... No Extra Charge for Flying Status Personnel)

- Level Term Life —high level protection at low cost (up to \$300,000 until age 65)
- Decreasing Term Life—high level coverage in younger years (up to \$400,000), less-later in life (constant low monthly payment of \$30, \$20, \$15 or \$10)

MULTI-BENEFIT ACCIDENT INSURANCE

Accidents are the leading cause of death among people aged one to 41 (and fifth for all ages)*

- Sign up now for Accidental Death Insurance (AFA Members, regardless of age or health, are preapproved for coverage up to \$250,000.)
- Get full details and an enrollment form at www.afavba.org/accident

*According to the National Safety Council's 2008 Edition of Injury Facts

AIR FORCE ASSOCIATION



AFA VETERAN BENEFITS ASSOCIATION

FOR FULL DETAILS AND AN APPLICATION:

- Visit afavba.org/insurance
- Call AFAVBA Member Services
 1-800-291-8480
- E-mail AFAVBA Member Services at services@afavba.org

AFAVBA Money-Back Guarantee

When you receive your Policy Certificate, review it at your leisure. If you are not completely satisfied with the coverage, simply return it within 30 days. Any premium paid will be refunded to you in full ... no ifs, ands, or buts!

SR-71 Blackbird



The legendary SR-71 Blackbird, a Mach 3 aircraft, was a masterpiece of visionary engineering translated into history's most advanced air-breathing system. It was an exotic reconnaissance aircraft. Even now, no other aircraft has come close to matching its performance, beauty, and operational efficiency.

The Blackbird-so named for its deep blue, almost black, heat-deflecting paint scheme-was designed at Lockheec's "Skunk Works" by arguably the industry's most talented engineering team. Late 1950s design studies backed by the CIA led to a larger single-seat progenitor, the A-12. USAF specified a two-man crew, resulting in the SR-71. Drag-induced surface heat of more than 1,000 degrees Fahrenheit at Mach 3 sparked a revolution in design. More than 90 percent of the Blackbird's structure was titanium alloy, the rest composite materials. The Skunk Works also developed special hydraulic fluids, lubricants, and sealants. Special inlets allowed a Mach 3 cruise speed while air flowed into the turbojets at subsonic speeds. Created before the advent of modern computer-aiced design, the SR-71 marked the acme of US aeronautical engineering.

The small fleet of A-12s flew missions over North Vietnam and North Korea, but it was retired in 1968. The Blackbird flew over these nations and other enemy territories with impunity, typically soaring above 85,000 feet at Mach 3 and faster. The sleek Air Force aircraft set numerous records for speed, altitude, and time between points. It also suffered 12 losses and four crew members killed, though none stemmed from combat. Enemy defense systems never touched it.

-Walter J. Boyne

This aircraft: SR-71A Blackbird—#64-17978—as it looked in summer 1972 while assigned to



The Lockheed SR-71 had performance to match its appearance.

In Brief

Designed, built by Lockheed ★ first flight Dec. 22, 1964 ★ number built 32 ★ crew of two (pilot, recce system operator) ★ armament none ★ Specific to SR-71A: two Pratt & Whitney J58 turbojet engines ★ max speed 2,200+ mph (Mach 3.2) ★ cruise speed 2,000 mph (Mach 3) ★ max range 2,900 mi ★ weight (loaded) 170,000 lb * span 55 ft 7 in * length 107 ft 5 in * height 18 ft 6 in.

Notable (Pilot/RSO): Jerome O'Malley and Edward Payne; Brian Shul and Walter Watson Jr.; Jim Watkins and Dave Dempster. Record setters: Harold Adams and William Machorek; Adolphus Bledsoe Jr. and John Fuller; Robert Helt and Larry Elliott; Eldon Joersz and George Morgan Jr.; James Sullivan and Noel Widdifield; Ed Yeilding and J. T. Vida. Test pilots: Robert Gilliland, Lou Schalk.

Interesting Facts

Designed by dream team of Kelly Johnson and Ben Rich ★ code-named "Senior Crown" ★ grew several inches in flight due to thermal expansion of airframe ★ designed with stealth in mind but had large radar signature ★ required crew to use pressure suits ★ burned 40,000 pounds of fuel every two hours * evaded surface-to-air missiles merely by accelerating * used titanium acquired from the Soviet Union ★ nicknamed "Habu," pit viper found on Okinawa ★ shut down for good Oct. 9, 1999 * renamed SR-71 (from RS-71) by USAF Chief of Staff Gen. Curtis LeMay.

AFA National Leaders



NATIONAL OFFICERS





VICE CHAIRMAN, FIELD OPERATIONS



VICE CHAIRMAN, AEROSPACE EDUCATION



SECRETARY



TREASURER

S. Sanford Schlitt Sarasota, Fla.

Justin M. Faiferlick Fort Dodge, Iowa

George K. Muellner Huntington Beach, Calif.

Edward W. Garland San Antonio

Loren J. Spencer

Warner Robins, Ga.

Colorado Springs, Colo.

Mary Anne Thompson

South Yarmouth, Mass.

Walter G. Vartan

Williamsburg, Va.

Mark J. Worrick

Charles P. Zimkas Jr.

Colorado Springs, Colo.

Chicago

A. A. West

Arlington, Va.

Jack H. Steed

Robert G. Stein

Leonard R. Vernamonti Clinton, Miss.

NATIONAL DIRECTORS

John T. Brock Oviedo, Fla.

John D. W. Corley Union Hall, Va.

Robert W. Drewes Park City, Utah

Angela Dupont Haverhill, Mass.

Rick Hartle Layton, Utah

Wayne R. Kauffman Agoura, Calif.

Larry A. Lawson Southlake, Tex.

William R. Looney III Garden Ridge, Tex.

Rodney J. McKinley Edmond, Okla.

Donald R. Michels Lawrenceville, Ga.

John F. Phillips Reston, Va.

Donald Taylor San Antonio

Marvin L. Tooman West Des Moines, Iowa

Stephen G. Wood Reston, Va.

DIRECTORS EMERITUS

L. Boyd Anderson Ogden, Utah

R. Donald Anderson

David L. Blankenship Tulsa, Okla,

Bonnie B. Callahan Winter Garden, Fla.

Dan Callahan

Centerville, Ga.

George H. Chabbott

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.

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

Donald J. Harlin LaGrange, Ga.

Martin H. Harris

Monroe W. Hatch Jr.* Clifton, Va. Dan Hendrickson

Port Angeles, Wash.

Harold F. Henneke Nashville, 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

James M. McCoy

William V. McBride

Thomas J. McKee Fairfax Station, Va. Charles A. Nelson

Sioux Falls, S.D. Ellis T. Nottingham

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

John A. Shaud*

James E. "Red" Smith

R. E. "Gene" Smith

EX OFFICIO

Joseph E. Sutter Former Board Chairman Knoxville, Tenn.

Michael M. Dunn President-CEO Air Force Association

Arlington, Va.

William J. Dendinger National Chaplain Grand Island, Neb.

Pierce Roberts National Commander Arnold Air Society Clemson, S.C.

*Executive Director (President-CEO) Emeritus

Reunions reunions@afa.org

13th TBS, Ubon RTAB (1970-72). Oct. 12-15 in Fort Walton Beach, FL. Contact: C.J. Brown, 905 Holbrook Cir., Fort Walton Beach, FL 32547 (850-226-6948) (charley6272@yahoo.com).

20th Special Ops Sq, Pony Express. Sept. 20-23 in New Orleans. Contact: Bill Barsh, 32 Arbor Ln., Picayune, MS 39466 (601-798-7265) (wsbarsh@bellsouth.net).

22nd Bomb Gp, 5th AF, WWII. Oct. 24-27 at the Holiday Inn at the Lady Bird Lake in Austin, TX. **Contact:** Michael Ed-

monds (361-739-1574) (mnedmonds@earthlink.net).

47th Bomb Wg Assn, all units. Oct. 17-20 in Sacramento, CA. Contact: Charlie Palmer (907-242-1530) (crpalmer@gci.net).

49th Fighter (Interceptor) Sq. WWII-present. Oct. 4-8 in Arlington, VA. Contact: John Jannazo (jannazo@aol.com).

96th Air Refueling Sq, Altus AFB, OK (1953-1965). Sept. 20-23 in Altus, OK.

Contact: Henry Hartsell, 1504 N. Hudson St., Altus, OK 73521 (580-477-1189) (hfhartsell@cableone.net).

325th Fighter Gp. Aug. 15-19 at the Best Western Thousand Oaks Inn in Thousand Oaks, CA. **Contact**: Patrice Manget (406-253-2471) (pmanget@centurytel.net).

548th Recon Tech Gp, 548th RTS, 548th ISRG, and 6th PTS, Hickam AFB, Hawaii. June 28-30 at the Hale Koa Hotel in Honolulu. Contact: Bill Forsyth (webmaster@548rtg.org).

AF Postal & Courier Assn. Sept. 25-27 at the Holiday Inn Patriot in Williamsburg, VA. Contact: Purcell Brown (purcellb777@sbcglobal.net) (937-754-1848).

Brady AB, Camp Hakata, Japan, veterans of all services, NSA, and civilians of all eras. Sept. 10-14 in Helen, GA. Contact: Tom or Marianne Morfoot (770-957-1085) (mm30248@earthlink.net).

F-15 personnel. July 27-29 at the Hope Hotel in Fairborn, OH. Contact: Donna Friedman (919-618-0621) (donnafriedman@nc.rr.com).

Laredo AFB, IPs and permanent party officers. Sept. 10-12 in Reno, NV. Contact: Don Hunt (239-281-5022) (donevyhunt@att.net).

Pilot Classes 52-F/G/H. Oct. 22-25 at the Bourbon Orleans Hotel in New Orleans. Contact: Jack Gilliland (850-837-9223) (k2f84@yahoo.com).

UPT 73-01, Williams AFB, AZ. Oct. 1-5 in Healdsburg, CA. **Contact:** Grant Adams, 516 St. Vincent Ln., Foster City, CA 94404 (650-570-2292) (adamsgo@comcast.net).

USAF AEW&C "Connie." Aug. 2-5 in Colorado Springs, CO. **Contact:** Jack Kerr (303-452-9072) (jackr_ker@msn. com).

USAF Security Service, Misawa AB, Japan. July 19-22 at the Millennium Hotel in St. Louis. Contact: Terry Cullivan (217-364-9112) (tlopi@aol.com).

E-mail unit reunion notices four months ahead of the event to re-unions@afa.org, or mail notices to "Re-unions," 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.



Your competitors are here selling to YOUR customers!

WHY AREN'T YOU?

THE ANNUAL TECHNOLOGY EXPOSITIONS OF THE AIR FORCE ASSOCIATION

AIR & SPACE CONFERENCE

September 17-19, 2012 - Washington, DC

AIR WARFARE SYMPOSIUM

February 21-22, 2013 - Orlando, FL



For more information contact:

DENNIS SHARLAND, CEM

Manager, Industry Relations & Expositions (703) 247-5838 | dsharland@afa.org